

Outokumpu 4878 High Temperature Austenitic Stainless Steel

Category : Metal , Ferrous Metal , Austenitic , Stainless Steel

Material Notes:

Heat-resistant variant of 1.4541, with a slightly higher max carbon content. Recommended max service temperature for this steel in dry air is 800°C. Applications: Heat and creep resistance. For use over 550°C for equipment and components within: Iron, steel, and non-ferrous industriesEngineering industryEnergy conservation plantsCement industryAvailable in hot rolled plate (Quarto), hot rolled strip/sheet (CPP), cold rolled strip/sheet, cold rolled narrow strip, bar, and rod forms.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Outokumpu-4878-High-Temperature-Austenitic-Stainless-Steel.php

Physical Properties	Metric	English	Comments
Density	7.90 g/cc	0.285 lb/in ³	RT

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	570 MPa	82700 psi	Outokumpu Typical, Hot Rolled Plate (Quarto); EN 10002-1
	300 MPa	43500 psi	EN min.; EN 10002-5
	@Temperature 600 °C	@Temperature 1110 °F	
	330 MPa	47900 psi	EN min.; EN 10002-5
	@Temperature 500 °C	@Temperature 932 °F	
	340 MPa	49300 psi	EN min.; EN 10002-5
	@Temperature 400 °C	@Temperature 752 °F	
	350 MPa	50800 psi	EN min.; EN 10002-5
Tensile Strength, Yield	@Temperature 300 °C	@Temperature 572 °F	
	370 MPa	53700 psi	EN min.; EN 10002-5
	@Temperature 200 °C	@Temperature 392 °F	
	410 MPa	59500 psi	EN min.; EN 10002-5
	@Temperature 100 °C	@Temperature 212 °F	
	250 MPa	36300 psi	Outokumpu Typical, Hot Rolled Plate (Quarto); EN 10002-1
	@Strain 0.200 %	@Strain 0.200 %	
	290 MPa	42100 psi	Outokumpu Typical, Hot Rolled Plate (Quarto); EN 10002-1
	@Strain 1.00 %	@Strain 1.00 %	
	103 MPa	14900 psi	EN min.; EN 10002-5
	@Strain 0.200 %,	@Strain 0.200 %,	

Mechanical Properties	Temperature 600 °C Metric	Temperature 1110 °F English	Comments
	113 MPa	16400 psi	
	@Strain 0.200 %, Temperature 500 °C	@Strain 0.200 %, Temperature 932 °F	EN min.; EN 10002-5
	123 MPa	17800 psi	
	@Strain 0.200 %, Temperature 400 °C	@Strain 0.200 %, Temperature 752 °F	EN min.; EN 10002-5
	132 MPa	19100 psi	
	@Strain 0.200 %, Temperature 300 °C	@Strain 0.200 %, Temperature 572 °F	EN min.; EN 10002-5
	142 MPa	20600 psi	
	@Strain 0.200 %, Temperature 200 °C	@Strain 0.200 %, Temperature 392 °F	EN min.; EN 10002-5
	142 MPa	20600 psi	
	@Strain 1.00 %, Temperature 600 °C	@Strain 1.00 %, Temperature 1110 °F	EN min.; EN 10002-5
	152 MPa	22000 psi	
	@Strain 1.00 %, Temperature 500 °C	@Strain 1.00 %, Temperature 932 °F	EN min.; EN 10002-5
	162 MPa	23500 psi	
	@Strain 1.00 %, Temperature 400 °C	@Strain 1.00 %, Temperature 752 °F	EN min.; EN 10002-5
	162 MPa	23500 psi	
	@Strain 0.200 %, Temperature 100 °C	@Strain 0.200 %, Temperature 212 °F	EN min.; EN 10002-5
	172 MPa	24900 psi	
	@Strain 1.00 %, Temperature 300 °C	@Strain 1.00 %, Temperature 572 °F	EN min.; EN 10002-5
	181 MPa	26300 psi	
	@Strain 1.00 %, Temperature 200 °C	@Strain 1.00 %, Temperature 392 °F	EN min.; EN 10002-5
	201 MPa	29200 psi	
	@Strain 1.00 %, Temperature 100 °C	@Strain 1.00 %, Temperature 212 °F	EN min.; EN 10002-5
Elongation at Break	55 %	55 %	Outokumpu Typical, Hot Rolled Plate (Quarto); EN 10002-1
Rupture Strength	15.0 MPa	2180 psi	
	@Temperature 800 °C,	@Temperature 1470 °F,	

Mechanical Properties	Time 3.60e+7 sec Metric	Time 10000 hour English	Comments
	27.0 MPa	3920 psi	
	@Temperature 750 °C, Time 3.60e+7 sec	@Temperature 1380 °F, Time 10000 hour	
	48.0 MPa	6960 psi	
	@Temperature 700 °C, Time 3.60e+7 sec	@Temperature 1290 °F, Time 10000 hour	
	82.0 MPa	11900 psi	
	@Temperature 650 °C, Time 3.60e+7 sec	@Temperature 1200 °F, Time 10000 hour	
	142 MPa	20600 psi	
	@Temperature 600 °C, Time 3.60e+7 sec	@Temperature 1110 °F, Time 10000 hour	
Modulus of Elasticity	196 GPa	28400 ksi	RT
	158 GPa	22900 ksi	
	@Temperature 500 °C	@Temperature 932 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	18.4 µm/m-°C	10.2 µin/in-°F	
	@Temperature 500 °C	@Temperature 932 °F	
	20.5 µm/m-°C	11.4 µin/in-°F	
	@Temperature 1000 °C	@Temperature 1830 °F	
Specific Heat Capacity	0.470 J/g-°C	0.112 BTU/lb-°F	RT
	0.530 J/g-°C	0.127 BTU/lb-°F	
	@Temperature 500 °C	@Temperature 932 °F	
Thermal Conductivity	13.9 W/m-K	96.5 BTU-in/hr-ft²-°F	RT
	21.6 W/m-K	150 BTU-in/hr-ft²-°F	
	@Temperature 500 °C	@Temperature 932 °F	
	27.5 W/m-K	191 BTU-in/hr-ft²-°F	
	@Temperature 1000 °C	@Temperature 1830 °F	
Maximum Service Temperature, Air	800 °C	1470 °F	Dry Air

Component Elements Properties	Metric	English	Comments
Carbon, C	0.050 %	0.050 %	

Component Elements Properties	Metric	English	Comments
Chromium, Cr	73.55 %	73.55 %	
Iron, Fe	73.55 %	73.55 %	
Nickel, Ni	9.1 %	9.1 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000740 ohm-cm	0.0000740 ohm-cm	RT

Processing Properties	Metric	English	Comments
Annealing Temperature	840 - 900 °C	1540 - 1650 °F	Stress Relief Annealing (min. 0.5 h)
	1020 - 1120 °C	1870 - 2050 °F	Solution Annealing

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