Hardox® HiAce

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 and a minimum Charpy impact test value of 27 J at -20°C.

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 as plate in thicknesses of 4.0 - 25.4 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

Thickness (mm)	Hardness[1)] (HBW)	Typical Yield Strength (MPa), not guaranteed
4.0 - 25.4	425 - 475	1250

[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 thickness of supplied plates will not deviate more than +/- 15 mm from the thickness of the test specimen used for hardness testing.

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

Impact Properties

Grade	Transverse test, impact energy, Charpy V 10x10 mm test specimen.
Hardox® HiAce	27 J/ -20ºC

[1)] Impact testing is performed on thicknesses ≥ 6 mm. For thicknesses between 6 and 11.9 mm, sub-size Charpy V-specimens are used. The specified minimum value is 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.
[2)] Single value minimum 70% of specified average.

Chemical Composition (heat analysis)

C*) (max %)	Si*) (max %)	Mn*) (max %)	P (max %)	S (max %)	Cr*) (max %)	Ni*) (max %)	Mo*) (max %)	B*) (max %)
0.26	0.70	1.60	0.025	0.010	5.10	1.50	0.60	0.005

The steel is grain refined. *) Intentional alloying elements.

Carbon Equivalent CET(CEV)

Thickness (mm)	4.0 - 6.0	6.1 - 25.4
Max CET(CEV)	0.41 (1.04)	0.42 (1.08)
Typ CET(CEV)	0.38 (1.00)	0.39 (1.01)

$$CET = C + \frac{Mn + Mo}{10} + \frac{Cr + Cu}{20} + \frac{Ni}{40} \qquad CEV = C + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Cu + Ni}{15}$$

Tolerances

More details are given in SSAB's brochure Hardox® Guarantees or on www.ssab.com.

Thickness

Tolerances are according to Hardox® Thickness Guarantees. Hardox® Guarantees meet the requirements of EN 10 029 Class A.

Length and Width

Tolerances are according to SSAB's dimension program. The tolerances are according to SSAB´s mill edge standard or tolerances that conform to EN 10 029.

Shape

Tolerances are according to EN 10 029.

Flatness

Tolerances are according to Hardox® Flatness Guarantees Class D, which are more restrictive than EN 10 029.

Surface Properties

According to EN 10 163-2, Class A Subclass 1.

Bending

Bending for Hardox® HiAce are according to Hardox® Bending Guarantee Class F.

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 on www.ssab.com.

Fabrication and Other Recommendations

Welding, bending and machining.

For recommendations, please consult Tech Support, techsupport@ssab.com.

Hardox® HiAce is not intended for further heat treatment. Mechanical properties are achieved 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