



umbilicals
international

dynamic cable & umbilical solutions

Company Overview

A Champlain Cable Company

**CHAMPLAIN**
CABLE

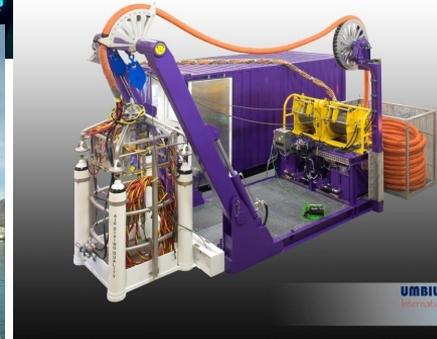
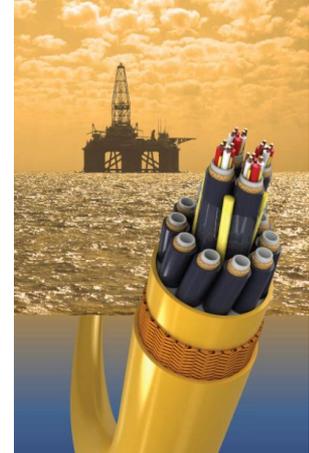
Overview

About UMBILICALS INTERNATIONAL (UI)

- Designs, manufactures and repairs specialty cable, connectors, umbilicals, power systems, and turnkey packages for the Oil and Gas, Energy-Wind/Tidal, Defense and other industries (Marine dominated)
- Manufacturing facility on 11 acres with 100,000 FT2 workshop in Stafford Texas and ~ 31,000 FT2 quayside manufacturing facility with yard in Channelview Texas. Excellent water/Ocean/Barge access.
- **CORPORATE HISTORY**
 - Most recently acquired as Stand-Alone subsidiary by Champlain Cable Company (March 2021)
 - Adds significantly to breathe and capability of both companies.
 - Champlain Cable is a well established large volume smaller diameter cabling company (Private)
 - Previous Corporate History:
 - Acquired March 2015 by Seanamic Group which is based in Aberdeen Scotland; Manufacturing in Houston (2015).
 - Originally formed as HL Technologies; manufacturing arm of Harvey Lynch Inc. (1996)

Umbilicals International - Overview

- Harsh Environment applications – marine dominated
- Complex Power cable solutions
- Complex Tubing and Umbilical applications
- Complex Cable and multi-purpose hose/cable/Umbilicals
- Complex Telemetry systems
- Optical Fiber solutions
- Complex termination systems
- Broad span of Industries
 - Commercial Diving
 - Oil and Gas Exploration, Servicing, Production
 - Energy Transition projects – Wind/Tidal power
 - Marine Industries
 - Mining Industries
 - Geophysical applications
 - Terrestrial Infra-structure projects
 - Telecommunications – FO (Fiber Optics)
 - Defense systems

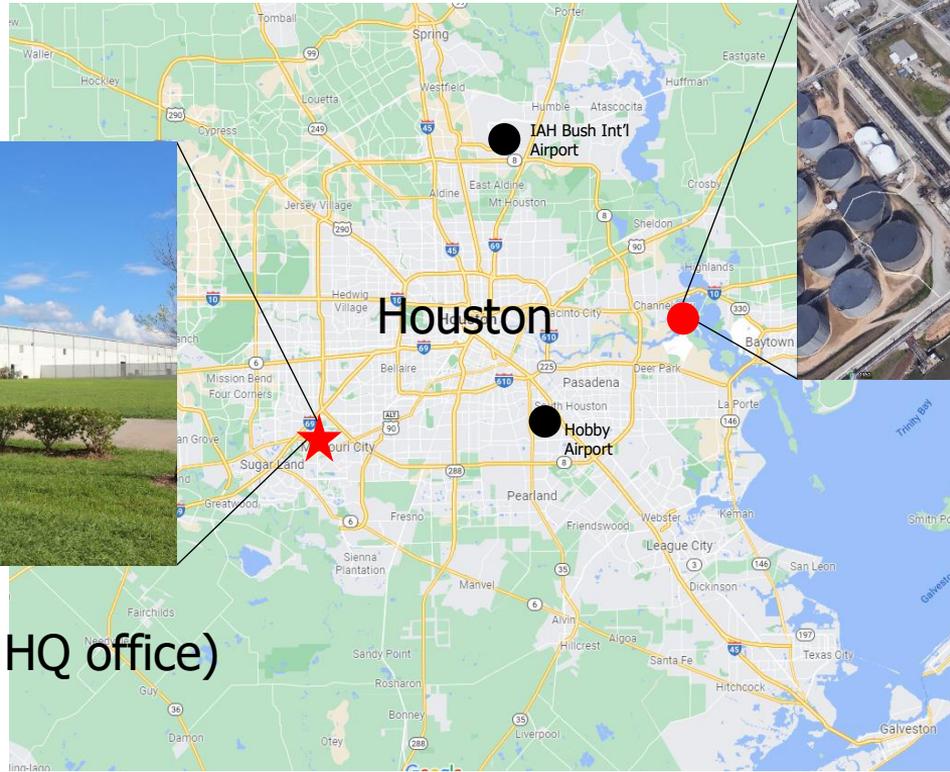


Two Locations – Houston, TX

Channelview



Stafford
(Manufacturing and HQ office)



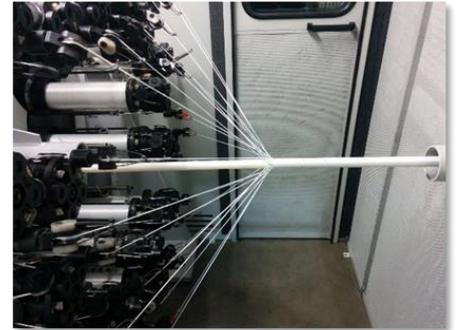
Google Earth

Manufacturing Sites

Umbilicals International

General Manufacturing Capabilities (Houston)

- Jacketing extrusion (large and small diameter capabilities)
- Primary extrusion production lines
- Dedicated H.P. thermoplastic hose production area (tubing and braiding)
- Steel Armoring production lines
- Injection molding
- Multiple cabling production lines
- Multiple braider production lines



Manufacturing Facility – Stafford Texas

100,000 sq ft.



Manufacturing Facility – ChannelView Texas

- 12 lines/pass ST assembler
- 200mm OD extruder
- 8.6m+ reels take-up (400 tonne)
- Carrousel take-up readiness
- Quayside location – water access to Houston port
- Ideal for Wind Power Cable



Quayside
& Yard

umbilicals
international
dynamic cable & umbilical solutions

Manufacturing Capabilities

Extrusion

EXTRUSION LINES

- Primary insulation from 28 awg up to 00 +
- Cable jacketing up to 6 inch diameter

HIGH PERFORMANCE thermoplastic polymers

- Polypropylene
- HD, MD and LDPE
- TPU, Nylon, TPE, TPR
- Others materials available
- Parent company holds additional materials technology and capabilities such as irradiation capabilities for alternative X-linking



Cabling

CABLING CAPACITY:

- 8 Twisters
- 3 planetary



Additional Cabling

- 24 Position Cable Line
- 54 Position Cable/Armor Line

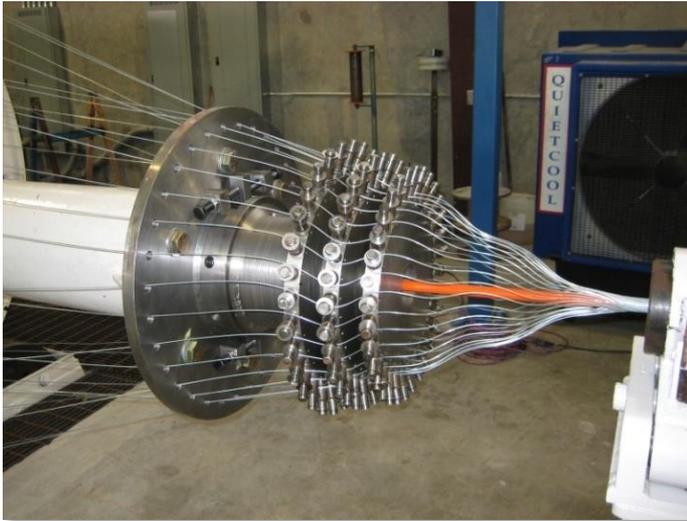


- Vertical Cabler



Armoring

- Up to 74 high tensile wires in a single layer
- Preformed to ensure ultimate performance



- Capable of two armor layers in a single pass

Termination and Molding

- Umbilicals International does our own terminations and moldings in-house as well as for other suppliers/contractors.
- Climate controlled workshop
- Eight injection molding machines
- Terminations:
 - ✓ ELECTRICAL
 - ✓ MECHANICAL
 - ✓ ELECTRO-MECHANICAL
 - ✓ FIBEROPTIC
 - ✓ PNEUMATIC



On Site Services

- Trans-spooling
- Connector repair/ installation
- Connector/umbilical inspection
- Pressure testing
- Cold molding
- Troubleshooting
- Specialty 3rd party testing and assurance on specific products for class certification
- 24hr site support



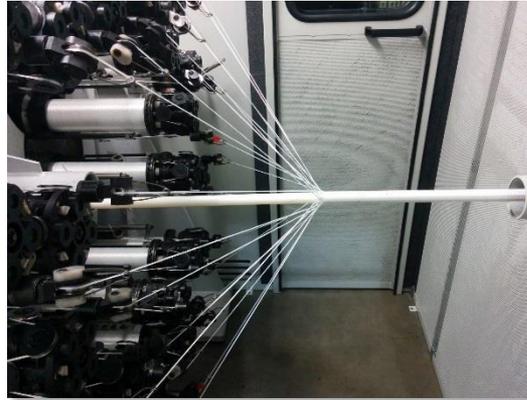
Manufacturing Capacity

- Capable of handling reels having a diameter of 200"
- Capable of handling weight in excess of 30 tons
- Capable of armoring in excess of 3" (78mm)
- Capable of handling a minimum armor package of .5"
- Max product length depends on component sizes



Additional Features

- Cable and umbilical termination facilities
- Max weight capacity circa 30 ton
- Max weight capacity limited to carousel availability (ca. 3500Te)
- Vertically integrated component manufacture

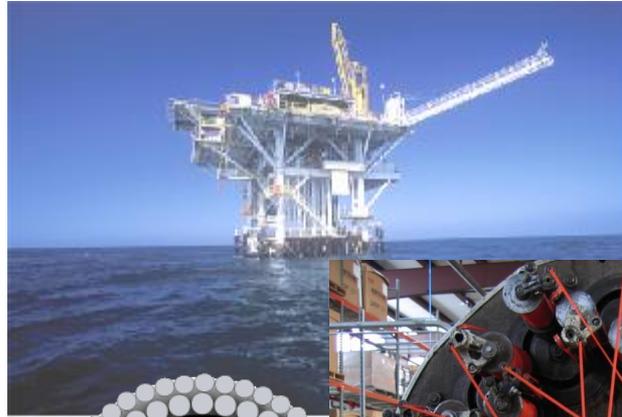


Selected Product Applications

Typical Applications

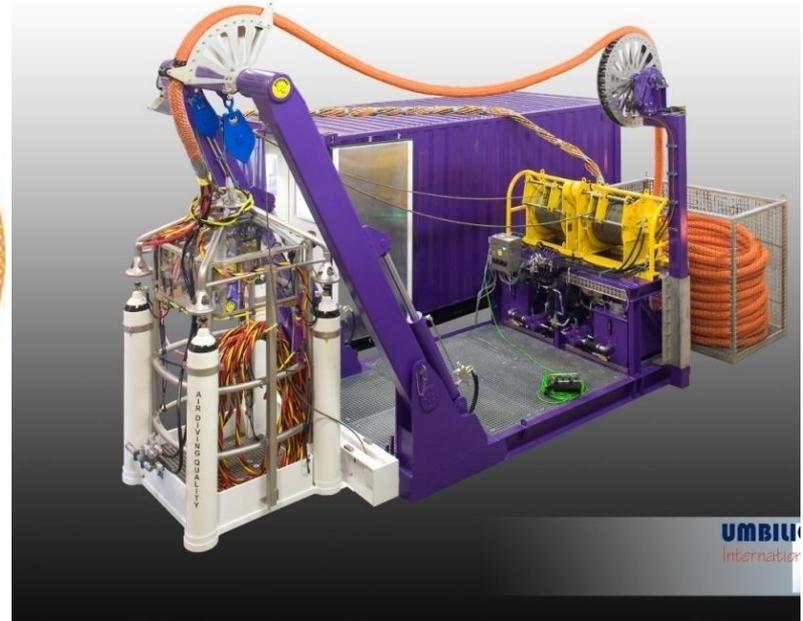
Dynamic cables, hoses and umbilicals for:

- Surface and Saturation Diving
- Subsea Production Installations
- Subsea Electro-Hydraulic Control
- MUX BOP Control
- Riser Monitoring Systems
- Remote Vehicles (ROVs)
- Towed Seismic and Oceanographic
- Submarine and ASW defense
- Marine Mining umbilical systems
- Submarine Power Systems/Cables



Commercial Diving - Main Bell Umbilicals

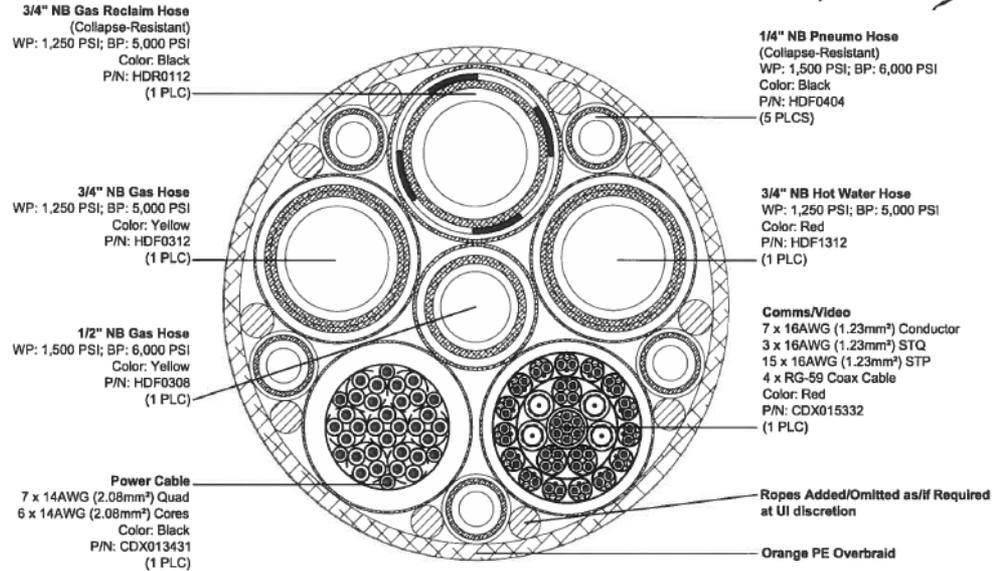
- Typical 450m length – build to suit
- All hoses DNV type approved
- Umbilical's Type approved to DNV-0S-E402-2004
- Volatile Organic Compound (VOC) Testing



Commercial Diving - Main Bell Umbilicals

Common Service and Utility:

- Breathing air hoses
- Power, Comms and Video
- Hot water hose
- Reclaim hose
- Overall braid

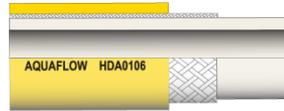


Finished Diameter: 94.0 ± 2.0 mm (3.70 ± 0.08")

Commercial Diving Umbilicals

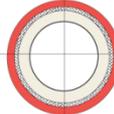
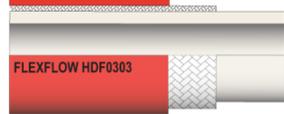
- AQUAFLOW** - Surface Supply

Lightweight
Low Pressure
Economic cost



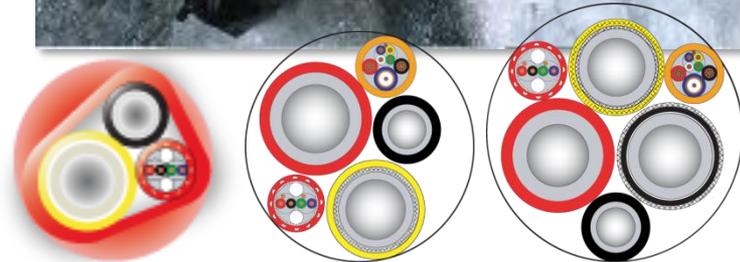
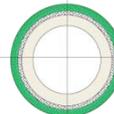
- FLEXFLOW** – Surface Supply

Higher Pressure
More rugged



- TEXFLOW** – Saturation

Exceptional kink resistance
Reduced bending effort



E-H Umbilicals

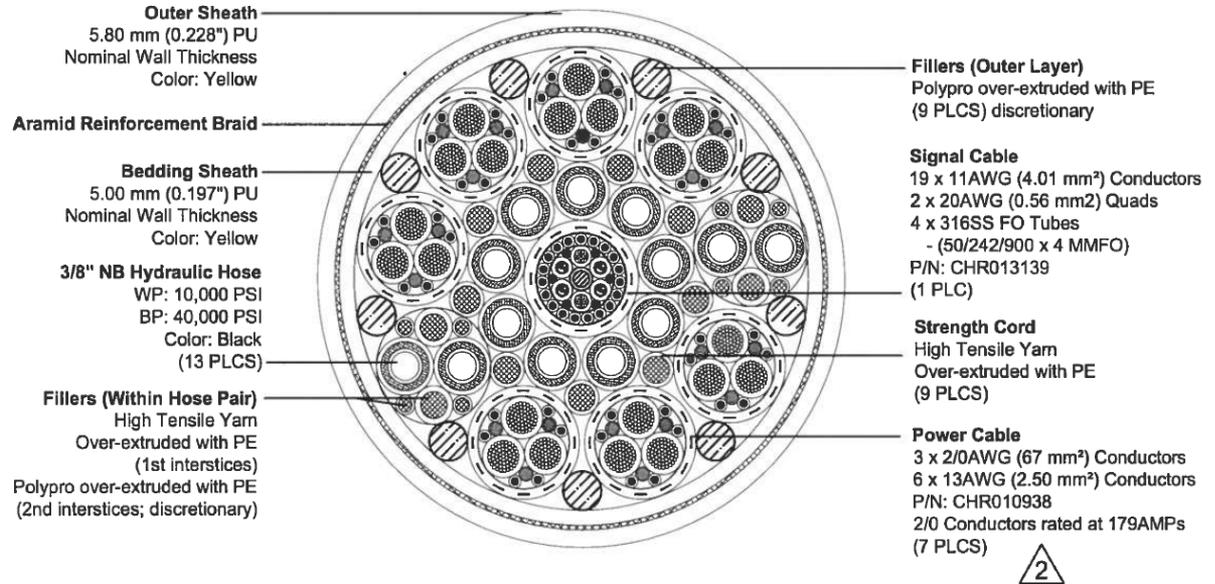
- Carry out activities for controlling diverse control features in complex sub-sea applications .. Typically in deep oil and gas or energy operations.
- IWOCS
- BOP
- SSIV/ESV
- Subsea Tools
- Jacket/template submergence
- In field jumpers
- SBM Catenary
- Connectors
- On-site/field service



E-H Umbilical Design(s)

Electro-Hydraulic

- Hydraulic lines
- Power and Data
- Working Load 100kN
- Break Load 800kN
- Carry out activities for controlling diverse control features in complex sub-sea applications ..
Typically in deep oil and gas or energy operations.

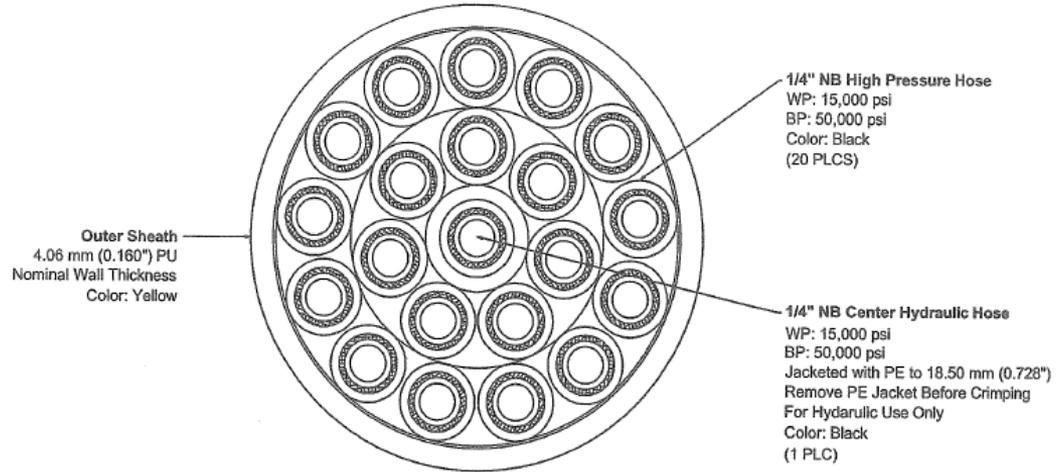


Finished Diameter: 177.68 ± 3.55 mm (6.995 ± 0.140")

E-H Umbilical Design(s)

Hydraulic hose only Options:

- 21 lines WP 15kpsi
- 10kft in Stafford
- 20kft in Channelview



Finished Diameter: 81.0 ± 1.6 mm (3.19 ± 0.07")

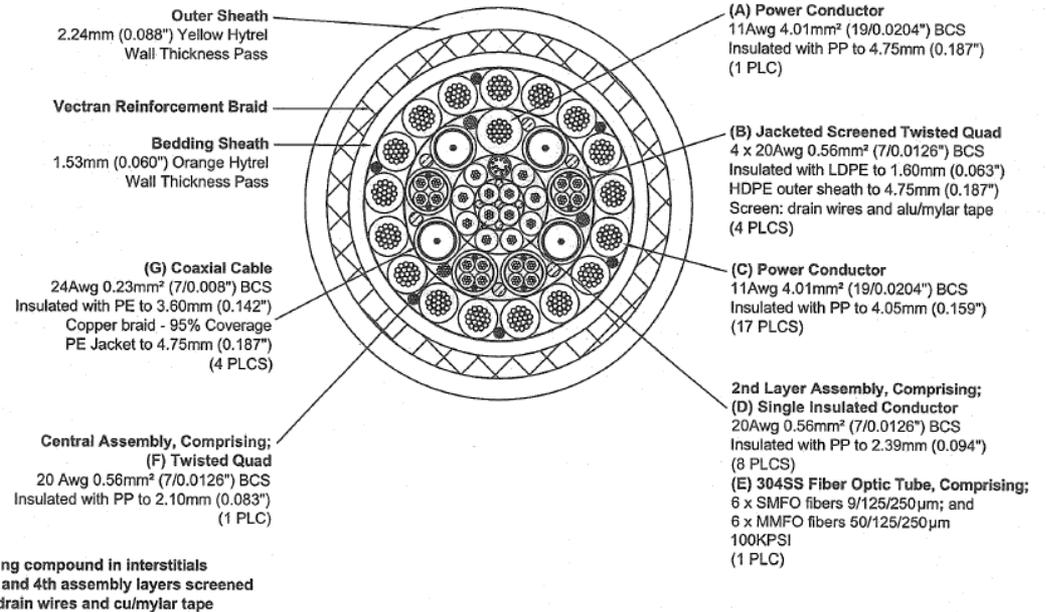
ROV Tethers & Umbilicals

- Armored Main Lift Cables
- Live Boating Cables
- Controlled Buoyancy Tethers
- Termination and connector design/termination



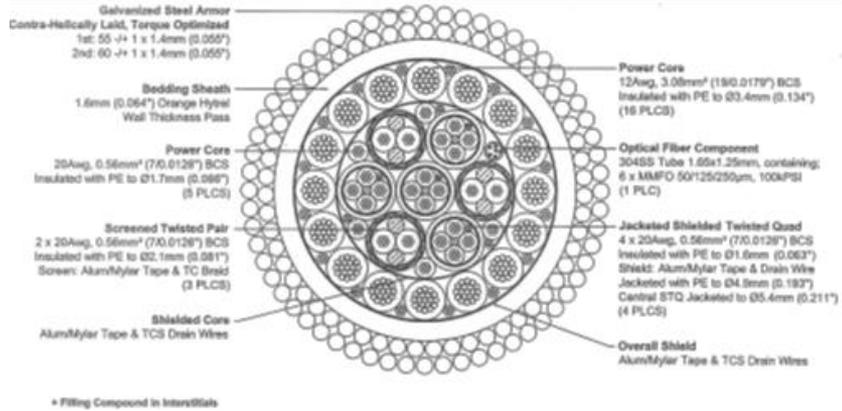
ROV Tethers & Umbilicals

- Power
- Signal
- Fiber Optic
- Coaxial
- Break Load 180kN
- Dynamic Bend Radius 800mm

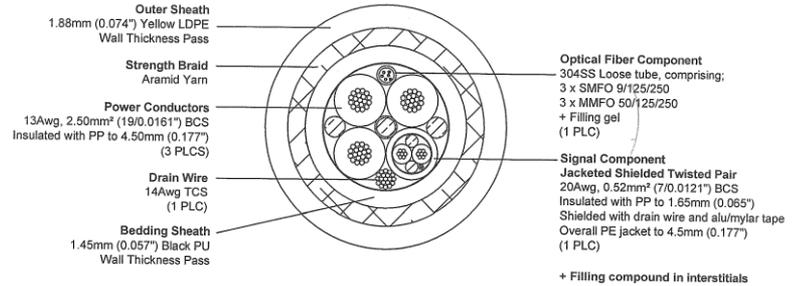


Finished Diameter: 40.0 mm +/- 0.80 mm (1.575" +/- 0.035")

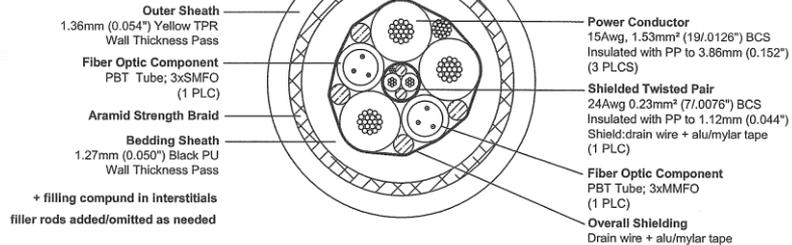
ROV Tethers & Umbilicals



Finished Diameter: 31.1 mm ± 0.6 mm (1.225" ± 0.025")



Finished Diameter: 21.0 mm ± 0.42 mm (0.827" ± 0.016")



Finished Diameter: 17.0 mm ± 0.3 mm (0.670" ± 0.01")

Seismic Umbilicals and Cables

- Armored Tow Cable
- Air Gun Umbilicals
- Ocean Bottom Cable
- Tail Buoy Cables
- Deck Cable
- Source Cables
- Hose Bundles
- Velocity Cable



Seismic -Typical AGU (Air Gun Umbilical)

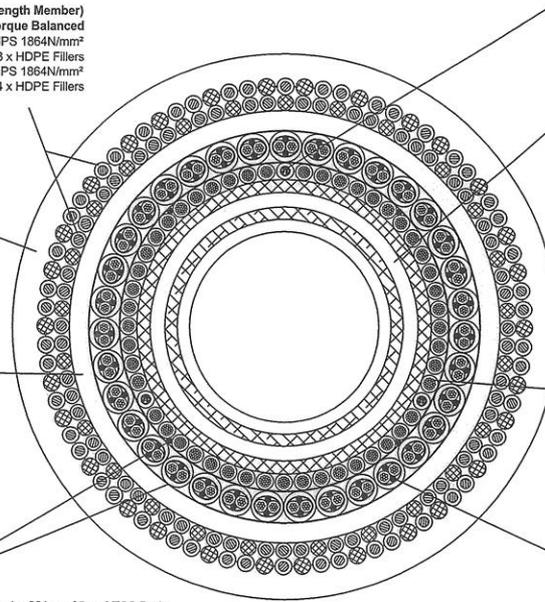
- Power/Data/Fiber Optic
- Break Load 230kN
- Dynamic Bend Radius 900mm

HDPE Insulated Steel Armor (Strength Member)
Contra-Helically Laid, Torque Balanced
 1st: 55 -/+ 2 x 1.32mm (.052") GEIPS 1864N/mm²
 Insulated w/HDPE + 23 x HDPE Fillers
 2nd: 50 -/+ 2 x 1.32mm (.052") GEIPS 1864N/mm²
 Insulated w/HDPE + 34 x HDPE Fillers

Outer Jacket
 3.30mm (.130") Nom Yellow
 HDPE Wall Thickness Pass

Bedding Jacket
 2.60 mm (.102") Nom
 Orange PU Wall
 Thickness Pass

Main Bundle
 1st Lay-Up: (49(C)+3(B))/1(A), 4 x 22Awg .35mm² TCS Drain
 and Cu/Mylar Tape
 2nd Lay-Up: 35(D)/1st Lay-Up, Mylar Tape



(B) Optical Fiber Component
 304SS Tube 1.32mm x 1.07mm x .13mm
 Insulated w/PP to 2.30mm (.091")
 containing:
 4MMFO 62.5/125/250 μm,100KPSI
 (3 PLCS, Total: 12MMFO)

(A) 1" ID Hose Nylon 11 Liner,
 Reinforced with Kevlar and Black
 PU Jacket Pin Pricked.
 OD Hose: 38.0mm (1.456")
 WP: 3000 PSI, BP 12,000 PSI
 Overbraided with Polyester Yarn
 to 39.5mm (1.557")
 (1 PLC)

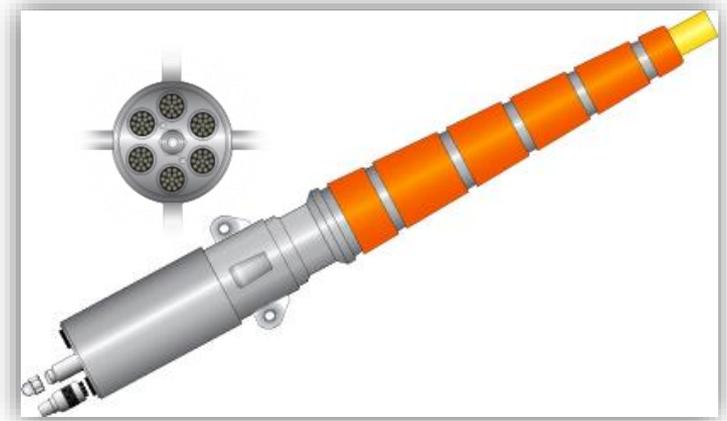
(C) Power Conductor
 15Awg 1.50 mm² 19/32mm TCS
 Insulated with PP to 2.30mm
 (.091") OD
 (49 PLCS)

(D) Jacketed Shielded Twisted Pair
 19Awg .75 mm² 7/373mm TCS Insulated
 with PP to 1.70mm, 2 x 22AWG .38 mm²
 TCS Drain Wires, Cu/Mylar Tape Shield
 HDPE Jacket to 4.10 mm (.161")
 (35 PLCS)

Finished Diameter: 73.2 mm ± 1.0 mm (2.882" ± .040")

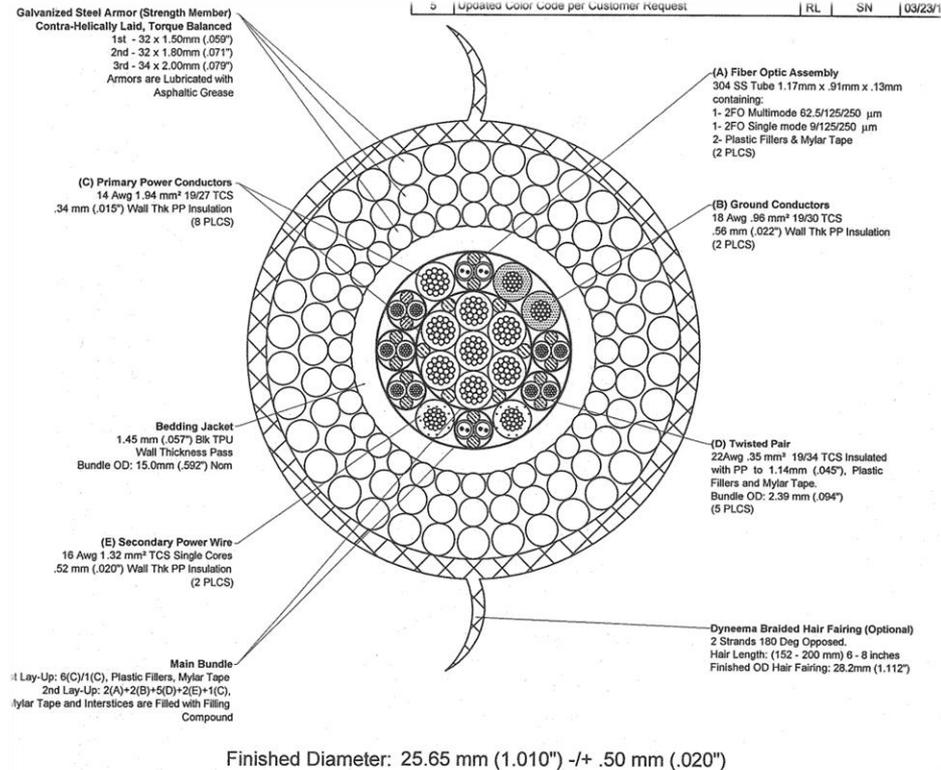
Seismic - Armored Products

- Over 75,000 meters of Air Gun Umbilical and Tow Leader since Dec. 2007
- Over 150 fully terminated assemblies
- Termination parts and connectors designed and produced in house



Seismic – Typical Streamer lead-in

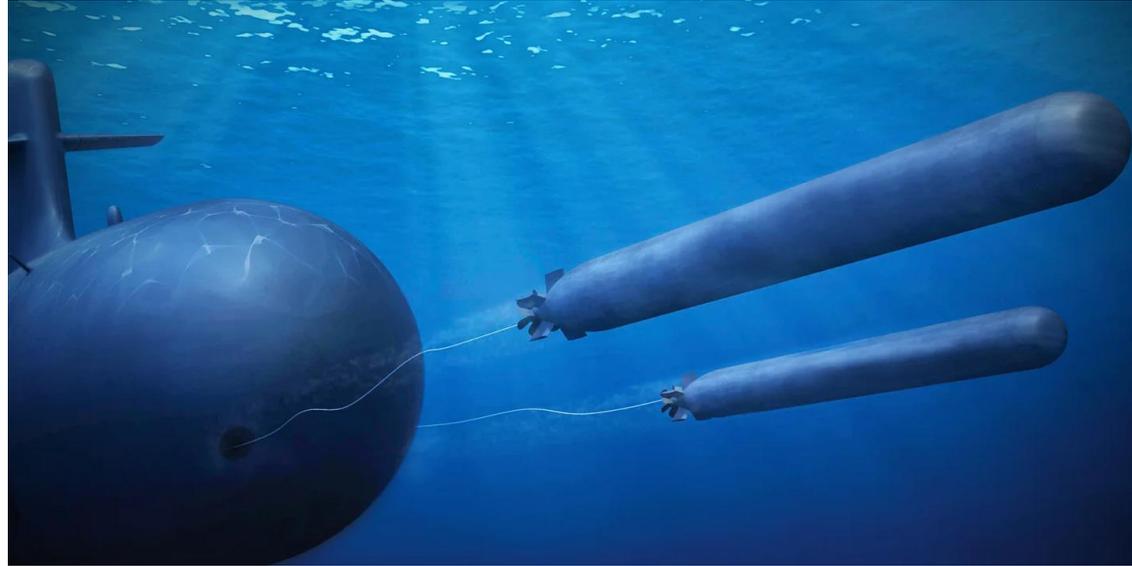
- Power/Data/Fiber Optic
- Break Load 470kN
- Dynamic Bend Radius 513mm



NAVAL DEFENSE SYSTEMS

NAVAL DEFENSE

- Torpedo Guidance Cables



MARINE MINING OPERATIONS

MARINE MINING SYSTEMS

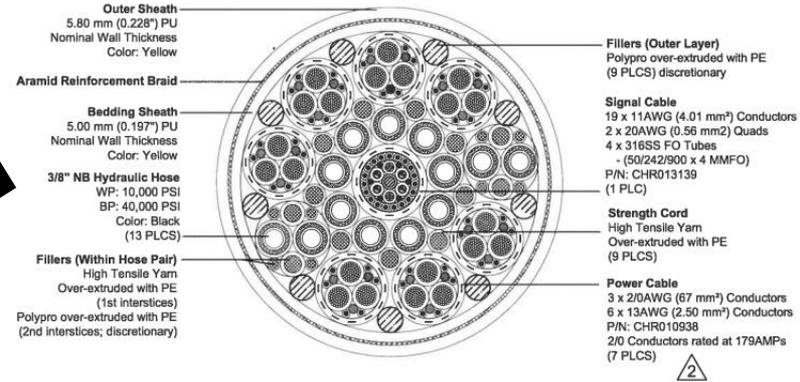
- Umbilical Solutions to power and provide utility service to submarine based excavation operations globally ... Typically with advanced crawler systems.
- UI's umbilicals have been supplied and deployed on some of the world's newest and largest diamond mining and recovery vessels in the world.



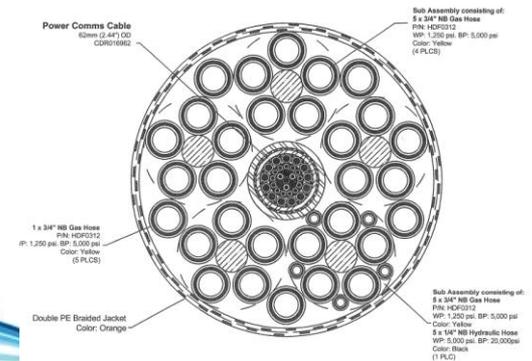
MARINE MINING OPERATIONS

MARINE MINING UMBILICAL

- Crawler System Utility Umbilical
- Multiple designs based on specific crawler utility demands



Finished Diameter: 177.68 ± 3.55 mm (6.995 ± 0.140")

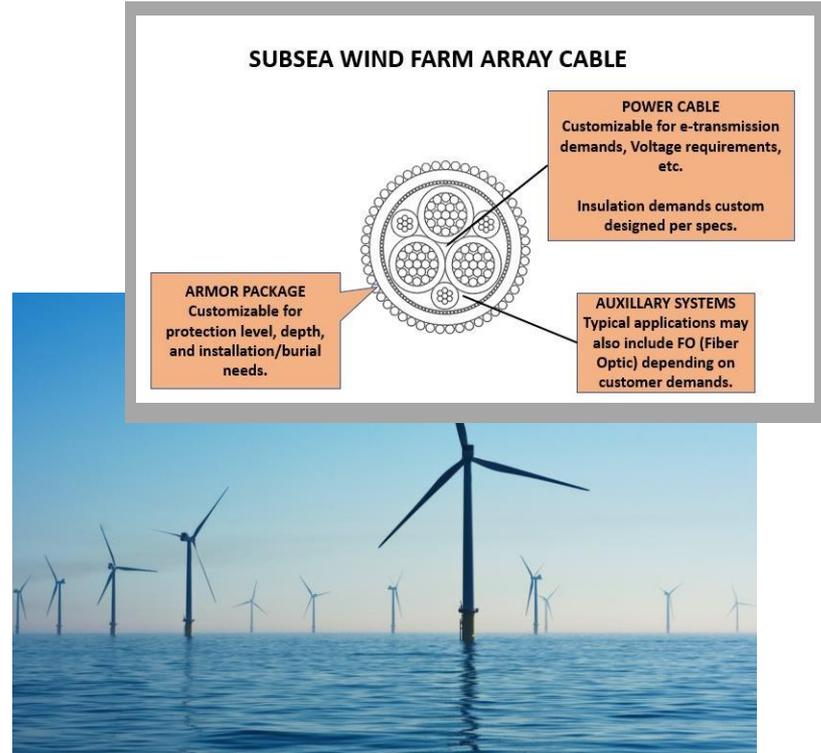


Finished Diameter: 248 mm +/- 10.0 mm (9.855" +/- .39")

OFFSHORE RENEWABLES ENERGY POWER CABLES

Manufacturing Capabilities for Large Diameter Cable and Armor Capabilities

- Ideal arrangement for array cable
- 6-8" Cable OD; AC/DC options
- Custom Design capabilities depending on customer requirements
- Optionality for enhanced utilities/service (Fiber Optics/telemetry)
- Quayside Manufacturing site provide enhanced transportation options
- Wind/Tidal



Umbilicals International Offers:

- Build to Print
- Build to Performance Specification
- Design
- Research and Development
- Delivery of Turn-key Solution
- Evaluation/Re-Certification
- Bespoke Umbilical Re-Fitting, Repair, Re-Certification and Redeployment – cost effective and enhances product life longevity.



Customers



Umbilicals International – Global Industry Provider



We conduct business globally and routinely ship and deliver our products internationally for/to our global customers.

Umbilicals International - Contacts

UI is your leading designer and manufacturer of custom dynamic thermoplastic subsea umbilicals, cables, ROV tethers, and power systems and telemetry/TelComs for use in harsh environments. These umbilicals, cables and Tether/power systems are used within the offshore oil and gas industry , maritime mining industry and naval/marine industries where extreme conditions require the highest quality in cable and umbilical/hose design and construction.

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