

## PRECIPITATION HARDENABLE NICKEL-COPPER ALLOY

### TYPICAL APPLICATIONS

Pump shafts  
Oil well tools and instruments  
Springs  
Valve trim  
Fasteners/bolting  
Marine propeller shafts  
Electronic components  
Cryogenic equipment

### MATERIAL SPECIFICATIONS

- UNS N05500
- BS 3072-76 (NA18)
- ASTM B865
- SAE AMS 4676
- Wr.N 2.4375
- NACE MR01-75 / ISO 15156

### PRODUCT DESCRIPTION

Alloy K-500 is a precipitation/age hardenable nickel-copper alloy providing high mechanical strength combined with excellent corrosion resistance. Tensile strength is typically twice and yield strength three times that of alloy 400 nickel-copper.

The alloy exhibits outstanding properties at sub-zero (including cryogenic) temperatures at which ductility and toughness are virtually unimpaired. It also possesses low permeability and is non-magnetic to temperatures as low as minus 101°C.

### AVAILABILITY

Bar, wire, pipe, tube, sheet, plate, strip.

### MACHINING AND JOINING

Heavy machining of alloy K-500 is best achieved when the material is in the annealed or hot-worked and quenched condition. It is common practise to machine slightly oversize, age-harden, then finish to size. However, age-hardened material can be finish machined to close tolerances and fine finishes.

The alloy can be joined by industry-standard welding, brazing and soft soldering processes.

### CORROSION RESISTANCE

Alloy K-500 provides excellent resistance to corrosion in seawater, oil & gas environments and a wide variety of industrial media. The corrosion resistance of alloy K-500 is substantially equivalent to that of alloy 400 (non-hardenable nickel-copper alloy) except that, when in the age-hardened condition, alloy K-500 has a greater tendency toward stress corrosion cracking in some media.

### CHEMICAL COMPOSITION

Weight%	C	S	Si	Mn	Cu	Fe	Al	Ti	Ni+Co
Min.					27.0		2.30	0.35	63.0
Max.	0.25	0.01	0.5	1.5	33.0	2.0	3.15	0.85	

### TYPICAL MECHANICAL PROPERTIES

UTS, MPa	1,100
0.2% PS, MPa	790
Elongation, %	20

### TECHNICAL SALES ASSISTANCE

Our resident team of qualified metallurgists and engineers will be pleased to assist further on any technical topic.

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