tyco Electronics

ATUM

Raychem

High expansion ratio, adhesive-lined heat-shrinkable tubing

ATUM tubing is radiation-crosslinked, heat-shrinkable, and adhesive-lined to provide environmental sealing in a wide variety of electrical applications. The product is typically used to seal connector backshells and cable breakouts and to repair damaged cable.

ATUM has an internal adhesive coating that, when heated, melts and flows to form a positive environmental seal. The coating adheres to the outer tubing and the surface below, creating an excellent barrier to moisture penetration. The adhesive bonds to a wide variety of plastics, rubbers, and metals, including PVC, polyethylene, rubber, and aluminum.

Because the tubing and adhesive are flexible, the moisture seal withstands bending of the substrate. This flexibility makes ATUM tubing ideal for cable repair.

ATUM tubing is available with expansion ratios of both 3:1 and 4:1. These high expansion ratios make it possible to repair cables without removing connectors. Just a few sizes of ATUM tubing cover a wide range of substrates. ATUM is UL-recognized at 110°C, 600 V.

Temperature rating

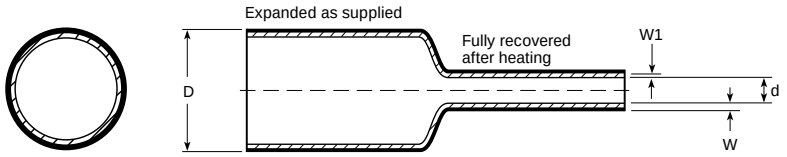
Full recovery temperature:	125°C
Continuous operating temperature:	–55°C to 110°C

*Specifications**

Type	Raychem	Military	UL
ATUM	RW-2063 (Black only) RK-6024 (Clear and colors)	AMS-DTL-23053/4, Cl. 3	E85381**

*When ordering, always specify latest issue.
**Except sizes 3/1 and 4/1.

*Dimensions (*millimeters*/inches)*



Size	Inside diameter D (min.) Expanded as supplied	Inside diameter d (max.) Recovered after heating	Recovered wall thickness*** W Total wall	Recovered wall thickness*** W1 (nom.) Meltable wall
3:1				
3/1	3 *0.118*	1 *0.039*	1.00 ± 0.30 *0.039 ± 0.012*	0.50 *0.020*
4.5/1.5	4.5 *0.177*	1.5 *0.059*	1.00 ± 0.30 *0.039 ± 0.012*	0.50 *0.020*
6/2	6 *0.236*	2 *0.079*	1.00 ± 0.30 *0.039 ± 0.012*	0.50 *0.020*
9/3	9 *0.354*	3 *0.118*	1.40 ± 0.28 *0.055 ± 0.010*	0.61 *0.024*
12/4	12 *0.472*	4 *0.157*	1.78 ± 0.38 *0.070 ± 0.015*	0.76 *0.030*
19/6	19 *0.748*	6 *0.236*	2.25 ± 0.55 *0.088 ± 0.020*	0.76 *0.030*
24/8	24 *0.940*	8 *0.315*	2.54 ± 0.55 *0.100 ± 0.020*	1.00 *0.040*
40/13	40 *1.570*	13 *0.512*	2.54 ± 0.55 *0.100 ± 0.020*	1.00 *0.040*

Size	Inside diameter D (min.) Expanded as supplied	Inside diameter d (max.) Recovered after heating	Recovered wall thickness*** W Total wall	Recovered wall thickness*** W1 (nom.) Meltable wall
4:1				
4/1	4 *0.157*	1 *0.039*	1.00 ± 0.28 *0.039 ± 0.010*	0.50 *0.020*
8/2	8 *0.315*	2 *0.079*	1.00 ± 0.28 *0.039 ± 0.010*	0.50 *0.020*
12/3	12 *0.472*	3 *0.118*	1.40 ± 0.28 *0.055 ± 0.010*	0.61 *0.024*
16/4	16 *0.630*	4 *0.157*	1.78 ± 0.38 *0.070 ± 0.015*	0.76 *0.030*
24/6	24 *0.945*	6 *0.236*	2.25 ± 0.55 *0.088 ± 0.020*	0.76 *0.030*
32/8	32 *1.260*	8 *0.315*	2.54 ± 0.55 *0.100 ± 0.020*	1.00 *0.040*
52/13	52 *2.050*	13 *0.512*	2.54 ± 0.55 *0.100 ± 0.020*	1.00 *0.040*

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

Ordering information

Colors	**Standard**	Black
	Nonstandard	Clear (non-flame retardant jacket); other colors available on request.
Size selection	Always order the largest size that will shrink snugly over the component being covered. Some special order sizes are available.	
Standard packaging	4-foot lengths	
Ordering description	Specify product name, size, and color; for example, ATUM 6/2-0 (0=Black).	

Specification values

	Property	Unit	Requirement	Method of test
Physical	Dimensions	mm *(inches)*	See reverse	ASTM D 2671
	Longitudinal change	percent	+0, –15	ASTM D 2671
	Tensile strength	psi	1300 minimum	ASTM D 2671
	Ultimate elongation	percent	300 minimum	ASTM D 2671
	Secant modulus (recovered)	psi	1.2×10^4 maximum	ASTM D 2671
	Low-temperature flexibility (4 hours at –55°C/*–67°F*)		No cracking	ASTM D 2671
	Heat shock (4 hours at 225°C/*437°F*)		No cracking, dripping, or flowing of outer wall	ASTM D 2671
	Heat resistance (168 hours at 150°C/*302°F*)		No cracking, dripping, or flowing of outer wall	ASTM D 2671
Electrical	Dielectric strength	volts/mil	300 minimum	ASTM D 2671
Chemical	Water absorption (24 hours at 23°C/*73°F*)	percent	0.5 maximum	ASTM D 570
	Corrosive effect (16 hours at 150°C/*302°F*)		Non corrosive	ASTM D 2671 Procedure A
	Flammability (colors only, outer jacket only)		60 second maximum burning duration: no burning or charring of indicator	ASTM D 2671 Procedure B
	Fungus resistance Followed by tests for:			ISO 846 Method B
	Tensile strength	psi	1300 minimum	ASTM D 2671
	Ultimate elongation	percent	300 minimum	ASTM D 2671
	Inner wall adhesion:			T-PEEL
	ATUM to RNF-100	lbs/inch	30 minimum	2”/minute
	ATUM to aluminum	lbs/inch	10 minimum	2”/minute
	Fluid resistance (24 hours at 23°C/*73°F*) in: Diesel fuel (BS 2869 Class A1) Hydraulic fluid (MIL-H-5606) Lubricating oil (0-149) Followed by tests for:			AMS-DTL-23053
	Tensile strength	psi	1000 minimum	ASTM D 2671
	Ultimate elongation	percent	300 minimum	ASTM D 2671

Note: Consult RW-2063 for specific details about test procedures.

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

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