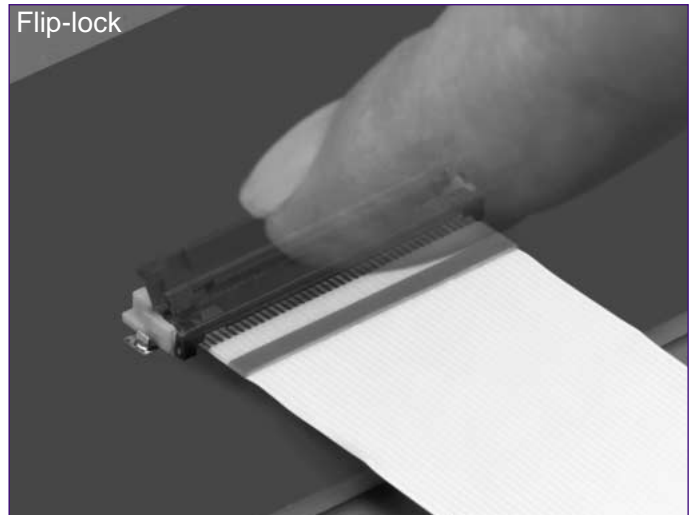
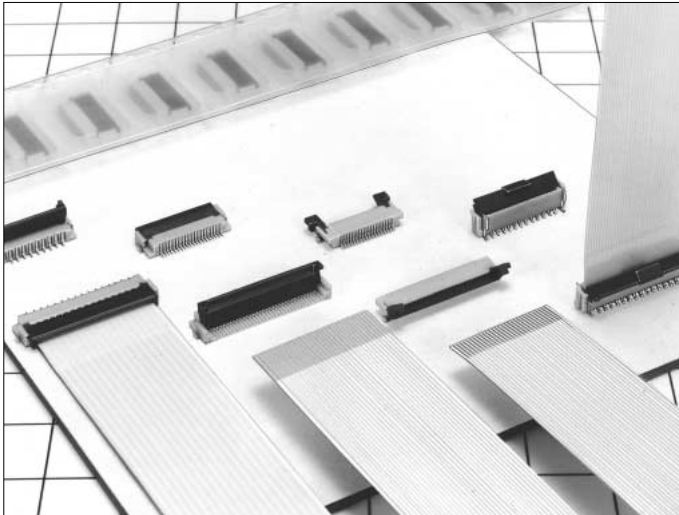


# 0.5mm and 1mm Pitch Connectors For FPC/FFC

## FH12 Series



### ■ Features

#### 1. Ease of Use and Space Savings

Only one finger or 6.9N (Newtons) of force is required to lock Hirose's rotational actuator (flip-lock) as compared to using 2 fingers and 39.2N to close a FFC/FPC connector from our competition.

The Flip-Lock design also allows customers to place 2 or more connectors side by side as there is no need to waste additional board space for a side latch.

#### 2. Strengthened Lock Lever

The standard Flip-Lock requires only 2.0mm height above the board. A strengthened lock lever is available which only requires an additional 0.4mm.

#### 3. Supports Thin FPC (0.18mm)

Hirose does not require double-sided FPC to have any additional strengthening plate or stiffener and can therefore support a thickness of as little as 0.18mm +/- 0.05.

#### 4. Hirose Ensures Reliability

Hirose's patented half tuning fork contacts maintain the required normal force without relying on the connector housing. With our competitor's conventional products the housing walls support the contact force, which does not provide for long-term reliability.

#### 5. Prevention of Solder Bridge

Excess solder cavity absorbs excessive solder and avoids solder bridging.

#### 6. Three different assembly types

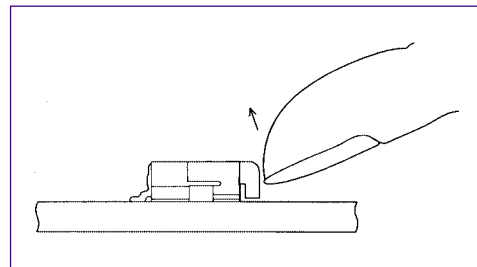
FH12 is offered in Top & Bottom Contact and Vertical Mount and offered in both a 0.5mm contact pitch as well as a 1.0mm contact pitch (bottom contact only).

### ■ Applications

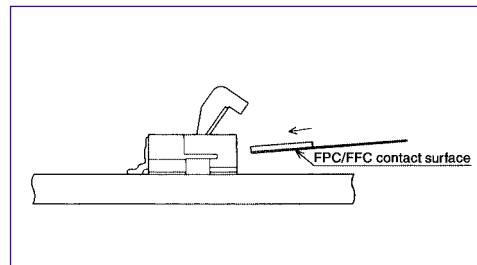
Notebook computers, printers, PDAs, digital cameras and other compact devices for interconnecting the main circuit board with the LCD, HDD or other device.

#### Rotating One-touch Mechanism

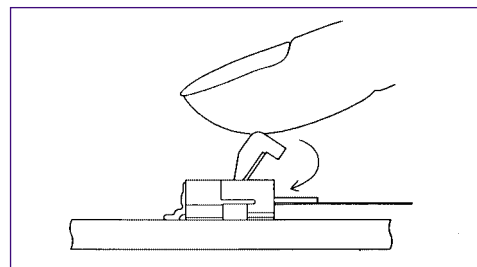
①



②



③



## Product Specifications

|        |                         |                                                                      |                                                                    |
|--------|-------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------|
| Rating | Current rating: 0.4A DC | Operating Temperature Range: -40 to +70°C (Note 1)                   | Storage Temperature Range: -10 to +50°C (Note 2)                   |
|        | Voltage rating: 50V AC  | Operating Humidity Range: Relative humidity, 90% max.<br>(Not dewed) | Storage Humidity Range: Relative humidity, 90% max.<br>(Not dewed) |

|                |                                   |                                  |
|----------------|-----------------------------------|----------------------------------|
| Applicable FPC | t=0.3±0.05 Solder plating(Note 3) | t=0.18 ± 0.05 for FH12F-*S-0.5SH |
|----------------|-----------------------------------|----------------------------------|

| Item                                 | Specification                                                                                                                   | Conditions                                                                                                                                |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Insulation resistance             | 500M ohms minimum                                                                                                               | 100V DC                                                                                                                                   |
| 2. Withstanding voltage              | No flashover or insulation breakdown.                                                                                           | 150V AC/1 minute                                                                                                                          |
| 3. Contact resistance                | 50m ohms maximum                                                                                                                | 1mA                                                                                                                                       |
| 4. Durability (Insertion/withdrawal) | Contact resistance: 50m ohms maximum<br>No damage, cracks, or parts dislocation.                                                | 20 cycles                                                                                                                                 |
| 5. Vibration                         | No electrical discontinuity of 1μs or more<br>Contact resistance: 50m ohms maximum.<br>No damage, cracks, or parts dislocation. | Frequency: 10 to 55 Hz, single amplitude of 0.75 mm,<br>2 hours in each of the 3 directions.                                              |
| 6. Shock                             | No electrical discontinuity of 1μs or more<br>Contact resistance: 50m ohms maximum.<br>No damage, cracks, or parts dislocation. | Acceleration of 490 m/s <sup>2</sup> , 11 ms duration,<br>sine half-wave waveform, 3 cycles in each of the 3 axis.                        |
| 7. Humidity(Steady state)            | Contact resistance: 50m ohms maximum.<br>Insulation resistance: 50M ohms maximum.<br>No damage, cracks, or parts dislocation.   | 96 hours at temperature of 40°C and humidity of 90% to 95%                                                                                |
| 8. Temperature Cycle                 | Contact resistance: 50m ohms maximum.<br>Insulation resistance: 50M ohms maximum.<br>No damage, cracks, or parts dislocation.   | 5 cycles under conditions as follows;<br>Temperature: -40°C → 15 to 35°C → 85°C → 15 to 35°C,<br>Time: 30 → 5 max. → 30 → 5 max.(minutes) |
| 9. Resistance to Soldering heat      | No deformation of components affecting performance.                                                                             | Reflow: At the recommended temperature profile<br>Manual soldering: 350±5°C for 3 seconds                                                 |

Note 1: Includes temperature rise caused by current flow.

Note 2: The term "storage" refers to products stored for long period of time prior to mounting and use. Operating Temperature Range and Humidity range covers nonconducting condition of installed connectors in storage, shipment or during transportation.

Note 3: When FPC is gold plated, the connector contacts should be also gold plated: Select the (05) specification.

## Material

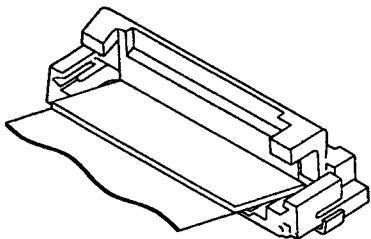
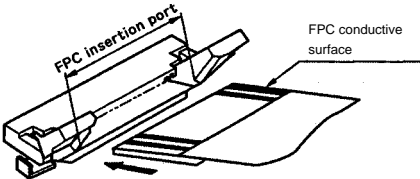
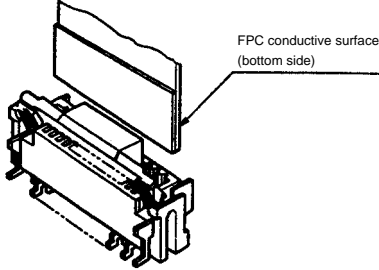
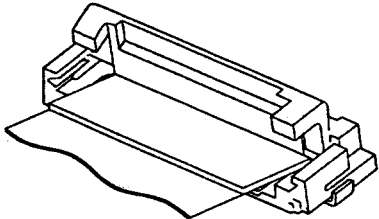
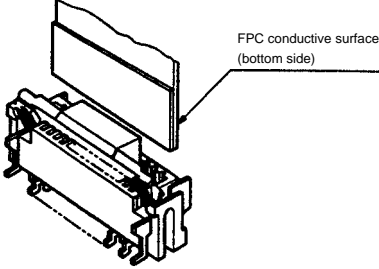
| Part           | Material        | Finish             | Remarks |
|----------------|-----------------|--------------------|---------|
| Insulator      | Polyamide       | Color : Beige      | UL94V-0 |
|                | PPS             | Color : Deep brown |         |
| Contact        | Phosphor bronze | Solder plating     | _____   |
| Macal Fittings | Brass           | Solder plating     | _____   |

## Ordering Information

**FH12**   **A** - **10** (**4**) - **S** **A** - **0.5** **SH** (**05**)  
①   ②   ③   ④   ⑤   ⑥   ⑦   ⑧   ⑨

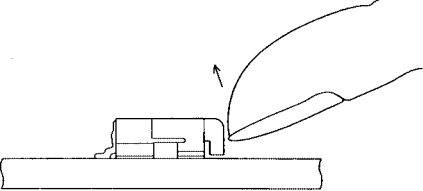
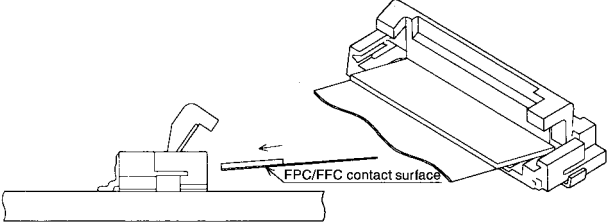
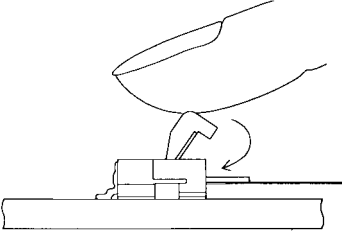
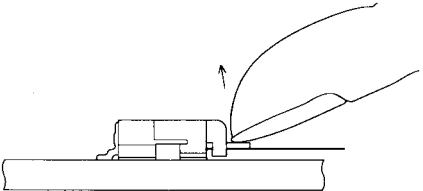
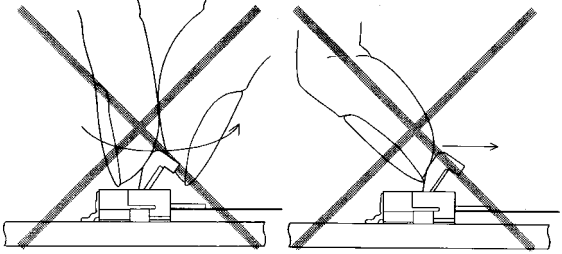
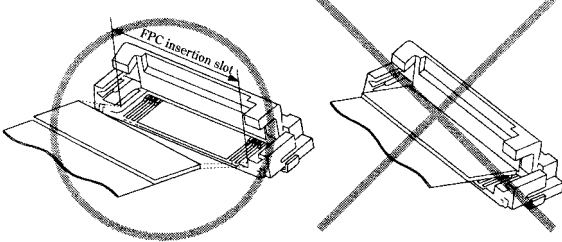
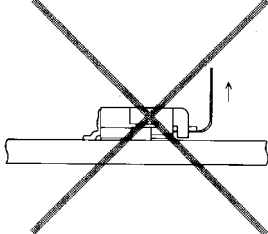
|                                                                                                                                    |                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| ① Series Name : FH12                                                                                                               | ⑤ Contact alignment: Single                                                            |
| ② Blank : standard type<br>A : Top contact type<br>S : Type with strengthened lock lever<br>F : Type with 0.18mm FPC End Thickness | ⑥ Eccentric direction:<br>Blank : standard type<br>A : Eccentric type                  |
| ③ Standard type : Number of contacts<br>Eccentric type : Number of contacts in 0.5mm housing                                       | ⑦ Contacts Pitch : 0.5mm, 1mm                                                          |
| ④ Standard type : Blank<br>Eccentric type : Number of contacts                                                                     | ⑧ Contact type<br>SH : SMT horizontal mounting type<br>SV : SMT vertical mounting type |
|                                                                                                                                    | ⑨ Plating specification<br>No symbol: Solder plating<br>(05): Gold plating             |

## ◆ Series Configuration

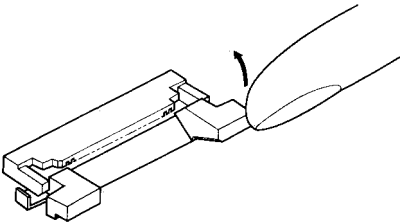
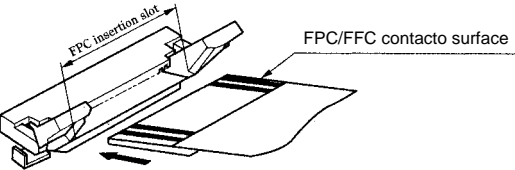
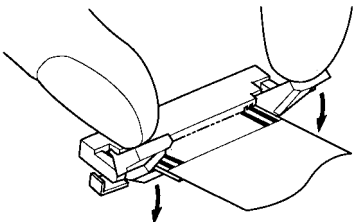
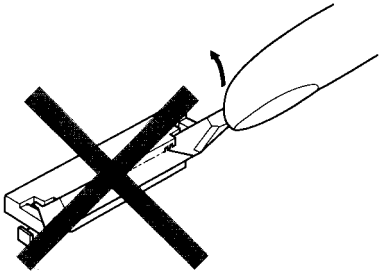
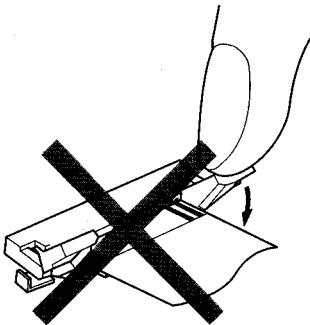
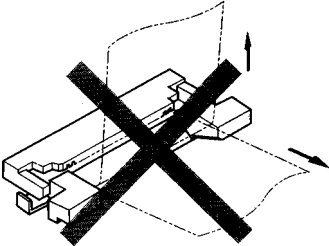
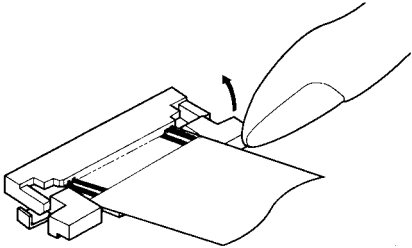
| Pitch | Bottom Contact Type                                                                                                                                                                                                                                                                                                              | Top Contact Type                                                                      | Vertical mounting Type                                                                     |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| 0.5mm |  <p><b>FH12- ** S-0.5SH</b> <b>P.12</b></p> <p>Number of contacts 6, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 24, 25, 26, 28, 30, 32, 33, 34, 36, 40, 45, 50, 53</p>                                                                     |     |         |
|       | <p>Type with Strengthened Lock Lever</p>                                                                                                                                                                                                                                                                                         |                                                                                       |                                                                                            |
|       | <p><b>FH12S- ** S-0.5SH</b> <b>P.13</b></p> <p>Number of contacts 30, 40, 45, 50, 53</p>                                                                                                                                                                                                                                         |                                                                                       |                                                                                            |
|       | <p>Type with 0.18mm FPC End Thickness</p> <p><b>FH12F- ** S-0.5SH</b> <b>P.14</b></p> <p>Number of contacts 6, 10, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 28, 30, 32, (33), 34, 36, 40</p>                                                                                                                                      |                                                                                       |                                                                                            |
| 1mm   |  <p>Standard <b>FH12- ** S-1SH</b> <b>P.18</b></p> <p>Eccentric <b>FH12- ** (**) S-1SH</b></p> <p>Standard</p> <p>Number of contacts 5, 6, 7, 8, 9, 11, 16, 22, 26</p> <p>Eccentric</p> <p>Number of contacts 4, 6, 8, 10, 11, 14, 19, 24</p> |  | <p><b>FH12- ** S-1SV</b> <b>P.19</b></p> <p>Number of contacts 6, 7, 8, 16, 20, 22, 24</p> |

## ◆ Connector Operating Instructions & Precautions

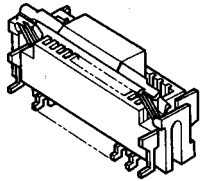
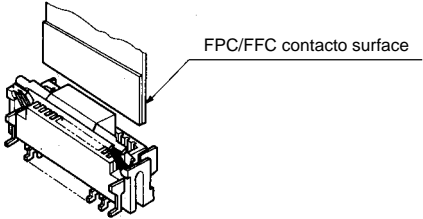
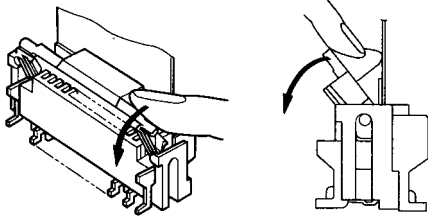
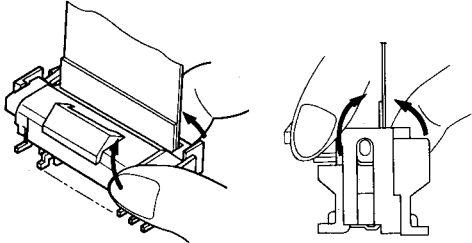
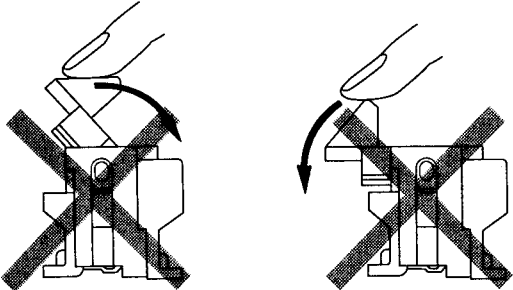
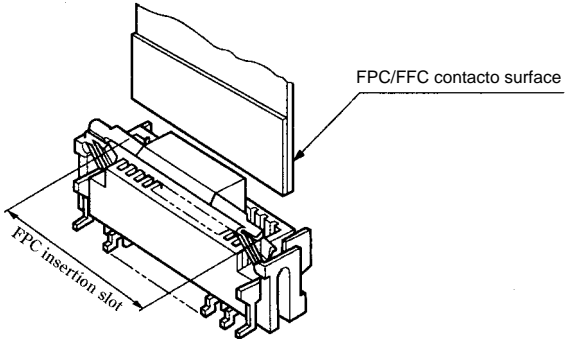
### ● Bottom Contact Type (common for 0.5mm/1mm)

| Operating Instruction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Precautions for Use                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1. FPC/FFC Insertion</b></p> <p>① Lift up the lock lever.<br/>(The lock is released.)<br/>The lock lever can be simply operated by flicking it up with the fingernail of the thumb or forefinger.</p>  <p>② Insert the FPC with the conductive surface facing down.<br/>Insert the FPC so that it is perpendicular with respect to the connector.</p>  <p>③ Press down the lock lever<br/>When the FPC is partially inserted or there is an extreme insertion offset, the lock level will engage poorly or not at all. Should this happen, remove the FPC with the removal method of 2-(1) and perform the operation of 1-(1) again.</p>  <p><b>2. FPC/FFC Removal</b></p> <p>① Lift up the lock lever and pull out the FPC after the lock is released.</p>  | <p>① Avoid grasping the lock lever with your fingers or hooking the lever (especially with your fingernail).<br/>The part is small and thin and could be damaged.</p>  <p>② Please ensure that the FPC is properly inserted into the connector insertion slot. Failing to insert the FPC properly could cause FPC breakage and conduction faults.</p>  <p>③ Due to the structure of the connectors, they do not have strong resistance to upward pulling; therefore, support the FPC when a pulling force is applied to it.</p>  |

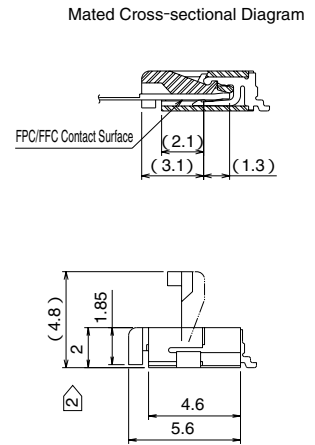
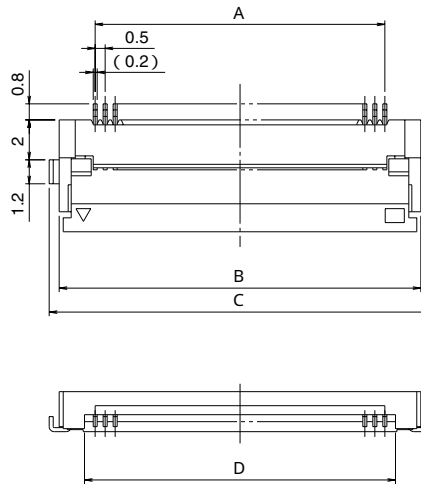
## ● Top Contact Type

| Operating Instruction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Precautions for Use                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1. FPC/FFC Insertion</b></p> <p>① Lift up the lock lever.<br/>(The lock is released.)<br/>The lock lever can be simply operated by flicking it up with the fingernail of the thumb or forefinger.</p>  <p>② Insert the FPC with the conductive surface facing up. Fully insert the FPC into the insertion slot of the connector.</p>  <p>③ Firmly press down the lock lever on both sides.<br/>The design is such that pressing only on one side will not engage the lock, but incomplete pressing will result in locking failure.</p>  | <p>① Avoid forcing the lock lever upward when the FPC is not inserted. The part is small and thin and could be damaged.</p>  <p>② Avoid operation with only one side of the lock lever at the time of locking. The use of only one side will cause a locking fault.</p>  <p>③ Avoid forced pulling of the FPC. Forced pulling will cause the FPC to become disconnected or damaged.</p>  |
| <p><b>2. FPC/FFC Removal</b></p> <p>① Lift up the lock lever and pull out the FPC after the lock is released.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

## ● Vertical Mounting Type

| Operating Instruction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Precautions for Use                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1. FPC/FFC Insertion</b></p> <p>① Check that the lock lever is standing upright. If the lock lever has fallen to the side, stand it upright.</p>  <p>② Insert the FPC vertically with the conductive side (i.e., wire connection portion) of the FPC facing away from the lock lever. Fully insert the FPC into the insertion slot.</p>  <p>③ Press down the upright standing lock lever in the direction of rotation.</p>  <p><b>2. FPC/FFC Removal</b></p> <p>① Press the lock lever upward and pull out the FPC after the lock is released. This operation is easily done by inserting your thumb and forefinger.</p>  | <p>① Avoid grasping and twisting the lock lever with your fingers or forcefully pressing the lock lever without a cable inserted.</p>  <p>② Please ensure that the FPC is fully inserted into the connector insertion slot. Failing to insert the FPC properly could cause FPC breakage and conduction faults.</p>  |

## 0.5mm Pitch Bottom Contact Type



Unit:mm

| Part Number           | CL No.     | Number of Contacts | A    | B    | C    | D     |
|-----------------------|------------|--------------------|------|------|------|-------|
| FH12- 6S-0.5SH        | 586-0582-5 | 6                  | 2.5  | 6.1  | 7.1  | 3.57  |
| FH12-10S-0.5SH        | 586-0522-3 | 10                 | 4.5  | 8.1  | 9.1  | 5.57  |
| FH12-11S-0.5SH        | 586-0600-5 | 11                 | 5    | 8.6  | 9.6  | 6.07  |
| FH12-12S-0.5SH        | 586-0704-0 | 12                 | 5.5  | 9.1  | 10.1 | 6.57  |
| FH12-13S-0.5SH        | 586-0549-0 | 13                 | 6    | 9.6  | 10.6 | 7.07  |
| FH12-14S-0.5SH        | 586-0533-0 | 14                 | 6.5  | 10.1 | 11.1 | 7.57  |
| FH12-15S-0.5SH        | 586-0523-6 | 15                 | 7    | 10.6 | 11.6 | 8.07  |
| FH12-16S-0.5SH        | 586-0531-4 | 16                 | 7.5  | 11.1 | 12.1 | 8.57  |
| FH12-17S-0.5SH        | 586-0606-1 | 17                 | 8    | 11.6 | 12.6 | 9.07  |
| FH12-18S-0.5SH        | 586-0530-1 | 18                 | 8.5  | 12.1 | 13.1 | 9.57  |
| FH12-19S-0.5SH        | 586-0534-2 | 19                 | 9    | 12.6 | 13.6 | 10.07 |
| FH12-20S-0.5SH        | 586-0524-9 | 20                 | 9.5  | 13.1 | 14.1 | 10.57 |
| FH12-22S-0.5SH        | 586-0532-7 | 22                 | 10.5 | 14.1 | 15.1 | 11.57 |
| FH12-24S-0.5SH        | 586-0521-0 | 24                 | 11.5 | 15.1 | 16.1 | 12.57 |
| FH12-25S-0.5SH        | 586-0692-3 | 25                 | 12   | 15.6 | 16.6 | 13.07 |
| FH12-26S-0.5SH        | 586-0576-2 | 26                 | 12.5 | 16.1 | 17.1 | 13.57 |
| FH12-28S-0.5SH        | 586-0612-4 | 28                 | 13.5 | 17.1 | 18.1 | 14.57 |
| Note ② FH12-30S-0.5SH | 586-0525-1 | 30                 | 14.5 | 18.1 | 19.1 | 15.57 |
| FH12-32S-0.5SH        | 586-0681-7 | 32                 | 15.5 | 19.1 | 20.1 | 16.57 |
| FH12-33S-0.5SH        | 586-0520-8 | 33                 | 16   | 19.6 | 20.6 | 17.07 |
| FH12-34S-0.5SH        | 586-0617-8 | 34                 | 16.5 | 20.1 | 21.1 | 17.57 |
| FH12-36S-0.5SH        | 586-0526-4 | 36                 | 17.5 | 21.1 | 22.1 | 18.57 |
| Note ② FH12-40S-0.5SH | 586-0527-7 | 40                 | 19.5 | 23.1 | 24.1 | 20.57 |
| Note ② FH12-45S-0.5SH | 586-0528-0 | 45                 | 22   | 25.6 | 26.6 | 23.07 |
| Note ② FH12-50S-0.5SH | 586-0529-2 | 50                 | 24.5 | 28.1 | 29.1 | 25.57 |
| Note ② FH12-53S-0.5SH | 586-0595-7 | 53                 | 26   | 29.6 | 30.6 | 27.07 |

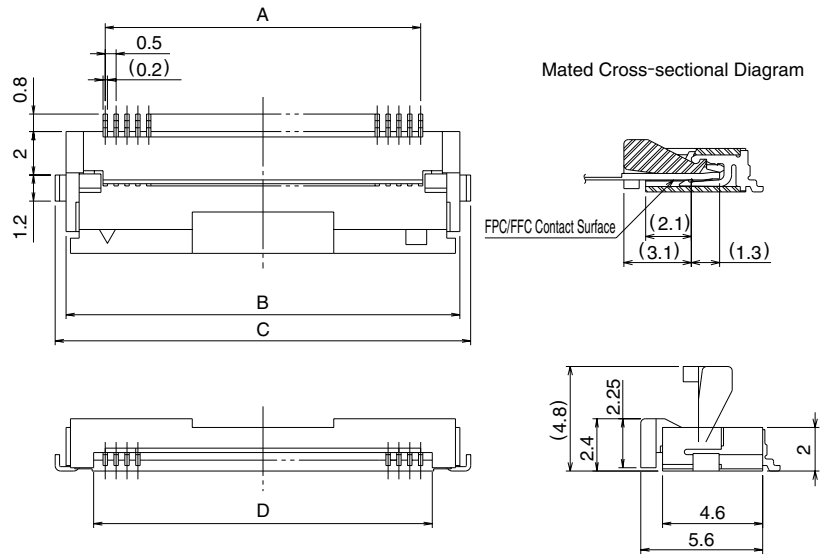
Note 1 : Products are packaged in embossed tape. (2,000 pcs./reel)  
 Please order in multiples of 2,000.

Note ② : If there is no problem with the connector height, we recommend the type with the strengthened lock lever (FH12S-\*S-0.5SH).

Standard type connector height: 2 mm

Connector height of type with strengthened lock lever: 2.4 mm

## ■0.5mm Pitch Bottom Contact Type with Strengthened Lock Lever



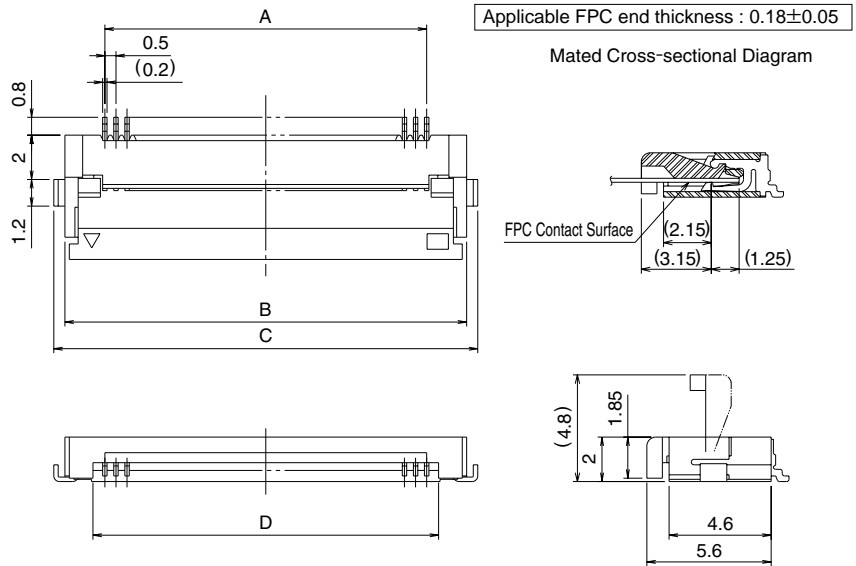
Unit:mm

| Part Number     | CL No.     | Number of Contacts | A    | B    | C    | D     |
|-----------------|------------|--------------------|------|------|------|-------|
| FH12S-30S-0.5SH | 586-0667-6 | 30                 | 14.5 | 18.1 | 19.1 | 15.57 |
| FH12S-40S-0.5SH | 586-0640-0 | 40                 | 19.5 | 23.1 | 24.1 | 20.57 |
| FH12S-45S-0.5SH | 586-0665-0 | 45                 | 22.0 | 25.6 | 26.6 | 23.07 |
| FH12S-50S-0.5SH | 586-0642-5 | 50                 | 24.5 | 28.1 | 29.1 | 25.57 |
| FH12S-53S-0.5SH | 586-0691-0 | 53                 | 26.0 | 29.6 | 30.6 | 27.07 |

Note: Products are packaged in embossed tape. (2,000 pcs./reel)  
Please order in multiples of 2,000.



## ■0.5mm Pitch Bottom Contact Type with 0.18mm FPC End Thickness

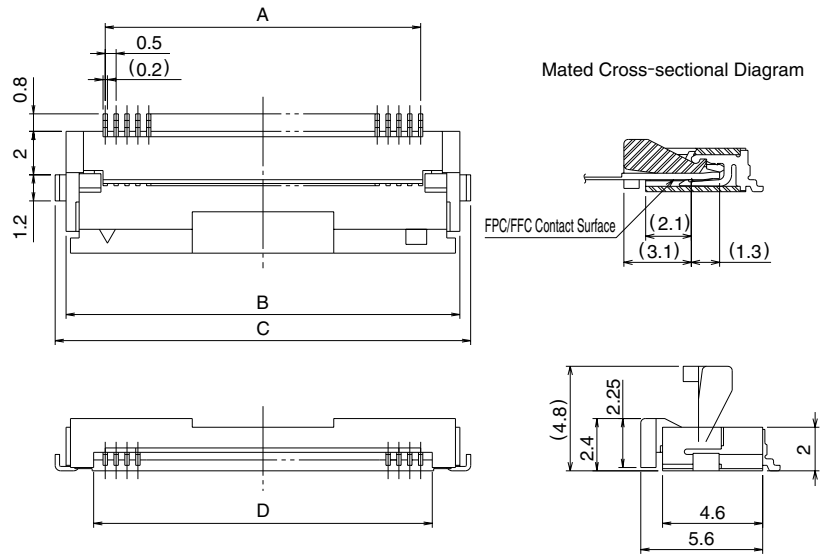


Unit:mm

| Part Number     | CL No.     | Number of Contacts | A    | B    | C    | D     |
|-----------------|------------|--------------------|------|------|------|-------|
| FH12F- 6S-0.5SH | 586-0672-6 | 6                  | 2.5  | 6.1  | 7.1  | 3.57  |
| FH12F-10S-0.5SH | 586-0709-4 | 10                 | 4.5  | 8.1  | 9.1  | 5.57  |
| FH12F-12S-0.5SH | 586-0653-1 | 12                 | 5.5  | 9.1  | 10.1 | 6.57  |
| FH12F-13S-0.5SH | 586-0629-7 | 13                 | 6.0  | 9.6  | 10.6 | 7.07  |
| FH12F-14S-0.5SH | 586-0655-7 | 14                 | 6.5  | 10.1 | 11.1 | 7.57  |
| FH12F-15S-0.5SH | 586-0680-4 | 15                 | 7.0  | 10.6 | 11.6 | 8.07  |
| FH12F-16S-0.5SH | 586-0673-9 | 16                 | 7.5  | 11.1 | 12.1 | 8.57  |
| FH12F-18S-0.5SH | 586-0626-9 | 18                 | 8.5  | 12.1 | 13.1 | 9.57  |
| FH12F-20S-0.5SH | 586-0636-2 | 20                 | 9.5  | 13.1 | 14.1 | 10.57 |
| FH12F-22S-0.5SH | 586-0630-6 | 22                 | 10.5 | 14.1 | 15.1 | 11.57 |
| FH12F-24S-0.5SH | 586-0632-1 | 24                 | 11.5 | 15.1 | 16.1 | 12.57 |
| FH12F-26S-0.5SH | 586-0627-1 | 26                 | 12.5 | 16.1 | 17.1 | 13.57 |
| FH12F-28S-0.5SH | 586-0643-8 | 28                 | 13.5 | 17.1 | 18.1 | 14.57 |
| FH12F-30S-0.5SH | 586-0628-4 | 30                 | 14.5 | 18.1 | 19.1 | 15.57 |
| FH12F-32S-0.5SH | 586-0705-3 | 32                 | 15.5 | 19.1 | 20.1 | 16.57 |
| FH12F-33S-0.5SH | —          | 33                 | 16.0 | 19.6 | 20.6 | 17.07 |
| FH12F-34S-0.5SH | 586-0677-0 | 34                 | 16.5 | 20.1 | 21.1 | 17.57 |
| FH12F-36S-0.5SH | 586-0656-0 | 36                 | 17.5 | 21.1 | 22.1 | 18.57 |
| FH12F-40S-0.5SH | 586-0635-0 | 40                 | 19.5 | 23.1 | 24.1 | 20.57 |

Note: Products are packaged in embossed tape. (2,000 pcs./reel)  
Please order in multiples of 2,000.

## ■0.5mm Pitch Top Contact Type



Unit:mm

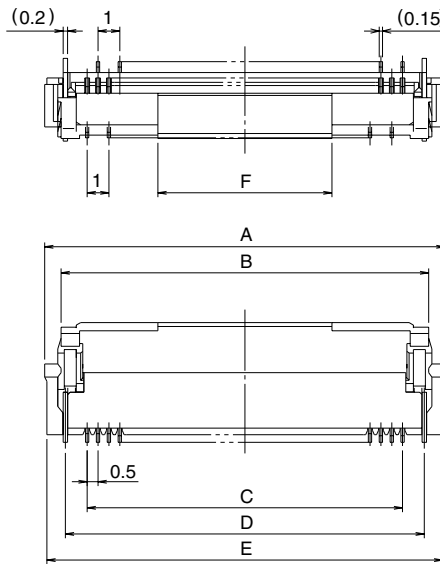
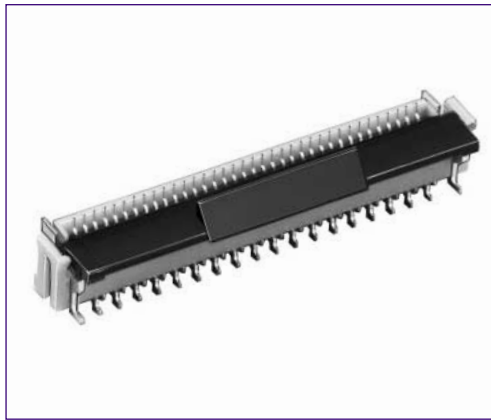
| Part Number     | CL No.     | Number of Contacts | A    | B     | C    | D    | E     |
|-----------------|------------|--------------------|------|-------|------|------|-------|
| FH12A-10S-0.5SH | 586-0550-9 | 10                 | 9.1  | 8.35  | 4.5  | 9.5  | 5.57  |
| FH12A-12S-0.5SH | 586-0696-4 | 12                 | 10.1 | 9.35  | 5.5  | 10.5 | 6.57  |
| FH12A-15S-0.5SH | 586-0551-1 | 15                 | 11.6 | 10.85 | 7.0  | 12.0 | 8.07  |
| FH12A-16S-0.5SH | 586-0552-4 | 16                 | 12.1 | 11.35 | 7.5  | 12.5 | 8.57  |
| FH12A-18S-0.5SH | 586-0553-7 | 18                 | 13.1 | 12.35 | 8.5  | 13.5 | 9.57  |
| FH12A-20S-0.5SH | 586-0554-0 | 20                 | 14.1 | 13.35 | 9.5  | 14.5 | 10.57 |
| FH12A-22S-0.5SH | 586-0686-0 | 22                 | 15.1 | 14.35 | 10.5 | 15.5 | 11.57 |
| FH12A-24S-0.5SH | 586-0555-2 | 24                 | 16.1 | 15.35 | 11.5 | 16.5 | 12.57 |
| FH12A-26S-0.5SH | 586-0663-5 | 26                 | 17.1 | 16.35 | 12.5 | 17.5 | 13.57 |
| FH12A-28S-0.5SH | 586-0725-0 | 28                 | 18.1 | 17.35 | 13.5 | 18.5 | 14.57 |
| FH12A-29S-0.5SH | 586-0585-3 | 29                 | 18.6 | 17.85 | 14.0 | 19.0 | 15.07 |
| FH12A-30S-0.5SH | 586-0556-5 | 30                 | 19.1 | 18.35 | 14.5 | 19.5 | 15.57 |
| FH12A-32S-0.5SH | 586-0687-3 | 32                 | 20.1 | 19.35 | 15.5 | 20.5 | 16.57 |
| FH12A-33S-0.5SH | 586-0570-6 | 33                 | 20.6 | 19.85 | 16.0 | 21.0 | 17.07 |
| FH12A-34S-0.5SH | 586-0670-0 | 34                 | 21.1 | 20.35 | 16.5 | 21.5 | 17.57 |
| FH12A-36S-0.5SH | 586-0662-2 | 36                 | 22.1 | 21.35 | 17.5 | 22.5 | 18.57 |
| FH12A-40S-0.5SH | 586-0557-8 | 40                 | 24.1 | 23.35 | 19.5 | 24.5 | 20.57 |
| FH12A-42S-0.5SH | 586-0698-0 | 42                 | 25.1 | 24.35 | 20.5 | 25.5 | 21.57 |
| FH12A-45S-0.5SH | 586-0558-0 | 45                 | 26.6 | 25.85 | 22.0 | 27.0 | 23.07 |
| FH12A-50S-0.5SH | 586-0559-3 | 50                 | 29.1 | 28.35 | 24.5 | 29.5 | 25.57 |

Note 1 : Products are packaged in embossed tape. (2,000 pcs./reel)

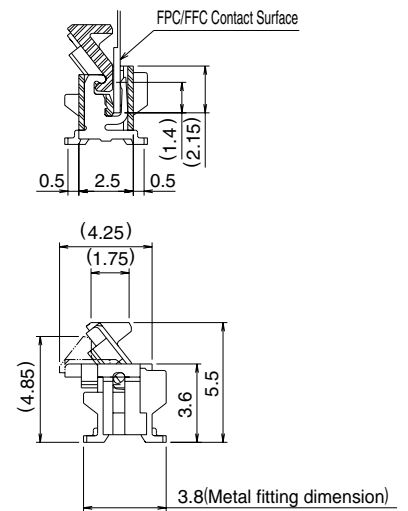
Please order in multiples of 2,000.

Note ②: The design is such that the FPC/FFC protrudes on an upward angle so that other parts can be mounted beneath the PFC/FFC. In view of this, please take note of the gap at the top surface of the connector.

## ■0.5mm Pitch Vertical mounting Type



Mated Cross-sectional Diagram



Unit:mm

| Part Number    | CL No.     | Number of Contacts | A    | B    | C    | D    | E    | F |
|----------------|------------|--------------------|------|------|------|------|------|---|
| FH12-10S-0.5SV | 586-0560-2 | 10                 | 8.4  | 6.9  | 4.5  | 6.5  | 8.2  | 4 |
| FH12-12S-0.5SV | 586-0615-2 | 12                 | 9.4  | 7.9  | 5.5  | 7.5  | 9.2  | 4 |
| FH12-13S-0.5SV | 586-0575-0 | 13                 | 9.9  | 8.4  | 6.0  | 8.0  | 9.7  | 4 |
| FH12-15S-0.5SV | 586-0561-5 | 15                 | 10.9 | 9.4  | 7.0  | 9.0  | 10.7 | 4 |
| FH12-16S-0.5SV | 586-0572-1 | 16                 | 11.4 | 9.9  | 7.5  | 9.5  | 11.2 | 4 |
| FH12-17S-0.5SV | 586-0601-8 | 17                 | 11.9 | 10.4 | 8.0  | 10.0 | 11.7 | 4 |
| FH12-18S-0.5SV | 586-0573-4 | 18                 | 12.4 | 10.9 | 8.5  | 10.5 | 12.2 | 4 |
| FH12-20S-0.5SV | 586-0562-8 | 20                 | 13.4 | 11.9 | 9.5  | 11.5 | 13.2 | 4 |
| FH12-22S-0.5SV | 586-0589-4 | 22                 | 14.4 | 12.9 | 10.5 | 12.5 | 14.2 | 8 |
| FH12-24S-0.5SV | 586-0563-0 | 24                 | 15.4 | 13.9 | 11.5 | 13.5 | 15.2 | 8 |
| FH12-26S-0.5SV | 586-0664-8 | 26                 | 16.4 | 14.9 | 12.5 | 14.5 | 16.2 | 8 |
| FH12-30S-0.5SV | 586-0564-3 | 30                 | 18.4 | 16.9 | 14.5 | 16.5 | 18.2 | 8 |
| FH12-32S-0.5SV | 586-0699-2 | 32                 | 19.4 | 17.9 | 15.5 | 17.5 | 19.2 | 8 |
| FH12-33S-0.5SV | 586-0565-6 | 33                 | 19.9 | 18.4 | 16.0 | 18.0 | 19.7 | 8 |
| FH12-34S-0.5SV | 586-0706-6 | 34                 | 20.4 | 18.9 | 16.5 | 18.5 | 20.2 | 8 |
| FH12-36S-0.5SV | 586-0641-2 | 36                 | 21.4 | 19.9 | 17.5 | 19.5 | 21.2 | 8 |
| FH12-40S-0.5SV | 586-0566-9 | 40                 | 23.4 | 21.9 | 19.5 | 21.5 | 23.2 | 8 |
| FH12-45S-0.5SV | 586-0567-1 | 45                 | 25.9 | 24.4 | 22.0 | 24.0 | 25.7 | 8 |
| FH12-49S-0.5SV | 586-0602-0 | 49                 | 27.9 | 26.4 | 24.0 | 26.0 | 27.7 | 8 |
| FH12-50S-0.5SV | 586-0568-4 | 50                 | 28.4 | 26.9 | 24.5 | 26.5 | 28.2 | 8 |

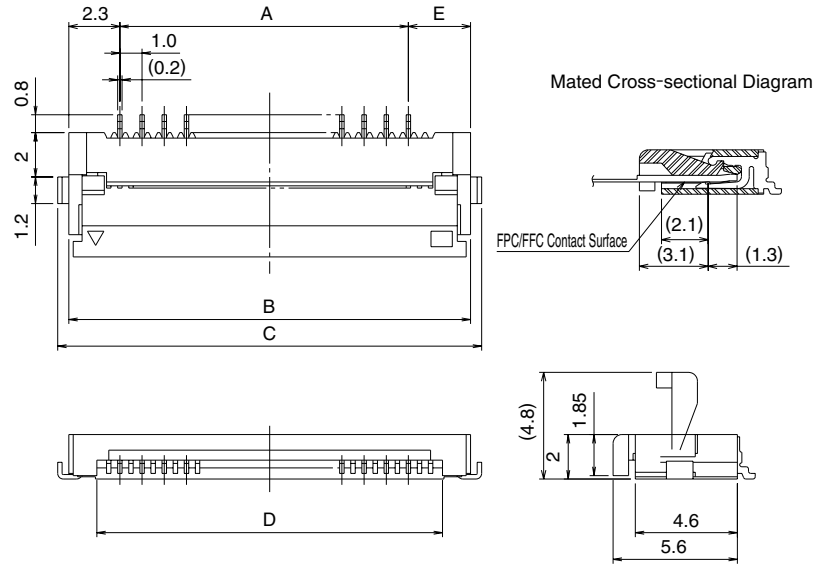
Note 1 : Products are packaged in embossed tape. (1,000 pcs./reel)  
Please order in multiples of 1,000.

# ◆ Recommended FPC/FFC dimensions and Land/Metal Mask dimensions

## ● 0.5mm Pitch Product

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | FPC/FFC dimensions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Land / Metal Mask dimensions                     |                    |                              |             |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|--------------------|------------------------------|-------------|--------------------------------------------|-----------|------------------------------------------------------|---|--------------------------------------------------|-----------|---|--------------------|--------------------|--|--------------------|--------------------|--|---|-----|-----|-----|------|------|------|-----|-----|-----|------|------|------|-----|-----|-----|------|------|------|-----|-----|-----|------|------|------|-----|-----|-----|------|------|------|-----|-----|-----|------|------|------|-----|-----|-----|------|------|------|-----|-----|------|------|------|------|-----|------|------|------|------|------|-----|------|------|------|------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----|------|------|----|-----|-----------|----|------|-----------|----|------|--------------------|----|------|--------------------|----|------|------|-----|------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----|-----|-----|----|------|------|----|-----|-----------|----|------|------|-----------|-----|-----|----|------|--------------------|----|-----|-----|--------------------|------|------|----|------|-----|-----|------|------|----|------|------|------|------|------|-----|------|-----|----|------|------|------|------|------|-----|------|------|----|------|------|------|------|------|-----|------|-----|----|------|------|------|--|----|-----|------|-----|----|------|------|------|--|----|-----|------|-----|----|------|------|------|--|----|-----|------|-----|----|------|------|------|--|----|-----|------|-----|----|------|------|------|--|----|-----|------|------|----|------|------|------|--|----|-----|------|------|----|------|------|------|--|----|-----|------|------|----|------|------|------|--|----|-----|------|------|----|------|------|------|--|----|------|------|------|----|------|------|------|--|----|------|------|------|----|------|------|------|--|
| <b>0.5mm Pitch Bottom Contact Type</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>Recommended metal mask thickness : t=0.15</p> |                    |                              |             |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <table border="1"> <tr> <th>Product Type</th> <th>C Dimension</th> </tr> <tr> <td>Types other than those below</td> <td>0.3±0.05min</td> </tr> <tr> <td>Types with an FPC end thickness of 0.18 mm</td> <td>0.18±0.05</td> </tr> <tr> <td colspan="2">Stiffener thickness should be 0.188 mm (7.5 mil) min</td> </tr> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Product Type                                     | C Dimension        | Types other than those below | 0.3±0.05min | Types with an FPC end thickness of 0.18 mm | 0.18±0.05 | Stiffener thickness should be 0.188 mm (7.5 mil) min |   | <p>Recommended metal mask thickness : t=0.15</p> |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Product Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | C Dimension                                      |                    |                              |             |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| Types other than those below                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.3±0.05min                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                  |                    |                              |             |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| Types with an FPC end thickness of 0.18 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.18±0.05                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                  |                    |                              |             |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| Stiffener thickness should be 0.188 mm (7.5 mil) min                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                  |                    |                              |             |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| <table border="1"> <thead> <tr> <th colspan="6">Unit: mm</th> </tr> <tr> <th>Dimension</th> <th>A</th> <th>B</th> <th>Dimension</th> <th>A</th> <th>B</th> </tr> <tr> <th>Number of Contacts</th> <th></th> <th></th> <th>Number of Contacts</th> <th></th> <th></th> </tr> </thead> <tbody> <tr><td>6</td><td>2.5</td><td>3.5</td><td>25</td><td>12.0</td><td>13.0</td></tr> <tr><td>10</td><td>4.5</td><td>5.5</td><td>26</td><td>12.5</td><td>13.5</td></tr> <tr><td>11</td><td>5.0</td><td>6.0</td><td>28</td><td>13.5</td><td>14.5</td></tr> <tr><td>12</td><td>5.5</td><td>6.5</td><td>29</td><td>14.0</td><td>15.0</td></tr> <tr><td>13</td><td>6.0</td><td>7.0</td><td>30</td><td>14.5</td><td>15.5</td></tr> <tr><td>14</td><td>6.5</td><td>7.5</td><td>32</td><td>15.5</td><td>16.5</td></tr> <tr><td>15</td><td>7.0</td><td>8.0</td><td>33</td><td>16.0</td><td>17.0</td></tr> <tr><td>16</td><td>7.5</td><td>8.5</td><td>34</td><td>16.5</td><td>17.5</td></tr> <tr><td>17</td><td>8.0</td><td>9.0</td><td>36</td><td>17.5</td><td>18.5</td></tr> <tr><td>18</td><td>8.5</td><td>9.5</td><td>40</td><td>19.5</td><td>20.5</td></tr> <tr><td>19</td><td>9.0</td><td>10.0</td><td>42</td><td>20.5</td><td>21.5</td></tr> <tr><td>20</td><td>9.5</td><td>10.5</td><td>45</td><td>22.0</td><td>23.0</td></tr> <tr><td>22</td><td>10.5</td><td>11.5</td><td>50</td><td>24.5</td><td>25.5</td></tr> <tr><td>24</td><td>11.5</td><td>12.5</td><td>53</td><td>26.0</td><td>27.0</td></tr> </tbody> </table> | Unit: mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                  |                    |                              |             |                                            | Dimension | A                                                    | B | Dimension                                        | A         | B | Number of Contacts |                    |  | Number of Contacts |                    |  | 6 | 2.5 | 3.5 | 25  | 12.0 | 13.0 | 10   | 4.5 | 5.5 | 26  | 12.5 | 13.5 | 11   | 5.0 | 6.0 | 28  | 13.5 | 14.5 | 12   | 5.5 | 6.5 | 29  | 14.0 | 15.0 | 13   | 6.0 | 7.0 | 30  | 14.5 | 15.5 | 14   | 6.5 | 7.5 | 32  | 15.5 | 16.5 | 15   | 7.0 | 8.0 | 33  | 16.0 | 17.0 | 16   | 7.5 | 8.5 | 34   | 16.5 | 17.5 | 17   | 8.0 | 9.0  | 36   | 17.5 | 18.5 | 18   | 8.5 | 9.5  | 40   | 19.5 | 20.5 | 19   | 9.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 10.0     | 42 | 20.5 | 21.5 | 20 | 9.5 | 10.5      | 45 | 22.0 | 23.0      | 22 | 10.5 | 11.5               | 50 | 24.5 | 25.5               | 24 | 11.5 | 12.5 | 53  | 26.0 | 27.0 | <table border="1"> <thead> <tr> <th colspan="9">Unit: mm</th> </tr> <tr> <th>Dimension</th> <th>A</th> <th>B</th> <th>C</th> <th>Dimension</th> <th>A</th> <th>B</th> <th>C</th> <th></th> </tr> <tr> <th>Number of Contacts</th> <th></th> <th></th> <th></th> <th>Number of Contacts</th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr><td>6</td><td>2.5</td><td>8.1</td><td>4.5</td><td>25</td><td>12.0</td><td>17.6</td><td>14.0</td><td></td></tr> <tr><td>10</td><td>4.5</td><td>10.1</td><td>6.5</td><td>26</td><td>12.5</td><td>18.1</td><td>14.5</td><td></td></tr> <tr><td>11</td><td>5.0</td><td>10.6</td><td>7.0</td><td>28</td><td>13.5</td><td>19.1</td><td>15.5</td><td></td></tr> <tr><td>12</td><td>5.5</td><td>11.1</td><td>7.5</td><td>29</td><td>14.0</td><td>19.6</td><td>16.0</td><td></td></tr> <tr><td>13</td><td>6.0</td><td>11.6</td><td>8.0</td><td>30</td><td>14.5</td><td>20.1</td><td>16.5</td><td></td></tr> <tr><td>14</td><td>6.5</td><td>12.1</td><td>8.5</td><td>32</td><td>15.5</td><td>21.1</td><td>17.5</td><td></td></tr> <tr><td>15</td><td>7.0</td><td>12.6</td><td>9.0</td><td>33</td><td>16.0</td><td>21.6</td><td>18.0</td><td></td></tr> <tr><td>16</td><td>7.5</td><td>13.1</td><td>9.5</td><td>34</td><td>16.5</td><td>22.1</td><td>18.5</td><td></td></tr> <tr><td>17</td><td>8.0</td><td>13.6</td><td>10.0</td><td>36</td><td>17.5</td><td>23.1</td><td>19.5</td><td></td></tr> <tr><td>18</td><td>8.5</td><td>14.1</td><td>10.5</td><td>40</td><td>19.5</td><td>25.1</td><td>21.5</td><td></td></tr> <tr><td>19</td><td>9.0</td><td>14.6</td><td>11.0</td><td>42</td><td>20.5</td><td>26.1</td><td>22.5</td><td></td></tr> <tr><td>20</td><td>9.5</td><td>15.1</td><td>11.5</td><td>45</td><td>22.0</td><td>27.6</td><td>24.0</td><td></td></tr> <tr><td>22</td><td>10.5</td><td>16.1</td><td>12.5</td><td>50</td><td>24.5</td><td>30.1</td><td>26.5</td><td></td></tr> <tr><td>24</td><td>11.5</td><td>17.1</td><td>13.5</td><td>53</td><td>26.0</td><td>31.6</td><td>28.0</td><td></td></tr> </tbody> </table> | Unit: mm |    |     |     |    |      |      |    |     | Dimension | A  | B    | C    | Dimension | A   | B   | C  |      | Number of Contacts |    |     |     | Number of Contacts |      |      |    |      | 6   | 2.5 | 8.1  | 4.5  | 25 | 12.0 | 17.6 | 14.0 |      | 10   | 4.5 | 10.1 | 6.5 | 26 | 12.5 | 18.1 | 14.5 |      | 11   | 5.0 | 10.6 | 7.0  | 28 | 13.5 | 19.1 | 15.5 |      | 12   | 5.5 | 11.1 | 7.5 | 29 | 14.0 | 19.6 | 16.0 |  | 13 | 6.0 | 11.6 | 8.0 | 30 | 14.5 | 20.1 | 16.5 |  | 14 | 6.5 | 12.1 | 8.5 | 32 | 15.5 | 21.1 | 17.5 |  | 15 | 7.0 | 12.6 | 9.0 | 33 | 16.0 | 21.6 | 18.0 |  | 16 | 7.5 | 13.1 | 9.5 | 34 | 16.5 | 22.1 | 18.5 |  | 17 | 8.0 | 13.6 | 10.0 | 36 | 17.5 | 23.1 | 19.5 |  | 18 | 8.5 | 14.1 | 10.5 | 40 | 19.5 | 25.1 | 21.5 |  | 19 | 9.0 | 14.6 | 11.0 | 42 | 20.5 | 26.1 | 22.5 |  | 20 | 9.5 | 15.1 | 11.5 | 45 | 22.0 | 27.6 | 24.0 |  | 22 | 10.5 | 16.1 | 12.5 | 50 | 24.5 | 30.1 | 26.5 |  | 24 | 11.5 | 17.1 | 13.5 | 53 | 26.0 | 31.6 | 28.0 |  |
| Unit: mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                  |                    |                              |             |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| Dimension                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | B                                                | Dimension          | A                            | B           |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| Number of Contacts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                  | Number of Contacts |                              |             |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3.5                                              | 25                 | 12.0                         | 13.0        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 4.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 5.5                                              | 26                 | 12.5                         | 13.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 5.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 6.0                                              | 28                 | 13.5                         | 14.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 5.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 6.5                                              | 29                 | 14.0                         | 15.0        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 6.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 7.0                                              | 30                 | 14.5                         | 15.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 6.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 7.5                                              | 32                 | 15.5                         | 16.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 7.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 8.0                                              | 33                 | 16.0                         | 17.0        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 7.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 8.5                                              | 34                 | 16.5                         | 17.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 8.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 9.0                                              | 36                 | 17.5                         | 18.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 18                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 8.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 9.5                                              | 40                 | 19.5                         | 20.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 19                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 9.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 10.0                                             | 42                 | 20.5                         | 21.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 9.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 10.5                                             | 45                 | 22.0                         | 23.0        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 10.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 11.5                                             | 50                 | 24.5                         | 25.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 11.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 12.5                                             | 53                 | 26.0                         | 27.0        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| Unit: mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                  |                    |                              |             |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| Dimension                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | B                                                | C                  | Dimension                    | A           | B                                          | C         |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| Number of Contacts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                  |                    | Number of Contacts           |             |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 8.1                                              | 4.5                | 25                           | 12.0        | 17.6                                       | 14.0      |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 4.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 10.1                                             | 6.5                | 26                           | 12.5        | 18.1                                       | 14.5      |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 5.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 10.6                                             | 7.0                | 28                           | 13.5        | 19.1                                       | 15.5      |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 5.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 11.1                                             | 7.5                | 29                           | 14.0        | 19.6                                       | 16.0      |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 6.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 11.6                                             | 8.0                | 30                           | 14.5        | 20.1                                       | 16.5      |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 6.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 12.1                                             | 8.5                | 32                           | 15.5        | 21.1                                       | 17.5      |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 7.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 12.6                                             | 9.0                | 33                           | 16.0        | 21.6                                       | 18.0      |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 7.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 13.1                                             | 9.5                | 34                           | 16.5        | 22.1                                       | 18.5      |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 8.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 13.6                                             | 10.0               | 36                           | 17.5        | 23.1                                       | 19.5      |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 18                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 8.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 14.1                                             | 10.5               | 40                           | 19.5        | 25.1                                       | 21.5      |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 19                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 9.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 14.6                                             | 11.0               | 42                           | 20.5        | 26.1                                       | 22.5      |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 9.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 15.1                                             | 11.5               | 45                           | 22.0        | 27.6                                       | 24.0      |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 10.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 16.1                                             | 12.5               | 50                           | 24.5        | 30.1                                       | 26.5      |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 11.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 17.1                                             | 13.5               | 53                           | 26.0        | 31.6                                       | 28.0      |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| <b>0.5mm Pitch Vertical Mounting Type</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>Recommended metal mask thickness : t=0.15</p> |                    |                              |             |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>*Set the stiffener thickness to 0.188 (7.5mil) min.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>Recommended metal mask thickness : t=0.15</p> |                    |                              |             |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <table border="1"> <thead> <tr> <th colspan="6">Unit: mm</th> </tr> <tr> <th>Dimension</th> <th>A</th> <th>B</th> <th>Dimension</th> <th>A</th> <th>B</th> </tr> <tr> <th>Number of Contacts</th> <th></th> <th></th> <th>Number of Contacts</th> <th></th> <th></th> </tr> </thead> <tbody> <tr><td>10</td><td>4.5</td><td>5.5</td><td>26</td><td>12.5</td><td>13.5</td></tr> <tr><td>12</td><td>5.5</td><td>6.5</td><td>30</td><td>14.5</td><td>15.5</td></tr> <tr><td>13</td><td>6.0</td><td>7.0</td><td>32</td><td>15.5</td><td>16.5</td></tr> <tr><td>15</td><td>7.0</td><td>8.0</td><td>33</td><td>16.0</td><td>17.0</td></tr> <tr><td>16</td><td>7.5</td><td>8.5</td><td>34</td><td>16.5</td><td>17.5</td></tr> <tr><td>17</td><td>8.0</td><td>9.0</td><td>36</td><td>17.5</td><td>18.5</td></tr> <tr><td>18</td><td>8.5</td><td>9.5</td><td>40</td><td>19.5</td><td>20.5</td></tr> <tr><td>20</td><td>9.5</td><td>10.5</td><td>45</td><td>22.0</td><td>23.0</td></tr> <tr><td>22</td><td>10.5</td><td>11.5</td><td>49</td><td>24.0</td><td>25.0</td></tr> <tr><td>24</td><td>11.5</td><td>12.5</td><td>50</td><td>24.5</td><td>25.5</td></tr> </tbody> </table> | Unit: mm                                         |                    |                              |             |                                            |           | Dimension                                            | A | B                                                | Dimension | A | B                  | Number of Contacts |  |                    | Number of Contacts |  |   | 10  | 4.5 | 5.5 | 26   | 12.5 | 13.5 | 12  | 5.5 | 6.5 | 30   | 14.5 | 15.5 | 13  | 6.0 | 7.0 | 32   | 15.5 | 16.5 | 15  | 7.0 | 8.0 | 33   | 16.0 | 17.0 | 16  | 7.5 | 8.5 | 34   | 16.5 | 17.5 | 17  | 8.0 | 9.0 | 36   | 17.5 | 18.5 | 18  | 8.5 | 9.5 | 40   | 19.5 | 20.5 | 20  | 9.5 | 10.5 | 45   | 22.0 | 23.0 | 22  | 10.5 | 11.5 | 49   | 24.0 | 25.0 | 24  | 11.5 | 12.5 | 50   | 24.5 | 25.5 | <table border="1"> <thead> <tr> <th colspan="6">Unit: mm</th> </tr> <tr> <th>Dimension</th> <th>A</th> <th>B</th> <th>Dimension</th> <th>A</th> <th>B</th> </tr> <tr> <th>Number of Contacts</th> <th></th> <th></th> <th>Number of Contacts</th> <th></th> <th></th> </tr> </thead> <tbody> <tr><td>10</td><td>6.5</td><td>4.5</td><td>26</td><td>14.5</td><td>12.5</td></tr> <tr><td>12</td><td>7.5</td><td>5.5</td><td>30</td><td>16.5</td><td>14.5</td></tr> <tr><td>13</td><td>8.0</td><td>6.0</td><td>32</td><td>17.5</td><td>15.5</td></tr> <tr><td>15</td><td>9.0</td><td>7.0</td><td>33</td><td>18.0</td><td>16.0</td></tr> <tr><td>16</td><td>9.5</td><td>7.5</td><td>34</td><td>18.5</td><td>16.5</td></tr> <tr><td>17</td><td>10.0</td><td>8.0</td><td>36</td><td>19.5</td><td>17.5</td></tr> <tr><td>18</td><td>10.5</td><td>8.5</td><td>40</td><td>21.5</td><td>19.5</td></tr> <tr><td>20</td><td>11.5</td><td>9.5</td><td>45</td><td>24.0</td><td>22.0</td></tr> <tr><td>22</td><td>12.5</td><td>10.5</td><td>49</td><td>26.0</td><td>24.0</td></tr> <tr><td>24</td><td>13.5</td><td>11.5</td><td>50</td><td>26.5</td><td>24.5</td></tr> </tbody> </table> | Unit: mm |    |      |      |    |     | Dimension | A  | B    | Dimension | A  | B    | Number of Contacts |    |      | Number of Contacts |    |      | 10   | 6.5 | 4.5  | 26   | 14.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 12.5     | 12 | 7.5 | 5.5 | 30 | 16.5 | 14.5 | 13 | 8.0 | 6.0       | 32 | 17.5 | 15.5 | 15        | 9.0 | 7.0 | 33 | 18.0 | 16.0               | 16 | 9.5 | 7.5 | 34                 | 18.5 | 16.5 | 17 | 10.0 | 8.0 | 36  | 19.5 | 17.5 | 18 | 10.5 | 8.5  | 40   | 21.5 | 19.5 | 20  | 11.5 | 9.5 | 45 | 24.0 | 22.0 | 22   | 12.5 | 10.5 | 49  | 26.0 | 24.0 | 24 | 13.5 | 11.5 | 50   | 26.5 | 24.5 |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| Unit: mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                  |                    |                              |             |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| Dimension                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | B                                                | Dimension          | A                            | B           |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| Number of Contacts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                  | Number of Contacts |                              |             |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 4.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 5.5                                              | 26                 | 12.5                         | 13.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 5.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 6.5                                              | 30                 | 14.5                         | 15.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 6.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 7.0                                              | 32                 | 15.5                         | 16.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 7.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 8.0                                              | 33                 | 16.0                         | 17.0        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 7.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 8.5                                              | 34                 | 16.5                         | 17.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 8.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 9.0                                              | 36                 | 17.5                         | 18.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 18                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 8.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 9.5                                              | 40                 | 19.5                         | 20.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 9.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 10.5                                             | 45                 | 22.0                         | 23.0        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 10.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 11.5                                             | 49                 | 24.0                         | 25.0        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 11.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 12.5                                             | 50                 | 24.5                         | 25.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| Unit: mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                  |                    |                              |             |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| Dimension                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | B                                                | Dimension          | A                            | B           |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| Number of Contacts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                  | Number of Contacts |                              |             |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 6.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4.5                                              | 26                 | 14.5                         | 12.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 7.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 5.5                                              | 30                 | 16.5                         | 14.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 8.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 6.0                                              | 32                 | 17.5                         | 15.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 9.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 7.0                                              | 33                 | 18.0                         | 16.0        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 9.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 7.5                                              | 34                 | 18.5                         | 16.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 10.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 8.0                                              | 36                 | 19.5                         | 17.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 18                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 10.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 8.5                                              | 40                 | 21.5                         | 19.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 11.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 9.5                                              | 45                 | 24.0                         | 22.0        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 12.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 10.5                                             | 49                 | 26.0                         | 24.0        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |
| 24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 13.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 11.5                                             | 50                 | 26.5                         | 24.5        |                                            |           |                                                      |   |                                                  |           |   |                    |                    |  |                    |                    |  |   |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |     |      |      |      |     |     |      |      |      |      |     |      |      |      |      |      |     |      |      |      |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |    |      |      |    |     |           |    |      |           |    |      |                    |    |      |                    |    |      |      |     |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |    |     |     |    |      |      |    |     |           |    |      |      |           |     |     |    |      |                    |    |     |     |                    |      |      |    |      |     |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |      |      |     |      |      |    |      |      |      |      |      |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |     |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |     |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |    |      |      |      |    |      |      |      |  |

## ■1mm Pitch Type Bottom Contact Type



Unit:mm

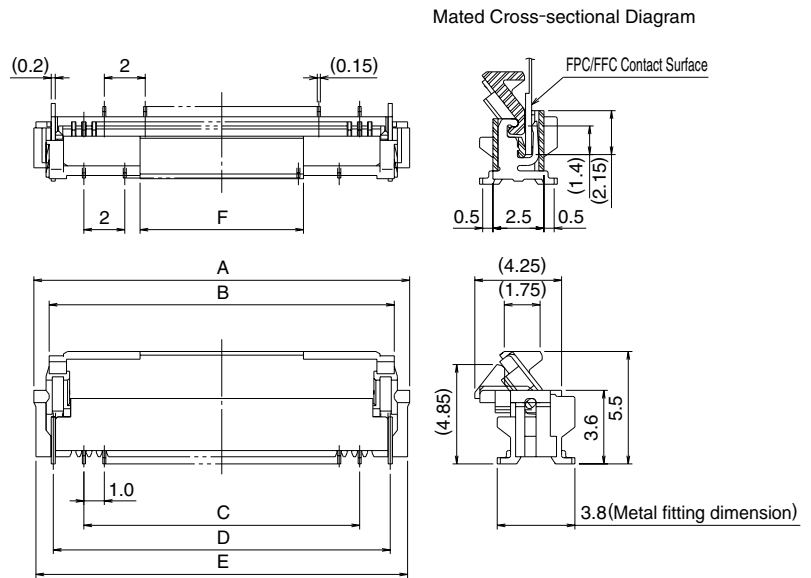
|                | Part Number       | CL No.     | Number of Contacts | A  | B    | C    | D     | E   |
|----------------|-------------------|------------|--------------------|----|------|------|-------|-----|
| Standard type  | FH12- 5S-1SH      | 586-0591-6 | 5                  | 4  | 8.6  | 9.6  | 6.07  | 2.3 |
|                | FH12- 6S-1SH      | 586-0607-4 | 6                  | 5  | 9.6  | 10.6 | 7.07  | 2.3 |
|                | FH12- 7S-1SH      | 586-0535-5 | 7                  | 6  | 10.6 | 11.6 | 8.07  | 2.3 |
|                | FH12- 8S-1SH      | 586-0579-0 | 8                  | 7  | 11.6 | 12.6 | 9.07  | 2.3 |
|                | FH12- 9S-1SH      | 586-0540-5 | 9                  | 8  | 12.6 | 13.6 | 10.07 | 2.3 |
|                | FH12-11S-1SH      | 586-0668-9 | 11                 | 10 | 14.6 | 15.6 | 12.07 | 2.3 |
|                | FH12-16S-1SH      | 586-0536-8 | 16                 | 15 | 19.6 | 20.6 | 17.07 | 2.3 |
|                | FH12-22S-1SH      | 586-0547-4 | 22                 | 21 | 25.6 | 26.6 | 23.07 | 2.3 |
|                | FH12-26S-1SH      | 586-0592-9 | 26                 | 25 | 29.6 | 30.6 | 27.07 | 2.3 |
| Eccentric type | FH12-10(4)SA-1SH  | 586-0537-0 | 4                  | 3  | 8.1  | 9.1  | 5.57  | 2.8 |
|                | FH12-14(6)SA-1SH  | 586-0538-3 | 6                  | 5  | 10.1 | 11.1 | 7.57  | 2.8 |
|                | FH12-18(8)SA-1SH  | 586-0539-6 | 8                  | 7  | 12.1 | 13.1 | 9.57  | 2.8 |
|                | FH12-22(10)SA-1SH | 586-0541-8 | 10                 | 9  | 14.1 | 15.1 | 11.57 | 2.8 |
|                | FH12-24(11)SA-1SH | 586-0542-0 | 11                 | 10 | 15.1 | 16.1 | 12.57 | 2.8 |
|                | FH12-30(14)SA-1SH | 586-0543-3 | 14                 | 13 | 18.1 | 19.1 | 15.57 | 2.8 |
|                | FH12-40(19)SA-1SH | 586-0546-1 | 19                 | 18 | 23.1 | 24.1 | 20.57 | 2.8 |
|                | FH12-50(24)SA-1SH | 586-0548-7 | 24                 | 23 | 28.1 | 29.1 | 25.57 | 2.8 |

Note 1: Products are packaged in embossed tape. (2,000 pcs. per reel)  
Please order in multiples of 2,000.

Note 2: The 1mm version of FH12 is constructed by loading every other contact into the 0.5mm housing. When a housing designed for an odd number of 0.5mm pitch contacts is used; the spacing from the edge to the first contact on either side is the same as the distance between each contact, 1.0mm. Hirose considers this design to be a **standard-type 1.0mm** connector.

An **eccentric-type** connector using a housing designed for an even number of 0.5mm pitch contacts and consequently one side has 1.5mm distance from the edge to the first contact. (See FPC/FFC dimensional drawing on page 19) The part number for the eccentric type describes the size of the 0.5mm housing used and lists the number of 1.0mm pitch contacts in parentheses ( ) as shown in the above table.

## ■1mm Pitch Vertical Mounting Type



Unit:mm

| Part Number  | CL No.     | Number of Contacts | A    | B    | C  | D  | E    | F |
|--------------|------------|--------------------|------|------|----|----|------|---|
| FH12- 6S-1SV | 586-0605-9 | 6                  | 9.9  | 8.4  | 5  | 8  | 9.7  | 4 |
| FH12- 7S-1SV | 586-0610-9 | 7                  | 10.9 | 9.4  | 6  | 9  | 10.7 | 4 |
| FH12- 8S-1SV | 586-0593-1 | 8                  | 11.9 | 10.4 | 7  | 10 | 11.7 | 4 |
| FH12-16S-1SV | 586-0574-7 | 16                 | 19.9 | 18.4 | 15 | 18 | 19.7 | 8 |
| FH12-20S-1SV | 586-0634-7 | 20                 | 23.9 | 22.4 | 19 | 22 | 23.7 | 8 |
| FH12-22S-1SV | 586-0584-0 | 22                 | 25.9 | 24.4 | 21 | 24 | 25.7 | 8 |
| FH12-24S-1SV | 586-0594-4 | 24                 | 27.9 | 26.4 | 23 | 26 | 27.7 | 8 |

Note: Products are packaged in embossed tape. (1,000 pcs. per reel)  
Please order in multiples of 1,000.

# ◆ Recommended FPC/FFC dimensions and Land/Metal Mask dimensions

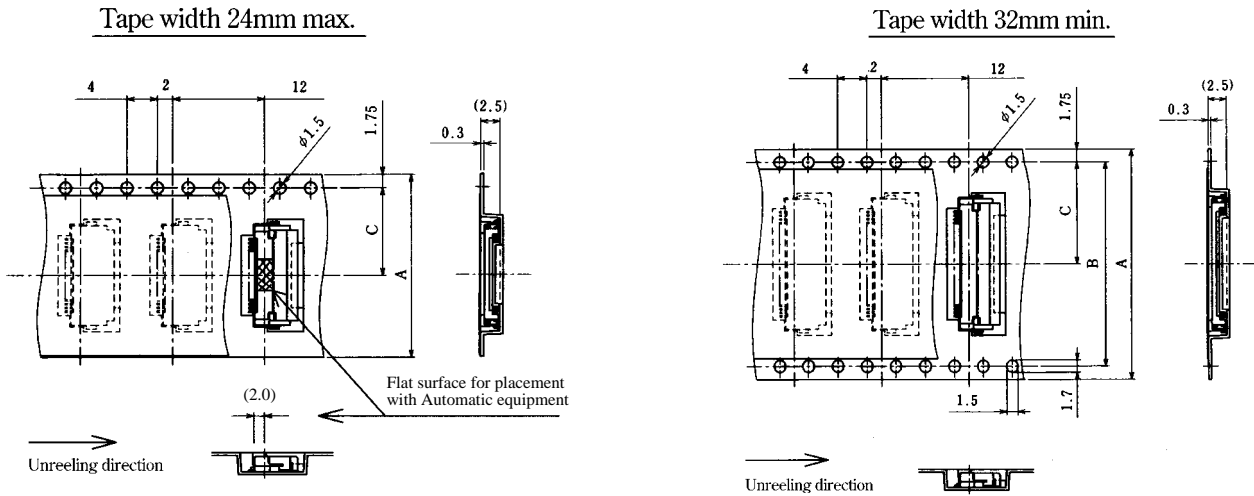
## ● 1mm Pitch Product

|                                         | FPC/FFC dimensions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Land / Metal Mask dimensions                     |      |                |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|------|----------------|---------------------------------|---------------------------------|------|------|------|------|-----|---|---|---|----|-----|-----|----|----|----|----|----------------|----|----|-----|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---|---|---|---|-----|-----|---|---|---|----|----|----|------|-----|----|----|----|----|----|----|------|-----|----|----|----|---|----|----|------|-----|----|----|----|---|----|----|------|-----|----|----|----|---|----|----|------|-----|----|----|----|---|--|--|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---|---|---|---|---------------------------------|---|---|---|---|---|---|------|---|-----|---|---|------|-----|---|---|---|------|---|-----|----------------|---|---|------|-----|---|---|---|------|---|-----|---|---|------|------|---|---|---|------|----|-----|----|---|------|------|---|---|---|------|----|-----|----|----|------|------|---|----|----|------|----|-----|----|----|------|------|---|----|----|------|----|-----|----|----|------|------|---|----|----|------|----|-----|----|----|------|------|---|----|----|------|----|-----|--|--|--|--|
| <b>1mm Pitch Bottom Contact Type</b>    | <p>※Set the stiffener thickness to 0.188 (7.5mil) min.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>Recommended metal mask thickness : t=0.15</p> |      |                |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
|                                         | <p style="text-align: right;">Unit: mm</p> <table border="1"> <thead> <tr> <th rowspan="2">Dimension<br/>Number of Contacts</th> <th>A</th> <th>B</th> <th>C</th> <th rowspan="2">Dimension<br/>Number of Contacts</th> <th>A</th> <th>B</th> <th>C</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>4</td> <td>6</td> <td>1</td> <td>4</td> <td>3</td> <td>5.5</td> <td>1.5</td> </tr> <tr> <td>6</td> <td>5</td> <td>7</td> <td>1</td> <td rowspan="10">Eccentric Type</td> <td>6</td> <td>5</td> <td>7.5</td> <td>1.5</td> </tr> <tr> <td>7</td> <td>6</td> <td>8</td> <td>1</td> <td>8</td> <td>7</td> <td>9.5</td> <td>1.5</td> </tr> <tr> <td>8</td> <td>7</td> <td>9</td> <td>1</td> <td>10</td> <td>9</td> <td>11.5</td> <td>1.5</td> </tr> <tr> <td>9</td> <td>8</td> <td>10</td> <td>1</td> <td>11</td> <td>10</td> <td>12.5</td> <td>1.5</td> </tr> <tr> <td>11</td> <td>10</td> <td>12</td> <td>1</td> <td>14</td> <td>13</td> <td>15.5</td> <td>1.5</td> </tr> <tr> <td>16</td> <td>15</td> <td>17</td> <td>1</td> <td>19</td> <td>18</td> <td>20.5</td> <td>1.5</td> </tr> <tr> <td>22</td> <td>21</td> <td>23</td> <td>1</td> <td>24</td> <td>23</td> <td>25.5</td> <td>1.5</td> </tr> <tr> <td>26</td> <td>25</td> <td>27</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> | Dimension<br>Number of Contacts                  | A    | B              | C                               | Dimension<br>Number of Contacts | A    | B    | C    | 5    | 4   | 6 | 1 | 4 | 3  | 5.5 | 1.5 | 6  | 5  | 7  | 1  | Eccentric Type | 6  | 5  | 7.5 | 1.5 | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 6                               | 8 | 1 | 8 | 7 | 9.5 | 1.5 | 8 | 7 | 9 | 1  | 10 | 9  | 11.5 | 1.5 | 9  | 8  | 10 | 1  | 11 | 10 | 12.5 | 1.5 | 11 | 10 | 12 | 1 | 14 | 13 | 15.5 | 1.5 | 16 | 15 | 17 | 1 | 19 | 18 | 20.5 | 1.5 | 22 | 21 | 23 | 1 | 24 | 23 | 25.5 | 1.5 | 26 | 25 | 27 | 1 |  |  |  |  | <p style="text-align: right;">Unit: mm</p> <table border="1"> <thead> <tr> <th rowspan="2">Dimension<br/>Number of Contacts</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th rowspan="2">Dimension<br/>Number of Contacts</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>4</td> <td>10.6</td> <td>7</td> <td>1.5</td> <td>4</td> <td>3</td> <td>10.1</td> <td>6.5</td> <td>2</td> </tr> <tr> <td>6</td> <td>5</td> <td>11.6</td> <td>8</td> <td>1.5</td> <td rowspan="10">Eccentric Type</td> <td>6</td> <td>5</td> <td>12.1</td> <td>8.5</td> <td>2</td> </tr> <tr> <td>7</td> <td>6</td> <td>12.6</td> <td>9</td> <td>1.5</td> <td>8</td> <td>7</td> <td>14.1</td> <td>10.5</td> <td>2</td> </tr> <tr> <td>8</td> <td>7</td> <td>13.6</td> <td>10</td> <td>1.5</td> <td>10</td> <td>9</td> <td>16.1</td> <td>12.5</td> <td>2</td> </tr> <tr> <td>9</td> <td>8</td> <td>14.6</td> <td>11</td> <td>1.5</td> <td>11</td> <td>10</td> <td>17.1</td> <td>13.5</td> <td>2</td> </tr> <tr> <td>11</td> <td>10</td> <td>16.6</td> <td>13</td> <td>1.5</td> <td>14</td> <td>13</td> <td>20.1</td> <td>16.5</td> <td>2</td> </tr> <tr> <td>16</td> <td>15</td> <td>21.6</td> <td>18</td> <td>1.5</td> <td>19</td> <td>18</td> <td>25.1</td> <td>21.5</td> <td>2</td> </tr> <tr> <td>22</td> <td>21</td> <td>27.6</td> <td>24</td> <td>1.5</td> <td>24</td> <td>23</td> <td>30.1</td> <td>26.5</td> <td>2</td> </tr> <tr> <td>26</td> <td>25</td> <td>31.6</td> <td>28</td> <td>1.5</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> | Dimension<br>Number of Contacts | A | B | C | D | Dimension<br>Number of Contacts | A | B | C | D | 5 | 4 | 10.6 | 7 | 1.5 | 4 | 3 | 10.1 | 6.5 | 2 | 6 | 5 | 11.6 | 8 | 1.5 | Eccentric Type | 6 | 5 | 12.1 | 8.5 | 2 | 7 | 6 | 12.6 | 9 | 1.5 | 8 | 7 | 14.1 | 10.5 | 2 | 8 | 7 | 13.6 | 10 | 1.5 | 10 | 9 | 16.1 | 12.5 | 2 | 9 | 8 | 14.6 | 11 | 1.5 | 11 | 10 | 17.1 | 13.5 | 2 | 11 | 10 | 16.6 | 13 | 1.5 | 14 | 13 | 20.1 | 16.5 | 2 | 16 | 15 | 21.6 | 18 | 1.5 | 19 | 18 | 25.1 | 21.5 | 2 | 22 | 21 | 27.6 | 24 | 1.5 | 24 | 23 | 30.1 | 26.5 | 2 | 26 | 25 | 31.6 | 28 | 1.5 |  |  |  |  |
| Dimension<br>Number of Contacts         | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                  | B    | C              | Dimension<br>Number of Contacts |                                 | A    | B    | C    |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
|                                         | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4                                                | 6    | 1              |                                 | 4                               | 3    | 5.5  | 1.5  |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 6                                       | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 7                                                | 1    | Eccentric Type | 6                               | 5                               | 7.5  | 1.5  |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 7                                       | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 8                                                | 1    |                | 8                               | 7                               | 9.5  | 1.5  |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 8                                       | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 9                                                | 1    |                | 10                              | 9                               | 11.5 | 1.5  |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 9                                       | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 10                                               | 1    |                | 11                              | 10                              | 12.5 | 1.5  |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 11                                      | 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 12                                               | 1    |                | 14                              | 13                              | 15.5 | 1.5  |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 16                                      | 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 17                                               | 1    |                | 19                              | 18                              | 20.5 | 1.5  |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 22                                      | 21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 23                                               | 1    |                | 24                              | 23                              | 25.5 | 1.5  |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 26                                      | 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 27                                               | 1    |                |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| Dimension<br>Number of Contacts         | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | B                                                | C    |                | D                               | Dimension<br>Number of Contacts | A    | B    | C    | D    |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
|                                         | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4                                                | 10.6 |                | 7                               |                                 | 1.5  | 4    | 3    | 10.1 | 6.5 | 2 |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 6                                       | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 11.6                                             | 8    | 1.5            | Eccentric Type                  | 6                               | 5    | 12.1 | 8.5  | 2    |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 7                                       | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 12.6                                             | 9    | 1.5            |                                 | 8                               | 7    | 14.1 | 10.5 | 2    |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 8                                       | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 13.6                                             | 10   | 1.5            |                                 | 10                              | 9    | 16.1 | 12.5 | 2    |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 9                                       | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 14.6                                             | 11   | 1.5            |                                 | 11                              | 10   | 17.1 | 13.5 | 2    |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 11                                      | 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 16.6                                             | 13   | 1.5            |                                 | 14                              | 13   | 20.1 | 16.5 | 2    |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 16                                      | 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 21.6                                             | 18   | 1.5            |                                 | 19                              | 18   | 25.1 | 21.5 | 2    |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 22                                      | 21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 27.6                                             | 24   | 1.5            |                                 | 24                              | 23   | 30.1 | 26.5 | 2    |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 26                                      | 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 31.6                                             | 28   | 1.5            |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| <b>1mm Pitch Vertical Mounting Type</b> | <p>※Set the stiffener thickness to 0.188 (7.5mil) min.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>Recommended metal mask thickness : t=0.15</p> |      |                |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
|                                         | <p style="text-align: right;">Unit: mm</p> <table border="1"> <thead> <tr> <th rowspan="2">Dimension<br/>Number of Contacts</th> <th>A</th> <th>B</th> </tr> </thead> <tbody> <tr> <td>6</td> <td>5</td> <td>7</td> </tr> <tr> <td>7</td> <td>6</td> <td>8</td> </tr> <tr> <td>8</td> <td>7</td> <td>9</td> </tr> <tr> <td>16</td> <td>15</td> <td>17</td> </tr> <tr> <td>20</td> <td>19</td> <td>21</td> </tr> <tr> <td>22</td> <td>21</td> <td>23</td> </tr> <tr> <td>24</td> <td>23</td> <td>25</td> </tr> </tbody> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Dimension<br>Number of Contacts                  | A    | B              |                                 | 6                               | 5    | 7    | 7    | 6    | 8   | 8 | 7 | 9 | 16 | 15  | 17  | 20 | 19 | 21 | 22 | 21             | 23 | 24 | 23  | 25  | <p style="text-align: right;">Unit: mm</p> <table border="1"> <thead> <tr> <th rowspan="2">Dimension<br/>Number of Contacts</th> <th>A</th> <th>B</th> </tr> </thead> <tbody> <tr> <td>6</td> <td>8</td> <td>5</td> </tr> <tr> <td>7</td> <td>9</td> <td>6</td> </tr> <tr> <td>8</td> <td>10</td> <td>7</td> </tr> <tr> <td>16</td> <td>18</td> <td>15</td> </tr> <tr> <td>20</td> <td>22</td> <td>19</td> </tr> <tr> <td>22</td> <td>24</td> <td>21</td> </tr> <tr> <td>24</td> <td>26</td> <td>23</td> </tr> </tbody> </table> | Dimension<br>Number of Contacts | A | B | 6 | 8 | 5   | 7   | 9 | 6 | 8 | 10 | 7  | 16 | 18   | 15  | 20 | 22 | 19 | 22 | 24 | 21 | 24   | 26  | 23 |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| Dimension<br>Number of Contacts         | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                  | B    |                |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
|                                         | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 5                                                | 7    |                |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 7                                       | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 8                                                |      |                |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 8                                       | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 9                                                |      |                |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 16                                      | 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 17                                               |      |                |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 20                                      | 19                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 21                                               |      |                |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 22                                      | 21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 23                                               |      |                |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 24                                      | 23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 25                                               |      |                |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| Dimension<br>Number of Contacts         | A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | B                                                |      |                |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
|                                         | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 8                                                | 5    |                |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 7                                       | 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 6                                                |      |                |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 8                                       | 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 7                                                |      |                |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 16                                      | 18                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 15                                               |      |                |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 20                                      | 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 19                                               |      |                |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 22                                      | 24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 21                                               |      |                |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |
| 24                                      | 26                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 23                                               |      |                |                                 |                                 |      |      |      |      |     |   |   |   |    |     |     |    |    |    |    |                |    |    |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                 |   |   |   |   |     |     |   |   |   |    |    |    |      |     |    |    |    |    |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |    |    |      |     |    |    |    |   |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                 |   |   |   |   |                                 |   |   |   |   |   |   |      |   |     |   |   |      |     |   |   |   |      |   |     |                |   |   |      |     |   |   |   |      |   |     |   |   |      |      |   |   |   |      |    |     |    |   |      |      |   |   |   |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |    |    |      |      |   |    |    |      |    |     |  |  |  |  |

# ◆ Packaging Specification

## Embossed Carrier Tape Dimensions

Horizontal Type (Common to Bottom/Top Contact, 0.5mm/1mm Pitch)



### ● 0.5mm Pitch Bottom/Top Contact Type

Unit:mm

| Dimension<br>Number of Contacts | A  | B | C    | D    | Dimension<br>Number of Contacts | A  | B    | C    | D    |
|---------------------------------|----|---|------|------|---------------------------------|----|------|------|------|
| 6                               | 16 | — | 7.5  | 16.5 | 25                              | 24 | —    | 11.5 | 24.5 |
| 10                              | 16 | — | 7.5  | 16.5 | 26                              | 24 | —    | 11.5 | 24.5 |
| 11                              | 16 | — | 7.5  | 16.5 | 28                              | 32 | 28.4 | 14.2 | 32.5 |
| 12                              | 24 | — | 11.5 | 24.5 | 29                              | 32 | 28.4 | 14.2 | 32.5 |
| 13                              | 24 | — | 11.5 | 24.5 | 30                              | 32 | 28.4 | 14.2 | 32.5 |
| 14                              | 24 | — | 11.5 | 24.5 | 32                              | 32 | 28.4 | 14.2 | 32.5 |
| 15                              | 24 | — | 11.5 | 24.5 | 33                              | 32 | 28.4 | 14.2 | 32.5 |
| 16                              | 24 | — | 11.5 | 24.5 | 34                              | 32 | 28.4 | 14.2 | 32.5 |
| 17                              | 24 | — | 11.5 | 24.5 | 36                              | 44 | 40.4 | 20.2 | 44.5 |
| 18                              | 24 | — | 11.5 | 24.5 | 40                              | 44 | 40.4 | 20.2 | 44.5 |
| 19                              | 24 | — | 11.5 | 24.5 | 42                              | 44 | 40.4 | 20.2 | 44.5 |
| 20                              | 24 | — | 11.5 | 24.5 | 45                              | 44 | 40.4 | 20.2 | 44.5 |
| 22                              | 24 | — | 11.5 | 24.5 | 50                              | 44 | 40.4 | 20.2 | 44.5 |
| 24                              | 24 | — | 11.5 | 24.5 | 53                              | 44 | 40.4 | 20.2 | 44.5 |

Note: 2,000 pcs. per reel

### ● 1mm Pitch Bottom Contact Type

Unit:mm

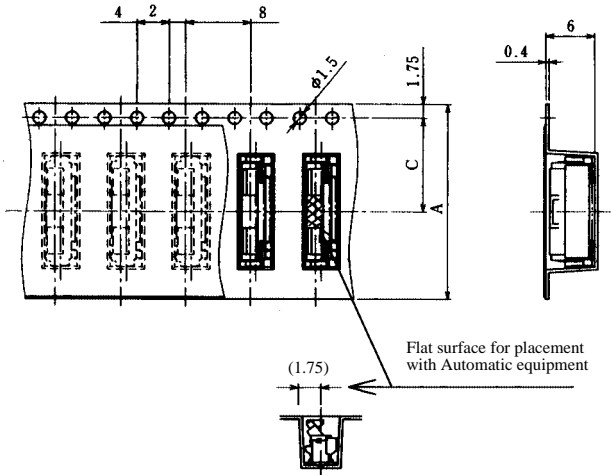
|               | Dimension<br>Number of Contacts | A    | B    | C    | D    | Dimension<br>Number of Contacts | A  | B  | C    | D    |      |
|---------------|---------------------------------|------|------|------|------|---------------------------------|----|----|------|------|------|
| Standard Type | 5                               | 16   | —    | 7.5  | 16.5 | Eccentric Type                  | 4  | 16 | —    | 7.5  | 16.5 |
|               | 6                               | 24   | —    | 11.5 | 24.5 |                                 | 6  | 24 | —    | 11.5 | 24.5 |
|               | 7                               | 24   | —    | 11.5 | 24.5 |                                 | 8  | 24 | —    | 11.5 | 24.5 |
|               | 8                               | 24   | —    | 11.5 | 24.5 |                                 | 10 | 24 | —    | 11.5 | 24.5 |
|               | 9                               | 24   | —    | 11.5 | 24.5 |                                 | 11 | 24 | —    | 11.5 | 24.5 |
|               | 11                              | 24   | —    | 11.5 | 24.5 |                                 | 14 | 32 | 28.4 | 14.2 | 32.5 |
|               | 16                              | 32   | 28.4 | 14.2 | 32.5 |                                 | 19 | 44 | 40.4 | 20.2 | 44.5 |
|               | 22                              | 44   | 40.4 | 20.2 | 44.5 |                                 | 24 | 44 | 40.4 | 20.2 | 44.5 |
| 26            | 44                              | 40.4 | 20.2 | 44.5 |      |                                 |    |    |      |      |      |

Note: 2,000 pcs. per reel

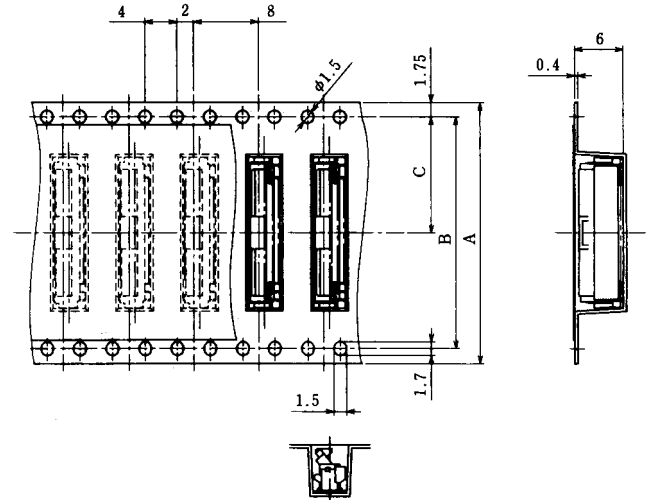


## Vertical Mounting Type (Common to 0.5mm/1mm Pitch)

Tape width 24mm max.



Tape width 32mm min.



### ●0.5mm Pitch Vertical mounting Type

Unit:mm

| Dimension<br>Number of Contacts | A  | B    | C    | D    |
|---------------------------------|----|------|------|------|
| 10                              | 16 | —    | 7.5  | 16.5 |
| 12                              | 16 | —    | 7.5  | 16.5 |
| 13                              | 24 | —    | 11.5 | 24.5 |
| 15                              | 24 | —    | 11.5 | 24.5 |
| 16                              | 24 | —    | 11.5 | 24.5 |
| 17                              | 24 | —    | 11.5 | 24.5 |
| 18                              | 24 | —    | 11.5 | 24.5 |
| 20                              | 24 | —    | 11.5 | 24.5 |
| 22                              | 24 | —    | 11.5 | 24.5 |
| 24                              | 24 | —    | 11.5 | 24.5 |
| 26                              | 24 | —    | 11.5 | 24.5 |
| 30                              | 32 | 28.4 | 14.2 | 32.5 |
| 32                              | 32 | 28.4 | 14.2 | 32.5 |
| 33                              | 32 | 28.4 | 14.2 | 32.5 |
| 34                              | 44 | 40.4 | 20.2 | 44.5 |
| 36                              | 44 | 40.4 | 20.2 | 44.5 |
| 40                              | 44 | 40.4 | 20.2 | 44.5 |
| 45                              | 44 | 40.4 | 20.2 | 44.5 |
| 49                              | 44 | 40.4 | 20.2 | 44.5 |
| 50                              | 44 | 40.4 | 20.2 | 44.5 |

Note: 1,000 pcs. per reel

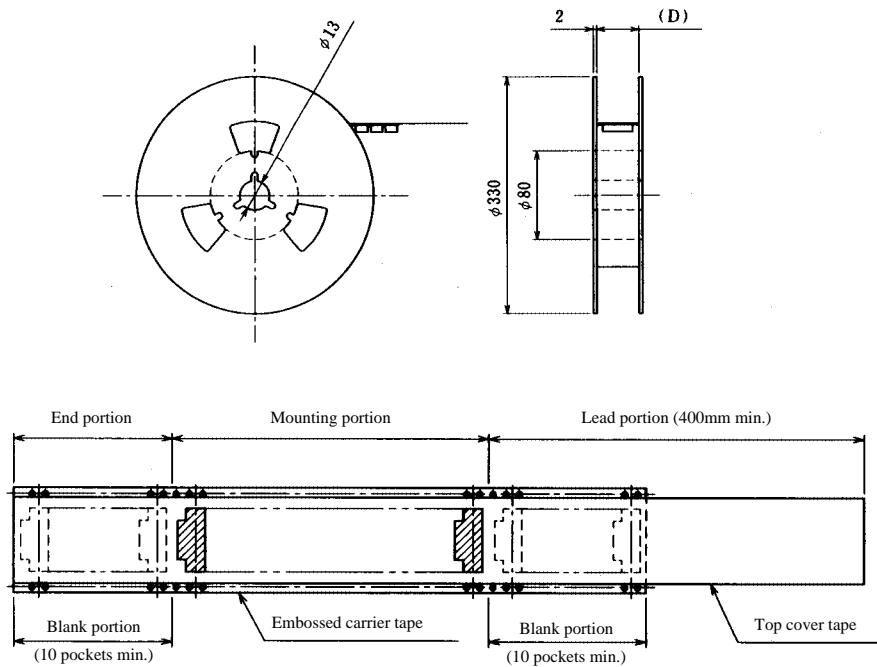
### ●1mm Pitch Vertical mounting Type

Unit:mm

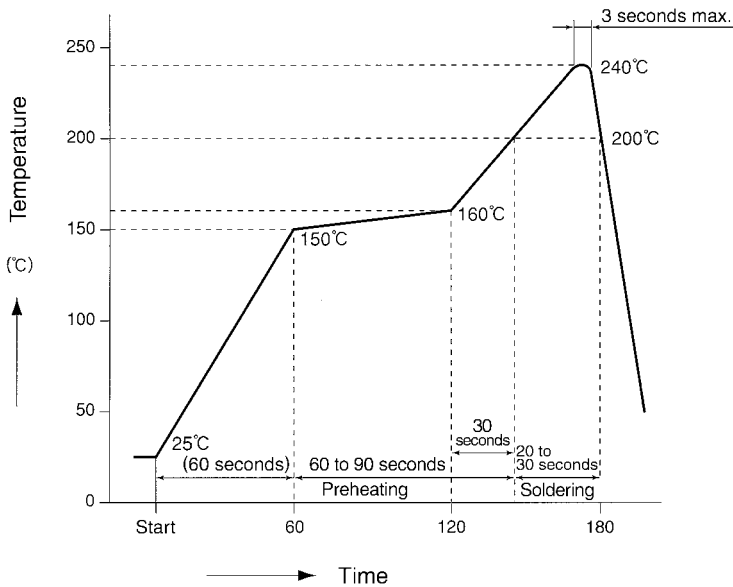
| Dimension<br>Number of Contacts | A  | B    | C    | D    |
|---------------------------------|----|------|------|------|
| 6                               | 24 | —    | 11.5 | 24.5 |
| 7                               | 24 | —    | 11.5 | 24.5 |
| 8                               | 24 | —    | 11.5 | 24.5 |
| 16                              | 32 | 28.4 | 14.2 | 32.5 |
| 20                              | 44 | 40.4 | 20.2 | 44.5 |
| 22                              | 44 | 40.4 | 20.2 | 44.5 |
| 24                              | 44 | 40.4 | 20.2 | 44.5 |

Note: 1,000 pcs. per reel

## Reel Dimensions (Common to All Types)



## ◆ Recommended Temperature Profile



### Applicable condition

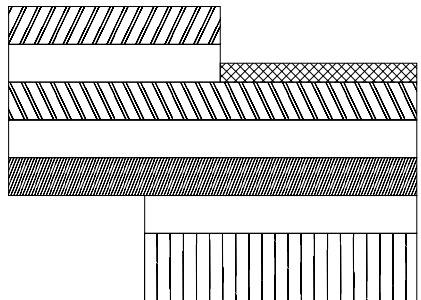
- Reflow method : IR reflow
- Solder : Paste type 63sn/37Pb (Flux content: 11wt%)
- Test board : Glass epoxy 40×80×1.6mm
- Metal mask thickness : 0.15mm

This temperature profile is a recommendation  
The temperature may be slightly changed according to the solder paste type and amount.

## ◆FH12 Series FPC/FFC Construction (Recommended Specifications)

### 1. FFC

### FFC : Flexible Flat Cable



| Material Name                     | Material       | Thickness ( $\mu\text{m}$ ) |
|-----------------------------------|----------------|-----------------------------|
| Hard copper foil with tin plating |                | 35                          |
| Adhesive                          | Polyester type | 30                          |
| Polyester                         |                | 12                          |
| Adhesive                          | Polyester type | 30                          |
| Stiffener                         | Polyester type | 188 (Note)                  |
| Total                             |                | 295                         |

\*Real tolerance of thickness dimension is on the order of  $\pm 20 \mu\text{m}$  (275 to 315  $\mu\text{m}$ )

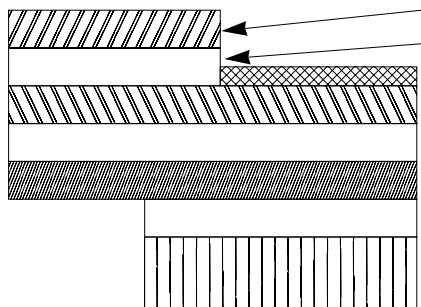
Note: Use of a thicker FFC results in a stiffer lock action and the lock is more easily released.

A factor that contributes to thicker FFC is the use of 250  $\mu\text{m}$  stiffener which is thicker than the standard (188  $\mu\text{m}$ ) product. This results in a total thickness of 357  $\mu\text{m}$ .

When using FFC, control of FFC thickness becomes easy if you indicate to us the thickness of the stiffener.

### 2. FPC

### FPC : Flexible Printed Circuit



| Material Name                   | Material               | Thickness ( $\mu\text{m}$ ) |
|---------------------------------|------------------------|-----------------------------|
| Covering layer film             | Polyamide 1 mil        | 25                          |
| Cover adhesive                  |                        | 25                          |
| Surface treatment               | Solder plating         | 5                           |
| Copper foil                     | Cu 1oz                 | 35                          |
| Base adhesive                   |                        | 25                          |
| Base film                       | Polyamide 1 mil        | 25                          |
| Reinforcement material adhesive | Heat-hardened adhesive | 30                          |
| Stiffener                       | Polyamide 7 mil        | 175                         |
| Total                           |                        | 295                         |

### 3. Precautions

1. This specification is a recommendation for the construction of the FH12 Series FPC and FFC ( $t=0.3 \pm 0.05$ ).
2. For details about the construction, please contact the FPC/FFC manufacturers.