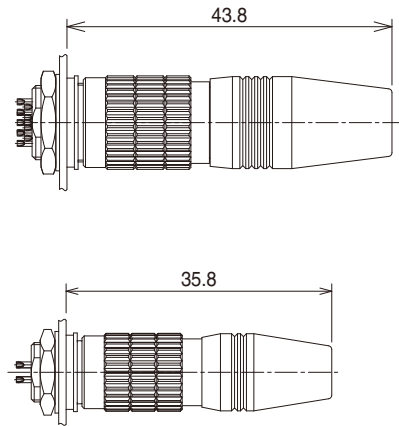


High Performance, Microminiature Circular Connectors

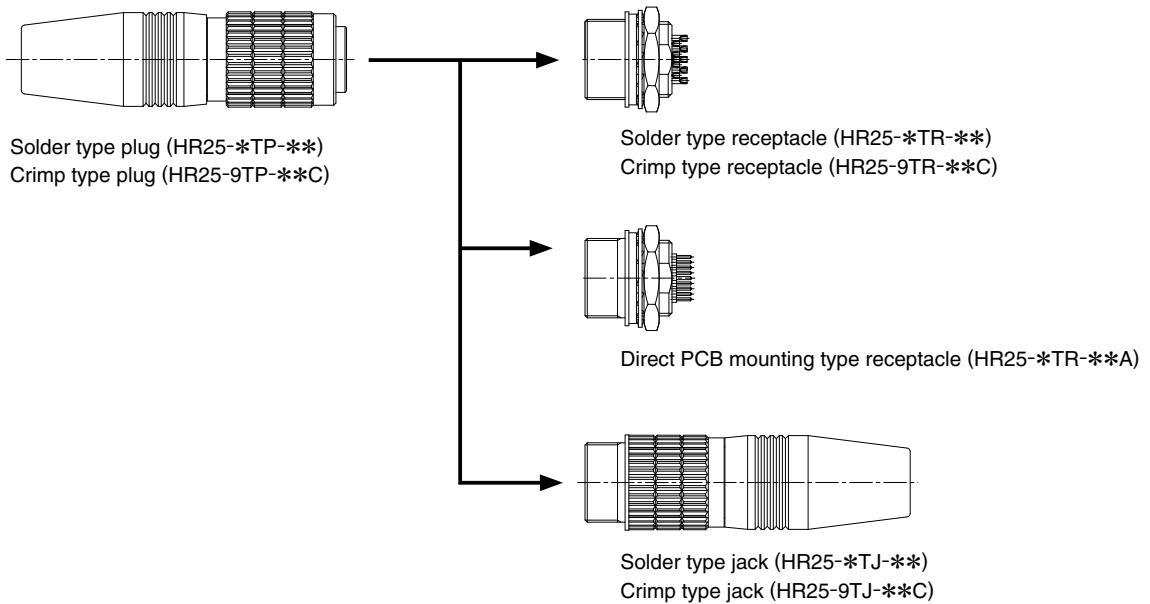
HR25 Series



Mated dimensions



Diagrams of Connectors in Combination



Features

1. Small, high density design

Maximum plug outer diameter : 4, 6, 8 contacts : $\phi 10.5$

12, 16, 20 contacts : $\phi 12.5$

Designed with Hirose technology to be small, compact connectors with a low profile.

2. Wide range of product variations

Number of contacts : 4, 6, 8, 12, 16, 20

Connector styles : Plug, jack, receptacle

Termination style : Solder, crimp (Additionally, a direct PCB mounting style is also available for receptacles.)

Contact gender : Plug, receptacle, and jack connectors are available configured either way with male or female contacts.

3. Shielded design

The connector's metal shell design is an optimal choice for devices that require EMI shielding.

4. RoHS compliant

All materials and substances used to produce this product comply with RoHS standards.

■ Product Specifications

| | | | | |
|---------|---------------|----------------|-----------------------------|----------------|
| Ratings | Rated current | 1A | Operating temperature range | -25°C to +85°C |
| | Rated voltage | 30V AC, 42V DC | Storage temperature range | -10°C to +60°C |

| Items | Specifications | Conditions |
|-------------------------|--|---|
| 1.Contact resistance | 30 mΩ min. | Measured at DC 1A |
| 2.Insulation resistance | 1,000 MΩ min. | Measured at DC 100 V |
| 3.Withstanding Voltage | No flashover or dielectric breakdown. | AC 100 V for one minute |
| 4.Vibration resistance | No electrical discontinuity for 10 μs or greater. | 10 to 55 Hz/cycle, amplitude: 0.75 mm, 3 axis directions, 2 hours each direction |
| 5.Shock resistance | No electrical discontinuity for 10 μs or greater. | Acceleration: 490 ms ² , duration: 11 ms, 3 axis directions, 3 cycles each direction. |
| 6.Mating Cycles | Contact resistance: 50 mΩ max. | 1,000 times |
| 7.Temperature cycle | Insulation resistance: 1,000 MΩ min. | -55°C: 30 minutes → Normal temperature: 10 to 15 minutes → 85°C: 30 minutes → Normal temperature: 10 to 15minutes, left for 5 cycles |
| 8.Moisture resistance | Insulation resistance: 5 MΩ min. (at high humidity) 50 MΩ min (when dry) | Temperature: 40°C, relative humidity: 90 to 95%, left for 96 hours |

■ Material

| Item | Material | Finish | Remarks |
|------------|--------------|---------------------------|---------------|
| Plug/jack | Plated shell | Zinc alloy | Nickel plated |
| | Insulator | PPS resin | ————— |
| | Gasket, boot | Ethylene-propylene rubber | ————— |
| | Contact | Phosphor bronze | Gold plated |
| Receptacle | Plated shell | Zinc ally | Nickel plated |
| | Insulator | PPS resin | ————— |
| | Contact | Phosphor bronze | Gold plated |
| | Gasket | Ethylene-propylene rubber | ————— |

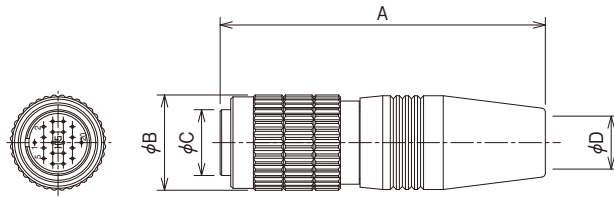
■ Product Number Structure

HR25 - 9 T P - 20 P C ()**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

| |
|--|
| ① Model name : HR25 Series |
| ② Shell size : The shell size is the outer diameter of the mating end of the plug. |
| ③ Locking mechanism T : Screw-lock |
| ④ Connector type P : Plug R : Receptacle J : Jack |
| ⑤ Number of contacts |
| ⑥ Contact type: S : Female contact P : Male contact |
| ⑦ Contact termination method: None : Solder termination C : Crimp termination A : PCB dip termination |
| ⑧ Other specifications: A two-digit number is added to indicate other specifications than ① to ⑦ shown above. |

■ Plug



● Solder type

Unit: mm

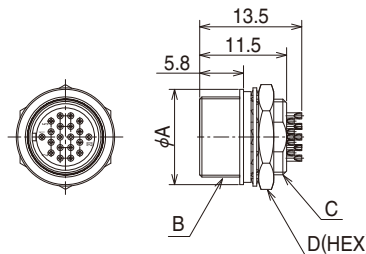
| Part No. | HRS No. | No. of contacts | A | φB | φC | φD | Weight |
|------------------|---------------|-----------------|----|------|-----|----|--------|
| HR25-7TP-4P(72) | 125-0001-8 72 | 4 | 35 | 10.5 | 6.7 | 5 | 8g |
| HR25-7TP-4S(72) | 125-0002-0 72 | | | | | | |
| HR25-7TP-6P(72) | 125-0003-3 72 | 6 | | | | | |
| HR25-7TP-6S(72) | 125-0004-6 72 | | | | | | |
| HR25-7TP-8P(72) | 125-0005-9 72 | 8 | | | | | |
| HR25-7TP-8S(72) | 125-0006-1 72 | | | | | | |
| HR25-9TP-12P(72) | 125-0101-2 72 | 12 | 43 | 12.5 | 8.7 | 7 | 13g |
| HR25-9TP-12S(72) | 125-0102-5 72 | | | | | | |
| HR25-9TP-16P(74) | 125-0103-8 74 | 16 | | | | | |
| HR25-9TP-16S(73) | 125-0104-0 73 | | | | | | |
| HR25-9TP-20P(72) | 125-0105-3 72 | 20 | | | | | |
| HR25-9TP-20S(73) | 125-0106-6 73 | | | | | | |

● Crimp type

Unit: mm

| Part No. | HRS No. | No. of contacts | A | φB | φC | φD | Weight |
|-------------------|---------------|-----------------|----|------|-----|----|--------|
| HR25-9TP-12PC(72) | 125-0401-6 72 | 12 | 43 | 12.5 | 8.7 | 7 | 12g |
| HR25-9TP-12SC(72) | 125-0402-9 72 | | | | | | |
| HR25-9TP-16PC(72) | 125-0403-1 72 | 16 | | | | | |
| HR25-9TP-16SC(72) | 125-0404-4 72 | | | | | | |
| HR25-9TP-20PC(72) | 125-0405-7 72 | 20 | | | | | |
| HR25-9TP-20SC(72) | 125-0406-0 72 | | | | | | |

■ Receptacle



● Solder type

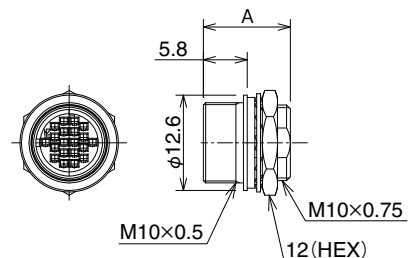
Unit: mm

| Part No. | HRS No. | No. of contacts | φA | B | C | D | Weight |
|------------------|---------------|-----------------|------|-----------|----------|----|--------|
| HR25-9TR-4S(73) | 125-0007-4 73 | 4 | 10.6 | M8.5×0.5 | M8×0.5 | 10 | 3g |
| HR25-9TR-4P(73) | 125-0008-7 73 | | | | | | |
| HR25-9TR-6S(73) | 125-0009-0 73 | 6 | | | | | |
| HR25-9TR-6P(73) | 125-0010-9 73 | | | | | | |
| HR25-9TR-8S(73) | 125-0011-1 73 | 8 | | | | | |
| HR25-9TR-8P(73) | 125-0012-4 73 | | | | | | |
| HR25-9TR-12S(71) | 125-0107-9 71 | 12 | 12.6 | M10.5×0.5 | M10×0.75 | 12 | 4g |
| HR25-9TR-12P(71) | 125-0108-1 71 | | | | | | |
| HR25-9TR-16S(71) | 125-0109-4 71 | 16 | | | | | |
| HR25-9TR-16P(71) | 125-0110-3 71 | | | | | | |
| HR25-9TR-20S(71) | 125-0111-6 71 | 20 | | | | | |
| HR25-9TR-20P(71) | 125-0112-9 71 | | | | | | |

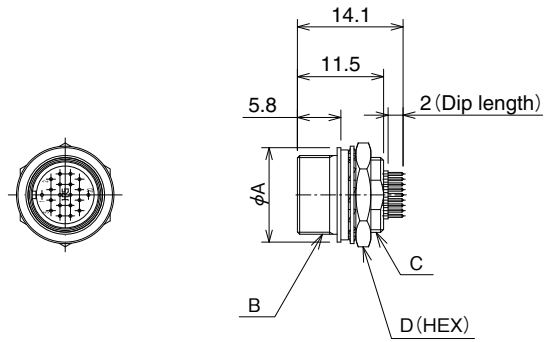
● Crimp type

Unit: mm

| Part No. | HRS No. | No. of contacts | A | Weight |
|-------------------|---------------|-----------------|------|--------|
| HR25-9TR-12SC(71) | 125-0407-2 71 | 12 | 11.5 | 3g |
| HR25-9TR-12PC(71) | 125-0408-5 71 | | 13 | |
| HR25-9TR-16SC(71) | 125-0409-8 71 | 16 | 11.5 | |
| HR25-9TR-16PC(71) | 125-0410-7 71 | | 13 | |
| HR25-9TR-20SC(71) | 125-0411-0 71 | 20 | 11.5 | |
| HR25-9TR-20PC(71) | 125-0412-2 71 | | 13 | |



Receptacle

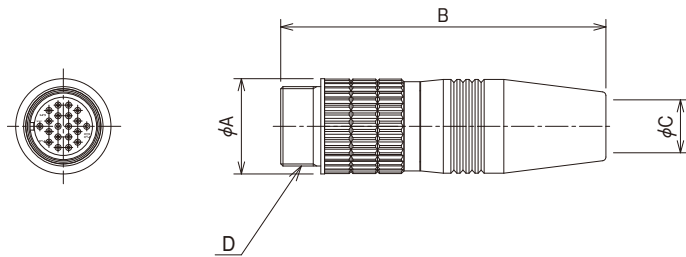


● Direct PCB mounting type

Unit: mm

| Part No. | HRS No. | No. of contacts | φA | B | C | D | Weight |
|-------------------|---------------|-----------------|------|-----------|----------|----|--------|
| HR25-7TR-4SA(73) | 125-0019-3 73 | 4 | 10.6 | M8.5×0.5 | M8×0.5 | 10 | 3g |
| HR25-7TR-4PA(73) | 125-0020-2 73 | | | | | | |
| HR25-7TR-6SA(73) | 125-0021-5 73 | 6 | | | | | |
| HR25-7TR-6PA(73) | 125-0022-8 73 | | | | | | |
| HR25-7TR-8SA(73) | 125-0023-0 73 | 8 | | | | | |
| HR25-7TR-8PA(73) | 125-0024-3 73 | | | | | | |
| HR25-9TR-12SA(71) | 125-0119-8 71 | 12 | 12.6 | M10.5×0.5 | M10×0.75 | 12 | 4g |
| HR25-9TR-12PA(71) | 125-0120-7 71 | | | | | | |
| HR25-9TR-16SA(71) | 125-0121-0 71 | 16 | | | | | |
| HR25-9TR-16PA(71) | 125-0122-2 71 | | | | | | |
| HR25-9TR-20SA(71) | 125-0123-5 71 | 20 | | | | | |
| HR25-9TR-20PA(71) | 125-0124-8 71 | | | | | | |

Jack



● Solder type

Unit: mm

| Part No. | HRS No. | No. of contacts | φA | B | φC | D | Weight |
|------------------|---------------|-----------------|------|----|----|-----------|--------|
| HR25-7TJ-4S(72) | 125-0013-7 72 | 4 | 10.6 | 35 | 5 | M8.5×0.5 | 8g |
| HR25-7TJ-4P(72) | 125-0014-0 72 | | | | | | |
| HR25-7TJ-6S(72) | 125-0015-2 72 | 6 | | | | | |
| HR25-7TJ-6P(72) | 125-0016-5 72 | | | | | | |
| HR25-7TJ-8S(72) | 125-0017-8 72 | 8 | | | | | |
| HR25-7TJ-8P(72) | 125-0018-0 72 | | | | | | |
| HR25-9TJ-12S(72) | 125-0113-1 72 | 12 | 12.6 | 43 | 7 | M10.5×0.5 | 12g |
| HR25-9TJ-12P(72) | 125-0114-4 72 | | | | | | |
| HR25-9TJ-16S(72) | 125-0115-7 72 | 16 | | | | | |
| HR25-9TJ-16P(72) | 125-0116-0 72 | | | | | | |
| HR25-9TJ-20S(73) | 125-0117-2 73 | 20 | | | | | |
| HR25-9TJ-20P(72) | 125-0118-5 72 | | | | | | |

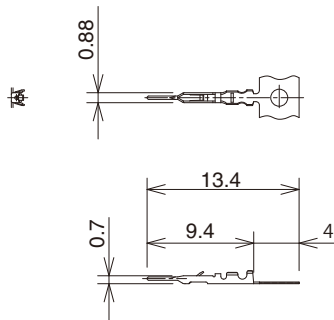
● Crimp type

Unit: mm

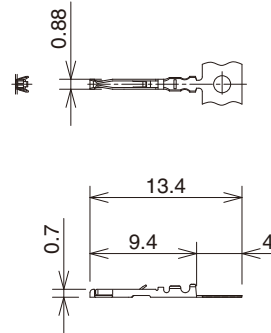
| Part No. | HRS No. | No. of contacts | φA | B | φC | D | Weight |
|-------------------|---------------|-----------------|------|----|----|-----------|--------|
| HR25-9TJ-12SC(72) | 125-0413-5 72 | 12 | 12.6 | 43 | 7 | M10.5×0.5 | 12g |
| HR25-9TJ-12PC(72) | 125-0414-8 72 | | | | | | |
| HR25-9TJ-16SC(72) | 125-0415-0 72 | 16 | | | | | |
| HR25-9TJ-16PC(72) | 125-0416-3 72 | | | | | | |
| HR25-9TJ-20SC(72) | 125-0417-6 72 | 20 | | | | | |
| HR25-9TJ-20PC(72) | 125-0418-9 72 | | | | | | |

■ Crimp-style contacts

● Male Contacts



● Female Contacts



| Type | Part No. | HRS No. | Suitable Wire |
|----------------|-------------|------------|---------------|
| Loose contacts | HR25-PC-111 | 125-0419-1 | AWG#30 |
| Reel contacts | HR25-PC-211 | 125-0420-0 | |

Note: 1. Please use wire with a outer jacket diameter of 0.71mm or less.
 2. Loose contacts come in packages of 100 pcs.
 Reel contacts come in reels of 10,000 pcs.

| Type | Part No. | HRS No. | Suitable Wire |
|----------------|-------------|------------|---------------|
| Loose contacts | HR25-SC-111 | 125-0421-3 | AWG#30 |
| Reel contacts | HR25-SC-211 | 125-0422-6 | |

Note: 1. Please use wire with a outer jacket diameter of 0.71mm or less.
 2. Loose contacts come in packages of 100 pcs.
 Reel contacts come in reels of 10,000 pcs.

◆ Applicable Tools

| Type | Item | Part No. | HRS No. | Applicable Contacts | Applicable Wire and Applicable Cable Diameter |
|--------|----------------------------|---------------|------------|----------------------------|---|
| Manual | Manual crimping tool | HR25-TA3032HC | 150-0207-3 | HR25-PC-111 HR25-SC-111 | AWG#30 |
| Auto | Auto crimping machine body | CM-105 | 901-0005-4 | - | - |
| | Applicator | AP105-HR25-1 | 901-2040-6 | HR25-PC-211 HR25-SC-211 | AWG#30 |
| | Cable crimping tool | HR10A-TC-02 | 150-0041-2 | - | $\phi 5$ 、 $\phi 7$ |
| | Extractor | HR25-TP | 150-0091-0 | - | - |

◆ Assembly Tools

Use of the following assembly tools will simplify the process of disassembling and assembling the connectors for the cable assembly.

| Part No. | HRS No. | Suitable Connectors and Uses |
|--------------|------------|---|
| HR25-7TP-T01 | 150-0082-0 | For HR25-7TP wiring and P shell unit tightening |
| HR25-9TP-T01 | 150-0080-4 | For HR25-9TP wiring and P shell unit tightening |
| HR25-7TJ-T01 | 150-0089-9 | For HR25-7TJ wiring and J shell unit tightening |
| HR25-9TJ-T01 | 150-0090-8 | For HR25-9TJ wiring and J shell unit tightening |

◆ Cable Assembly Procedures

- The outline of wiring work for this diagram uses the soldered type as an example.
The jack side is also based on the work outline of the plug; however, the receptacle side does not require a special work outline and has been omitted because of this.

● Construction Diagram

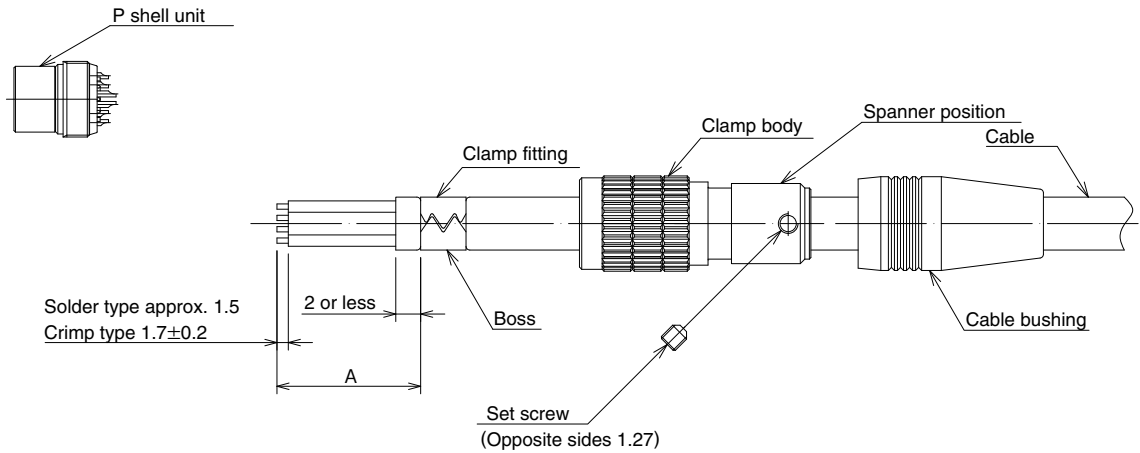


Table 1

| Shell size | Soldered type A dimensions | Crimp type A dimensions | Spanner spacing | Tightening torque |
|------------|----------------------------|-------------------------|-----------------|-------------------|
| 7 | 10mm | — | 8mm | 1N · m |
| 9 | 19mm | 15mm | 10mm | 1N · m |

○ Work Operation Procedures

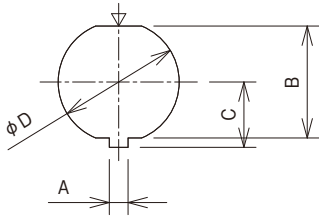
1. With regard to cables, the wire to be used should have a conductor with a nominal cross-sectional area of 0.08 mm² (AWG#28) or less in a finished form suited to each size.
2. First pass the cable bushing and the plug body in order over the cable, then cut the end at the dimensions indicated in the above diagram.
3. Mount the P shell unit in the wiring jig and perform the solder wiring.
4. Use the cable crimping jig (HR10A-TC-02) to fix the clamp fitting to the cable.
5. After performing the wiring, tighten the plug body to the screw portion of the P shell unit using the specified torque (in the above table).
6. Tighten the set screw so that the tip of the set screw falls into one of the two bosses of the clamp fitting. Note that the tightening torque of the set screw is from 0.3 to 0.4 Nm.
7. Put the cable bushing over the plug body and complete the work.
Note that the use of paint lock (e.g., Locktight 263 manufactured by HENKEL JAPAN LTD.) is recommended on the screw portion to prevent loosening of the P shell unit.

The aforementioned work procedure is for the soldered type. In the case of the crimp-style type, Steps 1 and 3 are changed as follows:

1. With regard to cables, the wire to be used should have a conductor with a nominal cross-sectional area of 0.05 mm² (AWG#30) in a finished form suited to each size.
3. Crimp a suitable crimp terminal to the conductor portion of the cable, then fit into the housing of the P shell unit.

Mounting Hole Dimensions Diagram

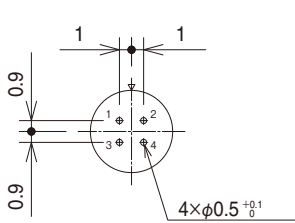
Mounting hole dimensions are indicated as viewed from the engagement side.



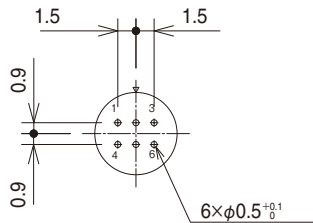
| Lock System | Screw Lock Type | |
|--------------------------|--|--|
| Shell Size | Size 7 | Size 9 |
| Diagram Symbol | | |
| A | 1.55 ^{+0.05} ₀ | 1.55 ^{+0.05} ₀ |
| B | 7.25 ^{+0.03} _{-0.02} | 9.25 ^{+0.03} _{-0.02} |
| C | 4.4 ^{+0.1} ₀ | 5.4 ^{+0.1} ₀ |
| D | 8 ^{+0.05} ₀ | 10 ^{+0.05} ₀ |
| Mounting Panel Thickness | 0.7 ~ 2 | 0.7 ~ 2 |

Note: The ∇ mark indicates the engagement guide key position.

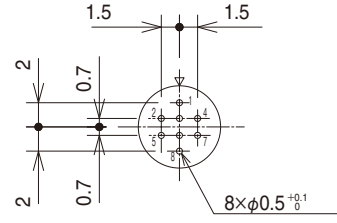
Receptacle Dip Post Configuration Dimensions



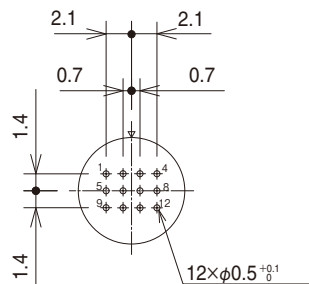
Size 7, 4 conductors



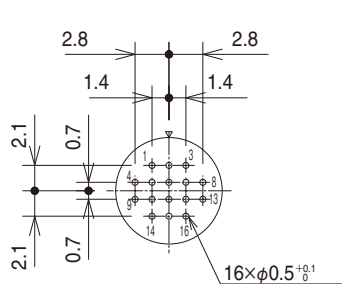
Size 7, 6 conductors



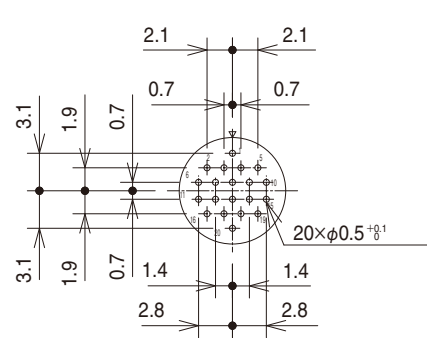
Size 7, 8 conductors



Size 9, 12 conductors



Size 9, 16 conductors

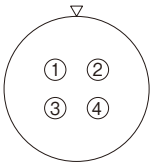
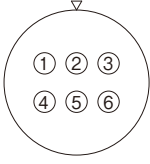
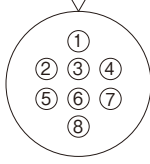


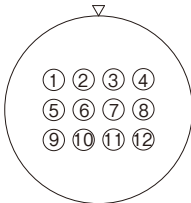
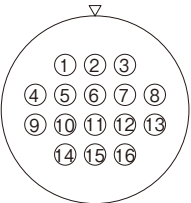
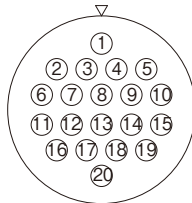
Size 9, 20 conductors

Note:

1. The above diagrams are viewed from the engagement side of the socket insert (i.e., the wiring side of the pin insert).
2. The ∇ mark of the above diagrams indicates the engagement guide key position.
3. A tolerance of ± 0.05 is recommended for dimensions without indication.

◆ Contact Configuration and Basic Specifications

| Shell size | Size 7 | | |
|----------------------------|---|--|---|
| Contact configuration |  |  |  |
| Number of contacts | 4 | 6 | 8 |
| Withstand voltage | 100V AC for 1 minute | | |
| Current capacity | 1 A | | |
| Insulation resistance | 1,000 MΩ or greater | | |
| Contact resistance | 30 mΩ | | |
| Solder pot inside diameter | 0.5 mm dia. | | |

| Shell size | Size 9 | | |
|----------------------------|--|---|--|
| Contact configuration |  |  |  |
| Number of contacts | 12 | 16 | 20 |
| Withstand voltage | 100V AC for 1 minute | | |
| Current capacity | 1 A | | |
| Insulation resistance | 1,000 MΩ or greater | | |
| Contact resistance | 30 mΩ | | |
| Solder pot inside diameter | 0.5 mm dia. | | |

Note:

1. The above diagrams are viewed from the engagement side of the socket insert (i.e., the wiring side of the pin insert).
2. The ▽ mark of the above diagrams indicates the engagement guide key position.
3. The withstand voltage indicates the test voltage value. For regular use the voltage used should be less than 30 V AC or 42 V DC.
4. The current capacity of the crimp terminals indicates the value when using wire of AWG#30.
5. The insulation resistance indicates a value when measured at 100 V DC.

◆ Precautions

1. Switch off the power of the circuit before disconnecting or plugging-in the connectors.
2. Use connectors with socket contacts at the power side of the circuit.
3. Make sure that the coupling is in completely cocked position.
4. Cable clamping, cable rotation, and other forces may vary with the cable construction. Please make sure that your cable is suitable for use with these connectors before usage and production.



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