



SEACON MINI-CON Electrical Dry-Mate Connectors

MINI-CON Electrical Dry-Mate, High Density,
Connectors Offer Reliable Connections
in High Pressure Environments

SEACON MINI-CON Dry-Mate Connector

Reliable, High Density Connectors for High Pressure Environments

KEY FEATURES

STANDARD

- Type 316 stainless steel
- 13 shell sizes
- Up to 203 contacts
- Up to 16,000 psi with standard materials
- 600 volt standard ratings. Please contact TE for higher voltage applications
- Up to 23 amps
- Typical uses: Drilling systems, umbilical links, submarines, Remotely Operated Vehicles (ROV's)

OPTIONS

- Different material options are available - please contact TE
- Glass to metal sealed inserts
- Pressure Balanced Oil Filled (PBOF)
- Fiber Optic versions
- Cable to connector terminations including wye and multiple cable breakouts



The SEACON MINI-CON range of small diameter, high density, and high pressure connectors has been in production and field proven for decades.

Dry-mateable, this connector series is manufactured from 316 stainless steel, although special to order materials are available, including titanium. The inserts are manufactured from Glass Reinforced Epoxy (GRE) with copper alloy, and gold plated contacts, although glass sealed inserts are also available for high open face pressure applications. Standard connectors are designed for use on 1 atmosphere vessels. Contact TE Connectivity (TE) for other applications.

APPLICATION

- Naval Vessels
- Drilling Systems
- Umbilical Links
- ROV

SPECIFICATIONS

- **Mated Pressure:** Varies by product up to 20,000 psi. Mated and potted depending on shell material
- **Voltage:** 600 VDC as standard although higher voltage ratings are available. Please contact TE for further information
- **Current rating:** Up to 23 amps dependent on contact size and cable

TE Components . . . TE Technology . . . TE Know-how . . .

AMP | AGASTAT | CII | HARTMAN | KILOVAC | MICRODOT | NANONICS | POLAMCO | Raychem

SEACON | Rochester | DEUTSCH

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TESTING

Environmental

- **Salt Spray (Corrosion):** Tested in accordance with MIL-STD-202, Method 101
- **Humidity (Steady State):** Tested in accordance with MIL-STD-202, Method 103
- **Thermal Shock:** Tested in accordance with MIL-STD-202, Method 107
- **Hydrostatic Pressure:** Tested in accordance with MIL-STD-1344, Method 1006

Physical

- **Underwater Explosion Shock:** Tested in accordance with MIL-S-901, High Impact, Heavy Weight
- **Vibration (Mechanical):** Tested in accordance with MIL-STD-167, Type 1

Electrical

- **Dielectric Withstanding Voltage:** Tested in accordance with MIL-STD-202, Method 301
- **Insulation Resistance:** Tested in accordance with MIL-STD-202, Method 302

MATERIALS

- **Bulkhead Body (BCR/FCR):** 316 Stainless Steel
- **CCP Body:** 316 Stainless Steel c/w CA630 engaging nut
- **Contact Insert:** Glass filled epoxy per B/A XS-2748
- **Electrical Contacts:** Copper alloy gold plated per MIL-G-45204
- **Engaging Nut:** CA630
- **O-Ring:** Nitrile (formerly known as Buna N)

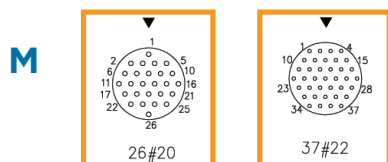
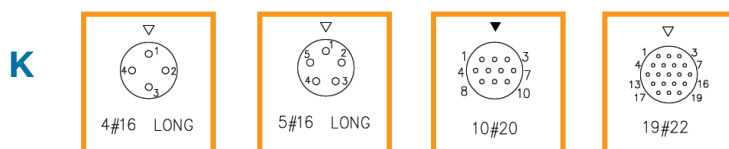
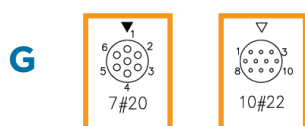
Notes:

- Connectors are designed for installation on 1 atmosphere vessels. Please contact TE for recommendations if using compensated vessels



Quick-Turn MINI-CON Configurations

The below table shows our standard configurations that are cost effective and more readily available. For further details please contact TE.



Shell Size	CCP/L	BCR/L	FCR/L
D	4#22	-	4#22
G	10#22, 7#20	10#22	10#22, 7#20
K	10#20, 19#22, 4#16 Long, 5#16 Long	19#22	10#20, 19#22, 4#16 Long, 5#16 Long
M	26#20, 37#22	37#22	26#20, 37#22

Notes:

- Most common configurations.
- Available as Glass Sealed style connectors.
- All configurations shown are the face view of the receptacle connector (BCR/FCR).
- 600 VDC is standard; many of the above can handle higher voltage ratings.
- Please contact TE for specific voltage ratings.



Reversed MINI-CON Connectors (VMIN)

The “V” before the MIN prefix in the Part Numbering System (see page 7) represents a reversed miniature insert. Many of our bulkhead connectors are available with sockets instead of pins and the corresponding cable plugs have pins instead of sockets.

Reversed MINI-CON’s are an option for applications that require design of cabling/harnessing systems to be electrically sound with respect to “power on” safety requirements.

Note:

Reversal of sockets and pins may not be required as the pins in the standard bulkhead connectors are recessed approximately one quarter of an inch (1/4”). Please refer to the contact configurations page for further information or contact TE for recommendations on your specific application.

Fiber Optic MINI-CON Connectors

As organizations in the subsea industry continue to develop more applications with fiber optic technology in mind, there has been a dramatic increase in the quality and complexity of electro-optic connector configurations required to suit these applications.

Multi-channel hybrid connectors are finding increased usage in sonar and surveillance systems, real time video applications, ROV’s/AUV’s and geophysical search equipment.

Fiber optic capabilities have been added to existing electrical connector designs including the MINI-CON range. For fiber optic contact configurations please see page 30.



MINI-CON PBOF (Pressure Balanced Oil-Filled) Connectors

The MINI-CON Pressure Balanced Oil Filled (PBOF) connector system consists of, MIN-BCR-PBOF, MIN-FCR-PBOF, MIN-CCR-PBOF, and MIN-CCP-PBOF-HP connector options.

In standard applications, the CCP-PBOF-HP connector, transfers the oil pressure in the hose, to the face of the receptacle. The BCR-PBOF and FCR-PBOF connectors, act as the pressure barrier between, the ocean pressure, and the one atmosphere environment behind the bulkhead connector. These BCR-PBOF and FCR-PBOF connectors, are open face pressure tested to the PBOF pressure ratings on Page 6. For higher pressure requirements or for use on compensated systems please contact TE.



High Pressure Connectors

The MINI-CON connector series can be manufactured with titanium or high strength material shells which will increase the mated pressure rating to 20,000 psi mated.

For high open face pressure ratings, most MINI-CON bulkhead connectors can be manufactured with a Glass Sealed Contact Insert Receptacle (CIR). These inserts consist of gold plated pins, compression glass sealed in a type 316 Stainless Steel contact web. Our standard glass sealed MINI-CON connectors are rated at 10,000 psi, open face, or greater depending on the particular connector. These inserts are a direct replacement for our standard epoxy inserts and may be ordered separately. They may be used in the Titanium shells mentioned above, or in standard shells. Please contact TE for further information on ratings.

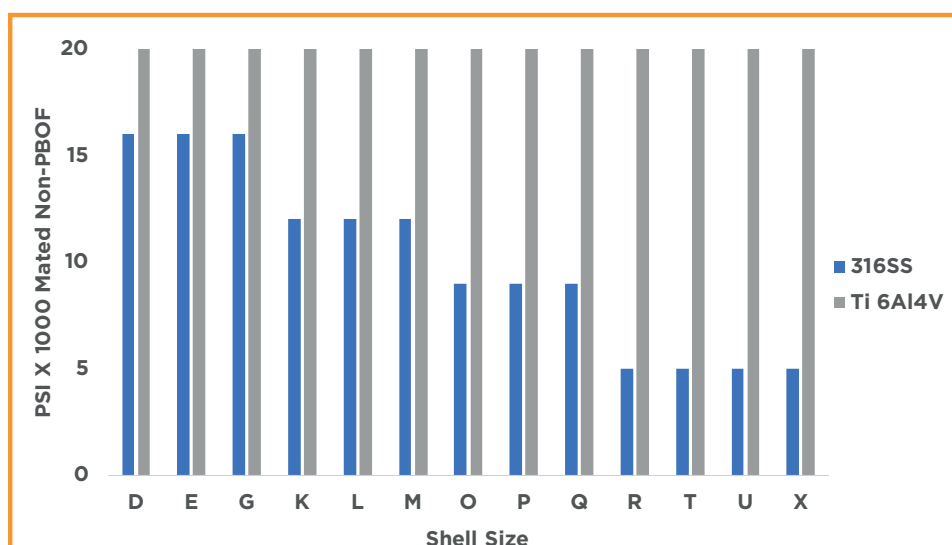
Pressure Ratings

All MINI-CON connectors and dummies, when mated, are pressure rated as follows:

These pressure ratings are for our standard 316 Stainless Steel connectors. Higher ratings may be achieved with alternate materials. Please contact TE for further information.

The below information is based on MINI-CON terminations which are available on request.

Shell Size	Non-PBOF	PBOF
D	16,000	Not Available
E	16,000	Not Available
G	16,000	3,000
K	12,000	3,000
L	12,000	3,000
M	12,000	3,000
O	10,000	3,000
P	10,000	2,000
Q	6,500	2,000
R	6,500	2,000
T	6,500	Not Available
U	6,500	Not Available
X	6,500	Not Available



Notes:

- Connectors are designed for installation on one atmosphere vessels. Please contact TE for recommendations if using compensated vessels



MINI-CON Connectors

Ordering Information

Reversed Gender

V Reversed Gender Connectors*

Family Designator

MIN MINI-CON Series

Shell Size

D
E
G
K
L
M
O
P
Q
R
T
U
X

Number of Contacts**

Connector Type

CCP Cable Connector Plug
CCR Cable Connector Receptacle
FCR Flange Connector Receptacle
BCR Bulkhead Connector Receptacle
BCR-DO Bulkhead Connector Receptacle Dual O-Ring
FI Field Installable
CIR Connector Insert Receptacle***
CIP Connector Insert Plug****
DSR Dummy Sealing Receptacle
DSP Dummy Sealing Plug
PSR Plastic Splashproof Receptacle
PSP Plastic Splashproof Plug

Long Shell

L

PBOF (Pressure Balanced Oil-Filled)*****

PBOF

Right Angle*****

R/A

With Nut/Washer*****

N/W

Notes:

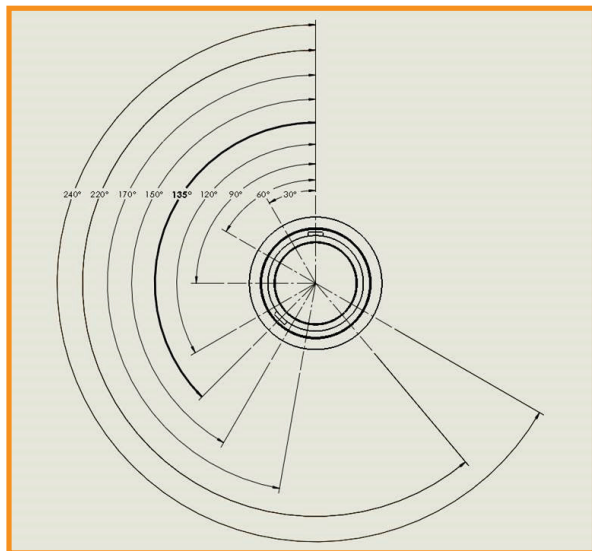
- * Leave blank for non-reversed gender connectors.
- ** Remove from configuration if ordering PSP/DSP or PSR/DSR.
- *** Male insert only, fits into BCR/CCR/FCR shell.
- **** Female insert only, fits into CCP shell.
- ***** Optional.



Keying

MINI-CON plug shell sizes D through U connector have two keys to improve mating.

Our standard arrangement has the primary key at the 12:00 position and the second key at 135 degrees relative to the primary key. Special keying may be ordered with the second key at 90, 120, 150, or 170 degrees from the primary key.



Torque Ratings

Table information is for electrical MINI-CON connectors only. For fiber optic MINI-CON connector mating torques contact TE.

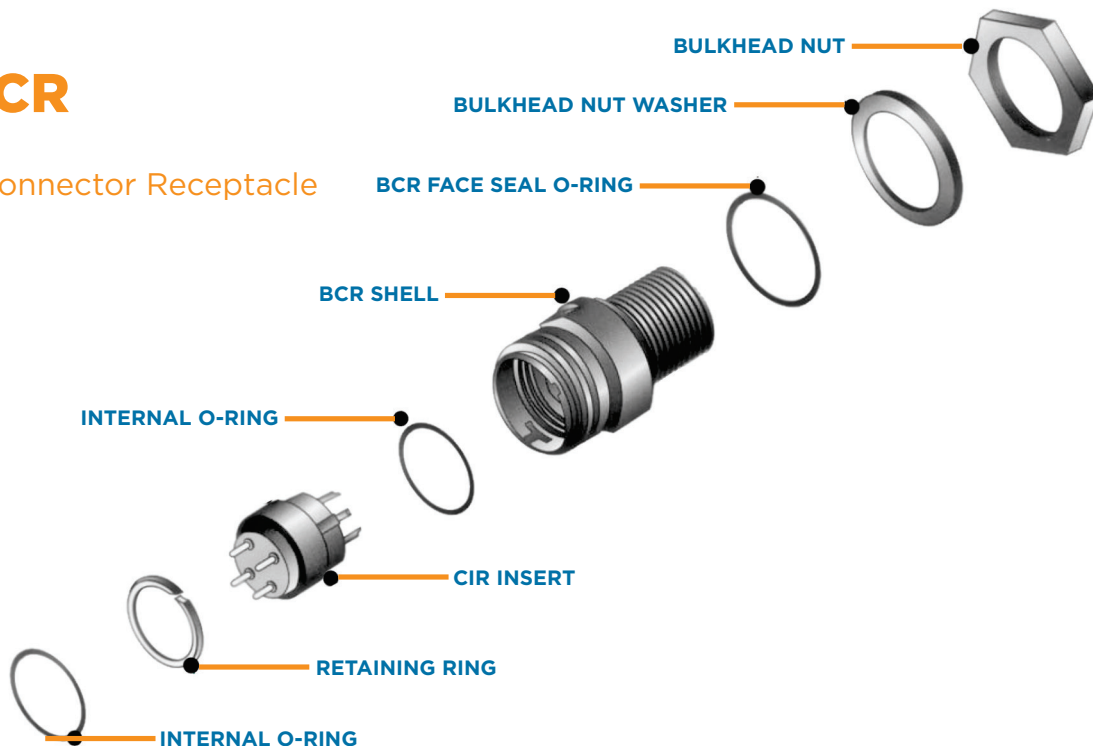
Shell Size	CCP/L & DSP/L Engaging Nut Mating Torque (Inch-Pounds)
D	-
E	-
G	40-50
K	40-60
L	50-70
M	65-95
O	75-105
P	80-110
Q	85-115
R	90-120
T	125-150
U	135-160
X	155-180



Exploded View

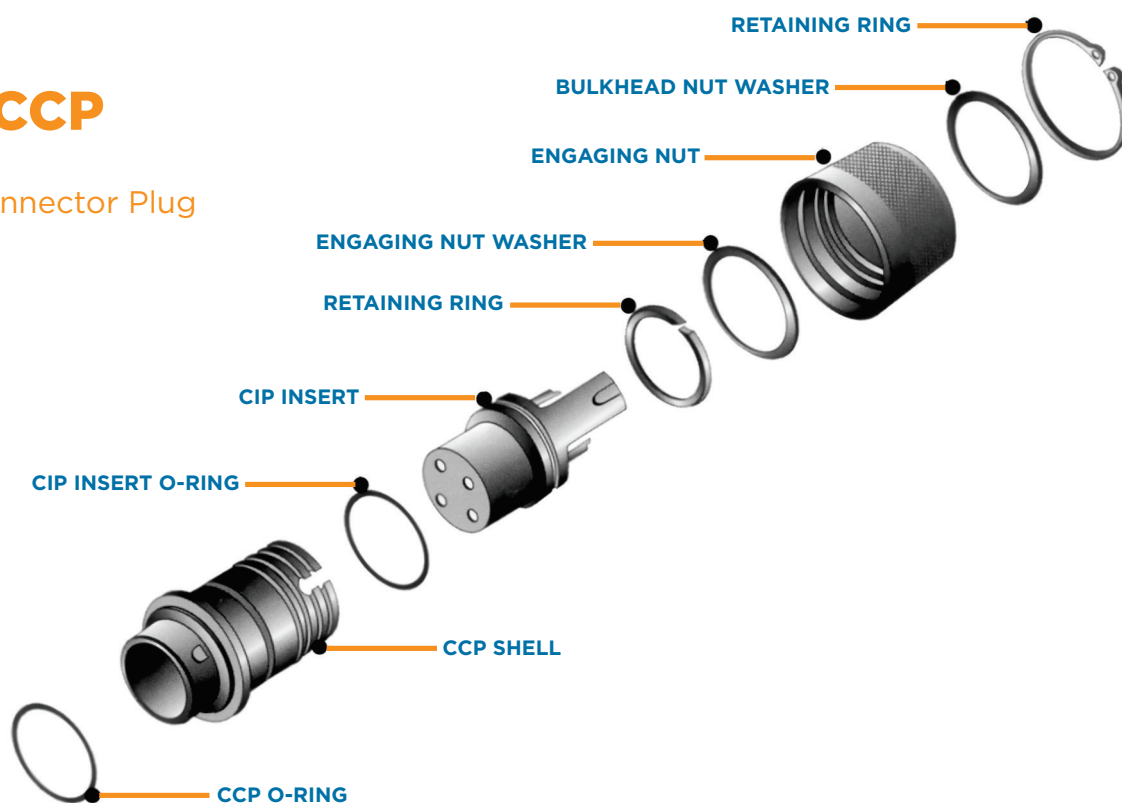
MIN-BCR

Bulkhead Connector Receptacle



MIN-CCP

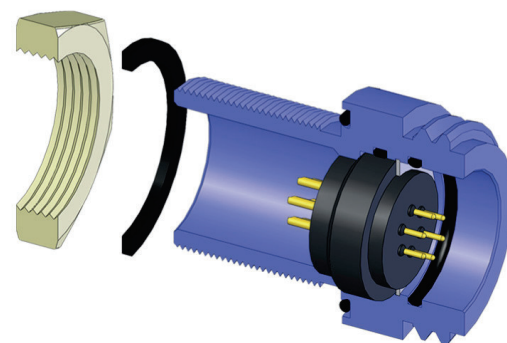
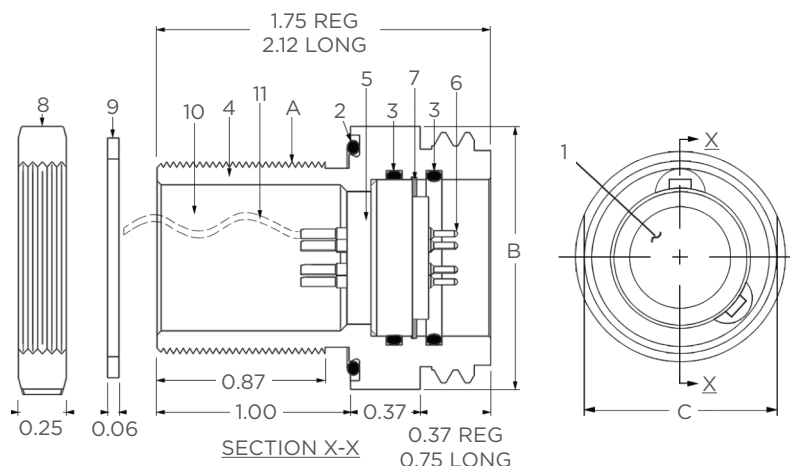
Cable Connector Plug





MIN-BCR

Bulkhead Connector Receptacle



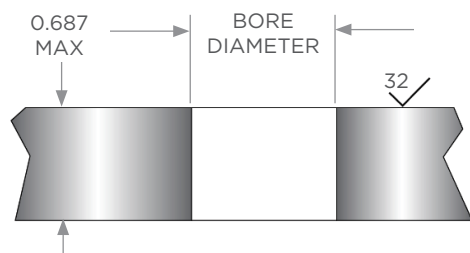
Shell	A	B	2	7	3	C	8	8	9	
Size	Mounting Thread	Ø (In)	O-Ring	Retaining Ring	O-Ring	Wrench Flats (In)	Hex Nut Across Flats (In)	Hex Nut Across Points (In)	Washer OD (In)	Part Number
D	3/8-24 UNF-2A	0.75	2-013	VH-31	2-011	0.62	0.62	0.72	0.62	MIND-X-BCR
E	1/2-20 UNF-2A	0.87	2-015	VH-43	2-013	0.75	0.75	0.86	0.75	MINE-X-BCR
G	5/8-24 UNEF-2A	1.00	2-018	UR50	2-014	0.87	0.88	1.00	0.88	MING-X-BCR
K	3/4-20 UNEF-2A	1.12	2-019	UR62	2-016	1.00	1.00	1.16	1.00	MINK-X-BCR
L	7/8-20 UNEF-2A	1.25	2-021	UR75	2-018	1.12	1.13	1.31	1.13	MINL-X-BCR
M	1-20 UNEF-2A	1.37	2-023	UR81	2-019	1.25	1.25	1.44	1.25	MINM-X-BCR
O	1 1/8-16 UN-2A	1.62	2-026	UR106	2-023	1.50	1.50	1.75	1.50	MINO-X-BCR
P	1 1/4-16 UN-2A	1.75	2-028	UR118	2-025	1.62	1.63	1.88	1.63	MINP-X-BCR
Q	1 3/8-16 UN-2A	1.87	2-029	UR137	2-028	1.75	1.75	2.00	1.75	MINQ-X-BCR
R	1 1/2-16 UN-2A	2.00	2-029	UR150	2-029	1.87	1.88	2.16	1.88	MINR-X-BCR
T	2-16 UN-2A	2.50	2-034	UR175	2-031	2.37	2.38	2.75	2.38	MINT-X-BCR
U	2 1/4-16 UN-2A	2.75	2-036	UR200	2-033	2.62	2.63	3.03	2.63	MINU-X-BCR
X	2 3/4-16 UN-2A	3.50	2-041	UR250	2-037	3.15	3.16	3.63	3.16	MINX-X-BCR



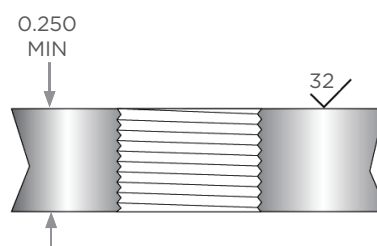
MIN-BCR Mounting Torque

Bulkhead Connector Receptacle Mounting Torque Information

Through Bore Mounting Option



Threaded Mounting Option



Shell Size	BORE Ø +0.015 -0.000 (In)	BCR/L Mounting Torque* (In-lbs)
D	0.375	30-35
E	0.500	50-55
G	0.625	65-85
K	0.750	75-100
L	0.875	90-110
M	1.000	120-150
O	1.125	130-160
P	1.250	140-170
Q	1.375	150-180
R	1.500	170-220
T	2.000	210-250
U	2.250	220-260
X	2.750	240-280

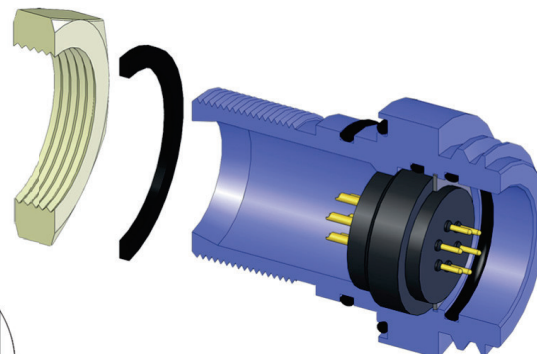
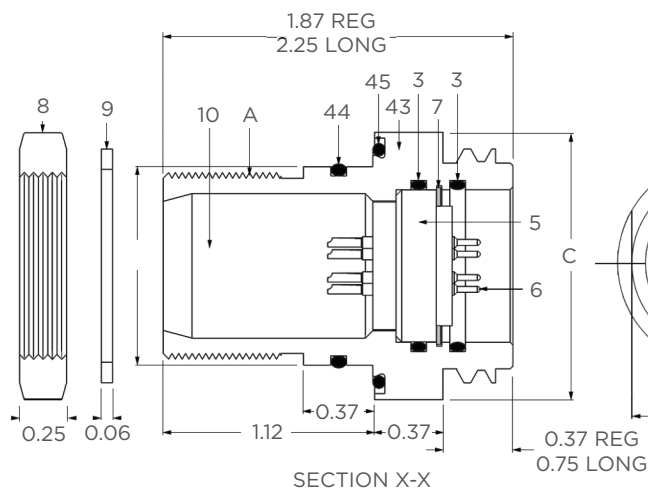
Notes:

- * Torque specified is for dry metal threads.
- For contact configurations please refer to pages 26-31.
- When ordering MIN-BCR you receive: 2, 3, 4, 5, 6, 7. Please refer to the MINI-CON Master Parts and Materials list on page 22.
- Nut and washer are optional.
- Bore must be perpendicular to spot face.
- Spotface diameter to be equal or greater than the connector diameter.
- If threaded mount is used, lead thread chamfer is not to exceed diameter shown in bore column.



MIN-BCR-DO

Bulkhead Connector Receptacle Double O-Ring



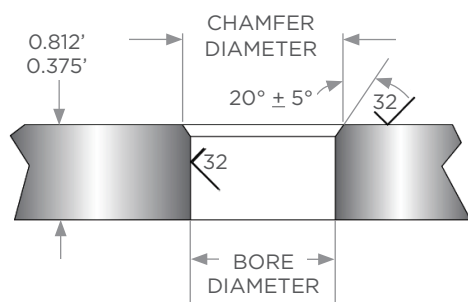
Shell	A	B	C	D	44	45	3	7	8	8	9	Part Number
Size	Mounting Thread	Ø (In)	Square (In)	Wrench Flats (In)	O-Ring	O-Ring	O-Ring	Retaining Ring	Hex Nut Across Flats (In)	Hex Nut Across Points (In)	Washer OD (In)	
D	3/8-24 UNF-2A	0.435	0.81	0.68	2-011	2-015	2-011	VH-31	0.62	0.72	0.62	MIND-X-BCR-DO
E	1/2-20 UNF-2A	0.498	0.93	0.81	2-013	2-017	2-013	VH-43	0.75	0.86	0.75	MINE-X-BCR-DO
G	5/8-24 UNEF-2A	0.685	1.06	0.93	2-015	2-019	2-014	UR50	0.87	1.00	0.88	MING-X-BCR-DO
K	3/4-20 UNEF-2A	0.810	1.18	1.06	2-017	2-020	2-016	UR62	1.00	1.16	1.00	MINK-X-BCR-DO
L	7/8-20 UNEF-2A	0.935	1.31	1.18	2-019	2-022	2-018	UR75	1.12	1.31	1.13	MINL-X-BCR-DO
M	1-20 UNEF-2A	1.060	1.43	1.31	2-021	2-024	2-019	UR81	1.25	1.44	1.25	MINM-X-BCR-DO
O	1 1/8-16 UN-2A	1.185	1.68	1.56	2-023	2-027	2-023	UR106	1.50	1.75	1.50	MINO-X-BCR-DO
P	1 1/4-16 UN-2A	1.310	1.81	1.68	2-025	2-029	2-025	UR118	1.62	1.88	1.63	MINP-X-BCR-DO
Q	1 3/8-16 UN-2A	1.435	1.93	1.81	2-027	2-030	2-028	UR137	1.75	2.00	1.75	MINQ-X-BCR-DO
R	1 1/2-16 UN-2A	1.623	2.06	1.93	2-029	2-031	2-029	UR150	1.87	2.16	1.88	MINR-X-BCR-DO
T	2-16 UN-2A	2.123	2.62	2.43	2-033	2-035	2-031	UR175	2.37	2.75	2.38	MINT-X-BCR-DO
U	2 1/4-16 UN-2A	2.373	3.00	2.68	2-035	2-037	2-033	UR200	2.75	3.03	2.63	MINU-X-BCR-DO
X	2 3/4-16 UN-2A	2.873	3.62	3.22	2-039	2-041	2-037	UR250	3.25	3.63	3.16	MINX-X-BCR-DO



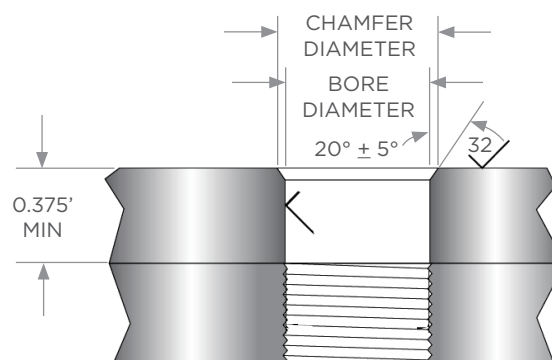
MIN-BCR-DO Mounting Torque

Bulkhead Connector Receptacle Double O-Ring Mounting Torque Information

Through Bore Mounting Option



Threaded Mounting Option



Shell Size	Bore Ø +0.002 -0.000 (In)	Chamfer Ø ±0.010 (In)	BCR/L Mounting Torque* (In-lbs)
D	0.437	0.487	30-35
E	0.562	0.612	50-55
G	0.687	0.737	65-85
K	0.812	0.862	75-100
L	0.937	0.987	90-110
M	1.062	1.112	120-150
O	1.187	1.237	130-160
P	1.312	1.362	140-170
Q	1.437	1.487	150-180
R	1.625	1.675	170-220
T	2.125	2.175	210-250
U	2.375	2.425	220-260
X	2.875	2.925	240-280

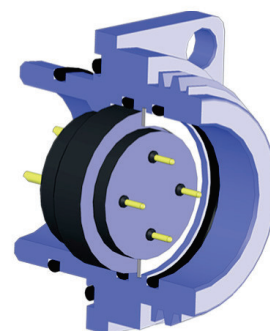
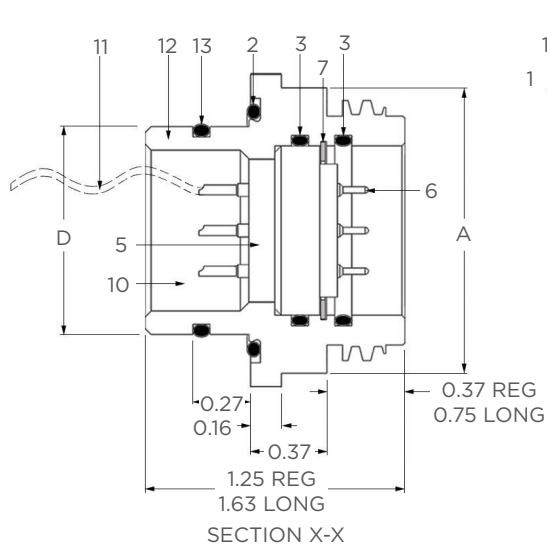
Notes:

- * Torque specified is for dry metal threads.
- For contact configurations please refer to pages 26-31.
- When ordering MIN-BCR-DO you receive: 2, 3, 5, 6, 7, 12, 43, 44, 45. Please refer to the MINI-CON Master Parts and Materials list on page 22.
- Nut and washer are optional.
- Bore must be perpendicular to spot face.
- Spotface diameter to be equal or greater than the connector diameter.
- If threaded mount is used, thread must be concentric with bore.



MIN-FCR

Flange Connector Receptacle



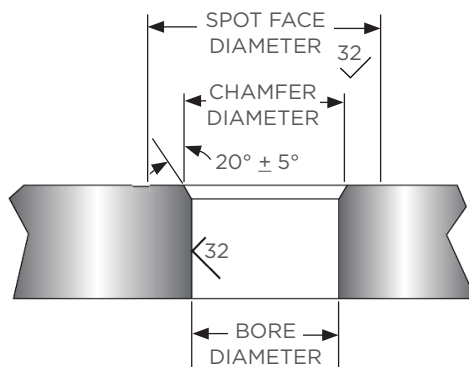
Shell Size	A Ø (In)	B Square (In)	C Mounting Hole Location (In)	D Ø (In)	13 O-Ring	7 Retaining Ring	2 O-Ring	Socket Head Screwcap	3 O-Ring	Part Number
D	0.75	0.87	0.335	0.373	2-010	VH-31	2-013	4-40 UNC-2A	2-011	MIND-X-FCR
E	0.87	1.00	0.387	0.498	2-012	VH-43	2-015	4-40 UNC-2A	2-013	MINE-X-FCR
G	1.00	1.12	0.453	0.685	2-015	UR50	2-018	4-40 UNC-2A	2-014	MING-X-FCR
K	1.12	1.25	0.510	0.748	2-016	UR62	2-019	6-32 UNC-2A	2-016	MINK-X-FCR
L	1.25	1.37	0.562	0.873	2-018	UR75	2-021	6-32 UNC-2A	2-018	MINL-X-FCR
M	1.37	1.50	0.593	0.998	2-020	UR81	2-023	8-32 UNC-2A	2-019	MINM-X-FCR
O	1.62	1.75	0.723	1.123	2-022	UR106	2-026	8-32 UNC-2A	2-023	MINO-X-FCR
P	1.75	1.87	0.777	1.248	2-024	UR118	2-028	8-32 UNC-2A	2-025	MINP-X-FCR
Q	1.87	2.00	0.831	1.373	2-026	UR137	2-029	10-24 UNC-2A	2-028	MINQ-X-FCR
R	2.00	2.12	0.884	1.498	2-028	UR150	2-029	10-24 UNC-2A	2-029	MINR-X-FCR
T	2.50	2.62	1.043	1.998	2-032	UR175	2-034	1/4-20 UNC-2A	2-031	MINT-X-FCR
U	2.75	2.87	1.113	2.248	2-034	UR200	2-036	1/4-20 UNC-2A	2-033	MINU-X-FCR
X	3.50	3.62	1.470	2.748	2-038	UR250	2-041	3/8-16 UNC-2A	2-037	MINX-X-FCR



MIN-FCR Mounting Torque

Flange Connector Receptacle Mounting Torque Information

THROUGH BORE OPTION



Shell Size	Bore Ø $+0.002$ -0.000 (In)	Chamfer Ø $+0.010$ (In)	Spot Face Ø $+0.015$ (In) *	Spot Face Ø $+0.015$ (In) **
D	0.375	0.425	0.69	1.18
E	0.500	0.550	0.87	1.37
G	0.687	0.727	1.00	1.56
K	0.750	0.800	1.12	1.75
L	0.875	0.915	1.25	1.87
M	1.000	1.040	1.31	2.12
O	1.125	1.175	1.50	2.44
P	1.250	1.290	1.62	2.62
Q	1.375	1.425	1.81	2.81
R	1.500	1.540	1.87	3.00
T	2.000	2.050	2.50	3.75
U	2.500	2.290	2.75	4.00
X	2.750	2.800	3.31	5.06

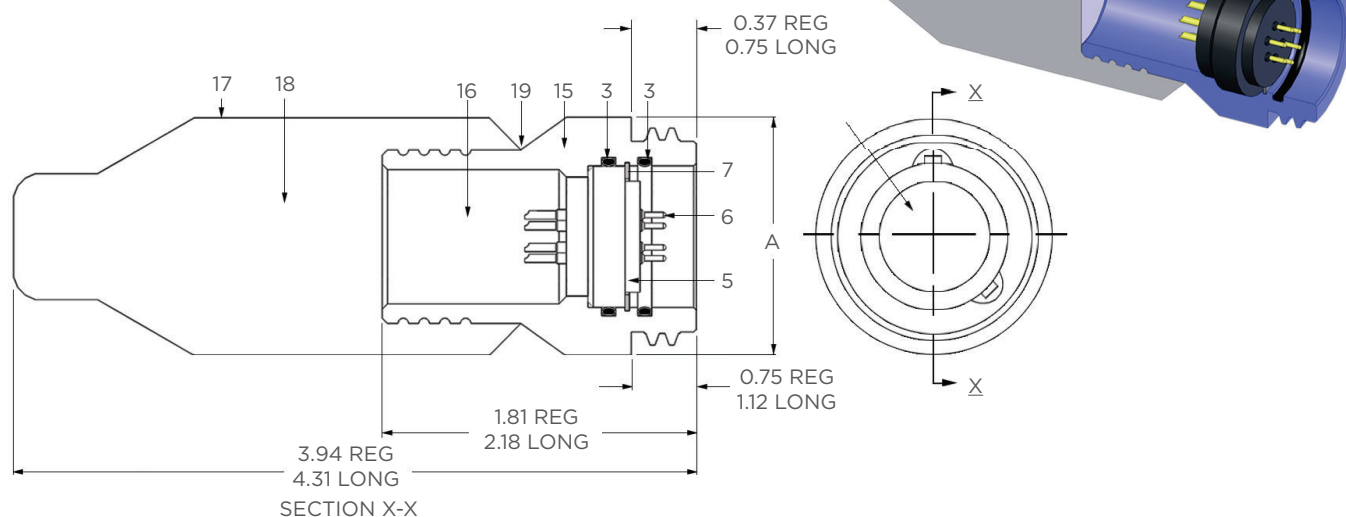
Notes:

- For contact configurations please refer to pages 26-31.
- When ordering MIN-FCR you receive: 2, 3, 5, 6, 7, 12, 13. Please refer to the MINI-CON Master Parts and Materials list on page 22.
- Screw caps are not included.
- * This dimension is to be used if spot face is less than or equal to x.xxxmm (0.001 inches) deep.
- ** This dimension is to be used if spot face is greater than x.xxxmm (0.001 inches) deep
- Chamfer is to be $20^\circ \pm 5^\circ$.
- Bore must be perpendicular to spot face.



MIN-CCR

Cable Connector Receptacle



Shell Size	A Ø (In)	3 O-Ring	7 Retaining Ring	R/A Height (In)	Rear Shell OD (In)	Part Number
D *	0.75	2-011	VH-31	2.25	TBA	MIND-X-CCR
E *	0.87	2-013	VH-43	2.25	TBA	MINE-X-CCR
G	1.00	2-014	UR50	2.63/3.00	0.687	MING-X-CCR
K	1.12	2-016	UR62	2.63/3.00	0.781	MINK-X-CCR
L	1.25	2-018	UR75	2.63/3.00	0.875	MINL-X-CCR
M	1.37	2-019	UR81	2.81/3.18	1.000	MINM-X-CCR
O	1.62	2-023	UR106	2.81/3.18	1.187	MINO-X-CCR
P	1.75	2-025	UR118	3.00/3.37	1.312	MINP-X-CCR
Q	1.87	2-028	UR137	3.00/3.37	1.500	MINQ-X-CCR
R	2.00	2-029	UR150	3.19/3.56	1.562	MINR-X-CCR
T	2.50	2-031	UR175	Varies w/cable	1.875	MINT-X-CCR
U	2.75	2-033	UR200	Varies w/cable	2.062	MINU-X-CCR
X	3.50	2-037	UR250	Varies w/cable	2.687	MINX-X-CCR

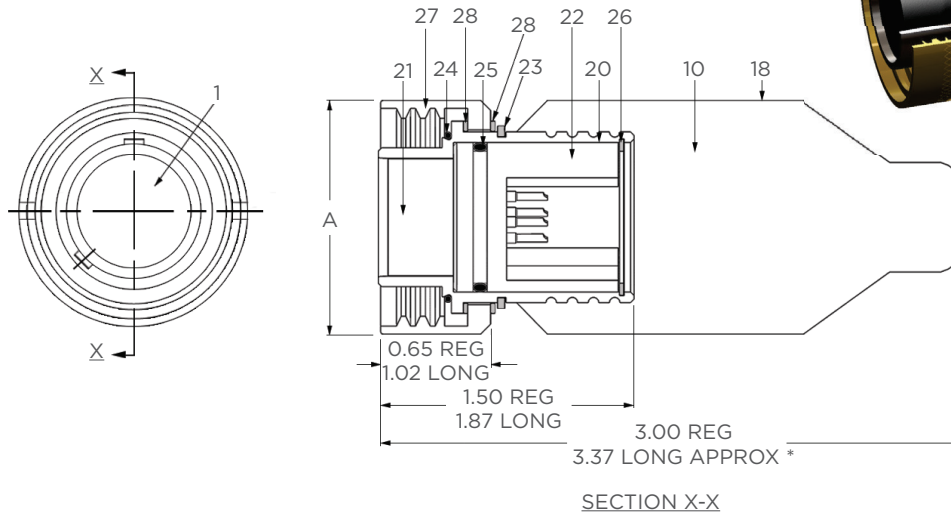
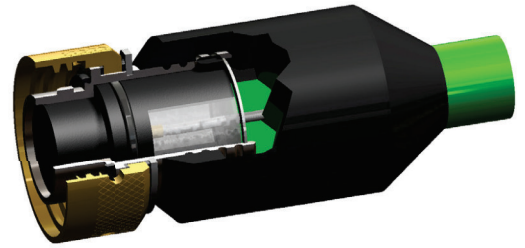
Notes:

- For contact configurations please refer to pages 26-31.
- For maximum cable O.D please refer to page 23.
- When ordering MIN-CCR you receive: 3, 5, 6, 7, 15. Please refer to the MINI-CON Master Parts and Materials list on page 22.
- * BCR may be used as CCR. CCR is not available at this time for MIND and MINE sizes.
- Molding is optional.
- Field Installable Boot is available and cable diameter must be specified at time of order.



MIN-CCP

Cable Connector Plug



Shell Size	A Ø (In)	23 Retaining Ring	24 O-Ring	25 O-Ring	26 Retaining Ring	R/A Height (In)	Rear Shell OD (In)	CCP/L Engaging Nut Torque (In/lbs) **	Part Number
D	0.75	D140-0120	2-012	2-010	VH-37	2.25	0.473	-	MIND-X-CCP
E	0.87	D1400-0150	2-014	2-012	UR50	2.25	0.595	-	MINE-X-CCP
G	1.00	5100-68	2-015	2-013	UR56	2.63/3.00	0.687	40-50	MING-X-CCP
K	1.12	5100-78	2-017	2-015	UR68	2.63/3.00	0.781	40-60	MINK-X-CCP
L	1.25	5100-87	2-019	2-016	UR75	2.63/3.00	0.875	50-70	MINL-X-CCP
M	1.37	5100-100	2-020	2-018	UR87	2.81/3.18	1.000	65-95	MINM-X-CCP
O	1.62	5100-118	2-024	2-020	UR100	2.81/3.18	1.187	75-105	MINO-X-CCP
P	1.75	5100-131	2-027	2-022	UR112	3.00/3.37	1.312	80-110	MINP-X-CCP
Q	1.87	5100-150	2-028	2-025	UR131	3.00/3.37	1.500	85-115	MINQ-X-CCP
R	2.00	5100-156	2-029	2-026	UR137	3.19/3.56	1.562	90-120	MINR-X-CCP
T	2.50	5100-187	2-032	2-029	UR162	Varies w/cable	1.875	125-150	MINT-X-CCP
U	2.75	5100-206	2-033	2-031	UR187	Varies w/cable	2.062	135-160	MINU-X-CCP
X	3.50	5100-268	2-038	2-033	UR212	Varies w/cable	2.687	155-180	MINX-X-CCP

Notes:

- For contact configurations please refer to pages 26-31.
- For maximum cable O.D please refer to page 23.
- When ordering MIN-CCP you receive: 20, 21, 22, 23, 24, 25, 26, 27, 28. Please refer to the MINI-CON Master Parts and Materials list on page 22.
- * Will vary with cable size.
- ** During engaging it may be necessary to use 50% of the engaging nut torque value.
- Molding is optional.
- Field Installable Boot is available and cable diameter must be specified at time of order.



MINI-CON PBOF

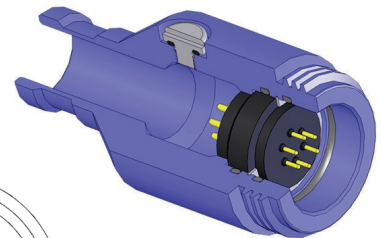
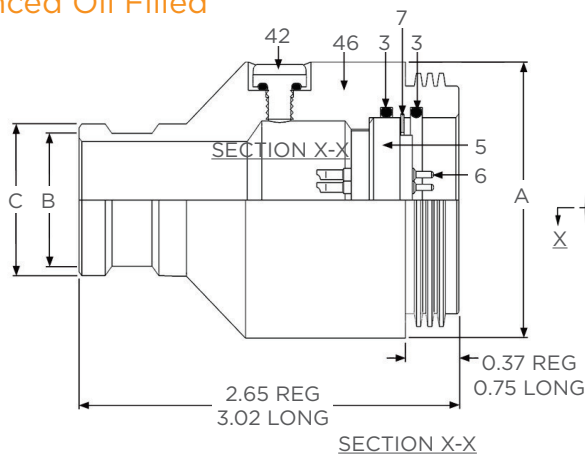
As with previous MINI-CON PBOF connectors, the HP (High Pressure) design utilizes a high contact density layout. The HP style transfers the load without a valve by bearing on the insert.

This is similar to a valve type system in that the force from the high pressure fluid in the hose is transferred to the bulkhead connector. We realize that our customers have many different applications for this type of system. Please contact us with your requirements and we can quote the appropriate bulkhead connector for your application.

Please contact TE for appropriate dummy connectors for use with MINI-CON PBOF connectors.

MIN-CCR-PBOF-HP

Cable Connector Receptacle
Pressure Balanced Oil Filled

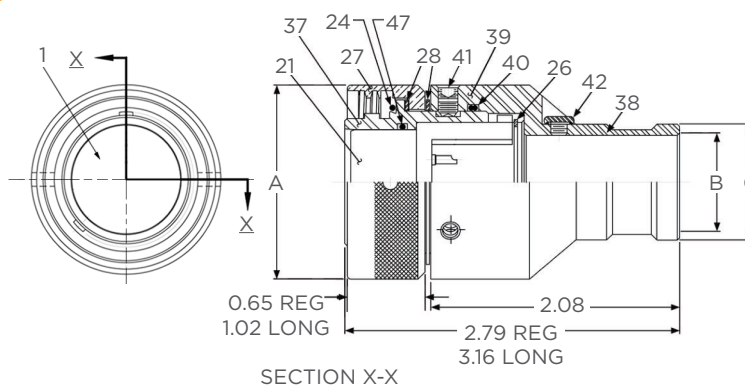
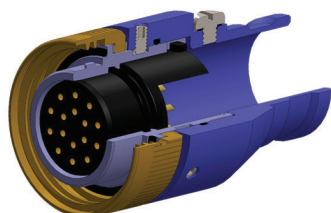


Shell Size	A (In)	B (In)	C (In)	7 Retaining Ring	3 O-Ring	Recommend Tube I.D Size (In)	Part Number
G	1.00	0.50	0.62	UR50	2-014	0.50	MING-X-CCR-PBOF
K	1.12	0.50	0.62	UR62	2-016	0.50	MINK-X-CCR-PBOF
L	1.25	0.56	0.75	UR75	2-018	0.62	MINL-X-CCR-PBOF
M	1.37	0.56	0.75	UR81	2-019	0.62	MINM-X-CCR-PBOF
O	1.62	0.94	1.12	UR106	2-023	1.00	MINO-X-CCR-PBOF
P	1.75	0.94	1.12	UR118	2-025	1.00	MINP-X-CCR-PBOF
Q	1.87	1.06	1.25	UR137	2-028	1.12	MINQ-X-CCR-PBOF
R	2.00	1.06	1.25	UR150	2-029	1.12	MINR-X-CCR-PBOF

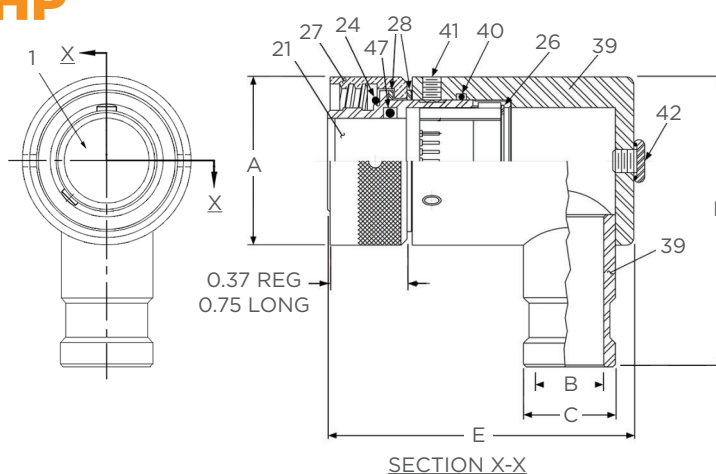
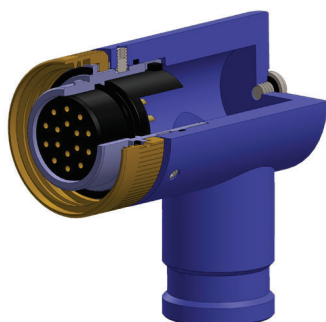
Notes:

- For contact configurations please refer to pages 26-31.
- When ordering MIN-CCR-PBOF you receive: 3, 5, 6, 7, 42, 46. Please refer to the MINI-CON Master Parts and Materials list on page 22.
- Tubing, wiring and oil filling is optional.

Cable Connector Plug Pressure Balanced Oil Filled



Cable Connector Plug Right Angle Pressure Balanced Oil Filled



Shell Size	D					26		CCP/L Engaging					Part Number
	A (In)	B (In)	C (In)	D (In)	Standard/ Long (In)	24 O-Ring	47 O-Ring	Retaining Ring	40 O-Ring	Recommend Tube I.D Size	Nut Torque (In/lbs) *		
G	1.00	0.50	0.62	2.20	2.37/2.75	2-015	2-012	UR56	2-017	0.50	40-50	MING-X-CCP/CCP-RA	
K	1.12	0.50	0.62	2.20	2.37/2.75	2-017	2-014	UR68	2-116	0.50	40-60	MINK-X-CCP/CCP-RA	
L	1.25	0.56	0.75	2.37	2.50/2.87	2-019	2-016	UR75	2-020	0.63	50-70	MINL-X-CCP/CCP-RA	
M	1.37	0.56	0.75	2.37	2.50/2.87	2-020	2-017	UR87	2-022	0.63	65-95	MINM-X-CCP/CCP-RA	
O	1.62	0.94	1.12	3.00	3.03/3.40	2-024	2-020	UR100	2-025	1.00	75-105	MINO-X-CCP/CCP-RA	
P	1.75	0.94	1.12	3.00	3.03/3.40	2-027	2-022	UR112	2-027	1.00	80-110	MINP-X-CCP/CCP-RA	
Q	1.87	1.06	1.25	3.20	3.15/3.52	2-028	2-025	UR131	2-029	1.13	85-115	MINQ-X-CCP/CCP-RA	
R	2.00	1.06	1.25	3.20	3.15/3.52	2-029	2-026	UR137	5-009	1.13	90-120	MINR-X-CCP/CCP-RA	

- For contact configurations please refer to pages 26-31.

- When ordering MIN-CCP-PBOF you receive: 21, 22, 24, 25, 26, 27, 28, 37, 38, 40, 41, 42, 47.

When ordering MIN-CCP-PBOF-RA you receive: 21, 22, 24, 25, 26, 27, 28, 37, 38, 40, 41, 42. Please refer to the MINI-CON Master Parts and Materials list on page 22.

- Tubing, wiring and oil filling is optional.

- * During engaging it may be necessary to use 50% of the engaging nut torque values.



MINI-CON Dummy Connectors

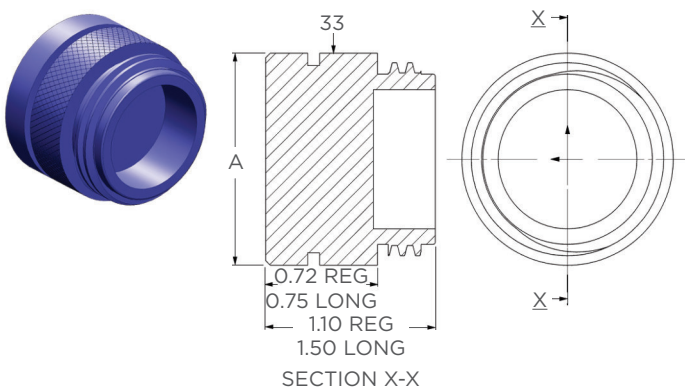
With more and more customers requiring a lanyard attached to the dummy connectors to prevent loss, the DSP/DSR/PSP & PSR have been lengthened slightly and a groove added so that a lanyard can be wrapped around the groove and secured with a crimp fitting.

Customers will be provided with a simple crimp fitting for use when attaching the other end of the wire to the cable or whatever equipment the customer chooses to use. Dummies do not automatically come with lanyards, please specify at order placement.

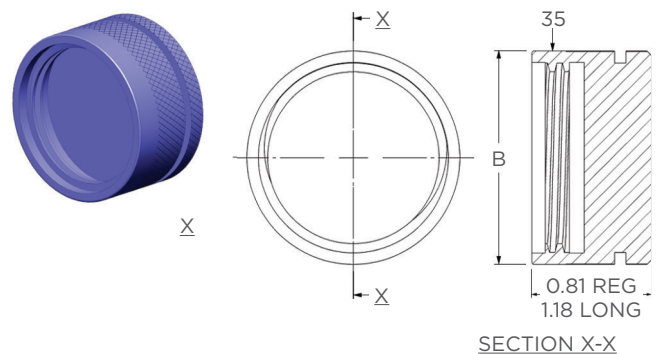


MIN-PSR (PSRL - LONG) MIN-PSP (PSPL - LONG)

Plastic Splashproof Receptacle



Plastic Splashproof Plug



Shell Size	A Ø (In)	B Ø (In)	Part Number
D	0.75	0.81	MIND-X-PSR(L)/PSP(L)
E	0.87	0.93	MINE-X-PSR(L)/PSP(L)
G	1.00	1.06	MING-X-PSR(L)/PSP(L)
K	1.12	1.20	MINK-X-PSR(L)/PSP(L)
L	1.25	1.31	MINL-X-PSR(L)/PSP(L)
M	1.37	1.44	MINM-X-PSR(L)/PSP(L)
O	1.62	1.68	MINO-X-PSR(L)/PSP(L)
P	1.75	1.81	MINP-X-PSR(L)/PSP(L)
Q	1.87	1.94	MINQ-X-PSR(L)/PSP(L)
R	2.00	2.12	MINR-X-PSR(L)/PSP(L)
T	2.50	2.62	MINT-X-PSR(L)/PSP(L)
U	2.75	2.87	MINU-X-PSR(L)/PSP(L)
X	3.50	3.62	MINX-X-PSR(L)/PSP(L)

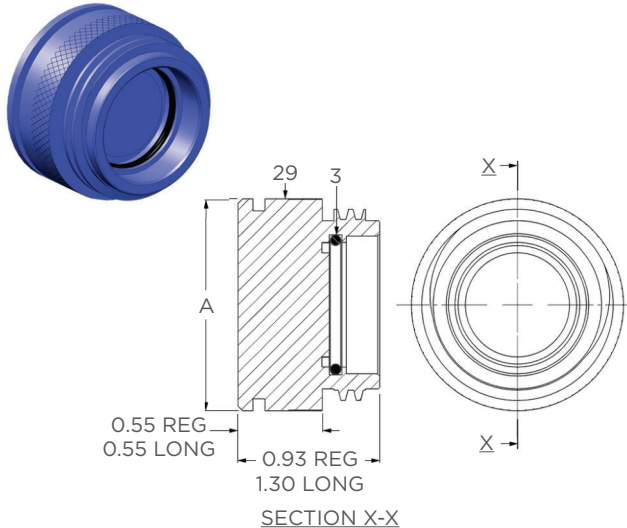
Notes:

- Splashproof connectors are not designed for submergence.

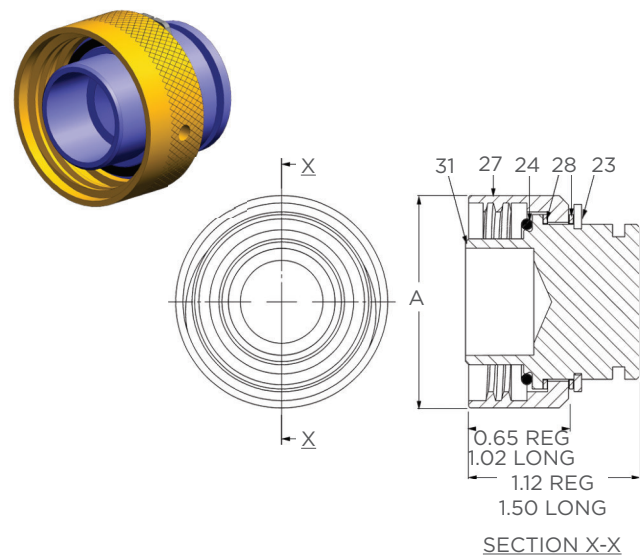


MIN-DSR (DSRL - LONG) MIN-DSP (DSPL - LONG)

Dummy Sealing Receptacle



Dummy Sealing Plug



Shell Size	A Ø (In)	3 O-Ring	23 Retaining Ring *	24 O-Ring	DSP/L Engaging Nut Torque (Inch-Pounds) **	Part Number
D	0.75	2-011	5100-46	2-012	-	MIND-X-DSP(L)/DSR(L)
E	0.87	2-013	5100-59	2-014	-	MINE-X-DSP(L)/DSR(L)
G	1.00	2-014	5100-68	2-015	40-50	MING-X-DSP(L)/DSR(L)
K	1.12	2-016	5100-78	2-017	40-60	MINK-X-DSP(L)/DSR(L)
L	1.25	2-018	5100-87	2-019	50-70	MINL-X-DSP(L)/DSR(L)
M	1.37	2-019	5100-100	2-020	65-95	MINM-X-DSP(L)/DSR(L)
O	1.62	2-023	5100-118	2-024	75-105	MINO-X-DSP(L)/DSR(L)
P	1.75	2-025	5100-131	2-027	80-110	MINP-X-DSP(L)/DSR(L)
Q	1.87	2-028	5100-150	2-028	85-115	MINQ-X-DSP(L)/DSR(L)
R	2.00	2-029	5100-156	2-029	90-120	MINR-X-DSP(L)/DSR(L)
T	2.50	2-031	5100-187	2-032	125-150	MINT-X-DSP(L)/DSR(L)
U	2.75	2-033	5100-206	2-033	135-160	MINU-X-DSP(L)/DSR(L)
X	3.50	2-037	5100-268	2-038	155-180	MINX-X-DSP(L)/DSR(L)

Notes:

- When ordering MIN-DSR (DSRL) you receive: 3, 29. When ordering MIN-DSP (DSPL) you receive: 23, 24, 27, 28, 31. Please refer to the MINI-CON Master Parts and Materials list on page 22.
- Please contact TE for appropriate dummy connectors for use on compensated systems or PBOF connectors.
- * High Grade Stainless Steel.
- ** During engaging it may be necessary to use 50% of the engaging nut torque value.



Master Parts and Materials List

Item	Qty	Part / Description	Notes	
1	-	Insert Face Pattern	*11	
2	1	O-Ring	*6	*13
3	AR	O-Ring	*6	
4	1	MIN-BCR	*1	*13
5	1	MIN-CIR / MIN-CIR-PBOF-HP	*2	
6	AR	Contact Pins	*3	*11
7	1	Retaining Ring	*5	
8	1	Bulkhead Hex Nut (Optional)	*5	
9	1	Bulkhead Washer (Optional)	*5	
10	AR	Epoxy (Optional)	*7	
11	AR	Hook-Up Wire (Optional Pigtails)	*8	
12	1	MIN-FCR	*1	*13
13	1	O-Ring	*6	
14	4	Socket Cap Hex Screw (Optional)	*5	
15	1	MIN-CCR	*1	
16	AR	Fill Compound Required	*14	
17	1	MIN-CCP / CCR FI Boot (Optional)	*4	*12
18	AR	Overmold (Optional)	*4	*12
19	2	Nylon Cable Tie (Optional)	*12	
20	1	MIN-CCP	*1	*13
21	1	MIN-CIP / MIN-CIP-PBOF-HP	*2	
22	AR	Contact Sockets	*3	*11

Item	Qty	Part / Description	Notes	
23	1	Retaining Ring	*5	
24	1	O-Ring	*6	*13
25	1	O-Ring	*6	
26	1	Retaining Ring	*5	
27	1	Engaging Nut	*10	
28	2	Engaging Nut Washer	*9	
29	1	MIN-DSR / DSRL	*1	
31	1	MIN-DSP / DSPL	*1	
33	1	MIN-PSR / PSRL	*9	
35	1	MIN-PSP / PSPL	*9	
37	1	MIN-CCP-PBOF-HP-FWD END	*1	
38	1	MIN-CCP-PBOF-AFT END	*1	
39	1	MIN-CCP-PBOF-R/A AFT END	*1	
40	1	O-Ring	*6	
41	3	8-32 UNC-2A Hex Socket Screw / Cup Point	*5	
42	1	10-24 UNC-2A Pan Head Screw with 5-105 O-Ring	*5	*6
43	1	MIN-BCR Dual O-Ring	*1	*13
44	1	O-Ring	*6	
45	1	O-Ring	*6	*13
46	1	MIN-CCR-PBOF	*1	
47	1	O-Ring	*6	*13

Notes:

- *1 Material: 316 Stainless Steel per ASTM A 484.
- *2 Material: Glass Reinforced Epoxy, SEACON XS-2748.
- *3 Material: Copper Alloy & Gold Plated per ASTM B 488.
- *4 Material: Neoprene Molding per SEACON X-5727.
- *5 Material: High Grade Stainless Steel.
- *6 Material: Nitrile (formerly known as Buna N).
- *7 Material: Epon 828/Ciba 840.
- *8 Material: TFE insulated wire.
- *9 Material: Acetal per ASTM D 4181, Black.
- *10 Material: Copper Alloy 630 per ASTM B 150.
- *11 Reference face configurations for size of contacts and locations.
- *12 An overmold or field installable boot is optional on both the CCP and the CCR.
- *13 Dovetail groove to prevent loss of o-ring.
- *14 Not supplied.



Maximum Cable O.D

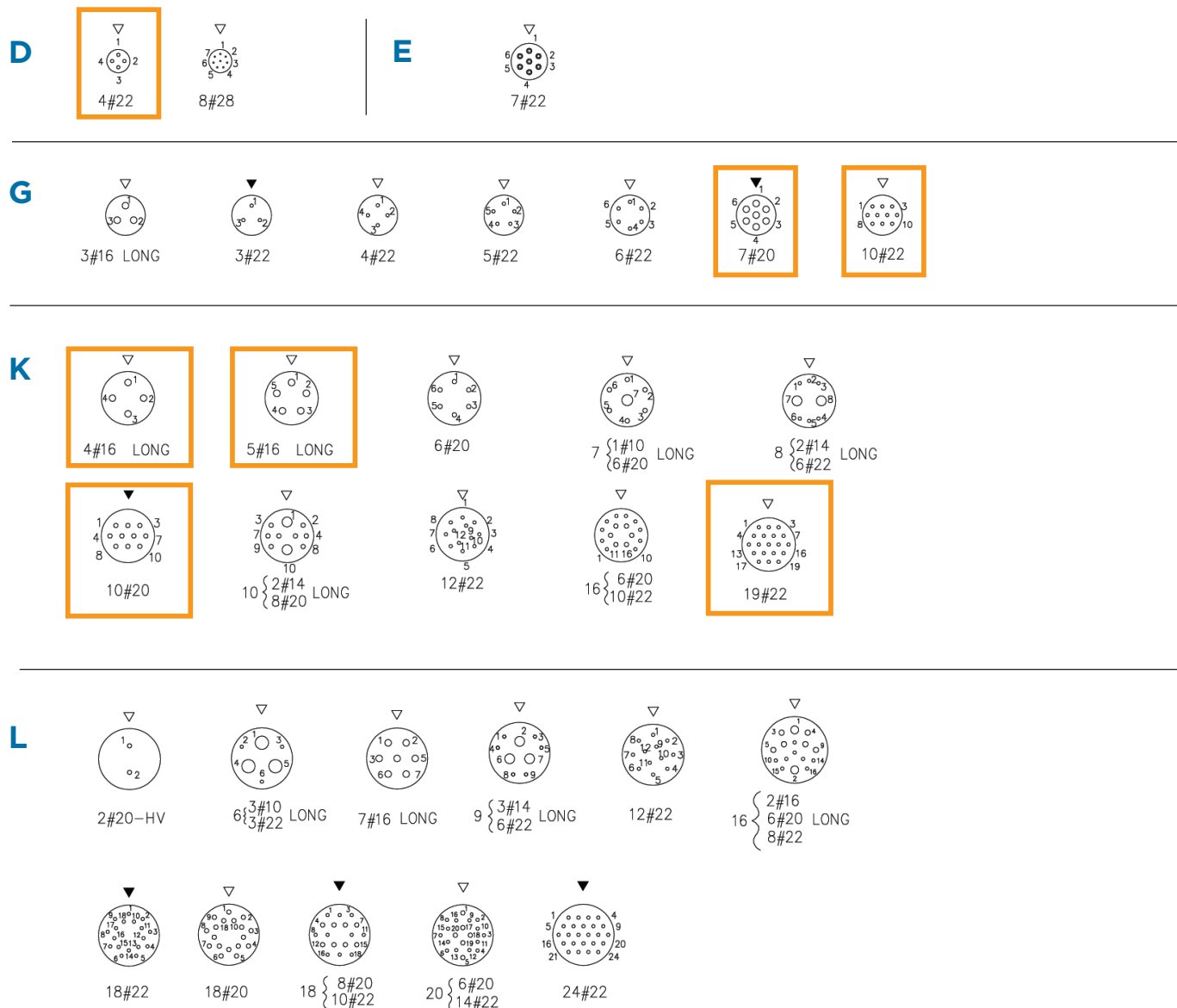
TYPE OF CONNECTOR	MAXIMUM CABLE O.D.
MIND-CCP	3/8 (0.375)
MIND-CCR	1/2 (0.500)
MINE-CCP	3/8 (0.375)
MINE-CCR	1/2 (0.500)
MING-CCP	9/16 (0.562)
MING-CCP-R/A	5/8 (0.625)
MING-CCR	9/16 (0.562) CCP MOLD
MINK-CCP	7/8 (0.875)
MINK-CCP-R/A	5/8 (0.625)
MINK-CCR	7/8 (0.875) CCP MOLD
MINK-FCR-HP SIDE	3/8 (0.375)
MINK-FCR-HP SIDE R/A	3/8 (0.375)
MINL-CCP	1 (1.000)
MINL-CCP-R/A	5/8 (0.625)
MINL-CCR	1 (1.000) CCP MOLD
MINM-CCP	3/4 (0.750)
MINM-CCP-R/A	3/4 (0.750)
MINM-CCR	3/4 (0.750) CCP MOLD
MINO-CCP	1 1/4 (1.250)
MINO-CCP-R/A	3/4 (0.750)
MINO-CCR	1 1/4 (1.250) CCP MOLD

TYPE OF CONNECTOR	MAXIMUM CABLE O.D.
MINP-CCP	1 (1.000)
MINP-CCP-R/A	27/32 (0.843)
MINP-CCR	1 (1.000)
MINP-PNT-HP SIDE	-
MINQ-CCP	1 1/4 (1.250)
MINQ-CCP-R/A	7/8 (0.875)
MINQ-CCR	1 1/4 (1.250) CCP MOLD
MINR-CCP	1 1/4 (1.250)
MINR-CCP-R/A	1 (1.000)
MINR-CCR	1 1/4 (1.250) CCP MOLD
MINS-CCP	1 3/8 (1.375)
MINS-CCP-R/A	1 1/8 (1.125)
MINS-CCR	1 3/8 (1.375) CCP MOLD
MINT-CCP	1 1/2 (1.500)
MINT-CCP-R/A	1 1/4 (1.250)
MINT-CCR	1 1/2 (1.500) CCP MOLD
MINU-CCP	1 11/16 (1.687)
MINU-CCP-R/A	1 3/8 (1.375)
MINU-CCR	1 11/16 (1.687) CCP MOLD



Contact Configurations

Male Face View Only - Not to Scale



Notes:

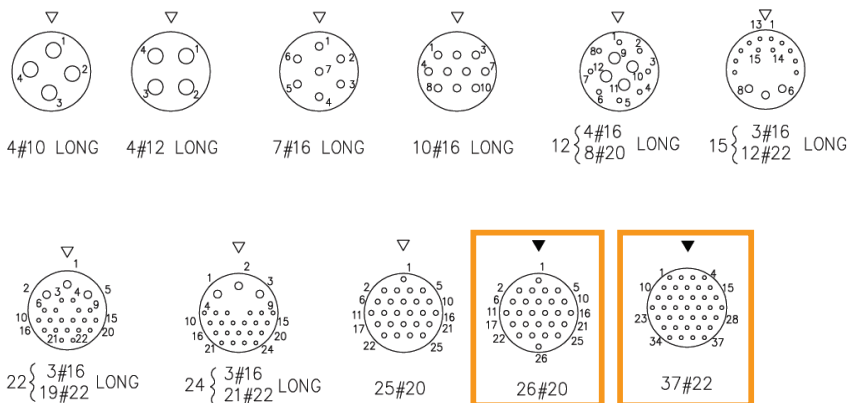
- Most common configurations.
- Available as Glass Sealed style connectors.
- All configurations shown are the face view of the receptacle connector (BCR/FCR).
- 600 VDC is standard; many of the above can handle higher voltage ratings.
- Please contact TE for specific voltage ratings.



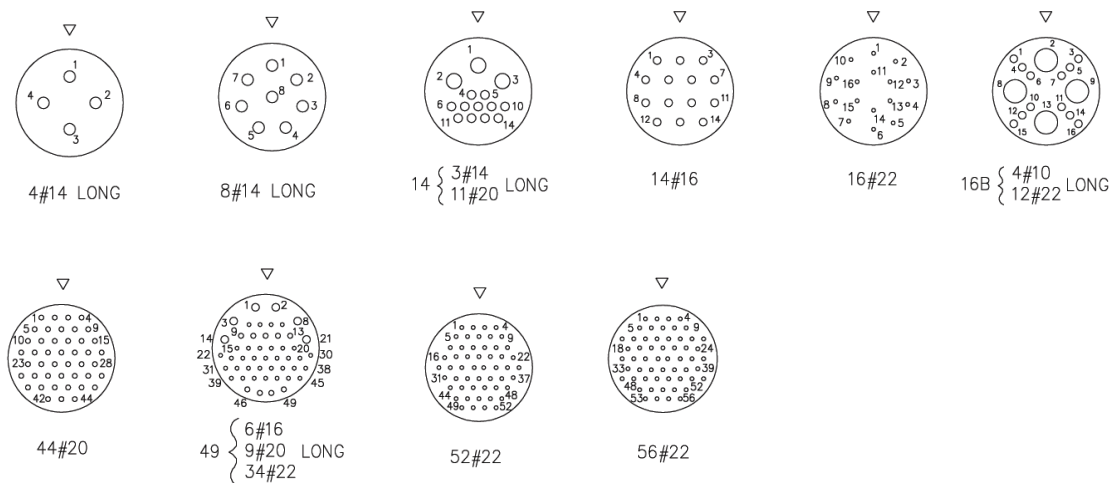
Contact Configurations

Male Face View Only - Not to Scale

M



O



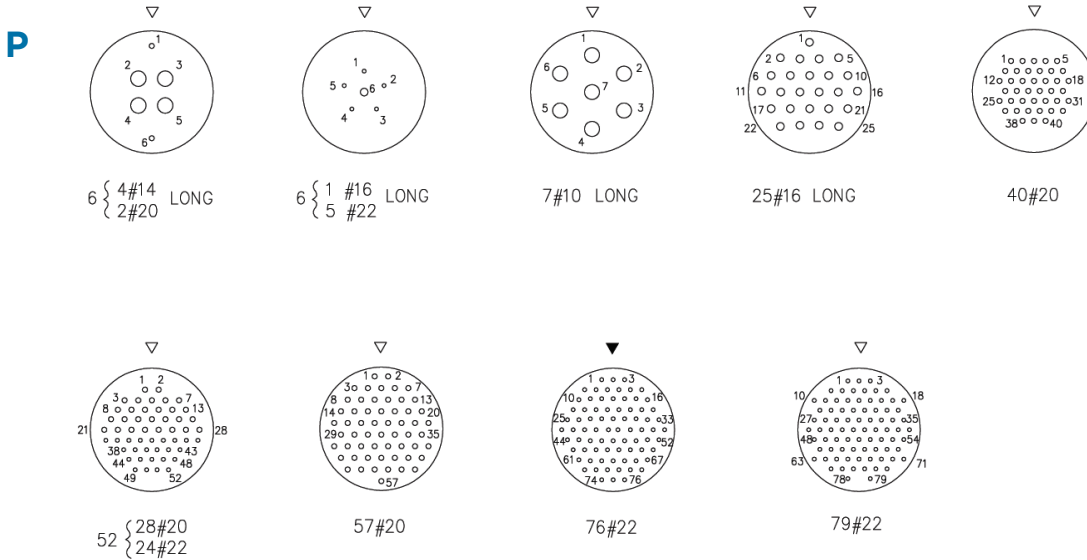
Notes:

- ▼ Available as Glass Sealed style connectors.
- All configurations shown are the face view of the receptacle connector (BCR/FCR).
- 600 VDC is standard; many of the above can handle higher voltage ratings.
- Please contact TE for specific voltage ratings.



Contact Configurations

Male Face View Only - Not to Scale



Notes:

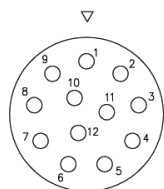
- ▼ Available as Glass Sealed style connectors.
- All configurations shown are the face view of the receptacle connector (BCR/FCR).
- 600 VDC is standard; many of the above can handle higher voltage ratings.
- Please contact TE for specific voltage ratings.



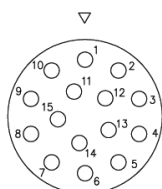
Contact Configurations

Male Face View Only - Not to Scale

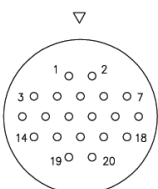
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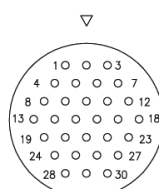
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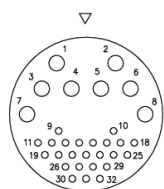
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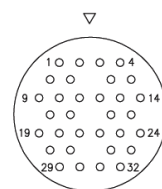
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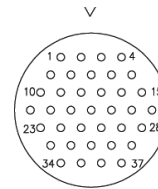
30#16 LONG



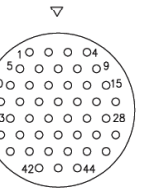
32A { 8#10 24#22 } LONG



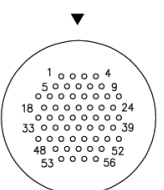
32#16 LONG



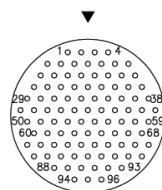
37#16 LONG



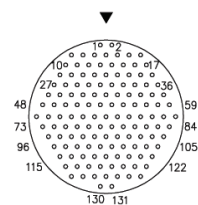
44#16 LONG



56#20

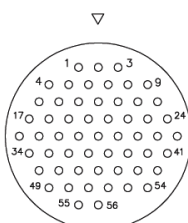


96#20

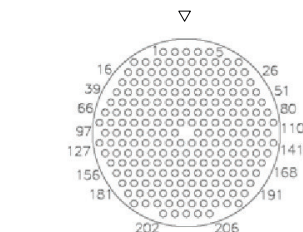


131#22

T



56#16 LONG



206#22

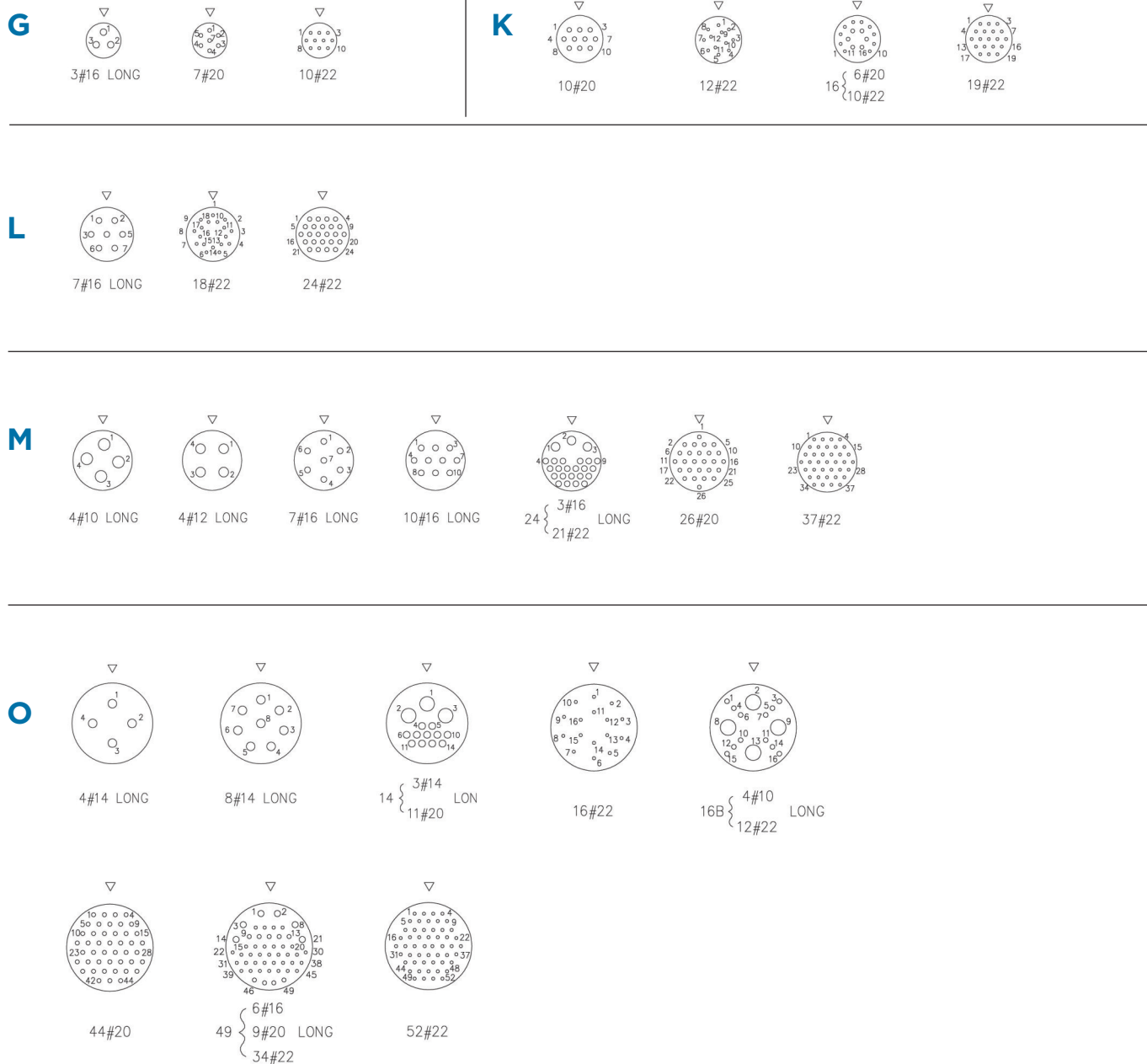
Notes:

- ▼ Available as Glass Sealed style connectors.
- All configurations shown are the face view of the receptacle connector (BCR/FCR).
- 600 VDC is standard; many of the above can handle higher voltage ratings.
- Please contact TE for specific voltage ratings.



V-MIN Contact Configurations

Male Face View Only - Not to Scale



Notes:

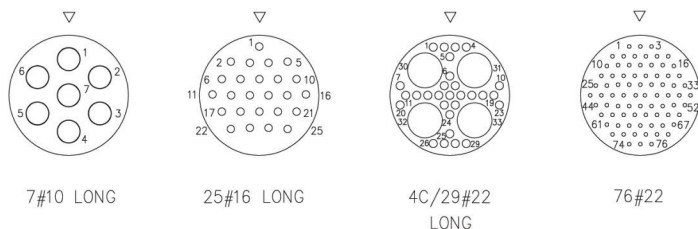
- All configurations shown are the face view of the receptacle connector (BCR/FCR).
- 600 VDC is standard; many of the above can handle higher voltage ratings.
- Please contact TE for specific voltage ratings.



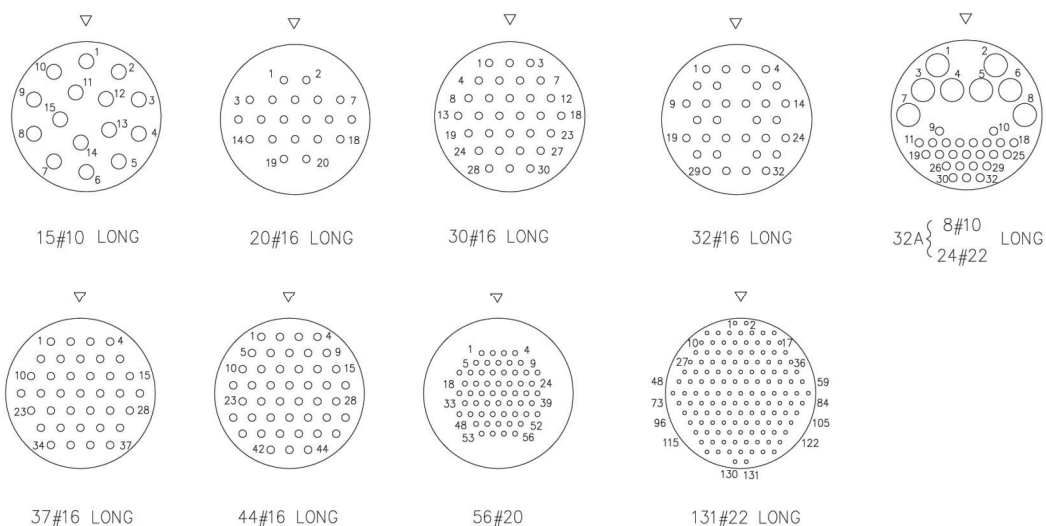
V-MIN Contact Configurations

Male Face View Only - Not to Scale

P



R



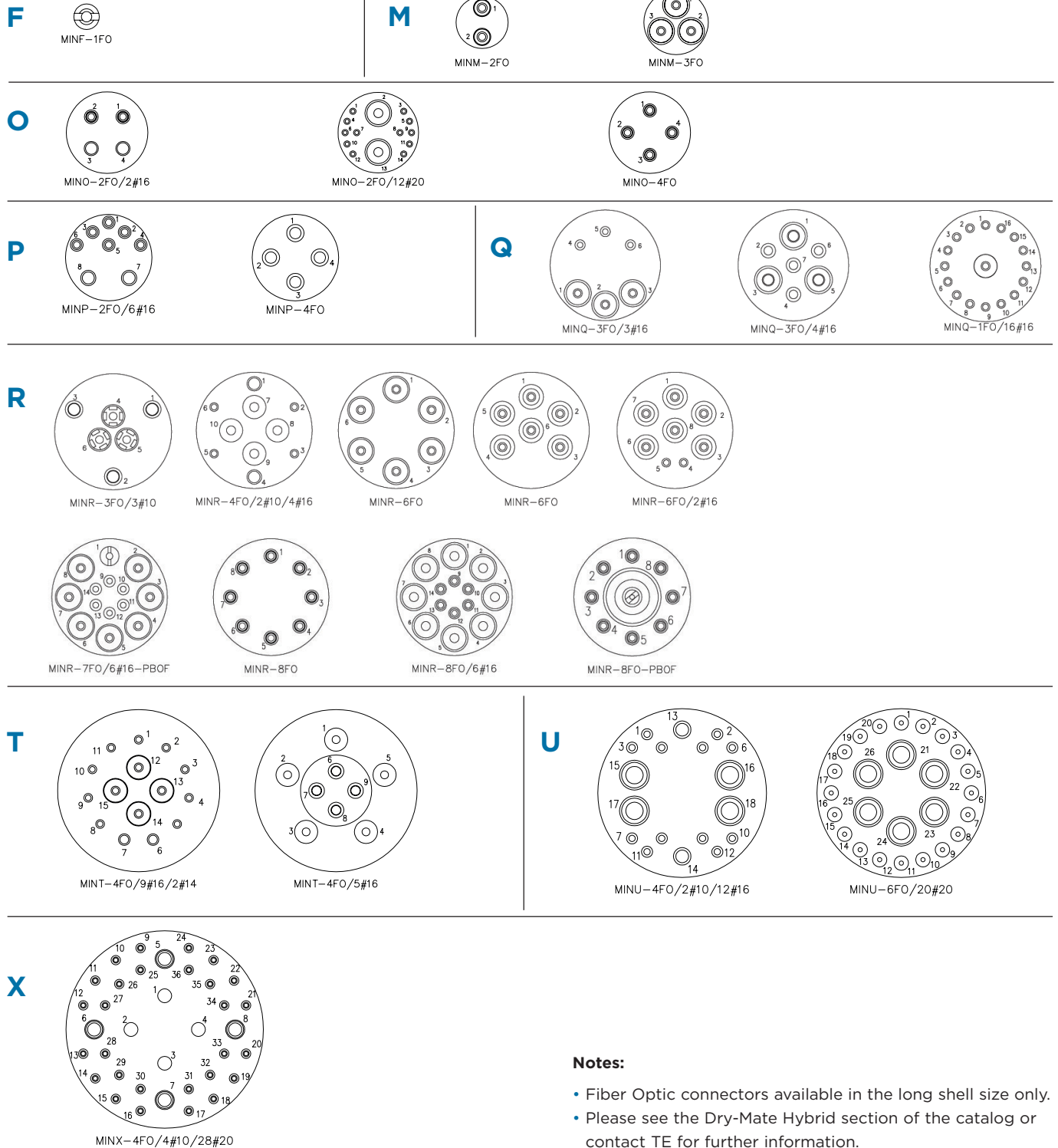
Notes:

- All configurations shown are the face view of the receptacle connector (BCR/FCR).
- 600 VDC is standard; many of the above can handle higher voltage ratings.
- Please contact TE for specific voltage ratings.



Fiber Optic Contact Configurations

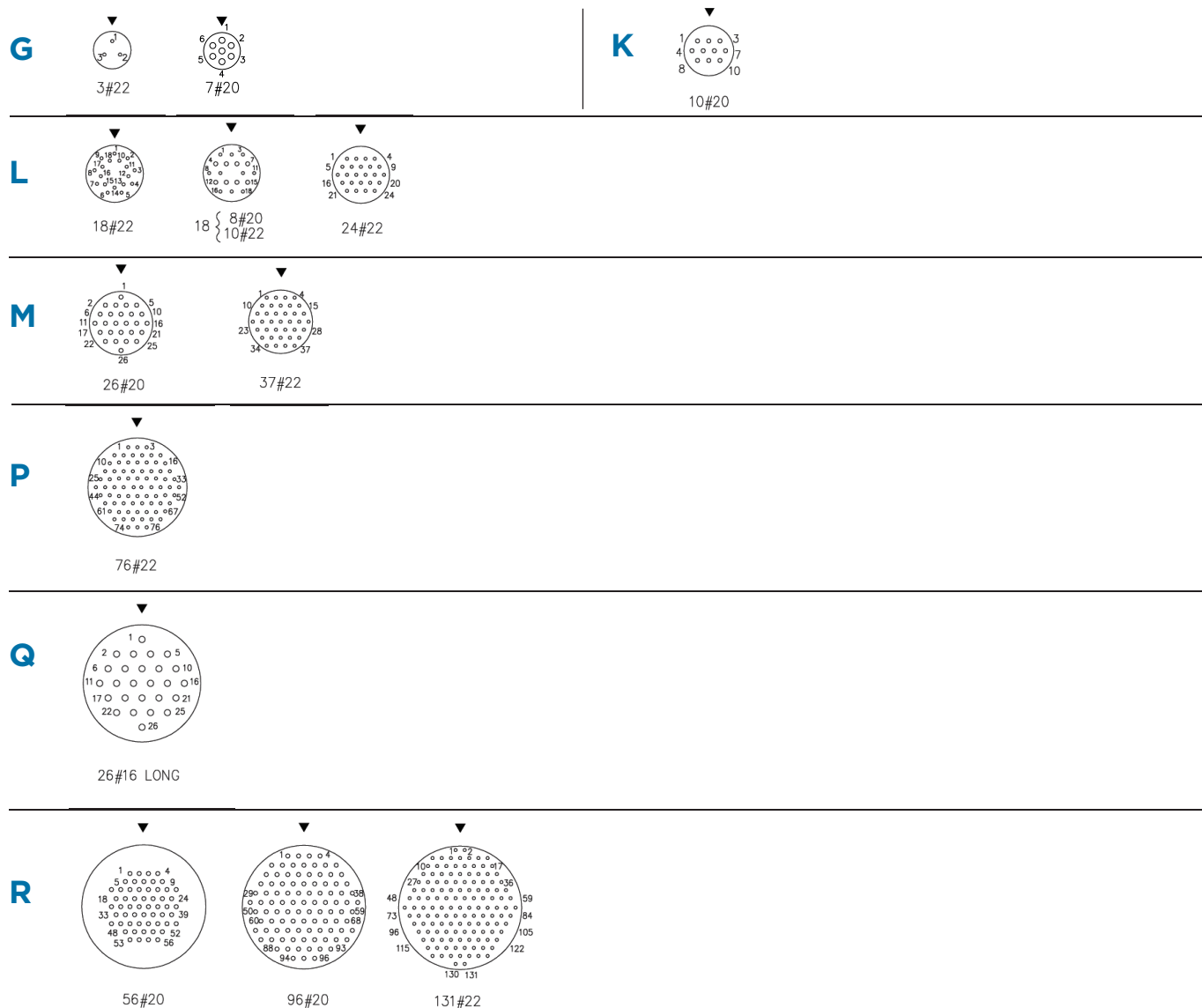
Male Face View Only - Not to Scale





Glass to Metal Contact Configurations

Male Face View Only - Not to Scale



Notes:

- All configurations shown are the face view of the receptacle connector (BCR/FCR).
- 600 VDC is standard; many of the above can handle higher voltage ratings.
- Please contact TE for specific voltage ratings.

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