

Salzgitter240

Laser beam cutting grade

Material no.	–
according to	SZFG Werkstoffblatt
Tensile strength class	A

Usage

In addition to outstanding cold forming properties, special grade Salzgitter 240 is particularly suitable for laser and plasma cutting. The user of these steel grades must make sure that his calculation, design and processing methods are appropriate for the material. The forming process used must be suitable for the intended application and comply with the state of the art; this is of fundamental importance to the processing behaviour of these steel grades.

Chemical composition

(in percent by weight)

	min.	max.
C		0.120%
Si		0.030%
Mn		0.900%
P		0.020%
S		0.015%
N		0.009% ¹⁾
C _E ²⁾	0.300%	

1) The maximum nitrogen content shall not apply if the total aluminium content of the steel is at least 0.020% or if it contains enough other nitrogen-fixing elements.

2) Maximum carbon equivalent value $C_E = C + Mn / 6 + (Cr + Mo + V) / 5 + (Cu + Ni) / 15$

Mechanical properties ¹⁾

Nom. thick. e	Yield strength R _{p0,2}
≤ 16 mm	240 – 320 MPa

Nom. thick. e	Tensile strength R _m
< 3 mm	360 – 440 MPa
≥ 3 mm	360 – 440 MPa

Nom. thick. e	Total elongation A ²⁾
< 3	≥ 24 %
3 ≤ e < 25 mm	≥ 30 %

1) The given values apply to longitudinal samples.

2) It applies to nominal thickness e:
e < 3 mm: A₈₀
e ≥ 3 mm: A₅

Melting form

Salzgitter 240 is melted as fine-grain steel according to the basic oxygen steel-making process.

Cold forming

These low-perlite steel grades offer excellent bending, flanging, cold-bordering and folding properties in both longitudinal and transverse direction.

This steel is highly suitable for all thermal separation methods. It was designed in particular for laser or plasma-beam cutting. If these procedures are applied correctly, it is possible to achieve practically burr-free material separation.

Available dimensions

Hot-rolled coils unpickled, mill edge

Thickness in mm	Width in mm
1.50 – 1.79	900 – 1250
1.80 – 1.99	900 – 1390
2.00 – 2.24	900 – 1540
2.25 – 2.49	900 – 1700
2.50 – 2.99	900 – 1880
3.00 – 3.99	900 – 1880
4.00 – 6.00	900 – 1880
6.01 – 15.00	900 – 1880

Hot-rolled slit strip

Thickness in mm	Width in mm
1.50 – 1.79	100 – 515
1.80 – 1.99	100 – 635
2.00 – 2.24	100 – 760
2.25 – 7.00	100 – 800
7.01 – 8.00	140 – 800
8.01 – 9.00	175 – 800
9.01 – 10.00	233 – 800

<100 mm on request

Condition of delivery

The steel is produced as hot strip, as well as sheet and heavy plate, in nominal thicknesses of 1.5 to 15 mm in widths in accordance with the Salzgitter Flachstahl delivery programme.

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Welding

Provided that the general technical rules are observed, these steel grades can be welded both manually and using automatic equipment by means of all electrical welding processes. No major hardness increases appear in the heat-affected zone. Pre-heating is not necessary under normal welding conditions and down to work-piece temperatures of +5 °C. Below +5 °C, pre-heating to 150 °C is recommended.

The welding wires and electrodes approved in the respective strength category must be used as filler metals.

In addition to this, the general meaning of the detailed information provided in 'Stahl-Eisen-Werkstoffblatt' (Iron and steel material sheet) 088 must be observed.

Thermal separation

This steel is highly suitable for all thermal separation methods. It was designed in particular for laser or plasma-beam cutting. If these procedures are applied correctly, it is possible to achieve practically burr-free material separation.