



COLDflex Ground Cable™

Technical Information:

Our COLDflex Ground Cable™ product line is specifically designed for flexible, low-temperature ground cable applications. Tested for cold weather flexibility down to -40°C, COLDflex Ground Cables™ are UV resistant and have operating voltages up to 5kV.

Manufactured using highly stranded bare copper conductors, COLDflex Ground Cable™ standard conductor sizes and constructions are listed below. Ultra flexible stranded conductors are also available in a variety of materials. Please contact our design team for more specific information or to discuss your specific requirements.

Our high performance compounds are specifically formulated for use where cold weather flexibility, UV resistance, and high dielectric strength are required. Standard jacket colors include: white, black, red, green, yellow, blue, brown, orange, gray, and violet. Custom colors and printing are available upon request.

Product Advantages:

- Tested for cold weather flexibility down to -40°C
- UV Resistant
- Operating voltages up to 5kV
- High dielectric strength
- Standard bare copper conductors; also available in a variety of other conductor materials
- Standard sizes 250 kCMA - 4 AWG - Other sizes available upon request
- Available in 10 standard colors
- Standard and custom surface printing available

Conductor Information				Insulation Information			Breakdown Voltage	Cable Weight
Part Number	AWG Size	Stranding	Nom OD	Thickness	OD	Tolerance		
N48-30B-802	250 kCMA	2499/30	0.635"	0.085"	0.805"	±0.020"	>45 kV	871.8 #/kft
N48-30B-803	4/0 AWG	2121/30	0.585"	0.085"	0.755"	±0.020"	>45 kV	746.3 #/kft
N48-30B-755	3/0 AWG	1680/30	0.521"	0.085"	0.691"	±0.020"	>45 kV	599.2 #/kft
N48-30B-756	2/0 AWG	1344/30	0.466"	0.085"	0.635"	±0.020"	>35 kV	486.5 #/kft
N48-30B-757	1/0 AWG	1071/30	0.416"	0.085"	0.586"	±0.020"	>35 kV	394.3 #/kft
N48-30B-701	2 AWG	665/30	0.319"	0.085"	0.449"	±0.016"	>20 kV	240.9 #/kft
N48-30B-650	4 AWG	413/30	0.251"	0.085"	0.805"	±0.016"	>20 kV	156.0 #/kft

- Notes:
1. Standard conductors are made with 30 AWG bare copper strands. Tinned copper available upon request.
 2. Conductor OD determined when the cable is under tension during extrusion process. Please request a sample for evaluating prior to making decisions regarding connectors to be used with these cables.
 3. Insulation color determined by customer requirement.

No longer will extreme temperatures present a problem for your ground cable installers. Contact us today and speak with one of our design experts so we can get started on your project!

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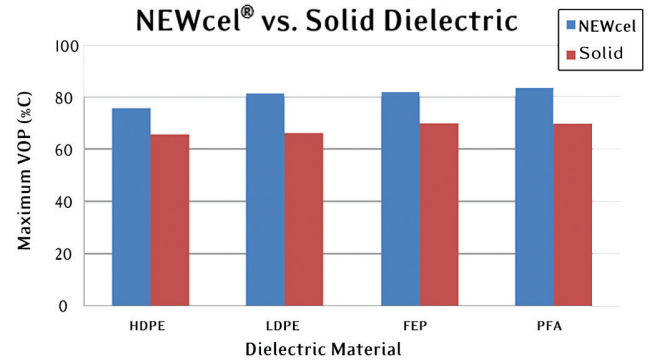


NEWcel[®] Foamed Dielectrics

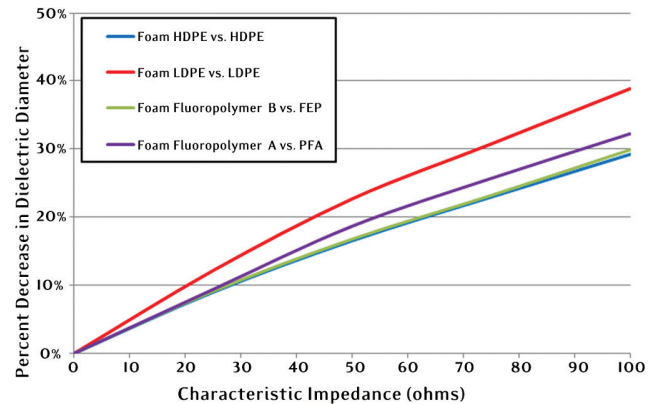
NEWcel[®] is a closed-cell foamed dielectric material specifically designed to reduce dielectric constant and dissipation factor yielding low-capacitance, low-loss, high V.O.P. ultraminiature coaxial, triaxial, and twinaxial offerings.

Air is a near perfect dielectric medium allowing a signal to propagate through it at approximately the speed of light. However, an air dielectric is impractical for use as cable insulation. Thus, manufacturers have to resort to using materials with higher dielectric constants (lower propagation velocity) to meet structural requirements.

NEWcel[®] is the perfect solution. Typical coaxial, triaxial, and twinaxial cables are manufactured using low dielectric constant (2.0-2.6) materials that possess inherently better electrical properties than standard insulation material such as PVC. Using highly controlled extrusion processes, these materials are foamed yielding a dielectric medium with a high air concentration. The result of this process is a significantly reduced dielectric constant (1.43-1.75) that approaches the nearly ideal properties of air without sacrificing structural integrity. This results in a significant capacitance reduction while providing the customer with the choice of reduced diameter/same attenuation or same diameter/reduced attenuation.



A comparison of the propagation velocity of a signal through NEWcel[®] and equivalent solid dielectric materials.



An estimated percent decrease in dielectric diameter resulting from switching to NEWcel[®] from equivalent solid dielectric materials if the characteristic impedance is constant.

Material Properties									
Materials	Solid HDPE	Solid LDPE	Foam HDPE	Foam LDPE	Solid FEP	Foam Fluoropolymer A	Foam Fluoropolymer B	Foam Fluoropolymer C	Solid PFA
Maximum VOP (%C)	65.6	66.2	75.6	81.6	70.2	83.6	81.9	76.5	70.2
Suggested Temperature Limit	75°C	75°C	75°C	75°C	200°C	250°C	200°C	200°C	250°C
Minimum Wall (inches)	0.004"	0.006"	0.008"	0.018"	0.002"	0.035"	0.010"	0.055"	0.001"
Maximum Wall (inches)	0.050"	0.065"	0.022"	0.100"	0.065"	0.015"	0.030"	0.110"	0.035"
Dielectric Constant	2.32	2.28	1.75	1.5	2.03	1.43	1.49	1.71	20.6

Product Advantages:

- Reduces Attenuation
- Reduces Cable Size
- Reduces Capacitance
- Wide Temperature Range

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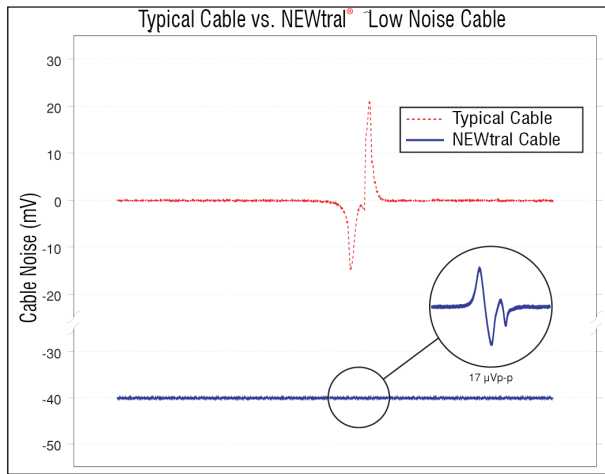


NEWtral® Low-Noise Cable

Technical Information:

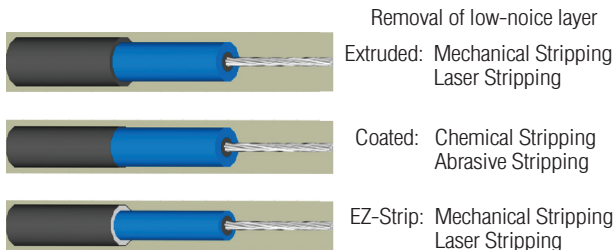
In small-signal applications, noise-free transmission lines are necessary to maintain signal integrity. Simply flexing or twisting a traditional cable can generate voltage spikes with magnitudes in the tens of millivolts. This noise is due to triboelectric charging of the insulator materials, which act as capacitors and store the charge. The addition of conductive low-noise layers reduces the noise to the microvolt range.

New England Wire Technologies has dedicated resources to develop a range of advanced low-noise cables. Our engineers design custom cables to meet customer requirements for performance in their applications.

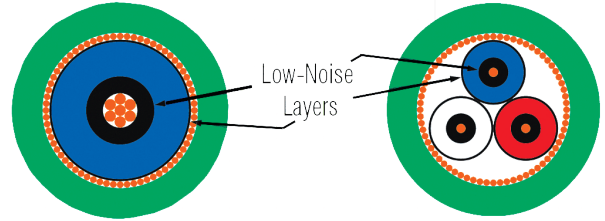


Stripping/Termination:

While preparing a low-noise cable for termination, it is important to consider the effect of the outer conductive low-noise suppression layer. Isolation of the low-noise layer from the conductors is necessary to prevent a short circuit situation. Depending on the type, the low-noise layer can either be stripped with conventional mechanical and laser methods, or require chemical and abrasive stripping methods.

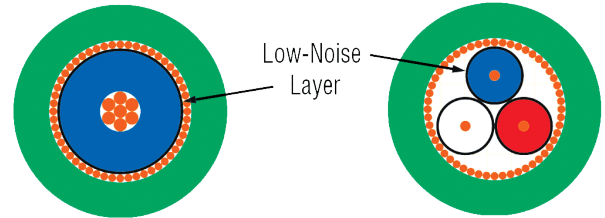


Cable Selection Guide



NEWtral® - Type 1

Advantage: Excellent Performance ($10 \mu V - 100 \mu V$)
Consideration: Increase in primary diameter (.005" - .025")



NEWtral® - Type 2

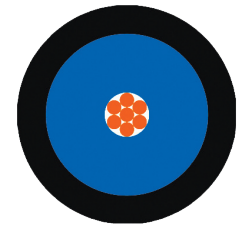
Advantages: Very Good Performance ($25 \mu V - 250 \mu V$)
Low cost

Outer Low-Noise Layer Options

Extruded

Advantage: Can be mechanically stripped, Low Cost

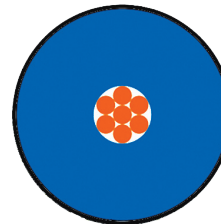
Consideration: Diameter increase (.004" - .020")



Coated

Advantage: Minimal diameter increase, Low Cost

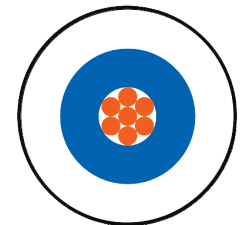
Consideration: Must be chemically stripped



E-Z Strip

Advantage: Can be mechanically stripped, Minimal diameter increase

Consideration: Higher Cost



NEWtuf[®] Reinforced Silicone Rubber Cables

Designed for the Unique Demands of the Medical Device Industry

Silicone rubber is the material of choice for ultra-flexible, autoclave sterilizable medical device cables. Silicone on its own, however, has a physical weakness that can lead to stretching, distortion, or breakage after repeated wiping or physical cleaning. NEWtuf[®] reinforced silicone jackets overcome this concern without impacting biocompatibility, flexibility, heat resistance, sterilization, dimensional requirements or strippability.

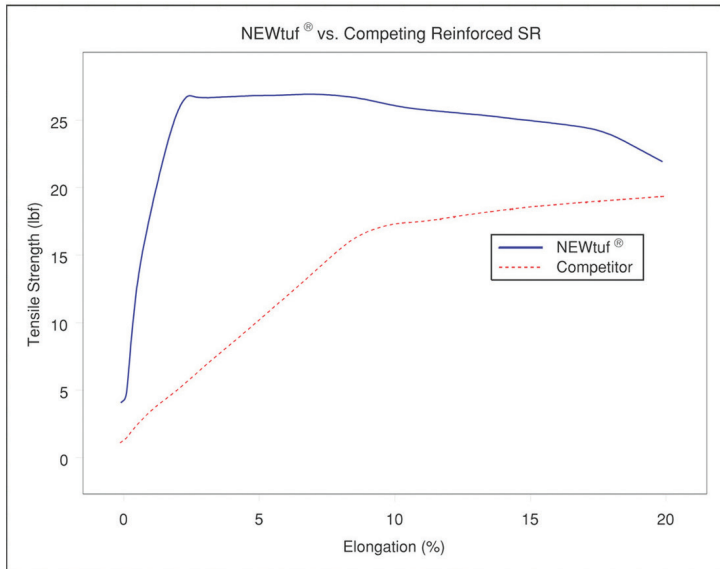


Figure 1: A comparison of the performance of NEWtuf[®] vs. competing reinforced jackets proves NEWtuf[®] to be superior.

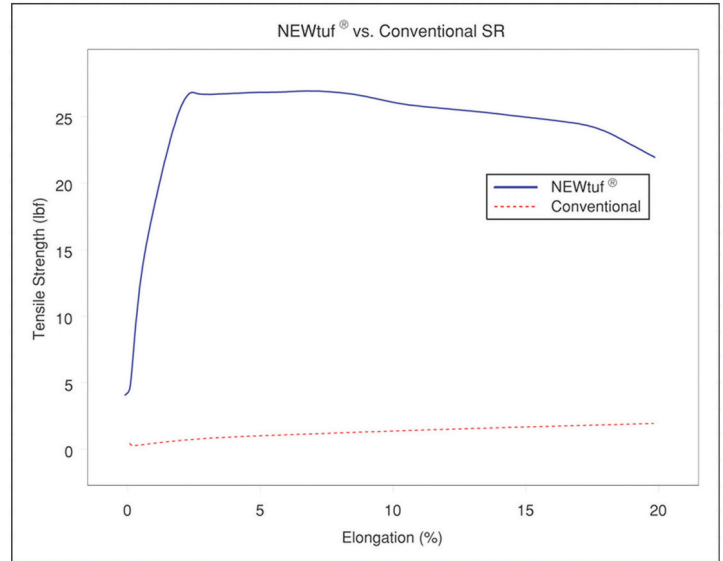


Figure 2: When force is applied, NEWtuf[®] exhibits very little elongation unlike conventional silicone rubber jackets.

NEWtuf[®] reinforced jackets provide three times the tensile strength of silicone rubber and limits elongation distortion to a fraction of a percent. Unlike conventional silicone jacketed cables, your NEWtuf[®] reinforced cable can be repeatedly handled and wiped while maintaining its original appearance and performance.

Material Properties			
Property	Conventional	NEWtuf [®]	Competitor
Elongation 5 lbf	86%	0.33%	2.0%
Elongation 20 lbf	490%	1.0%	20%

Performance Characteristics and Custom Design Options

- Optimum Pull Strength
- FDA, USP, ISO 10993 Biocompatibility
- Sterilization / Autoclave
- 150° C / 300V UL AWM Styles
- Parylene & SLEEK[™] Coating Options
- RoHS, REACH Compliance
- BPA, ADM, Latex & Phthalate Free

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Power Leads & Flexible Interconnects

For power distribution applications that require high temperature wire with maximum flexibility, New England Wire's general-purpose power leads and flexible interconnect wires can be manufactured using an extensive range of wire gauge sizes, strand constructions, conductor materials, wall thicknesses, shields, and jackets

We are a world leader in the manufacture of custom ultra-flexible interconnects, offering conductor sizes from micro-miniature up to 500 MCM. Most commonly supplied in UL and CSA recognized PVC insulated constructions, our custom flexible interconnects combine ultra fine-wire stranding technology with thin wall extrusion manufactured to your specific requirements: high or extremely low temperature, chemical resistance, voltage, low capacitance and, of course, flexibility.



Custom Design Options

Conductors:

Due to its high conductivity, copper is the most commonly utilized conductor material, however, conductor material can vary based upon specific application requirements.

Oxygen Free Copper
Copper Alloy
Copper Clad Steel
Copper Clad Aluminum
Aluminum
Resistance Wire
Magnet Wire

Plating:

Our in-house drawing and plating capabilities ensure a variety of readily available conductor options to meet specific temperature, corrosion, termination, and aesthetic requirements.

Tin	Silver
Nickel	Gold Plated Nickel Flashed
Platinum	Tinned Lead

Stranding:

Flexible interconnects can be made from single end conductor strand sizes between 30 AWG - 52 AWG, with non-standard single end sizes available as required.

Size:

Interconnects can be made to any equivalent gauge size or to match specific area (CMA, mm²) and can range from 44 AWG to 500 MCM conductors...specifically designed to match target insulation, conductor diameter, or target resistance.

Insulation:

Custom flexible interconnect insulations are typically chosen based upon the application requirement. Materials offering superior flexibility are most commonly utilized, however, materials offering abrasion, chemical, and temperature resistance are also available.

PVC	Fluoropolymer
TPE	FEP
Polyurethane	PFA
Silicone Rubber	ETFE



HYflex™ Power Distribution Cable

HYflex™ Power Distribution Cables are specifically engineered to handle the high voltage and temperatures inherent with today's diesel hybrid vehicles. Independently tested to meet the requirements of SAE J 1654 and 1127, the HYflex™ line of cables is rated for use at 125°C and up to 600 volts.

HYflex™ incorporates a custom designed, high performance compound uniquely formulated for use in heavy

duty diesel hybrid vehicles. Characteristics include extra flexible conductors to produce cables ideally suited for applications where flexibility, long life, and performance is critical. Its extreme flexibility facilitates easy installation in tight engine compartments and other confined areas. Available in standard conductor sizes from 8 AWG to 250 kCMA, HYflex™ Power Distribution Cables can be configured to meet your specific requirements.



Product Advantages:

- Extra flexible, high strand count, tinned copper conductors
- Meets SAE J 1654 and 1127 for 600 volt and 125°C diesel applications
- Improved flexibility over XLPO insulations
- Improved chemical resistance, temperature rating, and cold weather performance vs. PVC
- Available in shielded and multiconductor configurations
- Passed -40°C J1127 Cold Bend Test
- Meets requirements of UL1581
- RoHS Compliant



Contact us today to get started on your custom design!

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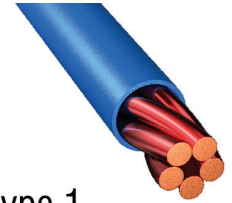
Custom Litz Wire Solutions Since 1898

New England Wire Technologies is considered the premier Litz wire manufacturer in the industry. In 1898, New England Wire became the first company in the United States to manufacture Litz wire on a commercial basis. Since then, we have designed and manufactured thousands of different constructions for use over the E.L.F. through H.F. frequency ranges. Typical applications for Litz conductors include high frequency inductors and transformers, inverters, communication equipment, ultrasonic equipment, sonar equipment, radio and television equipment, as well as induction heating.

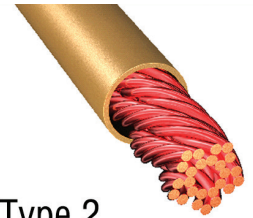
The benefits of using Litz are:

- Increased efficiency
- Mitigation of skin and proximity effect
- Minimum eddy current losses
- Lowered operating temperatures
- Reduced footprint of final product
- Substantial weight reduction
- Avoidance of "hot spots"

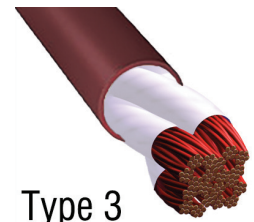
This is a summary of the standard Litz Wire configurations manufactured by New England Wire Technologies. Contact us for more information about the custom conductor and insulation options available to meet your application.



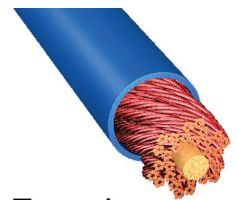
Type 1



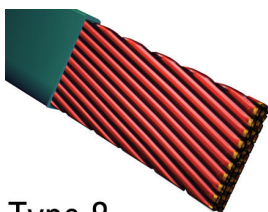
Type 2



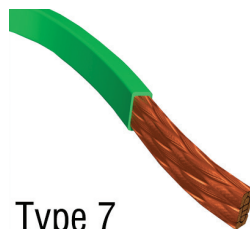
Type 3



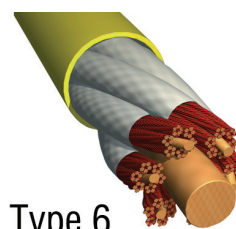
Type 4



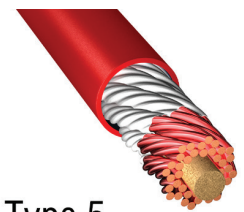
Type 8



Type 7



Type 6



Type 5

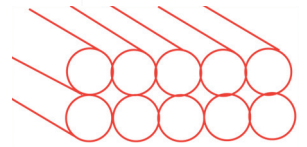


Minimize loss in your windings from 400Hz to 2MHz with New England Wire Formed Litz

400 Hz to 1 KHz

TYPE 8

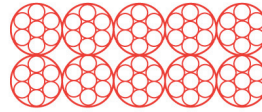
Compactions tailored to your winding window to 90%
Aspects to 18 to 1



1 KHz to 50KHz

TYPE 8 Concentric

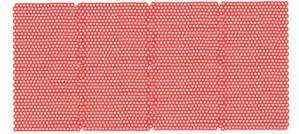
Density to 88%
Aspects to 7 to 1



1 KHz to 850KHz

TYPE 8 Bunched

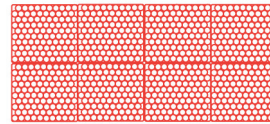
Density to 75%
Aspects to 5 to 1



1 KHz to 2MHz

TYPE 8 Served

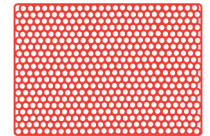
Density to 70%
Aspects to 4.5 to 1



1 KHz to 2MHz

TYPE 2 Formed

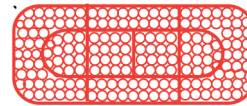
Density to 70%
Aspects to 1.75 to 1



1 KHz to 2MHz

TYPE 7

Density to 70%
Aspects to 20 to 1



TYPE 8 Custom Shapes



New England Wire Technologies has extensive experience with standard formed and round Litz wire. We excel at using custom materials and insulations including magnet wire with standard NEMA and IEC enamels as well as bondable, fluoropolymer coated, ceramic, or glass fiber magnet wire. Insulation options include extruded, taped, braided, and served to meet specific insulation systems.

Contact us today to get started on your project!



Superconductor Capabilities

New England Wire Technologies has been providing cabling, insulating and other services to the superconducting community for over fifty years. Typically superconducting wire is supplied to New England Wire by the customer and from there we can offer complete product solutions starting from wire drawing to cabling and insulating. Our expertise currently is being showcased in fusion experiments, particle accelerators, magnetic imaging systems, energy storage, and laboratory magnets.

CABLING:

Cabling operations include everything from applying twist to a single strand to multiple cabling operations resulting in very large cables with hundreds or even thousands of strands. The addition of a stainless steel, copper or brass spiral wrap tape can often be incorporated into the final cable design.

Typical constructions include:

- Round Cables (7 strand and 19 strand)
- Cables with Cooling Channels
- Rutherford Cables
- Keystone Rutherford Cables
- Rutherford Cables with Cores
- Cable-in-Conduit Geometries



INSULATING:

New England Wire offers many insulation options to meet the needs of the superconductor community. Typical insulations include applying a tape wrap of material such as polyimide or fiberglass as well as braiding or spiral winding of specialized textiles or fiberglass. We also specialize in the extrusion of ETFE and other thermoplastics over a single wire or a formed cable.

COATINGS:

New England Wire has years of experience electroplating copper wire with tin and silver; we have also provided nickel plating for superconductor applications. Additionally, we have soldering capabilities for superconducting wire ranging from 50/50 tin-lead solder to 95/5 tin-silver solder.

HEAT TREATMENT:

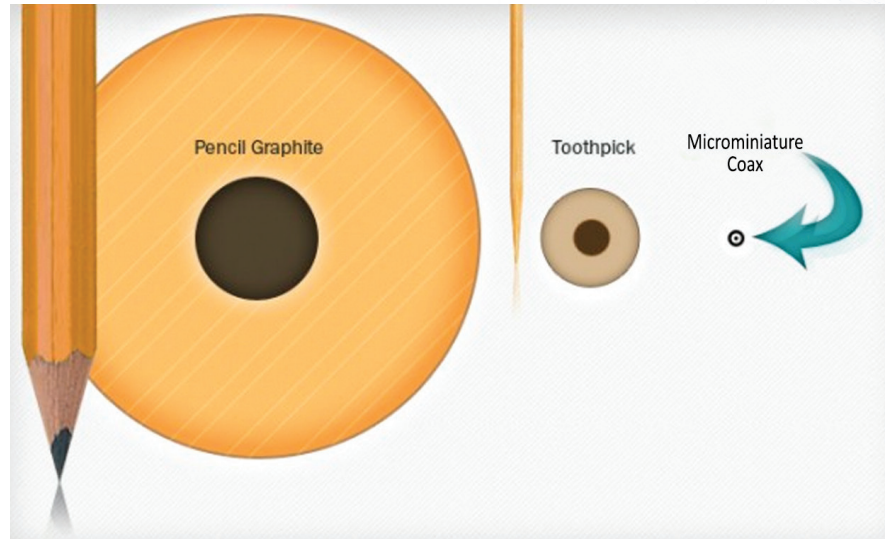
Large, calibrated walk-in ovens allow for the heat treatment of finished cable to oxidize the wire strand surface. This process can increase the resistance between strands within the same cable.



SOLUTIONS:

For 120 years, New England Wire has been collaborating with customers all over the world to find unique solutions to their design challenges.

Contact us today to get started on your project!



Miniature and Micro-Miniature Coaxial Cables

New England Wire Technologies designs, manufactures, and tests a wide range of coaxial cables to meet the needs of medical device and electronics manufacturers. Our custom coaxes are manufactured to meet the particular impedance, capacitance, or other exacting electrical requirements requested by our customers and tailored to the needs of the specific application. New England Wire offers custom options for the center conductor, dielectric, shield, and jacket including high strength alloy conductors for superior flex life and foamed dielectrics for reduced size and attenuation. In addition, we have the capability to combine multiple coaxes with other components into larger instrumentation cables. Short lead times and low minimum order quantities makes New England Wire the superior choice for custom coaxial cables.

Conductors:

- Full range of conductor materials including bare copper, plated copper & high strength alloy
- Typically stranded for improved flexibility
- Miniature (24-32 AWG) sizes available
- Micro-Miniature (34-46 AWG) sizes available

Shield:

- Typically designed for high shield coverage to maximize shield effectiveness
- Shielding options include braid, spiral, aluminum foil, or a combination thereof

Jacket:

Material selected based on application

Dielectric:

- Selected based on electrical, temperature & size requirements
- Materials include:
 - NEWcel® High Velocity Foamed Dielectrics
 - Polyethylene FEP
 - Polypropylene PFA
 - ETFE

Custom Design Options:

- Ultra flexible
- High temperature
- Sterilization
- Low-noise (NEWtral®)
- Biocompatible
- RoHS compliant
- FDA
- High flex life
- Fluid & chemical resistance
- Autoclave
- UL AWM rating
- Phthalate, latex, PBA, ADM free
- REACH
- ISO10993 and more...

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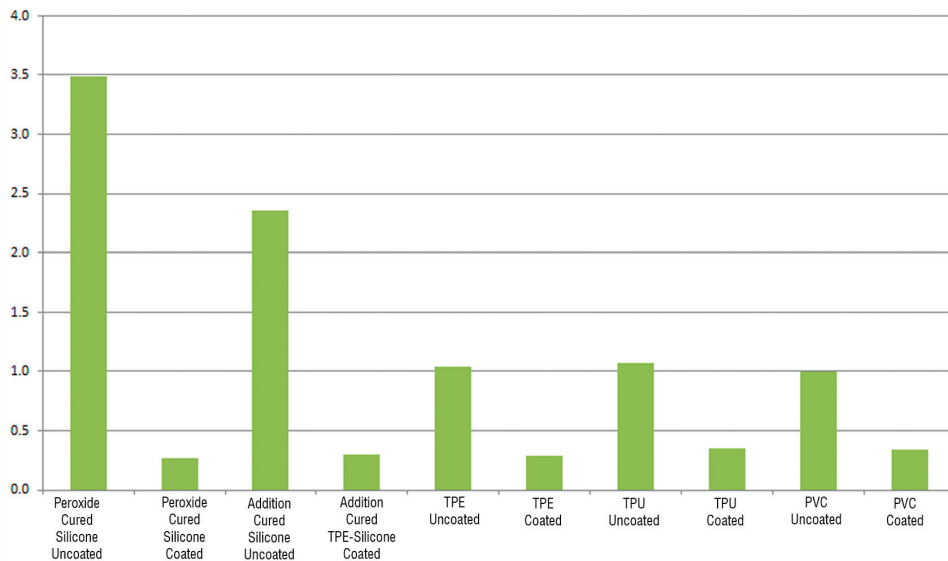


Parylene Characteristics & Custom Design Options

New England Wire Technologies' proprietary process for applying a non-contaminating parylene coating to insulated cables offers customers an ultra-flexible, tack-free alternative to talc and other release agents.

- Low friction (comfortable, ergonomic surface)
- Biocompatible / inert transparent polymer
- Sterilization / autoclave stable
- Barrier to oxygen, moisture, chemicals, solvents and carbon dioxide
- Hydrophobic
- Chemical and fungal resistance
- Impervious to bodily fluids, solvents, moisture, acids and chemicals
- Extremely thin coating, no build to jacket OD
- Crisp masked edges allow for durably bonded connections
- Custom masking and thickness specifications readily incorporated into our process

**Coefficient of Friction
ASTM D 4918-97**



Applications: electrosurgical cable products, medical electronics, patient cables, catheters, tubing, or any cable requiring tack-free surface finish!
Contact us to discuss your specific requirement!





Custom Endoscopy Cable

New England Wire Technologies is an industry leader in the development, manufacturing and testing of custom endoscopy cable. Our custom endoscopy cables are designed to meet the specific requirements of technologically advanced digital imaging devices. New England Wire offers custom options for all components of our cables, from high strength alloy conductors for superior flex life, to NEWtuf® reinforced silicone rubber jackets for optimum pull strength. In addition, our cable design engineers will work with you from concept through testing to ensure that your cable meets your exact requirements. And as is the case with all cables manufactured by New England Wire, we offer quick turn prototypes and low minimum quantity order requirements.

Conductors:

- Our full range of conductor materials are available including plated copper and high strength alloys
- Typically stranded for improved flexibility
- Miniature (24-32 AWG) & Micro-Miniature (34-46 AWG) sizes
- Various size components cabled together

Dielectric:

- Selected based on electrical, temperature, and size requirements
- Materials include: Polyethylene, Polypropylene, FEP, PFA, ETFE, NEWcel® High Velocity Foamed Dielectrics

Shield:

- Typically designed for high shield coverage to maximize shield effectiveness
- Shielding options include braid, spiral, aluminum foil, or a combination thereof

Jacket:

- NEWtuf® Reinforced Silicone Rubber Cables for optimum pull strength

Testing:

- Full range of physical and electrical tests performed in-house, including:
 - o Flex, Bend & Endurance, Paddle Flex, Strand Flex, Torsion
 - o Attenuation, VoP, Inter Pair Skew, Time Delay, Capacitance, Cross Talk



Custom Design Options:

- Ultra flexible
- High flex life
- High temperature
- Fluid and chemical resistant
- Sterilization/Autoclave
- Low-noise (NEWtral®)
- UL AWM rating
- Biocompatible
- Phthalate, Latex, PBA, ADM free
- RoHS compliant
- REACH
- FDA
- ISO 10993
- And more...



NE-F1 Class F (155°C) Electrical Insulation System

Electrical Insulation Systems are invaluable to motor and transformer designers because they eliminate the need for long term component testing. New England Wire Technologies' custom cable capabilities combined with the regulatory approvals of NE-F1 means we can provide you with high-performance winding wire solutions to meet the unique design challenges associated with today's windings.

Product Details:

- UL 1446 recognized system for Class F (155°) applications
 - OBJS2 File E231977
 - Component IEC 60085
 - CAN/CSA C22.2 No. 0-M91, Appendix B
- Approved for use in the construction of:
 - Transformers
 - Motors
 - Coils
- Provides a large selection of major and minor component materials to support any application.

Technical Information:

Our NE-F1 Electrical Insulation System was developed as the solution to cost, size, and time-saving requests from our customers. Extensive research and component testing allows us to provide a complete range of materials that are ideal for transformer, motor, and coil designs. Consequently, coil manufacturers are given more freedom in their device designs because they are not limited to a narrow range of materials. This design freedom leads to high efficiency, smaller, lower-cost devices that can be brought to market without long-term testing delays.

OBMW2 EI32708 is approved for use in our NE-F1 system, which allows larger Litz wire sizes (6 AWG and larger) into the insulation system – a major differentiator from other insulation systems. This category is intended to establish, without additional tests, the interchangeability of magnet wire with similar film coatings and equal or higher thermal ratings into recognized insulation systems that have been investigated under the thermal aging programs of UL.

Insulation System Components:

The NE-F1 insulation system contains 6 tables of materials and hundred of major and minor components.

Highlighted components include:

- **NEWind® Multi-layer Winding Wire**
Our own NEWind® product line of double and triple insulated Litz wires is specifically designed to eliminate the need for separate ground, interwinding, and turn insulation, resulting in a smaller device that performs equivalent to or better than a bulky and costly larger device.
- A wide variety of enameled magnet wires of various temperature classes and base/top coats from multiple manufacturers
- Ground and interwinding insulations from 3M, DuPont, Sumitomo, Celanese, and others
- Tapes from 3M, Intertape, Neptco, Nitto Inc., P. Leo, Saint Gobain, and more
- Sheet materials from 3M, DuPont, Von Roll, and others
- A wide variety of bobbin materials, spacers and wedges, tubing and sleeving, tie cords, potting compounds, and varnishes

This diverse selection of materials ensures that our NE-F1 system will be suitable for most Class F devices, thus reducing the need for multiple Electrical Insulation Systems.

Additional materials can be added in certain circumstances. We are happy to discuss additional options with you.

For a complete list of all materials included in NE-F1, please visit the UL iQ Electrical Insulation Systems Database (<https://iq.ul.com/systems>) and search by our OBJS2 File Number E231977.



NEWind® Multi-layer Winding Wire

Technical Information:

New England Wire Technologies manufactures winding wire in single-end, stranded, and Litz wire multiconductor cable configurations. While magnet wire in the single-end or Litz wire form is the most common winding wire, its coating has been found to be susceptible to insulation loss between winding turns, separate windings and between the winding, and the ground.

NEWind® Multi-layer Winding Wire solves this problem by insulating the conductors with thin layers of insulation. NEWind® wire insulation layers are commonly extruded in single, double (supplementary) or triple (reinforced) layers that can reduce creepage and clearance distances. The result is motors and transformers that can be manufactured without additional insulation, thus reducing their cost and size.

The following lists some of the more common options to assist with developing your winding wire.

Material Properties			
Property	ETFE	FEP	PFA
Temperature Rating	Class F 155°C	Class F 155°C	Class H 180°C*
Layer Thickness (Minimum)	0.001"	0.0015"	0.001"
Total Thickness Supplementary (Minimum)	0.002"	0.003"	0.002"
Total Thickness Reinforced (Minimum)	0.003"	0.0045"	0.003"

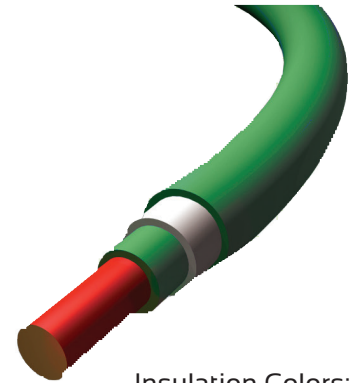
* per UL 2353 260° C heatshock
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Common Usage / Industries:

- | | | |
|---------------------|-----------------|----------------|
| Power conversion | Pumps | Motors |
| Domestic appliances | Transformers | Automotive |
| Relays | Solenoids | Electromagnets |
| Inductors | Control devices | Medical/Dental |

Conductor Materials:
Bare Copper
Oxygen-Free Copper
Tinned Copper
Silver Plated Copper
Nickel Plated Copper
Magnet Wire
Wide variety of Alloys

Insulations:
PFA (Class H - 180° C)*
FEP (Class H - 155° C)
ETFE (Class F - 155° C)



- Insulation Colors:
- Clear
 - White
 - Black
 - Red
 - Green
 - Yellow
 - Blue
 - Brown
 - Orange
 - Gray
 - Violet



Approvals:

- UL 2353 OBJT2 E205791
- UL OBMW2 E132708
- UL 60950 Annex U
- UL 1446 Electrical Insulation System
 - NE-F1 - Class F (155° C)
 - OBJS2 File E231977
 - IEC 60085
 - CSA C22.2 No. O-M91, Appendix B

- UL/IEC 60601-1
- IEC 62368-1, Annex J
- IEC 615581-1, -2-16 Annex K