

Monel® K500

Product Datasheet



Nickel-Copper Alloy

Service. Quality. Value.

Improved Mechanical Properties

Monel® K500 offers all the benefits of Monel® 400 but with greater strength and hardness.

The mechanical properties of the alloy are 3 to 4 times greater, achieved in part due to the inclusion of aluminium and titanium during the alloying process, which makes the material age-hardenable. Monel® K500 also offers the same, excellent corrosion-resistant qualities. The delivery condition of the alloy includes annealed, age-hardened, hot-finished or stress equalised. The product provides very high strength and hardness and high tensile properties up to 650°C (1200°F) after age-hardening. Good fatigue and corrosion fatigue resistance are also achievable after age-hardening.



Key Features

- Stronger and harder than Monel® 400
- Excellent corrosion resistance
- Alloy is age-hardenable
- Virtually non-magnetic

Applications

- Fasteners and springs
- Pump and valve components
- Oil well drill collars
- Impellers
- Marine engineering applications

Chemical Composition (weight %)

| Ni | Mn | Si | Fe | Al | S | C | Cu |
|--------|----------|----------|----------|-------------|-----------|----------|-------------|
| 63 min | 1.50 max | 0.50 max | 2.00 max | 2.30 - 3.15 | 0.010 max | 0.18 max | 27.0 - 33.0 |

Mechanical Properties (rod & bar, nominal)

| Form | Tensile Strength | | Yield Strength | | Elongation | Hardness | |
|----------------------------------|------------------|----------|----------------|----------|------------|----------|----------|
| | ksi | MPa | ksi | MPa | | Brinell | Rockwell |
| Hot-Finished | 90-155 | 621-1069 | 40-110 | 276-758 | 45-20 | 140-315 | 75B-35C |
| Hot-Finished, Aged* | 140-190 | 965-1310 | 100-150 | 690-1034 | 30-20 | 265-346 | 27-38C |
| Hot-Finished, Annealed | 90-110 | 621-758 | 40-60 | 276-414 | 45-251 | 40-185 | 75-90B |
| Hot-Finished, Annealed and Aged* | 130-165 | 896-1138 | 85-120 | 586-827 | 35-20 | 250-315 | 24-35C |
| Cold-Drawn, As-Drawn | 100-140 | 690-965 | 70-125 | 483-862 | 35-13 | 175-260 | 88B-26C |
| Cold-Drawn, Aged* | 135-185 | 931-1276 | 95-160 | 655-1103 | 30-15 | 255-370 | 25-41C |
| Cold-Drawn, Annealed | 90-110 | 621-758 | 40-60 | 276-414 | 50-25 | 140-185 | 75-90B |
| Cold-Drawn, Annealed and Aged* | 130-190 | 896-1310 | 85-120 | 586-827 | 30-20 | 250-315 | 24-35C |

* Nominal properties for material age-hardened to produce maximum properties.

UK Service Centres:

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Quality & Testing:



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