

# SEACON<sup>®</sup>

UNDERWATER ELECTRICAL AND FIBER OPTIC CONNECTORS



## SEA-MATE



UNDERWATER ELECTRICAL WET-MATE CONNECTORS



MANAGEMENT SYSTEM APPROVED IN ACCORDANCE WITH ISO 9001.



## UNDERWATER ELECTRICAL WET-MATE CONNECTORS

### INTRODUCTION

SEACON (europe) Ltd has re-developed its well known U-MATE range of underwater electrical wet-mate connectors, making it easier to manufacture and incorporating existing proven technology.

The **SEA-MATE** series has many features including fully interchangeable inserts which offers greater flexibility to the customer with full PBOF capability and increased contact configurations. In addition, this connector range has many of the original features as those of the U-MATE series including, positive keying and proven underwater mating technology and a robust design for harsh subsea environments.

The manufacture and assembly of all parts in house ensures that each **SEA-MATE** connector is supplied to the highest of standards. This connector range is manufactured from 316L Stainless Steel as standard, however other materials are available upon request.

### AVAILABILITY

The **SEA-MATE** range is available in 4 shell sizes from 2 to 37 contact configurations. With oil filled and moulded versions available and the ability to incorporate FITA technology, this connector series is extremely adaptable. Pressure rated to 7,500 psi (5,200m water depth), this latest series offers the next evolution of our highly successful connector range.

### APPLICATIONS

The **SEA-MATE** is suitable for applications such as underwater cameras, diver communications, lights, pan and tilts or any application where underwater mateability is required.

### TESTING

These connectors have gone through full in-house qualification testing, including but not limited to, the following:

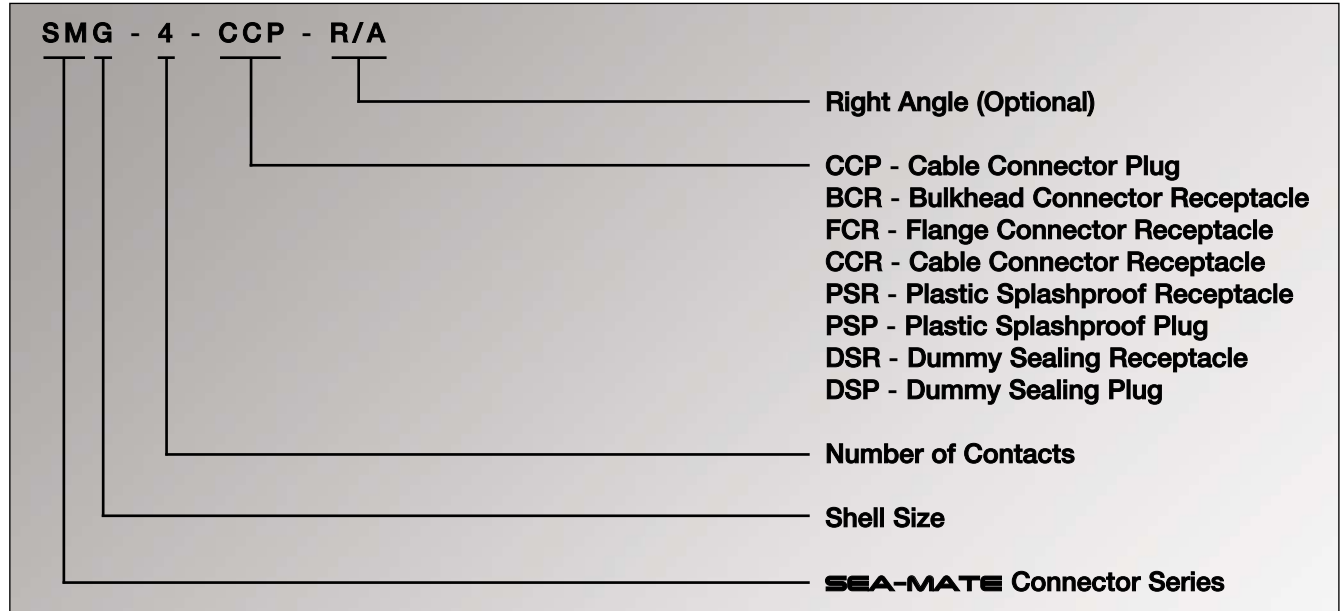
- Dielectric breakdown.
- Dry mate-demate lifecycle.
- Wet mate-demate lifecycle.
- Mated and open face Hydrostatic pressure testing upto 10,000 psi.

For further information please contact SEACON®.

# SEA-MATE SERIES

## PART NUMBER SYSTEM

EXAMPLE:



## GENERAL INFORMATION

COMPONENT	MATERIAL
<b>BULKHEAD BODY (BCR/FCR)</b>	316L SS
<b>CCP BODY</b>	316L SS c/w Aluminium Bronze NES 833 engaging nut
<b>ELECTRICAL CONTACTS</b>	Brass CZ124 gold plated as per MIL-G-45204
<b>O-RING (BULKHEAD/FCR)</b>	Nitrile

CATEGORY	VALUE
<b>MATED PRESSURE</b>	Up to 7,500 psi (5,200m water depth)
<b>OPEN FACE PRESSURE</b>	Up to 7,500 psi (5,200m water depth)
<b>VOLTAGE RATING</b>	600 VDC/440 VAC
<b>CURRENT RATING</b>	Up to 10 amps Up to 50 amps new high power version Dependent on cable conductor size

**NOTE:**

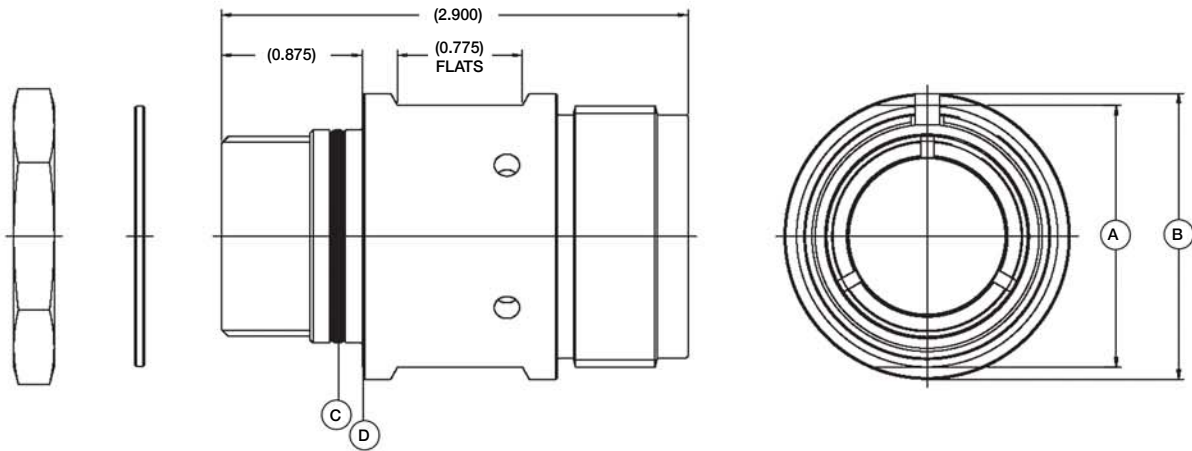
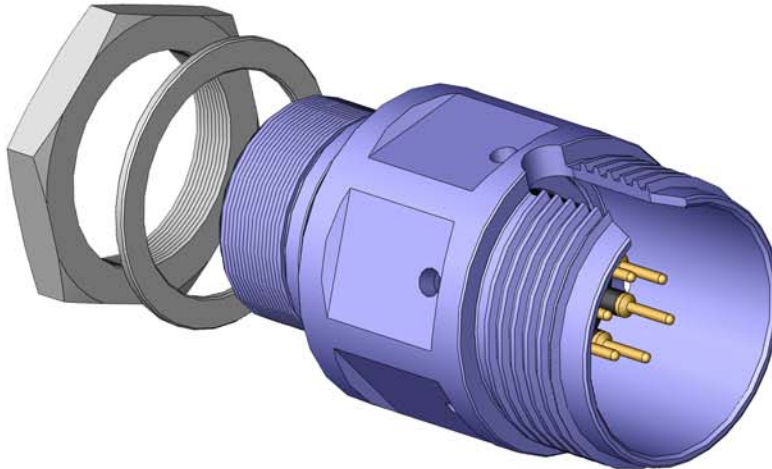
Connectors are designed for installation on one atmosphere vessels. For all other applications please contact SEA CON®.



# DIMENSION DETAILS

## SEA-MATE SERIES SM-BCR

SEA-MATE Bulkhead Connector Receptacle  
Mates with SM-CCP  
Dummy Connector: SM-DSP



CONNECTOR	A - Ø (INCHES)	B - Ø (INCHES)	C - O-RING	D - O-RING
SMG-BCR	1.25	1.400	BS1806-019	BS1806-024
SMK-BCR	1.625	1.775	BS1806-025	BS1806-029
SML-BCR	2.00	2.150	BS1806-519	BS1806-032
SMM-BCR	2.375	2.525	BS1806-134	BS1806-035

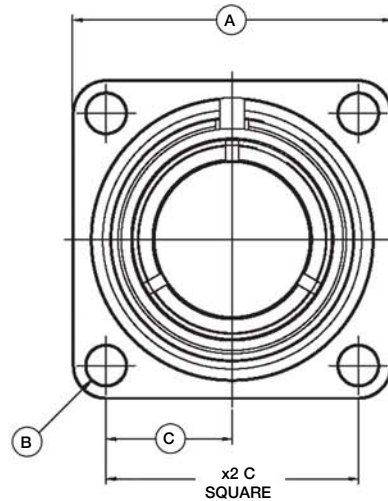
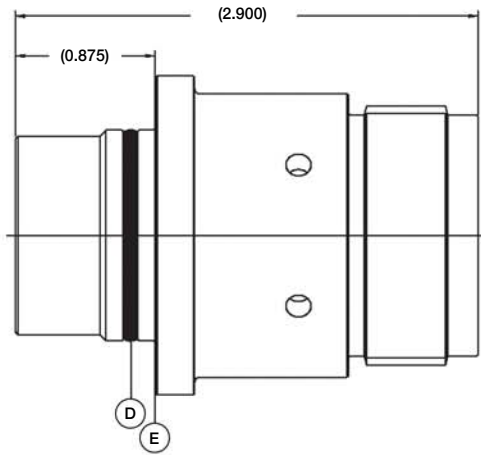
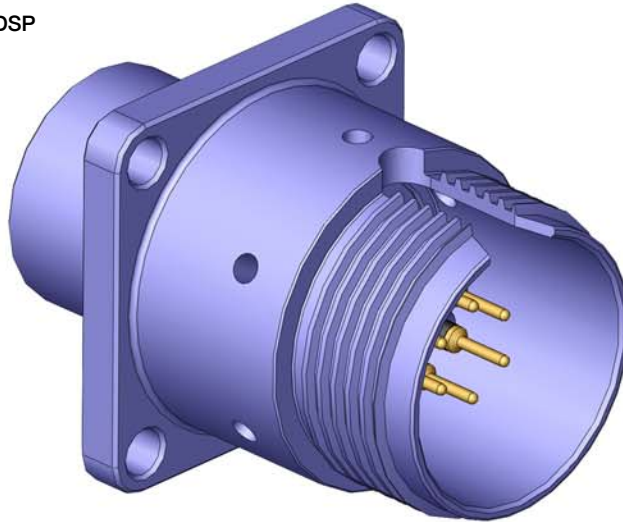
**NOTE:**

Nut and washer available at additional cost.

# DIMENSION DETAILS

## SEA-MATE SERIES SM-FCR

SEA-MATE Flange Connector Receptacle  
Mates with SM-CCP  
Dummy Connector: SM-DSP

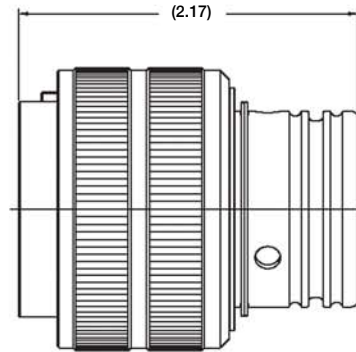
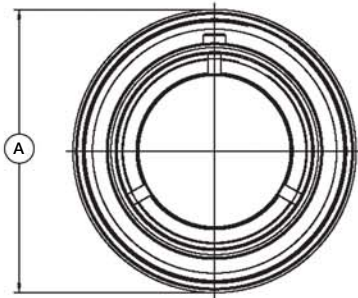
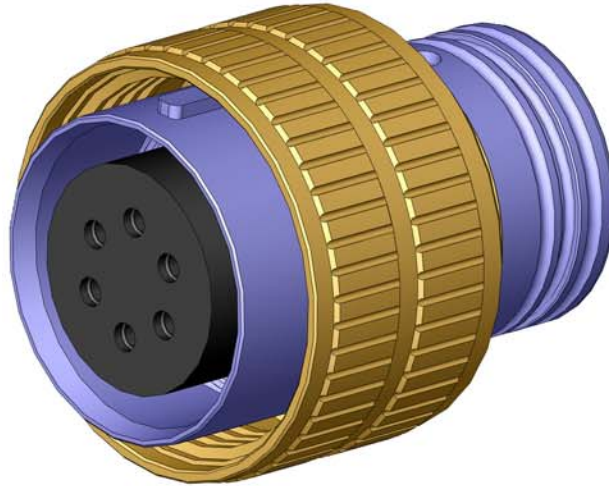


CONNECTOR	A - SQUARE (INCHES)	B - Ø (INCHES)	C - (INCHES)	D - O-RING	E - O-RING
SMG-FCR	1.625	0.206	0.635	BS1806-019	BS1806-024
SMK-FCR	2.000	0.245	0.790	BS1806-025	BS1806-029
SML-FCR	2.375	0.245	0.975	BS1806-519	BS1806-032
SMM-FCR	2.750	0.325	1.100	BS1806-134	BS1806-035

# DIMENSION DETAILS

## SEA-MATE SERIES SM-CCP-ATTACHABLE

SEA-MATE Cable Connector Plug  
 Mates with SM-BCR/FCR/CCR  
 Dummy Connector: SM-DSR

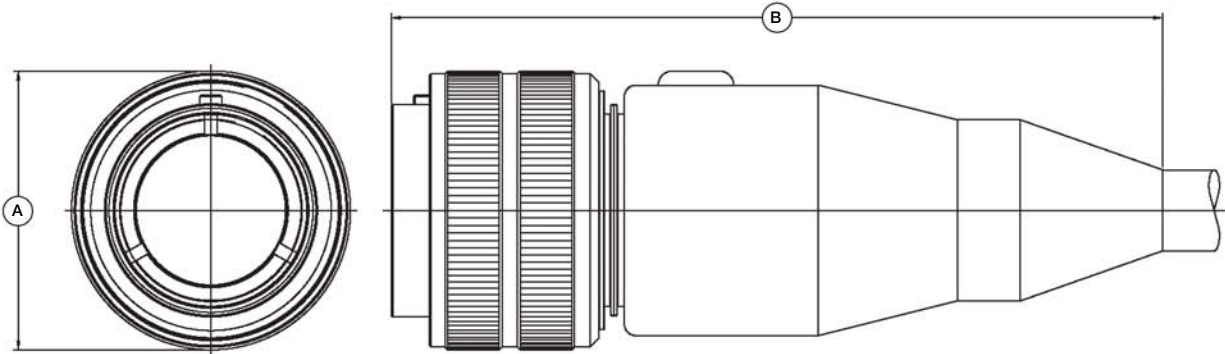
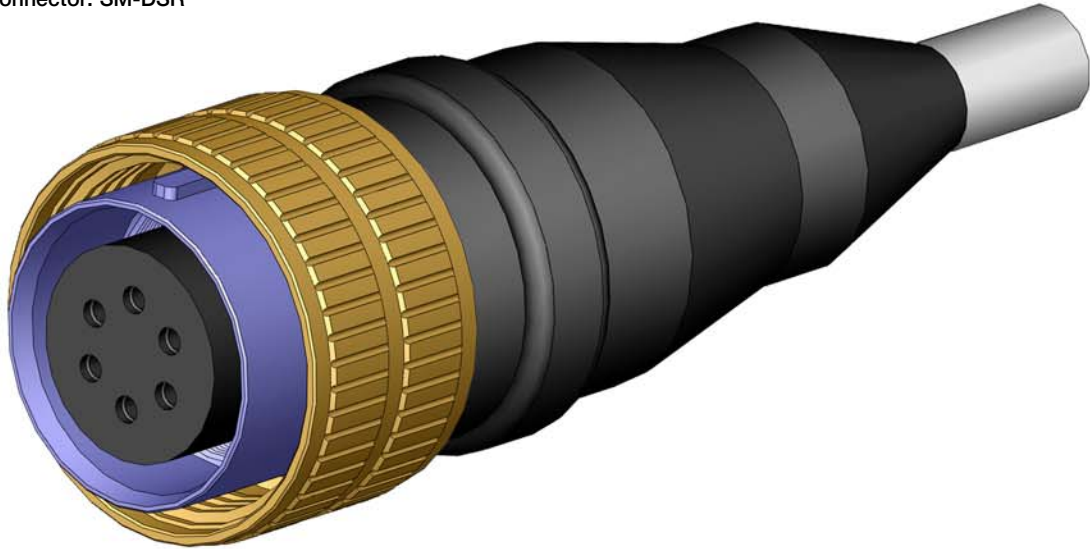


CONNECTOR	A - Ø (INCHES)
SMG-CCP-ATTACHABLE	1.435
SMK-CCP-ATTACHABLE	1.810
SML-CCP-ATTACHABLE	2.185
SMM-CCP-ATTACHABLE	2.560

# DIMENSION DETAILS

## SEA-MATE SERIES SM-CCP-CABLE

SEA-MATE Cable Connector Plug  
 Mates with SM-BCR/FCR/CCR  
 Dummy Connector: SM-DSR

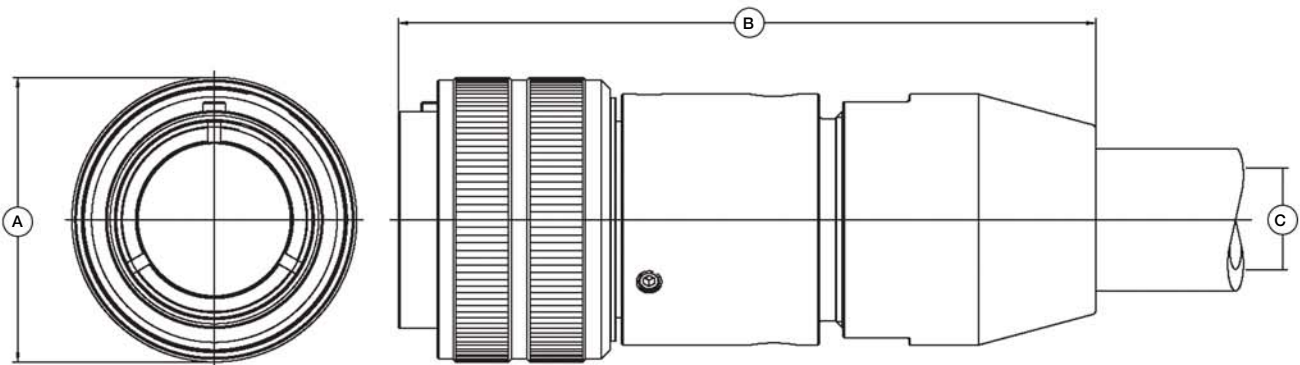
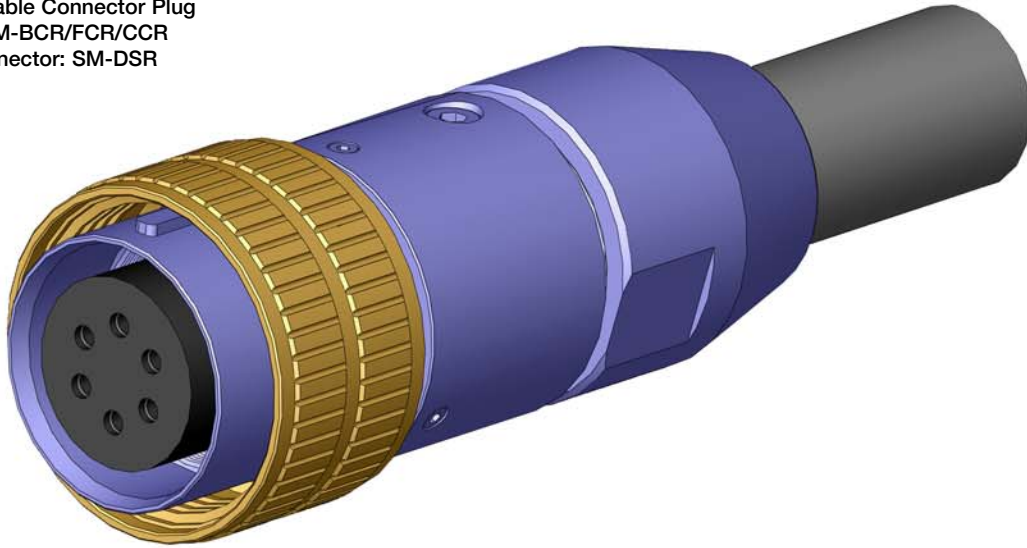


CONNECTOR	A - Ø (INCHES)	B - LENGTH (INCHES)
SMG-CCP	1.435	4.65
SMK-CCP	1.810	5.00
SML-CCP	2.185	5.00
SMM-CCP	2.560	5.00

# DIMENSION DETAILS

## SEA-MATE SERIES SM-CCP-HOSE

SEA-MATE Cable Connector Plug  
 Mates with SM-BCR/FCR/CCR  
 Dummy Connector: SM-DSR



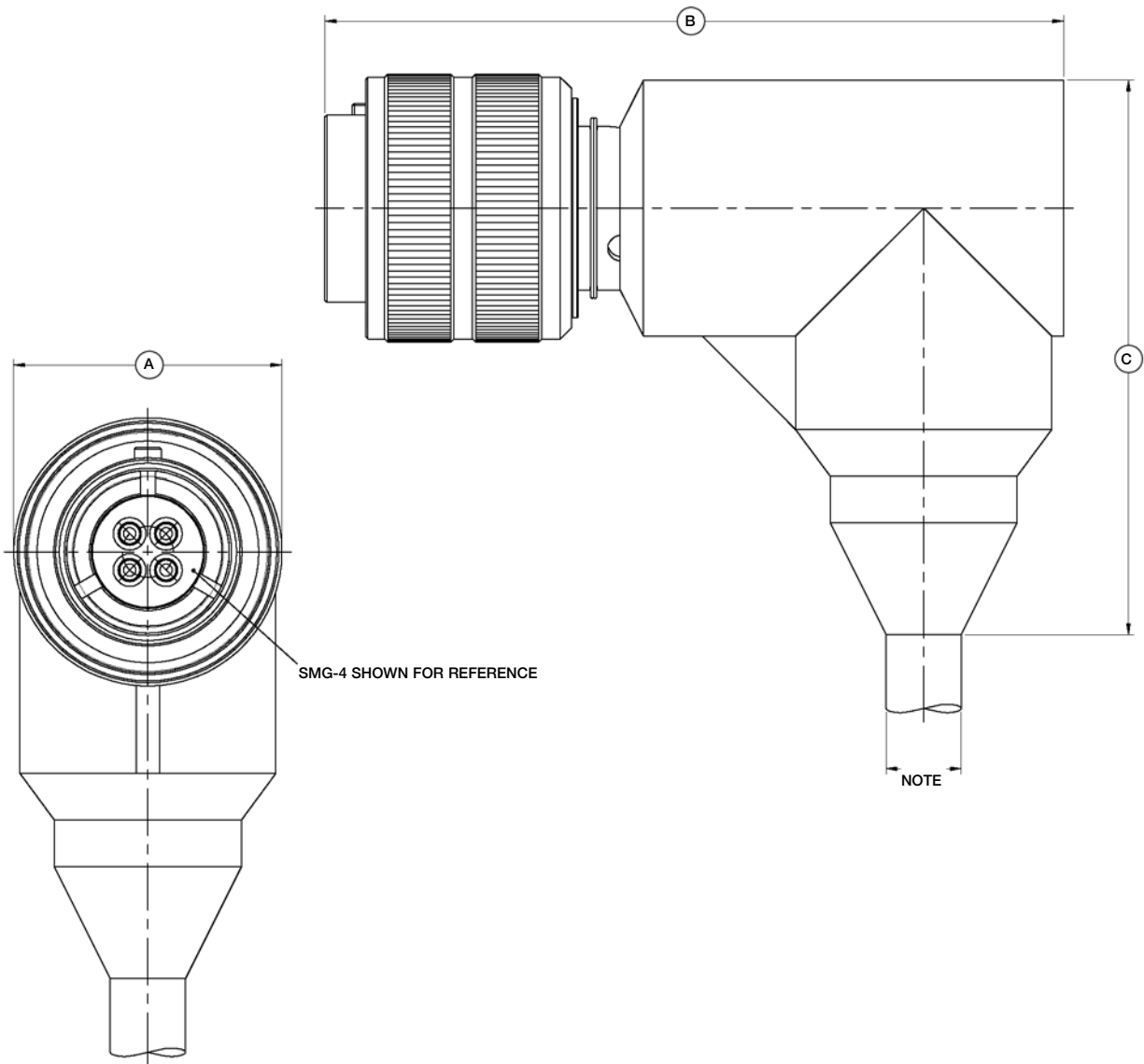
CONNECTOR	A - Ø (INCHES)	B - LENGTH (INCHES)	C - I.D. (INCHES)
SMG-CCP-HOSE	1.435	4.12	3/8
SMK-CCP-HOSE	1.810	4.44	5/8
SML-CCP-HOSE	2.185	4.42	3/4
SMM-CCP-HOSE	2.560	4.66	1



# DIMENSION DETAILS

## SEA-MATE SERIES SM-CCP-R/A

SEA-MATE Cable Connector Plug Right Angle  
Mates with SM-BCR/FCR/CCR  
Dummy Connector: SM-DSR



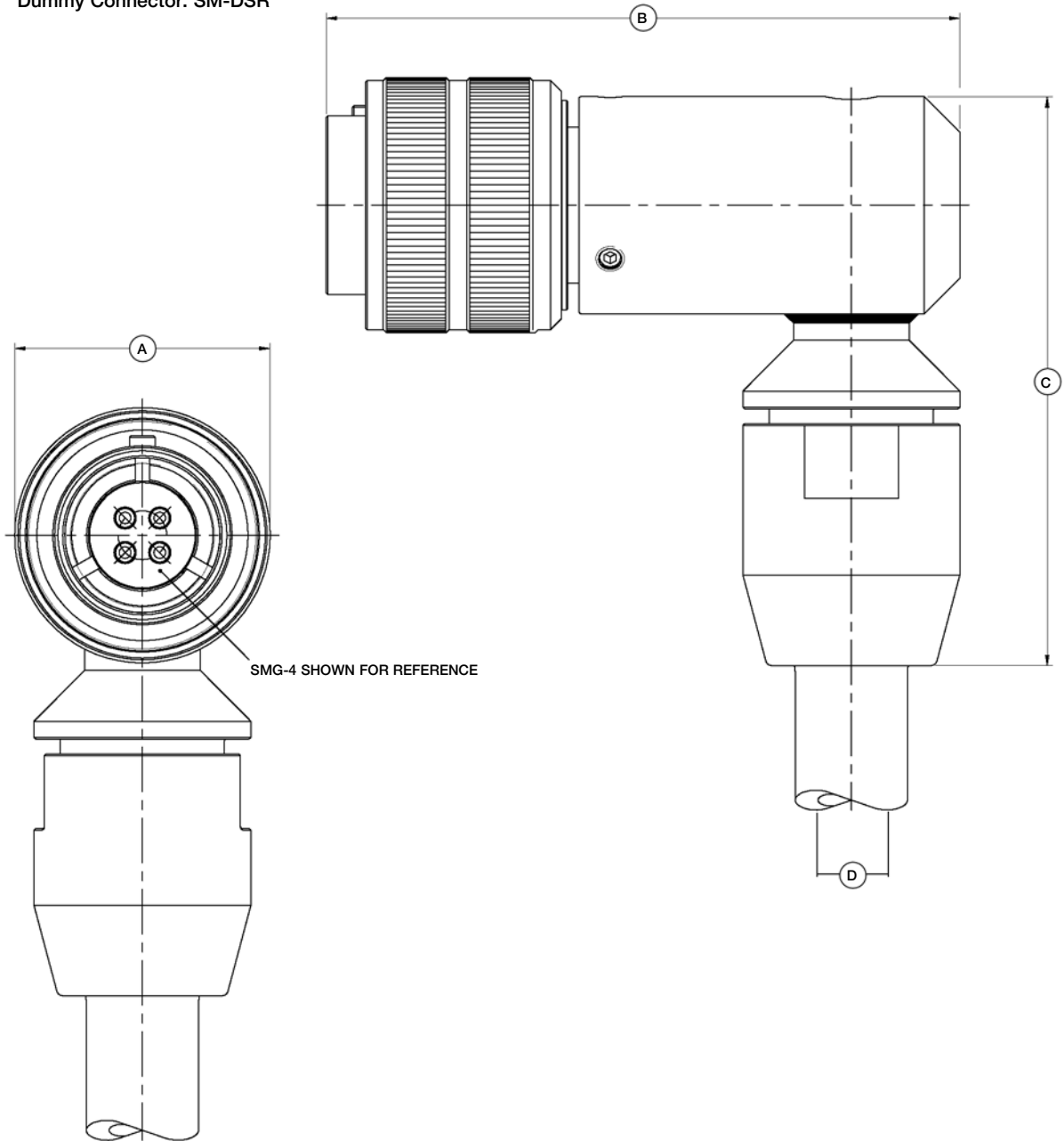
CONNECTOR	A - Ø (INCHES)	B - LENGTH (INCHES)	C - LENGTH (INCHES)
SMG-CCP-R/A	1.435	3.95	2.97
SMK-CCP-R/A	1.810	4.47	3.17
SML-CCP-R/A	2.185	4.59	3.99
SMM-CCP-R/A	2.560	4.72	4.87

**NOTE:**  
Anixter cable as standard unless otherwise specified.

# DIMENSION DETAILS

## SEA-MATE SERIES SM-CCP-R/A-HOSE

SEA-MATE Cable Connector Plug Right Angle  
Mates with SM-BCR/FCR/CCR  
Dummy Connector: SM-DSR



CONNECTOR	A - $\varnothing$ (INCHES)	B - LENGTH (INCHES)	C - LENGTH (INCHES)	D - I.D. (INCHES)
SMG-CCP-R/A-HOSE	1.435	3.56	3.20	3/8
SMK-CCP-R/A-HOSE	1.810	3.85	3.98	5/8
SML-CCP-R/A-HOSE	2.185	4.04	4.39	3/4
SMM-CCP-R/A-HOSE	2.560	4.29	4.84	1

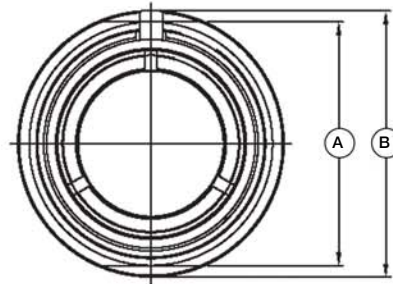
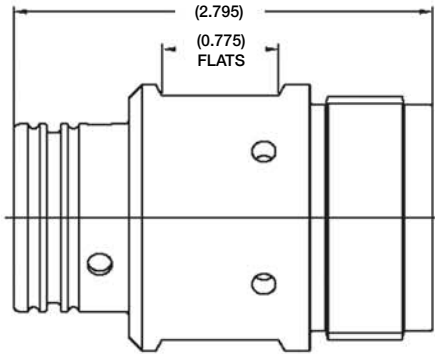
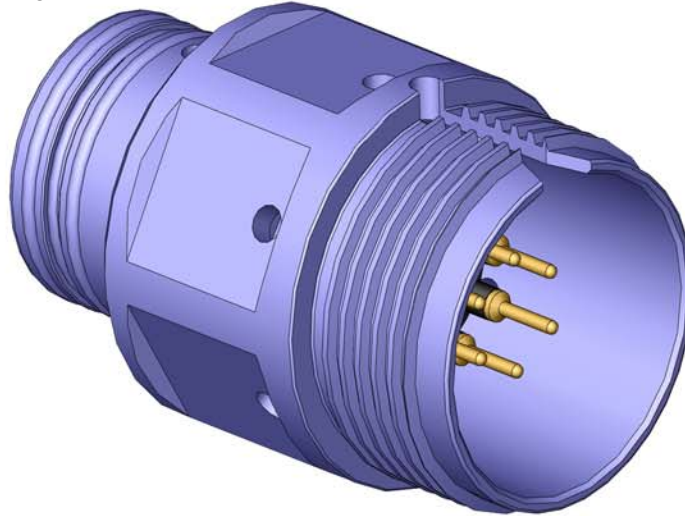
# DIMENSION DETAILS

## SEA-MATE SERIES SM-CCR-ATTACHABLE

SEA-MATE Cable Connector Receptacle

Mates with SM-CCP

Dummy Connector: SM-DSP

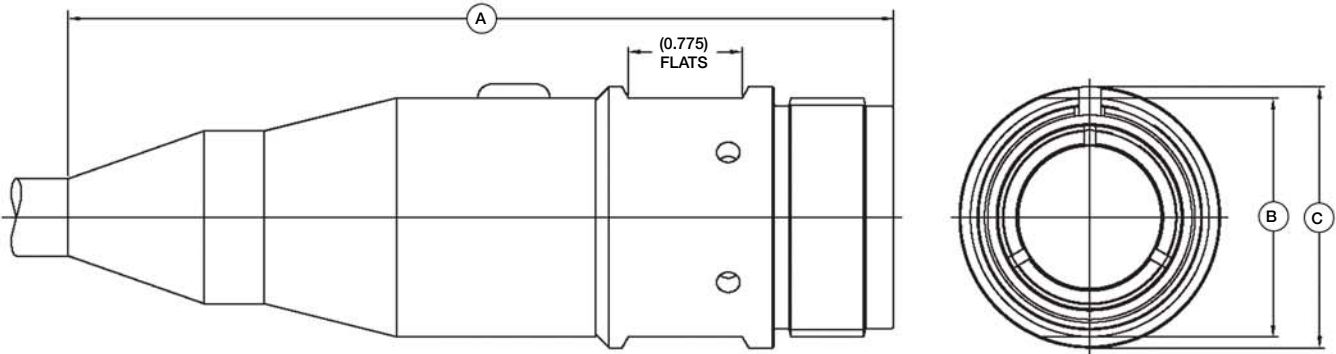
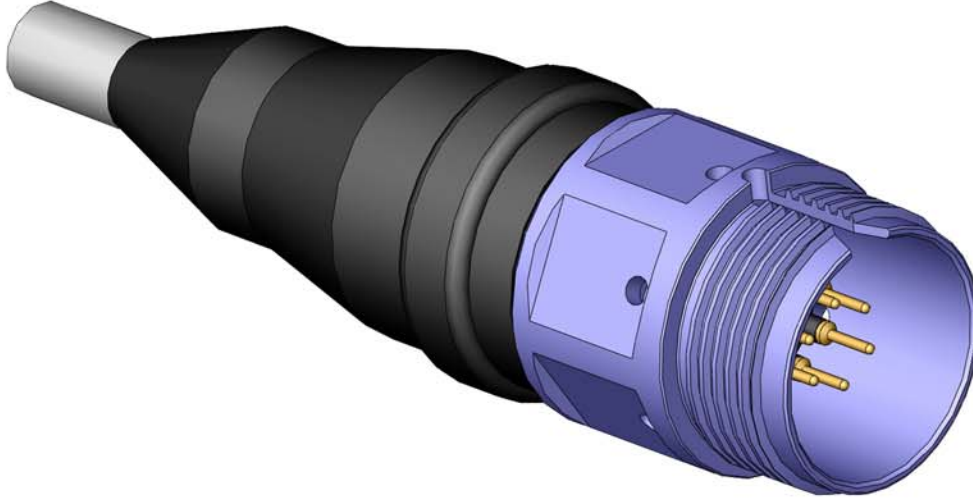


CONNECTOR	A - Ø (INCHES)	B - Ø (INCHES)
SMG-CCR-ATTACHABLE	1.25	1.400
SMK-CCR-ATTACHABLE	1.625	1.775
SML-CCR-ATTACHABLE	2.00	2.150
SMM-CCR-ATTACHABLE	2.375	2.525

# INTERFACE DETAILS

## SEA-MATE SERIES SM-CCR-CABLE

SEA-MATE Cable Connector Receptacle  
Mates with SM-CCP  
Dummy Connector: SM-DSP



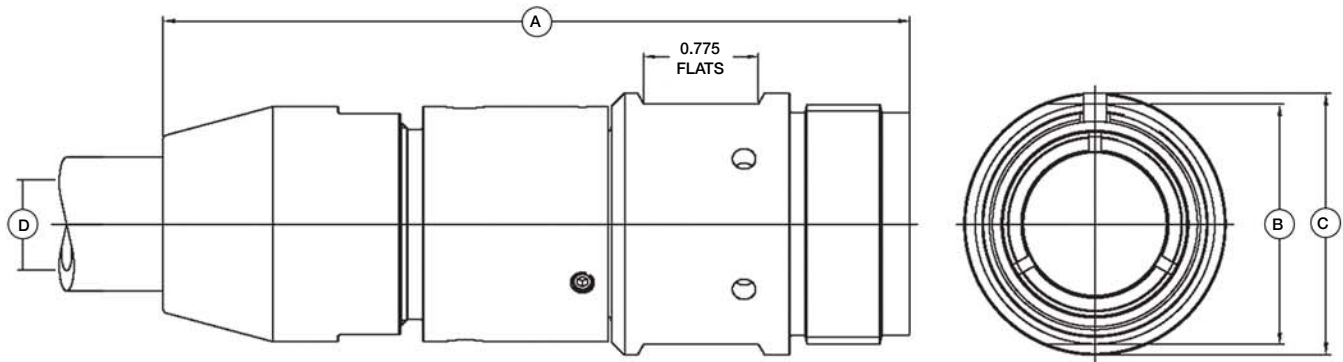
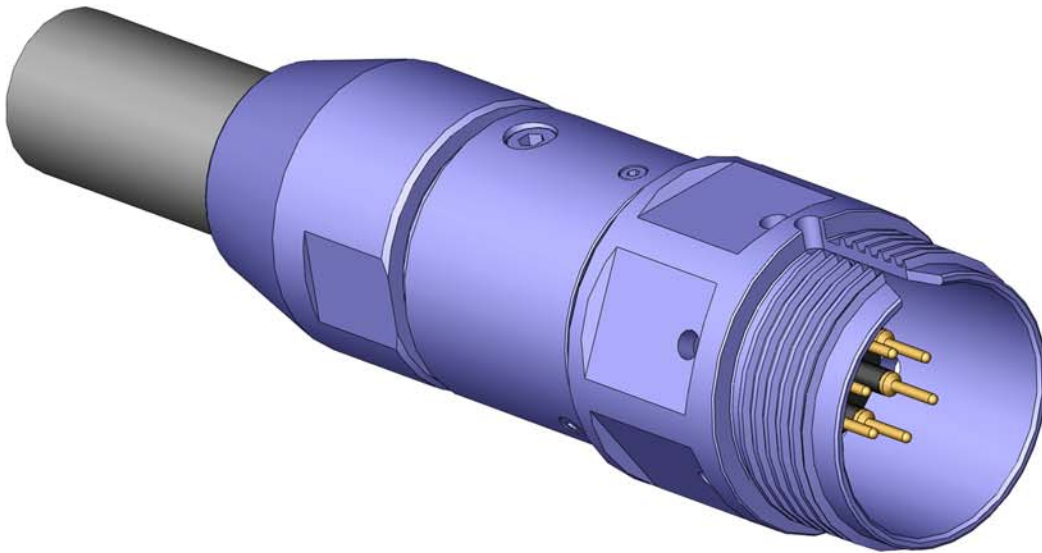
CONNECTOR	A - LENGTH (INCHES)	B - Ø (INCHES)	C - Ø (INCHES)
SMG-CCR	5.15	1.25	1.400
SMK-CCR	5.61	1.625	1.775
SML-CCR	5.50	2.00	2.150
SMM-CCR	5.51	2.375	2.525



# DIMENSION DETAILS

## SEA-MATE SERIES SM-CCR-HOSE

SEA-MATE Cable Connector Receptacle  
Mates with SM-CCP  
Dummy Connector: SM-DSP

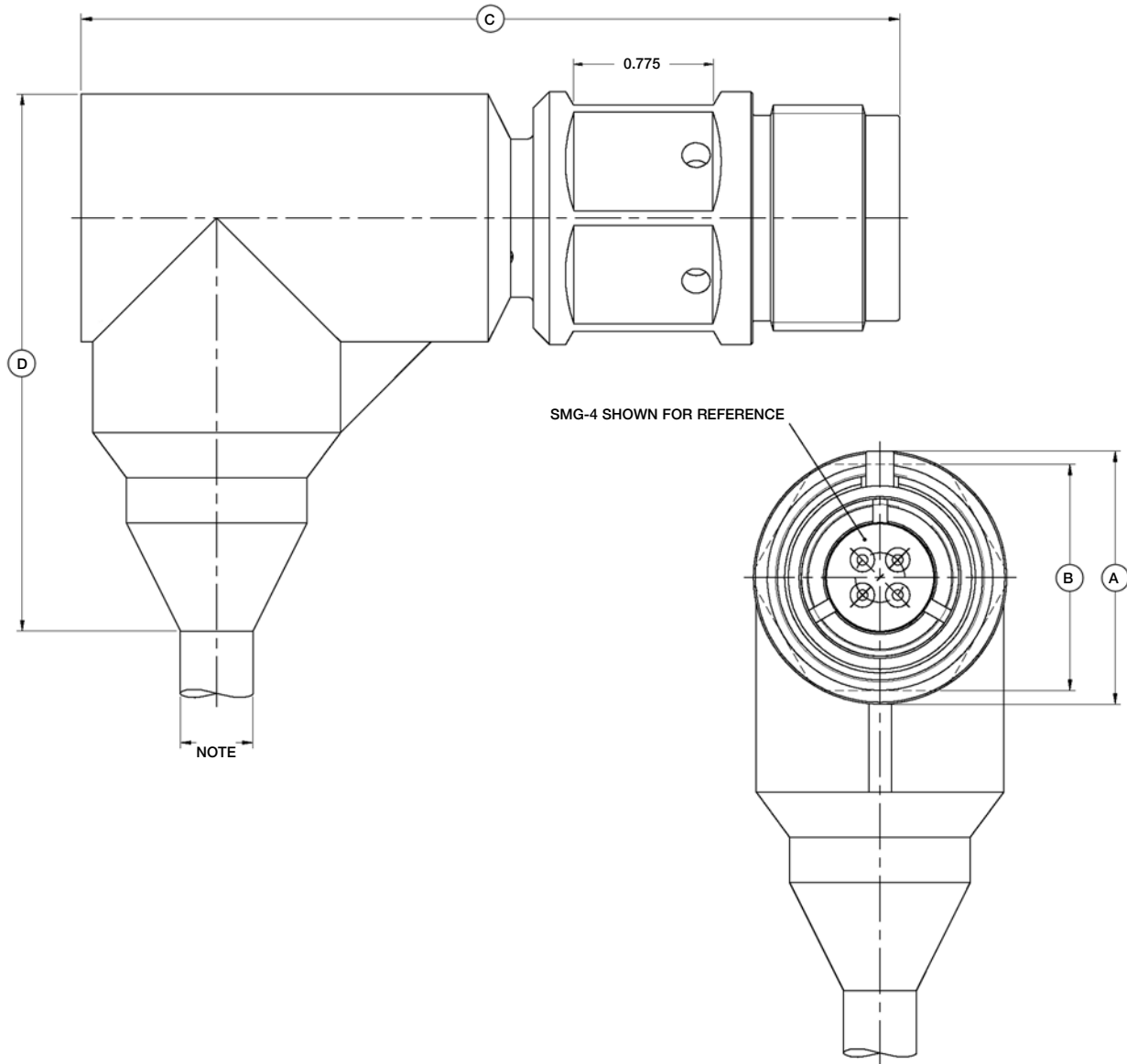


CONNECTOR	A - LENGTH (INCHES)	B - Ø (INCHES)	C - Ø (INCHES)	D - I.D. (INCHES)
SMG-CCR-HOSE	4.75	1.25	1.400	3/8
SMK-CCR-HOSE	5.06	1.625	1.775	5/8
SML-CCR-HOSE	5.05	2.00	2.150	3/4
SMM-CCR-HOSE	5.29	2.375	2.525	1

# DIMENSION DETAILS

## SEA-MATE SERIES SM-CCR-R/A

SEA-MATE Cable Connector Receptacle Right Angle  
Mates with SM-CCP  
Dummy Connector: SM-DSP



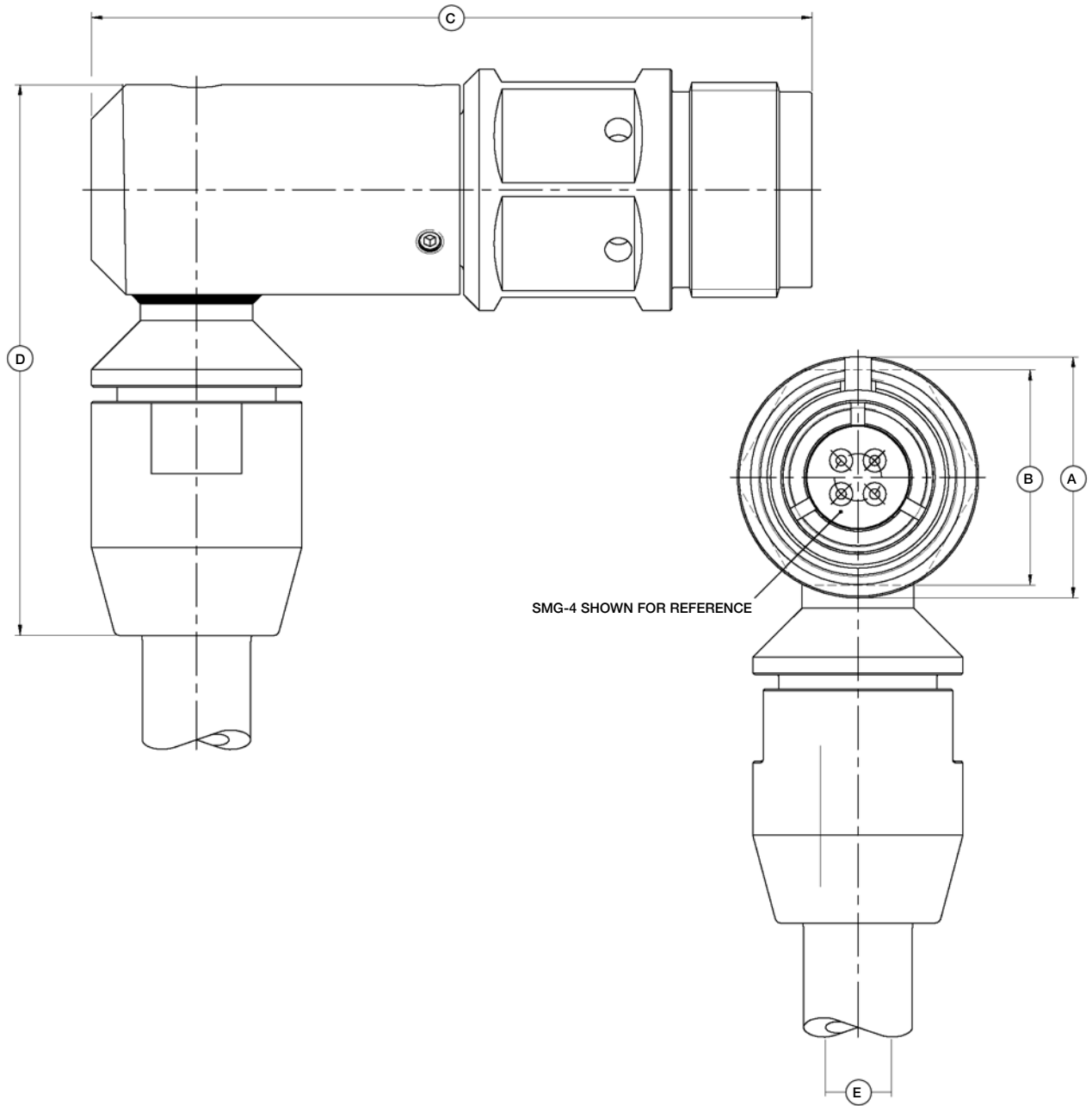
CONNECTOR	A - Ø (INCHES)	B - Ø (INCHES)	C - LENGTH (INCHES)	D - LENGTH (INCHES)
SMG-CCR-R/A	1.400	1.250	4.53	2.97
SMK-CCR-R/A	1.775	1.625	5.03	3.17
SML-CCR-R/A	2.150	2.000	5.15	3.99
SMM-CCR-R/A	2.525	2.375	5.28	4.87

**NOTE:**  
Anixter cable as standard unless otherwise specified.

# DIMENSION DETAILS

## SEA-MATE SERIES SM-CCR-R/A-HOSE

SEA-MATE Cable Connector Receptacle Right Angle  
Mates with SM-CCP  
Dummy Connector: SM-DSP

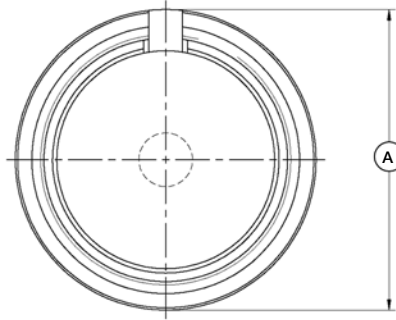
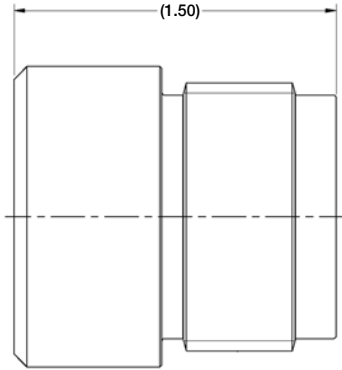


CONNECTOR	A - Ø (INCHES)	B - Ø (INCHES)	C - LENGTH (INCHES)	D - LENGTH (INCHES)	E - I.D. (INCHES)
SMG-CCR-R/A-HOSE	1.400	1.250	4.19	3.20	3/8
SMK-CCR-R/A-HOSE	1.775	1.625	4.48	3.98	5/8
SML-CCR-R/A-HOSE	2.150	2.000	4.67	4.39	3/4
SMM-CCR-R/A-HOSE	2.525	2.375	4.91	4.84	1

# DIMENSION DETAILS

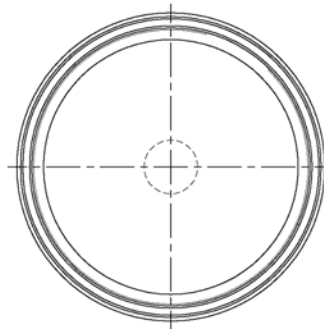
## SEA-MATE SERIES SM-PSR

SEA-MATE Plastic Splashproof Receptacle  
Mates with SM-CCP



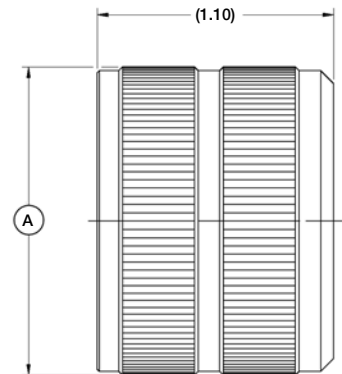
CONNECTOR	A - $\varnothing$
SMG-PSR	1.400
SMK-PSR	1.775
SML-PSR	2.150
SMM-PSR	2.525

CONNECTOR	A - $\varnothing$
SMG-PSP	1.435
SMK-PSP	1.810
SML-PSP	2.185
SMM-PSP	2.560



## SEA-MATE SERIES SM-PSP

SEA-MATE Plastic Splashproof Plug  
Mates with SM-BCR/FCR/CCR

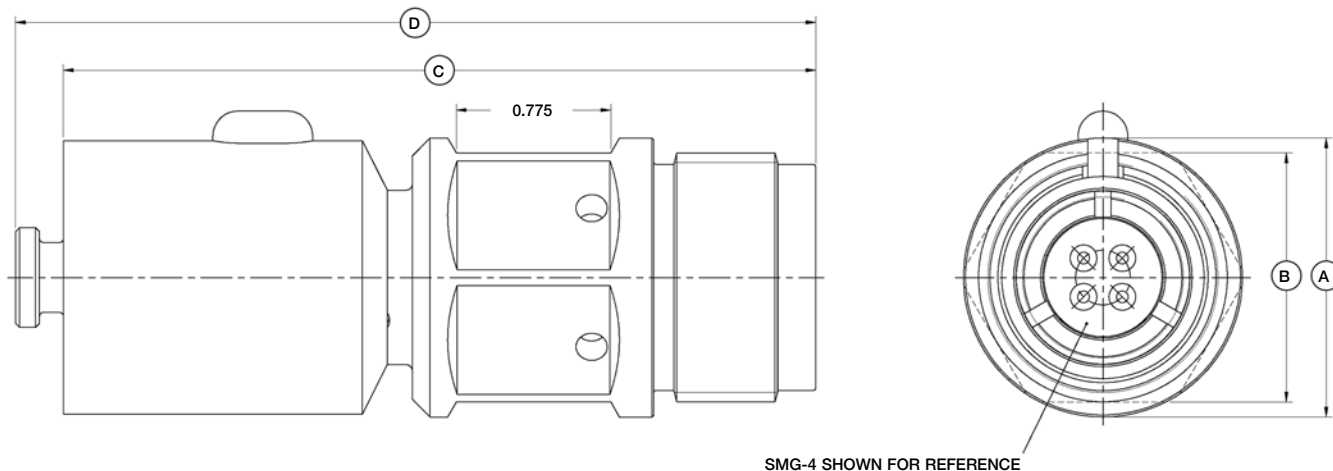




# DIMENSION DETAILS

## SEA-MATE SERIES SM-DSR

SEA-MATE Dummy Sealing Receptacle  
Mates with SM-CCP

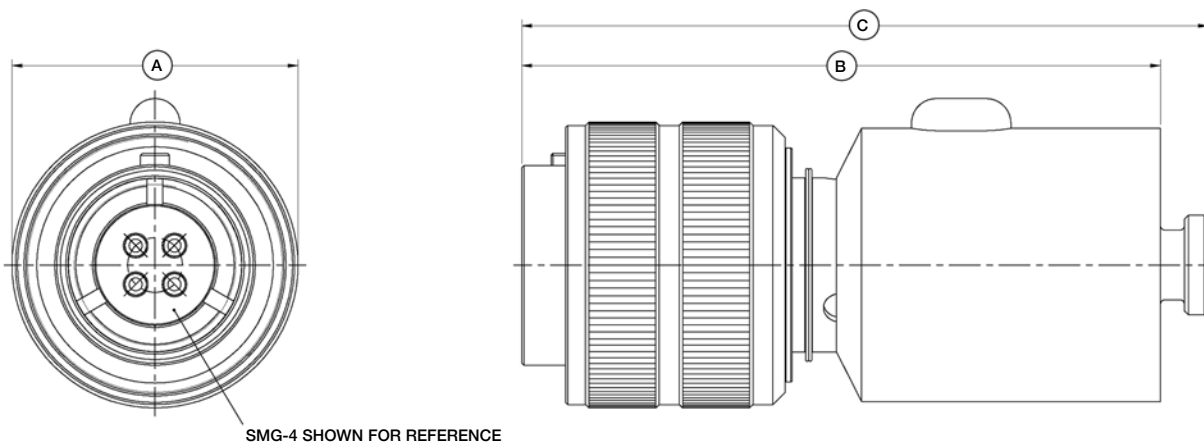


SMG-4 SHOWN FOR REFERENCE

CONNECTOR	A - Ø	B - LENGTH (INCHES)	C - LENGTH (INCHES)	D - LENGTH (INCHES)
SMG-DSR	1.400	1.25	3.78	4.02
SMK-DSR	1.775	1.625	3.78	4.02
SML-DSR	2.150	2.00	4.28	4.52
SMM-DSR	2.525	2.375	4.28	4.52

## SEA-MATE SERIES SM-DSP

SEA-MATE Dummy Sealing Plug  
Mates with SM-BCR/FCR/CCR



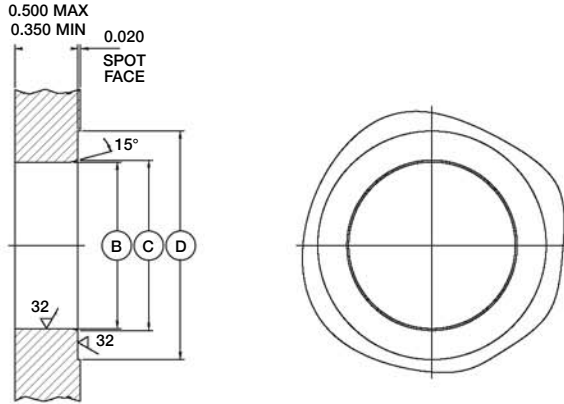
SMG-4 SHOWN FOR REFERENCE

CONNECTOR	A - Ø	B - LENGTH (INCHES)	C - LENGTH (INCHES)
SMG-DSP	1.435	3.20	3.44
SMK-DSP	1.810	3.22	3.46
SML-DSP	2.185	3.72	3.96
SMM-DSP	2.560	3.72	3.96

# INTERFACE DETAILS

## SEA-MATE SERIES SM-BCR

SEA-MATE Bulkhead Connector Receptacle  
THROUGH BORE OPTION UTILIZING BACK NUT AND WASHER



BCR INTERFACE THROUGH BORE MOUNTING INFORMATION

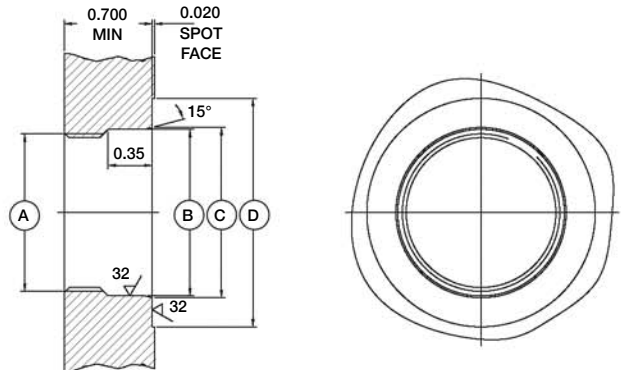
CONNECTOR	B - $\phi$	C - $\phi$	D - SPOTFACE $\phi$
SMG-BCR	0.947 0.949	0.978	1.440
SMK-BCR	1.322 1.324	1.353	1.815
SML-BCR	1.697 1.699	1.728	2.190
SMM-BCR	2.072 2.074	2.107	2.565

## SEA-MATE SERIES SM-BCR

SEA-MATE Bulkhead Connector Receptacle  
THREAD MOUNTING OPTION

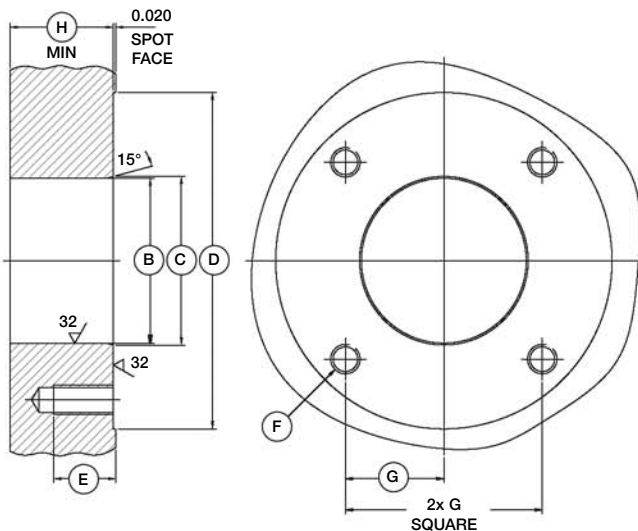
BCR INTERFACE THREAD MOUNTING INFORMATION

CONNECTOR	A - THREAD	B - $\phi$	C - $\phi$	D - $\phi$ SPOT FACE
SMG-BCR	7/8-16 UN 2B	0.947 0.949	0.978	1.440
SMK-BCR	1 1/4-16 UN 2B	1.322 1.324	1.353	1.815
SML-BCR	1 5/8-16 UN 2B	1.697 1.699	1.728	2.190
SMM-BCR	2-16 UN 2B	2.072 2.074	2.107	2.565



## SEA-MATE SERIES SM-FCR

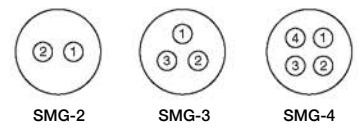
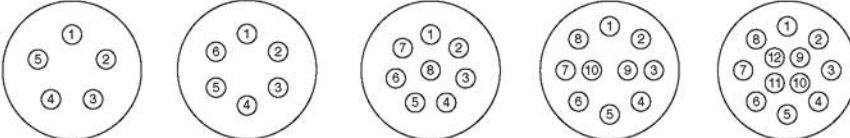
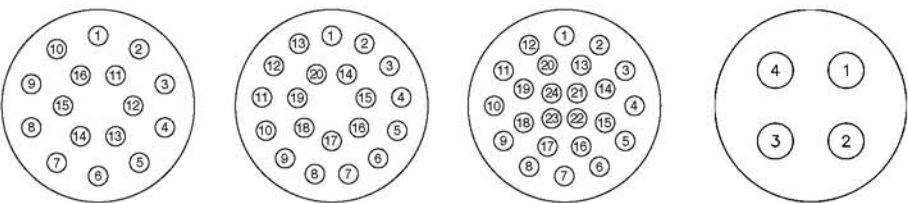
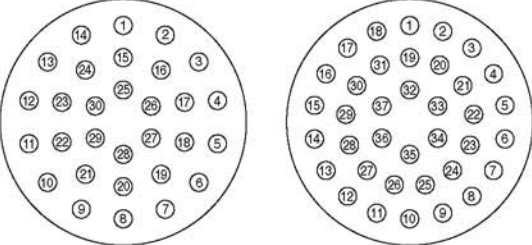
SEA-MATE Flange Connector Receptacle  
THROUGH BORE OPTION



FCR INTERFACE MOUNTING INFORMATION

CONNECTOR	B - $\phi$	C - $\phi$	D - $\phi$ SPOT FACE	E	F - THREAD	G	H
SMG-FCR	0.947 0.949	0.978	2.20	0.30	M5x0.8p	0.635	0.630
SMK-FCR	1.322 1.324	1.353	2.70	0.48	M6x1.0p	0.790	0.830
SML-FCR	1.697 1.699	1.728	3.25	0.48	M6x1.0p	0.975	0.830
SMM-FCR	2.072 2.074	2.107	3.71	0.64	M8x1.25p	1.100	0.990

# CONTACT CONFIGURATIONS

SIZE	SEA-MATE SERIES CONTACT CONFIGURATIONS AVAILABLE (FEMALE FACE VIEW ONLY)*
G	 <p>SMG-2      SMG-3      SMG-4</p>
K	 <p>SMK-5      SMK-6      SMK-8      SMK-10      SMK-12</p>
L	 <p>SML-16      SML-20      SML-24      SML-4#8-HP**</p>
M	 <p>SMM-30      SMM-37</p>

\* For male face view contact configurations available please contact SEA CON®.

\*\* New high power version.

## HANDLING PROCEDURES AND SPECIAL CAPABILITIES



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FAX: +44 (0) 1493-652840  
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Website: www.seaconeurope.com



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Website: www.seaconworldwide.com



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Website: www.seaconworldwide.com



### SEA CON US EAST COAST SALES OFFICE

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FAX: +1 (401) 348-0227  
E-Mail: eastcoastsales@seaconworldwide.com  
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### SEA CON FLORIDA SALES OFFICE

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Even though these procedures appear simple, only qualified technicians should perform the installation and maintenance.

## INSTALLATION PROCEDURES

- Ensure the bulkhead interface is machined in accordance with the manufacturer's recommendations and free from contaminants prior to fitting of the connector.
- Ensure the plug and receptacle connectors are free from contaminants prior to fitting.
- Apply a thin film of silicone compound (e.g. DC-4) to the bulkhead receptacle connector 'o' seal prior to fitting.
- Apply a thin film of silicone compound (e.g. DC-4) to the plug front face seal prior to assembly with the receptacle connector.

## CARE AND MAINTENANCE

Once mated, the **SEA-MATE** connector requires no maintenance. When stored, the connector should be protected with suitable dust caps.

## CABLE AND CONTINUITY PRESERVATION

Avoid sharp bends in cables. Cables subjected to vibration or exposed to seawater drag should be adequately clamped to prevent conductor fatigue infringing cable minimum bend radius and ultimate failure.

## SPECIAL ASSEMBLIES

SEACON (europe) Ltd maintains all facilities necessary to furnish complete underwater and environmental electrical connector/cable systems, including Research & Development, Engineering, Manufacturing, Quality Control and Pressure Testing. As well as supplying our standard 'off-the-shelf' items, we have the capability to design and manufacture SPECIAL CUSTOMISED CONNECTORS AND CABLE ASSEMBLIES to suit your individual needs.

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