UDC 621.922

Ref. No.: ISO/R 603 - 1967 (E)

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 603

BONDED ABRASIVE PRODUCTS GRINDING-WHEEL DIMENSIONS

(PART 1)

1st EDITION
August 1967

For each individual country the only valid standard is the national standard of that country.

Printed in Switzerland

Also issued in French and Russian. Copies to be obtained through the national standards organizations.

BRIEF HISTORY

The ISO Recommendation R 603, *Bonded Abrasive Products — Grinding-Wheel Dimensions (Part 1)*, was drawn up by Technical Committee ISO/TC 29, *Small Tools*, the Secretariat of which is held by the Association Française de Normalisation (AFNOR).

Work on this question by the Technical Committee began in 1950 and led, in 1963, to the adoption of a Draft ISO Recommendation.

In September 1964, this Draft ISO Recommendation (No. 736) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies:

Argentina	Hungary	Poland
Australia	India	Spain
Austria	Iran	Sweden
Belgium	Israel	Switzerland
Canada	Italy	Turkey
Chile	Japan	U.A.R.
Czechoslovakia	Korea, Rep. of	United Kingdom
France	Netherlands	U.S.A.
Germany	New Zealand	Yugoslavia

One Member Body opposed the approval of the Draft:

U.S.S.R.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in August 1967, to accept it as an ISO RECOMMENDATION.

ISO Recommendation R 603 August 1967

BONDED ABRASIVE PRODUCTS GRINDING-WHEEL DIMENSIONS

(Part 1)

CONTENTS

FOREWORD

Except where otherwise indicated, the dimensions shown for these grinding wheels are in accordance with those in ISO Recommendation R 525–1966, *Bonded Abrasive Products—General Features (Designation—Ranges of Dimensions—Profiles)*.

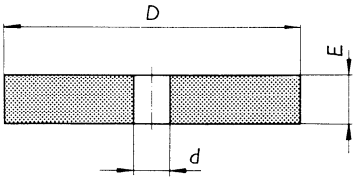
The letter symbols used for dimensions in this ISO Recommendation conform to those shown in ISO Recommendation R 525. Readers are reminded that they may be replaced in national standards by symbols conforming to the current practice of the country concerned until international agreement on a uniform system of symbols is reached.

The illustrations accompanying the tables are purely diagrammatic; for cup grinding-wheels and plain recessed wheels in particular, the internal angles should be replaced by radii which obviate any tendency for cracks to form, but which nevertheless permit correct assembly of the components on the spindle.

The dimensions in this ISO Recommendation are expressed in both millimetres and inches. As the holes are identical, wheels from the metric series and those from the inch series can be mounted on the same machines; since the overall dimensions may be slightly different in the two systems, however, wheels of either series can be considered only as equivalent to each other.

1. PLAIN GRINDING WHEELS FOR FETTLING AND GENERAL SHARPENING

(Type 1)



1.1 Low-speed fettling, minor and general sharpening (for hand use)

Dimensions in millimetres			Dimensions in inches		
D	*E*	*d*	*D*	*E*	*d*
80	6 10	13	3	1/4 3/8	0.5118
100	13 20	16	4	1/2 3/4	0.6299
125	20 25	20	5	3/4 1	0.7874
150	20 25		6	3/4 1	
200	20 25		8	3/4 1	
250	20 25 32	32	10	3/4 1 1 1/4	1.26
300	25 32 40		12	1 1 1/4 1 1/2	
350	32 40 50		14	1 1/4 1 1/2 2	
400	40 50 63	40	16	1 1/2 2 2 1/2	1.5748
500	50 63 80	50.8	20	2 2 1/2 3	2
600	63 80	76.2	24	2 1/2 3	3
750	80		30	3	

1.2 High-speed fettling

1.2.1 *on portable grinding-machines*

Dimensions in millimetres			Dimensions in inches		
D	*E*	*d*	*D*	*E*	*d*
80	6 10	10	3	1/4 3/8	0.3937
100	20 25	13	4	3/4 1	0.5118
125	20 25	16	5	3/4 1	0.6299
150	20 25		6	3/4 1	
200	25		8	1	

1.2.2 *on fixed or swing-frame grinding-machines*

Dimensions in millimetres			Dimensions in inches		
D	*E*	*d*	*D*	*E*	*d*
350	50	127.0	14	2	5
400	50 63	152.4	16	2 2 1/2	6
500	50 63 80		20	2 2 1/2 3	
600	63 80	304.8	24	2 1/2 3	12
750	80 100		30	3 4	
900	80 100		36	3 4	

NOTE. – The following values from the transitional series of holes are permissible by special agreement in place of the nearest value of *d* in the Tables above:

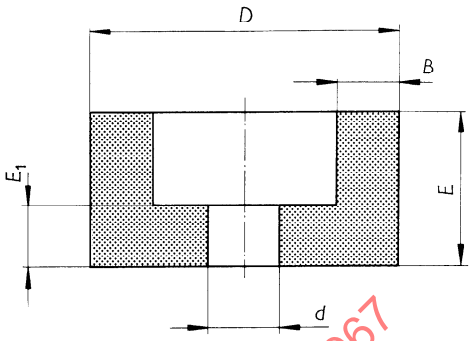
in millimetres	12.7	15.88	19.05	31.75	38.1
in inches	1/2	5/8	3/4	1 1/4	1 1/2

2. HIGH-SPEED CUP GRINDING-WHEELS FOR PORTABLE MACHINES
(Types 6 and 11)

2.1 Straight cup grinding-wheels (Type 6)

Dimensions in millimetres				
D	*E*	*d**	*B*	E_1
100	50	22.23	20	20
125			25	
150			40	

Dimensions in inches				
D	*E*	*d**	*B*	E_1
4	2	7/8	3/4	3/4
5			1	
6			1 1/2	



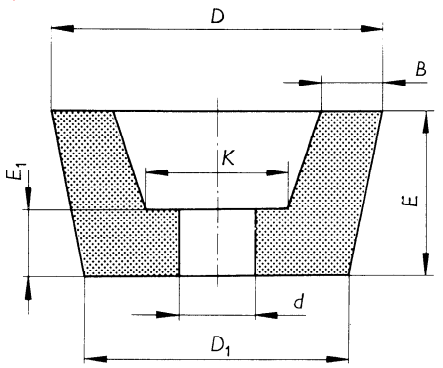
Grinding-wheels with nuts. – For grinding-wheels which have a nut instead of a hole, for preference always adopt the UNIFIED thread 5/8 – 11 UNC for this nut.

*Exceptions to the recommended series of holes in ISO Recommendation R 525-1966.

2.2 Taper cup grinding-wheels (Type 11)

Dimensions in millimetres						
D	D_1	*E*	*d**	*B*	E_1	*K min.*
100	80	50	22.23	20	20	45
125	100			25		54
150	120			40		

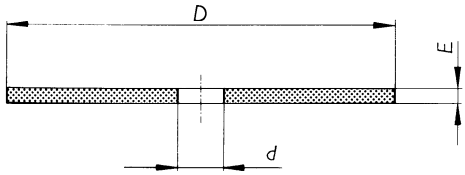
Dimensions in inches						
D	D_1	*E*	*d**	*B*	E_1	*K min.*
4	3	2	7/8	3/4	3/4	1 13/16
5	3 3/4			1		2 1/8
6	4 3/4			1 1/2		



*Exceptions to the recommended series of holes in ISO Recommendation R 525-1966.

3. GRINDING-WHEELS FOR CUTTING AND SLITTING, WITHOUT REINFORCEMENT (Type 1)

Dimensions in millimetres			Dimensions in inches		
D	*E*	*d*	*D*	*E*	*d*
100	1	20	4	3/64	0.7874
150	1.6		6	1/16	
200	2		8	5/64	
250	2.5	25	10	3/32	0.9843
300			12		
400	3.2		16	1/8	
500	4		20	5/32	
600			24		

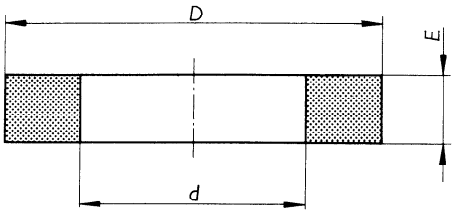


NOTE. – The following values from the transitional series of holes are permissible by special agreement in place of the nearest value of *d* in the adjoining Table:

in millimetres	19.05	25.4
in inches	3/4	1

4. PLAIN GRINDING-WHEELS FOR EXTERNAL CYLINDRICAL GRINDING
(Types 1, 5 and 7)

4.1 Plain grinding-wheels without recess (Type 1)



Dimensions in millimetres

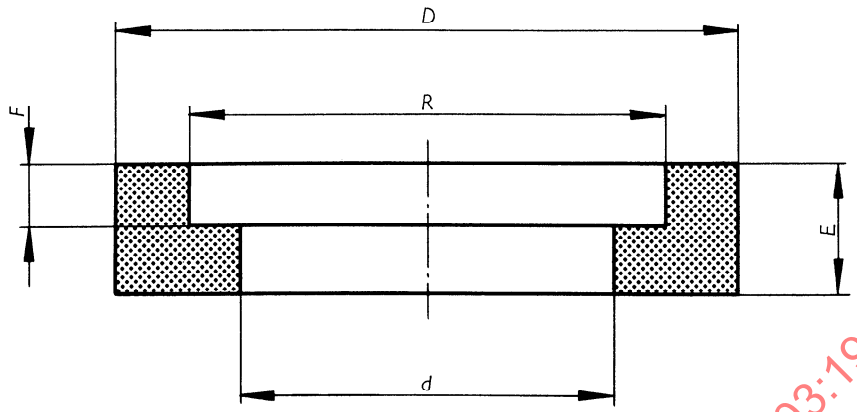
D	*E*								*d*
250	20	25							
300	20	25	32	40	50				
350		25	32	40	50				127
400			32	40	50	63			
450*			32	40	50	63	80		
500*				40	50	63	80		
600					50	63	80	100	
750						63	80	100	125	304.8
900						63	80	100	125	
1060						63	80	100	125	
1250						63	80	100	125	508

Dimensions in inches

D	*E*								*d*
10	¾	1							
12	¾	1	1¼	1½	2				5
14		1	1¼	1½	2				
16			1¼	1½	2	2½			
18*			1¼	1½	2	2½	3		
20*				1½	2	2½	3		
24					2	2½	3	4	
30						2½	3	4	5	12
36						2½	3	4	5	
42						2½	3	4	5	
48						2½	3	4	5	20

* For grinding-wheels with diameters D = 450 and 500 mm (18 and 20 in), the hole diameter d = 203.2 mm (8 in) is permissible for the time being, as a possible substitute for the values shown in the Table.

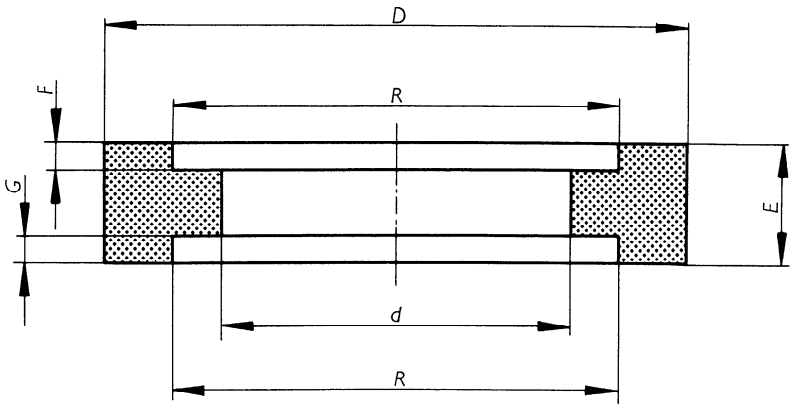
4.2 Plain grinding-wheels with one recess (Type 5)



Dimensions in millimetres					Dimensions in inches				
D	*E*	*d*	*R*	*F*	*D*	*E*	*d*	*R*	*F*
300	40	127	190	13	12	1½	5	7½	½
350	40	127	215	13	14	1½	5	8½	½
	50					2			
450*	40	127	215	13	18*	1½	5	8½	½
	50					2			
	63					2½			
	80			25		3			1
500*	40	127	215	13	20*	1½	5	8½	½
	50					2			
	63					2½			
	80			25		3			1
600	63	304.8	390	13	24	2½	12	15½	½
	80			25		3			1
	100			50		4			2
750	63	304.8	390	13	30	2½	12	15½	½
	80			25		3			1
	100			50		4			2
900	63	304.8	390	13	36	2½	12	15½	½
	80			25		3			1
	100			50		4			2

* For grinding-wheels with diameters $D = 450$ and 500 mm (18 and 20 in), the values of $d = 203.2$ mm (8 in) and $R = 270$ mm ($10^{5}/_{8}$ in) are permissible for the time being, as possible substitutes for the values shown in the Table.

4.3 **Plain grinding-wheels with two recesses** (Type 7)



Dimensions in millimetres						Dimensions in inches					
D	*E*	*d*	*R*	*F*	*G*	*D*	*E*	*d*	*R*	*F*	*G*
300	40	127	190	6	6	12	1½	5	7½	¼	¼
	50		215	13	13		2		8½	½	½
350	40			6	6	14	1½			¼	¼
	50						2				
450*	40			6	6	18*	1½			¼	¼
	50						2				
	63						2½				
	80			13	13		3			½	½
500*	40	304.8	390	6	6	20*	1½	12	15½	¼	¼
	50						2				
	63			13	13		2½			½	½
	80						3				
600	50			6	6	24	2			¼	¼
	63			13	13		2½			½	½
	80						3				
	100				40		4				1½
750	80			13	13	30	3			½	½
	100				40		4				1½
900	80			13	13	36	3			½	½

* For grinding-wheels with diameters D = 450 and 500 mm (18 and 20 in), the values of d = 203.2 mm (8 in) and R = 270 mm (10⅝ in) are permissible for the time being, as possible substitutes for the values shown in the Table.

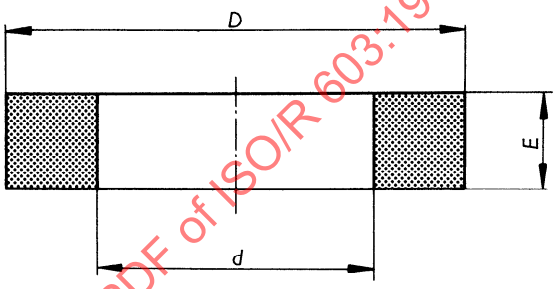
5. SURFACE GRINDING-WHEELS
(Types 1 and 2)

5.1 Plain grinding-wheels (Type 1)

Dimensions in millimetres									
D	*E*								*d*
150	13								
180*	13								32
200	13	20							
250		20	25	32					76.2
300		20	25	32	50	80			127
400				32	50	80	100		
500					50	80	100	160	
600					50	80	100	160	304.8
750					50	80	100	160	

Dimensions in inches									
D	*E*								*d*
6	½								
7*	½								1.26
8	½	¾							
10		¾	1	1¼					3
12		¾	1	1¼	2	3			5
16				1¼	2	3	4		
20					2	3	4	6	
24					2	3	4	6	12
30					2	3	4	6	

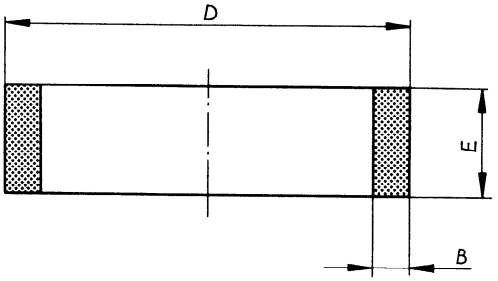
* Intermediate diameter to be avoided wherever possible.



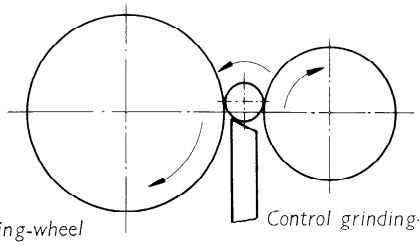
NOTE. – A 31.75 mm (1¼ in) hole from the transitional series of holes is permissible by special agreement in place of the value d = 32 mm (1.26 in) in the adjoining Table.

5.2 Cylinder grinding-wheels (Type 2)

Dimensions in millimetres			Dimensions in inches		
D	*E*	*B*	*D*	*E*	*B*
200	100	20	8	4	¾
250		25	10		1
300		32	12		1¼
350	125	40	14	5	1½
400			16		
450			18		

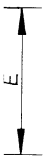


6. CENTRELESS GRINDING-WHEELS
(Types 1, 5 and 7)



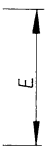
6.1 Centreless grinding-wheels

Dimensions in millimetres												
D	*E*										*d*	*R*
300	25	40	63	100	125						127	160
400	25	40	63	100	125	160	200	250			203.2	270
500		40	63	100	125	160	200	250				
600				100	125	160	200	250	315	400	304.8	370
750				100	125	160	200	250	315	400		
Dimensions in inches												
D	*E*										*d*	*R*
12	1	1½	2½	4	5						5	6¼
16	1	1½	2½	4	5	6	8	10			8	10⅝
20		1½	2½	4	5	6	8	10				
24				4	5	6	8	10	12	16	12	14½
30				4	5	6	8	10	12	16		



6.2 Centreless control grinding-wheels

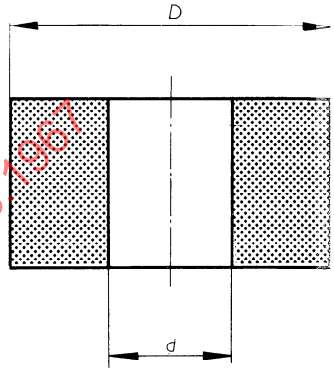
Dimensions in millimetres												
D	*E*										*d*	*R*
200	25	40	63	100	125						76.2	114
250	25	40	63	100	125	160	200	250				160
300		40	63	100	125	160	200	250			127	190
350				100	125	160	200	250	315	400		203
Dimensions in inches												
D	*E*										*d*	*R*
8	1	1½	2½	4	5						3	4½
10	1	1½	2½	4	5	6	8	10				6¼
12		1½	2½	4	5	6	8	10			5	7½
14				4	5	6	8	10	12	16		8



NOTE. – Choose values for *F* and *G* from the range of thicknesses in clause 4.2 of ISO Recommendation R 525, *Bonded Abrasive Products – General Features (Designation – Ranges of Dimensions – Profiles)*. The thickness of the web should never be less than approximately half the thickness *E* of the wheel.

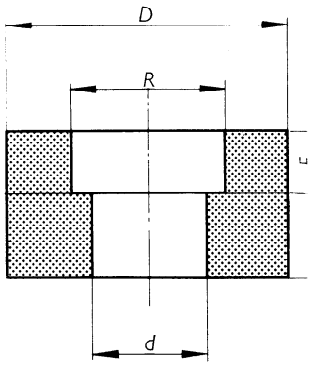
Type 1

Plain



Type 5

With one recess



Type 7

With two recesses