

Haynes 625 alloy, 40% cold reduction, 1120Â°C anneal for 5 minutes

Category : Metal , Nonferrous Metal , Nickel Alloy , Superalloy

Material Notes:

Cb and Ta content 3.7% combined. Excellent strength up to 816Â°C, good oxidation resistance and aqueous corrosion, excellent forming and welding characteristics. Applications include a variety of high-temperature aerospace, chemical process industry and power industry uses. Widely used in sea water and power plant scrubber applications. Data provided by the manufacturer, Haynes International, Inc.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Haynes-625-alloy-40-cold-reduction-1120C-anneal-for-5-minutes.php

| Physical Properties | Metric | English | Comments |
|---------------------|-----------|---------------|----------|
| Density | 8.44 g/cc | 0.305 lb/inÂ³ | at RT |

| Mechanical Properties | Metric | English | Comments |
|----------------------------|--------------------------|--------------------------|------------|
| Tensile Strength, Ultimate | 945 MPa | 137000 psi | |
| Tensile Strength, Yield | 500 MPa | 72500 psi | |
| | @Strain 0.200 % | @Strain 0.200 % | |
| Elongation at Break | 44 % | 44 % | in 50.8 mm |
| Modulus of Elasticity | 208 GPa | 30200 ksi | RT |
| | 126 GPa | 18300 ksi | |
| | @Temperature 1000 Â°C | @Temperature 1830 Â°F | |
| | 142 GPa | 20600 ksi | |
| | @Temperature 900 Â°C | @Temperature 1650 Â°F | |
| | 153 GPa | 22200 ksi | |
| | @Temperature 800 Â°C | @Temperature 1470 Â°F | |
| | 163 GPa | 23600 ksi | |
| | @Temperature 700 Â°C | @Temperature 1290 Â°F | |
| | 171 GPa | 24800 ksi | |
| | @Temperature 600 Â°C | @Temperature 1110 Â°F | |
| | 179 GPa | 26000 ksi | |
| | @Temperature 500 Â°C | @Temperature 932 Â°F | |

| Mechanical Properties | 186 GPa Metric | 27000 ksi English | Comments |
|-----------------------|----------------------|----------------------|----------|
| | @Temperature 400 Â°C | @Temperature 752 Â°F | |
| | 192 GPa | 27800 ksi | |
| | @Temperature 300 Â°C | @Temperature 572 Â°F | |
| | 199 GPa | 28900 ksi | |
| | @Temperature 200 Â°C | @Temperature 392 Â°F | |
| | 201 GPa | 29200 ksi | |
| | @Temperature 100 Â°C | @Temperature 212 Â°F | |

| Thermal Properties | Metric | English | Comments |
|--------------------|-----------------------------|------------------------------|----------|
| CTE, linear | 12.8 Âµm/m-Â°C | 7.11 Âµin/in-Â°F | |
| | @Temperature 25.0 - 100 Â°C | @Temperature 77.0 - 212 Â°F | |
| | 13.1 Âµm/m-Â°C | 7.28 Âµin/in-Â°F | |
| | @Temperature 25.0 - 200 Â°C | @Temperature 77.0 - 392 Â°F | |
| | 13.4 Âµm/m-Â°C | 7.44 Âµin/in-Â°F | |
| | @Temperature 25.0 - 300 Â°C | @Temperature 77.0 - 572 Â°F | |
| | 13.8 Âµm/m-Â°C | 7.67 Âµin/in-Â°F | |
| | @Temperature 25.0 - 400 Â°C | @Temperature 77.0 - 752 Â°F | |
| | 14.2 Âµm/m-Â°C | 7.89 Âµin/in-Â°F | |
| | @Temperature 25.0 - 500 Â°C | @Temperature 77.0 - 932 Â°F | |
| | 14.8 Âµm/m-Â°C | 8.22 Âµin/in-Â°F | |
| | @Temperature 25.0 - 600 Â°C | @Temperature 77.0 - 1110 Â°F | |
| | 15.4 Âµm/m-Â°C | 8.56 Âµin/in-Â°F | |
| | @Temperature 25.0 - 700 Â°C | @Temperature 77.0 - 1290 Â°F | |
| | 16.0 Âµm/m-Â°C | 8.89 Âµin/in-Â°F | |
| | @Temperature 25.0 - 800 Â°C | @Temperature 77.0 - 1470 Â°F | |
| | 16.7 Âµm/m-Â°C | 9.28 Âµin/in-Â°F | |
| | @Temperature 25.0 - | @Temperature 77.0 - | |

| Thermal Properties | 900 °C Metric | 1650 °F English | Comments |
|------------------------|------------------------------|------------------------------|----------|
| | 17.4 Åµm/m-Å°C | 9.67 Åµin/in-Å°F | |
| | @Temperature 25.0 - 1000 Å°C | @Temperature 77.0 - 1830 Å°F | |
| Specific Heat Capacity | 0.410 J/g-Å°C | 0.0980 BTU/lb-Å°F | RT |
| | 0.428 J/g-Å°C | 0.102 BTU/lb-Å°F | |
| | @Temperature 100 Å°C | @Temperature 212 Å°F | |
| | 0.455 J/g-Å°C | 0.109 BTU/lb-Å°F | |
| | @Temperature 200 Å°C | @Temperature 392 Å°F | |
| | 0.477 J/g-Å°C | 0.114 BTU/lb-Å°F | |
| | @Temperature 300 Å°C | @Temperature 572 Å°F | |
| | 0.503 J/g-Å°C | 0.120 BTU/lb-Å°F | |
| | @Temperature 400 Å°C | @Temperature 752 Å°F | |
| | 0.527 J/g-Å°C | 0.126 BTU/lb-Å°F | |
| | @Temperature 500 Å°C | @Temperature 932 Å°F | |
| | 0.552 J/g-Å°C | 0.132 BTU/lb-Å°F | |
| | @Temperature 600 Å°C | @Temperature 1110 Å°F | |
| | 0.576 J/g-Å°C | 0.138 BTU/lb-Å°F | |
| | @Temperature 700 Å°C | @Temperature 1290 Å°F | |
| | 0.600 J/g-Å°C | 0.143 BTU/lb-Å°F | |
| | @Temperature 800 Å°C | @Temperature 1470 Å°F | |
| | 0.625 J/g-Å°C | 0.149 BTU/lb-Å°F | |
| | @Temperature 900 Å°C | @Temperature 1650 Å°F | |
| | 0.648 J/g-Å°C | 0.155 BTU/lb-Å°F | |
| | @Temperature 1000 Å°C | @Temperature 1830 Å°F | |
| Thermal Conductivity | 9.80 W/m-K | 68.0 BTU-in/hr-ftÅ²-Å°F | RT |
| | 10.9 W/m-K | 75.6 BTU-in/hr-ftÅ²-Å°F | |
| | @Temperature 100 Å°C | @Temperature 212 Å°F | |

| Thermal Properties | Metric | English | Comments |
|--------------------|-------------------------------------|---|----------|
| | @Temperature 200 Â°C | @Temperature 392 Â°F | |
| | 13.9 W/m-K @Temperature 300 Â°C | 96.5 BTU-in/hr-ftÂ²-Â°F @Temperature 572 Â°F | |
| | 15.3 W/m-K @Temperature 400 Â°C | 106 BTU-in/hr-ftÂ²-Â°F @Temperature 752 Â°F | |
| | 16.9 W/m-K @Temperature 500 Â°C | 117 BTU-in/hr-ftÂ²-Â°F @Temperature 932 Â°F | |
| | 18.3 W/m-K @Temperature 600 Â°C | 127 BTU-in/hr-ftÂ²-Â°F @Temperature 1110 Â°F | |
| | 19.8 W/m-K @Temperature 700 Â°C | 137 BTU-in/hr-ftÂ²-Â°F @Temperature 1290 Â°F | |
| | 21.5 W/m-K @Temperature 800 Â°C | 149 BTU-in/hr-ftÂ²-Â°F @Temperature 1470 Â°F | |
| | 23.4 W/m-K @Temperature 900 Â°C | 162 BTU-in/hr-ftÂ²-Â°F @Temperature 1650 Â°F | |
| | 25.6 W/m-K @Temperature 1000 Â°C | 178 BTU-in/hr-ftÂ²-Â°F @Temperature 1830 Â°F | |
| Melting Point | 1290 - 1350 Â°C | 2350 - 2460 Â°F | |
| Solidus | 1290 Â°C | 2350 Â°F | |
| Liquidus | 1350 Â°C | 2460 Â°F | |

| Component Elements Properties | Metric | English | Comments |
|-------------------------------|-----------|-----------|----------|
| Aluminum, Al | <= 0.40 % | <= 0.40 % | |
| Carbon, C | <= 0.10 % | <= 0.10 % | |
| Chromium, Cr | 21 % | 21 % | |
| Cobalt, Co | <= 1.0 % | <= 1.0 % | |
| Iron, Fe | <= 5.0 % | <= 5.0 % | |

| Component Elements Properties | Metric | English | Comments |
|-------------------------------|-----------|-----------|--------------|
| Manganese, Mn | <= 0.30 % | <= 0.30 % | |
| Molybdenum, Mo | 9.0 % | 9.0 % | |
| Nickel, Ni | 62 % | 62 % | As Remainder |

| Electrical Properties | Metric | English | Comments |
|------------------------|-----------------------|-----------------------|----------|
| Electrical Resistivity | 0.000129 ohm-cm | 0.000129 ohm-cm | RT |
| | 0.000132 ohm-cm | 0.000132 ohm-cm | |
| | @Temperature 100 Â°C | @Temperature 212 Â°F | |
| | 0.000134 ohm-cm | 0.000134 ohm-cm | |
| | @Temperature 200 Â°C | @Temperature 392 Â°F | |
| | 0.000135 ohm-cm | 0.000135 ohm-cm | |
| | @Temperature 300 Â°C | @Temperature 572 Â°F | |
| | 0.000135 ohm-cm | 0.000135 ohm-cm | |
| | @Temperature 1000 Â°C | @Temperature 1830 Â°F | |
| | 0.000136 ohm-cm | 0.000136 ohm-cm | |
| | @Temperature 900 Â°C | @Temperature 1650 Â°F | |
| | 0.000136 ohm-cm | 0.000136 ohm-cm | |
| | @Temperature 400 Â°C | @Temperature 752 Â°F | |
| | 0.000137 ohm-cm | 0.000137 ohm-cm | |
| | @Temperature 500 Â°C | @Temperature 932 Â°F | |
| | 0.000137 ohm-cm | 0.000137 ohm-cm | |
| | @Temperature 800 Â°C | @Temperature 1470 Â°F | |
| | 0.000138 ohm-cm | 0.000138 ohm-cm | |
| | @Temperature 600 Â°C | @Temperature 1110 Â°F | |
| | 0.000138 ohm-cm | 0.000138 ohm-cm | |
| | @Temperature 700 Â°C | @Temperature 1290 Â°F | |

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