

Austenitic stainless steel SGS-X19-11L

The SGS-X19-11L has a very **good corrosion resistance** in a wide variety of environments (marine, acid, ...) with a particular resistance to localized and intergranular corrosion. Very similar to 316L with a slightly higher corrosion resistance.



Designations

SEVA designation: **SGS-X19-11L**

Standard designation:

AFNOR **Z6 CND18.12N**

EN **GXCrNiMo19-11-2**

DIN **1,4409**

USA (AISI) **316L**



Applications

Areas of use:

- Shipbuilding
- Petrochemicals
- Chemicals
- Nuclear industry
- Food and pharmaceutical industries

Maximum temperature of use:

450°C

Types of parts produced:

Various foundry parts



Chemical analysis (in%)

C	Si	Mn	Ni	Cr	Mo
≤0.03	≤ 1.5	≤2	9-12	18-20	2-2.5



Mechanical properties

Hardness: 140 HB

Tensile tests at room temperature:

Rp0,2 (MPa)	Rm (MPa)	A (%)
200	450-600	≥30

Young's modulus at 20°C : E = 200 GPa



Standard structure

Austenitic matrix.



Physical properties

Density at 20°C : 7.9g/cm³

Approximate melting range: 1390-1440°C

Expansion coefficient α in 10⁻⁶ /°C :

Temperature (°C)	α (10 ⁻⁶ /°C)
100	15.8
300	17
500	17.7



Other properties

Magnetism: non-magnetic

Thermal conductivity at 20°C : 15 λ W.m⁻¹.K⁻¹

Heat capacity at 20°C : 530 J.kg⁻¹.K⁻¹

PREN : 23-28.5



Production

SEVA produces **SGS-19-11L** alloy in an electric induction furnace under an argon gas protective atmosphere.
Cast in a sand mold.



Compatible processes

	Compatibility	Remarks
Machining	●●●○○	Cutting speed recommended: 30 to 50 m/min
Polishing	●●●○○	
Hot isostatic pressing (HIP)	●●●●●	
Forging	●●●●○	
Welding	●●○○○	Electrode or TIG.

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