

AK Steel 309S Austenitic Stainless steel

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

Material Notes:

AK Steel 309S 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. AK Steel 309S is identical to AK Steel 309, except for a lower carbon content that minimizes carbide precipitation and improves weldability. Information provided by AK Steel

Order this product through the following link:

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

Physical Properties	Metric	English	Comments
Density	9.01 g/cc	0.326 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

Mechanical Properties	@Temperature 538 °C Metric	@Temperature 1000 °F English	Comments
	46 %	46 %	in 2 inches
	@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-ft²-°F	
	@Temperature 100 °C	@Temperature 212 °F	
	18.7 W/m-K	130 BTU-in/hr-ft²-°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	<= 0.080 %	<= 0.080 %	
Chromium, Cr	22 - 24 %	22 - 24 %	
Iron, Fe	58.095 - 66 %	58.095 - 66 %	As Remainder
Manganese, Mn	<= 2.0 %	<= 2.0 %	
Nickel, Ni	12 - 15 %	12 - 15 %	

Phosphorous P Component Elements Properties	$\leq 0.045\%$ Metric	$\leq 0.045\%$ English	Comments
Silicon, Si	$\leq 0.75\%$	$\leq 0.75\%$	
Sulfur, S	$\leq 0.030\%$	$\leq 0.030\%$	

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

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