tyco Electronics

RNF-100

Raychem

Flexible, flame-retardant, high performance, polyolefin heat-shrinkable tubing

RNF-100 tubing is a high-quality, heat-shrinkable product for a wide variety of uses. It has become the industry standard for insulation, strain relief, wire bundling, and color-coding in both commercial and military applications. RNF-100 tubing meets the requirements of AMS-DTL-23053/5, Class 1 (colors) and Class 2 (clear).

It is also UL-recognized and CSA-certified at 125°C, 600 V.

Made from flame-retardant polyolefin, RNF-100 tubing has excellent physical, chemical, and electrical properties that meet industrial and military requirements for a highly reliable, general-purpose tubing. It sets itself apart in that it offers a higher level of performance at elevated temperature, including mechanical abrasion and fluid resistance, than many heat-shrinkable polyolefin tubings available in the marketplace today.

Only a few sizes of RNF-100 tubing are required to cover many substrate diameters.

Temperature rating

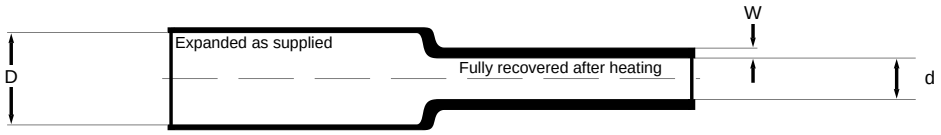
Minimum shrink temperature:	121°C
Continuous operating temperature:	–55°C to 135°C

*Specifications**

Type	Raychem	Military	UL	CSA
RNF-100 Type 1 (colors)	RT-350 Type 1	AMS-DTL-23053/5, Cl. 1	E35586	LR31929
RNF-100 Type 2 (clear)	RT-350 Type 2	AMS-DTL-23053/5, Cl. 2		

*When ordering, always specify latest issue.

Dimensions (millimeters/inches)



Size	Inside diameter D (min.) Expanded as supplied		Inside diameter d (max.) Recovered after heating		Wall thickness W Recovered after heating**	
3/64	1.2	*0.046*	0.6	*0.023*	0.40 ± 0.08	*0.016 ± 0.003*
1/16	1.6	*0.063*	0.8	*0.031*	0.43 ± 0.08	*0.017 ± 0.003*
3/32	2.4	*0.093*	1.2	*0.046*	0.51 ± 0.08	*0.020 ± 0.003*
1/8	3.2	*0.125*	1.6	*0.062*	0.51 ± 0.08	*0.020 ± 0.003*
3/16	4.7	*0.187*	2.4	*0.093*	0.51 ± 0.08	*0.020 ± 0.003*
1/4	6.4	*0.250*	3.2	*0.125*	0.64 ± 0.08	*0.025 ± 0.003*
3/8	9.5	*0.375*	4.8	*0.187*	0.64 ± 0.08	*0.025 ± 0.003*
1/2	12.7	*0.500*	6.4	*0.250*	0.64 ± 0.08	*0.025 ± 0.003*
3/4	19.1	*0.750*	9.5	*0.375*	0.77 ± 0.08	*0.030 ± 0.003*
1	25.4	*1.000*	12.7	*0.500*	0.89 ± 0.12	*0.035 ± 0.005*
1 1/4	31.7	*1.250*	15.9	*0.625*	1.02 ± 0.15	*0.040 ± 0.006*
1 1/2	38.1	*1.500*	19.1	*0.750*	1.02 ± 0.15	*0.040 ± 0.006*
2	50.8	*2.000*	25.4	*1.000*	1.14 ± 0.16	*0.045 ± 0.007*
3	76.2	*3.000*	38.1	*1.500*	1.27 ± 0.20	*0.050 ± 0.008*
4	101.6	*4.000*	50.8	*2.000*	1.40 ± 0.23	*0.055 ± 0.009*
5	127.0	*5.000*	63.5	*2.500*	1.53 ± 0.23	*0.060 ± 0.009*

**Wall thickness will be less if tubing recovery is restricted during shrinkage.

Ordering information

Colors	**Standard**	Black (all sizes); clear, white, red, blue, green, and yellow (3/64” through 3”)
	Nonstandard	Clear, white, red, blue, and yellow (4” and 5”); brown, orange, violet, and gray (all sizes)
Size selection	Always order the largest size that will shrink snugly over the component being covered.	
Standard packaging	On spools or in 4 foot lengths	
Ordering description	Specify product name, size, and color; for example, RNF-100-1/4-BK (BK=Black).	

Specification values

			Requirement		
	Property	**Unit**	**Type 1 (colors)**	**Type 2 (clear)**	**Method of test**
Physical	Dimensions	mm *(inches)*	See Reverse	See Reverse	ASTM D 2671
	Longitudinal change	percent	+0, -5	+0, -5	ASTM D 2671
	Tensile strength	psi *(Mpa)*	1500 *(10.3)* minimum	1500 *(10.3)* minimum	ASTM D 2671
	Ultimate elongation	percent	200 minimum	200 minimum	ASTM D 2671
	Secant modulus (as supplied)	psi *(Mpa)*	2.5 X 10^4 *(172)* maximum	2.5 X 10^4 *(172)* maximum	ASTM D 2671
	Specific gravity		1.35 maximum	1.0 maximum	ASTM D 2671
	Low temperature flexibility (4 hours at -55°C/*-67°F*)		No cracking	No cracking	AMS-DTL-23053
	Heat shock (4 hours at 250°C/*482°F*)		No dripping, flowing, or cracking	No dripping, flowing, or cracking	AMS-DTL-23053
	Heat resistance (336 hours at 175°C/*347°F*)				ASTM D 2671
	Followed by test for:				
	Ultimate Elongation	percent	150 minimum	150 minimum	ASTM D 2671
	Color		MIL-STD-104		MIL-STD-104
	Color stability (48 hours at 175°C/*347°F*)		MIL-STD-104		ASTM D 2671
Electrical	Dielectric strength	volts/mil *(volts/mm)*	500 *(19,680)* minimum	500 *(19,680)* minimum	ASTM D 2671
	Volume resistivity	ohm-cm	10^{14} minimum	10^{16} minimum	ASTM D 2671
Chemical	Copper mirror corrosion (16 hours at 175°C/*347°F*)		No removal of copper	No removal of copper	ASTM D 2671 Procedure A
	Copper contact corrosion (168 hours at 160°C/*320°F*)		No pitting or blackening of copper	No pitting or blackening of copper	ASTM D 2671 Procedure B
	Copper stability (16 hours at 160°C/*320°F*)		No brittleness, glazing, cracking, or severe discoloration of tubing	No brittleness, glazing, cracking, or severe discoloration of tubing	ASTM D 2671 Procedure B
	Followed by test for:				
	Ultimate Elongation	percent	200 minimum	200 minimum	ASTM D 2671
	Flammability		Self-extinguishing within 1 minute, 25% maximum flag burn		ASTM D 2671 Procedure B
	Fungus resistance		Rating of 1 or less	Rating of 1 or less	ASTM G 21
	Water absorption (24 hours at 23°C/*73°F*)	percent	0.5 maximum	0.2 maximum	ASTM D 2671
	Fluid resistance (24 hours at 23°C/*73°F*) in: JP-8 fuel (MIL-T-5624) Skydrol 500 Hydraulic fluid (MIL-H-5606) Aviation gasoline100/300 (MIL-G-5572) Water				ASTM D 2671
	Followed by tests for:				
	Dielectric strength	volts/mil *(volts/mm)*	400 *(15,760)* minimum	400 *(15,760)* minimum	ASTM D 2671
	Tensile strength	psi *(Mpa)*	1000 *(6.9)* minimum	1000 *(6.9)* minimum	ASTM D 2671

Note: Consult RT-350 for specific details about test procedures.
Raychem is a trademark of Tyco Electronics Corporation.

Users should independently evaluate the suitability of the product for their application.

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