

**S E A C O N**

DEUTSCH | Rochester Cable



# HydraElectric Wet-Mate Connector

HydraElectric Electrical Wet-Mate Connectors  
Provide Rugged, Reliable, Cost-Effective Subsea  
Connectivity Solutions for Oil and Gas Applications

# SEACON HydraElectric Wet-Mate Connector

Fully Electrical Subsea Modular Interconnect Solution, Qualified to 4,000m

## ADVANCED TECHNOLOGY

- Modular construction with 4, 7 or 12 electrical circuits
- ROV, manual and stab plate configurations with industry standard panel interfaces
- Socket and pin flying leads
- Termination and boot seals up to size AWG#12 wire

## MEETS INDUSTRY STANDARDS

- Designed in accordance with ISO 13628-6 and API 17F - SEAFOM TSD-02, Statoil and Total requirements
- SEACON MKII Pressure Balanced Oil Filled (PBOF) hose interface as standard
- Elastomers compatible with industry standard requirements

## DEEPWATER CAPABILITY

- Qualified for use at 4,000m water depth
- Dual barriers oil-filled, pressure compensated design
- Corrosion resistant without cathodic protection



TE Connectivity (TE)'s HydraElectric wet-mate connector has been designed, developed, tested and qualified in accordance with the latest industry standards and customer specifications. The design features a modular construction that enables many configurations to be assembled from a minimum number of components. Industry standard panel, bulkhead and stab plate interfaces have been met enabling the opportunity for the HydraElectric wet-mate connector to replace incumbent product with no impact to customer hardware.

## STANDARDS AND SPECIFICATIONS

- **Designed to Meet the Following Standards and Specifications:**
  - ISO 13628-6
  - API 17F - SEAFOM TSD-02
  - Statoil TR2390 Ver2
  - Total GS EP SPS 021 Rev. 07

## OPERATION

- Modular and compliant ROV D-handle as standard
- Unique locking mechanism with visible mating verification
- **Max. ROV Mate Force:** 750N
- **Max. ROV De-Mate Force:** 750N
- **Max. Handling Load:** 2,500N
- **Max. ROV Load Without Damage:**  
Axial 5,000N, Transverse 2,500N
- **Max. Rotational Misalignment:**  $\pm 15^\circ$
- **Max. Angular Misalignment:**  $\pm 20^\circ$
- **Max. Radial Misalignment:**  $\pm 20\text{mm}$

## MATERIALS

- **Shell:** Super Duplex Stainless Steel
- **Inserts/Pin/Socket Insulation:** PEEK
- **Contacts:** Gold plated copper
- **Bladders:** Silicone Rubber
- **O-rings:** Nitrile Butadiene Rubber (NBR)

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

AMP | AGASTAT | CII | HARTMAN | KILOVAC | MICRODOT | NANONICS | POLAMCO | Raychem | Rochester | DEUTSCH  
SEACON Phoenix | LL ROWE | Phoenix Optix | AFP | SEACON

Empower Engineers to Solve Problems, Moving the World Forward.

## DESIGN RATINGS

- **Design Life:** Up to 30 years
- **Min. Number of Mate/Demate Cycles:** 1,000 (250 in turbid seawater)
- **Depth Rating:** Qualified for use at 4,000 m (412 bar)
- **Rated Voltage Conductor-to-Conductor (U):**
  - 1,000 VAC RMS
  - 1,500 VDC
- **Rated Voltage Between Conductor and Earth (Uo):**
  - 600 VAC RMS
  - 1,500 VDC
- **Max. Voltage Between Circuits with Two Adjacent Pairs 180° Out of Phase (Um):**
  - 1,200 VAC RMS
- **Partial discharge free @ 2.5kV (<10pC) & 4.5kV (<50pC)**
- **Long term (3 months) DC testing @ 4.1kVDC**
- **Operating Current:**

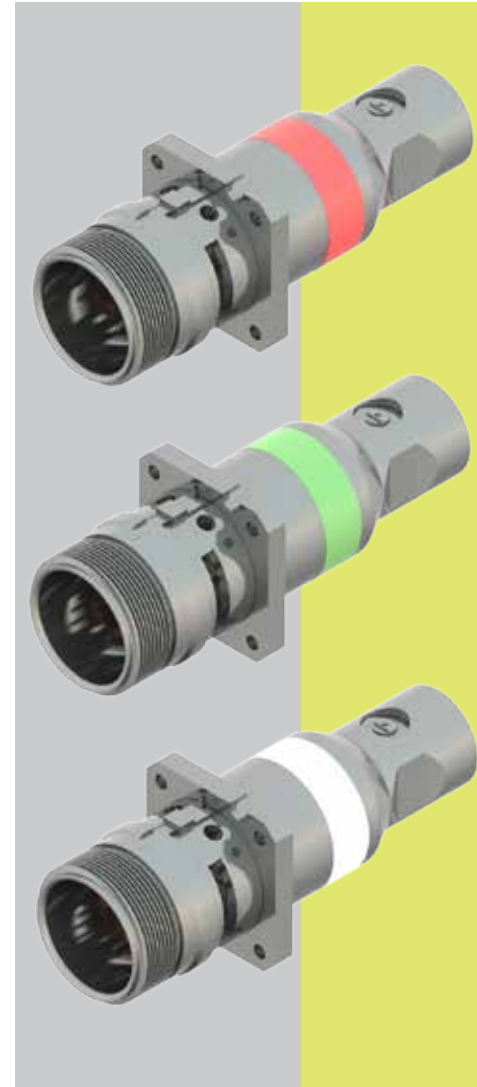
No. of Circuits	Maximum Operating Current	
	Dry, 40°C	Wet, 40°C
4 Circuits	30A	40A
7 Circuits	20A	30A
12 Circuits	15A	25A

Maximum temperature rise is 30°C

- **Insulation Resistance:** >20 GΩ
- **Contact Resistance:** <5 mΩ
- **Operating Temperature:**
  - Dry: -18°C to 40°C
  - Wet: -5°C to 40°C
- **Storage Temperature:** -40°C to +50°C
- Maintenance-free over design life (within number of mate/demate cycles)

## CONFIGURATIONS

- ROV
  - Manual
  - Stab Plate
  - Flying Lead
  - Panel
  - Bulkhead
  - Dummy
  - Parking
  - Dust Cap
- **Circuit count colour codes:**
    - RED indicates 4 way
    - GREEN indicates 7 way
    - WHITE indicates 12 way





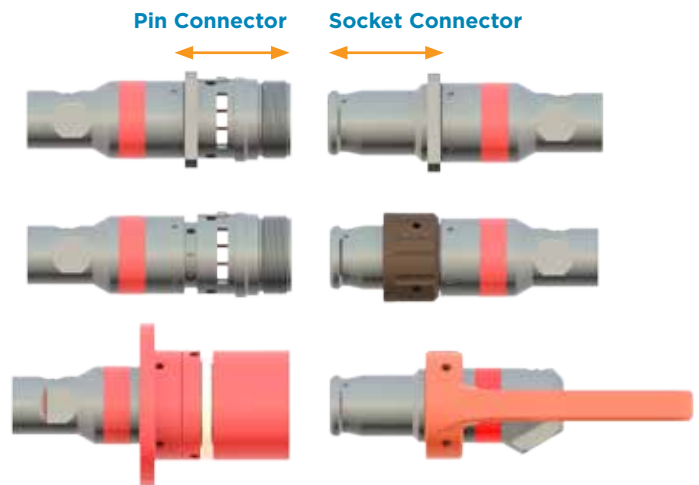
## Fathom the Possibilities

With TE, you have unlimited opportunity with one of the widest ranges of underwater electrical and fiber optic connectors available anywhere in the world. This range of connectors covers not only optical, signal, and power, but hybrid connectors mixing these capabilities in a single unit. Our broad range of cable, connectors, penetrators, sensors, and switches gives you the flexibility to configure the ideal connector system for your most extreme applications.

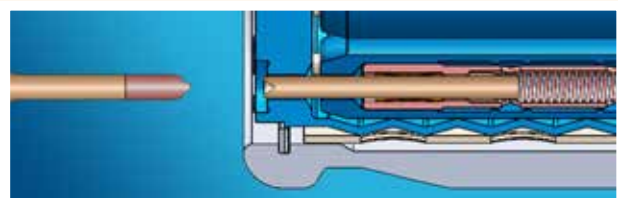
The release of our HydraElectric electrical wet-mate connector follows our field proven HydraLight connector in joining our subsea distribution portfolio. Modular in design with few parts and qualified to 4,000m, it is manufactured from Super Duplex stainless steel for excellent corrosion resistance and strength, and boasts up to a 30 year design life.

### MODULAR DESIGN - ROV, MANUAL, AND STAB

- Inserts interchangeable and intermateable for ROV, Manual, and Stab
- All backshells interchangeable
- Genders reversible
- Shells same for 4, 7 and 12 contacts
- Color coding for 4, 7 and 12 contacts

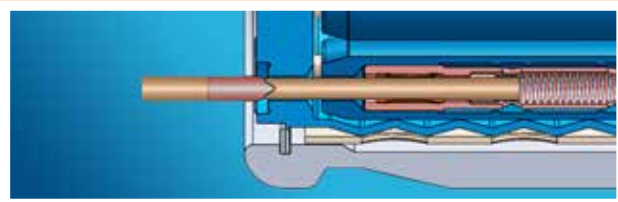


### PRINCIPLE OF OPERATION - PIN AND SOCKET CONTACT



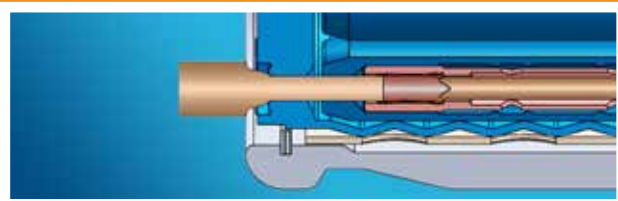
#### 1) Pin and socket contact prior to mating

The outer and inner bladders are filled with dielectric fluid and are pressure balanced with no differential pressure and provides dual independent seals. When un-mated, the shuttle pin prevents water from entering into either of the volumes.



#### 2) Pin engages shuttle pin at socket contact

The shuttle pin is pushed in front of the pin contact through the mating process maintaining the dual barrier system.



#### 3) Fully mated

When pin contacts have passed through both barriers, the insulation materials outer diameter on the pin contact maintains the dual barriers toward seawater and full electrical contact is established.



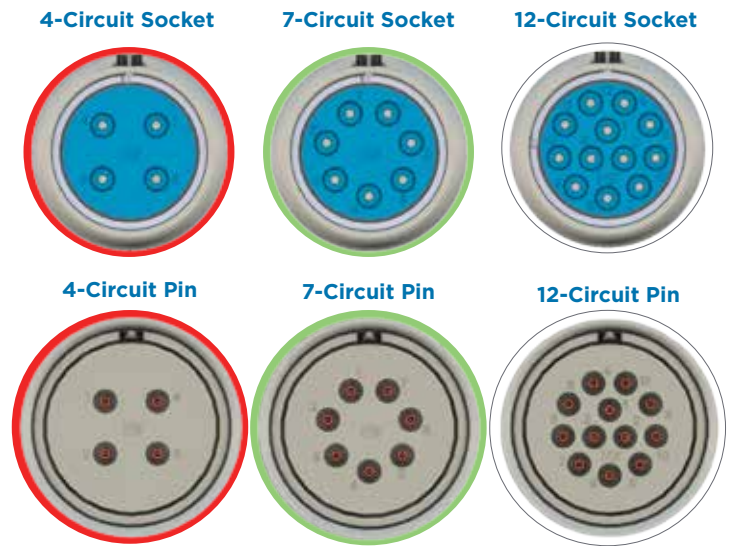
## Contact Configurations

The connector bodies and shells are same size for all 3 pin configurations (4, 7 and 12). This enables flexible production and assembly processes and many configurations from few parts.

Even though the external geometry is the same, the 3 different pin configurations must not be mated with each other. Damage will occur if a connector is mated with a different configuration. To further differentiate the configurations all connectors are equipped with color coding identifying the relevant configuration.

**NOTE:**

It is recommended to isolate the connectors from the cathodic protection systems to reduce calcium carbonate build up to a minimum. Connectors must not be mated or de-mated when power is turned on.



## Ethernet Capabilities

The 12 circuit version of the HydraElectric has Ethernet capabilities which allows for data transfer speeds at 100 Mbit/s.

It is qualified according to SEAFOM TSD-02 which includes the following standards for CAT 5 (100 Mbit/s); IEEE 802.3-2012, ANSI/TIA/EIA-568-A, ISO/IEC 11801:1995(Class D), and SIIS Level 3.

Tests performed are:

- Insertion Loss
- Return Loss
- NEXT Loss
- FEXT Loss

\* Test data made with network analyzer, presenting the relationship between the reflected and induced power waves at each of the network ports.



## Key Standards and Specifications

Entity Source	Number	Description
ISO	ISO 13628-6	Petroleum and natural gas industry – Design and operation of subsea production systems
API 17F	SEAFOM TSD-02	Functional design and test specification for subsea electrical and optical connectors and jumpers
Statoil	TR2390 Ver2	Electrical/optical connectors and jumpers for subsea control system
Total	GS EP SPS 021 Rev. 07	Subsea mateable electrical/optical connectors



## HydraElectric Connectors

### Ordering Information

HE - xxx - x - xx - xx - x - x - xx - x

**Family Designator** \_\_\_\_\_

**HE** HydraElectric

**Mode of Operation** <sup>1</sup> \_\_\_\_\_

- ROV** Remotely Operated Vehicle
- MAN** Manual
- STA** Stab Plate

**Electrical Gender** \_\_\_\_\_

- S** Sockets
- P** Pins

**Connector Type** <sup>1</sup> \_\_\_\_\_

- FL** Flying Lead
- PN** Panel
- BH** Bulkhead
- DY** Dummy
- PK** Parking
- DC** Dust Cap

**Number of Pins/Sockets** <sup>1</sup> \_\_\_\_\_

- 04**
- 07**
- 12**

**Hose Termination** <sup>1</sup> \_\_\_\_\_

- 0** MKII 0° (Straight) <sup>2</sup>
- 1** MKII 60° <sup>2</sup>

**Cable Termination Exit Angle** <sup>1</sup> \_\_\_\_\_

- 0** 0° (Straight)
- 1** 90°

**Stab Plate Mounting Options** <sup>1</sup> \_\_\_\_\_

- FX** Fixed
- FL** Floating

**Looping Options** <sup>1,3</sup> \_\_\_\_\_

- 0** 1-3, 2-4, 5-7, 6-8, 9-11, 10-12
- 1** 1-2, 3-4, 5-6, 7-8, 9-10, 11-12

### Notes:

<sup>1</sup> Dependent on configuration, this field can be populated with;

**X/XX/XXX** Not applicable

<sup>2</sup> MKII termination will be compatible with PBOF hoses of the following sizes: 20, 13 and 8 mm.

<sup>3</sup> Options available for **DY** and **PK** only.



## HydraElectric Test Connectors

### Ordering Information

HE - TST - x - xx - x - x

**Family Designator**

HE HydraElectric

**Mode of Operation**

TST Test Connector

**Electrical Gender**

S Sockets

P Pins

**Number of Pins/sockets**

04

07

12

**Pigtail Length**

0 3m

1 5m

2 10m

**Wiring Option**

0 Standard (AWG 16)

1 Ethernet

### Notes:

Test Connectors with pigtails  $\geq$  5m are delivered with transparent hose.

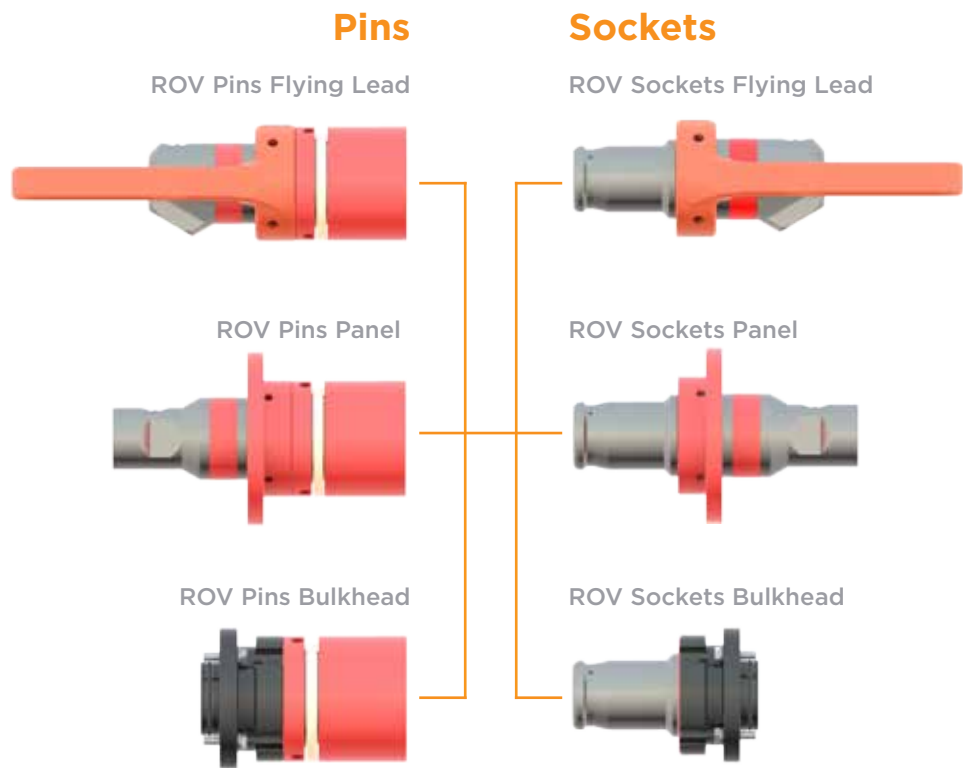


# HydraElectric ROV Connector Series

The HydraElectric ROV series is designed to be operated by ROV's in some of the most harsh environments. They are designed and tested to help meet the rough handling and forces potentially seen during ROV operation, both mated, de-mated and during the mating sequence. The alignment mechanism of the connector bodies helps ensure proper alignment before pin contacts engage the socket contacts and electrical contact is established.



## ROV Configurations



4, 7 and 12 contacts.

- 4 contacts
- 7 contacts
- 12 contacts



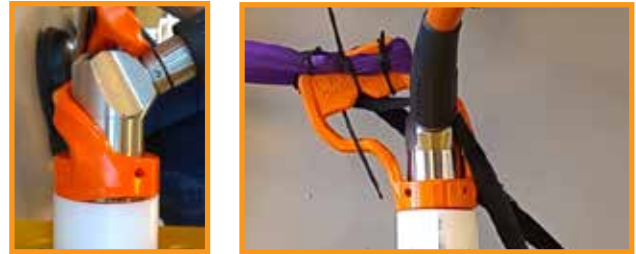


# Handling the Rigors of the Harshest of Environments

TE has a wide experience in advanced material technology. Combining it's years of experience and a track record in subsea environments TE are able to provide products utilizing plastic materials in flanges and handles, which allows a beneficial ratio between weight, flexibility and mechanical strength.

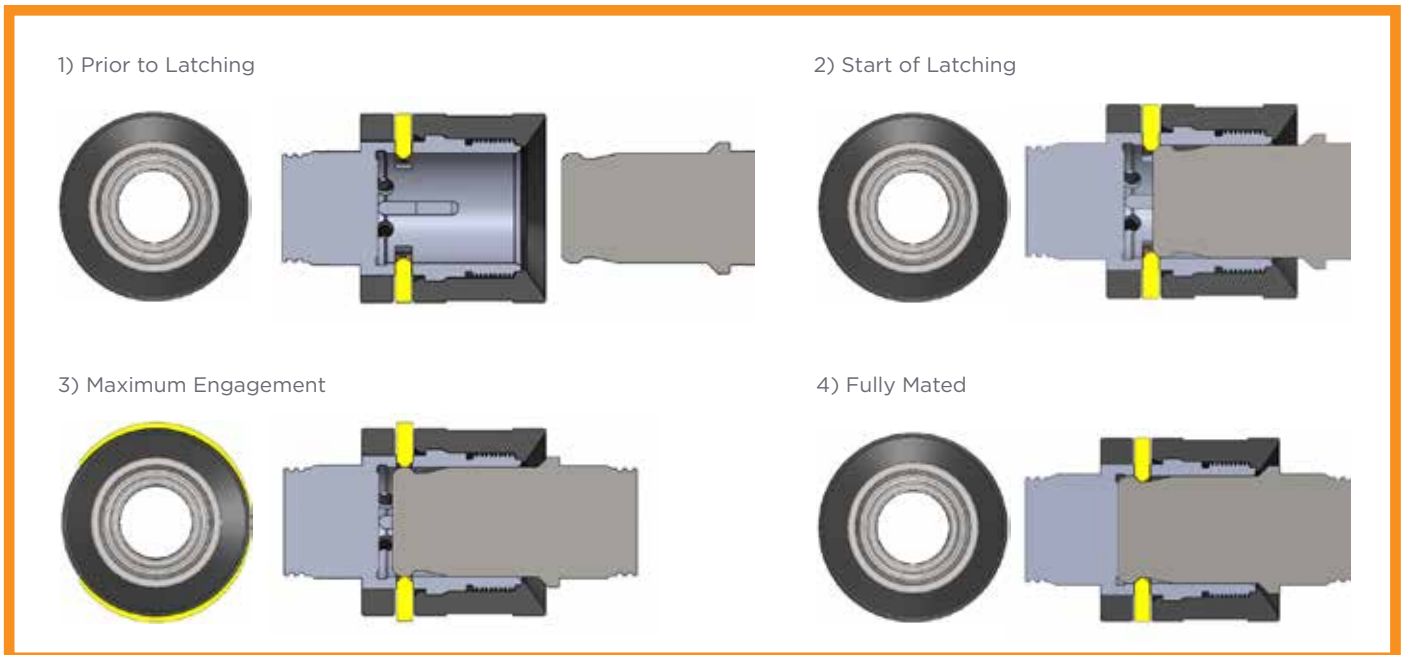
Both the ROV handle and panel flange is made of plastic materials carefully selected to help meet the requirements of many of the harshest environments. At the same time the materials have to be flexible enough to avoid damage during operation. The materials are tested and stressed to their maximum to ensure that they perform according to requirements.

The latching mechanism provides proper locking of connector halves in a mated position. The latch member is allowed to expand freely without external limitations. It is made of a plastic material which minimizes corrosion and calcium carbonate build up caused by cathodic protection of subsea structures. The latch mechanism provides visual positive latch identification and contains a minimal number of parts. The latch member can easily be replaced both topside and subsea without disengaging the connector.



HydraElectric handle undergoing testing

## LATCHING MECHANISM

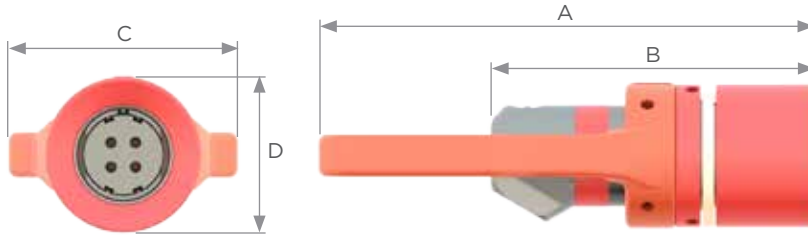




# ROV - Pins

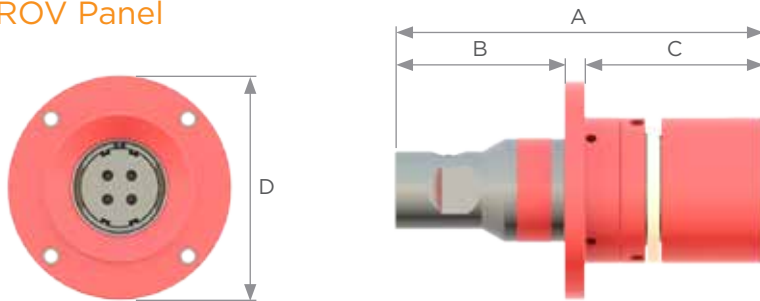


## ROV Flying Lead



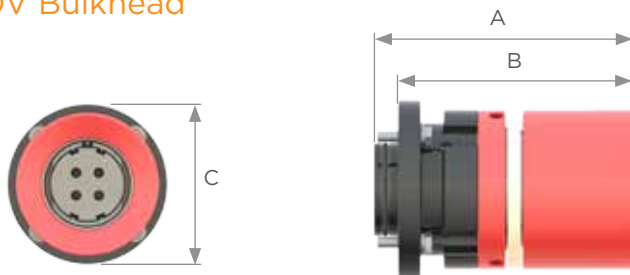
Number of Pins	A mm(In)	B mm(In)	C mm(In)	D mm(In)	Part Number
4	<b>292.4</b> (11.51)	<b>191.5</b> (7.54)	<b>125.0</b> (4.92)	<b>85.5</b> (3.37)	HE-ROV-P-FL-04-1-X-XX-X
7					HE-ROV-P-FL-07-1-X-XX-X
12					HE-ROV-P-FL-12-1-X-XX-X

## ROV Panel



Number of Pins	A mm(In)	B mm(In)	C mm(In)	D Ø mm(In)	Interface Dwg Reference No.	Part Number
4	<b>211.6</b> (8.33)	<b>97.1</b> (3.82)	<b>102.5</b> (4.03)	<b>125.0</b> (4.92)	21400	HE-ROV-P-PN-04-0-X-XX-X
7						HE-ROV-P-PN-07-0-X-XX-X
12						HE-ROV-P-PN-12-0-X-XX-X

## ROV Bulkhead

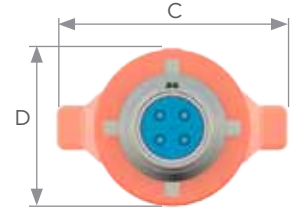
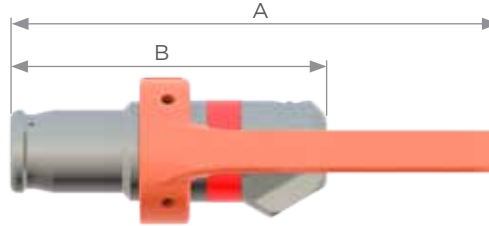





Number of Pins	A mm(In)	B mm(In)	C Ø mm(In)	Interface Dwg Reference No.	Part Number
4	<b>137.2</b> (5.40)	<b>124.5</b> (4.90)	<b>94.0</b> (3.70)	21440	HE-ROV-P-BH-04-X-X-XX-X
7					HE-ROV-P-BH-07-X-X-XX-X
12					HE-ROV-P-BH-12-X-X-XX-X



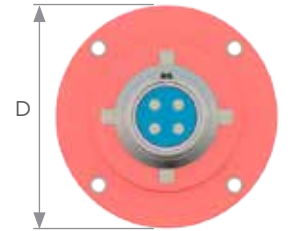
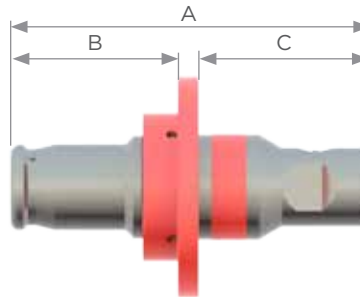
# ROV - Sockets




## ROV Flying Lead



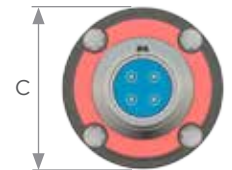
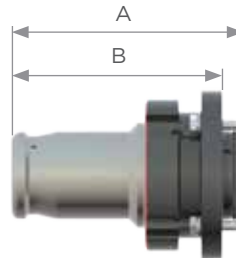
Number of Sockets	A mm(In)	B mm(In)	C mm(In)	D mm(In)	Part Number
4 	<b>284.8</b> (11.21)	<b>183.9</b> (7.24)	<b>125.0</b> (4.92)	<b>85.5</b> (3.37)	HE-ROV-S-FL-04-1-X-XX-X
7 					HE-ROV-S-FL-07-1-X-XX-X
12 					HE-ROV-S-FL-12-1-X-XX-X




## ROV Panel



Number of Sockets	A mm(In)	B mm(In)	C mm(In)	D $\phi$ mm(In)	Interface Dwg Reference No.	Part Number
4 	<b>204.0</b> (8.03)	<b>94.9</b> (3.73)	<b>97.1</b> (3.82)	<b>125.0</b> (4.92)	21400	HE-ROV-S-PN-04-0-X-XX-X
7 						HE-ROV-S-PN-07-0-X-XX-X
12 						HE-ROV-S-PN-12-0-X-XX-X

## ROV Bulkhead



Number of Sockets	A mm(In)	B mm(In)	C $\phi$ mm(In)	Interface Dwg Reference No.	Part Number
4 	<b>137.2</b> (5.40)	<b>124.5</b> (4.90)	<b>94.0</b> (3.70)	21440	HE-ROV-S-BH-04-X-X-XX-X
7 					HE-ROV-S-BH-07-X-X-XX-X
12 					HE-ROV-S-BH-12-X-X-XX-X



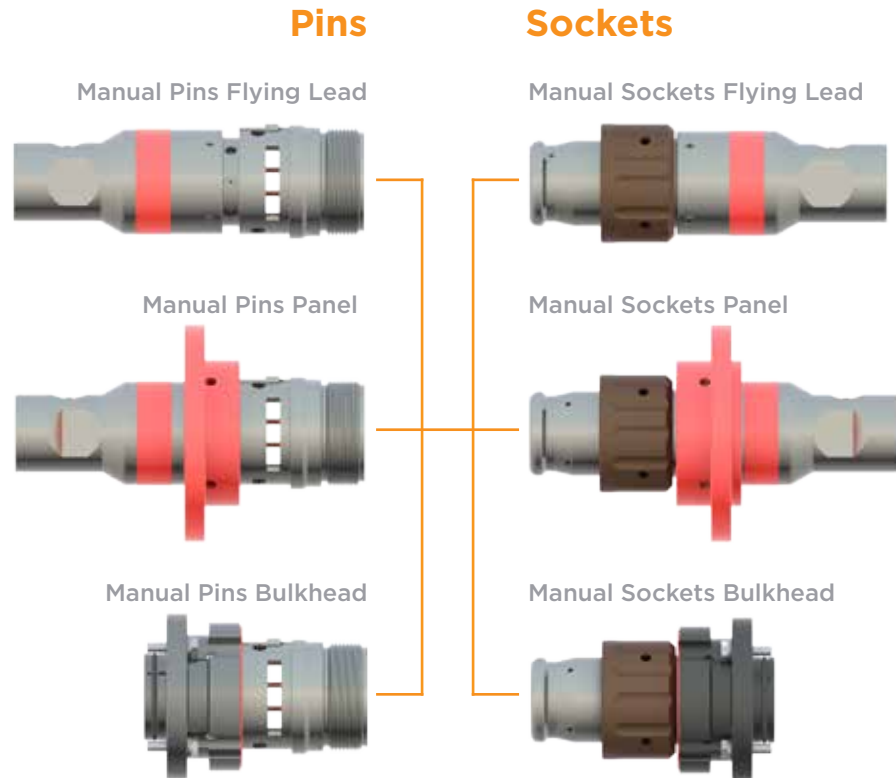
# HydraElectric Manual Mate Connector Series

The manual mate connectors are designed to be operated manually. They are typically mated/de-mated topside, on surface or in shallow waters, but they are of course designed and tested to be used at full design depth of 4,000m. A threaded engaging nut provides proper mating of connectors with a minimum amount of force required for operation.




Panel flanges can be front and rear mounted. The same flange is used for both options, but a slotted interface might be required depending on application.



## Manual Mate Configurations



4, 7 and 12 contacts.

-  4 contacts
-  7 contacts
-  12 contacts



## Bulkhead Flange

The bulkhead connectors are used in applications where there is a need for a sealing surface towards a separate oil filled and pressure compensated/balanced volume. They are available for all modes of operation, ROV, Manual and Stab Plate.

Sealing is provided through dual o-ring barriers, with one radial and one axial o-ring. Bootseals provide the internal barrier towards the solder pots. It is suitable for several applications such as:

- Retrievable canisters and modules
- Junction boxes
- Control modules
- Power distribution modules

**NOTE:**

Bulkhead connectors are designed for pressure balanced enclosures only, and are not intended for 1 atmospheric chambers. Special orders are available upon request. Please contact TE for details.



## Panel Flange

The same panel flange is used on ROV and Manual connectors. Made from plastic materials carefully selected to help meet the requirements of many of the harshest environments.

At the same time the materials have to be flexible enough to avoid damage during operation. The materials are tested and stressed to their maximum to help ensure that they perform according to specifications.

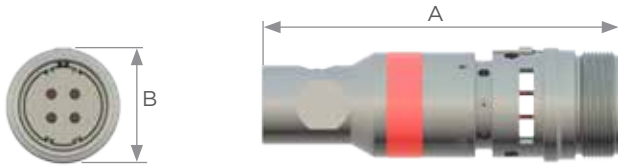




# Manual - Pins

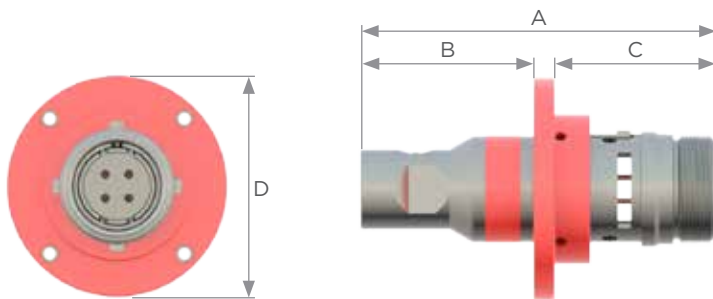


## Manual Flying Lead



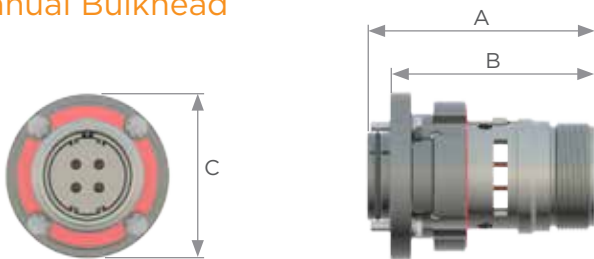
Number of Pins	A mm(In)	B Ø mm(In)	Part Number
4	<b>200.9</b> (7.91)	<b>65.0</b> (2.56)	HE-MAN-P-FL-04-0-X-XX-X
7			HE-MAN-P-FL-07-0-X-XX-X
12			HE-MAN-P-FL-12-0-X-XX-X

## Manual Panel



Number of Pins	A mm(In)	B mm(In)	C mm(In)	D Ø mm(In)	Interface Dwg Reference No.	Part Number
4	<b>200.9</b> (7.91)	<b>97.1</b> (3.82)	<b>91.8</b> (3.61)	<b>125.0</b> (4.92)	21400	HE-MAN-P-PN-04-0-X-XX-X
7						HE-MAN-P-PN-07-0-X-XX-X
12						HE-MAN-P-PN-12-0-X-XX-X

## Manual Bulkhead

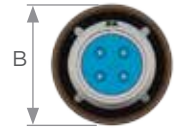
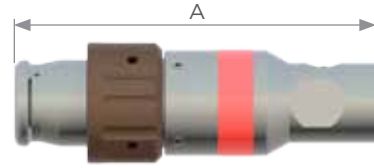


Number of Pins	A mm(In)	B mm(In)	C Ø mm(In)	Interface Dwg Reference No.	Part Number
4	<b>126.5</b> (4.98)	<b>113.8</b> (4.48)	<b>94.0</b> (3.70)	21440	HE-MAN-P-BH-04-X-X-XX-X
7					HE-MAN-P-BH-07-X-X-XX-X
12					HE-MAN-P-BH-12-X-X-XX-X



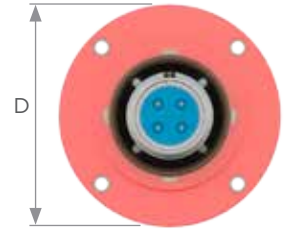
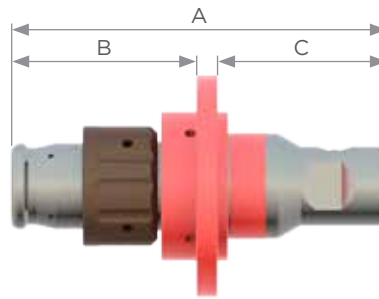
# Manual - Sockets

## Manual Flying Lead



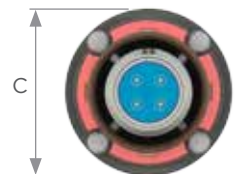
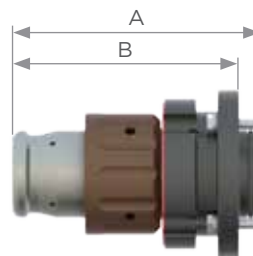
Number of Sockets	A mm(In)	B Ø mm(In)	Part Number
4	204.0 (8.03)	68.0 (2.68)	HE-MAN-S-FL-04-0-X-XX-X
7			HE-MAN-S-FL-07-0-X-XX-X
12			HE-MAN-S-FL-12-0-X-XX-X

## Manual Panel



Number of Sockets	A mm(In)	B mm(In)	C mm(In)	D Ø mm(In)	Interface Dwg Reference No.	Part Number
4	214.0 (8.42)	104.9 (4.13)	97.1 (3.82)	125.0 (4.92)	21400	HE-MAN-S-PN-04-0-X-XX-X
7						HE-MAN-S-PN-07-0-X-XX-X
12						HE-MAN-S-PN-12-0-X-XX-X

## Manual Bulkhead

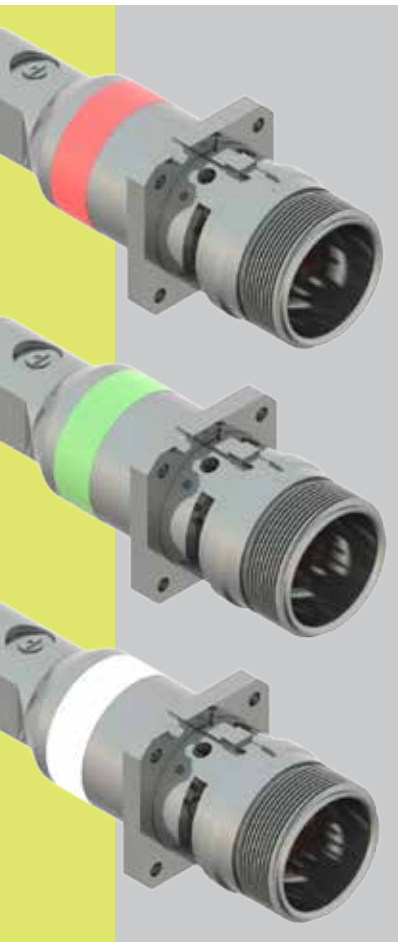


Number of Sockets	A mm(In)	B mm(In)	C Ø mm(In)	Interface Dwg Reference No.	Part Number
4	139.6 (5.49)	126.9 (4.99)	94.0 (3.70)	21440	HE-MAN-S-BH-04-X-X-XX-X
7					HE-MAN-S-BH-07-X-X-XX-X
12					HE-MAN-S-BH-12-X-X-XX-X



# HydraElectric Stab Plate Connector Series

The stab plate connectors are used as elements in a stab arrangement, providing movement and latching of the connectors. Stab connectors do not have a built in latching mechanism. The connectors are made of Super Duplex which provides excellent corrosion resistance and do not need to be connected to a cathodic protection system.



## Stab Plate Configurations

### Pins

### Sockets

Stab Plate Pins Fixed

Stab Plate Sockets Floating






Stab Plate Pins Floating

Stab Plate Sockets Fixed



4, 7 and 12 contacts.

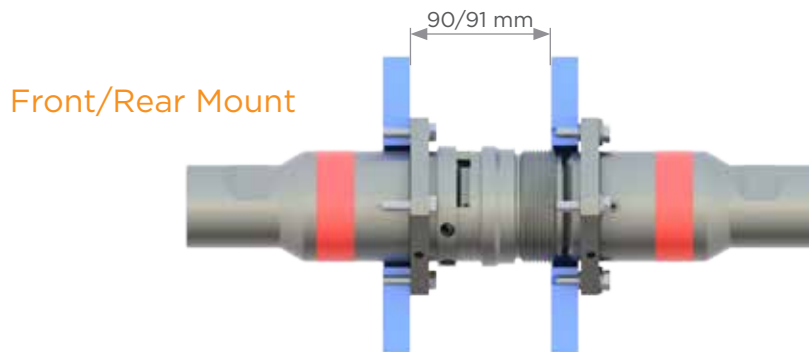
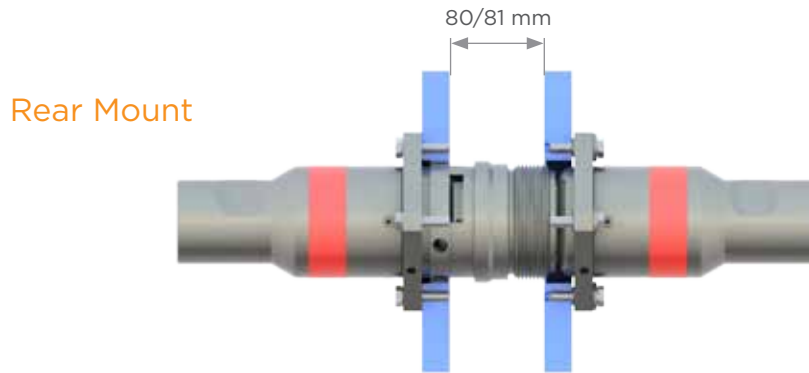
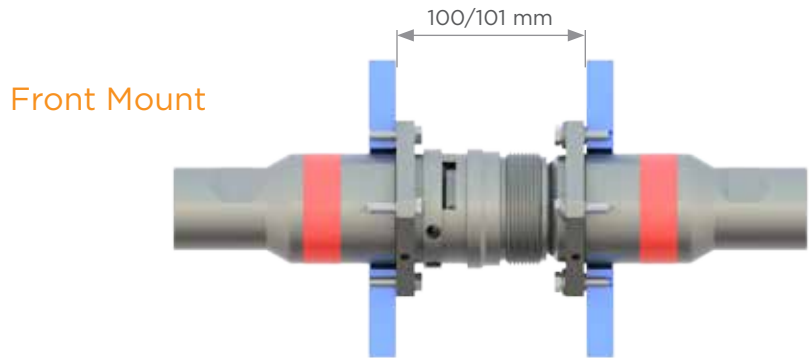
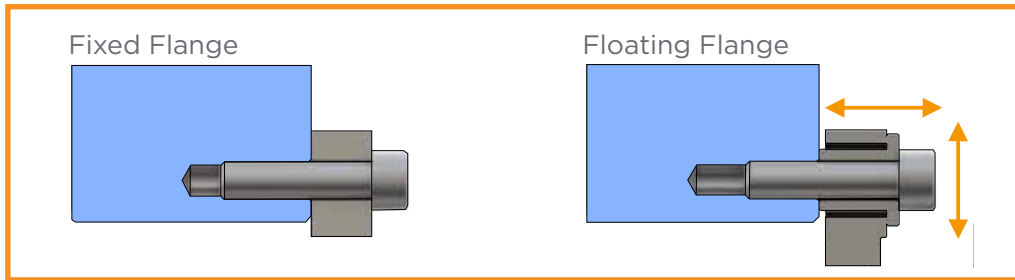
-  4 contacts
-  7 contacts
-  12 contacts





## Stab Plate Mounting Details

One of the connectors in a mating pair must be provided with floating flange, allowing the connector to move +/- 1mm axial and radial. Flanges on stab connectors are 10 mm thick and are interchangeable between front and rear mount.

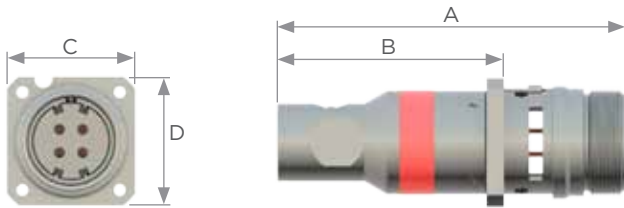







# Stab Plate - Pins

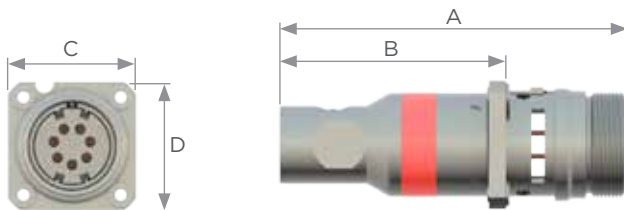





## Stab Plate Fixed



Number of Pins	A mm(In)	B mm(In)	C mm(In)	D mm(In)	Ordering Information
4 	<b>200.9</b> (7.91)	<b>130.0</b> (5.12)	<b>73.5</b> (2.89)	<b>73.5</b> (2.89)	HE-STA-P-XX-04-0-X-FX-X
7 					HE-STA-P-XX-07-0-X-FX-X
12 					HE-STA-P-XX-12-0-X-FX-X

## Stab Plate Floating

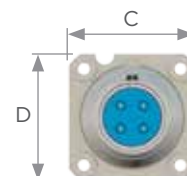
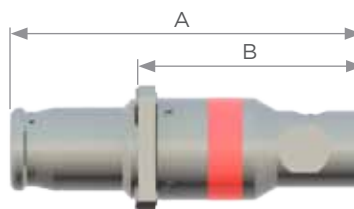





Number of Pins	A mm(In)	B mm(In)	C mm(In)	D mm(In)	Ordering Information
4 	<b>200.9</b> (7.91)	<b>130.0</b> (5.12)	<b>73.5</b> (2.89)	<b>73.5</b> (2.89)	HE-STA-P-XX-04-0-X-FL-X
7 					HE-STA-P-XX-07-0-X-FL-X
12 					HE-STA-P-XX-12-0-X-FL-X



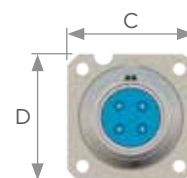
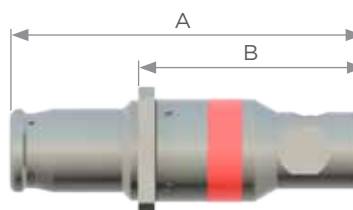
## Stab Plate - Sockets




Stab Plate Floating



Number of Sockets	A mm(In)	B mm(In)	C mm(In)	D mm(In)	Ordering Information
4 	<b>204.0</b> (8.03)	<b>120.0</b> (4.72)	<b>73.5</b> (2.89)	<b>73.5</b> (2.89)	HE-STA-P-XX-04-0-X-FL-X
7 					HE-STA-P-XX-07-0-X-FL-X
12 					HE-STA-P-XX-12-0-X-FL-X

Stab Plate Fixed



Number of Sockets	A mm(In)	B mm(In)	C mm(In)	D mm(In)	Ordering Information
4 	<b>204.0</b> (8.03)	<b>130.0</b> (5.12)	<b>73.5</b> (2.89)	<b>73.5</b> (2.89)	HE-STA-P-XX-04-0-X-FX-X
7 					HE-STA-P-XX-07-0-X-FX-X
12 					HE-STA-P-XX-12-0-X-FX-X



## HydraElectric Connector Accessories

A variety of accessories can be provided to work in conjunction with the HydraElectric connector range. These are available for all modes of operation, ROV, Manual and Stab + pin and socket gender.:

- Flying dummy connectors for subsea use, with/without looping of circuits
- Panel mounted parking connectors for subsea use, with/without looping of circuits
- Dust caps for topside use only, universal with regards to mode of operation and number of circuits
- Test connectors for topside use, with Raychem SPEC 44 AWG 16 wiring or Ethernet compatible wiring as standard
- Pin gender dummy connectors and parking places are offered as universal with number of circuits in black

The use of dummy connectors or parking places is recommended when connectors are exposed to seawater. Maximum exposure time in subsea environment without sunlight exposure and with temperatures below 10°C is 30 days.

### Pins

### Sockets

#### Dummy



#### Parking



#### Dust Caps





## Dummy / Parking / Dust Caps

Connector Type	Number of Pins/Sockets	Looping Options	Ordering Information Pins /Sockets *		
			ROV	Manual	Stab
Dummy	4	None	HE-ROV-P/S-DY-04-X-X-XX-X	HE-MAN-P/S-DY-04-X-X-XX-X	HE-STA-P/S-DY-04-X-X-XX-X
		1-3, 2-4	HE-ROV-P/S-DY-04-X-X-XX-0	HE-MAN-P/S-DY-04-X-X-XX-0	HE-STA-P/S-DY-04-X-X-XX-0
		1-2, 3-4	HE-ROV-P/S-DY-04-X-X-XX-1	HE-MAN-P/S-DY-04-X-X-XX-1	HE-STA-P/S-DY-04-X-X-XX-1
	7	None	HE-ROV-P/S-DY-07-X-X-XX-X	HE-MAN-P/S-DY-07-X-X-XX-X	HE-STA-P/S-DY-07-X-X-XX-X
		1-3, 2-4, 5-7	HE-ROV-P/S-DY-07-X-X-XX-0	HE-MAN-P/S-DY-07-X-X-XX-0	HE-STA-P/S-DY-07-X-X-XX-0
		1-2, 3-4, 5-6	HE-ROV-P/S-DY-07-X-X-XX-1	HE-MAN-P/S-DY-07-X-X-XX-1	HE-STA-P/S-DY-07-X-X-XX-1
	12	None	HE-ROV-P/S-DY-12-X-X-XX-X	HE-MAN-P/S-DY-12-X-X-XX-X	HE-STA-P/S-DY-12-X-X-XX-X
		1-3, 2-4, 5-7, 6-8, 9-11, 10-12	HE-ROV-P/S-DY-12-X-X-XX-0	HE-MAN-P/S-DY-12-X-X-XX-0	HE-STA-P/S-DY-12-X-X-XX-0
		1-2, 3-4, 5-6, 7-8, 9-10, 11-12	HE-ROV-P/S-DY-12-X-X-XX-1	HE-MAN-P/S-DY-12-X-X-XX-1	HE-STA-P/S-DY-12-X-X-XX-1
Parking	4	None	HE-ROV-P/S-PK-04-X-X-XX-X	HE-MAN-P/S-PK-04-X-X-XX-X	HE-STA-P/S-PK-04-X-X-XX-X
		1-3, 2-4	HE-ROV-P/S-PK-04-X-X-XX-0	HE-MAN-P/S-PK-04-X-X-XX-0	HE-STA-P/S-PK-04-X-X-XX-0
		1-2, 3-4	HE-ROV-P/S-PK-04-X-X-XX-1	HE-MAN-P/S-PK-04-X-X-XX-1	HE-STA-P/S-PK-04-X-X-XX-1
	7	None	HE-ROV-P/S-PK-07-X-X-XX-X	HE-MAN-P/S-PK-07-X-X-XX-X	HE-STA-P/S-PK-07-X-X-XX-X
		1-3, 2-4, 5-7	HE-ROV-P/S-PK-07-X-X-XX-0	HE-MAN-P/S-PK-07-X-X-XX-0	HE-STA-P/S-PK-07-X-X-XX-0
		1-2, 3-4, 5-6	HE-ROV-P/S-PK-07-X-X-XX-1	HE-MAN-P/S-PK-07-X-X-XX-1	HE-STA-P/S-PK-07-X-X-XX-1
	12	None	HE-ROV-P/S-PK-12-X-X-XX-X	HE-MAN-P/S-PK-12-X-X-XX-X	HE-STA-P/S-PK-12-X-X-XX-X
		1-3, 2-4, 5-7, 6-8, 9-11, 10-12	HE-ROV-P/S-PK-12-X-X-XX-0	HE-MAN-P/S-PK-12-X-X-XX-0	HE-STA-P/S-PK-12-X-X-XX-0
		1-2, 3-4, 5-6, 7-8, 9-10, 11-12	HE-ROV-P/S-PK-12-X-X-XX-1	HE-MAN-P/S-PK-12-X-X-XX-1	HE-STA-P/S-PK-12-X-X-XX-1
Dust Caps	Universal	N/A	HE-XXX-P/S-DC-XX-X-X-XX-X		

**NOTE:**

\* When ordering please use either P (Pins) or S (Sockets).



# Test Connectors

Standard (AWG 16)

Number of Pins/Sockets	Pigtail Length m (ft)	Ordering Information	
		Pins	Sockets
4	3 (9.84)	HE-TST-P-04-0-0	HE-TST-S-04-0-0
	5 (16.40)	HE-TST-P-04-1-0	HE-TST-S-04-1-0
	10 (32.81)	HE-TST-P-04-2-0	HE-TST-S-04-2-0
7	3 (9.84)	HE-TST-P-07-0-0	HE-TST-S-07-0-0
	5 (16.40)	HE-TST-P-07-1-0	HE-TST-S-07-1-0
	10 (32.81)	HE-TST-P-07-2-0	HE-TST-S-07-2-0
12	3 (9.84)	HE-TST-P-12-0-0	HE-TST-S-12-0-0
	5 (16.40)	HE-TST-P-12-1-0	HE-TST-S-12-1-0
	10 (32.81)	HE-TST-P-12-2-0	HE-TST-S-12-2-0

## Ethernet

Number of Pins/Sockets	Pigtail Length m (ft)	Ordering Information	
		Pins	Sockets
12	3 (9.84)	HE-TST-P-12-0-1	HE-TST-S-12-0-1
	5 (16.40)	HE-TST-P-12-1-1	HE-TST-S-12-1-1
	10 (32.81)	HE-TST-P-12-2-1	HE-TST-S-12-2-1

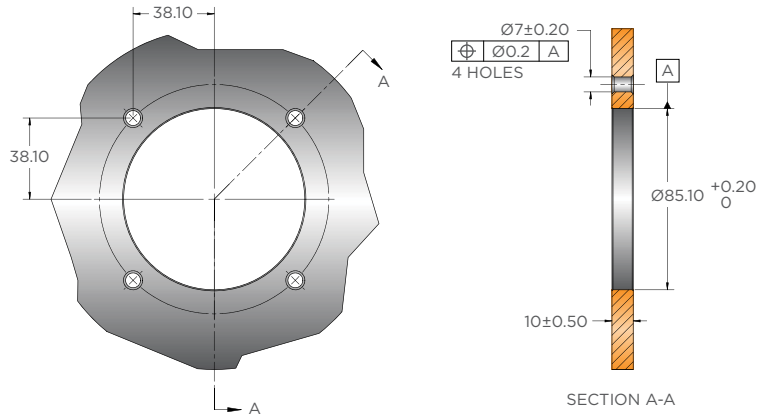
**NOTE:**

Ethernet connectors are wired according to Subsea Instrumentation Interface Standardisation (SIIS) level 3.

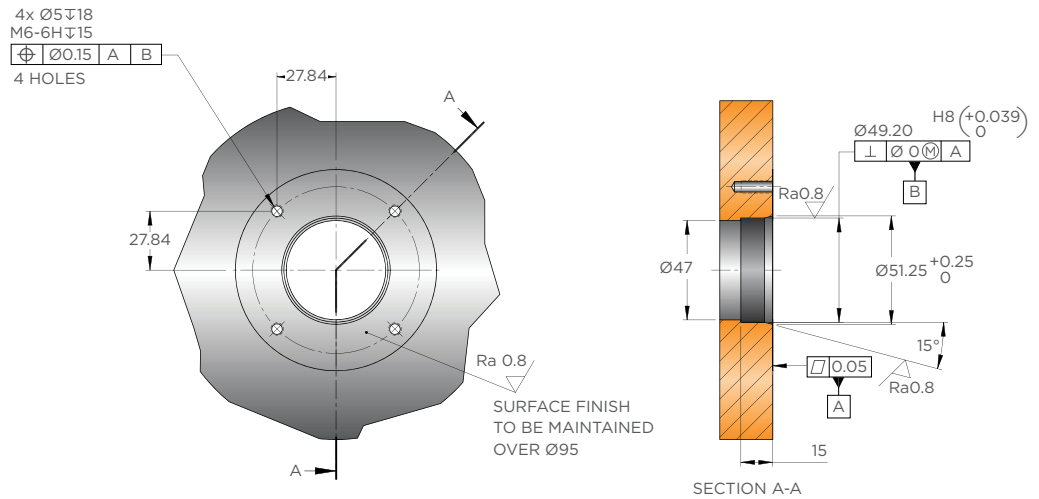


# Interface Drawings

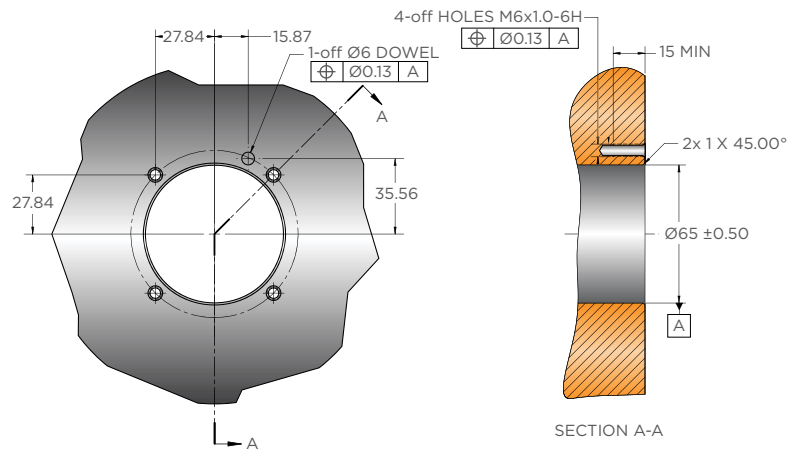
Panel  
Interface Drawing  
Reference No. 21400



Bulkhead  
Interface Drawing  
Reference No. 21440



Stab Plate  
Interface Drawing  
Reference No. 22699



Drawings for reference only.  
All dimensions in millimeters.  
Depending on application and mounting a slotted opening can be required. Please contact TE for details and official values.

## LET'S CONNECT

We make it easy to connect with our experts and are ready to provide all the support you need. Just call your local support number or visit [www.te.com/industrial](http://www.te.com/industrial) to chat with a Product Information Specialist.

## TECHNICAL SUPPORT

[te.com/support-center](http://te.com/support-center)

### SEACON US Inside Sales:

Phone: +1 979-865-8846

Email: [bellvillesales@te.com](mailto:bellvillesales@te.com)

Website: [www.seaconworldwide.com](http://www.seaconworldwide.com)

### SEACON Norway Inside Sales:

Phone: +47 35 01 98 11

Email: [post.ps.no@te.com](mailto:post.ps.no@te.com)

Website: [www.seaconworldwide.com](http://www.seaconworldwide.com)

North America	+1 800 522 6752	Australia	+61 2 9554 2695	India Toll-Free	+800 440 5100
EMEA/South Africa	+800 0440 5100	New Zealand	+86 400-820-6015	Other Countries	+31 73 624 6999
Asia Pacific	+86 400 820 6015	Japan	044 844 8052		

## ENGINEERED CABLE SOLUTIONS FOR HARSH ENVIRONMENTS



# [te.com/seacon-hydraelectric](http://te.com/seacon-hydraelectric)

TE Connectivity, TE Connectivity (logo), SEACON, SEACON (logo), DEUTSCH, Rochester Cable, Raychem and SPEC 44 are trademarks. All other logos, products and/or company names referred to herein might be trademarks of their respective owners.

The information given herein, including drawings, illustrations and schematics which are intended for illustration purposes only, is believed to be reliable. However, TE Connectivity makes no warranties as to its accuracy or completeness and disclaims any liability in connection with its use. TE Connectivity's obligations shall only be as set forth in TE Connectivity's Standard Terms and Conditions of Sale for this product and in no case will TE Connectivity be liable for any incidental, indirect or consequential damages arising out of the sale, resale, use or misuse of the product. Users of TE Connectivity products should make their own evaluation to determine the suitability of each such product for the specific application.

© 2017 TE Connectivity. All Rights Reserved.

1-1773918-9 04/17 Original