

## SSAB Laser<sup>®</sup> 500MC Plus

### General Product Description

SSAB Laser<sup>®</sup> 500MC Plus is an advanced high yield strength cold forming steel for laser cutting. The SSAB guarantee for flatness, both before and after laser cutting, is  $\leq 3$  mm/m deviation.

SSAB Laser<sup>®</sup> 500MC Plus meets and exceeds the requirements of S500MC in EN 10149-2. Upon agreement, it can be delivered as dual certified. This dual certification will enable producers of steel structures, in accordance with EN 1090, to use SSAB Laser<sup>®</sup> 500MC Plus in their CE-marked final component or structure.

### Dimension Range

Delivery form	Thickness (mm)	Width (mm)	Length (mm)
Hot rolled sheet as rolled	3.0 - 8.0	1000 - 1610	1000 - 16000
Hot rolled sheet pickled and oiled	3.0 - 8.0	1000 - 1610	1000 - 16000

### Mechanical Properties

Yield strength $R_{eH}$ (min MPa)	Tensile strength $R_m$ (MPa)	Elongation $A_{80}$ <sup>1)</sup> (min %)	Elongation $A_5$ <sup>2)</sup> (min %)	Min. inner bending radius for a 90° bend <sup>3)</sup> (x t)
500	550 - 700	18	14	0.0

The mechanical properties are tested in the longitudinal direction.

<sup>1)</sup>  $A_{80}$  value applies for thicknesses < 3.00 mm.

<sup>2)</sup>  $A_5$  value applies for thicknesses  $\geq 3.00$  mm.

<sup>3)</sup> The bending guarantee is valid for both longitudinal and transverse direction.

### Impact Properties

Min. impact energy for longitudinal testing, Charpy V 10x10 mm test specimens

40 J / -60 °C

Impact testing according to EN ISO 148-1 is performed on thicknesses  $\geq 6$  mm. The specified minimum value corresponds to a full-size specimen.

### Chemical Composition (ladle analysis)

C (max %)	Si (max %)	Mn (max %)	P (max %)	S (max %)	CEV (max)
0.12	0.03	1.70	0.025	0.015	0.40

All SSAB Laser<sup>®</sup> steels are aluminum-killed (Al  $\geq 0.015\%$ ) and grain-refined. Additionally, niobium (Nb), vanadium (V), titanium (Ti) and/or boron (B) may be used as single alloying element or in any combination.

$$CEV = C + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Cu + Ni}{15}$$

### Tolerances

All SSAB Laser<sup>®</sup> products are delivered with SSAB Laser<sup>®</sup> tolerances, which means increased guarantees compared to corresponding EN standards. Detailed information is available on [ssab.com](http://ssab.com).

#### Thickness

Hot rolled sheet: SSAB Laser<sup>®</sup> tolerances correspond to  $\frac{2}{3}$  of EN 10051 as default. Tighter tolerances are available upon request.

#### Width

Hot rolled sheet: -0/+20 mm for mill edge sheet; -0/+2 mm for cut edge sheet. Tighter tolerances are available upon request.

**Length**

Nominal length (mm)	Tolerance (mm)
$l \leq 4000$	- 0 / + 3
$4000 < l \leq 6000$	- 0 / + 4
$6000 < l \leq 8000$	- 0 / + 5
$8000 < l \leq 13000$	- 0 / + 6
$13000 < l \leq 16000$	- 0 / + 8

**Shape**

According to EN 10051.

**Flatness**

$\leq 3$  mm/m flatness deviation for both delivery condition and laser cut parts.

**Surface Properties**

According to EN 10163-2 Class A, Subclass 3.

**Delivery Conditions**

Thermomechanically rolled.

**Surface and edge condition**

SSAB Laser® MC Plus products are available in as rolled or pickled and oiled surface condition with mill edge. Cut edge sheets are available upon request.

**Fabrication and Other Recommendations**

All SSAB Laser® products have been optimized for laser cutting, cold forming and welding.

SSAB Laser® MC Plus products are cold forming steels not suited for heat treatments at temperatures above 580°C, since the material then may lose its guaranteed properties.

For information concerning fabrication, see SSAB's brochures on [www.ssab.com](http://www.ssab.com) or consult Tech Support.

Appropriate health and safety precautions must be taken when bending, welding, cutting, grinding or otherwise working on the products.

**Contact Information**

[www.ssab.com/contact](http://www.ssab.com/contact)