

The Neptune* range of connectors is an extension of the long established and popular Trident Ring-lock* connector series but with the advantage of offering a number of additional features. With this new connector it is possible to mix both power and

signal contacts in the same housing and to have connectors that are moisture sealed to IP67.

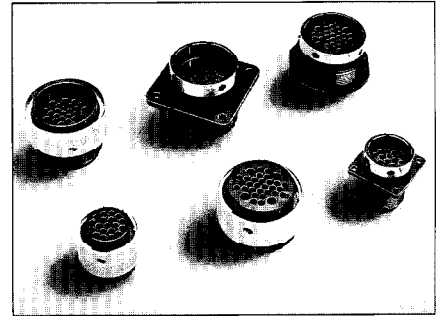
The connectors feature a strong metal or plastic bayonet coupling system for reliability and dura-

bility. The number of contact arrangements and comprehensive range of accessories makes this multiway interface connector ideal for professional use in the automotive, marine and process control industries.

Housings (Pages 4 - 7)

There are two basic types of housings available, the standard and the reversed. Equipment design will dictate whether the fixed half of the connector is to be 'live' or 'dead' when disconnected. If 'live' it will be necessary to equip this fixed receptacle half with sockets, as in the standard system, whereas if 'dead' this half will need to be fitted with pins, as in the reversed versions.

See Product Safety Information "Application" section.



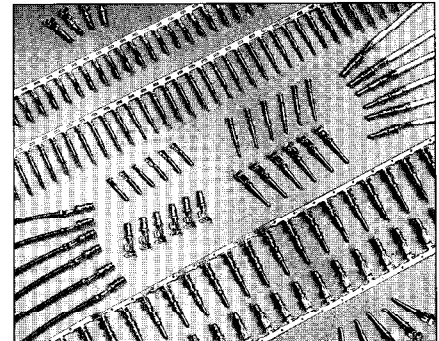
Contacts (Page 11)

The signal contacts used are from the standard Trident* contact range. The recommended contacts are the stamped and formed Two Part, available with either tin or gold plated finish. If a higher performance is required the Trident Three Part turned contacts can be used. All signal contacts have a current rating of 13 A and wires with conductors 0.08 mm² - 2.5 mm² (28 - 14 AWG) can be accommodated.

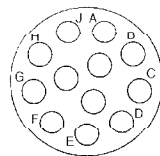
The power contacts are taken from the ITT Cannon APK Contact System and are rated at 30 A. These can accommodate wires of 0.5 mm² - 4.0 mm² (20 - 12 AWG).

If more than 4 contacts per connector are designed to run at, or near, their full rated current for sustained periods, a derating factor must be applied. For further details please contact the Sales Department

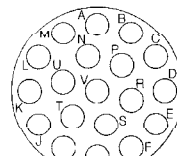
The different products are designated by the contact arrangement. The first figure denotes the number of power cavities; ie a 4-20 has 4 power and 20 signal positions. The different contact arrangements available are detailed below. The position identification shown is for the mating face of the reversed receptacle in all cases.



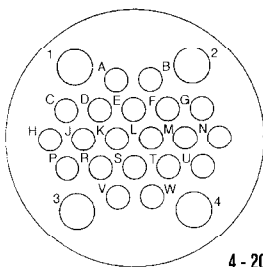
Cannon is a registered trade mark of ITT Corporation
* Trade marks of ITT Corporation



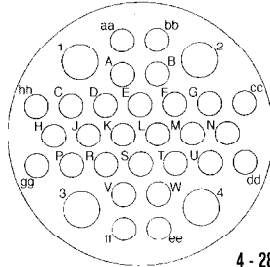
0 - 12



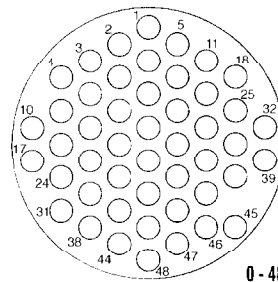
0 - 19



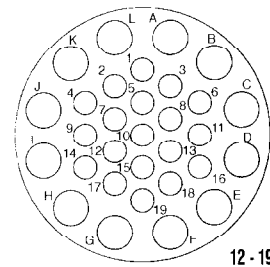
4 - 20



4 - 28



0 - 48



12 - 19

ITT Cannon manufactures the highest quality products available in the marketplace; however these products are intended to be used in accordance with the specifications in this publication. Any use or application that deviates from the stated operating specifications is not recommended and may be unsafe. No information and data contained in this publication shall be construed to create any liability on the part of ITT Cannon. Any new issue of this publication shall automatically invalidate and supersede any and all previous issues. **A limited warranty applies to ITT Cannon products. Except for obligations assumed by ITT Cannon under this warranty, ITT Cannon shall not be liable for any loss, damage, cost of repairs, incidental or consequential damages of any kind, whether or not based on express or implied warranty, contract, negligence or strict liability arising in connection with the design, manufacture, sale, use or repair of the products.** Product availability, prices and delivery dates are exclusively subject to our respective order confirmation form; the same applies to orders based on development samples delivered. This publication is not to be construed as an offer. It is intended merely as an invitation to make an offer. By this publication, ITT Cannon does not assume responsibility or any liability for any patent infringements or other rights of third parties which may result from its use. Reprinting this publication is generally permitted, indicating the source. However, ITT Cannon's prior consent must be obtained in all cases.

ITT Cannon

Dimensions are shown in mm (inch)
Dimensions subject to change

Introduction

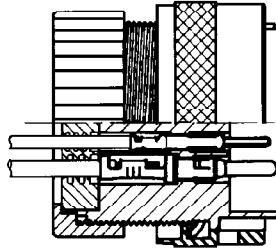
In the standard format the receptacle half is designed to be fitted with socket contacts and the plug with pins.

There are two types of panel mounting available for the receptacle. These are TYPE F - flange with holes and TYPE J - jam nut.

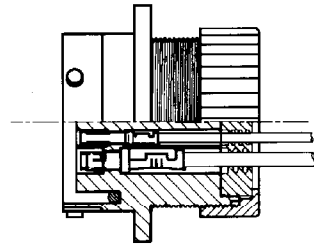
Plugs are supplied already fitted with the cable seal and the seal securing nut, the receptacles come fitted with the interfacial seal, the cable seal and the seal securing nut. Type J receptacles are supplied with jam nut when ordered as single pieces but without when ordered as bulk packs. For bulk packs of jam nuts see page 9.

For details of contacts see page 11.
For details of accessories see pages 8 - 10.
Products are available either singly or in bulk packs of 100.

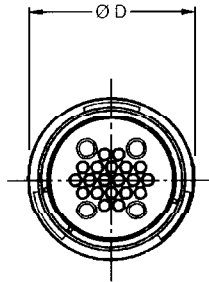
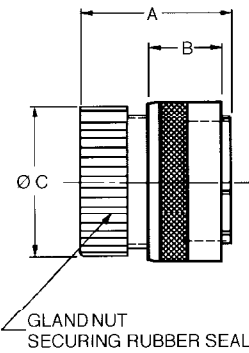
Standard plug for pin contacts
(Metal coupling ring version)



Standard receptacle for socket contacts
(Metal coupling ring version)



Plugs



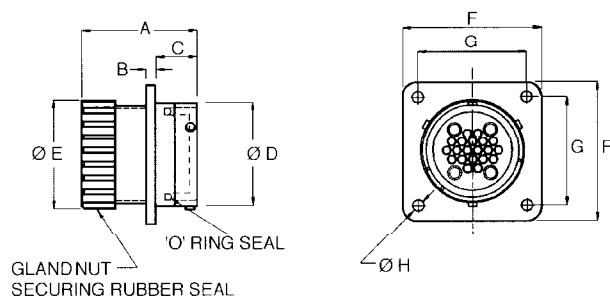
Metal Coupling Ring

Contact Format	Shell Size	Part Number		A	B	C	D
		Bulk Pack (100)	Single Piece				
4-20	24	192990-9430	192900-0014	39,80 (1.566)	19,10 (.751)	40,50 (1.594)	44,00 (1.732)
4-28	24	192900-0012	192900-0015	39,80 (1.566)	19,10 (.751)	40,50 (1.594)	44,00 (1.732)
12-19	24	192990-9380	192900-0016	39,80 (1.566)	19,10 (.751)	40,50 (1.594)	44,00 (1.732)
0-48	24	192900-0472	192900-0469	39,80 (1.566)	19,10 (.751)	40,50 (1.594)	44,00 (1.732)
0-19	16	192900-0013	192900-0017	39,80 (1.566)	19,10 (.751)	27,00 (1.063)	30,20 (1.189)
0-12	14	192900-0318	192900-0303	38,80 (1.527)	19,10 (.751)	24,30 (.956)	28,00 (1.102)

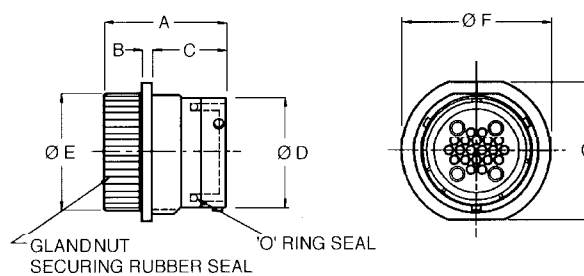
Plastic Coupling Ring

Contact Format	Shell Size	Part Number		A	B	C	D
		Bulk Pack (100)	Single Piece				
4-20	24	192900-0543	192900-0537	39,80 (1.566)	20,25 (.797)	40,50 (1.594)	45,75 (1.800)
4-28	24	192900-0551	192900-0549	39,80 (1.566)	20,25 (.797)	40,50 (1.594)	45,75 (1.800)
12-19	24	192900-0544	192900-0538	39,80 (1.566)	20,25 (.797)	40,50 (1.594)	45,75 (1.800)
0-48	24	192900-0545	192900-0539	39,80 (1.566)	20,25 (.797)	40,50 (1.594)	45,75 (1.800)
0-19	16	192900-0559	192900-0557	39,80 (1.566)	20,25 (.797)	27,00 (1.063)	32,80 (1.291)

Receptacles



Type F



Type J

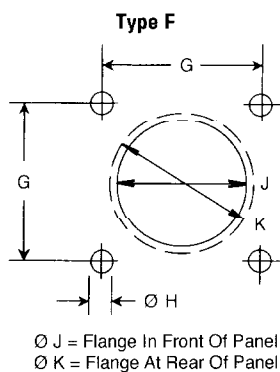
Dimensions

Contact Format	Shell Size	Type	A	B	C	D	E	F	G	H	J	K
4-20	24	F	41.80 (1.645)	3.50 (.137)	15.40 (.606)	38.10 (1.500)	40.10 (1.578)	50.80 (2.000)	39.70 (1.563)	4.20 (.165)	41.00 (1.614)	41.00 (1.614)
4-20	24	J	41.80 (1.645)	3.50 (.137)	23.40 (.921)	38.10 (1.500)	40.10 (1.578)	51.00 (2.007)	47.50 (1.870)	41.50 (1.633)	43.20 (1.700)	N/A
4-28	24	F	41.80 (1.645)	3.50 (.137)	15.40 (.606)	38.10 (1.500)	40.10 (1.578)	50.80 (2.000)	39.70 (1.563)	4.20 (.165)	41.00 (1.614)	41.00 (1.614)
4-28	24	J	41.80 (1.645)	3.50 (.137)	23.40 (.921)	38.10 (1.500)	40.10 (1.578)	51.00 (2.007)	47.50 (1.870)	41.50 (1.633)	43.20 (1.700)	N/A
12-19	24	F	41.80 (1.645)	3.50 (.137)	15.40 (.606)	38.10 (1.500)	40.10 (1.578)	50.80 (2.000)	39.70 (1.563)	4.20 (.165)	41.00 (1.614)	41.00 (1.614)
12-19	24	J	41.80 (1.645)	3.50 (.137)	23.40 (.921)	38.10 (1.500)	40.10 (1.578)	51.00 (2.007)	47.50 (1.870)	41.50 (1.633)	43.20 (1.700)	N/A
0-48	24	F	41.80 (1.645)	3.50 (.137)	15.40 (.606)	38.10 (1.500)	40.10 (1.578)	50.80 (2.000)	39.70 (1.563)	4.20 (.165)	41.00 (1.614)	41.00 (1.614)
0-48	24	J	41.80 (1.645)	3.50 (.137)	23.40 (.921)	38.10 (1.500)	40.10 (1.578)	51.00 (2.007)	47.50 (1.870)	41.50 (1.633)	43.20 (1.700)	N/A
0-19	16	F	39.80 (1.566)	2.30 (.090)	11.40 (.448)	25.40 (1.000)	27.00 (1.063)	31.00 (1.220)	24.50 (.964)	3.20 (.125)	28.10 (1.106)	28.10 (1.106)
0-19	16	J	39.80 (1.566)	2.30 (.090)	23.00 (.905)	25.40 (1.000)	27.00 (1.063)	39.80 (1.566)	38.40 (1.511)	28.00 (1.102)	30.50 (1.200)	N/A
0-12	14	F	39.70 (1.563)	2.30 (.090)	11.40 (.448)	22.20 (.874)	24.30 (.956)	28.60 (1.122)	22.90 (.901)	3.20 (.125)	24.60 (.968)	24.60 (.968)
0-12	14	J	39.70 (1.563)	3.50 (.137)	22.10 (.870)	22.20 (.874)	24.30 (.956)	35.80 (1.409)	32.20 (1.267)	24.50 (.964)	26.50 (1.043)	N/A

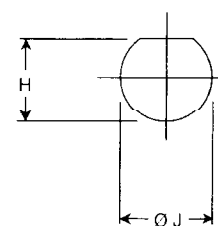
Part Numbers

Contact Format	Shell Size	Type	Part Number	
			Bulk Pack (100)	Single Piece
4-20	24	F	192990-9420	192900-0030
4-20	24	J	192990-9460	192900-0032
4-28	24	F	192900-0024	192900-0033
4-28	24	J	192900-0026	192900-0035
12-19	24	F	192990-9390	192900-0036
12-19	24	J	192900-0028	192900-0038
0-48	24	F	192900-0478	192900-0475
0-48	24	J	192900-0484	192900-0481
0-19	16	F	192900-0029	192900-0039
0-19	16	J	192900-0493	192900-0490
0-12	14	F	192900-0323	192900-0308
0-12	14	J	192900-0328	192900-0313

Panel Cut-out Details



Type J



JAM NUTS FOR BULK PACK ITEMS SHOULD BE ORDERED SEPARATELY. SEE PAGE 9.

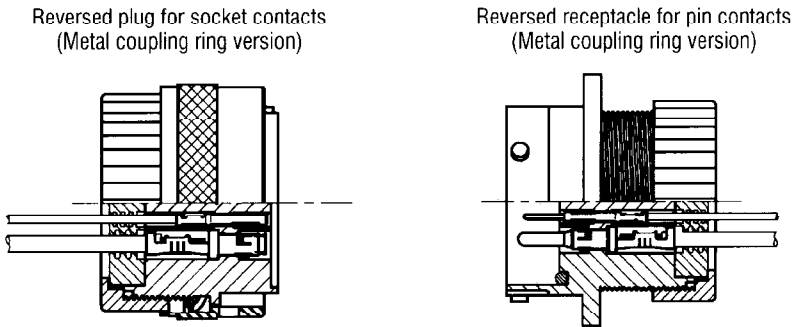
Introduction

In the reversed format the receptacle half is designed to be fitted with pin contacts and the plug with sockets.

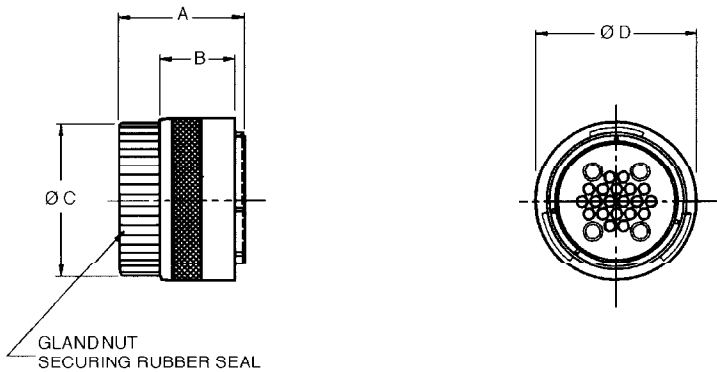
There are two types of panel mounting available for the receptacle. These are TYPE F - flange with holes and TYPE J - jam nut.

Plugs are supplied already fitted with the cable seal and the seal securing nut, the receptacles come fitted with the interfacial seal, the cable seal and the seal securing nut. Type J receptacles are supplied with jam nut when ordered as single pieces but without when ordered as bulk packs. For bulk packs of jam nuts see page 9.

For details of contacts see page 11.
For details of accessories see pages 8 - 10.
Products are available either singly or in bulk packs of 100.



Plugs



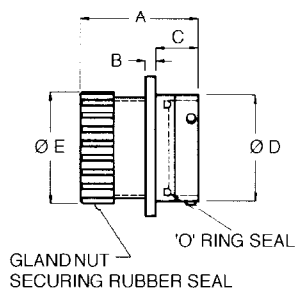
Metal Coupling Ring

Contact Format	Shell Size	Part Number		A	B	C	D
		Bulk Pack (100)	Single Piece				
4-20	24	192990-9450	192900-0054	32,40 (1.275)	19,10 (.751)	40,50 (1.594)	44,00 (1.732)
4-28	24	192900-0053	192900-0055	32,40 (1.275)	19,10 (.751)	40,50 (1.594)	44,00 (1.732)
12-19	24	192990-9240	192900-0056	32,40 (1.275)	19,10 (.751)	40,50 (1.594)	44,00 (1.732)
0-48	24	192900-0428	192900-0425	32,40 (1.275)	19,10 (.751)	40,50 (1.594)	44,00 (1.732)
0-19	16	192990-9970	192900-0057	31,70 (1.248)	19,10 (.751)	27,00 (1.063)	30,20 (1.189)
0-12	14	192900-0241	192900-0236	31,60 (1.244)	19,10 (.751)	24,30 (.956)	28,00 (1.102)

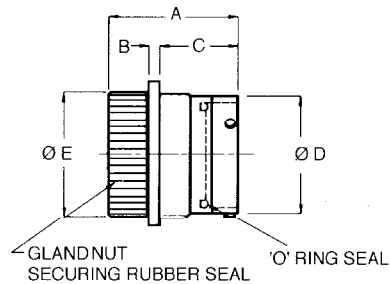
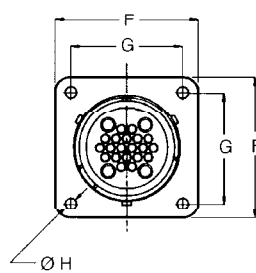
Plastic Coupling Ring

Contact Format	Shell Size	Part Number		A	B	C	D
		Bulk Pack (100)	Single Piece				
4-20	24	192900-0546	192900-0540	32,40 (1.275)	20,25 (.797)	40,50 (1.594)	45,75 (1.800)
4-28	24	192900-0552	192900-0550	32,40 (1.275)	20,25 (.797)	40,50 (1.594)	45,75 (1.800)
12-10	24	192900-0547	192900-0541	32,40 (1.275)	20,25 (.797)	40,50 (1.594)	45,75 (1.800)
0-48	24	192900-0548	192900-0542	32,40 (1.275)	20,25 (.797)	40,50 (1.594)	45,75 (1.800)
0-19	16	192900-0560	192900-0558	31,70 (1.248)	20,25 (.797)	27,00 (1.063)	32,80 (1.291)

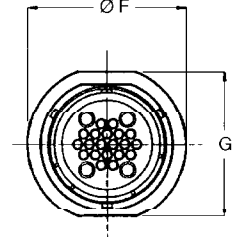
Receptacles



Type F



Type J



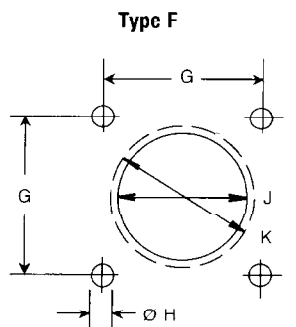
Dimensions

Contact Format	Shell Size	Type	A	B	C	D	E	F	G	H	J	K
4-20	24	F	41,80 (1.645)	3,50 (.137)	15,40 (.606)	38,10 (1.500)	40,10 (1.578)	50,80 (2.000)	39,70 (1.563)	4,20 (.165)	41,00 (1.614)	41,00 (1.614)
4-20	24	J	41,80 (1.645)	3,50 (.137)	23,40 (.921)	38,10 (1.500)	40,10 (1.578)	51,00 (2.007)	47,50 (1.870)	41,50 (1.633)	43,20 (1.700)	N/A
4-28	24	F	41,80 (1.645)	3,50 (.137)	15,40 (.606)	38,10 (1.500)	40,10 (1.578)	50,80 (2.000)	39,70 (1.563)	4,20 (.165)	41,00 (1.614)	41,00 (1.614)
4-28	24	J	41,80 (1.645)	3,50 (.137)	23,40 (.921)	38,10 (1.500)	40,10 (1.578)	51,00 (2.007)	47,50 (1.870)	41,50 (1.633)	43,20 (1.700)	N/A
12-19	24	F	41,80 (1.645)	3,50 (.137)	15,40 (.606)	38,10 (1.500)	40,10 (1.578)	50,80 (2.000)	39,70 (1.563)	4,20 (.165)	41,00 (1.614)	41,00 (1.614)
12-19	24	J	41,80 (1.645)	3,50 (.137)	23,40 (.921)	38,10 (1.500)	40,10 (1.578)	51,00 (2.007)	47,50 (1.870)	41,50 (1.633)	43,20 (1.700)	N/A
0-48	24	F	41,80 (1.645)	3,50 (.137)	15,40 (.606)	38,10 (1.500)	40,10 (1.578)	50,80 (2.000)	39,70 (1.563)	4,20 (.165)	41,00 (1.614)	41,00 (1.614)
0-48	24	J	41,80 (1.645)	3,50 (.137)	23,40 (.921)	38,10 (1.500)	40,10 (1.578)	51,00 (2.007)	47,50 (1.870)	41,50 (1.633)	43,20 (1.700)	N/A
0-19	16	F	39,80 (1.566)	2,30 (.090)	11,40 (.448)	25,40 (1.000)	27,00 (1.063)	31,00 (1.220)	24,50 (.964)	3,20 (.125)	28,10 (1.106)	28,10 (1.106)
0-19	16	J	39,80 (1.566)	2,30 (.090)	23,00 (.905)	25,40 (1.000)	27,00 (1.063)	30,80 (1.212)	38,20 (1.503)	28,00 (1.102)	30,50 (1.200)	N/A
0-12	14	F	39,70 (1.563)	2,30 (.090)	11,40 (.448)	22,20 (.874)	24,30 (.956)	28,60 (1.122)	22,90 (.901)	3,20 (.125)	24,60 (.968)	24,60 (.968)
0-12	14	J	39,70 (1.563)	3,50 (.137)	22,10 (.870)	22,20 (.874)	24,30 (.956)	35,80 (1.409)	32,20 (1.267)	24,50 (.964)	26,50 (1.043)	N/A

Part Numbers

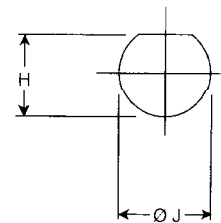
Contact Format	Shell Size	Type	Part Number	
			Bulk Pack (100)	Single Piece
4-20	24	F	192990-9440	192900-0069
4-20	24	J	192990-9470	192900-0071
4-28	24	F	192900-0064	192900-0072
4-28	24	J	192900-0066	192900-0074
12-19	24	F	192990-9250	192900-0075
12-19	24	J	192900-0068	192900-0077
0-48	24	F	192900-0434	192900-0431
0-48	24	J	192900-0440	192900-0437
0-19	16	F	192990-9980	192900-0078
0-19	16	J	192900-0395	192900-0353
0-12	14	F	192900-0261	192900-0256
0-12	14	J	192900-0271	192900-0266

Panel Cut-out Details



Ø J = Flange In Front Of Panel
Ø K = Flange At Rear Of Panel

Type J



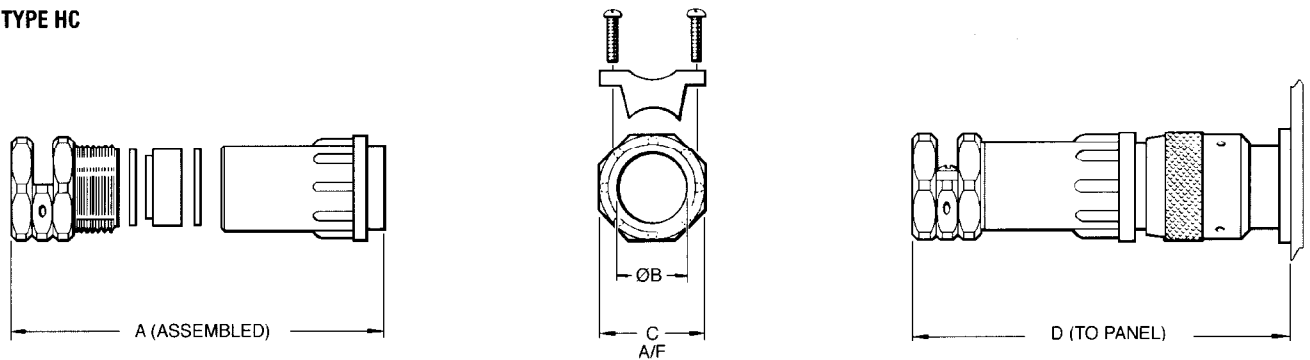
JAM NUTS FOR BULK PACK ITEMS SHOULD BE ORDERED SEPARATELY. SEE PAGE 9.

In certain circumstances it will be necessary to equip the plug and/or receptacle with a cable clamp to act as a mechanical strain relief and to protect the wires at the rear of the connector. Two types of clamps are available: the SR clamp for use with discrete wires and the HC clamp for use with multicore jacketed cables.

These items utilize the same threads as the gland nut, which has to be discarded if fitted. The SR and HC clamps provide the seal securing function. If high volumes of clamps are required, it is possible to purchase plugs or receptacles without the gland nut fitted. (See page 8 for details.)

Sealed Cable Clamps for Use with Multicore Jacketed Cables

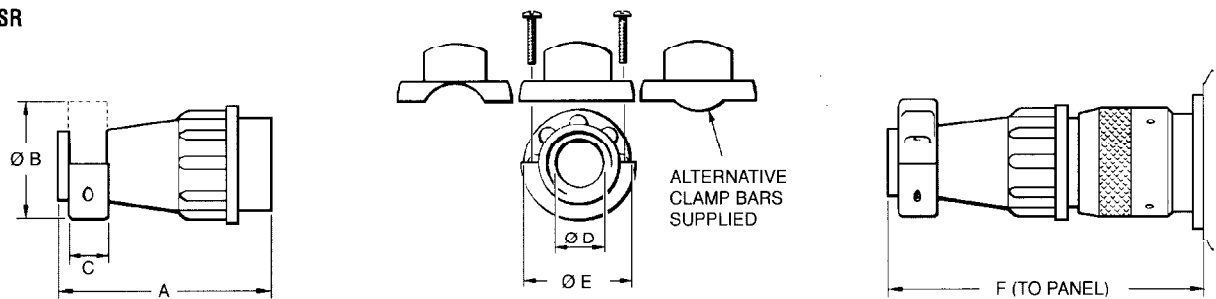
TYPE HC



Shell Size	Part Number		A max	B max	C ±0,20 (.007)	D max
	Bulk Pack (100)	Single Piece				
14	192900-0501	192900-0496	65,00 (2.559)	14,60 (.574)	22,80 (.897)	85,50 (3.366)
16	192900-0502	192900-0497	69,00 (2.716)	16,60 (.653)	24,70 (.972)	89,80 (3.535)
24	192900-0503	192900-0498	105,00 (4.133)	29,60 (1.165)	41,80 (1.645)	128,50 (5.059)

Unsealed Cable Clamps - Strain Relief and Wire Protection for Use with Discrete Wires

TYPE SR



Shell Size	Part Number		A +0,15 (.005)	B max	C +0,15 (.005)	D max	E +0,15 (.005)	F max
	Bulk Pack (100)	Single Piece						
14	192900-0359	192900-0286	46,00 (1.811)	27,00 (1.063)	6,40 (.251)	13,80 (.543)	27,00 (1.063)	67,10 (2.641)
16	192900-0357	192900-0343	46,00 (1.811)	30,10 (1.185)	6,40 (.251)	17,00 (.669)	30,20 (1.189)	67,10 (2.641)
24	192900-0358	192900-0344	65,00 (2.559)	41,80 (1.645)	8,20 (.322)	28,00 (1.102)	42,50 (1.673)	90,80 (3.574)

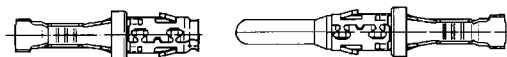
There are two types of contact used in the Neptune range, Power and Signal contacts. Both are of a two part design where the retention springs are manufactured from a material different to that of the main contact body to give optimum crimp and retention performance.

Power contacts are rated at 30 A and signal at 13 A (at 25°C). When more than 4 contacts are designed to run at close to the maximum current in the same moulding a derating factor will apply.

(Contact Sales Department for details).

The operating temperature range is -55°C to 120°C on all items except the tin plated standard signal contacts where an upper limit of 105°C applies. When these contacts are applied using the semi-automatic tooling available, they provide the user with low installed cost.

Power Contacts



Contact plating: Tin (Gold plated contacts are also available. Please contact the Sales Department.)

Contact	Part Number		Wire Size (mm²)	AWG	Insulation Diameter	Stripping Length
	Reeled (3000)	Loose Piece (100)				
Pin	121668-0000	031-8717-020	0.50-1.00	20-18	1.40 (.055) - 2.00 (.078)	5.00 (.196)±0.25 (.009)
Socket	121668-0100	031-8717-120				
Pin	121668-0001	031-8717-021	1.50-2.50	16-14	2.00 (.078) - 2.90 (.114)	5.00 (.196)±0.25 (.009)
Socket	121668-0101	031-8717-121				
Pin	121668-0002	031-8717-022	2.50-4.00	14-12	2.90 (.114) - 3.60 (.141)	5.00 (.196)±0.25 (.009)
Socket	121668-0102	031-8717-122				

Signal Contacts

High Conductivity Signal Contacts. Contact plating: Tin.

Contact	Reeled (3000)	Loose Piece (100)	Wire Size (mm²)	AWG	Insulation Diameter	Stripping Length
Pin	192900-0120	192900-0122	0.08-0.20	26 - 24	0.89 (.035) - 1.58 (.062)	3.95 (.155)±0.25 (.009)
Socket	192900-0121	192900-0123				
Pin	192900-0124	192900-0126	0.25-0.50	22 - 20	1.17 (.046) - 2.08 (.081)	3.95 (.155)±0.25 (.009)
Socket	192900-0125	192900-0127				
Pin	192900-0000	192900-0002	0.50-1.50	20 - 16	2.00 (.078) - 3.00 (.118)	3.95 (.155)±0.25 (.009)
Socket	192900-0001	192900-0003				
Pin	192900-0004	192900-0005	up to 2.00	14	Without insulation support	5.60 (.220)±0.25 (.009)
Socket	192900-0006	192900-0007				



Size 14 AWG no insulation grip



Sizes 16 to 24 AWG with insulation grip

Standard Signal Contacts. Contact plating: Tin or gold flash over nickel

Standard Signal Contacts:		Contact plating: min of gold flash over nickel						
Contact	Part Number				Wire Size (mm ²)	AWG	Insulation Diameter	Stripping Length
	Reeled (3000)		Loose Piece (100)					
	Tin Plated	Gold Plated	Tin Plated	Gold Plated				
Pin	192990-2510	192990-2650	192990-0020	192990-0080	0.08 - 0.20	26 - 24	0.89 (.035) - 1.58 (.062)	3.95 (.155)±0.25 (.009)
Socket	192990-2550	192990-2690	192990-0030	192990-0090				
Pin	192990-2500	192990-2640	192990-0040	192990-1460	0.25 - 0.50	22 - 20	1.17 (.046) - 2.08 (.081)	3.95 (.155)±0.25 (.009)
Socket	192990-2540	192990-2680	192990-0050	192990-1470				
Pin	192990-2490	192990-2630	192990-0060	192990-0100	0.50 - 1.50	20 - 16	2.00 (.078) - 3.00 (.118)	3.95 (.155)±0.25 (.009)
Socket	192990-2530	192990-2670	192990-0070	192990-0110				
Pin	192990-2480	192990-2620	192990-1240	192990-1220	up to 2.00	14	Without insulation support	5.60 (.220)±0.25 (.009)
Socket	192990-2520	192990-2660	192990-1250	192990-1230				