DATA SHEET
Rev. N° 0 - 24.04.2023

7MG.020
Inconel®

Summary

Physical variables included in this documentation are provided by way of indication only and do not, under any circumstances, constitute a contractual undertaking. Please contact our technical service if you require any additional information.

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Overview

Inconel® is a registered trademark of Special Metals Corporation. In the metallurgical industry Inconels® are considered to form part of the range of superalloys of Nickel-Chromium. They have extremely high corrosion resistance and are used in very corrosive environments such as the nuclear industry. They can be used at up to over 800°C. However, they have very poor resistance in a reducing atmosphere.

We machine in particular the following grades:

- **Inconel® 625**, a nickel-chromium-molybdenum alloy with excellent corrosion resistance in many corrosive environments. The ideal choice for applications in salt water. Inconel® 625 is also known by the name Nicrofer 6020, Superimphy 625, Chronin 625, Haynes 625, Pyromet 625, Supermet 625 and Udimet 625.
- **Inconel® 718**, a nickel-chromium alloy with high resistance to breakage by creep at high temperature. Improved robustness and improved mechanical properties at low temperature than Inconel® X-750. Inconel® 718 is also known by the name Nicrofer 5219, Superimphy 718, Haynes 718, Pyromet 718, Supermet 718 and Udimet 718.

If your application requires a different quality of inconel please contact us.

Applications

Inconel® 625

- Maritime industries
- Aeronautics and space industry
- Chemical treatment
- Nuclear reactors
- Pollution control

Inconel® 718

- Gas turbines
- Rocket motors
- Nuclear reactors
- Pumps

Benefits

- Good mechanical properties at high temperatures
- Excellent corrosion resistance
- Satisfactory ductility
- Satisfactory stiffness at low temperature

Machining capacities

Specific capacity limits:

Turning: Up to Ø90 mm and 600 mm in length
Loading of max. length 3,000 mm bar material

Milling: Up to a thickness of 200 mm (must be approved according to the plan)

Free-cutting: Up to Ø20 mm max.

Main characteristics

Property		Unit	Inconel® 625	Inconel® 718
Composition	C	Wt. %	≥ 0.10	≥ 0.80
	Mn		≥ 0.50	≥ 0.35
	Si		≥ 0.50	≥ 0.35
	P		≥ 0.015	≥ 0.015
	S		≥ 0.015	≥ 0.015
	Cr		20.00 – 23.00	17.00 – 21.00
	Co		≥ 1.00	≥ 1.00
	Mo		8.00 – 10.00	2.80 – 3.30
	Fe		≥ 5.00	bal
	Al		≥ 0.40	0.20 – 0.80
	Ti		≥ 0.40	0.65 – 1.15
	Ni		≤ 58.00	50.00 – 55.00
	Nb/Cb		3.15 – 4.15	4.75 – 5.50
	Ta		≥ 0.05	≥ 0.05
	Cu		≥ 0.50	≥ 0.30
	B		-	≥ 0.006
	Pb		-	≥ 0.0005
	Se		-	≥ 0.0003
	Bi			≥ 0.00003
ISO symbol			NiCr22Mo9Nb	NiCr19Fe19Nb5Mo3
ISO number			2.4856	2.4668
Density		g/cm³	8.44	8.19
Melting point		°C	1,350	1,336
Expansion coefficient from 20 to 100 °C		10^{-6}/°C	12.8	13
Shear modulus		GPa	79	77.2
Elastic modulus		GPa	205.8	204.9