Weldox 960

General Product Description

Weldox 960 is a general structural steel with a minimum yield strength of 850 - 960 MPa depending on thickness. Weldox 960 meets the requirements of EN 10025 for the corresponding grades. Typical applications are demanding load-bearing structures.

Available dimensions

Weldox 960 is available in plate thicknesses of 4 – 60 mm. Weldox 960 is available in widths up to 3350 mm and lengths up to 14630 mm.

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_{\text{p0.2}} ), min MPa</th>
<th>Tensile strength ( R_{\text{m}} ), min MPa</th>
<th>Elongation ( A_5 ), min %</th>
<th>Typical hardness HBW</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 - 50</td>
<td>960</td>
<td>980 - 1150</td>
<td>12</td>
<td>310 - 370</td>
</tr>
<tr>
<td>50.1 - 60</td>
<td>850</td>
<td>900 - 1100</td>
<td>10</td>
<td>310 - 370</td>
</tr>
</tbody>
</table>

\(^1\) For transverse test pieces according to EN 10025.

Impact properties

<table>
<thead>
<tr>
<th>D (-20^\circ C)</th>
<th>E (-40^\circ C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. impact energy (J) for transverse tests</td>
<td>40 J</td>
</tr>
<tr>
<td>Charpy V 10x10 mm tests specimens (^2)</td>
<td>40 J</td>
</tr>
</tbody>
</table>

| Meet the requirements for | S 960 Q | S 960 QL |

\(^2\) Unless otherwise agreed, transverse impact testing according to EN 10025-6 option 30 will apply. For thicknesses less than 12 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 full-size specimen (10 x 10 mm).

Chemical Composition (heat analysis)

<table>
<thead>
<tr>
<th>C (^3) Max %</th>
<th>Si (^3) Max %</th>
<th>Mn (^3) Max %</th>
<th>P Max %</th>
<th>S Max %</th>
<th>Cr (^3) Max %</th>
<th>Cu (^3) Max %</th>
<th>Ni (^3) Max %</th>
<th>Mo (^3) Max %</th>
<th>B (^3) Max %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.20</td>
<td>0.50</td>
<td>1.60</td>
<td>0.020</td>
<td>0.010</td>
<td>0.70</td>
<td>0.15</td>
<td>1.5</td>
<td>0.70</td>
<td>0.005</td>
</tr>
</tbody>
</table>

The steel is grain refined. \(^3\)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 - (35)</th>
<th>35 - 60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weldox 960:</td>
<td>CET (CEV)</td>
<td>0.37 (0.57)</td>
<td>0.38 (0.58)</td>
<td>0.38 (0.58)</td>
<td>0.38 (0.58)</td>
</tr>
</tbody>
</table>

For detailed information regarding welding properties see our welding brochure.

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

CEV = \( C + \frac{\text{Mn}}{6} + \frac{\text{Cr} + \text{Mo} + V}{5} + \frac{\text{Cu} + \text{Ni}}{15} \)

www.weldox.com
Tolerances
More detail are given in SSAB’s brochure 41-General product information Weldox, Hardox, Armox and Toolox-UK or on www.ssab.com.

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

Length and width
According to SSAB’s dimensions program. Tolerances conform to EN 10 029.

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 960 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 550ºC.

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.