BIRNS, an ISO 9001:2015-certified global leader in high-performance sub-sea products, specializes in deep-submergence custom cable assemblies. Options include fiber-optic, hybrid electro-optic, electro-coax and electro-opto-mechanical configurations. BIRNS provides full-service design, manufacturing and testing of the industry’s most complex, high-performance underwater cable assemblies, with depth ratings to 6km.

CUSTOM CABLE ASSEMBLIES CAN INCORPORATE ANY COMBINATION OF:

**ELECTRICAL**
High density (186 ways), high-voltage (=4.0kV/ conductor), complex wiring (TSP, TST, TSQ). BIRNS electrical technicians and inspectors are certified IPC Specialists per J-STD-001 Class 3, WHMA-A-620-A Class 3 and work is performed per IPC-A-610C.

**FIBER-OPTICS**
- Single-mode or multi-mode optical fibers:
  - Insertion Loss (per ANSI/TIA/EIA-455)
    - Single-mode: .5dB max [typical: .1dB]
    - Multi-mode: 1dB max [typical: .25dB]
  - Return Loss
    - 35 dB min
BIRNS optical technicians are ETA-I certified.

**COAXIAL**
BIRNS groundbreaking coaxial contacts are hydrostatic pressure rated to 1,433 m. Max. insertion loss of 0.7dB to 36GHz; Max Standing Wave Ratio (SWR) of 1.7:1.

**MECHANICAL**
BIRNS performs mechanical termination of load-bearing cables with central or coaxial stress members of Aramid fiber or steel; no load is transmitted to electrical conductors or optical fibers. Electro-opto-mechanical assemblies provide load strengths of ≥ 50,000 lbs.

BIRNS custom-designs and manufactures connectors from nearly any material; performs oil-filled cable assembly, splices and breakouts; and molds epoxy, polyurethane, neoprene and other materials. BIRNS is SUBMEPP-certified to NAVSEA S9320-AM-PRO-020/MLDG.

BIRNS performs hydrostatic pressure testing to 20,000 PSI, electrical testing to 10kV, helium leak testing, and RF testing to 36.5 GHZ.

**HIGHLY CUSTOMIZABLE**
BIRNS CUSTOMERS INCLUDE:


When JHU/APL needed a high-voltage connector system for a military device, BIRNS supplied S/B 3O-9 oil-filled cable assemblies with five 3kV and four .6kV conductors, all independently shielded and grounded.

L3 COMMUNICATIONS required a high-voltage miniaturized reverse-gender connector, BIRNS designed and supplied the 3F-1RS/3KV-FR and custom mating cable assembly (Ø19mm/.75” OD).

When LOCKHEED MARTIN (PERRY TECHNOLOGIES) required robust four-fiber multimode connectors, BIRNS supplied 3O-H0400-BR/CP connectors and cable assemblies.

When the U.S. NAVY required a high-voltage electro-optical hybrid for a towed device, BIRNS designed, fabricated and tested 3T-H02012-FR/CP connectors and cable assemblies, with two multimode optical fibers, eight 2.5kV conductors, and four 600V conductors.

When the U.S. NAVY’S DEEP SUBMERSION UNIT (UMV) experienced chronic vehicle downtime due to connector problems, they chose BIRNS to design, fabricate and supply replacement connectors, resulting in the BIRNS Millennium connector series. After DSU/UMV completed a 3-year program to replace all other connectors on the vehicles with BIRNS Millennium connectors, they reported “0% connector-related vehicle down-time.”

For the HAWAI’I UNDERSEA RESEARCH LABORATORY’S (HURL) deep-submergence research submarines’ special penetrator and cable needs, BIRNS designed, tested and supplied ABS-compliant penetrators, man-rated bulkhead connectors and cable assemblies. In one emergency job, BIRNS saved HURL’s dive season by providing a custom outboard 40-conductor metal shell man-rated cable assembly in one week.

When PHOENIX INTERNATIONAL required a quick-disconnect multi-fiber tether assembly for their innovative dual ROV system, BIRNS designed high-voltage single-mode electro-optomechanical connectors and termination.