

Alloy **SGS-R25-20**

Austenitic refractory steel with excellent resistance to oxidation due to its chromium content.



Marketing description

The refractory alloy SGS-R25-20 is characterized by an excellent resistance to oxidation due to its chromium content. Its good hot properties make it suitable for a large number of applications.

Designations

Designation SEVA : SGS-R25-20

Standard designations :

AFNOR Z 15 CNS 25-20 -M (NF A 32-057)

EN X15CrNiSi25-21 (NF EN 10095)

DIN 1.4841

AISI 310

Chemical Analysis

Fe : Bal.

C : 0.15

Mn : 2

Si : 2

Cr : 22 - 27

Ni : 18 - 22

P : 0.040

S : 0.030

Mechanical properties

Hardness: 156 HB

Tensile test at room temperature:

Rp0,2 (MPa)	Rm (MPa)	A (%)
230	550	30

Hot tensile test:

Temperatures	300°C	600°C	750°C	900°C
Rp0,2 (en MPa)	460	370	100	60
Rm	NC	NC	190	70

Elastic modulus at 20°C: E = 195 GPa

Creep resistance

For casted products: breaking stress in N.mm-2 (or MPa) for a duration of 10 000 hours:

700°C	800°C	900°C	1000°C
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Applications

Areas of use

- Cement works
- Metallurgy
- Petrochemical industry
- Glass industry
- Hot forming toolings
- Glass toolings

Maximum temperature of use

900°C

Types of parts produced

- Furnace equipment
- Toolings for glass industry
- Toolings for titanium sheets for the aircraft industry (Hot Forming process - HF)

Standard structure

Austenitic with carbide precipitation.

Physical Properties

Density at 20°C: 7,8

Expansion coefficient α in 10^{-6} K^{-1}

Temperature	300°C	600°C
?	19	23,3

Other properties

Magnetism: Non-magnetic

Thermal conductivity at 20°C: 14 W.m-1.K-1

Thermal capacity at 20°C: 500 J.kg-1.K-1

Production

SEVA produces the SGS-R25-20 alloy in an electric induction furnace.

Cast in a sand mold.

Heat treatment: Air hyperquenching.

Compatible processes

	Compatibility
Machining	?????
Polishing	?????
Welding	?????
Forging	?????

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Alloy SGS-37-18

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Alloy SGS-R18-09

EN: GX25CrNiSi18-9 (NF EN 10295)

Economical alternative to SGS-R25-20 alloy at lower temperatures.

23 May 2023

[Image](#)

Alloy SGS-X23-24

USA: 329

It benefits from higher corrosion resistance than common austenitic steels.

23 May 2023