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Bonded abrasive products —

Part 2: Specification for dimensions of grinding wheels and segments

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- British Compressed Air Society
- Engineering Equipment and Materials Users' Association
- Gauge and Tool Makers' Association
- Health and Safety Executive
- Machine Tool Industry Research Association
- Screw Thread Tool Manufacturers' Association
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Foreword

This Part of BS 4481 has been prepared under the direction of the Mechanical Engineering Standards Committee. It was first published in 1972 and revised in 1976 to take account of the work then completed in the International Organization for Standardization (ISO) and the Federation of European Producers of Abrasive Products (FEPA). This second revision has been prepared in order to take account of the latest work in ISO although that work has not yet proceeded to publication, and to take account of the revision of Part 1 of the standard. BS 4481-2:1976 is withdrawn.

Part 1 of this British Standard relates to general features for grinding wheels, segments and blocks, and covers designation, profiles, ranges of dimensions and tolerances. In particular, Part 1 contains information on tolerances for hole sizes and recommended current segment sizes, type 31, which were included in Appendices A and D of the 1976 edition of Part 2. The dimensions of cylinder grinding wheels with inserted nuts, type 2, which were shown in Appendix C to the 1976 edition of this Part, have been moved to Table 5(c) in this Part.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 40, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This Part of BS 4481 specifies dimensions for basic shapes and sizes of grinding wheels and segments, classified in accordance with their intended use.

NOTE The titles of the publications referred to in this Part of this British Standard are listed on the inside back cover.

2 Dimensions

The dimensions of grinding wheels shall be as specified in Table 1 to Table 14 inclusive.

The dimensions of segments of grinding wheels with isosceles trapezoidal section shall be as specified in Table 15.

The dimensions of inserted nut discs shall be as specified in Table 16.

The dimensions of cones and plugs shall be as specified in Table 17.

The dimensions of mounted wheels shall be as specified in Table 18

The dimensions of hand finishing sticks and oilstones shall be as specified in Table 19.

The dimensions of blocks shall be as specified in Table 20.

NOTE In many of the tables a number of dimensions are described as “transitional” and are shown in parentheses. These are metric equivalents of inch dimensions that were used prior to metrication; they are only for use with grinding machines that can accept only those dimensions and they are not recommended for new designs. Transitional screw threads are similarly shown in Table 5(c) and Table 16.

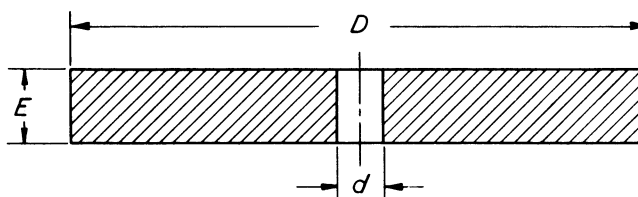


Figure 1 — Plain grinding wheel for fettling and general sharpening

Table 1 — Type 1, plain grinding wheels for fettling and general sharpening (see Figure 1)

Table 1(a) — Non-precision grinding machines for general use

All dimensions are in millimetres.

Diameter of wheel <i>D</i>	Thickness <i>E</i>						Hole diameter <i>d</i>	
80	6	10	13				13	(12.7)
100		10	13	20	25		16	(12.7) (15.88)
125			13	20	25		20	(12.7) (19.05)
150			13	16	20	25	20	(12.7) (19.05)
200				20	25		20	(15.88) (19.05)
250				20	25		32	(19.05) (31.75)
300					25	40	50	32 (31.75)
356						40	50	32 (31.75)
406						40	50	63 40 (38.1)

NOTE The hole diameters in parentheses are transitional.

Table 1(b) — Portable grinding machines

All dimensions are in millimetres.

Diameter of wheel <i>D</i>	Thickness <i>E</i>					Hold diameter <i>d</i>			
50	6		13	20		10	(6.35)	(9.53)	
63			13			10	(9.53)		
80	6	10	13	20		10	(9.53)	(12.7)	(15.88)
100	6		13	20	25	13	(12.17)	(15.88)	
125				20	25	16	(15.88)		
150			13	20	25	16	(12.7)	(15.88)	
200					25	16	(15.88)		
NOTE The hole diameters in parentheses are transitional.									

Table 1(c) — Floorstand or swing frame grinding machines

All dimensions are in millimetres.

Diameter of wheel <i>D</i>	Thickness <i>E</i>				Hold diameter <i>d</i>			
356	50				127.0	(152.4)		
406	50	63						
457		63			152.4			
508	50	63	80 (76.2)		152.4	(177.8)	(203.2)	(254)
610	50	63	80 (76.2)		304.8	(177.8)	(203.2)	
762	50	63	80 (72.2)	100	304.8	(254)		
NOTE The dimensions in parentheses are transitional.								

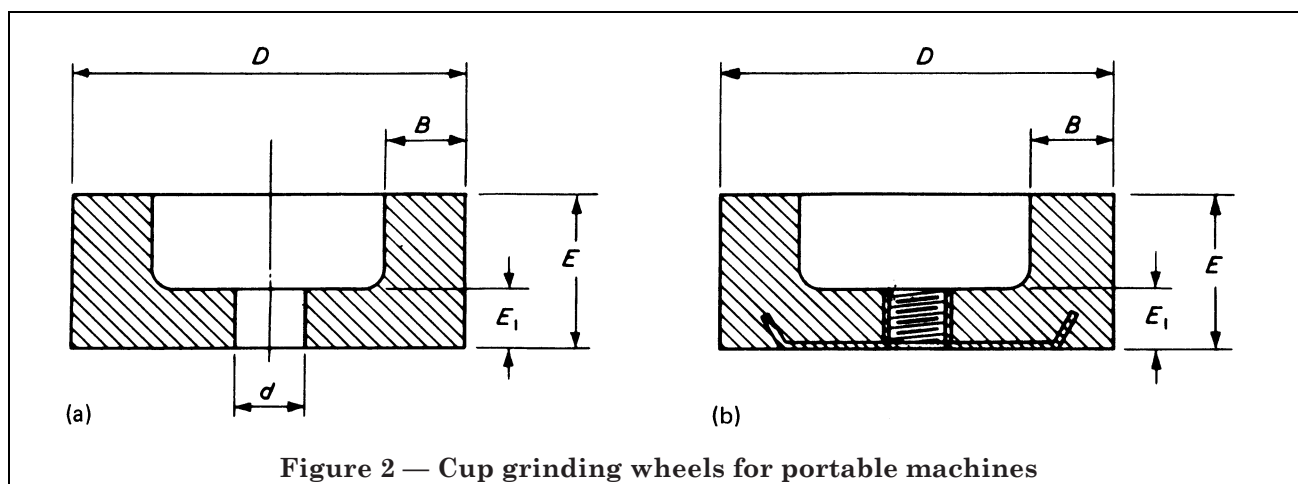


Figure 2 — Cup grinding wheels for portable machines

Table 2 — Types 6 and 11, cup grinding wheels for portable machines

Table 2(a) — Type 6, straight cup grinding wheels (see Figure 2(a) and Figure 2(b))

All dimensions are in millimetres.

Diameter of wheel <i>D</i>	Thickness overall <i>E</i>	Thickness of side wall <i>B</i>	Thickness through back <i>E</i> ₁	Hole	
				Plain hole diameter <i>d</i> [see Figure 2(a)]	Threaded hole [see Figure 2(b)]
100	50	20	20	(22.23) ^a	⅝ in-11UNC-2B
125		25			
150		25			
		40			
NOTE Wheels with threaded holes are preferred; wheels with plain holes (diameter in parentheses) are transitional. ^a See 4.5 of BS 4481-1:1981.					

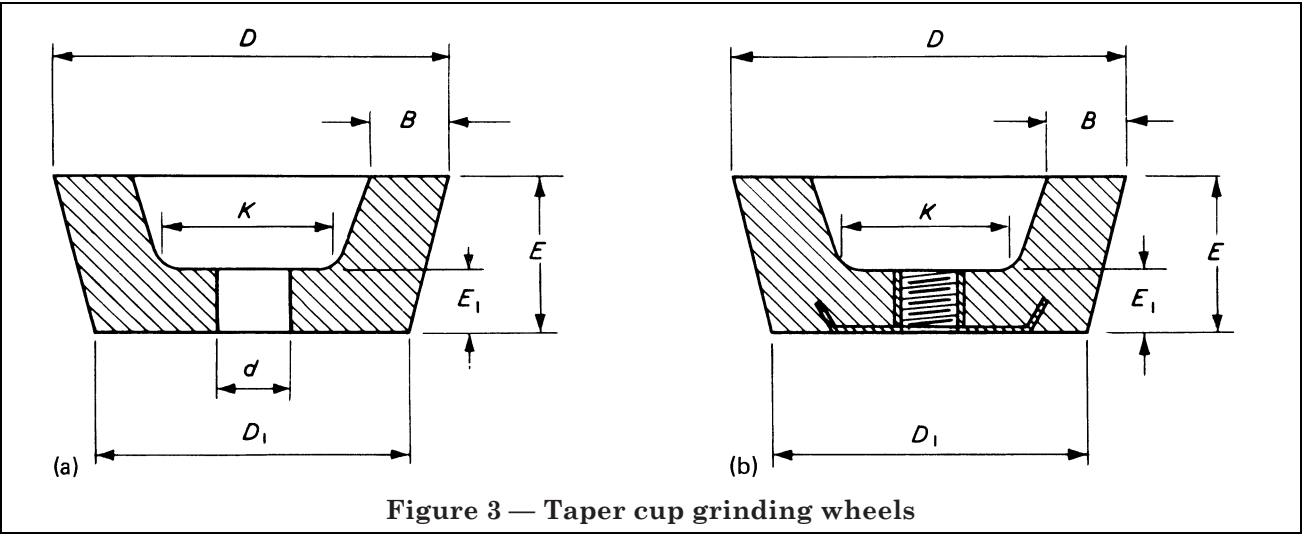


Table 2(b) — Type 11, taper cup grinding wheels [see Figure 3(a) and Figure 3(b)]

All dimensions are in millimetres.

Diameter of wheel <i>D</i>	Thickness overall <i>E</i>	Thickness of side wall <i>B</i>	Thickness through back back <i>E</i> ₁	Diameter of back <i>D</i> ₁	Inside diameter of flat <i>K</i>	Hole	
						Plain hole diameter <i>d</i> [see Figure 3(a)]	Threaded hole [see Figure 3(b)]
100	50	20	20	80	45	(22.23) ^a	⅝ in-11UNC-2B
125		25		100	54		
150		25		120	70		
		40			54		
NOTE Wheels with threaded holes are preferred; wheels with plain holes (diameter in parentheses) are transitional.							
^a See 4.5 of BS 4481-1:1981.							

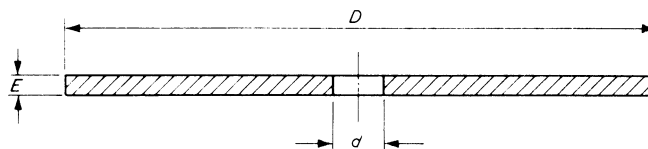


Figure 4 — Grinding wheel for cutting off, without reinforcement

Table 3 — Type 1, grinding wheels for cutting off, without reinforcement (see Figure 4)

All dimensions are in millimetres.

Diameter of wheel <i>D</i>	Thickness <i>E</i>	Hole diameter <i>d</i>			
100	1.6	20	(12.7)	(19.05)	
150	1.6	20	(12.7)	(19.05)	(31.75)
	2.5				
180	1.6				
	2.5				
200	1.6	20	(19.05)	(31.75)	
	2.5				
250	2.5	25	(19.05)	(25.4)	
	3.2				
300	2.5	25	(25.4)		
	3.2				
406	3.2	32			
508	4				
610	5				
NOTE The hole diameters in parentheses are transitional.					

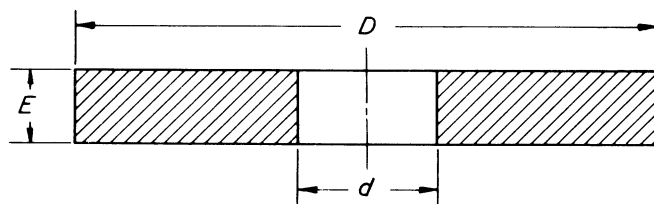


Figure 5 — Grinding wheel for external cylindrical grinding

Table 4 — Types 1, 5 and 7, grinding wheels for external cylindrical grinding

Table 4(a) — Type 1, plain grinding wheels for general use (see Figure 5)

All dimensions are in millimetres.

Diameter of wheel <i>D</i>	Thickness <i>E</i>							Hole diameter <i>d</i>		
250	20	25						127		
300	20	25	32	40	50					
356		25	32	40	50					
406		25		40	50					
457		25		40	50	63				
508		25		40	50	63	80 (76.2)			
610			32			50	63	80 (76.2)	100	304.8 (203.2)
762					50	63	80 (76.2)	100	304.8	
914						63	80 (76.2)	100		
NOTE 1 Cylindrical grinding wheels with diameters smaller than 250 mm are included in Table 5(a).										
NOTE 2 The dimensions in parentheses are transitional.										

NOTE 1 Cylindrical grinding wheels with diameters smaller than 250 mm are included in Table 5(a).

NOTE 2 The dimensions in parentheses are transitional.

Table 4(b) — Type 1, plain grinding wheels for camshaft grinding
(see Figure 5)

All dimensions are in millimetres.

Diameter of wheel <i>D</i>	Thickness <i>E</i>	Hole diameter <i>d</i>
508	to be specified by user	203.2 (254) (304.8)
610		304.8 (457.2)
762		

NOTE The hole diameters in parentheses are transitional.

Table 4(c) — Type 1, plain grinding wheels for crankshaft grinding
(see Figure 5)

Diameter of wheel <i>D</i>	Thickness <i>E</i>	Hole diameter <i>d</i>
660	to be specified by user	304.8
762		
914		
1 067		
1 100		

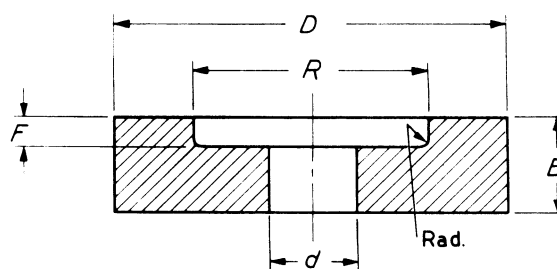


Figure 6 — Grinding wheel with one recess

Table 4(d) — Type 5, grinding wheels with one recess (see Figure 6)

All dimensions are in millimetres.

Diameter of wheel <i>D</i>	Thickness <i>E</i>	Hole diameter <i>d</i>	Diameter of recess <i>R</i>	Depth of recess <i>F</i>
180	20	32 (31.75)	105	6
	25			13
200	25	16 (15.88)		6
		32 (31.75)		13
250	40	76.2	130	13
300	40	127	190	
	50			
356	40		215	
	50			
406	40			
	50			
508	50	304.8	390	
	63	304.8 (203.2)	390 (290)	
	610	80 (76.2)	304.8	390
63		13		
80 (76.2)				
100				
660	80 (76.2)			
762	80 (76.2)	20		
				25
NOTE The dimensions in parentheses are transitional.				

NOTE The dimensions in parentheses are transitional.

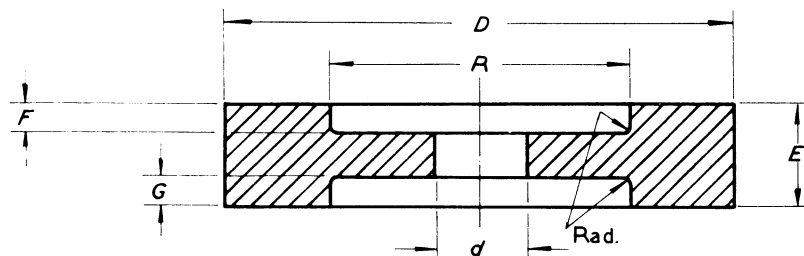


Figure 7 — Grinding wheel with two recesses

Table 4(e) — Type 7, grinding wheels with two recesses (see Figure 7)

All dimensions are in millimetres.

Diameter of wheel D	Thickness E	Diameter of hole d	Diameter of recess R	Depth of recess $F = G$
250	40	76.2	130	6
	50			13
300	40	127	190	6
	50	127 (76.2)	190 (135)	13 (10)
	63	127	190	16
356	40			6
	50			13
	100			20
406	50	127 (203.2)	215 (290)	13
	80 (76.2)			20
457	50	203.2	290	13
	63			
	80 (76.2)			
508	50			
	63			
	80 (76.2)			
610	50	304.8	300	13
	63			
	80 (76.2)			
	100			
762	80 (76.2)	304.8	450	13
	100			
914	100			

NOTE The dimensions in parentheses are transitional.

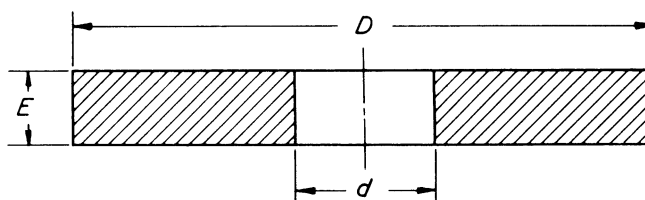


Figure 8 — Plain wheel for surface grinding

Table 5 — Types 1,2 and 37, surface grinding wheels

Table 5(a) — Type 1, plain grinding wheels (see Figure 8)

All dimensions are in millimetres.

Diameter of wheel <i>D</i>	Thickness <i>E</i>								Hole diameter <i>d</i>	
150		10	13	16	20				32 (31.75)	
180	6	10	13	16	20					
200			13		20	25			32 (31.75) (50.8)	
250			13		20	25			32	76.2 (50.8)
300			20		25	32			40	50
NOTE 1 Surface grinding wheels with diameters greater than 300 mm are included in Table 4(a).										
NOTE 2 The hole diameters in parentheses are transitional.										

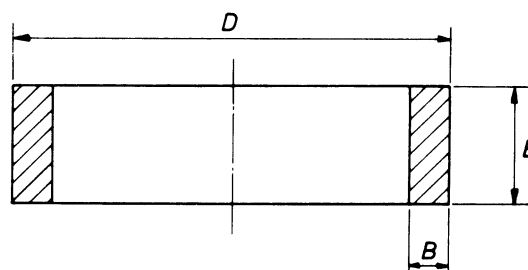


Figure 9 — Cylinder wheel for surface grinding

Table 5(b) — Type 2, cylinder grinding wheels (see Figure 9)

All dimensions are in millimetres.

Diameter of wheel <i>D</i>	Thickness <i>E</i>	Wall thickness <i>B</i>
125	50	13
150		
250	100	25
300		32
356	125	40
406		50
457		40 (38)
457		100
508		40 (38)

NOTE The wall thickness 38 mm is transitional.