SSAB Laser® 420MC Plus

General Product Description

SSAB Laser® 420MC 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 ≤ 3 mm/m deviation.

SSAB Laser® 420MC Plus meets and exceeds the requirements of S420MC in EN 10 149-2. Dual certification is available upon request.

Dimensions

Delivery form	Thickness (mm)	Width (mm)	Length (mm)
Hot rolled sheet as rolled	2.0- 12.0	1000- 1860	1000- 16000
Hot rolled sheet pickled and oiled	2.0- 10.0	1000- 1860	1000- 16000

Mechanical Properties

Delivery form	Yield strength R_{eh} (min MPa)	Tensile strength R_m (MPa)	Elongation A_{80} (min %)	Elongation (min %)	Min inner bending radius 90°* (x t)
Hot rolled sheet	420	490- 620	16	21	0.0

The mechanical properties are tested longitudinal to the direction of rolling.

[1] A_{80} value applies for thicknesses < 3.00 mm.

[2] A_5 value applies for thicknesses ≥ 3.00 mm

*The bending guarantee is valid for both longitudinal and transverse direction.

Impact Properties

Grade	Longitudinal Test Impact Energy
SSAB Laser® 420MC Plus	40J /-60°C

Impact strength is tested by the Charpy V test in accordance with EN ISO148-1:2010. Impact energy value ≥ 40J is guaranteed for test piece size 10 x 10 mm. When testing thickness <10 mm, the width of the test pieces correspond with the plate thickness. The values decrease in direct relation to the surface area of the test piece. No impact tests are carried out for thicknesses < 6 mm.

Chemical Composition (Ladle analysis)

C (max %)	Si (max %)	Mn (max %)	P (max %)	S (max %)	CEV (max)
0.12	0.03	1.5	0.020	0.015	0.28

All SSAB Laser® steels are aluminum-killed (Al ≥ 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® products are delivered with SSAB Laser® tolerances, which means increased guarantees compare to corresponding EN standards. Detailed information is available on ssab.com.

Thickness

SSAB Laser® tolerances correspond to ⅔ of EN 10 051:2010 as default. Tighter tolerances are available upon request.

Width

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

Length

Nominal sheet length *l* (mm)	Tolerance (mm)
l ≤ 4000	-0 /+3
4000 < *l* ≤ 6000	-0 /+4
6000 < *l* ≤ 8000	-0 /+5
8000 < *l* ≤ 13000	-0 /+6
13000 < *l* ≤ 16000	-0 /+7

Shape

According to EN 10 051:2010.

Flatness

≤ 3 mm/m flatness deviation for both delivery condition and laser cut parts.

Surface Properties

According to EN 10 163-2 Class A, Subclass 3.

Delivery Conditions

SSAB Laser® 420MC Plus is delivered in thermo-mechanically rolled condition.

Surface and edge condition

SSAB Laser® 420MC Plus is 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® 420MC Plus is a cold forming steel not suited for heat treatments at temperatures above 580°C, since the material then may lose its guaranteed properties.

For information concerning fabrication, please visit ssab.com, consult your local contact person or contact SSAB´s Tech Support organization by e-mail at techsupport@ssab.com.

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

Contact Information

www.ssab.com/contact