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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 —*

*Partie 1: Tamis de contrôle en tissus métalliques*

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ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
[copyright@iso.org](mailto:copyright@iso.org)  
[www.iso.org](http://www.iso.org)

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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](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

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

This fifth edition cancels and replaces the fourth edition (ISO 3310-1:2000), which has been technically revised. It also incorporates the Technical Corrigendum ISO 3310-1:2000/Cor 1:2004.

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*

## 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  $\mu\text{m}$ , in accordance with ISO 565.

### 2 Normative references

The following referenced documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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, *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*

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### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 2395 and the following apply.

#### 3.1

##### test sieve

<particle size analysis> measuring instrument used for sieving

Note 1 to entry: ISO/IEC Guide 99:2007 defines a “measuring instrument” as a device used for making measurements, alone or in conjunction with one or more supplementary devices.

### 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  $\mu\text{m}$ .

### 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

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	±Y	$\sigma_0$	$d_{nom}$	$d_{max}$	$d_{min}$	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
125	125	125	4,056	3,296	b	8	9,2	6,8	
	112		3,739	2,960		8	9,2	6,8	
		106	3,590	2,805		6,3	7,2	5,4	
	100		3,438	2,649		6,3	7,2	5,4	
90	90	90	3,180	2,389		6,3	7,2	5,4	
	80		2,915	2,129		6,3	7,2	5,4	
		75	2,779	1,999		6,3	7,2	5,4	
	71		2,668	1,894		5,6	6,4	4,8	
63	63	63	2,443	1,685		5,6	6,4	4,8	
	56		2,240	1,501		5	5,8	4,3	
		53	2,150	1,423		5	5,8	4,3	
	50		2,060	1,344		5	5,8	4,3	
45	45	45	1,906	1,212		1,000	4,5	5,2	3,8
	40		1,748	1,080		1,000	4,5	5,2	3,8
		37,5	1,667	1,014		1,000	4,5	5,2	3,8
	35,5		1,601	0,961		1,000	4	4,6	3,4
31,5	31,5	31,5	1,467	0,855	0,907	4	4,6	3,4	
	28		1,345	0,762	0,801	3,55	4,1	3	
		26,5	1,292	0,722	0,757	3,55	4,1	3	
	25		1,238	0,682	0,714	3,55	4,1	3	
22,4	22,4	22,4	1,143	0,613	0,641	3,55	4,1	3	
	20		1,052	0,548	0,575	3,15	3,6	2,7	
		19	1,013	0,522	0,547	3,15	3,6	2,7	
	18		0,974	0,495	0,520	3,15	3,6	2,7	
16	16	16	0,894	0,441	0,467	3,15	3,6	2,7	
	14		0,811	0,387	0,413	2,8	3,2	2,4	
		13,2	0,777	0,365	0,392	2,8	3,2	2,4	
	12,5		0,747	0,346	0,374	2,5	2,9	2,1	
11,2	11,2	11,2	0,690	0,311	0,339	2,5	2,9	2,1	
	10		0,636	0,279	0,307	2,5	2,9	2,1	
		9,5	0,613	0,265	0,294	2,24	2,6	1,9	
	9		0,589	0,251	0,281	2,24	2,6	1,9	

NOTE All aperture sizes apply for plain weave.

<sup>a</sup> In accordance with ISO 565:1990, Table 1.

<sup>b</sup> On account of the small number of apertures to be measured, the calculation of the parameter  $\sigma_0$  has no physical reality.



Table 1 (continued)

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	
							$d_{\text{nom}}$	$d_{\text{max}}$
R 20/3	R 20	R 40/3	+X	$\pm Y$	$\sigma_0$	(7)	(8)	(9)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8	8	8	0,542	0,224	0,254	2	2,3	1,7
	7,1		0,497	0,200	0,229	1,8	2,1	1,5
		6,7	0,477	0,189	0,218	1,8	2,1	1,5
	6,3		0,456	0,178	0,207	1,8	2,1	1,5
5,6	5,6	5,6	0,420	0,159	0,188	1,6	1,9	1,3
	5		0,387	0,142	0,171	1,6	1,9	1,3
		4,75	0,373	0,135	0,164	1,6	1,9	1,3
	4,5		0,359	0,128	0,157	1,4	1,7	1,2
4	4	4	0,330	0,114	0,143	1,4	1,7	1,2
	3,55		0,304	0,102	0,130	1,25	1,5	1,06
		3,35	0,292	0,096	0,124	1,25	1,5	1,06
	3,15		0,279	0,091	0,118	1,25	1,5	1,06
2,8	2,8	2,8	0,257	0,081	0,108	1,12	1,3	0,95
	2,5		0,238	0,073	0,098	1	1,15	0,85
		2,36	0,228	0,069	0,094	1	1,15	0,85
	2,24		0,220	0,065	0,090	0,9	1,04	0,77
2	2	2	0,204	0,059	0,083	0,9	1,04	0,77
	1,8		0,189	0,053	0,076	0,8	0,92	0,68
		1,7	0,182	0,050	0,073	0,8	0,92	0,68
	1,6		0,175	0,047	0,070	0,8	0,92	0,68
1,4	1,4	1,4	0,159	0,042	0,063	0,71	0,82	0,6
	1,25		0,148	0,038	0,058	0,63	0,72	0,54
		1,18	0,142	0,036	0,056	0,63	0,72	0,54
	1,12		0,137	0,034	0,053	0,56	0,64	0,48
1	1	1	0,127	0,030	0,049	0,56	0,64	0,48

NOTE All aperture sizes apply for plain weave.

<sup>a</sup> In accordance with ISO 565:1990, Table 1.

<sup>b</sup> On account of the small number of apertures to be measured, the calculation of the parameter  $\sigma_0$  has no physical reality.

Table 2 — Maximum permissible errors of apertures and wire diameters

Values in  $\mu\text{m}$

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	$\pm Y$	$\sigma_0$	$d_{\text{nom}}$	$d_{\text{max}}$	$d_{\text{min}}$
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	900		118,3	27,6	45,5	500	580	430
		850	113,9	26,2	43,6	500	580	430
	800		109,4	24,8	41,8	450	520	380
710	710	710	101,1	22,2	38,4	450	520	380
	630		93,5	19,9	35,2	400	460	340
		600	90,6	19,0	34,0	400	460	340
	560		86,6	17,9	32,4	355	410	300
500	500	500	80,5	16,2	30,0	315	360	270
	450		75,2	14,7	27,9	280	320	240
		425	72,5	14,0	26,8	280	320	240
	400		69,8	13,3	25,7	250	290	210
355	355	355	64,7	12,0	23,7	224	260	190
	315		60,0	10,8	21,9	200	230	170
		300	58,2	10,4	21,2	200	230	170
	280		55,8	9,8	20,3	180	210	150
250	250	250	52,0	8,9	18,8	160	190	130
	224		48,7	8,1	17,5	160	190	130
		212	47,1	7,8	16,9	140	170	120
	200		45,4	7,4	16,3	140	170	120
180	180	180	42,7	6,8	15,3	125	150	106
	160		39,8	6,3	14,2	112	130	95
		150	38,3	6,0	13,7	100	115	85
	140		36,8	5,7	13,1	100	115	85
125	125	125	34,5	5,2	12,2	90	104	77
	112		32,4	4,8	11,5	80	92	68
		106	31,4	4,7	11,1	71	82	60
	100		30,4	4,5	10,8	71	82	60
90	90	90	28,6	4,2	10,1	63	72	54
	80		26,8	3,9	9,5	56	64	48
		75	25,9	3,7	9,1	50	58	43
	71		25,1	3,6	8,9	50	58	43

NOTE All aperture sizes apply for plain weave. Apertures sizes of 45  $\mu\text{m}$  and smaller apply also for twilled weave. It should be noted, however, that plain and twilled weave sieves can have different sieving characteristics.

<sup>a</sup> In accordance with ISO 565:1990, Table 2.

Table 2 (continued)

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	$\pm Y$	$\sigma_0$	$d_{\text{nom}}$	$d_{\text{max}}$	$d_{\text{min}}$
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
63	63	63	23,6	3,4	8,3	45	52	38
	56		22,1	3,2	7,8	40	46	34
		53	21,5	3,1	7,6	36	41	31
	50		20,9	3,0	7,3	36	41	31
45	45	45	19,7	2,8	6,9	32	37	27
	40		18,6	2,7	6,5	32	37	27
		38	18,1	2,6	6,4	30	35	24
R'10	36		17,6	2,6	6,2	30	35	24
32			16,6	2,4	5,9	28	33	23
25			14,8	2,2	5,2	25	29	21
20			13,3	2,1	4,7	20	23	17

NOTE All aperture sizes apply for plain weave. Apertures sizes of 45  $\mu\text{m}$  and smaller apply also for twilled weave. It should be noted, however, that plain and twilled weave sieves can have different sieving characteristics.

<sup>a</sup> In accordance with ISO 565:1990, Table 2.

### 5.1.1 Maximum permissible errors on aperture size and standard deviations

5.1.1.1 The maximum permissible error of aperture size  $X$ ,  $Y$  and  $\sigma_0$ , as given in Tables 1 and 2, Columns 4, 5 and 6, apply to the aperture sizes as measured on the centrelines of the aperture (see Figure 1) separately in warp and weft directions.

5.1.1.2 No aperture size shall exceed the nominal size,  $w$ , by more than  $X$ .

$$X = \left( \frac{2w^{0,75}}{3} + 4w^{0,25} \right) \times 0,9 \quad (1)$$

where  $X$  and  $w$  are expressed in  $\mu\text{m}$ .

5.1.1.3 The average aperture size,  $\bar{w}$ , shall not depart from the nominal size  $w$  by more than  $\pm Y$ .

$$Y = \left( \frac{w^{0,98}}{27} + 1,6 \right) \times 0,9 \quad (2)$$

where  $Y$  and  $w$  are expressed in  $\mu\text{m}$ .