

PRODUCT DATASHEET

MICROSTAR

4-CHANNEL, WET-MATE, OPTICAL CONNECTOR

(CURRENTLY UNDER DEVELOPMENT)



MICROSTAR plug and receptacle

DESCRIPTION

The **MICROSTAR** is a slimline (<1.8" diameter) underwater mateable, high integrity, fiber optic connector. It is a 4 channel device that facilitates underwater connection of optical fibers. The principle of operation is exactly the same as the successful **HYDRASTAR** and **HYDRALIGHT** series of wetmate optical connectors but it is smaller in size and has a number of additional features.

KEY FEATURES

- Modular optical contacts up to 4 channels
- Field proven sealing mechanisms
- Oil filled and pressure balanced
- Optical coupling within "joined chamber"
- Slim-line less than 1.8" in diameter
- Seawater compatible internals
- Sealing mechanisms developed from field proven **HYDRASTAR** & **HYDRALIGHT** optical wet-mate products
- 2nd-Generation optical wet-mate connector
- Insertion loss of better than -0.5dB
- Back reflection of better than -30dB
- Design to +121°C (+250°F)
- Rated to 690 bar (10,000 psi)
- Interface drawing, bulkhead plug connector, drawing number 7849-101
- Interface drawing, bulkhead receptacle connector, drawing number 7850-101

CONFIGURATIONS

- Initially designed for "tubing hanger / master valve block" interface associated with a conventional subsea-tree
- Plug and Receptacle configurations:
 - Bulkhead mounted
 - Stab-plate interface
 - Straight terminations
- Modular contacts with up to 4 optical channels
- Oil-filled and pressure balanced
- Suitable for any type of optical fiber
- Terminations:
 - Standard compression fittings
 - Customer specific

SEACON Advanced Products, LLC.

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DESIGN RATINGS

- Design life: 25 years
- Maximum Life-Cycle: 25 mate/de-mate cycles
- Maintenance-free over design life (within number of mate/de-mate cycles)
- Insertion loss of better than -0.5dB
- Back reflection of better than -30dB
- To be qualified to 7,000m (23,000 feet)
- Operating Temperature: -5°C to +121°C (23°F to +250°F)

OPERATION

- Linear stab-plate interface
- Maximum mate/de-mate speed: TBA
- Typical mate force: TBA Kg
- Typical mate stroke length: TBA mm
- Maximum rotational misalignment: TBA°
- Maximum angular misalignment: TBA°
- Maximum radial misalignment: TBA mm

MATERIALS

- Seawater-wetted parts: Super Duplex Stainless Steel (NACE MR0175)
- Elastomeric seals, O-rings: A compound of Hydrogenated Nitrile (HNBR)
- Pressure compensation fluid: Synthetic oil

RECOMMENDED QUALIFICATION TESTING

- Optical Tests - Optical Attenuation, Optical Back-Reflection
- Mechanical Tests - Helium Leak, Mating Force, Mating Force (misalignment)
- Hyperbaric testing and pressure cycling
- Elevated temperature testing
- Host system interface testing
- Environmental Stress Screening - shock and vibration

PRINCIPLE OF OPERATION

The critical fiber-to-fiber joint is made without exposure to the external contamination of a harsh subsea environment. This is achieved as both ends of the optical termination are protected from seawater, sand and silt by being enclosed within separate oil-filled and pressure compensated chambers.

TRACK RECORD & RELIABILITY DATA

The **MICROSTAR** Optical Connector Systems are currently being developed and qualified for use.

QUALITY

- **SEACON** Advanced Products, LLC operate a Quality Management System certified to ISO 9001:2008.



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