Superior Cable Technology

Because no single cable is best suited for every type of application, Semflex offers a variety of 50 ohm cables carefully designed to meet specific performance/cost requirements. Different cable characteristics (*i.e. flexibility, connector retention, torque and crush resistance, stability/repeatability with respect to temperature or flexure, cost, etc.*) require special design considerations. Semflex's products lines take advantage of superior cable technology, carefully matching design and construction to specific application needs.

Jacket

Semflex utilizes a variety of jacket materials which are selected based on cost, flexibility, chemical and environmental considerations.

Polyethelene - Low temp rating, UV resistant, moisture resistant, cost effective (-40 to 85°C).
Polyurethane - Low temp rating, UV resistant, abrasion resistant, flexible (-65 to 85°C).
FEP - High temp rating, chemical resistant, moisture resistant, low smoke, low outgassing (-65 to 200°C).
PVC - flexible, flame retardant, cost effective (-20 to 60°C).

Shielding

Semflex provides several outer shield combinations comprised of silver or tin plated copper wire, bare copper or aluminum wire, and foil tapes ranging from 80 to 100% shielding coverage. Each cable is carefully designed to optimize braid design for cable function.

Braid coverage is highly dependent on braid angle, number of picks, wire gauge size and number of strands - all of which affect the attenuation, flexibility, and shielding effectiveness of the cable. As a general rule, higher braid coverage yields better shielding and lower attenuation. Lower braid coverage yields better flexibility.

Round Braid - Lower material cost, most flexible braid option.

Woven Flat Braid - Lower contact resistance between braid wires resulting in lower attenuation, better coverage provides increased shielding effectiveness. Smoother conductor for lower VSWR. Increased connector retention and torque resistance.

Helical Flat Braid - Improved flexibility and shielding, increased phase stability vs flexure, low radial torque resistance.

Wrapped or Folded Foil - Polyimide (helical wrap) provides increased mechanical strength, high temp, chemical resistance. Polyester (folded) low temp, low strength, lowers contact resistance and attenuation.

Shielding

Triple Shield - Woven flat braid, polyimide foil, round braid. Provides >90 dB shielding effectiveness, high torque resistance, mechanically strong.

Double Shield - Helical flat braid, round braid. Provides >100 dB shielding effectiveness, phase stable vs flexure.

Double Shield - Woven flat braid, round braid. Provides >85 dB shielding effectiveness, low contact resistance.

Double Shield - Polyester foil, round braid. Provides >85 dB shielding effectiveness, cost effective.

Double Shield - Round braid, round braid. Provides >60 dB shielding effectiveness, flexible.

Single Shield - Round braid, provides >40 dB shielding effectiveness, very flexible.

Dielectric

Semflex utilizes a variety of dielectric materials which are selected based on signal loss (dissipation factor), temperature extremes, power rating and velocity of propagation. Our manufacturing process carefully controls the concentricity between the outer conductor and the center conductor to maintain consistant characteristic impedance and low structural return loss.

Characteristic Impedance Tolerances
Extruded dielectrics: < +/- 6%
Tape wrapped dielectrics: < +/- 2%

Polyethelene - Temp (-40 to 85° C), VP (66-85%)
Solid PTFE - Temp (-65 to 125° C), VP (70%)
Low Density PTFE - Temp (-65 to 200° C),VP (74-78%)
Ultra Low Density PTFE - Temp (-65 to 200° C), VP (82-85%)

Center Conductor

Semflex offers a variety of center conductor materials with several different platings.

Solid Conductors - Less resistance, lower loss, higher power.
Stranded Conductors - More flexible.

Silver Plating - Lowest loss, solderable.
Copper Clad - Cost effective, solderable.