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BIBUS METALS

AEROSPACE INDUSTRY

High Performance Alloys

The wide range of applications found in the aerospace industry calls for a wide range of alloys to meet the differing operating environments. Applications range from landing gear systems where high strength and toughness are critical, to materials used in the hot section of the aero engine such as combustor chambers and exhaust systems where high temperature strength and resistance to oxidation are required. Materials with high creep strength are required for high temperature fasteners and corrosion and oxidation resistance are also key requirements for this application as well as for turbine casings, rings and seals.

BIBUS METALS Groups extensive stock portfolio includes nickel-based, cobalt-based and titanium alloys and precipitation hardened steels which are used in these critical applications and we hope to introduce you to just a few key grades here. For more information please contact us via info@bibusmetals.com.

Alloy Properties

	Composition (%)	Key attributes	Application
Alloy 75 N06675/2.4951	76Ni – 20Cr – 4Fe	Good high temperature strength and outs-tan-ding oxidation resistance	Casings, rings and seals
Alloy 80A N07080/2.4952	76Ni – 19.5Cr – 3Fe – 1.4Al – 2.4Ti	Excellent high temperature strength for service at temperatures up to ~815 °C	Fasteners, casings, rings and seals
Alloy 90 N07090/2.4632	60Ni–19.5Cr – 16Co – 10Mo – 1.5Al – 2.5Ti	Excellent creep resistance and cyclic oxidation resistance for service up to ~ 920 °C	Fasteners, turbine blades and vanes
Alloy 263 N07263/2.4650	51Ni – 20Cr – 20Co – 5.8Mo – 0.5Al – 2.2Ti	Excellent strength, ductility and corrosion resistance to 850 °C	Combustors, ducting, exhaust systems
Alloy 625 N06625/2.4856	61Ni – 21.5Cr – 9Mo – 3.6Nb – 2.5Fe	Resistant to corrosive environments and high strength from cryogenic to 815 °C.	Shroud rings, expansion joints and exhausts
Alloy 617 N06617/2.4663	52Ni –22Cr–1.5Fe – 9.5Mo–12.5Co–1.2Al	Exceptional high temperature strength and oxidation resistance up to 980 °C	Combustion cans, liners and transition ducts
Alloy 718 N07718/2.4668	54Ni – 18Cr – 18.5Co – 3Mo – 5Nb	Combines high strength at temperatures up to 700 °C with excellent corrosion resistance.	Shafts, fasteners, pylon components
Alloy HX N06002/2.4665	47Ni – 22Cr – 18Fe – 1.5Co – 9.0Mo	Excellent strength and oxidation resistance up to 1200 °C	Casings, rings and seals, sheet fabrications
Alloy 230 N06230	57Ni – 22Cr – 14W – 5Co – 3Fe	Excellent high temperature strength and oxidation resistance up to 1150 °C	Combustion cans, transition ducts
Alloy L605 R30605	50Co – 20.5Cr – 15W – 10Ni – 3Fe – 1.5Mn	Good oxidation resistance up to 980 °C and good resistance to wear and galling	Rings, blades and combustion chambers
Alloy 188 R30188	38Co – 22Ni – 22Cr – 14W – 3Fe – 1.2Mn	High temperature strength, good oxidation and sulphidation resistance up to 1090 °C	Combustors, liners and transition ducts
Ti6-4 (Gd5) R56400/3.7164	Ti – 6Al – 4V	High strength-to-weight ratio used up to a maximum temperature of ~ 500 °C	Blades and vanes in the compressor sector
17-4 PH S17400/1.4542	17Cr – 4Ni – 4Cu – Bal Fe	Capable of achieving high toughness and maintaining high strength up to 316 °C	Landing gear locking and retraction systems
15-5 PH S15500/1.4545	15Cr – 5Ni – 4Cu – Bal Fe	As 17-4PH but with enhanced toughness, ductility and corrosion resistance.	Landing gear main fitting, actuators, lock pins

Approx maximum operating temperatures depending on load and environmental conditions.