

AK Steel 309 Austenitic Stainless steel

Category : Metal , Ferrous Metal , Austenitic , Stainless Steel , T 300 Series Stainless Steel

Material Notes:

AK Steel 309 provides excellent corrosion resistance and heat resistance plus good strength at room and elevated temperatures. The alloy is non-magnetic as annealed and becomes slightly magnetic when cold worked. Information provided by AK Steel

Order this product through the following link:

http://www.lookpolymers.com/polymer_AK-Steel-309-Austenitic-Stainless-steel.php

Physical Properties	Metric	English	Comments
Density	7.99 g/cc	0.289 lb/in ³	

Mechanical Properties	Metric	English	Comments	
Hardness, Rockwell B	85	85	Annealed	
Tensile Strength, Ultimate	621 MPa	90100 psi	Annealed	
	145 MPa	21000 psi		
	@Temperature 871 °C	@Temperature 1600 °F		
	441 MPa	64000 psi		
	@Temperature 538 °C	@Temperature 1000 °F		
	545 MPa	79000 psi		
	@Temperature 204 °C	@Temperature 399 °F		
	Tensile Strength, Yield	310 MPa	45000 psi	Annealed
		@Strain 0.200 %	@Strain 0.200 %	
	120 MPa	17400 psi		
	@Strain 0.200 %, Temperature 871 °C	@Strain 0.200 %, Temperature 1600 °F		
	200 MPa	29000 psi		
	@Strain 0.200 %, Temperature 538 °C	@Strain 0.200 %, Temperature 1000 °F		
	262 MPa	38000 psi		
	@Strain 0.200 %, Temperature 204 °C	@Strain 0.200 %, Temperature 399 °F		
Elongation at Break	45 %	45 %	in 2 inches, Annealed	
	38 %	38 %	in 2 inches	
	@Temperature 538 °C	@Temperature 1000 °F		

Mechanical Properties	Metric	English	Comments
	@Temperature 204 °C	@Temperature 399 °F	
	50 %	50 %	in 2 inches
	@Temperature 871 °C	@Temperature 1600 °F	
Modulus of Elasticity	200 GPa	29000 ksi	
Izod Impact	140 J	103 ft-lb	V-Notch (Annealed)

Thermal Properties	Metric	English	Comments
CTE, linear	14.9 µm/m-°C	8.28 µin/in-°F	
	@Temperature 0.000 - 100 °C	@Temperature 32.0 - 212 °F	
	18.0 µm/m-°C	10.0 µin/in-°F	
	@Temperature <=649 °C	@Temperature <=1200 °F	
Specific Heat Capacity	0.500 J/g-°C	0.120 BTU/lb-°F	
	@Temperature 0.000 - 100 °C	@Temperature 32.0 - 212 °F	
Thermal Conductivity	15.6 W/m-K	108 BTU-in/hr-ft ² -°F	
	@Temperature 100 °C	@Temperature 212 °F	
	18.7 W/m-K	130 BTU-in/hr-ft ² -°F	
	@Temperature 500 °C	@Temperature 932 °F	
Melting Point	1399 - 1454 °C	2550 - 2649 °F	
Solidus	1399 °C	2550 °F	
Liquidus	1454 °C	2649 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.20 %	<= 0.20 %	
Chromium, Cr	22 - 24 %	22 - 24 %	
Iron, Fe	57.975 - 66 %	57.975 - 66 %	As Remainder
Manganese, Mn	<= 2.0 %	<= 2.0 %	
Nickel, Ni	12 - 15 %	12 - 15 %	
Phosphorous, P	<= 0.045 %	<= 0.045 %	

Component Elements Properties	Metric	English	Comments
Sulfur, S	<= 0.030 %	<= 0.030 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000780 ohm-cm	0.0000780 ohm-cm	
Magnetic Permeability	<= 1.02	<= 1.02	H = 200 Oersted, Annealed

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