

Alloy **SGS-625**

Superalloy with excellent high-temperature characteristics and good toughness at very low temperatures.



Marketing description

The SGS-625 has excellent high temperature properties (creep, oxidation and corrosion resistance), good toughness at very low temperatures and high tensile strength. Excellent pitting resistance in marine environment.

Designations

SEVA designation: SGS-625

Standard designation:

AFNOR NC 22 Dnb

EN NiCr22Mo9Nb

DIN 2,4856

USA (AISI) N06625 (ASTM B 446)

Chemical analysis

C : 0.1

Cr : 20-23

Mo : 8-10

Nb : 3.15-4.15

Fe : <5

Mn : <0.5

Si : <0.5

P : <0.015

S : < 0.015

Al : <0.4

Ni : Bal.

Mechanical properties

Hardness: 180-250 HB

Tensile tests at room temperature:

Rp0,2 (MPa)	Rm (MPa)	A (%)
300-400	550-700	20-40

Young's modulus at 20°C : E = 200 GPa

Temperature	200	300	400	500
Rp0,2 (MPa)	420	410	380	310

Applications

Areas of use:

- Aircraft industry
- Shipbuilding
- Petrochemicals
- Cryogenics
- Nuclear industry
- Industrial application at high temperature

Maximum temperature of use:

1000°C

Types of parts produced:

Various foundry parts

Standard structure

Austenitic nickel matrix reinforced with Nb and Cr.

Physical properties

Density at 20°C : 8.4g/cm³

Approximate melting range: 1290-1350°C

Expansion coefficient α in 10⁻⁶ /°C :

Temperature (°C)	? (10 ⁻⁶ /°C)
93	12.8?m/m.°C

Other properties

Magnetism: paramagnetic

Thermal conductivity at 20°C : 9.8 λ W.m⁻¹.K⁻¹

Specific heat capacity at 20°C : 0.41 Cp en J.g-1.°C-1

Thermal conductivity λ in W.K-1.m-1

at different temperatures:

Temp.	- 157°C	21°C	38°C	93°C	204°C	316°C
?	7.2	9.8	10.1	10.8	12.5	14.1

Temp.	427°C	538°C	649°C	760°C	871°C	982°C
?	15.5	17.5	19	20.8	22.8	25.2

Production

SEVA produces the SGS-625 alloy in an electric induction furnace under an argon gas protective atmosphere.

Cast in a sand mold.

Compatible processes

	Compatibility	Remarks
Machining	?????	Cutting speed recommended: 30 to 50 m/min
Polishing	?????	
Hot isostatic pressing (HIP)	?????	
Forging	?????	
Welding	?????	Electrode or TIG.

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Alloy SGS-75

USA (AISI): ASTM A494M grade CY5SnBiM

The SGS-75 alloy is a nickel-chromium-based "stainless and self-lubricating" alloy.

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[Image](#)

Alloy SGS-R26-52

EN: G-NiCr28W (NF EN 10295)

Excellent creep resistance and good chemical properties.

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Alloy SGS-30-55

EN: GX70NiCrW55-30-7

Excellent characteristics at high-temperature: creep, oxidation and corrosion resistance.

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