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Industrial woven wire cloth

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee, as the result of proposal for revision of Japanese Industrial Standard submitted by the Manufacturing Chain Ring of Japan (MCJ)/the Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14. Consequently **JIS G 3556 : 1989** is replaced with this Standard.

In this revision, in order to conform **JISs** to **ISO**, **ISO 9044 : 1999** *Industrial woven wire cloth—Requirements and tests* and **ISO 4783-2 : 1989** *Industrial wire screens and woven wire cloth—Guide to the choice of aperture size and wire diameter combinations—Part 2 : Preferred combinations for woven wire cloth* are adopted as the base.

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4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

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Industrial woven wire cloth

Introduction This Japanese Industrial Standard has been prepared based on **ISO 9044 : 1999** *Industrial woven wire cloth—Requirements and tests* and **ISO 4783-2 : 1989** *Industrial wire screens and woven wire cloth—Guide to the choice of aperture size and wire diameter combinations—Part 2 : Preferred combinations for woven wire cloth* with some modification of the technical contents.

Portions underlined with dots are the items specified by modifying the contents of the original International Standards. A list of modifications with their explanations is shown in Annex 1 (informative).

1 Scope This Japanese Industrial Standard defines terms related to industrial woven wire cloth for screening (hereafter referred to as “woven wire cloth”) and specifies tolerances, requirements and test methods.

This Standard is applied to the woven wire cloth of regular square mesh manufactured by low carbon steel wires, hard drawn steel wires and stainless steel wires.

Woven wire cloths to be used for purposes other than screening shall be agreed upon between the manufacturer and the purchaser when ordered.

Remarks : The International Standard corresponding to this Standard is as follows.

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standard and **JIS** are **IDT** (identical), **MOD** (modified), and **NEQ** (not equivalent) according to **ISO/IEC Guide 21**.

ISO 9044 : 1999 *Industrial woven wire cloth—Requirements and tests* (MOD)

ISO 4783-2 : 1989 *Industrial wire screens and woven wire cloth—Guide to the choice of aperture size and wire diameter combinations—Part 2 : Preferred combinations for woven wire cloth* (MOD)

2 Normative references The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS B 7184 *Profile projectors*

JIS B 7502 *Micrometer callipers*

JIS B 7507 *Vernier, dial and digital callipers*

JIS B 7512 *Steel tape measures*

JIS G 3521 *Hard drawn steel wires*

JIS G 3532 *Low carbon steel wires*

JIS G 4309 *Stainless steel wires*

JIS Z 8401 *Guide to the rounding of numbers*

3 Definitions Definitions and symbols of principal terms used in this Standard shall be as follows (see Fig. 3).

- a) **aperture width, w** a distance between two adjacent warps or wefts.
- b) **wire diameter, d** a diameter of the wire of woven wire cloth.
- c) **pitch, p** a sum of an aperture width and a wire diameter.
- d) **warp** all wires (the outermost wires on both sides are called lug wires) running in the length direction of woven wire cloth.
- e) **weft** all wires running in the lateral direction of woven wire cloth.
- f) **width, W** a distance from the outside of a lug wire to the other outside.
- g) **length, L** a distance from the end of warp to the other end.
- h) **selvedge, s** turnup parts (loop state) at both ends of a weft.
- i) **opening unit area** a part surrounded by the warp and the weft.

4 Classification and symbols

- a) Woven wire cloths shall be classified into two classes, plain weave wire cloth and twill weave wire cloth.
 - 1) Plain woven wire cloth is as given in Fig. 1.
 - 2) Twill woven wire cloth is as given in Fig. 2.
 - 3) Names of respective parts are as given in Fig. 3.
- b) Woven wire cloths shall be classified into 8 classes according to the material and their symbols as given in Table 1.

Table 1 Classes and symbols

Class	Symbol	Remarks
Plain woven wire cloth	PW-A	That using SWM-A in JIS G 3532 .
	PW-B	That using SWM-B in JIS G 3532 .
	PW-H	That using SW-A in JIS G 3521 .
	PW-S	That using temper symbols W1 and W2 for stainless steel wires in JIS G 4309 .
Twill woven wire cloth	TW-A	That using SWM-A in JIS G 3532 .
	TW-B	That using SWM-B in JIS G 3532 .
	TW-H	That using SW-A in JIS G 3521 .
	TW-S	That using temper symbols W1 and W2 for stainless steel wires in JIS G 4309 .

Remarks : For stainless steel-made woven wire cloth, the number expressing the steel class is suffixed to the symbol.

Example PW-S 304

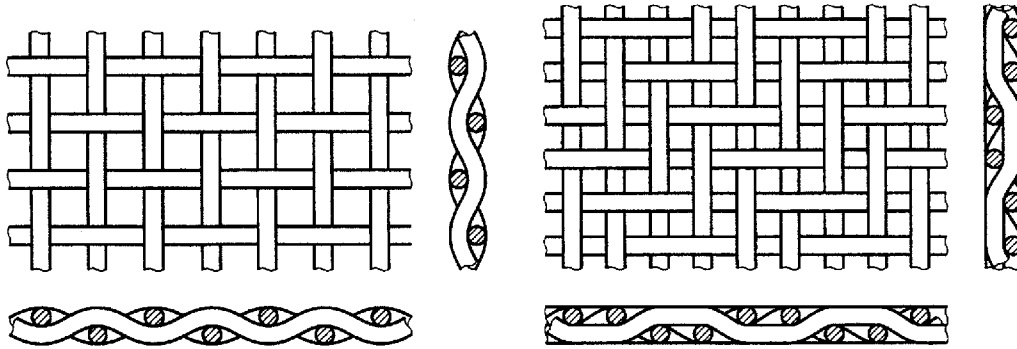


Fig. 1 Plain woven wire cloth **Fig. 2 Twill woven wire cloth**

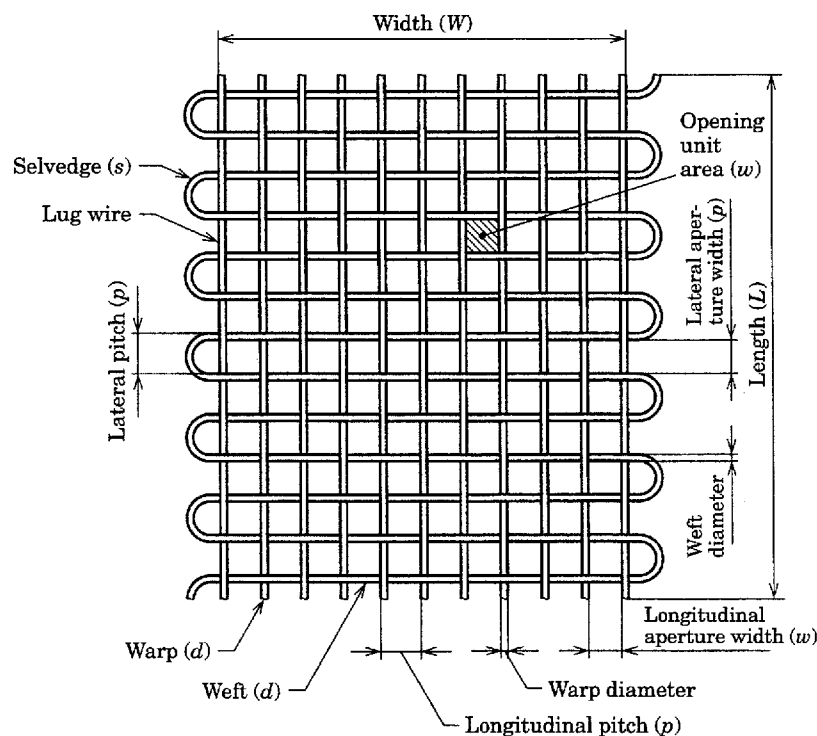


Fig. 3 Names of respective parts

Remarks : This figure shows the names only and does not show references of shape and structure.

5 Requirements

5.1 Combination of wire diameter and aperture width When there is no agreement between the manufacturer and the purchaser, the combination of wire diameter and aperture width shall be selected from Attached Table 1 or Attached Table 2 (ISO 4783-2).

5.2 Percentage tolerances on aperture width Tolerances concerning aperture width are given in Attached Table 1 and percentages concerning aperture width are indicated in Table 2 (corresponds to Attached Table 2).

Table 2 Percentage tolerances on aperture width

Nominal aperture width (<i>w</i>) mm	Percentage tolerances on aperture width (<i>w</i>) (%)					
	Stainless steel wires			Low carbon steel wire/annealed wire/hard drawn steel wire		
	Mean $\pm Y$	Deviation $+Z$	Maximum $+X$	Mean $\pm Y$	Deviation $+Z$	Maximum $+X$
16	5	9	12	6	10	14
12.5	5	9	13	6	10	15
10	5	9	14	6	11	16
8.0	5	10	15	6	12	18
6.3	5	10	16	6	12	19
5.0	5	11	17	6	13	20
4.0	5	12	18	6	14	22
3.15	5	12	20	6	14	23
2.5	5	13	21	6	15	25
2.0	5	14	23	6	16	27
1.6	5	15	24	6	17	29
1.25	5	16	26	6	18	31
1.0	5	17	28	6	19	33
0.8	5	18	30	6	21	36
0.63	5	19	33	6	22	39
0.5	5	21	36	7	24	42
0.4	6	22	39	7	26	46
0.315	6	24	42	7	28	50
0.25	6	26	46	7	31	55
0.2	6	28	50	8	34	60
0.16	7	31	55	8	37	66
0.125	7	34	61	9	41	73
0.10	7	37	67	9	45	80
0.08	8	41	74	9	49	89
0.063	9	46	83	10	55	99
0.05	10	51	93			
0.04	11	56	100			
0.032	13	56	100			
0.025	15	57	100			
0.020	17	59	100			

Remarks : *X*, *Y* and *Z* in the table are as described in 5.2.1 to 5.2.3.

5.2.1 The mean value Y is the tolerance concerning the arithmetic mean value of aperture widths separately measured and calculated in both warp and weft directions. The arithmetic mean aperture width shall not deviate from the nominal size by more than $\pm Y$. In formula (1) to formula (3), X , Y , Z and w are expressed by μm .

where,

$$Y = \frac{w^{0.98}}{27} + 1.6 \times 1.5 \dots\dots\dots (1)$$

5.2.2 The deviation value Z is the arithmetic mean of X and Y .

$$Z = \frac{X + Y}{2} \dots\dots\dots (2)$$

Not more than 6 % of the total number of apertures measured shall have sizes between "the nominal + X " and "nominal + Z ".

5.2.3 No aperture width shall exceed the nominal size by more than the value X . It is the maximum permissible deviation of a single aperture measured in one direction (warp or weft) and is calculated using the formula:

$$X = \frac{2w^{0.75}}{3} + 4w^{0.25} \times 2 \dots\dots\dots (3)$$

but with a maximum value of $X = w$.

A line of apertures exceeding the value X is deemed to be a major blemish.

As, on the basis of experience, negative deviations of single aperture widths do not affect the screening process, values for Z and X have only positive deviations.

5.3 Permissible number of major blemishes

5.3.1 Woven wire cloth can not be produced commercially without there being some manufacturing blemishes. The supplier and the purchaser shall agree upon the number and nature of major blemishes which are permissible per unit area of the wire screen. The percentage yield of the wire cloth shall be agreed on with the purchaser.

Unless otherwise agreed upon between the supplier and the purchaser, the maximum number of major weaving blemishes shall not exceed the values given in Table 3.

Table 3 Permissible number of major blemishes

Reference aperture opening (w) mm	Maximum number of major blemishes per 10 m ²
$1 \leq w \leq 16$	3
$0.25 \leq w < 1$	5
$0.125 \leq w < 0.25$	6
$0.063 \leq w < 0.125$	9
$w < 0.063$	10

5.3.2 Minor manufacturing blemishes which do not produce oversize apertures or do not significantly affect the surface quality of the wire screen shall be acceptable unless otherwise specified.

5.4 Tolerances on overall size The overall size of pieces of wire cloth shall conform to the following requirements.

5.4.1 The tolerance on width, of trimmed wire cloth rolls and roll lengths, shall be $+2\%$ -0% under the agreement between the supplier and the purchaser.

5.4.2 The tolerance on length and width, of square and rectangular pieces, shall not exceed $\pm 0.5\%$ or ± 1 pitch under the agreement between the supplier and the purchaser.

5.4.3 For cut-to-size pieces, the permissible number of major blemishes and their positions shall be agreed with the purchaser. Otherwise, the permissible number of major blemishes in cut-to-size pieces shall be determined according to Table 3.

5.5 Flatness Unless otherwise agreed between the supplier and the purchaser, wire cloth rolls and pieces shall not necessarily be supplied to lie flat. If the purchaser requires flat wire cloth, the means of verifying flatness shall be agreed with the supplier.

5.6 Surface conditions The wooden wire cloth shall be free from remarkable oil stains caused by the weaving process. Further, it shall be free from remarkable corrosion traces.

5.7 Materials Materials used for woven wire cloth shall be as given in Table 1.

5.7.1 Reference wire diameter The reference wire diameter of woven wire cloth shall be as given in Attached Tables 1 and 2.

5.7.2 Tolerance on wire diameter In the case where the tolerance of wire diameter after weaving is specified, the tolerance shall be agreed upon between the supplier and the purchaser.

The wire diameter shall be measured by the method as given in 7.1.

6 Manufacturing method The manufacturing method of woven wire cloths shall be as follows:

- a) The plain woven wire cloth shall be manufactured by crossing each wire mutually with a constant interval between a weft and a warp being kept. However, woven wire cloths having comparatively large aperture width may be manufactured by previously bending the metal wire in order to prevent a size of the aperture from going disorder.
- b) The twill woven wire cloth shall be manufactured by riding beyond each two wires to cross mutually while a constant interval between the weft and the warp is kept.
- c) No selvedge on both sides may be allowed as agreed upon between the supplier and the purchaser.