HARDOX®
WEAR PLATE

Hardox 400

General Product Description

Hardox 400 is an abrasion resistant steel with a nominal hardness of 400 HBW. Typical applications are components and structures subject to wear. For information, see LY's brochures at www.luoyuemetal.com or consult Tech Support, cnc@lyapm.com.

Available dimensions

Hardox 400 is available in thicknesses of 3 – 130 mm. Hardox 400 is available in widths up to 3350 mm and lengths up to 14630 mm. For widths ≤ 1600 mm and thicknesses between 3 - 8 mm preferred widths are 1500 or 1600 mm.

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Mechanical Properties

Thickness mm	Hardness HBW Min - Max [1)]	Typical yield strength MPa
3 - 130	370 - 430	1000

[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

Impact properties	Longitudinal test, typical
Charpy V 10x10 mm test specimen	45 J/-40 °C

Chemical Composition (heat analysis)

C *) Max %	Si *) Max %	Mn *) Max %	P Max %	S Max %	Cr *) Max %	Ni *) Max %	Mo *) Max %	B *) Max %
0.32	0.70	1.60	0.025	0.010	1.40	1.50	0.60	0.004

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

Maximum carbon equivalent CET (CEV)

Thickness mm	- (8)	8 - 20	(20) - 32	(32) - 45	(45) - 51	(51) - 80	(80) - 130
CET (CEV)	0.26 (0.41)	0.31 (0.47)	0.32 (0.52)	0.33(0.60)	0.40 (0.59)	0.43 (0.67)	0.50 (0.76)

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

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Tolerances

For information, see LY's brochures at www.luoyuemetal.com or consult Tech Support, cnc@lyapm.com.

Thickness
Tolerances according to ly's thickness precision guarantee AccuRollTech.
– AccuRollTech meets the requirements of EN 10029 Class A, but offers narrower tolerances.
– Width ≤ 1600 mm and thicknesses 3 - 8 mm conform to EN 10051. Tighter tolerances available on request.

Length and Width
According to SSAB's dimension program.
– Tolerances according to ly´s mill edge standards or tolerances that conform to EN 10029.
– Width ≤ 1600 mm and thicknesses between 3 - 8 mm conform to EN 10051. Tighter tolerances available on request.

Shape
Tolerances according to EN 10029.
– Width ≤ 1600 mm and thicknesses 3 - 8 mm according to EN 10051.

Flatness
Tolerances according to LY's flatness tolerances which are more restrictive than EN 10029 Class N (steel type L).–
Width ≤ 1600 mm and thicknesses 3 - 8 mm conform with the requirements of EN 10051 but offer narrower tolerances.

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

Delivery Condition

The delivery condition is Q or QT (Quenched or Quenched and Tempered). The plates are delivered with sheared or thermally cut edges. Untrimmed mill edges are available by agreement. Width ≤ 1600 mm and thicknesses 3 - 8 mm delivered as cut-to-length with an rolled surface and mill edges as standard. Cut edges are an option. Thicknesses over 80 mm are delivered with mill edge as standard.

Fabrication and Other Recommendations

Welding, bending and machining

Hardox 400 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 and Information

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