SGS-30-55

Chemical composition (en %)

The SGS-30-55 is a nickel-based superalloy elaborated following a typical process of Saint-Gobain Seva.

Ni	Cr	W	C
Bal	≈ 30	≈ 7	≈ 0,7

Not contractual information.

Normalized designation

Equivalent to EN GX70NiCrW55-30-7.

Structure

Austenitic, nickel-based matrix with a network of tungsten and chromium carbides.

Elaboration

The SGS-30-55 superalloy is melted in an induction furnace with an argon shroud. It is cast in sand moulds or ceramic shells.

Heat treatment

Carbide precipitation treatment.

Mechanical properties / Tensile test

	300°C	600°C	900°C	1,000°C	1,050°C
Ultimate strength (MPa)	420	400	230	155	125
Yield strength (MPa)	320	300	180	120	100

Young's module at 20°C : E = 170,000 MPa

Creep resistance

(N/mm² or MPa) Fracture

	600°C	700°C	1,000°C	1,050°C
Stress (MPa)	250	150	35	35
Time (hour)	378	339	378	100
A (%)	3.6	6.3	5.0	-

Hardness

240 - 300 HB.

Physical properties at high temperature

Due to the nickel content in this alloy, the phenomena of recarburizing and re-nitriding at the surface are limited. On the other hand, it cannot be used in a sulphurous environment.

Machinability

Advised cutting speed : 70 to 80 m/min.

Fields of use

Glass processing, hot working, heat treatment furnace, cement works, petrochemical industry, miscellaneous tooling...

The nickel-based SGS-30-55 superalloy has got excellent high temperature properties : creep strength, oxidation and corrosion resistance. It is used for industries of material processing (glass processing, hot working...), in aggressive environment, under high temperature and high mechanical stress.

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