EXIM & MFR ENTERPRISE

SLEEVINGS/TUBINGS
SPIRAL WRAPS/SLEEVE WRAPS
WIRES

The Shining Light in Single Source Solutions

Excelsior

Since 18th February 1982

SLEEVING/TUBINGS • SPIRAL WRAPS/SLEEVE WRAPS • WIRES

EXIM & MFR ENTERPRISE

6th Edition

CONTENT

EXIM & MFR ENTERPRISE

Vision

To be the global market leader in inventory management of mechanical and electro-mechanical components by being the link between world class suppliers and global customer base.

Mission

We provide through our expertise, knowledge and network of global suppliers, the best quality products and services that we specialise in for our customers in the various industries.

Values

Our Organisational Culture is developed through:

Punctuality - Prompt Responsiveness, On-Time Delivery

Receptiveness - Meeting Changes, Customising, Maintaining Communications

Improvement - Continual Review and Evaluation, Acting on Feedback, Being Innovative

Commitment - Delivering and Exceeding Expectation, Competitive Pricing, Stringent Quality Control, Socially Responsible Environmentally Conscious

Excellence - Searching and Establishing Best Practices

INTRODUCTION

EXIM & MFR ENTERPRISE was established in February 1982, the company's over-riding objective was not "just to be another hardware distributor" - but rather to be a unique distributor - providing quality products and services to the computer and computer peripheral industries; the manufacturers of air-conditioner / refrigerators, automotive, home appliances, instrumentative / controls, motors, office equipment, power supplies, printers & telecommunication devices. No customer is too small or too big for us. We meet all their exacting standards.

Today, we have a staff strength of more that 100 with an annual sales turnover exceeding S$20 million. We have grown to be one of the largest suppliers of **Fasteners, Electronic Hardware Components and Tubings / Sleevings.** We have an inventory of more than 19,000 stock items covering a comprehensive and continually growing range of products that includes metal / non-metal fasteners, machined turned parts, captive fasteners, belts, die-cut parts and insulators, sleevings and tubings, PCB hardware, pins, retaining rings, rivets, spacers, tapes, washers and many others. Maintaining a large supplier base of more than 700 - from China, Europe, Hong Kong, Taiwan and USA, we are ever ready to meet the needs of customers worldwide, be it a simple washer and screw to even the most obscure parts that may be difficult to source.

Apart from our wide product range, our firm commitment to quality is best reflected in our continued pursuit to achieving a higher level of quality system so as to improve ourselves and deliver beyond customers' expectations. We are **ISO 9001 : 2000, QS 9000 : 1998, ISO 14001** and **Singapore Quality Class Certified**. With such world class quality systems in place, we are definitely in a good position to meet and exceed the requirements of most industries by providing quality products, on-time delivery and prompt responsive services at competitive prices.

This catalogue is specifically prepared in testimony of our commitment to customer service and we hope you will find it useful and effective as a reference to your sourcing requirements.

We have to date, more than 1000 valued customers that include some of the most enviable household names such as Agilent, American Power Conversion, Carrier Transicold, Emerson, General Electric, Hewlett Packard, Honeywell-Allied Signal, Japan Servo Motors, Kulicke & Soffa, Matsushita, Motorola, Robert Bosch, Shimano, Siemens, Tata, Portescap Danaher Motion and ... not forgetting ...**YOU,** with our ultimate aim of earning your trust and complete satisfaction.

GENERAL SELECTION GUIDE OF SLEEVINGS / TUBINGS

Material	Characteristics/	Color	Flammability
Polyolefin	All Purpose Insulation	Colors/Clear	Passes UL VW-1 (Except Clear)
Polyolefin	International Ground Indentification	Green/Yellow	Flame Retarded
Polyolefin	Semi-Rigid Insulation	Color/Clear	Flame Retarded (Except Clear)
Polyolefin	Meltable Inned Wall	Colors	Not Flame Retarded
Polyolefin	Highly Flame Retarded	Black/White	Passes UL VW-1
Polyolefin	Flexible Adhesive Wall	Black	Flame Retarded Outer Wall
Polyolefin	Adhesive Lined Cable And Connector Sleeve	Black	Not Flame Retarded
Polyolefin	Adhesive Coated Waterproof Insulation	Black	Jacket Flame Retarded
PVC	Flexible Economical Insulation	Black	Passes UL VW-1
Mylar	Transparent Thin Wall	Clear	Not Flame Retarded
FEP Teflon	Low Shrink Temperature Excellent Physical Properties	Natural	Will Not Burn
TFE Teflon	High Temperature Protection	Natural	Will Not Burn
Kynar	Semi-Rigid, Transparent Abrasion Resistant	Natural	Passes UL VW-1
Neoprene	Extremely Flexible Abrasion Resistant	Black	Passes UL VW-1
Modified Polyolefin	Provide Strain Relief Seal Out Contaminents	Black	Flame Retarded
Polyolefin	Termination Caps Over Wire, Cable, Splices	Colors	Flame Retarded
Molded Polyolefin	Abrasion Resistant Covering For Wire And Cable Terminations	Black	Flame Retarded
Polyolefin	Outer Wall Shrinks Inner Wall Melts Forming Environmental Seal	Black	Flame Retarded
Polyester/Polyamide	Outer Wall Shrinks Inner Wall Melts Forming Environmental Seal	Blue	Slow Burning
Polyolefin	Meltable Inner Wall Encapsulates Crimped Electrical Connections	Black	Not Flame Retarded
Polyester	Thin Wall- Excellent Electrical Properties	Clear	Slow Burning
PVC	Permanent Identification Markers- Strain Relief And Protective Sleeves	Black	Self Extinguishing
PVC	Low Temperature Flexibility	Black/Clear	Self Extinguishing
PVC	All Purpose Insulation	Colors/Clear	Passes UL VW-1
TFE Teflon	High Temperature Thin Wall	Natural	Will Not Burn
TFE Teflon	High Temperature Standard Wall	Natural	Will Not Burn
TFE Teflon	High Temperature Fractional Sizes	Natural Natural	Will Not Burn Will Not Burn
TFE Teflon	High Temperature Extra Thin Wall	Colors	Will Not Burn
Plastic/Fiberglass	Class B Woven Sleeving Vinyl Impregnated	Black	Passes UL VW-1
Acrylic/Fiberglass	Class F Woven Sleeving Acrylic Impregnated	Natural	Self Extinguishing
Silicone/Fiberglass	Class H Woven Sleeving Silicone Coated	Natural	Passes UL VW-1
Braided Fiberglass	Class C Woven Sleeving	Natural	Passes UL VW-1
PVC Zipper Tubing PVC Zipper Tubing PVC Zipper Tubing	All Purpose Heavy Duty Shielded	Clear/Black Clear/Black Gray	Passes UL VW-1 Passes UL VW-1 Passes UL VW-1

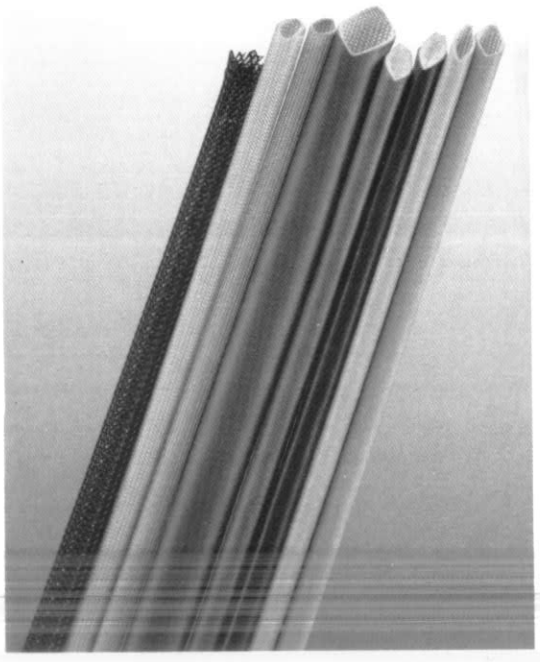
A man's feet should be planted in his country, but his eyes should survey the world. - GEORGE SANTAYANA

Dielectric Strength	Tensile Strength	Operating Temp. Range°C	Shrink Ratio Temp.°C	Max-Long Shrinkage	Mil. Spec	UL Recognized Component
500 V/MIL	1500 PSI	-40°C + 125°	2 - 1 121°C	10%	-	YES
1300 V/MIL	2500 PSI	-55°/ + 135°	2 - 1 121°C	10%	-	NO
800 V/MIL	2500 PSI	-55°C + 135°	2 - 1 135°C	10%	MIL-I-23053/6B	NO
1100 V/MIL	2500 PSI	-55°C + 110°	2 - 1 135°C	15%	MIL-I-23053/4B	NO
750 V/MIL	2000 PSI	-55°C + 125°	2 - 1 135°C	10%	MIL-I-23053/6	YES
350 V/MIL	2500 PSI	-55°C + 135°	3 - 1 125°C	15%	MIL-I-23053/4B	NO
200 V/MIL	1500 PSI	-40°C + 135°	3 - 1 132°C	10%	-	NO
500 V/MIL	1500 PSI	-55°C + 110°	2 - 1 121°C	10%	MIL-I-23053/4B	NO
750 V/MIL	2600 PSI	-35°C + 105°	2 - 1 175°C	15%	MIL-I-23053/2C	YES
3000 V/MIL	20,000 PSI	-55°C + 130°	2 - 1 120°C	50%	MIL-I-23053/7	NO
2000 V/MIL	3100 PSI	-67°C + 204°	1 .2 - 1 176°C	20%	MIL-I-23053/11A	NO
2000 V/MIL	6000 PSI	-65°C + 260°	1 .5 - 1 327°C	20%	MIL-I-23053/12	NO
1000 V/MIL	8000 PSI	-55°C + 170°	2 - 1 175°C	10%	MIL-I-23053/8A	YES
350 V/MIL	1800 PSI	-70°C + 121°	2 - 1 175°C	10%	MIL-R-46846	NO
1300 V/MIL	2500 PSI	-55°C + 135°	- 121°C	-	-	NO
1000 V/MIL	3000 PSI	-55°C + 135°	2 - 1 135°C	-	-	NO
1000 V/MIL	3000 PSI	-55°C + 135°	2 - 1 135°C	-	-	NO
1100 V/MIL	2500 PSI	-55°C + 110°	2 - 1 135°C	-	-	NO
840 V/MIL	20,000 PSI	-55°C + 121°	40% Diameter 121°C	-	-	NO
1100 V/MIL	2500 PSI	-55°C + 110°	2 - 5 - 1 135°C	-	MIL-I-23053/4	NO
1900 V/MIL	20,000 PSI	-55°C + 130°	2 - 1 120°C	-	-	NO
750 V/MIL	2600 PSI	-35°C + 105°	2 - 1 175°C	-	MIL-I-23053/2C	NO
200 V/MIL	2000 PSI	-68°C + 80°	- -	-	MIL-I-7444C	
800 V/MIL	2700 PSI	-20°C + 105°	- -	-		YES
1400 V/MIL	7500 PSI	-65°C + 260°	- -	-	MIL-I-22129-C	NO
1400 V/MIL	7500 PSI	-65°C + 260°	- -	-	MIL-I-22129-C	NO
1400 V/MIL	7500 PSI	-65°C + 260°	- -	-	MIL-I-22129-C	NO
1400 V/MIL	7500 PSI	-65°C + 260°	- -	-	MIL-I-22129-C	NO
4000 V/MIL	1500 PSI	-20°C + 130°	- -	-	MIL-I-3190-C Class B	
380 V/MIL	800 - 1000 PSI	-20°C + 155°	- -	-	MIL-I-3190-C MIL-T-5438	NO
1400 V/MIL	800 - 1000 PSI	-85°C + 200°	- -	-	MIL-I-3190-C MIL-T-8057	NO
	800 - 1000 PSI	-73°C + 648°	- -	-	-	NO
750 V/MIL	3810 PSI	-36°C + 105°	- -	-		YES
750 V/MIL	3810 PSI	-36°C + 105°	- -	-		YES
750 V/MIL	3810 PSI	-36°C + 105°	- -	-		NO

SLEEVINGS & TUBINGS
BRANDS & MAKES AVAILABLE

We are able to supply tubings / sleevings for the following brands/ makes at competitive prices and short leadtimes :

3M
ALPHA
AMPEC
ARKPLAS
ATLANTIC
BENTLEY HARRIS
BIW
CABLE DESIGN TECH
CFP
CHANGBAO
CHEMPLAST
CHI YUAN
CHUCKOH
COLEFLEX
COROPLAST
ESSEX
FEDERAL MOGUL
FLEXICONE
FREELIN-WADE
FUJIKURA
FURUKAWA
HABIA
HELLERMAN
HOLSCOT
ICO RALLY
IMPERIAL EASTMAN
INSULTAB
IWASE
KDK
KURABE
LG
MARKEL
NATVAR
NEWAGE
NIKKAN
NISSEI
NITTO
NYCOIL
OEM MILLER
OPTINOVA
PANDUIT
PENN TUBE
PLASTRON
PLASTAIR
PNEUMADYNE
POLYCONN
RAYCHEM
RELATS
SCAN TUBE
SMC
STONE IND
SUFLEX
SUMITOMO
TEXLOC
TYGON
TYTON
UNITUBE
VARFLEX
WESTERN FILAMENT
WOER
ZENITH
ZEUS



A torn jacket is soon mended; but hard words bruise the heart of a child. - HENRY WADSWORTH LONGFELLOW

HEAT SHRINKABLE TUBINGS

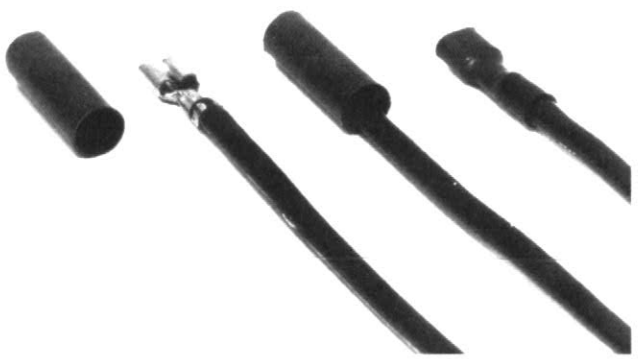
HEAT SHRINKABLE TUBING - POLYOLEFIN

Irradiated Polyolefin - Industrial Grade

DESCRIPTION:
Very versatile all purpose heat shrinkable Polyolefin tubing for commercial or industrial applications.

PROPERTIES:

Shrinkage Ratio:	50% (2:1) @ 121°C
Longitudinal Shrinkage:	±5% (max.)
Operating Temp. Range:	-55 °C to +135°C
Dielectric Strength:	500 V/mil
Volume Resistivity:	10^{14} ohm-cm (min.)
Specific Gravity:	1.1
Tensile Strength:	1,800 psi
Ultimate Elongation:	400%



FEATURES:

- Economical
- Commercial and industrial harnesses
- Indefinite shelf life
- Thermally stable
- Mechanically durable
- Easily hot stamped for wire identification
- Long lengths ideal for cable jacketing, minimize waste

EXPANDED I.D.		RECOVERED I.D.		RECOVERED NOM. WALL THICKNESS		STANDARD PUT-UP
INCHES	MM	INCHES	MM	INCHES	MM	FEET
.046	1.17	.023	0.58	.016	0.41	100 1000
.063	1.60	.031	0.79	.017	0.43	100, 500
.093	2.38	.046	1.17	.020	0.50	100, 500
.125	3.18	.063	1.57	.020	0.50	100, 500
.187	4.76	.093	2.36	.020	0.50	100, 250
.250	6.35	.125	3.17	.025	0.63	100, 200
.375	9.53	.187	4.74	.025	0.63	100, 200
.500	12.70	.250	6.35	.025	0.63	100, 200
.750	19.05	.375	9.50	.030	0.76	100, 200
1.000	25.40	.500	12.70	.035	0.88	100

Stock Colors: Black only

PACKAGED ASSORTMENTS		
TUBING SIZE RANGE		6" LENGTHS PER BOX
INCHES	MM	
3/64 - 1/4 (6 sizes)	1.17 - 6.35	10 lengths per size (60 lengths)
3/8 - 1 IN (4 sizes)	9.53 - 25.4	10 lengths per size (40 lengths)

Of all the wonders of nature, a tree in summer is perhaps the most remarkable; with the possible exception of a moose singing "Embraceable You" in spats. - WOODY ALLEN

HEAT SHRINKABLE TUBING - POLYOLEFIN

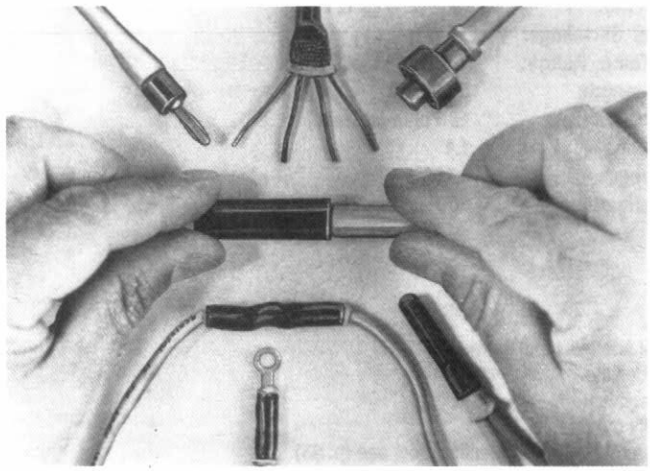
Irradiated Polyolefin - Low Shrink Temperature

DESCRIPTION:
Designed to reduce production time and protect heat sensitive components in automatic assembly and cable jacketing applications.

SPECIFICATIONS:
- MIL-DTL-23053/5; CL 1 Colors
- MIL-DTL-23053/5; CL 3 FR Rated

PROPERTIES:

Shrinkage Ratio:	50% (2:1) @ 90°C
Longitudinal Shrink:	±5% (max.)
Operating Temp. Range:	-55 °C to +135°C
Dielectric Strength:	800 V/mil
UL Rating:	600V @ 125°C
Volume Resistivity:	10^{14} ohm-cm (min.)
Specific Gravity:	1.35 (max.)
Tensile Strength:	1,500 psi
Ultimate Elongation:	200%



FEATURES:

- Low shrink temperature (90°C)
- Highly flexible
- Ideal for heat sensitive component and wire protection
- Will not cold flow or melt
- Forms tight mechanical bond
- Easily hot stamped for wire identification
- Supplied in easy to use 4ft lengths
- Supplied in spooled lengths to minimize waste

SIZE (INCH)	EXPANDED I.D.		RECOVERED I.D.		RECOVERED NOM. WALL THICKNESS		STANDARD PUT-UP (FEET)		MIL STD * CLASS/SIZE CODE
							4 FT	SPOOL	
	INCHES	MM	INCHES	MM	INCHES	MM			
3/64	.046	1.17	.023	0.58	.016	0.41	100	1000	101, 301
1/16	.063	1.57	.031	0.79	.017	0.43	100	1000	102, 302
3/32	.093	2.36	.046	1.17	.020	0.50	100	500	103, 303
1/8	.125	3.17	.063	1.57	.020	0.50	100	500	104, 304
3/16	.187	4.74	.093	2.36	.020	0.50	100	200	105, 305
1/4	.250	6.35	.125	3.17	.028	0.71	100	200	106, 306
3/8	.375	9.50	.187	4.74	.028	0.71	100	200	107, 307
1/2	.500	12.70	.250	6.35	.028	0.71	100	200	108, 308
3/4	.750	19.05	.375	9.50	.033	0.84	100	200	109, 309
1 IN	1.000	25.40	.500	12.70	.035	0.89	100	200	110, 310

Stock Colors: Black
Other colors, sizes, to special order - minimums required
Available in 4FT length or spool

HEAT SHRINKABLE TUBING - POLYOLEFIN

Irradiated Polyolefin - High Flame Resistant

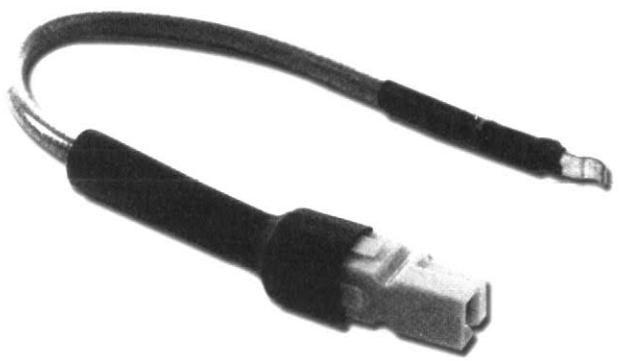
DESCRIPTION:
Highly flame resistant and extremely flexible tubing suitable for use with wire and cable assemblies or as component coverage.

SPECIFICATIONS:

- UL 224 VW-1
- CSA OFT
- MIL-DTL-23053/5 CL 3 (FR Rated)
- MIL-R-46846, Type V
- AMS 3636 (Colors)
- AMS 3587

PROPERTIES:

Shrinkage Ratio:	50% (2:1) @ 121°C
Longitudinal Shrinkage:	±5% (max.)
Operating Temp. Range:	-55 °C to +125°C
Dielectric Strength:	800 V/mil
UL Rating:	600V @ 125°C
Volume Resistivity:	10^{14} ohm-cm (min.)
Specific Gravity:	1.35 (max.)
Tensile Strength:	1,500 psi
Ultimate Elongation:	200% (min.)



FEATURES:

- Outstanding flame retardant properties
- Extreme flexibility throughout operating range
- Wide temperature range
- Airframe, aerospace and cold weather usage
- Thermally stable
- Will not cold flow or melt
- Will not burn or support flame
- Easily hot stamped for wire identification
- Supplied in easy to use 4 ft lengths
- Supplied in spooled lengths to minimize waste

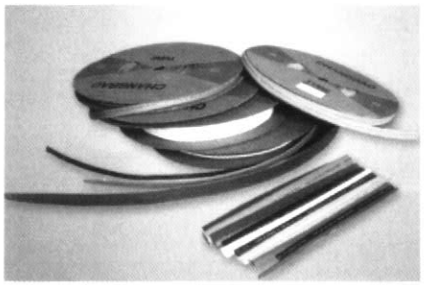
SIZE (INCH)	EXPANDED I.D.		RECOVERED I.D.		RECOVERED NOM. WALL THICKNESS		STANDARD PUT-UP (FEET)		MIL STD * SIZE CODE
	INCHES	MM	INCHES	MM	INCHES	MM	4 FT	SPOOL	
3/64	.046	1.17	.023	0.58	.016	0.41	1000	1000	01
1/16	.063	1.57	.031	0.79	.017	0.43	1000	1000	02
3/32	.093	2.36	.046	1.17	.020	0.50	1000	500	03
1/8	.125	3.17	.063	1.57	.020	0.50	1000	500	04
3/16	.187	4.74	.093	2.36	.020	0.50	1000	200	05
1/4	.250	6.35	.125	3.17	.025	0.63	600	200	06
3/8	.375	9.50	.187	4.74	.025	0.63	600	200	07
1/2	.500	12.70	.250	6.35	.025	0.63	600	200	08
3/4	.750	19.05	.375	9.50	.030	0.76	200	200	09
1 IN	1.000	25.40	.500	12.70	.035	0.88	200	200	10

Stock Colors: Black only
Other colors, except clear, available to order - minimums required
Available in 4FT length or spool

HEAT SHRINKABLE TUBING - POLYOLEFIN

Heat-Shrinkable Tube (Thin Wall)

Thin-wall heat-shrinkable tube has the following properties :
very thin wall, low recovery temperature, rapid shrinking, very flexible, etc.
It may be important in the prevention of overheating of temperature-sensitive components. The products are UL recognized at 125°C, 300V.



SIZE

SIZE	As supplied		After recovery	
	Inside diameter	Average Wall-thickness	Inside diameter	Average Wall-thickness
Φ 1.0	1.2 ± 0.2	0.13 ± 0.02	≤ 0.5	0.28 ± 0.02
Φ 1.5	2.0 ± 0.2	0.13 ± 0.02	≤ 0.75	0.28 ± 0.02
Φ 2.0	2.5 ± 0.2	0.13 ± 0.02	≤ 1.0	0.28 ± 0.02
Φ 2.5	3.0 ± 0.2	0.15 ± 0.02	≤ 1.25	0.32 ± 0.02
Φ 3.0	3.5 ± 0.2	0.15 ± 0.02	≤ 1.5	0.32 ± 0.02
Φ 3.5	4.0 ± 0.2	0.15 ± 0.02	≤ 1.75	0.32 ± 0.02
Φ 4.0	4.5 ± 0.2	0.15 ± 0.02	≤ 2.0	0.32 ± 0.02
Φ 5.0	5.5 ± 0.2	0.15 ± 0.02	≤ 2.5	0.32 ± 0.02
Φ 6.0	6.5 ± 0.2	0.15 ± 0.02	≤ 3.0	0.32 ± 0.02
Φ 7.0	7.5 ± 0.2	0.18 ± 0.03	≤ 3.5	0.36 ± 0.03
Φ 8.0	8.5 ± 0.2	0.18 ± 0.03	≤ 4.0	0.36 ± 0.03
Φ 9.0	9.5 ± 0.2	0.18 ± 0.03	≤ 4.5	0.36 ± 0.03
Φ10	10.5 ± 0.3	0.18 ± 0.03	≤ 5.0	0.36 ± 0.03
Φ11	11.5 ± 0.3	0.18 ± 0.03	≤ 5.5	0.36 ± 0.03
Φ12	12.5 ± 0.3	0.18 ± 0.03	≤ 6.0	0.36 ± 0.03
Φ13	13.5 ± 0.3	0.18 ± 0.03	≤ 6.5	0.36 ± 0.03
Φ14	14.5 ± 0.3	0.18 ± 0.03	≤ 7.0	0.36 ± 0.03
Φ15	15.5 ± 0.3	0.18 ± 0.03	≤ 7.5	0.36 ± 0.03

So many of us use the expression " Better late than never." A qualification: Too late is the same as never. - J.D. BOATWOOD

HEAT SHRINKABLE TUBING - POLYOLEFIN

Heat - Shrinkable Tube (Thin Wall)

102. 101 and 301 Heat-Shrinkable Tube are thin wall, flexible, irradiated crosslinked polyolefin tubing with smooth externals, excellent tensile strength, low water absorption. Heat-Shrinkable Tube may be universally applied for connecting or end-handling electric wire, insulating protection of soldered points of resistors and capacitors, identification and harness of electric wire, anticorrosion of metallic rods or tubes, and antenna protection.

SPECIFICATIONS

ITEM \ TYPE		101	102 (UL)	301
(°C) Shink Temperature		90	90	90
(°C) Temperature Range		-55~105	-55~125	-55~105
(%) Radial Shrinking Ratio		≥ 50	≥ 50	≥ 50
(%) Longitudinal Shrinking Ratio		≤ 5	≤ 5	≤ 5
(MPa) Tensile Strength		≥ 10.4	≥ 10.4	≥ 10.4
(%) Elongation		≥ 200	≥ 200	≥ 200
Aging in circulating-air oven		136.0±1.0°C 7DAYS 113.0 ±1.0°C 60DAYS	158.0±1.0°C 7DAYS 134.0 ±1.0°C 60DAYS	---
After aging	(MPa) Tensile Strength	≥ 7.28	≥ 7.28	---
	(%) Elongation	≥ 100	≥ 100	---
(Ω·cm) Volume Resistivity		10^{14}	10^{14}	10^{15}
(KV/mm) Dielectric Strength		≥ 15	≥ 15	≥ 30
Flammability		---	VW-1	---
Concentricity		≥ 65%	≥ 65%	≥ 65%

SIZE

SIZE	As supplied (mm)		After recovery (mm)	
	Inside diameter	Average Wall-thickness	Inside diameter	Average Wall-thickness
Φ 0.8*	1.3 ± 0.1	0.20 ± 0.02	≤ 00.40	0.40 ± 0.02
Φ 1.0	1.5 ± 0.1	0.20 ± 0.02	≤ 0.50	0.40 ± 0.02
Φ 1.5	2.0 ± 0.1	0.20 ± 0.02	≤ 0.75	0.42 ± 0.02
Φ 2.0	2.5 ± 0.1	0.20 ± 0.02	≤ 1.0	0.44 ± 0.02
Φ 2.5	3.0 ± 0.1	0.22 ± 0.02	≤ 1.25	0.47 ± 0.02
Φ 3.0	3.5 ± 0.1	0.25 ± 0.02	≤ 1.5	0.50 ± 0.02
Φ 3.5	4.0 ± 0.2	0.25 ± 0.02	≤ 1.75	0.50 ± 0.02
Φ 3.5T	4.0 ± 0.2	0.56 ± 0.02	≤ 1.75	1.22 ± 0.02
Φ 4.0	4.5 ± 0.2	0.25 ± 0.02	≤ 2.0	0.50 ± 0.02
Φ 4.5	4.8 ± 0.2	0.25 ± 0.02	≤ 2.0	0.54 ± 0.02
Φ 5.0	5.5 ± 0.2	0.25 ± 0.02	≤ 2.5	0.52 ± 0.02
Φ 6.0	6.5 ± 0.2	0.25 ± 0.02	≤ 3.0	0.52 ± 0.02
Φ 6.5	6.8 ± 0.2	0.30 ± 0.02	≤ 3.0	0.62 ± 0.02
Φ 7.0	7.5 ± 0.2	0.30 ± 0.02	≤ 3.5	0.62 ± 0.02
Φ 7.0T	7.5 ± 0.2	0.40 ± 0.02	≤ 3.5	0.82 ± 0.02
Φ 8.0	8.5 ± 0.2	0.36 ± 0.02	≤ 4.0	0.72 ± 0.02
Φ 9.0	9.5 ± 0.2	0.36 ± 0.02	≤ 4.5	0.72 ± 0.02
Φ 9.0T	9.5 ± 0.2	0.40 ± 0.02	≤ 4.5	0.82 ± 0.02
Φ 10	10.5 ± 0.3	0.36 ± 0.02	≤ 5.0	0.72 ± 0.02
Φ 11	11.5 ± 0.3	0.36 ± 0.02	≤ 5.5	0.72 ± 0.02
Φ 12	12.5 ± 0.3	0.36 ± 0.02	≤ 6.0	0.72 ± 0.02
Φ 13	13.5 ± 0.3	0.36 ± 0.02	≤ 6.5	0.77 ± 0.02
Φ 14	14.5 ± 0.3	0.36 ± 0.02	≤ 7.0	0.77 ± 0.02
Φ 15	15.5 ± 0.3	0.36 ± 0.02	≤ 7.5	0.77 ± 0.02
Φ 16	16.5 ± 0.3	0.36 ± 0.02	≤ 8.0	0.77 ± 0.02
Φ 17	17.5 ± 0.3	0.36 ± 0.02	≤ 8.5	0.77 ± 0.02
Φ 18	18.7 ± 0.4	0.40 ± 0.02	≤ 9.0	0.85 ± 0.02
Φ 20	20.6 ± 0.5	0.40 ± 0.02	≤ 10.0	0.85 ± 0.02
Φ 22	22.7 ± 0.5	0.46 ± 0.02	≤ 11.0	0.92 ± 0.02
Φ 25	25.5 ± 0.5	0.46 ± 0.02	≤ 12.5	0.92 ± 0.02
Φ 28	29.2 ± 0.5	0.46 ± 0.02	≤ 14.0	0.92 ± 0.02
Φ 30	31.0 ± 0.5	0.46 ± 0.02	≤ 15.0	1.02 ± 0.02

We are more inclined to hate one another for points on which we differ, than to love on another for points on which we agree.
- CHARLES CALEB COLTON

HEAT SHRINKABLE TUBING - PVC

Non-Irradiated PVC

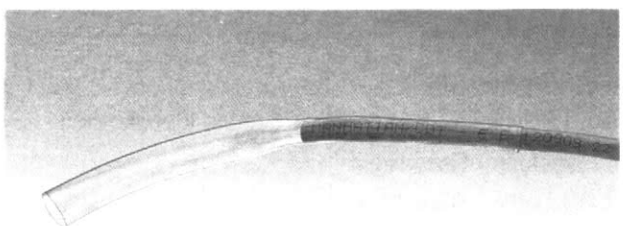
DESCRIPTION:
Low cost economical heat shrink tubing for military, commercial and industrial cable assemblies.

SPECIFICATIONS:

- UL 224 VW-1 (Colors)
- CSA OFT (Colors)
- MIL-I-23053/2 CL 3
- ASTM D 3150

PROPERTIES:

Shrinkage Ratio:	50% (2:1) @ 105°C
Longitudinal Shrinkage:	±10% (min.)
Operating Temp. Range:	-35 °C to +105°C
Dielectric Strength:	1,083 V/mil
UL Rating:	600V @ 105°C
Volume Resistivity:	21.5 x 10^{12} ohm-cm
Specific Gravity:	1.33
Tensile Strength:	2,500 psi (176 kg/cm^2)
Ultimate Elongation:	300% (min.)
Non-Irradiated	



FEATURES:

- Economical
- Excellent sunlight and ozone resistance
- Excellent oil, moisture and fungus resistance
- Semi-gloss finish ideal for cosmetic application
- Outstanding flame and chemical resistance
- Easily hot stamped for wire identification
- Spooled lengths reduce waste

SIZE (INCH)	EXPANDED I.D.		RECOVERED I.D.		RECOVERED NOM. WALL THICKNESS		STANDARD PUT-UP	MIL STD * SIZE CODE
	INCHES	MM	INCHES	MM	INCHES	MM	(FEET)	
1/16	.063	1.57	.031	0.79	.020	.50	100, 1000	02
3/32	.093	2.30	.046	1.17	.025	.64	100, 1000	03
1/8	.125	3.17	.063	1.57	.025	.64	100, 1000	04
3/16	.187	4.74	.093	2.36	.025	.64	100, 1000	05
1/4	.250	6.35	.125	3.17	.025	.64	100, 1000	06
3/8	.375	9.50	.187	4.74	.025	.64	100, 1000	07
1/2	.500	12.70	.250	6.35	.025	.64	100, 250	08
3/4	.750	18.05	.375	9.50	.033	.84	100, 250	09
1 IN	1.000	25.40	.500	12.70	.038	.97	100, 250	10
1-1/2	1.500	38.10	.750	18.05	.045	1.14	100	11
2 IN	2.000	50.80	1.000	25.40	.045	1.14	100	12

Stock Colors: Black and Clear. Other colors available to order. (Minimums required)
Ultra thin wall shrinkable PVC used in insulating battery packs and capacitors (Type UT-400 and UT-600) and irradiated shrinkable PVC also available.
Storage Note: Tubing should be stored below 80°C (176°F) away from direct sunlight.

Beware the man who slaps you on the back - he's probably trying to make sure you cough up something. - W.G.P.

HEAT SHRINKABLE TUBING - PVC

Low Shrink Temperature ▪ Highly Flame Retardant ▪ Economical
Resists Most Chemicals And Oils ▪ Resists Sunlight, Moisture And Fungus
'Clear' Is Crystal Clear - Colors Are Vivid
Meets UL, CSA And Military Specifications

HS-105 For:

Applications with non-irradiated PVC wire and cable
Wire harnesses and wire splices
Insulating terminals
Quick shrinking
Superior environmental and UV stability
A lower cost alternative to polyolefin
Outstanding dielectric and mechanical protection without damage to enclosed or adjacent components
Resistance to chlorinated cleaners, grease, penetrating oils and electrical insulation oils

Specifications:

- UL Subject 224 VW-1
- CSA OFT rated for 600 V
- ASTM D 3150
- MIL-DTL-23053/2 Class 2

HS-105 Information:

- **Shrink Ratio:**
  Full 2:1
  Forms a smooth, tight fitting insulation for most applications with a high degree of flexibility
- **Minimum Recommended Shrink Temperature:**
  Shrinks quickly at 100°C (212°F)
- **Operating Temperature Range:**
  -20°C TO 105°C
- **Longitudinal Shrinkage:**
  Approximately 15%
- **Physical / Electrical Properties:**
  Specific Gravity: 1.32
  Tensile Strength: 3,000 psi
  Ultimate Elongation: 300%
  Flammability: UL Subject 224 VW-1
  Brittleness Temperature: -28°C
  Volume Resistivity: 21.5 x 10^{12}
  Dielectric Strength: 1,083 vpm
  Storage: Heat sensitive. Store at 70°F or below or use within 30 days.

HS- 105 STANDARD WALL PVC HEAT SHRINKABLE TUBING

Size	Expanded I.D. Minimum		Recovered I.D. Maximum		Recovered Wall Nominal		Standard Packaging (per box) Product on Spools	
	Inches	mm	Inches	mm	Inches	mm	FT./ Spool	Total Ft./ Box
3/64	.046	1,17	.023	0,58	.020	0,51	*1,000'	2,000'
1/16	.063	1,60	.032	0,82	.020	0,51	*1,000'	2,000'
3/32	.093	2,36	.046	1,17	.025	0,64	*1,000'	2,000'
1/8	.125	3,18	.063	1,60	.025	0,64	*1,000'	2,000'
3/16	.187	4,75	.093	2,36	.025	0,64	*1,000'	2,000'
1/4	.250	6,35	.125	3,18	.025	0,64	*1,000'	2,000'
5/16	.313	7,94	.157	3,99	.028	0,71	*500'	1,000'
3/8	.375	9,53	.187	4,75	.028	0,71	*500'	1,000'
1/2	.500	12,70	.250	6,35	.028	0,71	*250'	500'
5/8	.625	15,88	.313	7,94	.033	0,84	250'	500'
3/4	.750	19,05	.375	9,53	.033	0,84	250'	500'
1	1.000	25,40	.500	12,70	.038	0,97	250'	500'
$1^1/_4$	1.250	31,75	.625	15.88	.041	1,04	250'	500'
$1^1/_2$	1.500	38,10	.750	19,05	.043	1,09	100'	200'
2	2.000	50,80	1.000	25,40	.048	1,22	100'	200'
3	3.000	76,20	1.500	38,10	.068	1,73	50'	100'
4	4.000	101,60	2.000	50,80	.073	1,85	50'	100'

Standard Colors: Black, White, Red, Yellow and Clear
*Pressurized Reels

HS- 105 X .032 HEAVY WALL (1/32) PVC HEAT SHRINKABLE TUBING

Size	Expanded I.D. Minimum		Recovered I.D. Maximum		Recovered Wall Nominal		Standard Packaging (per box) Product on Spools	
	Inches	mm	Inches	mm	Inches	mm	FT./ Spool	Total Ft./ Box
1/16	.063	1,60	.032	0,82	.032	0,81	*1,000'	2,000'
3/32	.093	2,36	.046	1,17	.032	0,81	*1,000'	2,000'
1/8	.125	3,18	.063	1,60	.032	0,81	*1,000'	2,000'
3/16	.187	4,75	.093	2,36	.032	0,81	*1,000'	2,000'
1/4	.250	6,35	.125	3,18	.032	0,81	*1,000'	2,000'
5/16	.313	7,94	.157	3,99	.032	0,81	*500'	1,000'
3/8	.375	9,53	.187	4,75	.032	0,81	*500'	1,000'
1/2	.500	12,70	.250	6,35	.032	0,81	*250'	500'

Standard Colors: Black
*Pressurized Reels

Don't bother just to be better than your contemporaries or predecessors. Try to be better than youself. - WILLIAM FAULKNER

HEAT SHRINKABLE TUBING - PVC

Improved Solder Iron Cut-Through And Abrasion Resistance
Highly Flame Retardant . Highly Flexible . Economical
Resists Most Chemicals And Oils . Resists Sunlight, Moisture And Fungus
Meets UL, CSA And Military Specifications

HS-205 For:

- Applications with irradiated PVC wire and cable
- Wire harnesses
- Wire splices
- Soldering applications-Won't shrink back or melt
- Insulating terminals
- Ripple-free conformance around sharp bends
- Quick shrinking
- Outstanding dielectric and mechanical protection without damage to enclosed or adjacent components

Specifications:

- UL Subject 224 VW-1
- CSA OFT rated for 600 V
- ASTM D 3150
- MIL-DTL-23053/2 Class 1 with the exception of longitudinal shrinkage

HS-205 Information:

- **Shrink Ratio:**
  Full 2:1
  Forms a smooth, tight fitting insulation for most applications with a high degree of flexibility
- **Minimum Recommended Shrink Temperature:**
  Shrinks quickly at 100°C (212°F)
- **Operating Temperature Range:**
  -20°C TO 105°C
- **Longitudinal Shrinkage:**
  Approximately 15%
- **Physical / Electrical Properties:**
  Specific Gravity: 1.32
  Tensile Strength: 3,000 psi
  Ultimate Elongation: 300%
  Flammability: UL Subject 224 VW-1
  Volume Resistivity: 21.5 x 10^{12}
  Dielectric Strength: 1,083 vpm

	Expanded I.D. Minimum		Recovered I.D. Maximum		Recovered Wall Nominal		Standard Packaging (per box) Product on Spools	
Size	Inches	mm	Inches	mm	Inches	mm	Ft./ Spool	Total Ft./ Box
3/64	.046	1,17	.023	0,58	.020	0,51	*1,000'	2,000'
1/16	.063	1,60	.032	0,82	.020	0,51	*1,000'	2,000'
3/32	.093	2,36	.046	1,17	.025	0,64	*1,000'	2,000'
1/8	.125	3,18	.063	1,60	.025	0,64	*1,000'	2,000'
3/16	.187	4,75	.093	2,36	.025	0,64	*1,000'	2,000'
1/4	.250	6,35	.125	3,18	.025	0,64	*1,000'	2,000'
3/8	.375	9,53	.187	4,75	.028	0,71	*500'	1,000'
1/2	.500	12,70	.250	6,35	.028	0,71	*250'	500'
3/4	.750	19,05	.375	9,53	.033	0,84	250'	500'
1	1.000	25,40	.500	12,70	.038	0,97	250'	500'
1 1/2	1.500	38,10	.750	19.05	.043	1,09	100'	200'
2	2.000	50,80	1.000	25.40	.048	1,22	100'	200'

Standard Colors: Black
*Pressurized Reels

A great many people think they are thinking when they are merely rearranging their prejudices. - WILLIAM JAMES

HEAT SHRINKABLE TUBING - SEMI-RIGID PVC (FLAT TYPE)

DESCRIPTION:

The TUBING is fabricated from polyvinyl chloride adding with various chemical and formed by special machinery devices.

* Shrink quickly to approximately 50% of its supplied folded width at temperature above 95°C.
* Is semi-rigid and has high mechanical strength.
* Operates continuously from 20°C to + 100°C -up to 200°C for short periods.
* Exhibits high dielectric strength.
* Possesses excellent chemical and solvent resistance.
* Is easily marked by conventional hot stamp or ink wheel marking techniques.

APPLICATIONS

* Covering for dry batteries.
* Insulation and protection of capacitors, resistors, diodes, wires cables, and other electronic components
* Covering for wooden bars, metal bars or pipes.....etc.
* Packing for all materials.
* Cap seal for bottles containing drugs, wine, food.....etc

PROPERTIES

PROPERTY	DATA	PROPERTY	DATA
PHYSICAL		CHEMICAL	
Tensile stength	3,000 PSI	Flammability	Self-extinguish
Utimate elongation	100%	Water absortion	0.6%
Specific gravity	1.35	Fungus resistance	Inert
ELECTRICAL		Chemical-resistance	Inert to virtually all chemicals and solvents
Dielectric strength	800 volts/mil		
Volume resistivity	10^{12} ohm-cm		

Specfications for Capacitors and Electronic Components

Folded width (mm)		Thickness (mm)		Diameter of covered materials m / m	Meters per reel
Standard	Allowance	Standard	Allowance		
4.5	±0.5	0.07	± 0.015	2.5	50
6.5	±0.5	0.07	"	3.5	50
8.5	$\pm {}^{1.0}_{0}$	0.07	"	5.	100
9.5	$\pm {}^{1.0}_{0}$	0.07	"	6.	100
105	$\pm {}^{1.0}_{0}$	0.07	"	6.5	100
13.5	$\pm {}^{1.0}_{0}$	0.07	"	8.	200
16.5	$\pm {}^{1.0}_{0}$	0.07	"	10	200
21.5	±0.5	0.1	"	13	200
26.5	±0.5	0.1	"	16	200

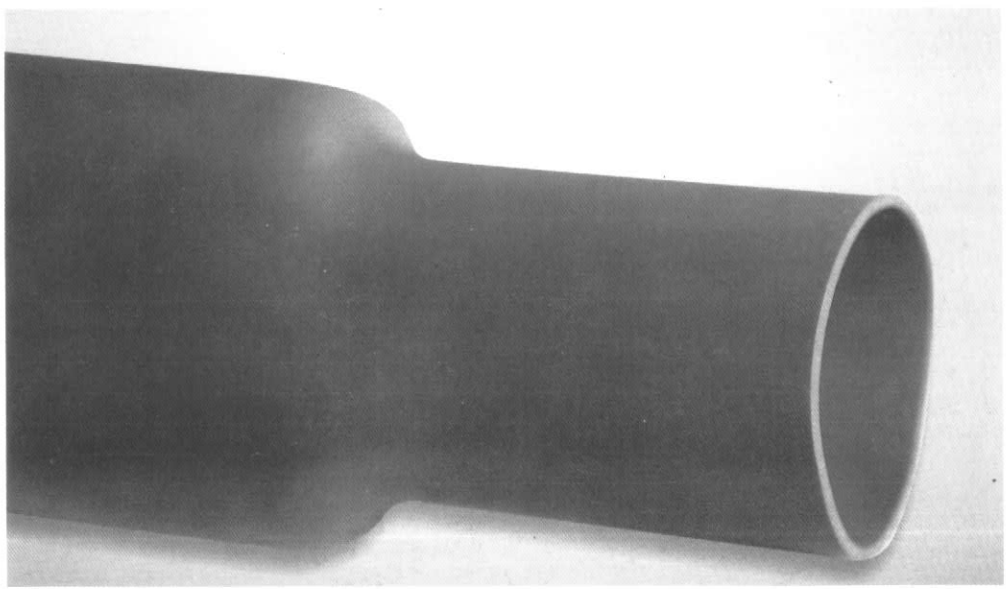
Stardard color grey black, blue, transparent blue, & clear
Shrinkage rate: length way: 15 ± 5%
Width way: 50 ± 5%

HEAT SHRINKABLE TUBING - SILICONE RUBBER

- Heat- shrinkable Silicone Rubber Tube is applied for insulation purpose of electrical parts, power cable terminations etc.,resistance to weather ,even in severest outdoor conditions such as hot ,cold ,humidity or saline area etc..It's operating temperature can be up to 200°C.

PROPERTIES

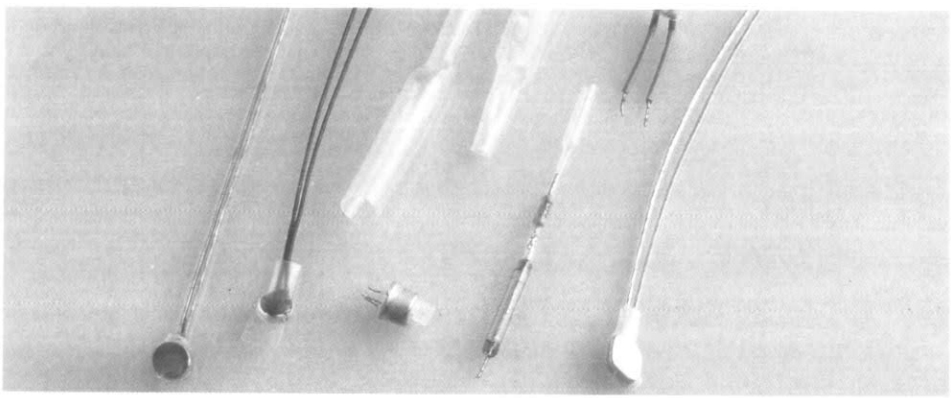
Property	Tensile strength	Elongation	Specifica -tion	Volume Resistivity	Dielectric strength	Dielectric constant	tan δ	Flamma -bility	Application temperature	Radial shrinkage	Recovery temperature
	MPa {kg/cm²}	%	KN/m {kg f/cm}	Ω. m { Ω. cm }	KV/mm	(ε) 50Hz	50Hz	UL-224	(°C)	%	(°C)
non-flammable	6. 9 {70}	400	24. 5 {25}	$2X10^{12}$ { $2X10^{14}$ }	25	3. 2	0. 001	VW-1	-50~+200	50	90
flammable	6. 9 {70}	400	24. 5 {25}	$2X10^{12}$ { $2X10^{14}$ }	25	3. 2	0. 001	------	-50~+200	50	90



SIZE	(mm) Range (O.D.)	As supplied (mm)		After recovery (mm)	
		Inside Diameter	Wall-thickness	Inside Diameter	Wall-thickness
Φ 1.5	1.1~1.4	1.7 ± 0.2	0.5 ± 0.1	0.8 ± 0.1	1.0 ± 0.2
Φ 3.0	1.8~2.5	3.2 ± 0.2	0.5 ± 0.1	1.6 ± 0.1	1.0 ± 0.2
Φ 4.0	2.3~4.0	4.5 ± 0.3	0.5 ± 0.1	2.2 ± 0.1	1.0 ± 0.2
Φ 5.0	2.8~5.0	5.6 ± 0.3	0.5 ± 0.1	2.9 ± 0.2	1.0 ± 0.2
Φ 6.0	3.2~6.0	6.6 ± 0.3	0.5 ± 0.1	3.3 ± 0.2	1.0 ± 0.2
Φ 8.0	4.5~7.0	8.6 ± 0.4	0.5 ± 0.1	4.3 ± 0.2	1.0 ± 0.2
Φ 12	6.0~10	12 ± 1	0.75 ± 0.1	6.0 ± 0.2	1.5 ± 0.2
Φ 17	9~15	17 ± 1	0.75 ± 0.1	9.0 ± 0.3	1.5 ± 0.2
Φ 20	12~21	23 ± 1	1.0 ± 0.1	12 ± 0.4	2.0 ± 0.3
Φ 25	15~23	25 ± 1	1.0 ± 0.1	14 ± 0.4	2.0 ± 0.3
Φ 30	18~28	31 ± 1	1.0 ± 0.1	16 ± 0.5	2.0 ± 0.3
Φ 45	25~42	45 ± 1	1.5 ± 0.1	23 ± 1	3.3 ± 0.3
Φ 55	33~50	55 ± 1	1.5 ± 0.1	29 ± 1	3.3 ± 0.3
Φ 65	40~60	66 ± 2	1.5 ± 0.1	35 ± 1	3.3 ± 0.3

Just don't give up trying to do what you really want to do. Where there is love and inspiration, I don't think you can go wrong.
- ELLA FITZGERALD

HEAT SHRINKABLE TUBING - TEFLON®



PFA HEAT SHRINK TUBING

ORDERED	EXPANDED	RECOVERED	AFTER UNRESTRICTED SHRINKAGE	
As Nom. I.D. (Inches)	As supplied I.D. max. (Inches)	I.D. max. (Inches)	Recovered Wall Thickness (Inches)	
			Nom.	Tol.
1/16	.080	.062	.010	± .002
5/64	.100	.078	.010	± .002
1/8	.160	.125	.011	± .002
3/16	.240	.187	.013	± .003
1/4	.325	.250	.013	± .003
3/8	.487	.375	.013	± .003
1/2	.650	.500	.018	± .004
5/8	.810	.625	.022	± .004
3/4	.975	.750	.030	± .004
7/8	1.135	.875	.030	± .004
1	1.300	1.000	.030	± .004

TFE HEAT SHRINK TUBING 2 TO 1 SHRINK RATIO

STANDARD WALL Bulletin 11					THIN WALL Bulletin 12					INDUSTRIAL Bulletin 13				
Ordered As Nom. I.D. (Inches)	Expanded I.D. Min. (Inches)	Recovered I.D. Max. (Inches)	Recovered Wall Thickness (Inches)		Ordered As Nom. I.D. (Inches)	Expanded I.D. Min. (Inches)	Recovered I.D. Max. (Inches)	Recovered Wall Thickness (Inches)		Ordered As Nom. I.D. (Inches)	Expanded I.D. Min. (Inches)	Recovered I.D. Max. (Inches)	Recovered Wall Thickness (Inches)	
			Nom.	Tol.				Nom.	Tol.				Nom.	Tol.
1/8	.215	.130	.020	±.004	1/8	.215	.130	.015	±.003	1/8	.166	.130	.030	±.005
1/4	.410	.260	.020	±.004	1/4	.410	.260	.015	±.003	3/16	.250	.193	.030	±.005
5/16	.470	.329	.020	±.004	5/16	.470	.329	.015	±.003	1/4	.333	.257	.030	±.005
3/8	.560	.399	.025	±.006	3/8	.560	.399	.015	±.003	5/16	.415	.320	.030	±.005
7/16	.655	.462	.025	±.006	7/16	.655	.462	.018	±.004	3/8	.498	.383	.030	±.005
1/2	.750	.524	.025	±.006	1/2	.750	.524	.018	±.004	7/16	.580	.448	.030	±.006
5/8	.930	.655	.030	±.006	5/8	.930	.655	.020	±.004	1/2	.666	.510	.030	±.006
3/4	1.125	.786	.035	±.008	3/4	1.125	.786	.025	±.005	9/16	.748	.572	.030	±.006
7/8	1.310	.911	.035	±.008	7/8	1.310	.911	.030	±.006	5/8	.830	.637	.030	±.006
1	1.500	1.036	.035	±.008	1	1.500	1.036	.030	±.006	11/16	.915	.700	.032	±.006
										3/4	1.000	.764	.040	±.007
										7/8	1.170	.891	.045	±.007
										1	1.330	1.020	.050	±.008

Is there some principle of nature which states that we never know the quality of what we have until it is gone? - RICHARD HOFSTADTER

HEAT SHRINKABLE TUBING - TEFLON®

TFE HEAT SHRINK TUBING 4 TO 1 SHRINK RATIO

APPROXIMATE RATIO OF EXPANDED I.D. TO RECOVERED I.D. - FRACTIONAL INCH SIZES				
		RECOVERED - AFTER HEAT SHRINK		
			WALL THICKNESS (INCHES)	
ORDERED AS I.D. (INCHES)	EXPANDED I.D. (INCHES) MIN.	I.D. (INCHES) MAX.	Nom.	Tol.
5/64	0.078	0.025	0.009	± .002
1/8	0.125	0.037	0.010	± .002
3/16	0.187	0.050	0.012	± .003
1/4	0.250	0.063	0.012	± .003
5/16	0.312	0.078	0.012	± .003
3/8	0.375	0.096	0.012	± .003
7/16	0.438	0.112	0.012	± .003
1/2	0.500	0.114	0.015	± .004
9/16	0.562	0.115	0.015	± .004
5/8	0.625	0.178	0.015	± .004
11/16	0.687	0.198	0.015	± .004
3/4	0.750	0.224	0.015	± .004
7/8	0.875	0.224	0.015	± .004
1	1.000	0.278	0.015	± .004
1-1/4	1.250	0.347	0.015	± .004
1-1/2	1.500	0.400	0.015	± .004
1-3/4	1.750	0.450	0.015	± .004
2	2.000	0.520	0.020	± .005
2-1/4	2.250	0.585	0.020	± .005
2-1/2	2.500	0.650	0.020	± .005
2-3/4	2.750	0.710	0.020	± .005
3	3.000	0.775	0.020	± .005
3-1/4	3.250	0.835	0.020	± .005
3-1/2	3.500	0.900	0.025	± .005
3-3/4	3.750	0.960	0.025	± .005
4	4.000	1.025	0.025	± .005

FEP HEAT SHRINK TUBING 1.3 TO 1 SHRINK RATIO

SPAGHETTI TUBING						FRACTIONAL INCH TUBING					
	As Supplied	Recovered Dimension After Shrinking				Size		As Supplied	Recovered Dimension After Shrinking		
			Wall Thickness							Wall Thickness	
Ordered as AWG Size No.	Inside Diameter Minimum	I.D. Will Shrink to at Least	Min.	Nom.	Max.	Fract.	Decimal	Inside Diameter Minimum	I.D. Will Shrink to at Least	Min.	Nom.	Max.
24	.031	.027	.006	.008	.010	3/8"	.375	.500	.383	.011	.015	.019
22	.036	.032	.006	.008	.010	7/16"	.438	.580	.448	.016	.020	.024
20	.045	.039	.006	.008	.010	1/2"	.500	.666	.510	.016	.020	.024
18	.060	.049	.006	.008	.010	5/8"	.625	.830	637	.021	.025	.029
16	.075	.061	.007	.009	.011	3/4"	.750	1.000	.764	.026	.030	.034
14	.092	.072	.007	.009	.011	7/8"	.875	1.170	.891	.031	.035	.039
12	.115	.089	.007	.009	.011	1"	1.000	1.330	1.020	.031	.035	.039
10	.141	.114	.007	.010	.013	1-1/8"	1.125	1.500	1.145	.031	.035	.039
9	.158	.124	.007	.010	.013	1-1/4"	1.250	1.666	1.270	.031	.035	.039
8	.180	.143	.007	.010	.013							
7	.197	.158	.007	.011	.015	1-3/8"	1.375	1.833	1.390	.031	.035	.039
6	.225	.180	.007	.011	.015	1-1/2"	1.500	2.000	1.520	.031	.035	.039
5	.248	.198	.007	.011	.015							
4	.290	.226	.007	.011	.015							
3	.310	.249	.007	.011	.015							
2	.365	.280	.008	.012	.016							
1	.400	.311	.008	.012	.016							
0	.440	.349	.008	.012	.016							

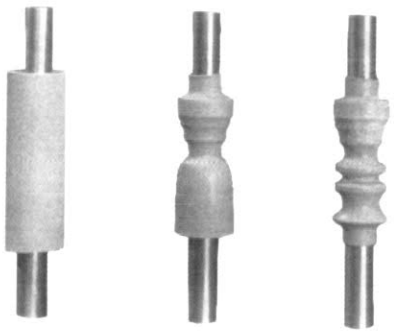
The optimist sees opportunity in every danger; the pessimist sees danger in every opportunity. - WINSTON CHURCHILL

MEDICAL GRADE HEAT SHRINKABLE TUBING

HSMG-A
(HIGH-TEMPERATURE, SEMI-RIGID FLUOROPOLYMER)

Part Number Translucent	Product Description	Inside Diameter Minimum as supplied (mm)		Inside Diameter Maximum after heating (mm)		Wall Thickness Maximum after heating (mm)	
IR-15258	HSMG-A-1/16"	0.063	(1.6)	0.031	(0.8)	0.010	(0.25)
IR-15260	HSMG-A-3/32"	0.093	(2.4)	0.046	(1.2)	0.010	(0.25)
IR-15262	HSMG-A-1/8"	0.125	(3.2)	0.062	(1.6)	0.010	(0.25)
IR-15264	HSMG-A-3/16"	0.187	(4.7)	0.093	(2.4)	0.010	(0.25)
IR-15268	HSMG-A-1/4"	0.250	(6.4)	0.125	(3.2)	0.013	(0.33)
IR-15270	HSMG-A-3/8"	0.375	(9.5)	0.187	(4.7)	0.013	(0.33)
IR-15272	HSMG-A-1/2"	0.500	(12.7)	0.250	(6.4)	0.013	(0.33)

- Tough, semi-rigid, thin-wall construction
- 2:1 shrink ratio
- Conforms to USP Class VI, no heavy metals
- Compatible with autoclave, gamma, ETO, steam, and dry heat sterilization
- Standard Operating Temperature: -55°C to 175°C
- Minimum shrink temperature: 155°C
- Provided in cut pieces or multiples of 4-foot lengths



APPLICATIONS
Designed for electrical insulation and strain relief of components that are exposed to high temperatures during actural performance or sterilizat. All sizes are manufactured with a thin-wall construction for applications where space between components is minimal.

MEDICAL GRADE HEAT SHRINKABLE TUBING

HSMG-C
(HIGH-TEMPERATURE FLUOROPOLYMER)

Part Number Black	Product Description	Inside Diameter Minimum as supplied (mm)		Inside Diameter Maximum after heating (mm)		Wall Thickness Maximum after heating (mm)	
IR-15230	HSMG-C-1/16"	0.063	(1.6)	0.031	(0.8)	0.010	(0.25)
IR-15234	HSMG-C-3/32"	0.093	(2.4)	0.046	(1.2)	0.010	(0.25)
IR-15238	HSMG-C-1/8"	0.125	(3.2)	0.062	(1.6)	0.010	(0.25)
IR-15242	HSMG-C-3/16"	0.187	(4.7)	0.093	(2.4)	0.010	(0.25)
IR-15246	HSMG-C-1/4"	0.250	(6.4)	0.125	(3.2)	0.012	(0.30)
IR-15250	HSMG-C-3/8"	0.375	(9.5)	0.187	(4.7)	0.012	(0.30)
IR-15254	HSMG-C-1/2"	0.500	(12.7)	0.250	(6.4)	0.012	(0.30)

- Tough, flexible, very-thin-wall construction
- 2:1 shrink ratio
- Conforms to USP Class VI, no heavy metals
- Compatible with autoclave (limited cycles), gamma, ETO, and dry heat sterilization
- Standard Operating Temperature: -55°C to 150°C
- Minimum shrink temperature: 110°C
- Provided in cut pieces, coils, or on plastic spools

APPLICATIONS
Designed for electrical insulation and strain relief of components that are exposed to high temperatures during actural performance or sterilization. All sizes are manufactured with a thin-wall construction for applications where space between components is minimal.

NON-SHRINKABLE TUBINGS / SLEEVINGS

FIBRE GLASS SLEEVINGS SELECTION GUIDE

PRODUCT	CODE	SUSTRATE	COATING	VOLTAGE V		THERMAL CLASS IEC 85	TEMPERATURE °C		OTHER PROPERTIES	I.D. mm
				Nominal	UL 1441		Nom.	Max.		
REVITEX Heat Treated *REVITEX Recocido*	V0000	Fibreglass Braid	Heat Treated	1000	1000	450	450	550	Incombustible	0.5 - 35
REVITEX MSR	MSR10	Fibreglass Knitbraid	Silicone Rubber	1000	1000	300	300	550	Self-extinguishing	0.5 - 35
REVITEX VSR	VSR10	Fibreglass Braid	Silicone Rubber	1000	1000	300	300	550	Self-extinguishing	0.5 - 35
REVITEX Silicone Rubber *REVITEX Caucho Silicona*	VSC25 VSC40 VSC75	Fibreglass Braid	Silicine Rubber	2500 4000 7500	4000 7000 9000	200	210	300	Self-extinguishing	0.5 - 35
REVITEX Conform B REVITEX Conform A	VSC40 EX VSC75 EX	Expandible Fibreglass Braid	Silicone Rubber	4000 7500	7000 9000	200	210	300	Self-extinguishing. Expands up to twice its size	2 - 25
REVITEX VSR	VSR25 VSR40	Fibreglass Braid	Silicone Rubber	2500 4000	4000 7000	200	200	300		0.5 - 25
REVITEX Perisil	VSP15 VSP25	Fibreglass Braid	Silicone Rubber	1500 2500	2500 4000	200	210	300	Self-extinguishing	0.5 - 20
REVITEX Acrylic *REVITEX Acrílico*	VAC30 VAC80	Fibreglass Braid	Acrylic Varnish	3000 8000	4000 9000	F	155	200		0.5 - 25
REVITEX GUF	VPG40 VPG80	Fibreglass Braid	Polyurethane Varnish	4000 5000	7000 8000	F	155	200		0.5 - 25

Jesus said unto him, I am the way, the truth, and the life: no man cometh unto the Father, but by me. - ST. JOHN 45:58

FIBRE GLASS SLEEVING - ACRYLIC COATED

DESCRIPTION:
Specially designed fiberglass sleeving coated with a thermally stable, flexible, acrylic resin for wire and cable protection in electrical equipment. Most economical and versatile of all coated sleeving product.

PROPERTIES:

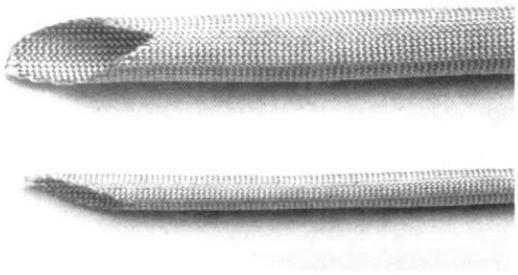
Temperature Class F: 155°C
Low Temp. Brittleness: -30°C
Dielectric Strength:
(Grade C-1): 3000V
(Grade A): 8800V

SPECIFICATIONS:

- UL Recognized (AF-155A Grade A only)
- MIL-1-3190/3
- NEMA TF-1
- ASTM D 372
- UL 746B Test Method
- UL 1441 Test Spec

FEATURES:

- High heat resistance
- Extremely flexible
- Resists cracking or splitting
- Excellent abrasion and cut-through resistance
- Superior mechanical and electrical properties
- Excellent chemical resistance
- Will not support flame
- Economical
- Supplied in spooled lengths to minimize waste



SIZE	NOMINAL I.D.		STANDARD PUT-UP	MIL STD * SIZE CODE
AWG or INCHES	INCHES	MM	(Feet)	
AWG 24	0.022	0.56	100, 500	01
AWG 22	0.027	0.68	100, 500	02
AWG 20	0.034	0.86	100, 500	03
AWG 18	0.042	1.07	100, 500	04
AWG 17	0.047	1.19	100, 500	05
AWG 16	0.053	1.35	100, 500	06
AWG 15	0.059	1.50	100, 500	07
AWG 14	0.066	1.68	100, 500	08
AWG 13	0.076	1.93	100, 250	09
AWG 12	0.085	2.16	100, 250	10
AWG 11	0.095	2.41	100, 250	11
AWG 10	0.106	2.69	100, 250	12
AWG 9	0.118	3.00	100, 250	13
AWG 8	0.133	3.38	100, 250	14
AWG 7	0.148	3.76	100, 250	15
AWG 6	0.166	4.22	100, 250	16
AWG 5	0.186	4.72	100, 250	17
AWG 4	0.206	5.23	100, 250	18
AWG 3	0.234	5.94	100, 250	19
AWG 2	0.263	6.68	100, 250	20
AWG 1	0.294	7.47	125	21
AWG 0	0.330	8.38	125	22
3/8 INCH	0.387	9.83	125	23
7/16 INCH	0.450	11.40	125	24
1/2 INCH	0.512	13.00	100	25
5/8 INCH	0.640	16.20	100	26
3/4 INCH	0.768	19.50	100	27
7/8 INCH	0.802	22.70	100	28
1 INCH	1.018	25.90	100	29

Stock Color: Natural (White)
Other colors available

Common sense and a sense of humour are the same thing, moving at different speeds. A sense of humour is just common sense, dancing - CLIVE JAMES

FIBRE GLASS SLEEVING - PVC COATED

DESCRIPTION:
Fiberglass sleeving coated with a specially formulated vinyl compound to provide the maximum in electrical characteristics, chemical resistance, heat stability and abrasion resistance.

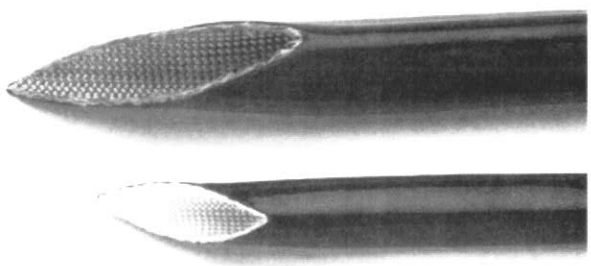
PROPERTIES:

Temperature Class B: +130°C
Low Temp. Brittleness: -40°C
Dielectric Strength:
(Grade B): 4000V
(Grade A): 8000V

FEATURES:
- High heat resistance
- Extremely flexible
- Resists cracking or splitting
- Excellent abrasion and cut-through resistance
- Excellent chemical and solvent resistance
- Superior mechanical and electrical properties
- Will not support flame
- Heat-treated for roundness
- Excellent color retention
- Non-fraying when cut
- Supplied in spooled lengths to minimize waste

SPECIFICATIONS:

- UL Recognized
- CSA Listed
- VW-1 (PF-130A - Grade A only)
- MIL-I-3190/2
- NEMA TF-1
- UL 746B Test Method
- UL 1441 Test Spec



APPLICATIONS:
- Electric motors
- For generators resistor leads
- Environments requiring high flexibility

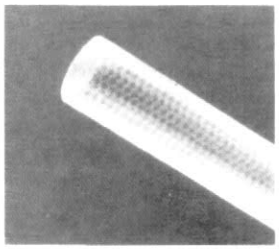
SIZE	NOMINAL I.D.		NOMINAL WALL THICKNESS		STANDARD PUT-UP	MIL STD * SIZE CODE
AWG or INCHES	INCHES	MM	INCHES	MM	(Feet)	
AWG 24	0.022	0.56	0.030	0.76	100, 500	01
AWG 22	0.027	0.68	0.030	0.76	100, 500	02
AWG 20	0.034	0.86	0.030	0.76	100, 500	03
AWG 19	0.038	0.96	0.030	0.76	100, 500	-
AWG 18	0.042	1.07	0.030	0.76	100, 500	04
AWG 17	0.047	1.19	0.030	0.76	100, 500	05
AWG 16	0.053	1.35	0.030	0.76	100, 500	06
AWG 15	0.059	1.50	0.030	0.76	100, 500	07
AWG 14	0.066	1.68	0.045	1.14	100, 500	08
AWG 13	0.076	1.93	0.045	1.14	100, 250	09
AWG 12	0.085	2.16	0.045	1.14	100, 250	10
AWG 11	0.095	2.41	0.045	1.14	100, 250	11
AWG 10	0.106	2.69	0.045	1.14	100, 250	12
AWG 9	0.118	3.00	0.045	1.14	100, 250	13
AWG 8	0.133	3.38	0.045	1.14	100, 250	14
AWG 7	0.148	3.76	0.045	1.14	100, 250	15
AWG 6	0.166	4.22	0.045	1.14	100, 250	16
AWG 5	0.186	4.72	0.045	1.14	100, 250	17
AWG 4	0.206	5.23	0.045	1.14	100, 250	18
AWG 3	0.234	5.94	0.045	1.14	100, 250	19
AWG 2	0.263	6.68	0.055	1.40	100, 250	20
AWG 1	0.294	7.47	0.055	1.40	125	21
AWG 0	0.330	8.38	0.055	1.40	125	22
3/8 INCH	0.387	9.83	0.055	1.40	125	23
7/16 INCH	0.450	11.40	0.065	1.65	125	24
1/2 INCH	0.512	13.00	0.065	1.65	100	25
5/8 INCH	0.640	16.20	0.065	1.65	100	26
3/4 INCH	0.768	19.50	0.075	1.90	100	27
7/8 INCH	0.802	22.70	0.075	1.90	100	28
1 INCH	1.018	25.90	0.075	1.90	50	29

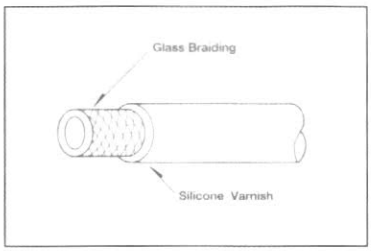
Stock Colors: Black

Chance is always powerful. Let your hook be always cast; in the pool where you least expect it, there will be a fish. - OVID

FIBRE GLASS SLEEVING - SILICONE COATED

SILICONE VARNISHED FIBRE GLASS SLEEVING ESG-1•2•3





STRUCTURE Glass Sleeving Coated with Silicone Vanish and Dried.
FEATURES The Silicone vanish used is both supple and flame-retarding and thus give this H(max. 180°C) type tubing high performance qualities and a wide range of uses.
USE ESG-1: Insulation for middle-voltage mechanical and thermal protection.
ESG-2: Insulation for low voltage mechanical and thermal protection.
ESG-3: Mechanical and thermal protection, binding groups of wires.
REMARKS White is standard color, red, green, blue, yellow, brown, black and other colors available. Meets UL 224VW-1 (File No. E64331) standards.
These are under JIS C 2416 standards.
(Max, size 48mm ID)

ESG/9

Inner Diameter (mm)	Inner Diameter Tolerance (mm)	Wall Thickness (mm)	Insulation Destruction Voltage						Minimum Insulation (MΩ)	Norminal Length (MΩ)
			Normal State		After heating		After Humidity Absorption			
			Average (kv)	Lowest (kv)	Average (kv)	Lowest (kv)	Average (kv)	Lowest (kv)		
ESG-1/S										
0.8	+0.2,-0.1	0.20以上	4.5以上	3.0以上	3.0以上	1.9以上	1.5以上	1.0以上	10^5	100
1.0	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃
1.2	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃
1.5	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃
2.0	+0.3,-0.15	〃	〃	〃	〃	〃	〃	〃	〃	〃
2.5	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃
3.0	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃
3.5	〃	0.30以上	〃	〃	〃	〃	〃	〃	〃	〃
4.0	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃
5.0	+0.5,-0.5	〃	〃	〃	〃	〃	〃	〃	〃	〃
6.0	〃	〃	〃	〃	〃	〃	〃	〃	〃	50
7.0	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃
8.0	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃
9.0	〃	0.40以上	〃	〃	〃	〃	〃	〃	〃	〃
10.0	〃	〃	〃	〃	〃	〃	〃	〃	〃	25
12.0	+1.5,-0.5	〃	〃	〃	〃	〃	〃	〃	〃	〃
14.0	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃
16.0	〃	〃	〃	〃	〃	〃	〃	〃	〃	1
18.0	+2.0,-1.0	〃	〃	〃	〃	〃	〃	〃	〃	〃
20.0	〃	〃	〃	〃	〃	〃	〃	〃	〃	〃
ESG-2										
0.8	+0.2,-0.1	0.15以上	2.5以上	1.5以上	1.8以上	1.1以上	.....	.....	10^3	100
1.0	〃	〃	〃	〃	〃	〃	.....	.....	〃	〃
1.2	〃	〃	〃	〃	〃	〃	.....	.....	〃	〃
1.5	〃	〃	〃	〃	〃	〃	.....	.....	〃	〃
2.0	+0.3,-0.15	〃	〃	〃	〃	〃	.....	.....	〃	〃
2.5	〃	〃	〃	〃	〃	〃	.....	.....	〃	〃
3.0	〃	〃	〃	〃	〃	〃	.....	.....	〃	〃
3.5	〃	0.20以上	〃	〃	〃	〃	.....	.....	〃	〃
4.0	〃	〃	〃	〃	〃	〃	.....	.....	〃	〃
5.0	+0.5,-0.5	〃	〃	〃	〃	〃	.....	.....	〃	〃
6.0	〃	〃	〃	〃	〃	〃	.....	.....	〃	50
7.0	〃	〃	〃	〃	〃	〃	.....	.....	〃	〃
8.0	〃	〃	〃	〃	〃	〃	.....	.....	〃	〃
9.0	〃	0.40以上	〃	〃	〃	〃	.....	.....	〃	〃
10.0	〃	〃	〃	〃	〃	〃	.....	.....	〃	25
12.0	+1.5,-0.5	〃	〃	〃	〃	〃	.....	.....	〃	〃
14.0	〃	〃	〃	〃	〃	〃	.....	.....	〃	〃
16.0	〃	〃	〃	〃	〃	〃	.....	.....	〃	1
18.0	+2.0,-1.0	〃	〃	〃	〃	〃	.....	.....	〃	〃
20.0	〃	〃	〃	〃	〃	〃	.....	.....	〃	〃
ESG-3										
0.8	+0.2,-0.1	0.15以上	.....	.....	.....	.....	.....	.....	.....	100
1.0	〃	〃	.....	.....	.....	.....	.....	.....	.....	〃
1.2	〃	〃	.....	.....	.....	.....	.....	.....	.....	〃
1.5	〃	〃	.....	.....	.....	.....	.....	.....	.....	〃
2.0	+0.3,-0.15	〃	.....	.....	.....	.....	.....	.....	.....	〃
2.5	〃	〃	.....	.....	.....	.....	.....	.....	.....	〃
3.0	〃	〃	.....	.....	.....	.....	.....	.....	.....	〃
3.5	〃	0.20以上	.....	.....	.....	.....	.....	.....	.....	〃
4.0	〃	〃	.....	.....	.....	.....	.....	.....	.....	〃
5.0	+0.5,-0.5	〃	.....	.....	.....	.....	.....	.....	.....	〃
6.0	〃	〃	.....	.....	.....	.....	.....	.....	.....	50
7.0	〃	〃	.....	.....	.....	.....	.....	.....	.....	〃
8.0	〃	〃	.....	.....	.....	.....	.....	.....	.....	〃
9.0	〃	0.40以上	.....	.....	.....	.....	.....	.....	.....	〃
10.0	〃	〃	.....	.....	.....	.....	.....	.....	.....	25
12.0	+1.5,-0.5	〃	.....	.....	.....	.....	.....	.....	.....	〃
14.0	〃	〃	.....	.....	.....	.....	.....	.....	.....	〃
16.0	〃	〃	.....	.....	.....	.....	.....	.....	.....	1
18.0	+2.0,-1.0	〃	.....	.....	.....	.....	.....	.....	.....	〃
20.0	〃	〃	.....	.....	.....	.....	.....	.....	.....	〃

A perfect summer day is when the sun is shining, the breeze is blowing, the birds are singing, and the lawn mower is broken.
- JAMES DENT

FIBRE GLASS SLEEVING - SILICONE RUBBER COATED

DESCRIPTION:
Fiberglass sleeving coated with a silicone formulation to provide exceptional flexibility in extreme temperature ranges.

PROPERTIES:

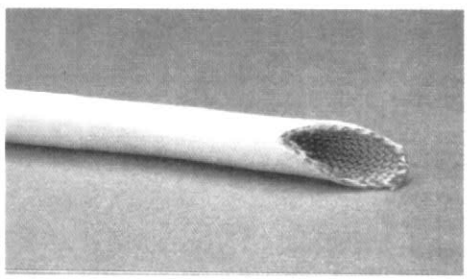
Temperature Class H: +200°C
Low Temp. brittleness: -70°C
Dielectric Strength: 8000V

FEATURES:

- High heat resistance
- Extremely resilient
- Long service life
- Extremely durable
- Excellent abrasion and cut-through resistance
- Excellent performance throughout temperature range
- Outstanding chemical and solvent resistance
- High tear strength
- Outstanding ozone, corona and weathering properties
- Will not support flame
- Supplied in spooled lengths to minimize waste

SPECIFICATIONS:

- UL VW-1
- CSA Listed
- MIL-I-3190/6
- NEMA TF-1
- ASTM D-372
- ASTM D-350
- UL 746B Test Method
- UL 1441 Test Spec



SIZE	NOMINAL I.D.		NOMINAL WALL THICKNESS		STANDARD PUT-UP	MIL STD * SIZE CODE
AWG or INCHES	INCHES	MM	INCHES	MM	(Feet)	
AWG 24	0.022	0.56	0.030	0.76	100, 500	01
AWG 22	0.027	0.68	0.030	0.76	100, 500	02
AWG 20	0.034	0.86	0.030	0.76	100, 500	03
AWG 18	0.042	1.07	0.030	0.76	100, 500	04
AWG 17	0.047	1.19	0.030	0.76	100, 500	05
AWG 16	0.053	1.35	0.030	0.76	100, 500	06
AWG 15	0.059	1.50	0.030	0.76	100, 500	07
AWG 14	0.066	1.68	0.045	1.14	100, 500	08
AWG 13	0.076	1.93	0.045	1.14	100, 250	09
AWG 12	0.085	2.16	0.045	1.14	100, 250	10
AWG 11	0.095	2.41	0.045	1.14	100, 250	11
AWG 10	0.106	2.69	0.045	1.14	100, 250	12
AWG 9	0.118	3.00	0.045	1.14	100, 250	13
AWG 8	0.133	3.38	0.045	1.14	100, 250	14
AWG 7	0.148	3.76	0.045	1.14	100, 250	15
AWG 6	0.166	4.22	0.045	1.14	100, 250	16
AWG 5	0.186	4.72	0.045	1.14	100, 250	17
AWG 4	0.206	5.23	0.045	1.14	100, 250	18
AWG 3	0.234	5.94	0.045	1.14	100, 250	19
AWG 2	0.263	6.68	0.055	1.40	100, 250	20
AWG 1	0.294	7.47	0.055	1.40	100	21
AWG 0	0.330	8.38	0.055	1.40	100	22
3/8 INCH	0.387	9.83	0.055	1.40	100	23
7/16 INCH	0.450	11.40	0.065	1.65	100	24
1/2 INCH	0.512	13.00	0.065	1.65	100	25
5/8 INCH	0.640	16.20	0.065	1.65	100	26
3/4 INCH	0.768	17.00	0.075	1.90	100	27
7/8 INCH	0.893	22.70	0.075	1.90	100	28
1 INCH	1.018	25.90	0.075	1.90	100	29

Stock Colors: White (Natural)

FIBRE GLASS SLEEVING - UNCOATED

DESCRIPTION:
Heat treated braided fiberglass designed to improve protection of wires while maintaining flexibility.

SPECIFICATIONS:

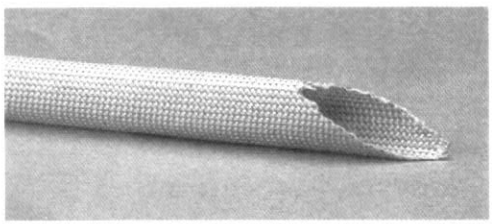
- UL VW-1
- NEMA TF-1
- UL 746B Test Method
- UL 1441 Test Spec

PROPERTIES:

Temperature Class C: +240°C
Intermittent Temp. Range: -75°C to +648°C guaranteed value
Dielectric Strength: Determined by a space factor

FEATURES:

- High heat resistance
- Extreme flexible
- Good mechanical properties
- Excellent chemical properties
- Supplied in spooled lengths to minimize waste



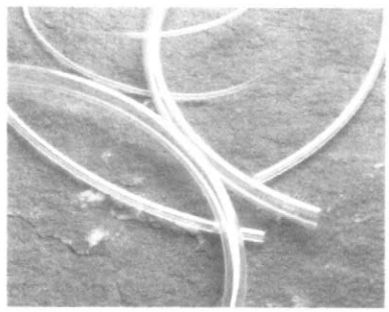
SIZE	NOMINAL I.D.		NOMINAL WALL THICKNESS		STANDARD PUT-UP
AWG or INCHES	INCHES	MM	INCHES	MM	(Feet)
AWG 24	0.022	0.56	0.012	0.030	100, 1000
AWG 22	0.027	0.68	0.012	0.030	100, 1000
AWG 20	0.034	0.86	0.012	0.030	100, 1000
AWG 18	0.042	1.07	0.012	0.030	100, 1000
AWG 17	0.047	1.19	0.013	0.033	100, 1000
AWG 16	0.053	1.35	0.013	0.033	100, 500
AWG 15	0.059	1.50	0.015	0.038	100, 500
AWG 14	0.066	1.68	0.015	0.038	100, 500
AWG 13	0.076	1.93	0.015	0.038	100, 250
AWG 12	0.085	2.16	0.015	0.038	100, 250
AWG 11	0.095	2.41	0.015	0.038	100, 250
AWG 10	0.106	2.69	0.015	0.038	100, 250
AWG 9	0.118	3.00	0.015	0.038	100, 250
AWG 8	0.133	3.38	0.015	0.038	100, 250
AWG 7	0.148	3.76	0.015	0.038	100, 250
AWG 6	0.166	4.22	0.015	0.038	100, 250
AWG 5	0.186	4.72	0.015	0.038	100, 250
AWG 4	0.206	5.23	0.015	0.038	100, 250
AWG 3	0.234	5.94	0.018	0.046	100, 250
AWG 2	0.263	6.68	0.018	0.046	100, 250
AWG 1	0.294	7.47	0.018	0.046	125
AWG 0	0.330	8.38	0.018	0.046	125
3/8 INCH	0.387	9.83	0.022	0.056	125
7/16 INCH	0.450	11.40	0.022	0.056	125
1/2 INCH	0.512	13.00	0.022	0.056	100
5/8 INCH	0.640	16.20	0.022	0.056	100
3/4 INCH	0.768	19.50	0.022	0.056	100
7/8 INCH	0.802	22.70	0.022	0.056	100
1 INCH	1.018	25.90	0.022	0.056	100

Stock Colors: Natural (Silver)

POLYURETHANE TUBING

CLEAR POLYURETHANE (ETHER-BASED) TUBING

Part Number	Inside Diameter	Outside Diameter	Wall Thickness	Standard Lengths	Working PSI at 70°F	Burst PSI at 70°F
IR-14180	1/16	1/8	1/32	100', 500'	130	400
IR-14186	1/8	3/16	1/32	100', 500'	70	215
IR-14188	1/8	1/4	1/16	100', 500'	130	390
IR-14192	3/16	5/16	1/16	100', 500'	70	220
IR-14196	1/4	5/16	1/32	100'	30	95
IR-14198	1/4	3/8	1/16	100', 500'	65	220
IR-14200	1/4	1/2	1/8	100', 500'	130	390
IR-14204	5/16	7/16	1/16	100'	65	195
IR-14208	3/8	1/2	1/16	100', 500'	55	175
IR-14210	3/8	9/16	3/32	100'	80	250
IR-14212	3/8	5/8	1/8	100'	100	300
IR-14216	1/2	5/8	1/16	50', 100'	35	105
IR-14218	1/2	11/16	3/32	50', 100'	45	140
IR-14220	1/2	3/4	1/8	50', 100'	60	180
IR-14224	5/8	3/4	1/16	50', 100'	40	120
IR-14226	5/8	13/16	3/32	50', 100'	50	160
IR-14228	5/8	7/8	1/8	50', 100'	60	180
IR-14232	3/4	1"	1/8	50', 100'	50	150
IR-14236	7/8	1-1/8"	1/8	50', 100'	30	95
IR-14240	1"	1-1/4"	1/8	50', 100'	40	120

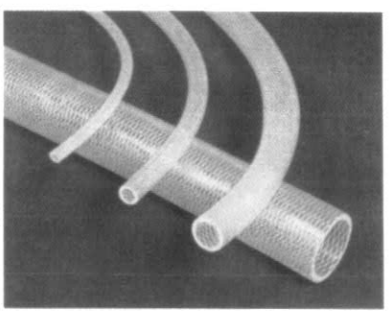


- Flexible, resilient, abrasion resistant; resistant to weathering and radiation
- Suitable for a wide variety of liquids, oils, grease, and fuels
- Contains no plasticizer which can cause flow contamination or tube hardening
- Does not impart taste or odor

Hardness, Shore A:	85 ± 5
Tensile Strength:	5500 psi
Elongation at Break:	580%
Brittle Temperature:	-90°F
Maximum Operating: Temperature:	200°F

CLEAR POLYURETHANE (ETHER-BASED) BRAIDED REINFORCED HOSE

Part Number	Inside Diameter	Outside Diameter	Wall Thickness	Standard Lengths	Working PSI at 70°F	Burst PSI at 70°F
IR-14250	0.250	0.470	0.110	100'	250	1000
IR-14256	0.375	0.630	0.127	100'	190	760
IR-14262	0.500	0.750	0.125	100'	150	600
IR-14266	0.625	0.905	0.140	100'	130	520
IR-14270	0.750	1.025	0.137	100'	100	400
IR-14274	1.000	1.300	0.150	100'	80	320
IR-14278	1.250	1.710	0.230	100'	75	300
IR-14282	1.500	1.930	0.215	100'	50	200
IR-14286	2.000	2.500	0.250	100'	40	160

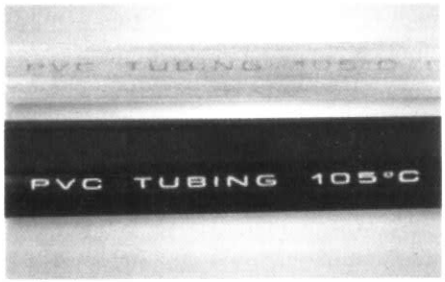


- Polyester braiding within the wall of flexible clear polyurethance hose
- Offers greater working and burst pressures than unreinforced polyurethane
- Flexible, resilient, abrasion resistant; resistant to weathering and radiation
- Suitable for a wide variety of liquids, oils, grease, and fuels
- Contains no plasticizer which can cause flow contamination or hose hardening

Hardness, Shore A:	85 ± 5
Tensile Strength:	5500 psi
Elongation at Break:	580%
Brittle Temperature:	-90°F
Maximum Operating: Temperature:	200°F

PVC TUBING (NON-UL)

▪ General purpose insulating tubing , non-flammable , suitable for insulation purpose of terminal lug , small electrical parts , lead wires of toy motor and transformer etc.



▪ Specifications

Item		Volume
(°C) Continuous operating temperature		- 40~105
(MPa) Tensile strength		≥ 10.4
(%) Ultimate elongation		≥ 100
Aging in circulating air oven		7days at 136.0 ± 1.0°C
After aging	(MPa) Tensile strength	≥ 7.28
	(%) Ultimate elongation	≥ 70
(V) Potential rating		300V , 600V
(Ω cm) Volume resistivity		≥ 10^{10}
(V) Potential rating		≥ 2500 (60s) , no breakdown
corrosion of bare copper		No corrosion
Heat shock		No cracking
Cold bend		No cracking
Maximum longitudinal change		± 5%

Size		Inside Diameter (mm)	Wall-thickness (mm)	Wall-thickness range (mm)
INCH	5/8	15.9	0.70	± 0.18
	9/16	14.3	0.70	± 0.15
	1/2	12.7	0.57	± 0.15
	7/16	11.1	0.57	± 0.15
	3/8	9.53	0.57	± 0.15
	5/16	7.92	0.57	± 0.15
AWG	0#	8.38	0.45	± 0.15
	1#	7.47	0.45	± 0.15
	2#	6.68	0.45	± 0.15
	3#	5.94	0.45	± 0.15
	4#	5.28	0.45	± 0.15
	5#	4.72	0.45	± 0.15
	6#	4.22	0.45	± 0.15
	7#	3.76	0.45	± 0.15
	8#	3.38	0.45	± 0.15
	9#	3.00	0.45	± 0.15
	10#	2.69	0.35	± 0.15
	11#	2.41	0.35	± 0.35
	12#	2.16	0.35	± 0.1
	13#	1.93	0.35	± 0.1
	14#	1.68	0.35	± 0.1
	15#	1.50	0.35	± 0.1
	16#	1.34	0.35	± 0.1
	17#	1.19	0.35	± 0.1
	18#	1.07	0.35	± 0.1
	19#	0.96	0.35	± 0.1
	20#	0.86	0.35	± 0.1
	21#	0.79	0.35	± 0.1

How lucky small children are. They think that all is right with the world - except for falls and bruises.- J.D. BOATWOOD

PVC TUBING (UL)

400/461 HIGH TEMPERATURE VINYL TUBING

PRODUCT DESCRIPTION
400/461 tubing is a specially formulated polyvinyl chloride tubing designed for continuous 105C operating and VW-1 flammability standards.

PRODUCT ADVANTAGES
Only one tubing is necessary for both military and commercial applications. Heat and oil resistance are combined with flame and fungus resistance. Electrical properties are relatively unaffected by normal operating temperatures or high humidity.

400/461 tubing meets UL-224, MIL-I-631 and ASTM D-922 for continuous operation at 105C.

PRODUCT APPLICATIONS
400/461 tubing protects terminal connections, lead wires, components and soldered joints. 400/461 tubing is available to meet UL300 and UL600 volt rating. For extra ruggedness and reliability 400/461 is also available in .031" heavy wall construction.

Where end closures are needed, Natvar tubing can be sealed to form a cap. Sealed caps and tubing can be solvent dilated for tight, smooth fit.

400/461 tubing is recognized by Under-writers Laboratories under File Card #E-15069 as extruded tubing, electrical, 105°C, VW-1, and certified as 105°C, tubing, insulating, under CSA File Card #27558.

TYPICAL PROPERTIES

Property	Test Method	Typical Values
Tensile Strength, p.s.i.	ASTM D-876	2800
Elongation, %	ASTM D-876	300
Dielectric Strength, V/M @ .020"	MIL-I-631	800
Vol. Resistivity, ohm-cm	MIL-I-631	10^{13}
Flame Resistance, Sec.	MIL-I-631	5
Cold Brittleness, °C	MIL-I-631	-20
Oil Resistance, % Ret.	ASTM D-922	95
Corrosive Effect, % △	MIL-I-631	0
Corrosion	UL-224	None
Fungus Resistance, Rating	MIL-I-631	0

PVC TUBING (UL / CSA)

UL, CSA Standard Vinyl Insulating Tubing

1. APPLICATION RANGE

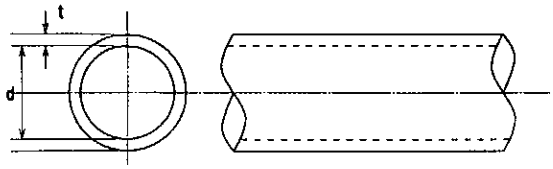
This specification is for Vinyl Insulating Tubing approved by Underwriters Laboratories Inc., and by Canadian Standard Association.

2. RATING VOLTAGE

UL ..... 300V or 600V
CSA ..... 300V or 600V

-F- E56036 IWASE AH-3 (or AH-6) CSA PVC 105C VW-1

Tube size to measure : t = thickness
d = inside diameter



3. APPROVAL NUMBER

UL E56036
CSA LR33763

4. STRUCTURE

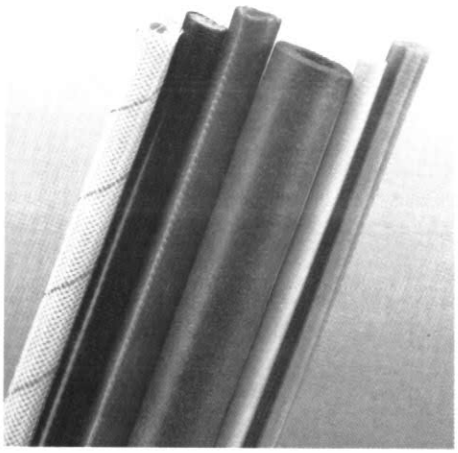
Size : as per TABLE
Insulation Material : 105°C heat-proof PVC
Surface Printing : Print following one marking within 6 inch on tube surface. Ink color - Yellow or Black

UL, CSA Vinyl Tubing Standard Size

Size	I.D. (d) (mm)	Tol. (mm)	600V Min. t (mm)	300V Min. t (mm)
AWG 24	0.55	± 0.1	0.51	0.34
22	0.65	± 0.1	0.51	0.34
20	0.85	± 0.1	0.51	0.34
19	0.9	± 0.1	0.51	0.34
18	1.0	±0.15	0.56	0.34
17	1.2	±0.15	0.56	0.34
16	1.3	±0.15	0.56	0.34
15	1.5	±0.15	0.56	0.34
14	1.7	±0.15	0.56	0.34
13	1.9	±0.15	0.56	0.34
12	2.1	± 0.2	0.56	0.34
11	2.4	± 0.2	0.56	0.34
10	2.7	± 0.2	0.56	0.34
9	3.0	±0.25	0.56	0.44
8	3.3	±0.25	0.56	0.44
7	3.7	±0.25	0.56	0.44
6	4.2	± 0.3	0.56	0.44
5	4.7	± 0.3	0.56	0.44
4	5.3	± 0.3	0.56	0.44
3	5.9	± 0.3	0.56	0.44
2	6.6	± 0.3	0.56	0.44
1	7.4	±0.35	0.56	0.44
0	8.3	±0.35	0.56	0.44
In. 5/16	8.0	±0.35	0.56	
6/16	9.5	±0.35	0.56	
7/16	11.1	±0.35	0.56	
8/16	12.7	±0.35	0.56	
9/16	14.3	± 0.4	0.71	
10/16	16.0	± 0.4	0.71	
12/16	19.0	± 0.4	0.77	
14/16	22.0	+0.7 , - 0.5	0.77	
16/16	25.0	+0.7 , - 0.5	0.77	
1-1/16	27.0	+0.7 , - 0.5	0.77	
1-1/4	32.0	+1.0 , - 0.5	0.89	
1-1/2	38.0	+1.0 , - 0.5	0.99	
1-3/4	44.0	+1.5 , - 1.0	1.19	
16/8	50.0	+1.5 , - 1.0	1.27	

It is a wise father that knows his own child. - WILLIAM SHAKESPEARE

SILICONE TUBING



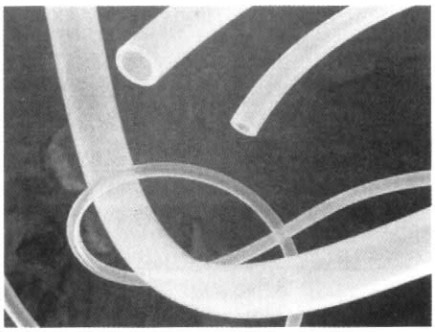
Article-Code	Product Group	Dimensions	Temperature resistance	Hardness Shore A (+ 5°)	Insulation class
SIS	Silicone-tubes and hoses - hose sections - hose rings - hose bend	0,25 - 200,0 mm Inside - Ø 0,25 - 12,0 mm Wall thickness any fixed lengths > 0,5 mm long cuts acc. drawing	+180°C transparent or coloured +250°C red brown +300°C opaque or grey blue - 50°C transparent or coloured - 80°C translucent or slightly coloured	20° up to 80°	H C C di-electrical strength 20 kV/mm acc. VDE
SIR **SIV** **SIP**	Silicone-cords - squares - profiles	0,5 - 40,0 mm Ø 0,5 - 250,0 mm width 0,3 - 40,0 mm thickness acc. drawing or sample all geometries	+180°C transparent or coloured +250°C red brown +300°C opaque or grey blue - 50°C transparent or coloured - 80°C translucent or slightly coloured	20° up to 80°	H C C
SID	Silicone-stampings	acc. drawing or sample biz 220,0 mm width biz 5,0 mm thickness (above thickness on reques)	+180°C transparent or coloured +250°C red brown +300°C opaque or grey blue - 50°C transparent or coloured - 80°C translucent or slightly coloured	20° up to 80°	H C C
SIF	Silicone-mouldings	acc. drawing up to 300,0 gram weight per part up to 180,0 tons machine clamping force	+250°C for LSR - 55°C for LSR +300°C for HCR - 80°C for HCR in any colour (depending on the temperature requirement)	20° up to 70°	C
SSS **SSR** **SSV** **SSP**	Silicone-foam hoses - foam cords - foam squares - foam profiles	1,5 - 60,0 mm I-Ø(max. 75,0 O-Ø) 2,0 - 15,0 mm Wall thickness 1,0 - 60,0 mm Ø up to 220,0 mm width up to 40,0 mm thickness acc. drawing or sample	+180°C light or slightly coloured +250°C red brown +300°C opaque - 80°C	8° up to 30° density 0,35 up to 0,9	H C C
SSD	Silicone-foam stampings	acc. drawing or sample up to 200,0 width up to 5,0 mm thickness (above thickness on request)	+180°C light or slightly coloured +250°C red brown +300°C opaque - 80°C	8° up to 30° density 0,35 up to 0,9	H C C
SGB **SMB** **SPB** **SKB** **SNB** **SDU**	Silicone-pressure hoses - reinforced with Glass-Fibre - reinforced with PES- Monofil - reinforced with PES-Yarn - reinforced with Aramide - reinforced with Polyamide - reinforced with Stainless Steel	3,0 - 50,0 mm Inside - Ø braided or knitted with or without top coating any fixed lengths	+130°C up to +300°C depending on the Silicone compound and the type of reinforcement - 50°C	base hose 70° coating 50° up to 80°	
Special-Products	Silicone hoses/ profiles with naped surfaces self vulcanizing Silicone tape Silicone Gel Mattresses Silicone Adhesives Silicone Compounds	on request or according customer requirement			

Qualities / specialities	Examples of possible applications / fields of applications	Article-Code
according DIN 40628: transparent or any colour fire retardant, self extinguishing (acc. UL 94 V0) BGA/FDA-conform, USP approved, sterilizable electrical conductive quality oil resistant (Fluorosilicone Rubber) special chemical resistance, wear resistant steam resistant adjustment tolerances acc. DIN 7715 part 3 class E2 (closer tolerances on request)	temperature flexible electrical insulation tubes (sleeves), tubes for transportation of different mediums, pipe connections, seals, roller covers household appliance (coffee and vending machines), automotive industry (cable harnesses), electrical industry, food industry (transportation roll covers), medical industry, lightin industry (lamp holders seals), machine building, equipment and plant construction (door seals)	**SIS**
qualities identical to SIS preparation for processing on request - bonded or vulcanized into a ring - beveled cut profiles bonded or vulcanized into a frame - self adhesive finish - stampings and drilled holes in lip profiles - into the profile extruded yarn (stretch prevention)	weather and chemical resistant seals for extreme temperature applications household appliances (oven seals), electrical industry (equipment seals), heating and energy technology (waste air gasket, housing seals), plant and machine building (boiler and container seals), computer industry (EDV hardware seals - i.e. conductive)	**SIR** **SIV** **SIP**
qualities identical to SIS specialities: - single side self adhesive - cast onto aluminium - cast onto fibre glass - water beam cut	elastic, long life time sealing elements automotive industry (connector seals), ventilation systems (temperature control gaskets), heating technology (heat cartridge seals, welding insulators), household appliances (flat iron seals)	**SID**
made from High Consistency Rubber (HCR) or Liquid Silicone Rubber (LSR) tolerance acc. DIN 7715 part 2 class M2 (closer tolerances individually possible) speciality: - self lubricating seals (weather pack seals)	multi dimensional precision moulded parts automotive industry (spark plug boots, distributor caps, cable connector seals), energy technology (high voltage insulators), machine, plant and equipment building (sleeves, bellows, membranes, closing caps), medical industry (sterilization mats, catheter)	**SIF**
closed cell structure integral skin on request variable cell structure respectively variable densities between 0,35 - 0,9 gram/cm³; plasticiser free tolerances ± 10% (in exceptional cases ± 5%) preparation for processing on request	thermal insulations and flexible seals with good reset (low compression set) heat and energy technology, industry oven building, above and below ground construction, aviation and aerospace technology, industrial heating systems	**SSS** **SSR** **SSV** **SSP**
high compressibility, low compression set no embrittlement when application appropriate to the material specialities: - single side self adhesive - cast onto aluminium - cast onto fibre glass - water beam cut	compressible high temperature sealing elements automotive industry (cable harnesses), lighting industry (lamp holder seals), vehicle building (thermal and sound insulation), aviation and aerospace industry (flame retardent seat upholstery)	**SSD**
braided or knitted reinforcement, with or without top coating BGA/FDA-conform, transparent (visibility of transported medium) pressure resistant up to 70 bar (burst pressure) multi channel hoses extreme thin wall thickness diffusion tubes (patented) speciality: built in heating and/or control wire	pressure resistant hoses, pipes and connecting hoses food industry (pipes for food and beverages), plant construction (hoses for racking, bottling and suction plants), medical industry (x-ray contrast agent / blood transmission hoses), biotechnology (permeable hoses transmitting gases to fermenters), machine building (high pressure hoses for cleaning and equipment and transmission hoses for coolants)	**SGB** **SMB** **SPB** **SKB** **SNB** **SDU**
customer specialities	- naped hoses for food transport rollers - electrical and thermal insulation tapes - gel filled mattresses for incubators, baby heat radiation beds - adhesives in tubes or cartridges for in house tailored articles - special compounds according customer agreement	**Special-Products**

SILICONE TUBING

TRANSLUCENT SILICONE TUBING

Part Number	Inside Diameter	Outside Diameter	Wall Thickness	Standard Lengths	Working PSI at 70°F	Burst PSI at 70°F
IR-14300	1/16	1/8	1/32	100'	10	30
IR-14304	1/16	3/16	1/16	100'	20	60
IR-14308	3/32	5/32	1/32	100'	10	30
IR-14310	3/32	7/32	1/16	100'	15	45
IR-14316	1/8	3/16	1/32	100'	10	30
IR-14318	1/8	1/4	1/16	100'	20	60
IR-14320	1/8	5/16	3/32	100'	25	75
IR-14322	1/8	3/8	1/8	100'	25	75
IR-14326	5/32	9/32	1/16	100'	20	60
IR-14328	5/32	11/32	3/32	100'	20	60
IR-14332	3/16	1/4	1/32	100'	5	15
IR-14334	3/16	5/16	1/16	100'	20	60
IR-14336	3/16	3/8	3/32	100'	20	60
IR-14338	3/16	7/16	1/8	100'	15	45
IR-14342	1/4	5/16	1/32	100'	10	30
IR-14344	1/4	3/8	1/16	100'	5	15
IR-14346	1/4	7/16	3/32	100'	20	60
IR-14348	1/4	1/2	1/8	100'	15	45
IR-14352	5/16	7/16	1/16	100'	10	30
IR-14354	5/16	1/2	3/32	100'	10	30
IR-14360	3/8	1/2	1/16	100'	10	30
IR-14362	3/8	9/16	3/32	100'	10	30
IR-14364	3/8	5/8	1/8	100'	10	30
IR-14366	3/8	3/4	3/16	100'	15	45
IR-14372	7/16	5/8	3/32	100'	10	30
IR-14376	1/2	5/8	1/16	100'	5	15
IR-14378	1/2	11/16	3/32	100'	5	15
IR-14380	1/2	3/4	1/8	100'	10	30
IR-14382	1/2	7/8	3/16	100'	10	30
IR-14386	5/8	13/16	3/32	100'	5	15
IR-14388	5/8	7/8	1/8	100'	5	15
IR-14390	5/8	1"	3/16	100'	10	30
IR-14394	3/4	1"	1/8	100'	5	15
IR-14396	3/4	1-1/8"	3/16	100'	10	30



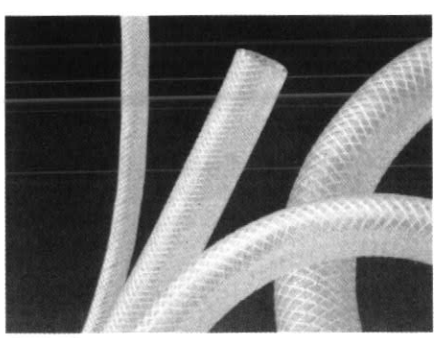
- Manufactured from FDA-sanctioned ingredients
- Translucent, natural color for visual contact with flow
- Resilient, stretchable and resilient to compression set
- Does not impart taste or odor
- Ultraviolet and ozone resistent

Hardness, Shore A:	50 ± 5
Tensile Strength:	1100 psi
Elongation at Break:	375%
Brittle Temperature:	-100°F
Maximum Operating Temperature:	500°F
Tear Resistance:	100 ppi
Flammability UL:	94 HB

TRANSLUCENT SILICONE BRAIDED REINFORCED HOSE

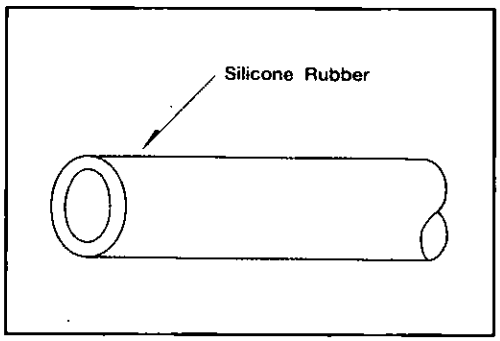
Part Number	Inside Diameter	Outside Diameter	Wall Thickness	Standard Lengths	Working PSI at 70°F	Burst PSI at 70°F
IR-14420	0.125	0.365	0.120	100'	230	695
IR-14424	0.187	0.447	0.130	100'	215	645
IR-14428	0.250	0.520	0.135	100'	205	620
IR-14432	0.312	0.592	0.140	100'	180	545
IR-14436	0.375	0.655	0.140	100'	165	495
IR-14440	0.500	0.800	0.150	100'	140	420
IR-14444	0.625	0.965	0.170	50'	115	345
IR-14448	0.750	1.100	0.175	50'	90	270
IR-14452	1.000	1.360	0.180	50'	75	225

- Polyester braid incorporated within the wall of silicone hose
- Manufactured from FDA-sanctioned ingredients
- Translucent, natural color for visual contact with flow
- Does not impart taste or odor
- Ultraviolet and ozone resistant



Hardness, Shore A (Core):	70 ± 5
Hardness, Shore A (Cover):	60 ± 5
Tensile Strength:	1000 psi
Elongation at Break:	350%
Brittle Temperature:	- 80°F
Maximum Operating Temperature:	350°F

SILICONE RUBBER TUBING



SILICONE RUBBER TUBING

RS

STRUCTURE Extruded Silicone Rubber Tube.
FEATURES Excellent heat and cold resistance, very supple.
USED Electrical insulation, Packing, etc.
REMARKS Can be used continuously at 180°C. White is standard color. Semi-transparent, yellow, blue, red and green available.

HEAT-RESISTANT SILICONE RUBBER TUBING

RSC

STRUCTURE Extruded Heat-Resistant Silicone Rubber Tube.
FEATURES Excellent heat resistance.
REMARKS Can be used continuously at 200°C. Only available in brown.

SUPER HEAT-RESISTANT SILICONE RUBBER TUBING

RSCD

STRUCTURE Super-heat Resistant Extryded Silicone Rubber Tube.
FEATURES Super-heat Resistant Silicone rubber used (maximum recorded interim temperature: 230°C)
REMARKS Light yellow and brown.

STRENGTHENED SILICONE RUBBER TUBING

RST

STRUCTURE Extruded Strengthened Silicone Rubber Tube.
FEATURES Better mechanical properties than RS.
REMARKS Can be used continuously at 180°C. White is standard color. Yellow, blue, red and green available.

FLAME-RETARDANT SILICONE RUBBER TUBING

RSU

STRUCTURE Extruded Flame-Retardant Silicone Rubber Tube.
FEATURES Excellent flame retardant properties.
REMARKS Can be used continuously at 180°C. Gray is standard color, white and light color are available.

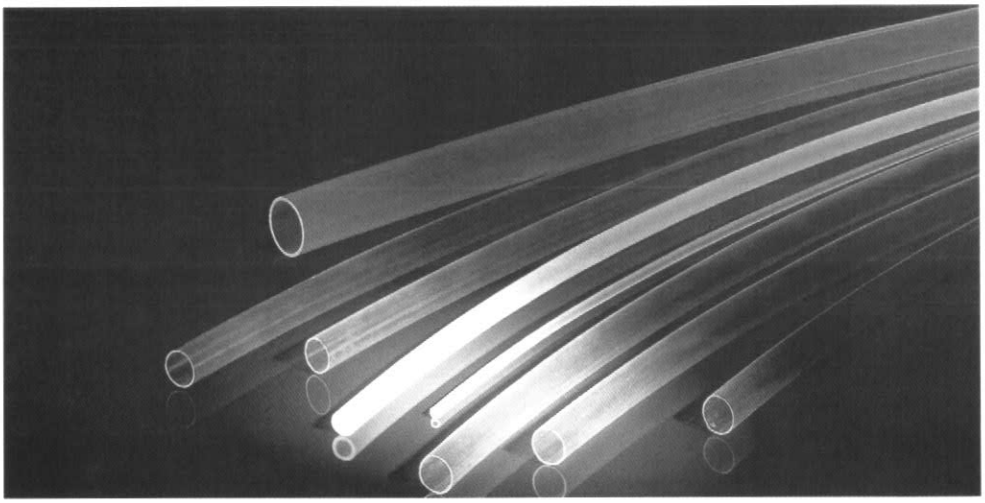
FOOD-SAFE SILICONE RUBBER TUBING

RSM

STRUCTURE Extruded Food-safe Silicone Rubber Tube.
FEATURES Approved under comestible sanitation law.
USED Food processing, medical equipment, etc.
REMARKS Semi-transparent is standard color, other light color are available.

RS/RSC/RSCD/RST/RSM/RSU

Inner Diameter (mm)	Inner Diameter Tolerance (mm)	Wall Thickness (mm)	Wall Thickness Tolerance (mm)	Norminal Length (m)
0.8	+0.1,-0.1	0.4	+0.08,-0.08	100
1.0	+0.2,-0.2	//	//	//
1.2	//	//	//	//
1.5	+0.3,-0.2	//	//	//
2.0	//	//	//	//
2.5	+0.4,-0.3	//	//	//
3.0	//	0.5	//	//
3.5	//	//	//	//
4.0	//	//	//	//
4.5	//	//	//	//
5.0	+0.5,-0.5	0.6	+0.10,-0.08	//
6.0	//	//	//	//
7.0	//	//	//	50
8.0	//	//	//	//
9.0	//	//	//	//
10.0	+1.0,-0.5	0.8	+0.12,-0.08	//
12.0	//	//	//	//
14.0	//	//	//	//
16.0	//	//	//	//
18.0	//	//	//	//
20.0	+1.5,-0.5	1.0	+0.15,-0.10	25
22.0	//	1.2	//	//
24.0	//	1.5	+0.20,-0.10	//
26.0	//	//	//	//
28.0	//	//	//	//
30.0	+2.0,-1.0	2.0	+0.30,-0.20	//



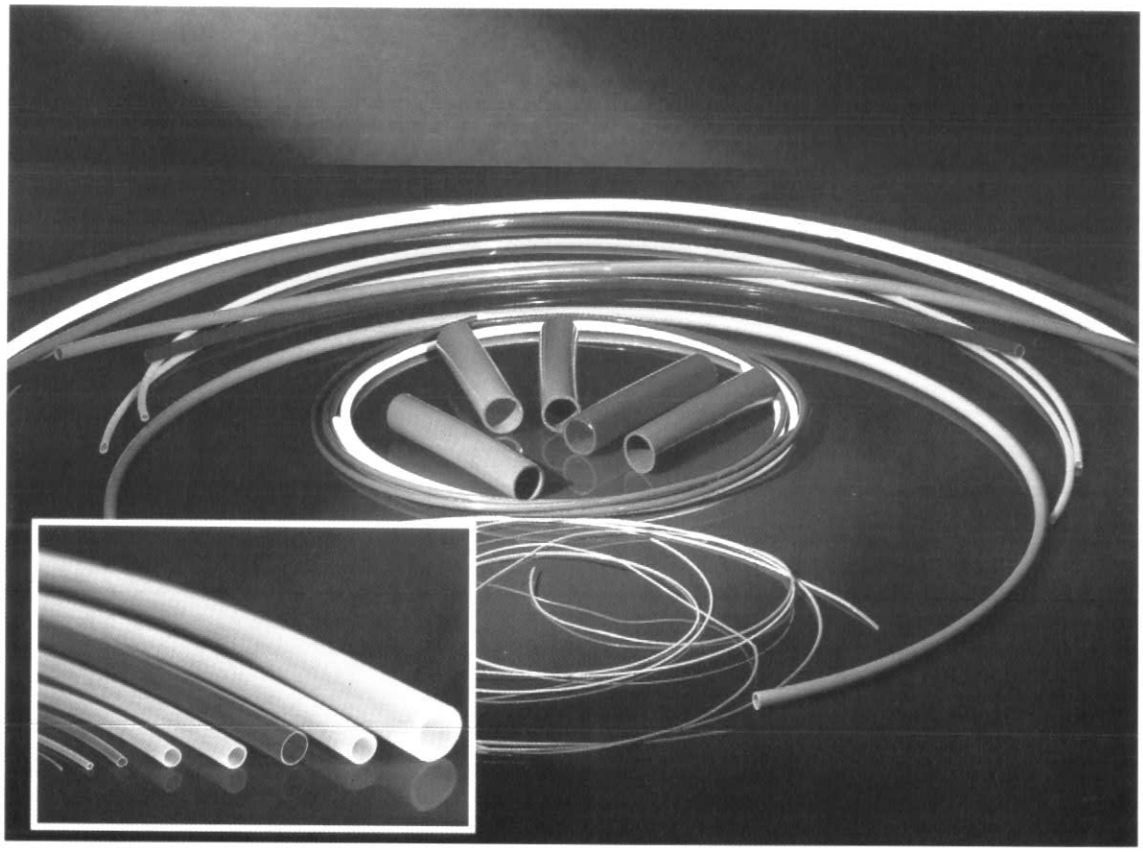
SUMMARY OF PROPERTIES
Extruded Fluoropolymers

The table below lists the generally accepted summary of electrical, mechanical and thermal properties of the four fluoropolymer resins.

PROPERTIES	RESINS			
	TFE	FEP	PFA	TEFZEL®
ULTIMATE TENSILE STRENGTH, psi (ASTM D 638)	2,500 - 4,000 (73°F) 1,500 (482°F)	3,000 - 4,000 (73°F)	4,000 (73°F) 2,000 (482°F)	6,500 - 7,500
ULTIMATE ELONGATION, % (ASTM D 638)	225 - 450 (73°F) 350 (482°F)	300 (73°F)	300 (73°F) 510 (482°F)	100 - 300 (73°F)
COEFFICIENT OF FRICTION (DYNAMIC)	0.10	0.25	0.20	0.40
FLEXURAL MODULUS, psi x 10^3 (ASTM D 798)	50 to 90 (73°F) 4 (482°F)	95 - 105 (73°F)	100 (73°F) 10 (482°F)	200
IMPACT STRENGTH NOTCHED IZOD, FT. LB / IN., (ASTM D 256)	3 (73°F) >6 (170°F) 1.5 (-110°F)	No Break (73°F) 2.9 (-65°F)	No Break (73°F)	No Break (73°F) >20 (-65°F)
CONTINUOUS USE TEMPERATURE, °F	500	400	over 500	302
HEAT DEFLECTION TEMP. 66 psi, °F (ASTM D 648)	252	158		220
SPECIFIC GRAVITY (ASTM D 792)	2.11 - 2.19	2.12 - 2.17	2.12 - 2.17	1.70
DIELECTRIC STRENGTH (ASTM D 149) SHORT TERM VOLTS / MIL 10 MILS	1400	1400	1400	1600
DIELECTRIC CONSTANT (ASTM D 150)	2.05 ± 0.05 from 10^2 to 10^{10} Hz	2.10 from 10^2 to 10^8 Hz	2.1 from 10^2 to 10^6 Hz	2.6 from 10^2 to 10^6 Hz
MELTING POINT, °F	620 ± 20	487 - 540	575 - 590	520

TEFLON® TUBING

TFE TUBING



Frac. Sizes (Inches)	INSIDE DIAMETER			WALL THICKNESS						INDUSTRIAL SPECIFICATION TUBING Fractional Inch Sizes Bulletin 7			
				STANDARD WALL AMS 3653 Bulletin 4		THIN WALL AMS 3655 Bulletin 5		LIGHTWEIGHT WALL AMS 3654 Bulletin 6					
	Min.	Nom.	Max.	Nom.	Tol.	Nom.	Tol.	Nom.	Tol.	Frac. Sizes (Inches)	I.D. (Inches)	Tolerance + or - (Inches)	Wall Thickness (Inches)
1/8	.120	.125	.130	.020	± .004	.015	± .003	-	-	1/32	.031	.004	.015 ± .003
1/8	.125	.130	.135	-	-	-	-	.008	± .002	1/16	.063	.005	.030 ± .005
3/16	.188	.192	.198	.020	± .004	.015	± .003	.010	± .003	3/32	.094	.005	.030 ± .005
										1/8	.125	.010	.030 ± .005
1/4	.250	.225	.260	.020	± .004	.015	± .003	.010	± .003	3/16	.188	.010	.030 ± .005
5/16	.313	.321	.332	.020	± .004	.015	± .003	.012	± .003	1/4	.250	.010	.030 ± .005
3/8	.375	.387	.394	.025	± .005	.015	± .003	.015	± .005	5/16	.312	.010	.030 ± .005
7/16	.438	.451	.458	.025	± .005	.018	± .004	.018	± .005	3/8	.375	.010	.030 ± .005
1/2	.500	.515	.520	.025	± .005	.018	± .004	.018	± .005	7/16	.438	.010	.030 ± .005
5/8	.625	.643	.650	.025	± .005	.020	± .004	.020	± .005	1/2	.500	.010	.030 ± .005
3/4	.750	.772	.775	.030	± .006	.025	± .005	.020	± .005	9/16	.562	.020	.030 ± .007
7/8	.875	.902	.927	.035	± .007	-	-	-	-	5/8	.625	.020	.030 ± .007
1	1.000	1.030	1.060	.035	± .007	-	-	-	-	11/16	.687	.020	.030 ± .007
1-1/4	1.250	1.287	1.325	.040	± .007	-	-	-	-	3/4	.750	.020	.040 ± .007
1-1/2	1.500	1.550	1.580	.045	± .007	-	-	-	-	7/8	.875	.020	.045 ± .007
										1	1.000	.020	.045 ± .007
										1-1/8	1.125	.020	.045 ± .007
										1-1/4	1.250	.020	.045 ± .007
										1-1/2	1.500	.030	.050 ± .007

TEFLON® TUBING

FEP TUBING

AWG Sizes	INSIDE DIAMETER Min.	Nom.	Max.	WALL DIMENSIONS STANDARD WALL Bulletin 201 Nom.	Tol.	THIN WALL Bulletin 202 Nom.	Tol.	LIGHTWEIGHT Bulletin 203 Nom.	Tol.	PACKAGING
30	.010	.012	.015	.009	± .002	.009	± .002	.006	± .002	1000' SPOOLS
28	.013	.015	.018	.009	± .002	.009	± .002	.006	± .002	1000' SPOOLS
26	.016	.018	.021	.009	± .002	.009	± .002	.006	± .002	1000' SPOOLS
24	.020	.022	.026	.012	± .002	.010	± .003	.006	± .002	1000' SPOOLS
23	.023	.026	.029	.012	± .002	.010	± .003	.006	± .002	1000' SPOOLS
22	.026	.028	.032	.012	± .002	.010	± .003	.006	± .002	1000' SPOOLS
21	.029	.032	.035	.012	± .002	.010	± .003	.006	± .002	1000' SPOOLS
20	.032	.034	.038	.016	± .003	.012	± .003	.006	± .002	1000' SPOOLS
19	.036	.038	.042	.016	± .003	.012	± .003	.006	± .002	1000' SPOOLS
18	.040	.042	.046	.016	± .003	.012	± .003	.006	± .002	1000' SPOOLS
17	.045	.047	.052	.016	± .003	.012	± .003	.006	± .002	1000' SPOOLS
16	.051	.053	.058	.016	± .003	.012	± .003	.006	± .002	1000' SPOOLS
15	.057	.059	.065	.016	± .003	.012	± .003	.006	± .002	1000' SPOOLS
14	.064	.066	.072	.016	± .003	.012	± .003	.008	± .002	500' SPOOLS
13	.072	.076	.081	.016	± .003	.012	± .003	.008	± .002	500' SPOOLS
12	.081	.085	.091	.016	± .003	.012	± .003	.008	± .002	500' SPOOLS
11	.091	.095	.101	.016	± .003	.012	± .003	.008	± .002	500' SPOOLS
10	.102	.106	.112	.016	± .003	.012	± .003	.008	± .002	500' SPOOLS
9	.114	.118	.124	.020	± .004	.015	± .003	.008	± .002	250' SPOOLS
8	.129	.133	.139	.020	± .004	.015	± .003	.008	± .002	*
7	.144	.148	.155	.020	± .004	.015	± .003	.008	± .003	*
6	.162	.166	.174	.020	± .004	.015	± .003	.010	± .003	*
5	.182	.186	.195	.020	± .004	.015	± .003	.010	± .003	*
4	.204	.208	.218	.020	± .004	.015	± .003	.010	± .003	*
3	.229	.234	.244	.020	± .004	.015	± .003	.010	± .003	*
2	.258	.263	.273	.020	± .004	.015	± .003	.010	± .003	*
1	.289	.294	.305	.020	± .004	.015	± .003	.010	± .003	*
0	.325	.330	.342	.020	± .004	.015	± .003	.012	± .003	*

Frac. Sizes (Inches)	INSIDE DIAMETER Min.	Nom.	Max.	WALL THICKNESS STANDARD WALL Bulletin 204 Nom.	Tol.	THIN WALL Bulletin 205 Nom.	Tol.	LIGHTWEIGHT WALL Bulletin 206 Nom.	Tol.
1/8	.120	.125	.130	.020	± .004	.015	± .003	-	-
1/8	.125	.130	.135	-	-	-	-	.008	± .002
3/16	.188	.192	.198	.020	± .004	.015	± .003	.010	± .003
1/4	.250	.255	.260	.020	± .004	.015	± .003	.010	± .003
5/16	.313	.321	.332	.020	± .004	.015	± .003	.012	± .003
3/8	.375	.387	.394	.025	± .005	.015	± .003	.015	± .005
7/16	.438	.451	.458	.025	± .005	.018	± .004	.018	± .005
1/2	.500	.515	.520	.025	± .005	.018	± .004	.018	± .005
5/8	.625	.643	.650	.025	± .005	.020	± .004	.020	± .005
3/4	.750	.772	.775	.030	± .006	.025	± .005	.020	± .005
7/8	.875	.902	.927	.035	± .007	-	-	-	-

INDUSTRIAL SPECIFICATION TUBING Fractional Inch Sizes Bulletin 207 Frac. Sizes (Inches)	I.D. (Inches)	Tolerance + or - (Inches)	Wall Thickness (Inches)
1/32	.031	.004	.015 ± .003
1/16	.063	.005	.030 ± .005
3/32	.094	.005	.030 ± .005
1/8	.125	.010	.030 ± .005
3/16	.188	.010	.030 ± .005
1/4	.250	.010	.030 ± .005
5/16	.312	.010	.030 ± .005
3/8	.375	.010	.030 ± .005
7/16	.438	.010	.030 ± .005
1/2	.500	.010	.030 ± .005
9/16	.562	.020	.030 ± .007
5/8	.625	.020	.030 ± .007
11/16	.687	.020	.030 ± .007
3/4	.750	.020	.040 ± .007
7/8	.875	.020	.045 ± .007

TEFLON® TUBING

PFA TUBING

AWG Sizes	INSIDE DIAMETER Min.	Nom.	Max.	WALL DIMENSIONS STANDARD WALL Bulletin 301 Nom.	Tol.	THIN WALL Bulletin 302 Nom.	Tol.	LIGHTWEIGHT WALL Bulletin 303 Nom.	Tol.	PACKAGING
30	.010	.012	.015	.009	±.002	.009	±.002	.006	±.002	1000' SPOOLS
28	.013	.015	.018	.009	±.002	.009	±.002	.006	±.002	1000' SPOOLS
26	.016	.018	.021	.009	±.002	.009	±.002	.006	±.002	1000' SPOOLS
24	.020	.022	.026	.012	±.002	.010	±.003	.006	±.002	1000' SPOOLS
23	.023	.026	.029	.012	±.002	.010	±.003	.006	±.002	1000' SPOOLS
22	.026	.028	.032	.012	±.002	.010	±.003	.006	±.002	1000' SPOOLS
21	.029	.032	.035	.012	±.002	.010	±.003	.006	±.002	1000' SPOOLS
20	.032	.034	.038	.016	±.003	.012	±.003	.006	±.002	1000' SPOOLS
19	.036	.038	.042	.016	±.003	.012	±.003	.006	±.002	1000' SPOOLS
18	.040	.042	.046	.016	±.003	.012	±.003	.006	±.002	1000' SPOOLS
17	.045	.047	.052	.016	±.003	.012	±.003	.006	±.002	1000' SPOOLS
16	.051	.053	.058	.016	±.003	.012	±.003	.006	±.002	1000' SPOOLS
15	.057	.059	.065	.016	±.003	.012	±.003	.006	±.002	1000' SPOOLS
14	.064	.066	.072	.016	±.003	.012	±.003	.008	±.002	1000' SPOOLS
13	.072	.076	.081	.016	±.003	.012	±.003	.008	±.002	1000' SPOOLS
12	.081	.085	.091	.016	±.003	.012	±.003	.008	±.002	500' SPOOLS
11	.091	.095	.101	.016	±.003	.012	±.003	.008	±.002	500' SPOOLS
10	.102	.106	.112	.016	±.003	.012	±.003	.008	±.002	500' SPOOLS
9	.114	.118	.124	.020	±.004	.015	±.003	.008	±.002	250' SPOOLS
8	.129	.133	.139	.020	±.004	.015	±.003	.008	±.002	*
7	.144	.148	.155	.020	±.004	.015	±.003	.008	±.003	*
6	.162	.166	.174	.020	±.004	.015	±.003	.010	±.003	*
5	.182	.186	.195	.020	±.004	.015	±.003	.010	±.003	*
4	.204	.208	.218	.020	±.004	.015	±.003	.010	±.003	*
3	.229	.234	.244	.020	±.004	.015	±.003	.010	±.003	*
2	.258	.263	.273	.020	±.004	.015	±.003	.010	±.003	*
1	.289	.294	.305	.020	±.004	.015	±.003	.010	±.003	*
0	.325	.330	.342	.020	±.004	.015	±.003	.012	±.003	*

Frac. Sizes (Inches)	INSIDE DIAMETER Min.	Nom.	Max.	WALL THICKNESS STANDARD WALL Bulletin 304 Nom.	Tol.	THIN WALL Bulletin 305 Nom.	Tol.	LIGHTWEIGHT WALL Bulletin 306 Nom.	Tol.	INDUSTRIAL SPECIFICATION TUBING Fractional Inch Sizes Bulletin 307 Frac. Sizes (Inches)	I.D. (Inches)	Tolerance + or - (Inches)	Wall Thickness (Inches)
1/8	.120	.125	.130	.020	± .004	.015	± .003	-	-	1/32	.031	.004	.015 ± .003
1/8	.125	.130	.135	-	-	-	-	.008	± .002	1/16	.063	.005	.030 ± .005
3/16	.188	.192	.198	.020	± .004	.015	± .003	.010	± .003	3/32	.094	.005	.030 ± .005
										1/8	.125	.010	.030 ± .005
1/4	.250	.255	.260	.020	± .004	.015	± .003	.010	± .003	3/16	.188	.010	.030 ± .005
5/16	.313	.321	.332	.020	± .004	.015	± .003	.012	± .003	1/4	.250	.010	.030 ± .005
3/8	.375	.387	.394	.025	± .005	.015	± .003	.015	± .005	5/16	.312	.010	.030 ± .005
7/16	.438	.451	.458	.025	± .005	.018	± .004	.018	± .005	3/8	.375	.010	.030 ± .005
1/2	.500	.515	.520	.025	± .005	.018	± .004	.018	± .005	7/16	.438	.010	.030 ± .005
5/8	.625	.643	.650	.025	± .005	.020	± .004	.020	± .005	1/2	.500	.010	.030 ± .005
										9/16	.562	.020	.030 ± .007
										5/8	.625	.020	.030 ± .007

There is nothing like returning to a place that remains unchanged to find the ways in which you yourself have altered. - NELSON MANDELA

TEFLON® TUBING

TEFZEL TUBING

AWG Sizes	INSIDE DIAMETER Min.	Nom.	Max.	WALL DIMENSIONS — STANDARD WALL MIL-1-22129 • AMS 3653 Bulletin 401 Nom.	Tol.	THIN WALL AMS 3655 Bulletin 402 Nom.	Tol.	LIGHTWEIGHT WALL AMS 3654 Bulletin 403 Nom.	Tol.	PACKAGING
30	.010	.012	.015	.009	± .002	.009	± .002	.006	± .002	1000' SPOOLS
28	.013	.015	.018	.009	± .002	.009	± .002	.006	± .002	1000' SPOOLS
26	.016	.018	.021	.009	± .002	.009	± .002	.006	± .002	1000' SPOOLS
24	.020	.022	.026	.012	± .002	.010	± .003	.006	± .002	1000' SPOOLS
23	.023	.026	.029	.012	± .002	.010	± .003	.006	± .002	1000' SPOOLS
22	.026	.028	.032	.012	± .002	.010	± .003	.006	± .002	1000' SPOOLS
21	.029	.032	.035	.012	± .002	.010	± .003	.006	± .002	1000' SPOOLS
20	.032	.034	.038	.016	± .003	.012	± .003	.006	± .002	1000' SPOOLS
19	.036	.038	.042	.016	± .003	.012	± .003	.006	± .002	1000' SPOOLS
18	.040	.042	.046	.016	± .003	.012	± .003	.006	± .002	1000' SPOOLS
17	.045	.047	.052	.016	± .003	.012	± .003	.006	± .002	1000' SPOOLS
16	.051	.053	.058	.016	± .003	.012	± .003	.006	± .002	1000' SPOOLS
15	.057	.059	.065	.016	± .003	.012	± .003	.006	± .002	1000' SPOOLS
14	.064	.066	.072	.016	± .003	.012	± .003	.008	± .002	1000' SPOOLS
13	.072	.076	.081	.016	± .003	.012	± .003	.008	± .002	1000' SPOOLS
12	.081	.085	.091	.016	± .003	.012	± .003	.008	± .002	500' SPOOLS
11	.091	.095	.101	.016	± .003	.012	± .003	.008	± .002	500' SPOOLS
10	.102	.106	.112	.016	± .003	.012	± .003	.008	± .002	500' SPOOLS
9	.114	.118	.124	.020	± .004	.015	± .003	.008	± .002	250' SPOOLS
8	.129	.133	.139	.020	± .004	.015	± .003	.008	± .002	*
7	.144	.148	.155	.020	± .004	.015	± .003	.008	± .003	*
6	.162	.166	.174	.020	± .004	.015	± .003	.010	± .003	*
5	.182	.186	.195	.020	± .004	.015	± .003	.010	± .003	*
4	.204	.208	.218	.020	± .004	.015	± .003	.010	± .003	*
3	.229	.234	.244	.020	± .004	.015	± .003	.010	± .003	*
2	.258	.263	.273	.020	± .004	.015	± .003	.010	± .003	*
1	.289	.294	.305	.020	± .004	.015	± .003	.010	± .003	*
0	.325	.330	.342	.020	± .004	.015	± .003	.012	± .003	*

Frac. Sizes (Inches)	INSIDE DIAMETER Min.	Nom.	Max.	WALL THICKNESS — STANDARD WALL Bulletin 404 Nom.	Tol.	THIN WALL Bulletin 405 Nom.	Tol.	LIGHTWEIGHT WALL Bulletin 406 Nom.	Tol.	INDUSTRIAL SPECIFICATION TUBING Fractional Inch Sizes Bulletin 407 — Frac. Sizes (Inches)	I.D. (Inches)	Tolerance + or - (Inches)	Wall Thickness (Inches)
1/8	.120	.125	.130	.020	± .004	.015	± .003	-	-	1/32	.031	.004	.015 ± .003
1/8	.125	.130	.135	-	-	-	-	.008	± .002	1/16	.063	.005	.030 ± .005
3/16	.188	.192	.198	.020	± .004	.015	± .003	.010	± .003	3/32	.094	.005	.030 ± .005
										1/8	.125	.010	.030 ± .005
1/4	.250	.255	.260	.020	± .004	.015	± .003	.010	± .003	3/16	.188	.010	.030 ± .005
5/16	.313	.321	.332	.020	± .004	.015	± .003	.012	± .003	1/4	.250	.010	.030 ± .005
3/8	.375	.387	.394	.025	± .005	.015	± .003	.015	± .005	5/16	.312	.010	.030 ± .005
7/16	.438	.451	.458	.025	± .005	.018	± .004	.018	± .005	3/8	.375	.010	.030 ± .005
1/2	.500	.515	.520	.025	± .005	.018	± .004	.018	± .005	7/16	.438	.010	.030 ± .005
5/8	.625	.643	.650	.025	± .005	.020	± .004	.020	± .005	1/2	.500	.010	.030 ± .005
										9/16	.562	.020	.030 ± .007
										5/8	.625	.020	.030 ± .007

An essential attribute of a good conversationalist is to be an equally good listener. - ERROL WHITE

TUBES & RELATED PRODUCTS

BRAID REINFORCED POLYURETHANE HOSE

- Open mesh polyester braiding incorporated within the walls of flexible, Ether-based polyurethane
- Transparent Ether-based polyurethane is listed by the National Sanitation Foundation (NSF 61)
- Transparent Ether-based polyurethane is made with FDA-sanctioned ingredients for use with wet and fatty food contact surfaces
- Offers much greater pressure capability than unreinforced polyurethane tubing
- Resistant to weathering, tearing, impact, abrasion, and radiation exposure, oil, greases, & fuels
- Wide range of temperature resistance; -90°F to 175°F
- Contains no plasticizer which can migrate and cause flow contamination or tube hardening
- Naturally transparent for visual contact with the flow
- Opaque black for industrial applications

APPLICATIONS

Abrasive Powder Transfer ▪ Agricultural Lines ▪ Air Tools ▪ Cement Slurries ▪ Granular Transfer ▪ Hydraulic Lines ▪ Lubricated Air Feeds ▪ Lubrication Lines ▪ Nuclear Power Facilities ▪ Oil & Fuel Lines ▪ Petroleum Products Transfer ▪ Robotics ▪ Transfer Lines For Clean Liquids ▪ Transfer Lines for Internal Contamination Fluids ▪ Well Pipe & Cable Jacker

Physical Properties**

Hardness, Shore A ± 5	85
Tensile Strength, psi	5500
Elongation at Break, %	580
Brittle Temperature	-90°F
Max. Operating Temperature	175°F

** Values listed are typical and are meant only as a guide to aid in design. Field testing should be performed to find the actual values for the application

Transparent

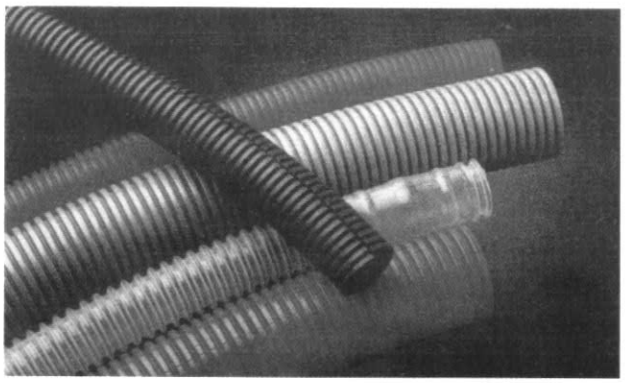
ID	OD	Wall	Available Lengths	Working PSI (at 70°F)	Burst PSI (at 70°F)
.250 (1/4)	.470	.110	100	250	1000
.375 (3/8)	.630	.128	100	190	760
.500 (1/2)	.750 (3/4)	.125 (1/8)	100	150	600
.625 (5/8)	.905	.141 (9/64)	100	130	520
.750 (3/4)	1.025	.138	100	100	400
1.000	1.300	.150	100	80	320
1.250 (1-1/4)	1.710	.230	100	75	300
1.500 (1-1/2)	1.930	.215	100	50	200
2.000	2.500 (2-1/2)	.250 (1/4)	100	40	160

Opaque Black Industrial

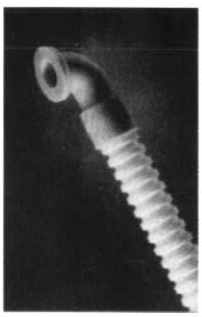
ID	OD	Wall	Available Lengths	Working PSI (at 70°F)	Burst PSI (at 70°F)
.250 (1/4)	.500 (1/2)	.125(1/8)	50, 100	255	900
.375 (3/8)	.625 (5/8)	.125 (1/8)	50, 100	175	700
.500 (1/2)	.750 (3/4)	.125 (1/8)	25, 50, 100	135	540
.625 (5/8)	.875 (7/8)	.125 (1/8)	25, 50, 100	110	440
.750 (3/4)	1.063 (1-1/16)	.156 (5/32)	25, 50, 100	90	360

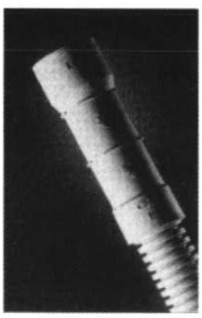
CORRUGATED / CONVOLUTED TUBES

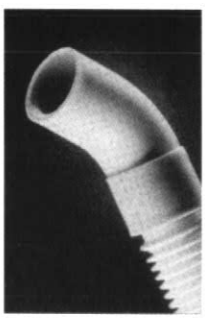
High-Performance Corrugated Tubing



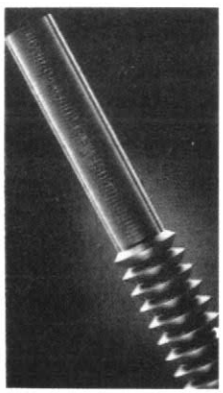
Now, you can achieve the exact tubing performance you require. The reason: lightweight corrugated tubing replaces rubber by providing extremely economical, non-kinking flexibility and durability rubber can't match.





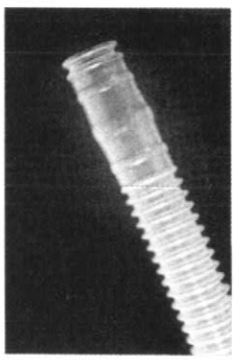


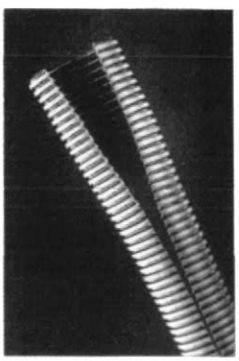
Corrugated Tubes offers non-kinking flexibility, combined with structural rigidity; crush, impact, and abrasion resistance; and resistance to most chemicals. They can be slit or extruded without corrugations at specified intervals, to provide collars cut to any desired length.



We also provide innovative products, such as our unique "Bend 'n Stay" tubing. These tubes can compress, extend or bend, and then remain in that configuration, to provide maximum performance benefits.

We offer the capability to run 1/4-inch inside diameters. Corrugated Tubes are available in flame-resistant plastic compounds with the capability of meeting Underwriters' Laboratories ratings: UL-94-HB, UL-94-V2, and UL-94-V0.

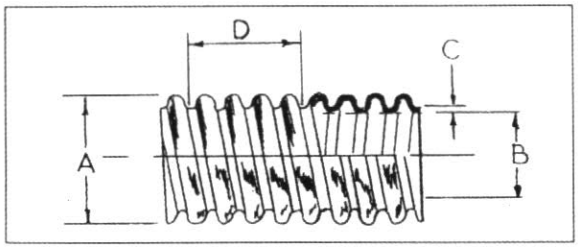


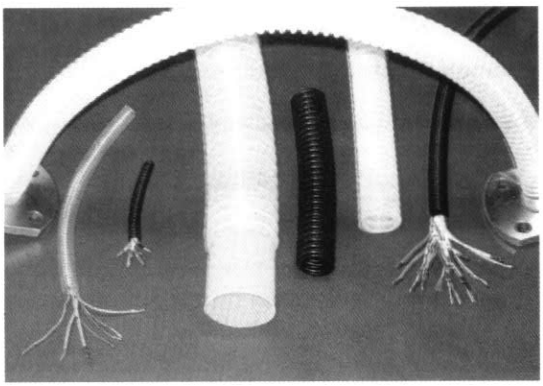


CORRUGATED / CONVOLUTED TUBES

CONVOLUTED FLEXIBLE TUBING PTFE · FEP · MFA PFA · ETFE · PVDF

Convoluted flexible tubing can be manufactured out of various fluoroplastic materials. Our fluoroplastic convoluted tubing is widely used in high temperature and chemical resistant applications. The different fluoro-plastics have different advantages. In order to find the appropriate solution for each individual application we will be pleased to give design and engineering assistance. For an increase in flexibility the number of convolutions per inch can be increased on demand. This procedure is called "close convolution." Flared and flanged ends, cuffs and cut pieces can be manufactured. Our convoluted flexible tubing can be manufactured according to: MIL-T-81914.

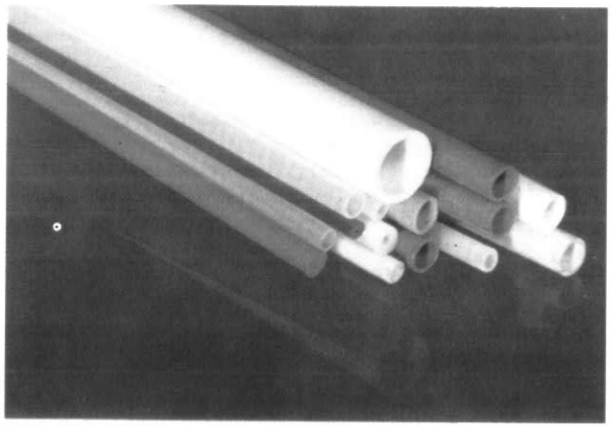




PTFE-convoluted tubing						
Article No.	"A" O. D. mm	"B" I. D. mm	"C" wall mm	"D" conv. per inch	weight g/m	bend radius mm
A35 05,00 x 0,52	8,2	5,0	0,50	8	31	20
A35 07,500 x 0,63	10,7	7,5	0,65	7	40	32
A35 08,20 x 0,63	11,5	8,20	0,65	7	45	35
A35 09,80 x 0,65	13,0	9,80	0,65	7	54	39
A35 11,50 x 0,65	14,8	11,50	0,65	7	58	45
A35 13,00 x 0,65	16,3	13,0	0,65	6	76	51
A35 16,30 x 0,65	19,6	16,3	0,65	6	90	64
A35 19,50 x 0,75	23,6	19,5	0,75	6	135	77
A35 22,50 x 0,75	28,0	22,5	0,75	6	180	83
A35 26,00 x 0,80	31,3	26,0	0,80	4	202	89
A35 32,20 x 0,90	38,9	32,2	0,90	4	270	102
A35 35,50 x 1,15	45,20	38,5	1,15	4	360	127

FEP . MFA . ETFE . PVDF convoluted tubing						
Article No.	"A" O. D. mm	"B" I. D. mm	"C" wall mm	"D" conv. per inch	weight g/m	bend radius mm
35 04,70 x 0,40	8,10	4,75	0,45	10	73	13
35 07,05 x 0,45	10,5	7,0	0,45	10	83	19
35 07,80 x 0,45	11,4	7,8	0,45	10	93	19
35 09,40 x 0,45	12,9	9,4	0,45	10	107	22
35 11,00 x 0,45	14,5	11,0	0,45	10	151	22
35 12,50 x 0,60	16,5	12,5	0,60	9	195	32
35 15,60 x 0,60	19,5	15,6	0,60	9	234	38
35 18,80 x 0,60	23,6	18,8	0,60	8	297	44
35 22,00 x 0,60	27,2	22,0	0,60	7	342	51
35 25,00 x 0,60	31,1	25,0	0,60	7	415	60
35 28,20 x 0,60	35,3	28,2	0,60	7	454	60
35 31,20 x 0,60	39,0	31,2	0,60	6,5	532	70
35 37,50 x 0,60	46,5	37,5	0,60	5,5	615	86
35 43,70 x 0,60	52,8	43,7	0,60	5,5	722	98

FLEXIBLE STRAIGHT TUBES



NYLON 6 TUBING

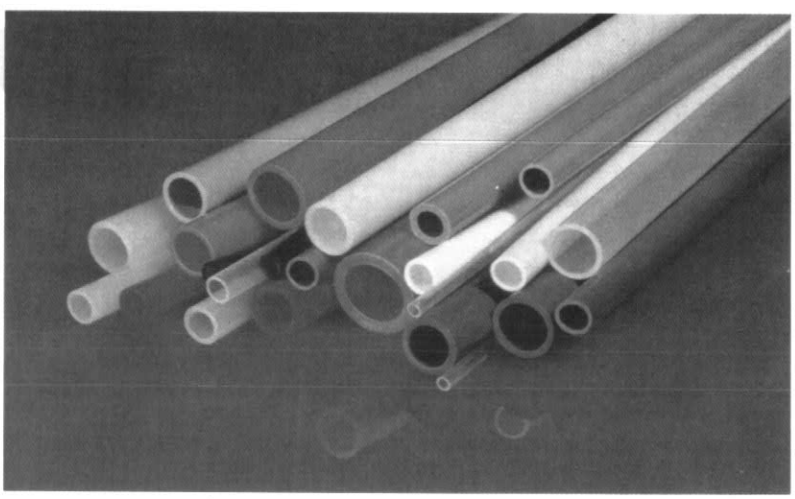
A quality semi-rigid tubing designed for more rigorous uses, where strength (higher PSI than flexible nylon) and abrasion resistance is important. Resistant to most chemicals, hydro-carbons, ketones and esters. Maintains its flexibility in low temperatures. Excellent dimensional stability. Working temperature range : -20°F + 230°F.

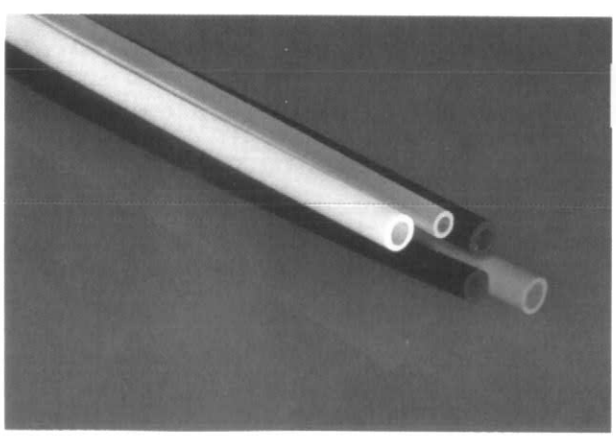
APPLICATIONS:
- fuel & oil lines, lines in pneumatic and hydraulic control systems, speedometer tubes, tubes for central lubrication systems, etc.

NYLON 11 TUBING

A PREMIUM quality flexible tubing to be used when an engineered resin is demanded to ensure the safety and longevity of the installation. Excellent dimensional stability and is resistant to most chemicals, hydro-carbons, ketones and ester, including oil, grease and road salt. Low moisture absorption and excellent flexing resistance. Working temperature range : -50°F + 180°F.

APPLICATIONS:
- instrumentation, pneumatic circuitry, coolant lines, high pressure gases, air lines, robotics, refrigeration grease lines, low pressure hydraulic lines, water and chemical lines, OEM's laboratories, dispensing equipment etc.





NYLON AIR BRAKE TUBING

A PREMIUM quality tubing to be used when an engineered resin is demanded to ensure the safety and longevity of the installation. Excellent dimensional stability and is resistant to most chemicals, hydro-carbons, ketones and ester, including oil, grease and road salt. Low moisture absorption and excellent flexing resistance. Working temperature range : -50°F + 180°F.

APPLICATIONS:
- An economical standard product used by most trailer, bus and truck manufacturers for air brake systems.

How wrong is it for women to expect the man to build to world she wants, rather than set out to create it herself. - ANAIS NIN

PNEUMATIC TUBES

NYLON AIR BRAKE TUBING (SAE J844)

100' Slit Pac	500' Reel	1000' Reel	Tube O.D. Inches	Tube I.D. Inches	Wall Thickness Inches	Type	Min Bend Inches	Working PSI @75°	Burst PSI @75°	Available Colors*
70121	-	**70021**	1/8	.080	.023	3A	0.37	150	1000	1
70111	-	**70011**	5/32	.076	.040	3A	1.00	150	1600	1
70131	-	**70031**	3/16	.117	.035	3A	1.00	150	1000	1
70141	-	**70041**	1/4	.170	.040	3A	1.00	150	1200	1,2,3,5
70151	**70051**	-	5/16	.232	.040	3A	1.25	150	1000	1
70161	**70061**	-	3/8	.250	.062	3B	1.50	150	1400	1,2,3,5
70171	**70071**	-	1/2	.375	.062	3B	2.00	150	950	1,2,3,5
	70081**		5/8	.440	.092	3B	2.50	150	900	1,2,3,5
	70091**		3/4	.566	.092	3B	3.00	150	800	1,2,4

POLYURETHANE MINI-COIL TUBING

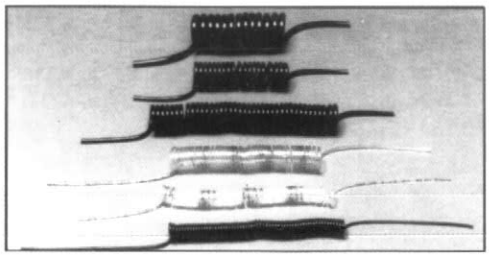
Part Number	Tube O.D. Inches	Working Length Feet	Compact Length Inches	Leg Length Inches	Tube I.D. Inches	Coil O.D. Inches	Working PSI @75°	Burst PSI @75°	Available Colors*
38020	1/8	5	3 1/2	6	.063	3/4	120	480	0,1
38120	1/8	10	8 1/2	6	.063	3/4	120	480	0,1
38010	5/32	5	4	6	.093	1 1/8	120	480	0,1
38110	5/32	10	7 1/2	6	.093	1 1/8	120	480	0,1
38040	1/4	5	5	2	.125	1 1/2	120	480	0,1
38140	1/4	10	11	2	.125	1 1/2	120	480	0,1
38060	3/8	5	6	2	.250	2 1/2	120	480	0,1
38160	3/8	10	11 1/2	2	.250	2 1/2	120	480	0,1

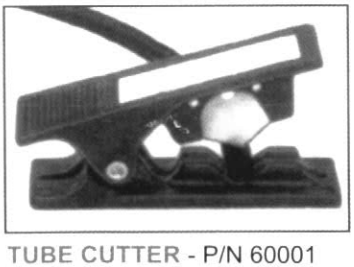
NYLON MINI-COIL TUBING

Part Number	Tube O.D. Inches	Working Length Inches	Compact Length Inches	Leg Length Inches	Tube I.D. Inches	Coil O.D. Inches	Working PSI @75°	Burst PSI @75°	Available Colors*
31030	5/32	15	1 1/2	2	.106	1 1/2	250	1000	0
31060	5/32	30	3	2	.106	1 1/2	250	1000	0
31120	5/32	60	5 1/2	2	.106	1 1/2	250	1000	0
31250	5/32	120	11	2	.106	1 1/2	250	1000	0
34120	1/4	50	5 1/2	2	.180	2"	250	1000	0
34250	1/4	80	12	2	.180	2"	250	1000	0

Colors: "0" is natural. Change last digit of part number "0" to one of the following digits for preferred color: Black (1), Red (2), Green (4), Yellow (5).

** 70081 and 70091 are 250' reels





TUBE CUTTER - P/N 60001

Replacement Blade - P/N 60004

If men and women are in chains, anywhere in the world, then freedom is endangered everywhere - JOHN F. KENNEDY

PNEUMATIC TUBES

NYLON (FLEXIBLE)

Flexible light weight nylon is best used in applications such as: Air logic systems, chemical handling and lubricant lines. Low moisture absorption. Black tubing provides reduced ultraviolet ultraviolet degradation.
Temp. Range: -60°F to +250°F. Continuous use: -40°F to + 200°F. Excellent dimensional stability.

100' Slit Pac	500' Reel	1000' Reel	Tube O.D. Inches	Tube I.D. Inches	Wall Thickness Inches	Min. Bend Radius	Working PSI @75°	Burst PSI @75°	Available Colors*
61210	65210	-	1/8	.080	.023	1/4	375	1500	0,1
61220	65220	-	1/8	.093	.016	1/2	200	800	0,1
61230	65230	60230	5/32	.106	.025	5/8	250	1000	0,1,2,3,4,5,6,7
61330	65330	-	3/16	.137	.025	3/4	200	800	0,1
61440	65440	60440	1/4	.180	.035	7/8	250	1000	0,1,2,3,4
61460	65460	-	1/4	.126	.062	7/8	500	2000	0,1
61470	65470	-	1/4	.170	.040	1/2	300	1200	0,1
61550	65550	-	5/16	.232	.040	1	250	1000	0,1,2
61660	65660	60660	3/8	.275	.050	1-1/4	250	1000	0,1,2,3,4
61880	68880**	60880	1/2	.375	.062	2-1/4	250	800	0,1,2

POLYETHYLENE

Low Density (LDPE) Polyethylene is light weight and more flexible than nylon. Resistant to solvents and chemicals. **Natural Polyethylene meets the Food & Drug Administration Regulation #21 CFR 177.1520**. Applications include air logic system, water and chemical lines. **Temp. Range:** -100°F to +175°F.

100' Slit Pac	500' Reel	1000' Reel	Tube O.D. Inches	Tube I.D. Inches	Wall Thickness Inches	Min. Bend Radius	Working PSI @75°	Burst PSI @75°	Available Colors*
62440	64440	66440	1/4	.170	.040	3/4	125	500	0,1,2,3,4,5,6
62550	64550	66550	5/16	.190	.062	5/8	150	600	0,1
62660	64660	66660	3/8	.250	.062	1-1/8	125	500	0,1,2,3,4,5
62880	69880**	66880	1/2	.375	.062	2-1/8	125	400	0,1,2,3,5

POLYURETHANE

Polyether based material is most flexible (95 Durometer). Resists kinks, abrasions and most chemicals
Applications: Instrumentation, robotics, vacuum, fuel lines and where highly flexible tubing is required.
Temp. Range: -40°F to + 180°F

100' Slit Pac	500' Reel	1000' Reel	Tube O.D. Inches	Tube I.D. Inches	Wall Thickness Inches	Min. Bend Radius	Working PSI @75°	Burst PSI @75°	Available Colors*
63220	67220	-	1/8	.062	.031	1/4	200	800	0,1,2,3,4,5,6,7
63250	67250	-	5/32	.093	.031	3/8	125	500	0,1,2,3,4,5,6,7,8
63440	67440	66450	1/4	.170	.040	1/2	125	400	0,1,2,3,4,5,6,7,8
63460	67460	66460	1/4	.125	.062	3/4	200	800	0,1,2,3,4,5,6,7,8
63660	67660	-	3/8	.250	.062	1	125	400	0,1,2,3,4,5,6,8
63880	67880**	-	1/2	.375	.062	2	125	300	0,1,2,3

**68880, 69880 and 67880 are 250' Reels.

Colors: "0" is natural. Change last digit of part number "0" to one of the following digits for preferred color: Black (1), Red (2), Blue (3), Green (4), Yellow (5), Orange (6), Gray (7), Transparent Blue (8).

SPECIALTY TUBES

Paper Tubes

Sizes
I.D.s from .050" to 2.500"
Wall thicknesses from .006" to .375"
Lengths up to 72"
Note: Sizes vary with material and application

Materials
Dielectric Kraft • Vulc. Fibre (Fish Paper) • Kraft • Bond • Etc.
Can be supplied in combinations, depending upon the application

Special Capabilities
- Some tubes can be supplied in combinations of materials, including colors, foil, films or greaseproof liner
- Printing and stripes are available on some tubes
- Fabrications, such as beading, punching, slitting and formed ends are available on some tubes

Stonized Tubes

Sizes
I.D.s from .050" to 2.500"
Wall thicknesses from .006" to .125"
Lengths up to 30"
Note: Sizes vary with material and application

Materials
Phenolic and epoxy impregnated paper tubes, such as Kraft, or in combinations with other papers

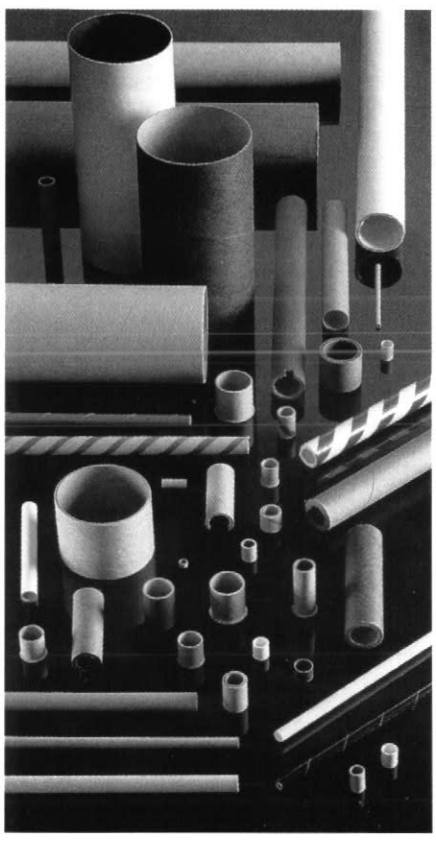
Special Capabilities
- Available in many grades for requirements ranging from low density to semi-rigid to high density
- Excellent electrical qualities
- Flame retardant grade also available
- Punching and machining grades, too

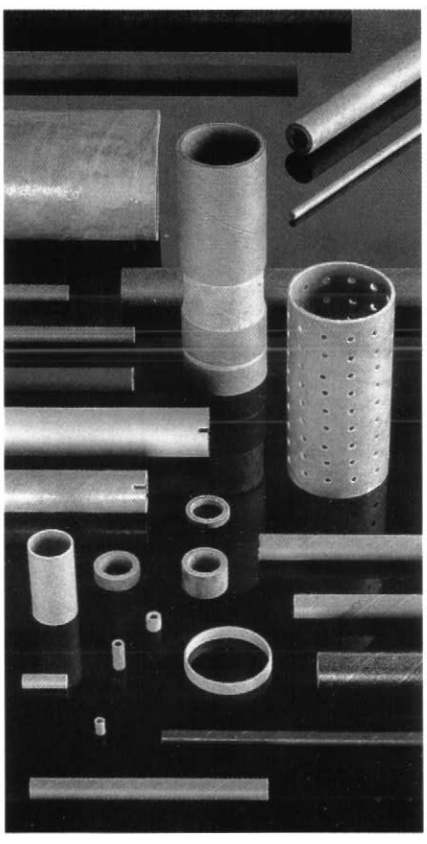
Extruded Tubes

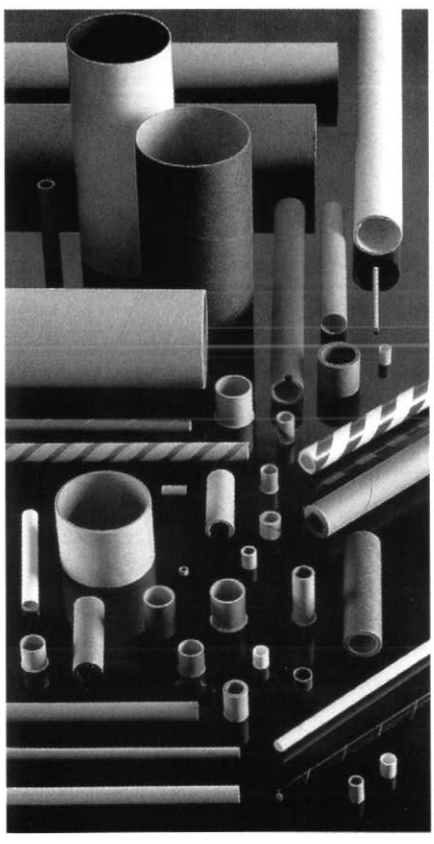
Sizes
Minimum I.D. = .100"
Maximum I.D. = 1.750"
Wall thicknesses from .006" to .750"
Lengths from .250" up to 5,000 ft., depending upon material and application

Materials
ABS • Butyrate • Nylon • HIPS
Polyethylene • Polycarbonate
Polypropylene Homopolymer
Polypropylene Copolymer
Other thermoplastics available, depending upon application

Special Capabilities
- Available clear or in colors, depending upon material
- Some tubing available in continuous lengths up to 5,000 ft.
- Tubing available with formed-ends, depending upon material







We turn not older with years, but newer every day. - EMILY DICKINSONS

NYLON METRIC TUBING

Nycoil Nylon tubing is a lightweight, flexible tube with a low moisture absorption factor. It is resistant to a wide range of chemicals. For use in a variety of applications requiring low-pressure hydraulic, pneumatic and chemical transfer.

Temperature range: -40°C to +93°C (-40°F to + 200°F) continuous use.

25M (82') Slit Pac	150M (492') Reel	300M (984') Reel	Tube O.D. MM	Tube I.D. MM	Wall Thickness MM	Min. Bend Radius MM	Burst Pressure @ 20 C BARS	Burst Pressure @ 20 C PSI	Available Colors*
71040	74040	77040	4	2.7	0.65	24	75	1100	0,1,2,3,4
71020	74020	77020	4	2	1	24	136	2000	0,1,2,3,4
71050	74050	77050	5	3	1	30	100	1500	0,1
71060	74060	77060	6	4	1	36	85	1200	0,1,2,3,4
71080	74080	77080	8	6	1	48	58	850	0,1,2,3,4
71110	74110	77110	10	8	1	60	42	600	0,1,2,3,4
71100	74100	77100	10	7.5	1.25	70	57	800	0,1,2,3,4
71120	74120	77120	12	9.5	1.25	58	47	700	0,1,2,3,4

POLYETHYLENE METRIC TUBING

Low Density (LDPE) Nycoil polyethylene tubing has superior stress-cracking resistance as determined by the ASTM Igepal stress cracking test. Resistance to a broad range of chemicals, solvents and corrosive atmospheres. **Natural Polyethylene meets the Food & Drug Administration Regulation #21 CFR 177.1520**. More economical and more flexible than nylon. **Temperature range:** -73°C to 79°C (-100°F to +175°F).

25M (82') Slit Pac	150M (492') Reel	300M (984') Reel	Tube O.D. MM	Tube I.D. MM	Wall Thickness MM	Min. Bend Radius MM	Burst Pressure @ 20 C BARS	Burst Pressure @ 20 C PSI	Available Colors*
72030	75030	78030	4	2.5	0.75	12	40	600	0,1
72060	75060	78060	6	4	1	36	35	500	0,1
72080	75080	78080	8	6	1	48	24	350	0,1
72110	75110	78110	10	8	1	60	17	250	0,1

POLYURETHANE METRIC TUBING

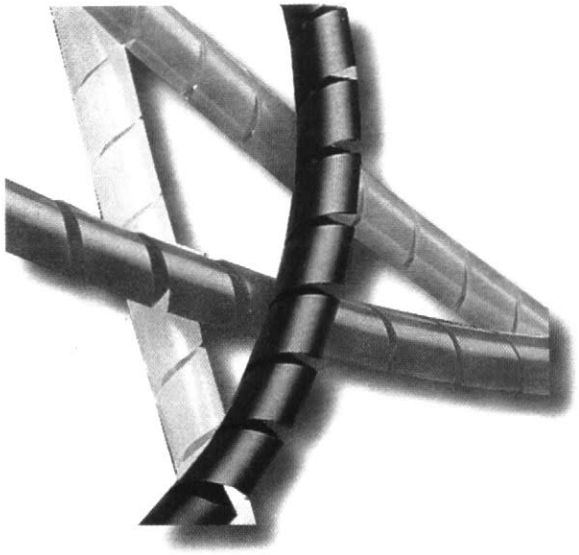
Nycoil polyurethane tubing is ether based and is the most flexible of all tubing. Resists kinks, abrasions and many chemical. **Temperature range:** -40°C to 82°C (-40°F to + 180°F).

25M (82') Slit Pac	150M (492') Reel	300M (984') Reel	Tube O.D. MM	Tube I.D. MM	Wall Thickness MM	Min. Bend Radius MM	Burst Pressure @ 20 C BARS	Burst Pressure @ 20 C PSI	Available Colors*
73030	76030	79030	4	2.5	0.75	12	35	500	0,1,2,3,4
73050	76050	79050	5	3	1	15	35	500	0,1
73060	76060	79060	6	4	1	18	28	400	0,1,2,3,4
73080	76080	79080	8	6	1	24	20	290	0,1,2,3,4
73090	76090	79090	10	7	1.5	40	28	400	0,1,2,3,4
73110	76110	79110	10	8	1	40	13	200	0,1,2,3,4
73130	76130	79130	12	9	1.5	48	20	290	0,1,3

Colors: "0" is natural. Change last digit of part number "0" to one of the following digits for preferred color: Black (1), Red (2), Blue (3), Green (4).

Do not protect yourself by a fence, but rather by your friends. - CZECH PROVERB

SPIRAL WRAPS



Fluorescent Safety Wrap is an expandable plastic cable harness that can be used like tape. Designed with potentially hazardous situations in mind, Fluorescent Safety Wrap will help make loose wires, hanging cables, hoses and tubing more easily seen.

IMPROVES APPEARANCE, SAFETY AND DURABILITY OF YOUR PRODUCTS.

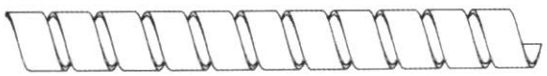
COLOR CODES:
ADD COLOR CODES TO THE END OF EACH ITEM NUMBER TO SPECIFY COLOR SELECTION.

FLUORESCENT SAFETY WARP

RD = FLUORESCENT RED . GR = FLUORESCENT GREEN . YW = FLUORESCENT YELLOW

O.D.	WALL THK.	BUNDLE RANGE
1/8"	.032	1/16" to 1/4"
1/4"	.035	3/16" to 2"
1/4"	.040	3/16" to 2"
3/8"	.040	5/16" to 3"
3/8"	.052	5/16" to 3"
1/2"	.040	3/8" to 4"
1/2"	.062	3/8" to 4"
5/8"	.062	5/8" to 4-1/2"
3/4"	.065	3/4" to 5"
1"	.070	1" to 7"

SPIRAL WRAP/FLUORESCENT SAFETY WRAP, STANDARD PACKAGING OPTIONS



SPIRAL WRAP CAN BE CUT TO MEET SPECIAL LENGTH REQUIREMENTS, CALL FOR DETAILS.

OUTSIDE DIAMETER	FEET PER PAYOUT BOX	FEET PER POLYETHYLENE BAG	FEET PER SPOOL	(Best Pricing For Volume Users) FEET PER BULK SPOOL
1/8"	100' OR 250'	100' OR 50'	100'	2500'
1/4"	100' OR 250'	100' OR 50'	100'	1,000'
3/8"	100' OR 250'	100' OR 50'	100'	500'
1/2"	100'	50'	100'	250'
5/8"	25'	50'	100'	250'
3/4"	25'	3/4"		100'
1"		1"		

HALAR EXPANDABLE SLEEVING*

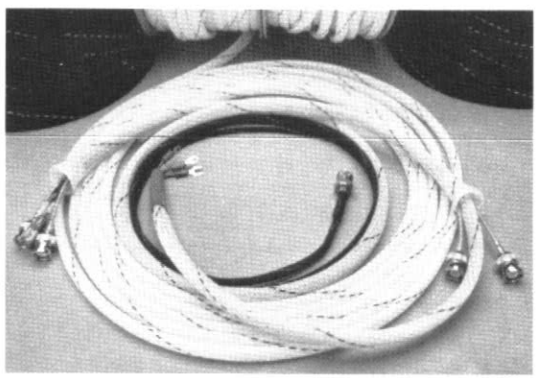
Has the highest temperature rating of the Expand-A-Flex family of sleevings.

Made from Halar* Fluoropolymer (E-CTFE) yarn. Halar* will not support combustion in air and is U.L. rated as an FR-1 component. It is used in high temperature applications which exceed the capabilites of type P and type FR.

This highly flexible sleeving is resistant to most solvents and hydro-carbons, such as jet fuels, gasoline, diesel, fuel hydraulic fluids, and cleaning fluids.

Comes in a range of sizes from 3/32" - 4". Standard colors are black & white with a single tracer for ease of identification.

- Aeronautical
- Space
- Electronic



- Marine
- Automotive
- Industrial

APPLICATIONS

Used in aeronautical, space, electronic, marine, automotive and industrial wire harnesses. It is also used on hoses and tubing where abrasion resistance and bundling are required.

SPECIFICATIONS

Material: Halar* (E-CTFE)

Monofilament diameter 0.011"

Wall thickness: 0.025" (approx.)

Operating temperature:

- 75°C (-100°F) to 150°C (302°F)

U.L. File #: E84237

Nom. I.D. (inches)	Size Range (inches)	Weight Lb/1000ft	Standard Spool
1/8	3/32 - 1/4	2.50	1000
1/4	1/8 - 3/8	3.80	1000
1/2	1/4 - 7/8	11.40	500
3/4	1/2 - 1 3/8	17.20	500
1 1/4	3/4 - 1 1/2	26.60	250
1 3/4	1 1/4 - 2 1/2	40.00	250
2	1 1/2 - 3 1/2	46.20	100
2 1/2	1 3/4 - 3 1/2	49.80	100

SLEEVE EXPANDABLE

FIRE RETARDANT EXPANDABLE SLEEVING

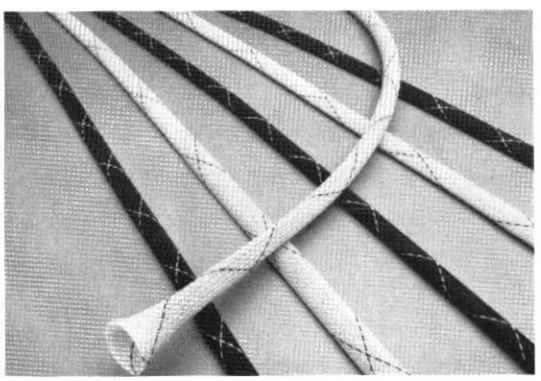
A protective oversleeve for cable assembles, wire harnesses and hoses. Expand-A-Flex type FR sleeving is similar to type P with the exception that the monofilament fibers have been treated to make them fire retardant. Expand-A-Flex type FR is rated FR-1 and VW-1 under U.L. File #E84237.

Combines lightweight protection with professional appearance.
Each size is designed to expand to more than twice its nominal diameter.

This is highly flexible sleeving is resistant to most solvents and hydro-carbons, such as jet fuels, gasoline, diesel fuel, hydraulic fluids, and cleaning fluids.

Comes in a range of sizes from 3/32" - 4". Standard colors are black & white with a criss-cross tracer for ease of identification.

- Aeronautical
- Space
- Electronic



- Marine
- Automotive
- Industrial

APPLICATIONS

Used in aeronautical, space, electronic, marine, automotive and industrial wire harnesses. It is also used on hoses and tubing where abrasion resistance and bundling are required.

SPECIFICATIONS

Material: Fire-Retardant Polyester Monofilament

Monofilament diameter 0.010"

Wall thickness: 0.025" (approx.)

Operating temperature:

- 70°C (-94°F) to 125°C (257°F)

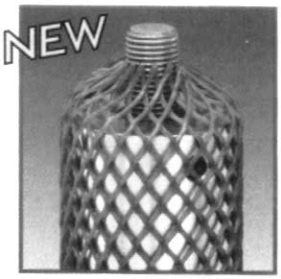
U.L. File #: E84237 rated FR-1 and VW-1

Nom. I.D. (inches)	Size Range (inches)	Weight Lb/1000ft	Standard Spool
1/8	3/32 - 1/4	1.70	1000
1/4	1/8 - 3/8	1.40	1000
1/2	1/4 - 3/4	7.70	500
3/4	1/2 - 1 1/4	11.40	250
1 1/4	3/4 - 1 1/2	16.40	250
1 3/4	1 1/4 - 2 3/4	28.30	200
2	1 1/2 - 3	31.00	100
2 1/2	1 3/4 - 4	43.50	100

SLEEVE WRAPS

STANDARD NETTING *SW SERIES*

Part Number	To Fit Outside Diameter (in)	Standard Color	Standard Coil Shipping Wgt 42-48 lbs, *19-22 kg*		Mini Coil Shipping Wgt 9-11 lbs, *4-5 kg*	
			Feet	Meters	Feet	Meters
SW 03	1/4 to 3/8	Orange	3500	1066.0	700	213.0
SW 04	3/8 to 3/4	Green	3000	914.0	600	180.0
SW 05	1/2 to 1	Blue	2750	840.0	550	170.0
SW 10	1 to 1-1/2	Red	1700	520.0	340	100.0
SW 15	1-1/2 to 2	Black	900	270.0	180	55.0
SW 20	2 to 2-1/2	White	800	240.0	160	50.0
SW 25	2-1/2 to 3	Yellow	600	180.0	120	35.0
SW 30	3 to 4	Green	450	140.0	90	30.0
SW 40	4 to 5	Orange	350	110.0	70	20.0
SW 50	5 to 6	Natural	250	80.0	50	15.2
SW 64	6-1/4 to 7-1/2	Blue	250	80.0	50	15.2
SW 75	7-1/2 to 9	Red	200	60.0	40	12.2
SW 90	9 to 10	Yellow	200	60.0	40	12.2



Specifications
- *Material: Low-Density Polyethylene*

Provides low-cost protection against damage to exterior surfaces of machined, painted or coated parts. Ideal for protecting irregular shapes or sizes. Eliminates expensive packaging materials. Its elasticity ensures a snug fit and a non-slip grip on straight-sided parts. Web thickness is approximately .070" (1.78mm).

LIGHT-DUTY NETTING *SW SERIES*

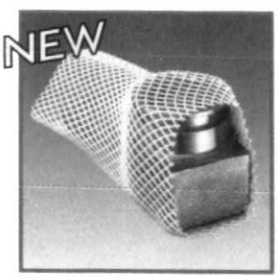
Part Number	To Fit Outside Diameter (in)	Standard Color	Standard Coil Shipping Wgt 42-48 lbs, *19-22 kg*		Mini Coil Shipping Wgt 9-11 lbs, *4-5 kg*	
			Feet	Meters	Feet	Meters
SW 075-22	3/4 to 2	Yellow	1500	460.0	300	90.0
SW 125-22	1-1/4 to 3	Blue	1000	300.0	200	60.0
SW 200-22	2 to 4	Red	800	240.0	160	50.0
SW 400-22	4 to 8	Blue	600	180.0	120	35.0
SW 600-22	6 to 12	Natural	200	60.0	40	12.2

Specifications
- *Material: Low-Density Polyethylene*

Ideal for irregular-shaped parts, it stretches easily to twice its diameter, while pulling tightly around the smaller sections. An attractive wrap for long, narrow items such as wire, glass rods and tubing. Web thickness is approximately .060" (1.52mm).

HEAVY-DUTY NETTING *SW SERIES*

Part Number	To Fit Outside Diameter (in)	Standard Colour	Standard Coil Shipping Wgt 42-48 lbs, *19-22 kg*		Mini Coil Shipping Wgt 9-11 lbs, *4-5 kg*	
			Feet	Meters	Feet	Meters
SW 050-66	1/2	White	2000	610.0	400	120.0
SW 075-66	3/4	Orange	1500	460.0	300	90.0
SW 100-66	1	Black	1200	370.0	240	75.0
SW 125-66	1-1/4	Green	1000	300.0	200	60.0
SW 150-66	1-1/2	Yellow	800	240.0	160	50.0
SW 175-66	1-3/4	Gray	600	180.0	120	35.0
SW 200-66	2	Blue	500	150.0	100	30.0
SW 250-66	2-1/2	Red	500	150.0	100	30.0
SW 300-66	3	Natural	450	135.0	90	27.0

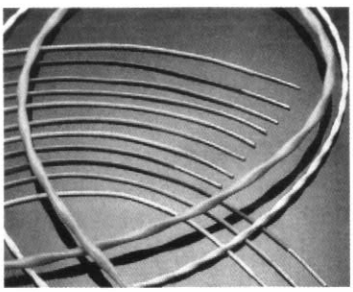


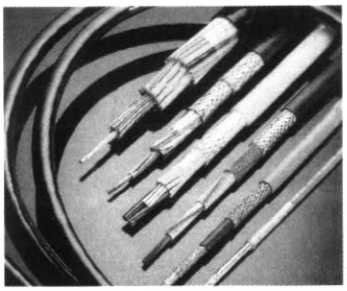
Specifications
- *Material: Low-Density Polyethylene*

This heavy-duty netting has thicker extrusion: more strands that are placed closer together. It offers an extra measure of protection for valuable precision components like heavy-duty truck parts, screw cylinders, and spline shafts. Eliminates the high cost and time-consuming labor associated with traditional packaging. Web thickness is approximately .080" (2.03mm).

When you are right, you cannot be too radical; When you are wrong, you cannot be too conservative. - MARTIN LUTHER KING, JR. NCP

WIRES / CABLES





We are able to supply wires / cables from the following brands / makes at competitive prices and short leadtimes :

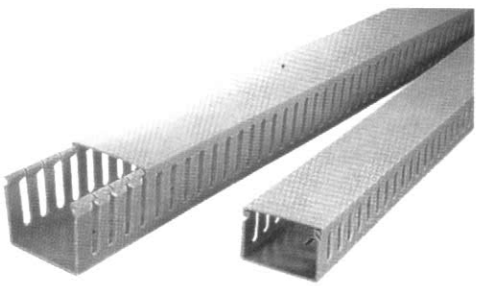
Adirondak
AIW
Alpha Wire
Altantic
American Electric Cordsets
American Insulated Wires
Astro
Atlas
Barcel
Belden
Berkshire
Bertek
Bimback
Brand-Flex
Cable-link
Cal
Camden
Cargi
Champlain
Coleflex
Commscope
Comtram
Conner
Continental Cordage
Corporation
Dabum
Dearborn
Delta Surpenant
ECC
Gemcap Inc
General Cable
Guardian
Habia Cable
Harbour
Hilec
Hitachi Cable
Independent Cable
Insultab
Intercomp
Judd
Kalas
Kurabe
Laribee
Madison
Manhattan
Markel
Mohawk / Montrase
New England Electric Wire
Olflex Cable
Pacific ElectriCord Co
PIW
Precision Tube
Preleg
Prestolite
Pyrotenax
Quabbin
Raychem
Rubadue
Siecor
Signa Form
SL Waber
Sonic Wire
Spectra Strip
Sumitomo
Surprenant
Techflex
Teledyne Thermatics
Tensolite
Thermax
Times Wire
Triangle
Tyton
Virginia Plastics
WL Gore
Zenith Wire
Zeus
Zipper

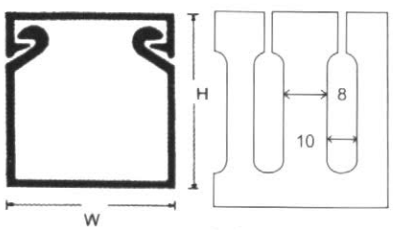
For brands / makes that are not listed above, please contact us.

WIRING DUCT

WIRING DUCT (open slot)

- Material: High impact, self-extinguishing, warp-proof PVC (Polyvinyl chloride)
- Color: Grey
- Maximum service temperature: 50°C
- These devices are for routing of wires within devices in factory installations where the suitability of use will be determined by UL during the end use investigation.
- Features parallel holes on both sidewalls to facilate cutting in wire application.





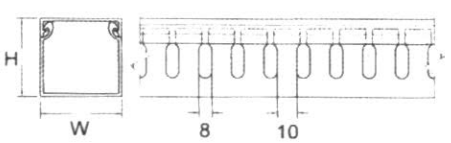
*SLOT DIMENTION APPLIES TO THE SLOTTED DUCT ONLY

E 97527 LR 82854

ITEM NO.		SLOT*		WIDTH		HEIGHT			
SOLID DUCT	SLOTTED DUCT	INCH	METRIC	INCH	METRIC	INCH	METRIC	WIRES TO BE CONTAINED	LENGTH
NM27WDS05L	NM27WDM05L	.315"	8 mm	.5"	15 mm	1"	25 mm	5-12 pcs	2m
NM27WDS07L	NM27WDM07L	.315"	8 mm	.75"	20 mm	.75"	20 mm	5-12 pcs	2m
NM27WDS0L	NM27WDM0L	.315"	8 mm	.1"	25 mm	1"	25 mm	10-25 pcs	2m
NM27WDS67L	NM27WDM67L	.315"	8 mm	.2"	48 mm	4"	100 mm	215-250 pcs	2m

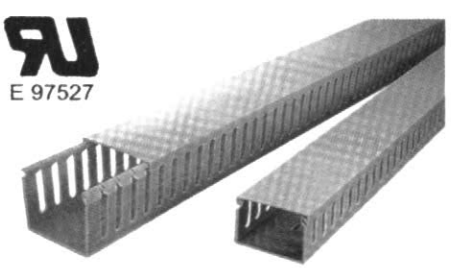
WIRING DUCT (open slot)

LR 82854



- Material: High impact, self-extinguishing, warp-proof PVC
- Color: Grey
- Test to UL file E97527 up to 50°C
- These devices are for routing of wires within devices in factory installations where the suitability of use will be determined by UL during the end use investigation.
- Maximum service temperature: 85°C
- Features parallel holes on both sidewalls to facilate cutting wire in application.

E 97527



*SLOT DIMENTION APPLIES TO THE SLOTTED DUCT ONLY

ITEM NO.		SLOT*		WIDTH		HEIGHT			
SOLID DUCT	SLOTTED DUCT	INCH	METRIC	INCH	METRIC	INCH	METRIC	WIRES TO BE CONTAINED	LENGTH
NM27WDS1X2	NM27WDA1X2	.315"	8mm	1"	25 mm	2"	50 mm	20-25 pcs	2m
NM27WDS1X3	NM27WDA1X3	.315"	8mm	1"	25 mm	3"	75 mm	60-75 pcs	2m
NM27WDS1.5X1	NM27WDA1.5X1	.315"	8mm	1.5"	38 mm	1"	25 mm	20-23 pcs	2m
NM27WDS1.5X2	NM27WDA1.5X2	.315"	8mm	1.5"	38 mm	2"	50 mm	60-70 pcs	2m
NM27WDS2X2	NM27WDA2X2	.315"	8mm	2"	50 mm	2"	50 mm	80-90 pcs	2m
NM27WDS2X3	NM27WDA2X3	.315"	8mm	2"	50 mm	3"	75 mm	180-200 pcs	2m
NM27WDS3X3	NM27WDA3X3	.315"	8mm	3"	75 mm	3"	75 mm	200-250 pcs	2m
NM27WDS3X4	NM27WDA3X4	.315"	8mm	3"	75 mm	4"	100mm	240-300 pcs	2m

OUR IN-HOUSE SLEEVINGS / TUBINGS CUTTING FACILITIES

As At 18 Dec 04

Total No. of line items	: 1,182
Total stock (In Metres)	: 1,025, 669 Metres
No. of Cutting Machines	: 10
Cutting Tolerance	: +/-0.50 mm
Marking / Labelling Capabilities	: 12 Fonts Types
(SP-IW Hotmarker)	: 18 Marking Conditions

THE QUALITY BUILT COMPANY

ISO 9000 PSB
CERT. NO.: 95-2-0493
SS ISO 9001 : 2000

QS 9000 PSB
SS ISO 9002/ Q5-9000
CERT. NO.: QS-1998-2-0014

ISO 14000 PSB
CERT. NO.: 2000-0081
SS ISO 14001 : 1996

SINGAPORE QUALITY CLASS

EME Excelsior

EXIM & MFR ENTERPRISE

30 Kallang Pudding Road, #06-07, Valiant Industrial Building, Singapore 349312
E-Mail: recept@eximfr.com.sg Tel: 65-6743 0033 Fax: 65-6744 2827 / 6742 2566
Company Registration No. 28993500L

EKSIM & MFG SDN BHD (PENANG)

Tel: 60-4 656 6112 Fax: 60-4 656 5741 E-mail: exim_penang@eximfr.com.sg

EXIM & MFR (PHILIPPINES) REP. OFFICE

Tel: 63-2 822 1509 Fax: 63-2 822 2834 E-mail: exim_phi@eximfr.com.sg

EXIM & MFG (THAILAND) CO LTD

Tel: 66-2 984 0884-5 Fax: 66-2 984 0886 E-mail: exim_thai@eximfr.com.sg

EXIM & MFR TAIWAN REP. OFFICE

Tel: 886-9 1683 1688 Fax: 886-2 2961 4075 E-mail: exim_twn@eximfr.com.sg

EXIM & MFR (SUZHOU) REP. OFFICE

Tel: 86-512 6256 8013 Fax: 86-512 6256 1973 E-mail: exim_suzhou@eximfr.com.sg

EXIM & MFR (VIETNAM) REP. OFFICE

Tel: 848-824 5974 Fax: 848-822 1834 E-mail: exim_viet@eximfr.com.sg

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