AFL

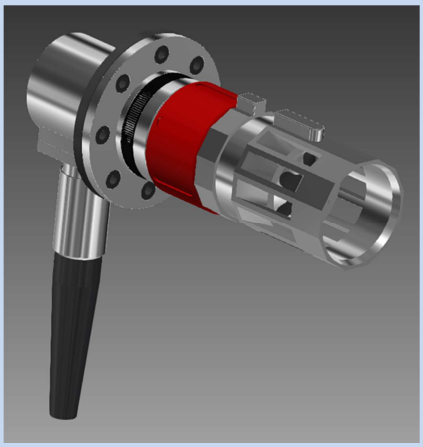
DEEPLINC

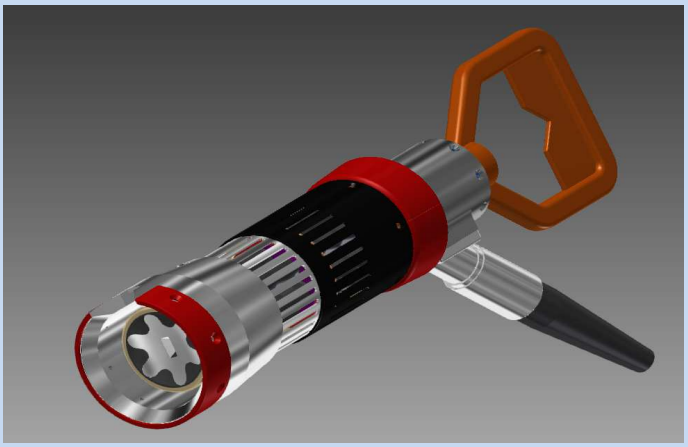
PRODUCT DATASHEET

DL5500 COMPOSITE CONNECTION SYSTEM

with

72-CHANNEL, WET-MATE, ROV OPERABLE, ELECTRO-OPTICAL CONNECTOR





PRODUCT FEATURES

- 4th Generation optical wet mate connector
- UPC and APC contacts with 144 fibers configurable up to a maximum of 72 Channels.
- Designed for Direct Cable Termination with Integral Fiber Management
- ROV Operable Interface
- Fully Isolated Contact Chamber Design (Contact Chambers remain individually isolated before during and after engagement).
- 4-Chamber Design providing 2 levels of isolation both radially and axially before and after engagement.
- 6 Insert Bays with interchangeable Electrical and Optical inserts providing multiple product configurations within the same connector package.

DESIGN RATINGS

- Depth Rating: 7,000m (23,000 ft.)
- Design Life: 25 Years
- Operating Temperature: -5°C to +45°C (23°F to 113°F)
- Storage Temperature: -25°C to +60°C (-13°F to 140°F)
- Maximum optical insertion loss of 0.5dB per channel
- Maximum optical back reflection of -45dB per channel

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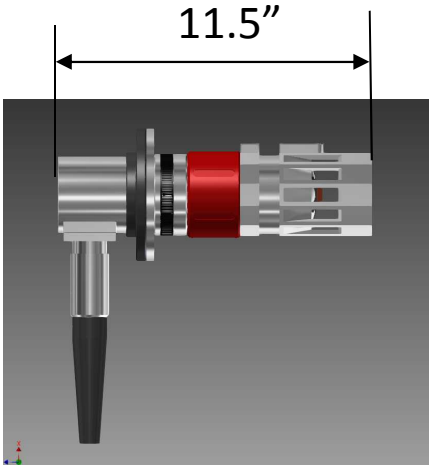
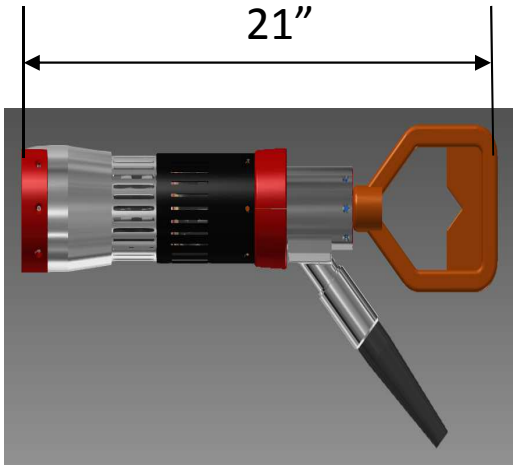
GENERAL ARRANGEMENTS





As man has moved deeper and further offshore to explore the ocean, traditional copper wire does not handle the greater distances with enough bandwidth. It has become imperative to employ fiber optic products to allow the use of the newest technologies that generate considerable amounts of data. Deeplinc and AFL have joined together to combine their respective expertise in order to bring forth the newest fiber optic technologies in undersea connection systems for a variety of distributed system applications.

Combining AFL’s extensive terrestrial telecommunication products with Deeplinc’s patented undersea connector technology, offers customers an undersea connection system solution unprecedented to date. It offers a means by which to reliably and repeatedly mate and de-mate multi-channels of optical or electrical contacts subsea. Optical contact contamination is significantly reduced by using a connector with two cleaning chambers. Long term survivability and structural concerns are eliminated by using cable.

The connection system solution is designed for manufacture. It will allow high volume production because all critical components are manufactured by AFL for complete vertical integration. Using a dual chamber wet-mate connector extends operating life and increases the engagement cycle life of the connector from dozens to hundreds of engagement cycles. Such a multi-fold extension of the connector’s operating life will represent exceptional savings to customers in any undersea application.

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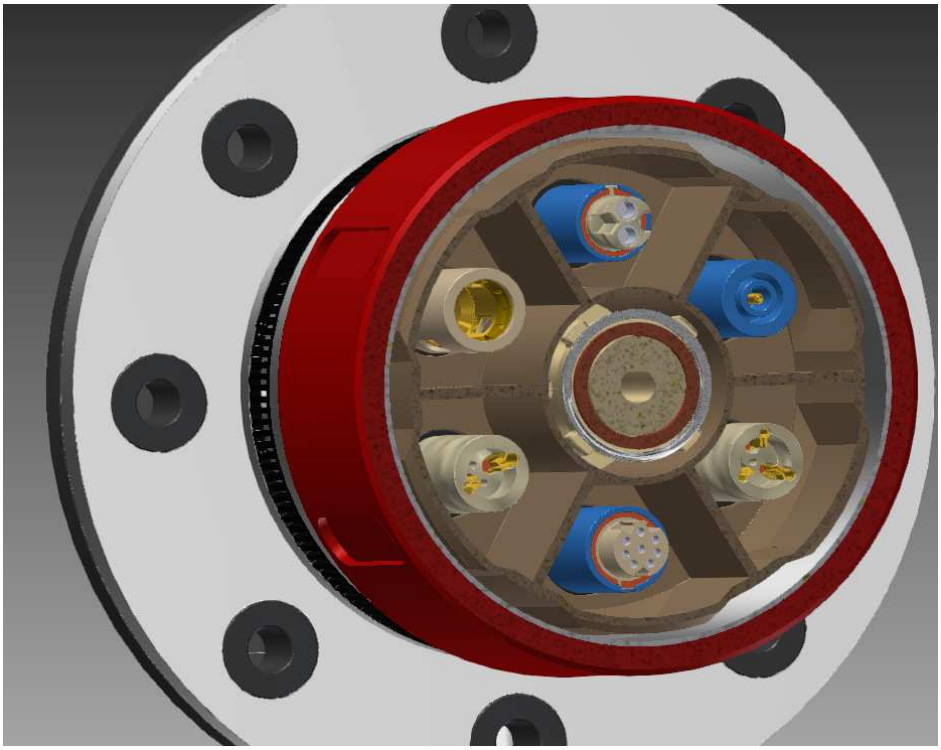
CONTACT TYPES



Cross-section showing 6 insert bays with interchangeable optic and electric insert configurations

Insert Type	Contacts (Per Insert)	Contact Type	Total Contact Availability (Per Type)	Connector Capacity
Electrical	3	20 Gage	18	600V
Electrical	2	14 Gage	12	1000V
Electrical*	1	8 Gage	6	3000V
Electrical*	1	14 Gage	6	10 kV DC
Optical	2	2.50mm (UPC or APC)	12 Fibers	6 Channel
Optical	8	1.25mm (UPC or APC)	48 Fibers	24 Channel
Optical	1	2X24 (MT Ferrule)	144 Fibers	72 Channel

* Multiple Insert Types based from 30 Amp / 3000V to 5 Amp / 10 kVDC

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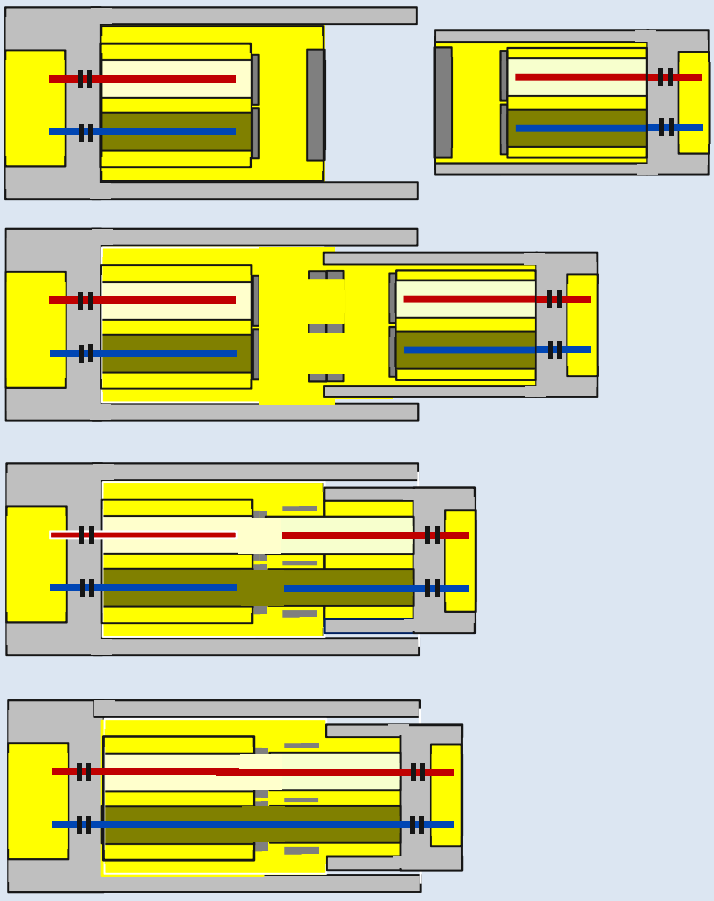
PRINCIPLE OF OPERATION

The DL5500 Composite connector system assures that critical fiber-to-fiber and electrical-to-electrical contacts are brought together without exposure to external contamination in harsh subsea environments. The connections are made with both ends of the contact being protected from seawater, sand and silt. This 4th generation connector has an emphasis on redundancies and uses two oil filled chambers in each connector so that mechanical engagement is separated from contact engagement. Using a separate engagement chamber from the contact chamber assures isolation of optical and electrical contact chambers before, during and after engagement. Each optical and electrical contact has a fully separated oil supply so there are no exposed or non-insulated contacts.



Connector alignment:
Receptacle – Left
Plug - Right

Mechanical Oil Chambers engage. External Fluids and Contaminants Purged.

Secondary Contact Oil Chambers engage. Contacts individually sealed.

Connector Fully Mated. Contacts protected by two patented oil filled chambers.

- Optical Contact
- Electrical Contact
- Optical Contact Chamber
- Electrical Contact Chamber
- Mechanical Engagement Chamber Oil

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