

Hardox 400 Bar

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 more information on applications see www.ssab.com.

Available Dimensions

Hardox 400 Bar is available in diameters of 40 to 70 mm. Maximum available length depends upon product diameter. More detailed information on dimensions is provided at www.ssab.com.

Mechanical Properties

Bar Diameter (mm)	Hardness HBW Min - Max	Typical Yield Strength $R_{p0.2}$ MPa
40 - 70	370 - 430	1000 - 1100

Bar hardness is measured on a milled surface, with indents positioned as impact test according to EN 10 083.

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

Impact Properties	Longitudinal test, typical
Impact energy Charpy V 10 x 10 mm test specimen	45J/- 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.

Carbon equivalent CET (CEV)

Bar Diameter, mm	40 - 70
CET (CEV) Max	0.33 (0.60)
CET (CEV) Typical	0.31 (0.58)

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

Tolerances

More details are given at www.ssab.com.

Bar Diameter and Length

Tolerances according to EN 10 060.

Bar Straightness

Straightness according to EN 10 060.

Bar Surface Properties

Black condition.

Delivery Condition

The delivery condition is Q or QT (Quenched or Quenched and Tempered). Delivery requirements can be found in at www.ssab.com.

Fabrication and Other Recommendations

Welding, Bending and Machining

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

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

For information, see SSAB's brochures at www.ssab.com or consult Tech Support, techsupport@ssab.com.