HARDOX®
WEAR PLATE

Hardox® 600

General Product Description

The extra hard and tough steel for extreme wear.

At a nominal hardness of 600 HBW, Hardox® 600 has a uniquely high impact toughness.
Especially suited for extreme wear conditions, it can still be cut and welded, making it an excellent choice for high-performance applications.

Dimension Range

Hardox® 600 is available in thicknesses of 6 – 65 mm. Hardox® 600 is available in widths up to 2000 mm and lengths up to 14630 mm. Preferred dimensions for the plates are 2000 x 4000 mm and for the sheets the preferred dimensions are 1250 x 3000 or 1500 x 3000 mm depending on thickness. Other dimensons on request. More detailed information on dimensions is provided in the dimension program.

Mechanical Properties

Grade	Thickness (mm)	Hardness [1] (HBW)
Hardox® 600 sheet	3.0 - 5.0	570 - 640
Hardox® 600 plate	6.0 - 51.0	570 - 640
Hardox® 600 plate	51.1 - 65.0	550 - 640

[1] Brinell hardness, HBW, according to EN ISO 6506-1, on a milled surface 0.5 – 3 mm below surface for plate. 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. For sheet the Brinell hardness test´is according to EN ISO 6506-1 on each heat treatment individual/coil. Hardness is measured on a milled surface 0.3 - 2 mm below surface.

The plates are through-hardened to a minimum of 90 % of the guaranteed minimum surface hardness.

Chemical Composition

Grade	C *) (max %)	Si *) (max %)	Mn *) (max %)	P (max %)	S (max %)	Cr *) (max %)	Ni *) (max %)	Mo *) (max %)	B *) (max %)
Hardox® 600 sheet	0.40	0.50	1.0	0.015	0.010	1.20	1.50	0.60	-
Hardox® 600 plate	0.47	0.70	1.5	0.015	0.010	1.20	2.50	0.70	0.005

The steel is grain refined. *) Intentional alloying elements, additionally can be used micro alloying elements (like Nb, Ti, V or B).

Carbon Equivalent CET(CEV)

Thickness (mm)	Hardox® 600 sheet 3.0 - 5.0	Hardox® 600 plate 6.0 - 35.0	Hardox® 600 plate 35.1 - 65.0
Max CET(CEV)	0.52 (0.72)	0.57 (0.69)	0.61 (0.87)
Typical CET(CEV)	0.48 (0.64)	0.55 (0.66)	0.59 (0.85)

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

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

SSAB

Tolerances

More details are given in SSAB´s brochure 41-General product information Strenx, Hardox®, Armox and Toolox-UK and Hardox® Guarantees or on www.ssab.com.

Thickness

Tolerances according to Hardox® Thickness Guarantees. Hardox® Guarantees meets the requirements of EN 10 029 Class A, but offers more narrow tolerances. For sheet, the guarantees meet the requirements of 1/2 EN 10 051.

Length and Width

According to SSAB's dimensions program. Tolerances conforms to EN 10 029 or to SSAB's standard after agreement. For sheet the tolerances are according to EN 10 051 or to SSAB´s standard after agreement.

Shape

Tolerances according to EN 10 029 for plate, EN 10 051 for sheet.

Flatness

Tolerances according to Hardox® Flatness Guarantee class E, which are more restrictive than EN 10 029 Class N. For sheet, the tolerances are according to Hardox® Flatness Guarantees Class B, which are more restrictive than EN 10 051.

Surface Properties

According to EN 10163-2 Class A Subclass 1.

Delivery Conditions

The delivery condition is Quenched. The plates are delivered with sheared or thermally cut edges, untrimmed mill edges available by agreement. Cut to length sheet are delivered with an as-rolled surface and mill edges as standard delivery condition. Delivery requirements can be found in SSAB's brochure 41-General product information Strenx, Hardox®, Armox and Toolox-UK or at www.ssab.com.

Fabrication and Other Recommendations

Welding, bending and machining.

Recommendations can be found in SSAB's brochures on www.hardox.com or consult Tech Support, techsupport@ssab.com.

Hardox® 600 is 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 250ºC for plate and 150ºC for sheets.

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 Information

www.ssab.com/contact