SSAB Weathering

SSAB Weathering 355

General Product Description

With its anti-corrosive properties, SSAB Weathering 355 minimizes the need for maintenance and corrosion-prevention treatment, contributing significantly to low maintenance costs throughout the product lifecycle. In addition to low maintenance costs, the reduced need for corrosion prevention means less use of paint and solvents, making SSAB Weathering 355 an environmental friendly choice of steel. In manufacturing, the steel contributes to excellent productivity thanks to its good formability, toughness and weldability. Typical applications are structural components for buildings, transmission poles and many others. SSAB Weathering 355 hot rolled strip and plate meets or exceeds the requirements in EN 10025-5. Upon agreement, it can be delivered dual certified and CE marked.

Dimension Range

SSAB Weathering 355 is available in thickness 0.50-60.00 mm and width up to 1860 mm as coil, slit coil and cut to length and 3300 mm as plate. Length up to 16 meters as cut to length and 13 meters as plate.

Mechanical Properties

Product Type	Thickness (mm)	Yield strength R_{eH} (min MPa)	Tensile strength R_m [3] (MPa)	Elongation A_{80} [1] (min %)	Elongation A_5 [2] (min %)	Bending Radius 90° Bend
Cold Rolled	0.5- 2.1	355[4]	490- 680	14		0.5 xt
Hot Rolled Strip	2.0- 2.5	355	510- 680	15		1.0 xt
Hot Rolled Strip	2.51- 3	355	510- 680	16	20	1.0 xt
Hot Rolled Strip	3.01- 6	355	490- 630		20	1.0 xt
Hot Rolled Strip	6.01- 12	355	490- 630		20	2.0 xt
Heavy Plate	5.00- 16.00	355	470- 630		20	
Heavy Plate	16.01- 40.00	345	470- 630		20	
Heavy Plate	40.01- 60.00	335	470- 630		19	

The mechanical properties are valid in the transversal direction.
Bending properties for both longitudinal and transversal direction.
[1] A80 value applies for thicknesses < 3.00 mm
[2] A_5 value applies for thicknesses ≥ 3.00 mm
[3] For hot rolled strip with thickness ≥ 3 mm the Rm is 490-630 MPa.
[4] For Cold rolled the yield strength R_{eL} 355-500 MPa.

Impact toughness

Min. impact energy for longitudinal Charpy V-notch test	Test temperature
40 J	-20 °C

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

Chemical Composition (ladle analysis)

Product Type	C (max %)	Si (max %)	Mn (max %)	P (%)	S (max %)	Al_{tot} (min %)	Cr (%)	Cu (%)	Ni (max %)	Corrosion resistance index* typical
Cold Rolled	0.12	0.75	1.0	0.06-0.15	0.030	0.020	0.3- 1.25	0.25- 0.55	0.70	-
Hot Rolled Strip	0.12	0.75	1.0	0.06- 0.15	0.030	0.020	0.3- 1.25	0.25- 0.55	0.70	7.9
Heavy Plate	0.16	0.50	1.50	- 0.035	0.030	0.020	0.4- 0.8	0.25- 0.55	0.20	-

The steel is grain refined.
Additional micro alloying elements Nb, V and Ti can be used.
* Corrosion resistance index according to ASTM G101-04 (2010)

Tolerances

SSAB Weathering is delivered with SSAB Weathering tolerances.

Thickness

Cold rolled: SSAB Weathering 355 is delivered tolerances in accordance to EN 10 131:2006. More narrow thickness tolerances are available on request.

Hot rolled Strip: SSAB Weathering thickness tolerances correspond to 2/3 of EN 10051:2010 as default value. After special agreement, tolerances down to 1/2 of EN 10051:2010 can be delivered for certain products and dimensions.

Plate: SSAB Weathering 355 is delivered with tolerances that correspond to ¾ of EN 10 029:2011 as default value.

Length and Width

Cold rolled: SSAB Weathering 355 is delivered tolerances in accordance to EN 10 131:2006. More narrow thickness tolerances are available on request.

Hot rolled Strip: SSAB Weathering tolerances for width and length are according to SSAB standard and offer narrower width and length tolerances compared to EN 10051:2010.

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.

After special agreement, tighter tolerances can be delivered for certain products and dimensions.

Length tolerances only apply for cut to length sheets.

Plate: Width tolerances are-0/+4-10mm depending on the thickness. Length tolerances are-0/+15-25mm depending on length.

Shape

Hot rolled Strip: SSAB Weathering is delivered with shape tolerances according to EN 10051:2010. Narrower tolerances according to the SSAB standard are available on request.

Plate: According to EN 10 029:2011.

Flatness

Hot rolled Strip: SSAB Weathering tolerances correspond to SSAB Flatness Guarantees Class A.

SSAB Weathering tolerances guarantee a maximum flatness deviation of 3 mm/m in addition to the EN 10051:2010 flatness requirements.

Flatness guarantees only apply for cut to length sheets.

Plate: Maximum flatness deviation 6 mm/m.

Surface Properties

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

Delivery Conditions

Cold rolled: Cold rolled.

Strip: Thermomechanically rolled.

Plate: Normalized.

Surface condition

Strip: SSAB Weathering 355 is available with non-pickled or pickled surface with mill or cut edge.

Plate: Are available in as rolled, shot-blasted or shot-blasted & primed condition.

Fabrication and Other Recommendations

SSAB Weathering 355 is not suited for applications requiring hot working or heat treatments at temperatures above 580°C, since the material then may lose its guaranteed properties.

The scaling temperature of SSAB Weathering 355 is around 560°C.

The weldability of SSAB Weathering 355 is good.

In order to ensure the uniform colour of the patina, all impurities must be cleaned from the steel surface. Organic impurities such as oil or protective greases must be removed by washing. Surface oxidation, oxides or rust can be removed by either shot-blasting or pickling. This will also accelerate the patina formation process. Shot-blasting is not recommended for thicknesses below 4 mm's. The surface of clean weathering steel can be pre-patinated by allowing the surface to get wet and dry.

For information concerning fabrication, see SSAB's brochures on www.ssab.com or consult Tech Support, techsupport@ssab.com.

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

Contact Information

www.ssab.com/contact