

# **RNF-150**

High-performance, thin-wall, flexible, fluoropolymer heat-shrinkable tubing

RNF-150 is a highly flame-resistant thin-wall heat-shrinkable tubing that has excellent durability. It is manufactured from a modified fluoropolymer whose properties include toughness, chemical resistance, and high-temperature performance.

A very thin wall gives RNF-150 excellent flexibility.

Applications include insulation, jacketing, and identification of wire bundles; light-duty harnesses; insulation and protection of terminals and wire connections; and packaging of components. RNF-150 is not recommended for use in direct contact with ketones.

RNF-150 is UL-recognized at 150°C, 600 V, with a UL VW-1 flame retardance rating and meets the requirements of AMS-DTL-23053/18, Class 2.

### Temperature rating

Full recovery temperature:	150°C
Continuous operating temperature:	-55°C to 155°C
Recommended maximum temperature for use as a primary insulator:	135°C

#### Specifications\*

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Туре	Raychem	Military	UL	
RNF-150	RT-370	AMS-DTL-23053/18, Class 2	E85381 VW-1	

\*When ordering, always specify latest issue.

#### Dimensions (millimeters/inches)



Inside diameter			Wall thickness		Weight as supplied (max.)		
D (mi	n.)	d (m	ax.)	W			
Expa	nded	Reco	overed	Recovered		lb./	kg./
as su	pplied	after	heating	after heating	<b>)</b> **	100 ft.	100 m
1.2	0.046	0.6	0.023	0.25 ± 0.05	0.010 ± 0.002	0.10	0.15
1.6	0.063	0.8	0.031	0.25 ± 0.05	0.010 ± 0.002	0.13	0.19
2.4	0.093	1.2	0.046	$0.25 \pm 0.05$	0.010 ± 0.002	0.17	0.25
3.2	0.125	1.6	0.062	0.25 ± 0.05	0.010 ± 0.002	0.22	0.33
4.8	0.187	2.4	0.093	0.25 ± 0.05	0.010 ± 0.002	0.31	0.46
6.4	0.250	3.2	0.125	$0.30 \pm 0.08$	0.012 ± 0.003	0.40	0.60
9.5	0.375	4.8	0.187	0.30 ± 0.08	0.012 ± 0.003	0.73	1.09
12.7	0.500	6.4	0.250	0.30 ± 0.08	0.012 ± 0.003	0.96	1.43
19.1	0.750	9.5	0.375	$0.43 \pm 0.08$	0.017 ± 0.003	1.92	2.85
25.4	1.000	12.7	0.500	0.48 ± 0.08	0.019 ± 0.003	2.78	4.14
	D (mi Expai as su 1.2 1.6 2.4 3.2 4.8 6.4 9.5 12.7 19.1	D (min.)           Expanded           as supplied           1.2         0.046           1.6         0.063           2.4         0.093           3.2         0.125           4.8         0.187           6.4         0.250           9.5         0.375           12.7         0.500           19.1         0.750	D (min.)         d (max           Expanded         Recc           as supplied         after           1.2         0.046         0.6           1.6         0.063         0.8           2.4         0.093         1.2           3.2         0.125         1.6           4.8         0.187         2.4           6.4         0.250         3.2           9.5         0.375         4.8           12.7         0.500         6.4           19.1         0.750         9.5	D (min.)       d (max.)         Expanded       Recovered         as supplied       after heating         1.2       0.046       0.6       0.023         1.6       0.063       0.8       0.031         2.4       0.093       1.2       0.046         3.2       0.125       1.6       0.062         4.8       0.187       2.4       0.093         6.4       0.250       3.2       0.125         9.5       0.375       4.8       0.187         12.7       0.500       6.4       0.250         19.1       0.750       9.5       0.375	D (min.)         d (max.)         W           Expanded         Recovered         Recovered           as supplied         after heating         after heating           1.2         0.046         0.6         0.023         0.25 ± 0.05           1.6         0.063         0.8         0.031         0.25 ± 0.05           2.4         0.093         1.2         0.046         0.25 ± 0.05           3.2         0.125         1.6         0.062         0.25 ± 0.05           4.8         0.187         2.4         0.093         0.25 ± 0.05           6.4         0.250         3.2         0.125         0.30 ± 0.08           9.5         0.375         4.8         0.187         0.30 ± 0.08           12.7         0.500         6.4         0.250         0.30 ± 0.08           19.1         0.750         9.5         0.375         0.43 ± 0.08	D (min.)       d (max.)       W         Expanded       Recovered       Recovered         as supplied       after heating       after heating**         1.2       0.046       0.6       0.023 $0.25 \pm 0.05$ $0.010 \pm 0.002$ 1.6       0.063       0.8 $0.031$ $0.25 \pm 0.05$ $0.010 \pm 0.002$ 2.4       0.093       1.2 $0.046$ $0.62$ $0.25 \pm 0.05$ $0.010 \pm 0.002$ 3.2       0.125       1.6 $0.062$ $0.25 \pm 0.05$ $0.010 \pm 0.002$ 4.8       0.187       2.4 $0.093$ $0.25 \pm 0.05$ $0.010 \pm 0.002$ 4.8       0.187       2.4 $0.093$ $0.25 \pm 0.05$ $0.010 \pm 0.002$ 5.0       0.375       4.8 $0.187$ $0.30 \pm 0.08$ $0.012 \pm 0.003$ 9.5 $0.375$ 4.8 $0.187$ $0.30 \pm 0.08$ $0.012 \pm 0.003$ 12.7 $0.500$ $6.4$ $0.250$ $0.30 \pm 0.08$ $0.012 \pm 0.003$ 12.7 $0.500$ $6.4$ $0.250$ $0.30 \pm 0.08$ $0.012 \pm 0.003$ 19.1 $0.750$ $9.5$ $0.375$ $0$	$\begin{array}{c c c c c c c c c c c c c c c c c c c $

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

#### Ordering information

Colors	Standard	Black		
	Nonstandard	White		
Size selection	Always order the largest size that will shrink snugly over the component being covered.			
	Special order sizes may be made available upon request.			
Standard packaging	On spools			
Ordering description	Specify product name, size, and color; for example, RNF-150 1/4-0 (0=Black).			

## Specification values

	Property	Unit	Requirement	Method of test
Physical	Dimensions	mm <i>(inches)</i>	See reverse	ASTM D 2671
	Longitudinal change	percent	+0, -10	ASTM D 2671
	Concentricity as supplied	percent	70% minimum	ASTM D 2671
	Weight per length as suppli	ed Ib./100 ft. (kg./100 r	m) max. See reverse	See note below
	Recovery angle	degrees	5 maximum	See note below
	Tensile strength	psi <i>(Mpa)</i>	4000 <i>(27.6)</i> minimum	ASTM D 2671
	Ultimate elongation	percent	300 minimum	ASTM D 2671
	Secant modulus (as supplie	ed) psi <i>(Mpa)</i>	25,000 to 100,000 (172 to	o 690) ASTM D 2671
	Low-temperature flexibility (4 hours at -55°C/-67°F)		No cracking	AMS-DTL-23053
	Heat shock (4 hours at 250°C/ <i>482°F</i> )		No dripping, flowing, or cracking	ASTM D 2671
	Dynamic cut-through (135°C/ <i>275°F</i> )	lb. <i>(kg.)</i>	5 <i>(2.3)</i> minimum	ASTM D 3032 See note below
	Heat resistance (336 hours at 225°C/437°F) Followed by test for:			ASTM D 2671
	Ultimate Elongation	nercent	250 minimum	ASTM D 2671
		percent	MIL-STD-104, Class I	MIL-STD-104
ectrical	Dielectric strength	volts/mil /kl//mm)	500 <i>(19.7)</i> minimum	ASTM D 2671
CUICAI	Volume resistivity	volts/mil <i>(kV/mm)</i> ohm-cm	10 <sup>11</sup> minimum	ASTM D 2671 ASTM D 2671
hemical	Corrosive effect	Unini-Chi	Noncorrosive	
nemical				ASTM D 2671 ASTM D 2671
	Copper mirror corrosion (16 hours at 160°C/320°F)		Copper removal 5% maximum	Procedure A
	Copper contact corrosion		No blackening or pitting	ASTM D 2671
	(16 hours at $175^{\circ}C/347^{\circ}F$ )		of copper	Procedure B
	Copper stability (168 hours at 180°C/356°F)		No brittleness, glazing, o discoloration of tubing. N or blackening of copper.	r severe ASTM D 2671
	Followed by test for:	norcont		
	Ultimate elongation	percent	250 minimum	ASTM D 2671
	Flammability		25% maximum flag burn burning of cotton; no flar glowing longer than 60 s	ning or ASTM D 2671
	Fungus resistance			ISO 846
	Followed by tests for:			Method B
	Tensile strength	psi <i>(Mpa)</i>	4000 <i>(27.6)</i> minimum	ASTM D 2671
	Ultimate elongation	percent	300 minimum	ASTM D 2671
	Dielectric strength	volts/mil (kV/mm)	500 <i>(19.7)</i> minimum	ASTM D 2671
	Water absorption (24 hours at 23°C/73°F)	percent	0.5 maximum	ASTM D 2671
	Fluid resistance (24 hours at 50°C/ <i>122°F</i> ) in JP-8 fuel (MIL-T-5624) Hydraulic fluid (MIL-H-5606 Aviation gasoline100/300 (MIL-G-5572) Water Lubricating oil (MIL-L-2369)	)		ASTM D 2671
	Followed by tests for:			
	Dielectric strength	volts/mil (kV/mm)	400 <i>(15.8)</i> minimum	ASTM D 2671
ote: Consult F	Tensile strength RT-370 for specific details about test	psi <i>(Mpa)</i>	2000 <i>(13.8)</i> minimum	ASTM D 2671
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TE Connectivity: RNF-150-3/16-0-SP