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Industrial wire screens and woven wire cloth — Guide to the choice of aperture size and wire diameter combinations — Part 1 : Generalities

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*Tamis et tissus métalliques industriels — Guide pour le choix des combinaisons d'ouverture de maille et de diamètre du fil —
Partie 1 : Généralités*

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Descriptors : apertures (optics), sizing screens, wire cloth, generalities, dimensions.

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 4783/1 was developed by Technical Committee ISO/TC 24, *Sieves, sieving and other sizing methods*, and was circulated to the member bodies in November 1979.

It has been approved by the member bodies of the following countries: 1981

Canada	Netherlands	Switzerland
France	Portugal	United Kingdom
Germany, F.R.	Romania	USA
India	South Africa, Rep. of	USSR
Ireland	Spain	Yugoslavia

No member body expressed disapproval of the document.

Industrial wire screens and woven wire cloth — Guide to the choice of aperture size and wire diameter combinations — Part 1 : Generalities

1 Scope and field of application

This part of ISO 4783 tabulates combinations of aperture sizes and wire diameters for industrial wire screens and woven wire cloth. It provides thereby a comprehensive range from which preferred groups of combinations may be chosen.

The percentage open area A_o of each aperture/wire combination is stated to assist in assessing a combination for screening purposes.

Part 2 of this International Standard gives the preferred combinations for woven wire cloth, and part 3 the preferred combinations for pre-crimped or pressure-welded wire screens.

2 References

ISO 3, *Preferred numbers — Series of preferred numbers.*

ISO 497, *Guide to the choice of series of preferred numbers and of series containing more rounded values of preferred numbers.*

ISO 2194, *Wire screens and plate screens for industrial purposes — Nominal sizes of apertures.*

ISO 4782, *Industrial wire screens and woven wire cloth — Diameters of metal wire.*

ISO 4783/2, *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.*

ISO 4783/3, *Industrial wire screens and woven wire cloth — Guide to the choice of aperture size and wire diameter combinations — Part 3 : Preferred combinations for pre-crimped or pressure-welded wire screens.*

3 Designation

Industrial wire screens and woven wire cloth shall be designated in the following sequence by

- a) width of aperture w ;
- b) diameter of wire d ;
- c) material of wire;
- d) type of weave¹⁾ or type of crimp²⁾.

4 Aperture size and wire diameter combinations

For each width of aperture, table 1 gives a number of associated diameters of wire and states the corresponding approximate percentage open area of the wire screen. Selections taken from this list may supply additional data such as mass per unit area (see clause 5) or mesh count per unit length (see clause 6). The open area may be calculated, as a percentage, from the formula

$$A_o = 100 \left(\frac{w}{w + d} \right)^2$$

where

A_o is the open area, in percent;

w is the width of the aperture, in millimetres;

d is the diameter of the wire, in millimetres.

1) See ISO 4783/2.

2) See ISO 4783/3.

Table 1 – Aperture size and wire diameter combinations

Open area A_o %	Width of aperture w , mm															A_o	
	125				100				80				63				R 10
	125		112		100		90		80		71		63		56		R 20
	125	118	112	106	100	95	90	85	80	75	71	67	63	60	56	53	R 40
Diameter of wire d , mm																	
86	10,0																86
85		10,0															85
84	11,2		10,0	10,0				8,00				6,30		5,60		5,00	84
83	12,5	11,2	11,2		10,0	9,00	9,00		8,00	7,10	7,10		6,30		5,60		83
82		12,5		11,2		10,0		9,00		8,00		7,10		6,30		5,60	82
81	14,0		12,5		11,2		10,0		9,00		8,00		7,10		6,30		81
80		14,0		12,5		11,2		10,0		9,00		8,00		7,10		6,30	80
79	16,0		14,0		12,5		11,2		10,0		9,00		8,00		7,10		79
78		16,0		14,0		12,5		11,2		10,0		9,00		8,00		7,10	78
77			16,0		14,0		12,5		11,2		10,0		9,00		8,00		77
76	18,0				14,0		12,5		11,2		10,0		9,00				76
75		18,0		16,0		14,0		12,5		11,2						8,00	75
74	20,0		18,0		16,0		14,0					10,0		9,00			74
73		20,0		18,0		16,0		12,5		11,2		10,0		9,00			73
72	22,4		20,0		18,0		16,0		14,0		12,5		11,2		10,0		72
71		22,4		20,0		18,0		16,0		14,0		12,5		11,2		10,0	71
70										14,0		12,5					70
69	25,0		22,4				18,0		16,0						11,2		69
68		25,0		22,4		20,0		18,0		16,0		14,0		12,5		11,2	68
67			25,0		22,4		20,0		18,0		16,0		14,0		12,5		67
66								20,0						14,0			66
65				25,0		22,4				18,0		16,0				12,5	65
64					25,0		22,4		20,0		18,0		16,0		14,0		64
63																14,0	63
62										20,0		18,0		16,0			62
61											20,0						61
60													18,0		16,0		60
59																16,0	59

Table 1 — Aperture size and wire diameter combinations (continued)

Open area A_o %	Width of aperture w , mm															A_o	
	50				40				31,5				25				
	50		45		40		35,5		31,5		28		25		22,4		
	50	47,5	45	42,5	40	37,5	35,5	33,5	31,5	30	28	26,5	25	23,6	22,4	21,2	
Diameter of wire d , mm																	
84				4,00				3,15		2,80		2,50				2,00	84
83	5,00	4,50			4,00	3,55	3,55		3,15		2,80		2,50	2,24	2,24		83
82		5,00		4,50		4,00		3,55		3,15		2,80		2,50		2,24	82
81	5,60		5,00		4,50		4,00		3,55		3,15		2,80		2,50		81
80		5,60		5,00		4,50		4,00		3,55		3,15		2,80		2,50	80
79	6,30		5,60		5,00		4,50		4,00		3,55		3,15		2,80		79
78		6,30		5,60		5,00		4,50		4,00		3,55		3,15		2,80	78
77	7,10		6,30		5,60		5,00		4,50		4,00		3,55		3,15		77
76		7,10		6,30		5,60		5,00		4,50				3,55		3,15	76
75			7,10		6,30		5,60						4,00			3,55	75
74	8,00								5,00		4,50		4,00				74
73		8,00		7,10		6,30		5,60		5,00		4,50		4,00		3,55	73
72	9,00		8,00		7,10		6,30		5,60		5,00		4,50		4,00		72
71		9,00		8,00		7,10		6,30		5,60		5,00		4,50		4,00	71
70																	70
69	10,0		9,00		8,00		7,10		6,30		5,60		5,00		4,50		69
68		10,0		9,00		8,00		7,10		6,30		5,60		5,00		4,50	68
67	11,2		10,0		9,00		8,00		7,10		6,30		5,60		5,00		67
66																	66
65		11,2															65
64	12,5		11,2		10,0		9,00		8,00		7,10		6,30		5,60		64
63		12,5		11,2												5,60	63
62						10,0		9,00		8,00		7,10		6,30			62
61	14,0		12,5		11,2		10,0						7,10		6,30		61
60		14,0		12,5					9,00		8,00						60
59						11,2		10,0		9,00		8,00		7,10		6,30	59
58			14,0		12,5		11,2		10,0						7,10		58
57	16,0										9,00		8,00				57
56						12,5		11,2		10,0		9,00		8,00		7,10	56
55							12,5										55
54									11,2		10,0		9,00		8,00		54
53												10,0				8,00	53
52														9,00			52
51													10,0		9,00		51

Table 1 — Aperture size and wire diameter combinations (continued)

Open area A_o %	Width of aperture w , mm															A_o		
	20				16				12,5				10					R 10
	20		18		16		14		12,5		11,2		10		9			R 20
	20	19	18	17	16	15	14	13,2	12,5	11,8	11,2	10,6	10	9,5	9		8,5	R 40
Diameter of wire d , mm																		
84				1,60		1,40						1,00				0,800	84	
83	2,00	1,80	1,80		1,60		1,40	1,25	1,25	1,12	1,12		1,00	0,900	0,900		83	
82		2,00		1,80		1,60		1,40		1,25		1,12		1,00		0,900	82	
81	2,24		2,00		1,80		1,60		1,40		1,25		1,12		1,00		81	
80		2,24		2,00		1,80		1,60		1,40		1,25		1,12		1,00	80	
79	2,50		2,24		2,00		1,80		1,60		1,40		1,25		1,12		79	
78		2,50		2,24		2,00				1,60		1,40		1,25		1,12	78	
77	2,80		2,50		2,24		2,00	1,80				1,60		1,40		1,25	77	
76		2,80		2,50		2,24			1,80					1,40		1,25	76	
75	3,15		2,80		2,50			2,00		1,80		1,60			1,40		75	
74		3,15		2,80			2,24		2,00		1,80		1,60			1,40	74	
73						2,50		2,24		2,00		1,80		1,60			73	
72	3,55		3,15		2,80		2,50		2,24		2,00		1,80		1,60		72	
71		3,55		3,15		2,80		2,50		2,24		2,00		1,80		1,60	71	
70			3,55		3,15												70	
69	4,00						2,80		2,50		2,24		2,00		1,80		69	
68		4,00		3,55		3,15		2,80		2,50		2,24		2,00		1,80	68	
67	4,50		4,00		3,55		3,15		2,80		2,50		2,24		2,00		67	
66				4,00												2,00	66	
65		4,50			3,55		3,15		2,80		2,50		2,24				65	
64	5,00		4,50		4,00		3,55		3,15		2,80		2,50				64	
63		5,00		4,50								2,80		2,50		2,24	63	
62						4,00		3,55		3,15							62	
61	5,60		5,00		4,50				3,55		3,15		2,80		2,50		61	
60		5,60		5,00			4,00							2,80		2,50	60	
59						4,50		4,00		3,55		3,15					59	
58	6,30		5,60		5,00						3,55		3,15		2,80		58	
57				5,60			4,50		4,00							2,80	57	
56		6,30				5,00		4,50		4,00		3,55		3,15			56	
55			6,30		5,60										3,15		55	
54	7,10						5,00		4,50		4,00		3,55				54	
53		7,10		6,30		5,60		5,00				4,00		3,55		3,15	53	
52										4,50							52	
51	8,00		7,10		6,30		5,60		5,00		4,50		4,00		3,55		51	
50		8,00		7,10		6,30								4,00		3,55	50	
49								5,60		5,00		4,50					49	
48			8,00		7,10		6,30		5,60		5,00		4,50		4,00		48	
47																	47	
46								6,30		5,60		5,00		4,50		4,00	46	
45																	45	
44									6,30		5,60		5,00		4,50		44	
43														5,00		4,50	43	
42																	42	
41															5,00		41	
40																5,00	40	

Table 1 — Aperture size and wire diameter combinations (continued)

Open area A_o %	Width of aperture w , mm															A_o		
	8				6,3				5				4					R 10
	8		7,1		6,3			5,6		5		4,5		4			3,55	R 20
	8	7,5	7,1	6,7	6,3	6	5,6	5,3	5	4,75	4,5	4,25	4	3,75	3,55	3,35	R 40	
Diameter of wire d , mm																		
A_o																		
83	0,800	0,710	0,710														83	
82		0,800		0,710		0,630		0,560									82	
81	0,900		0,800		0,710		0,630		0,560								81	
80		0,900		0,800		0,710		0,630		0,560		0,500		0,450			80	
79	1,00		0,900		0,800		0,710		0,630		0,560		0,500		0,450		79	
78		1,00		0,900		0,800		0,710		0,630		0,560		0,500		0,450	78	
77	1,12		1,00		0,900		0,800		0,710		0,630		0,560		0,500		77	
76		1,12		1,00		0,900			0,710		0,630		0,560		0,500		76	
75	1,25		1,12					0,800			0,710		0,630		0,560		75	
74					1,00		0,900		0,800								74	
73		1,25		1,12		1,00		0,900		0,800		0,710		0,630		0,560	73	
72	1,40		1,25		1,12		1,00		0,900		0,800		0,710		0,630		72	
71		1,40		1,25		1,12		1,00		0,900		0,800		0,710		0,630	71	
70			1,40		1,25												70	
69	1,60						1,12		1,00		0,900		0,800		0,710		69	
68		1,60		1,40		1,25		1,12		1,00		0,900		0,800		0,710	68	
67	1,80		1,60		1,40		1,25		1,12		1,00		0,900		0,800		67	
66						1,40						1,00					66	
65		1,80		1,60		1,40		1,25		1,12				0,900		0,800	65	
64	2,00		1,80		1,60		1,40		1,25		1,12		1,00		0,900		64	
63								1,40		1,25		1,12					63	
62		2,00		1,80		1,60		1,40		1,25				1,00		0,900	62	
61	2,24		2,00		1,80		1,60		1,40		1,25		1,12		1,00		61	
60					1,80		1,60		1,40		1,25						60	
59		2,24		2,00		1,80		1,60						1,12		1,00	59	
58	2,50		2,24		2,00						1,40		1,25		1,12		58	
57							1,80		1,60			1,40					57	
56		2,50		2,24		2,00		1,80		1,60				1,25		1,12	56	
55	2,80		2,50										1,40		1,25		55	
54					2,24		2,00		1,80		1,60						54	
53		2,80		2,50		2,24		2,00		1,80		1,60		1,40		1,25	53	
52																	52	
51	3,15		2,80		2,50		2,24		2,00		1,80		1,60		1,40		51	
50		3,15		2,80		2,50				2,00						1,40	50	
49								2,24				1,80		1,60			49	
48	3,55		3,15		2,90		2,50		2,24		2,00		1,80		1,60		48	
47																	47	
46		3,55		3,15		2,80		2,50		2,24		2,00		1,80		1,60	46	
45											2,24						45	
44	4,00		3,55		3,15		2,80		2,50			2,00		1,80			44	
43		4,00		3,55		3,15		2,80		2,50		2,24		2,00			43	
42																1,80	42	
41	4,50		4,00		3,55		3,15		2,80		2,50		2,24		2,00		41	
40										2,80		2,50					40	
39				4,00		3,55		3,15						2,24		2,00	39	
38	5,00								3,15		2,80		2,50		2,24		38	
37				4,00		3,55		3,15									37	
36										3,15		2,80		2,50		2,24	36	
35											3,15		2,80				35	
34															2,50		34	
33																2,50	33	

Table 1 — Aperture size and wire diameter combinations (continued)

Open area A_o %	Width of aperture w , mm																A_o
	3,15				2,5				2				1,6				
	3,15		2,8		2,5		2,24		2		1,8		1,6		1,4		
	3,15	3	2,8	2,65	2,5	2,36	2,24	2,12	2	1,9	1,8	1,7	1,6	1,5	1,4	1,32	
Diameter of wire d , mm																	
78		0,400		0,355													78
77	0,450		0,400		0,355												77
76		0,450				0,355		0,315		0,280							76
75				0,400			0,355		0,315		0,280						75
74	0,500		0,450		0,400					0,315		0,280					74
73		0,500		0,450		0,400		0,355					0,250			0,224	73
72	0,560		0,500		0,450		0,400		0,355		0,315		0,280		0,250		72
71		0,560		0,500		0,450		0,400		0,355		0,315		0,280		0,250	71
70											0,355		0,315				70
69	0,630		0,560		0,500		0,450		0,400						0,280		69
68		0,630		0,560		0,500		0,450		0,400		0,355		0,315		0,280	68
67	0,710		0,630		0,560		0,500		0,450		0,400		0,355		0,315		67
66												0,400					66
65		0,710		0,630		0,560		0,500		0,450				0,355		0,315	65
64	0,800		0,710		0,630		0,560		0,500		0,450		0,400		0,355		64
63								0,560		0,500		0,450					63
62		0,800		0,710		0,630							0,400			0,355	62
61				0,710		0,630		0,560		0,500		0,450					61
60	0,900		0,800							0,560		0,500			0,400		60
59		0,900		0,800		0,710		0,630					0,450		0,400		59
58	1,00					0,710		0,630		0,560		0,500					58
57			0,900		0,800					0,560		0,500		0,450			57
56		1,00		0,900		0,800		0,710		0,630			0,500		0,450		56
55												0,630		0,560			55
54	1,12		1,00		0,900		0,800		0,710					0,500			54
53		1,12		1,00			0,800		0,710		0,630		0,560		0,500		53
52					0,900												52
51	1,25		1,12		1,00		0,900		0,800		0,710		0,630		0,560		51
50		1,25							0,800		0,710		0,630				50
49				1,12		1,00		0,900							0,560		49
48	1,40		1,25		1,12		1,00		0,900		0,800		0,710		0,630		48
47																	47
46		1,40		1,25		1,12		1,00		0,900		0,800		0,710		0,630	46
45																	45
44	1,60		1,40		1,25		1,12		1,00		0,900		0,800		0,710		44
43		1,60		1,40		1,25		1,12		1,00		0,900		0,800			43
42																0,710	42
41					1,40		1,25		1,12		1,00		0,900				41
40	1,80		1,60					1,25		1,12		1,00			0,800		40
39		1,80		1,60		1,40							0,900		0,800		39
38							1,40		1,25		1,12		1,00				38
37	2,00		1,80		1,60									0,900			37
36		2,00			1,60		1,40		1,25		1,12		1,00				36
35				1,80				1,40		1,25		1,12			0,900		35
34	2,24				1,80		1,60						1,00				34
33		2,24		2,00					1,40		1,25		1,12				33
32					1,80		1,60			1,40		1,25		1,12		1,00	32
31	2,50		2,24		2,00		1,80		1,60						1,12		31
30												1,40		1,25			30
29					2,00		1,80		1,60							1,12	29
28						2,00		1,80		1,60		1,40		1,25			28
27											1,60		1,40				27
26															1,25		26
25												1,60		1,40			25

Table 1 – Aperture size and wire diameter combinations (continued)

Open area A_o %	Width of aperture w , mm															A_o	
	1,25				1				0,8				0,63				
	1,25		1,12		1		0,9		0,8		0,71		0,63		0,56		
Diameter of wire d , mm															A_o		
1,25	1,18	1,12	1,06	1	0,95	0,9	0,85	0,8	0,75	0,71	0,67	0,63	0,6	0,56		0,53	
72	0,224															72	
71		0,224		0,200												71	
70																70	
69	0,250		0,224		0,200											69	
68		0,250		0,224		0,200		0,180								68	
67	0,280		0,250		0,224		0,200		0,180							67	
66				0,250				0,200								66	
65		0,280				0,224				0,180		0,160				65	
64	0,315		0,280		0,250		0,224		0,200		0,180		0,160			64	
63				0,280		0,250		0,224							0,140	63	
62		0,315							0,200		0,180		0,160			62	
61	0,355		0,315		0,280		0,250		0,224		0,200					61	
60					0,280		0,250						0,180		0,160	60	
59		0,355		0,315					0,224		0,200		0,180		0,160	59	
58			0,355		0,315		0,280		0,250		0,224		0,200			58	
57	0,400							0,280						0,180		57	
56		0,400		0,355		0,315		0,280		0,250		0,224		0,200		0,180	56
55						0,315		0,280		0,250						55	
54	0,450		0,400		0,355							0,224		0,200		54	
53			0,400		0,355		0,315		0,280		0,250		0,224		0,200	53	
52		0,450														52	
51	0,500		0,450		0,400		0,355		0,315		0,280		0,250		0,224	51	
50					0,400		0,355		0,315		0,280		0,250			50	
49		0,500		0,450											0,224	49	
48	0,560		0,500		0,450		0,400		0,355		0,315		0,280		0,250	48	
47																47	
46		0,560		0,500		0,450		0,400		0,355		0,315		0,280		0,250	46
45						0,450										45	
44	0,630		0,560		0,500				0,400		0,355		0,315		0,280	44	
43		0,630		0,560		0,500		0,450		0,400		0,355		0,315		0,280	43
42																42	
41	0,710		0,630		0,560		0,500		0,450		0,400		0,355		0,315	41	
40					0,560		0,500									40	
39		0,710		0,630					0,450		0,400		0,355		0,315	39	
38				0,630		0,560		0,500								38	
37	0,800		0,710						0,450		0,400		0,355			37	
36		0,800		0,710		0,630		0,560		0,500		0,450		0,400		0,355	36
35						0,630		0,560								35	
34	0,900		0,800		0,710				0,500		0,450		0,400			34	
33			0,800		0,710		0,630		0,560		0,500		0,450			33	
32		0,900														32	
31	1,00		0,900		0,800		0,710		0,630		0,560		0,500		0,450	31	
30							0,710		0,630		0,560		0,500		0,450	30	
29		1,00		0,900		0,800									0,450	29	
28	1,12		1,00		0,900		0,800		0,710		0,630		0,560		0,500	28	
27								0,800				0,630		0,560		27	
26		1,12		1,00		0,900			0,710						0,500	26	
25	1,25		1,12		1,00		0,900		0,800		0,710		0,630		0,560	25	