

WIRE MANAGEMENT PRODUCTS

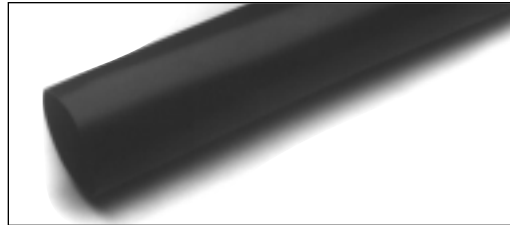
MULTI-PURPOSE PVC TUBING

PVC-105

UL STANDARD 224,
CSA STANDARD 198, MIL-I-631D

CHOOSE PVC TUBING FOR:

- Flexible Wire Protection
- Resistance to Heat, Oil, and Abrasion



In accordance with NEMA standards, may contain more than one length. PVC-105-24 to PVC-105-1 are available air spooled.

PVC TUBING APPLICATIONS:

- Wire Harnesses
- Ground Strap Protection

CHARACTERISTICS

OPERATING TEMPERATURE:

- 20°C to 105°C

COLOR DESCRIPTION:

- Size 24 to 1-1/2 Inches:
Black, Clear
- Size 2 Inches to 2-1/2 Inches:
Black

PHYSICAL PROPERTIES:

- Tensile Strength: 1800 psi,
(127 kg/cm²)
- Ultimate Elongation: 300%
- Specific Gravity: Clear 1.25,
Black 1.35
- Flammability: Self-Extinguishing
(UL VW-1)

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.5%

ELECTRICAL PROPERTIES:

- Dielectric Strength: 800V/mil
(315 kV/cm)
- Volume Resistivity: 10¹¹ ohm-cm

SPECIFICATIONS

- UL Standard 224
- CSA Standard 198
- MIL-I-631D

Recognized Component
Underwriters Laboratories Inc.

Passes
UL VW-1 Flame Test
Underwriters Laboratories Inc.

Certified
Canadian Standards Association

Alpha Part No. and Size (AWG or Inches)	Nominal Inside Diameter		Nominal Wall Thickness		Standard Put-Up Spools (Ft.)
	Inches	mm	Inches	mm	
PVC-105-24	0.022	0,55	0.012	0,30	1000
PVC-105-22	0.027	0,68	0.012	0,30	100, 1000
PVC-105-20	0.034	0,86	0.016	0,41	1000
PVC-105-19	0.038	0,96	0.016	0,41	1000
PVC-105-18	0.042	1,07	0.016	0,41	100, 1000
PVC-105-17	0.047	1,19	0.016	0,41	100, 1000
PVC-105-16	0.053	1,35	0.016	0,41	100, 1000
PVC-105-15	0.059	1,50	0.016	0,41	100, 1000
PVC-105-14	0.066	1,68	0.016	0,41	100, 500
PVC-105-13	0.076	1,93	0.016	0,41	100, 500
PVC-105-12	0.085	2,16	0.016	0,41	500
PVC-105-11	0.095	2,41	0.016	0,41	100, 500
PVC-105-10	0.106	2,69	0.016	0,41	500
PVC-105-9	0.118	3,00	0.020	0,50	500
PVC-105-8	0.133	3,38	0.020	0,50	100, 500
PVC-105-7	0.148	3,76	0.020	0,50	100, 500
PVC-105-6	0.166	4,22	0.020	0,50	100, 500
PVC-105-5	0.186	4,72	0.020	0,50	100, 500
PVC-105-4	0.208	5,28	0.020	0,50	100, 250
PVC-105-3	0.234	5,94	0.020	0,50	100, 250
PVC-105-2	0.263	6,68	0.020	0,50	250
PVC-105-1	0.294	7,47	0.020	0,50	100, 250
PVC-105-0	0.330	8,38	0.020	0,50	100, 250
PVC-105-5/16	0.312	7,92	0.025	0,63	100, 250
PVC-105-3/8	0.375	9,52	0.025	0,63	100, 250
PVC-105-7/16	0.438	11,12	0.025	0,63	100
PVC-105-1/2A	0.500	12,70	0.025	0,63	100
PVC-105-9/16	0.562	14,27	0.030	0,76	100
PVC-105-5/8	0.625	15,87	0.030	0,76	100
PVC-105-3/4	0.750	19,05	0.035	0,88	50
PVC-105-7/8	0.875	22,22	0.035	0,88	50
PVC-105-1 IN	1.000	25,40	0.035	0,88	50
PVC-105-1-1/8	1.125	28,57	0.035	0,88	50
PVC-105-1-1/4	1.250	31,75	0.040	1,02	50
PVC-105-1-1/2	1.500	38,10	0.045	1,14	50
PVC-105-2 IN	2.000	50,80	0.060	1,52	50
PVC-105-2-1/2	2.500	63,50	0.070	1,78	50



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WIRE MANAGEMENT PRODUCTS

TEFLON® TUBING

TFT-200, 250

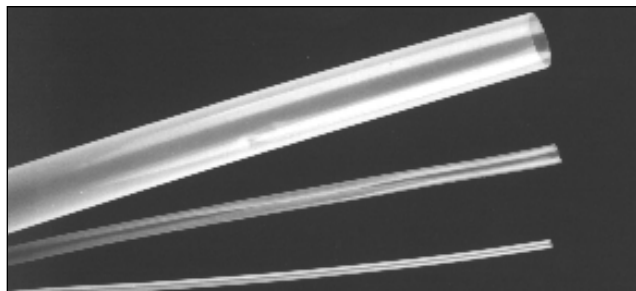
ASTM D 3295

CHOOSE TEFLON® TUBING FOR:

- Excellent Heat and Chemical Resistance
- Superior Dielectric Strength

TEFLON® TUBING APPLICATIONS:

- Wire Harnesses
- High Temperature Component Covering



CHARACTERISTICS

OPERATING TEMPERATURE:

- -65°C to 260°C

COLOR DESCRIPTION:

- All Standard Packages: Transparent

PHYSICAL PROPERTIES:

- Tensile Strength: 2500 psi (176 kg/cm²)
- Ultimate Elongation: 200%
- Specific Gravity: 2.2
- Flammability: Self-Extinguishing

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth
- Water Absorption: 0.01%

ELECTRICAL PROPERTIES:

- Dielectric Strength: 800V/mil (315 kV/cm)
- Volume Resistivity: 10¹⁸ ohm-cm

SPECIFICATIONS

- ASTM D 3295

Alpha Part No. and Size (AWG)		Nominal Inside Diameter		TFT-200 Nominal Wall Thick.		TFT-250 Nominal Wall Thick.		Standard Put-Up Spools (Ft.)
Thin Wall	Standard Wall	Inches	mm	Inches	mm	Inches	mm	
TFT-200-30	—	0.012	0,30	0.009	0,22	—	—	100, 500, 1000
TFT-200-28	—	0.015	0,38	0.009	0,22	—	—	100, 500, 1000
TFT-200-26	—	0.018	0,45	0.009	0,22	—	—	100, 500, 1000
TFT-200-24	TFT-250-24	0.022	0,55	0.010	0,25	0.012	0,30	100, 500, 1000
TFT-200-22	TFT-250-22	0.028	0,71	0.010	0,25	0.012	0,30	100, 500, 1000
TFT-200-20	TFT-250-20	0.034	0,86	0.012	0,30	0.016	0,41	100, 500, 1000
TFT-200-19▲	TFT-250-19	0.038	0,96	0.012	0,30	0.016	0,41	100, 500, 1000
TFT-200-18	TFT-250-18	0.042	1,07	0.012	0,30	0.016	0,41	100, 500, 1000
TFT-200-17▲	TFT-250-17▲	0.047	1,19	0.012	0,30	0.016	0,41	100, 500, 1000
TFT-200-16	TFT-250-16	0.053	1,35	0.012	0,30	0.016	0,41	100, 500, 1000
TFT-200-15▲	TFT-250-15▲▲	0.059	1,50	0.012	0,30	0.016	0,41	100, 500, 1000
TFT-200-14	TFT-250-14	0.066	1,68	0.012	0,30	0.016	0,41	100, 500
TFT-200-13	TFT-250-13▲	0.076	1,93	0.012	0,30	0.016	0,41	100, 500
TFT-200-12	TFT-250-12▲	0.085	2,16	0.012	0,30	0.016	0,41	100, 500
TFT-200-11	TFT-250-11	0.095	2,41	0.012	0,30	0.016	0,41	100, 500
TFT-200-10	TFT-250-10	0.106	2,69	0.012	0,30	0.016	0,41	100, 500
TFT-200-9	TFT-250-9	0.118	3,00	0.015	0,38	0.020	0,50	100, 500
TFT-200-8	TFT-250-8	0.133	3,38	0.015	0,38	0.020	0,50	100
TFT-200-7	TFT-250-7	0.148	3,76	0.015	0,38	0.020	0,50	100
TFT-200-6	TFT-250-6	0.166	4,22	0.015	0,38	0.020	0,50	100
TFT-200-5	TFT-250-5	0.186	4,73	0.015	0,38	0.020	0,50	100
TFT-200-4	TFT-250-4	0.208	5,28	0.015	0,38	0.020	0,50	100
TFT-200-3	TFT-250-3	0.234	5,94	0.015	0,38	0.020	0,50	100
TFT-200-2	TFT-250-2	0.263	6,68	0.015	0,38	0.020	0,50	100
TFT-200-1	TFT-250-1	0.294	7,47	0.015	0,38	0.020	0,50	100
TFT-200-0	TFT-250-0	0.330	8,38	0.015	0,38	0.020	0,50	100

▲Not available in 500 ft. put-up

▲▲Not available in 1000 ft. put-up

Teflon is a registered trademark of E.I. DuPont Co.

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WIRE MANAGEMENT PRODUCTS

PVC COATED FIBERGLASS SLEEVING

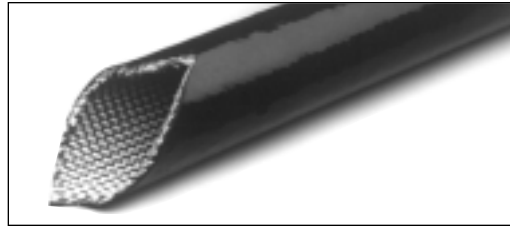
PIF-130

UL STANDARD 1441

MIL-I-3190E

CHOOSE PVC COATED FIBERGLASS SLEEVING FOR:

- High Temperature, Abrasion and Oil Resistance
- Resists Fraying, Bending and Knotting



FLAME RESISTANT: PIF-130 is a woven fiberglass braid impregnated with a heat resistant, extremely tough and flexible plastic insulation. The fiberglass is treated to remove all organic matter and resist fraying. Completely compatible with all insulation and conductor types.

PVC COATED FIBERGLASS SLEEVING APPLICATIONS:

- Flexible Wire Harnessing

CHARACTERISTICS

OPERATING TEMPERATURE:

- 20°C to 130°C
- (NEMA: 130°C, UL: 105°C)

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Low Temperature Brittleness: -40°C
- Flammability: Self-Extinguishing (UL VW-1)

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth

ELECTRICAL PROPERTIES:

- Dielectric Strength: 8000 Volt

Alpha Part No. and Size (AWG or Inches)	Nominal Inside Diameter		Standard Put-Up Spools (Ft.)
	Inches	mm	
PIF-130-20	0.034	0,86	100, 500, 1000
PIF-130-18	0.042	1,07	100, 500, 1000
PIF-130-16	0.053	1,35	100, 1000
PIF-130-14	0.066	1,68	100
PIF-130-12	0.085	2,16	100, 500
PIF-130-10	0.106	2,09	100, 500
PIF-130-8	0.133	3,38	100, 500
PIF-130-6	0.166	4,22	100, 250
PIF-130-4	0.208	5,28	100, 250
PIF-130-2	0.263	6,68	100, 250
PIF-130-0	0.330	8,38	100
PIF-130-3/8	0.375	9,52	100
PIF-130-7/16	0.438	11,12	100
PIF-130-1/2A	0.500	12,70	100
PIF-130-5/8	0.625	15,88	100
PIF-130-3/4	0.750	19,05	100
PIF-130-7/8	0.875	22,22	100
PIF-130-1 IN	1.000	25,40	100

SPECIFICATIONS

- UL Standard 1441
- MIL-I-3190E
- NEMA, VS-1



Underwriters Laboratories Inc.



Underwriters Laboratories Inc.



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WIRE MANAGEMENT PRODUCTS

SILICONE COATED FIBERGLASS SLEEVING

UL STANDARD 1441
MIL-I-3190E

PIF-200

CHOOSE SILICONE COATED FIBERGLASS SLEEVING FOR:

- High Flexible Routing
- Extreme Abrasion Resistance
- Superior Electrical Properties



HIGH HEAT, SUPERIOR ELECTRICAL CHARACTERISTICS: A closely woven, braided fiberglass, uniformly coated with silicone rubber. Provides low temperature flexibility – 70°C, and heat protection to 200°C. The fiberglass sleeving material is heat-set, cuts cleanly and will not fray. PIF-200 is easy to handle and extremely tough with superior physical and electrical properties. Easy to “pushback” and form over components, connections and cables.

SILICONE COATED FIBERGLASS SLEEVING APPLICATIONS:

- High/Low Temperature Wire Harnesses
- High/Low Temperature Cable Connections
- Component Covering

CHARACTERISTICS

OPERATING TEMPERATURE:

- –70°C to 200°C

VOLTAGE RATING:

- 600 Volt

COLOR DESCRIPTION:

- All Standard Packages: Natural

PHYSICAL PROPERTIES:

- Heat Aging: 1440 Hours at 235°C Without Dielectric Change
- Hardness: Shore A34
- Flammability: Self-Extinguishing (NEMA VS-1)

CHEMICAL PROPERTIES:

- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth

ELECTRICAL PROPERTIES:

- Dielectric Strength: 8000 Volts

Alpha Part No. and Size (AWG or Inches)	Nominal Inside Diameter		Standard Put-Up Spools (Ft.)
	Inches	mm	
PIF-200-24	0.024	0,61	100, 500, 1000
PIF-200-22	0.029	0,74	100, 500, 1000
PIF-200-20	0.036	0,91	100, 500, 1000
PIF-200-18	0.045	1,14	100, 500, 1000
PIF-200-17	0.050	1,27	500, 1000
PIF-200-16	0.056	1,42	100, 500, 1000
PIF-200-15	0.063	1,60	100, 1000
PIF-200-14	0.069	1,75	100, 500
PIF-200-13	0.076	1,93	100, 500
PIF-200-12	0.085	2,16	100, 500
PIF-200-11	0.097	2,46	500
PIF-200-10	0.107	2,72	100, 500
PIF-200-9	0.119	3,02	100, 500
PIF-200-8	0.136	3,45	100, 500
PIF-200-7	0.151	3,84	100, 500
PIF-200-6	0.170	4,32	25, 100
PIF-200-5	0.190	4,83	25, 100
PIF-200-4	0.208	5,28	100
PIF-200-3	0.239	6,07	25, 100
PIF-200-2	0.268	6,81	25, 100
PIF-200-1	0.294	7,47	100
PIF-200-0	0.330	8,38	100
PIF-200-3/8	0.375	9,52	25, 100
PIF-200-7/16	0.438	11,12	25, 100
PIF-200-1/2A	0.500	12,70	25, 100
PIF-200-5/8	0.625	15,88	25, 100

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SPECIFICATIONS

- UL Standard 1441
- MIL-I-3190E
- NEMA, VS-1



WIRE MANAGEMENT PRODUCTS

UNCOATED FIBERGLASS SLEEVING

PIF-240

UL STANDARD 1441

CHOOSE UNCOATED FIBERGLASS SLEEVING FOR:

- Extreme Flexibility
- Extreme Heat Environments

UNCOATED FIBERGLASS SLEEVING APPLICATIONS:

- High Temperature Wire Harnesses
- High Temperature Cable Connections
- Component Covering

CHARACTERISTICS

OPERATING TEMPERATURE:

- -60°C to 648°C (1200°F)

COLOR DESCRIPTION:

- All Standard Packages: Natural

PHYSICAL PROPERTIES:

- Flammability: Self-Extinguishing (UL VW-1)

CHEMICAL PROPERTIES:

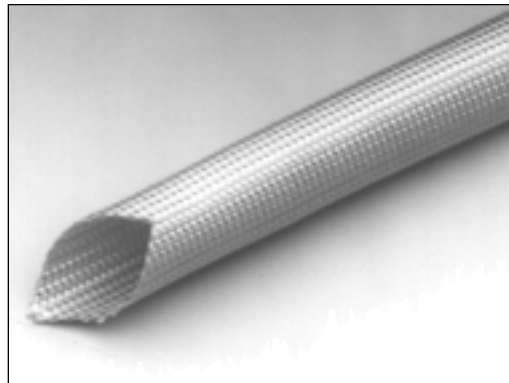
- Corrosive Effect: Non-Corrosive
- Fungus Resistance: No Growth

SPECIFICATIONS

- UL Standard 1441
- NEMA, VS-1

 **Recognized Component**
Underwriters Laboratories Inc.

 **Passes UL VW-1 Flame Test**
Underwriters Laboratories Inc.



FLEXIBLE, ABRASION RESISTANT:

Extremely flexible, abrasion resistant sleeving, ideal for applications necessitating operation up to 648°C (1200°F).

Heat treated to remove all organic matter. Completely compatible with all insulation and conductor types.

Alpha Part No. and Size (AWG or Inches)	Nominal Inside Diameter		Standard Put-Up Spools Ft.
	Inches	mm	
PIF-240-20	0.034	0,86	100
PIF-240-18	0.042	1,07	100
PIF-240-16	0.053	1,35	100
PIF-240-15	0.059	1,50	100
PIF-240-14	0.066	1,68	100
PIF-240-12	0.085	2,16	100
PIF-240-11	0.095	2,41	100
PIF-240-10	0.106	2,69	100
PIF-240-9	0.118	3,00	100
PIF-240-8	0.133	3,38	100
PIF-240-7	0.148	3,76	100
PIF-240-6	0.166	4,22	100
PIF-240-5	0.186	4,72	100
PIF-240-4	0.208	5,28	100
PIF-240-3	0.234	5,94	100
PIF-240-2	0.263	6,68	100
PIF-240-1	0.294	7,47	100
PIF-240-0	0.330	8,38	100
PIF-240-3/8	0.375	9,52	100
PIF-240-7/16	0.438	11,12	100
PIF-240-1/2A	0.500	12,70	100
PIF-240-5/8	0.625	15,88	100
PIF-240-3/4	0.750	19,05	100
PIF-240-7/8	0.875	22,22	100
PIF-240-1 IN	1.000	25,40	100



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WIRE MANAGEMENT PRODUCTS

UL VW-1
MIL-I-631D

NON-FRAYING, EXPANDABLE BRAID SLEEVING

GRP-110NF, 120NF

CHOOSE GRP NF FOR:

- Frayless Cuts **WITHOUT A HOT KNIFE!**
- Frequent Expansion at Scissor Cut Ends Without Fraying!
- Lightweight, Flexible Routing
- Use with Automatic Cutting Machines
- Use with **XTRA-GUARD®** Flexible Cables

GRP NF APPLICATIONS:

- Field Installation Without Hot Knife
- Protection of Wire, Cable and Hoses
- Wire Bundling & Harnessing
- Wire Splices

CHARACTERISTICS

OPERATING TEMPERATURE:

- -70°C to 125°C

COLOR DESCRIPTION:

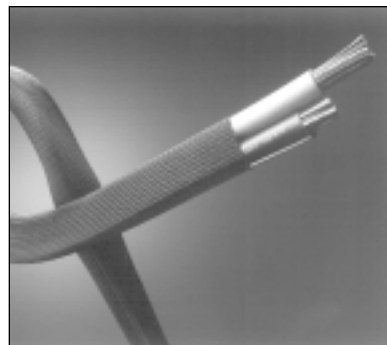
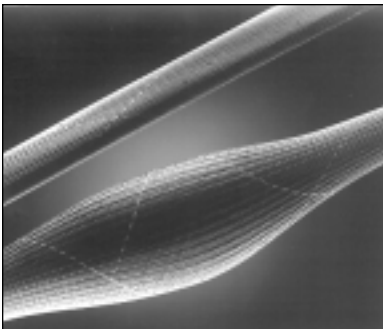
- GRP-110NF: Black
- GRP-120NF: Black with White Tracer

PHYSICAL PROPERTIES:

- Withstands Short Term Exposure to 230°C
- GRP-120NF Passes UL VW-1 Flame Test

CHEMICAL PROPERTIES:

- Not Affected by Most Chemical Environments and Common Solvents (Freon, Detergents, Soaps, Bleaches and Water)
- Fungus Resistance: No Growth



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SPECIFICATIONS

- MIL-I-631D



Alpha's GRP NF is a braided sleeving designed not to fray when cut with ordinary scissors or when repeatedly expanded and retracted. This product **DOES NOT REQUIRE A HOT KNIFE WHEN CUTTING!** Ends remain clean after installation in the field as well as on the bench. Can be used on automated cutting machines.

General Purpose Alpha Part No.	Flame Retardant Alpha Part No.	Size	Minimum Supplied I.D.		Maximum Expanded I.D.		Nominal Wall Thickness		Spools Total Ftg.
			Inches	mm	Inches	mm	Inches	mm	
GRP-110NF18	GRP-120NF18	1/8	0.093	2,36	0.250	6,35	0.027	0,69	100, 500
GRP-110NF14	GRP-120NF14	1/4	0.125	3,18	0.440	11,09	0.027	0,69	100, 500
GRP-110NF12	GRP-120NF12	1/2	0.250	6,35	0.750	19,05	0.027	0,69	100, 500
GRP-110NF34	GRP-120NF34	3/4	0.500	12,70	1.250	31,75	0.027	0,69	100, 500
GRP-110NF114	GRP-120NF114	1-1/4	0.750	19,05	1.750	44,45	0.027	0,69	50, 250
GRP-110NF112	GRP-120NF112	1-1/2	1.250	31,75	2.750	69,85	0.027	0,69	50, 250

WIRE MANAGEMENT PRODUCTS

EXPANDABLE BRAIDED POLYESTER SLEEVING

GRP-110, 120

MIL-I-631D

CHOOSE EXPANDABLE BRAIDED POLYESTER SLEEVING FOR:

- Lightweight, Flexible Routing
- High Abrasion and Cut-Through Resistance
- Rot-Free/Fungus-Proof Applications



EXPANDS AND GRIPS:

Alpha GRP is a lightweight, expandable woven polyester sleeving that offers high flexibility with high resistance to abrasion and cut-through. The open weave allows for a great range of expansion of the sleeving diameter, thus ensuring ease of installation and gripping action over a wide range of shapes and sizes. GRP sleeving is an ideal protective sleeve for wire bundles, harnesses, pneumatic hoses, hydraulic lines and highly polished or threaded machine parts.

To prevent fraying of ends, GRP-110, 120 should be cut/sealed with a hot knife.

EXPANDABLE BRAIDED POLYESTER SLEEVING APPLICATIONS:

- Cut-Resistant Covering for Wire, Cable and Hoses
- Wire Bundling and Harnessing
- Jacket for Flat Cable

CHARACTERISTICS

OPERATING TEMPERATURE:

- -70°C to 125°C

COLOR DESCRIPTION:

- GRP-110: Black, Natural
- GRP-120: Black, White

PHYSICAL PROPERTIES:

- Withstands Short Term Exposure to 230°C
- GRP-120 Passes UL VW-1 Flame Test

CHEMICAL PROPERTIES:

- Not Affected by Most Chemical Environments and Common Solvents (Freon*, Detergents, Soaps, Bleaches and Water)
- Fungus Resistance: No Growth

General Purpose Alpha Part No. and Size	Flame Retardant Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Expanded I.D.		Nominal Wall Thickness		Standard Put-Up Spools Ft.
		Inches	mm	Inches	mm	Inches	mm	
GRP-110-1/8	GRP-120-1/8	0.093	2,36	0.250	6,35	0.025	0,63	100, 500
GRP-110-1/4	GRP-120-1/4	0.125	3,18	0.437	11,09	0.025	0,63	100, 500
GRP-110-1/2	GRP-120-1/2	0.250	6,35	0.750	19,05	0.025	0,63	100, 500
GRP-110-3/4	GRP-120-3/4	0.500	12,70	1.250	31,75	0.025	0,63	100, 500
GRP-110-1-1/4	GRP-120-1-1/4	0.750	19,05	1.750	44,45	0.025	0,63	50, 250
GRP-110-1-3/4	GRP-120-1-3/4	1.250	31,75	2.750	69,85	0.025	0,63	50, 250
GRP-110-2	GRP-120-2	1.500	38,10	3.500	88,90	0.025	0,63	50, 250

**See Our Non-Fraying
GRP-110NF and GRP-120NF
(Page 153) ...
CAN BE CUT WITHOUT A HOT KNIFE!**

SPECIFICATIONS

- MIL-I-631D



*Registered trademark of E.I. DuPont Co.



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WIRE MANAGEMENT PRODUCTS

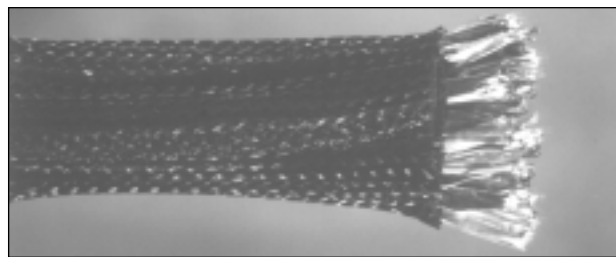
EXPANDABLE POLYESTER WEBBED SLEEVING

MIL-I-631D

ZIP-GRP

CHOOSE EXPANDABLE POLYESTER WEBBED SLEEVING FOR:

- Unlimited Breakouts
- Abrasion, Cut-Through Resistance
- Oil and Solvent Resistance



EXPANDABLE POLYESTER WEBBED SLEEVING APPLICATIONS:

- Cut-Resistant Covering for Wire, Cable and Hoses
- Wire Bundling and Harnessing

CHARACTERISTICS

OPERATING TEMPERATURE:

- -70°C to 125°C

COLOR DESCRIPTION:

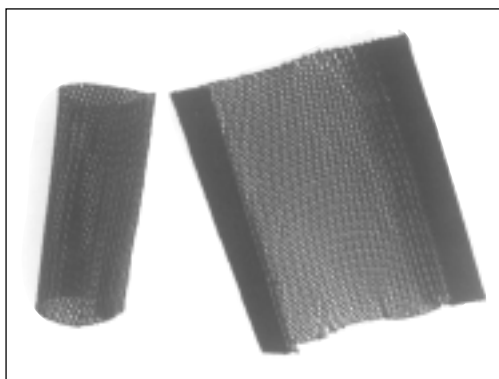
- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Withstands Intermittent Exposure to 140°C
- Melt Temperature: 250°C
- Tensile Strength: 100,000 psi
- Cycle Life: Up to 10,000 Cycles

CHEMICAL PROPERTIES:

- Resistant to Most Chemicals: Acetone, Acids, Hydrocarbons, Trichlorethylene, Alcohol
- Fungus Resistance: No Growth



EXPANDS, GRIPS AND HARNESSSES:

Alpha's ZIP-GRP expandable webbing offers superb flexibility and high tensile strength while providing added protection against flame, chemicals and abrasion. With its velcro-type enclosure, wires, cable assemblies and wire harnesses are always accessible and can be easily opened for any number of breakouts.

To prevent fraying of ends, ZIP-GRP should be cut/sealed with a hot knife.

Alpha Part No. and Size	Minimum Supplied I.D.		Maximum Expanded I.D.		Typical Wall Thickness		Nominal Flat Width		Standard Put-Up Spools Ft.
	Inches	mm	Inches	mm	Inches	mm	Inches	mm	
ZIP-GRP-7/8	0.750	19,1	1.000	25,4	0.025	0,635	2.500	63,5	25, 50
ZIP-GRP-1-1/2	1.000	25,4	2.000	50,8	0.025	0,635	3.750	95,3	25, 50
ZIP-GRP-2	1.500	38,1	2.125	53,9	0.025	0,635	5.000	127,0	25, 50

SPECIFICATIONS

- MIL-I-631D

WIRE MANAGEMENT PRODUCTS

ZIPPER TUBING

ZIP-41

UL STANDARD 224

CHOOSE ZIPPER TUBING FOR:

- Protection Against Flame, Chemicals and Abrasion

ZIPPER TUBING APPLICATIONS:

- Wire/Cable Bundling
- Cable Jacketing Protection

CHARACTERISTICS

OPERATING TEMPERATURE:

- 20°C to 105°C

COLOR DESCRIPTION:

- All Standard Packages: Black

PHYSICAL PROPERTIES:

- Tensile Strength: 2500 psi, (177 kg/cm²)
- Ultimate Elongation: 300%
- Wall Thickness: 0.020" (0,51mm)
- Track Thickness: (When Closed) 0.150 Inches (3,8mm)
- Flammability: Self-Extinguishing (UL VW-1)

CHEMICAL PROPERTIES:

- Fungus Resistance: No Growth

WIRE, CABLE, HARNESS PROTECTION:

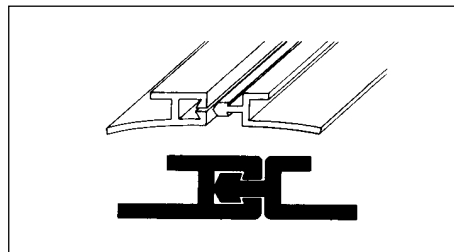
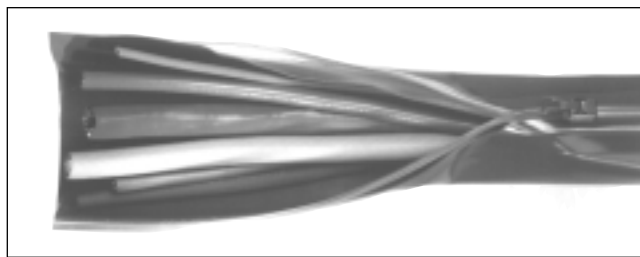
Alpha Zipper Tubing is designed to provide a professional finish to wiring installations by eliminating exposed wiring and providing added protection against flame, chemicals

and abrasion. With Zipper Tubing, it's possible to isolate any group of wires or cables quickly and easily, without the bother of tape wrapping.

Zipper Tubing is manufactured from the highest quality, high temperature, stabilized PVC. The combination of flame, oil, fungus and moisture resistance, coupled with excellent abrasion resistance, makes Zipper Tubing an ideal jacketing material for use in harsh environments.

Supplied flat on a spool for ease of storage and accessibility, Alpha Zipper Tubing is an ideal jacketing material for use in the production or repair of pre-wired harness assemblies.

Each package contains two plastic sliders (AB 395).



Loc-Trac® provides an effective closure that is ideal for use where the assembly will be subjected to random flexing.

SPECIFICATIONS

- UL Standard 224
- MIL-I-631D



Recognized Component



Passes UL VW-1 Flame Test

Underwriters Laboratories Inc.

Underwriters Laboratories Inc.

Alpha Part No. and Size	Nominal Inside Diameter		Nominal Flat Width		Standard Package Spool Lengths (Ft.)
	Inches	mm	Inches	mm	
ZIP-41-1/2	1/2	12,7	2	50,8	25, 100
ZIP-41-5/8	5/8	15,8	2-3/8	60,3	25, 100
ZIP-41-3/4	3/4	19,0	2-3/4	69,8	25, 100
ZIP-41-7/8	7/8	22,2	3-1/8	79,8	25, 100
ZIP-41-1	1	25,4	3-9/16	90,4	25, 100
ZIP-41-1-1/4	1-1/4	31,7	4-1/8	104,7	25, 100
ZIP-41-1-1/2	1-1/2	38,1	4-7/8	123,8	25, 100
ZIP-41-1-3/4	1-3/4	44,4	5-5/8	142,8	25, 100
ZIP-41-2	2	50,8	6-3/8	161,9	25, 100
ZIP-41-2-1/4	2-1/4	57,1	7-1/2	190,5	25, 100
ZIP-41-3	3	76,2	10	254,0	25, 100



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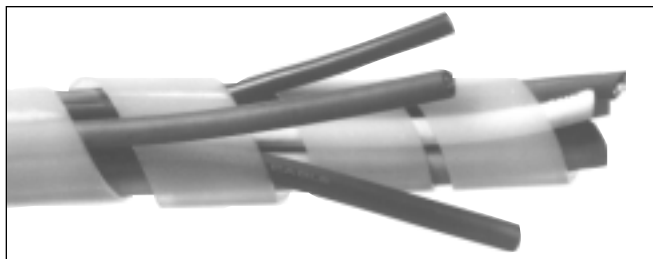
WIRE MANAGEMENT PRODUCTS

SPIRAL WRAP TUBING

SW

SPIRAL WRAP TUBING APPLICATIONS:

- Wire Harness Breakouts
- Cable Bundling



CHARACTERISTICS

OPERATING TEMPERATURE:

- Polyethylene: -20°C to 80°C
- Nylon: -40°C to 120°C
- Teflon*: -70°C to 250°C
- PVC: -20°C to 80°C

COLOR DESCRIPTION:

- SW-1 to 6, SW-20 to 25 and SW-30 to 35: Natural
- SW-10 to 14: White
- SW-40 to 45 and SW-50 to 53: Black

SPIRAL CUT FOR HARNESS BREAKOUTS:

Wire harnessing, cabling and bundling work is simplified with the use of Alpha's SW series spiral wrap tubing. SW tubing wraps tightly to the wire and cable being bundled, yet is flexible and simple to apply. All types maintain flexibility even when bent around sharp edges. Breakouts or tapoff connections may be made through the openings of the wrap. SW spiral wrap is constructed from several semi-rigid tubing materials and then cut on a continual spiral.

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Alpha Part No.	Size In.	Standard Materials	Standard Put-Up Ft.	Max. Oper. Temp.	Min. Oper. Temp.	Nom. O.D. Inches	Nominal Wall Thickness Inches	Max. Diam. Inner Wire Bundle Inches	Flammability
SW-1	1/8	CLEAR POLYETHYLENE Ideal for general indoor applications. This cost-effective material is extremely abrasion resistant and is unaffected by most solvents.	25, 100, 500	80°C	-20°C	0.125	0.031	1/2	Not Flame Retardant.
SW-2	1/4		25, 100, 500	(176°F)	(-4°F)	0.250	0.046	2	
SW-3	3/8		25, 100			0.375	0.052	3	
SW-4	1/2		25, 100			0.500	0.062	4	
SW-5	3/4		25, 100, 500			0.750	0.065	5	
SW-6	1		25, 100, 500			1.000	0.095	6	
SW-10	1/8	FIRE RESISTANT POLYETHYLENE A cost-effective alternative to Nylon or Teflon*. This special material is self-extinguishing.	25, 100, 500	80°C	-20°C	0.125	0.031	1/2	94V-0
SW-11	1/4		25, 100, 500	(176°F)	(-4°F)	0.250	0.046	2	
SW-12	3/8		25, 100			0.375	0.052	3	
SW-13	1/2		25, 100			0.500	0.062	4	
SW-14	3/4	25, 100			0.750	0.065	5		
SW-20	1/8	NYLON Highly specialized product that is tough, durable, self-extinguishing, abrasion resistant, lightweight. Operates over a wide temp. range.	25, 100, 500	120°C	-40°C	0.125	0.016	1/2	94V-2
SW-21	1/4		25, 100, 500	(176°F)	(-40°F)	0.250	0.025	2	
SW-22	3/8		25, 100			0.375	0.035	3	
SW-23	1/2		25, 100			0.500	0.035	4	
SW-24	3/4		25, 100			0.750	0.032	5	
SW-25	1		25, 100			1.000	0.032	6	
SW-30	1/8	TEFLON* Self extinguishing, fluorocarbon, resin material. Possesses greatest min. & max. temp. range of any spiral wrap material. Suitable for use in a number of industrial applications.	25, 100	250°C	-70°C	0.125	0.030	1/2	Self Extinguishing.
SW-31	1/4		25, 100	(482°F)	(-94°F)	0.250	0.030	2	
SW-32	3/8		25, 100			0.375	0.030	2-1/2	
SW-33	1/2		25, 100			0.500	0.030	3	
SW-34	3/4		25, 100			0.750	0.032	3-1/2	
SW-35	1		25, 100			1.000	0.040	4	
SW-40	1/8	ULTRAVIOLET-RESISTANT BLACK POLYETHYLENE Recommended for outdoor use. Same properties as clear polyethylene but contains extra additive for moisture resistance ultraviolet light and rain.	25, 100, 500	80°C	-20°C	0.125	0.030	1/2	Not Flame Retardant.
SW-41	1/4		25, 100, 500	(176°F)	(-4°F)	0.250	0.045	2	
SW-42	3/8		25, 100			0.375	0.050	3	
SW-43	1/2		25, 100			0.500	0.060	4	
SW-44	3/4		25, 100, 500			0.750	0.065	5	
SW-45	1		25, 100, 500			1.000	0.095	6	
SW-50	1/8	PVC Superior to abrasion resistance, tensile strength, thermal, mechanical & electrical properties. Self-extinguishing flexible product.	25, 100	80°C	-20°C	0.125	0.032	1/2	Self Extinguishing.
SW-51	1/4		25, 100	(176°F)	(-4°F)	0.250	0.045	2	
SW-52	3/8		25, 100			0.375	0.052	2-1/2	
SW-53	1/2		25, 100			0.500	0.062	3	

*Registered trademark of E.I. DuPont Co.

WIRE MANAGEMENT PRODUCTS

LACING CORD AND TAPE

LC

MIL-T-43435

CHOOSE LACING CORD AND TAPE FOR:

- High Tensile Strength
- Good Chemical Resistance
- Excellent Abrasion Resistance
- Excellent Knot Retention

LACING CORD AND TAPE APPLICATIONS:

- Bundling Military Wire Harnesses



HIGH TENSILE STRENGTH, KNOT RETENTION:

Designed to allow a wider contact area with the insulation so that it remains in place, tape is flexible and easy on the assembler's hands. Once knotted, tape resists slipping and does not increase diameter of harness. Nylon has excellent tensile strength and resists acids, abrasion, flame and fungus. Polyester has all the characteristics of Nylon, but has better resistance to acids, and no appreciable discoloration.

CHARACTERISTICS

COLOR DESCRIPTION:

- All Standard Packages: White, Black

SPECIFICATIONS

- MIL-T-43435

AVAILABILITY

- 500 yard spools

NYLON AND DACRON FLAT BRAIDED TAPE

Alpha Part No.	MIL-T-43435 Designation			Tensile Strength Lbs.	Nom. Width		Nom. Thickness		Material
	Type	Size	Finish		Inches	mm	Inches	mm	
LC-132	I	3	C (GE)	50	0.085	2,16	0.014	0,35	Nylon
LC-134	I	4	B (MW)	30	0.060	1,52	0.012	0,30	Nylon
LC-136	I	3	B (MW)	50	0.085	2,16	0.014	0,35	Nylon
LC-140	I	3	F (SR)	50	0.085	2,16	0.014	0,35	Nylon
LC-143	I	3	E (AM)	50	0.085	2,16	0.014	0,35	Nylon
LC-162	II	3	B (MW)	50	0.085	2,16	0.014	0,35	Polyester

FINISHES:

GE: A synthetic rubber-like resin formulated with a non-mercuric compound which lends the finish fungicidal properties. This finish permits easier handling and better knot retention. This finish has a melting point in excess of 190°F and will soften, but not flow, at 140°F.

MW: A micro-crystalline wax with a melting point above 130°F compounded with a fungicide which does not contain either copper or mercuric materials. Excellent knot retention, yet finish does not have too great a "waxy" feel to the user. MW is soft, pliable, easy to tie.

AM: A thermoplastic synthetic resin with a melting point above 350°F for use where a "wax free" type is specified. It is a non-dusting or flaking, dry finish with good knot tying qualities.

SR: A special continuous coating of fungistatic synthetic rubber containing no corrosive compounding ingredients. Knots tied with this finish will not slip. This finish will not flake or dust.



WIRE MANAGEMENT PRODUCTS

TINNED COPPER BRAID

FLAT, OVAL

QQ-W-343E

QQ-B-575B

CHOOSE TINNED COPPER BRAID FOR:

- Ground/Shielding Terminations

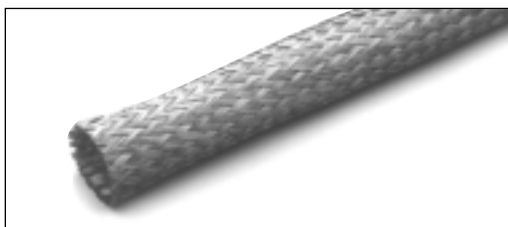
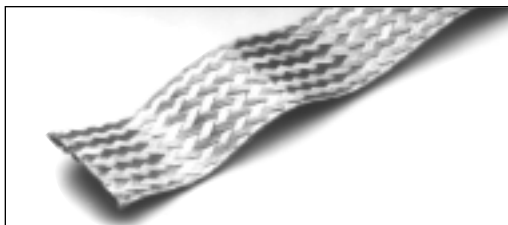
TINNED COPPER BRAID APPLICATIONS:

- Point-to-Point Ground Path
- Wire/Cable Shielding

CHARACTERISTICS

PRODUCT DESCRIPTION:

- Flat or Oval Shaped Tinned Copper Braid



SHIELDING, GROUND STRAP:

A tight weave of multi-strand, soft drawn tinned copper wire; tinned copper braid is an ideal shielding material for short-run cables providing easy radial termination. In retrofit applications, provides additional shielding efficiency. Tinned copper flat braid, used as a ground strap, provides an excellent, low-resistance ground path.

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TINNED COPPER FLAT BRAID

Alpha Part No.	Nom. Flat Width		Nom. Thickness		Braid Construction			Approx. AWG Equiv.	Nom. Circular Mil Area, CM	Approx. Current Carrying Cap. (Amps)†	Standard Package Spools Ft.
	Inches	mm	Inches	mm	AWG of Indiv. Ends	Carriers	Total No. of Indiv. Ends				
1221	0.025	0,63	0.015	0,38	36	8	8	27	200	4	100, 500, 1000
1222	1/32	0,79	0.020	0,50	36	16	16	24	400	6	100, 500, 1000
1223†	3/64	1,19	0.020	0,50	36	24	24	22	600	7	100, 500, 1000
1224	3/32	2,38	0.020	0,50	36	16	48	19	1200	11	100, 500, 1000
1229†	1/8	3,18	0.020	0,50	36	24	72	18	1800	16	100, 500, 1000
1230†	3/16	4,76	0.020	0,50	36	24	120	15	3000	25	100, 500, 1000
1231†	1/4	6,35	0.030	0,76	36	24	168	14	4200	32	100, 500, 1000
1232	3/8	9,53	0.030	0,76	36	48	288	12	7200	46	100, 500, 1000
1233/2	1/2	12,70	0.030	0,76	36	48	384	10	9600	53	100, 500, 1000
1233†	5/8	15,90	0.030	0,76	36	48	384	10	9600	53	100, 500, 1000
1234	3/4	19,10	0.040	1,02	36	48	864	7	20800	85	100, 500, 1000
1235	1	25,40	0.045	1,14	36	48	864	7	20800	85	100, 500, 1000
1239†	1-3/8	34,90	0.050	1,27	30	48	336	5	33700	100	100, 500, 1000
1240†	1-1/2	38,10	0.060	1,52	30	48	528	3	53064	150	100
1241	1-3/4	44,50	0.080	2,03	30	48	1248	2/0	125424	280	100
1242	2	50,80	0.120	3,05	30	48	1436	3/0	154368	310	100
1242/4	3	76,20	0.200	5,08	30	48	2256	4/0	225000	390	100

SPECIFICATIONS

- QQ-W-343E
- ASTM-B-33
- † Meets QQ-B-575B

TINNED COPPER OVAL BRAID

Alpha Part No.	Nom. I.D. When Rounded		Braid Construction			Approx. AWG Equiv.	Nom. Circular Mil Area, CM	Approx. Current Carrying Cap. (Amps)†	Standard Package Spools Ft.
	Inches	mm	AWG of Indiv. Ends	Carriers	Total No. of Indiv. Ends				
2132	1/16	1,59	34	16	32	19	1192	11	100, 500, 1000
2138	11/64	4,37	34	24	120	14	4770	32	100, 500, 1000
2140	3/16	4,76	34	24	144	13	5724	38	100, 500
2142	1/4	6,35	34	24	168	12	6678	41	100, 500
2144	3/8	9,53	34	24	192	11	7632	46	100, 500
2146	1/2	12,70	34	48	336	9	13356	62	100
2148	5/8	15,88	34	48	384	8	14264	64	100
2150	11/16	17,46	34	48	480	7	19080	81	100
2152	25/32	19,84	34	48	528	7	20988	85	100

†Values shown are for bare cable in free air at 30°C (86°F) and intended as a reference guide only. Actual values will depend on permissible temperature rise, permissible voltage drop and other conditions of service.

WIRE MANAGEMENT PRODUCTS

TINNED/SILVER COPPER BRAID TUBULAR

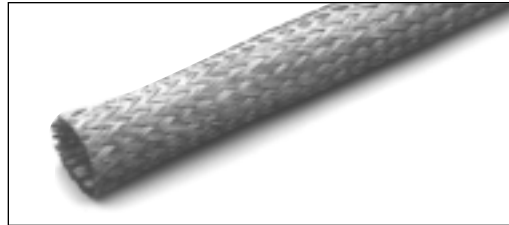
QQ-B-575B
QQ-W-343E

CHOOSE TINNED COPPER BRAID FOR:

- Ground/Shielding Terminations

TINNED COPPER BRAID APPLICATIONS:

- Point-to-Point Ground Path
- Wire/Cable Shielding



SHIELDING, GROUND STRAP:

A tight weave of multi-strand, soft drawn tinned copper wire; tinned copper braid is an ideal shielding material for short-run cables providing easy radial termination. In retrofit applications, provides additional shielding efficiency. Tinned copper flat braid, used as a ground strap, provides an excellent, low-resistance ground path.

CHARACTERISTICS

PRODUCT DESCRIPTION:

- Tubular Shaped, Tinned or Silver-Plated Copper Braid

SPECIFICATIONS

- QQ-W-343E
- QQ-B-575B
- ASTM-B-33

Alpha Part No.	Nom. I.D. When Rounded Inches mm	Braid Construction AWG of Individ. Carriers	Total No. of Individ. Ends	Approx. AWG Equiv.	Nom. Circular Mil Area, CM	Approx. Current Carrying Cap. (Amps)†	Standard Package Spools Ft.		
TINNED COPPER TUBULAR BRAID									
2160	1/32	0,79	36	24	24	22	600	7.0	100, 250
2162	1/16	1,59	36	24	48	19	1200	11.0	100, 250
2163	5/64	1,98	36	24	72	18	1800	16.0	100, 250
2164	7/64	2,78	36	24	96	16	2400	19.0	100, 250
2166	1/8	3,18	36	24	120	15	3000	25.0	100, 250
2167	5/32	3,97	36	24	240	12	6000	40.0	100, 250
2168	11/64	4,37	36	24	168	14	4200	32.0	100, 250
2170	13/64	5,16	34	24	192	11	7630	46.0	100
2171	1/4	6,35	36	24	384	10	9600	53.0	100
2171/1	9/32	7,14	30	24	120	9	12060	60.0	100
2172	3/8	9,53	36	48	384	10	9600	53.0	100
2173	7/16	11,11	30	24	240	6	24120	90.0	100
2174	1/2	12,70	36	48	528	9	13200	62.0	100
2175	9/16	14,29	30	48	480	3	48240	145.0	100
2175/1	21/32	16,67	30	48	768	1	77180	190.0	100
2176	25/32	19,84	36	48	864	7	21600	88.0	100
EXTRA LARGE TINNED COPPER TUBULAR BRAID									
2177	7/8	22,23	30	48	336	5	33700	100.0	100
2178	1	25,40	30	48	384	4	38600	120.0	100
2179	1-1/8	28,58	30	48	432	4	43330	130.0	100
2180	1-1/4	31,75	30	48	480	3	48150	145.0	100
2181	1-3/8	34,93	30	48	528	3	53000	150.0	100
2182	1-1/2	38,10	30	48	576	2	57775	165.0	100
SILVER-PLATED TUBULAR BRAID									
2191	1/16	1,59	36	24	48	19	1200	11.0	100
2193	7/64	2,78	36	24	96	16	2400	19.0	100
2194	1/8	3,18	36	24	120	15	3000	25.0	100
2195	5/32	3,97	36	24	240	12	6000	40.0	100
2196	11/64	4,37	36	24	168	14	4200	32.0	100
2197	13/64	5,16	34	24	192	11	7640	46.0	100
2198	1/4	6,35	36	24	384	10	9600	53.0	100

†Values shown are for bare cable in free air at 30°C (86°F) and intended as a reference guide only. Actual values will depend on permissible temperature rise, permissible voltage drop and other conditions of service.



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