

## AK Steel 17-7 PH® Precipitation Hardening Stainless Steel, Condition TH 1050

Category : Metal , Ferrous Metal , Austenitic , Stainless Steel , Precipitation Hardening Stainless

### Material Notes:

AK Steel 17-7 PH® provides high strength and hardness, excellent fatigue properties, good corrosion resistance, good formability, and minimum distortion upon heat treatment. This alloy provides valuable property combinations particularly well suited for aerospace applications. This special alloy also provides benefits for other applications requiring high strength and good corrosion resistance, as well as excellent properties for flat springs at temperatures up to 600°F (310°C). The material supplied from the mill is in Condition A. After fabrication, and conditioning treatments, the material is precipitation hardened into either Condition TH 1050 or Condition RH 950. To achieve the highest mechanical properties Condition A material is transformed to martensite at the mill by cold reduction to Condition C. After fabrication by the user a single low-temperature heat treatment is performed to achieve condition CH 900. Information provided by AK Steel

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_AK-Steel-17-7-PH-Precipitation-Hardening-Stainless-Steel-Condition-TH-1050.php](http://www.lookpolymers.com/polymer_AK-Steel-17-7-PH-Precipitation-Hardening-Stainless-Steel-Condition-TH-1050.php)

Physical Properties	Metric	English	Comments
Density	7.65 g/cc	0.276 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	43	43	
Tensile Strength, Ultimate	1379 MPa	200000 psi	
Tensile Strength, Yield	1276 MPa @Strain 0.200 %	185100 psi @Strain 0.200 %	
Elongation at Break	9.0 %	9.0 %	in 2 inches
Modulus of Elasticity	200 GPa	29000 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	10.1 µm/m-°C	5.61 µin/in-°F	
	@Temperature 21.0 - 93.0 °C	@Temperature 69.8 - 199 °F	
Thermal Conductivity	11.9 µm/m-°C	6.61 µin/in-°F	
	@Temperature <=427 °C	@Temperature <=801 °F	
Thermal Conductivity	16.87 W/m-K	117.1 BTU-in/hr-ft <sup>2</sup> -°F	
	@Temperature 149 °C	@Temperature 300 °F	
	21.05 W/m-K	146.1 BTU-in/hr-ft <sup>2</sup> -°F	

Thermal Properties	@Temperature 482 °C Metric	@Temperature 900 °F English	Comments
<b>Component Elements Properties</b>	<b>Metric</b>	<b>English</b>	<b>Comments</b>
Aluminum, Al	0.75 - 1.5 %	0.75 - 1.5 %	
Carbon, C	<= 0.090 %	<= 0.090 %	
Chromium, Cr	16 - 18 %	16 - 18 %	
Iron, Fe	70.59 - 76.75 %	70.59 - 76.75 %	As Remainder
Manganese, Mn	<= 1.0 %	<= 1.0 %	
Nickel, Ni	6.5 - 7.75 %	6.5 - 7.75 %	
Phosphorous, P	<= 0.040 %	<= 0.040 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	
Sulfur, S	<= 0.030 %	<= 0.030 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000820 ohm-cm	0.0000820 ohm-cm	
Magnetic Permeability	46 - 55	46 - 55	200 oersteds
	120 - 167	120 - 167	50 oersteds
	134 - 208	134 - 208	maximum

## Contact Songhan Plastic Technology Co.,Ltd.

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