



HEAT SHRINK PRODUCTS

HEAT SHRINK THIN WALL TUBING

Part Number	Material	Product Type	Shrink Ratio	Operating Temp. & Voltage Rating	Min. Shrink Temp.	Full Recovery Temp.	Flame Retardant	Agency Certification	Military Standard	General Description
QBG	Polyolefin	Thin Wall	2:1	-55°C to +105°C, 600V	90°C	110°C	-	-	-	Flexible, Thin Wall Tubing for Flexible Gas Pipes mm Sizes: 23 to 76.2mm
Q1	Polyolefin	Thin Wall	2:1	-55°C to +105°C, 600V	80°C	100°C	-	-	-	Non Flame-Retardant, General Purpose, Flexible, Glossy Black or Clear mm Sizes: 1.0 to 50mm, Inch Sizes: 3/64" to 2"
Q2-CB	Polyolefin	Ultra Thin Wall	2:1	-55°C to +125°C, 300V	70°C	100°C	VW-1	CSB 242540	-	No PBB's, PBBE's, PBBO's, Low Cadmium and Lead mm Sizes: 1.0 to 10mm, Inch Sizes: 3/64" to 1/2"
Q2-F	Polyolefin	Thin Wall	2:1	-55°C to +135°C, 600V	70°C	100°C	VW-1	cULUS E236137 242540	SAE-AMS-DTL 23053/5 Class 1 & 3	No PBB's, PBBE's, PBBO's, Very Flexible, Highly Flame-Retardant mm Sizes: 1.2 to 151mm, Inch Sizes: 3/64" to 6"
Q2-F3X	Polyolefin	Thin Wall	3:1	-55°C to +135°C, 600V	70°C	100°C	VW-1	cULUS E236137 242540	SAE-AMS-DTL 23053/5 Class 1 & 3	No PBB's, PBBE's, PBBO's, Very Flexible, High Shrink Ratio, Highly Flame-Retardant mm Sizes: 1.5 to 39mm, Inch Sizes: 1/16" to 1 1/2"
Q2-F4X	Polyolefin	Thin Wall	4:1	-55°C to +135°C, 600V	70°C	100°C	VW-1	cULUS E236137 242540	SAE-AMS-DTL 23053/5 Class 1 & 3	No PBB's, PBBE's, PBBO's, Very Flexible, High Shrink Ratio, Highly Flame-Retardant mm Sizes: 19.1 to 115mm, Inch Sizes: 3/4" to 4 1/2"
Q2-F2X(YG) Q2-F3X(YG)	Polyolefin	Thin Wall	2:1, 3:1	-55°C to +135°C, 600V	70°C	100°C	VW-1	cULUS E236137 242540	SAE-AMS-DTL 23053/5 Class 1 & 3	Yellow-Green Striped, Flexible, Flame-Retardant Tubing 2:1 - mm Sizes: 1.2 to 101.6mm, Inch Sizes: 3/64" to 4", 3:1 - 1.6 to 39mm, Inch Sizes: 1/16" to 1 1/2"
Q2-HF	Polyolefin	Thin Wall	2:1	-55°C to +105°C, 600V	70°C	100°C	-	CSB 242540	SAE-AMS-DTL 23053/5	Halogen Free Polyolefin Tubing, Low Smoke mm Sizes: 1.0 to 150mm
Q2-LS	Polyolefin	Thin Wall	2:1	-45°C to +125°C, 600V	65°C	95°C	MVSS 302	CSB 242540	-	Very Flexible, Low Shrink Temperature, Halogen Free Polyolefin Tubing mm Sizes: 1.6 to 50.8mm, Inch Sizes: 1/16" to 2"
Q2-R	Polyolefin	Semi-Rigid Thin Wall	2:1	-45°C to +135°C, 600V	90°C	130°C	Self-extinguish in 30 seconds	cULUS E236137 242540	SAE-AMS-DTL 23053/5 Class 1 & 3	Semi-Rigid Flame-Retardant Tubing, Resistant to Common Chemicals and Solvents mm Sizes: 1.2 to 25.4mm, Inch Sizes: 3/64" to 1"
Q2-Z	Polyolefin	Thin Wall	2:1	-55°C to +125°C, 600V	70°C	100°C	VW-1	cULUS E236137 242540	-	Environment Friendly, Flexible, Flame-Retardant mm Sizes: 1.0 to 150mm, Inch Sizes: 3/64" to 6"
Q2-3X	Polyolefin	Thin Wall	3:1	-55°C to +125°C, 600V	70°C	100°C	VW-1	cULUS E236137 242540	-	Flexible, High Shrink Ratio, Highly Flame-Retardant mm Sizes: 1.5 to 39mm, Inch Sizes: 1/16" to 1 1/2"
Q2-XT Q2-XT(HF)	Polyolefin	Thin Wall	Non-Shrink	-55°C to +125°C, 600V	80°C	80°C	VW-1	-	-	No PBB's, PBBE's, PBBO's, Non-Shrink, Irradiated Flexible, Flame-Retardant, (HF) Version is Halogen Free Size: AWG 18 to 1/2"
Q-150K	Modified PVDF	Flexible Thin Wall	2:1	-55°C to +150°C, 600V	135°C	150°C	VW-1	cULUS E245010	SAE-AMS-DTL 23053/18	Black, Flexible, High Temperature, Chemical Resistant, Polyvinylidene Fluoride(PVDF) Kynar® mm Sizes: 1.2 to 38.1mm, Inch Sizes: 3/64" to 1 1/2"
Q-175K	PVDF	Semi-Rigid Thin Wall	2:1	-55°C to +175°C, 600V	175°C	-	VW-1	cULUS E245010	SAE-AMS-DTL 23053/8	Clear, High Temperature, Chemical Resistant, Polyvinylidene Fluoride(PVDF) Kynar® mm Sizes: 1.2 to 25.4mm, Inch Sizes: 3/64" to 1"
Q-200E Q-200E(TW)	Modified Fluorelastomer Viton®	Very Flexible Thin Wall	2:1	-55°C to +200°C, 600V	150°C	175°C	VW-1	cULUS E245010	SAE-AMS-DTL 23053/13	Flexible, Elastic, High Temperature, Solvent Resistant, Viton® Q-200E - mm Sizes: 3.2 to 50.8mm, Inch Sizes: 1/8" to 2", Q-200E(TW) - mm Sizes: 9.5 to 50.8, Inch Sizes: 3/8" to 2"
Q-PTFE	Modified PTFE	Semi-rigid Thin Wall	2:1	-65°C to +260°C, 600V	-	350°C	Self-extinguish	-	SAE-AMS-DTL 23053/12	Polytetrafluoroethylene Tubing Sizes: AWG 20 to AWG 0
QDR QDR(TW)	Modified Elastomer	Very Flexible Thin Wall	2:1	-75°C to +150°C, 600V	-	175°C	VW-1	-	SAE-AMS-DTL 23053/16	Diesel Resistant Elastomer QDR - mm Sizes: 3.2 to 76.2, Inch Sizes: 1/8" to 3"; QDR(TW) - mm Sizes: 2.4 to 38.1, Inch Sizes: 3/32" to 1 1/2"

HEAT SHRINK MEDIUM / HEAVY WALL TUBING - ADHESIVE LINED

Q5-2X	Polyolefin	Dual Wall	2:1	-45°C to +125°C, 600V	100°C	125°C	Self-extinguish in 30 seconds	cULUS E236137 242540	SAE-AMS-DTL 23053/4	Adhesive-Lined, Flexible, High Shrink Ratio, Flame-Retardant Tubing mm Sizes: 3.2 to 38.1mm, Inch Sizes: 1/8" to 1 1/2"
Q5-3X	Polyolefin	Dual Wall	3:1	-45°C to +125°C, 600V	80°C	120°C	Self-extinguish in 30 seconds	cULUS E236137 242540	SAE-AMS-DTL 23053/4	Adhesive-Lined, Flexible, High Shrink Ratio, Flame-Retardant Tubing mm Sizes: 3.0 to 50.0mm, Inch Sizes: 1/8" to 2"
Q5-4X	Polyolefin	Dual Wall	4:1	-45°C to +125°C, 600V	80°C	125°C	Self-extinguish in 30 seconds	cULUS E236137 242540	SAE-AMS-DTL 23053/4	Adhesive-Lined, Flexible, High Shrink Ratio, Flame-Retardant Tubing mm Sizes: 4.0 to 52.0mm, Inch Sizes: 3/16" to 2"
Q5-F3X	Polyolefin	Dual Wall	3:1	-55°C to +125°C, 600V	100°C	-	Self-extinguish in 30 seconds	cULUS E236137 242540	SAE-AMS-DTL 23053/4	Adhesive-Lined, Flexible, Polyolefin Tubing mm Sizes: 3.0 to 40mm, Inch Sizes: 1/8" to 1 1/2"
Q5-F4X	Polyolefin	Dual Wall	4:1	-55°C to +125°C, 600V	100°C	-	Self-extinguish in 30 seconds	cULUS E236137 242540	SAE-AMS-DTL 23053/4	High Shrink Ratio, Adhesive-Lined, Flexible, Flame-Retardant Tubing mm Sizes: 4 to 52mm, Inch Sizes: 3/16" to 2"



Q2-F3X

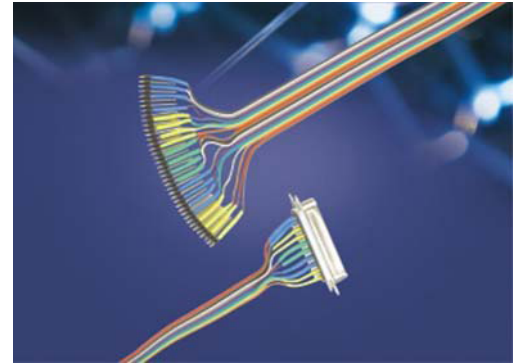
RoHS
Compliant

HIGHLY FLEXIBLE, FLAME RETARDANT POLYOLEFIN TUBING
SHRINK RATIO 3:1

Features/Applications

Outstanding physical, chemical and electrical properties make it a good choice for electrical insulation, bundling and marking. It also prevents corrosion plus provides mechanical protection. It's 3:1 shrink ratio makes it suitable for applying to irregular and difficult shapes.

- Operating temperature: -55°C to +135°C
- Minimum shrink temperature: 70°C
- Full recovery temperature: 100°C
- Approval:  File No. E236137,  242540
- Meets: SAE-AMS-DTL-23053/5 Class 1 & 3, Sony-SS-00259,
- Standard color: Black
- Special Colors: Red, blue, yellow, green, clear (class 2)
- RoHS Compliant



Technical Data

Property	Test Method	Typical Data
Tensile Strength	ASTM D 2671	14 MPa
Elongation at Break	ASTM D 2671	800%
Tensile Strength After Aging (175°C, 168 hrs.)	ASTM D 2671	14 MPa
Elongation After Aging (175°C, 168 hrs.)	ASTM D 2671	350%
Flammability	UL 224, VW-1 SAE-AMS-DTL-23053/5	Pass
Heat Shock (250°C, 4 hrs.)	ASTM D 2671	No cracking
Cold Bend Test (-55°C, 4 hrs.)	ASTM D 2671	No cracking
Dielectric Strength	ASTM D 150	20 kV / mm
Volume Resistance	ASTM D 876	10 ¹⁴ Ω.cm
Copper Corrosion	UL 224	Pass
Water Absorption	ASTM D 570	0.15%
Chemical Resistance	SAE-AMS-DTL-23053/5	Pass
Longitudinal Shrinkage	UL 224	0 ± 5%
Eccentricity	UL 224	> 30%

Product Dimensions

Size		As Supplied (mm)	After Recovered (mm)		Standard Packaging		
Inch	mm	Inside Diameter (min.)	Inside Diameter (max.)	Wall Thickness (min.)	Standard Spool *(SS) (Feet)	Cut to Length Pcs. *(QB) Qty per bag	
						6"	48"
1/16	1.5/0.5	1.6	0.5	0.45	500	28	25
1/8	3.0/1.0	3.2	1.0	0.55	500	24	25
3/16	4.5/1.5	4.8	1.5	0.60	500	24	25
1/4	6.0/2.0	6.4	2.0	0.65	250	20	25
3/8	9.0/3.0	9.5	3.0	0.75	250	16	25
1/2	12.0/4.0	12.7	4.0	0.80	150	14	5
3/4	18.0/6.0	19.1	6.0	0.90	150	12	5
1	24.0/8.0	25.4	8.0	1.20	150	8	5
1 1/2	39.0/13.0	39.0	13.0	1.25	150	5	5