

STX 316L PM

STX 316L PM is an austenitic stainless steel alloy based on the AISI 316L standard. It is characterised by high corrosion resistance, which makes it suitable for use in many bulk applications. STX 316L PM is compacted and sintered in a reducing atmosphere resulting in a complex component with a typical density of 6.5 g/cm³.

The components can subsequently be finished in different ways according to application needs. Calibration enables component tolerances as low as a few microns. Deburring reduces sharp edges and improve surface quality. Heat treatment gives the component higher strength. Impregnation of the components with a resin can close the porosities. Consult our experts for more information on finishing possibilities.

Chemical Specification

C	Cr	Ni	Mo	Mn	Si
<0.03	18	10	2.5	< 0,5	0.8

Figure 1: Chemical specification for STX 316L - Standard designs AISI316L, W.nr. 1.4401, X3CrNiMo17-13-3

Mechanical Properties

	6.25 g/cm ³	6.45 g/cm ³	6.65 g/cm ³
R 0.2 yield strength [MPa]	128	145	164
UTS [MPa]	192	225	275
Elongation [%]	9	11	13
E-Modulus [GPa]	83	95	108
Vickers hardness HV/10	52	62	69

Figure 2: Typical mechanical properties at different densities.

Corrosion Properties

	24hrs	168hrs	480hrs	2280hrs	3600hrs
6.25 g/cm ³	Ri0	Ri0	Ri0	Ri0	Ri0
6.45 g/cm ³	Ri0	Ri0	Ri0	Ri1	Ri1
6.65 g/cm ³	Ri0	Ri1	Ri2	Ri2	Ri3

Figure 3: Degradation after salt spray test performed on tensile test specimens (ISO 9227 and ISO 4628-3).

Definition of degradation Ri0 – Ri5 (Corrosion properties):

- Ri0 – 0 % rusted surface area
- Ri1 – 0.05 % rusted surface area
- Ri2 – 0.5 % rusted surface area
- Ri3 – 1 % rusted surface area
- Ri4 – 8 % rusted surface area
- Ri5 – 40-50 % rusted surface area

Porosity

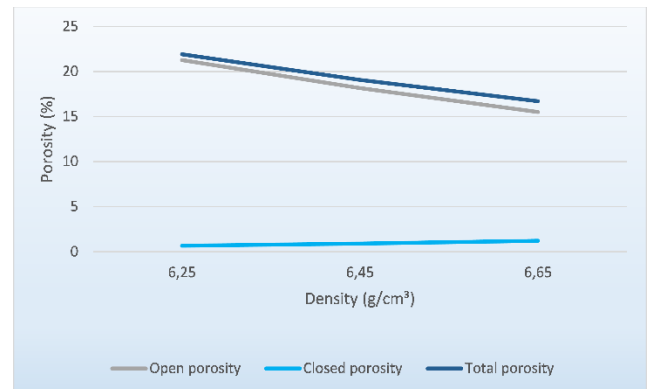


Figure 4: Open, closed and total porosity as a function of density.

Results

The data shown in this data sheet has been obtained by testing tensile test rods manufactured in accordance with the ISO 2740 standard.

The test specimens are manufactured on production equipment in order to reflect the processability of Sintex' equipment.

It is not possible to directly attribute all the results to specific components, as parameters such as powder flow, component size and geometry can have an effect on the properties of the individual components.

Please contact us for more information.

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