





RAYCHEM TUBING PRODUCTS

Selection Guide

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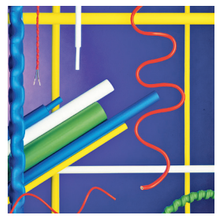
Versatile Raychem brand heat-shrinkable tubing products will cover just about all your needs. With high-performance tubing from TE Connectivity, you can insulate, cover, protect, bundle, strain-relieve, seal, identify, beautify and otherwise take care of a broad range of projects.

Single wall tubing gives optimum flexibility and space savings along with mechanical protection and chemical resistance. Dual wall tubing, with inner walls of adhesive or encapsulant, also reliably seals out moisture. Elastomeric tubing products are specifically designed for use in applications where resistance to abrasion, chemicals and other fluids, and flexibility over a wide range of temperatures is required. Heavy duty tubing products are intended for use in the most rugged environments. Whether your application is commercial, industrial, or military, there are Raychem brand tubing products to meet your precise needs.

Part numbers in this Selection Guide are RoHS and REACH Compliant. These products comply with European Union Directive 2002/95/EC, as amended 1 January 2006, that restricts the use of lead, mercury, cadmium, hexavalent chromium, PBB and PBDE in certain electrical and electronic products sold into the EU as of 1 July 2006.

ELECTRICAL INSULATION/STRAIN RELIEF/FLAME-RETARDANCE

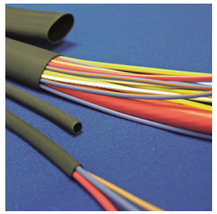
General-purpose polyolefin tubing is widely used to provide insulation and strain relief of wire terminations and connections, plus a variety of other applications.



- The tubing is cost effective, and with its low shrink temperature, installs quickly.
- It is flexible but does not easily wrinkle when bent.
- Flame-retardant tubing is available in a wide range of sizes and colors.
- Flame-retardant types are offered in both standard and low toxicity Zero Halogen versions.
- Most polyolefin tubing products meet UL and CSA standards for a wide range of commercial applications as well as military specifications.

WIRE BUNDLING AND ORGANIZATION

Raychem single wall tubing products allow you to bundle wires to create very flexible, lightweight harnesses that can stand up to harsh environments. Raychem elastomeric tubings are intended for use in the most rugged harnessing applications where abrasion and temperature resistance as well as resistance to chemicals and fluids are required.



- The broad range of tubing products in the Raychem line ensures that the appropriate solution to your wire bundling and harnessing requirements will be available.
- A variety of tubing products meet military and commercial standards.
- Where space saving is important, very-thin-wall tubing allows you to pack components tightly.

MECHANICAL PROTECTION

Raychem tubing products provide mechanical protection to assure reliability of harnesses and terminations.

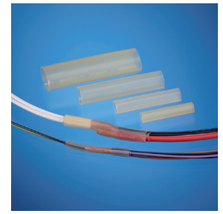


- Many tubing products offer excellent protection for cables and harnesses that are dragged along the ground, flexed frequently, or subjected to abrasion during installation.
- HFT5000 heat-shrinkable fabric tubing and Versaflex expandable braided polyester tubing are designed to provide mechanical protection for components such as rubber hoses, plastic pipes, and harness wiring bundles.
- Semirigid tubing products provide strain relief to ensure that delicate connections will be protected from damage during use.

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ENVIRONMENTAL SEALING AND PROTECTION

High-shrink-ratio tubing products environmentally protect connector-to-cable transitions. The adhesives used in our dual wall tubing products bond to a wide variety of plastics, rubbers and metals.



- High shrink ratios accommodate large size differences between cables and cable connectors and backshells, thus simplifying cable repair.
- Medium wall tubing is available for increased mechanical protection.
- Other tubing products are available in flexible, semirigid, or flame-retardant materials.

PROTECTION FROM MOISTURE AND CORROSION

Adhesive-lined, flexible polyolefin tubing seals and protects electrical splices and in-line electronic components from fluids, moisture and corrosion. Rugged, adhesive-lined tubing protects wiring and components from the corrosive effects of moisture, engine fuels and lubricants.



- Tubing provides one-step electrical insulation and moisture sealing.
- When adhesive-lined flexible polyolefin tubing is used both the tubing and adhesive are flexible, creating a moisture seal that accommodates bending.
- In more rugged applications, specially formulated hot-melt adhesive forms an effective barrier against fluids and moisture.
- The dimensions of some tubing products are engineered to accommodate multiple wire splices.

MECHANICAL AND ENVIRONMENTAL PROTECTION

Heat-shrinkable end caps fully encapsulate or seal terminations and protect them from dust, dirt, and moisture. The encapsulant or adhesive lining in the caps melts and flows to fill surface irregularities in the substrate.



- End caps inexpensively insulate and encapsulate or seal crimped electrical connections.
- These caps resist abrasion, vibration and flexing.
- End caps' splash resistant, moisture resistant coverings provide environmental protection.

PROTECTION FROM IMPACT AND ABRASION

Heavy duty tubing products were designed for applications where strength and durability are needed such as underground splice sealing, high ratio back end connector sealing, battery terminal insulation, and mechanical protection for wiring systems.



- Thick wall tubing is highly resistant to impact and abrasion and provides a high level of strain relief.
- Flame-retardant and halogen-free tubing products are available.
- Heavy duty tubing products are resistant to chemicals, moisture and oils.

Note: Information regarding RoHS compliance is provided based on reasonable inquiry of our suppliers and represents our current actual knowledge based on the information provided by our suppliers. This information is subject to change. For the latest compliance status and to answer all of your RoHS questions, refer to www.te.com/usa-en/utilities/product-compliance.html.

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Product Category	Product Name	Operating Temperature °C[°F]	Minimum Full Recovery Temperature °C[°F]	Shrink Ratio	Product Description	Features/Benefits	Standard Size Range (Inside Diameter as supplied) mm [In.]	Colors	Applicable Specifications	Flammability Rating	Typical Applications	Available in
Single Wall	BRST	-40 to 120 [-40 to 248]	130 [266]	2:1	Single wall, non-flame-retardant polyolefin tubing	Low shrink temperature tubing with satin finish. General purpose polyolefin tubing provides excellent electrical insulation.	4.0 to 24.0 [0.157 - 0.945]	Black	RK-6766	N/A	Provides excellent electrical insulation. Can be used where noise suppression and mechanical protection are needed.	Europe Asia Pacific
	CGPE-105	-70 to 105 [-40 to 257]	Black 110 [230]; All Others 100 [212]	2:1	Flexible, brightly colored, non-flame-retardant polyolefin tubing	Bright, shiny appearance; UV resistance; clear offers exceptional clarity. Easily hot stamped.	1.2 to 50.8 [0.046 to 2.000]	Black, white, clear, red, blue, yellow, green and violet	CGPE-105 SCD	N/A	Insulation and protection of components and wires. Color-coding and identification. Clear tubing is ideal for protecting marked surfaces.	Americas Asia Pacific
	CGPT	-40 to 135 [-40 to 275]	120 [248]	2:1 3:1	Single wall, flame-retardant polyolefin tubing	Tough and flexible with good chemical resistance. Flame-retardant (except clear).	2:1: 1.2 to 102.0 [0.046 to 4.016] 3:1: 1.5 to 39.0 [0.059 to 1.540]	Standard: Black, white, red, blue, yellow, brown, gray, clear (non-flame-retardant), yellow/green (limited size range); Nonstandard: Orange, green, violet (2: 1 sizes 1.2 through 51.0 only)	RW-2059, UL 224/CSA	ASTM D2671, Procedure B (not clear)	Suitable for a wide range of applications including electrical insulation, strain relief, cable bundling, color-coding, and mechanical protection.	Europe Asia Pacific
	CRN	-55 to 135 [-67 to 275]	135 [275]	2:1	Semirigid polyolefin tubing	High abrasion resistance. Transfers flex stress away from typically weak points. Excellent chemical and solvent resistance properties.	1.2 to 19.1 [0.046 to 0.750]	Standard: Black; Nonstandard: Clear	RT-360; AS23053/6, Cl. 1 & 2; UL 224/CSA (Black only, sizes 1/8 through 3/4)	ASTM D2671, Proc. B (Black only); UL 224/CSA All Tubing Flame Test (Black only)	Strain relief, insulation and mechanical protection of soldered or crimped connections, wire splices and terminations.	Americas Europe Asia Pacific
	DCPT	-55 to 135 [-67 to 275]	120 [248]	2:1 3:1	Flexible, flame-retardant, dual-color polyolefin tubing	Dual colors (yellow/green) for instant identification. Color permanence superior to conventional ink marking.	2:1: 3.0 to 51.0 [0.118 to 2.000]; 3:1: 3.0 to 39.0 [0.118 to 1.535]	Yellow/green stripe	RW-2056; UL 224/CSA	UL 224/CSA All Tubing Flame Test	Identification of "ground" on wires and cables.	Americas Europe Asia Pacific
	LSTT	-40 to 125 [-40 to 257]	110 [230]	2:1	Low-shrink-temperature single wall, non-flame-retardant polyolefin tubing	Low shrink temperature for fast recovery. Meets FMVSS 302 standard for flammability. Flexible.	1.6 to 52.0 [0.063 to 2.047]	Standard: Black, red, blue, yellow; Nonstandard: Green, gray, white, clear	RW-2051	FMVSS 302	Electrical insulation, color-coding, covering of temperature-sensitive devices, cosmetic coverings and mechanical protection.	Europe Asia Pacific
	NETM 1000/ NETM 2000	NETM1000 -55 to 135 [-67 to 275]; NETM2000 -55 to 150 [-67 to 302]	N/A	N/A	Cross-linked, non-heat-shrinkable, flame-retardant	NETM1000 is more flexible allowing it to be easily routed through tight spaces. NETM2000 has greater mechanical strength and abrasion resistance.	NETM1000: 3.0 to 14.0 [0.118 to 0.551]; NETM2000: 6.0 to 12.0 [0.236 to 0.500]	Black	NETM1000 SCD NETM2000 SCD	NETM1000: ASTM D2671, Proc. C	Bundling and routing of wires in automotive applications.	Americas Europe Asia Pacific
	RNF-100	-55 to 135 [-67 to 275]	121 [250]	2:1	Flexible, flame-retardant, general purpose polyolefin tubing	Excellent physical, chemical and electrical properties. Abrasion and solvent resistance superior to that of many polyolefin tubings. Wide range of sizes and colors.	1.2 to 127.0 [0.046 to 5.000]	Standard: Black (all sizes); White, blue, yellow, and clear (sizes 3/64" through 3"); Nonstandard: White, red, blue, yellow, and clear (sizes 4" and 5"); Brown, green, violet, orange and gray (all sizes)	RT-350, RK-6001; AS23053/5, Cl. 1 & 2, Def. Stan. 59-97 Type 2B (Colors only), VG 95343 Pt 5 Type B (Clear only); UL 224/CSA (Colors only)	ASTM D2671, Proc. B (Colors only); UL 224/CSA All Tubing Flame Test (Colors only)	Insulation and strain relief of wire terminations and connections. Jacketing wire bundles and harnesses where superior abrasion resistance is a plus. Color-coding and identification. Protection of wire markers (clear).	Americas Europe Asia Pacific
	RNF-3000	-55 to 135 [-67 to 275]	120 [248]	3:1	Flexible, high-shrink-ratio, flame-retardant, general purpose polyolefin tubing	3:1 shrink ratio easily accommodates irregular shapes. Few sizes cover a wide range of diameters. Flame-retardant (Colors only).	1.5 to 39.0 [0.060 to 1.534]	Standard: Black (All Regions); White, red, blue, yellow, and clear (non-flame-retardant) (EMEA only); Nonstandard: Green, violet, and gray (all Regions)	RW-2053; UL 224/CSA	UL 224/CSA All Tubing Flame Test (Colors only)	Insulation and strain relief of wire terminations and electrical connections. Electrical and mechanical protection of components with irregular dimensions.	Americas Europe Asia Pacific
	RP-4800	-55 to 135 [-67 to 275]	121 [250]	4:1	Flexible, high-shrink-ratio, flame-retardant polyolefin tubing	Conforms well to highly variable substrate dimensions. Excellent physical, chemical and electrical properties.	19.1 to 114.3 [0.750 to 4.500]	Standard: Black; Nonstandard: White, red, blue, yellow, green, brown, orange, violet, and gray	RT-1112; AS23053/5, Cl.1 Overexpanded; UL 224 (Black only)	ASTM D2671, Proc. B, UL 224/CSA All Tubing Flame Test (Black only)	Repair of harness and cable jackets; will pass over large-diameter connectors or transitions then shrink tightly on harnesses and cables. Provides abrasion and fluid resistance required in many harness applications.	Americas Europe Asia Pacific
	RT-3	-55 to 135 [-67 to 275]	135 [275]	2.5:1	Semirigid, flame-retardant polyolefin tubing	Excellent mechanical properties; transfers flex stress away from typically weak points. Tightly controlled expanded diameters; well suited for semiautomated installation.	6.1 to 12.3 [0.240 to 0.485]	Black	RT-360; UL 224/CSA	UL 224/CSA All Tubing Flame Test	Strain relief, insulation and mechanical protection of soldered or crimped connections, wire splices and terminations. Mechanical protection of delicate components.	Americas Europe Asia Pacific
	TUGA-GP	-55 to 125 [-67 to 275]	110 [230]	2:1	Single wall, non-flame-retardant polyolefin tubing	Glossy finish. Semiflexible, non-flame-retardant and halogen-free. Easily hot stamped.	1.2 to 38.0 [0.046 to 1.496]	Black	RW-2201	FMVSS 302	Electrical insulation, mechanical protection and beautification.	Europe Asia Pacific
	RW-125	-55C to +150C (-67F to +302F)	150C (302F)	2:1	Single Wall, flame-resistant, moisture protection, flexible	2:1 shrink ratio, tough and flexible with excellent clarity and stability. High-temp performance with good chemical resistance	12.7 to 31.8 (0.500 to 1.25)	Clear	TEC 108-120005	ASTM D2671, Proc.C,	Agriculture LED lighting, lighting whip and antennas, interior and exterior use on everything from boats and vehicles to storage and safety area	Americas Europe Asia Pacific

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Single Wall (Cont'd.)	VERSAFIT	-55 to 135 [-67 to 275]	90 [194]	2:1	Highly flame-retardant, very flexible, low-shrink-temperature polyolefin tubing	Meets AS23053/5, Cl. 3 as well as UL 224 and CSA C22.2 No. 198.1 standards. UL 224/CSA VW-1 flame rating. Low shrink temperature for fast installation.	1.2 to 101.6 [0.046 to 4.000]	Standard: Black, white, red, blue, and yellow; Nonstandard: Brown, orange, green, violet and gray	RW-3009; AS23053/5, Cl. 1 & 3; UL 224/CSA VW-1	ASTM D2671, Proc. C; UL 224/CSA VW-1	Insulation and protection of in-line components, wire splices and terminations. Very flexible light-duty military and commercial harnessing. Use where a UL 224/CSA VW-1 flame rating is needed. Use where rapid installation is desirable.	Americas Europe Asia Pacific
	VERSAFIT-3X	-55 to 135 [-67 to 275]	90 [194]	3:1	Highly flame-retardant, very flexible, high-shrink-ratio, low-shrink-temperature overexpanded polyolefin tubing	UL 224/CSA VW-1 flame rating. Low shrink temperature for fast installation. 3:1 shrink ratio easily accommodates irregular shapes. Few sizes cover a wide range of diameters.	3.2 to 25.4 [0.125 to 1.00]	Standard: Black; Nonstandard: White, red, blue, yellow, green, brown, orange, violet, and gray	RW-3009	UL 224/CSA VW-1	Insulation and protection of in-line components, wire splices and terminations. Very flexible light-duty harnessing. Use where larger expansion ratio and UL 224/CSA VW-1 rating are needed.	Americas Europe Asia Pacific
	VERSAFIT V2	-30 to 125 [-22 to 257]	90 [194]	2:1	Highly flame-retardant, very flexible, low-shrink-temperature metric-sized polyolefin tubing	Many sizes to cover a wide variety of applications. UL 224/CSA VW-1 flame rating. Low shrink temperature for fast installation.	0.8 to 30.0 [0.032 to 1.181]	Standard: Black; Nonstandard: White, red, blue, yellow, green, brown, orange, violet, and gray	RW-3023; UL 224/CSA VW-1	UL 224/CSA VW-1	Insulation and protection of in-line components, wire splices and terminations. Very flexible light-duty harnessing. Use where a UL 224/CSA VW-1 flame rating is needed. Use where rapid installation is desirable.	Americas Europe Asia Pacific
	VERSAFIT V4	-30 to 125 [-22 to 257]	90 [194]	2:1	Very-thin-wall, very flexible, highly flame-retardant, low-shrink-temperature imperial and metric-sized polyolefin tubing	Very thin wall and low shrink temperature for fast installation and space savings. UL 224/CSA VW-1 flame rating.	Imperial: 1.2 to 25.4 [0.046 to 1.000]; Metric: 1.0 to 10.0 [0.039 to 0.394]	Standard: Black; other colors available upon request	RW-3023; UL 224/CSA VW-1	UL 224/CSA VW-1	Insulation of in-line components, wire splices and terminations. Especially suited for covering temperature sensitive components and wires. Strain relief on high-density connectors.	Americas Europe Asia Pacific
Dual Wall	AP-2000	-40 to 80 [-40 to 176]	110 [230]	1.3:1 to 2.9:1	Flexible, adhesive-lined non-flame-retardant	Sized for use on specific standard sizes of metal pipe. Provides environmental and mechanical protection for automotive brake and fuel lines. Flexibility allows pipes to be bent after tubing has been installed.	6.0 to 30.0 [0.236 to 1.182]	Black	RW-1001	N/A	Protecting automotive brake and fuel lines from damage in areas exposed to mechanical abuse and moisture which can cause corrosion. Sized for use on specific standard sizes of metal pipe.	Americas Europe Asia Pacific
	ATUM	-55 to 110 [-67 to 230]	110 [230]	3:1 & 4:1	High-shrink-ratio, adhesive-lined polyolefin tubing	3:1 and 4:1 shrink ratios allow for connector-to-cable sealing. Medium wall provides increased mechanical protection. ATUM adhesive bonds to a wide variety of materials.	3:1: 3.0 to 40.0 [0.118 to 1.570]; 4:1: 4.0 to 52.0 [0.158 to 2.050]	Standard: Black; Nonstandard: Clear (non-flame-retardant); other colors available upon request	RW-2063 (Black), RK-6024 (Clear and colors); AS23053/4, Cl. 3 (specific 3:1 sizes in Black only); UL 224 (Black only, except sizes 3/1 and 4/1)	ASTM D2671, Proc. B (Black only)	Sealing and protection of connector backshells, breakouts and connector-to-cable transitions. High shrink ratio allows for repair of damaged cable jackets without removing connectors.	Americas Europe Asia Pacific
	CGAT	-30 to 80 [-22 to 176]	115 [239]	3:1	Adhesive-lined, flexible polyolefin tubing	General purpose adhesive-lined tubing for the commercial marketplace. Offers good adhesive bonding to a variety of substrates to provide environmental sealing.	3.0 to 39.0 [0.118 to 1.535]	Black, Clear (non-flame-retardant)	RW-2050	FMVSS 302	Environmental protection of electrical components. Sealing of wire breakouts and cable jackets.	Europe Asia Pacific
	DSPL	-40 to 125 [-40 to 257]	135 [275]	4:1	High-shrink-ratio, adhesive-lined semirigid polyolefin tubing	4:1 shrink ratio allows a few sizes to cover a wide range of applications. Excellent environmental sealing. Mechanically tough providing protection from flexing and abrasion. Flame-retardant (except clear).	5.7 to 17.5 [0.224 to 0.689]	Black, Clear (non-flame-retardant)	RK-6755	ASTM D2671, Procedure B (Black only)	Environmental sealing, electrical insulation and mechanical protection of wire splices, terminals and other components.	Europe
	DWFR	-40 to 110 [-40 to 230]	110 [230]	3:1 & 4:1	Highly flame-retardant, high-shrink-ratio, adhesive-lined polyolefin tubing	UL 224 VW-1 flame rating. 3:1 and 4:1 shrink ratios allow for connector-to-cable sealing. Medium wall provides increased mechanical protection. DWFR adhesive bonds to a wide variety of materials.	3:1: 3.0 to 40.0 [0.118 to 1.570]; 4:1: 4.0 to 52.0 [0.158 to 2.050]	Black	DWFR SCD; UL 224 VW-1	UL 224 VW-1	Sealing and protection of connector backshells, breakouts and connector-to-cable transitions. High shrink ratio allows for repair of damaged cable jackets without removing connectors.	Americas Europe Asia Pacific
	DWP-125	-40 to 110 [-40 to 230]	125 [257]	3:1	Flexible, high-shrink-ratio, adhesive-lined polyolefin tubing	3:1 shrink ratio allows for insulation and sealing of irregular shapes. Medium wall provides increased mechanical protection while maintaining flexibility when installed. Adhesive bonds to a wide variety of materials.	3.2 to 50.8 [0.125 to 2.000]	Standard: Black; Nonstandard: White, red, blue, yellow, green and clear (non-flame-retardant); other colors available upon request	DWP-125 SCD; UL 224/CSA	UL 224/CSA All Tubing Flame Test (Colors only)	Sealing and protection of wire splices, break-outs and connector-to-cable transitions. Ideal for applications where a UL recognized/CSA certified adhesive-lined tubing is required.	Americas Asia Pacific
	DWTC	-55 to 75 [-67 to 167]	100 [212]	4:1	Clear adhesive-lined polyolefin tubing	Limited number of sizes cover a full range of irregular shapes and widely varying dimensions. Clear tubing offers excellent clarity for protection of substrates needing inspection during service.	4.0 to 16.0 [0.157 to 0.630]	Clear	RK-6204	N/A	Environmental sealing of components where mechanical toughness or split resistance are needed.	Americas Europe Asia Pacific

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Dual Wall (Cont'd.)	ES1000	-40 to 130 [-40 to 266]	135 [275]	4:1	Clear, high-shrink-ratio, adhesive-lined semirigid polyolefin tubing	4:1 shrink ratio allows a few sizes to cover a wide range of splice and component diameters. Mechanically tough providing strain relief and abrasion protection.	5.72 to 17.78 [0.225 to 0.700]	Clear	RT-1113; UL 224	N/A	Specially designed for environmental sealing and electrical insulation of wire splices, terminations and components where see-through inspection is required.	Americas Asia Pacific
	ES2000	-40 to 130 [-40 to 266]	135 [275]	4:1	Flame-retardant, high-shrink-ratio, adhesive-lined semirigid polyolefin tubing	4:1 shrink ratio allows a few sizes to cover a wide range of splice and component diameters. Flame-retardant and mechanically tough providing strain relief and abrasion protection.	5.72 to 17.78 [0.225 to 0.700]	Black	RT-1112; UL 224	ASTM D2671, Procedure B	Specially designed for environmental sealing and electrical insulation of wire splices, terminations and components.	Americas Asia Pacific
	FL2500	-40 to 135 [-40 to 275]	135 [275]	4:1	Fully flame-retardant, high-shrink-ratio, adhesive-lined semirigid polyolefin tubing	4:1 shrink ratio allows a few sizes to cover a wide range of splice and component diameters. Flame-retardant jacket and adhesive.	7.62 to 17.79 [0.300 to 0.700]	Black	FL2500 SCD	SAE J1128, Note 5	Fully flame-retardant and mechanically tough to provide strain relief and abrasion protection of wire splices, terminals, fuse links and in-line components.	Americas Europe Asia Pacific
	HTAT	-55 to 125 [-67 to 275]	110 [230]	4:1	Semiflexible, high-shrink-ratio, adhesive-lined polyolefin tubing	4:1 shrink ratio allows for connector-to-cable sealing. Medium wall provides increased mechanical protection. High-temperature adhesive forms a strong bond to a variety of materials.	4.0 to 48.0 [0.158 to 1.890]	Black	RW-2052	ASTM D2671, Procedure B	Sealing and protection of connector back-shells, breakouts and connector-to-cable transitions at elevated temperatures. High shrink ratio allows HTAT to provide superior environmental protection to a wide range of shapes with irregular dimensions.	Americas Europe Asia Pacific
	QSZH	-40 to 125 [-40 to 257]	135 [275]	4:1	High-shrink-ratio, adhesive-lined semirigid polyolefin tubing	4:1 shrink ratio allows a few sizes to cover a wide range of splice and component diameters. Mechanically tough providing strain relief and abrasion protection. Seals quick for efficient installation. No added halogens.	5.75 to 18.3 [0.226 to 0.720]	Clear jacket, Black adhesive	RK-6771	N/A	Specially designed for environmental sealing and electrical insulation of wire splices, terminations and components.	Americas Europe Asia Pacific
	RBK-ILS	-40 to 125 [-40 to 257]	135 [275]	4:1	Flame-retardant, high-shrink-ratio, adhesive-lined semirigid polyolefin tubing	4:1 shrink ratio allows a few sizes to cover a wide range of splice and component diameters. Mechanically tough providing strain relief and abrasion protection. Flame retardant.	5.75 to 18.3 [0.226 to 0.720]	Black	RK-6638	ISO6722, Clause 4.5	Specially designed for environmental sealing and electrical insulation of wire splices, terminations and components.	Americas Europe Asia Pacific
	RBK-VWS	-40 to 125 [-40 to 257]	135 [275]	4:1	Clear, high-shrink-ratio, adhesive-lined semirigid polyolefin tubing	4:1 shrink ratio allows a few sizes to cover a wide range of splice and component diameters. Mechanically tough providing strain relief and abrasion protection. Permits inspection of substrate after application.	5.70 to 17.78 [0.224 to 0.700]	Clear	RK-6640 (sizes 1-3) RT-1113 (size 4)	N/A	Specially designed for environmental sealing and electrical insulation of wire splices, terminations and components where see-through inspection is required.	Americas Europe Asia Pacific
	RPPM	-40 to 85 [-40 to 185]	80 [176]	4:1	Flexible, low-shrink-temperature, adhesive-lined polyolefin tubing	Tough outer jacket offers excellent mechanical strength. High shrink ratio allows use on a range of substrate diameters. Black has a high gloss finish. Clear has excellent optical clarity allowing inspection of substrates after installation.	4.0 to 16.0 [0.157 to 0.630]	Black and Clear	RK-6214	N/A	Use the black for cosmetic applications where a high gloss finish is desired. Use the clear where optical clarity is desired for later inspection.	Americas Europe Asia Pacific
	SCL	-55 to 110 [-67 to 230]	135 [275]	3:1	Semirigid, encapsulant-lined polyolefin tubing	Splash-resistant, moisture-resistant covering. Provides rugged protection against abrasion, vibration and flexing.	3.2 to 25.4 [0.125 to 1.000]	Black plus one additional color per size (except 1")	RT-1301; AS23053/4, Cl. 1; UL 224	N/A	Encapsulation of components, splices and terminations where splash resistance and mechanical protection are required.	Americas Europe Asia Pacific
	SCT	-40 to 150 [-40 to 302]	135 [275]	4:1	Flame-retardant, adhesive-lined semirigid polyolefin tubing (extended temperature range)	4:1 shrink ratio allows a few sizes to cover a wide range of splice and component diameters. Flame-retardant and mechanically tough. Adhesive wall forms a barrier against fluids and moisture at an extended temperature range.	7.6 to 17.8 [0.300 to 0.700]	Black	SCT SCD	ASTM D2671, Procedure B	Specially designed for insulation, strain relief and sealing of automotive wire splices and components in an underhood automotive environment.	Americas Europe Asia Pacific
	TAT-125	-55 to 110 [-67 to 230]	121 [250]	2:1	Flexible, adhesive-lined polyolefin tubing	Flexible adhesive lining and tubing jacket. Thin adhesive lining to seal simple constructions. Good mechanical strength and cut-through resistance. Adhesive bonds to a wide variety of materials.	3.2 to 101.6 [0.125 to 4.000]	Standard: Black; Nonstandard: White, red, blue, yellow, green, brown, orange, violet, gray, and clear (non-flame-retardant).	TAT-125 SCD; RW-3032; AS23053/4, Cl. 2; UL 224	ASTM D2671, Procedure B	Sealing and protection of simple in-line splices, bimetallic joints, and components from fluids, moisture, and corrosion. Repair damaged wire insulation, especially where flexibility is required.	Americas Asia Pacific
	TECT	-40 to 80 [-40 to +176]	135 [275]	3:1	Semiconductive, adhesive-lined polyolefin tubing	Semi-conductive polyolefin jacket lined with semi-conductive adhesive.	13.5 [0.531] One size only	Black	RW-2080	N/A	Electrical grounding of coated automotive fuel lines.	Europe

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Product Category	Product Name	Operating Temperature °C[°F]	Minimum Full Recovery Temperature °C[°F]	Shrink Ratio	Product Description	Features/Benefits	Standard Size Range (Inside Diameter as supplied) mm [In.]	Colors	Applicable Specifications	Flammability Rating	Typical Applications	Available in
Heavy Duty	BSTS/ BSTS-FR	-55 to 90 [-67 to 194]	121 [250]	3:1	Rugged, thick wall, general purpose polyolefin tubing	Excellent thick wall insulation and abrasion protection. BSTS-FR is flame-retardant.	7.62 to 114.30 [0.300 to 4.500]	Standard: Black; Nonstandard: Red, white, and clear (non-flame-retardant)	RW-2017; ABS	ASTM D2671, Proc. C (Flame-retardant version only); ASTM D635	Used in demanding applications where insulation, abrasion resistance and strain relief are required. Resists moisture, fungus and weathering.	Americas Europe Asia Pacific
	HF	-55 to 90 [-67 to 194]	121 [250]	3:1	High-flex, heavy wall polyolefin tubing	Offers high flexibility. Provides excellent insulation and abrasion protection. Flame-retardant.	10.16 to 68.58 [0.400 to 2.700]	Black	RW-2023; ABS	ASTM D2671, Procedure C	Ideal for jacketing cables where sharp bends or turns are required. Also ideal for applications where the cable is subject to motion.	Americas Europe Asia Pacific
	HRHF/ HRNF/ HRSR	-55 to 90 [-67 to 194]	121 [250]	5.6:1	High-ratio, durable heavy wall polyolefin tubing	Excellent insulation and abrasion protection. Available in flame-retardant material. Available with factory-applied sealants.	15.24 to 101.60 [0.600 to 4.000]	Standard: Black; Nonstandard: Clear (non-flame-retardant; HRHF only)	RW-2013; ABS	ASTM D2671, Procedure C (Flame-retardant version only)	Designed to accommodate large size differences between cable diameters and cable connectors and backshells to simplify cable repair and protection.	Americas Europe Asia Pacific
	HRHT	-55 to 135 [-67 to 275]	150 [302]	As high as 6:1	High-ratio, high-temperature polyolefin tubing	Shrink ratios as high as 6:1. Specially formulated for thick wall insulation, strain relief, and abrasion protection. Designed to conform to odd shapes and shrink over large transitions. Available with optional adhesive lining.	19.05 to 114.30 [0.750 to 4.500]	Black	HRHT SCD	ASTM D635	Recovery over odd shapes and large cable transitions. Sealing the back end of a connector or reparing the damaged outer insulation of a cable.	Americas Europe Asia Pacific
	RHW	-40 to 110 [-40 to 230]	125 [257]	4:1	Rugged, heavy wall, adhesive-lined polyolefin tubing	Highly resistant to impact, flexing and abrasion for increased product reliability. Resistant to chemicals, moisture and oils. Provides a moisture-proof seal to prevent corrosion. Halogen-free and UV resistant jacket.	12.0 to 390.0 [0.472 to 15.354]	Black	RHW SCD; UL 224 (sizes 12/3 through 70/20 only)	N/A	Insulation, protection and sealing of electrical connections and joints in low-voltage cables. Combines maximum reliability and product performance with simplified installation.	Americas Europe Asia Pacific
	RMW	-40 to 110 [-40 to 230]	125 [257]	3:1	Medium wall, general purpose polyolefin tubing	Withstands mechanical abuse for increased product reliability. Highly resistant to impact and abrasion. Resistant to chemicals and moisture. Adhesive-lined version provides a moisture-proof seal to prevent corrosion.	10.0 to 180.0 [0.394 to 7.087]	Black	RMW SCD	N/A	Insulation and protection of cable joints as well as cable repair. Uncoated RMW provides insulation and strain relief. Adhesive-lined RMW also provides an environmental seal.	Americas Europe Asia Pacific
	SST/ SST-FR	-55 to 90 [-67 to 194]	121 [250]	3:1	Thick wall, adhesive-lined polyolefin tubing	Thick wall insulation, strain relief and abrasion protection. Thick adhesive liner forms a barrier against fluids and moisture. SST-FR is flame-retardant.	7.62 to 114.30 [0.300 to 4.500]	Standard: Black; Nonstandard: Red, white, and clear (non-flame-retardant)	RW-2011; AS23503/15, Cl. 1 and 2 (flame-retardant version with /97 coating only);	ASTM D2671, Proc. C (Flame-retardant version only)	Insulation, strain relief and sealing of splices in wire harnesses. Environmental protection in wet or underground applications.	Americas Europe Asia Pacific
	URHT	-55 to 135 [-67 to 275]	150 [302]	As high as 8:1	Ultra-high-ratio, flame-retardant polyolefin tubing	Shrink ratios as high as 8:1. Specially formulated for thick wall insulation, strain relief, and abrasion protection. Designed to conform to odd shapes and shrink over large transitions. Optional adhesive lining provides environmental sealing.	50.8 to 76.2 [2.000 to 3.000]	Black	URHT SCD	ASTM D635	Recovery over odd shapes and large cable transitions. Sealing the back end of a connector or repairing the damaged outer insulation of a cable.	Americas Europe Asia Pacific
Special Purpose	DR-25	-75 to 150 [-103 to 302]	175 [347]	2:1	Flexible, chemical and abrasion resistant tubing	Long-term fluid and heat resistance. Resistance to aviation and diesel fuels, and hydraulic fluids. Flexible, flame-retardant.	3.2 to 76.0 [0.125 to 3.000]	Black	RT-1116, RK-6008/1; AS 23053/16, VG95343 Part 5 Type D, VDE 0341/ Pt 9005, Def. Stan. 59-97 Issue 3 type 6B,BS 4G-198 Part 3 10A	ASTM D2671, Procedure B	Particularly suitable as a jacketing material for cables and harnesses on military ground vehicles and race cars.	Americas Europe Asia Pacific
	ES Caps	-40 to 105 [-40 to 221]	135 [275]	4:1	High-shrink-ratio, adhesive-lined semirigid polyolefin caps	4:1 shrink ratio allows a few sizes to cover a wide range of splice diameters. Mechanically tough jacket provides strain relief and abrasion protection. Flame-retardant jacket (black only).	5.72 to 10.85 [0.225 to 0.427]	Black and Clear (non-flame-retardant)	RW-3006; UL 224	ASTM D2671, Procedure B (Black only)	Specially designed to provide mechanical and environmental protection of stub splices in electrical harnesses. Clear caps allow see-through inspection.	Americas Europe Asia Pacific
	HCTE	-55 to 200 [-67 to 392]	N/A	N/A	Irradiated, modified ETFE helical convolex conduit	Helical construction with excellent flexibility and high crush resistance. Highly flame-retardant. Highly fluid resistant.	4.6 to 49.2 [0.181 to 1.937]		RT-1162; VG 96936 Part 6	ASTM D876	Mechanical protection for electrical wiring systems in applications requiring flexibility, high temperature performance, and good solvent resistance.	Americas Europe Asia Pacific

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Special Purpose (contd)	HFT5000	-40 to 125 [-40 to 257] for 3,000 hours; -40 to 150 [-40 to 302] for 1,000 hours	110 [230]	2:1	Heat-shrinkable fabric tubing	Highly flexible for easy installation on a variety of substrates. Outstanding abrasion resistance over a wide temperature range. Heat-shrinkable to grip tightly. Resistant to harsh environments. Halogen-free.	12.0 to 100.0 [0.472 to 3.937]	Black	RW-2060; UL 224	FMVSS 302	Abrasion protection for rubber hoses, plastic pipes, and harness wire bundles. Provides outstanding abrasion, chafing and cut-through resistance even at high temperatures.	Americas Europe Asia Pacific
	HT-200	-70 to 200 [-94 to 392]	130 [266]	2:1	High-clarity, high flame-resistant, very flexible fluoropolymer tubing	Very flexible, very thin wall insulation. Highly flame resistant. High temperature performance. Resistant to most solvents, fuels and chemicals. Clarity allows visual inspection of covered components such as downhole sensors.	1.2 to 25.4 [0.046 to 1.000]	Clear	RW-1200; AS 23053/18, Class 3	ATSM D2671, Procedure C	Insulation of delicate electrical connections and terminations. Allows visual inspection of terminations, connections and covered components such as sensors. Offers high temperature performance and superior chemical and solvent resistance.	Americas Europe Asia Pacific
	NT-MIL	-70 to 121 [-94 to 250]	135 [275]	1.8:1	Flexible, rugged, modified elastomeric tubing	Remains flexible at temperatures as low as -70°C [-94°F]. Excellent resistance to abrasion and physical abuse. Resistant to most fluids and solvents, including fuels and oils.	3.2 to 101.6 [0.125 to 4.000]	Black	RW-3030; AS23053/1, Cl. 1 & 2	ASTM D2671, Procedure A	Insulation, strain relief and abrasion protection on cable harnesses and wire bundles in the military and aerospace industries. Applications requiring exposure to fluids and solvents.	Americas Europe Asia Pacific
	PD Caps	-55 to 110 [-67 to 230]	135 [275]	3:1	Semirigid, encapsulant-lined polyolefin caps	End cap with meltable encapsulant inner wall for splash resistance. Permanent or temporary method to terminate wires.	3.2 to 12.7 [0.125 to 0.500]	Black	PD Caps SCD; UL 224	ASTM D635	Insulation and encapsulation of crimped electrical connections, especially stub splices, providing rugged protection against abrasion, vibration and flexing.	Americas Europe Asia Pacific
	RayBlock 85	-40 to 85 [-40 to 185]	110 [230]	4:1	Heat-shrinkable water blocking system	Environmentally seals and provides strain relief to wire bundles of up to 20 wires. Withstands excursions to 105°C [221°F].	12.0 to 32.0 [0.472 to 1.260]	Black	RayBlock 85 SCD; RW-2101	N/A	Sealing of cable bundles and the back of connectors.	Americas Europe Asia Pacific
	RayBlock 105	-40 to 105 [-40 to 221]	110 [230]	4:1	High-temperature heat-shrinkable water blocking system	Environmentally seals and provides strain relief to wire bundles of up to 20 wires. Withstands excursions to 120°C [248°F].	12.0 to 32.0 [0.472 to 1.260	Black	RayBlock 105 SCD; RW-2102	N/A	Sealing of cable bundles and the back of connectors.	Americas Europe Asia Pacific
	Rayrim	-67 to 80 [-40 to 176]	150 [302]	N/A	Commercial protective self adhering, Vshaped polyolefin edging material	Flexible and self-adhering to allow for protection of curved and straight edges. Rapid installation to both internal and external radii. Operating temperature range offers protection in demanding environments.	5 sizes to cover thicknesses 0.31 to 5.38 [0.012 to 0.212]	Black	RK-6182	N/A	Protection of metal, wood and glass edges.	Americas Europe Asia Pacific
	RaySpool	See individual product families	See individual product families	2:1 & 3:1	CGPT (2:1 & 3:1), LSTT and CGAT	Selected heat-shrinkable tubings supplied in a convenient dispensing system.	See individual product families	See individual product families	See individual product families	See individual product families	See individual product families.	Europe Asia Pacific
	RNF-150	-55 to 150 [-67 to 302]	150 [302]	2:1	High-performance, flame-resistant, flexible fluoropolymer tubing	Thinner wall than most general purpose polyolefin tubings. Highly flame-resistant. Excellent physical and electrical properties after exposure to many chemicals and solvents at 50°C [122°F].	1.2 to 25.4 [0.046 to 1.000]	Standard: Black; Nonstandard: White	RT-370; AS23053/18, Cl. 2; UL 224 VW-1	ASTM D2671, Proc. C; UL 224 VW-1	Jacketing and bundling wires to form light-duty harnesses, especially where a low profile, abrasion resistance, and flexibility are needed. Insulation and strain relief of electrical connections and wire terminations.	Americas Europe Asia Pacific
	RT-375	-55 to 150 [-67 to 302]	150 [302]	2:1	Clear, flame-resistant, flexible fluoropolymer tubing	Exceptional clarity and clarity stability. Highly flame-resistant. Toughness, chemical resistance, and high temperature performance.	1.2 to 50.8 [0.046 to 2.000]	Clear	RT-375; AS23053/18, Cl. 2; UL 224/ CSA VW-1	ASTM D2671, Proc. C; UL 224/CSA VW-1	Protection of components and wire markers subject to extreme abuse while permitting full identification and inspection.	Americas Europe Asia Pacific
	RT555	-65 to 200 [-85 to 392]	220 [428]	2:1	Fluid-resistant, chemical-resistant, fluoropolymer tubing with extended temperature range	Resistant to high temperatures, solvents, corrosive chemicals, hydrocarbons, and radiation. Highly flame-retardant. Low outgassing	3.2 to 50.8 [0.125 to 2.000]	Black	RT-555; AR70-75; UL 224	ASTM D2671, Procedure C	Applications requiring resistance to high temperatures and resistance to a variety of chemicals and fluids. Insulation and strain relief on appliances. Protection of delicate electronic instruments.	Americas Europe Asia Pacific

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Special Purpose (contd)	RW-175	-55 to 175 [-67 to 347]	175 [347]	2:1	High-temperature, chemical-resistant polyvinylidene fluoride tubing	Tough, semirigid, very thin wall insulation. Highly flame-resistant. High temperature performance. Resistant to most solvents, fuels, and chemicals.	1.2 to 50.8 [0.046 to 2.000]	Standard: Translucent; Nonstandard: Black	RW-3029/2; AS23053/8 (Translucent only); UL 224/CSA VW-1	ASTM D2671, Proc. C; UL 224/CSA VW-1	Insulation and strain relief of delicate electrical connections and terminations. Offers high temperature performance, outstanding abrasion and cut-through resistance, and superior chemical and solvent resistance.	Americas Europe Asia Pacific
	RW-175-E	-55 to 175 [-67 to 347]	175 [347]	2:1	High-temperature, chemical-resistant polyvinylidene fluoride tubing	Tough, semirigid, very thin wall insulation. Highly flame-resistant. High temperature performance. Resistant to most solvents, fuels, and chemicals.	1.2 to 38.1 [0.046 to 1.500]	Standard: Translucent; Nonstandard: Black	RW-3029/1; VG95343 Part 5 Type F, VDE 0341/Pt 9005; UL 224/CSA VW-1	ASTM D2671, Proc. C; UL 224/CSA VW-1	Insulation and strain relief of delicate electrical connections and terminations. Offers high temperature performance, outstanding abrasion and cut-through resistance, and superior chemical and solvent resistance.	Europe Asia Pacific
	RW-200	-40 to 200 [-40 to 392]	175 [347]	2:1	Chemical-resistant, high-temperature fluoroelastomer tubing	Outstanding performance in severe chemical and thermal environments. High resistance to impact and abrasion.	3.2 to 50.8 [0.125 to 2.000]	Black	RW-3037; AS23053/13	ASTM D2671, Proc. A; ASTM D876	Insulation and protection of cables and components exposed to high temperatures and/or solvents, fuels, hydraulic fluids, lubricants, and acids. Suitable for use in engine compartments.	Americas Europe Asia Pacific
	RW-200-E	-40 to 200 [-40 to 392]	175 [347]	2:1	Heavy wall, chemical-resistant, high-temperature fluoroelastomer tubing	Outstanding performance in severe chemical and thermal environments. Heavy wall provides increased protection against mechanical abuse.	3.2 to 50.8 [0.125 to 2.000]	Black	RW-3037; MIL-PRF-46846 Type III Cl. 1, Def. Stan. 59-97Issue 3 Type 4A, VG95343 Part 5 Type E, VDE 0341/Pt9005, BS 4G-198 Part 3 12A	ASTM D876	Especially suitable for the most demanding harnessing requirements in aircraft, missiles, satellite systems and chemical plants.	Americas Europe Asia Pacific
	SAS/ SASR/ TSAS	-80 to 125 [-112 to 257] (See individual product families)	Minimum sealing temperature will depend on the adhesive type and application	N/A	Slit adhesive sleeves made of selected adhesives	N/A For use with single and dual wall tubings to provide additional adhesive in applications where it is needed.	1.4 to 9.5 [0.055 to 0.375]	Amber, Black or Gray	See individual product families	N/A	Use under single wall tubing to create a seal around a wire or splice. Use under dual wall tubing where additional adhesive is needed for consistent sealing. Use several on individual wires to create a water block at the back of a connector.	Americas Europe Asia Pacific
	SFR	-75 to 180 [-103 to 356]	175 [347]	1.75:1	Very flexible, flame-retardant, silicone elastomer tubing	Outstanding low-temperature flexibility. Resistance to hydraulic fluids, fuel, and lubricating oil. Very good ablative characteristics.	6.4 to 50.8 [0.250 to 2.000]	Black	RT-1140; AS23053/10; MIL-PRF-46846 Type II Cl. 1	ASTM D2671, Procedure B	Cable harness protection where maximum flexibility in temperature extremes is required. Strain relief for electronic components, semiconductor leads, and wire splices.	Americas Europe Asia Pacific
	SRFR	-75 to 200 [-102 to 392]	175 [392]	1.5:1	Highly flexible silicone rubber tubing	Highly flexible. Resistant to high and low temperatures and medical sterilization. SRFR is non-burning with outstanding ablative properties.	2.9 to 51.0 [0.114 to 2.008]	Gray	RT-1142, RW-2057; UL 224 VW-1	ASTM 2671, Procedure B; UL 224 VW-1	Used in medical equipment where flexibility and the ability to withstand sterilization are needed. Thyristor power cable insulation, heating element and bus bar insulation, fiber optic bundle sheathing, and rocketry support cable protection.	Americas Europe Asia Pacific
	SWFR X2	-30 to 125 [-22 to 257]	90 [194]	2:1	Very flexible, low-shrink temperature, highly flame-retardant, polyolefin tubing with no added halogens	Low shrink temperature for fast installation. Environmentally friendly tubing with no added halogens emits minimal amounts of toxic or acid gasses during combustion. 600V rating. UL 224/CSA VW-1 flame rating.	1.0 to 30.0 [0.039 to 1.181]	Black	SWFR X2 SCD; UL 224/ CSA VW-1	UL 224/CSA VW-1	Insulation and protection of in-line components, wire splices and terminations. Very flexible light-duty harnessing. Use where a non-halogenated product with a UL 224/CSA VW-1 rating is needed. Use where rapid installation is desirable.	Americas Europe Asia Pacific
	SWFR X4	-30 to 125 [-22 to 257]	90 [194]	2:1	Very-thin-wall, very flexible, low-shrink-temperature, highly flame-retardant, polyolefin tubing with no added halogens	Very thin wall and low shrink temperature for fast installation and space savings. Environmentally friendly material with no added halogens emits minimal amounts of toxic or acid gasses during combustion. 300V rating. UL 224/CSA VW-1 flame rating.	0.8 to 25.0 [0.032 to 0.984]	Black	SWFR X4 SCD; UL 224/ CSA VW-1	UL 224/CSA VW-1	Insulation and protection of in-line components, wire splices and terminations. Especially suited for covering temperature-sensitive components where a non-halogenated product is needed. Strain relief on high-density connectors.	Americas Europe Asia Pacific
	TC Caps	-55 to 135 [-67 to 275]	135 [275]	2:1	Semirigid, flame-retardant polyolefin end caps	Single wall caps provide permanent or temporary insulation and termination. Vibration and abrasion resistant.	1.6 to 6.4 [0.063 to 0.250]	White, red and gray (One standard color per size)	TC Caps SCD; UL 224	UL 224 All Tubing Flame Test (Material)	Widely used for wire terminations because of light weight, small size and durability.	Americas Europe Asia Pacific

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Special Purpose (contd)	TFE/TFER	-67 to 250 [-89 to 482]	340 [644]	1.8:1 to 3.2:1	High-temperature, chemically inert modified PTFE tubing	Provides insulation and mechanical protection in severe chemical and thermal environments. High mechanical strength and an extremely low coeffcient of friction.	0.8 to 32.0 [0.031 to 1.260]	Clear	RK-2055 and RK-2054	ASTM D876 15 sec max.	Covering hydraulic hose and couplings to prevent contamination and corrosion. The high mechanical strength and extremely low coeffcient of friction make it good for reducing damage to bearing shafts and similar applications.	Europe Asia Pacific
	Tubing Kits & MiniSpools	See individual product families	See individual product families	2:1 to 4:1	VERSAFIT, RNF-100, DWP-125 and ES1000	Smaller packaging options for our most popular sizes of select single wall and adhesive-lined products.	See individual product families	See individual product families	See individual product families	See individual product families	See individual product families.	Americas Europe Asia Pacific
	Versaflex/ Versaflex-FR	-50 to 150 [-58 to 302]	N/A	N/A	Expandable, Braided Polyester Tubing	Suitable for mechanical protection of wire harnesses where exceptional flexibility combined with superior abrasion and cut-through resistance is required. Will not trap heat or moisture. Expands easily over irregular shapes. Available in non-flame-retardant or flame-retardant versions.	3.0 to 50.0 [0.118 to 2.000] Nominal	Black & Gray. Flame-retardant version has white tracer.	RK-6772	N/A	Mechanical protection of wire harnesses, hoses, and other substrates where exceptional flexibility is needed. Wire bundling without trapping heat and moisture. Provides additional abrasion and cut-through resistance where required.	Americas Europe Asia Pacific
	XFFR	-55 to 105 [-67 to 221]	121 [250]	3:1	No added halogens, flame-retardant tubing	Tubing with no added halogens emits minimal amounts of toxic or acid gasses during combustion.	7.62 to 76.20 [0.300 to 3.000]	Black	RW-2016; MIL-C-24643 (Cable jacket flame performance); NES 713; NES 711; ABS	MIL-C-24643	Harnessing, rejacketing and repair of cable in enclosed areas requiring a halogen-free, flame-retardant environment.	Americas Europe Asia Pacific
	ZH-100	-30 to 105 [-22 to 221]	120 [248]	2:1	Flexible, thin-wall, low-fire-hazard tubing	Low smoke emissions. Flexible, flame-retardant. No added halogens.	3.2 to 51.0 [0.125 to 2.000]	Black	RW-2031	ASTM D876	Jacketing wire bundles and light-duty harnesses for use in areas where low-fire-hazard materials are required.	Americas Europe Asia Pacific
	ZHTM	-30 to 105 [-22 to 221]	121 [250]	2:1	Flexible, thick-wall tubing with low toxicity for fire safety applications	Low smoke emissions. Flexible, flame-retardant.	3.0 to 50.0 [0.118 to 1.969]	Black	RW-2058	ASTM D2671, Procedure B (Sizes 12/6 & below); ASTM D876 (Sizes 18/9 and larger)	Insulation and protection of cables, harnesses, and electrical and electronic components in enclosed spaces, such as in ships, mass transit systems and offshore installations.	Americas Europe Asia Pacific

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Product Type	UL file	CSA file	AS23053* Sheet	AS23053* Class	MIL-PRF-46846 Type	MIL-PRF-46846 Class	Raychem Specification
AP-2000							RW-1001
ATUM	E85381**		/4	3			RW-2063 (Black) RK-6024 (Colors & Clear)
BRST							RK-6766
BSTS							RW-2017
BSTS-FR							RW-2017
CGPE-105							CGPE-105 SCD
CGAT	E85381						RW-2050
CGPT	E35586	LR31929					RW-2059
CRN Type 1 (Black)	E35586†	LR31929†	/6	1			RT-360, Type 1
CRN Type 2 (Clear)			/6	2			RT-360, Type 2
DCPT	E35586	LR31929					RW-2056
DR-25			/16				RT-1116, RK-6008/1
DSPL							RK-6755
DWFR	E35586 VW-1						DWFR SCD
DWP-125	E35586	LR31929					DWP-125 SCD
DWTC							RK-6204
ES1000	E85381						RT-1113
ES2000	E85381						RT-1112
ES Caps	E85381						RW-3006
FL2500							FL2500 SCD
HCTE							RT-1162
HF							RW-2023
HFT5000	E199379						RW-2060
HRHF							RW-2013
HRHT							HRHT SCD
HRNF							RW-2013
HRSR							RW-2013
HT-200			/18	3			RW-1200
HTAT							RW-2052
LSTT							RW-2051
NETM1000							NETM1000 SCD

* Formerly MIL-I-23053 and MIL-DTL-23053 and AMS-DTL-23053
** Black only, except sizes 3/1 and 4/1
† Black only, sizes 1/8 through 3/4
†† Overexpanded
††† Sizes 12/3 through 70/20 only.
†††† With exception to dimensions and longitudinal change.

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Product Type	UL file	CSA file	AS23053* Sheet	AS23053* Class	MIL-PRF-46846 Type	MIL-PRF-46846 Class	Raychem Specification
NETM2000							NETM2000 SCD
NT-MIL			/1	1 & 2			RW-3030
PD Caps	E85381						PD Caps SCD
QSZH							RK-6771
RayBlock 85							RW-2101
RayBlock 105							RW-2102
Rayrim							RK-6182
RaySpool							Various
RBK-ILS							RK-6638
RBK-VWS							RK-6640 (sizes 1-3), RT-1113 (size 4)
RHW	E91151†††						RHW SCD
RMW							RMW SCD
RNF-100 Type 1 (Colors)	E35586	LR31929	/5	1			RT-350, Type 1
RNF-100 Type 2 (Clear)			/5	2			RT-350, Type 2
RNF-150	E35586 VW-1		/18	2			RT-370
RNF-3000	E35586	LR31929					RW-2053
RP-4800	E35586		/5	1††			RT-1122
RPPM							RK-6214
RT-3	E35586	LR31929†					RT-360††††
RT-375	E35586 VW-1	LR31929 VW-1	/18	2			RT-375
RT555	E85381						RT-555
RW-175/RW-175-E	E35586 VW-1	LR31929 VW-1	/8				RW-3029/1 & 2
RW-200/RW-200-E			/13		III	1	RW-3037
SAS							Various
SASR							SASR SCD
SCL	E85381		/4	1			RT-1301
SCT							SCT SCD
SFR			/10		II	1	RT-1140
SRFR	E85381 VW-1						RT-1142/RW-2057
SST							RW-2011

Product Type	UL file	CSA file	AS23053* Sheet	AS23053* Class	MIL-PRF-46846 Type	MIL-PRF-46846 Class	Raychem Specification
SST-FR			/15	1 & 2			RW-2011
SWFR X2	E35586 VW-1	LR31929 VW-1					SWFR X2 SCD
SWFR X4	E35586 VW-1	LR31929 VW-1					SWFR X4 SCD
TAT-125 Type 1 (Colors)	E85381		/4	2			RW-3032
TAT-125 Type 2 (Clear)							RW-3032
TC Caps	E85381						TC Caps SCD
TECT							TECT SCD
TFE/TFER							RW-2054, RW-2055
TSAS							TSAS SCD
Tubing Kits/MiniSpools							Various
TUGA-GP							RW-2201
URHT							URHT SCD
VERSAFIT	E35586 VW-1	LR31929 VW-1	/5	1 & 3			RW-3009
VERSAFIT-3X	E35586 VW-1	LR31929 VW-1					RW-3009
VERSAFIT V2	E35586 VW-1	LR31929 VW-1					RW-3023
VERSAFIT V4	E85381 VW-1	LR31929 VW-1					RW-3023
VERSAFLEX/VERSAFLEX-FR							RK-6772
XFFR							RW-2016
ZH-100							RW-2031
ZHTM							RW-2058

* Formerly MIL-I-23053 and MIL-DTL-23053 and AMS-DTL-23053
** Black only, except sizes 3/1 and 4/1
† Black only, sizes 1/8 through 3/4
†† Overexpanded
††† Sizes 12/3 through 70/20 only.
†††† With exception to dimensions and longitudinal change.

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TECHNICAL SUPPORT

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