



Mechanical Properties of ToughMet® Rod and Tube

Materion Brush Performance Alloys' ToughMet® 3 TS 120U Rod is a spinodal copper nickel tin alloy designed for use in applications demanding wear resistance, high bearing performance, resistance to salt water corrosion and good ductility.

MECHANICAL PROPERTIES OF TOUGHMET ROD

Alloy	Description	Temper	Outside Diameter	Yield Strength (min)	Tensile Strength (min)	Elongation in 2" (min)	Hardness (min)
ToughMet 2	Cast and Spinodally Hardened	CX 90	2 – 12" 51 – 305 mm	90 ksi 620 MPa	105 ksi 720 MPa	3%	HRC 27
ToughMet 3	Cast and Spinodally Hardened	CX 90	1.5 – 3" 38.1 – 76.2 mm	90 ksi 620 MPa	105 ksi 720 MPa	6%	HRC 27
		CX 105	1.5 – 3" 38.1 – 76.2 mm	105 ksi 720 MPa	110 ksi 760 MPa	4%	HRC 30
ToughMet 3	Wrought and Spinodally Hardened	AT 90	1 – 4" 25.4 – 101.6 mm	90 ksi 620 MPa	110 ksi 760 MPa	15%	HRC 26
			4 – 9" 101.6 – 228.6 mm	90 ksi 620 MPa	110 ksi 760 MPa	12%	HRC 26
		AT 110	0.595 – 4" 15.1 – 101.6 mm	110 ksi 760 MPa	132 ksi 910 MPa	10%	HRC 30
			4 – 9" 101.6 – 228.6 mm	110 ksi 760 MPa	127 ksi 875 MPa	6%	HRC 30
ToughMet 3	Cold Drawn and Spinodally Hardened	TS120 U	0.5 – 3.25" 19 – 82 mm	110 ksi 755 MPa	120 ksi 825 MPa	15%	HRC 23
		TS 150	0.125 – 2.75" 3.175 – 70 mm	150 ksi 1035 MPa	158 ksi 1089 MPa	5%	HRC 36
		TS 160U	0.125 – 0.25" 3.175 – 6.35 mm	150 ksi 1035 MPa	160 ksi 1100 MPa	5%	HRC 32
			0.25 – 4" 6.35 – 101.6 mm	150 ksi 1035 MPa	160 ksi 1100 MPa	7%	HRC 32
			0.4 – 0.75" 10 – 19 mm	150 ksi 1035 MPa	165 ksi 1140 MPa	7%	HRC 36
			0.75 – 1.6" 19 – 41 mm	150 ksi 1035 MPa	165 ksi 1140 MPa	5%	HRC 34
			1.6 – 3.25" 41 – 82 mm	150 ksi 1035 MPa	160 ksi 1100 MPa	3%	HRC 34

RELATED INFORMATION



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MECHANICAL PROPERTIES OF TOUGHMET TUBE

Alloy	Description	Temper	Outside Diameter	Yield Strength (min)	Tensile Strength (min)	Elongation in 2" (min)	Hardness (min)
ToughMet 2	Cast and Spinodally Hardened	CX 90	1 – 15" 25.4 – 381 mm	90 ksi 620 MPa	105 ksi 720 MPa	3%	HRC 27
ToughMet 3	Cast and Spinodally Hardened	CX90	1 – 15" 25.4 – 381 mm	90 ksi 620 MPa	105 ksi 720 MPa	6%	HRC 27
		CX 105	1 – 4" 25.4 – 101.6 mm	105 ksi 720 MPa	110 ksi 760 MPa	4%	HRC 30
			4 – 15" 101.6 – 381 mm	94.5 ksi 650 MPa	99 ksi 680 MPa	4%	HRC 30
ToughMet 3	Wrought and Spinodally Hardened	AT 90	1.625 – 4" 41 – 101.6 mm	90 ksi 620 MPa	110 ksi 760 MPa	15%	HRC 22
			4 – 6.5" 101.6 – 165 mm	90 ksi 620 MPa	110 ksi 760 MPa	12%	HRC 22
			6.5 – 8" 165 – 203 mm	90 ksi 620 MPa	110 ksi 760 MPa	12%	HRC 22
		AT 110	1.625 – 4" 41 – 101.6 mm	110 ksi 760 MPa	130 ksi 860 MPa	10%	HRC 30
			4 – 6.5" 101.6 – 165 mm	110 ksi 760 MPa	125 ksi 860 MPa	6%	HRC 30
			6.5 – 8" 165 – 203 mm	110 ksi 755 MPa	125 ksi 860 MPa	6%	HRC 30
			8.1 – 13" 206 – 330 mm	110 ksi 755 MPa	128 ksi 880 MPa	5%	HRC 30
		ToughMet 3	Cold Drawn	TS 160U	1.67 – 2.25" 42 – 57 mm	150 ksi 1035 MPa	158 ksi 1089 MPa

RELATED INFORMATION

Additional information on ToughMet® 3 rod and tube can be obtained by calling 800-375-4205.

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