

Haynes 242[®] alloy, bar and rings, annealed and aged

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

Age-hardenable, high ductility in the aged condition, lower thermal expansion than most alloys, very good oxidation resistance up to 815[°]C, excellent low cycle fatigue properties, very good thermal stability, and resistance to high-temperature fluorine and fluoride environments. Applications include seal rings, containment rings, duct segments, casings, fasteners, rocket nozzles, pumps, hydrofluoric acid vapor containing processes, fluoroelastomer process equipment such as extrusion screws. Data provided by the manufacturer, Haynes International, Inc.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Haynes-242-alloy-bar-and-rings-annealed-and-aged.php

Physical Properties	Metric	English	Comments
Density	9.05 g/cc	0.327 lb/in ³	at RT

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	257	257	Converted from Vickers hardness
Hardness, Knoop	286	286	Converted from Vickers hardness
Hardness, Rockwell C	19	19	Converted from Vickers hardness
Hardness, Vickers	78.0	78.0	
	@Temperature 870 [°] C	@Temperature 1600 [°] F	
	140	140	
	@Temperature 760 [°] C	@Temperature 1400 [°] F	
	218	218	
	@Temperature 650 [°] C	@Temperature 1200 [°] F	
	263	263	
	@Temperature 540 [°] C	@Temperature 1000 [°] F	
	271	271	
	@Temperature 425 [°] C	@Temperature 797 [°] F	
Tensile Strength, Ultimate	1290 MPa	187000 psi	
	290 MPa	42100 psi	
	@Temperature 980 [°] C	@Temperature 1800 [°] F	

Mechanical Properties	Metric	English	Comments
	500 MPa	72500 psi	
	@Temperature 870 Â°C	@Temperature 1600 Â°F	
	730 MPa	106000 psi	
	@Temperature 760 Â°C	@Temperature 1400 Â°F	
	1000 MPa	145000 psi	
	@Temperature 650 Â°C	@Temperature 1200 Â°F	
	1080 MPa	157000 psi	
	@Temperature 540 Â°C	@Temperature 1000 Â°F	
	1110 MPa	161000 psi	
	@Temperature 425 Â°C	@Temperature 797 Â°F	
	1160 MPa	168000 psi	
	@Temperature 315 Â°C	@Temperature 599 Â°F	
	1195 MPa	173300 psi	
	@Temperature 205 Â°C	@Temperature 401 Â°F	
	1245 MPa	180600 psi	
	@Temperature 95.0 Â°C	@Temperature 203 Â°F	
Tensile Strength, Yield	845 MPa	123000 psi	
	@Strain 0.200 %	@Strain 0.200 %	
	210 MPa	30500 psi	
	@Strain 0.200 %, Temperature 980 Â°C	@Strain 0.200 %, Temperature 1800 Â°F	
	310 MPa	45000 psi	
	@Strain 0.200 %, Temperature 760 Â°C	@Strain 0.200 %, Temperature 1400 Â°F	
	310 MPa	45000 psi	
	@Strain 0.200 %, Temperature 870 Â°C	@Strain 0.200 %, Temperature 1600 Â°F	
	540 MPa	78300 psi	
	@Strain 0.200 %, Temperature 540 Â°C	@Strain 0.200 %, Temperature 1000 Â°F	
	570 MPa	82700 psi	

Mechanical Properties	Metric	English	Comments
	@Strain 0.200 %, Temperature 650 Å°C	@Strain 0.200 %, Temperature 1200 Å°F	
	595 MPa	86300 psi	
	@Strain 0.200 %, Temperature 425 Å°C	@Strain 0.200 %, Temperature 797 Å°F	
	665 MPa	96500 psi	
	@Strain 0.200 %, Temperature 315 Å°C	@Strain 0.200 %, Temperature 599 Å°F	
	705 MPa	102000 psi	
	@Strain 0.200 %, Temperature 205 Å°C	@Strain 0.200 %, Temperature 401 Å°F	
	760 MPa	110000 psi	
	@Strain 0.200 %, Temperature 95.0 Å°C	@Strain 0.200 %, Temperature 203 Å°F	
Elongation at Break	33.7 %	33.7 %	in 4D
	31.7 %	31.7 %	in 4D
	@Temperature 95.0 Å°C	@Temperature 203 Å°F	
	33 %	33 %	in 4D
	@Temperature 205 Å°C	@Temperature 401 Å°F	
	33.2 %	33.2 %	in 4D
	@Temperature 650 Å°C	@Temperature 1200 Å°F	
	33.4 %	33.4 %	in 4D
	@Temperature 315 Å°C	@Temperature 599 Å°F	
	37.6 %	37.6 %	in 4D
	@Temperature 425 Å°C	@Temperature 797 Å°F	
	38.3 %	38.3 %	in 4D
	@Temperature 540 Å°C	@Temperature 1000 Å°F	
	44.3 %	44.3 %	in 4D
	@Temperature 760 Å°C	@Temperature 1400 Å°F	
	49.7 %	49.7 %	in 4D
	@Temperature 870 Å°C	@Temperature 1600 Å°F	

Mechanical Properties	Metric	English	Comments
	@Temperature 980 Â°C	@Temperature 1800 Â°F	in 4D
Reduction of Area	45.7 %	45.7 %	
	41.1 %	41.1 %	
	@Temperature 650 Â°C	@Temperature 1200 Â°F	
	45.9 %	45.9 %	
	@Temperature 425 Â°C	@Temperature 797 Â°F	
	47 %	47 %	
	@Temperature 95.0 Â°C	@Temperature 203 Â°F	
	48.4 %	48.4 %	
	@Temperature 315 Â°C	@Temperature 599 Â°F	
	49.9 %	49.9 %	
	@Temperature 540 Â°C	@Temperature 1000 Â°F	
	51.8 %	51.8 %	
	@Temperature 205 Â°C	@Temperature 401 Â°F	
	54.1 %	54.1 %	
	@Temperature 760 Â°C	@Temperature 1400 Â°F	
	85.1 %	85.1 %	
	@Temperature 870 Â°C	@Temperature 1600 Â°F	
	97.8 %	97.8 %	
	@Temperature 980 Â°C	@Temperature 1800 Â°F	
Modulus of Elasticity	229 GPa	33200 ksi	RT
	152 GPa	22000 ksi	
	@Temperature 1000 Â°C	@Temperature 1830 Â°F	
	163 GPa	23600 ksi	
	@Temperature 900 Â°C	@Temperature 1650 Â°F	
	172 GPa	24900 ksi	

Mechanical Properties	Metric	English	Comments
	@Temperature 800 Å°C	@Temperature 1470 Å°F	
	185 GPa	26800 ksi	
	@Temperature 700 Å°C	@Temperature 1290 Å°F	
	193 GPa	28000 ksi	
	@Temperature 600 Å°C	@Temperature 1110 Å°F	
	199 GPa	28900 ksi	
	@Temperature 500 Å°C	@Temperature 932 Å°F	
	206 GPa	29900 ksi	
	@Temperature 400 Å°C	@Temperature 752 Å°F	
	213 GPa	30900 ksi	
	@Temperature 300 Å°C	@Temperature 572 Å°F	
	219 GPa	31800 ksi	
	@Temperature 200 Å°C	@Temperature 392 Å°F	
	225 GPa	32600 ksi	
	@Temperature 100 Å°C	@Temperature 212 Å°F	

Thermal Properties	Metric	English	Comments
CTE, linear	10.8 Åµm/m-Å°C	6.00 Åµin/in-Å°F	
	@Temperature 25.0 - 100 Å°C	@Temperature 77.0 - 212 Å°F	
	11.3 Åµm/m-Å°C	6.28 Åµin/in-Å°F	
	@Temperature 25.0 - 200 Å°C	@Temperature 77.0 - 392 Å°F	
	11.6 Åµm/m-Å°C	6.44 Åµin/in-Å°F	
	@Temperature 25.0 - 300 Å°C	@Temperature 77.0 - 572 Å°F	
CTE, linear	11.9 Åµm/m-Å°C	6.61 Åµin/in-Å°F	
	@Temperature 25.0 - 400 Å°C	@Temperature 77.0 - 752 Å°F	
CTE, linear	12.2 Åµm/m-Å°C	6.78 Åµin/in-Å°F	
	@Temperature 25.0 - 500 Å°C	@Temperature 77.0 - 932 Å°F	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000122 ohm-cm	0.000122 ohm-cm	RT
	0.0001234 ohm-cm @Temperature 100 Â°C	0.0001234 ohm-cm @Temperature 212 Â°F	
	0.0001251 ohm-cm @Temperature 200 Â°C	0.0001251 ohm-cm @Temperature 392 Â°F	
	0.0001267 ohm-cm @Temperature 300 Â°C	0.0001267 ohm-cm @Temperature 572 Â°F	
	0.0001276 ohm-cm @Temperature 1000 Â°C	0.0001276 ohm-cm @Temperature 1830 Â°F	
	0.000128 ohm-cm @Temperature 400 Â°C	0.000128 ohm-cm @Temperature 752 Â°F	
	0.0001295 ohm-cm @Temperature 500 Â°C	0.0001295 ohm-cm @Temperature 932 Â°F	
	0.0001298 ohm-cm @Temperature 900 Â°C	0.0001298 ohm-cm @Temperature 1650 Â°F	
	0.0001306 ohm-cm @Temperature 600 Â°C	0.0001306 ohm-cm @Temperature 1110 Â°F	
	0.000132 ohm-cm @Temperature 700 Â°C	0.000132 ohm-cm @Temperature 1290 Â°F	
	0.0001324 ohm-cm @Temperature 800 Â°C	0.0001324 ohm-cm @Temperature 1470 Â°F	

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