



Cable Strength

Cable must be designed to minimize strain on the conductors to maintain power and signal performance. Adding a strength member to the cable construction is frequently the easiest and most effective way to accomplish this objective.

Strength Members

Materials

Synthetic and natural fibers are the most common, including:

- Aramid Fiber
- Carbon Fibers
- Flame Resistant Meta-Aramid Fiber
- Galvanized Carbon Steel
- Glass Fibers
- Glass Reinforced Plastic

These fibers offer effective strength to weight ratios; they are light and flexible. Other materials used for strength and support include galvanized carbon steel, carbon fibers, glass fibers and glass reinforced plastics.

Orientation

The strength members are commonly placed as a center member in a round cable and as an integral (embedded in the plastic) support member in flat constructions. Strength members can be placed throughout a round cable including outside the cable core assembly in a braid, helical or longitudinal application. A jacket is typically applied over the outside strength members.

Design Considerations

In addition to strength, flexibility, torsional balance (tendency of the cable to untwist or turn under load), cable weight, additional payload, dynamic loads, flame resistance, internal and external abrasion resistance, and temperature performance need to be considered, depending upon the application.

Mechanical Strength

- Aramid fiber materials
- Individual galvanized or stainless steel cable
- Stainless steel braiding

Tubes

- PVC, Nylon, PE and PUR breather and vent tubes

Breather tubes can be incorporated into cables:

- To allow submersed cavities, sensors and transmitters to "breathe" to the atmosphere.
- Transport inert gases in closed systems.

The breather tube is designed for durability when subjected to cold bend and mechanical tests typically specified for the cable.

The breather tubes must not be kinked. Therefore, the minimum bend radius is 10X the cable outer diameter.

Shielding

- Aluminum foil tape, braiding with tinned copper
- Stainless steel, bronze and other materials

Frequency Spectrum

- Braid or spiral/served, 30 KHz to 30,000 KHz
- Aluminum polyester tape, 25,000 KHz to 300,000 KHz

Braiding Styles

- Basket weave
- Drain wire
- Spiral
- Served



Water Blocking

- Water-blocking features can be provided in conductors, tape or fillers to prevent water migration if a cable jacket is damaged.

Jacket Material

- USP Class VI jacket materials
- Medical-grade polyurethanes
- TPEs, PVCs, Polyesters and Fluoropolymers

Custom Composite and Hybrid Options

- Subassemblies
- Electrical and fiber-optic
- Coaxial—video, high-speed data and power

Medical Coaxial Cables

- Durable design
- 36 AWG to 24 AWG
- 1.77 dielectric or lower
- Fluoropolymer jacket
- Shield options for EMI/EMF requirements
- Foil and braid shielding
- 100% shielding coverage available