

SUPER PUNCHING

Registered trademark in 37 countries



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PERFORATED ABRASION-RESISTANT STEEL PLATE

HARDOX®

Comparison with SS400 and high tension 60k steel perforated sheet

CERTIFIED ABRASION RESISTANT!

CAN IMPROVE OPERATION RATE AND PRODUCTION CAPACITY OF VIBRATING SIEVE MACHINES

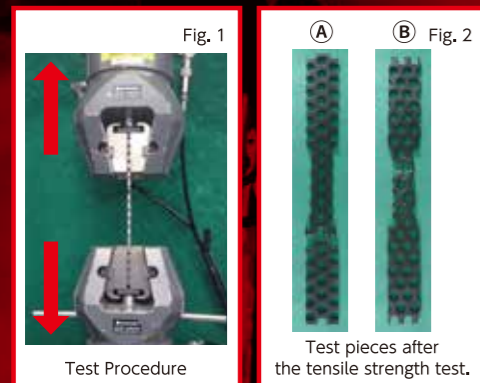
- About 2.9 to 4.2 times higher in tensile strength than SS400 and High-tension 60k Steel.
- About 1.6 to 2.6 times higher in bending strength than SS400 and High-Tension 60k Steel.
- Tensile Strength Test and Bending Strength Test are shown below.

※Values depending on material thickness and Pitch direction.

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	<p>Fig. 1 shows the photo of the test procedure.</p> <p>◎ Tensile Strength test</p> <p>(1) Used testing machine is AG-300kNXplus(E2-020) (Manufactured by Shimadzu)</p> <p>(2) Tensile test conditions (a) Test pieces : 6 pcs. (d) Test piece dimension: 25mm (W), 280mm (L)</p> <p>(b) Room Temperature : 23 ± 5°C ① 6t (Material: HARDOX 450) ③ 6t (Material: High-tension 60k steel)</p> <p>(c) Test speed rate : 30%/min ② 6t (Material: SS400)</p> <p>(3) The test pieces of each material are divided into two types of pitch direction (A) and (B).</p>
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

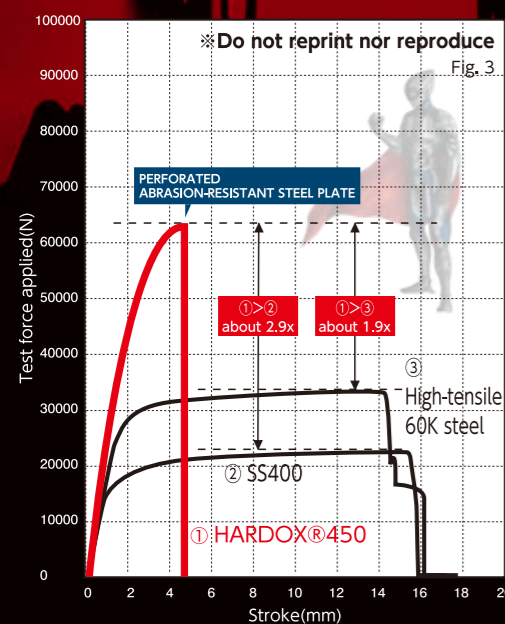


Tensile strength test result Table 1

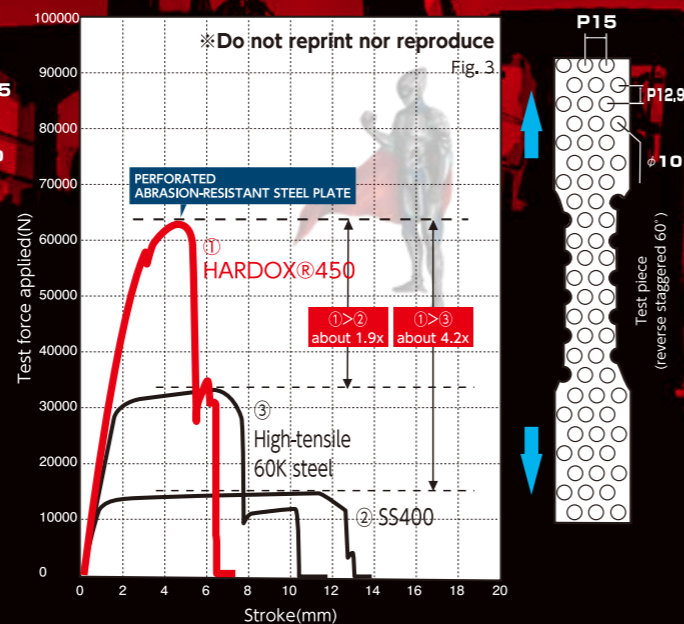
	Material	Thickness (mm)	Hole Pattern	Test piece dimensions(actual Value)		Maximum force applied (N)
				Width (mm)	Thickness (mm)	
A	① HARDOX®450	6	Staggered 60° A-①	25.00	5.94	63048
	② SS400	6	Staggered 60° A-②	25.00	5.85	21765
	③ High-tensile 60K steel	6	Staggered 60° A-③	25.00	6.02	33231
B	① HARDOX®450	6	Reverse Staggered 60° B-①	25.00	5.94	61714
	② SS400	6	Reverse Staggered 60° B-②	25.00	5.84	14654
	③ High-tensile 60K steel	6	Reverse Staggered 60° B-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

Ⓐ Tensile strength test result



Ⓑ Tensile Strength Force Applied and Stroke Graph

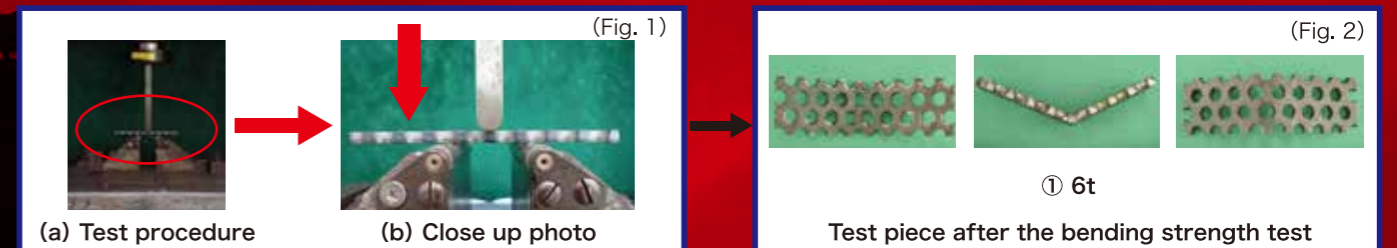


※SS400 is a material under Japan Industrial Standard material that is corresponding to ISO E275A'D.
High-tensile 60K steel is a material produced by JFE Holdings with a material name: HITEN590 and is corresponding to ISO 630-1'3.

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	<p>Fig. 1 shows a photo before the bending test. Fig. 2 shows a photo after the bending test.</p> <p>◎ Bending Strength Test</p> <p>(1) Testing machine used: AG-300kNXplus(E2-020) (Manufactured by Shimadzu)</p> <p>(2) Bending test conditions (a) Test pieces : 3 pcs. (d) Test piece dimension: 40mm (W), 140mm (L)</p> <p>(b) Room Temperature : 23 ± 5°C ① 6t (Material: HARDOX 450) ③ 6t (Material: High-tension 60k steel)</p> <p>(c) Test speed rate : 1mm/min ② 6t (Material: SS400)</p>
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 temperature	Maximum force applied (N)	Supposed Maximum Stress (N)
				Width (mm)	Thickness (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 : 1 mm/min Room Temperature : 20°C
※Supposed Maximum Stress : 3PL/2b'h²(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)

