Preliminary SSAB HR500MC Zero

Preliminary Product Sheet

Preliminary Product Sheets describe information for products that still are under development or in a trial delivery phase.

SSAB Zero™ steel is made using recycled steel and fossil-free energy.

The SSAB Zero™ EPDs and Certificate of Carbon Emissions is available on ssab.com. The availability of SSAB Zero™ products is subject to limitations and conditions of delivery have to be agreed upon separately.

General Product Description

SSAB HR500MC Zero meets or 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 HR500MC Zero in their CE-marked final component or structure.

Dimension Range

SSAB HR500MC Zero is available in thicknesses of 4.70-12.70 mm and widths up to 1600 mm as coils, slit coils or cut to length sheets in lengths up to 16 meters. Dimensions to be agreed upon the order.

Mechanical Properties

Thickness (mm)	Yield strength R_{eH} (min MPa)	Tensile strength R_m (MPa)	Elongation A_5 [1] (min %)	Min. inner bending radius for a 90° bend (x t)
4.70 - 6.00	500	550 - 700	18	0.8
6.01 - 12.70	500	550 - 700	18	1.0

The mechanical properties are tested in the longitudinal direction.

Bending properties for both longitudinal and transversal direction.

[1] A_5 value applies for thicknesses ≥ 3.00 mm.

Impact Properties

Product	Min. impact energy for longitudinal testing, Charpy V 10x10 mm test specimens
SSAB HR500MC D Zero	40 J / -20 °C

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

Chemical Composition (ladle analysis)

C (max %)	Si (max %)	Mn (max %)	P (max %)	S (max %)	Al (min %)	Nb (max %)	V (max %)	Ti (max %)
0.10	0.10 [1]	1.60	0.025	0.010	0.015	0.09 [2]	0.20 [2]	0.15 [2]

The steel is grain refined.

[1] Category A (Si≤0.03 %) or Category B (Si=0.15-0.21 %) not available for hot-dip zinc-coating according EN 10149-1.

[2] The sum of Nb, V and Ti is max 0.22%.

Carbon Equivalent

Thickness (mm)	4.70 - 12.70
Typical CEV (%)	0.35
Typical CET (%)	0.23

$$CET = C + \frac{Mn + Mo}{10} + \frac{Cr + Cu}{20} + \frac{Ni}{40} \qquad CEV = C + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Cu + Ni}{15}$$

Tolerances

Thickness

Tolerances correspond to 2/3 of EN 10051 as default. Tighter tolerances are available upon request.

Length and Width

Tolerances for width and length are according to SSAB standard and offer narrower width and length tolerances compared to EN 10051.

For coil and sheet with mill edge, the width tolerances are corresponding to -0/+20 mm.

For coil and sheet with cut edge, the width tolerances are corresponding to -0/+2 mm.

For sheet, the length tolerances are corresponding to -0/+8mm as a maximum.

Shape

According to EN 10051. Narrower tolerances are available on request.

Flatness

Tolerances guarantee a maximum flatness deviation of 3 mm/m in addition to the EN 10051 flatness requirements.

Flatness guarantees only apply for cut to length sheets.

Surface Properties

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

Delivery Conditions

Thermomechanically rolled (TM).

Available in as rolled or pickled surface condition with mill edge.

Fabrication and Other Recommendations

Well suited for all common thermal and mechanical cutting processes. Good cold forming properties. Welding can be performed, using all common methods and consumables.

Not suited for heat treatments at temperatures above 580°C, since the material may then lose its guaranteed properties.

For information concerning fabrication, see SSAB´s brochures on 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