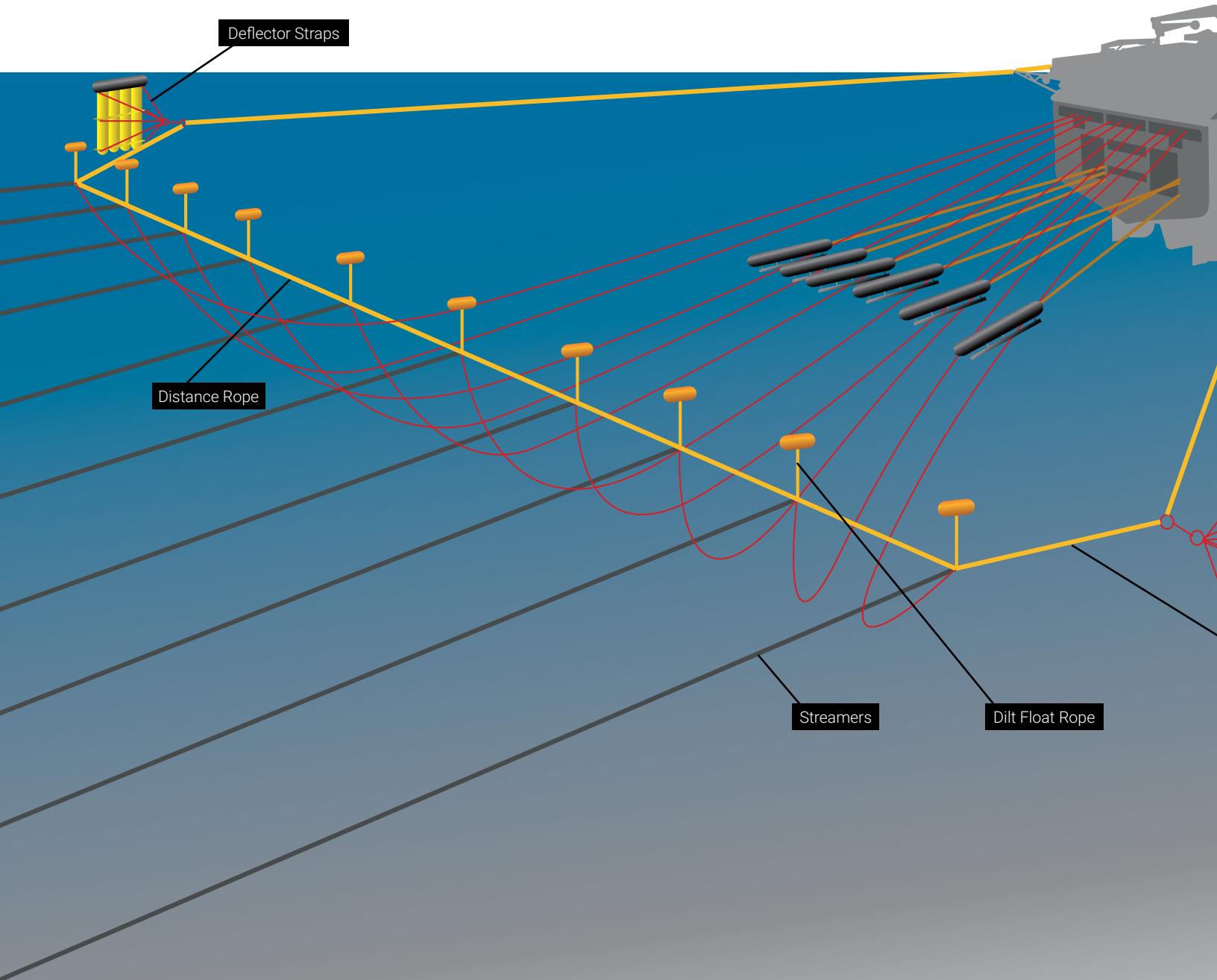


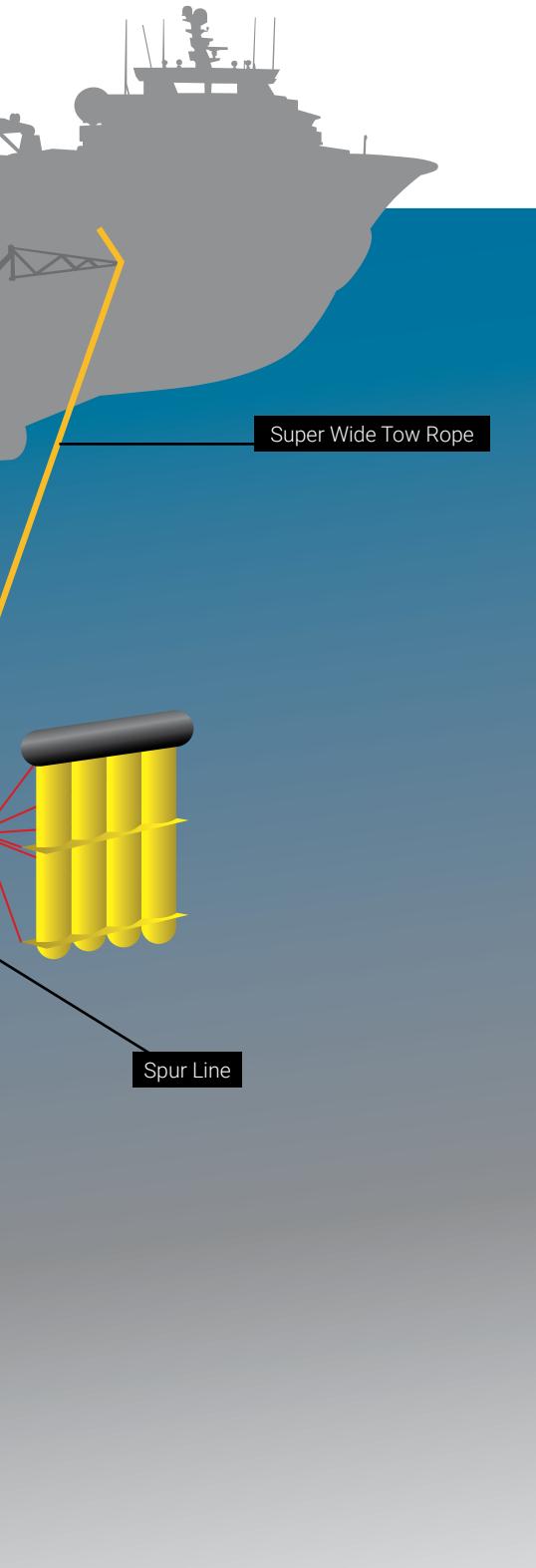
SEISMIC TOW CABLES, STRAPS AND ROPES



 **CORTLAND**
INTERNATIONAL™

Enhancing the Discovery



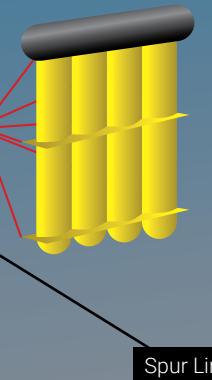


Continuous development in seismic data acquisition calls for innovation in monitoring cables, tow cables, straps and ropes

Traditional marine seismic recording spreads are rapidly increasing in size and data density. The emergence of new technologies like Life of Field, EM and Nodal have all pushed the demands on cables and ropes and their materials to keep pace.

Cortland is constantly evolving products to meet the demands of these new technologies to ensure maximum operational efficiency and safety. Our experienced team of engineers have the knowledge and expertise to design and manufacture fiber ropes for these high fatigue offshore applications.

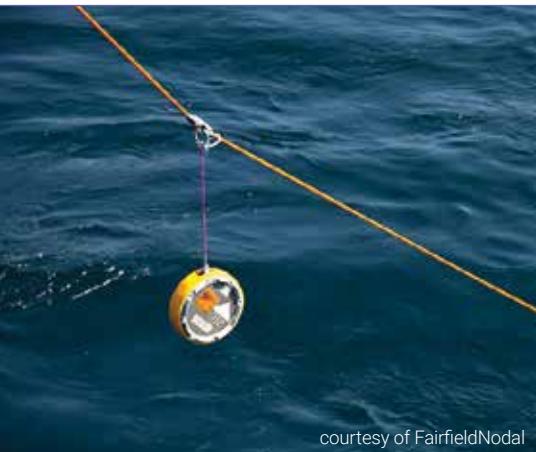
As a key supplier to the seismic industry since the early 1990's, Cortland has developed a unique and extensive portfolio of industry specific products including:



- Array ropes
- Bridle straps
- Cable grips
- OBN deployment and recovery ropes
- Streamer strength members
- Synthetic tow cables

Extruded Cables and Cable Grips

Cortland has been involved in key technology breakthroughs which enable the deployment of today's arrays



Nodal Technology Recent developments in ocean bottom data collection techniques have led to self-contained cable-less seismic monitoring "Node" stations that are deployed onto the ocean floor and then recovered to download collected data. Working with our partners, Cortland has developed a terminated deployment rope with the correct balance of: weight for fast deployment, tensile strength for heavy loads, precise length for correct nodal spacing, and quick connect/disconnect terminations for fast deployment and recovery. Hundreds of kilometers of our terminated Nodal Ropes are currently being used worldwide.

Custom Extruded Fiber Solutions Cortland is one of the few manufacturers globally that can design and manufacture high performance synthetic fiber with extruded thermoplastic jackets which protect the fiber inside. Chosen jacket material can be thin, flexible and low-weight; or thick and rigid depending on the application / need. Extruded jackets allow the load-bearing high performance fiber to be sealed off from the environment, reducing environmental degradation. The insulation properties of extruded jackets also eliminate the problems associated with steel cable, such as electromagnetic interference (EMI), radio frequency interference (RFI), signal suppression, directional irregularities and white-noise arcing.

Front End Ropes Whether it's separation ropes, spur lines, dilt float ropes, deflector lifting ropes or 3-eye splices, Cortland ropes are ready for deployment upon delivery. Braided or foiled fairings are also available and we can even create specialty ropes that achieve a combination of stretch and low elongation.

Deflector Straps As deflector doors get larger, accurate positioning and durability become more critical for deflector straps. Cortland straps can be specifically designed to the load and position needs of the deflector itself. Our well-proven blend of Aramid and UHMWPE fibers are created to last 12 months in sea before verification, and have a high resistance to creep, abrasion and temperature. For increased safety, options like backup ropes and cut resistant synthetic layers are also available.

Dilt Float Depth Ropes As the selection of streamer depths increases, it requires accurate and reliable depth tow ropes for the front end. By using dilt float straps from the Cortland International family of products, the handling is very light, reliable, and efficient.



Straps and Ropes

The technological use of blended synthetic fibers produces tow ropes and straps with optimal characteristics for seismic exploration



Super Wide Tow Rope Probably the most critical rope within the seismic array, super wide tow ropes need to cope with high levels of tension-tension and cyclic bend fatigue.

Two major elements to consider when choosing a super wide tow rope:

Rope Construction This has to be a balance between efficient fiber use, flexibility, spliceability and total structural rope integrity. These factors are especially critical as ropes get larger to cope with the new types of paravanes coming onto the market. Cortland's 12x12 rope construction offers an excellent balance of these factors.

Cortland offers a variety of rope constructions and designs, either with or without jacketed and faired sections, created to suit specific configurations.

Rope Material Cortland engineers its products with both high performance and standard fibers to offer customers the proper solutions. High performance fibers are generally limited to three major types, UHMWPE, liquid crystal polymer (LCP) and Aramids. UHMWPE has excellent fatigue and robustness properties; however it suffers from low heat tolerance. LCP provides good fatigue properties with excellent creep resistance. Aramids have excellent heat and creep resistance properties but do not perform as well in abrasion resistance, tension-tension and bend fatigue.

Cortland has utilized the advantages of both UHMWPE and LCP to develop BOB® (Braid Optimized for Bending) rope. This rope leads the way in deep water lifting applications where serious fatigue is induced by AHC (active heave compensation) units.

Cable Grips Used to grip many types of cables, from large hydraulic umbilicals to small fiber optic cables, Cable Grips are designed to minimize any external damage with non-metallic content. They can be used as a “quick fit” temporary attachment, or as a permanent attachment, and can be retrofitted without the need to gain access to the end of the cable.



What can we do for you?

Whatever your particular challenge, Cortland welcomes the opportunity to solve it. We have the unique experience to help today's seismic operators save time, increase safety and gain far better efficiencies. Our service doesn't end with product delivery. We also provide on-site support / field support and training for everyone involved with operating and maintaining the solution we provide.

Please email contact@cortlandinternational.com for an initial discussion, or visit us online at cortlandinternational.com.

Anacortes, WA – USA

Vadodara-Gujarat – India

Masat-Silvassa Unit – India

Houston, TX – USA

Indore-M.P Unit – India

Mumbai – India

contact@cortlandinternational.com



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