Alloy SGS-R35-25

Austenitic refractory steel for use in the Hot Forming process.

Marketing description

Refractory alloy SGS-R35-25 is used in the Hot Forming process for the aerospace industry.

Designations

SEVA designation: SGS-R35-25

Standard designation:
EN X40NiCrNb35-25 (NF EN 10295)

DIN 1.4852

Chemical analysis (in%)

C : 0.3-0.5
Ni : 33-36
Cr : 24-27
Si : 1-2.5
Nb : 0.8-1.8
Mn : < 2
Mo : < 0.5
Fe : Bal.

Mechanical properties

Hardness: 400 HB

Tensile tests at room temperature:

Rp0,2 (MPa)	Rm (MPa)	A (%)
240	440	4

Young's modulus at 20°C : E = 200 GPa

Hot tensile tests:

Temperature	750°C	800°C	850°C	900°C	950°C
Rp0,2 (MPA)	152	137	103	80	71
Rp1,0 (MPa)	279	211	152	117	80
Rm (MPa)	279	211	152	117	80
A (%)	15-25	15-25	20-40	25-40	25-40

Applications

Areas of use:

Aircraft industry

Maximum temperature of use:

800°C - 900°C

Types of parts produced:

• Tools for shaping titanium sheets by Hot Forming (HF) process
• Tools or industrial parts working at high temperature

Standard structure

Austenitic matrix reinforced by precipitation of carbides.

Physical properties

Density at 20°C : 8.0 g/cm³

Expansion coefficient α in 10-6 /°C :

Temperature (°C)	? (10^{-6}/°C)
400	16
800	17
1000	18

Other properties

Magnetism: non-magnetic

Thermal conductivity λ in $W.m^{-1}.K^{-1}$ at:

Temperature (°C)	? $W.m^{-1}.K^{-1}$
20	12,8
100	13
800	17
1000	27,7

Capacité thermique à 20°C : 500 $J.kg^{-1}.K^{-1}$

Production

SEVA produces the **SGS-35-25** alloy in an electric induction furnace under an argon gas protective atmosphere.
Cast in a sand mold.
Heat treatment: **mechanical reinforcement.**

Compatible processes

	Compatibility	Remarks
Machining	?????	Vitesse de coupe préconisée : 30 à 50 m/min
Polishing	?????	
Hot isostatic pressing (HIP)	?????	
Forging	?????	
Welding	?????	

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These alloys might interest you

Image

Alloy SGS-R25-20

EN: X15CrNiSi25-21 (NF EN 10095)

Excellent oxidation resistance due to its chromium content.

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Image

Alloy SGS-37-18

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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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