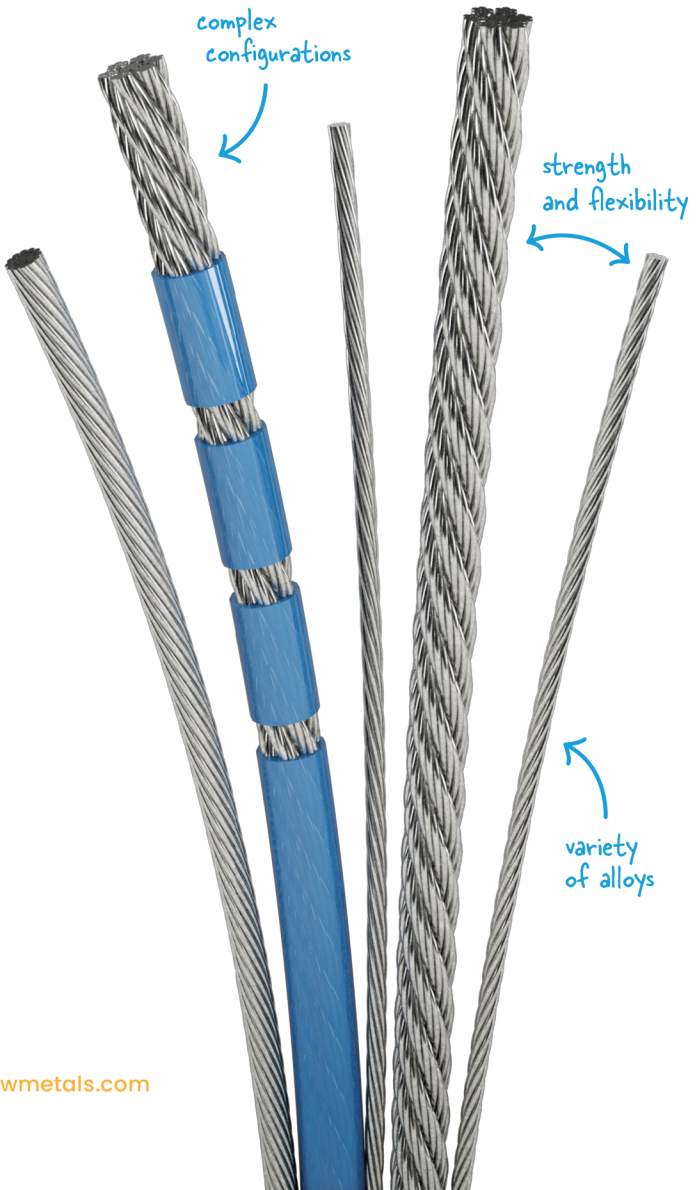




Strands and cables

Complex constructions offering strength, flexibility, and enhanced fatigue life



Strands and cables

When product specifications call for strength and flexibility, design engineers often turn to strands and cables. Leveraging the unique properties of different alloys and constructions, strands and cables are used in a number of challenging applications that require torque, flexibility, and fatigue life.

Understanding strands and cables

Strands are formed by wrapping several filaments of wire together to form a single piece. When several strands are wrapped together, they form a cable. Since cables can be very complex, we've broken down the different constructions:

1st ORDER CABLES are made of several strands that are wrapped together

2nd ORDER CABLES are made of 1st order cables that are wrapped together

3rd ORDER CABLES are made of 1st order cables and have additional strands wrapped around them

4th ORDER CABLES are made of 3rd order cables and have additional strands wrapped around them

For more information on cable configurations, see the strands and cables configuration and calculation guide.

Typical end uses

Customers use our constructions as control cables, robotics microcables, and in other cutting-edge applications.

COMMON FUNCTIONS

- › Tension-tension
- › Tension-compression
- › Torsion, rotation
- › Multi-channel signal arrays
- › Electrical conductor

COMMON END APPLICATIONS

- › Actuate tissue anchoring devices
- › Enable endoscopic applications
- › Serve as permanent and temporary pacing and nerve stimulation
- › Serve as guidewires and stylets
- › Articulate minimally invasive instruments
- › Enable robotic surgical technology

Design specifications

Strands and cables are highly customizable, from relying on 35N LT™ alloy for fatigue life to tungsten cable for high tensile strength in small diameters, or from DFT® composite wires as hybrid cables to titanium for corrosion resistance. By relying on different alloys, constructions, and processes, you can enhance strength, flexibility, fatigue life, torque, stiffness, and smoothness in your strand or cable.

ALLOYS

STAINLESS STEEL for high strength and corrosion resistance

COBALT-CHROME for high strength and corrosion resistance

DFT® COMPOSITE WIRE to combine dissimilar materials in a single wire system

TITANIUM for corrosion resistance

NITINOL for superelastic and shape memory performance

TUNGSTEN for high strength

PRECIOUS METALS for customized properties and performance

PRODUCT FORMS

- › Microcables as small as 0.04 mm [0.002 in] in overall diameter
- › Cables as large as 4.8 mm [0.1875 in] in overall diameter
- › As few as three wires twisted together
- › As many as 1,369 wires with a 0.5 mm [0.02 in] overall diameter

PROCESSING CAPABILITIES

- › Swaging
- › Thermal treatment
- › Cleaning
- › Mechanical cable assembly
- › Cutting
- › Welding/joining
- › Coating
- › Laser ablation of coatings



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