

### WEAR RESISTANT PLATE

Hardox 450 is an abrasion resistant plate with a hardness of 450 HV, intended for applications where demands are imposed on abrasion resistance in combination with good cold forming properties. Hardox 450 offers very good weldability.

**Applications** Agriculture machines, cement mixers, containers, flatbed trucks, truck bodies, slurry tubes, refuse vehicles, transport tubes for grain, mining fans, mining conveyors, etc.

Chemical Composition (ladle analysis)	Thickness mm	C	Si	Mn	P	S	Cr	Ni	Mo	B	Ti	CEV	CET
		max %	max %	max %	max %	max %	max %	max %	max %	max %	max %	typv.	typv.
	0,70 - 2,10	0,18	0,25	1,30	0,015	0,004	0,10	0,10	0,04	0,003	0,050	0,39	0,31

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

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

The steel is grain refined.

**Hardness**  
Typical HV5  
425-475

Mechanical Properties	Yield strength	Tensile strength		Elongation
	R <sub>e</sub> typical MPa	R <sub>m</sub> MPa	min max	A <sub>80</sub> typical %
	1300	1400	1600	3

**Testing** Vickers hardness test is used according to EN ISO 6507-1.

**Delivery Conditions** Q + T

**Surface Conditions** Hardox 450 (0,70 - 2,10 mm) is supplied as cold rolled surface.

**Dimensions** Hardox 450 according to this data sheet is supplied in thicknesses of 0,70 - 2,10 mm. The supplied width is 800 - 1500 mm and length 1000 - 8000 mm.

More detailed information on dimensions is provided in the dimension program ([www.hardox.com](http://www.hardox.com)).

**Tolerances** Tolerances for thicknesses are according to EN 10 131, more narrow tolerances according to SSAB standard is also available.

<b>Surface Properties</b>	For thickness range 0,70 - 2,10 mm the surface condition is according to EN 10 130. <ul style="list-style-type: none"><li>- Normal and semi bright.</li><li>- Oiled.</li><li>- Not painted.</li></ul>
<b>Bending</b>	Min radius 4xt for 90° bend.
<b>General Technical Delivery Requirement</b>	You find further information on the website: <a href="http://www.hardox.com">www.hardox.com</a> .
<b>Heat Treatment and Fabrication</b>	<p>Hardox 450 (0,70 - 2,10 mm) has obtained its mechanical properties by quenching and tempering. The properties of the delivery condition can not be retained after exposure to service or preheating temperatures in excess of 200°C (390F). Hardox 450 (0,70 - 2,10 mm) is not intended for further heat treatment.</p> <p>For information concerning welding and fabrication, see our brochures on <a href="http://www.hardox.com">www.hardox.com</a> or consult our Technical Customer Service.</p> <p>Appropriate health and safety precautions must be taken when welding, cutting, grinding or otherwise working on the product. Grinding, especially of primer coated plates, may produce dust with high particle concentration. Our Technical Customer Service Department will provide further information on request.</p>