

Refractory alloy **SGS-R26-52**

The nickel-based refractory alloy **SGS-R26-52** combines excellent creep resistance and good hot chemical properties. Its characteristics make it a preferred candidate for the most difficult applications..



Designations

Designation SEVA : **SGS-R26-52**

Standard designation: (heat-resistant cast steels)

AFNOR Z 45 NCW 45.25-M (NF A 32-057)

EN G-NiCr28W (NF EN 10295)

DIN 2.4879



Chemical Analysis (en%)

Standardized: (standard DIN 17465 ; SEW 595)

Fe	C	Si	Mn	P	S
Bal.	0,35 - 0,50	0,50 - 2,00	≤ 1,50	≤ 0,035	≤ 0,030

S	Cr	Ni	W
0,030	27,0 - 30,0	47,0 - 50,0	4,00 - 5,50



Mechanical properties

Hardness: 207 HB

Tensile test at room temperature:

Rp0,2 (MPa)	Rm (MPa)	A (%)
240	440	3

Tensile test between 600°C and 920°C:

	Rp0,2 (MPa)	Rp1,0 (MPa)	Rm (MPa)	E (GPa)	A (%)	Z (%)
600°C	235	325	442	145	5	8
760°C	190	233	347	143	16	22
920°C	104	123	186	117	25	45



Creep resistance

Stress N/mm² (MPa) applied during 10,000 hours for chemical properties at high temperature:

	700°C	800°C	900°C	1000°C
Strain of 1% (MPa)	-	45	25	11
Breaking (MPa)	84	50	29	14

Creep resistance between 600°C and 920°C:

	600°C			760°C			920°C		
Contrainte (MPa)	300	325	350	120	141	162	50	55	60
Temps à rupture (h)	> 84	63	11	> 67	22	9	> 112	50	30



Applications

Areas of use

- Industries
- Cement works
- Petrochemical industry
- Glass industry

Maximum temperature of use

1150°C

Types of parts produced

- Miscellaneous toolings
- Thermocouple envelopes



Standard structure

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



Physical Properties

Density at 20 °C: 8,2

Approximate melting range: 1260-1360°C

Linear expansion coefficient : α in 10⁻⁶/°C-1 between 20°C and

200°C	400°C	600°C	800°C	1000°C	1050°C
14,2	15,1	16,3	17,4	18,5	18,9



Other properties

Magnetism: Non-magnetic

Thermal conductivity in W.m⁻¹.°C⁻¹

20°C	100°C	800°C	1000°C
11,0	11,3	30,6	36,1

Mass thermal capacity at 20°C: Cp = 500 J.Kg⁻¹.°C⁻¹

Mass thermal capacity between 40°C and 975°C : Cp en J.Kg⁻¹.°C⁻¹

40°C	100°C	200°C	300°C	400°C	500°C
409	457	477	486	501	522

600°C	700°C	800°C	900°C	975°C
575	584	590	601	609



Production

SEVA produces the **SGS-R26-52** alloy in an electric induction furnace, with an argon shroud.

Cast in a sand mold.

Heat treatment: **Mechanical reinforcement by carbide precipitation.**



Compatible processes

	Compatibilité
Polishing	● ● ● ● ●
Welding	● ● ● ● ●
Hot isostatic pressing (HIP)	● ● ● ● ○
Forging	● ● ● ● ○

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