

MacArtney Develops New Pressure Testing Facilities



MacArtney is soon to supply and test several underwater connectors for INFN - the National Institute for Nuclear Physics. INFN for the IDMAR Research Infrastructure in Sicily supports, among others, the KM3NeT (Cubic Kilometre Neutrino Telescope) infrastructure in the Mediterranean Sea. MacArtney Underwater Technology will be working with INFN for the duration of a system solution project to provide junction box mechanical frames and pressure vessels designed to host OPAs (Optical and Power Assemblies) for the connection of neutrino detection units from the seabed.

Connected from the shore station by approximately 100 kilometres of high-speed electro-optical cable, the MacArtney supplied junction boxes provide a complete connectivity unit for power and data transmission. Submerged on the seabed at a depth of 3,500 metres,

the working depth of the pressure vessel and OPA requires fully connected pressure testing at 350 bar.

Hydrostatic Pressure Testing

Real-life pressure testing has been available in a dedicated facility at MacArtney headquarters in Denmark since the 90s. The hydrostatic pressure testing can currently simulate operating conditions at up to 8,000 metres of ocean depth. The realistic subsea operating conditions generate accurate results, and the entire process can be computer-controlled, enabling electrical and optical measurements to be carried out in real-time.

The ongoing scope of supply for INFN includes:

- Junction box mechanical frames 1.1
- Junction box mechanical frames 2.0
- Pressure vessels (hosting OPA)
- Pressure vessel spare, for qualification
- Teledyne ODI Connectors

In the near future, MacArtney will be expanding their hydrostatic pressure testing capability to 14,000 metres of ocean depth, offering customers new opportunities to test underwater technology to working depths and beyond. Testing to additional safety margins of up to 1.5% has become increasingly important as customers strive to understand the practical limitations of their technology.

MacArtney's development of new pressure testing facilities will single them out as one of the few companies in the world that can test at depths deeper than the Mariana Trench. Currently, hydrostatic pressure testing facilities are available at MacArtney operations around the globe, including the UK, Norway, France, Holland, Germany and the US. Facilities are available for hire, complete with the assistance of certified MacArtney technicians.

Caption: Hydrostatic pressure test facilities at MacArtney France

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