



HIGH PERFORMANCE FASTENERS

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# NICKEL ALLOY SOLUTIONS



For critical applications and severe environments high performance, high strength fasteners are essential. Materials with good creep strength along with excellent oxidation and corrosion resistance, depending on the operating environment, are required for high temperature fasteners.

When exposed to elevated temperatures conventional steel fasteners will lose their strength and prolonged heat exposure may cause problems as standard fastener materials

have relatively poor creep characteristics. Another challenge is oxidation which can result in failure of the fastener or the oxidation products can make it difficult to disassemble components – an issue in the repair market.

BIBUS METALS stocks a wide range of bar diameters and tolerances to support the fastener industry. Below we review just a few of the key fastener grades. For more information please contact us via [info@bibusmetals.com](mailto:info@bibusmetals.com).

## ALLOY PROPERTIES



	Composition (%)	Key attributes	Application
<b>Alloy 400</b> N04400 2.4360	65Ni – 32Cu – 1.6Fe – 1.1Mn	High strength and resistance to hydrofluoric and sulphuric acids, alkalis and sea water.	Marine / offshore oil and gas, chemical processing
<b>Alloy K-500</b> N05500 2.4375	65Ni – 30Cu – 2.7Al – 1.0Fe – 0.6Ti	Made age-hardenable by addition of Al and Ti – high strengths can be achieved. Excellent corrosion resistance.	Marine / offshore oil and gas, chemical processing
<b>Alloy C-276</b> N10276 2.4819	57Ni – 16Cr – 5Fe – 16Mo – 4W	Ni-Cr-Mo alloy with the addition of W for enhanced corrosion resistance in a range of very corrosive environments and excellent localised corrosion resistance.	Marine, chemical processing
<b>Alloy 80A</b> N07080 2.4952	76Ni – 19.5Cr – 3Fe – 1.4Al – 2.4Ti	Ni-Cr alloy with additions of Al and Ti for their strengthening effect. Alloy 80A has good corrosion and oxidation resistance and excellent tensile and creep rupture properties for service at temperatures up to ~815 °C	Automotive, aerospace, industrial gas turbines
<b>Alloy 90</b> N07090 2.4632	60Ni – 19.5Cr – 16Co – 10Mo – 1.5Fe – 1.5Al – 2.5Ti	High stress rupture strength, creep resistance and cyclic oxidation resistance for service up to ~ 920 °C	Automotive, aerospace, industrial gas turbines
<b>Alloy 718</b> N07718 2.4668	54Ni – 18Cr – 18Fe – 3Mo – 5Nb – 0.2Al – 1.8Ti	High strength age hardenable alloy which combines strength and excellent corrosion resistance. The alloy has excellent creep rupture strength at temperatures up to 700 °C.	Automotive, aerospace, industrial gas turbines, oil and gas
<b>Alloy HX</b> N06002 2.4665	47Ni – 22Cr – 18Fe – 9Mo – 1.5Co	A highly alloyed grade with excellent strength and oxidation resistance up to 1100 °C	Automotive, aerospace, industrial gas turbines, thermal processing

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