

SEACON

HUMMER

UNDERWATER ELECTRICAL DRY-MATE CONNECTORS



TE
connectivity

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INTRODUCTION

This unique, ultra miniature design incorporates the proven characteristics of some of our popular connectors in a smaller, rugged and reliable package. The contacts are gold plated and range from 28 awg, 0.10 amp to 22 awg, 1.50 amp sizes and are rated to 10,000 psi mated. The bulkhead connector consists of a metal shell with molded GRE (Glass Reinforced Epoxy) inserts which are all supplied pigtailed and back potted. The cable connector is molded in neoprene to standard or custom cable lengths upon request. This design makes for a rugged, economical connector.

SEACON's Engineers have achieved an extremely high contact density connector whilst keeping the installation as easy as possible by using standard sizes and only requiring the use of standard SAE porting tools for bulkhead preparation.

AVAILABILITY

The connector range is built to stock which provides quick, 'off the shelf' deliveries in reasonable quantities of standard products. Please contact the SEACON for assistance with significant quantity special orders.

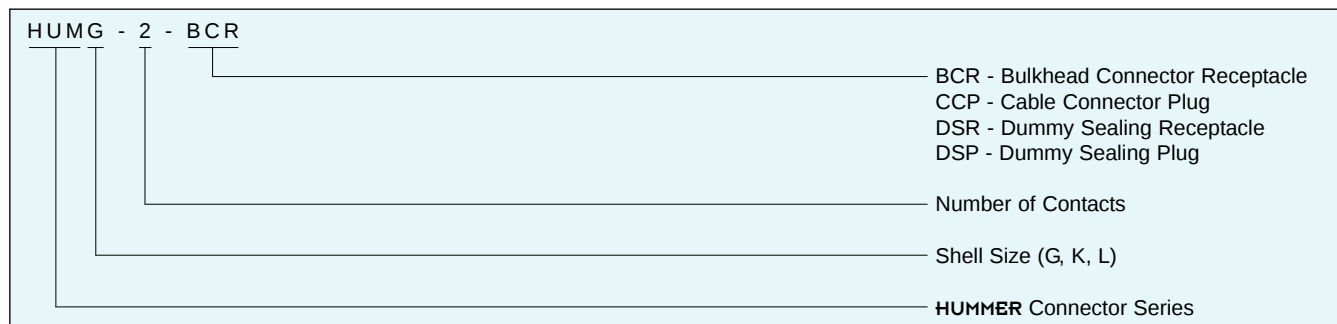
APPLICATIONS

The HUMMER is perfectly suited for applications where size and weight are an issue such as ROV systems, diver communications, current meters and food processing facilities.

TESTING

The following information shows a summary of the testing that has been performed. Formal qualification test data is available from SEACON if required.

- Dielectric withstanding voltage testing at 1,000 VAC on GRE (Glass Reinforced Epoxy) inserts with readings at 0.1ma (acceptance level is <0.5ma).
- Insulation resistance qualification testing at >50,000 megohms @ 500 VDC*.
- Pressure testing; 20 cycles and various hold times at facility. Maximum 20,000 psi in a mated condition with IR readings >50,000 megohms.
- Open face testing; various cycles as high as 20,000 psi without electrical or physical failure.
- Durability testing; 50 mate and de-mate cycles without degradation in conductor or insulation resistance readings.

PART NUMBER SYSTEM - EXAMPLE**GENERAL INFORMATION**

COMPONENT	MATERIAL
BULKHEAD BODY**	Brass (CA #360)
CCP/DSR/DSP	Neoprene
CONTACTS	Brass-gold plated
O-RING	Nitrile (formerly known as Buna N)
ENGAGING NUT**	Polyacetal
IN-LINE CABLE***	TFE insulated wire, Neoprene Jacketed Neoprene #22 Gage Neoprene #28 Gage
G2, K5, L12 G5, K12, L28	
STANDARD LENGTH	18 inches
HOOK-UP WIRE	TFE insulated wire or Tefzel® #22/#28

CATEGORY	VALUE
OPEN FACE PRESSURE	Up to 10,000 psi (700 bar) by special order
MATED PRESSURE	10,000 psi (700 bar)
VOLTAGE RATING	300 VDC
INSULATION RESISTANCE	>200 megohms @ 300 VDC (acceptance level)
OPERATING TEMPERATURE	25°F to 140°F (-4°C to 60°C)
BULKHEAD MOUNTING TORQUE	HUMG 12in-lb HUMG 30in-lb HUML 60in-lb
TORQUE VALES REFER TO INSTALLATION INTO DRY METAL THREADS	

AMPACITY CHART FOR STANDARD PARTS

PART DESCRIPTION NUMBER OF CONTACTS	AMPACITY
HUMG - 2	1.50 amps
HUMG - 5	0.24 amps
HUMK - 5	1.10 amps

PART DESCRIPTION NUMBER OF CONTACTS	AMPACITY
HUMK - 12	0.16 amps
HUML - 12	0.80 amps
HUML - 28	0.10 amps

NOTES:

- Amperage ratings are based on standard cables.
- Maximum rating is for a "fully loaded" connector and cable rating must not be exceeded.

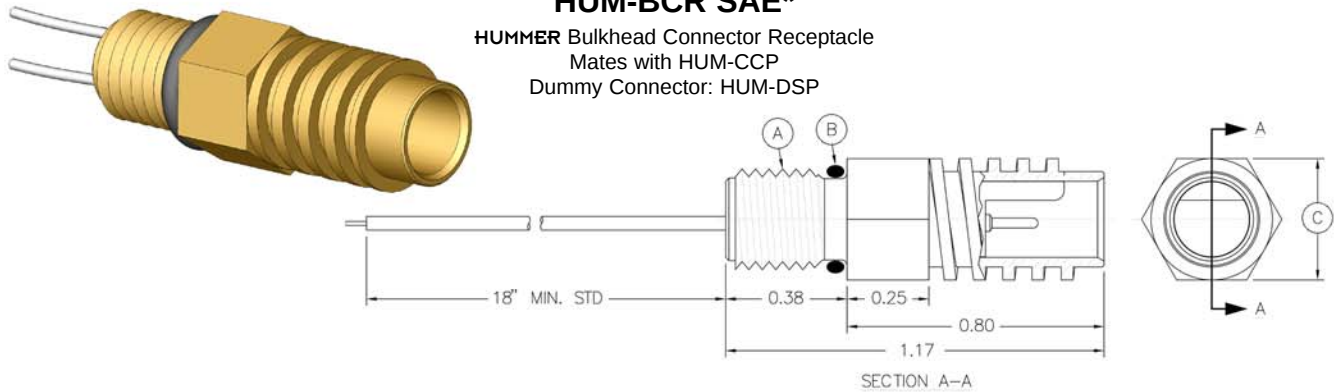
· * In service rating 300 VDC.

· ** Contact SEACON for special order materials.

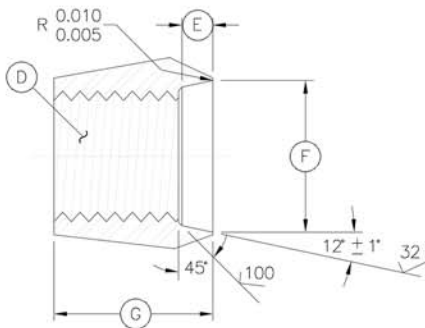
· *** Incorporation of special cables will be determined on a case by case basis.

HUMMER SERIES HUM-BCR SAE*

HUMMER Bulkhead Connector Receptacle
Mates with HUM-CCP
Dummy Connector: HUM-DSP



CONNECTOR	A - SAE THREAD	B - O-RING	C - HEX FLATS (INCHES)
HUMG-BCR	5/16-24 UNF-2A	3-902	0.37
HUMK-BCR	3/8-24 UNF-2A	3-903	0.50
HUML-BCR	1/2-20 UNF-2A	3-905	0.62

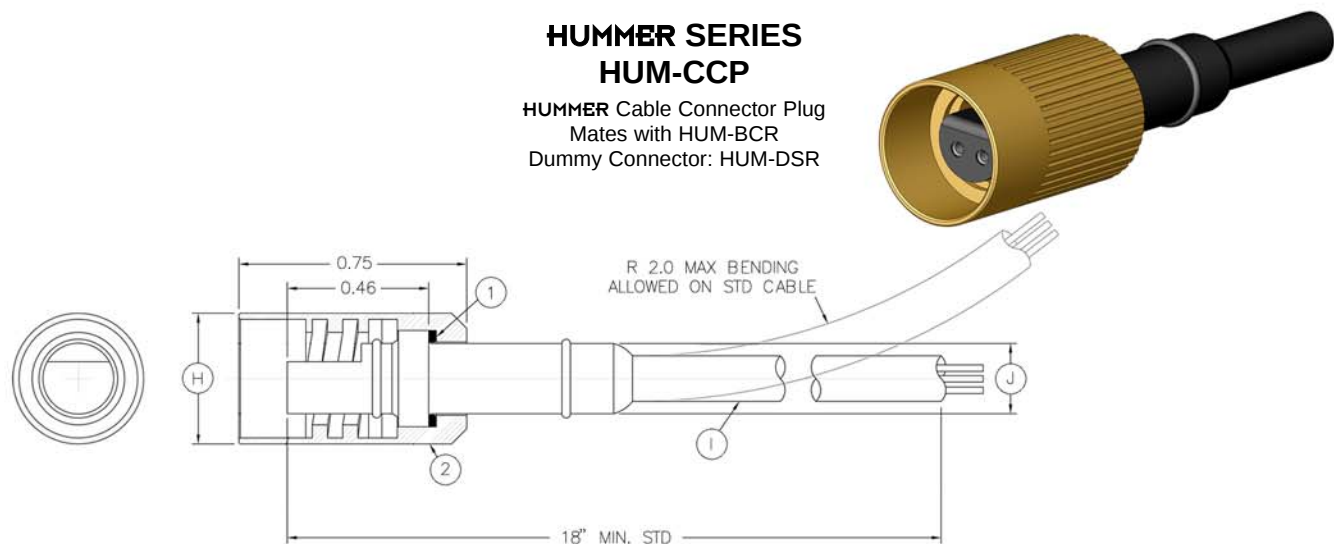


MOUNTING INFORMATION

CONNECTOR	D - SAE THREAD	E - (INCHES)	F - Ø (INCHES)	G - (INCHES)
HUMG-BCR	5/16-24 UNF-2B	0.074 + 0.010 - 0.005	0.363 0.358	0.38
HUMK-BCR	3/8-24 UNF-2B	0.074 + 0.010 - 0.000	0.426 0.421	0.43
HUML-BCR	1/2-20 UNF-2B	0.093 + 0.010 - 0.000	0.555 0.550	0.43

HUMMER SERIES HUM-CCP

HUMMER Cable Connector Plug
Mates with HUM-BCR
Dummy Connector: HUM-DSR



CONNECTOR	H - Ø (INCHES)	I - MAX CABLE Ø (INCHES)	J - Ø (INCHES)
HUMG-CCP	0.43	0.187	0.23
HUMK-CCP	0.56	0.275	0.35
HUML-CCP	0.69	0.375	0.48

NOTES:

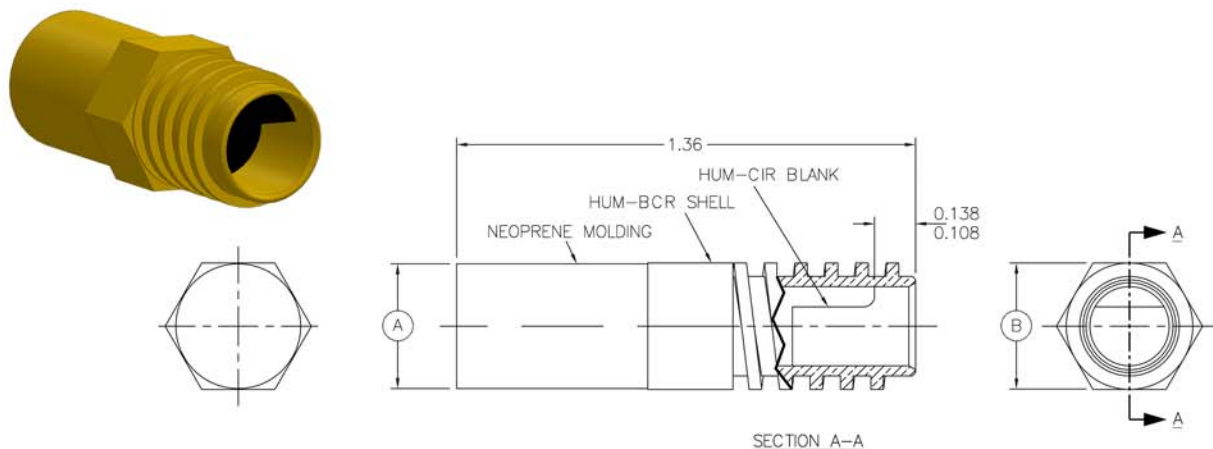
1. Locking sleeve washer - Polyacetal.
2. Locking sleeve - Brass (shown above as a cost option) or Polyacetal.

* Reference SAE J1926.

Connectors are designed for installation on one atmosphere vessels. Contact SEA CON for recommendations if using compensated vessels.

HUMMER SERIES HUM-DSR

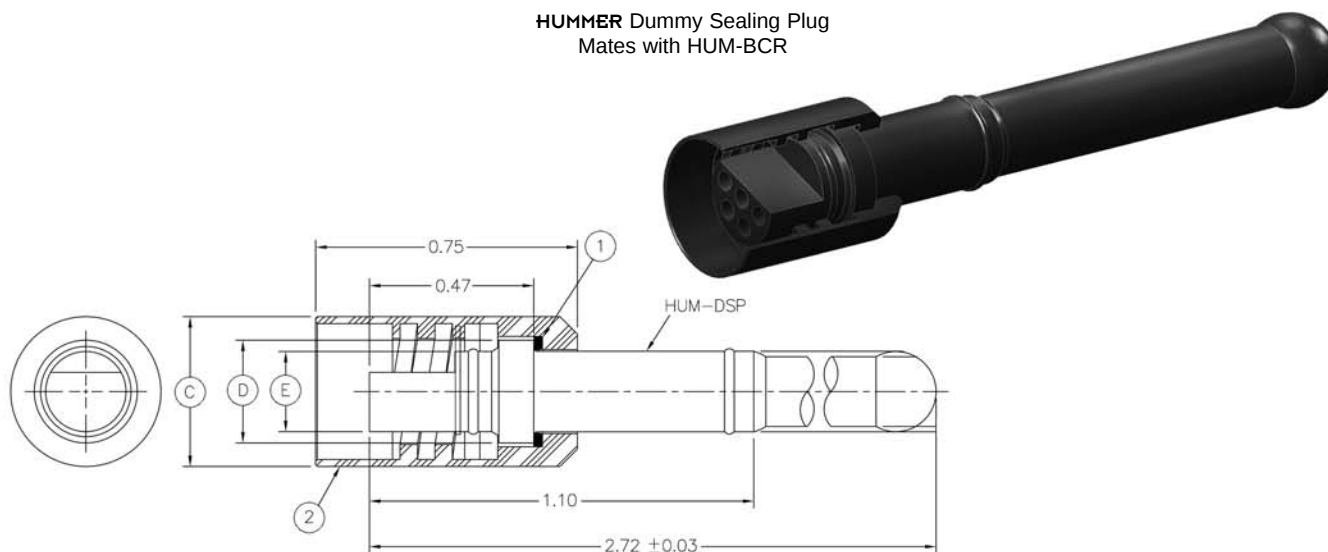
HUMMER Dummy Sealing Receptacle
Mates with HUM-CCP



CONNECTOR	A - Ø (INCHES)	B - HEX FLATS (INCHES)
HUMG-DSR	0.37	0.37
HUMK-DSR	0.50	0.50
HUML-DSR	0.62	0.62

HUMMER SERIES HUM-DSP

HUMMER Dummy Sealing Plug
Mates with HUM-BCR



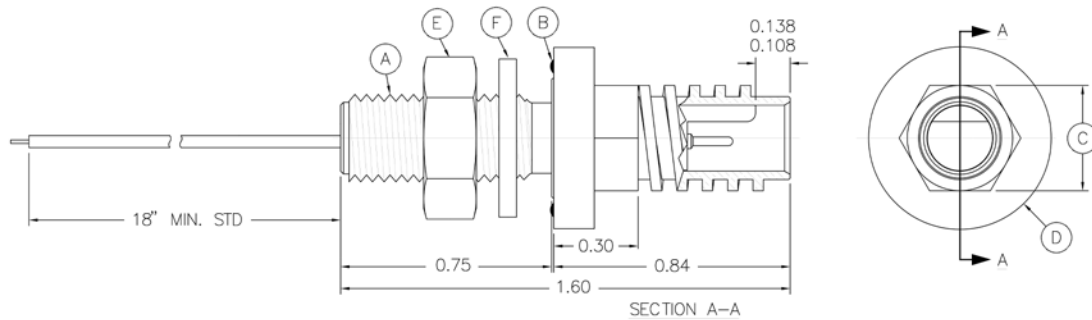
CONNECTOR	C - (INCHES)	D - Ø (INCHES)	E - Ø (INCHES)
HUMG-DSP	0.17	0.29	TYPICALLY 0.24
HUMK-DSP	0.23	0.42	TYPICALLY 0.36
HUML-DSP	0.30	0.55	TYPICALLY 0.49

NOTES:

- 1. Locking sleeve washer - Polyacetal.
- 2. Locking sleeve - Brass (shown above as a cost option) or Polyacetal.

HUMMER SERIES HUM-BCR FACE SEAL

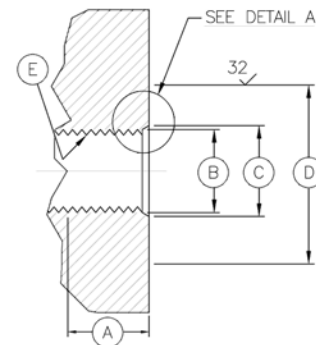
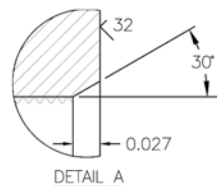
HUMMER Bulkhead Connector Receptacle
Mates with HUM-CCP/DSP



CONNECTOR	A - SAE THREAD	B - O-RING	C - HEX FLATS (INCHES)	D - Ø FLANGE (INCHES)	E - NUT*	F - WASHER*
HUMG-BCR FACE SEAL	5/16-24 UNF-2A	2-013	0.37	0.65	605-G01	705-G01
HUMK-BCR FACE SEAL	3/8-24 UNF-2A	2-014	0.50	0.71	610-G01	710-G01
HUML-BCR FACE SEAL	1/2-20 UNF-2A	2-016	0.62	0.84	615-1	715-1

HUMMER SERIES HUM-BCR FACE SEAL THREADED MOUNTING OPTION

HUMMER Bulkhead Connector Receptacle

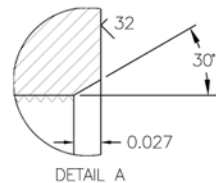
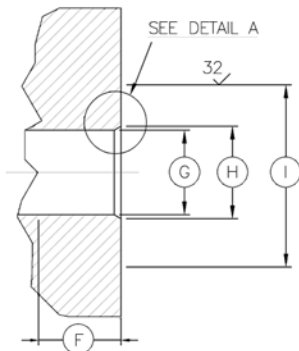


INTERFACE THREADED MOUNTING INFORMATION

CONNECTOR	G - MIN LENGTH (INCHES)	H - Ø (INCHES)	I - Ø (INCHES)	J - MIN Ø (INCHES)	K - THREAD
HUMG-BCR	0.20	0.320	0.350	0.690	5/16-24 UNF-2B
HUMK-BCR	0.22	0.385	0.415	0.750	3/8-24 UNF-2B
HUML-BCR	0.32	N/A	0.540	0.875	1/2-20 UNF-2B

HUMMER SERIES HUM-BCR FACE SEAL THROUGH BORE OPTION

NUT AND WASHER REQUIRED*
HUMMER Bulkhead Connector Receptacle

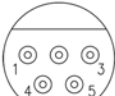
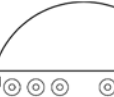
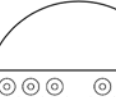


INTERFACE THROUGH BORE INFORMATION

CONNECTOR	L - MAX LENGTH (INCHES)	M - Ø (INCHES)	N - Ø (INCHES)	O - MIN Ø (INCHES)
HUMG-BCR	0.50	0.320	0.350	0.690
HUMK-BCR	0.47	0.385	0.415	0.750
HUML-BCR	0.37	0.510	0.540	0.875

NOTES:

* Nut and Washer are not included and are sold separately.

SIZE	HUMMER SERIES CONTACT CONFIGURATIONS (MALE FACE VIEW ONLY - NOT TO SCALE)*
G	 2#225#28
K	 5#2212#28
L	 12#2212A#22 DOUBLE KEY12B#22 DOUBLE KEY6#22/12#2828#28

NOTES:
· * For female face view contact configurations please contact SEACON.

HANDLING PROCEDURES AND SPECIAL CAPABILITIES

SEACON GLOBAL PRODUCTION

Callejon Terrazos #8, Local 2-C, Las Brisas 1ra. Seccion,
Tijuana, B.C., Mexico C.P. 22610.
TEL: +52 (664) 626-2726
FAX: +52 (664) 686-8922
E-Mail: sales@seaconglobal.com
Website: www.seaconglobal.com
Dial from U.S.A. TEL: +1 (619) 308-7901
TOLL FREE: (888) 562-7072
FAX: +1 (619) 308-7900

SEACON (europe) LTD

Seacon House, Hewett Road, Gapton Hall Industrial Estate,
Great Yarmouth, Norfolk, NR31 0RB, UK.
TEL: +44 (0) 1493-652733
FAX: +44 (0) 1493-652840
E-Mail: sales@seaconeurope.com
Website: www.seaconeurope.com

SEACON

1700 Gillespie Way,
El Cajon, California 92020, USA.
TEL: +1 (619) 562-7071
FAX: +1 (619) 562-9706
E-Mail: seacon@seaconworldwide.com
Website: www.seaconworldwide.com

SEACON US GULF AREA SALES OFFICE

14511 Old Katy Road, Suite 300,
Houston, Texas 77079, USA.
TEL: +1 (281) 599-3509
FAX: +1 (281) 599-3517
E-Mail: gulfcoastsales@seaconworldwide.com
Website: www.seaconworldwide.com

SEACON ADVANCED PRODUCTS, LLC

1321 Nelius Road, P.O. Box 767,
Bellville, Texas 77418, USA.
TEL: +1 (979) 865-8846
FAX: +1 (979) 865-8859
E-Mail: sales@seacon-ap.com
Website: www.seacon-ap.com

SEACON BRAZIL

Rua Conde de Bonfim 120 sala 212, Tijuca,
Rio de Janeiro, Brazil, CEP: 20520-053.
TEL: +55 (11) 2103-6262
CELL: +55 (21) 9-7626-6062
E-mail: adalberto.bromberg@te.com
Website: www.seaconworldwide.com

SEACON PHOENIX

15 Gray Lane, Suite 108, Hopkinton Industrial Park,
Ashaway, Rhode Island 02804, USA.
TEL: +1 (401) 637-4952
FAX: +1 (401) 637-4953
E-Mail: sales@seaconphoenixllc.com
Website: www.seaconphoenix.com

Even though these procedures appear simple, only qualified technicians should perform the installation and maintenance. Connectors are designed for installation on one atmosphere vessels. Contact **SEACON** for recommendations if using compensated vessels.

INSTALLATION PROCEDURES

Torque values referenced in this literature assume installation into dry metal threads. For other applications, please contact **SEACON** for recommendations. All connectors should be clean and free from moisture prior to mating.

Bulkhead Connector Receptacle (BCR): The BCR is mounted using a standard SAE port per SAE J1926 or MS16142. Lubricate the BCR o-ring with an appropriate silicone grease before installing. This lubrication should be applied to form an adequate film. Excessive lubrication is detrimental to the operation of the connector.

Cable Connector Plug (CCP): Lubricate the sealing areas using an appropriate silicone grease.

CARE AND MAINTENANCE

After mating, the **HUMMER** connector requires no maintenance. It is recommended that upon disconnecting or retrieving a system that utilizes the **HUMMER** series, the **HUMMER** connectors should be dried, cleaned, regreased and remated prior to deploying or storage. It is recommended that when not mated, the BCR or CCP should be protected with a Dummy Sealing Plug (DSP) or Dummy Sealing Receptacle (DSR).

NOTE: Do not insert, inspect or probe the socket with any instrument or pin that is not the exact pin or mating insert to the connector in test. Improper tools or pins may cause damage to the sockets.

CABLE AND CONTINUITY PRESERVATION

Avoid sharp bends in cables. Cables subjected to vibration and exposed to seawater drag should be adequately clamped to prevent fatigue and possible failure.

FIBER OPTIC MAINTENANCE INSTRUCTIONS

SEACON maintains all facilities necessary to furnish complete underwater and environmental electrical connector/cable systems, including Research and 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 CUSTOMIZED CONNECTORS AND CABLE ASSEMBLIES** to suit your individual needs.

SEACON prides itself with the ability to perform stringent quality conformance testing procedures which are in accordance with MIL-SPEC programs.

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