Weldox 700

General Product Description

Weldox 700 is a general structural steel with a minimum yield strength of 650 - 700 MPa depending on thickness. Weldox 700 meets the requirements of EN 10025 for the corresponding grades. Typical applications are demanding loadbearing structures.

Available dimensions

Weldox 700 E is available in plate thicknesses of 4 – 160 mm and Weldox 700 F is available in plate thicknesses of 4 - 130 mm. Both grades are available in widths up to 3350 mm and lengths up to 14630 mm. For thicknesses over 100 mm preferred width is 1650 mm with untrimmed edge.

More detailed information on dimensions is provided in the dimension program at www.ssab.com.

Mechanical Properties

<table>
<thead>
<tr>
<th>Thickness mm</th>
<th>Yield strength $R_{p0.2}$ min MPa</th>
<th>Tensile strength $R_m$ MPa</th>
<th>Elongation $A_5$ min %</th>
<th>Typical hardness HBW</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 - 53</td>
<td>700</td>
<td>780 - 930</td>
<td>14</td>
<td>260 - 310</td>
</tr>
<tr>
<td>(53) - 100</td>
<td>650</td>
<td>780 - 930</td>
<td>14</td>
<td>260 - 310</td>
</tr>
<tr>
<td>(100) - 160</td>
<td>650</td>
<td>710 - 900</td>
<td>14</td>
<td>240 - 290</td>
</tr>
</tbody>
</table>

$1^1$ For transverse test pieces according to EN 10025.

Impact properties

<table>
<thead>
<tr>
<th>Min. impact energy (J) for transverse tests Charpy V 10x10 mm tests specimens $2^2$</th>
<th>$E$ -40°C</th>
<th>$F$ -60°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>S 690 QL tests specimens</td>
<td>69 J</td>
<td>27 J</td>
</tr>
</tbody>
</table>

Meet the requirements for

- S 690 QL
- S 690 QL1

$2^2$ Unless otherwise agreed, transverse impact testing according to EN 10025-6 option 30 will apply. For thicknesses between 6 - 11.9 mm, subsize Charpy V-specimens are used. The specified minimum value is then proportional to the cross-sectional area of the specimen compared to a fullsize specimen (10 x 10 mm).

Chemical Composition (heat analysis)

<table>
<thead>
<tr>
<th>C $1^3$, Max %</th>
<th>Si $1^3$, Max %</th>
<th>Mn $1^3$, Max %</th>
<th>P Max %</th>
<th>S Max %</th>
<th>Cr $1^3$, Max %</th>
<th>Cu $1^3$, Max %</th>
<th>Ni $1^3$, Max %</th>
<th>Mo $1^3$, Max %</th>
<th>B $1^3$, Max %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.20</td>
<td>0.60</td>
<td>1.60</td>
<td>0.020</td>
<td>0.010</td>
<td>0.70</td>
<td>0.30</td>
<td>2.0</td>
<td>0.70</td>
<td>0.005</td>
</tr>
</tbody>
</table>

The steel is grain refined. *Intentional alloying elements.

Maximum carbon equivalent CET (CEV)

<table>
<thead>
<tr>
<th>Thickness mm</th>
<th>~ 5</th>
<th>(5) - (10)</th>
<th>10 - (20)</th>
<th>20 - (40)</th>
<th>40 - (80)</th>
<th>80 - (100)</th>
<th>100 - 160</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weldox 700E: CET (CEV)</td>
<td>0.34 (0.48)</td>
<td>0.31 (0.48)</td>
<td>0.31 (0.48)</td>
<td>0.36 (0.52)</td>
<td>0.39 (0.58)</td>
<td>0.39 (0.58)</td>
<td>0.41 (0.67)</td>
</tr>
<tr>
<td>Weldox 700F: CET (CEV)</td>
<td>0.38 (0.57)</td>
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<td>0.38 (0.57)</td>
<td>0.39 (0.58)</td>
<td>0.39 (0.58)</td>
<td>0.41 (0.67)</td>
</tr>
</tbody>
</table>

$$CET = C + \frac{Mn + Mo}{10} + \frac{Cr + Cu}{20} + \frac{Ni}{40}$$

$$CEV = C + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Cu + Ni}{15}$$
Tolerances
More details are given in SSAB’s brochure 41-General product information Weldox, Hardox, Armox and Toolox-UK or on www.ssab.com.

Thicknss
Tolerances according to SSAB’s thickness precision guarantee AccuRollTech. AccuRolI Tech meets the requirements of EN 10 029 Class A, but offers narrower tolerances.

Length and width
According to SSAB’s dimensions program. Tolerances conforms with EN 10 029 or to SSAB’s standard after agreement.

Shape
SSAB’s offers tolerances according to EN 10 029

Flatness
According to SSAB’s flatness tolerances, which are more narrow than EN 10 029 Class N (steel type L).

Surface Properties
According to EN 10 163-2 Class A, Subclass 1.

Delivery Conditions
The delivery condition is Q+T (Quenched and Tempered). The plates are delivered with sheared or thermally cut edges. Untrimmed edges after agreement. Delivery requirements can be found in SSAB’s brochure 41-General product information Weldox, Hardox, Armox and Toolox-UK.

Fabrication and Other Recommendations
Welding, bending and machining
Recommendations are found in SSAB’s brochures on www.weldox.com or consult Tech Support, help@ssab.com.

Weldox 700 has obtained its mechanical properties by quenching and subsequent tempering. The properties of the delivery condition cannot be retained after exposure to temperatures in excess of 580ºC.

Appropriate health and safety precautions must be taken when welding, cutting, grinding or otherwise working on this product. Grinding, especially of primer coated plates, may produce dust with a high particle concentration.

Contact and Information
For information, see SSAB’s brochures on www.ssab.com or consult Tech Support, help@ssab.com.