

HIND HARD

400/450/500/550/600



HINDUSTAN
STEEL CORPORATION



SPECIAL ABRASION RESISTANT STEEL

Product Description :

HIND HARD M Plates are one of the widely used Abrasion Resistant Wear Steel Plates in the Industry Due to their Quality, Efficiency and Precise Brinell Hardness. These are widely used of the wear resistant grades plates. It is the range of high hardness, low alloyed martensitic steels. These plates are resistant to abrasion and is widely used in various applications that require higher wear resistance. These Plates can be easily bended and welded. HIND HARD plates have an excellent combination of hardness, abrasion resistance, formability, weldability, toughness and flatness to meet fabrication demands and application requirements.

Product Application :

HIND HARD is used for Front loaders, Dump trucks, Buckets, Mining And Quarrying, Process Industries, Liners for truck beds, Excavators, Material Handling Construction & many more.

Specifications & Supply Dimensions :

Dimensions : 4 mm to 100 mm

Width : 1250 mm to 3000 mm

Length : 40000 mm to 14000 mm

Grade Designation :

Grade Name	HIND HARD 400	HIND HARD 450	HIND HARD 500	HIND HARD 550	HIND HARD 600
Hardness Level	360 - 430 BHN	425 - 475 BHN	450 - 540 BHN	525 - 575 BHN	570 - 640 BHN

Capability & Dimensions :

Grade Name	HIND HARD 400	HIND HARD 450	HIND HARD 500	HIND HARD 550	HIND HARD 600
Thickness	6 - 80 mm	6 - 50 mm	6 - 50 mm	6 - 75 mm	8 - 65 mm

Material

The HIND HARD Wear plates family is both hard and tough, yet easily formable and weldable. Wear plates from HIND HARD have a unique chemical composition designed for the best abrasion resistance. Combined with the optimum rolling, careful heat treatment and processing HIND HARD Wear plates™ possess unique combination of hardness, toughness and workability. Low carbon equivalent guarantee good weldability.

Grades of HIND HARD™ Wear plates are :

HIND HARD 400, HIND HARD 450, HIND HARD 500, HIND HARD 550 and HIND HARD 600

Welding

HIND HARD M 400, 450, 500, 550 & 600 plates can be easily bend and welded & always use low-hydrogen welding consumables. The HIND HARD Plates is wear resistant rapidly cooled and tempered steel plate grade, which exhibits advantageous features like excellent hardness, good formability, weldability, and toughness. These Plates must be clean and dry. The commonly used filler metals for quenched steels are Esab 48.00 and oK autrod 12.51. If high strength is required for filler metal oK 75.75 or Ok Autrod 13.10/13.12 are suitable. Equivalent filler metals from other suppliers can also be used.

Chemical Composition (max content in wt. %)

Grade	C	Si	Mn	P	S	Cr.	B
HIND HARD 400	0,18	0,25	1,20	0,020	0,010	0,20	0,006
HIND HARD 450	0,24	0,25	1,00	0,020	0,010	0,20	0,006
HIND HARD 500	0,27	0,30	1,20	0,020	0,010	0,30	0,006
HIND HARD 550	0,32	0,80	0,60	0,015	0,003	0,80	0,006
HIND HARD 600	0,40	0,80	0,60	0,015	0,003	0,80	0,006

Mechanical Properties & Carbon Equivalent (Typical Values)

Grade	Thikness (mm)	Yield Strength RP 0.2 (Nmm2)	Rm (N/mm2)	Elongatin A5%		CEV** %	CEV*** %
HIND HARD 400	2,5-12	1050	1250	10,0	25	0,42	0,43
HIND HARD 450	2,5-12	1200	1500	8,0	20	0,45	0,46
HIND HARD 500	2,5-12	1250	1600	6,0	20	0,52	0,53
HIND HARD 550	2,5-12	1400	1800	10,0	22	0,85	0,86
HIND HARD 600	2,5-12	1550	2100	8,5	13	0,93	0,94

Tensile Properties

Resistance, formability, weldability, toughness and flatness to meet fabrication demands and application requirements.

Grade & Thickness	Yield Strength (Min-Mpa)	Tensile Strength (Min-Mpa)	% Elongation (GL=50mm))	Charpy V-Notch Impact toughness (Min)
HIND HARD 400	1000	1250	12	27 Joules min @ -40°C
HIND HARD 450	1100	1350	10	27 Joules min @ -20°C
HIND HARD 500	1200	1450	8	27 Joules @ 0°C
HIND HARD 550	1400	1400	7	20 Joules @ -40°C
HIND HARD 600	1550	1550	7	30 Joules @ -40°C

- Orientation of tensile specimen is Transverse and Impact is longitudinal to rolling direction
- Normally hardness is only guaranteed for abrasion resistance steel unless specified. Other specific testing can be taken on case to case basis

Dimensional Tolerance & Surface Quality

Thickness	As per EN 10029- Class A/B/C/D as per requirements
Length and Width	As per EN 10029
Flatness	As per EN 10029 Class N steel type H
Surface Properties	As per EN 10163-2, Class A Subclass 1
Plate Ultrasonic Testing	As per EN 10160SO, EO

Tighter tolerances can be taken up on case to case basis.

HEAT TREATMENT

Heat Treatment N, Q+T

HIND HARD plates obtained its hardness by quenching. The hardness of HIND HARD plates may get reduced with exposure of plates above ~ 200°. (Hence, HIND HARD plates are not intended for further heat treatment).

There are two general rules for preheating :

1. Thickest plate determine the preheat temperature
2. When welding plates of different alloying content the highest alloyed/requiring the highest preheat value determine the preheat temperature.

COLD FORMING

HIND HARD plates has high internal steel cleanliness and uniform properties. These plates have good formability, weldability, toughness and flatness. For plates up to 20 mm thick, the recommended minimum bending radius is given in the tables below. For plate thicknesses above 20 mm on case to case basis.

		Minimum inner bend radius	
Bend radius is dependent on the direction of bending to rolling direction (t=Platethickness)	Bend angle (In degree)	Transverse to rolling direction	Parallel to rolling direction
HIND HARD 400	180	3xt	4xt
HIND HARD 450	90	4xt	4xt
HIND HARD 500	90	5xt	6xt

THERMAL CUTTING

HIND HARD plates are compatible with all types thermal cutting processes which includes oxy-fuel, plasma, and laser.

- Preheating at 100 to 150°
- Excesspreheating above 200°

RAW MATERIALS

All Our Raw Materials are Supplied By Worlds No 1 Steel Maker Arcelor Mittal and Nippon Steel - India & It is an Assurance of the Top Quality Steel Supplied From Stancor Special Plates.



HINDUSTAN STEEL CORPORATION

📍 **Corp. office :**
390/392, Gr. Floor, Shankar Mansion, Vanita Vishram Chowk,
Near Harkishandas Hospital, S.V.P. Road, Mumbai-400 004.

📍 **Warehouse**
Plot No. 8, Survey No. 110, Hissa No. 1A/, Near Kingfisher Bewries,
Wavanje, Talaja MIDC, Navi Mumbai, Maharashtra – 410218

☎ +91-22-6615 9001 (25 Lines), 6639 4202

📠 +91-22-2385 7102

✉ sales@hindustansteel.com

🌐 www.hindustansteel.com