

AK Steel NITRONIC® 30 Austenitic Stainless Steel

Category : Metal , Ferrous Metal , Stainless Steel

Material Notes:

AK Steel NITRONIC 30 Stainless Steel offers significantly higher strength than Type 304 and potential for applications requiring good resistance to aqueous and atmospheric corrosion resistance combined with good toughness and economy. Specific potential applications include automotive hose clamps, safety belt anchors, truck and bus frames, water supply and control structures, sewage treatment plant structures, bulk solids handling equipment, magnetic ore separator screens, coal buckets and hopper cars. Stainless steels have served successfully in many structural components in the transportation industry. Bus space frames and bumpers take advantage of the excellent fabricability and high strength and toughness of stainless steel. Tensitized NITRONIC 30 Stainless Steel has been used in rapid transit structurals where the strength-to-weight ratio of up to three times that of carbon steel has improved operating efficiency. Rear frames of refrigerated trucks are easily welded and formed from NITRONIC 30 Stainless Steel, resulting in protective units that can withstand impact blows without cracking. Shipboard container structurals use stainless steel successfully where carbon steel becomes scuffed and rusts wherever the paint is damaged. AK Steel NITRONIC 30 is a nitrogen-strengthened stainless steel developed for applications requiring a good level of aqueous corrosion resistance combined with good toughness and economy. AK Steel NITRONIC 30 Stainless Steel provides approximately 50% higher yield strength than Type 304L and, therefore, may allow lighter gauges to further reduce costs. AK Steel NITRONIC 30 Stainless Steel work hardens rapidly while retaining good ductility. Unlike other nitrogen-strengthened stainless steels, AK Steel NITRONIC 30 Stainless Steel is subject to magnetic transformation when cold worked. Information provided by AK Steel

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http://www.lookpolymers.com/polymer_AK-Steel-NITRONIC-30-Austenitic-Stainless-Steel.php

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell B	95	95	0% Cold Work
	92.5	92.5	Plate
	@Temperature 23.9 °C	@Temperature 75.0 °F	
	96.5	96.5	
		@Temperature 23.9 °C	
	92	92	Typical for Plate, Annealed, in 2"
		@Thickness 22.2 mm	
	93	93	Annealed at 2050°F, Longitudinal
		@Thickness 1.63 mm	
	93	93	Annealed at 2050°F, Transverse
		@Thickness 1.63 mm	
	93.5	93.5	Annealed at 1950°F, Longitudinal
		@Thickness 3.15 mm	
	94	94	

Mechanical Properties	Metric @Thickness 0.813 mm	English @Thickness 0.0320 in	Annealed at 1950°F, Longitudinal Comments
	94 @Thickness 0.813 mm	94 @Thickness 0.0320 in	Annealed at 1950°F, Longitudinal
	94 @Thickness 9.52 mm	94 @Thickness 0.375 in	Typical for Plate, Annealed
Hardness, Rockwell C	31	31	10% Cold Work
	37	37	20% Cold Work
	43	43	30% Cold Work
	45	45	40% Cold Work
	33.5 @Thickness 4.762 mm	33.5 @Thickness 0.1875 in	Typical for Plate, 1/4-Hard, Longitudinal
	33.5 @Thickness 4.762 mm	33.5 @Thickness 0.1875 in	Typical for Plate, 1/4-Hard, Transverse
	34 @Thickness 6.35 mm	34 @Thickness 0.250 in	Typical for Plate, 1/4-Hard, Longitudinal
	34 @Thickness 6.35 mm	34 @Thickness 0.250 in	Typical for Plate, 1/4-Hard, Transverse
Tensile Strength, Ultimate	862 MPa	125000 psi	0% Cold Work
	1034 MPa	150000 psi	10% Cold Work
	1193 MPa	173000 psi	20% Cold Work
	1338 MPa	194100 psi	30% Cold Work
	1467 MPa	212800 psi	40% Cold Work
	417 MPa @Temperature 538 °C	60500 psi @Temperature 1000 °F	Plate
	439 MPa @Temperature 482 °C	63700 psi @Temperature 900 °F	Plate
	459 MPa @Temperature 538 °C	66500 psi @Temperature 1000 °F	Sheet
	460 MPa	66700 psi	Plate

Mechanical Properties	Metric @Temperature 427 °C 480 MPa	English @Temperature 800 °F 69000 psi	Comments
	@Temperature 371 °C	@Temperature 700 °F	Plate
	485 MPa	70300 psi	Sheet
	@Temperature 482 °C	@Temperature 900 °F	
	487 MPa	70600 psi	Plate
	@Temperature 260 °C	@Temperature 500 °F	
	488 MPa	70800 psi	Plate
	@Temperature 316 °C	@Temperature 600 °F	
	496 MPa	71900 psi	Plate
	@Temperature 204 °C	@Temperature 400 °F	
	506 MPa	73400 psi	Sheet
	@Temperature 427 °C	@Temperature 800 °F	
	529 MPa	76700 psi	Sheet
	@Temperature 371 °C	@Temperature 700 °F	
	539 MPa	78200 psi	Plate
	@Temperature 149 °C	@Temperature 300 °F	
	547 MPa	79300 psi	Sheet
	@Temperature 316 °C	@Temperature 600 °F	
	547 MPa	79300 psi	Sheet
	@Temperature 260 °C	@Temperature 500 °F	
	561 MPa	81400 psi	Sheet
	@Temperature 204 °C	@Temperature 400 °F	
	598 MPa	86800 psi	Sheet
	@Temperature 149 °C	@Temperature 300 °F	
	630 MPa	91400 psi	Plate
	@Temperature 93.3 °C	@Temperature 200 °F	
	692 MPa	100000 psi	Sheet
	@Temperature 93.3 °C	@Temperature 200 °F	
	845 MPa	123000 psi	Sheet
	@Temperature 23.9 °C	@Temperature 75.0 °F	

Mechanical Properties	850 MPa Metric	123000 psi English	Plate Comments
	@Temperature 23.9 °C 689 MPa	@Temperature 75.0 °F 99900 psi	Annealed at 2050°F, Longitudinal
	@Thickness 1.63 mm	@Thickness 0.0640 in	
	711 MPa	103000 psi	Annealed at 2050°F, Transverse
	@Thickness 1.63 mm	@Thickness 0.0640 in	
	786 MPa	114000 psi	Typical for Plate, Annealed
	@Thickness 9.52 mm	@Thickness 0.375 in	
	811 MPa	118000 psi	Annealed at 1950°F, Longitudinal
	@Thickness 3.15 mm	@Thickness 0.124 in	
	825 MPa	120000 psi	Annealed at 1950°F, Longitudinal
	@Thickness 0.813 mm	@Thickness 0.0320 in	
	827 MPa	120000 psi	Typical for Plate, Annealed
	@Thickness 50.8 mm	@Thickness 2.00 in	
	840 MPa	122000 psi	Annealed at 1950°F, Longitudinal
	@Thickness 0.813 mm	@Thickness 0.0320 in	
	855 MPa	124000 psi	Typical for Plate, Annealed
	@Thickness 22.2 mm	@Thickness 0.875 in	
	998 MPa	145000 psi	Typical for Plate, 1/4-Hard, Longitudinal
	@Thickness 6.35 mm	@Thickness 0.250 in	
	1011 MPa	146600 psi	Typical for Plate, 1/4-Hard, Transverse
	@Thickness 6.35 mm	@Thickness 0.250 in	
	1020 MPa	148000 psi	Typical for Plate, 1/4-Hard, Longitudinal
	@Thickness 4.762 mm	@Thickness 0.1875 in	
	1025 MPa	148700 psi	Typical for Plate, 1/4-Hard, Transverse
	@Thickness 4.762 mm	@Thickness 0.1875 in	
Tensile Strength, Yield	345 MPa	50000 psi	Typical for Plate, Annealed, 0.875"
	@Strain 0.200 %	@Strain 0.200 %	
	358 MPa	51900 psi	Typical for Plate, Annealed, 2"
	@Strain 0.200 %	@Strain 0.200 %	
	393 MPa	57000 psi	Typical for Plate, Annealed, 0.0375"

Mechanical Properties	@Strain 0.200 % Metric	@Strain 0.200 % English	Comments
	393 MPa	57000 psi	0% Cold Work
	@Strain 0.200 %	@Strain 0.200 %	
	593 MPa	86000 psi	10% Cold Work
	@Strain 0.200 %	@Strain 0.200 %	
	702 MPa	102000 psi	Typical for Plate, 1/4-Hard, Longitudinal, 0.25"
	@Strain 0.200 %	@Strain 0.200 %	
	717 MPa	104000 psi	Typical for Plate, 1/4-Hard, Longitudinal, 0.1875"
	@Strain 0.200 %	@Strain 0.200 %	
	759 MPa	110000 psi	Typical for Plate, 1/4-Hard, Transverse, 0.25"
	@Strain 0.200 %	@Strain 0.200 %	
	768 MPa	111000 psi	Typical for Plate, 1/4-Hard, Transverse, 0.1875"
	@Strain 0.200 %	@Strain 0.200 %	
	779 MPa	113000 psi	20% Cold Work
	@Strain 0.200 %	@Strain 0.200 %	
	979 MPa	142000 psi	30% Cold Work
	@Strain 0.200 %	@Strain 0.200 %	
	1186 MPa	172000 psi	40% Cold Work
	@Strain 0.200 %	@Strain 0.200 %	
	131 MPa	19000 psi	Plate
	@Strain 0.200 %, Temperature 538 °C	@Strain 0.200 %, Temperature 1000 °F	
	155 MPa	22500 psi	Plate
	@Strain 0.200 %, Temperature 482 °C	@Strain 0.200 %, Temperature 900 °F	
	157 MPa	22800 psi	Plate
	@Strain 0.200 %, Temperature 427 °C	@Strain 0.200 %, Temperature 800 °F	
	168 MPa	24400 psi	Plate
	@Strain 0.200 %, Temperature 371 °C	@Strain 0.200 %, Temperature 700 °F	
	174 MPa	25200 psi	Plate
	@Strain 0.200 %, Temperature 316 °C	@Strain 0.200 %, Temperature 600 °F	

Mechanical Properties	Metric ^{Pa}	English ^{psi}	Comments
	@Strain 0.200 %, Temperature 260 °C	@Strain 0.200 %, Temperature 500 °F	Plate

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