

Heat Shrinkable Products

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3M offers a full line of heat shrinkable tubing.

If the product, product size or product length you need is not listed in this catalog, contact your 3M Electrical Markets distributor or sales representative for a quote.



A rapid and reliable installation



3M™ Heat Shrink Tubing Selector Guide

Product	Material/Typical Applications	Application Specifications
THIN-WALL TUBINGS		
FP-301	Flexible Polyolefin (2:1 Shrink) tubing for general purpose insulation; identification; UL, CSA and MIL-I-23053/5 applications; cable and component covering. Rated to 135°C. (black, white, red, blue, clear, green and yellow)	MIL-I-23053/5, Class 1 and 2; AMS-3636; AMS-3637; File E39100; CSA LR38227
MFP	Semi-rigid, thin-wall (2:1 Shrink) heat-resistant transparent insulation and marking for electronic and appliance applications. Rated to 175°C.	MIL-DTL-23053/18, Class 1; MIL-DTL-23053/8; AMS-3632; UL File E-39100, VW-1, E69751; CSA LR38227 OFT
THIN-WALL ADHESIVE-LINED		
EPS-300	Flexible, polyolefin tubing (3:1 Shrink) with adhesive; insulation, strain relief and environmental protection for automotive and marine wire bundles and splices. Rated to 110°C. (black)	MIL-I-23053/4, Class 3; File 15227
MW	Semi-rigid, polyolefin tubing (2.5:1 Shrink) with adhesive; insulation strain relief and sealing electrical connections and electrical components. Rated to 110°C. (black)	MIL-I-23053/4, Class 1; AMS-3534 File 15227
MEDIUM-WALL		
IMCSN	Adhesive lined, medium wall polyolefin (3:1 Shrink). Split resistant tubing for electrical splices, connections; moisture seals and mechanical protection. Rated to 1000V. (black)	
MDT	Adhesive lined, thick wall polyolefin (3:1 Shrink). Flame-retardant, split resistant tubing for electrical splices, connections; mechanical and abrasion resistance. Rated to 1000V. (black, not printed)	MIL-I-23053/15, Class 2
HEAVY-WALL		
ITCSN	Adhesive lined, thick wall polyolefin (3:1 Shrink), split resistant tubing for electrical splices, connections; mechanical and abrasion resistance. Rated to 1000V. (black)	UL 486D, File E102356
HDT	Adhesive lined, medium wall polyolefin (3:1 Shrink). Flame-retardant, split resistant, tubing for electrical splices, connections; moisture seals and mechanical protection. Rated to 1000V. (black, not printed)	MIL-I-23053/15, Class 1
BUS BAR INSULATION		
BBI-A	See page 439	Conforms to requirements of ANSI/IEEE #C37.20

3M™ Heat Shrink Tubing Selector Guide

Typical Properties	FP-301	MW	EPS-300	IMCSN
Operating Temperature Range	-67°F to +275°F (-55°C to +135°C)	-67°F to +230°F (-55°C to +110°C)	-67°F to +230°F (-55°C to +110°C)	-67°F to +230°F (-55°C to +110°C)
Shrink Temperature (Min.)	212°F (100°C)	275°F (135°C)	250°F (121°C)	250°F (121°C)
Shrink Ratio	2:1	2.5:1	3:1	3:1
Standard Sizes Expanded Diameter	3/64" to 4" (1,19 to 101,6 mm)	1/8" to 1" (3,18 to 25,4 mm)	1/8" to 1 1/2" (3,18 to 38,1 mm)	0.400" to 6" (10,16 to 152,4 mm)
Dielectric Strength (V/Mil)	900	900	700	500
Volume Resistivity (ohm-cm)	10 ¹⁵	10 ¹⁵	10 ¹⁴	10 ¹⁴
Tensile Strength (psi)	2400	2200	2100	2400
Elongation (%)	400	400	450	450
Longitudinal Change (± %)	±5%	+1, -10%	+1, -15%	+1, -10%
Specific Gravity	1.3	1.0	1.3	1.28
Flammability	Self-extinguish meets UL 224 flame test except clear	n/a	Outer jacket self-extinguish meets UL 224 flame test	N/A
Corrosive Effect	Non-corrosive	Non-corrosive	Non-corrosive	Non-corrosive
Abrasion Resistance	Good	Good	Good	Good
Fuel and Oil Resistance	Good	Good	Good	Good
Solvent Resistance	Excellent	Excellent	Good	Excellent
Resistance to Acids and Alkalis	Excellent	Excellent	Excellent	Excellent

3M™ Heat Shrink Tubing Selector Guide

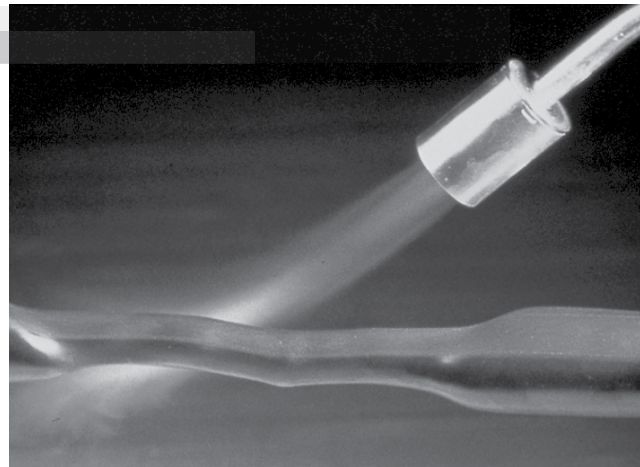
Typical Properties	ITCSN	HDT	MDT	MFP
Operating Temperature Range	-67°F to +230°F (-55°C to +110°C)	-67°F to +230°F (-55°C to +110°C)	-67°F to +230°F (-55°C to +110°C)	-67°F to +347°F (-55°C to +175°C)
Shrink Temperature (Min.)	250°F (121°C)	250°F (121°C)	250°F (121°C)	347°F (175°C)
Shrink Ratio	3:1	3:1	3:1	2:1
Standard Sizes Expanded Diameter	0.400" to 4.30" (10,16 to 152,4 mm)	0.300" to 7.00" (7,62 to 177,8 mm)	0.400" to 4.30" (10,16 to 152,4 mm)	3/64" to 2" (1,19 to 50,8 mm)
Dielectric Strength (V/Mil)	500	500	500	900
Volume Resistivity (ohm-cm)	10 ¹⁴	10 ¹⁴	10 ¹⁴	10 ¹⁴
Tensile Strength (psi)	2400	2400	2400	5500
Elongation (%)	475	475	475	350
Longitudinal Change (± %)	+1, -10%	+1, -10%	+1, -10%	+1, -10%
Specific Gravity	1.28	1.28	1.28	1.7
Flammability	N/A	Flame retardant	Flame retardant	Self-extinguish meets UL 224 VW-1 Test
Corrosive Effect	Non-corrosive	Non-corrosive	Non-corrosive	Non-corrosive
Abrasion Resistance	Good	Good	Good	Excellent
Fuel and Oil Resistance	Good	Good	Good	Excellent
Solvent Resistance	Good	Good	Good	Excellent
Resistance to Acids and Alkalis	Excellent	Excellent	Excellent	Excellent

Heavy-Wall Tubing

3M™ ITCSN Heavy-Wall Cable Sleeves for 1 kV

Shrink Ratio 3:1

3M ITCSN heat shrinkable cable sleeves are designed to provide reliable performance for electrical splices, connections and terminations, as well as mechanical and environmental protection. ITCSN heavy-wall cable sleeves are cross-linked polyolefin. They are highly split resistant and fast shrinking to provide rapid installation. The cut-to-length sleeves come standard with a factory-applied adhesive/sealant. Order any of several packaging choices or look for the counter merchandiser assortment at a 3M authorized distributor.



Rated to 1 kV, UL Listed 486 D for 600V. File Number E102356. CSA rating. When ordering, please specify boxed, bulk, tamper evident bag or merchandising display to assure proper pricing.

Specifications and Ordering Information for 3M™ ITCSN Cut Lengths (Black Only)

Product Number	UPC (054007-)		Typical Cable Range	Expanded/ Recovered I.D.	Length	Case Qty. (Pieces)		Certifications and Listings	
	Boxed	Bulk				Boxed	Bulk		
ITCSN-0400-6	08887	08963	12-6 AWG (4-10 mm ²)	0.40/0.15" (10,2/3,8 mm)	6" (15,2 cm)	25	100	UL E102356	SP
ITCSN-0400-48	08902	08964	12-6 AWG (4-10 mm ²)	0.40/0.15" (10,2/3,8 mm)	48" (121,9 cm)	5	20	UL E102356	SP
ITCSN-0800-6	40067	50474	8-1/0 AWG (10-50 mm ²)	0.80/0.20" (20,3/5,1 mm)	6" (15,2 cm)	25	100	UL E102356	SP
ITCSN-0800-9	08890	08966	8-1/0 AWG (10-50 mm ²)	0.80/0.20" (20,3/5,1 mm)	9" (22,9 cm)	25	100	UL E102356	SP
ITCSN-0800-12	08889	08967	8-1/0 AWG (10-50 mm ²)	0.80/0.20" (20,3/5,1 mm)	12" (30,5 cm)	25	100	UL E102356	SP
ITCSN-0800-48	08903	08968	8-1/0 AWG (10-50 mm ²)	0.80/0.20" (20,3/5,1 mm)	48" (121,9 cm)	5	20	UL E102356	SP
ITCSN-1100-6	08894	08969	2-4/0 AWG (35-95 mm ²)	1.10/0.37" (27,9/9,4 mm)	6" (15,2 cm)	25	100	UL E102356	SP
ITCSN-1100-9	08893	08970	2-4/0 AWG (35-95 mm ²)	1.10/0.37" (27,9/9,4 mm)	9" (22,9 cm)	25	100	UL E102356	SP
ITCSN-1100-12	08892	08971	2-4/0 AWG (35-95 mm ²)	1.10/0.37" (27,9/9,4 mm)	12" (30,5 cm)	10	100	UL E102356	SP
ITCSN-1100-48	08904	08972	2-4/0 AWG (35-95 mm ²)	1.10/0.37" (27,9/9,4 mm)	48" (121,9 cm)	5	20	UL E102356	SP
ITCSN-1500-9	08897	08973	3/0 AWG-400 kcmil (95-185 mm ²)	1.50/0.50" (38,1/12,7 mm)	9" (22,9 cm)	10	50	UL E102356	SP
ITCSN-1500-12	08896	08974	3/0 AWG-400 kcmil (95-185 mm ²)	1.50/0.50" (38,1/12,7 mm)	12" (30,5 cm)	10	50	UL E102356	SP
ITCSN-1500-48	08905	08975	3/0 AWG-400 kcmil (95-185 mm ²)	1.50/0.50" (38,1/12,7 mm)	48" (121,9 cm)	5	20	UL E102356	SP
ITCSN-2000-9	08900	08976	250-750 kcmil (150-300 mm ²)	2.00/0.65" (50,8/16,5 mm)	9" (22,9 cm)	10	50	UL E102356	SP

Specifications and Ordering Information for 3M™ ITCSN Cut Lengths (Black Only)

Product Number	UPC (054007-)		Typical Cable Range	Expanded/ Recovered I.D.	Length	Case Qty. (Pieces)		Certifications and Listings
	Boxed	Bulk				Boxed	Bulk	
ITCSN-2000-12	08899	08977	250–750 kcmil (150–300 mm ²)	2.00/0.65" (50,8/16,5 mm)	12" (30,5 cm)	10	50	UL E102356 SF
ITCSN-2000-48	08906	08978	250–750 kcmil (150–300 mm ²)	2.00/0.65" (50,8/16,5 mm)	48" (121,9 cm)	5	20	UL E102356 SF
ITCSN-3000-12	08901	08979	600–1250 kcmil (400–625 mm ²)	3.00/1.00" (76,2/25,4 mm)	12" (30,5 cm)	10	50	SF
ITCSN-3000-48	08907	08980	600–1250 kcmil (400–625 mm ²)	3.00/1.00" (76,2/25,4 mm)	48" (121,9 cm)	5	20	SF
ITCSN-4500-48	37979	08981	1500–2500 kcmil (800–1000 mm ²)	4.50/1.50" (114,3/38,1 mm)	48" (121,9 cm)	5	20	SF
ITCSN-6000-48	37980	08982	2.1–4.8" (53–122 mm ²)	6.00/1.80" (152,4/45,7 mm)	48" (121,9 cm)	5	20	SF

Note: Flame retardant ITCSF and other sizes and lengths are available subject to quote. Uncoated product is available on special order—order part number with the suffix "U."

Specifications and Ordering Information for 3M™ ITCSN Tamper Evident Bags

Product Number	UPC (054007-)	Description	Expanded/ Recovered I.D.	Case Qty.	Certifications and Listings
ITCSN-0400-6 (black)	50475	6" (15,2 cm) pieces, 6 per bag	0.40/0.15" (10,2/3,8 mm)	12 packs	UL E102356 SF
ITCSN-0400-6 (red)	38153*	6" (15,2 cm) pieces, 6 per bag	0.40/0.15" (10,2/3,8 mm)	12 packs	UL E102356
ITCSN-0800-6 (black)	50474	6" (15,2 cm) pieces, 6 per bag	0.80/0.20" (20,3/5,1 mm)	12 packs	UL E102356 SF
ITCSN-0800-6 (red)	38154*	6" (15,2 cm) pieces, 6 per bag	0.80/0.20" (20,3/5,1 mm)	12 packs	UL E102356
ITCSN-1100-9 (black)	50473	9" (22,9 cm) pieces, 6 per bag	1.10/0.37" (27,9/9,4 mm)	12 packs	UL E102356 SF
ITCSN-1100-9 (red)	38155*	9" (22,9 cm) pieces, 6 per bag	1.10/0.37" (27,9/9,4 mm)	12 packs	UL E102356
ITCSN-1500-9 (black)	50472	9" (22,9 cm) pieces, 3 per bag	1.50/0.50" (38,1/12,7 mm)	12 packs	UL E102356 SF
ITCSN-2000-12 (black)	50471	12" (30,5 cm) pieces, 3 per bag	2.00/0.65" (50,8/16,5 mm)	12 packs	UL E102356 SF

* UPC prefix 051135-

Specifications and Ordering Information for 3M™ ITCSN 25-Foot Reels

Product Number	UPC (054007-)	Typical Cable Range	Expanded/Recovered I.D.	Length	Case Qty.	Certifications and Listings
ITCSN-0400-25-U	08886	12–6 AWG (4–10 mm ²)	0.40/0.15" (10,2/3,8 mm)	25' reel (762 cm)	1 reel	SF
ITCSN-0800-25-U	08888	8–1/0 AWG (10–50 mm ²)	0.80/0.20" (20,3/5,1 mm)	25' reel (762 cm)	1 reel	SF
ITCSN-1100-25-U	08891	2–4/0 AWG (35–95 mm ²)	1.10/0.37" (27,9/9,4 mm)	25' reel (762 cm)	1 reel	SF
ITCSN-1500-25-U	08895	3/0 AWG–400 kcmil (95–185 mm ²)	1.50/0.50" (38,1/12,7 mm)	25' reel (762 cm)	1 reel	SF
ITCSN-2000-25-U	08898	250–750 kcmil (150–300 mm ²)	2.00/0.65" (50,8/16,5 mm)	25' reel (762 cm)	1 reel	SF

Note: Reels are not supplied with factory-applied adhesive/sealant.

Specifications and Ordering Information for 3M™ ITCSN Counter Merchandiser Assortment

UPC 054007-50500, black only, case quantity 1, contents include:

Product Number	Product Length	Product Quantity	Typical Cable Range	Expanded/Recovered I.D.	Certifications and Listings
ITCSN-0400	6" (15,2 cm)	52	12–6 AWG (4–10 mm ²)	0.40/0.15" (10,2/3,8 mm)	UL E102356 SF
ITCSN-0800	9" (22,9 cm)	35	8–1/0 AWG (10–50 mm ²)	0.80/0.20" (20,3/5,1 mm)	UL E102356 SF
ITCSN-1100	9" (22,9 cm)	25	2–4/0 AWG (35–95 mm ²)	1.10/0.37" (27,9/9,4 mm)	UL E102356 SF
ITCSN-1500	9" (22,9 cm)	12	3/0 AWG–400 kcmil (95–185 mm ²)	1.50/0.50" (38,1/12,7 mm)	UL E102356 SF

3M™ HDT Heavy-Wall Flame-Retardant Cable Sleeves for 1 kV

Shrink Ratio 3:1

3M HDT heat shrinkable cable sleeves are designed to provide reliable performance for electrical splices, connections and terminations, as well as mechanical and environmental protection. 3M HDT heavy-wall cable sleeves are cross-linked polyolefin. They are

flame-retardant, highly split resistant and fast shrinking to provide rapid installation. The 48" (121,9 cm) sleeves come standard with a factory-applied adhesive/sealant. Order any of several packaging choices or look for the counter merchandiser assortment at a 3M authorized distributor and are not printed.

MIL-DTL-23053/15, Class 1. Order in the size equivalent to expanded inside diameter required.

Specifications and Ordering Information for 3M™ HDT Cable Sleeves 4-Foot Lengths (Black Only)

Product Number	UPC (054007–)	Typical Cable Range	Expanded/Recovered I.D.	4' Lengths Per Case
HDT-0400-48A	40649	#12 – #6 AWG	0.40/0.15" (10,2/3,8 mm)	20
HDT-0800-48A	40650	#8 – 1/0 AWG	0.80/0.20" (20,3/5,1 mm)	20
HDT-1100-48A	40651	#2 – 4/0 AWG	1.10/0.37" (27,9/9,4 mm)	20
HDT-1500-48A	40652	3/0 – 400 MCM	1.50/0.50" (38,1/12,7 mm)	20
HDT-2000-48A	40654	250 – 750 MCM	2.00/0.65" (50,8/16,5 mm)	10
HDT-3000-48A	40655	600 – 1250 MCM	3.00/1.00" (76,2/25,4 mm)	10
HDT-4500-48A	40656	1000 – 2500 MCM	4.50/1.50" (114,3/38,1 mm)	5
HDT-6000-48A	59022	2.1" – 4.8" O.D.	6.00/1.80" (152,4/45,7 mm)	5
HDT-7000-48A	37774*	2.5" – 5.6" O.D.	7.00/2.00" (177,8/50,8 mm)	5

*UPC prefix 051135-

Medium-Wall Tubing

3M™ IMCSN Medium-Wall Cable Sleeves for 1kV

3M IMCSN heat shrinkable medium-wall cable sleeves are reliable, tough performers made of split-resistant cross-linked polyolefin. Use for 1 kV splices, connections, terminations and re-jacketing. They are designed to protect against mechanical and environmental dangers, providing excellent abrasion, corrosion and chemical resistance.

3M IMCSN sleeves have greater flexibility than the ITC SN, our heavy-wall version. Installation of these fast-shrinking sleeves is easy with little training necessary.

The 48" (121,9 cm) lengths come standard with a factory-applied adhesive/sealant, a thermoplastic material that remains flexible over long periods under adverse environmental conditions. During heating, the sealant softens, bonds to underlying surfaces and fills small voids that might be present.

The 25' (7,62 m) reel version is uncoated. Applications include bus bar insulations and phase re-jacketing.

Specifications and Ordering Information for 3M™ IMCSN 4-Foot Lengths

Product Number	UPC (054007-)	Cable Range	Expanded/Recovered I.D.	Cable O.D.	4' Lengths Per Case
IMCSN-0400-48A	58810	12–6 AWG (4–10 mm ²)	0.40/0.15" (10,2/3,8 mm)	0.35"-0.15" (9-3,3 mm)	20
IMCSN-0800-48A	58811	8–3 AWG (10–25 mm ²)	0.80/0.22" (20,3/5,6 mm)	0.70"-0.22" (18-5,6 mm)	20
IMCSN-1100-48A	58812	2–2/0 AWG (35–60 mm ²)	1.10/0.37" (27,9/9,4 mm)	0.95"-0.37" (24-9,4 mm)	20
IMCSN-1300-48A	03448*	1–4/0 AWG (50–100 mm ²)	1.30/0.43" (33/10,9 mm)	1.10"-0.43" (28-10,8 mm)	20
IMCSN-1500-48A	58813	1/0–250 kcmil (60–120 mm ²)	1.50/0.50" (38,1/12,7 mm)	1.30"-0.50" (33-12,1 mm)	20
IMCSN-1700-48A	03317*	4/0–400 kcmil (120–200 mm ²)	1.70/0.60" (43,2/15,2 mm)	1.45"-0.60" (37-15,2 mm)	20
IMCSN-2000-48A	58814	300–500 kcmil (185–250 mm ²)	2.00/0.75" (50,8/19,1 mm)	1.75"-0.75" (44,5-19,0 mm)	15
IMCSN-3000-48A	58815	600–1250 kcmil (325–625 mm ²)	3.00/1.00" (76,2/25,4 mm)	2.50"-1.00" (63,5-25,4 mm)	15
IMCSN-4300-48A	58809	1000–2500 kcmil (625–1000 mm ²)	4.30/1.50" (109,2/38,1 mm)	3.60"-1.50" (91,5-29,5 mm)	10

*UPC prefix 051135-

Note: Flame retardant IMCSF and other sizes and lengths are available subject to quote. Uncoated product is available on special order. Order part number with suffix "U."

Specifications and Ordering Information for 3M IMCSN 25-Foot Reels

Product Number	UPC (051135-)	Cable Range	Expanded/Recovered I.D.	Cable O.D.	Case Qty.
IMCSN-0400-25U	03481	12–6 AWG (4–10 mm ²)	0.40/0.15" (10,2/3,8 mm)	0.35"-0.15" (9-3,3 mm)	1 reel
IMCSN-0800-25U	03482	8–3 AWG (10–25 mm ²)	0.80/0.22" (20,3/5,6 mm)	0.70"-0.22" (18-5,6 mm)	1 reel
IMCSN-1100-25U	03483	2–2/0 AWG (35–60 mm ²)	1.10/0.37" (27,9/9,4 mm)	0.95"-0.37" (24-9,4 mm)	1 reel

Specifications and Ordering Information for 3M IMCSN 25-Foot Reels

Product Number	UPC (051135-)	Cable Range	Expanded/Recovered I.D.	Cable O.D.	Case Qty.
IMCSN-1300-25U	03484	1-4/0 AWG (50-100 mm ²)	1.30/0.43" (33/10,9 mm)	1.10"-0.43" (28-10,8 mm)	1 reel
IMCSN-1500-25U	03485	1/0-250 kcmil (60-120 mm ²)	1.50/0.50" (38,1/12,7 mm)	1.30"-0.50" (33-12,1 mm)	1 reel
IMCSN-1700-25U	03486	4/0-400 kcmil (120-200 mm ²)	1.70/0.60" (43,2/15,2 mm)	1.45"-0.60" (37-15,2 mm)	1 reel
IMCSN-2000-25U	03487	300-500 kcmil (185-250 mm ²)	2.00/0.75" (50,8/19,1 mm)	1.75"-0.75" (44,5-19,0 mm)	1 reel
IMCSN-3000-25U	03530	600-1250 kcmil (325-625 mm ²)	3.00/1.00" (76,2/25,4 mm)	2.50"-1.00" (63,5-25,4 mm)	1 reel
IMCSN-4300-25U	03531	1000-2500 kcmil (625-1000 mm ²)	4.30/1.50" (109,2/38,1 mm)	3.60"-1.50" (91,5-29,5 mm)	1 reel

Note: Reels are not supplied with factory-applied adhesive/sealant.

3M™ MDT Medium-Wall, Flame-Retardant Cable Sleeves for 1kV

3M MDT heat shrinkable medium-wall cable sleeves are reliable, tough performers made of split-resistant cross-linked polyolefin. Use for 1 kV splices, connections, terminations and re-jacketing. They are flame-retardant and are designed to protect against mechanical and environmental dangers, providing excellent abrasion, corrosion and chemical resistance. MDT sleeves have greater flexibility than the HDT, our heavy-wall

version. Installation of these fast-shrinking sleeves is easy with little training necessary.

The 48" (121,9 cm) lengths are unprinted and come standard with a factory-applied adhesive/sealant, a thermoplastic material that remains flexible over long periods under adverse environmental conditions. During heating the sealant softens, bonds to underlying surfaces and fills small voids that might be present.

Order in the size equivalent to expanded inside diameter required.

Specifications and Ordering Information for 3M MDT Cable Sleeves 4-Foot Lengths (Black Only)

Product Number	UPC (054007-)	Typical Cable Range	Expanded/Recovered I.D.	4' Lengths Per Case
MDT-0400-48A	40672	#12 - #6 AWG	0.40/0.15" (10,2/3,8 mm)	20
MDT-0800-48A	40673	#8 - #3 AWG	0.80/0.22" (20,3/5,6 mm)	20
MDT-1100-48A	40674	#2 - 2/0 AWG	1.10/0.37" (27,9/9,4 mm)	20
MDT-1300-48A	40675	#1 - 4/0 AWG	1.30/0.43" (33,0/10,9 mm)	20
MDT-1500-48A	40676	1/0 - 250 MCM	1.50/0.50" (38,1/12,7 mm)	20
MDT-1700-48A	40677	4/0 - 400 MCM	1.70/0.60" (43,2/15,2 mm)	20
MDT-2000-48A	40678	300 - 500 MCM	2.00/0.75" (50,8/19,1 mm)	15
MDT-3000-48A	40679	600 - 1250 MCM	3.00/1.00" (76,2/25,4 mm)	15
MDT-4300-48A	40680	1000 - 2500 MCM	4.30/1.50" (109,2/38,1 mm)	10

Thin-Wall Tubing

3M™ Thin-Wall Tubing FP-301

Shrink Ratio 2:1

3M Thin-Wall Tubing FP-301 is a heat shrinkable flexible polyolefin tubing that offers an outstanding balance of electrical, physical and chemical properties for a wide variety of industrial and military applications. Rated for 275°F (135°C) continuous operation. 3M tubing FP-301 is typically used as a shrink-fit electrical insulation over cable splices and terminations. It is also used for lightweight wire harness covering, wire marking, wire bundling, component packaging and fire resistant covering.

3M Clear Tubing FP-301 provides excellent visibility for component packing. All 3M Tubing FP-301 is split resistant, mechanically tough, easily marked and resists cold flow.

FP-301 is available in black, white, red, blue, yellow and clear in the standard lengths of 6-inch (15,2 cm) cut pieces, 48-inch (1,21 m) and small (8.5-inch core diameter) spools of 50 (15,24 m) and 100 (30,48 m) feet. Four-foot lengths of green tubing are available in sizes 1/16 inch to 1/2 inch. The Assorted Color Kit has a total of 133 pieces and contains seven colors: black, red, white, yellow, blue,



green and clear (see chart below). The Black Kit contains 102 pieces, all 6" (512,4 mm) lengths (see chart below). Additional sizes, colors and put-ups are available—please contact your 3M Electrical Products Sales Representative.

Application Specifications: UL Recognized and CSA Certified at 600 volts at 257°F(125°C); UL File No. E-39100 and CSA No. 38227. MIL-I-23053/5, Class 1,2. AMS 3636 (Type I) and AMS 3637 (Type II).

To Order: Reference specific product size, color and description on the following pages. Example: FP-301-1/4, white 6" (15,2 cm) pieces.

Specifications and Ordering Information for 3M Thin-Wall Tubing FP-301 Assortment Kits

Description	UPC (051135-)	Case Qty.
ASSORTED COLORS KIT	37677	5 kits
Kit Contents:	Kit Quantity:	
3/32" (2,35 mm)	35	—
1/8" (3,18 mm)	28	—
3/16" (4,75 mm)	21	—
1/4" (6,35 mm)	21	—
3/8" (9,53 mm)	14	—
1/2" (12,70 mm)	14	—
ASSORTED BLACK KIT	38139	5 kits
Kit Contents:	Kit Quantity:	
3/16" (4,8 mm)	30	—
1/4" (6,5 mm)	28	—
3/8" (9,6 mm)	20	—
1/2" (12,7 mm)	14	—
3/4" (19,1 mm)	6	—
1" (25,4 mm)	4	—

Specifications and Ordering Information for 3M Thin-Wall Tubing FP-301 Six-Inch Pieces—Tamper Evident Bags (Refills for Kits)

Product Number	Size	Color	UPC (051135-)	Description	Expanded/Recovered I.D.	Case Qty.
FP-301	3/64" (1,19 mm)	Black Clear	36484 36485	40 pcs/bag	0.046/0.023" (1,17/0,58 mm)	10 bags
FP-301	1/16" (1,59 mm)	Black Clear	36486 36487	38 pcs/bag	0.063/0.031" (1,6/0,79 mm)	10 bags
FP-301	3/32" (2,4 mm)	Black Clear	36488 36489	36 pcs/bag	0.093/0.046" (2,36/1,17 mm)	10 bags
FP-301	1/8" (3,18 mm)	Black Clear	36490 36491	34 pcs/bag	0.125/0.062" (3,18/1,57 mm)	10 bags
FP-301	3/16" (4,77 mm)	Black Clear	36492 36493	30 pcs/bag	0.187/0.093" (4,75/2,36 mm)	10 bags
FP-301	1/4" (6,4 mm)	Black Clear	36494 36495	26 pcs/bag	0.250/0.125" (6,35/3,18 mm)	10 bags
FP-301	3/8" (9,55 mm)	Black Clear	36496 36497	24 pcs/bag	0.375/0.187" (9,53/4,75 mm)	10 bags
FP-301	1/2" (12,7 mm)	Black Clear	36498 36499	20 pcs/bag	0.500/0.250" (12,7/6,35 mm)	10 bags
FP-301	3/4" (19,0 mm)	Black Clear	36500 36501	14 pcs/bag	0.750/0.375" (19,05/9,52 mm)	10 bags
FP-301	1" (25,4 mm)	Black Clear	36502 36503	10 pcs/bag	1.000/0.500" (25,4/12,7 mm)	10 bags
FP-301	1-1/2" (38,1 mm)	Black Clear	36504 36505	6 pcs/bag	1.500/0.750" (38,1/19,05 mm)	10 bags
FP-301	2" (50,8 mm)	Black Clear	36506 36507	4 pcs/bag	2.000/1.000" (50,8/25,4 mm)	10 bags
FP-301	3" (76,0 mm)	Black Clear	36508 36509	3 pcs/bag	3.000/1.500" (76,2/38,1 mm)	10 bags
FP-301	4" (102,0 mm)	Black Clear	36510 36511	2 pcs/bag	4.000/2.000" (101,6/50,8 mm)	10 bags

Specifications and Ordering Information for 3M FP-301 Assortment Packs of Six-Inch Lengths—Tamper Evident Bags (Refills for Kits)

Product Number	Size	Color	UPC (051135-)	Description	Case Qty.
FP-301	3/64"-3/16" (1,19-4,77 mm)	Black	36612	6 each of 5 sizes/bag	10 bags
FP-301	1/4"-3/4" (6,4-19,0 mm)	Black	36613	4 each of 4 sizes/bag	10 bags
FP-301	1"-4" (25,4-102 mm)	Black	36614	2 each of 5 sizes/bag	10 bags
FP-301	3/32" (2,4 mm)	Assort.	36618	5 each of 7 colors/bag	10 bags
FP-301	1/8" (3,18 mm)	Assort.	36619	4 each of 7 colors/bag	10 bags
FP-301	3/16" (4,77 mm)	Assort.	36620	3 each of 7 colors/bag	10 bags
FP-301	1/4" (6,4 mm)	Assort.	36621	3 each of 7 colors/bag	10 bags
FP-301	3/8" (9,55 mm)	Assort.	36622	2 each of 7 colors/bag	10 bags
FP-301	1/2" (12,7 mm)	Assort.	36623	2 each of 7 colors/bag	10 bags

Specifications and Ordering Information for 3M™ Thin-Wall Tubing FP-301 Four-Foot Sticks (Small Box)

Product Number	Size	Color	UPC (051135-)	Description	Expanded/Recovered I.D.	Box Qty.
FP-301	3/64" (1,17 mm)	Black	36644	48" Sticks (1,22 m)	0.046/0.023" (1,17/0,58 mm)	25
		Clear	36645			
		White	36646			
		Red	36647			
		Blue	36649			
		Yellow	36648			
FP-301	1/16" (1,58 mm)	Black	36650	48" Sticks (1,22 m)	0.063/0.031" (1,6/0,79 mm)	25
		Clear	36651			
		White	36652			
		Red	36653			
		Blue	36655			
		Yellow	36654			
FP-301	3/32" (2,38 mm)	Black	36673	48" Sticks (1,22 m)	0.093/0.046" (2,36/1,17 mm)	25
		Clear	36674			
		White	36675			
		Red	36676			
		Blue	36678			
		Yellow	36677			
FP-301	1/8" (3,18 mm)	Black	36680	48" Sticks (1,22 m)	0.125/0.062" (3,18/1,57 mm)	25
		Clear	36681			
		White	36682			
		Red	36683			
		Blue	36685			
		Yellow	36684			
FP-301	3/16" (4,75 mm)	Black	36687	48" Sticks (1,22 m)	0.187/0.093" (4,75/2,36 mm)	25
		Clear	36688			
		White	36689			
		Red	36690			
		Blue	36692			
		Yellow	36691			
FP-301	1/4" (6,35 mm)	Black	36694	48" Sticks (1,22 m)	0.250/0.125" (6,35/3,18 mm)	12
		Clear	36695			
		White	36696			
		Red	36697			
		Blue	36699			
		Yellow	36698			
FP-301	3/8" (9,5 mm)	Black	36701	48" Sticks (1,22 m)	0.375/0.187" (9,53/4,75 mm)	12
		Clear	36702			
		White	36703			
		Red	36704			
		Blue	36706			
		Yellow	36705			
FP-301	1/2" (12,7 mm)	Black	36709	48" Sticks (1,22 m)	0.500/0.250" (12,7/6,35 mm)	12
		Clear	36710			
		White	36711			
		Red	36712			
		Blue	36714			
		Yellow	36713			
		Green	36715			

Specifications and Ordering Information for 3M™ Thin-Wall Tubing FP-301 Four-Foot Sticks (Small Box)

Product Number	Size	Color	UPC (051135-)	Description	Expanded/Recovered I.D.	Box Qty.
FP-301	3/4" (19,05 mm)	Black	36716	48" Sticks (1,22 m)	0.750/0.375" (19,01/9,53 mm)	12
		Clear	36720			
		White	36721			
		Red	36722			
		Blue	36724			
		Yellow	36723			
		Green	37764			
FP-301	1" (25,4 mm)	Black	36725	48" Sticks (1,22 m)	1.000/0.500" (25,4/12,7 mm)	5
		Clear	36726			
		White	36727			
		Red	36728			
		Blue	36730			
		Yellow	36729			
		Green	37767			
FP-301	1-1/2" (38,1 mm)	Black	36731	48" Sticks (1,22 m)	1.500/0.750" (38,1/19,05 mm)	5
		Clear	36732			
		White	36733			
		Red	36734			
		Blue	36736			
		Yellow	36735			
FP-301	2" (50,8 mm)	Black	36737	48" Sticks (1,22 m)	2.000/1.000" (50,8/25,4 mm)	5
		Clear	36738			
		White	36739			
		Red	36740			
		Blue	36742			
		Yellow	36741			
FP-301	3" (76,2 mm)	Black	36743	48" Sticks (1,22 m)	3.000/1.500" (76,2/38,1 mm)	2
		Clear	36744			
FP-301	4" (101,6 mm)	Black	36745	48" Sticks (1,22 m)	4.000/2.000" (101,6/50,8 mm)	2
		Clear	36746			

Specifications and Ordering Information for 3M™ FP-301 Four-Foot Sticks (Bulk)

Product Number	Size	Expanded/Recovered I.D.	Color	UPC (054007-)	Case Qty. Feet (sticks)
FP-301	3/64" (1,17 mm)	0.046/0.023" (1,17/0,58 mm)	Black	08432	1,000
			Clear	08438	
			White	08433	
			Red	08738	
			Blue	08734	
			Yellow	58680	
FP-301	1/16" (1,60 mm)	0.063/0.031" (1,6/0,79 mm)	Black	08434	1,000
			Clear	08439	
			White	08435	
			Red	08764	
			Blue	08761	
			Yellow	08770	
			Green	58787	
FP-301	3/32" (2,36 mm)	0.093/0.046" (2,36/1,17 mm)	Black	08436	1,000
			Clear	08440	
			White	08437	
			Red	08788	
			Blue	08787	
			Yellow	08791	
			Green	37654*	

* UPC prefix 051135-

Specifications and Ordering Information for 3M™ FP-301 Four-Foot Sticks (Bulk)

Product Number	Size	Expanded/Recovered I.D.	Color	UPC (054007-)	Case Qty. Feet (sticks)
FP-301	1/8" (3,18 mm)	0.125/0.062" (3,18/1,57 mm)	Black	08562	1,000' (250-48" sticks)
			Clear	08587	
			White	36682	
			Red	08864	
			Blue	08820	
			Yellow	08825	
FP-301	3/16" (4,75 mm)	0.187/0.093" (4,75/2,36 mm)	Black	08566	1,000' (250-48" sticks)
			Clear	08588	
			White	08568	
			Red	08854	
			Blue	08852	
			Yellow	08569	
FP-301	1/4" (6,35 mm)	0.250/0.125" (6,35/3,18 mm)	Black	08570	800' (200-48" sticks)
			Clear	08589	
			White	08572	
			Red	38755	
			Blue	58792	
			Yellow	38760	
FP-301	3/8" (9,53 mm)	0.375/0.187" (9,53/4,75 mm)	Black	08573	500' (125-48" sticks)
			Clear	08590	
			White	08576	
			Red	08575	
			Blue	38767	
			Yellow	08577	
FP-301	1/2" (12,7 mm)	0.500/0.250" (12,7/6,35 mm)	Black	08604	400' (100-48" sticks)
			Clear	08591	
			White	08608	
			Red	08607	
			Blue	08606	
			Yellow	08609	
FP-301	3/4" (19,05 mm)	0.750/0.375" (19,01/9,53 mm)	Black	08610	200' (50-48" sticks)
			Clear	08592	
			White	08614	
			Red	08613	
			Blue	08612	
			Yellow	08615	
FP-301	1" (25,4 mm)	1.000/0.500" (25,4/12,7 mm)	Black	08578	96' (24-48" sticks)
			Clear	08593	
			White	08580	
			Red	38902	
			Blue	38900	
			Yellow	08581	
FP-301	1-1/2" (38,1 mm)	1.500/0.750" (38,1/19,05 mm)	Black	08582	96' (24-48" sticks)
			Clear	08594	
			White	38916	
			Red	38914	
			Blue	38912	
			Yellow	08583	

* UPC prefix 051135-

Specifications and Ordering Information for 3M™ FP-301 Four-Foot Sticks (Bulk)

Product Number	Size	Expanded/Recovered I.D.	Color	UPC (054007-)	Case Qty. Feet (sticks)
FP-301	2" (50,8 mm)	2.000/1.000" (50,8/25,4 mm)	Black	08584	96' (24-48" sticks)
			Clear	08595	
			White	38923	
			Red	56829	
			Blue	38921	
			Yellow	38926	
FP-301	3" (76,2 mm)	3.000/1.500" (76,2/38,1 mm)	Black	08585	48' (12-48" sticks)
			Clear	39030	
			White	08586	
			Red	38932	
			Blue	38931	
			Yellow	57035	
FP-301	4" (101,6 mm)	4.000/2.000" (101,6/50,8 mm)	Black	38934	48' (12-48" sticks)
			Clear	39032	
			White	38939	
			Red	38938	
			Blue	38936	
			Yellow	59028	

Specifications and Ordering Information for 3M™ Thin-Wall Tubing FP-301 Small Spools

Product Number	Size	Color	UPC (051135-)	Description	Expanded/Recovered I.D.	Case Qty.
FP-301	3/64" (1,19 mm)	Black	36027**	100' Spool (30,5 m)	0.046/0.023" (1,17/0,58 mm)	300'
		Clear	36028**			
FP-301	1/16" (1,6 mm)	Black	35550	100' Spool (30,5 m)	0.063/0.031" (1,6/0,79 mm)	300'
		Clear	35555			
		White	35551			
		Red	35552			
		Blue	35553			
		Yellow	35554			
FP-301	3/32" (2,4 mm)	Black	35556	100' Spool (30,5 m)	0.093/0.046" (2,36/1,17 mm)	300'
		Clear	35548			
		White	35557			
		Red	35558			
		Blue	35559			
		Yellow	35560			
FP-301	1/8" (3,2 mm)	Black	35562	100' Spool (30,5 m)	0.125/0.062" (3,18/1,57 mm)	300'
		Clear	35567			
		White	35563			
		Red	35564			
		Blue	35565			
		Yellow	35566			
FP-301	3/16" (4,77 mm)	Black	35568	100' Spool (30,5 m)	0.187/0.093" (4,75/2,36 mm)	300'
		Clear	35573			
		White	35569			
		Red	35570			
		Blue	35571			
		Yellow	35572			
		Green	37594			

** UPC prefix 051138-

Specifications and Ordering Information for 3M™ Thin-Wall Tubing FP-301 Small Spools

Product Number	Size	Color	UPC (051135-)	Description	Expanded/Recovered I.D.	Case Qty.
FP-301	1/4" (6,4 mm)	Black	35574	100' Spool (30,5 m)	0.250/0.125" (6,35/3,18 mm)	300'
		Clear	35579			
		White	35575			
		Red	35576			
		Blue	35577			
		Yellow	35578			
		Green	37346			
FP-301	3/8" (9,6 mm)	Black	35580	100' Spool (30,5 m)	0.375/0.187" (9,53/4,75 mm)	300'
		Clear	35585			
		White	35581			
		Red	35582			
		Blue	35583			
		Yellow	35584			
		Green	37643			
FP-301	1/2" (12,7 mm)	Black	35586	100' Spool (30,5 m)	0.500/0.250" (12,7/6,35 mm)	300'
		Clear	35591			
		White	35587			
		Red	35588			
		Blue	35589			
		Yellow	35590			
		Green	37347			
FP-301	3/4" (19,1 mm)	Black	35592	50' Spool (15,2 m)	0.750/0.375" (19,05/9,52 mm)	150'
		Clear	35597			
		White	35593			
		Red	35594			
		Blue	35595			
		Yellow	35596			
		Green	37348			
FP-301	1" (25,4 mm)	Black	35598	50' Spool (15,2 m)	1.000/0.500" (25,4/12,7 mm)	150'
		Clear	35603			
		White	35599			
		Red	35600			
		Blue	35601			
		Yellow	35602			
		Green	37768			
FP-301	1-1/2" (38,1 mm)	Black	36026**	50' Spool (15,2 m)	1.500/0.750" (38,1/19,05 mm)	100'
		Clear	36025**			
		White	08515*	100' Spool (30,5 m)		200'
		Red	38860*			
		Blue	38857*			
		Yellow	08516*			
FP-301	2" (50,8 mm)	Black	36024**	50' Spool (15,2 m)	2.000/1.000" (50,8/25,4 mm)	100'
		Clear	36023**			
		White	08519*	100' Spool (30,5 m)		200'
		Red	08518*			
		Blue	38870*			
		Yellow	08520*			
FP-301	3" (76,2 mm)	Black	08521*	50' Spool (15,2 m)	3.000/1.500" (76,2/38,1 mm)	50'
		Clear	38982*			
		White	08522*			
		Red	38881*			
		Blue	38880*			
		Yellow	38883*			
FP-301	4" (101,6 mm)	Black	38884*	50' Spool (15,2 m)	4.000/2.000" (101,6/50,8 mm)	50'
		Clear	38986*			
		White	38894*			
		Red	38893*			
		Blue	58973*			
		Yellow	38895*			

* UPC prefix 051135-

** UPC prefix 051138-

FAX 800-245-0329

Specifications and Ordering Information for 3M™ FP-301 Spools (Large)

Product Number	Size	Expanded/Recovered I.D.	Color	UPC (054007-)	Description	Case Qty.
FP-301	3/64" (1,60 mm)	0.046/0.023" (1,17/0,58 mm)	Black	08458	1,000' Spool (304,8 m)	3,000'
			Clear	08523		
			White	08460		
			Red	08723		
			Blue	58613		
			Yellow	08727		
FP-301	1/16" (1,60 mm)	0.063/0.031" (1,6/0,79 mm)	Black	08461	1,000' Spool (304,8 m)	3,000'
			Clear	08524		
			White	08464		
			Red	08463		
			Blue	08746		
			Yellow	08465		
FP-301	3/32" (2,36 mm)	0.093/0.046" (2,36/1,17 mm)	Black	08466	500' Spool (152,4 m)	1,500'
			Clear	08525		
			White	08470		
			Red	08469		
			Blue	08468		
			Yellow	08471		
FP-301	1/8" (3,18 mm)	0.125/0.062" (3,18/1,57 mm)	Black	08472	500' Spool (152,4 m)	1,500'
			Clear	08526		
			White	08476		
			Red	08475		
			Blue	08474		
			Yellow	08477		
FP-301	3/16" (4,75 mm)	0.187/0.093" (4,75/2,36 mm)	Black	08478	250' Spool (76,2 m)	750'
			Clear	08527		
			White	08483		
			Red	08482		
			Blue	08480		
			Yellow	08484		
FP-301	1/4" (6,35 mm)	0.250/0.125" (6,35/3,18 mm)	Black	08485	250' Spool (60,96 m)	600'
			Clear	08528		
			White	08489		
			Red	08488		
			Blue	08487		
			Yellow	08490		
FP-301	3/8" (9,53 mm)	0.375/0.187" (9,53/4,75 mm)	Black	08491	200' Spool (60,96 m)	600'
			Clear	08529		
			White	08494		
			Red	08493		
			Blue	38734		
			Yellow	08495		
FP-301	1/2" (12,7 mm)	0.500/0.250" (12,7/6,35 mm)	Black	08496	200' Spool (60,96 m)	600'
			Clear	08530		
			White	08500		
			Red	08499		
			Blue	08498		
			Yellow	08501		
FP-301	1/2" (12,7 mm)	0.500/0.250" (12,7/6,35 mm)	Green	56988	200' Spool (60,96 m)	600'
			Black	08496		
			Clear	08530		
			White	08500		
			Red	08499		
			Blue	08498		

* UPC prefix 051135-

Specifications and Ordering Information for 3M™ FP-301 Spools (Large)

Product Number	Size	Expanded/Recovered I.D.	Color	UPC (054007-)	Description	Case Qty.
FP-301	3/4" (19,05 mm)	0.750/0.375" (19,05/9,52 mm)	Black	08502	200' Spool (60,96 m)	600'
			Clear	08531		
			White	08506		
			Red	08505		
			Blue	08504		
			Yellow	08507		
			Green	56642		
FP-301	1" (25,4 mm)	1.000/0.500" (25,4/12,7 mm)	Black	08508	100' Spool (30,5 m)	300'
			Clear	08532		
			White	08512		
			Red	08511		
			Blue	08510		
			Yellow	08513		
			Green	37765*		
FP-301	1-1/2" (38,1 mm)	1.500/0.750" (38,1/19,05 mm)	Black	08514	100' Spool (30,5 m)	200'
			Clear	08533		
			White	08515		
			Red	38860		
			Blue	38857		
			Yellow	08516		
FP-301	2" (50,8 mm)	2.000/1.000" (50,8/25,4 mm)	Black	08517	100' Spool (30,5 m)	200'
			Clear	08534		
			White	08519		
			Red	08518		
			Blue	38870		
			Yellow	08520		
FP-301	3" (76,2 mm)	3.000/1.500" (76,2/38,1 mm)	Black	08521	—	50'
			Clear	38982		
			White	08522		
			Red	38881		
			Blue	38880		
			Yellow	38883		
FP-301	4" (101,6 mm)	4.000/2.000" (101,6/50,8 mm)	Black	38884	—	50'
			Clear	38986		
			White	38894		
			Red	38893		
			Blue	58973		
			Yellow	38895		

* UPC prefix 051135-

Specifications and Ordering Information for 3M™ Thin-Wall Tubing FP 25-Foot Reels Thin-Wall, Flexible Polyolefin

Product Number	UPC (054007-)	Expanded/Recovered I.D.	Case Qty.
FP-063-BK-25	40058	0.063/0.031" (1,6/0,8 mm)	1 – 25' Reel
FP-093-BK-25	40059	0.093/0.046" (2,4/1,2 mm)	1 – 25' Reel
FP-125-BK-25	40060	0.125/0.062" (3,2/1,6 mm)	1 – 25' Reel
FP-187-BK-25	40061	0.187/0.093" (4,7/2,4 mm)	1 – 25' Reel
FP-250-BK-25	40062	0.250/0.125" (6,4/3,2 mm)	1 – 25' Reel
FP-375-BK-25	40063	0.375/0.187" (9,5/4,2 mm)	1 – 25' Reel
FP-500-BK-25	40064	0.500/0.250" (12,7/6,4 mm)	1 – 25' Reel
FP-750-BK-25	40065	0.750/0.375" (19,1/9,5 mm)	1 – 25' Reel
FP-1000-BK-25	40066	1.000/0.500" (25,4/12,7 mm)	1 – 25' Reel

Note: Bulk spools and 4-foot lengths are available subject to quotation. Special cut lengths are also available subject to quotation.

Specifications and Ordering Information for 3M™ Thin-Wall Tubing FP-301 Four-Foot Lengths with Header Cards

Product Number	Size	Color	UPC (051135-)	Description	Expanded/Recovered I.D.	Case Qty.
FP-301H	1/16" (1,58 mm)	Black	36748	48" Sticks (1,22 m)	0.063/0.031" (1,6/0,79 mm)	25
		Clear	36749			
		White	36750			
		Red	36751			
		Blue	36753			
		Yellow	36752			
		Green	36754			
FP-301H	3/32" (2,38 mm)	Black	36770	48" Sticks (1,22 m)	0.093/0.046" (2,36/1,17 mm)	25
		Clear	36771			
		White	36772			
		Red	36773			
		Blue	36775			
		Yellow	36774			
		Green	36776			
FP-301H	1/8" (3,18 mm)	Black	36777	48" Sticks (1,22 m)	0.125/0.062" (3,18/1,57 mm)	25
		Clear	36778			
		White	36779			
		Red	36780			
		Blue	36782			
		Yellow	36781			
		Green	36783			
FP-301H	3/16" (4,75 mm)	Black	36784	48" Sticks (1,22 m)	0.187/0.093" (4,75/2,36 mm)	25
		Clear	36785			
		White	36786			
		Red	36787			
		Blue	36789			
		Yellow	36788			
		Green	36790			

Specifications and Ordering Information for 3M™ Thin-Wall Tubing FP-301 Four-Foot Lengths with Header Cards

Product Number	Size	Color	UPC (051135-)	Description	Expanded/Recovered I.D.	Case Qty.
FP-301H	1/4" (6,35 mm)	Black	36791	48" Sticks (1,22 m)	0.250/0.125" (6,35/3,18 mm)	25
		Clear	36792			
		White	36793			
		Red	36794			
		Blue	36796			
		Yellow	36795			
		Green	36797			
FP-301H	3/8" (9,5 mm)	Black	36798	48" Sticks (1,22 m)	0.375/0.187" (9,53/4,75 mm)	12
		Clear	36799			
		White	36800			
		Red	36801			
		Blue	36803			
		Yellow	36802			
		Green	36804			
FP-301H	1/2" (12,7 mm)	Black	36805	48" Sticks (1,22 m)	0.500/0.250" (12,7/6,35 mm)	12
		Clear	36806			
		White	36807			
		Red	36808			
		Blue	36810			
		Yellow	36809			
		Green	36811			
FP-301H	3/4" (19,05 mm)	Black	36812	48" Sticks (1,22 m)	0.750/0.375" (19,01/9,53 mm)	12
		Clear	36813			
		White	36814			
		Red	36815			
		Blue	36817			
		Yellow	36816			
		Green	37763			
FP-301H	1" (25,4 mm)	Black	36818	48" Sticks (1,22 m)	1.000/0.500" (25,4/12,7 mm)	5
		Clear	36819			
		White	36820			
		Red	36821			
		Blue	36823			
		Yellow	36822			
		Green	37766			

3M™ MFP Heat Shrink, Cross-Linked, Thin-Walled, Modified Polyvinylidene Fluoride Tubing

3M MFP tubing is a cross-linked, thin-walled, heat-shrinkable tubing offering a high degree of mechanical strength and high-temperature resistance. Fabricated from polyvinylidene fluoride, the tubing has outstanding abrasion resistance and cut-through properties in combination with high dielectric strength. It is inherently flame retardant, semi-rigid and highly resistant to most industrial fuels, chemicals and solvents. When heated in excess of 347°F (175°C), MFP tubing rapidly shrinks to a skintight fit. MFP tubing is rated for continuous operation from -67°F (-55°C) to 347°F (175°C).

MFP tubing is recommended for shrink-fit protection and strain relief of wires, solder joints, terminals and connections. MFP tubing has a 2:1 shrink ratio. Standard color is clear. Standard packaging is 4-foot lengths. Order MFP tubing by product name, size equivalent to the expanded inside diameter, package type and color.

Applicable Specifications: MIL-DTL-23053/8, MIL-DTL-23053/18, Class 1; AMS-3632; UL File E-39100, VW-I; CSA LR 38227, OFT.

Specifications and Ordering Information for 3M™ MFP Sticks

Product Number	Size	Color	UPC (051135-)	Description	Case Qty.-Sticks (feet)
MFP	3/64"	Clear	36886	4' Sticks	25 (100')
MFP	1/16"	Clear	36887	4' Sticks	25 (100')
MFP	3/32"	Clear	36888	4' Sticks	25 (100')
MFP	1/8"	Clear	36889	4' Sticks	25 (100')
MFP	3/16"	Clear	36890	4' Sticks	12 (48')
MFP	1/4"	Clear	36891	4' Sticks	12 (48')
MFP	3/8"	Clear	36892	4' Sticks	12 (48')
MFP	1/2"	Clear	36893	4' Sticks	5 (20')
MFP	3/4"	Clear	36894	4' Sticks	5 (20')
MFP	3/64"	Clear	40928*	4' Sticks	250' (1,000')
MFP	1/16"	Clear	40929*	4' Sticks	250' (1,000')
MFP	3/32"	Clear	40930*	4' Sticks	250' (1,000')
MFP	1/8"	Clear	40931*	4' Sticks	250' (1,000')
MFP	3/16"	Clear	40932*	4' Sticks	200 (800')
MFP	1/4"	Clear	40933*	4' Sticks	125 (500')
MFP	3/8"	Clear	40934*	4' Sticks	125 (500')
MFP	1/2"	Clear	40937*	4' Sticks	100 (400')
MFP	5/8"	Clear	03168	4' Sticks	50 (200')
MFP	3/4"	Clear	40935*	4' Sticks	50 (200')
MFP	1"	Clear	40936*	4' Sticks	30 (120')
MFP	1-1/2"	Clear	40938*	4' Sticks	24 (96')
MFP	2"	Clear	03169	4' Sticks	12 (48')

* UPC prefix 054007-

Specifications and Ordering Information for MFP Tubing with Header Cards

Product Number	Size	UPC (051135-)	Description	Expanded/Recovered I.D.	4' Lengths Per Case
MFP-H	1/16"	38759	Modified Polyvinylidene Fluoride 48" Sticks w/Header (Small Box)	0.063/0.031" (1,60/0,79 mm)	25
MFP-H	3/32"	38760	Modified Polyvinylidene Fluoride 48" Sticks w/Header (Small Box)	0.093/0.046" (2,36/1,17 mm)	25
MFP-H	1/8"	38761	Modified Polyvinylidene Fluoride 48" Sticks w/Header (Small Box)	0.125/0.062" (3,18/1,57 mm)	25
MFP-H	3/16"	38762	Modified Polyvinylidene Fluoride 48" Sticks w/Header (Small Box)	0.187/0.093" (4,75/2,36 mm)	12
MFP-H	1/4"	38763	Modified Polyvinylidene Fluoride 48" Sticks w/Header (Small Box)	0.250/0.125" (6,35/3,18 mm)	12
MFP-H	3/8"	38764	Modified Polyvinylidene Fluoride 48" Sticks w/Header (Small Box)	0.375/0.187" (9,53/4,75 mm)	12
MFP-H	1/2"	38765	Modified Polyvinylidene Fluoride 48" Sticks w/Header (Small Box)	0.500/0.250" (12,70/6,35 mm)	5
MFP-H	3/4"	38766	Modified Polyvinylidene Fluoride 48" Sticks w/Header (Small Box)	0.750/0.375" (19,05/9,53 mm)	5
MFP-H	1"	38767	Modified Polyvinylidene Fluoride 48" Sticks w/Header (Small Box)	1.000/0.500" (25,40/12,70 mm)	5

Adhesive-Lined Tubing

3M™ Thin-Wall, Flexible Polyolefin Adhesive-Lined Tubing EPS-300

Shrink Ratio 3:1

3M tubing EPS 300 is a thin-wall tubing offering the advantages of integral, dual wall construction. The tubing is made from flame-retardant, flexible polyolefin lined with an internal layer of special thermoplastic adhesive. The heat shrinkable outer wall is selectively radiation cross-linked, while the adhesive maintains high flow and excellent adhesion characteristics. 3M tubing EPS-300 is an environmental protection sleeve and insulation. It offers environmental protection for electronic components, twisted pigtail and inline wire splices, crimp splices, wire bundles and wire harness breakouts in automotive, truck fleet, marine and industrial applications.

Standard Color: Black and standard packaging is 4' (1,219 m) lengths and 6" (15,2 cm) cut pieces. Also available in a kit containing 42 pieces of 6-inch lengths in assorted sizes (see chart below). Additional sizes, colors and put-ups



are available — please contact your 3M Electrical Markets Sales Representative.

Application Specifications: MIL-I-23053/4, Class 3.
To Order: Reference specific product size, color and description. Example: EPS-300-1/4, 48" (1,21 m) sticks, black.

Specifications and Ordering Information for 3M™ EPS-300 4' Sticks (Bulk Box)

Product Number	Size	Expanded/Recovered I.D.	Color	UPC (051135-)	Case Qty.
EPS-300	1/8" (3,2 mm)	0.125/0.040" (3,18/1,02 mm)	Black	37902	1,000'
			Clear	37903	1,000'
EPS-300	3/16" (4,76 mm)	0.187/0.063" (4,75/1,57 mm)	Black	36105	1,000'
			Clear	36106	1,000'
EPS-300	1/4" (6,35 mm)	0.250/0.080" (6,35/2,03 mm)	Black	36107	800'
			Clear	36108	800'
EPS-300	3/8" (9,53 mm)	0.375/0.120" (9,53/3,05 mm)	Black	36109	500'
			Clear	36110	500'
EPS-300	1/2" (12,7 mm)	0.500/0.160" (12,7/4,06 mm)	Black	36111	300'
			Clear	36112	300'
			Red	36113	300'
EPS-300	3/4" (19,05 mm)	0.750/0.250" (19,05/6,35 mm)	Black	36114	180'
			Clear	36115	180'
			Red	36116	180'
EPS-300	1" (25,4 mm)	1.000/0.320" (25,4/8,13 mm)	Black	36117	96'
			Clear	36118	96'
			Red	36119	96'
EPS-300	1-1/2" (38,1 mm)	1.500/0.500" (38,1/12,95 mm)	Black	36120	96'
			Clear	36121	96'

Note: Special cut lengths are available subject to quotation.

Specifications and Ordering Information for 3M™ Tubing Kit EPS-300

UPC 051135-38444, case quantity 5 kits

Description	No. of 6" Size	Pieces
EPS-300 Red	1/2" (12,70 mm)	12
EPS-300 Black	1/2" (12,70 mm)	12
EPS-300 Red	3/4" (19,05 mm)	6
EPS-300 Black	3/4" (19,05 mm)	6
EPS-300 Red	1" (25,40 mm)	3
EPS-300 Black	1" (25,40 mm)	3

Specifications and Ordering Information for 3M™ Tubing EPS-300

Small box 4' sticks and 6" pieces

Product Number	Size	UPC (051135-)	Expanded/Recovered I.D.	Description	Case Qty.
EPS-300 Black	1/8" (3,2 mm)	37483	0.125/0.040" (3,18/1,02 mm)	48" Sticks (1,21 m)	25 sticks
EPS-300 Black	3/16" (4,76 mm)	36875	0.187/0.063" (4,75/1,57 mm)	48" Sticks (1,21 m)	12 sticks
EPS-300 Black	3/16" (4,76 mm)	36592	0.187/0.063" (4,75/1,57 mm)	6" Pieces, 24/Bag (15,2 cm)	10 bags
EPS-300 Black	1/4" (6,35 mm)	36876	0.250/0.080" (6,35/2,03 mm)	48" Sticks (1,21 m)	12 sticks
EPS-300 Black	1/4" (6,35 mm)	36593	0.250/0.080" (6,35/2,03 mm)	6" Pieces, 20/Bag (15,2 cm)	10 bags
EPS-300 Black	3/8" (9,53 mm)	36877	0.375/0.120" (9,53/3,05 mm)	48" Sticks (1,21 m)	12 sticks
EPS-300 Black	3/8" (9,53 mm)	36594	0.375/0.120" (9,53/3,05 mm)	6" Pieces, 16/Bag (15,2 cm)	10 bags
EPS-300 Black	1/2" (12,7 mm)	36878	0.500/0.160" (12,7/4,06 mm)	48" Sticks (1,21 m)	12 sticks
EPS-300 Black	1/2" (12,7 mm)	36595	0.500/0.160" (12,7/4,06 mm)	6" Pieces, 14/Bag (15,2 cm)	10 bags
EPS-300 Red	1/2" (12,7 mm)	38441	0.500/0.160" (12,7/4,06 mm)	6" Pieces, 14/Bag (15,2 cm)	10 bags
EPS-300 Black	3/4" (19,05 mm)	36879	0.750/0.250" (19,05/6,35 mm)	48" Sticks (1,21 m)	5 sticks
EPS-300 Black	3/4" (19,05 mm)	36596	0.750/0.250" (19,05/6,35 mm)	6" Pieces, 12/Bag (15,2 cm)	10 bags
EPS-300 Red	3/4" (19,05 mm)	38442	0.750/0.250" (19,05/6,35 mm)	6" Pieces, 12/Bag (15,2 cm)	10 bags
EPS-300 Black	1" (25,4 mm)	36880	1.000/0.320" (25,4/8,13 mm)	48" Sticks (1,21 m)	5 sticks
EPS-300 Black	1" (25,4 mm)	36597	1.000/0.320" (25,4/8,13 mm)	6" Pieces, 8/Bag (15,2 cm)	10 bags
EPS-300 Red	1" (25,4 mm)	38443	1.000/0.320" (25,4/8,13 mm)	6" Pieces, 8/Bag (15,2 cm)	10 bags
EPS-300 Black	1-1/2" (38,1 mm)	36881	1.500/0.500" (38,1/12,95 mm)	48" Sticks (1,21 m)	5 sticks
EPS-300 Black	1-1/2" (38,1 mm)	36598	1.500/0.500" (38,1/12,95 mm)	6" Pieces, 4/Bag (15,2 cm)	10 bags

Note: Bulk 48" sticks and special cut lengths are available subject to quotation.

Specifications and Ordering Information for 3M™ Tubing EPS-300 with Header Cards

Product Number	Size	UPC (051135-)	Expanded/Recovered I.D.	Description	Case Qty.
EPS-300H Black	1/8" (3,2 mm)	38749	0.125/0.040" (3,18/1,02 mm)	48" Sticks (1,21 m)	25 sticks
EPS-300H Black	3/16" (4,76 mm)	38750	0.187/0.063" (4,75/1,57 mm)	48" Sticks (1,21 m)	12 sticks
EPS-300H Black	1/4" (6,35 mm)	38751	0.250/0.080" (6,35/2,03 mm)	48" Sticks (1,21 m)	12 sticks
EPS-300H Black	3/8" (9,53 mm)	38752	0.375/0.120" (9,53/3,05 mm)	48" Sticks (1,21 m)	12 sticks
EPS-300H Black	1/2" (12,7 mm)	38753	0.500/0.160" (12,7/4,06 mm)	48" Sticks (1,21 m)	12 sticks
EPS-300H Red	1/2" (12,7 mm)	38754	0.500/0.160" (12,7/4,06 mm)	48" Sticks (1,21 m)	12 sticks
EPS-300H Black	3/4" (19,05 mm)	38755	0.750/0.250" (19,05/6,35 mm)	48" Sticks (1,21 m)	5 sticks
EPS-300H Red	3/4" (19,05 mm)	38756	0.750/0.250" (19,05/6,35 mm)	48" Sticks (1,21 m)	5 sticks
EPS-300H Black	1" (25,4 mm)	38757	1.000/0.320" (25,4/8,13 mm)	48" Sticks (1,21 m)	5 sticks
EPS-300H Red	1" (25,4 mm)	38758	1.000/0.320" (25,4/8,13 mm)	48" Sticks (1,21 m)	5 sticks

Note: Bulk 48" sticks and special cut lengths are available subject to quotation.

Just add heat just to be safe



3M™ Tubing MW Multiple-Wall, Semi-Rigid Polyolefin

Shrink Ratio: 2.5:1

3M Tubing MW is a semi-rigid, heat shrinkable polyolefin tubing that is co-extruded and selectively cross-linked to provide an integral, meltable inner wall. When heated in excess of 275°F (135°C), the inner meltable wall of the tubing is simultaneously softened and forced by the shrink action into intimate contact with all underlying surfaces, interstices and small voids. Upon cooling, the 3M Tubing MW provides a tough protective and insulating barrier, highly resistant to penetration by moisture and the attack of

chemicals and solvents. Uses include strain relief for delicate wire terminations, connections, solder joints and harness breakouts — where semi-rigid environmental protective sleeving and insulation is needed.

Standard Color: Black and standard packaging is 4' (1,219 m) lengths and 6" (15,2 cm) cut pieces. Additional sizes, colors and put-ups are available — please contact your 3M Electrical Products Sales Representative.

Application Specifications: MIL-I-23053/4, Class 1; AMS-3634. To Order: Reference specific product size, color and description. Example: MW, 1/4, 6" pieces, black.

Specifications and Ordering Information for 3M™ Tubing MW Multiple Wall, Semi-Rigid Polyolefin

Product Number	Size	UPC (051135-)	Expanded/Recovered I.D.	Description	Case Qty.
MW	1/8" (3,18 mm)	36859	0.125/0.023" (3,18/0,58 mm)	48" Sticks (1,21 m)	25 sticks
MW	1/8" (3,18 mm)	36563	0.125/0.023" (3,18/0,58 mm)	6" Pieces, 28/Bag (15,2 cm)	10 pack
MW	3/16" (4,76 mm)	36860	0.187/0.060" (4,75/1,52 mm)	48" Sticks (1,21 m)	12 sticks
MW	3/16" (4,76 mm)	36564	0.187/0.060" (4,75/1,52 mm)	6" Pieces, 24/Bag (15,2 cm)	10 pack
MW	1/4" (6,35 mm)	36861	0.250/0.080" (6,35/2,03 mm)	48" Sticks (1,21 m)	12 sticks
MW	1/4" (6,35 mm)	36565	0.250/0.080" (6,35/2,03 mm)	6" Pieces, 20/Bag (15,2 cm)	10 pack
MW	3/8" (9,53 mm)	36862	0.375/0.135" (9,53/3,43 mm)	48" Sticks (1,21 m)	12 sticks
MW	3/8" (9,53 mm)	36566	0.375/0.135" (9,53/3,43 mm)	6" Pieces, 16/Bag (15,2 cm)	10 pack
MW	1/2" (12,7 mm)	36863	0.500/0.195" (12,7/4,95 mm)	48" Sticks (1,21 m)	12 sticks
MW	1/2" (12,7 mm)	36567	0.500/0.195" (12,7/4,95 mm)	6" Pieces, 14/Bag (15,2 cm)	10 pack
MW	3/4" (19,05 mm)	36864	0.750/0.313" (19,05/7,95 mm)	48" Sticks (1,21 m)	5 sticks
MW	3/4" (19,05 mm)	36568	0.750/0.313" (19,05/7,95 mm)	6" Pieces, 12/Bag (15,2 cm)	10 pack
MW	1" (25,4 mm)	36865	1.000/0.400" (25,4/10,16 mm)	48" Sticks (1,21 m)	5 sticks
MW	1" (25,4 mm)	36569	1.000/0.400" (25,4/10,16 mm)	6" Pieces, 8/Bag (15,2 cm)	10 pack

Note: Bulk 48" sticks and special cut lengths are available subject to quotation.

Bus Bar Tubing

3M™ Bus Bar Tubing BBI-A Series

3M Tubing BBI-A is made of specially formulated, cross-linked, flame-retardant, track-resistant polyolefin that will shrink to fit rectangular, square or round bus bars. 3M Bus Bar Tubing BBI-A will handle voltage ranges from 600 V to 35 kV, reducing your inventory requirements and saving you time and money.

The 3M Tubing BBI-A material has a high resistance to splitting, while providing the flexibility to conform to bends in certain applications. Superior split resistance can prevent insulation failures and resulting downtimes. 3M tubing BBI-A is unaffected by normal cleaning fluids and is resistant to physical damage. Good thermal endurance (up to 110°C/ 230°F) contributes to longer life and more stable performance.



Excellent dielectric strength allows the required space between bus bars and metal enclosures to be substantially reduced. Closer spacing reduces both the overall size of the assembly and the overall cost.

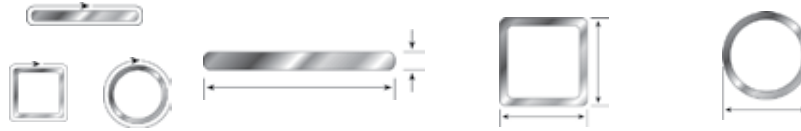
Note: Bus bar is packaged one roll per case, 20 or 50 feet long.

Fight fire with fire



Specifications and Ordering Information for 3M™ Bus Bar Tubing BBI-A Series

Product Number	UPC (051135-)	Outside Dimension (Bar Circumference A)	Rectangular	Square	Rounded (Diameter)	Case Qty.
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5, 8 and 15 kV Bus Bar Size Ranges

BBI-3A	35726 35727	3.28–5.57" (83–141 mm)	1 1/2" x 1/4"–2 1/2" x 1/2" (38 x 6–64 x 13 mm)	1" x 1"–1 1/2" x 1 1/2" (25 x 25–38 x 38 mm)	1 1/8"–1 3/4" (29–44 mm)	20 50
BBI-4A	35728 35729	5.43–8.86" (138–225 mm)	2 1/2" x 3/8"–4" x 3/4" (64 x 10–102 x 19 mm)	2" x 2" (51 x 51 mm)	1 3/4"–2 3/4" (44–70 mm)	20 50
BBI-5A	35730 35731	6.67–10.86" (169–276 mm)	3" x 5/8"–5" x 3/4" (76 x 16–127 x 19 mm)	2" x 2"–2" x 1/2" x 2 1/2" (51 x 51–64 x 64 mm)	2 1/8"–3 3/8" (54–86 mm)	20 50
BBI-6A	35732 35733	7.57–12.86" (192–327 mm)	3 1/2" x 1/2"–6" x 3/4" (89 x 13–152 x 19 mm)	2 1/2" x 2 1/2"–3" x 3" (64 x 64–76 x 76 mm)	2 1/2"–4" (64–102 mm)	20 50
BBI-7A	35734 35735	8.28–13.00" (210–330 mm)	4" x 1/4"–6" x 3/4" (102 x 6–152 x 19 mm)	2 1/2" x 2 1/2"–3" x 3" (64 x 64–76 x 76 mm)	2 3/4"–4 1/8" (70–105 mm)	20 50
BBI-8A	35736 35737	10.29–16.43" (261–417 mm)	5" x 1/4"–8" x 3/8" (127 x 6–203 x 10 mm)	3" x 3"–4 x 4" (76 x 76–102 x 102 mm)	3 3/8"–5 1/8" (86–130 mm)	20 50
BBI-9A	35876 35877	12.29–19.23" (312–488 mm)	6" x 1/4"–9" x 3/4" (152 x 6–229 x 19 mm)	3 1/2" x 3 1/2"–5" x 5" (89 x 89–127 x 127 mm)	4"–6 1/8" (102–156 mm)	20 50
BBI-10A	35878 35879	15.43–24.14" (392–612 mm)	8" x 1/4"–10" x 3/4" (203 x 6–254 x 19 mm)	5" x 5"–6" x 6" (127 x 127–152 x 152 mm)	5"–7 5/8" (127–194 mm)	20 50

25 kV Bus Bar Size Ranges

BBI-3A	35726 35727	3.28–3.56" (83–90 mm)	1 1/2" x 1/4"–1 1/2" x 3/8" (38 x 6–38 x 10 mm)	Measure circumference	1 1/8" (29 mm)	20 50
BBI-4A	35728 35729	5.43–5.80" (138–147 mm)	2 1/2" x 3/8"–2 1/2" x 5/8" (64 x 10–64 x 16 mm)	Measure circumference	1 3/4" (44 mm)	20 50
BBI-5A	35730 35731	6.67–7.18" (169–182 mm)	3" x 5/8"–3" x 3/4" (76 x 16–76 x 19 mm)	Measure circumference	2 1/8"–2 1/4" (54–57 mm)	20 50
BBI-6A	35732 35733	7.57–8.43" (192–214 mm)	3 1/2" x 1/2"–4" x 1/4" (89 x 13–102 x 6 mm)	Measure circumference	2 1/2"–2 5/8" (64–67 mm)	20 50
BBI-7A	35734 35735	8.28–10.44" (210–265 mm)	4" x 1/4"–5" x 3/8" (102 x 6–127 x 10 mm)	2 1/2 x 2 1/2" (64 x 64 mm)	2 3/4"–3 1/4" (70–83 mm)	20 50
BBI-8A	35736 35737	10.29–12.88" (261–327 mm)	5" x 1/4"–6" x 3/4" (127 x 6–152 x 19 mm)	3 x 3" (76 x 76 mm)	3 3/8"–4" (86–102 mm)	20 50
BBI-9A	35876 35877	12.29–15.31" (312–389 mm)	6" x 1/4"–7" x 3/4" (152 x 6–178 x 19 mm)	3 1/2 x 3 1/2–4 x 4" (89 x 89–102 x 102 mm)	4"–4 7/8" (102–124 mm)	20 50
BBI-10A	35878 35879	15.43–19.79" (392–503 mm)	8" x 1/4"–9" x 3/4" (203 x 6–229 x 19 mm)	5 x 5" (127 x 127 mm)	5"–6 1/4" (127–158 mm)	20 50

35 kV Bus Bar Size Ranges

BBI-7A	35734 35735	8.28–8.86" (210–225 mm)	4" x 1/4"–4" x 3/4" (102 x 6–102 x 19 mm)	Measure circumference	2 3/4" (70 mm)	20 50
BBI-8A	35736 35737	10.29–10.94" (261–278 mm)	5" x 1/4"–5" x 3/4" (127 x 6–127 x 19 mm)	Measure circumference	3 3/8" (86 mm)	20 50
BBI-9A	35876 35877	12.29–13.00" (312–330 mm)	6" x 1/4"–6" x 3/4" (152 x 6–152 x 19 mm)	Measure circumference	4"–4 1/8" (102–105 mm)	20 50
BBI-10A	35878 35879	15.43–16.86" (392–428 mm)	8" x 1/4"–8" x 3/4" (203 x 6–203 x 19 mm)	Measure circumference	5"–5 1/4" (127–133 mm)	20 50

Note: Rectangular and square bar sizes are based on bars having radiused edges and corners.