

SUPER ALLOYS

FJÄDRAR AV SUPERLEGERINGAR

Extrema miljöer kräver extrema material

Ett specialområde inom Lesjöfors är utveckling och produktion av fjädrar för krävande miljöer som extremt höga temperaturer och mycket aggressiva miljöer som:

- Olja och gasutvinning
- Värmeprocesser
- Marin miljö
- Rymd och flygindustri
- Kraftproduktion
- Kemiska processer
- Petrokemisk industri

För dessa områden krävs speciellt exklusiva material, s.k. "superlegeringar", ofta nickel eller koboltbaserade. Men det krävs också know how och erfarenhet. Lesjöfors har såväl den beräkningstekniska kunskap som krävs och produktionsresurserna.

Lesjöfors lagerhåller också ett brett sortiment material, tråd, band och plåt vilket möjliggör korta leveranstider. Kontakta oss gärna för vidare information och råd för er applikation.



FJÄDRAR AV SUPERLEGERINGAR

Produktområden

Tallriksfjädrar upp till materialjocklek 20 mm

Tryckfjädrar upp till trådtjocklek 25 mm

Vridfjädrar upp till trådtjocklek 25 mm

Dragfjädrar upp till trådtjocklek 25 mm

Bladfjädrar upp till materialjocklek 10 mm



INCONEL X-750™

A proprietary precipitation hardenable high temperature oxidation resistance Nickel alloy with corrosion resistance and high strength at temperatures up to 700°C. Inconel X-750™ is available as wire, strip, sheet, rod and bar. In the wire form, this grade is covered by specification AMS 5698 for No 1 Temper and AMS 5699 for spring temper grade.

No 1 Temper has a higher service temperature than Spring temper, but lower tensile strength.

Typical applications include, gas turbines, rocket engines, springs at high temperatures and hot aircraft and heating system structures. It is included in NACE 0175 up to hardness 50 HRC.

INCONEL 718™

A proprietary high strength corrosion resistance Nickel-Chromium alloy for use from -250°C to 700°C. This precipitation hardenable alloy is easy formed to complex parts and has outstanding welding characteristics. This alloy has high creep rupture strength at temperatures to about 700°C and high-strength above the strength of Inconel X-750™. The mechanical properties at low temperatures are better than Nimonic 90™ and Inconel X-750™. Examples of applications are liquid fueled rockets components, rings, sheet metal parts for turbine engines and fasteners. For spring applications this material requires an ageing treatment to develop best spring properties.

NIMONIC 90™

A Nickel-Chromium-Cobalt alloy designed for precipitation hardening, having good stress-rupture strength and creep resistance at high temperatures typically used in temperatures ranging from about +100 degrees Celsius to about +650 degrees Celsius. For springs it can be used up to about 550°C. It is widely used and well proven in high temperature conditions. Applications include the aerospace components, gas turbines, turbo engine valves and high temperature springs. Our standard stock wire is cold drawn and strip material is cold rolled. Precipitation treatment is required to develop full mechanical properties.

HASTELLOY C-276™

This Nickel- Molybdenum-Chromium alloy with the addition of Tungsten has exceptional corrosion resistance to strong oxidisers, hot concentrated mineral acids and a wide range of corrosive media and is especially resistant

to pitting and crevice corrosion. Applications include pollution control, chemical processing, waste treatment, seawater, pulp and paper production. This material is cold drawn or cold rolled to achieve optimal tensile strength for springs and stress relieve is recommended after forming.

MP35N™

MP35N is a Cobalt-Nickel-Chrome-Molybdenum alloy that has a unique combination of properties – ultra high strength, toughness, ductility and outstanding corrosion resistance.

MP35N resists corrosion in hydrogen sulphide, salt water and other chloride solutions. It also has excellent resistance to crevice and stress corrosion cracking in sea water and other hostile environments. It is included in NACE MR0175 up to a specified maximum hardness.

MP35N is recommended for applications where a combination of high strength and high corrosion resistance are required. Precipitation treatment is required to develop full spring properties.

Phynox (Elgiloy)

This precipitation hardenable, cobalt-based alloy is extremely corrosion resistant and excellent bio-compatible. The high strength is received by cold working followed by precipitation hardening and ultimate tensile strength to about 2500 MPa is possible. It is included in NACE 0175 for springs to max.60 HRC. The alloy can be used at temperatures, from about 4.2°K to +500°C. This alloy is not sensitive to corrosion in organic acids and greatly superior to best stainless steels against inorganic acids.

Typically application examples are watch springs, seals, oil wells tools, orthodontics and stents.

Titanium - Ti-3Al-8V-6Cr-4Mo-4Zr

This titanium alloy is a metastable beta alloy with low density, high strength, ductility and corrosion resistance. The high strength is achieved by precipitation hardening treatment the alloy can be used for extended periods up to about +350°C. The corrosion resistance is based on the tight and stable oxide layer on the surface and is normally excellent in salt water, humidity and good in sour oil gas environment.

Application examples are air craft and auto racing coil springs and components for aero space, gas and oil wells.



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