

SUPER PUNCHING

世界37ヶ国登録商標認定®

极耐磨板 冲孔加工

超越极限 挑战极限

認証事業所



神戸总公司・明石工厂・堺工厂

OKS 1895 金网和冲孔板的加工及销售
株式会社 奥谷金网制作所
OKUTANI Ltd.



PUNCHING-MAN™
1895

HARDOX® 悍达耐磨钢板

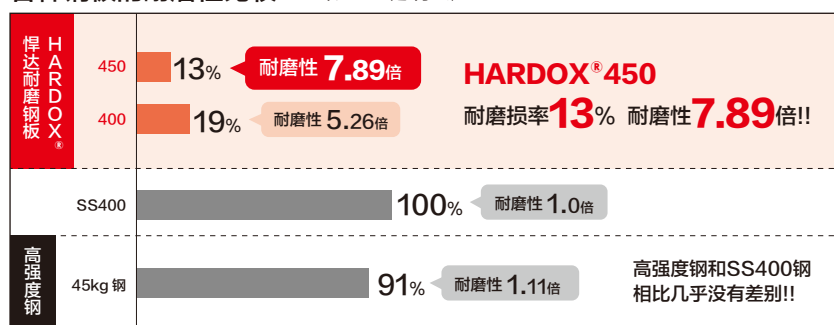
总之 耐磨性强!!

Hardox®耐磨钢板是世界一流的耐磨 (AR) 钢板。
使用位于北欧和美国的高度专业化的全球性
钢铁公司SSAB的板材。
在最具有挑战性的环境中具有出色的硬度、
韧性和高度的耐磨性，延长了所使用设备的更换周期。

用途
粉碎机及筛分机的滚筒

承接R型
折弯处理及
其加工!

各种钢板的耐磨性比较 以SS400是1为基准



钢板种类 项目	HARDOX® 悍达耐磨钢板		参照	
	400	450	SM490	SM570
拉伸强度 (N/mm²)	1,250	1,400	490~610	520~720
硬度	(HB)	400	145~150 左右	180~190 左右
	(HRC)	43	0 (假设拉伸强度 为520 N/mm²)	8~9 (假设拉伸强度 为610 N/mm²)
冲击韧性值 -40℃ (※)	45J	40J	27J/0°	

※衡量韧性的标准，数字越大，就越有韧性。

Hardox®悍达耐磨钢板 冲孔加工一览表

板厚	孔径	孔距	排布方式	开孔率	最大加工尺寸
4.0t	10Ø	15	60° 错排	40.3%	914 × 914
4.0t	15Ø	20	60° 错排	51.0%	914 × 1829
6.0t	10Ø	15	60° 错排	40.3%	914 × 914
6.0t	15Ø	20	60° 错排	51.0%	914 × 1829

金网和冲孔板的加工及销售

株式会社 奥谷金网制作所

连接日本与世界的桥梁 奥谷的加工销售网

杜塞尔多夫办事处



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Immermannstraße 38,
D-40210 Düsseldorf, Germany
Tel: +49-211-1623-596
Fax: +49-211-1623-597

关西地区



东京业务部



芝加哥办事处



芝加哥办事处
c/o ITA, Inc. 150 Pierce Rd.,
Itasca, IL 60143, USA
Tel: +1-847-364-1121
Fax: +1-847-364-1183
<https://www.okutanikanaami.co.jp/en/>

神户总公司·展示厅·博物馆

〒650-002 兵庫県神戸市中央区相生町4丁目5-5
TEL: +81-78-351-2531 (代)
FAX: +81-78-361-1484
占地170m²
可用面积660m² (钢筋混凝土4层建筑)

姫路业务部

〒670-0825 兵庫県姫路市市川橋通2丁目50-3
TEL: +81-79-288-0458 (代)
FAX: +81-79-288-2077
占地200m²
可用面积400m² (钢筋混凝土4层建筑)

东京业务部

〒110-0016 東京都台東区台東4-29-15
上野永谷タウンプラザ305号室
TEL: +81-3-5812-7795
FAX: +81-3-5812-7796

明石工厂

〒651-2124 兵庫県神戸市西区伊川谷町洞和 (神戸工団地内)
TEL: +81-78-974-1907 (代)
FAX: +81-78-974-1959
占地3800.02m² 可用面积3262.18m² (钢筋厂房)

堺工厂

〒587-0011 大阪府堺市美原区丹上460
TEL: +81-72-361-9121 (代)
FAX: +81-72-361-9122
占地336m² 可用面积442m² (重型钢筋厂房) '22.12

SUPER PUNCHING

Registered trademark in 37 countries



Scan here to learn more about perforated abrasion-resistant steel plate.

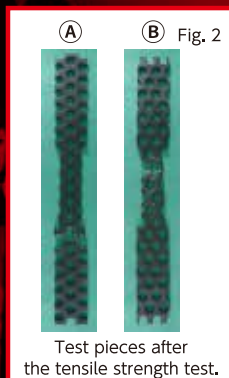
PERFORATED ABRASION-RESISTANT STEEL PLATE

HARDOX®

TENSILE STRENGTH TEST

Tested at Kobe Material Testing Laboratory Group

1. Goal	To determine the tensile strength of a perforated metal.						
2. Test piece	The test piece materials used are (1) HARDOX 450, (2) SS400, and (3) High-tensile 60K steel.						
3. Test method	Fig. 1 shows the photo of the test procedure. ◎ Tensile Strength test (1) Used testing machine is AG-300KNXplus(E2-020) (Manufactured by Shimadzu) (2) Tensile test conditions <table border="0"> <tr> <td>(a) Test pieces : 6 pcs.</td> <td>(d) Test piece dimension: 25mm (W), 280mm (L)</td> </tr> <tr> <td>(b) Room Temperature : 23 ± 5°C</td> <td>① 6t (Material: HARDOX 450) ③ 6t (Material: High-tension 60k steel)</td> </tr> <tr> <td>(c) Test speed rate : 30%/min</td> <td>② 6t (Material: SS400)</td> </tr> </table> (3) The test pieces of each material are divided into two types of pitch direction ① and ②.	(a) Test pieces : 6 pcs.	(d) Test piece dimension: 25mm (W), 280mm (L)	(b) Room Temperature : 23 ± 5°C	① 6t (Material: HARDOX 450) ③ 6t (Material: High-tension 60k steel)	(c) Test speed rate : 30%/min	② 6t (Material: SS400)
(a) Test pieces : 6 pcs.	(d) Test piece dimension: 25mm (W), 280mm (L)						
(b) Room Temperature : 23 ± 5°C	① 6t (Material: HARDOX 450) ③ 6t (Material: High-tension 60k steel)						
(c) Test speed rate : 30%/min	② 6t (Material: SS400)						
4. Test Result	The test result is summarized on the chart below. Fig. 1 Test Procedure Fig. 2 Test pieces after the tensile test. Fig. 3 Relationship between tensile force applied and stroke. Table 1 Tensile strength test result						

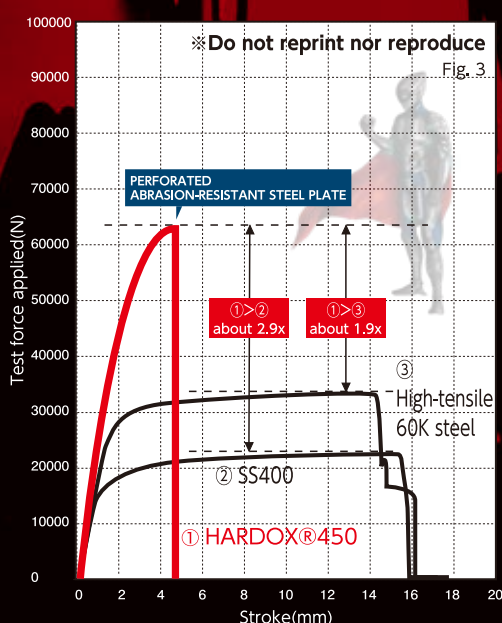


Tensile strength test result

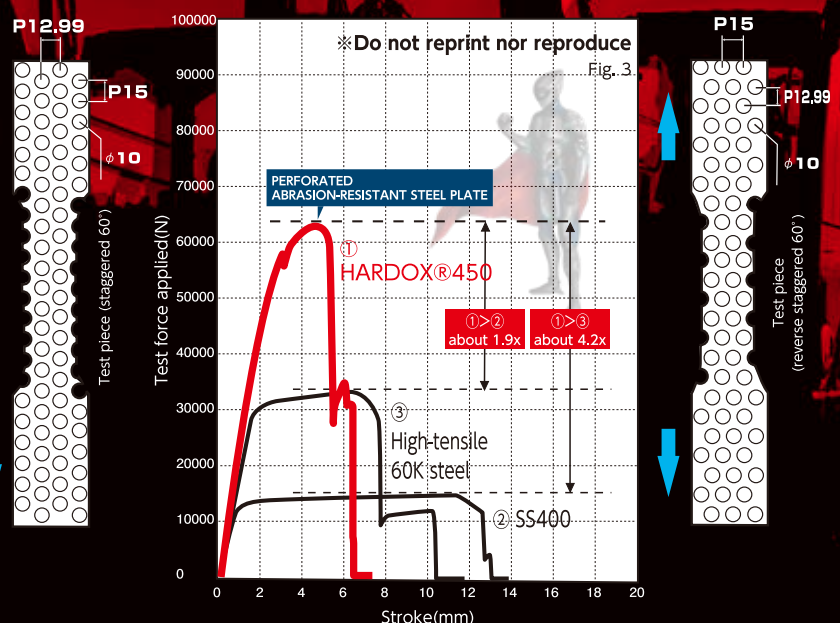
Table 1

		Material	Thickness (mm)	Hole Pattern	Test piece dimensions(actual Value)		Maximum force applied (N)
					Width	Thickness	
					(mm)	(mm)	
④	①	HARDOX®450	6	Staggered 60° ④-①	25.00	5.94	63048
	②	SS400	6	Staggered 60° ④-②	25.00	5.85	21765
	③	High-tensile 60K steel	6	Staggered 60° ④-③	25.00	6.02	33231
⑤	①	HARDOX®450	6	Reverse Staggered 60° ⑤-①	25.00	5.94	61714
	②	SS400	6	Reverse Staggered 60° ⑤-②	25.00	5.84	14654
	③	High-tensile 60K steel	6	Reverse Staggered 60° ⑤-③	25.00	6.03	32843
Standard applied: JIS Z2241 : 2022 Test machine number: E2-020							
Remarks		Test speed rate: 30% / min. Room Temperature: 23± 5°C					

① Tensile strength test result



② Tensile Strength Force Applied and Stroke Graph



※SS400 is a material under Japan Industrial Standard material that is corresponding to ISO E275A'D.
High-tensile 60K steel is a material produced by JFE Holdings with a material name: HITEN590 and is corresponding to ISO 630-1'3.

Comparison with SS400 and high tension 60k steel perforated sheet

CAN IMPROVE
OPERATION RATE
AND PRODUCTION
CAPACITY OF VIBRATING
SIEVE MACHINES

CERTIFIED ABRASION RESISTANT!

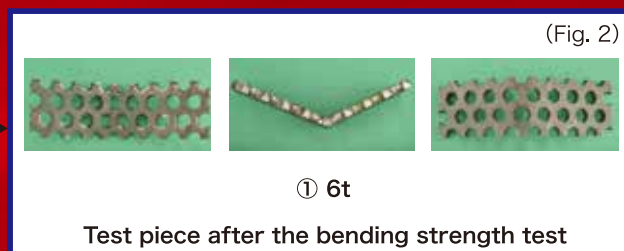
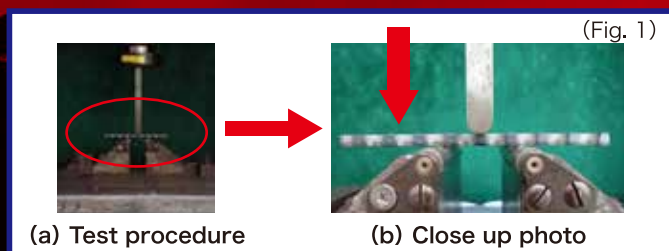
- About 2.9 to 4.2 times higher in tensile strength than SS400 and High-tension 60k Steel.
- About 1.6 to 2.6 times higher in bending strength than SS400 and High-Tension 60k Steel.
- Tensile Strength Test and Bending Strength Test are shown below.

※Values depending on material thickness and Pitch direction.

BENDING STRANGE TEST

Tested at Kobe Material Testing Laboratory Group

1. Goal	To determine the bending strength of a perforated metal.
2. Test piece	The test piece materials used are (1) HARDOX 450 , (2) SS400, and (3) High-tensile 60K steel.
3. Test method	Fig. 1 shows a photo before the bending test. Fig. 2 shows a photo after the bending test. ◎ Bending Strength Test (1) Testing machine used: AG-300kNXplus(E2-020) (Manufactured by Shimadzu) (2) Bending test conditions (a) Test pieces : 3 pcs. (d) Test piece dimension: 40mm (W), 140mm (L) (b) Room Temperature : $23 \pm 5^{\circ}\text{C}$ ① 6t (Material: HARDOX 450) ③ 6t (Material: High-tension 60k steel) (c) Test speed rate : 1mm/min ② 6t (Material: SS400)
4. Test Result	The test results are summarized on the chart below. Fig. 1 Test Procedure Fig. 2 Photo after the bending test Fig. 3 Relationship between bending force applied and stroke. Table 1 Bending strength test result.

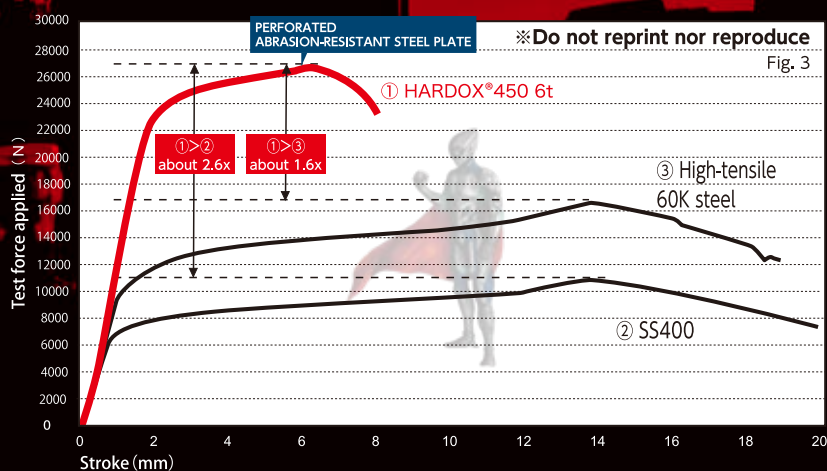


Bending strength test result

Table 1

		Material	Thickness (t)	Test piece number	Test piece dimensions(actual Value)		Test room tempe-rature	Maximum force applied (N)	Supposed Maximum Stress (N)※
					Width	Thickness			
					(mm)	(mm)			
C	①	HARDOX®450	6	①	40.00	5.90	RT (23°C)	26711	1842
	②	SS400	6	②	40.00	5.89		10437	722
	③	High-tension 60k steel	6	③	40.00	6.04		16332	1074
Test machine number : E2-020 Room Temperature : 20°C									
Remarks		Test speed rate : 1mm/min Room Temperature : 20°C ※Supposed Maximum Stress : $3PL/2b'h^2$ (P: Max. force applied L: Length 40 mm, b: width b'= b-10x15 (hole diameter 10, pitch 15), h: thickness)							

◎ Force applied and stroke diagram (3-point bending test)



- ① HARDOX® 450 6t xΦ10xP15 Staggered 60°
- ② SS400 6t xΦ10xP15 Staggered 60°
- ③ High-tension 60k steel 6t xΦ10xP15 Staggered 60°

