

Outokumpu 2205 Duplex Stainless Steel

Category : Metal , Ferrous Metal , Duplex , Stainless Steel

Material Notes:

Duplex stainless combining high mechanical strength with good corrosion resistance. Applications: Pulp and paper industry, Desalination plants, Flue-gas cleaning, Cargo tanks and pipe systems in chemical tankers, Seawater systems, Firewalls and blast walls on offshore platforms, Bridges, Components for structural design, Storage tanks, Pressure vessels, Heat exchangers, Water heaters, Rotors, impellers and shafts. Available 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-2205-Duplex-Stainless-Steel.php

Physical Properties	Metric	English	Comments
Density	7.80 g/cc	0.282 lb/in ³	RT

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	750 MPa	109000 psi	Outokumpu Typical, Hot Rolled Plate (Quarto); EN 10002-1
	540 MPa	78300 psi	EN min.; EN 10002-5
	@Temperature 250 °C	@Temperature 482 °F	
	550 MPa	79800 psi	EN min.; EN 10002-5
	@Temperature 200 °C	@Temperature 392 °F	
Tensile Strength, Yield	570 MPa	82700 psi	EN min.; EN 10002-5
	@Temperature 150 °C	@Temperature 302 °F	
	590 MPa	85600 psi	EN min.; EN 10002-5
	@Temperature 100 °C	@Temperature 212 °F	
	460 MPa	66700 psi	EN min., RT; EN 10002-1
@Strain 0.200 %	@Strain 0.200 %		
Tensile Strength, Yield	510 MPa	74000 psi	Outokumpu Typical, Hot Rolled Plate (Quarto); EN 10002-1
	@Strain 0.200 %	@Strain 0.200 %	
	300 MPa	43500 psi	EN min.; EN 10002-5
	@Strain 0.200 %, Temperature 250 °C	@Strain 0.200 %, Temperature 482 °F	
	315 MPa	45700 psi	EN min.; EN 10002-5
@Strain 0.200 %, Temperature 200 °C	@Strain 0.200 %, Temperature 392 °F		
335 MPa	48600 psi		

Mechanical Properties	Metric	English	Comments
	@Strain 0.200 %, Temperature 150 °C	@Strain 0.200 %, Temperature 302 °F	EN min.; EN 10002-5
	360 MPa	52200 psi	
	@Strain 0.200 %, Temperature 100 °C	@Strain 0.200 %, Temperature 212 °F	EN min.; EN 10002-5
Elongation at Break	35 %	35 %	Outokumpu Typical, Hot Rolled Plate (Quarto); EN 10002-1
Modulus of Elasticity	200 GPa	29000 ksi	RT
	172 GPa	24900 ksi	
	@Temperature 400 °C	@Temperature 752 °F	
	180 GPa	26100 ksi	
	@Temperature 300 °C	@Temperature 572 °F	
	186 GPa	27000 ksi	
	@Temperature 200 °C	@Temperature 392 °F	
	194 GPa	28100 ksi	
	@Temperature 100 °C	@Temperature 212 °F	
Poissons Ratio	0.30	0.30	RT
Fatigue Strength	767 MPa	111000 psi	R=smin/smax=0.1; 2 million cycles, F50
	510 MPa	74000 psi	
	@# of Cycles 2.00e+6	@# of Cycles 2.00e+6	R=smin/smax=0.1;RT; 50% probability of failure
	497 MPa	72100 psi	
	@Strain 0.200 %	@Strain 0.200 %	R=smin/smax=0.1; 2 million cycles, F50
Shear Modulus	77.0 GPa	11200 ksi	calculated
Impact Test	>= 60.0 J	>= 44.3 ft-lb	EN 10045-1
	>= 40.0 J	>= 29.5 ft-lb	
	@Temperature -40.0 °C	@Temperature -40.0 °F	EN 10045-1

Thermal Properties	Metric	English	Comments
CTE, linear	13.0 µm/m-°C	7.22 µin/in-°F	
	@Temperature 100 °C	@Temperature 212 °F	
	14.5 µm/m-°C	8.06 µin/in-°F	
	@Temperature 400 °C	@Temperature 752 °F	

Thermal Properties	Metric	English	Comments
	0.530 J/g-°C	0.127 BTU/lb-°F	
	@Temperature 100 °C	@Temperature 212 °F	
	0.560 J/g-°C	0.134 BTU/lb-°F	
	@Temperature 200 °C	@Temperature 392 °F	
	0.590 J/g-°C	0.141 BTU/lb-°F	
	@Temperature 300 °C	@Temperature 572 °F	
Thermal Conductivity	15.0 W/m-K	104 BTU-in/hr-ft²-°F	RT
	16.0 W/m-K	111 BTU-in/hr-ft ² -°F	
	@Temperature 100 °C	@Temperature 212 °F	
	17.0 W/m-K	118 BTU-in/hr-ft ² -°F	
	@Temperature 200 °C	@Temperature 392 °F	
	18.0 W/m-K	125 BTU-in/hr-ft ² -°F	
	@Temperature 300 °C	@Temperature 572 °F	
	20.0 W/m-K	139 BTU-in/hr-ft ² -°F	
	@Temperature 400 °C	@Temperature 752 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.020 %	0.020 %	
Chromium, Cr	22 %	22 %	
Iron, Fe	69.01 %	69.01 %	
Molybdenum, Mo	3.1 %	3.1 %	
Nickel, Ni	5.7 %	5.7 %	
Nitrogen, N	0.17 %	0.17 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000800 ohm-cm	0.0000800 ohm-cm	RT
	0.0000850 ohm-cm	0.0000850 ohm-cm	
	@Temperature 100 °C	@Temperature 212 °F	
	0.0000900 ohm-cm	0.0000900 ohm-cm	
	@Temperature 200 °C	@Temperature 392 °F	

Electrical Properties	Metric	English	Comments
	1000 ohm-cm	1000 ohm-cm	
	@Temperature 300 °C	@Temperature 572 °F	

Processing Properties	Metric	English	Comments
Annealing Temperature	1020 - 1100 °C	1870 - 2010 °F	Quench Annealing
	1020 - 1100 °C	1870 - 2010 °F	Stress Relief Annealing

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