

The material 1.4003 / S40977 is a rust-resistant ferritic chromium steel, which has a comparatively high strength within the ferritic steels. The material has medium corrosion resistance and good weldability in the larger dimension ranges. Further properties of the material 1.4003 / S40977 are its resistance to hydrogen sulphide and hydrogen. This ferritic stainless steel is also characterised by its good magnetisability. It is suitable for low temperatures, but can also be used up to 300°. The material 1.4003 / S40977 is often used in the construction industry.

Chemical composition (% by mass according to DIN EN 10088-3 for 1.4003)

C	Si	Mn	P	S	N	Cr	Cu	Mo	Ni	Ti	Other
≤ 0,03	≤ 1,00	≤ 1,50	≤ 0,04	≤ 0,03	≤ 0,03	10,5 - 12,5	-	-	0,30 - 1,00	-	-

Specifications

EN material number: 1.4003
 EN abbreviation: X2CrNi12
 EN standard: 10088-3
 UNS: S40977
 B.S.: X2CrNi12
 AFNOR: X2CrNi12
 Microstructure class: ferrite

Physical properties

Magnetizability: present
 Density (kg/dm³): 7.7
 Thermal conductivity (at up to 20°C): 25
 Electronic resistance at room temperature (in Ω mm²/m): 0.60

Possible areas of application

Agricultural technology
 Automotive industry
 Container construction
 Construction industry
 Container construction
 Sugar industry
 and more

Mechanical properties at room temperature in annealed condition (according to EN 10088-3 for EN 1.4003)

Ø in mm	Hardness in HB	Yield strength		Tensile strength R _m in Mpa	Elongation A in%
		R _{p0,2} in Mpa	R _{p1,0} in Mpa		
≤ 100	≤ 200	≤ 260	-	450-600	20
-	-	-	-	-	-

Yield strength at elevated temperature in annealed condition (according to EN 10088-3 for EN 1.4003)

Temperature in °C	100	150	200	250	300	350	400	450	500	550
R _{p0,2} in Mpa	240	230	220	215	210	-	-	-	-	-
R _{p1,0} in Mpa	-	-	-	-	-	-	-	-	-	-

Heat treatment and hot forming

Solution annealing 680-740 °C (cooling by air)

Hot forming 1150-800 °C (cooling by air)

Welding

The ferritic stainless steel 1.4003 / UNS S40977 has good welding properties in the larger dimensional ranges. It can be used with the common welding methods (with the exception of oxyacetylene welding). If a filler metal is required, 1.4316 or 1.4370 should be selected.

If you have further questions about this or any other product, please contact our team at +49 2263-9240-0 or email wire@agst.de

Please note:

The information given in this data sheet has been compiled to the best of our knowledge and is based on the current version of the relevant standard.

It is considered for reference only and we assume no liability for any errors.