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Test sieves — Technical requirements and testing —

Part 1: Test sieves of metal wire cloth

*Tamis de contrôle — Exigences techniques et vérifications —
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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The committee responsible for this document ISO/TC 24, *Particle characterization including sieving*, Subcommittee SC 8, *Test sieves, sieving and industrial screens*.

This fourth edition cancels and replaces the third edition (ISO 3310-1:1990), of which it constitutes a technical revision.

ISO 3310 consists of the following parts, under the general title *Test sieves — Technical requirements and testing*:

- *Part 1: Test sieves of metal wire cloth*
- *Part 2: Test sieves of perforated metal plate*
- *Part 3: Test sieves of electroformed sheets*

Annexes A and B of this part of ISO 3310 are for information only.

Introduction

As the accuracy of test sieving depends on the dimensional accuracy of the test sieve openings, it is considered necessary in this part of ISO 3310 to keep the maximum permissible error on the apertures in metal wire cloth as close as possible.

Requirements other than maximum permissible errors on the apertures, such as requirements for the wire diameter, have not been limited more closely than necessary, since the influence of these criteria on test sieving is of minor importance, and excessively strict requirements may make manufacturing unnecessarily difficult.

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Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth

1 Scope

This part of ISO 3310 specifies the technical requirements and corresponding test methods for test sieves of metal wire cloth.

It applies to test sieves having aperture sizes from 125 mm down to 20 μm , in accordance with ISO 565.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 565:1990, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings*

ISO 2395:1990, *Test sieves and test sieving — Vocabulary*

ISO 2591-1:1988, *Test sieving — Part 1: Methods using test sieves of woven wire cloth and perforated metal plate*

3 Terms and definitions

For the purposes of this part of ISO 3310, the terms and definitions given in ISO 2395 apply.

3.1

test sieve

measuring instrument in accordance to ISO/IEC Guide 99

4 Designation

4.1 Test sieves of metal wire cloth shall be designated by the nominal size of the apertures of the metal wire cloth.

4.2 Nominal aperture sizes of 1 mm and above shall be expressed in mm; nominal aperture sizes below 1 mm shall be expressed in μm .

5 Metal wire cloth

5.1 Requirements

Aperture maximum permissible errors and wire diameters shall be as specified in Tables 1 and 2.

Table 1 — Maximum permissible errors of apertures and wire diameters (1 of 2)

Values in mm

Nominal aperture sizes, w^a			Maximum permissible errors on aperture size			Nominal sizes of wire diameters, d		
Principal sizes	Supplementary sizes		For any aperture size	For average aperture size	Maximum standard deviation	Preferred sizes	Permissible range of choice	
R 20/3	R 20	R 40/3	+ X	$\pm Y$	σ_0	d_{nom}	d_{max}	d_{min}
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
125	125	125	4,06	3,30	1,000	8	9,2	6,8
	112		3,74	2,96		8	9,2	6,8
		106	3,59	2,80		6,3	7,2	5,4
	100		3,44	2,65		6,3	7,2	5,4
90	90	90	3,18	2,39		6,3	7,2	5,4
	80		2,91	2,13		6,3	7,2	5,4
		75	2,78	2,00		6,3	7,2	5,4
	71		2,67	1,89		5,6	6,4	4,8
63	63	63	2,44	1,69		5,6	6,4	4,8
	56		2,24	1,50		5	5,8	4,3
		53	2,15	1,42		5	5,8	4,3
	50		2,06	1,34		5	5,8	4,3
45	45	45	1,91	1,21	1,000	4,5	5,2	3,8
	40		1,75	1,08	1,000	4,5	5,2	3,8
		37,5	1,67	1,01	1,000	4,5	5,2	3,8
	35,5		1,60	0,96	1,000	4	4,6	3,4
31,5	31,5	31,5	1,47	0,85	0,905	4	4,6	3,4
	28		1,35	0,76	0,801	3,55	4,1	3
		26,5	1,29	0,72	0,757	3,55	4,1	3
	25		1,24	0,68	0,713	3,55	4,1	3
22,4	22,4	22,4	1,14	0,61	0,641	3,55	4,1	3
	20		1,05	0,55	0,575	3,15	3,6	2,7
		19	1,01	0,52	0,548	3,15	3,6	2,7
	18		0,97	0,49	0,520	3,15	3,6	2,7
16	16	16	0,89	0,44	0,467	3,15	3,6	2,7
	14		0,81	0,39	0,413	2,8	3,2	2,4
		13,2	0,78	0,37	0,392	2,8	3,2	2,4
	12,5		0,75	0,35	0,374	2,5	2,9	2,1
11,2	11,2	11,2	0,69	0,31	0,339	2,5	2,9	2,1
	10		0,64	0,28	0,307	2,5	2,9	2,1
		9,5	0,61	0,27	0,294	2,24	2,6	1,9
	9		0,59	0,25	0,281	2,24	2,6	1,9

Table 1 (2 of 2)

Values in mm

Nominal aperture sizes, w^a			Maximum permissible errors on aperture size			Nominal sizes of wire diameters, d		
Principal sizes	Supplementary sizes		For any aperture size	For average aperture size	Maximum standard deviation	Preferred sizes	Permissible range of choice	
R 20/3	R 20	R 40/3	+ X	$\pm Y$	σ_0	d_{nom}	d_{max}	d_{min}
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	8	8	0,54	0,22	0,254	2	2,3	1,7
	7,1		0,50	0,20	0,229	1,8	2,1	1,5
		6,7	0,48	0,19	0,218	1,8	2,1	1,5
	6,3		0,46	0,18	0,207	1,8	2,1	1,5
5,6	5,6	5,6	0,42	0,16	0,188	1,6	1,9	1,3
	5		0,39	0,14	0,171	1,6	1,9	1,3
		4,75	0,37	0,14	0,164	1,6	1,9	1,3
	4,5		0,36	0,13	0,157	1,4	1,7	1,2
4	4	4	0,33	0,11	0,143	1,4	1,7	1,2
	3,55		0,30	0,10	0,130	1,25	1,5	1,06
		3,35	0,29	0,10	0,124	1,25	1,5	1,06
	3,15		0,28	0,09	0,118	1,25	1,5	1,06
2,8	2,8	2,8	0,26	0,08	0,108	1,12	1,3	0,95
	2,5		0,24	0,07	0,098	1	1,15	0,85
		2,36	0,23	0,07	0,094	1	1,15	0,85
	2,24		0,22	0,07	0,090	0,9	1,04	0,77
2	2	2	0,20	0,06	0,083	0,9	1,04	0,77
	1,8		0,19	0,05	0,076	0,8	0,92	0,68
		1,7	0,18	0,05	0,073	0,8	0,92	0,68
	1,6		0,17	0,05	0,070	0,8	0,92	0,68
1,4	1,4	1,4	0,16	0,04	0,063	0,71	0,82	0,6
	1,25		0,15	0,04	0,058	0,63	0,72	0,54
		1,18	0,14	0,04	0,056	0,63	0,72	0,54
	1,12		0,14	0,03	0,053	0,56	0,64	0,48
1	1	1	0,13	0,03	0,049	0,56	0,64	0,48

NOTE All aperture sizes apply for plain weave.

^a In accordance with ISO 565:1990, Table 1.

^b On account of the small number of apertures to be measured, the calculation of the parameter a has no physical reality.

Table 2 — Maximum permissible errors of apertures and wire diameters (1 of 2)

Values in μm

Nominal aperture sizes, w^a			Maximum permissible errors on aperture size			Nominal sizes of wire diameters, d		
Principal sizes	Supplementary sizes		For any aperture size	For average aperture size	Maximum standard deviation	Preferred sizes	Permissible range of choice	
R 20/3	R 20	R 40/3	$+X$	$\pm Y$	σ_0	d_{nom}	d_{max}	d_{min}
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	900		118	28	45,5	500	580	430
		850	114	26	43,6	500	580	430
	800		109	25	41,8	450	520	380
710	710	710	101	22	38,4	450	520	380
	630		93	20	35,2	400	460	340
		600	91	19	34,0	400	460	340
	560		87	18	32,4	355	410	300
500	500	500	80	16	30,0	315	360	270
	450		75	15	27,9	280	320	240
		425	73	14	26,8	280	320	240
	400		70	13	25,7	250	290	210
355	355	355	65	12	23,7	224	260	190
	315		60	11	21,9	200	230	170
		300	58	10	21,2	200	230	170
	280		56	10	20,3	180	210	150
250	250	250	52	8,9	18,8	160	190	130
	224		49	8,1	17,5	160	190	130
		212	47	7,8	16,9	140	170	120
	200		45	7,4	16,3	140	170	120
180	180	180	43	6,8	15,3	125	150	106
	160		40	6,3	14,2	112	130	95
		150	38	6,0	13,7	100	115	85
	140		37	5,7	13,1	100	115	85
125	125	125	34	5,2	12,2	90	104	77
	112		32	4,8	11,5	80	92	68
		106	31	4,7	11,1	71	82	60
	100		30	4,5	10,8	71	82	60
90	90	90	29	4,2	10,1	63	72	54
	80		27	3,9	9,4	56	64	48
		75	26	3,7	9,1	50	58	43
	71		25	3,6	8,9	50	58	43