

Refractory steel **SGS-R25-20**

The **SGS-R25-20 refractory steel** provides excellent resistance to oxidation thanks to its high chromium content. Due to its consistently good properties at high temperature, this steel meets a wide range of applications.



Designations

SEVA designation: **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 (in%)

Standardized (Standard NF A 32-057)

Fe	C	Mn	Si	Cr	Ni	P	S
Bal.	0.15	2	2	22 - 27	18 - 22	0.040	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
45	21	10	5



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
α	19,0	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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