

### General Product Description

Hardox® HiAce is an ace at fighting both abrasive wear and corrosion.

It features the same excellent properties as Hardox® 450, with a nominal hardness of 450 HBW.

Hardox® HiAce is a true wear fighter, especially in acidic corrosive environments that threaten to eat away at your equipment. This corrosion-resistant steel plate helps to meet the challenges of corrosive wear environments found in municipal and industrial waste management: garbage trucks, containers and wear surfaces exposed to acid in waste and recycling facilities, as well as equipment operating in landfills; recycling, waste-to-energy plants and biomass facilities, paper and pulp mills, mining and quarrying, agricultural applications and forestry as well as process industries.

### Dimension Range

Hardox® HiAce is available in thicknesses of 4.0 - 100.0 mm. Hardox® HiAce 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.

### Mechanical Properties

Product	Thickness (mm)	Hardness <sup>1)</sup> (HBW)	Typical yield strength (MPa), not guaranteed
Hardox® HiAce	4.0 - 100.0	425 - 475	1250

<sup>1)</sup> 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.

Hardox® wear plate is through-hardened. Minimum core hardness is 90 % of the guaranteed minimum surface hardness.

### Impact Properties

Thickness (mm)	Transverse test, guaranteed impact energy, Charpy V 10x10 mm test specimen <sup>1)</sup>
4.0 - 39.9	27 J / -20 °C <sup>2)</sup>

<sup>1)</sup> Impact testing is performed on thicknesses ≥ 6 mm. For thicknesses between 6 - 11.9 mm, subsize Charpy V-specimens are used. The specified toughness 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. Average of three tests.

<sup>2)</sup> Single value minimum 70% of specified average.

### 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 %)
0.26	0.70	1.60	0.025	0.010	5.10	1.50	0.60	0.005

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

### Carbon Equivalent CET(CEV)

Thickness (mm)	4.0 - 100.0
Max CET(CEV)	0.42 (1.08)
Typ CET(CEV)	0.39 (1.01)

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

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

## Tolerances

More details are given in SSAB's brochure Hardox® Guarantees or at [www.ssab.com](http://www.ssab.com).

### Thickness

Tolerances according to Hardox® Thickness Guarantees.

Hardox® Guarantees meet the requirements of EN 10029 Class A, but offer more narrow tolerances.

### Length and Width

According to SSAB's dimension program.

Tolerances according to SSAB's mill edge standards or tolerances that conform to EN 10029.

### Shape

Tolerances according to EN 10029.

### Flatness

Tolerances according to Hardox® Flatness Guarantees Class D, which are more restrictive than EN 10029.

### Surface Properties

According to EN 10163-2 Class A, Subclass 1.

## Delivery Conditions

The delivery condition is Q or QT (Quenched or Quenched and Tempered). Hardox® HiAce is delivered with sheared or thermally cut edges.

Delivery requirements can be found in SSAB's brochure Hardox® Guarantees or [www.ssab.com](http://www.ssab.com).

## 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.

Bendability according to Hardox® Bending Guarantees Class F.

Hardox® wear plate 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](http://www.ssab.com/contact)