General Product Description

With its corrosion resistant properties, SSAB Weathering 700 minimizes the need for maintenance and corrosion-prevention treatment, contributing significantly to low maintenance costs throughout the product lifecycle.

SSAB Weathering 700 allows for good paint adhesion. The intervals for repainting can be greatly extended compared to plain carbon steel since, if a damage to the paint layer occurs, SSAB Weathering steels has the ability to form a patina layer that minimize corrosion creepage under the paint and inhibits the formation of porous expanding rust.

In addition to low maintenance costs, the reduced need for corrosion prevention means less use of paint and solvents, making SSAB Weathering 700 an environmentally friendly choice of steel.

In manufacturing, the steel contributes to excellent productivity thanks to its good formability, toughness and weldability.

The high-strength of the steel in combination with these properties makes it easier to build lighter, stronger products with increased payload and lower fuel consumption.

Typical applications are containers, railway wagons and many others.

Dimension Range

SSAB Weathering 700 is available in thicknesses of 0.80-6.10 mm and widths up to 1550 mm as coils, slit coils and cut to length. Lengths up to 16 meters as cut to length.

Mechanical Properties

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Thickness (mm)</th>
<th>Test direction</th>
<th>Yield strength $R_{P0.2}$ (min MPa)</th>
<th>Tensile strength $R_{m}$ (min MPa)</th>
<th>Elongation $A_{50.2}$ 1) (min %)</th>
<th>Elongation $A_{5}$ 2) (min %)</th>
<th>Min inner bending Radius for a 90° Bend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold Rolled</td>
<td>0.80 - 2.1</td>
<td>T</td>
<td>700</td>
<td>800</td>
<td>5</td>
<td>-</td>
<td>2.0 x t</td>
</tr>
<tr>
<td>Hot Rolled Strip</td>
<td>3.0 - 6.1</td>
<td>L</td>
<td>700</td>
<td>750</td>
<td>-</td>
<td>12</td>
<td>2.0 x t</td>
</tr>
</tbody>
</table>

Bending properties for both longitudinal and transversal direction.

1) $A_{50.2}$ value applies for thicknesses < 3.00 mm

2) $A_{5}$ value applies for thicknesses ≥ 3.00 mm

Impact toughness

<table>
<thead>
<tr>
<th>Min. impact energy for longitudinal Charpy V-notch test</th>
<th>Test temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 J</td>
<td>-20 °C</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>Product Type</th>
<th>C (max %)</th>
<th>Si (max %)</th>
<th>Mn (max %)</th>
<th>P (max %)</th>
<th>S (max %)</th>
<th>Al tot (min %)</th>
<th>Cr (max %)</th>
<th>Cu (max %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold Rolled</td>
<td>0.16</td>
<td>0.80</td>
<td>1.50</td>
<td>0.020</td>
<td>0.010</td>
<td>0.015</td>
<td>0.60</td>
<td>0.50</td>
</tr>
<tr>
<td>Hot Rolled Strip</td>
<td>0.12</td>
<td>0.60</td>
<td>2.10</td>
<td>0.015</td>
<td>0.010</td>
<td>0.030</td>
<td>1.25</td>
<td>0.50</td>
</tr>
</tbody>
</table>

The steel is grain refined.

Additional micro alloying elements Nb, V and Ti can be used.

Tolerances

SSAB Weathering is delivered with SSAB Weathering tolerances. Narrower tolerances are available upon request.

Thickness

Cold rolled: SSAB Weathering 700 is delivered with tolerances in accordance to EN 10131:2006.

Hot rolled Strip: SSAB Weathering thickness tolerances correspond to 2/3 of EN 10051:2010 as default value.

Length and Width

Cold rolled: SSAB Weathering 700 is delivered with tolerances in accordance to EN 10131:2006.

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.
Length tolerances only apply for cut to length sheets.

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.

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.

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

Delivery Conditions
Cold rolled: Annealed
Hot rolled Strip: Thermomechanically rolled.

Surface condition
Hot rolled Strip: SSAB Weathering 700 is available with as rolled or pickled surface with mill or cut edge.

Fabrication and Other Recommendations
SSAB Weathering 700 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 weldability of SSAB Weathering 700 is good. All the conventional fusion welding methods can be used. To obtain the same corrosion resistance in the weld as in the base metal, special filler metals should be used.
Painting of SSAB weather resistant steel is easy and will result in good paint adhesion. This can further increase the maintenance interval of the component.
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 with suitable solvent. 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 a clean weathering steel surface can be pre-patinated by allowing the surface to get wet and dry in repeated intervals.

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