



## HARDOX 500 PLATE



## HARDOX 500 PLATE

### GENERAL PRODUCT DESCRIPTION

The bendable, weldable and highly abrasion-resistant steel

Hardox® 500 is a bendable and weldable abrasion-resistant steel at a nominal hardness of 500 HBW. Suitable for applications that demand higher wear resistance.

Hardox 500 enables a longer lifetime, increased payload and increased service life while maintaining good processability with guaranteed impact toughness.

#### Dimension Range

Hardox 500 is available in thicknesses of 4.0 – 103 mm. Hardox 500 Tuf is available in thicknesses of 4 – 65 mm. Both grades are available in widths up to 3350 mm and lengths up to 14630 mm. More detailed information on dimensions is provided in the dimension program.

### MECHANICAL PROPERTIES

Thickness (mm)	Width (mm)	Length (mm)	Hardness <sup>1)</sup> (HBW)	Typical yield strength, not guaranteed (MPa)
4.0- 32.0	1000- 3350	2000- 14630	470- 530	1250- 1400
32.1- 103.0	1000- 3350	2000- 14630	450- 540	1250- 1400

<sup>1)</sup> Brinell hardness, HBW, according to EN ISO 6506-1, on a milled surface 0.5 – 3 mm below surface. At least one test specimen per heat and 40 tons.

The nominal material thickness will not deviate more than + 15 mm from that of the test specimen. Hardox is through-hardened.

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#### Impact Properties

Grade	Impact energy Charpy-V 10x10 mm test specimen. <sup>2)</sup> Longitudinal test, Typical	Guaranteed transverse test Impact energy, Charpy V 10 x10 mm test specimen <sup>2)</sup>
Hardox 500	-	-
Hardox 500 Tuf	37 J / - 40 C	27 J / 0 C

<sup>2)</sup> 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 test specimen, compared to a full-size specimen (10 x 10 mm). Impact testing according to ISO EN 148 per heat and thickness group. Average of three tests. Single value minimum 70% of specified average. Impact test is performed from 6 mm.

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## CHEMICAL COMPOSITION (HEAT ANALYSIS)

C <sup>*)</sup> (max %)	Si <sup>*)</sup> (max %)	Mn <sup>*)</sup> (max %)	P (max %)	S (max %)	Cr <sup>*)</sup> (max %)	Ni <sup>*)</sup> (max %)	Mo <sup>*)</sup> (max %)	B <sup>*)</sup> (max %)
0.30	0.70	1.60	0.020	0.010	1.50	1.50	0.60	0.005

The steel is grain refined. <sup>\*)</sup> Intentional alloying elements.

## Maximum carbon equivalent CET (CEV)

Thickness (mm)	4.0 - 4.9 mm	5.0 - 9.9 mm	10.0 - 19.9 mm	20.0 - 39.9 mm	40.0 - 103.0 mm
CET (CEV)	0.34 (0.49)	0.36 (0.52)	0.43 (0.64)	0.45 (0.66)	0.47 (0.75)

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

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

## TOLERANCES

More details are given in SSAB's brochure 41-General product information Strenx, Hardox, ArmoX and Toolox-UK or on [www.ssab.com](http://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 dimension program.

- Tolerances conform to EN 10 029.

### Shape

Tolerances according to EN 10 029.

### Flatness

Tolerances according to SSAB's flatness tolerances which are more restrictive 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 or QT (Quenched or Quenched and Tempered). The plates are delivered with sheared or thermally cut edges. Delivery requirements can be found in SSAB's brochure 41-General Product Information Strenx, Hardox, ArmoX and Toolox-UK or at [www.ssab.com](http://www.ssab.com).

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## FABRICATION AND OTHER RECOMMENDATIONS

### **Welding, bending and machining**

Recommendations can be found in SSAB's brochures at [www.hardox.com](http://www.hardox.com) or consult Tech Support, [help@ssab.com](mailto:help@ssab.com).

Hardox 500 and Hardox 500 Tuf are not intended for further heat treatment. It has obtained its mechanical properties by quenching and when necessary by means of subsequent tempering. The properties of the delivery condition cannot be retained after exposure to temperatures in excess of 250°C .

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.



The UK English version of this document shall prevail in case of discrepancy. Download the latest version of this document at [www.ssab.com](http://www.ssab.com)

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