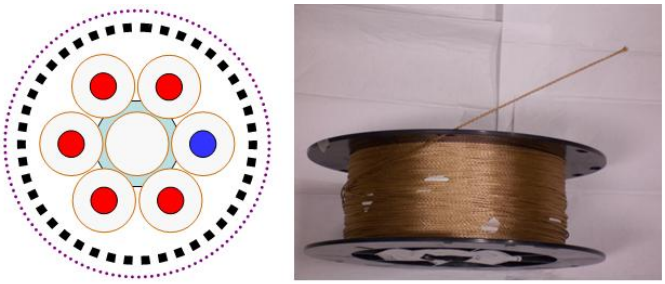
NAVAL RESEARCH LABORATORY

TECHNOLOGY LICENSING OPPORTUNITY

HIGH TEMPERATURE, HIGH STRENGTH, HIGH VOLTAGE COMMUNICATIONS CABLE



Cable cross-section (left) and 450-meter spool (right)

The Naval Research Laboratory (NRL) has developed a cable for high voltage electrical and/or optical transmission capable of operating at temperatures up to 1000 °C, hundreds of degrees higher than existing cables. The NRL cable also has superior tensile strength at high temperatures compared to existing cables. These properties are achieved in a relatively small diameter by the use of high temperature components, including NRL's patented 250-µm diameter fused silica and metal microwire, optical fibers, glass rods, and glass braids. The components are also relatively inert, making the cable suitable for use in chemically harsh environments as well. Individual cables can be configured to meet a range of specifications. Other high temperature components, such as fibers and braiding material composed of high temperature glasses, ceramics, or metals, may be incorporated for additional functionality.

Available for License: US Patent Nos. 7,002,072 and 7,692,093.

Advantages/Features

High voltage and high temperature operation: E.g., 10kV @ 650 °C or 5kV @ 1000 °C

High strength: 2750 MPa at room temperature demonstrated

Maintains functional tensile strength up to 1000 °C

Cable diameter is approximately 2.5 mm in diameter with 7 active components and 2 braids

Optional ZylonTM over-braid reduces damage by abrasion

Applications

Critical communications and power deployment in harsh environments

Fire protection for electrical and optical systems in critical infrastructure, ships, aircraft, and various harsh environments

Powered tow lines for operational pay loads onboard aircraft and other platforms

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