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**AMENDMENT 1**  
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**Hand-held portable power tools —  
Test methods for evaluation of  
vibration emission —**

Part 1:  
**Angle and vertical grinders**

**AMENDMENT 1: Cupped wire brushes**

*Machines à moteur portatives — Méthodes d'essai pour l'évaluation  
de l'émission de vibrations —*

*Partie 1: Meuleuses verticales et meuleuses d'angles*

*AMENDMENT 1: Brosses métalliques creuses*



Reference number  
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Amendment 1 to ISO 28927-1:2009 was prepared by ISO/TC 118, *Compressors and pneumatic tools, machines and equipment*, Subcommittee SC 3, *Pneumatic tools and machines*.

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# Hand-held portable power tools — Test methods for evaluation of vibration emission —

## Part 1: Angle and vertical grinders

### AMENDMENT 1: Cupped wire brushes

*Page vi, Introduction*

Add the following sentence at the end of paragraph 7:

For grinders that are intended to be used with cupped wire brushes, the vibration value is obtained by using a correction factor of 1,6.

*Page 1, Scope*

Change the final sentence in paragraph 2 to: "It is not applicable to die grinders or straight grinders."

*Page 1, Scope*

Add "and with wire brushes" in the second paragraph between *super-abrasive products* and *for use on all kinds of materials*.

*Page 3, Clause 5*

Add the following NOTE after the last list entry in paragraph 4:

NOTE For wheels with a diameter less than 80 mm, see ISO 603-14.

*Page 5, Clause 5*

Add the following NOTE after Figure 6:

NOTE This document only covers wheel dimensions included in ISO 603-14. For other wheel dimensions, use ISO 20643.

*Page 15, 9.2*

Add the following in the end of the last paragraph:

(see ISO/TR 27609).

Page 15, 9.2

Add a new subclause, after 9.2:

**9.3 Correction factor**

For grinders that are intended to be used with cupped wire brushes, the corresponding declared value  $a_{hd.brush}$  shall be given, where  $a_{hd.brush}$  is obtained by multiplying  $a_{hd}$  by a factor of 1,6.

Page 20, C.1

Change the following in the last paragraph:

Test of wheels shall be manufactured in accordance with Figures C.1 to C.5.

Page 23, Annex C

Add a new subclause, C.3.2:

**C.3.2 Type 27 depressed centre test wheels, alternative design**

This alternative design is made for an easier calibration of the unbalance. By mounting a calibrating screw, and adjusting the unbalance wheel to balance, the unbalance will be more accurate and easy to make.

The unbalance is generated by machining one threaded hole in the aluminium wheel, in addition to the unbalance hole. During the adjustment, remove material from the unbalance wheel until the test wheel, with the calibration screw mounted, is in balance.

For the alternative type 27 depressed centre test wheels, the unbalances, the diameter of the drilled holes and the radius for the centre of the holes shall be in accordance with Table C.4 and Figure C.4. The holes shall be drilled through.

The calibrating screw has the same unbalance as the unbalance hole and the screw hole together. See Table C.5 for screw dimensions and weights.

The calibrating screws should be removed before the unbalance wheel is mounted on the grinder.

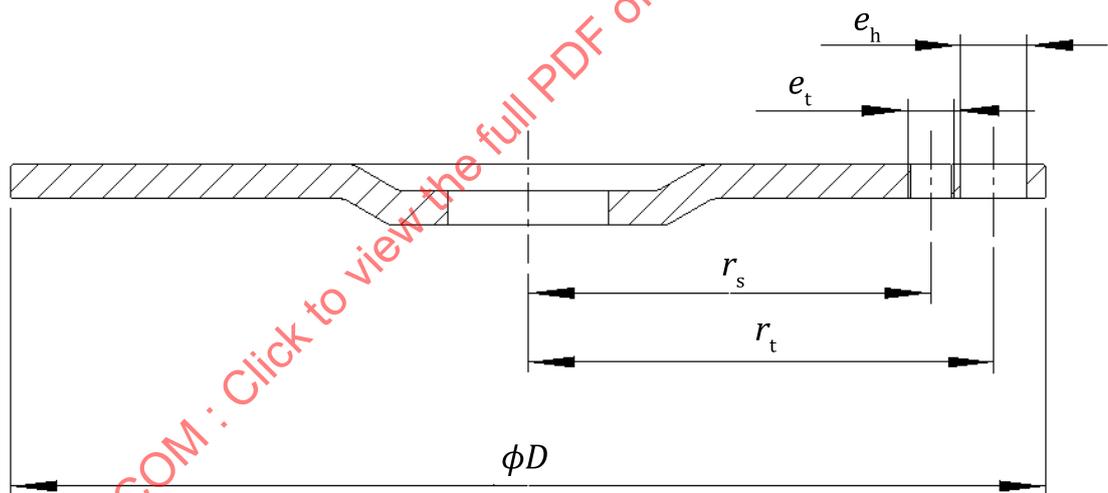
**Table C.4 — Unbalance hole dimensions for type 27 test wheels, alternative design**

Designation of test wheel	Wheel diameter <i>D</i> mm	Unbalance g·mm ±5 %	Hole diameter <i>e</i> mm	Radius to centre of hole <i>rh</i> mm ±0,05 mm	Thread	Radius to centre of threaded hole <i>rt</i> mm ±0,05 mm
27:80	80	37	8,3	26,5	M6	36
27:100	100	58	8,3	33	M8	45
27:115	115	76	8,9	50	M8	37,5
27:125	125	90	9,6	53	M8	37,5
27:150	150	130	10,6	66	M8	48,5
27:180	180	190	11,5	81	M8	70
27:230	230	305	15,4	84	M8	61
27:300	300	520	16,5	125,2	M8	104

The calibration screws are the screw types given in Table C.5. They are nominally too heavy and need to be adjusted to get the screw weight within the given tolerances.

**Table C.5 — Calibration screw dimensions for type 27 test wheels, alternative design**

Designation of test wheel	Screw type	In accordance with	Screw mass g ±0,01 g
27:80	M6 × 10	ISO 4026	1,0
27:100	M8 × 8	ISO 4026	1,3
27:115	M8 × 10	ISO 4026	2,0
27:125	M8 × 12	ISO 4026	2,4
27:150	M8 × 12	ISO 4026	2,7
27:180	M8 × 12	ISO 4026	2,7
27:230	M8 × 20	ISO 4026	5,0
27:300	M8 × 20	ISO 4026	5,0



**Key**

- $D$  wheel diameter
- $e_h$  unbalance hole diameter
- $e_t$  threaded hole diameter
- $r_s$  radius to centre of unbalance hole
- $r_t$  radius to centre of threaded hole

**Figure C.4 — Unbalance hole dimensions for type 27 test wheels, alternative design**

Page 23, C.3.2

Change and renumber subclause to

C.3.3

*Page 23, C.3.2, first paragraph*

Change the last references to

Table C.6 and Figure C.5

*Page 24, Table C.4*

Change the table number to

Table C.6

*Page 24, Figure C.4*

Change the figure number to

Figure C.5

*Page 24, Figure C.4, last key*

$r_1$  radius to centre of front hole shall be changed to

$r_2$  radius to centre of rear hole

*Page 25, C.4*

Change title to

**C.4 Bushing for type 27 test wheels**

*Page 25, C.4, first paragraph*

Change the references to the table and figure to

Table C.7

See Figure C.6

*Page 25, Table C.5*

Change table number to

Table C.7

*Page 26, Bibliography*

Add the following:

[8] Hand-Arm Vibration Technical Report, <http://www.burrtec.co.jp/havs/content.html>