

AK Steel 301 Austenitic Stainless steel

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

Material Notes:

AK Steel 301 provides high strength and good ductility when cold worked. It is a modification of AK Steel 302 to increase the cold work-hardening range, to permit higher tensile strengths to be achieved by rolling with lower loss of ductility. AK Steel 301 is non-magnetic when annealed, but becomes slightly more magnetic than other standard austenitic stainless steels when cold worked. Typical uses include aircraft structural parts, trailer bodies, diaphragms, utensils, architectural and automotive trim, automobile wheel covers, roof drainage products, table wear, and conveyor belts. Information provided by AK Steel

Order this product through the following link:

http://www.lookpolymers.com/polymer_AK-Steel-301-Austenitic-Stainless-steel.php

Physical Properties	Metric	English	Comments
Density	7.88 g/cc	0.285 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	85	85	Annealed
Hardness, Rockwell C	25	25	Cold Worked 1/4 hard
	32	32	Cold Worked 1/2 hard
	41	41	Cold-Worked Full hard
Tensile Strength, Ultimate	758 MPa	110000 psi	Annealed
	862 MPa	125000 psi	Cold-Worked 1/4 hard
	1034 MPa	150000 psi	Cold-Worked 1/2 hard
	1276 MPa	185100 psi	Cold-Worked Full hard
Tensile Strength, Yield	276 MPa	40000 psi	Annealed
	@Strain 0.200 %	@Strain 0.200 %	
	517 MPa	75000 psi	Cold-Worked 1/4 hard
	@Strain 0.200 %	@Strain 0.200 %	
758 MPa	@Strain 0.200 %	110000 psi	Cold-Worked 1/2 hard
965 MPa	@Strain 0.200 %	140000 psi	Cold-Worked Full hard
Elongation at Break	9.0 %	9.0 %	in 2 inches, Cold-Worked Full hard

Mechanical Properties	Metric	English	in 2 inches, Cold-Worked 1/2 hard Comments
	25 %	25 %	in 2 inches, Cold-Worked 1/4 hard
	60 %	60 %	in 2 inches, Annealed
Modulus of Elasticity	193 GPa	28000 ksi	tension
Poissons Ratio	0.24	0.24	Calculated
Shear Modulus	78.0 GPa	11300 ksi	torsion

Thermal Properties	Metric	English	Comments
CTE, linear	16.9 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	9.39 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	@Temperature 0.000 - 100 $^\circ\text{C}$	@Temperature 32.0 - 212 $^\circ\text{F}$	
	18.7 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	10.4 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	@Temperature ≤ 649 $^\circ\text{C}$	@Temperature ≤ 1200 $^\circ\text{F}$	
Specific Heat Capacity	0.500 J/g- $^\circ\text{C}$	0.120 BTU/lb- $^\circ\text{F}$	
	@Temperature 0.000 - 100 $^\circ\text{C}$	@Temperature 32.0 - 212 $^\circ\text{F}$	
Thermal Conductivity	16.2 W/m-K	112 BTU-in/hr-ft 2 - $^\circ\text{F}$	
	@Temperature 100 $^\circ\text{C}$	@Temperature 212 $^\circ\text{F}$	
	21.4 W/m-K	149 BTU-in/hr-ft 2 - $^\circ\text{F}$	
	@Temperature 500 $^\circ\text{C}$	@Temperature 932 $^\circ\text{F}$	
Melting Point	1399 - 1421 $^\circ\text{C}$	2550 - 2590 $^\circ\text{F}$	
Solidus	1399 $^\circ\text{C}$	2550 $^\circ\text{F}$	
Liquidus	1421 $^\circ\text{C}$	2590 $^\circ\text{F}$	

Component Elements Properties	Metric	English	Comments
Carbon, C	≤ 0.15 %	≤ 0.15 %	
Chromium, Cr	16 - 18 %	16 - 18 %	
Iron, Fe	70.925 - 78 %	70.925 - 78 %	As Remainder
Manganese, Mn	≤ 2.0 %	≤ 2.0 %	
Nickel, Ni	6.0 - 8.0 %	6.0 - 8.0 %	
Nitrogen, N	≤ 0.10 %	≤ 0.10 %	

Component Elements Properties	Metric	English	Comments
Silicon, Si	<= 0.75 %	<= 0.75 %	
Sulfur, S	<= 0.030 %	<= 0.030 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000695 ohm-cm	0.0000695 ohm-cm	
Magnetic Permeability	<= 1.02	<= 1.02	H = 200 Oersted, Annealed

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