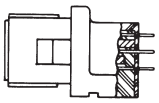
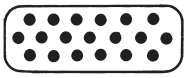
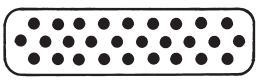
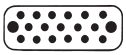
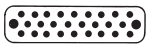
Engineering Quick Reference Selection Guide

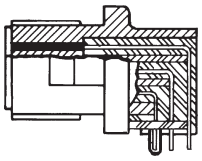
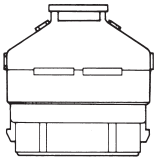
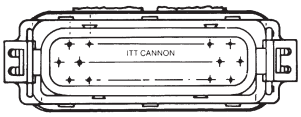
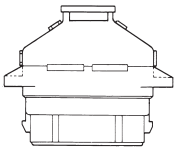
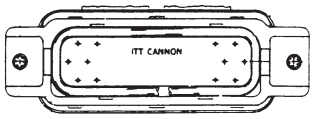
Part No. Description 19 Position	Part No. Description 28 Position	Contact Arrangement	No. of Contacts	Plug, Straight PCB 19 Position	Plug, Straight PCB 28 Position
					
				For PCB Layout, see page 24.	
SLEB19P4S SLEB19P4D SLEB19P4L SLEB19P4SG SLEB19P4R SLEB19P4UG SLEB19P4U SLEB19P4DG SLEB19S2SF SLEB19S2R SLEB19S2S SLEB19S2U SLEB19S2L SLEB19S2D			19		
SLEB19N3P SLEB19N3PN SLEB19N3PM SLEB19N3					
SLEB19T3P SLEB19T3 SLEB19T3PM SLEB19T3H SLEB19T3PN				130415-0000 130415-0004 130415-0001 130415-0005 130415-0002	
	SLEC28P4S SLEC28P4D SLEC28P4L SLEC28P4SG SLEC28P4R SLEC28P4UG SLEC28P4U SLEC28P4DG		28		
	SLEC28S2SF SLEC28S2R SLEC28S2S SLEC28S2U SLEC28S2L SLEC28S2D				
	SLEC28N3P SLEC28N3PN SLEC28N3PM SLEC28N3				
	SLEC28T3P SLEC28T3PE SLEC28T3PM SLEC28T3 SLEC28T3PN				130415-0000 130415-0004 130415-0001 130415-0005 130415-0002
SLEB130411 SLEB19S12 SLEB130411 SLEB19S14			19		
	SLEC130415 SLEC28S12 SLEC130414 SLEC28S14		28		

How to Order

SLE	B	19	P	4	S	G	**

Series Prefix
Size
Number of Contacts
Contact Termination
Connector Type
Connector Termination
Mechanical Modifier
Material/Finish Modifier

Engineering Quick Reference Selection Guide

Plug, 90° PCB		Plug, In-line		Receptacle, In-line	
19 Position	28 Position	19 Position	28 Position	19 Position	28 Position
					
For PCB Layout, see page 25					
				130408-0000 130408-0004 130408-0001 130408-0010 130408-0002 130408-0011 130408-0003 130408-0012	
		130413-0000 130413-0003 130413-0001 130413-0004 130413-0002 130413-0005			
130414-0000 130414-0002 130414-0001 130414-0004					
					130412-0000 130412-0004 130412-0001 130412-0010 130412-0002 130412-0011 130412-0003 130412-0012
			130413-0000 130413-0003 130413-0001 130413-0004 130413-0002 130413-0005		
	130414-0000 130414-0002 130414-0001 130414-0004				
Note: For configuration contact Cannon.					
Note: For configuration contact Cannon.					

Series Prefix
SLE - SLE-Snap Lock Environmental

Size
B-19 Cavity Housing
C-28 Cavity Housing

Number of Contacts
19 or 28

Contact Termination
- T - Tuning Fork Straight [Plug with 3,05 (.120) min. PCB tails]
- N - Tuning Fork 90° [Plug with 2,54 (.100) min. PCB tails]
- P - Crimp Pin (Receptacle)
- S - Crimp Socket (Plug)
- P1 - Crimp Pin Power (Receptacle)
- S1 - Crimp Socket Power (Pin)

Connector Type
- 2 - Plug, In-line (Cable-to-Cable)
- 3 - Plug, PCB
- 4 - Receptacle, In-line (Cable-to-Cable)

Connector Termination
- S - Straight (Endbell)
- L - 90° Left (Endbell)
- R - 90° Right (Endbell)
- U - 90° Up (Endbell)
- D - 90° Down (Endbell)
- P - Potted (PCB Only)

Mechanical Modifier
- F - With Flange Mount (Plug only)
- G - Screwlock Applications (Receptacle only)
- M - Metric Threaded Inserts
- N - Threaded Inserts #6-32
- E - Threaded Inserts #6-32

Dimensions shown in mm
Specifications and dimensions subject to change

The Snap Lock Environmental Series is environmentally-sealed connector created for printed circuit board, blackbox, cable-to-cable, or bulkhead applications.

When your under-the-hood requirements call for tough performance, the SLE "snaps" into a tightly sealed connection that can withstand heat, shock and vibration. The connector is designed to preserve the integrity of the solid state package, while protecting against contaminants - even when unmated.

Polarization, scoop-proofing and hand insertion of contacts are part of the package. Gold, tin/lead-plated stamped contacts add durability. A rugged, thermoplastic receptacle body maximizes performance by withstanding temperature variances from -40°C to +125°C.

The SLE series is available in both 19 and 28 contact cavity configurations. It can also be adapted to robotic assembly. Should your requirement demand higher density configurations, consult Customer Service.



Product Feature and Benefits

- Superior environmental sealing
- -40°C to +125°C continuous operation at rated current
- Available in two sizes, 19 and 28 contacts
- Crimp stamped gold, tin/lead plated contacts
- Hand insertable/removable contacts
- Current rating 5 A and 13 A versions
- Low millivolt drop
- Small footprint on P.C. board and low profile
- 5-way alternate polarization
- Integral mold latch. Adaptable to robotic assembly.
- Multi-direction, easily assembled endbells
- Optional secondary bail latch
- Latch with tactile and audible feedback
- Low installed cost
- Meets both signal and power requirements
- Versatile cable strain relief, up, down, straight, left ad right, flange/bulkhead
- Connector mating assurance

Performance Specifications

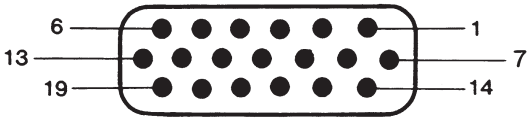
Contact Resistance	10 mΩ maximum
Insulation Resistance	100 MΩ minimum
Current Rating	5 A signal continuous at 125°C all contacts 13 A power continuous at 125°C all contacts
Dielectric Withstanding Voltage	1000 Vrms AC at sea level
Applicable Cannon Specification	CS-189
Operating Temperature	-40°C to +125°C
Crimp Contacts	Semi-automatic or hand crimpable
Wire Size	20-16 AWG
Wire Insulations Sealing Range	2,41 (.095) to 3,30 (.130) dia.
Polarization	'D' shaped interface with five alternate positions.
Contact Insertion	No tool required. Suitable for automation.
Contact Extraction	Rear removable
Contact Retention	25 lbs. Minimum per contact
Wire Strip Length	5,59 (.220) to 5,33 (.210)

Materials and Finishes

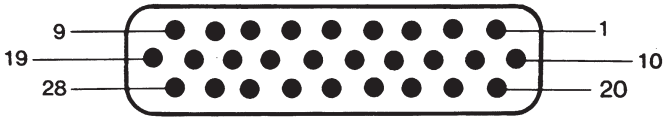
Connector Housing	High temperature thermoplastic
Contacts	Copper alloy
Finish	Engaging area: Gold over nickel Crimp/P.C. tail area: Tin/lead over nickel
Environmental Seal	High temperature silicone elastomer

Contact Cavity Arrangement

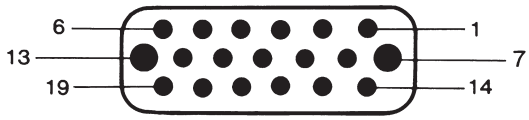
Face View - Engaging Face of Plug



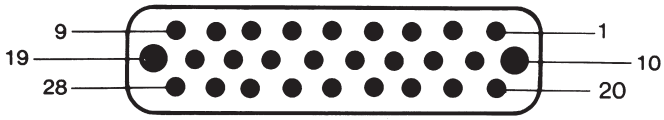
Size B
19 Contacts



Size C
28 Contacts



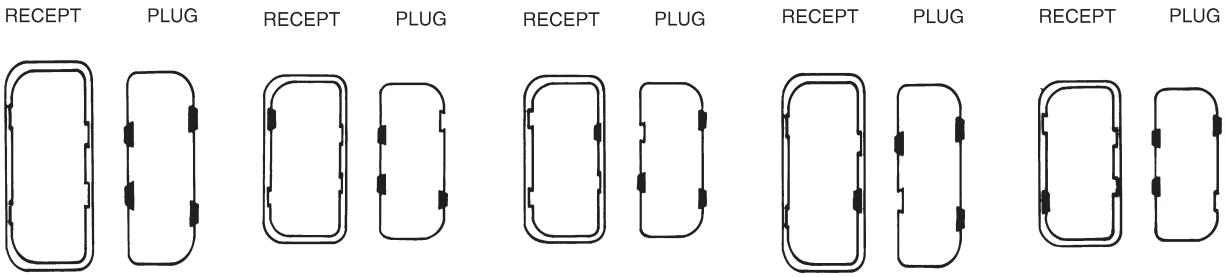
Power Version*



Power Version*

***Contact Cannon**

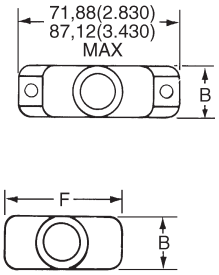
Polarization

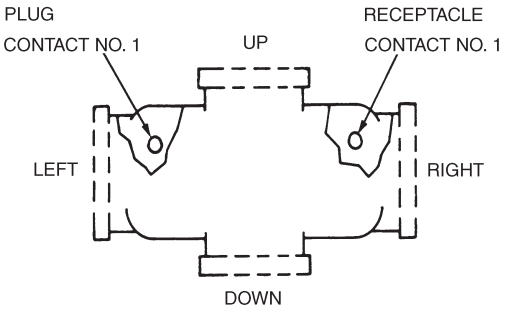


Normal **W** **X** **Y** **Z**

Endbells

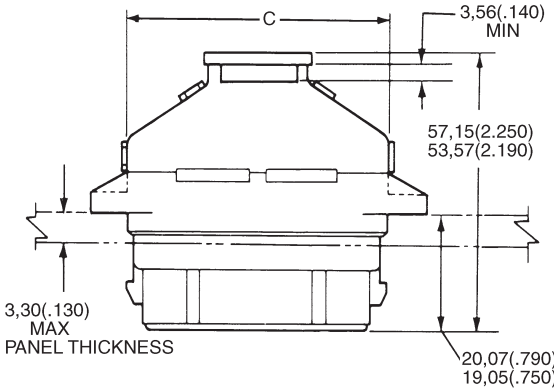
Connectors are supplied with endbell assemblies.



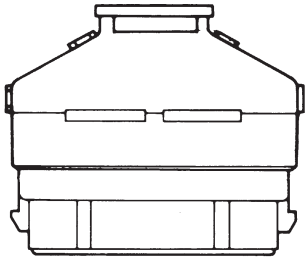


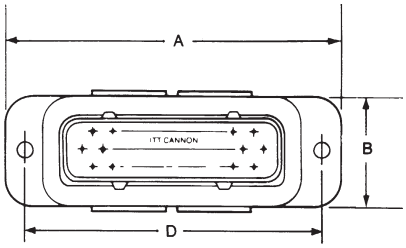
Part number by Shell Size	B Max.	F Max.	Cable Entry I.D.
SLEB	26,16 (1.030)	50,80 (2.000)	14,73 (.580)
SLEC	26,16 (1.030)	66,04 (2.600)	19,81 (.780)

Plug, In-line (Cable-to-Cable)



With Flange Endbell (Plug Only)





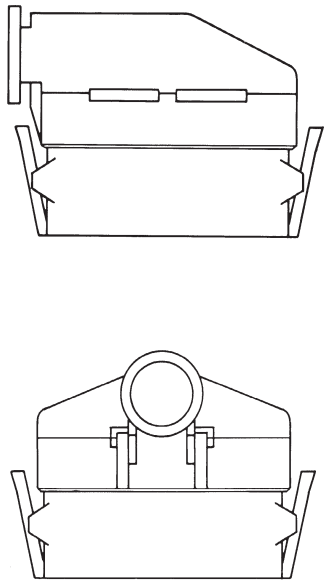
Note: Plugs are supplied with endbell assemblies.

Shell Size	Number of Contacts	Part Number*	Nomenclature	A Max.	C Max.	D ±0,38 (.015)
SLEB	19	130409-0000*	SLEB19S2SF	71,88 (2.830)	47,50 (1.870)	59,05 (2.325)
SLEB	19	130409-0001*	SLEB19S2S	71,88 (2.830)	47,50 (1.870)	59,05 (2.325)
SLEB	19	130409-0002*	SLEB19S2L	71,88 (2.830)	47,50 (1.870)	59,05 (2.325)
SLEB	19	130409-0003*	SLEB19S2R	71,88 (2.830)	47,50 (1.870)	59,05 (2.325)
SLEB	19	130409-0004*	SLEB19S2U	71,88 (2.830)	47,50 (1.870)	59,05 (2.325)
SLEB	19	130409-0005*	SLEB19S2D	71,88 (2.830)	47,50 (1.870)	59,05 (2.325)
SLEC	28	130413-0000	SLEC28S2SF	87,11 (3.430)	62,74 (2.470)	74,29 (2.925)
SLEC	28	130413-0001	SLEC28S2S	87,11 (3.430)	62,74 (2.470)	74,29 (2.925)
SLEC	28	130413-0002	SLEC28S2L	87,11 (3.430)	62,74 (2.470)	74,29 (2.925)
SLEC	28	130413-0003	SLEC28S2R	87,11 (3.430)	62,74 (2.470)	74,29 (2.925)
SLEC	28	130413-0004	SLEC28S2U	87,11 (3.430)	62,74 (2.470)	74,29 (2.925)
SLEC	28	130413-0005	SLEC28S2D	87,11 (3.430)	62,74 (2.470)	74,29 (2.925)

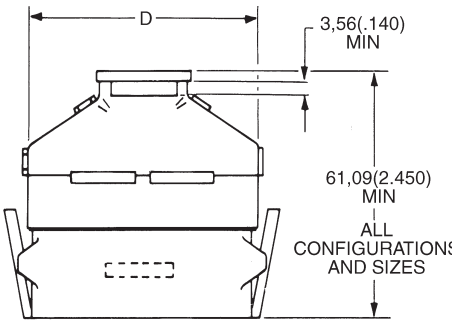
*Select polarization, see page 25.

Receptacle, In-line (Cable-to-Cable)

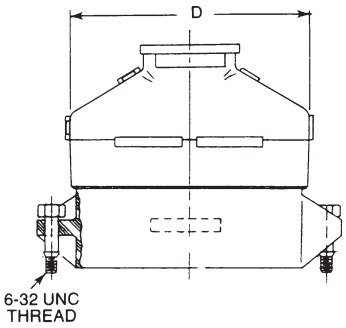
90° Left and Right

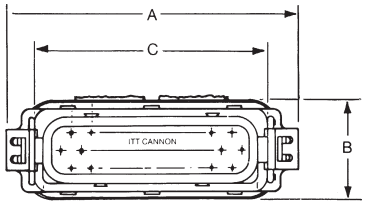


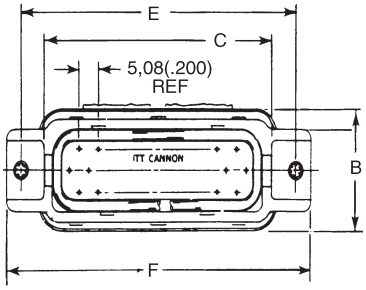
Straight



Screwlock







Note: Receptacles are supplied with endbell assemblies.

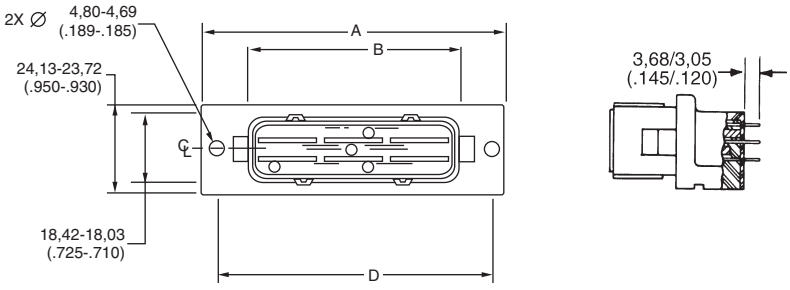
Shell Size	Number of Contacts	Part Number*	Nomenclature	A Max.	C Max.	D Max.	E ±0,38 (.015)	F Max.
SLEB	19	130408-0000*	SLEB19P4S	59,44 (2.340)	44,07 (1.735)	50,58 (2.000)	55,87 (2.200)	64,25 (2.530)
SLEB	19	130408-0001*	SLEB19P4L	59,44 (2.340)	44,07 (1.735)	50,58 (2.000)	55,87 (2.200)	64,25 (2.530)
SLEB	19	130408-0002*	SLEB19P4R	59,44 (2.340)	44,07 (1.735)	50,58 (2.000)	55,87 (2.200)	64,25 (2.530)
SLEB	19	130408-0003*	SLEB19P4U	59,44 (2.340)	44,07 (1.735)	50,58 (2.000)	55,87 (2.200)	64,25 (2.530)
SLEB	19	130408-0004*	SLEB19P4D	59,44 (2.340)	44,07 (1.735)	50,58 (2.000)	55,87 (2.200)	64,25 (2.530)
SLEB	19	130408-0010*	SLEB19P4SG	59,44 (2.340)	44,07 (1.735)	50,58 (2.000)	55,87 (2.200)	64,25 (2.530)
SLEB	19	130408-0011*	SLEB19P4UG	59,44 (2.340)	44,07 (1.735)	50,58 (2.000)	55,87 (2.200)	64,25 (2.530)
SLEB	19	130408-0012*	SLEB19P4DG	59,44 (2.340)	44,07 (1.735)	50,58 (2.000)	55,87 (2.200)	64,25 (2.530)
SLEC	28	130412-0000	SLEC28P4S	76,45 (3.010)	59,31 (2.335)	66,04 (2.600)	71,11 (2.800)	79,49 (3.130)
SLEC	28	130412-0001	SLEC28P4L	76,45 (3.010)	59,31 (2.335)	66,04 (2.600)	71,11 (2.800)	79,49 (3.130)
SLEC	28	130412-0002	SLEC28P4R	76,45 (3.010)	59,31 (2.335)	66,04 (2.600)	71,11 (2.800)	79,49 (3.130)
SLEC	28	130412-0003	SLEC28P4U	76,45 (3.010)	59,31 (2.335)	66,04 (2.600)	71,11 (2.800)	79,49 (3.130)
SLEC	28	130412-0004	SLEC28P4D	76,45 (3.010)	59,31 (2.335)	66,04 (2.600)	71,11 (2.800)	79,49 (3.130)
SLEC	28	130412-0010	SLEC28P4SG	76,45 (3.010)	59,31 (2.335)	66,04 (2.600)	71,11 (2.800)	79,49 (3.130)
SLEC	28	130412-0011	SLEC28P4UG	76,45 (3.010)	59,31 (2.335)	66,04 (2.600)	71,11 (2.800)	79,49 (3.130)
SLEC	28	130412-0012	SLEC28P4DG	76,45 (3.010)	59,31 (2.335)	66,04 (2.600)	71,11 (2.800)	79,49 (3.130)

*Select polarization, see page 23.

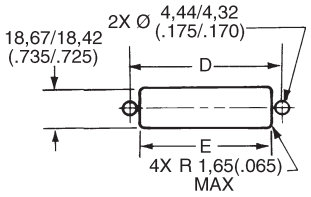
Plug, PCB, Straight







Panel Cutout



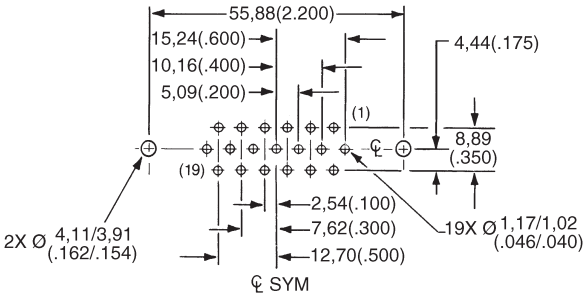
PANEL THICKNESS ,200 MAX

Shell Size	Number of Contacts	Part Number*	Nomenclature	A Max.	B Max.	D Max.	E Max.
SLEB	19	130411-0000*	SLEB19T3P	63,50 (2.500)	74,94 (3.100)	56,13 (2.210)	47,62 (1.875)
SLEB	19	130411-0001*	SLEB19T3PM	63,50 (2.500)	74,94 (3.100)	56,13 (2.210)	47,62 (1.875)
SLEB	19	130411-0002*	SLEB19T3PN	63,50 (2.500)	74,94 (3.100)	56,13 (2.210)	47,62 (1.875)
SLEB	19	130411-0004*	SLEB19T3E	63,50 (2.500)	74,94 (3.100)	56,13 (2.210)	47,62 (1.875)
SLEB	19	130411-0005*	SLEB19T3	63,50 (2.500)	74,94 (3.100)	56,13 (2.210)	47,62 (1.875)
SLEC	28	130415-0000	SLEC28T3P	78,94 (3.108)	54,61 (2.150)	71,37 (2.810)	62,86 (2.475)
SLEC	28	130415-0001	SLEC28T3PM	78,94 (3.108)	54,61 (2.150)	71,37 (2.810)	62,86 (2.475)
SLEC	28	130415-0002	SLEC28T3PN	78,94 (3.108)	54,61 (2.150)	71,37 (2.810)	62,86 (2.475)
SLEC	28	130415-0004	SLEC28T3PE	78,94 (3.108)	54,61 (2.150)	71,37 (2.810)	62,86 (2.475)
SLEC	28	130415-0005	SLEC28T3	78,94 (3.108)	54,61 (2.150)	71,37 (2.810)	62,86 (2.475)

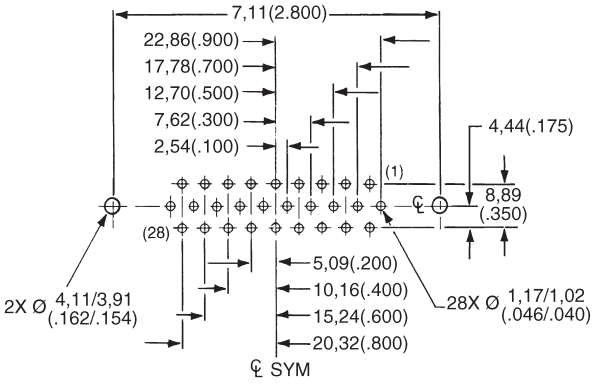
*Select polarization, see page 23.

Recommended PCB Layout, Straight

SLE B19 (19 contacts)

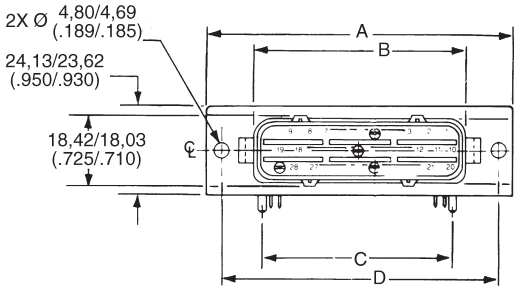


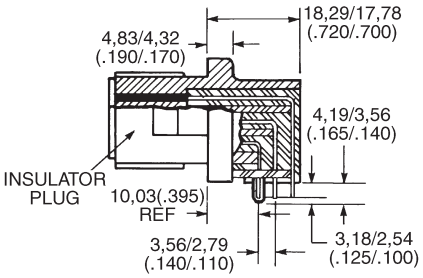
SLE C28 (28 contacts)



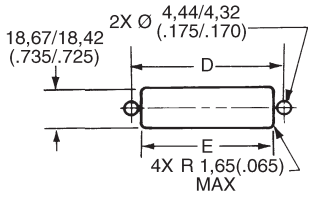
Plug, PCB, 90˚







Panel Cutout



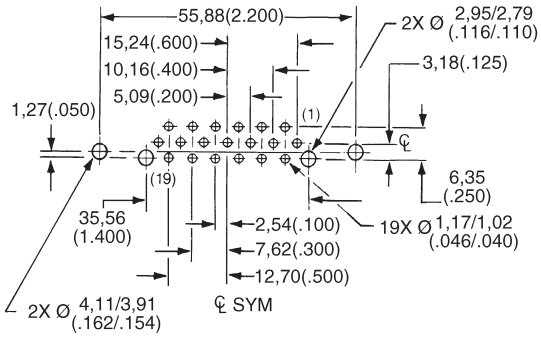
PANEL THICKNESS ,200 MAX

Shell Size	Number of Contacts	Part Number*	Nomenclature	A Max.	B Max.	C Max.	D Max.	E Max.
SLEB	19	130410-0000*	SLEB19N3P	63,50 (2.500)	74,94 (3.100)	35,81 (1.410)	56,13 (2.210)	47,62 (1.875)
SLEB	19	130410-0001*	SLEB19N3PM	63,50 (2.500)	74,94 (3.100)	35,81 (1.410)	56,13 (2.210)	47,62 (1.875)
SLEB	19	130410-0002*	SLEB19N3PN	63,50 (2.500)	74,94 (3.100)	35,81 (1.410)	56,13 (2.210)	47,62 (1.875)
SLEB	19	130410-0004*	SLEB19N3	63,50 (2.500)	74,94 (3.100)	35,81 (1.410)	56,13 (2.210)	47,62 (1.875)
SLEC	28	130414-0000	SLEC28N3P	78,94 (3.108)	54,61 (2.150)	51,05 (2.010)	71,37 (2.810)	62,86 (2.475)
SLEC	28	130414-0001	SLEC28N3PM	78,94 (3.108)	54,61 (2.150)	51,05 (2.010)	71,37 (2.810)	62,86 (2.475)
SLEC	28	130414-0002	SLEC28N3PN	78,94 (3.108)	54,61 (2.150)	51,05 (2.010)	71,37 (2.810)	62,86 (2.475)
SLEC	28	130414-0004	SLEC28N3	78,94 (3.108)	54,61 (2.150)	51,05 (2.010)	71,37 (2.810)	62,86 (2.475)

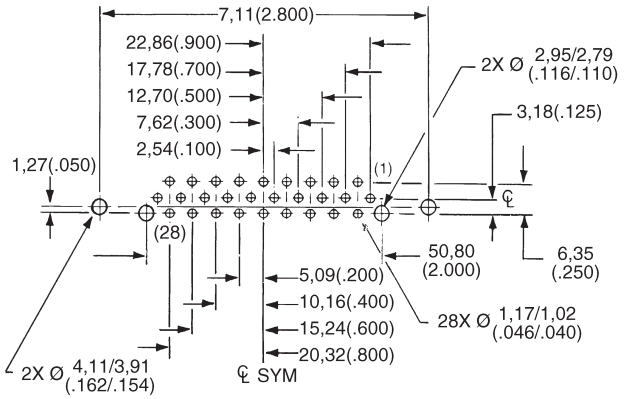
*Select polarization, see page 23.

Recommended PCB Layout, 90˚

SLE B19 (19 contacts)



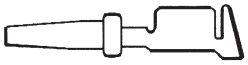
SLE C28 (28 contacts)



Dimensions shown in mm
Specifications and dimensions subject to change

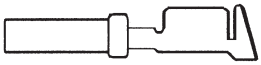
Contacts, Stamped, 5 and 13 Amp

Socket (use in plugs)



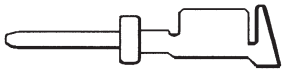


Hooded Socket





Pin (use in receptacles)





	Hooded Socket	Reeled		
Description	Socket Part Number Reeled	Pin Part Number	Socket Part Number	Number of Contacts
5 A	110238-1016 (030-2480-007)	110238-0446 (030-2464-007)	110238-04888 (030-2480-000)	4,500
13 A		110238-2004 (030-2464-003)	110238-2003 (030-2480-003)	4,000

Accessories

Sealing Plug



Material: Thermoplastic, Color: Natural
Part Number: 225-0093-000

Female Screw Lock



Order 2 per connector
Material: Steel
Finish: Zinc
Part Number: 265-0061-000

Latch Clip Retainer



Bail Latch For Redundant Latch Applications	
SLEB	029-0281-000
SLEC	029-0281-001

Test Methods

Insulation Resistance	MIL-STD-1344	Method 3003.1
Dielectric Withstanding Voltage	MIL-STD-1344	Method 3001.1
Contact Resistance	MIL-STD-1344	Method 3004.1
Low Level Contact Resistance	MIL-STD-1344	Method 3002.1
Crimp Tensile Strength	MIL-STD-1344	Method 2003.1
Contact Retention	MIL-STD-1344	Method 2007.1
Mating Separating Force	MIL-STD-1344	Method 2013.1
Durability	MIL-STD-1344	Method 2016
Temperature Life	MIL-STD-202	Method 108 Condition D
Mechanical Shock	MIL-STD-202	Method 213 Condition I
Maintenance Aging	MIL-STD-1344	Method 2002.1
Vibration	MIL-STD-1344	Method 2005.1 Condition VI 20 Hours/Axis
Sand and Dust	MIL-STD-202	Method 110
Salt and Spray	MIL-STD-202	Method 101 Condition A
Humidity	MIL-STD-202	Method 106
Steam Cleaning/Pressure Wash	SAE	Proposed

Extraction Tool

Contact Extraction Tool
Part Number: 274-7068-001
Tip Part Number: 323-9519-000



· A Standard CET - SLE/SLC is available for extraction of the individual crimp contacts. Insertion tool is not required.

Insertion/Extraction Instructions for Crimp Contacts

Insertion Tool
No insertion tool is required. The contact is easily snapped in from the rear of the connector manually.



1. Move to the rear of the connector so that the contact cavities can be identified.



2. Insert a crimp terminated assembly into a selected cavity.



3. Continue the forward movement until and audible snap can be felt and heard. Slight pull in the opposite direction will confirm complete insertion.

Extraction



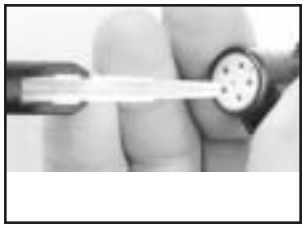
1. Open the CET - SLE Extraction tool and place it over the insulation of the wire.



2. Using a straight motion forward, insert the tool along the wire until it bottoms against the connector. (Do not use a screwing motion - damage will result.)



3. While the extraction tool is in place, simply pull the wire/contact assembly out.



4. Remove the extraction tool. Extraction is complete.

Hand Crimp Tool Operation



Hand Crimp Tool - CCT - SLC / SLE
Part Number: 995-0002-232

The CCT-SLC/SLE hand crimp tool is designed to crimp individual SLC/SLE contacts on wire sizes 16, 18, and 20 AWG. Each cycle is ratchet-controlled (The tool must be completely closed before it can be reopened) to assure a satisfactory crimp each time. Over and under crimps are eliminated.

This tool is for use when the requirement is for low to moderate volume quantities, and for on-site applications where semi-automatic tools cannot be practically used.



1. Cycle the CCT - SLE / SLC hand tool to the open position.



2. While pressing upward on the locator spring, insert the contact with tails upward completely into the locator.



3. When correctly positioned the contact should be located beyond flush with the edge of the CCT - SLE / SLC and positioned in the concave polished split level crimp.



4. Partially (usually the first click) Cycle the hand tool assuring that the upward thrusting tails of the contact has started engaging with the top jaw of the tool. (There is a slight tendency for the contact to roll out of vertical alignment.)



5. Insert the pre-stripped wire into the crimp area of the contact and completely cycle the tool.



6. While pressing upward on the locator spring withdraw the crimp termination.

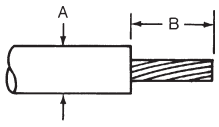


7. The result will be a perfect termination.



8. Note that there are no unterminated wire strands, and that some strand ends can be seen at the forward edge of the crimp. Also note the insulation is gripped by the smaller secondary crimp. Distortion is at a minimum, both axially and laterally - no sharp edges.

Wire Stripping

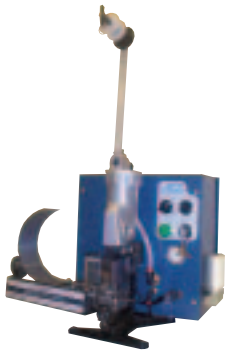


5 and 13 A Contact

Tolerance	A	B
Low	2,41 (.095)	5,33 (.210)
High	3,30 (.130)	5,59 (.220)

Lease Automatic Tooling - North America*

ABT-607 Pneumatic Crimper



The ABT-607 is a pneumatic powered and controlled machine. It is designed for customers with moderate volume. This machine is designed to semi-automatically crimp stamped and formed contacts onto pre-stripped stranded or single conductor electrical wire. This machine will accommodate size 34 thru 12 AWG wire and is actuated by the use of a foot pedal.

Machine Crimp Rate:
800 per hour

Power Requirements:
Pneumatic = 100 psi, 2 cu. ft. per min.

ABT-500 UCCD



The ABT-500 Universal Cannon Crimp Die, is a flywheel driven, electronically controlled machine that is designed to semi-automatically crimp stamped and formed contacts on stranded or single conductor, pre-stripped wire. This machine will accommodate size 34 thru 12 WG wire. The machine is actuated by the use of a foot pedal.

Machine Crimp Rate:
1300 per hour

Power Requirements:
Electrical = 115VAC, 60Hz, 20A

ABT-620 UCCS



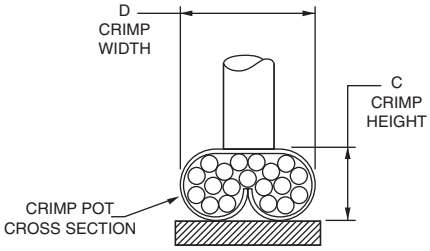
The ABT-620 Universal Cannon Crimper/Stripper is a pneumatic powered, microprocessor controlled machine. It is designed to semi-automatically strip insulation from stranded or single conductor electrical wire and attach a stamped and formed contact by crimping. The machine will accommodate 34 thru 12 AWG wire. Primary application of the machine is the termination of jacketed cable where the individual leads cannot be stripped by fully automated equipment. The ABT-620 UCCS operates automatically upon insertion of a wire or it can be switched over to foot pedal operation if desired.

Machine Crimp Rate:
1200+ per hour

Power Requirements:
Electrical = 115VAC, 60Hz, 20A
Pneumatic = 80 psi, 3 cu. ft. per min.

* For other geographical regions, contact Cannon for details.

Crimp Pot Cross Section



The wire crimp heights listed are only reference and valid for the correspondingly listed wire size, wire plating and wire stranding.

The wire crimp tensile values must be used to assure the performance of crimped contacts.

For wire crimp information not listed in this table, please contact Cannon.

Crimp Height and Width

	Wire Gauge (AWG)					
	16		18		20	
	C*	D Ref.	C*	D Ref.	C*	D Ref.
Signal (5A)	.064*	.082	.056*	.080	.054*	.080
Power (13A)	.066*	.082	.062*	.080	.058*	.080

* Hand Tools are ± .002 and machines are ± .001

Insulation Height and Width

	Wire Gauge (AWG)					
	16		18		20	
	Height Max	Width Max**	Height Max	Width Max**	Height Max	Width Max**
Signal (5A)	.110	.115**	.105	.110**	.105	.110**
Power (13A)	.110	.115**	.105	.110**	.105	.110**

** Measurements are taken without crimping wire insulation.

Crimp Tensile Strength

Wire Trim Dimension



Wire Size (AWG)	16	18	20
Tensile Min (lbs)	35 lbs.	25 lbs.	20lbs.

Test Parameters

SLC Products are designed to meet Cannon specifications CS-206, CS-210, and CS-216. Items of most general interest to users are designers are listed below.

Test Description	Reference Paragraph	Requirements
Environmental Sealing	3.2.3.5 3.2.3.6 3.2.3.7 3.2.3.8 3.2.3.9 3.2.3.10	Sand and Dust MIL-STD-202 Method 110 Test Condition A 5% salt spray 96 hours 10 cycles of 24 hours, 90-98% humidity Steam Cleaning/Pressure Wash 95°C, 375 Cycles 750 PSIG Solvent Resistance/Immersion (see 3.2.3.9) Thermal Shock 100 Cycles -40°C to +125°C ± 3°C
Contact Crimp Tensile Strength	3.2.2.1	The minimum tensile load required to separate the wire from the contact, either by pulling the wire out of the crimp joint or by breaking the wire within the crimp joint shall not be less than the applicable limits as specified. Wire breakage or contact damage not due to crimping at less than tensile loads shall not constitute a failure. **Wire Size AWG** / **Crimp Tensile Strength, Pounds Minimum** 16 — 35 18 — 25 20 — 20
Insulation Resistance	3.2.1.1	Mated and wired connectors shall exhibit an insulation resistance greater than 100 megohms between all contacts. This limit shall apply after exposure to each environment including salt solution immersion. Tests shall be performed at 100 VDC ± 10%.
Dielectric Withstanding Voltage	3.2.1.2	Wired and mated connectors shall show no evidence of breakdown between adjacent contacts when tested at 1000 VDC ± 5%. Connectors shall meet this requirement after exposure to each environment. Current leakage shall be less than 1.0 milliamp.
Low Level Contact Resistance	3.2.1.4	The low level contact resistance of mated contacts shall be less than 10 milliohms when measured across the contacts and crimp joints. The test current shall be a maximum of 100 milliamps with an open circuit test voltage of 20 millivolts maximum.
Mechanical Shock	3.2.3.3	Connectors shall be subjected to three shocks in each direction applied along the three mutually perpendicular axes of the connector test specimen for a total of 12 shocks. Each shock shall consist of a terminal peak sawtooth pulse with a peak value of 100 g's and a duration of 6 milliseconds.
Vibration	3.2.3.4	Connectors shall be subjected to random vibration in accordance with MIL-STD-1344, Method 2005.1, test condition VI for 20 hours along each of the following three axes: **Direction** / **Grms** Transverse axis of connector (Y) — 22.8 Longitudinal axis of connector (Z) — 12.2 Mating axis — 10.2 Electrical continuity of the connectors shall be monitored during the last 20 minutes sweep in each axis with a test current of 100 milliamps or less and a test voltage less than 2VDC. Electrical discontinuities in excess of 10 microseconds shall be cause of failure.
Durability	3.2.2.5	Connectors shall be subjected to 25 cycles of mating and unmating at room temperature. Following this test there shall be no evidence of damage to the contacts, contact plating, connector housing or seals which may prove detrimental to reliable performance of the connector.
Contact	3.2.2.2	Contacts shall not be displaced greater than 0.030 inches from the connector body when a force of 10 pounds is applied. When this test follows maintenance again the same contacts shall be tested.
Maintenance Aging	3.2.2.3	Shall consist of subjecting each wired receptacle to 4 cycles of removal and reinsertion of 20% of the contacts or a minimum of 6 per connector with approved tooling.
Mating and Separating Force	3.2.2.4	The maximum force required to mate the plug and receptacle shall be 25 pounds. The maximum force required to separate the plug and receptacle shall be 15 pounds. The rate of travel shall be one inch per minute.
Solvent Resistance Immersion	3.2.2.9	**Connectors shall be subjected to the following fluids at the temperature and length of time specified. Following the fluid dip or immersion, the connectors shall be immersed to a depth of 2 to 12 inches in a 5% salt-water solution for 24 hours at room temperature. At the completion of the salt-water immersion test, while still immersed, the connectors shall meet the insulation resistance requirement specified herein.** Fluid / Method / Temperature No. 2 Diesel Fluid — Immersion (2) — 140°F Methyl Alcohol — Dip (1) — Room Temperature Antifreeze - Prestone — Immersion (2) — 180°F - 50% Water/50% Ethylene Glycol — Immersion (2) — 180°F Degreaser - Gunk — Dip (1) — Room Temperature - Mineral Spirits — Dip (1) — Room Temperature Paint (Oil Base) — Immersion (2) — Room Temperature Lubricating Oil (SAE 10 W40) — Immersion (2) — 200°F Brake Fluid (Delco Supreme) — Dip (1) — Room Temperature Transmission Fluid fully submerged and pressurized @ 7 psi. (Dextron) — Dip (1) — Room Temperature (1) Dip: Connectors shall withstand a one second dip and a three minute air dry for a total of 80 cycles. (2) Immersion: Connectors shall withstand immersion for one hour.
Temperature Life	3.2.3.1	Connectors shall be subjected to a temperature of 125°C ± 3°C for a period of 1000 hours. At the end of the temperature soak period and after removal from the chamber, the connectors shall meet the insulation resistance and dielectric withstanding voltage requirements specified herein. Connectors shall be operated at rated current throughout the duration of the temperature life test. Upon removal from the chamber at the conclusion of the test, the connectors shall show no visual signs of damage, which may be detrimental to the performance of the connector.
Thermal Cycling	3.2.3.2	Connectors shall be subjected to 100 thermal cycles from -40°C to +125°C. One cycle shall consist of the transitions from room temperature to -40°C to +125°C, and from 125°C to room temperature. One cycle shall be accomplished in a three-hour period with a minimum stabilization period of 15 minutes at each temperature extreme. The chamber temperature transition rate shall be a minimum of 1.30°C per minute and a maximum of 6.00°C per minute.