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Introduction

Introduction

Reynolds Industries, Incorporated was established in 1948 and is now known worldwide for its range of high voltage products for use up to 75 KVDC. These products include connectors, cable assemblies, high voltage capacitors, spark gaps and a product line of high voltage cable. The high voltage wire and cable line is now complemented with Micro Flex, a product line of highly flexible wire and cable for both high and low voltage applications and an expansion of “Quiet Line,” Reynolds high voltage Distributed Loss R.F. Attenuation Cable.

Wire and cable supplied by Reynolds Industries is used extensively in Aerospace and Military applications which operate at the very forefront of technology, where materials and components are being designed into systems for use well into the 21st century. The recurring theme is cables with higher performance characteristics but lower weight, smaller diameter and more flexibility than their predecessors to assist the payload factor whether in terms of fuel, weaponry or passengers. Modern aircraft environments are consistently arduous for cables; i.e. confined wiring installations and possible contamination from fuel, solvents, cleaning fluids and lubricants.

Abbreviations

BC	Bare Copper
CFEP	Cellular Fluorinated Ethylene Propylene
FEP	Fluorinated Ethylene Propylene
NPC	Nickel Plated Copper
PE	Polyethylene
PFA	Perfluoroalkoxy
PSI	Pounds per Square Inch
PTFE	Polytetrafluoroethylene
PVC	Polyvinyl Chloride
SPC	Silver Plated Copper
TFE	Tetrafluoroethylene
Tin/Ni	Tin Nickel
TPC	Tin Plated Copper
VPM	Volts per Mil (0.001 inch = 0.0254mm)



High Voltage Wire and Cable

High Voltage Cable

The high voltage wire and cable specified in this catalog is used in a wide spectrum of industry:

- Travelling wave tubes, magnetrons and klystrons
- Laser systems: rangefinders, ring laser gyroscopes and night vision systems
- Cathode Ray Tubes (CRT)
- High energy physics research
- High voltage power supplies

Our customers are typically manufacturers of radar, ECM, laser and cockpit displays, satellite propulsion, missiles, medical, X-Ray equipment, ordnance systems and a wide range of other high voltage applications.

The minimum order quantity is 100 feet for cable in stock. Most of the wire and cable can be supplied in continuous lengths up to 5,000 feet. Colors are available on special order.

High voltage wire and cable can be supplied in bulk form or specified as part of a cable assembly terminated to a Reynolds high voltage connector. We encourage customers to take advantage of Reynolds unique and reliable fabrication methods and quality oriented 100% production testing of cable assemblies under simulated aerospace environments.

Voltage Testing

All wire and cable is sample tested at a DC voltage higher than the rated voltage.

AC Voltages

All wire and cable is rated strictly for DC applications. Customers wanting to use the cable for AC or pulsed DC applications should conduct tests to satisfy themselves that the cable meets their needs.

Quality Control

Samples are taken from each cable reel and DC hi-pot tested in accordance with the test voltages quoted in our specifications. All operating voltages specified are applicable from sea level to 70,000 feet (21,000 meters) and -55 to +125°C.

Corona

The reduction of corona is critical to the life expectancy of any high voltage cable and any resultant cable assembly. FEP and PFA insulations contribute to good corona characteristics as the manufacturing methods ensure that voids are not present in the extruded insulation.

Operating Temperature Range

For FEP, PFA and silicone rubber wire and cable, we quote an operating temperature range of -55 to +125°C, which, although very conservative, is in line with the specified requirements of most military applications. The majority of our testing and history is based on this.

Bend Radius Formula

Application

In situ (strapped down or in conduit trays)

Formula = Bend Radius

10 X cable diameter

Space Use

Reynolds supplies wire and cable for space applications. This cable receives stringent cleaning, a 100% hi-pot test and 100% reel-to-reel corona testing. Contact Reynolds engineering for more specifics.



FEP Features and Properties

FEP

Extruded FEP insulated high voltage wire and cable offers exceptional dielectric strength without the disadvantages common to equally rated silicone rubber insulated cables. As a result, cable assemblies or cable bundles are of smaller diameter and therefore take up substantially less volume and have a smaller bend radius which allows the designer to better utilize the space within the system. It has good corona inception qualities and its construction gives it excellent durability and resistance to dielectric/cooling fluid degradation.

While difficult to bond to, with the use of Reynolds proper abrading and coating preparations an excellent silastic bond is possible. Additionally, FEP insulation, being a harder material than silicone rubber, is not prone to pin-holing and high voltage punch-thru when the cable surface is abraded or when strands break during in-field service. FEP is also more resistant to damage when making contact with sharp edges.

FEP cable should not only be considered for use in cable assemblies, but as high voltage hook-up wire within encapsulated high voltage power supplies, TWTs and transformers.

Low DC corona inception, particularly after numerous temperature cycles, is another advantage of FEP over silicone cables. Teflon tape wrapped cable, which is similar to FEP in dielectric strength and corona inception, is difficult to bond to because of its multiple spiral cross section, irregular surface and variations in diameter

Properties of FEP Fluorocarbon Resin

Physical, Thermal and Electrical Properties	Typical Values
Specific Gravity	2.14
Tensile Strength (PSI)	3,500
Elongation (%)325
Flexural Modules (PSI)	90,000
Thermal Conductivity (cal/sec/cm ² °F)	6X10 ⁻⁴
Thermal Expansion (In/In/°F)	7.5 X 10 ⁻⁵
Continuous Use Temperature (°C)	204
Melt Temperature (°C)	255–265
Low Temperature Limit (°C)	-240
Hardness Durometer	D56
Water Absorption (%)	<01
Flame Resistance	Excellent
Dielectric Constant, 60-10 ⁶ Hz	2.1
Dissipation Factor, 60-10 ⁶ Hz	<.0007
Volume Resistivity (Ohms-Cm)	<10 ¹⁸
Surface Resistivity (Ohms/Sq.)	<10 ¹⁶
Resistance to:	Rating
Cold Flow or Cut Through	Fair
Ultraviolet Radiation	Excellent
Electro-Mechanical Stress Cracking	Excellent
Chemical-Mechanical Stress Cracking	Excellent

Conductor Material

Copper

Conductor Finish

Silver Plate- per test requirements of ASTM B298. Meets solderability per MIL-STD-202.

Note: Pre-conditioning of FEP cable after cutting to length is recommended because FEP cable will shrink when exposed to temperature cycling. Pre-conditioning should be conducted in an air circulating oven at 204°C (400°F) for one hour.



FEP High Voltage Wire



FEP Wire Attributes

OPERATING VOLTAGE (KVDC)	CONDUCTOR		PLATING	CONDUCTOR	Ø OVER INSULATION	PART NUMBER
	AWG	STRANDS		Ø IN./MM	IN./MM	
5	29	51/46	SPC	.013/0.35	.025/.64	178-9907
5	28	19/40	SPC	.015/0.40	.040/1.0	178-9912
10	20	19/32	SPC	.039/1.01	.060/1.5	178-9560
12	16	19/29	SPC	.056/1.43	.080/2.0	178-5626
12	28	41/44	SPC	.014/0.36	.042/1.0	178-5079
18	28	19/40	SPC	.015/0.40	.040/1.0	178-5790
18	26	19/38	SPC	.019/0.50	.045/1.1	178-5792
18	28	19/40	SPC	.015/0.40	.050/1.2	178-8751
18	26	19/38	SPC	.019/0.50	.050/1.2	178-7680
18	24	19/36	SPC	.025/0.64	.050/1.2	178-8072
18	22	19/34	SPC	.031/0.80	.055/1.4	178-8073
18	24	19/36	SPC	.025/0.64	.060/1.5	178-8523
20	22	19/34	SPC	.031/0.80	.060/1.5	178-8679
22	22	19/34	SPC	.031/0.80	.080/2.0	178-7435
21	20	19/32	SPC	.039/1.01	.090/2.2	178-8883
22	14	19/26	SPC	.070/1.80	.150/3.8	178-8545
25	26	19/38	SPC	.019/0.50	.080/2.0	178-9490
22	20	19/32	SPC	.039/1.01	.080/2.0	178-8316
25	16	41/32	SPC	.059/1.50	.125/3.1	178-9824
30	20	19/32	SPC	.039/1.01	.100/2.5	167-7628
30	16	19/29	SPC	.056/1.43	.180/4.5	167-9611

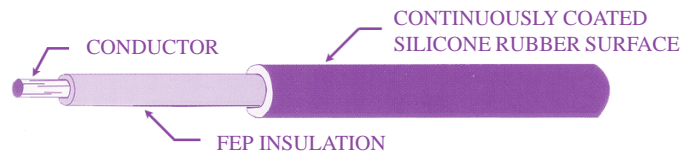
Color: Natural

Ordering: Use Part Number and specify length in feet/meters

Note: Pre-conditioning of FEP wire or cable is recommended because FEP insulation will shrink when exposed to temperature cycling. Pre-conditioning should be conducted in an air circulating oven at 204°C (400°F) for one hour. Pre-conditioning should only be performed on cut lengths prior to stripping and any termination procedure. *No attempt should be made to condition wire or cable in bulk form or while spooled.*



Silicone Coated FEP Wire



Silicone Coated FEP Wire

Silicone coated FEP wire is processed with a uniform silicone rubber coating applied to a prepared surface in the form of a thin wall. This continuous coating provides potting characteristics similar to silicone rubber wire and allows the user to achieve a superior dielectric bond when using silicone rubber potting materials or adhesives.

Silicone Coated FEP Wire Attributes

OPERATING VOLTAGE (KVDC)	CONDUCTOR		PLATING	CONDUCTOR	Ø OVER SILICON COATING	PART NUMBER
	AWG	STRANDS		Ø IN./MM	IN./MM	
12	16	19/29	SPC	.056/1.43	.095/2.41	178-5627
13	28	41/44	SPC	.014/0.37	.048/1.22	178-5186
12	26	19/38	SPC	.019/0.50	.055/1.40	178-9334
18	26	19/38	SPC	.019/0.50	.060/1.52	178-8074
18	24	19/36	SPC	.025/0.64	.060/1.52	178-8066
18	22	19/34	SPC	.031/0.80	.065/1.65	178-8067
18	22	19/34	SPC	.031/0.80	.070/1.78	178-9277
21	22	19/34	SPC	.031/0.80	.090/2.29	178-9036
22	20	19/32	SPC	.039/1.01	.100/2.54	178-8884
22	20	19/32	SPC	.039/1.01	.090/2.29	178-8315
30	20	19/32	SPC	.039/1.01	.110/2.79	178-8781

Color: Natural. Other colors available on special order.

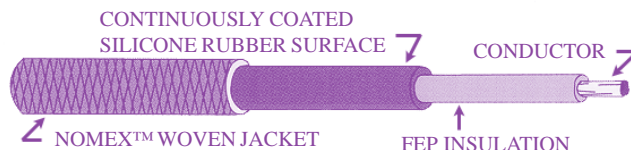
Ordering: Use Part Number and specify length in feet.

Note: Pre-conditioning of FEP wire or cable is recommended because FEP insulation will shrink when exposed to temperature cycling. Pre-conditioning should be conducted in an air circulating oven at 204°C (400°F) for one hour. Pre-conditioning should only be performed on cut lengths prior to stripping and any termination procedure. *No attempt should be made to condition wire or cable in bulk form or while spooled.*



Silicone Coated FEP Cable

With Nomex™ Woven Protective Jacket



Silicone Coated FEP With Nomex Jacket

Silicone coated FEP is processed with a silicone rubber coating applied to the etched surface in the form of a thin wall. This continuous coating provides potting characteristics similar to silicone rubber cable and allows the user to achieve a superior dielectric bond when using silicone rubber potting or adhesives.

With the addition of a Nomex woven jacket over the silicone coated surface of the FEP insulation, the cable offers excellent abrasion resistance.

Silicone Coated FEP Cable with Nomex Jacket Attributes

OPERATING VOLTAGE (KVDC)	CONDUCTOR		PLATING	CONDUCTOR	Ø OVER SILICON COATING	PART NUMBER
	AWG	STRANDS		Ø IN./MM	IN./MM	
12	16	19/29	SPC	.056/1.43	.095/2.41	178-5597
18	24	19/36	SPC	.025/0.64	.060/1.52	178-5789
20	22	19/34	SPC	.031/0.80	.070/1.78	178-5724
25	20	19/32	SPC	.039/1.01	.090/2.29	178-8881
30	20	19/32	SPC	.039/1.01	.110/2.79	178-9554

Note 1. Add .025 inch/0.63mm to diameter over silicone coated insulation to arrive at diameter over the Nomex jacket.

Note 2. To prevent fraying of the Nomex jacket, apply a small band of epoxy resin about 1 inch from the end of the Nomex jacket. Allow to cure and trim back the Nomex to the leading edge of the cured epoxy. Alternative methods are shrink sleeving or silicone rubber sleeving in place of the epoxy resin.

Note: Pre-conditioning of FEP wire or cable is recommended because FEP insulation will shrink when exposed to temperature cycling. Pre-conditioning should be conducted in an air circulating oven at 204°C (400°F) for one hour. Pre-conditioning should only be performed on cut lengths prior to stripping and any termination procedure. *No attempt should be made to condition wire or cable in bulk form or while spooled.*



Silicone Rubber Wire and Cable

Non-Shielded and Shielded

Silicone Rubber

Silicone rubber insulated high voltage wire and cable offers excellent dielectric strength and flexibility. Operation over a wide temperature range and ease of silastic bonding are other outstanding characteristics of silicone rubber cable. The cable is susceptible to pin-hole breakdown and cannot tolerate some dielectric/coolant fluids.

Corona Resistant Silicone Rubber cable

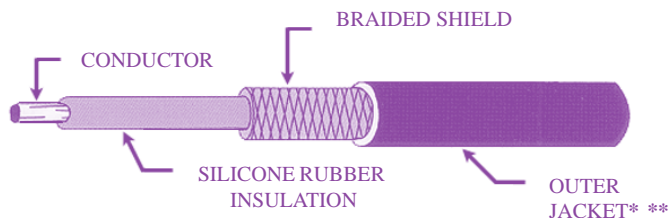
Corona resistant silicone rubber cable with a semiconductive layer is also available from Reynolds. The construction of this cable creates a voltage gradient around the conductor, which reduces corona that may be present in the airspace between the conductor and insulation. These cables, which have DC ratings up to 75 KVDC, do not appear in this catalog but can be found in Reynolds High Voltage Single Pin Connector Catalog. To receive a copy of this catalog, please contact a Reynolds Representative or Reynolds Sales/Contracts office.



Unshielded Silicone Rubber Wire Attributes

OPERATING VOLTAGE (KVDC)	CONDUCTOR		PLATING	CONDUCTOR	Ø OVER INSULATION	PART NUMBER
	AWG	STRANDS		Ø IN./MM	IN./MM	
10	20	19/32	SPC	.037/0.94	1.00/2.54	167-9634
13	20	19/32	SPC	.037/0.94	.125/3.17	167-8653
17	18	19/30	SPC	.049/1.25	.150/3.81	167-9193
17	18	19/30	SPC	.049/1.25	.165/4.19	178-9578
17	16	41/32	SPC	.060/1.52	.165/4.19	178-7200
20	16	19/29	SPC	.058/1.47	.180/4.57	167-9169
45	16	1929	SPC	.058/1.47	.280/1.14	167-9180

Color: White. Other colors available on special order. Ordering: Use Part Number and specify length in feet.



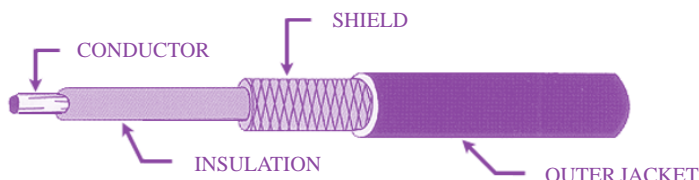
Shielded Silicone Rubber Cable Attributes

OPERATING VOLTAGE (KVDC)	CONDUCTOR		PLATING	CONDUCTOR	Ø OVER INSULATION	Ø OVER BRAID IN./MM	Ø OVER OUTER JACKET IN./MM	PART NUMBER
	AWG	STRANDS		Ø IN./MM	IN./MM			
22	18	19/30	SPC	.049/1.25	.150/3.81	4.57	6.35*	167-9596
22	16	41/32	SPC	.060/1.52	.165/4.19	5.00	7.77**	178-7201
50	16	19/29	SPC	.060/1.52	.280/7.11	7.72	8.64**	167-9470
50	16	41/32	SPC	.058/1.47	.280/7.11	7.72	8.64**	178-7221

*Silicone rubber jacket ** Fiberglass braided jacket Ordering: Use Part Number and specify length in feet.



High Voltage Coaxial/Shielded Cable



High Voltage Coaxial/ Shielded Cable

The coaxial and shielded cables shown below have been used in both military and industrial high voltage applications including Radar, ECM systems, power supplies and instrumentation. Many of the cables have controlled impedance. Figures for inductance and loop resistance (shield coupled to center conductor) are available upon request.

167-2669 and 178-8793 cables have controlled impedance, inductance and capacitance for fast response times and are used extensively to connect Exploding Bridgewire Detonators (EBW) to a Capacitor Discharge Unit (CDU).

Cable 178-5065 has foam insulation, giving lower capacitance and higher impedance. It has been used in cockpit displays.

Reynolds connectors are available for use with all cable types shown to complete your high voltage interconnection requirements.

High Voltage Coaxial/ Shielded Cable Attributes

OPERATING VOLTAGE (KVDC)			PLATING	CONDUCTOR Ø IN.	INSULATION MATERIAL & Ø IN.	SHIELDING AWG PLTG Ø IN.	JACKET MATERIAL Ø IN.	IMPED- ANCE OHMS	ATTEN. dB/100 FT @ 400 MHZ	CAP. pF/FT (Nom.) @ 1k HZ	PART NUMBER
	AWG	STRANDS									
600 v	30	7/38	SPC	.012	FEP .072	38 SPC .089	FEP .103	95	N/A	13.5	178-5065
18	26	19/38	SPC	.019	FEP .050	36 SPC .075	FEP .095	46	25	33.7	167-2896 ¹
20	16	19/29	TPC	.059	PE .118	36 TPC .150	PE .195	31	16	48	167-2669 ²
22	22	19/34	SPC	.031	FEP .080	36 SPC .100	FEP .125	43	10.6	31	167-9346 ³
25	22	19/34	SPC	.031	FEP .100	36 SPC .120	FEP .145	50	N/A	29.3	167-8726 ⁴
40	20	19/32	TPC	.039	FEP .150	36 TPC .180	FEP .220	N/A	N/A	26	167-9785
40	20	19/32	SPC	.039	FEP .150	2 X 36 SPC .200	FEP .230	50	12.2	26	167-8556

Color: Type "L" cable jacket is white. Type "C" cable jacket is red.
All other cable jackets are black.

Ordering: Use Part Number and specify length in feet.

Note: Pre-conditioning of FEP wire or cable is recommended because FEP insulation will shrink when exposed to temperature cycling. Pre-conditioning should be conducted in an air circulating oven at 204°C (400°F) for one hour. Pre-conditioning should only be performed on cut lengths prior to stripping and any termination procedure. *No attempt should be made to condition wire or cable in bulk form or while spooled.*

¹ Type "L" cable

² Type "C" cable. High temperature version (up to 260° C) available on request

³ Type .080 "L" Cable

⁴ Type .100 "L" Cable



Micro Flex Wire and Cable

Micro Flex

Reynolds has developed a range of highly flexible cables that are particularly suitable to the aircraft environment. This technology is a direct result of our research into durable and flexible cable assemblies needed for Helmet Mounted Display (HMD) systems. The wire utilized in these cable assemblies has a PFA insulation and all of the conductors are high strand count silver plated copper. They are durable and have excellent tolerance to work hardening environments. They have been designed to operate over a wide temperature range of -55°C to +125°C at their rated voltages and at altitudes up to 70,000 feet (21,000 meters). Micro Flex is available as single-wire twisted pairs or as multicore cable with or without shielding.

Reynolds unique capability to manufacture Micro Flex cable includes special winding tooling to take advantage of the flexibility of the individual cables in laying up a multi-cable bundle.

Features

- Flexible
- Up to 18 KVDC operation
- PFA insulation
- Small and lightweight • Durable • Reliable
- Non-combustible, low smoke rating
- -55°C to +125°C temperature rating

Micro Flex Testing

The following tests have been performed to MIL-W-22759 Guidelines:

- Wrap test • Life cycle • Low temperature (cold bend) • Insulation resistance
- Bend test • Thermal shock • Blocking • Dielectric test • Humidity

Typical Applications

- HMD CRT Cabling • Helmet tracker cabling • Ejection safe QDC cabling
- NVG ejection cabling • Communication cabling • High vibration aircraft cabling
- Medical instrumentation cabling • Flight line or automotive test equipment cabling



Low Voltage Micro Flex Wire and Cable



Operating Voltage: 250 volts DC. 100% tested at 2000 volts DC wet spark
Sample tested at 1500 volts DC at simulated 70,000 foot altitude

Unshielded

CONDUCTOR		PLATING	CONDUCTOR	Ø OVER INSULATION	PART NUMBER
AWG	STRANDS		Ø IN./MM	IN./MM	
30	41/46	SPC	.012/0.30	.018/0.46	178-5125
29	51/46	SPC	.013/0.35	.019/0.48	178-5126
28	41/44	SPC	.014/0.37	.022/0.56	178-5127
28	41/44	SPC	.014/0.37	.032/0.81	178-5109
26	66/44	SPC	.018/0.48	.025/0.64	178-5128
26	66/44	SPC	.018/0.48	.032/0.81	178-5110
24	41/40	SPC	.023/0.59	.035/0.89	178-5129

Shielded

CONDUCTOR		PLATING	CONDUCTOR	Ø OVER INSULATION	Ø OVER BRAID	PART NUMBER
AWG	STRANDS		Ø IN./MM	IN./MM	IN./MM	
28	41/44	SPC	.014/0.37	.032/0.81	.044/1.12	178-5108
24	41/40	SPC	.023/0.59	.035/0.89	.049/1.25	178-5518
22	65/40	SPC	.030/0.78	.041/1.04	.053/1.35	178-5318

Twisted Pair



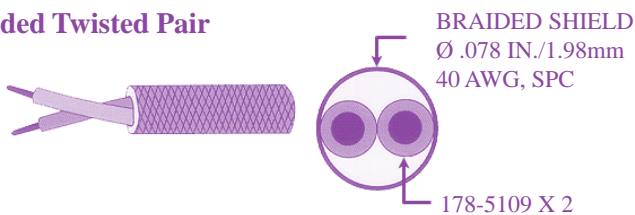
Ø .068 IN./1.73mm MAX.

Construction

Part Number

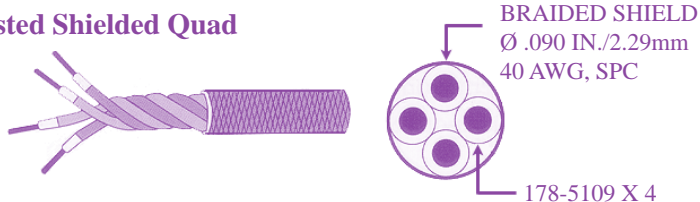
2 X	178-5109	Blue	178-5515
2 X	178-5110	Green	178-5517

Shielded Twisted Pair



2 X	178-5109	Blue	178-5516
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Twisted Shielded Quad



4 X	178-5109	Blue	178-5111
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High Voltage Micro Flex Wire and Cable



High Voltage Microflex

Micro Flex wire and cable, like FEP high voltage wire and cable, is available uncoated or with a silicone rubber coating over the PFA insulation. The coated cable is processed with a silicone rubber coating continuously applied to the etched surface of the cable. The coated cable has characteristics similar to silicone rubber cable and a superior dielectric bond to silicone rubber potting or bonding material can be achieved.

High Voltage Microflex Attributes

OPERATING VOLTAGE (KVDC)	CONDUCTOR		PLATING	CONDUCTOR	Ø OVER INSULATION	PART NUMBER
	AWG	STRANDS		Ø IN./MM	IN./MM	
3	29	51/46	SPC	.012/0.33	.019/0.48	178-5132
5	29	51/46	SPC	.012/0.33	.025/0.64	178-5135
13.5	28	41/44	SPC	.014/0.37	.042/1.07	178-5138
18	24	41/40	SPC	.022/0.58	.050/1.27	178-5141
25	16	41/32	SPC	.059/1.50	.125/3.17	178-5577

Silicone Coated High Voltage Microflex Attributes

OPERATING VOLTAGE (KVDC)	CONDUCTOR		PLATING	CONDUCTOR	Ø OVER SILICONE COAT	PART NUMBER
	AWG	STRANDS		Ø IN./MM	IN./MM	
3	29	51/46	SPC	.012/0.33	.029/0.79	178-5134
5	29	51/46	SPC	.012/0.33	.035/0.89	178-5137
13.5	28	41/44	SPC	.014/0.37	.052/1.32	178-5140
18	24	41/40	SPC	.022/0.58	.060/1.52	178-5143

Shielded High Voltage Microflex Attributes

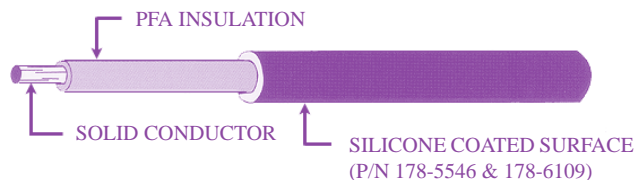
OPERATING VOLTAGE KVDC	CONDUCTOR		PLATING	CONDUCTOR	Ø OVER INSULATION	Ø OVER BRAID	PART NUMBER
	AWG	STRANDS		Ø IN./MM	IN./MM	IN./MM	
6	22	65/40	SPC	.030/0.76	.041/1.04	.053/1.35	178-5459 -X

The basic color of High Voltage Micro Flex cable is Natural. Other colors are available on special order. To specify a color add a hyphen to the Part Number as follows:

-1 Brown -2 Red -3 Orange -4 Yellow -5 Green -6 Blue -7 Violet -8 Gray -9 White -10 Natural



HI/Bus High Voltage Bus Line



HI/Bus - High Voltage Bus Line

An insulated high voltage bus bar for use in densely populated high voltage power supplies. HI/Bus can be bent and will retain its shape prior to soldering and potting. HI/Bus is rated at 5 KVDC for altitudes up to 70,000 feet (21,000 m).

HI/Bus can be ordered with a silicone coating over the PFA insulation which provides the user with a compatible surface to bond or encapsulate using silicone rubber potting material. The coated surface should be primed in accordance with the instructions of the manufacturer of the potting material.

HI/Bus Advantages:

- Easily formed
- Silver plated solid copper conductor
- Available on spools
- Color options
- Optional silicone rubber coating

HI/Bus - High Voltage Bus Line Attributes

OPERATING VOLTAGE (KVDC)	CONDUCTOR SOLID SPC AWG	CONDUCTOR Ø IN./MM	SILICONE COATING	OVERALL Ø IN./MM	PART NUMBER
5	30	.010/0.25	NO	.021/0.53	178-5207
5	26	.016/0.41	NO	.027/0.69	178-5208
5	30	.010/0.25	YES	.030/0.76	178-5546
5	26	.016/0.41	YES	.037/0.93	178-6109

NOTE: Standard color is white. Other colors are available on special order.



“Quiet Line”

Distributed Loss R.F. Attenuation Line

“Quiet Line” Distributed Loss R.F. Attenuation Cable

Quiet Line is a continuously extruded, distributed loss, low pass filter line for high voltage applications. Quiet line is a flexible element offering R.F. power attenuation and can be spliced onto an existing high voltage lead assembly or supplied as an entire high voltage lead assembly.

Quiet Line is available with or without a silicone rubber coating. This continuous thin wall coating is applied over the FEP or PFA jacket and allows the user to achieve a superior dielectric bond when potting or encapsulating with a compatible silicone material.

Quiet Line is available either shielded or non-shielded with or without the silicone rubber coating. Six loss core diameters are offered providing a range of rated voltages and R.F. insertion loss characteristics. The configurations are shown on page 15 with the attributes of each configuration.

Special configurations are available pending a review of your requirements by Reynolds engineering department personnel.

General Specifications

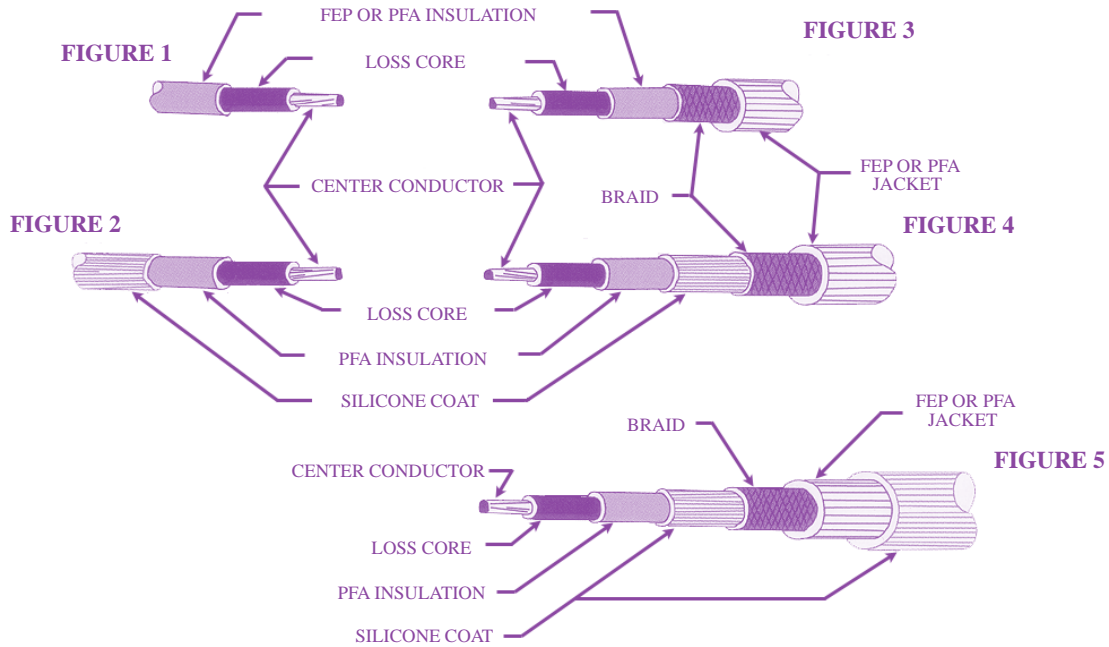
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|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| • Conductor and braid | Copper, silver plated |
| • Insulation | Extruded PFA (fluorocarbon) |
| • Jacket | PFA or FEP |
| • Operating Temperature | -55°C through +125°C at 70,000 foot altitude |
| • Voltage stress testing | 100% test at 140% of rated voltage (room ambient) |
| • Insertion loss testing | 100% insertion loss verification performed on each extrusion lot. The swept frequency insertion loss technique is used within the specified frequency range per MIL-C-17F. Test specimens are shielded with a BNC termination. |

“Quiet Line” Bulk Cable Ordering Information

EXAMPLE: Part Number 178-8051-100F is a 12 KVDC, extruded PFA Quiet Line cable on a 100-foot reel.



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“Quiet Line” Attributes

OPERATING VOLTAGE (KVDC)	ATTENUATION dB/FT (NOM)		INNER CONDUCTOR SPC		FIGURE 1		FIGURE 2		FIGURE 3		FIGURE 4		FIGURE 5	
	480 MHZ	2.4 GHZ	AWG	STRANDS	P/N	DIA. IN./MM	P/N	DIA. IN./MM	P/N	DIA. IN./MM	P/N	DIA. IN./MM	P/N	DIA. IN./MM
12	11	90	22	19/34	178-8051	.085/2.1	178-8024	.095/2.4	178-8069	.135/3.3	178-8064	.145/3.6	178-8306	.155/3.9
15	15	60	24	19/36	178-8301	.073/1.8	178-8302	.080/.20	-----	-----	-----	-----	-----	-----
20	21	140	22	19/34	178-8053	.150/3.8	178-7968	.160/4.0	-----	-----	-----	-----	-----	-----
20	21	130	22	19/34	178-8050	.130/3.3	178-8025	.140/3.5	-----	-----	178-8063	.200/5.0	-----	-----
20	15	90	22	19/34	178-8382	.110/2.7	178-8381	.120/3.0	-----	-----	178-8337	.170/4.3	-----	-----
20	21	130	20	19/32	178-8253	.140/3.5	178-8254	.150/3.8	-----	-----	178-8265	.200/5.0	-----	-----
20	21	130	20	19/32	178-8054	.150/3.8	178-7953	.160/4.0	178-8772	.250/6.3	-----	-----	-----	-----
20	21	130	22	19/34	178-8104	.140/3.5	178-8105	.150/3.81	-----	-----	178-8106	.195/4.9	-----	-----
20	21	130	22	19/34	178-8055	.150/3.8	178-7952	.160/4.0	-----	-----	-----	-----	-----	-----



Cable Conductor Data

Size • Stranding • Current Rating

AWG	STRANDING	APPROX. DIA.		CROSS SECTION	DC RESISTANCE	CURRENT RATING
		MM	INCHES	MM ²	OHMS/1000M	(amps) Free air. 80°C*
30	41/46	0.30	.012	0.051	337.3	0.40
29	51/46	0.35	.014	0.064	271.3	0.50
28	41/44	0.37	.014	0.064	271.3	0.50
26	SOLID	0.40	.016	0.130	133.9	1.0
26	7/34	0.48	.019	0.141	122.4	1.0
26	10/36	0.51	.020	0.130	136.2	1.0
26	19/38	0.50	.020	0.151	113.8	1.0
26	51/42	0.56	.022	0.160	107.3	1.0
26	66/44	0.48	.019	0.131	131.9	1.0
24	SOLID	0.51	.020	0.205	84.3	1.6
24	7/32	0.61	.024	0.224	76.8	1.6
24	10/34	0.64	.025	0.201	85.6	1.6
24	16/36	0.61	.024	0.201	85.0	1.6
24	19/36	0.64	.025	0.241	71.5	1.6
24	41/40	0.59	.023	0.205	84.0	1.6
22	SOLID	0.64	.025	0.326	52.8	2.5
22	7/30	0.76	.030	0.356	48.2	2.5
22	19/34	0.80	.032	0.383	44.9	2.5
22	26/36	0.75	.030	0.329	52.5	2.5
22	65/40	0.78	.031	0.326	52.5	2.5
20	SOLID	0.81	.032	0.518	33.5	4.0
20	7/28	0.96	.038	0.567	30.5	4.0
20	10/30	1.02	.040	0.509	33.8	4.0
20	19/32	1.01	.040	0.609	28.2	4.0
20	26/34	0.94	.037	0.524	32.8	4.0
20	105/40	0.99	.039	0.526	32.8	4.0
18	SOLID	1.02	.040	0.823	21.0	4.0
18	7/26	1.21	.048	0.901	19.0	4.0
18	16/30	1.23	.048	0.815	21.0	4.0
18	19/30	1.27	.050	0.968	17.7	4.0
18	41/34	1.19	.047	0.826	21.0	4.0
18	65/36	1.25	.049	0.823	21.0	4.0
18	168/40	1.34	.053	0.842	20.3	4.0
16	SOLID	1.29	.051	1.309	14.1	10.0
16	7/24	1.53	.060	1.433	12.1	10.0
16	19/29	1.43	.056	1.220	14.1	10.0
16	26/30	1.50	.059	1.220	14.1	10.0
16	41/32	1.50	.059	1.326	13.3	10.0
16	65/34	1.57	.062	1.309	13.1	10.0
16	260/40	1.73	.068	1.303	13.1	10.0
14	SOLID	1.63	.064	2.081	8.2	15.0
14	7/22	1.85	.073	2.285	7.6	15.0
14	19/27	1.80	.071	1.940	8.9	15.0
14	41/30	1.89	.075	2.088	8.2	15.0
12	7/20	2.44	.096	3.660	4.9	20.0
12	19/25	2.27	.090	3.085	5.6	20.0

* Please refer to Mil-W-5088 for specific current ratings



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