



Micro WET-CON SERIES

UNDERWATER ELECTRICAL WET-MATE CONNECTORS

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Micro WET-CON

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PRODUCT NEWS

Micro WET-CON and Micro WET-CON SPLIT SERIES CONNECTOR ENHANCEMENTS

INTRODUCTION

As part of our continuous improvement process the SEA CON® Group consistently reviews it's product ranges through both customer feedback and internal improvements. It is via these processes that SEA CON® identified a design enhancement to the Micro WET-CON connector ranges. This new design improvement has now been implemented not only across this connector range, but also the new Micro WET-CON Split Series.

DESIGN FEATURES

The design change is associated with the Male Pin connectors only and has been introduced to improve and extend the life of the connectors by decreasing the stresses that are applied to the sealing interface between the male contact pin and the sealing rubber around the pin during the connectors mate and de-mate cycles.

The newly designed male contact has a "Lead in" as part of the contact pin itself which replaces the current rubber lead in. The introduction of the new pin removes any potential wear to the sealing interface between the male contact pin and the sealing rubber around the pin which may occur with many repeated make and breaks of the connector pairs. The new pin will maintain the full connector sealing properties and will provide a greater life expectancy of the connectors.

The incorporation of this design change to the Male Pin connectors will not affect the existing Female Socket connectors currently being used by SEA CON®'s customers and therefore full intermateability will be maintained. In addition, SEA CON® would also like to confirm that pricing will also not be affected.

TESTING

This new pin design concept has been fully tested and has been utilized in both the U-MATE and SEA-MATE connector ranges for a number of years.

MCAT ATTACHABLE Micro WETCON

Due to global demand to terminate standard rubber molded connectors onto specialized or customer furnished cable, SEA CON Global Production has introduced an MCAT version of the successful Micro WET-CON connector series.

This new connector can be terminated virtually anywhere eliminating the need for shipping bulky long lengths of cable. In addition the end user is able to produce a reduced length termination without the need for additional cable splices and have one continuous cable diameter for the total length of the cable.

The MCAT connector is fully inter-mateable with like configured Micro WET-CON inline and bulkhead connectors. For further information and for cable jacket materials that can be accommodated please contact SEA CON®.





INTRODUCTION

The Micro WET-CON connector series was developed to provide all the features of SEA CON®'s ALL-WET connector series, but in a miniature, industry standard configuration. The small size offers the same flexibility and reliability as our rubber molded connectors, in a light-weight and user friendly model.

The Micro WET-CON series allows for smaller through ports in a pressure vessel and a greater density of conductors in a compact area. The smaller cables decrease the overall weight and drag of an ROV or other vessel. This connector range is wet-mateable and therefore enables connections to be made underwater, on-deck or in any weather condition.

AVAILABILITY

The Micro WET-CON series is a stocked item, which ensures quick delivery (in reasonable quantities) of standard configurations. Custom cable lengths are available upon request. Shorting plugs are available should you require the ability of looping together 'like' circuits for testing purposes within the dummy. Pin to pin shorting details need to be supplied at time of order placement.

MATERIALS

The Micro WET-CON is made from a proprietary grade Neoprene. The standard locking sleeves are Delrin® (DuPont trademark for Acetal Resin), which is lightweight, durable and user-friendly in the working environment (Brass and Stainless Steel are also available upon request).

APPLICATIONS

Possible applications include: underwater television and lights, diver communications, ROV systems, submersibles, towed-array cable systems, current meters, animal migration research and food processing equipment.

TESTING

The Micro WET-CON range has undergone complete Qualification testing including low pressure soak tests, full mate/de-mate and high pressure cycling to 10,000 psi.

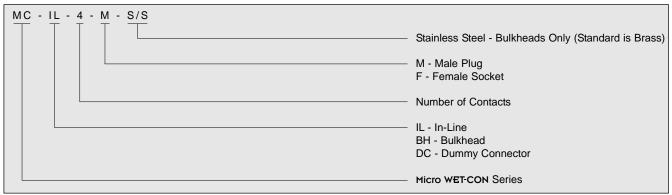
SPECIAL ASSEMBLIES

SEA CON® 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.

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

PART NUMBER SYSTEM - EXAMPLE



NOTES

· For Locking Sleeves see page MWC 14.

GENERAL INFORMATION

COMPONENT	MATERIAL		
MOLDED BODY	Neoprene		
BULKHEAD BODY	Brass (CA #360)		
CONTACTS	Brass-gold plated (CA #360)		
GUIDE PINS	Stainless Steel (303 SS or 304 SS)		
BULKHEAD N & W	Brass (CA #360)		
O-RING	Nitrile (formerly known as Buna N)		
LOCKING SLEEVE	Delrin® (DuPont trademark for Acetal Resin)		
IN-LINE CABLE (2, 3 & 4 PIN): (5, 6, 8, 10, 12 & 16 PIN): STANDARD LENGTH:	Neoprene, #18 AWG (SO Cable) Neoprene, #20 AWG 24 inches (60cm)		
HOOK-UP WIRE (BC)	Teflon® (Registered trademark for DuPont), #20 AWG Standard length 13 inches (33cm)		

CATEGORY	VALUE
OPEN FACE PRESSURE	10,000 psi (700 bar) optional and needs to be specified Dummy cap recommended above 100 psi
MATED PRESSURE	10,000 psi (700 bar)
VOLTAGE RATING	2, 3 & 4 pin 600 VDC 5, 6, 8, 10, 12 & 16 pin 300 VDC
CURRENT RATING	Up to 19 amps per contact
INSULATION RESISTANCE	>200 megohms @ 300 VDC
CONTACT RESISTANCE	<0.01 ohms
AIR MATE	>1,000 cycles
UNDERWATER MATE	>500
OPERATING TEMPERATURE	25° to 140°F (-4° to 60°C)
MOUNTING TORQUE	85 in-lb* In dry stainless 1/2" long Female threads

NOTES:

- Contact SEA CON® for special order materials.
 Incorporation of special order cables will be determined on a case by case basis.
- Connectors are designed for installation on one atmosphere vessels. Contact SEA CON® for recommendations if using compensated vessels.
 * For metal shells only, for other materials contact SEA CON® for recommendations.

AMPACITY CHART FOR STANDARD PARTS (18 & 20 AWG SO CABLE)

PART DESCRIPTION NUMBER OF CONTACTS	AMPACITY	
MCBH/IL-2	10 amps	
MCBH/IL-3	6 amps	
MCBH/IL-4	6 amps	
MCBH/IL-5	3 amps	
MCBH/IL-6	3 amps	

PART DESCRIPTION NUMBER OF CONTACTS	AMPACITY
MCBH/IL-8	3 amps
MCBH/IL-10	2.5 amps
MCBH/IL-12	2.5 amps
MCBH/IL-16	2 amps

STANDARD IN-LINE WIRING COLOR CODE (SO CABLE)

CONTACT #	COLOR	
1	BLACK	
2	WHITE	
3	RED **	
4	GREEN	
5	ORANGE	
6	BLUE	
7	WHITE/BLACK	
8	RED/BLACK	

CONTACT #	COLOR		
9	GREEN/BLACK		
10	ORANGE/BLACK		
11	BLUE/BLACK		
12	BLACK/WHITE		
13	RED/WHITE		
14	GREEN/WHITE		
15	BLUE/WHITE		
16	BLACK/RED		

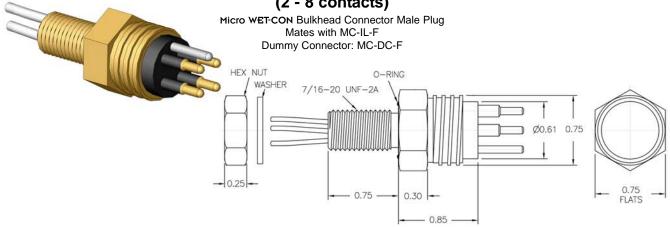
NOTE:

· ** For 3 contact configurations wiring color code is GREEN.

Micro WET-CON SERIES **DIMENSION DETAILS**

Micro WET-CON SERIES MC-BH-M

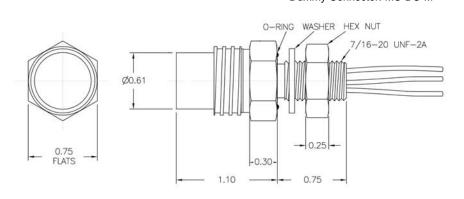
(2 - 8 contacts)



Micro WET-CON SERIES MC-BH-F

(2 - 8 contacts)

Micro WET-CON Bulkhead Connector Female Socket Mates with MC-IL-M Dummy Connector: MC-DC-M



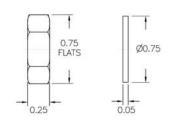


Micro WET-CON SERIES **HEX NUT AND WASHER** (2 - 8 contacts)

Micro WET-CON Bulkhead Connector







STD - BRASS (Stainless Steel and others upon request)

- · Hex Nut and Washer: Optional.
- · O-Ring: 2-014.
- · Dummy Connector: Optional.
- Dummy Shorting Plug Connector: Optional.
- Connectors must be lubricated prior to mating.
- · Torque values referenced in this literature assume installation into dry metal threads. For other applications, please contact SEA CON® for recommendations.
- · Connectors are designed for installation on one atmosphere vessels. Contact SEA CON® for recommendations if using compensated vessels.

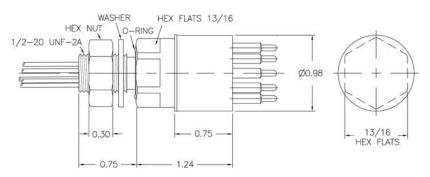
Micro WET-CON SERIES **DIMENSION DETAILS**

Micro WET-CON SERIES MC-BH-M

(10 - 16 contacts)

Micro WET-CON Bulkhead Connector Male Plug Mates with MC-IL-F Dummy Connector: MC-DC-F

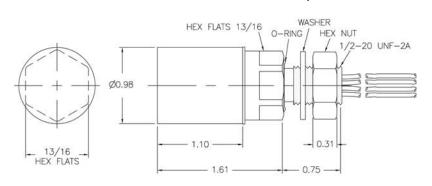




Micro WET-CON SERIES MC-BH-F

(10 - 16 contacts)

Micro WET-CON Bulkhead Connector Female Socket Mates with MC-IL-M Dummy Connector: MC-DC-M



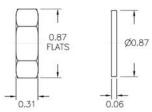


Micro WET-CON SERIES **HEX NUT AND WASHER** (10 - 16 contacts)

Micro WET-CON Bulkhead Connector





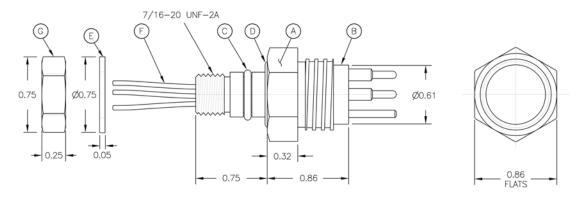


STD - BRASS (Stainless Steel and others upon request)

- · Hex Nut and Washer: Optional.
- · O-Ring: 2-015.
- Dummy Connector: Optional.
 Dummy Shorting Plug Connector: Optional.
- · Connectors must be lubricated prior to mating.
- · Torque values referenced in this literature assume installation into dry metal threads. For other applications, please contact SEA CON® for recommendations.
- · Connectors are designed for installation on one atmosphere vessels. Contact SEA CON® for recommendations if using compensated vessels.

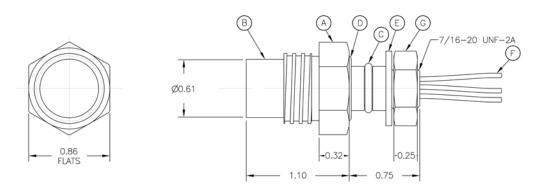
Micro WET-CON SERIES MC-BH-M-DO (DOUBLE O-RING) (2 - 8 contacts)

Micro WET-CON Bulkhead Connector Male Plug with Double O-Ring Mates with MC-IL-F Dummy Connector: MC-DC-F



Micro WET-CON SERIES MC-BH-F-DO (DOUBLE O-RING) (2 - 8 contacts)

Micro WET-CON Bulkhead Connector Female Socket with Double O-Ring
Mates with MC-IL-M
Dummy Connector: MC-DC-M

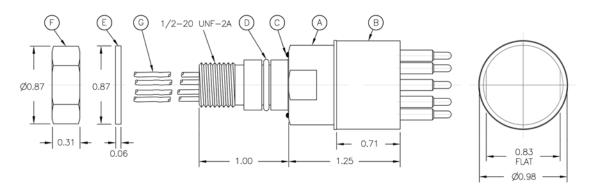


PART NUMBER	PART DESCRIPTION	
A	MC-BH DOUBLE O-RING SHELL	
В	NEOPRENE MOLDING	
С	O-RING 2-012	
D	O-RING 06-10525-1	
E	WASHER	
F	BULKHEAD LEADS	
G	HEX NUT 7/16 - 20	

- · Hex Nut and Washer: Optional.
- · Dummy Connector: Optional.
- Dummy Shorting Plug Connector: Optional. (Shorting plugs are available should you require the ability of looping together 'like' circuits for testing purposes within the dummy. Pin to pin shorting details need to be supplied at time of order placement).
- · Connectors must be lubricated prior to mating.
- · Torque values referenced in this literature assume installation into dry metal threads. For other applications, please contact SEA CON® for recommendations.
- · Connectors are designed for installation on one atmosphere vessels. Contact SEA CON® for recommendations if using compensated vessels.

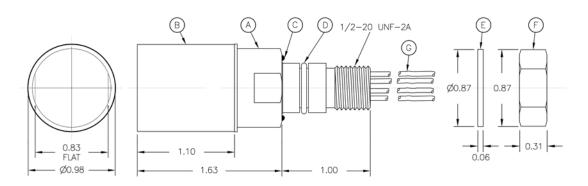
Micro WET-CON SERIES MC-BH-M-DO (DOUBLE O-RING) (10 - 16 contacts)

Micro WET-CON Bulkhead Connector Male Plug with Double O-Ring Mates with MC-IL-F Dummy Connector: MC-DC-F



Micro WET-CON SERIES MC-BH-F-DO (DOUBLE O-RING) (10 - 16 contacts)

Micro WET-CON Bulkhead Connector Female Socket with Double O-Ring Mates with MC-IL-M Dummy Connector: MC-DC-M

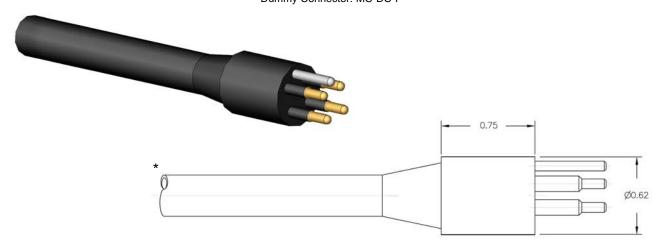


PART NUMBER	PART DESCRIPTION	
A	MC-BH DOUBLE O-RING SHELL	
В	NEOPRENE MOLDING	
С	O-RING 06-10583-1	
D	O-RING 06-10437-1	
E	WASHER	
F	HEX NUT 1/2-20	
G	BULKHEAD LEADS	

- · Bulkhead Locking Sleeve: Optional.
- · Hex Nut and Washer: Optional.
- · Dummy Connector: Optional.
- Dummy Shorting Plug Connector: Optional. (Shorting plugs are available should you require the ability of looping together 'like' circuits for testing purposes within the dummy. Pin to pin shorting details need to be supplied at time of order placement).
- · Connectors must be lubricated prior to mating.
- · Torque values referenced in this literature assume installation into dry metal threads. For other applications, please contact SEA CON® for recommendations.
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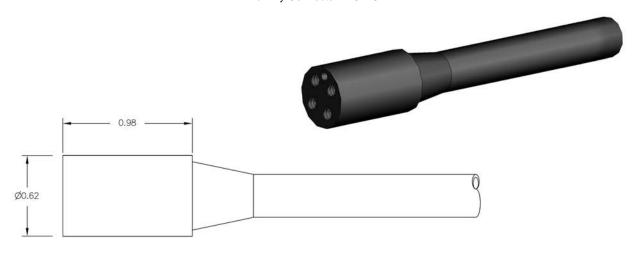
Micro WET-CON SERIES MC-IL-M (2 - 8 contacts)

Micro WET-CON In-Line Connector Male Plug Mates with MC-IL-F & MC-BH-F Dummy Connector: MC-DC-F



Micro WET-CON SERIES MC-IL-F (2 - 8 contacts)

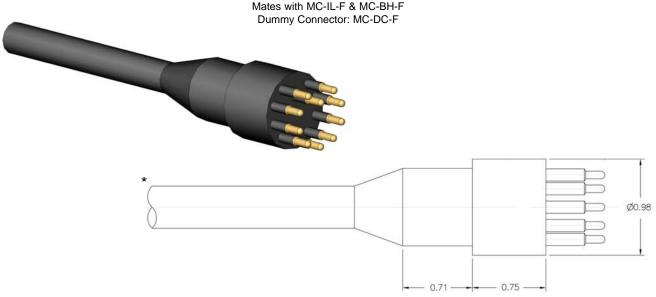
Micro WET-CON In-Line Connector Female Socket Mates with MC-IL-M & MC-BH-M Dummy Connector: MC-DC-M



- · Locking Sleeve: Optional (see page MWC 14).
- · Dummy Connector: Optional.
- Dummy Shorting Plug Connector: Optional. (Shorting plugs are available should you require the ability of looping together 'like' circuits for testing purposes within the dummy. Pin to pin shorting details need to be supplied at time of order placement).
- · Connectors must be lubricated prior to mating.
- * Incorporation of special order cables will be determined on a case-by-case basis.

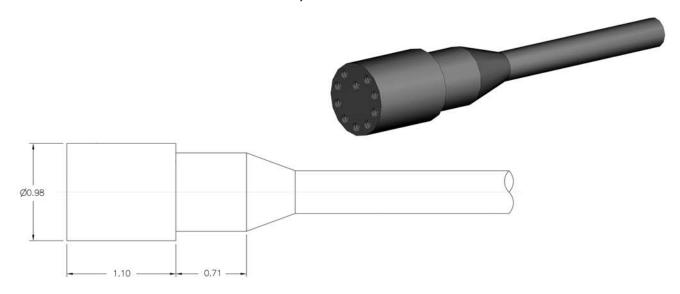
Micro WET-CON SERIES MC-IL-M (10 - 16 contacts)

Micro WET-CON In-Line Connector Male Plug Mates with MC-IL-F & MC-BH-F



Micro WET-CON SERIES MC-IL-F (10 - 16 contacts)

Micro WET-CON In-Line Connector Female Socket Mates with MC-IL-M & MC-BH-M Dummy Connector: MC-DC-M

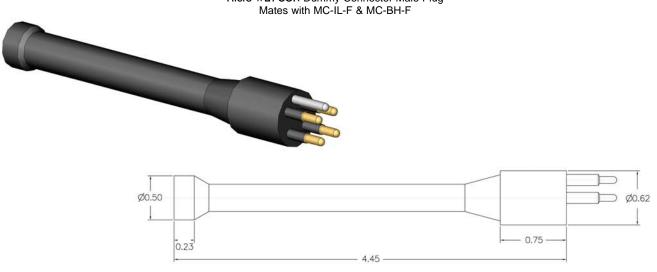


- Locking Sleeve: Optional (see page MWC 14).
- · Dummy Connector: Optional.
- Dummy Shorting Plug Connector: Optional. (Shorting plugs are available should you require the ability of looping together 'like' circuits for testing purposes within the dummy. Pin to pin shorting details need to be supplied at time of order placement).
- · Connectors must be lubricated prior to mating.
- * Incorporation of special order cables will be determined on a case-by-case basis.

Micro WET-CON SERIES **DIMENSION DETAILS**

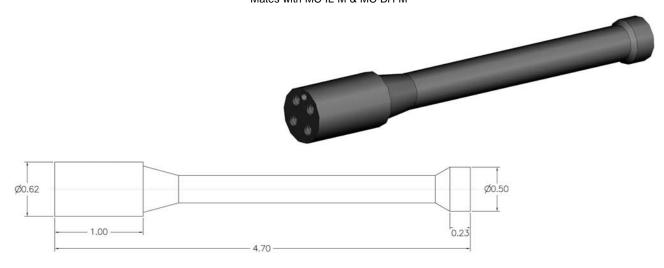
Micro WET-CON SERIES MC-DC-M (2 - 8 contacts)

Micro WET-CON Dummy Connector Male Plug Mates with MC-IL-F & MC-BH-F



Micro WET-CON SERIES MC-DC-F (2 - 8 contacts)

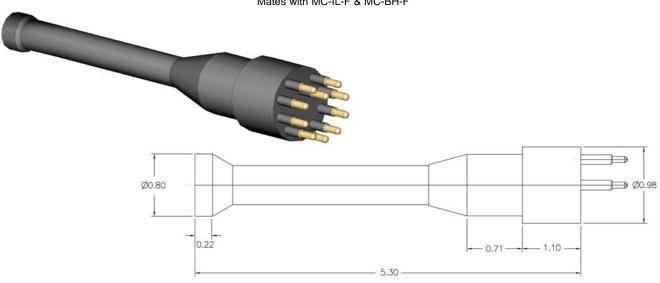
Micro WET-CON Dummy Connector Female Socket Mates with MC-IL-M & MC-BH-M



- · Locking Sleeve: Optional (see page MWC 14).
- Dummy Shorting Plug Connector: Optional. (Shorting plugs are available should you require the ability of looping together 'like' circuits for testing purposes within the dummy. Pin to pin shorting details need to be supplied at time of order placement).
- · Connectors must be lubricated prior to mating.

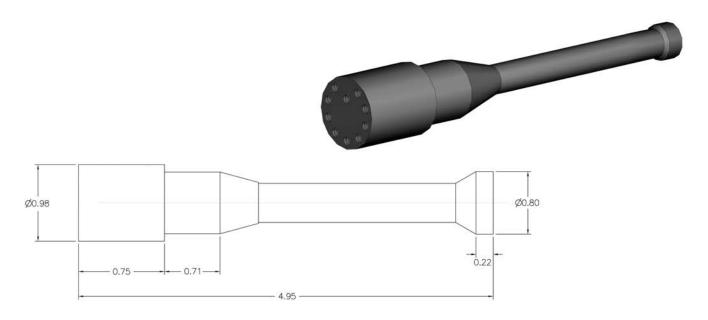
Micro WET-CON SERIES MC-DC-M (10 - 16 contacts)

Micro WET-CON Dummy Connector Male Plug Mates with MC-IL-F & MC-BH-F



Micro WET-CON SERIES MC-DC-F (10 - 16 contacts)

Micro WET-CON Dummy Connector Female Socket Mates with MC-IL-M & MC-BH-M



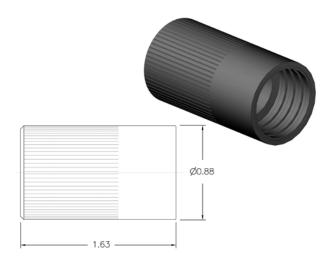
- · Locking Sleeve: Optional (see page MWC 14).
- Dummy Shorting Plug Connector: Optional. (Shorting plugs are available should you require the ability of looping together 'like' circuits for testing purposes within the dummy. Pin to pin shorting details need to be supplied at time of order placement).
- · Connectors must be lubricated prior to mating.

Micro WET-CON SERIES MC-DLS-F (2 - 8 contacts)

Micro WET-CON Dummy Locking Sleeve Female Socket

Micro WET-CON SERIES MC-DLS-M (2 - 8 contacts)

Micro WET-CON Dummy Locking Sleeve Male Plug



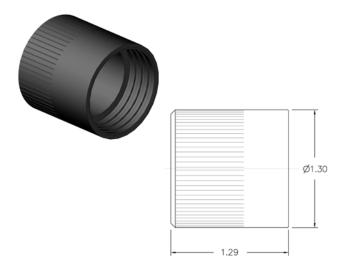


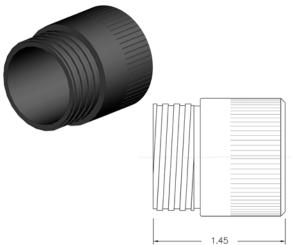
Micro WET-CON SERIES DLSA-F

(10 - 16 contacts)

Micro WET-CON Dummy Locking Sleeve Female Socket

Micro WET-CON SERIES DLSA-M (10 - 16 contacts) Micro WET-CON Dummy Locking Sleeve Male Plug





- * Not required for 2 to 8 way Bulkhead connectors. For In-Lines only.
- · Locking Sleeves: Delrin® (DuPont trademark for Acetal Resin).

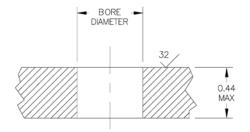
MICRO WET-CON SERIES INTERFACE DETAILS

MICRO WET-CON SERIES MC-BH-M/F THROUGH BORE OPTION

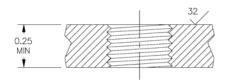
Micro WET-CON Bulkhead Connector Male/Female

Micro WET-CON SERIES MC-BH-M/F THREADED MOUNTING OPTION

Micro WET-CON Bulkhead Connector Male/Female







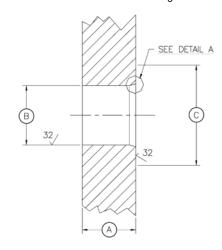
THREADED MOUNTING OPTION

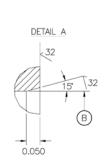
CONNECTOR	CONNECTOR BORE Ø (INCHES) THREAD		SPOT FACE Ø (INCHES)	
MC-BH (2-8)	0.437 ^{+0.015} -0.000	7/16-20 UNF-2B	0.88	
MC-BH (10-16)	0.500 +0.015 - 0.000	1/2-20 UNF-2B	0.94	

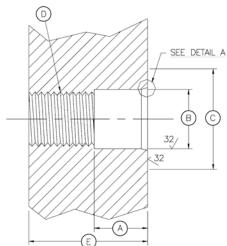
Micro WET-CON SERIES MC-BH-M/F-DO (DOUBLE O-RING) THROUGH BORE OPTION

Micro WET-CON Bulkhead Connector Male/Female with Double O-Ring

MC-BH-M/F-DO (DOUBLE O-RING) THREADED MOUNTING OPTION Micro WET-CON Bulkhead Connector Male/Female with Double O-Ring

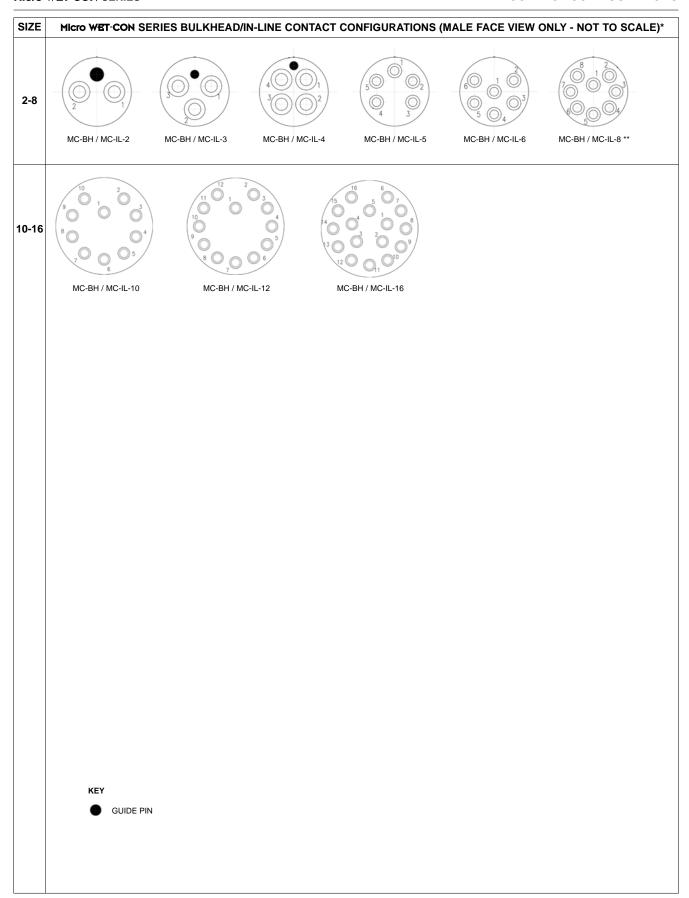






Micro WET-CON SERIES

CONNECTOR	A - LENGTH (INCHES)	B - Ø (INCHES)	C - Ø (INCHES)	D - THREAD	E - Ø (INCHES)
MC-BH-DO (2-8)	0.425	0.475 0.473	0.88	7/16-20 UNF-2B	0.750 MIN
MC-BH-DO (10-16)	0.500	0.553 0.552	0.94	1/2-20 UNF-2B	1.000 MIN



- * For female face view contact configurations available please contact SEA CON®.
- · ** Ethernet version available.

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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 SEA CON® for recommendations if using compensated vessels.

Torque values referenced in this literature assume installation into dry metal threads. For other applications, please contact SEA CON® for recommendations.

BULKHEAD CONNECTOR (BC): The BC may be installed using one of two methods. The preferred method is to spotface the bulkhead surface and thread the hole, then screw the connector by means of a nut and washer. The bored hole (or threaded hole) should be free of any "burrs" and all o-ring sealing surfaces polished to a number 32 finish. Lubricate the BC o-ring with an appropriate silicon spray or grease before installing. This lubrication should be applied to form an adequate film. Excessive lubrication is detrimental to the operation of the connector. Bulkhead nut, if used, should not be over-torqued.

IN-LINE CONNECTOR: Lubricate the sealing areas around the male pins, using an appropriate silicon spray, or grease lightly.

The WET-CON and Micro WET-CON connectors require very little maintenance. They are designed to be used in harsh environments and thus limited amounts of dirt and grit do not affect their performance.

It is recommended that, upon disconnecting or retrieving the system, the connectors be cleaned, to storage (if possible, remate with dummy plugs). Prior to deployment the following maintenance procedure is recommended:

- 1. Demate the connector set.
- 2. Flush connector interface with fresh water (deionized water if available), remove all dirt, grit and grease.
- 3. Inspect for damage in sealing areas, excessive corrosion, debonding of the cable and connector interface and cuts in the cable jacket.
- 4. Apply thin film of dilectric compound (DC) grease, silicon based, to sealing areas of male connector and across the face of the female connector*. If the BC is removed from it's housing then replace facial o-ring and make sure that o-rings are lubricated and in good
- 5. Mate the connector halves, wipe away any excess grease off the interface line of the mated set.
- * CAUTION: The use of some oil-based propellants in spray cans can cause conductivity problems in neoprene.

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

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