

## Haynes 242<sup>®</sup> alloy, cold rolled sheet, 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<sup>°</sup>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-cold-rolled-sheet-annealed-and-aged.php](http://www.lookpolymers.com/polymer_Haynes-242-alloy-cold-rolled-sheet-annealed-and-aged.php)

Physical Properties	Metric	English	Comments
Density	9.05 g/cc	0.327 lb/in <sup>3</sup>	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 <sup>°</sup> C	@Temperature 1600 <sup>°</sup> F	
	140	140	
	@Temperature 760 <sup>°</sup> C	@Temperature 1400 <sup>°</sup> F	
	218	218	
	@Temperature 650 <sup>°</sup> C	@Temperature 1200 <sup>°</sup> F	
	263	263	
	@Temperature 540 <sup>°</sup> C	@Temperature 1000 <sup>°</sup> F	
	271	271	
	@Temperature 425 <sup>°</sup> C	@Temperature 797 <sup>°</sup> F	
Tensile Strength, Ultimate	1365 MPa	198000 psi	
	225 MPa	32600 psi	
	@Temperature 980 <sup>°</sup> C	@Temperature 1800 <sup>°</sup> F	

Mechanical Properties	Metric	English	Comments
	445 MPa	64500 psi	
	@Temperature 870 Å°C	@Temperature 1600 Å°F	
	760 MPa	110000 psi	
	@Temperature 760 Å°C	@Temperature 1400 Å°F	
	860 MPa	125000 psi	
	@Temperature 705 Å°C	@Temperature 1300 Å°F	
	1045 MPa	151600 psi	
	@Temperature 650 Å°C	@Temperature 1200 Å°F	
	1165 MPa	169000 psi	
	@Temperature 540 Å°C	@Temperature 1000 Å°F	
	1215 MPa	176200 psi	
	@Temperature 425 Å°C	@Temperature 797 Å°F	
	1260 MPa	183000 psi	
	@Temperature 315 Å°C	@Temperature 599 Å°F	
	1295 MPa	187800 psi	
	@Temperature 205 Å°C	@Temperature 401 Å°F	
	1345 MPa	195100 psi	
	@Temperature 95.0 Å°C	@Temperature 203 Å°F	
Tensile Strength, Yield	930 MPa	135000 psi	
	@Strain 0.200 %	@Strain 0.200 %	
	100 MPa	14500 psi	
	@Strain 0.200 %, Temperature 980 Å°C	@Strain 0.200 %, Temperature 1800 Å°F	
	265 MPa	38400 psi	
	@Strain 0.200 %, Temperature 870 Å°C	@Strain 0.200 %, Temperature 1600 Å°F	
	450 MPa	65300 psi	
	@Strain 0.200 %, Temperature 760 Å°C	@Strain 0.200 %, Temperature 1400 Å°F	
	625 MPa	90600 psi	

Mechanical Properties	Metric	English	Comments
	@Strain 0.200 %, Temperature 705 Â°C	@Strain 0.200 %, Temperature 1300 Â°F	
	<b>680 MPa</b>	<b>98600 psi</b>	
	@Strain 0.200 %, Temperature 650 Â°C	@Strain 0.200 %, Temperature 1200 Â°F	
	<b>790 MPa</b>	<b>115000 psi</b>	
	@Strain 0.200 %, Temperature 540 Â°C	@Strain 0.200 %, Temperature 1000 Â°F	
	<b>810 MPa</b>	<b>117000 psi</b>	
	@Strain 0.200 %, Temperature 425 Â°C	@Strain 0.200 %, Temperature 797 Â°F	
	<b>855 MPa</b>	<b>124000 psi</b>	
	@Strain 0.200 %, Temperature 315 Â°C	@Strain 0.200 %, Temperature 599 Â°F	
	<b>900 MPa</b>	<b>131000 psi</b>	
	@Strain 0.200 %, Temperature 205 Â°C	@Strain 0.200 %, Temperature 401 Â°F	
	<b>950 MPa</b>	<b>138000 psi</b>	
	@Strain 0.200 %, Temperature 95.0 Â°C	@Strain 0.200 %, Temperature 203 Â°F	
<b>Elongation at Break</b>	<b>31.8 %</b>	<b>31.8 %</b>	<b>in 50 mm</b>
	<b>15.7 %</b>	<b>15.7 %</b>	<b>in 50 mm</b>
	@Temperature 705 Â°C	@Temperature 1300 Â°F	
	<b>20.4 %</b>	<b>20.4 %</b>	<b>in 50 mm</b>
	@Temperature 650 Â°C	@Temperature 1200 Â°F	
	<b>29.2 %</b>	<b>29.2 %</b>	<b>in 50 mm</b>
	@Temperature 95.0 Â°C	@Temperature 203 Â°F	
	<b>29.4 %</b>	<b>29.4 %</b>	<b>in 50 mm</b>
	@Temperature 205 Â°C	@Temperature 401 Â°F	
	<b>30.9 %</b>	<b>30.9 %</b>	<b>in 50 mm</b>
	@Temperature 540 Â°C	@Temperature 1000 Â°F	
	<b>32.1 %</b>	<b>32.1 %</b>	<b>in 50 mm</b>
		@Temperature 1800	

Mechanical Properties	@Temperature 980 Â°C Metric	Â°F English	Comments
	32.9 %	32.9 %	in 50 mm
	@Temperature 870 Â°C	@Temperature 1600 Â°F	
	33.2 %	33.2 %	in 50 mm
	@Temperature 425 Â°C	@Temperature 797 Â°F	
	36.4 %	36.4 %	in 50 mm
	@Temperature 315 Â°C	@Temperature 599 Â°F	
	44.5 %	44.5 %	in 50 mm
	@Temperature 760 Â°C	@Temperature 1400 Â°F	
<b>Modulus of Elasticity</b>	<b>229 GPa</b>	<b>33200 ksi</b>	<b>RT</b>
	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	
	@Temperature 800 Â°C	@Temperature 1470 Â°F	
	185 GPa	26800 ksi	
	@Temperature 700 Â°C	@Temperature 1290 Â°F	
	193 GPa	28000 ksi	
	@Temperature 600 Â°C	@Temperature 1110 Â°F	
	199 GPa	28900 ksi	
	@Temperature 500 Â°C	@Temperature 932 Â°F	
	206 GPa	29900 ksi	
	@Temperature 400 Â°C	@Temperature 752 Â°F	
	213 GPa	30900 ksi	
	@Temperature 300 Â°C	@Temperature 572 Â°F	
	219 GPa	31800 ksi	

Mechanical Properties	@Temperature 200 Â°C Metric 225 GPa	@Temperature 392 Â°F English 32000 ksi	Comments
	@Temperature 100 Â°C	@Temperature 212 Â°F	

Thermal Properties	Metric	English	Comments
CTE, linear	10.8 Âµm/m-Â°C	6.00 Âµin/in-Â°F	
	@Temperature 25.0 - 100 Â°C	@Temperature 77.0 - 212 Â°F	
	11.3 Âµm/m-Â°C	6.28 Âµin/in-Â°F	
	@Temperature 25.0 - 200 Â°C	@Temperature 77.0 - 392 Â°F	
	11.6 Âµm/m-Â°C	6.44 Âµin/in-Â°F	
	@Temperature 25.0 - 300 Â°C	@Temperature 77.0 - 572 Â°F	
	11.9 Âµm/m-Â°C	6.61 Âµin/in-Â°F	
	@Temperature 25.0 - 400 Â°C	@Temperature 77.0 - 752 Â°F	
	12.2 Âµm/m-Â°C	6.78 Âµin/in-Â°F	
@Temperature 25.0 - 500 Â°C	@Temperature 77.0 - 932 Â°F		
12.3 Âµm/m-Â°C	6.83 Âµin/in-Â°F		
@Temperature 25.0 - 600 Â°C	@Temperature 77.0 - 1110 Â°F		
12.4 Âµm/m-Â°C	6.89 Âµin/in-Â°F		
@Temperature 25.0 - 650 Â°C	@Temperature 77.0 - 1200 Â°F		
13.0 Âµm/m-Â°C	7.22 Âµin/in-Â°F		
@Temperature 25.0 - 700 Â°C	@Temperature 77.0 - 1290 Â°F		

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.000122 ohm-cm	0.000122 ohm-cm	RT
	0.0001234 ohm-cm	0.0001234 ohm-cm	
	@Temperature 100 Â°C	@Temperature 212 Â°F	
	0.0001251 ohm-cm	0.0001251 ohm-cm	
	@Temperature 200 Â°C	@Temperature 392 Â°F	
0.0001267 ohm-cm	0.0001267 ohm-cm		

Electrical Properties	Metric	English	Comments
	0.0001276 ohm-cm @Temperature 300 Â°C	0.0001276 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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