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Ni-based Metal Powder

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Nickel alloys are heat-resistant alloys. Nickel-based alloys contain Fe and Cr, are strong at high temperatures, are resistant to corrosion, and have higher creep strength compared with austenitic and F/M steels, which are used for jet engines and gas turbine blades.

Nickel-based alloys possess several properties which make them well suited for use in extremely severe conditions and environments. Nickel alloys are very resistant to oxidation and corrosion and when heated form a thick, stable, passivating oxide layer, protecting them from further attack. Nickel alloys also retain their strength over a wide range of temperatures. This makes them particularly attractive for use in high temperature applications. The high temperature strength is attained by solid solution strengthening or precipitation strengthening. Many of the properties that make nickel alloys desirable engineering materials are also largely responsible for the significant difficulty in machining them. The high strength and retention of high strength properties at elevated temperatures give rise to lower machinability of these metals. Also, nickel alloys, similar to austenitic stainless steels, work harden rapidly and during machining undergo a hardening effect produced by the pressures of the cutting operation. In addition, machined surfaces of nickel alloys tend to be gummy and adhesive in nature.

Nickel alloys are employable under extremely corrosive environments in power, chemical, and petrochemical industries. Moreover, nickel-based superalloys have excellent high temperature properties and are produced by alloying nickel with cobalt, chromium, aluminum, titanium, and other refractory elements. Directionally solidified superalloys give rise to high strength at 1000 °C and are suitable for the hottest parts of power generating gas turbines in aircraft. Nickel alloys are corrosion resistant to aqueous solution of halides as in contrast with austenitic stainless steels which are known to be highly susceptible to pitting corrosion in chloride ions. The corrosion resistance conferred by nickel is due to its lower reactivity than iron or its alloys. A broad range of nickel alloys are commercially available.

Matexcel provides multi-functional Ni-based alloys, from fine powders to nanostructured forms. Welcome to contact us for more information.



Products List

Cat. NO.	MET-0029
Product Name	Nickel-based Hastelloy X Powder
Components	Cr 20.5-23, Mo 8-10, Fe 17-20

Cat. NO.	MET-0030
Product Name	Nickel-based Hastelloy C Powder
Components	Cr 15-16.5; Mo 15-17; Fe 40; W 3-4.5; Co 1.5-2.5

Cat. NO.	MET-0031
Product Name	Nickel-based Invar Powder
Components	Ni 35-37; Fe Bal

Cat. NO.	MET-0032
Product Name	Nickel-based Kovar Powder
Components	Ni 28.5-29.5; Co 16.8-17.8; Fe Bal; Cu 3-5

Cat. NO.	MET-0033
Product Name	Nickel-based GH3533 Powder
Components	C <0.08; Cr 17.0-20.0; Mo 7.0-9.0; W 7.0-9.0; Al 0.2-0.3; Ti 2.5-2.9; Ni Bal.



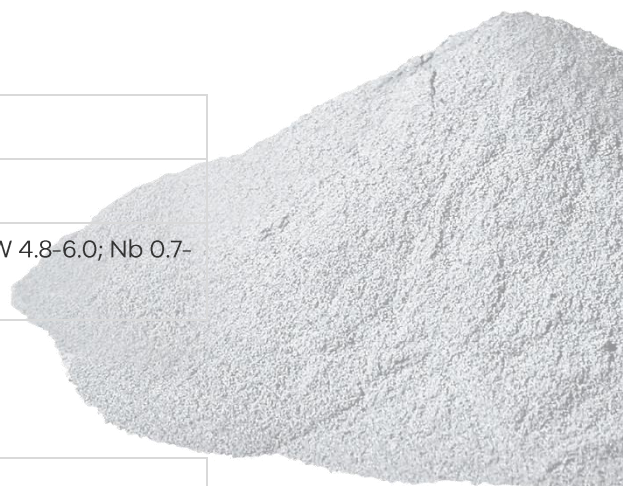
Cat. NO.	MET-0034
Product Name	Nickel-based GH3536 Powder
Components	C 0.05-0.15; Si <1.0; Mn <1.0; Cr 20.5-23.0; Co 0.5-2.5; Mo 8.0-10.0; W 0.2-1.0; Al <0.5; Cu <0.5; Ti <0.15; P <0.025; S <0.015; Fe 17-22; Ni Bal.

Cat. NO.	MET-0035
Product Name	Nickel-based K403 Powder
Components	C 0.11-0.2; Cr 10-12; Co 4.5-6.0; Mo 3.8-4.5; W 4.8-5.5; Al 5.3-5.9; Ti 2.3-2.9; Zr 0.03-0.08; Fe <2.0; Ni Bal

Cat. NO.	MET-0036
Product Name	Nickel-based GH1131 Powder
Components	C <0.1; Si < 0.8; Mn <1.2; Ni 25-30; Cr 19-22; Mo 2.8-3.5; W 4.8-6.0; Nb 0.7-1.3; P <0.02; S <0.02; Fe Bal.

Cat. NO.	MET-0037
Product Name	Nickel-based IN625(GH3625) Powder
Components	Cr 20.0-23.0; Mo 8.0-10.0; Nb 3.15-4.15; Fe ≤5.0; Si ≤0.50; Ni Bal; Ti ≤0.40; Al ≤0.40; C ≤0.10; Co ≤1.00; S ≤0.015; P ≤0.015; O ≤0.01

Cat. NO.	MET-0038
Product Name	Nickel-based IN718(GH4169) Powder
Components	Ni 50.0-55.0; Cr 17.0-21.0; Nb 4.75-5.25; Mo 2.80-3.30; Ti 0.65-1.15; Al 0.20-0.80; Cu ≤0.30; Fe Bal



Cat. NO.	MET-0039
Product Name	Nickel-based In713C(K418) Powder
Components	Cr 11.5-13.5; Mo 3.8-4.8; Al 5.5-6.4; Ti 0.5-1.0; Nb 1.8-2.5; Ni Bal; C 0.08-0.16; Fe \leq 1.0; O \leq 0.01

Cat. NO.	MET-0040
Product Name	Nickel-based IN939 Powder
Components	Cr 22.0-22.8; Co 18.5-19.5; W 1.8-2.2; Nb 0.9-1.1; Ta 1.3-1.5; Ti 3.6-3.8; Al 1.8-2.0; Zr 0.05-1.4; Ni Bal; C 0.13-0.17; B 0.004-0.012; N \leq 0.001; S \leq 0.001; Pb \leq 0.001; Bi \leq 0.001; Ag \leq 0.001; O \leq 0.01

Cat. NO.	MET-0041
Product Name	Nickel-based IN738LC Powder
Components	Cr 14.0-16.0; Co 8.0-9.00; Ti 2.50-4.00; Al 2.50-4.00; Mo 1.00-2.00; W 2.00-3.00; Ni Bal; Ta 1.00-2.00; Nb 0.50-1.50; C \leq 0.15; Fe \leq 0.10; Zr \leq 0.10; B \leq 0.15; O \leq 0.01

