Haynes® Hastelloy® X alloy, sheet, tested at RT

Subcategory: Metal; Nickel Base; Superalloy

Key Words: AMS 5798, AMS 5799, AMS 5888, UNS N06002, AMS 5536, AMS 5588, AMS 5754

Component	Wt. %	Component	Wt. %	Component	Wt. %
B	Max 0.008	Fe	18	Ni	47
C	0.1	Mn	Max 1	Si	Max 1
Co	1.5	Mo	9	W	0.6
Cr	22				

Material Notes:

Solid-solution-strengthened with very good high-temperature strength and very good resistance to oxidizing environments up to about 1095°C, and good carburization resistance. Applications include materials for fabricated or forged parts in gas turbine engines, and chemical and petrochemical plants, power plant and industrial heating applications.

Data provided by the manufacturer, Haynes International, Inc.

Physical Properties	Metric	English	Comments
Density	8.22 g/cc	0.297 lb/in³	at RT.

Mechanical Properties

Tensile Strength, Ultimate	765 MPa	111000 psi	
Tensile Strength, Yield	380 MPa	55100 psi	at 0.2%
Elongation at Break	44.2 %	44.2 %	in 51 mm
Modulus of Elasticity	205 GPa	29700 ksi	20°C
Modulus of Elasticity at Elevated Temperature	139 GPa	20200 ksi	1000°C (1830°F)
Modulus of Elasticity at Elevated Temperature	151 GPa	21900 ksi	900°C (1650°F)
Modulus of Elasticity at Elevated Temperature	158 GPa	22900 ksi	800°C (1470°F)
Modulus of Elasticity at Elevated Temperature	166 GPa	24100 ksi	700°C (1290°F)
Modulus of Elasticity at Elevated Temperature	174 GPa	25200 ksi	600°C (1110°F)
Modulus of Elasticity at Elevated Temperature	186 GPa	27000 ksi	400°C (750°F)

Modulus of Elasticity at Elevated Temperature	197 GPa	28600 ksi	200°C (390°F)

Thermal Properties

CTE, linear 500°C	15 µm/m-°C	8.33 µin/in-°F	20-500°C (68-930°F)
CTE, linear 500°C	15.3 µm/m-°C	8.5 µin/in-°F	20-600°C (68-1110°F)
CTE, linear 500°C	15.6 µm/m-°C	8.67 µin/in-°F	20-700°C (68-1290°F)
CTE, linear 500°C	16 µm/m-°C	8.89 µin/in-°F	20-800°C (68-1470°F)
CTE, linear 500°C	16.3 µm/m-°C	9.06 µin/in-°F	20-900°C (68-1650°F)
CTE, linear 1000°C	16.6 µm/m-°C	9.22 µin/in-°F	20-1000°C (68-1830°F)
Thermal Conductivity at Elevated Temperature	16.9 W/m-K	117 BTU-in/hr-ft²-°F	400°C (390°F)
Thermal Conductivity at Elevated Temperature	20.9 W/m-K	145 BTU-in/hr-ft²-°F	600°C (1110°F)
Thermal Conductivity at Elevated Temperature	22.8 W/m-K	158 BTU-in/hr-ft²-°F	700°C (1290°F)
Thermal Conductivity at Elevated Temperature	24.8 W/m-K	172 BTU-in/hr-ft²-°F	800°C (1470°F)
Thermal Conductivity at Elevated Temperature	26.7 W/m-K	185 BTU-in/hr-ft²-°F	900°C (1650°F)
Thermal Conductivity at Elevated Temperature	28.7 W/m-K	199 BTU-in/hr-ft²-°F	1000°C (1830°F)
Melting Point	1260 - 1355 °C	2300 - 2470 °F	
Solidus	1260 °C	2300 °F	
Liquidus	1355 °C	2470 °F	
Maximum Service Temperature, Air	1095 °C	2000 °F	

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistant format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error.