



AEROSPACE INDUSTRY

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# 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](mailto:info@bibusmetals.com).

## ALLOY PROPERTIES

|                                       | Composition (%)                            | Key attributes   | Application                                     |
|---------------------------------------|--|--|---|
| <b>Alloy 75</b><br>N06675/2.4951      | 76Ni – 20Cr – 4Fe                          | Good high temperature strength and outstanding oxidation resistance                      | Casings, rings and seals                        |
| <b>Alloy 80A</b><br>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             |
| <b>Alloy 90</b><br>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             |
| <b>Alloy 263</b><br>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            |
| <b>Alloy 625</b><br>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     |
| <b>Alloy 617</b><br>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    |
| <b>Alloy 718</b><br>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             |
| <b>Alloy HX</b><br>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    |
| <b>Alloy 230</b><br>N06230            | 57Ni – 22Cr – 14W – 5Co – 3Fe              | Excellent high temperature strength and oxidation resistance up to 1150 °C               | Combustion cans, transition ducts               |
| <b>Alloy L605</b><br>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           |
| <b>Alloy 188</b><br>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         |
| <b>Ti 6-4 (Gd 5)</b><br>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       |
| <b>17-4 PH</b><br>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     |
| <b>15-5 PH</b><br>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.

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