

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 1117

BONDED ABRASIVE PRODUCTS
GRINDING WHEEL DIMENSIONS
(PART 2)

1st EDITION

September 1969

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BRIEF HISTORY

The ISO Recommendation R 1117, *Bonded abrasive products – Grinding wheel dimensions (Part 2)*, 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 led to the adoption of a Draft ISO Recommendation.

In June 1968, this Draft ISO Recommendation (No. 1596) 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 :

Australia	Italy	Switzerland
Belgium	Japan	Thailand
Czechoslovakia	Netherlands	Turkey
France	New Zealand	U.A.R.
Germany	Peru	United Kingdom
Greece	Poland	U.S.A.
Hungary	Portugal	U.S.S.R.
India	South Africa, Rep. of	Yugoslavia
Ireland	Spain	
Israel	Sweden	

No Member Body opposed the approval of the Draft.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in September 1969, to accept it as an ISO RECOMMENDATION.

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BONDED ABRASIVE PRODUCTS**GRINDING WHEEL DIMENSIONS****(PART 2)****INTRODUCTION**

This ISO Recommendation is a continuation of ISO Recommendation R 603, *Bonded abrasive products – Grinding wheel dimensions (Part 1)*.

Save for the exceptions indicated by a reference mark, the dimensions retained for the wheels specified in this ISO Recommendation are those provided in ISO Recommendation R 525, *Bonded abrasive products – General features – Designation – Ranges of dimensions – Profiles* and in its Addendum 1, *Dimensions of the wheel holes for special applications and tolerances*.

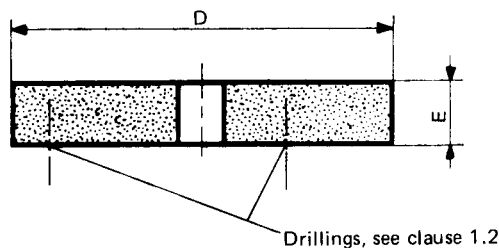
The numerical values retained in this ISO Recommendation are given in both systems of units (metric and inch). The holes being identical, wheels of the metric series and those of the inch series can be mounted on the same machines; however, the overall dimensions possibly being slightly different, wheels of both series can only be considered as equivalent.

The symbols for dimensions used in the figures and tables are those provided in ISO Recommendation R 603. They may be replaced in national standards by those in conformity with the rules prevailing in the country concerned, until international agreement regarding a single reference system is reached.

The figures accompanying the tables are only rough sketches which permit reference to the useful dimensions; particularly, for cup grinding wheels and for plain grinding wheels with a recess, the inset angles should be replaced by a fillet to avoid any initiation of rupture, but permitting, however, correct application of the pieces on the shaft.

1. THREADED INSERT DISKS

1.1 Dimensions



1.1.1 Workpieces held in hand

Dimensions in millimetres				Dimensions in inches			
D	E		Drillings See clause 1.2	D	E		Drillings See clause 1.2
	Speed not exceeding 35 m/s	Speed higher than 35 m/s			Speed not exceeding 115 ft/s	Speed higher than 115 ft/s	
300	50	50	Nuts M10	12	2	2	Nuts $\frac{3}{8}$ UNC
350				14			
400				16			
450				18			
500				20			
600				24			
750				30			
900				36			
1060				42			
1346*				53*			
1829*				72*			

1.1.2 Workpieces held mechanically – Speed not exceeding 35 m/s (115 ft/s).

Dimensions in millimetres			Dimensions in inches		
D	E	Drillings See clause 1.2	D	E	Drillings See clause 1.2
300	90*	Nuts M10	12	$3\frac{1}{2}$ *	Nuts $\frac{3}{8}$ UNC
350			14		
400			16		
450			18		
500			20		
600			24		
750			30		
900			36		
1060			42		
1346*			53*		
1829*	50		72*	2	

* Dimensions not included in ISO Recommendation R 525, *Bonded abrasive products – General features – Designation – Ranges of dimensions – Profiles*.

1.2 Drillings

The drawings on pages 8 to 21 correspond to the drillings and to the boring of the fixing plate seen from the face.

Some of the nuts may be omitted in the wheels but it is recommended that such as are used should correspond to one point of the drillings provided for.

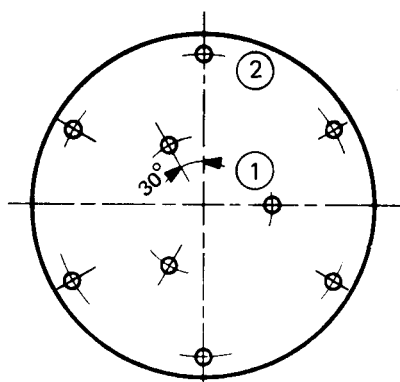
For wheels with a diameter D of 300, 350, 400, 450, 500, 600 and 750 mm, or of 12, 14, 16, 18, 20, 24 and 30 in, the nuts are equally spaced on the corresponding circle.

The dimensions of the nuts should be indicated on the wheels.

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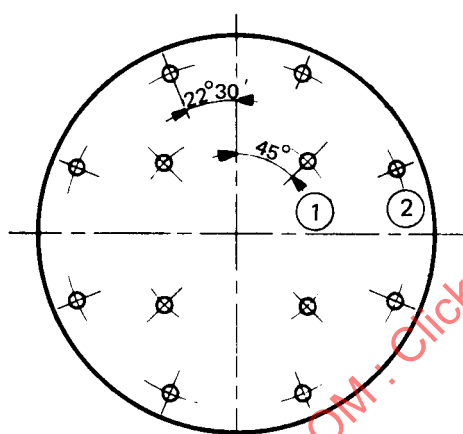
1.2.1 Drillings : metric series

Dimensions in millimetres
 $D = 300, 350$ and 400 mm



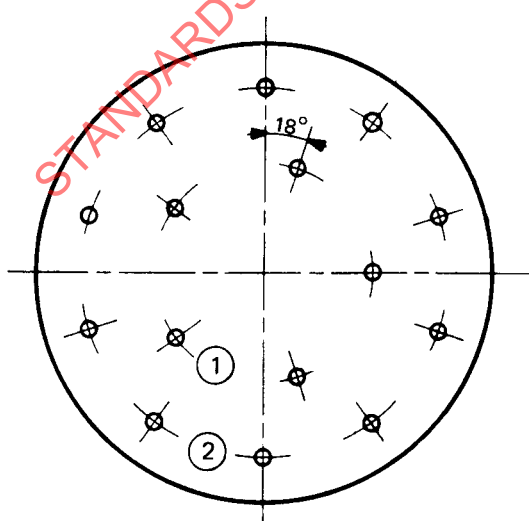
$D = 300$ mm

Drilling circles		Number of holes
Indexes	Diameters	
①	120.65	3 at 120°
②	266.70	6 at 60°



$D = 350$ mm

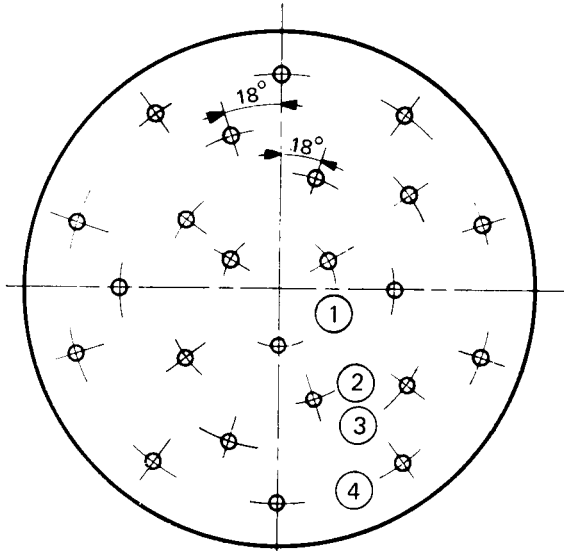
Drilling circles		Number of holes
Indexes	Diameters	
①	177.80	4 at 90°
②	304.80	8 at 45°



$D = 400$ mm

Drilling circles		Number of holes
Indexes	Diameters	
①	190.50	5 at 72°
②	323.85	10 at 36°

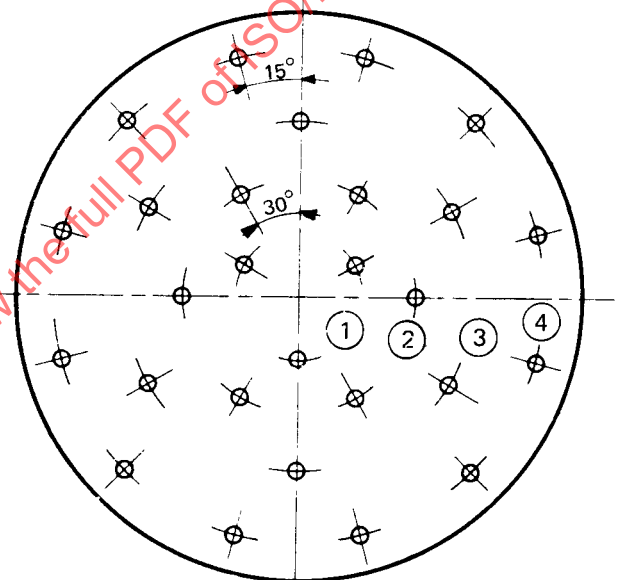
Dimensions in millimetres
D = 450, 500 and 600 mm



D = 450 mm

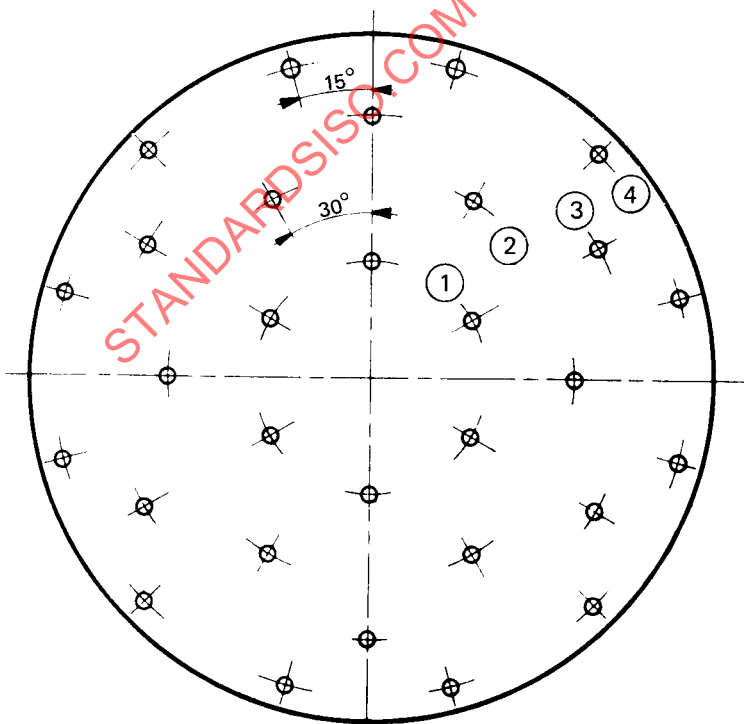
Drilling circles		Number of holes
Indexes	Diameters	
①	101.60	3 at 120°
②	203.20	5 at 72°
③	279.40	5 at 72°
④	374.65	10 at 36°

Drilling circles		Number of holes
Indexes	Diameters	
①	107.95	3 at 120°
②	203.20	6 at 60°
③	304.80	6 at 60°
④	431.80	12 at 30°



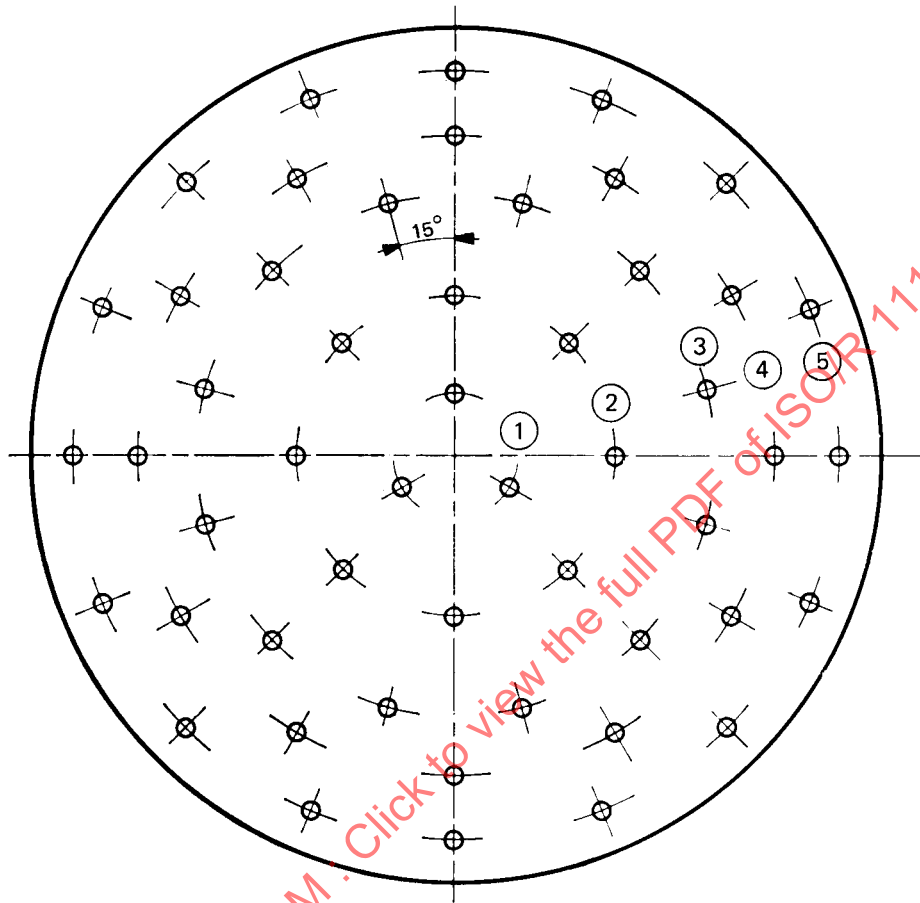
D = 500 mm

Drilling circles		Number of holes
Indexes	Diameters	
①	203.20	6 at 60°
②	330.20	6 at 60°
③	457.20	6 at 60°
④	558.80	12 at 30°



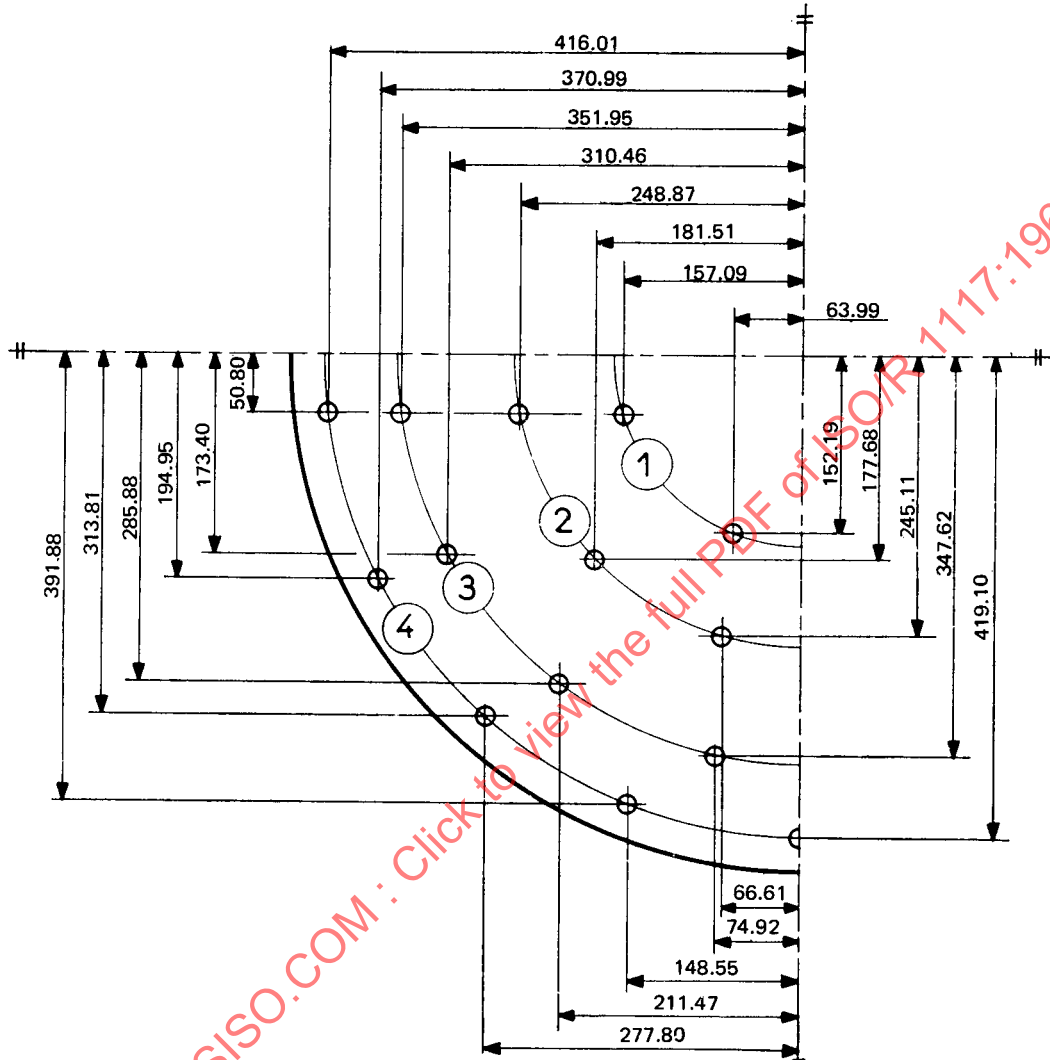
D = 600 mm

Dimensions in millimetres
 $D = 750$ mm



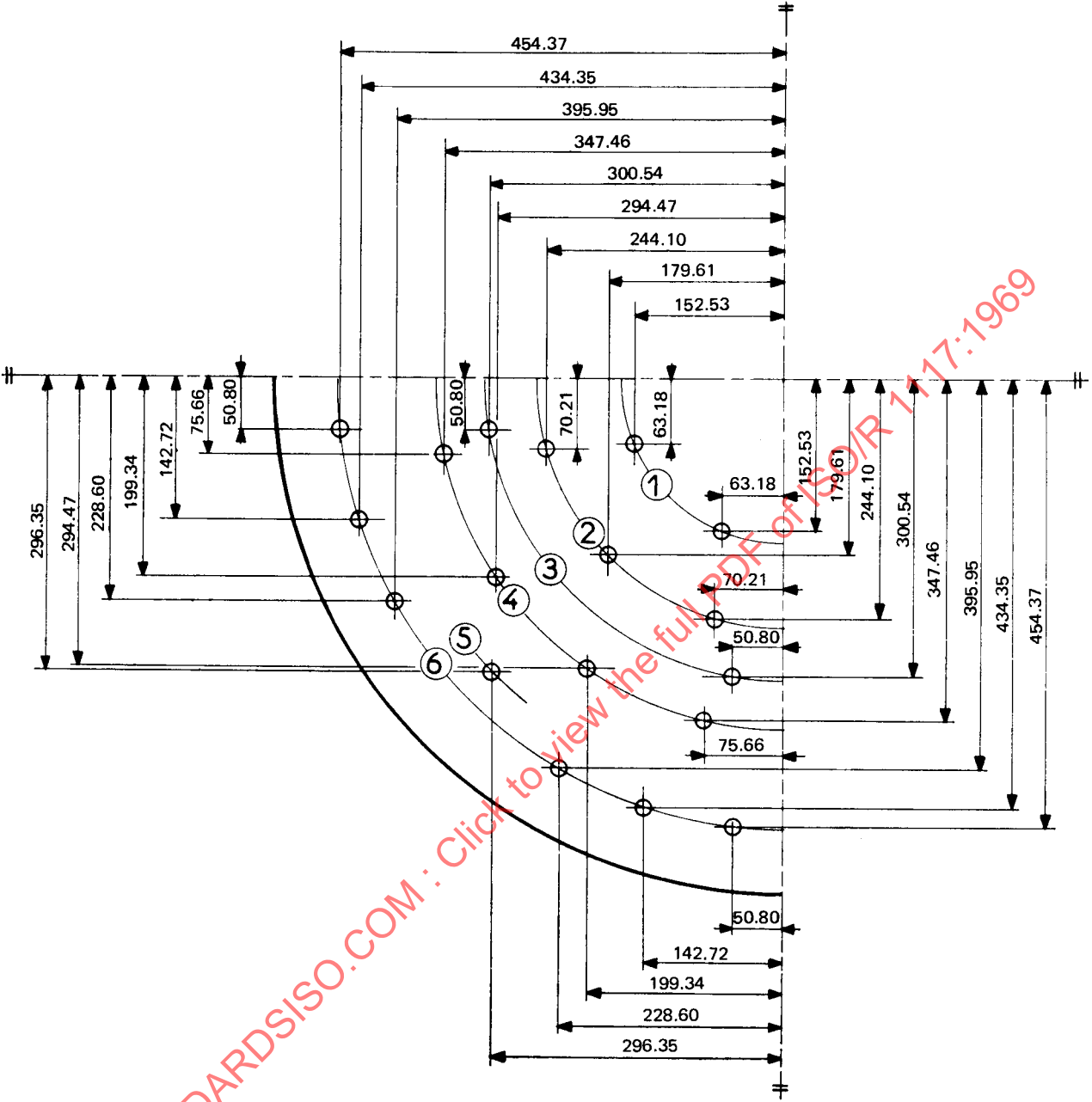
Drilling circles		Number of holes
Indexes	Diameters	
①	107.95	3 at 120°
②	279.40	8 at 45°
③	457.20	12 at 30°
④	558.80	12 at 30°
⑤	673.10	16 at 22° 30'

Dimensions in millimetres
D = 900 mm



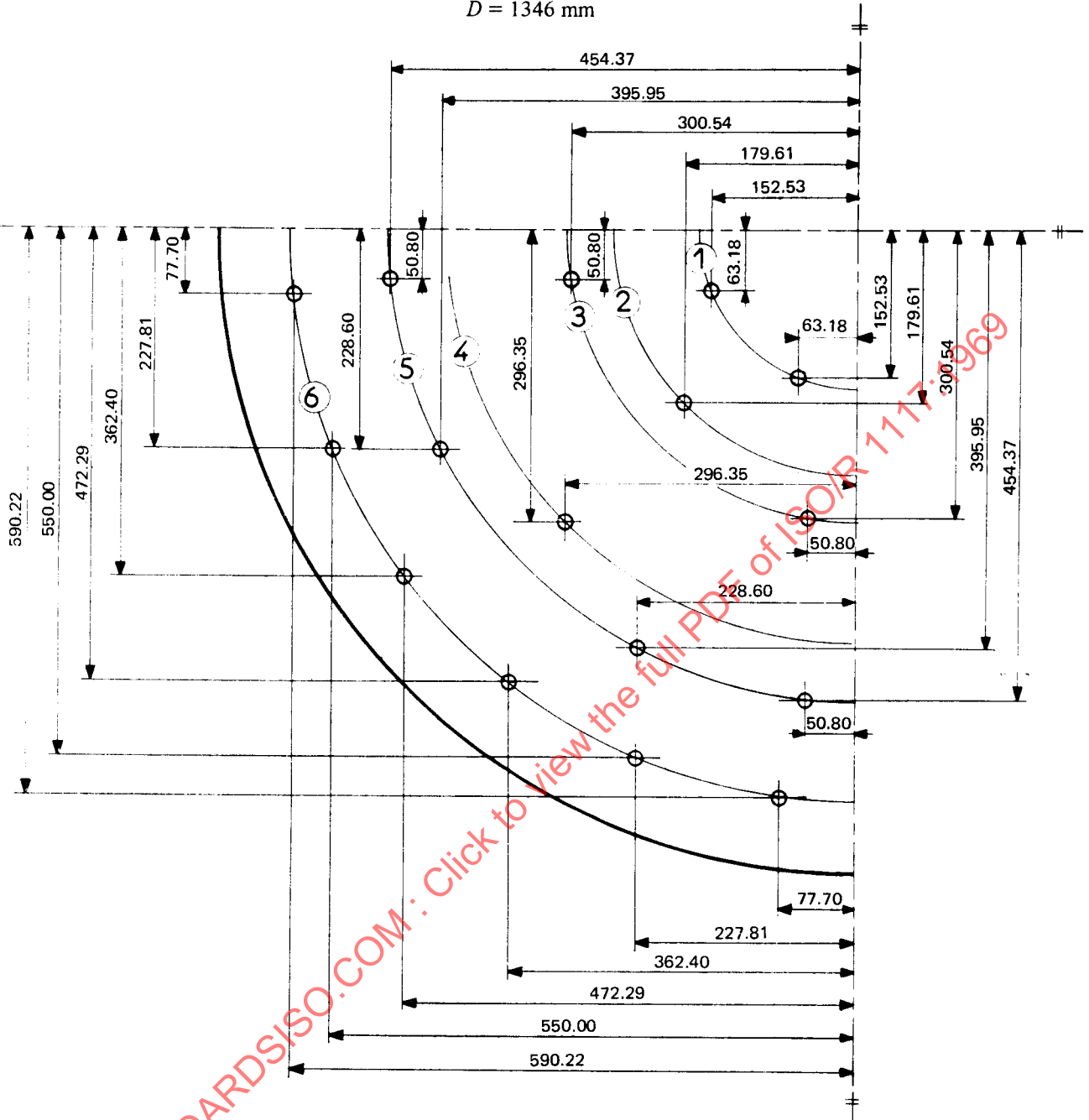
Drilling circles		Number of holes
Indexes	Approximate diameters	
①	330.2	8
②	508.0	12
③	711.2	16
④	838.2	18

Dimensions in millimetres
 $D = 1060$ mm



Drilling circles		Number of holes
Indexes	Approximate diameters	
①	330.2	8
②	508.0	12
③	609.6	8
④	711.2	16
⑤	838.2	4
⑥	914.4	24

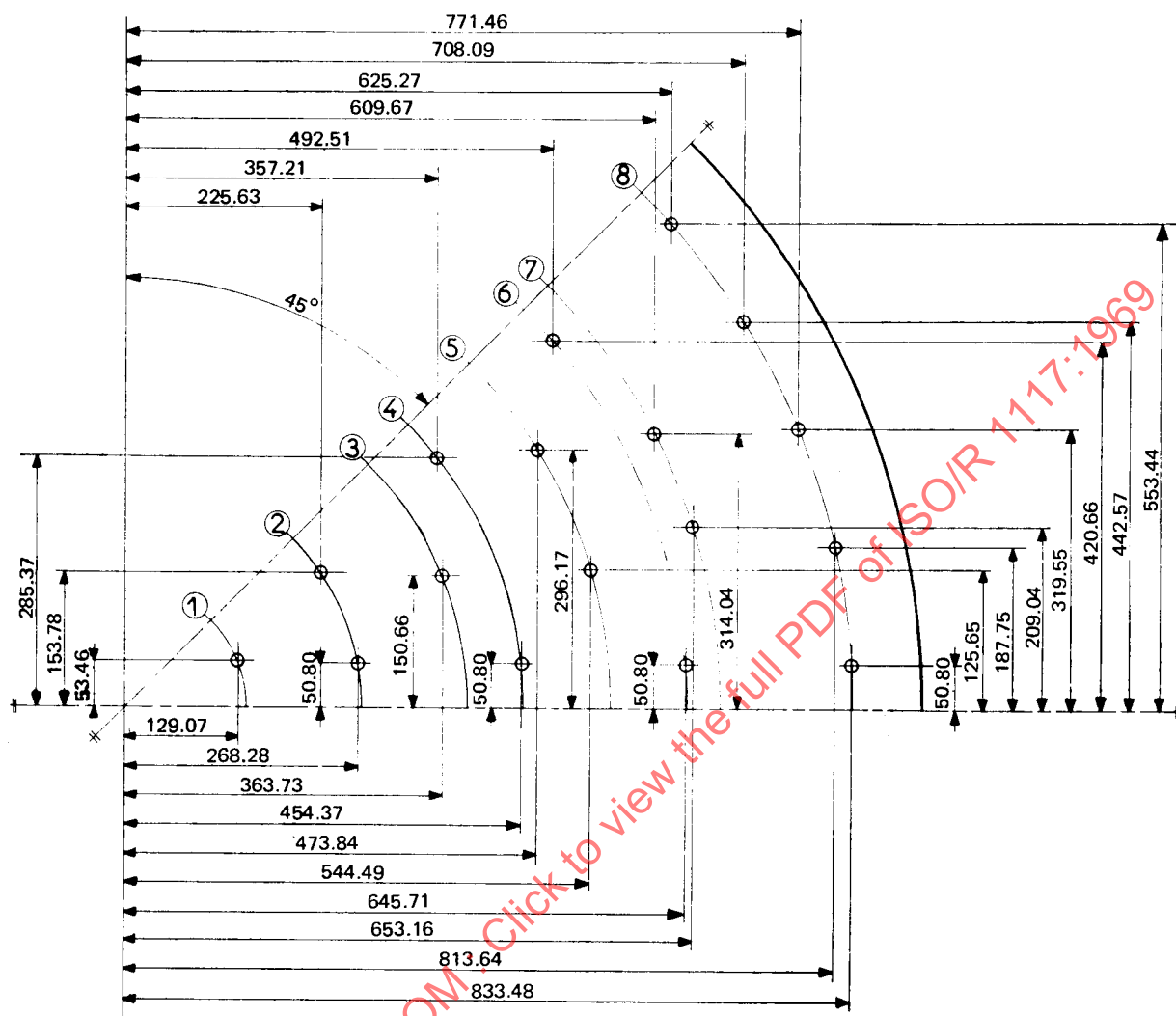
Dimensions in millimetres
D = 1346 mm



Drilling circles		Number of holes
Indexes	Approximate diameters	
①	330.20	8
②	508.00	4
③	609.60	8
④	838.20	4
⑤	914.40	16
⑥	1190.62	24

Dimensions in millimetres

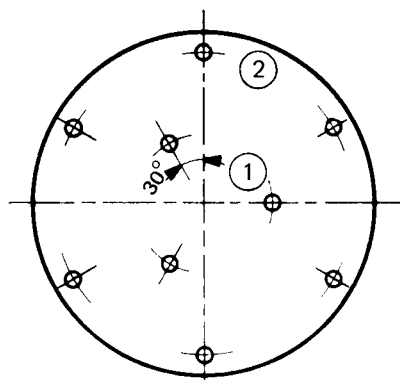
$D = 1829$ mm



Drilling circles		Number of holes
Indexes	Approximate diameters	
①	279.40	8
②	546.10	16
③	787.40	8
④	914.40	16
⑤	1117.60	16
⑥	1295.40	16
⑦	1371.60	16
⑧	1670.05	40

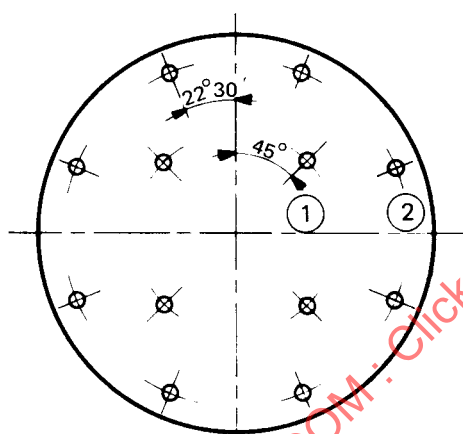
1.2.2 Drillings : inch series

Dimensions in inches
 $D = 12, 14$ and 16 in



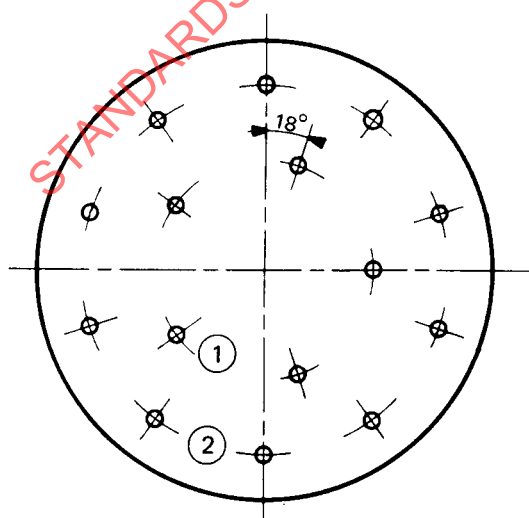
$D = 12$ in

Drilling circles		Number of holes
Indexes	Diameters	
①	$4 \frac{3}{4}$	4 at 120°
②	$10 \frac{1}{2}$	6 at 60°



$D = 14$ in

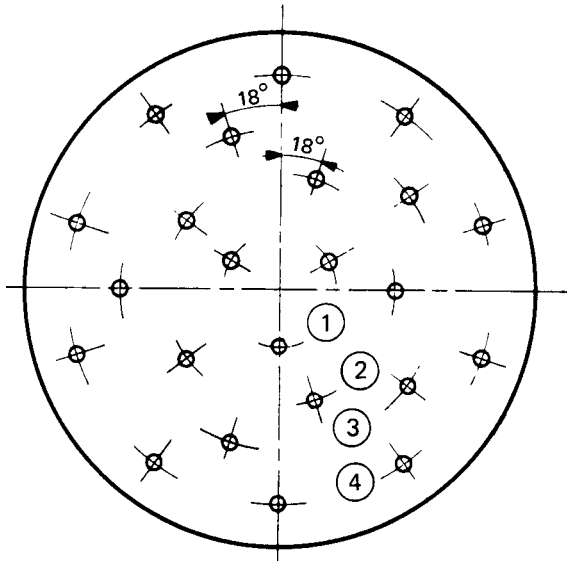
Drilling circles		Number of holes
Indexes	Diameters	
①	7	4 at 90°
②	12	8 at 45°



$D = 16$ in

Drilling circles		Number of holes
Indexes	Diameters	
①	$7 \frac{1}{2}$	5 at 72°
②	$12 \frac{3}{4}$	10 at 36°

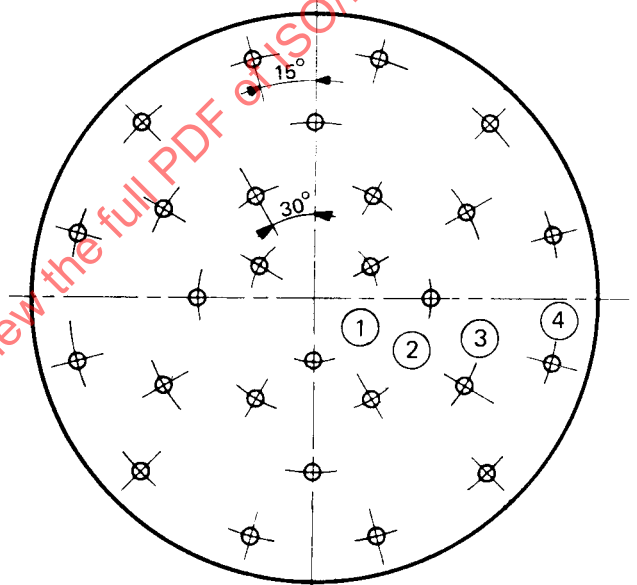
Dimensions in inches
 $D = 18, 20$ and 24 in



$D = 18$ in

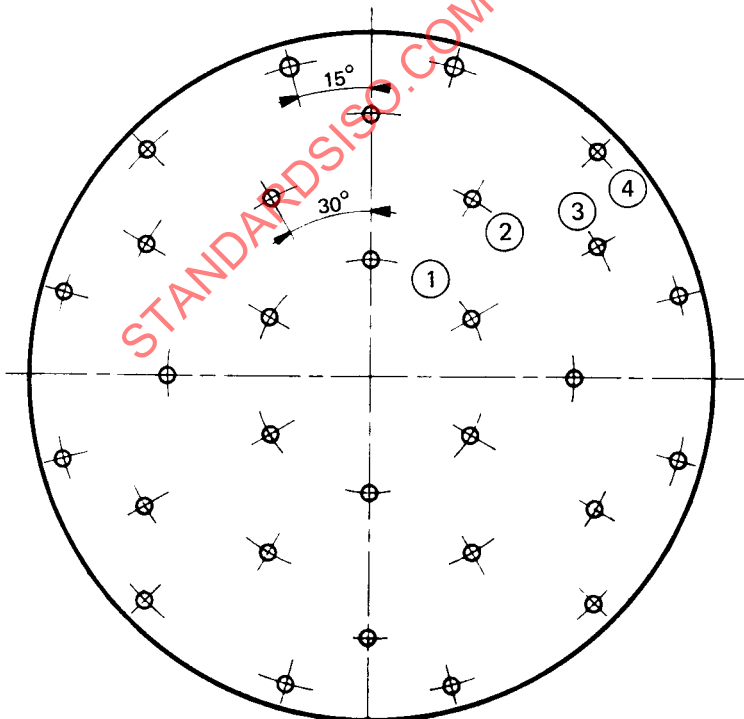
Drilling circles		Number of holes
Indexes	Diameters	
①	4	3 at 120°
②	8	5 at 72°
③	11	5 at 72°
④	$14\frac{3}{4}$	10 at 36°

Drilling circles		Number of holes
Indexes	Diameters	
①	$4\frac{1}{4}$	3 at 120°
②	8	6 at 60°
③	12	6 at 60°
④	17	12 at 30°



$D = 20$ in

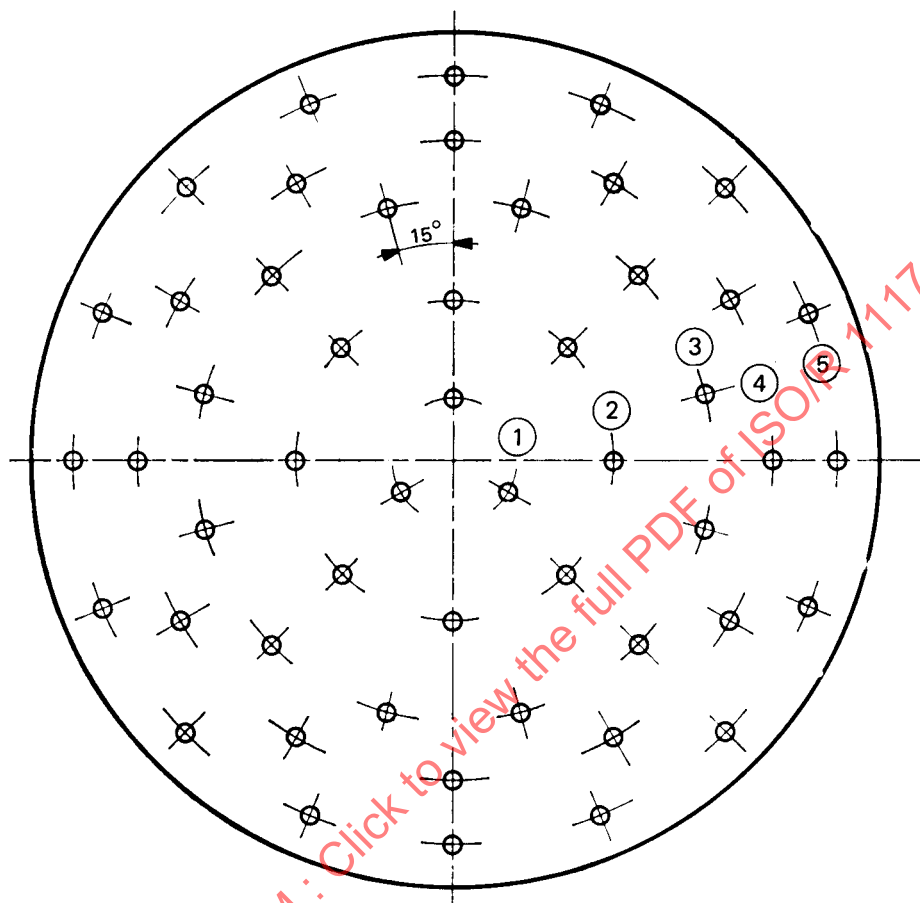
Drilling circles		Number of holes
Indexes	Diameters	
①	8	6 at 60°
②	13	6 at 60°
③	18	6 at 60°
④	22	12 at 30°



$D = 24$ in

Dimensions in inches

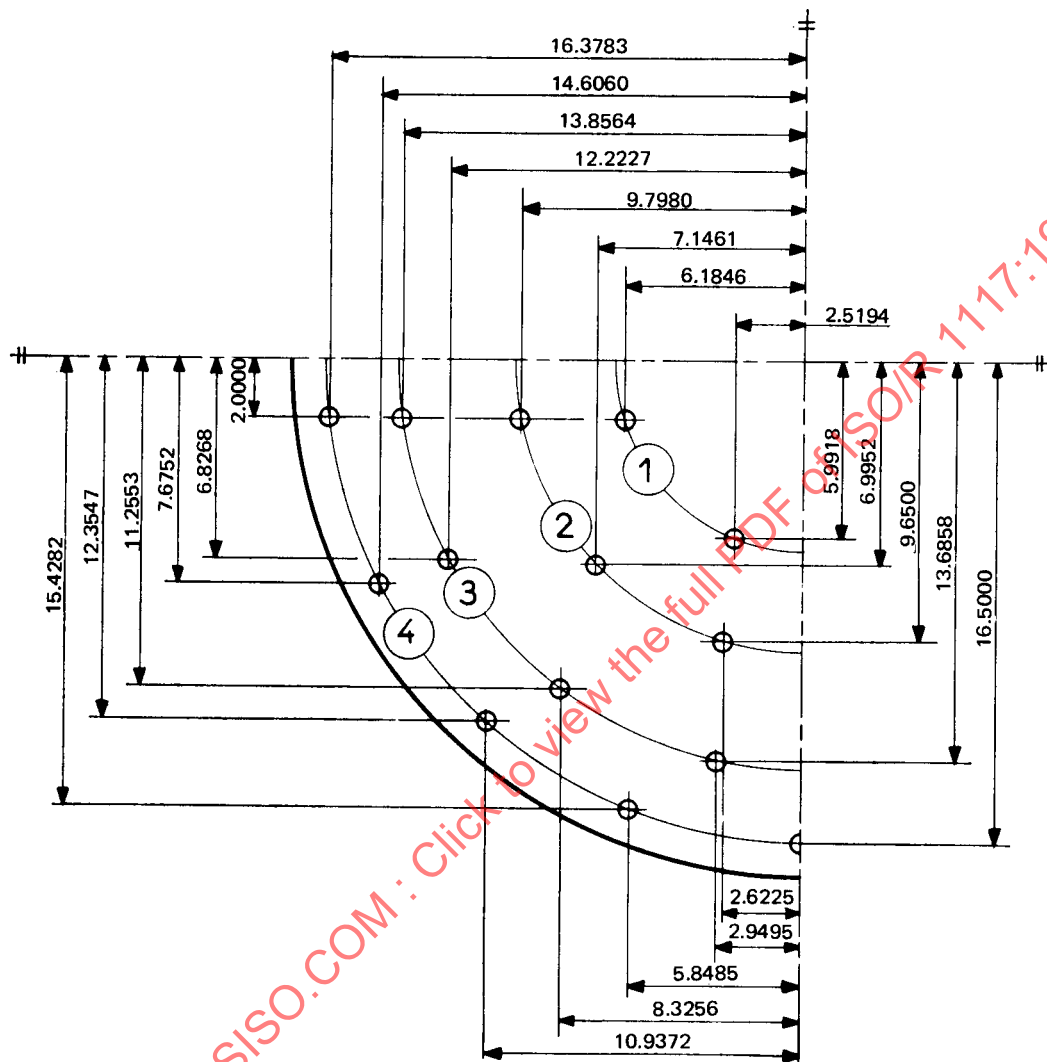
$D = 30$ in



Drilling circles		Number of holes
Indexes	Diameters	
①	$4 \frac{1}{4}$	3 at 120°
②	11	8 at 45°
③	18	12 at 30°
④	22	12 at 30°
⑤	$26 \frac{1}{2}$	16 at $22^\circ 30'$

Dimensions in inches

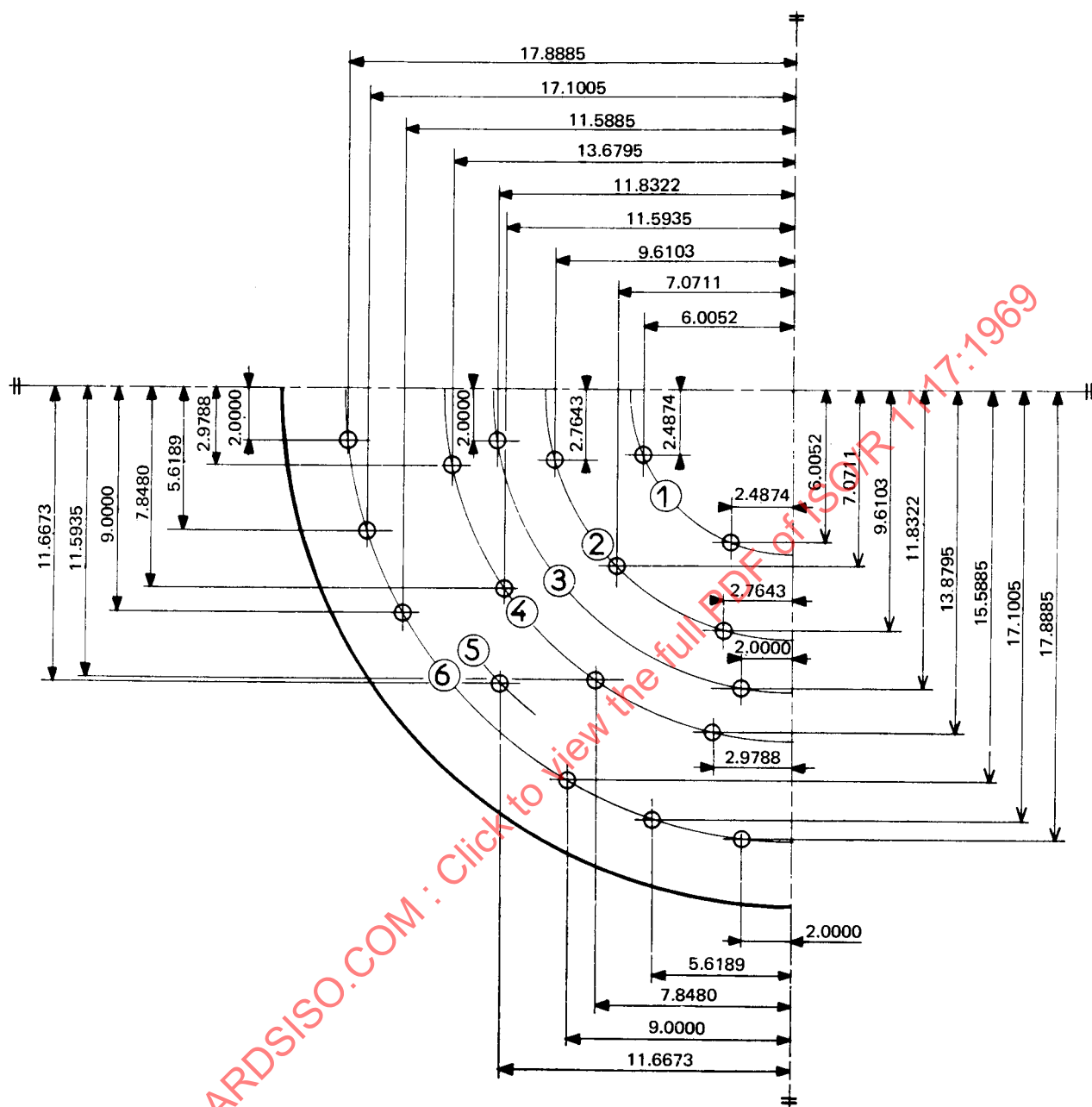
$D = 36$ in



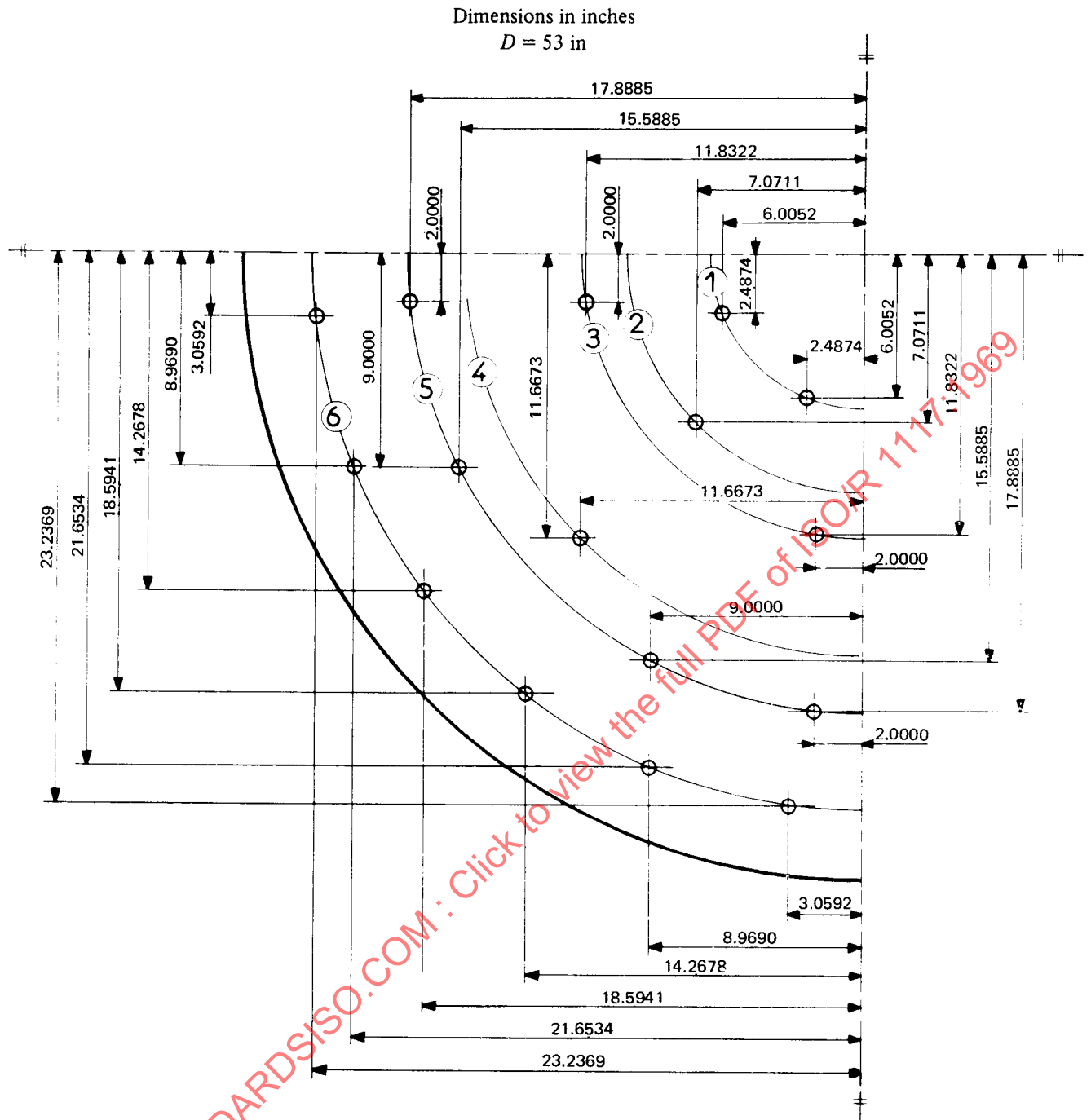
Drilling circles		Number of holes
Indexes	Approximate diameters	
①	13	8
②	20	12
③	28	16
④	33	18

Dimensions in inches

$D = 42$ in



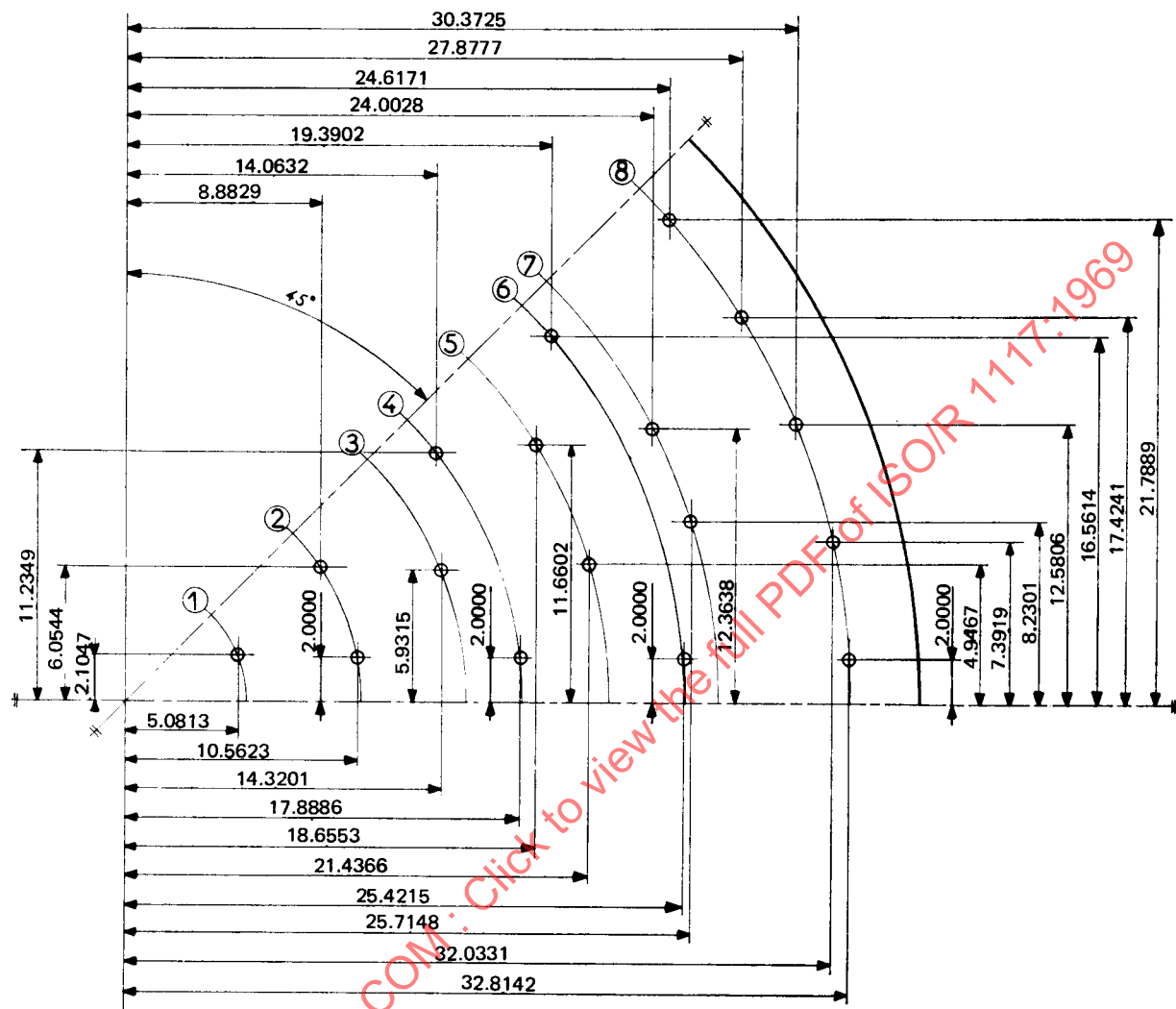
Drilling circles		Number of holes
Indexes	Approximate diameters	
①	13	8
②	20	12
③	24	8
④	28	16
⑤	33	4
⑥	36	24



Drilling circles		Number of holes
Indexes	Approximate diameters	
①	13	8
②	20	4
③	24	8
④	33	4
⑤	36	16
⑥	46 $\frac{7}{8}$	24

Dimensions in inches

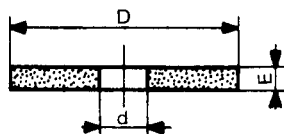
$D = 72$ in



Drilling circles		Number of holes
Indexes	Approximate diameters	
①	11	8
②	$21 \frac{1}{2}$	16
③	31	8
④	36	16
⑤	44	16
⑥	51	16
⑦	54	16
⑧	$65 \frac{3}{4}$	40

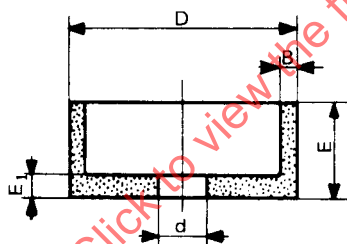
2. WHEELS FOR TOOL AND CUTTER GRINDING

2.1 Plain wheels – Type 1



Dimensions in millimetres						Dimensions in inches					
<i>D</i>	<i>E</i>				<i>d</i> *	<i>D</i>	<i>E</i>				<i>d</i> *
150	6	10	13	16	32	6	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	1.260
180						7					
200						8					

2.2 Straight cup wheels – Type 6



Dimensions in millimetres					Dimensions in inches				
D	E	d^*	B	E_1	D	E	d^*	B	E_1
50	32	13	5	6	2	$1\frac{1}{4}$	0.5118	$\frac{3}{16}$	$\frac{1}{4}$
80	40		6	10	3	$1\frac{1}{2}$		$\frac{1}{4}$	$\frac{3}{8}$
100	40	20	8		4	$1\frac{1}{2}$	0.7874	$\frac{5}{16}$	
125	50	32	8	13	5	2	1.2600	$\frac{5}{16}$	$\frac{1}{2}$
150	63		10	16	6	$2\frac{1}{2}$		$\frac{3}{8}$	$\frac{5}{8}$

* Regardless of the rule, 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 :

millimetres :	12.70	–	19.05	–	31.75
inches :	$\frac{1}{2}$	–	$\frac{3}{4}$	–	$1\frac{1}{4}$