

SGS-75 alloy

The **SGS-75** nickel-chromium based alloy is particularly efficient in its resistance to seizure in contact with stainless steels. Its stainless and self-lubricating properties allow it to be used for the production of moving parts in contact with stainless steels, without lubrication, with reduced operating clearances.



Designations

SEVA designation : **SGS-75**

Standard designation:
ASTM A494M grade CY5SnBiM



Chemical Analysis (in%)

| Ni | C | Cr | Mo | Si | Mn | Fe | Bi | Sn |
|------|---------------|---------|---------|---------------|--------------|------------|-------|-------|
| Bal. | 0,05 maxi. | 11 - 14 | 2 - 3,5 | 0,05 maxi. | 1,5 maxi. | 2 maxi. | 3 - 5 | 3 - 5 |



Mechanical properties

Hardness: 145 HB

Tensile test at room temperature:

| Rp0,2 (MPa) | Rm (MPa) | A (%) |
|-------------|----------|-------|
| 220 | 300 | 5 |

Flexural modulus (Young): 185 GPa



Applications

Areas of use

- Chemistry
- Pharmacy
- Food industry
- Nuclear

Maximum temperature of use

140°C

Types of parts produced

Chemical, pharmaceutical and food industries: applications involving dry friction with stainless steels such as 316 L:

- Rotating or static parts of pumps: rotors, pistons etc.
- Filling systems: rotary valves, dosing sprues etc.

Nuclear industry: bearings and other components for handling systems in hostile environments. Wide range of standard parts available on request: round bars (cylinders) and bushings (hollow bars).



Standard structure

The microstructure of the SGS-75 alloy consists of an austenitic matrix rich in nickel, chromium and molybdenum. The secondary phase rich in tin and bismuth gives the alloy tribological properties.



Physical Properties

Density at 20°C: 8,5

Approximate melting range: 140°C - 1470°C



Chemical properties

| | Compatibility | Remarks |
|------------------------|---------------|--|
| Oxidization resistance | ● ● ● ● ● | Results available to ascertain compatibility at contact with food products depending on environment, temperature and time of exposure. |
| Inertia | ● ● ● ● ○ | |



Other properties

Magnetism: Non-magnetic



Production

SEVA produces the SGS-75 alloy in an electric induction furnace.

Cast in a sand mold.

Heat treatment: **none**.



Compatible processes

| | Compatibility | Remarks |
|-------------------|---------------|--------------------------------------|
| Machining | ● ● ● ● ○ | Cutting speed: Vc ~ 70 - 80 m/min |
| Welding | ○ ○ ○ ○ ○ | |
| Surface treatment | ○ ○ ○ ○ ○ | |

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