

**HARDOX<sup>®</sup> 450****ABRASION RESISTANT PLATE**

HARDOX 450 is an abrasion resistant plate with a hardness of about 450 HB, intended for applications where demands are imposed on abrasion resistance in combination with good cold bending properties. HARDOX 450 possesses very good weldability

**Applications**

Crushers, sieves, feeders, measuring pockets, skips, journals, cutting edges, conveyors, buckets, knives, gears, sprockets, etc.

**Chemical composition**

(ladle analysis)

Plate thickness mm	C max %	Si max %	Mn max %	P max %	S max %	Cr max %	Ni max %	Mo max %	B max %	CEV typv.	CET typv.
3*)-10	0,18	0,70	1,60	0,025	0,010	0,25	0,25	0,25	0,004	0,41	0,30
(10)- 20	0,21	0,70	1,60	0,025	0,010	0,50	0,25	0,25	0,004	0,47	0,34
(20)- 32	0,23	0,70	1,60	0,025	0,010	1,00	0,25	0,25	0,004	0,57	0,37
(32)- 50	0,23	0,70	1,60	0,025	0,010	1,40	0,25	0,60	0,004	0,57	0,35
(50)- 80	0,26	0,70	1,60	0,025	0,010	1,40	1,00	0,60	0,004	0,62	0,41

\*) Plate thickness below 4 mm only after special agreement.

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

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

**Hardness**

HBW  
425-475

**Mechanical properties**

Typical value

20 mm plate thickness

Yield strength $R_s$ N/mm <sup>2</sup>	Tenile strength $R_m$ N/mm <sup>2</sup>	Elongation $A_5$ %
1200	1400	10

**Impact properties**

Typical value for

20 mm plate thickness

Testing temperature °C	Impact energy Charpy-V, longitudinal J
-40 (40°F)	35

**Testing**

Brinell hardness, HBW according to EN 10 003-1, on a milled surface 0,5-2 mm below plate surface per heat and 40 t.

**Form of supply**

Quenched. When necessary, hardness is adjusted by means of subsequent tempering.

**Dimensions**

HARDOX 450 is supplied in plate thicknesses of 3\*)-80 mm. More detailed information on dimensions is provided in our brochure General Product Information, E-5.

\*) Plate thickness below 4 mm only after special agreement.

**Tolerances**

According to EN 10 029  
- Tolerances on thickness according to Class A.  
- Tolerances on flatness according to Class N.  
(Normal tolerances)

**Surface finish**

According to EN 10 163-2  
- Requirements according to Class A.  
- Repair conditions according to Subclass 1.  
(Repair by welding is allowed)



# DATA SHEET

## HARDOX 450

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**General technical  
delivery requirement**

According to our brochure E-5, General Product Information.

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**Heat treatment**

HARDOX 450 is not intended for further heat treatment.

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**Fabrication**

HARDOX 450 has obtained its mechanical properties by quenching. The properties of the delivery condition can not be retained after a preheating temperatures above 250°C (480° F). HARDOX 450 is not suited for applications requiring hot working temperatures above 250°C (480° F) since the material may then lose its good properties.

For information concerning welding and fabrication, consult our Technical Customer Service.

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.