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Qualtek

Electronics Corporation



Heat Shrink Products Cable Ties & Accessories

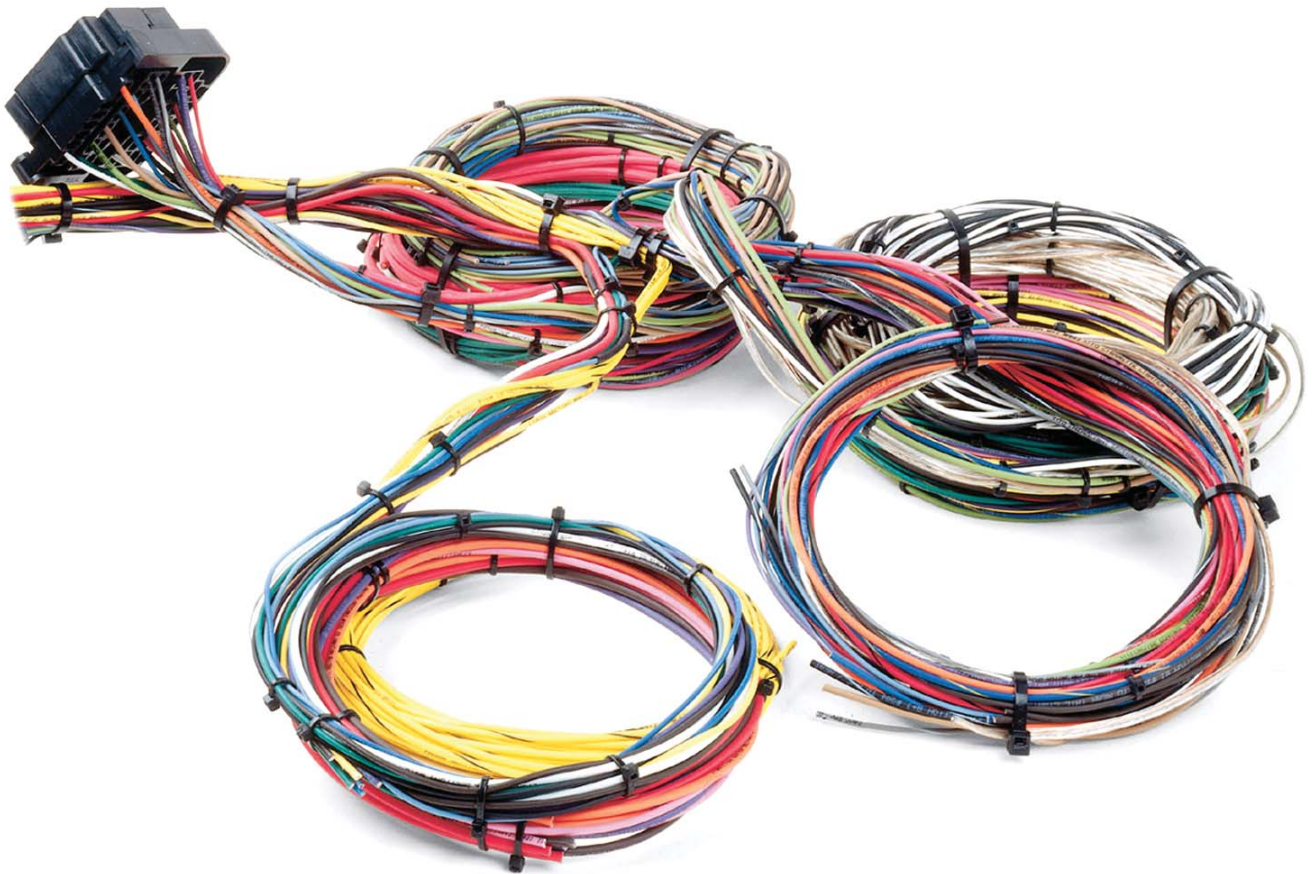


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HEAT SHRINK THIN WALL TUBING

Part Number	Material	Product Type	Shrink Ratio	Operating Temp. & Voltage Rating	Min. Shrink Temp.	Full Recovery Temp.
Q2-CB	Polyolefin	Ultra Thin Wall	2:1	-55°C to +125°C, 300V	70°C	100°C
Q2-F	Polyolefin	Thin Wall	2:1	-55°C to +135°C, 600V	70°C	100°C
Q2-F3X	Polyolefin	Thin Wall	3:1	-55°C to +135°C, 600V	70°C	100°C
Q2-F4X	Polyolefin	Thin Wall	4:1	-55°C to +135°C, 600V	70°C	100°C
Q2-F2XYG Q2-F3XYG	Polyolefin	Thin Wall	2:1, 3:1	-55°C to +135°C, 600V	70°C	100°C
Q2-HF	Polyolefin	Thin Wall	2:1	-55°C to +105°C, 600V	70°C	100°C
Q2-LS	Polyolefin	Thin Wall	2:1	-55°C to +125°C, 600V	65°C	95°C
Q2-R	Polyolefin	Semi-Rigid Thin Wall	2:1	-55°C to +135°C, 600V	70°C	130°C
Q2-Z	Polyolefin	Thin Wall	2:1	-55°C to +125°C, 600V	70°C	100°C
Q2-3X	Polyolefin	Thin Wall	3:1	-55°C to +125°C, 600V	70°C	100°C
Q-150K	Modified PVDF	Flexible Thin Wall	2:1	-55°C to +150°C, 600V	135°C	150°C
Q-175K	PVDF	Semi-Rigid Thin Wall	2:1	-55°C to +175°C, 600V	-	175°C
Q-200E	Modified Fluoroelastomer Viton®	Very Flexible Thin Wall	2:1	-55°C to +200°C, 600V	150°C	175°C
QPTFE	Modified PTFE	Semi-Rigid Thin Wall	2:1	-65°C to +260°C, 600V	-	350°C

HEAT SHRINK MEDIUM / HEAVY WALL TUBING - ADHESIVE LINED

Part Number	Material	Product Type	Shrink Ratio	Operating Temp. & Voltage Rating	Min. Shrink Temp.	Full Recovery Temp.
Q5-2X	Polyolefin	Dual Wall	2:1	-45°C to +125°C, 600V	100°C	125°C
Q5-3X	Polyolefin	Dual Wall	3:1	-55°C to +125°C, 600V	80°C	110°C
Q5-4X	Polyolefin	Dual Wall	4:1	-55°C to +125°C, 600V	80°C	110°C
Q5-F3X	Polyolefin	Dual Wall	3:1	-55°C to +125°C, 600V	70°C	110°C
Q5-F4X	Polyolefin	Dual Wall	4:1	-55°C to +125°C, 600V	70°C	110°C
Q5-4XR	Polyolefin	Semi-Rigid Dual Wall	4:1	-55°C to +125°C, 600V	110°C	135°C
Q5-3XM	Polyolefin	Heavy Dual Wall	3:1	-55°C to +125°C, 600V	80°C	110°C
QRA-6X	Polyolefin	Heavy Dual Wall	6:1	-55°C to +110°C, 600V	120°C	120°C
QBTM QBTH	Non-Halogen Polymer	Bus Bar	-	-55°C to +105°C, 24-36kV	120°C	-

END CAPS

Part Number	Material	Product Type	Shrink Ratio	Operating Temp. & Voltage Rating	Min. Shrink Temp.	Full Recovery Temp.
QSEC	Polyolefin	Cable End Caps	-	-55°C to +110°C, 1000V	120°C	-

SHRINK TUBE KITS, REFILL BAGS, Q BOX & MINI SPOOLS

General Description	Agency Certification	Military Standard	Page
		SAE-AMS-DTL	
No PBB's, PBBE's, PBBO's, Low Cadmium and Lead, VW-1 mm Sizes: 1.0 to 10mm, Inch Sizes: 3/64" to 1/2"	E236137 242540	-	13
No PBB's, PBBE's, PBBO's, Very Flexible, Highly Flame-Retardant, VW-1 mm Sizes: 1.2 to 151mm, Inch Sizes: 3/64" to 6"	E236137 242540	23053/5 Class 1 & 3	14
No PBB's, PBBE's, PBBO's, Very Flexible, High Shrink Ratio, Highly Flame-Retardant, VW-1 mm Sizes: 1.5 to 39mm, Inch Sizes: 1/16" to 1 1/2"	E236137 242540	23053/5 Class 1 & 3	15
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"	E236137 242540	23053/5 Class 1 & 3	16
Yellow-Green Striped, Flexible, Flame-Retardant Tubing, VW-1 2:1 - mm Sizes: 1.2 to 101.6mm, Inch Sizes: 3/64" to 4", 3:1 - mm Sizes: 1.6 to 39mm, Inch Sizes: 1/16" to 1 1/2"	E236137 242540	23053/5 Class 1 & 3	17
Halogen Free Polyolefin Tubing, Low Smoke mm Sizes: 1.0 to 150mm	242540	-	18
Very Flexible, Low Shrink Temperature, Halogen Free Polyolefin Tubing mm Sizes: 1.6 to 50.8mm, Inch Sizes: 1/16" to 2"	242540	-	19
Semi-Rigid, Flame-Retardant Tubing, Resistant to Common Chemicals and Solvents, Self-Extinguish in 30 Seconds mm Sizes: 1.2 to 25.4mm, Inch Sizes: 3/64" to 1"	E236137 242540	23053/6 Class 1 & 2	20
Environment Friendly, Flexible, Flame-Retardant, VW-1 mm Sizes: 1.0 to 150mm, Inch Sizes: 3/64" to 6"	E236137 242540	-	21
Flexible, High Shrink Ratio, Highly Flame-Retardant, VW-1 mm Sizes: 1.5 to 39mm, Inch Sizes: 1/16" to 1 1/2"	E236137 242540	-	22
Flexible, High Temperature, Chemical Resistant, Polyvinylidene Fluoride(PVDF) Kynar®, VW-1 mm Sizes: 1.2 to 38.1mm, Inch Sizes: 3/64" to 1 1/2"	VW-1 E245010	23053/18	23
Clear, High Temperature, Chemical Resistant, Polyvinylidene Fluoride (PVDF) Kynar®, VW-1 mm Sizes: 1.2 to 38.1mm, Inch Sizes: 3/64" to 1 1/2"	VW-1 E245010	23053/18	24
Flexible, Elastic, High Temperature, Solvent Resistant, Viton®, VW-1 mm Sizes: 3.2-50.8mm, Inch Sizes: 1/8" to 2"	VW-1 E245010	23053/13	25
Polytetrafluoroethylene Tubing, Self-Extinguish Sizes: AWG 30 to AWG 0	-	23053/12	26

General Description	Agency Certification	Military Standard	Page
		SAE-AMS-DTL	
Adhesive-Lined, Flexible, High Shrink Ratio, Flame-Retardant Tubing, Self-Extinguish in 30 Seconds mm Sizes: 3.2 to 38.1mm, Inch Sizes: 1/8" to 1 1/2"	E236137 242540	23053/4	27
Adhesive-Lined, Flexible, High Shrink Ratio, Flame-Retardant Tubing, Self-Extinguish in 30 Seconds mm Sizes: 3.0 to 50.0mm, Inch Sizes: 1/8" to 2"	E236137 242540	23053/4	28
Adhesive-Lined, Flexible, High Shrink Ratio, Flame-Retardant Tubing, Self-Extinguish in 30 Seconds mm Sizes: 4.0 to 52.0mm, Inch Sizes: 3/16" to 2"	E236137 242540	23053/4	29
Adhesive-Lined, Flexible, Polyolefin Tubing, Self-Extinguish in 30 Seconds mm Sizes: 3.0 to 40mm, Inch Sizes: 1/8" to 1 1/2"	E236137 242540	23053/4	30
High Shrink Ratio, Adhesive-Lined, Flexible, Flame-Retardant Tubing, Self-Extinguish in 30 Seconds mm Sizes: 4 to 52mm, Inch Sizes: 3/16" to 2"	E236137 242540	23053/4	31
High Shrink Ratio, Semi-Rigid, Adhesive-Lined, Flexible, Flame-Retardant Tubing, Self-Extinguish in 30 Seconds mm Sizes: 6.0 to 18.0mm, Inch Sizes: 0.236" to 0.708"	-	23053/4	32
Heavy Dual Wall, High Shrink Ratio, Adhesive-Lined, Flame-Retardant, Self-Extinguish in 30 Seconds mm Sizes: 19.0 to 100.0mm, Inch Sizes: 3/4" to 4"	-	-	33
Very High Shrink Ratio, Heavy Dual Wall, Hot-Melt, Adhesive-Lined mm Sizes: 19.0 to 235mm	-	-	34
Specially formulated radiation cross-linked halogen free compounds. High resistance to tracking and arcing. UV and weather resistant mm Sizes: 15.0 to 235mm	-	-	35

General Description	Page
Spiral Hot-Melt Adhesive Coated End Cap for Protecting Cable Ends from the Environmental Effects. mm Sizes: 12 to 200mm	36

HEAT SHRINK PRODUCTS CROSS REFERENCE GUIDE



Qualtek PN	Page	Raychem	Sumitomo	Canusa	3M	Alpha	Insul Tab	LG
Q2-CB	13	VERSAFIT V4	F3(Z)	Deray ITW				GSHS-1625G
Q2-F	14	RNF-100, VERSAFIT	B2, B2(Z), F, F2, F2(Z)	CPX100, CPX-876	FP-301	FIT 221, FIT 221V	HS-101	GSHS-1635F
Q2-F3X	15	RNF-3000	B2(3X), F2(3X), A2(3X)	CPX300, Deray-I 3000	SFTW-203	FIT 321V	HS101 SR	GSHS-3635
Q2-F4X	16	RP-4800	W3B2(4X)			FIT 421		
Q2-F2XYG	17	DCPT 2:1	B2(Y/G)	Deray IGY, CPX-201	SFTW-202GYS	FIT 260		GSHS-1635Y/G
Q2-F3XYG	17	DCPT 3:1		Deray IGY, CPX-201			HS-101(3X)	
Q2-HF	18	ZHTM	SUMITUBE-NH	CZT-200				
Q2-LS	19	LSTT		Deray LSB				
Q2-R	20	CRN, RT-3	B8	CHM 140	SR350	FIT 295	HS-101-SR	
Q2-Z	21	VERSAFIT V2	F2(Z)	Deray H	CP-221			GSHS-1625G
Q2-3X	22	VERSAFIT 3X	F2(3X), B2(3X)				HS101SR	
Q-150K	23	RT 375, RNF-150	K2		THV-150 BLACK	FIT 221VC		GSHS-1650F
Q-175K	24	KYNAR, RW-175	K	CKN-175, Deray KY 175	KYNAR	FIT 350	HSK-600	GSHS-1675
Q-200E	25	VITON	FE3	Deray VT220	VITON	FIT 650	HSN-VTN	
Q-PTFE	26	TFE		Deray PTFE				
QDR	-	DR-25		Deray V25				
QDR-TW	-	DR-25-TW		Deray V25TW				
Q5-2X	27	TAT-125	02B2		EPS-200	FIT 750	HS-101-MV 2:1	GSHS-1625W
Q5-3X	28	DWP-125	W3B2	CPA 300	EPS-300	FIT 321	HS-101-MW 3:1	GSHS-3635W
Q5-4X	29	ATUM 4:1	W3B2		EPS-400		HS-101-MW 4:1	GSHS-4635W
Q5-F3X	30	ATUM 3:1	W3B2(4X)	Deray IAKT 3:1	EPS-300	FIT 321	HS-101-MW 3:1	GSHS-3635W
Q5-F4X	31	ATUM 4:1		Deray IAKT 4:1	EPS-400		HS-101-MW4:1	GSHS-4635W
Q5-4XR	32	ES-2000	SA2	Deray Splicemelt	EPS-400, SMS	FIT 421		GSHS-4635WS
Q5-3XM	33	SST			ITCSN, MDT	FIT 700		
Q5-2000	-	AP-2000	O2					GSHS-2690NW
QRA2	-	MWTM		CFM	IMCSN, MDT			LG-PMWT
QRA3	-	WCSM, SST		CFW		FIT 700		LG-PHWT
QFRA3	-	BSTSFR, SSTFR		FCFW	HDT, ITCSF			
QRA-6X	34			CFHR		FIT 321		
QBTM	35	BPTM		CBTM	BBI			
QBTH	35	BBIT		CBTH				
QRS	-			PLA				
QSTV	-	TCS2		CFTV	CCT		CTV	LG-CATV
QAT	-	HVTM		CNTT				
QBM	-	BBIT		CBTH	BBI			LG-BBVH
QBT	-	BPTM		CBTM	BBI			
QSCT	-			HSCT				
QSC-100	-		SCR-100	CSCR				
QSEC	36	SSC, ESC		CCAP, CEC	ICEC	FIT CAP		

Note: Qualtek products may not be a direct equivalent as listed; this cross reference is a guide only.

CABLE TIES CROSS REFERENCE GUIDE



Qualtek PN	Page	Catamount T&B	Thomas & Betts	Panduit	Ideal Ind.	Hellermann Tyton	Avery Dennison	Richco	3M
11-M100B-C	40		TY551MX	PLM1M-C0		IT18R0C2			
11-M100N-C	40	L-4-18ID-9-C	TY551M	PL1M-C	IT1MID-C	IT18R9C2	08417	WIT-F1-18R-M	
11-M110B-C	40		TY553MX	PLF1M-C0		IT18FL0C2			
11-M110N-C	40		TY153M, TY553M	PLF1M-C		IT18FL9C2	10687	WIT-F2-18R-M	
11-M200B-C	40		TY5512MX	PLM2M-M0			10426		
11-M200N-C	40		TY5512M	PL2M-C			10427		
11-S190B-C	40		TY546MX	PLM2S-C0					
11-S190N-C	40	L-7-50ID-9-C	TY546M	PLM2S-C	IT2SID-C				
12-S200B-C	41					T50RDH0C2			
12-S200N-C	41		TB-50RLDH			T50RDH9C2			
12-S300B-C	41					T50IDH0C2	10432		
12-S300N-C	41		TB-12-50RLDH			T50IDH9C2	10430		
13-100B-C	42							BT-4-01-NT	
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13-200B-C	42							BT-8-01-NT	
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15-1919N-C	44	MPNY-750-9-C	TC5344A	ABMM-A-C	IT750MP-C		10029	FTH-5A1-RT, FTH-5A1-01	CTB75X75NTA-C
15-2525B-C	44	MPNY-1000-0- C			IT1000MP-C0			FTH-7A1-RT-UVB, FTH-7A1-01-UVB	CTB1X1BKA-C
15-2525N-C	44	MPNY-1000-9-C	TC5345A	ABM2S-A-C, ABM112-A-C	IT1000MP-C		10030, 08463	FTH-7A1-RT, FTH-7A1-01	CTB1X1NTA-C
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15-4040N-C	44		TC150X150A-L	ABM3H-A-L				FTH-8-01	
16-1509B-C	45				IT1SMB-C0				
16-1509N-C	45		SMNY-000-9-D		IT1SMB-C		10044		
16-1712N-C	45						10045		
16-2216B-C	45				IT2SMB-C0				
16-2216N-C	45		SMNY-002-9-D		IT2SMB-C				
16-2516N-C	45						10046		
17-EHD1220B-L	47	L-48-175-0-L	TY54513MX	PLT13H-Q0	IT14H-L0	T150XL0X2			CT48BK175-L
17-EHD1220N-L	47	L-48-175-9-L	TY54513M	PLT13H-Q	IT14H-L	T150XL9X2			CT48NT175-L
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CABLE TIES CROSS REFERENCE GUIDE



Qualtek PN	Page	Catamount T&B	Thomas & Betts	Panduit	Ideal Ind.	Hellermann Tyton	Avery Dennison	Richco	3M
17-HD200N-C	46	L-8-120-9-C		PLT2H-L					CT8NT120-L
17-HD220B-C	46		TY5272MX			T120S0K2			
17-HD220N-C	46		TY5272M			T120S9K2		WIT-120S-C	
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17-HD250N-C	46			PLT2.5H-L					
17-HD300B-C	46	L-100-120-0-C		PLT3H-L0		T120I0K2			
17-HD300N-C	46	L-100-120-9-C		PLT3H-L		T120I9K2			
17-HD350B-C	46		TY527MX						
17-HD350N-C	46		TY527M						
17-HD365B-C	46	L-14-120-0-C					10039		
17-HD365N-C	46	L-14-120-9-C					10038		
17-HD380B-C	46			PLT4H-L0	IT4LH-L0	T120R0K2			CT15BK120-C
17-HD380N-C	46			PLT4H-L	IT4LH-L	T120R9K2		WIT-120R-C	CT15NT120-C
17-HD450B-C	46		TY5275MX		IT5LH-L0				
17-HD450B-L	46	L-18-120-9-L							
17-HD450N-C	46		TY5275M		IT5LH-L				
17-HD450N-L	46	L-18-120-9-L							
17-HD540B-L	46						10608		
17-HD540N-C	46							WIT-120L-C	
17-HD540N-L	46						10606		
17-HD550B-L	46			PLT6LH-L0			10620		
17-HD550N-L	46			PLT6LH-L			10618		
17-HD750B-C	46		TY529MX, TY5277MX						
17-HD750B-L	46	L-28-120-0-L		PLT9LH-L0		T120L0K2			
17-HD750N-C	46		TY529M, TY5277M						
17-HD750N-L	46	L-28-120-9-L		PLT9LH-L		T120L9K2			
17-HSD1000N-L	47					T250XL9X2, T250XL0X2			
17-HSD530B-L	47					T250R0X2			
17-HSD530N-L	47					T250R9X2			
17-HSD650B-L	47				IT6EH-C0	T250M0X2			
17-HSD650N-L	47					T250M9X2			
17-I140B-C	46	L-5-30-0-C	TY524MX	PLT1.5I-C0					CT6BK40-C
17-I140B-M	46	L-5-30-0-M	TY24MX	PLT1.5I-M0					CT6BK40-M
17-I140N-C	46	L-5-30-9-C	TY524M	PLT1.5I-C					CT6NT40-C
17-I140N-M	46	L-5-30-9-M	TY24M	PLT1.5I-M					CT6NT40-M
17-I150B-C	46				IT1_5I-C0				
17-I150B-M	46				IT1_5I-M0				
17-I150N-C	46				IT1_5I-C			WIT-40R-C	
17-I150N-M	46				IT1_5I-M			WIT-40R-M	
17-I200B-C	46	L-8-40-0-C	TY5242MX	PLT21-C0		T40R0C2	08386		
17-I200B-M	46	L-8-40-0-M	TY242MX	PLT21-M0		T40R0M4	08380		
17-I200N-C	46	L-8-40-9-C	TY5242M	PLT21-C		T40R9C2	08385	WIT-40L-C, WIT-40XL-C	
17-I200N-M	46	L-8-40-9-M	TY242M	PLT21M		T40R9M4	08377	WIT-40L-M, WIT-40XL-M	
17-I250B-C	46			PLT2.5I-C0					CT8BK40-C
17-I250B-M	46			PLT2.5I-M0					CT8BK40-M
17-I250N-C	46			PLT2.5I-C					CT8NT40-C
17-I250N-M	46			PLT2.5I-M					CT8NT40-M
17-I280B-C	46		TY526MX					WIT-40VL-UVB-C	
17-I280B-M	46		TY26MX					WIT-40VL-UVB-M	
17-I280N-C	46		TY526M					WIT-40VL-C	
17-I280N-M	46		TY26M					WIT-40VL-M	
17-I300B-C	46	L-11-40-0-C		PLT31-C0	IT31-C0	T40I0C2			
17-I300B-M	46	L-11-40-0-M		PLT31-M0		T40I0M4			

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CABLE TIES CROSS REFERENCE GUIDE



Qualtek PN	Page	Catamount T&B	Thomas & Betts	Panduit	Ideal Ind.	Hellermann Tyton	Avery Dennison	Richco	3M
17-I300N-C	46	L-11-40-9-C		PLT31-C	IT31-C	T40I9C2			
17-I300N-M	46	L-11-40-9-M		PLT31-M		T40I9M4			
17-I370B-C	46	L-14-40-0-C	TY5244MX	PLT41-C0		T40L0C2			
17-I370B-M	46	L-14-40-0-M	TY244MX	PLT41-M0		M40L0M4			
17-I370N-C	46	L-14-40-9-C	TY5244M	PLT41-C		T40L9C2			
17-I370N-M	46	L-14-40-9-M	TY244M	PLT41-M		T40L9M4			
17-M100B-C	46	L-4-18-0-C	TY523MX	PLT1M-C0	IT1M-C0	T18R0C2	08435		CT4BK18-C
17-M100B-M	46	L-4-18-0-M	TY23MX	PLT1M-M0	IT1M-M0	T18R0M4	08433		CT4BK18-M
17-M100N-C	46	L-4-18-9-C	TY523M	PLT1M-C	IT1M-C	T18R9C2	08434		CT4NT18-C
17-M100N-M	46	L-4-18-9-M	TY23M	PLT1M-M	IT1M-M	T18R9M4	08432		CT4NT18-M
17-M120B-C	46							WIT-18R-UVB-C	
17-M120B-M	46							WIT-18R-UVB-M	
17-M120N-C	46							WIT-18R-C	
17-M120N-M	46							WIT-18R-M	
17-M150B-C	46			PLT1.5M-C0		T18I0C2		WIT-18L-UVB-C	CT6BK18-C
17-M150B-M	46			PLT1.5M-M0		T18I0M4		WIT-18L-UVB-M	
17-M150N-C	46			PLT1.5M-C		T18I9C2		WIT-18L-C	CT6NT18-C
17-M150N-M	46			PLT1.5M-M		T18I9M4		WIT-18L-M	
17-M160B-C	46	L-6-18-0-C							CT6NT18-M
17-M160B-M	46	L-6-18-0-M							
17-M160N-C	46	L-6-18-9-C							
17-M160N-M	46	L-6-18-9-M							
17-M200B-C	46	L-8-18-0-C	TY5232MX, TY52315MX	PLT2M-C0	IT2M-C0	T18L0C2		WIT-18V-UVB-C	CT8BK18-C
17-M200B-M	46	L-8-18-0-M	TY232MX, TYB2315MX	PLT2M-M0	IT2M-M0	T18L0M4		WIT-18V-UVB-M	CT8BK18-M
17-M200N-C	46	L-8-18-9-C	TY5232M, TY52315M	PLT2M-C	IT2M-C	T18L9C2		WIT-18V-C	CT8NT18-C
17-M200N-M	46	L-8-18-9-M	TY5232M, TYB2315M	PLT2M-M	IT2M-M	T18L9M4		WIT-18V-M	CT8NT18-M
17-M80B-C	46			PLT.7M-C0		T18S0C2		WIT-18SF-UVB-C	
17-M80B-M	46			PLT.7M-M0		T18S0M4		WIT-18SF-UVB-M	
17-M80N-C	46			PLT.7M-C		T18S9C2		WIT-18SF-C	
17-M80N-M	46			PLT.7M-M		T18S9M4		WIT-18SF-M	
17-S120B-C	46			PLT1S-C0					
17-S120B-M	46			PLT1S-M0					
17-S120N-C	46			PLT1S-C					
17-S120N-M	46			PLT1S-M					
17-S160B-C	46	L-5-50-0-C		PLT1.5S-C0		T50S0C2			
17-S160B-M	46	L-5-50-0-M		PLT1.5S-M0		T50S0M4			
17-S160N-C	46	L-5-50-9-C		PLT1.5S-C		T50S9C2		WIT-50S-C	
17-S160N-M	46	L-5-50-9-M		PLT1.5S-M		T50S9M4		WIT-50S-M	
17-S190B-C	46	L-7-50-0-C	TY525MX	PLT2S-C0	IT2S-C0		08437		CT8BK50-C
17-S190B-M	46	L-7-50-0-M	TY25MX	PLT2S-M0	IT2S-M0		08388		CT8BK50-M
17-S190N-C	46	L-7-50-9-C	TY525M	PLT2S-C	IT2S-C		08436		CT8NT50-C
17-S190N-M	46	L-7-50-9-M	TY25M	PLT2S-M	IT2S-M		08387		CT8NT50-M
17-S200B-C	46					T50R0C2			
17-S200B-M	46					T50R0M4			
17-S200N-C	46					T50R9C2		WIT-50R-C	
17-S200N-M	46					T50R9M4		WIT-50R-M	
17-S250B-C	46			PLT2.5S-C0					
17-S250B-M	46			PLT2.5S-M0					
17-S250N-C	46			PLT2.5S-C					
17-S250N-M	46			PLT2.5S-M					
17-S280B-C	46	L-11-50-0-C			IT3S-C0		08930		CT11BK50-C
17-S280B-M	46				IT3S-D0		08286		CT11BK50-D, CT11NT50-D

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CABLE TIES CROSS REFERENCE GUIDE



Qualtek PN	Page	Catamount T&B	Thomas & Betts	Panduit	Ideal Ind.	Hellermann Tyton	Avery Dennison	Richco	3M
17-S280N-C	46	L-11-50-9-C			IT3S-C		08859		CT11NT50-C
17-S280N-M	46				IT3S-D		08600		
17-S300B-C	46		TY5253MX	PLT3S-C0		T50I0C2			
17-S300B-M	46		TY253MX	PLT3S-M0		T50I0M4			
17-S300N-C	46		TY5253M	PLT3S-C		T50I9C2			
17-S300N-M	46		TY253M	PLT3S-M		T510I9M4			
17-S360B-C	46	L-14-50-0-C							
17-S360N-C	46	L-14-50-9-C							
17-S370B-C	46		TY528MX	PLT4S-C0	IT4S-C0				CT15BK50-C
17-S370B-M	46		TY28MX	PLT4S-M0	IT4S-D0				CT15BK50-D
17-S370N-C	46		TY528M	PLT4S-C	IT4S-C				CT15NT50-C
17-S370N-M	46		TY28M	PLT4S-M	IT4S-D				CT-15NT50-D
17-S380B-C	46						08428		
17-S380B-M	46						10037		
17-S380N-C	46						08427		
17-S380N-M	46						10036		
17-S390B-C	46					T50L0C2			
17-S390B-M	46					T50L0M4			
17-S390N-C	46					T50L9C2		WIT-50L-C	
17-S390N-M	46					T50L9M4		WIT-50L-M	
17-S400B-C	46			PLT4.5S-C0					
17-S400B-M	46			PLT4.5S-M0					
17-S400N-C	46			PLT4.5S-C					
17-S400N-M	46			PLT4.5S-M					
17-S430B-C	46				IT5S-C0				
17-S430N-C	46				IT5S-C				
17-S450B-C	46			PLT5S-C0					
17-S450B-M	46			PLT5S-M0					
17-S450N-C	46			PLT5S-C					
17-S450N-M	46			PLT5S-M					
18-HD305B-C	48			PLC2H-S25-L0					
18-HD305N-C	48			PLC2H-S25-L					
18-HD400B-C	48	L-14-120MH-0-C	TY537MX	PLC4H-S25-L0		T120MR0K2	10040		
18-HD400N-C	48	L-14-120MH-9-C	TY537M	PLC4H-S25-L		T120MR9K2	08426		CT15NT120S-L
18-I150B-C	48	L-5-30MH-0-C	TY534MX	PLC1.5I-S8-C0		T30MR0C2			
18-I150N-C	48	L-5-30MH-9-C	TY534M	PLC1.5I-S8-C		T30MR9C2			
18-M110B-C	48		TY533MX	PLC1M-S4-C0		T18MR0C2			
18-M110N-C	48		TY533M	PLC1M-S4-C		T18MR9C2			
18-S200B-C	48	L-7-50MH-0-C	TY535MX	PLC2S-S10-C0	IT2SMH-C0		08318		CT8BK50S-C
18-S200N-C	48	L-7-50MH-9-C	TY535M	PLC2S-S10-C	IT2SMH-C		08484		CT8NT50S-C
18-S305B-C	48	L-11-50MH-0-C		PLC3S-S10-C0	IT3SMH-C0	T50MI0C2	10354		
18-S305N-C	48	L-11-50MH-9-C		PLC3S-S10-C	IT3SMH-C	T50MI9C2	10350		
18-S370B-C	48	L-14-50MH-0-C	TY5354MX	PLC4S-S10-C0	IT4SMH-C0				
18-S370N-C	48	L-14-50MH-9-C	TY5354M	PLC4S-S10-C	IT4SMH-C				
19-S160B-C	49			PRT1.5S-C0		RT50S0C2			
19-S160N-C	49			PRT1.5S-C		RT50S9C2		WIT-50SR-C	
19-S200B-C	49			PRT2S-C0			10366		
19-S200N-C	49			PRT2S-C			10364		
19-S305B-C	49			PRT3S-C0			10369		
19-S305N-C	49			PRT3S-C			10370		
19-S380B-C	49			PRT4S-C0		RT50LL0C2			
19-S380N-C	49			PRT4S-C		RT50LL9C2			
20-S150B-C	50	L-5-50R-0-C				REL50R0C2			
20-S150N-C	50	L-5-50R-9-C				REL50R9C2			
20-S200B-C	50	L-8-50R-0-C							

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CABLE TIES CROSS REFERENCE GUIDE



Qualtek PN	Page	Catamount T&B	Thomas & Betts	Panduit	Ideal Ind.	Hellermann Tyton	Avery Dennison	Richco	3M
20-S200N-C	50	L-8-50R-9-C							
20-S250B-C	50					REL50L0C2			
20-S250N-C	50					REL50L9C2			
20-S300B-C	50	L-10-50R-0-C							
20-S300N-C	50	L-10-50R-9-C							
21A-M100B-C	51							WIT-18RA-UVB	
21A-M100N-C	51			PLWP1M-C		126-00041	10690	WIT-18RA-01	
21A-S130B-C	51			PLWP1S-C0				WIT-50SA-UVB	
21A-S130N-C	51			PLWP1S-C				WIT-50SA-01	
21A-S200B-C	51	L-7-50PM-0-C	TY538MX	PLWP2S-C0				WIT-50RA-UVB	
21A-S200N-C	51	L-7-50PM-9-C	TY538M	PLWP2S-C				WIT-50RA-01	
21A-S130N-C	51								
21B-I155B-C	51			PLP1.5I-M0		126-00045			
21B-I155N-C	51		TY554M	PLP1.5I-C		126-00043			
21B-S200B-C	51			PLP2S-M0		T50RSF0C2	08446	WIT-50RLA-3-UVB	
21B-S200N-C	51			PLP2S-C		T50RSF9C2	08439	WIT-50RLA-3	
22-H200A-C	52		LS-7.9-200A	MLT2LH-LP		MBT8H-S			
22-H200B-C	52		LS-7.9-200B	MLT2LH-LP316		MBT8H			
22-H200D-C	52		LS-7.9-200-C	MLTFC2H-LP316					
22-H360A-C	52		LS-7.9-360A	MLT4LH-LP		MBT14H-S			
22-H360B-C	52		LS-7.9-360B	MLT4LH-LP316		MBT14H			
22-H360D-C	52		LS-7.9-360-C	MLTFC4H-LP316					
22-H520A-C	52		LS-7.9-520A	MLT6LH-LP		MBT20H-S			
22-H520B-C	52		LS-7.9-520B	MLT6LH-LP316		MBT20H			
22-H520D-C	52		LS-7.9-520-C	MLTFC6H-LP316					
22-H680A-C	52		LS-7.9-680A	MLT8LH-LP		MBT27H-S			
22-H680B-C	52		LS-7.9-680B	MLT8LH-LP316		MBT27H			
22-H680D-C	52		LS-7.9-680-C	MLTFC8H-LP316					
22-H840A-C	52		LS-7.9-840A			MBT33H-S			
22-H840B-C	52		LS-7.9-840B			MBT33H			
22-H840D-C	52		LS-7.9-840-C						
22-S125A-C	52			MLT1S-CP		MBT5S-S			
22-S125B-C	52			MLT1S-CP316		MBT5S			
22-S200A-C	52		LS-4.6-200A	MLT2S-CP		MBT8S-S			
22-S200B-C	52		LS-4.6-200B	MLT2S-CP316		MBT8S			
22-S200D-C	52		LS-4.6-200-C						
22-S260A-C	52			MLT2.7S-CP					
22-S260B-C	52			MLT2.7S-CP316					
22-S360A-C	52		LS-4.6-360A			MBT14S-S			
22-S360B-C	52		LS-4.6-360B	MLT4S-CP		MBT14S			
22-S360D-C	52		LS-4.6-360-C	MLT4S-CP316					
22-S520A-C	52		LS-4.6-520A	MLT6S-CP		MBT20S-S			
22-S520B-C	52		LS-4.6-520B	MLT6S-CP316		MBT20S			
22-S520D-C	52		LS-4.6-520-C						
22-S680A-C	52		LS-4.6-680A	MLT8S-CP		MBT27S-S			
22-S680B-C	52		LS-4.6-680B	MLT8S-CP316		MBT27S			
22-S680D-C	52		LS-4.6-680-C						
22-S840A-C	52		LS-4.6-840A	MLT10S-CP		MBT33S-S			
22-S840B-C	52		LS-4.6-840B	MLT10S-CP316		MBT33S			
22-S840D-C	52		LS-4.6-840-C						

Note: Qualtek products may not be a direct equivalent as listed; this cross reference is a guide only.

Qualtek

Electronics Corporation

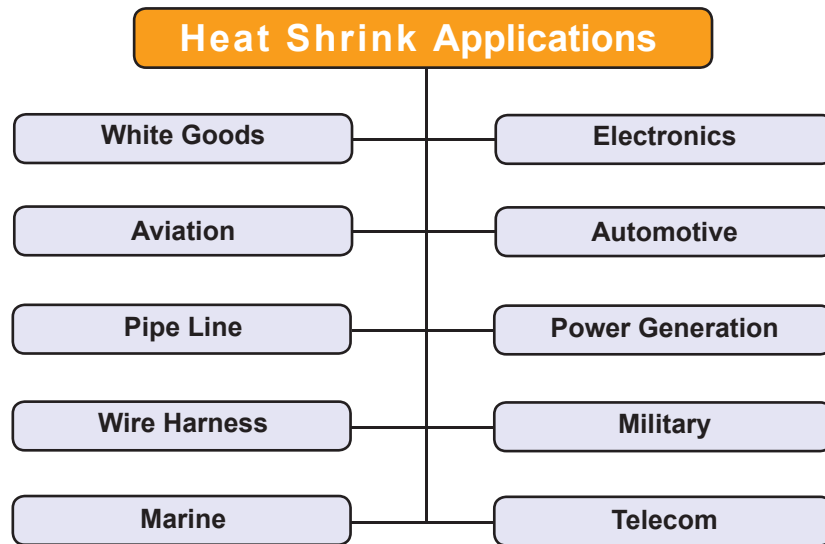


HEAT SHRINK PRODUCTS

Qualtek Electronics offers a complete line of heat shrinkable products which include:

- Thin, medium and heavy wall heat shrink tubing
- Adhesive lined
- Medium and high voltage insulation
- Molded parts and end caps
- Cold shrink
- Shrink tubing kits, cables and wire identification tubing
- Specializing in custom cut lengths for all products





Qualtek heat shrinkable products include Polyolefin, Silicon, Teflon, Viton®, Kynar®, Halogen-Free, high temp, single wall, double wall and adhesive lined tubing with varying shrink ratio, colors and sizes. We also offer Military (MIL) specification shrink tubing with varying ratios, colors and sizes. Qualtek's heat shrink tubing products are produced by cross-linking extruded polymer compounds which produces a shape memory effect and when heated can be recovered to its original shape.

Heat Shrink Technology

■ **Compound**

With a strong background in the research and development of modified polymer materials, we have developed a variety of chemical formulations for different types of heat shrinkable products.

■ **Extrusion**

Equipped with 20 advanced extrusion lines, we are able to produce stable and homogeneous dimensions. Our advanced co-extrusion technology makes it possible to manufacture polyolefin / hot melt adhesive dual wall and insulation / conductive multi-layer tubing.

■ **Irradiation**

There are three sets of specially designed electronic accelerators in-house to meet requirements of different sizes and shapes of shrinkable products that assures proper crosslinking of the product.

■ **Expansion**

This important process is required to obtain final forms and dimensions of heat shrink products. With our modern equipment and technology, we can accurately control the dimensions, longitudinal changes and eccentricity of the final product.

■ **Packaging**

After completion of the production cycle and quality control checks, the product is packaged to meet market demands such as standard product or is processed to customer designs from cut-to-length pieces to special packaging requirements.

Tubing Features

- Wide range of sizes: micro \varnothing up to very large \varnothing
- Large selection of colors
- Low shrink temperatures: down to 65°C
- High temperature rating: up to 260°C
- Abrasion, moisture and chemical / solvent resistant
- High shrink ratios: 2:1, 3:1, 4:1, & 6:1
- Halogen & PBB free with low lead & cadmium
- Flexible types: super flexible, flexible, semi rigid & rigid
- Single wall: ultra thin, very thin, thin, medium & heavy
- Dual wall adhesive lined: thin, medium & heavy
- Packaging: large & small spools, cut-to-length, kits & bags
- Special compound formulations available upon request

Selection Parameters

- Size
- Shrink Ratio
- Operating Temperature
- Recovery Temperature
- Flammability Rating
- Electrical Rating
- Certifications & Specifications
- Resistance to Solvents & Chemicals
- Flexibility
- Mechanical Properties

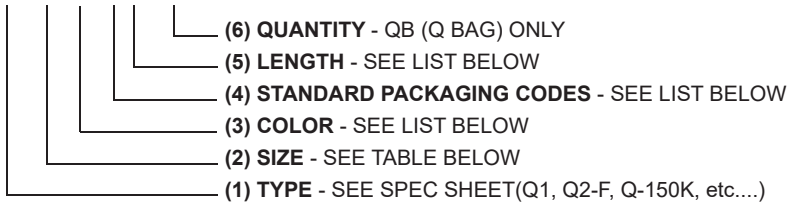
Installation Instructions

- Place the heat shrink tubing over the product to be covered. Heat the tubing evenly until the tube shrinks around the object or the tube is shrunk completely (according to shrink ratio). Dual wall shrink tubing with adhesive may require additional heating to melt the adhesive for accurate installation.
- Constantly move the heat source or product during installation. Avoid concentrating the heat source in one location on the heat shrink tubing. Maintain heat source temperature to achieve appropriate shrink ratio and prevent charring or burning.
- Recommended heat sources include: Hot air gun, oven, infrared heat source, or soft flame. Use adequate ventilation during and following installation.
- Stop heating immediately if charring or burning of tubing occurs to prevent injury to operator or product. Charring or burning of ceratin tubing can create hazardous fumes that can potentially cause eye, skin, nose and throat irritation.
- For additional information, please contact your supplier or Qualtek.

PART NUMBER EXAMPLE: Q2-F-3/64-01-QB48IN-25

PART NUMBER EXAMPLE:

X - X - X - X X - X



NOTE: Table below represents information on individual spec sheet

- STANDARD PACKAGING CODES:**
 MS - MINI SPOOL + LENGTH (FT or M)
 QB - Q BAG (Polybag contains quantity specified)
 QX - Q BOX + LENGTH (FT or M)
 RK - REFILL BAG
 SS - STANDARD SPOOL + LENGTH (FT or M)

- COLOR CODES:**
 01 BLACK
 02 CLEAR
 03 WHITE
 04 RED
 05 BLUE
 06 GREEN
 07 YELLOW
 08 YELLOW / GREEN
 09 BROWN
 10 ORANGE
 11 ASSORTED COLORS
 12 GRAY
- LENGTH:**
 FT = FEET
 M = METERS
 IN = INCH
 MM = MILLIMETERS

HEAT SHRINK THIN WALL TUBING

Q2-F Qualtek USA

ENVIRONMENT FRIENDLY, FLEXIBLE, HIGHLY FLAME RETARDANT, HEAT SHRINKABLE TUBING
 SHRINK RATIO 2:1

Features/Applications:
 Provides both commercial and military applications electrical insulation and protects in-line components, disconnect terminals and splices with its high strength and excellent resistance. Bundles wires for very flexible high-duty harnesses, identifies or color-codes wires, cables, terminals and components.

- Operating temperature: -55°C to +150°C
- Minimum shrink temperature: 70°C
- Full recovery temperature: 100°C
- Approvals: **UL** File No. E236137, **CSA** File No. 242540, 125°C, VW-1, 600V
- Meets: SAE-AMS-DTL-23053/5 Class 1 & 3, Sony-SS-00259
- Material: No PBB's, PBBD's, PBEE's. Free of Cadmium & Lead
- Standard colors: Black, red, blue, yellow, green, white, clear (class 2)
- RoHS Compliant

Technical Data		
Property	Test Method	Typical Data
Operating Temperature	IEC 216	55 to +150°C
Tensile Strength	ASTM D 2671	>14 MPa
Ultimate Elongation	ASTM D 2671	> 600%
Longitudinal Shrinkage	UL 224	< 2%
Exceedency	UL 224	< 30%
Heat Aging		
Tensile Strength	175°C, 168 hrs.	> 11 MPa
Ultimate Elongation		> 55%
Flammability	UL 94	Flame
Dielectric Strength	ASTM D 150	>20KV / mm
Voltage Withstand	ASTM D 2671 / AC2500V, 1 min	No Breakdown
Volume Resistance	ASTM D 876	>10 ¹² Ohm
Copper Stability	UL 224	Pass
Copper Corrosion	UL 224	No Corrosion

Product Dimensions									
Size	As Supplied (mm)		After Recovered (mm)		Standard Packaging				
	Inside Diameter (min.)	Inside Diameter (max.)	Wall Thickness (min.)	Mini Spool (Feet)	Standard Spool (Feet)	Box Length (Feet)	Cut to Length Pcs. (Qty per bag)		
3/64	1.2	1.2	0.6	0.40	100	1000	50	40	25
1/16	1.6	1.6	0.8	0.40	100	1000	50	36	25
3/32	2.4	2.4	1.2	0.48	100	500	50	32	25
1/8	3.2	3.2	1.6	0.48	100	500	50	28	25
3/16	4.8	4.8	2.4	0.48	100	500	30	24	25
1/4	6.4	6.4	3.2	0.56	100	500	30	20	25
5/16	8.0	8.0	4.0	0.62	100	250	30	18	25
3/8	9.5	9.5	4.8	0.62	100	250	30	16	25
1/2	12.7	12.7	6.4	0.62	100	200	15	14	5
5/8	15.9	15.9	8.0	0.68	50	200	15	14	5
3/4	19.1	19.1	9.5	0.68	50	200	15	12	5
1	25.4	25.4	12.7	1.00	50	200	15	8	5
1 1/4	31.8	31.8	15.9	1.00	50	100	-	8	5
1 1/2	38.1	38.1	19.1	1.00	50	100	-	5	5
2	50.8	50.8	25.4	1.10	50	100	-	3	5
3	76.2	76.2	38.1	1.20	-	100	-	2	2
4	102.0	102.0	50.8	1.35	-	100	-	1	2
5	125.0	125.0	63.5	1.40	-	50	-	1	2
6	151.0	151.0	75.0	1.40	-	50	-	1	2

Notes:
 1. See page 7 - Part Number Guide for shipment packaging codes.
 2. Check Reference Guide located on page 3.
 3. Special annealing, curing and end-process are available upon request.
 4. Clear tubing is not flame retardant, UL or CSA approved.

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SAMPLE TABLE: Q2-F

Product Dimensions								
Size (inch)	As Supplied (mm)	After Recovered (mm)			Standard Packaging			
	Inside Diameter (max.)	Inside Diameter (max.)	Wall Thickness (min.)	Mini Spool *(MS) (Feet)	Standard Spool *(SS) (Feet)	Box Length *(QX) (Feet)	Cut to Length Pcs. *(QB) Qty per bag	
							6"	48"
3/64	1.2	0.6	0.40	100	1000	50	40	25
1/16	1.6	0.8	0.40	100	1000	50	36	25
3/32	2.4	1.2	0.48	100	500	50	32	25
1/8	3.2	1.6	0.48	100	500	50	28	25
3/16	4.8	2.4	0.48	100	500	30	24	25
1/4	6.4	3.2	0.56	100	500	30	20	25
5/16	8.0	4.0	0.62	100	250	30	18	25
3/8	9.5	4.8	0.62	100	250	30	16	25
1/2	12.7	6.4	0.62	100	200	15	14	5
5/8	15.9	8.0	0.68	50	200	15	14	5
3/4	19.1	9.5	0.68	50	200	15	12	5
1	25.4	12.7	0.87	50	200	15	8	5
1 1/4	31.8	15.9	1.00	50	100	-	8	5
1 1/2	38.1	19.1	1.00	50	100	-	5	5
2	50.8	25.4	1.10	50	100	-	3	5
3	76.2	38.1	1.20	-	100	-	2	2
4	102.0	50.8	1.35	-	100	-	1	2
5	125.0	63.5	1.40	-	50	-	1	2
6	151.0	75.0	1.40	-	50	-	1	2

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Q2-CB RoHS Compliant

ULTRA THIN WALL, FLEXIBLE, ENVIRONMENT FRIENDLY
FLAME RETARDANT POLYOLEFIN TUBING
SHRINK RATIO 2:1

Features/Applications

Typically used where rapid shrinking and space saving is important. Low shrink temperature further reduces installation time and risk of damage to temperature sensitive components. Low heavy metal content and flame retardant formulation make this a product that meets global environmental standards.

- Operating temperature: -55°C to +125°C
- Minimum shrink temperature: 70°C
- Full recovery temperature: 100°C
- Approvals⁴: File No. E236137, File No. 242540, 125°C, VW-1, 300V
- Meets: Sony-SS-00259
- Material: No PBB's, PBBO's, PBBE's
- Cadmium content: <5 ppm, Lead content: <30 ppm
- Standard color: Black
- Other colors are available upon request
- RoHS Compliant



Technical Data		
Property	Test Method	Typical Data
Operating Temperature	IEC 216	-55°C to +125°C
Tensile Strength	ASTM D 2671	> 14 MPa
Ultimate Elongation	ASTM D 2671	> 400%
Longitudinal Shrinkage	UL 224	0 ± 5%
Eccentricity	ASTM D 2671	< 30%
Heat Aging Tensile Strength Ultimate Elongation	158°C, 168 hrs.	> 350%
Flammability	VW-1	Pass
Dielectric Strength	IEC 243	> 20 kV / mm
Voltage Withstand	ASTM D 2671 / AC 2500V, 1 min.	No Breakdown
Volume Resistance	ASTM D 2671	> 10 ¹⁴ Ω.cm
Copper Stability	UL 224	Pass
Copper Corrosion	UL 224	No Corrosion

Product Dimensions							
Size (Inch)	As Supplied (mm)	After Recovered (mm)		Standard Packaging			
	Inside Diameter (min.)	Inside Diameter (max.)	Wall Thickness (min.)	Mini Spool *(MS) (Feet)	Standard Spool *(SS) (Feet)	Cut to Length Pcs. *(QB) Qty per bag	
						6"	48"
3/64	1.2	0.60	0.20	100	1000	40	25
1/16	1.6	0.80	0.20	100	1000	36	25
3/32	2.4	1.20	0.25	100	500	32	25
1/8	3.2	1.60	0.25	100	500	28	25
3/16	4.8	2.40	0.25	100	500	24	25
1/4	6.4	3.20	0.28	100	500	20	25
3/8	9.5	4.80	0.28	100	250	16	25
1/2	12.7	6.40	0.28	100	200	14	5

Notes:
 1. * See page 12 - Part Number Guide for standard packaging codes.
 2. Cross Reference Guide located on page 3.
 3. Special sizes, packaging, colors and cut pieces are available upon request.
 4. UL and CSA Approvals only for black color.

Product Dimensions				
Size (mm)	As Supplied (mm)	After Recovered (mm)		Standard Spool *(SS) (Meter)
	Inside Diameter (min.)	Inside Diameter (max.)	Wall Thickness (min.)	
1.0	1.0	0.50	0.20	200
1.5	1.5	0.75	0.20	200
2.0	2.0	1.00	0.20	200
2.5	2.5	1.25	0.25	200
3.0	3.0	1.50	0.25	200
3.5	3.5	1.75	0.25	200
4.0	4.0	2.00	0.25	200
5.0	5.0	2.50	0.28	100
6.0	6.0	3.00	0.28	100
7.0	7.0	3.50	0.28	100
8.0	8.0	4.00	0.28	100
9.0	9.0	4.50	0.28	100
10.0	10.0	5.00	0.28	100

Q2-F RoHS Compliant

**ENVIRONMENT FRIENDLY, FLEXIBLE,
HIGHLY FLAME RETARDANT, HEAT SHRINKABLE TUBING
SHRINK RATIO 2:1**

Features/Applications

Provides both commercial and military applications electrical insulation and protects in-line components, disconnect terminals and splices with its high strength and excellent resilience. Bundles wires for very flexible light-duty harnesses. Identifies or color-codes wires, cables, terminals and components.

- Operating temperature: -55°C to +135°C
- Minimum shrink temperature: 70°C
- Full recovery temperature: 100°C
- Approvals⁴: File No. E236137, File No. 242540, 125°C, VW-1, 600V
- Meets: SAE-AMS-DTL-23053/5 Class 1 & 3, Sony-SS-00259
- Material: No PBB's, PBBO's, PBBE's, Free of Cadmium & Lead
- Standard colors: Black, red, blue, yellow, green, white, clear (class 2)
- RoHS Compliant



Technical Data

Property	Test Method	Typical Data
Operating Temperature	IEC 216	-55°C to +135°C
Tensile Strength	ASTM D 2671	>14 MPa
Ultimate Elongation	ASTM D 2671	> 600%
Longitudinal Shrinkage	UL 224	0 ± 5%
Eccentricity	UL 224	< 30%
Heat Aging Tensile Strength Ultimate Elongation	175°C, 168 hrs.	> 11 MPa > 350 %
Flammability	VW-1	Pass
Dielectric Strength	ASTM D 150	>20kV / mm
Voltage Withstand	ASTM D 2671 / AC2500V. 1 min.	No Breakdown
Volume Resistance	ASTM D 876	>10 ¹⁴ Ω.cm
Copper Stability	UL 224	Pass
Copper Corrosion	UL 224	No Corrosion

Product Dimensions

Size		As Supplied (mm)	After Recovered (mm)		Standard Packaging				
Inch	mm	Inside Diameter (min.)	Inside Diameter (max.)	Wall Thickness (min.)	Mini Spool *(MS) (Feet)	Standard Spool *(SS) (Feet)	Box Length *(QX) (Feet)	Cut to Length Pcs. *(QB) Qty per bag	
								6"	48"
3/64	1.2	1.2	0.6	0.40	100	1000	50	40	25
1/16	1.6	1.6	0.8	0.40	100	1000	50	36	25
3/32	2.4	2.4	1.2	0.48	100	500	50	32	25
1/8	3.2	3.2	1.6	0.48	100	500	50	28	25
3/16	4.8	4.8	2.4	0.48	100	500	30	24	25
1/4	6.4	6.4	3.2	0.56	100	500	30	20	25
5/16	8.0	8.0	4.0	0.62	100	250	30	18	24
3/8	9.5	9.5	4.8	0.62	100	250	30	16	25
1/2	12.7	12.7	6.4	0.62	100	200	15	14	5
5/8	15.9	15.9	8.0	0.68	50	200	15	14	5
3/4	19.1	19.1	9.5	0.68	50	200	15	12	5
1	25.4	25.4	12.7	0.87	50	200	15	8	5
1 1/4	31.8	31.8	15.9	1.00	50	100	-	8	5
1 1/2	38.1	38.1	19.1	1.00	50	100	-	5	5
2	50.8	50.8	25.4	1.10	50	100	-	3	5
3	76.2	76.2	38.1	1.20	-	100	-	2	2
4	102.0	102.0	50.8	1.35	-	100	-	1	2
5	125.0	125.0	63.5	1.40	-	50	-	1	2
6	151.0	151.0	75.0	1.40	-	50	-	1	2

Notes:
 1. * See page 12 - Part Number Guide for standard packaging codes.
 2. Cross Reference Guide located on page 3.
 3. Special sizes, packaging, colors and cut pieces are available upon request
 4. Clear tubing is not flame retardant, UL or CSA approved.

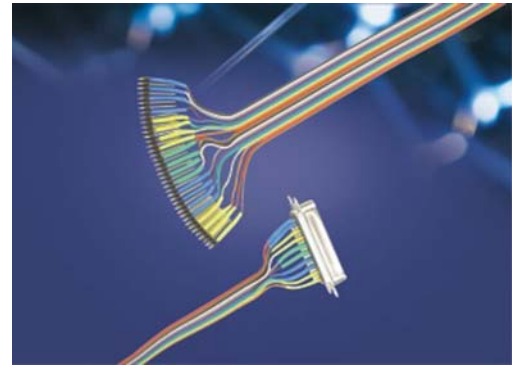
Q2-F3X RoHS Compliant

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
- Approvals⁴: File No. E236137, File No. 242540, 125°C, VW-1, 600V
- 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
Operating Temperature	IEC 216	-55°C to +135°C
Tensile Strength	ASTM D 2671	>14 MPa
Ultimate Elongation	ASTM D 2671	> 600%
Longitudinal Shrinkage	UL 224	0 ± 5%
Eccentricity	ASTM D 2671	< 35%
Heat Aging Tensile Strength Ultimate Elongation	175°C, 168 hrs.	> 11 MPa > 350 %
Flammability	VW-1	Pass
Dielectric Strength	ASTM D 150	> 20kV / mm
Voltage Withstand	ASTM D 2671 / AC2500V. 1 min.	No Breakdown
Volume Resistance	ASTM D 2671	10 ¹⁴ Ω.cm
Copper Stability	UL 224	Pass
Copper Corrosion	UL 224	No Corrosion

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

Notes:
 1. * See page 12 - Part Number Guide for standard packaging codes.
 2. Cross Reference Guide located on page 3.
 3. Special sizes, packaging, colors and cut pieces are available upon request.
 4. Clear tubing is not flame retardant, UL or CSA approved.

Q2-F4X



**HIGH SHRINK RATIO, HIGHLY FLEXIBLE
FLAME RETARDANT POLYOLEFIN TUBING
SHRINK RATIO 4:1**

Features/Applications

Manufactured with specially developed formulation and technology, it can easily fit over a large diameter connector or transition and shrink down onto a smaller diameter jacket. Because of its outstanding physical, chemical and electrical properties it's widely used in some important fields such as military, aerospace and fine electronic instruments for insulating or repairing harnesses, cables and connectors.



- Operating temperature: -55°C to +135°C
- Minimum shrink temperature: 70°C
- Full recovery temperature: 100°C
- Approval: File No. E236137, File No. 242540, 125°C, VW-1, 600V
- Meets: SAE-AMS-DTL-23053/5 Class 1 & 3, Sony-SS-00259
- Standard color: Black
- Special colors: Red, blue, yellow, green
- UV Resistant
- RoHS Compliant

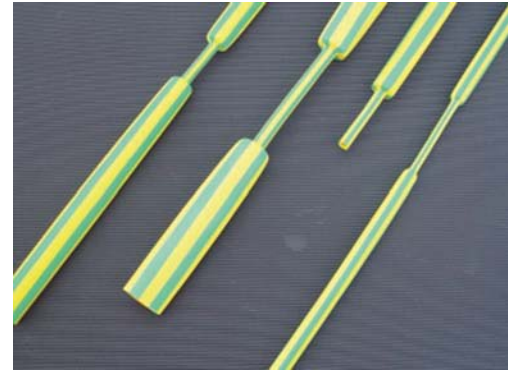
Technical Data		
Property	Test Method	Typical Data
Operating Temperature	IEC 216	-55°C to +135°C
Tensile Strength	ASTM D 2671	>14 MPa
Ultimate Elongation	ASTM D 2671	> 600%
Longitudinal Shrinkage	UL 224	0 ± 5%
Eccentricity	ASTM D 2671	< 35%
Heat Aging Tensile Strength Ultimate Elongation	175°C, 168 hrs.	> 11 MPa > 350 %
Flammability	VW-1	Pass
Dielectric Strength	ASTM D 150	> 20kV / mm
Voltage Withstand	ASTM D 2671 / AC2500V. 1 min.	No Breakdown
Volume Resistance	ASTM D 2671	> 10 ¹⁴ Ω.cm
Copper Stability	UL 224	Pass
Copper Corrosion	UL 224	No Corrosion

Product Dimensions						
Size		As Supplied (mm)	After Recovered (mm)		Standard Packaging	
Inch	mm	Inside Diameter (min.)	Inside Diameter (max.)	Wall Thickness (min.)	Cut to Length Pcs. *(QB) Qty per bag	
					6"	48"
3/4	19.1/4.6	19.1	4.6	1.7	12	25
1	25.4/7.0	25.4	7.0	1.7	8	25
1 1/2	38.1/9.5	38.1	9.5	1.7	5	25
2	50.8/14.0	50.8	14.0	1.7	3	25
3	76.2/20.6	76.2	20.6	1.7	2	25
4	102.0/26.7	102.0	26.7	1.7	1	5
4 1/2	115.0/36.8	115.0	36.8	1.7	1	5

- Notes:
1. * See page 12 - Part Number Guide for standard packaging codes.
 2. Cross Reference Guide located on page 3.
 3. Special sizes, packaging, colors and cut pieces are available upon request.

Q2-F2X(YG), Q2-F3X(YG)

YELLOW & GREEN STRIPED, FLEXIBLE,
FLAME RETARDANT, POLYOLEFIN TUBING
SHRINK RATIO 2:1 & 3:1



Features/Applications

Dual color yellow and green striped polyolefin tubing primarily used to identify "ground" wires. It is flexible and flame retardant with permanent color properties, making it easy to install and identify. Used for light duty harnessing and ground wire identification.

- Operating temperature: -55°C to +135°C
- Minimum shrink temperature: 70°C
- Full recovery temperature: 100°C
- Approvals: File No. E236137, File No. 242540, 125°C, VW-1, 600V
- Meets: SAE-AMS-DTL-23053/5 Class 1 & 3, Sony-SS-00259
- Standard color: Yellow & green striped
- RoHS Compliant

Technical Data		
Property	Test Method	Typical Data
Operating Temperature	IEC 216	-55°C to +135°C
Tensile Strength	ASTM D 2671	>14 MPa
Ultimate Elongation	ASTM D 2671	> 600%
Longitudinal Shrinkage	UL 224	0 ± 5%
Eccentricity	ASTM D 2671	< 35%
Heat Aging Tensile Strength Ultimate Elongation	175°C, 168 hrs.	> 11 MPa > 350 %
Flammability	VW-1	Pass
Dielectric Strength	ASTM D 150	> 20kV / mm
Voltage Withstand	ASTM D 2671 / AC2500V. 1 min.	No Breakdown
Volume Resistance	ASTM D 2671	>10 ¹⁴ Ω.cm
Copper Stability	UL 224	Pass
Copper Corrosion	UL 224	No Corrosion

Product Dimensions (2:1) Q2-F2X(YG)				
Size (Inch)	As Supplied (mm)	After Recovered (mm)		Standard Spool *(SS) (Meter)
	Inside Diameter (min.)	Inside Diameter (max.)	Wall Thickness (min.)	
3/64	1.2	0.6	.33	200
1/16	1.6	0.8	.36	200
3/32	2.4	1.2	.44	200
1/8	3.2	1.6	.44	200
3/16	4.8	2.4	.56	100
1/4	6.4	3.2	.56	100
5/16	8.0	4.0	.56	100
3/8	9.5	4.8	.56	100
1/2	12.7	6.4	.65	50
5/8	16.0	8.0	.69	50
3/4	19.1	9.5	.80	50
1	25.4	12.7	.90	50
1 1/4	31.8	15.9	.90	50
2 1/2	38.1	19.1	1.02	50
2	50.8	25.4	1.02	50
3	76.2	38.1	1.20	30
4	101.6	50.8	1.30	30

Product Dimensions (3:1) Q2-F3X(YG)					
Size (Inch)	As Supplied (mm)		After Recovered (mm)		Standard Spool *(SS) (Meter)
	Inside Diameter (min.)	Outside Diameter (min.)	Inside Diameter (max.)	Wall Thickness (min.)	
1/16	1.6	0.5	0.51	0.51	200
3/32	2.4	0.8	0.51	0.51	200
1/8	3.2	1.0	0.55	0.55	200
3/16	4.8	1.5	0.60	0.60	100
1/4	6.4	2.0	0.65	0.65	100
3/8	9.5	3.0	0.75	0.75	100
1/2	12.7	4.0	0.75	0.75	50
3/4	19.1	6.0	0.85	0.85	50
1	25.4	8.0	1.00	1.00	50
1 1/2	39.0	13.0	1.15	1.15	50

- Notes:
1. * See page 12 - Part Number Guide for standard packaging codes.
 2. Cross Reference Guide located on page 3.
 3. Special sizes, packaging, colors and cut pieces are available upon request.

Q2-HF



**LOW SMOKE, HALOGEN FREE,
FLAME RETARDANT, HEAT SHRINKABLE TUBING
SHRINK RATIO 2:1**

Features/Applications

As a kind of totally environmental friendly heat-shrinkable tube, it is made with specially designed halogen free polyolefin. It produces neither toxic smoke or harmful substance when burning, which meets the growing demand of environmental protection all over the world. In addition to the common fine physical and chemical specifications the tube also shows excellent flame-retardant, insulation, low temperature shrinking and flexible properties and thus is widely used in electronics, communication and the auto industry.

- Operating temperature: -55°C to +105°C
- Minimum shrink temperature: 70°C
- Full recovery temperature: 100°C
- Approvals: File No. 242540
- Standard colors: Black, white
- Other colors are available upon request.
- RoHS Compliant



Technical Data		
Property	Test Method	Typical Data
Operating Temperature	IEC 216	-55°C to +105°C
Tensile Strength	ASTM D 2671	>12 MPa
Ultimate Elongation	ASTM D 2671	> 400%
Longitudinal Shrinkage	UL 224	0 ± 5%
Eccentricity	ASTM D 2671	≤ 30%
Heat Aging Tensile Strength Ultimate Elongation	158°C, 168 hrs.	> 11 MPa > 200 %
Flammability	VW-1	Self extinguish in 30 sec.
Dielectric Strength	ASTM D 150	> 20kV / mm
Voltage Withstand	ASTM D 2671 / AC2500V. 1 min.	No Breakdown
Volume Resistance	ASTM D 2671	10 ¹⁴ Ω.cm
Copper Stability	UL 224	Pass
Copper Corrosion	UL 224	No Corrosion

Product Dimensions				
Size (mm)	As Supplied (mm)	After Recovered (mm)		Standard Spool *(SS) (Meter)
	Inside Diameter (min.)	Inside Diameter (max.)	Wall Thickness (min.)	
1.0	1.0	0.50	.33	200
1.5	1.5	0.75	.36	200
2.0	2.0	1.00	.44	200
2.5	2.5	1.25	.44	200
3.0	3.0	1.50	.44	200
3.5	3.5	1.75	.44	200
4.0	4.0	2.00	.44	200
5.0	5.0	2.50	.56	100
6.0	6.0	3.00	.56	100
7.0	7.0	3.50	.56	100
8.0	8.0	4.00	.56	100
9.0	9.0	4.50	.56	100
10.0	10.0	5.00	.56	100
11.0	11.0	5.50	.56	100
12.0	12.0	6.00	.56	50
13.0	13.0	6.50	.65	50
14.0	14.0	7.00	.69	50

Product Dimensions				
Size (mm)	As Supplied (mm)	After Recovered (mm)		Standard Spool *(SS) (Meter)
	Inside Diameter (min.)	Inside Diameter (max.)	Wall Thickness (min.)	
15.0	15.0	7.50	0.69	50
16.0	16.0	8.00	0.69	50
18.0	18.0	9.00	0.80	50
20.0	20.0	10.00	0.80	50
22.0	22.0	11.00	0.80	50
25.0	25.0	12.50	0.90	50
28.0	28.0	14.00	0.90	50
30.0	30.0	15.00	0.90	50
35.0	35.0	17.50	0.90	50
40.0	40.0	20.00	1.00	50
50.0	50.0	25.00	1.00	50
60.0	60.0	30.00	1.00	30
70.0	70.0	35.00	1.20	30
80.0	80.0	40.00	1.20	30
100.0	100.0	50.00	1.30	30
125.0	125.0	60.00	1.30	15
150.0	150.0	75.00	1.30	15

- Notes:
- * See page 12 - Part Number Guide for standard packaging codes.
 - Cross Reference Guide located on page 3.
 - Special sizes, packaging, colors and cut pieces are available upon request.

Q2-LS RoHS Compliant

VERY LOW SHRINK TEMPERATURE, FLEXIBLE, HALOGEN FREE, POLYOLEFIN TUBING SHRINK RATIO 2:1

Features/Applications

Manufactured with modified radiation cross-linked polyolefin. This specially designed halogen free formulation makes the tubing very flexible and shrinks at low temperature. Suitable for applications where heat sensitive components are used and quick shrinkage is required. The flammability of the tubing meets the automotive flame propagation standard FMVSS 302. Although very flexible, it has good mechanical and electrical performance.

- Operating temperature: -55°C to +125°C
- Minimum shrink temperature: 65°C
- Full recovery temperature: 95°C
- Approvals: File No. 242540
- Meets: SONY-SS-00259
- Standard color: Black
- RoHS Compliant



Technical Data		
Property	Test Method	Typical Data
Operating Temperature	IEC 216	-55°C to +125°C
Tensile Strength	ASTM D 2671	>12 MPa
Ultimate Elongation	ASTM D 2671	> 400%
Longitudinal Shrinkage	UL 224	0 ± 5%
Eccentricity	ASTM D 2671	< 30%
Heat Aging Tensile Strength Ultimate Elongation	158°C, 168 hrs.	> 11 MPa > 200 %
Flammability	FMVSS 302	Pass
Dielectric Strength	ASTM D 150	> 20kV / mm
Voltage Withstand	ASTM D 2671 / AC2500V. 1 min.	No Breakdown
Volume Resistance	ASTM D 2671	10 ¹⁴ Ω.cm
Copper Stability	UL 224	Pass
Copper Corrosion	UL 224	No Corrosion

Product Dimensions							
Size (Inch)	As Supplied (mm)		After Recovered (mm)		Standard Packaging		
	Inside Diameter (min.)	Inside Diameter (max.)	Wall Thickness (min.)	Mini Spool (MS)* (Feet)	Standard Spool (SS)* (Feet)	Cut to Length Pcs. (QB)* Qty per bag	
						6"	48"
1/16	1.6	0.8	0.5	100	1000	36	25
3/32	2.4	1.2	0.5	100	500	32	25
1/8	3.2	1.6	0.5	100	500	28	25
3/16	4.8	2.4	0.5	100	500	24	25
1/4	6.4	3.2	0.6	100	500	20	25
5/16	8.0	4.0	0.6	100	250	18	25
3/8	9.5	4.8	0.6	100	250	16	25
1/2	12.7	6.4	0.6	100	200	14	5
5/8	16.0	8.0	0.6	50	200	14	5
3/4	19.1	9.5	0.8	50	200	12	5
1	25.4	12.7	0.9	50	200	8	5
1 1/4	31.8	15.9	0.9	50	100	8	5
1 1/2	38.1	19.1	1.0	50	100	5	5
2	50.8	25.4	1.1	50	100	3	5

- Notes:
1. * See page 12 - Part Number Guide for standard packaging codes.
 2. Cross Reference Guide located on page 3.
 3. Special sizes, packaging, colors and cut pieces are available upon request.
 4. To ensure dimensional stability, Q2-LS should be stored at temperature below 40°C/104°F

Q2-R RoHS Compliant

**SEMI-RIGID, MULTI-PURPOSE,
FLAME RETARDANT, POLYOLEFIN TUBING**
SHRINK RATIO 2:1

Features/Applications

Outstanding physical, chemical and electrical properties. Widely used for insulation of harnesses and connectors in such fields as military, aerospace and fine electronic instruments. Resistant to common fluids and solvents.

- Operating temperature: -55°C to +135°C
- Minimum shrink temperature: 70°C
- Full recovery temperature: 130°C
- Approvals⁴: File No. E236137, File No. 242540, 125°C, VW-1, 600V
- Meets: SAE-AMS-DTL-23053/6 Class 1 & 2, Sony SS-00259
- Standard colors: Black, clear (Non-flame retardant)
- RoHS Compliant



Technical Data		
Property	Test Method	Typical Data
Operating Temperature	IEC 216	-55°C to +135°C
Tensile Strength	ASTM D 2671	>16 MPa
Ultimate Elongation	ASTM D 2671	> 500%
Longitudinal Shrinkage	UL 224	0 ± 5%
Eccentricity	ASTM D 2671	< 30%
Heat Aging Tensile Strength Ultimate Elongation	175°C, 168 hrs.	> 12 MPa > 350 %
Flammability	VW-1	Pass
Dielectric Strength	ASTM D 150	> 20kV / mm
Voltage Withstand	ASTM D 2671 / AC2500V. 1 min.	No Breakdown
Volume Resistance	ASTM D 2671	10 ¹⁴ Ω.cm
Copper Stability	UL 224	Pass
Copper Corrosion	UL 224	No Corrosion

Product Dimensions							
Size (Inch)	As Supplied (mm)		After Recovered (mm)		Standard Packaging		
	Inside Diameter (min.)	Inside Diameter (max.)	Wall Thickness (min.)	Mini Spool *(MS) (Feet)	Standard Spool *(SS) (Feet)	Cut to Length Pcs. *(QB)	
						6"	48"
3/64	1.2	0.6	0.4	100	500	40	25
1/16	1.6	0.8	0.4	100	500	36	25
3/32	2.4	1.2	0.5	100	500	32	25
1/8	3.2	1.6	0.5	100	500	28	25
3/16	4.8	2.4	0.5	100	250	24	25
1/4	6.4	3.2	0.6	100	250	20	25
3/8	9.5	4.8	0.6	100	250	16	25
1/2	12.7	6.4	0.6	100	150	14	5
5/8	16.0	8.0	0.7	50	150	14	5
3/4	19.1	9.5	0.7	50	150	12	5
1	25.4	12.7	0.9	50	150	8	5

- Notes:
- * See page 12 - Part Number Guide for standard packaging codes.
 - Cross Reference Guide located on page 3.
 - Special sizes, packaging, colors and cut pieces are available upon request.
 - Clear tubing is not flame retardant, UL or CSA approved.

Q2-Z

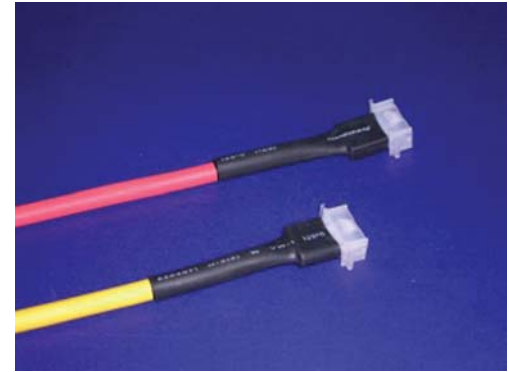


**ENVIRONMENT FRIENDLY, FLEXIBLE
FLAME RETARDANT, HEAT SHRINKABLE TUBING
SHRINK RATIO 2:1**

Features/Applications

An environment friendly, flame retardant shrink tubing. Specially designed formulation to meet UL 224 and CSA 22.2 on the basis of no harmful substance such as PBB, PBBE, PBBO and toxic metal compounds. Widely used for insulation, strain relief, harnessing, bundling and color coding of wire with a low shrink temperature. Good flexibility and superior mechanical strength in such fields as electronics, communication and automobile.

- Operating temperature: -55°C to +125°C
- Minimum shrink temperature: 70°C
- Full recovery temperature: 100°C
- Approvals: File No. E236137, File No. 242540, 125°C, VW-1, 600V
- Meets: Sony SS-00259,
- Material: No PBB's, PBBO's, PBBE's
- Cadmium content <5 ppm, Lead content <10 ppm
- Standard colors: Black, red, blue, yellow, green, white
- Other colors are available upon request.
- RoHS Compliant



Technical Data		
Property	Test Method	Typical Data
Operating Temperature	UL 224	-55°C to +125°C
Tensile Strength	ASTM D 2671	> 14 MPa
Ultimate Elongation	ASTM D 2671	> 400%
Longitudinal Shrinkage	UL 224	0 ± 5%
Eccentricity	ASTM D 2671	< 30%
Heat Aging Tensile Strength Ultimate Elongation	158°C, 168 hrs.	> 12 MPa > 350%
Flammability	VW-1	Pass
Voltage Withstand	ASTM D 2671 / AC 2500, 1 min.	No Breakdown
Volume Resistance	IEC 93	> 10 ¹⁴ Ω.cm
Copper Stability	UL 224	Pass
Copper Corrosion	UL 224	No Corrosion

Product Dimensions				
Size (mm)	As Supplied (mm)	After Recovered (mm)		Standard Spool *(SS) (Meter)
	Inside Diameter (min.)	Inside Diameter (max.)	Wall Thickness (min.)	
1.0	1.0	0.50	0.33	200
1.5	1.5	0.75	0.36	200
2.0	2.0	1.00	0.44	200
2.5	2.5	1.25	0.44	200
3.0	3.0	1.50	0.44	200
3.5	3.5	1.75	0.44	200
4.0	4.0	2.00	0.44	200
5.0	5.0	2.50	0.56	100
6.0	6.0	3.00	0.56	100
7.0	7.0	3.50	0.56	100
8.0	8.0	4.00	0.56	100
9.0	9.0	4.50	0.56	100
10.0	10.0	5.00	0.56	100
11.0	11.0	5.50	0.56	100
12.0	12.0	6.00	0.56	50
13.0	13.0	6.50	0.65	50
14.0	14.0	7.00	0.69	50
15.0	15.0	7.50	0.69	50
16.0	16.0	8.00	0.69	50
18.0	18.0	9.00	0.80	50
20.0	20.0	10.00	0.80	50
22.0	22.0	11.00	0.80	50
25.0	25.0	12.50	0.90	50
28.0	28.0	14.00	0.90	50
30.0	30.0	15.00	0.90	50
35.0	35.0	17.50	0.90	50
40.0	40.0	20.00	1.00	50
50.0	50.0	25.00	1.00	50
60.0	60.0	30.00	1.00	30
70.0	70.0	35.00	1.20	30
80.0	80.0	40.00	1.20	30
100.0	100.0	50.80	1.30	30
125.0	125.0	63.50	1.30	15
150.0	150.0	76.00	1.30	15

Product Dimensions								
Size (Inch)	As Supplied (mm)		After Recovered (mm)		Standard Packaging			
	Inside Diameter (min.)	Inside Diameter (max.)	Wall Thickness (min.)	Mini Spool *(MS) (Feet)	Standard Spool *(SS) (Feet)	Box Length *(QX) (Feet)	Cut to Length Pcs. *(QB)	
							6"	48"
3/64	1.2	0.60	0.33	100	1000	50	40	25
1/16	1.6	0.80	0.36	100	1000	50	36	25
3/32	2.4	1.20	0.44	100	500	50	32	25
1/8	3.2	1.60	0.44	100	500	50	28	25
3/16	4.8	2.40	0.56	100	500	30	24	25
1/4	6.4	3.20	0.56	100	500	30	20	25
5/16	8.0	4.00	0.56	100	250	30	18	25
3/8	9.5	4.80	0.56	100	250	30	16	25
1/2	12.7	6.40	0.65	100	200	15	14	5
5/8	16.0	8.00	0.69	50	200	15	14	5
3/4	19.1	9.50	0.80	50	200	15	12	5
1	25.4	12.70	0.90	50	200	15	8	5
1 1/4	31.8	15.90	0.90	50	100	-	8	5
1 1/2	38.1	19.10	1.02	50	100	-	5	5
2	50.8	25.40	1.02	50	100	-	3	5
3	76.2	38.10	1.20	-	100	-	2	2
4	101.6	50.80	1.30	-	100	-	1	2
5	126.0	63.50	1.30	-	50	-	1	2
6	150.0	76.00	1.30	-	50	-	1	2

- Notes:
 1. * See page 12 - Part Number Guide for standard packaging codes.
 2. Cross Reference Guide located on page 3.
 3. Special sizes, packaging, colors and cut pieces are available upon request.

Q2-3X RoHS Compliant

FLEXIBLE, THIN WALL FLAME RETARDANT POLYOLEFIN TUBING SHRINK RATIO 3:1

Features/Applications

Widely used for electrical insulation. Protects in-line components, disconnect terminals and splices with its high strength and excellent resilience. Bundles wires for very flexible light-duty harnesses. Identifies or color-codes wires, cables, terminals and components. Free from environment harmful substances such as PBB's, PBBO's, PBBE's and toxic heavy metal compounds in its components.

- Operating temperature: -55°C to +125°C
- Minimum shrink temperature: 70°C
- Full recovery temperature: 100°C
- Approvals⁴: File No. E236137, File No. 242540, 125°C, VW-1, 600V
- Meets: Sony-SS-00259
- Standard colors: Black, red, blue, yellow, green, white, clear
- Other colors are available upon request.
- RoHS Compliant



Technical Data		
Property	Test Method	Typical Data
Operating Temperature	IEC 216	-55°C to +125°C
Tensile Strength	ASTM D 2671	>14 MPa
Ultimate Elongation	ASTM D 2671	> 400%
Longitudinal Shrinkage	UL 224	0 ± 5%
Eccentricity	ASTM D 2671	< 30%
Heat Aging Tensile Strength Ultimate Elongation	158°C, 168 hrs.	> 12 MPa > 350 %
Flammability	VW-1	Pass
Dielectric Strength	ASTM D 150	> 20kV / mm
Voltage Withstand	ASTM D 2671 / AC2500V. 1 min.	No Breakdown
Volume Resistance	ASTM D 2671	10 ¹⁴ Ω.cm
Copper Stability	UL 224	Pass
Copper Corrosion	UL 224	No Corrosion

Product Dimensions							
Size		As Supplied (mm)	After Recovered (mm)		Standard Spool *(SS) (Feet)	Standard Packaging	
Inch	mm	Inside Diameter (min.)	Inside Diameter (max.)	Wall Thickness (min.)		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	1.00	150	8	5
1 1/2	39.0/13.0	39.0	13.0	1.25	150	5	5

Notes:

1. * See page 12 - Part Number Guide for standard packaging codes.
2. Cross Reference Guide located on page 3.
3. Special sizes, packaging, colors and cut pieces are available upon request.
4. Clear tubing is not flame retardant, UL or CSA approved.