



UNIVERSAL JOINT

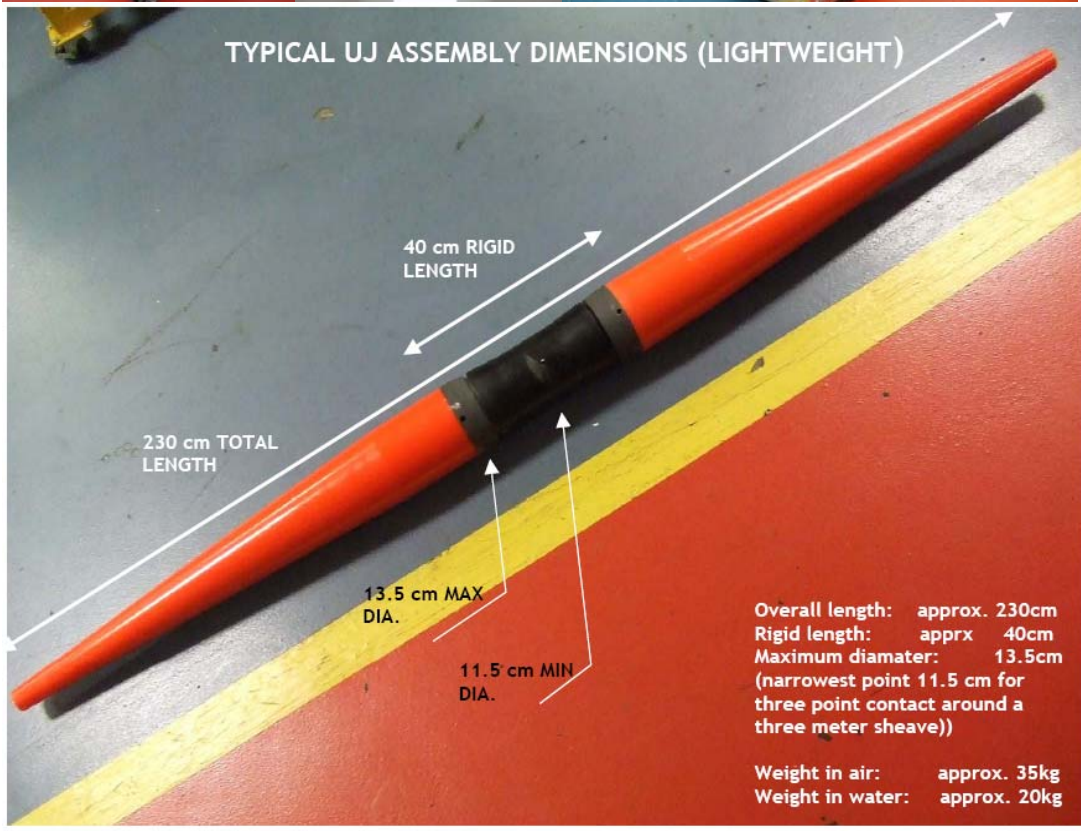
The benefit of universal jointing system for fibre optic cable was recognised more than a decade ago. At the time the global submarine cable industry was working with a wide variety of cable types, each one particular to its respective manufacturer, and often incompatible with those of other manufacturers.

This document is intended as a brief introduction to the Universal Joint (UJ) technology

UJ/UC

Before the introduction of the UJ, system owners had to purchase and maintain several types of equipment and parts for cable maintenance and also ensure that maintenance providers were trained to use the different jointing technologies. As submarine cables are highly reliable, most of this jointing equipment was underutilised and costs of inventory and stock management of piece-parts was not insignificant.

The problem was solved by the UJ Consortium who created a complete set of universal tools which provide a method of connecting all types of submarine optical telecommunication cables, regardless of manufacturer, using common equipment and standard piece-parts in the joint as far as is practicable.



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UNIVERSAL JOINT

Benefits of a Universal Jointing Solution

SYSTEM OWNER

- Low cost capital expenditure in jointing tools , piece-parts and services - Having only one technology to procure eliminates the added cost of acquiring all proprietary technologies relating to the cables in the system
- Lowest cost operating expense – Common standard for training and re-qualification means time spent on training is minimised
- Lowest cost for cable sparing - True interconnectivity means that multi-supplier systems, competitive purchase of spare cable and spare cable sharing are possible
- Wider choice of cable suppliers. The option to procure spare cable from any of the qualified range of cable provides enhanced system security should the original supplier fail
- Wider choice of service providers: The option to purchase jointing piece-parts, training and maintenance services from several vendors
- Best reliability UJ is an established and proven technology based on sharing industry expertise which has offered outstanding performance for over two decades

MAINTENANCE PROVIDER

- Lowest cost of capex/opex with only one technology to support the added cost of acquiring all proprietary technologies relating to the cable in the system is eliminated, greatly reducing the amount of shipboard equipment and operator training required
- The Ability to operate on most cable systems maximises ship flexibility

KEY TECHNICAL FEATURES

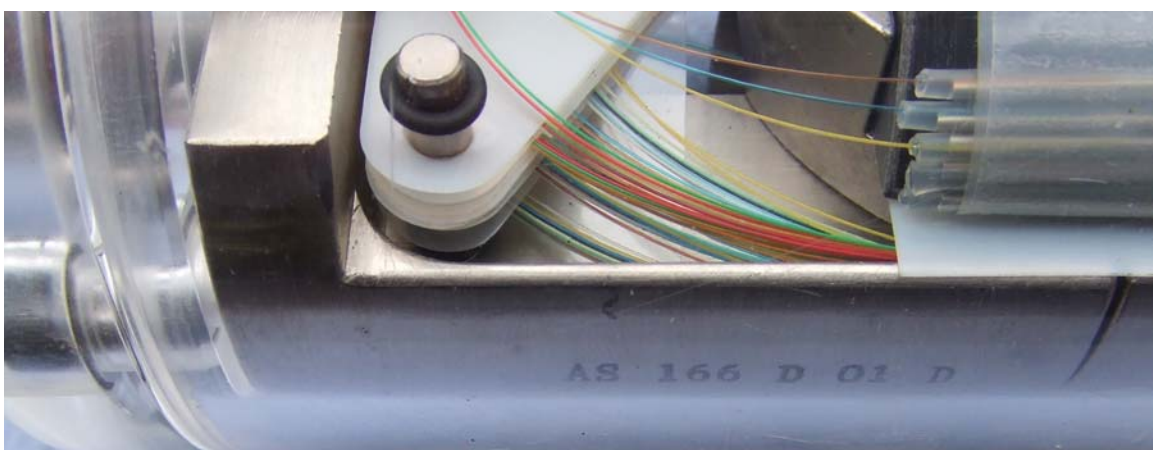
- 25 year storage, 25 year service life
- 8000m deployment depth (Tested to 10000m)
- 15kv line capacity for 25 years
- >600kN tensile capacity (Armoured cable)
- 145mm outside diameter
- Minimum bend radius 1.5m
- Hydrogen managed
- 96 fibre capacity
- 10 hour jointing time (Lightweight cable with 12 fibres)
- Ability to prepare cable ends prior to main repair operation

PROVEN TRACK RECORD

- Baseline technology in service for over 15 years
- Deployed in cable systems worldwide
- Majority of maintenance vessels are equipped to use UJ
- Over 30 cable types are qualified for UJ
- Over 1000 interconnections qualified

TO THE INDUSTRY AS A WHOLE

- Optimised cost of system maintenance
- Common philosophy and standards
- Consistent quality and reliability
- Reliability technology back by proven track record



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