

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 are 2000 x 4000 mm, other dimensions on request. More detailed information on dimensions is provided in the dimension program.

Mechanical Properties

| Thickness (mm) | Hardness ¹⁾ (HBW) |
|----------------|------------------------------|
| 6.0- 51.0 | 570- 640 |
| 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. 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.

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

Chemical Composition

| C ^{*)} (max %) | Si ^{*)} (max %) | Mn ^{*)} (max %) | P (max %) | S (max %) | Cr ^{*)} (max %) | Ni ^{*)} (max %) | Mo ^{*)} (max %) | B ^{*)} (max %) |
|----------------------------|-----------------------------|-----------------------------|--------------|--------------|-----------------------------|-----------------------------|-----------------------------|----------------------------|
| 0.47 | 0.70 | 1.4 | 0.015 | 0.010 | 1.20 | 2.50 | 0.70 | 0.005 |

The steel is grain refined. ^{*)} Intentional alloying elements.

Carbon Equivalent CET(CEV)

| Thickness (mm) | 6.0 - 35.0 | 35.1 - 65.0 |
|------------------|-------------|-------------|
| Max CET(CEV) | 0.57 (0.69) | 0.61 (0.87) |
| Typical CET(CEV) | 0.55 (0.66) | 0.59 (0.85) |

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

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

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.

Length and Width

According to SSAB's dimensions program. Tolerances conforms to EN 10 029 or to SSAB's standard after agreement.

Shape

Tolerance according to EN 10 029.

Flatness

Tolerances according to Hardox® Flatness Guarantee class E, which are more restrictive than EN 10 029 Class N.

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. 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 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.

Contact Information

www.ssab.com/contact