

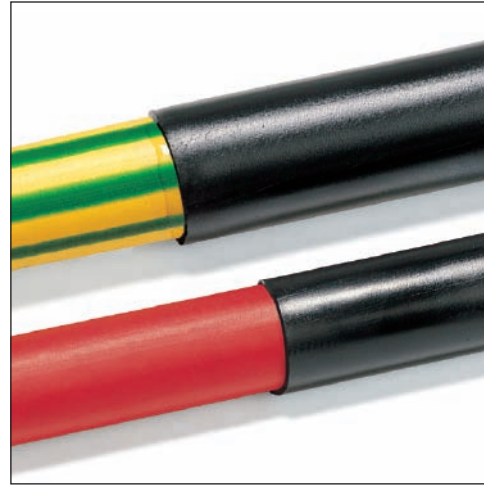


Non-Printable Heatshrink Tubing

Non-Printable Heatshrink Tubing

Insulating, protecting, sealing and strain relief are all common applications for non-printable heatshrink tubing. Some of the fastest growing industries like renewable energy, as well as key commercial and industrial markets, have a need for high quality, yet convenient methods of solving typical heatshrink splice and termination applications.

HellermannTyton offers global product expertise while providing a wide variety of heatshrink tubing materials designed to survive in a wide variety of challenging conditions. Various shrink ratios are available, and the tubing is supplied in a variety of colors. Thick and medium walled adhesive lined tubes can provide the ultimate in sealing out moisture and providing kink protection. The products are supplied in a variety of package options to meet the needs of the project, no matter how large or small. Supplied in bulk reels, handy dispenser boxes or standard sticks, HellermannTyton can meet most project requirements.



With a global footprint, HellermannTyton utilizes its unique set of resources to deliver what you need:

- Innovative products offering lowest installed costs
- Global key account management
- Delivery from local facilities, wherever in the world you need them

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Non-Printable Heatshrink Tubing

Heatshrink Tubing Selection Guide

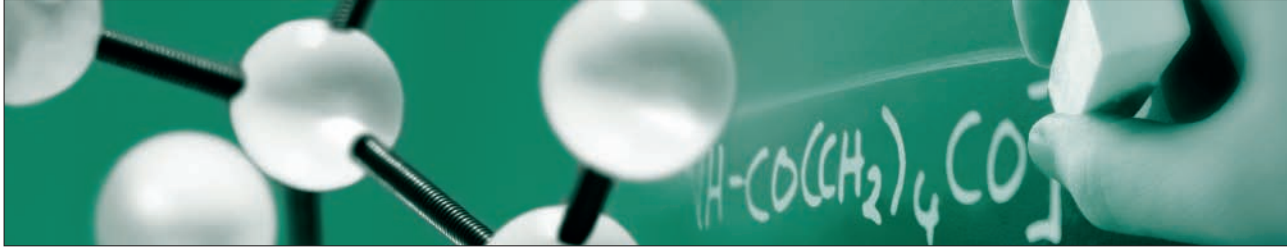
Technical & Resistant Properties	Silicone Free	Copper Compatibility Non-Corrosive	Solvents	UV Light	Acids and Bases	Self-Extinguishing	Fuels
HIS-Pack	X	X	●	●	●	X	●
TCN20	X	X	○	●	●	X	○
MA47	X	X	○	●	●		○
HA47	X	X	○	●	●		○
TREDUX THIN WALL	X	X	○	●	●	X	○
Possible Applications	Wire Processing	Harness Maker	Electronics	Solar	Rail Based Vehicles	Wind Energy	Shrink Temp
HIS-Pack	X	X		X		X	+120°C (248°F)
TCN20	X	X	X	X		X	+100°C (212°F)
MA47				X	X	X	+120°C (248°F)
HA47				X	X	X	+120°C (248°F)
TREDUX THIN WALL	X	X	X	X		X	+90°C (194°F)
Properties	Ratio	Electrical Insulation	Color Marking	Strain Relief	Protection from Moisture	Temp Range	
HIS-Pack	2:1	X	X	X		-55°C to +135°C (-67° to +275°F)	
TCN20	2:1	X				-55°C to +125°C (-67° to +257°F)	
MA47	4:1	X		X	X	-55°C to +80°C (-67° to +176°F)	
HA47	3.5:1	X		X	X	-55°C to +135°C (-67° to +176°F)	
TREDUX THIN WALL	3:1	X		X		-55°C to +135°C (-67° to +257°F)	

(X) - YES (●) - GOOD (○) - LIMITED

All shrink tubing in this catalog is crosslinked using E-Beam technology.

An E-Beam is an electron-beam that is used to cross-link the molecular structure of the polymer. Traditional methods can include chemical crosslinking, but HellermannTyton uses E-Beam technology which is the preferred process for providing the highest quality levels.

Non-Printable Heatshrink Tubing



Overview of applications for heatshrink tubing

When selecting the correct heatshrink tubing size, it is important to refer to the 80:20 rule. The heatshrink tubing must shrink by at least 20% and no more than 80% of its complete shrinkage capacity to achieve the right result. In our overview of applications you will find the best heatshrink tube for every cable diameter. The 80:20 rule has been taken into account in the table.

Heatshrink tubing with a shrinkage ratio of 2:1

HIS-Pack and TCN20

Shrink ratio 2:1		Cable/Wire diameter
Size		
.04in/.02in 1.2mm/0.6mm 3/64"		.002" (.07 mm)
		.043" (1.1 mm)
.125in/.06in 3.2mm/1.6mm 1/8"	.09in/.04in 2.4mm/1.2mm 3/32"	.055" (1.4 mm)
		.074" (1.9 mm)
		.086" (2.2 mm)
		.114" (2.9mm)
.25in/.125in 6.4mm/3.2mm 1/4"	.188in/.09in 4.8mm/2.4mm 3/16"	.149" (3.8 mm)
		.169" (4.3 mm)
		.224" (5.7 mm)
		.228" (5.8 mm)
.5in/.25in 12.7mm/6.4mm 1/2"	.37in/.185in 9.5mm/4.7mm 3/8"	.303" (7.7 mm)
		.338" (8.6 mm)
		.448" (11.4 mm)
		.598" (15.2 mm)
1in/.5in 25.4mm/12.7mm 1"	.75in/.375in 19.1mm/9.5mm 3/4"	.677" (17.2 mm)
		.901" (22.9 mm)
		1.20" (30.5 mm)
2in/1in 50.8mm/25.4mm 2.0"	1.5in/.75in 38.1mm/19.1mm 1.5"	1.35" (34.3 mm)
		1.79" (45.7 mm)

Heatshrink tubing with a shrink ratio of 3:1

TREDUX Thin Wall

Shrink ratio 3:1		Cable/Wire diameter
Size		
.06in/.019in 1.5mm/0.5mm		.002" (0.7 mm)
		.051" (1.3 mm)
	.118in/.039in 3mm/1mm	.055" (1.4 mm)
		.102" (2.6 mm)
.236in/.078in 6mm/2mm		.110" (2.8 mm)
		.204" (5.2 mm)
.70in/.236in 18mm/6mm	.472in/.157in 12mm/4mm	.220" (5.6 mm)
		.330" (8.4 mm)
		.409" (10.4 mm)
		.440" (11.2 mm)
	.94in/.314in 24mm/8mm	.614" (15.6 mm)

With the optimal shrinkage ratio of 3:1, you can cover a wide range of applications with just a few sizes. This leads to reduced stock expenditure and requires less space.

Conversion from imperial to metric									
Inch	1/32"	3/64"	1/16"	5/64"	3/32"	1/8"	3/16"	1/4"	3/8"
mm	0.8	1.2	1.6	2.0	2.4	3.2	4.8	6.4	9.5
Inch	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	3"	4"
mm	12.7	15.9	19.1	25.4	31.8	38.1	50.8	76.2	101.6

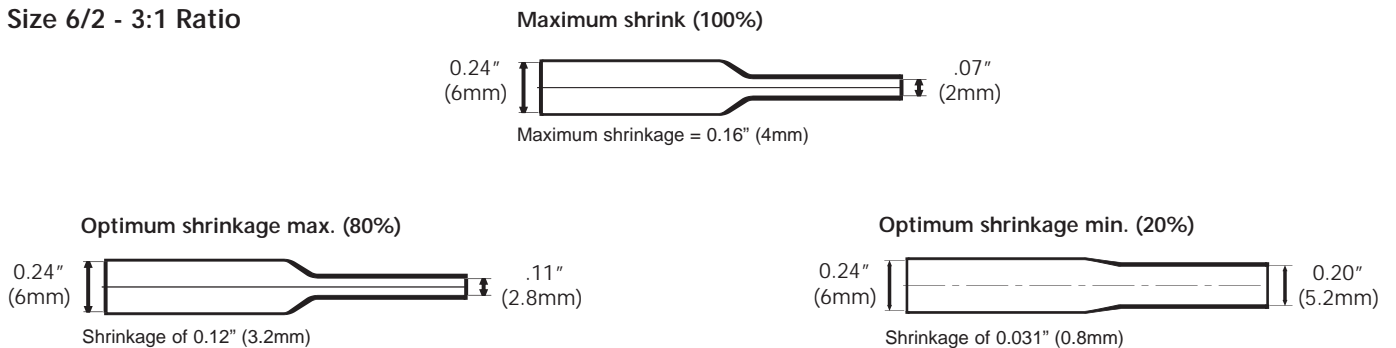
The right heatshrink tube

The **80:20 rule** means that a heatshrink tube should shrink by a **maximum of 80%** and a **minimum of 20%**.

For example:

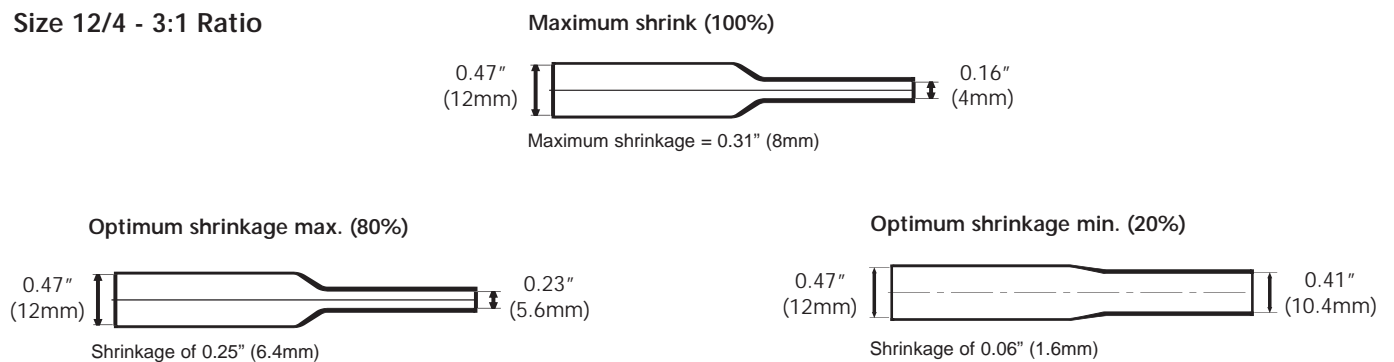
A cable with a diameter of 0.196" (5mm) is to be wrapped in heatshrink tubing. In theory, the size 6/2 would be suitable since the required diameter of 0.196" (5mm) lies within the shrink range of this size.

Size 6/2 - 3:1 Ratio



Size 6/2 has a range of application of between 0.110" (2.8mm) and 0.205" (5.2mm) and is therefore suitable for the cable diameter of 0.196" (5mm).

Size 12/4 - 3:1 Ratio



The smallest application diameter of size 12/4 is 0.23" (5.6mm). This size is therefore unsuitable for a cable diameter of 0.196" (5mm).

HIS-Service Station

This sturdy service station can be filled with 5 boxes of HIS-Pack heatshrink tubing. The boxes can be merchandised and sold individually or the user can cut specific lengths off at the counter for easy dispensing. The display itself can be mounted to a bench or wall mounted. The cutter is included with each display.

Product Selection	
Part No.	Description
300-30000	HIS-Service Station incl. cutter, empty



Product for display must be purchased separate. Recommended sizes are the black 1/8", 3/16", 1/4", 3/8" and 1/2" sizes. The part numbers are one each of: 300-30320, 300-30480, 300-30640, 300-30950 and 300-31270. The cutter is included with the display.

HIS-Pack

Features and Benefits

- E-beam Cross-linked Polyolefin, thin-wall and flexible
- Shrink ratio 2:1
- Available in colors: black, red, blue, transparent and yellow/green.
- 10 sizes from 3/64" (1.2mm) to 1" (25.4mm)
- Handy dispenser box including table with full range of applications

Application

- General purpose electrical insulation
- Protection against corrosion and mechanical abrasion



HIS-Pack

Material Data	
Material	Polyolefin, cross-linked (POX)
Shrink Ratio	2:1
Longitudinal change after shrinkage	-5% max
Minimum Shrink Temperature	+248°F (+120°C)
Operating Temperature	-67°F to +275°F (-55°C to 135°C)
Dielectric Strength	25 kV/mm according to IEC 60684 P2
Flammability	ASTM D2671



HIS-Pack *continued*

Product Selection							
Part No.	Type	Size	Supplied OD	Recovered OD	Wall Thickness	Pkg. Qty.	Color
300-30120	HIS Pack 1.2/0.6	3/64"	.047" (1.2mm)	.023" (.6mm)	.015" (.4mm)	10	Black (BK)
300-30122	HIS Pack 1.2/0.6	3/64"	.047" (1.2mm)	.023" (.6mm)	.015" (.4mm)	10	Red (RD)
300-30123	HIS Pack 1.2/0.6	3/64"	.047" (1.2mm)	.023" (.6mm)	.015" (.4mm)	10	Transparent (CL)
300-30126	HIS Pack 1.2/0.6	3/64"	.047" (1.2mm)	.023" (.6mm)	.015" (.4mm)	10	Blue (BU)
300-30160	HIS Pack 1.6/0.8	1/16"	.062" (1.6mm)	.031" (.8mm)	.015" (.4mm)	10	Black (BK)
300-30162	HIS Pack 1.6/0.8	1/16"	.062" (1.6mm)	.031" (.8mm)	.015" (.4mm)	10	Red (RD)
300-30163	HIS Pack 1.6/0.8	1/16"	.062" (1.6mm)	.031" (.8mm)	.015" (.4mm)	10	Transparent (CL)
300-30166	HIS Pack 1.6/0.8	1/16"	.062" (1.6mm)	.031" (.8mm)	.015" (.4mm)	10	Blue (BL)
300-30240	HIS Pack 2.4/1.2	3/32"	.094" (2.4mm)	.047" (1.2mm)	.019" (.5mm)	10	Black (BK)
300-30242	HIS Pack 2.4/1.2	3/32"	.094" (2.4mm)	.047" (1.2mm)	.019" (.5mm)	10	Red (RD)
300-30243	HIS Pack 2.4/1.2	3/32"	.094" (2.4mm)	.047" (1.2mm)	.019" (.5mm)	10	Transparent (CL)
300-30246	HIS Pack 2.4/1.2	3/32"	.094" (2.4mm)	.047" (1.2mm)	.019" (.5mm)	10	Blue (BU)
300-30320	HIS Pack 3.2/1.6	1/8"	.125" (3.2mm)	.062" (1.6mm)	.019" (.5mm)	10	Black (BK)
300-30322	HIS Pack 3.2/1.6	1/8"	.125" (3.2mm)	.062" (1.6mm)	.019" (.5mm)	10	Red (RD)
300-30323	HIS Pack 3.2/1.6	1/8"	.125" (3.2mm)	.062" (1.6mm)	.019" (.5mm)	10	Transparent (CL)
300-30326	HIS Pack 3.2/1.6	1/8"	.125" (3.2mm)	.062" (1.6mm)	.019" (.5mm)	10	Blue (BU)
300-30327	HIS Pack 3.2/1.6	1/8"	.125" (3.2mm)	.062" (1.6mm)	.019" (.5mm)	10	Green Yellow (GNYE)
300-30480	HIS Pack 4.8/2.4	3/16"	.18" (4.8mm)	.094" (2.4mm)	.019" (.5mm)	10	Black (BK)
300-30482	HIS Pack 4.8/2.4	3/16"	.18" (4.8mm)	.094" (2.4mm)	.019" (.5mm)	10	Red (RD)
300-30483	HIS Pack 4.8/2.4	3/16"	.18" (4.8mm)	.094" (2.4mm)	.019" (.5mm)	10	Transparent (CL)
300-30486	HIS Pack 4.8/2.4	3/16"	.18" (4.8mm)	.094" (2.4mm)	.019" (.5mm)	10	Blue (BU)
300-30487	HIS Pack 4.8/2.4	3/16"	.18" (4.8mm)	.094" (2.4mm)	.019" (.5mm)	10	Green Yellow (GNYE)
300-30640	HIS Pack 6.4/3.2	1/4"	.25" (6.4mm)	.125" (3.2mm)	.023" (.6mm)	5	Black (BK)
300-30642	HIS Pack 6.4/3.2	1/4"	.25" (6.4mm)	.125" (3.2mm)	.023" (.6mm)	5	Red (RD)
300-30643	HIS Pack 6.4/3.2	1/4"	.25" (6.4mm)	.125" (3.2mm)	.023" (.6mm)	5	Transparent (CL)
300-30646	HIS Pack 6.4/3.2	1/4"	.25" (6.4mm)	.125" (3.2mm)	.023" (.6mm)	5	Blue (BU)
300-30647	HIS Pack 6.4/3.2	1/4"	.25" (6.4mm)	.125" (3.2mm)	.023" (.6mm)	5	Green Yellow (GNYE)
300-30950	HIS Pack 9.5/4.7	3/8"	.37" (9.5mm)	.17" (4.7mm)	.023" (.6mm)	5	Black (BK)
300-30952	HIS Pack 9.5/4.7	3/8"	.37" (9.5mm)	.17" (4.7mm)	.023" (.6mm)	5	Red (RD)
300-30953	HIS Pack 9.5/4.7	3/8"	.37" (9.5mm)	.17" (4.7mm)	.023" (.6mm)	5	Transparent (CL)
300-30956	HIS Pack 9.5/4.7	3/8"	.37" (9.5mm)	.17" (4.7mm)	.023" (.6mm)	5	Blue (BU)
300-30957	HIS Pack 9.5/4.7	3/8"	.37" (9.5mm)	.17" (4.7mm)	.023" (.6mm)	5	Green Yellow (GNYE)
300-31270	HIS Pack 12.7/6.4	1/2"	.5" (12.7mm)	.25" (6.4mm)	.023" (.6mm)	5	Black (BK)
300-31272	HIS Pack 12.7/6.4	1/2"	.5" (12.7mm)	.25" (6.4mm)	.023" (.6mm)	5	Red (RD)
300-31273	HIS Pack 12.7/6.4	1/2"	.5" (12.7mm)	.25" (6.4mm)	.023" (.6mm)	5	Transparent (CL)
300-31276	HIS Pack 12.7/6.4	1/2"	.5" (12.7mm)	.25" (6.4mm)	.023" (.6mm)	5	Blue (BU)
300-31277	HIS Pack 12.7/6.4	1/2"	.5" (12.7mm)	.25" (6.4mm)	.023" (.6mm)	5	Green Yellow (GNYE)
300-31900	HIS Pack 19.1/9.5	3/4"	.75" (19.1mm)	.37" (9.5mm)	.031" (.8mm)	5	Black (BK)
300-31902	HIS Pack 19.1/9.5	3/4"	.75" (19.1mm)	.37" (9.5mm)	.031" (.8mm)	5	Red (RD)
300-31903	HIS Pack 19.1/9.5	3/4"	.75" (19.1mm)	.37" (9.5mm)	.031" (.8mm)	5	Transparent (CL)
300-31906	HIS Pack 19.1/9.5	3/4"	.75" (19.1mm)	.37" (9.5mm)	.031" (.8mm)	5	Blue (BU)
300-31907	HIS Pack 19.1/9.5	3/4"	.75" (19.1mm)	.37" (9.5mm)	.031" (.8mm)	5	Green Yellow (GNYE)
300-32540	HIS Pack 25.4/12.7	1.0"	1.0" (25.4mm)	.5" (12.7mm)	.035" (.9mm)	5	Black (BK)
300-32542	HIS Pack 25.4/12.7	1.0"	1.0" (25.4mm)	.5" (12.7mm)	.035" (.9mm)	5	Red (RD)
300-32543	HIS Pack 25.4/12.7	1.0"	1.0" (25.4mm)	.5" (12.7mm)	.035" (.9mm)	5	Transparent (CL)
300-32546	HIS Pack 25.4/12.7	1.0"	1.0" (25.4mm)	.5" (12.7mm)	.035" (.9mm)	5	Blue (BU)
300-32547	HIS Pack 25.4/12.7	1.0"	1.0" (25.4mm)	.5" (12.7mm)	.035" (.9mm)	5	Green Yellow (GNYE)

Use **Part No.** for ordering and **Type** for specification purposes.

Non-Printable Heatshrink Tubing

TREDUX thin wall

Features

TREDUX is a thin wall, flexible tubing with a shrink ratio of 3:1 and is made from cross-linked polyolefin. Available in 1 meter (3.28') lengths, 8 sizes from 0.059" (1.5mm) to 0.47" (12mm) and colors black and yellow/green. All 1 meter (3.28') lengths are delivered in a display box.

Application

TREDUX thin wall heatshrink tubing is used for general electrical insulation and mechanical protection of cables and wires.



TREDUX shrinks a maximum of 3:1.

Material Data	
Material	Polyolefin, cross-linked (POX)
Shrink Ratio	3:1
Minimum Shrink Temperature	+194°F (+90°C)
Operating Temperature	-67°F to +257°F (-55°C to 125°C)
Dielectric Strength	20 kV/mm according to ASTM D2671
Flammability	ASTM D2671



Product Selection							
Part No.	Type	Supplied OD	Recovered OD	Wall Thickness	Pkg. Qty. (piece/1m)	Color	Shrink Ratio
319-00150	TREDUX 1.5/0.5	.059" (1.5mm)	.019" (0.5mm)	.019" (0.50mm)	20	Black (BK)	3:1
319-00300	TREDUX 3/1	.118" (3.0mm)	.039" (1.0mm)	.023" (0.60mm)	20	Black (BK)	3:1
319-00600	TREDUX 6/2	.236" (6.0mm)	.08" (2.0mm)	.027" (0.70mm)	15	Black (BK)	3:1
319-01200	TREDUX 12/4	.47" (12.0mm)	.157" (4.0mm)	.033" (0.85mm)	10	Black (BK)	3:1
319-02400	TREDUX 24/8	1.0" (24.0mm)	.314" (8.0mm)	.047" (1.20mm)	5	Black (BK)	3:1
319-00307	TREDUX 3/1 - GNYE	.118" (3.0mm)	.039" (1.0mm)	.023" (0.60mm)	20	Green-Yellow	3:1
319-00607	TREDUX 6/2 - GNYE	.236" (6.0mm)	.08" (2.0mm)	.027" (0.70mm)	15	Green-Yellow	3:1
319-01207	TREDUX 12/4 - GNYE	.47" (12.0mm)	.157" (4.0mm)	.033" (0.85mm)	10	Green-Yellow	3:1

Use **Part No.** for ordering and **Type** for specification purposes.

TCN20

Features

TCN20 is a general purpose, flame-retardant polyolefin tubing with good resistance to common fluids and solvents. This flexible, 2:1 shrink ratio tubing has excellent physical and electrical performance. The low shrink temperature and the mechanical strength make this tubing widely used in the electrical and electronics industry.

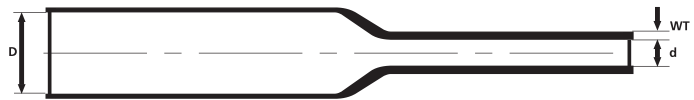
Application

TCN20 is suitable for a wide range of applications like electrical insulations, mechanical protection, and cable bundling.



Heatshrink tubing TCN20.

Material Data	
Material	Polyolefin, cross-linked (POX)
Shrink Ratio	2:1
Longitudinal change after shrinkage	+/-5% max
Minimum Shrink Temperature	212°F (+100°C)
Operating Temperature	-67°F to +257°F (-55°C to 125°C)
Dielectric Strength	20 kV/mm according to ASTM D2671
Flammability	Self extinguishing
Specification	UL224



TCN20

Product Selection							
Part No.	Type	Size	Supplied OD (D)	Recovered OD (d)	Wall Thickness (WT)	Reel Length	Color
300-73010	TCN20 1.2/0.6	3/64"	.047" (1.2mm)	.023" (.6mm)	.011" (.30mm)	984' (300m)	Black (BK)
300-73020	TCN20 1.6/0.8	1/16"	.062" (1.6mm)	.032" (.8mm)	.013" (.35mm)	984' (300m)	Black (BK)
300-73030	TCN20 2.4/1.2	3/32"	.094" (2.4mm)	.047" (1.2mm)	.017" (.45mm)	984' (300m)	Black (BK)
300-73040	TCN20 3.2/1.6	1/8"	.12" (3.2mm)	.062" (1.6mm)	.017" (.45mm)	984' (300m)	Black (BK)
300-73050	TCN20 4.8/2.4	3/16"	.189" (4.8mm)	.094" (2.4mm)	.019" (.5mm)	984' (300m)	Black (BK)
300-73060	TCN20 6.4/3.2	1/4"	.25" (6.4mm)	.12" (3.2mm)	.021" (.55mm)	984' (300m)	Black (BK)
300-73070	TCN20 9.5/4.8	3/8"	.37" (9.5mm)	.189" (4.8mm)	.021" (.55mm)	328' (100m)	Black (BK)
300-73080	TCN20 12.7/6.4	1/2"	.5" (12.7mm)	.25" (6.4mm)	.025" (.65mm)	328' (100m)	Black (BK)
300-73090	TCN20 19.1/9.5	3/4"	.75" (19.1mm)	.37" (9.5mm)	.031" (.8mm)	196' (60m)	Black (BK)
300-73100	TCN20 25.4/12.7	1.0"	1.0" (25.4mm)	.5" (12.7mm)	.035" (.9mm)	196' (60m)	Black (BK)
300-73110	TCN20 38.1/19.1	1.5"	1.5" (38.1mm)	.75" (19.1mm)	.04" (1.02mm)	98' (30m)	Black (BK)
300-73120	TCN20 50.8/25.4	2.0"	2.0" (50.8mm)	1.0" (25.4mm)	.045" (1.15mm)	98' (30m)	Black (BK)

Use **Part No.** for ordering and **Type** for specification purposes.

Non-Printable Heatshrink Tubing

TREDUX MA47, Medium wall adhesive lined

Features

TREDUX MA47 medium wall heatshrink tubing with a shrink ratio of 4:1 is resistant to solvents, acids and alkaline solutions and offers especially good mechanical strength. The thermoplastic adhesive liner provides good moisture sealing and weathering protection.

TREDUX tubing is cut to lengths of 1 meter (3.28'). Securely packed in display boxes, the tubing can be removed individually for occasional use in smaller quantities.

Application

Suitable for insulation and protection of low voltage cable joints and terminations.



Medium wall tubing MA47 with shrink ratio 4:1 and adhesive liner.

Material Data

Material	Polyolefin, cross-linked (POX)
Shrink Ratio	up to 4:1
Longitudinal change after shrinkage	-10% max
Minimum Shrink Temperature	248°F (+120°C)
Operating Temperature	-67°F to +176°F (-55°C to 80°C)
Dielectric Strength	20 kV/mm according to ASTM D2671



Product Selection

Part No.	Type	Supplied OD	Recovered OD	Wall Thickness	Pkg. Qty. (piece/1m)	Color
323-50120	TREDUX MA47 - 12/3	.47" (12.0mm)	.118" (3.0mm)	.08" (2.0mm)	6	Black (BK)
323-50190	TREDUX MA47 - 19/6	.75" (19.0mm)	.236" (6.0mm)	.09" (2.5mm)	10	Black (BK)
323-50300	TREDUX MA47 - 30/8	1.18" (30.0mm)	.314" (8.0mm)	.09" (2.5mm)	6	Black (BK)
323-50400	TREDUX MA47 - 40/12	1.57" (40.0mm)	.47" (12.0mm)	.09" (2.5 mm)	4	Black (BK)
323-50500	TREDUX MA47 - 50/16	1.96" (50.0mm)	.62" (16.0mm)	.10" (2.7mm)	2	Black (BK)
323-50630	TREDUX MA47 - 63/19	2.48" (63.0mm)	.75" (19.0mm)	.11" (2.8mm)	2	Black (BK)
323-50750	TREDUX MA47 - 75/22	2.95" (75.0mm)	.86" (22.0mm)	.12" (3.0mm)	2	Black (BK)
323-50950	TREDUX MA47 - 95/30	3.74" (95.0mm)	1.18" (30.0mm)	.12" (3.0mm)	1	Black (BK)

Use **Part No.** for ordering and **Type** for specification purposes.

TREDUX HA47, Thick wall adhesive lined

Features

TREDUX HA47 is a thick walled polyolefin adhesive lined tubing for low and medium voltage power applications. All tubings are cut to lengths of 1 meter (3.28'). Securely packed in a display boxes, the tubing can be removed individually for occasional use in smaller quantities.

Application

The toughness and the weatherability make TREDUX thick wall tubing suitable for exposed applications and underground cable joints.



TREDUX HA47 - application below ground.

Material Data

Material	Polyolefin, cross-linked (POX)
Shrink Ratio	up to 3.5:1
Longitudinal change after shrinkage	-10% max
Minimum Shrink Temperature	248°F (+120°C)
Operating Temperature	-67°F to +176°F (-55°C to 80°C)
Dielectric Strength	20 kV/mm according to ASTM D2671



Product Selection

Part No.	Type	Supplied OD	Recovered OD	Wall Thickness	Pkg. Qty. (piece/1m)	Color
321-50130	TREDUX HA47 - 13/4	.51" (13mm)	.157" (4mm)	.10" (2.4mm)	6	Black (BK)
321-50190	TREDUX HA47 - 19/6	.75" (19mm)	.236" (6mm)	.11" (2.7mm)	10	Black (BK)
321-50330	TREDUX HA47 - 33/8	1.29" (33mm)	.314" (8mm)	.13" (3.2mm)	5	Black (BK)
321-50450	TREDUX HA47 - 45/12	1.77" (45mm)	.47" (12mm)	.16" (4.1mm)	4	Black (BK)
321-50510	TREDUX HA47 - 51/16	2.0" (51mm)	.629" (16mm)	.16" (4.1mm)	2	Black (BK)
321-50680	TREDUX HA47 - 68/22	2.67" (68mm)	.86" (22mm)	.16" (4.1mm)	1	Black (BK)
321-50850	TREDUX HA47 - 85/25	3.34" (85mm)	1.0" (25mm)	.17" (4.3mm)	1	Black (BK)

Use **Part No.** for ordering and **Type** for specification purposes.

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