

17

# International Standard



# 5229

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

## Rotary drilling equipment — Rotary tables

*Équipement pour forage rotatif — Tables de rotation*

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Descriptors : petroleum industry, drilling equipment, rotary drilling, rotary tables, vocabulary, dimensions, dimensional tolerances, marking.

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 5229 was developed by Technical Committee ISO/TC 67, *Materials and equipment for petroleum and natural gas industries*, and was circulated to the member bodies in November 1980.

It has been approved by the member bodies of the following countries :

Australia	Germany, F. R.	Netherlands
Austria	India	Poland
Brazil	Ireland	Romania
China	Italy	United Kingdom
Czechoslovakia	Japan	USA
Egypt, Arab Rep. of	Korea, Rep. of	USSR
France	Mexico	

No member body expressed disapproval of the document.

# Rotary drilling equipment — Rotary tables

## 1 Scope and field of application

**1.1** This International Standard specifies the dimensions of those items of the rotary table which enable the transmission of the rotational motion to the drilling stem.

**1.2** The rotary table is designed for suspending various strings used during rig operations, such as drill stem, casing and tubing strings.

## 2 Terminology

### 2.1 Rotary table

F : Table de rotation

### 2.2 Master bushing

F : Fourrure en deux parties

### 2.3 Kelly drive bushing

F : Dispositif d'entraînement

### 2.4 Rotary table pinion-shaft extension

F : Rallonge de l'arbre-pignon de la table de rotation

### 2.5 Rotary table sprocket

F : Roue dentée de la table de rotation

**3 Form, sizes and dimensions**

**3.1** The rotary table is shown in figures 1 and 2 and its dimensions are given in table 1.

The distance *Y* between the centre of the rotary table and the centre of the first row of sprocket teeth (see figure 1) shall be 1 353 mm (53 1/4 in) for tables allowing a 508 mm (20 in) bit, or

larger, to pass and shall be 1 118 mm (44 in) for tables not allowing a 508 mm (20 in) bit to pass.

By agreement between the manufacturer and the purchaser, the distance of 1 353 mm (53 1/4 in) may be used on tables not allowing a 508 mm (20 in) bit to pass. The distance *Y* shall be 1 651 mm (65 in) for the 1 257,3 mm (49 1/2) rotary table opening.

Dimensions in millimetres  
(Inch dimensions in parentheses)

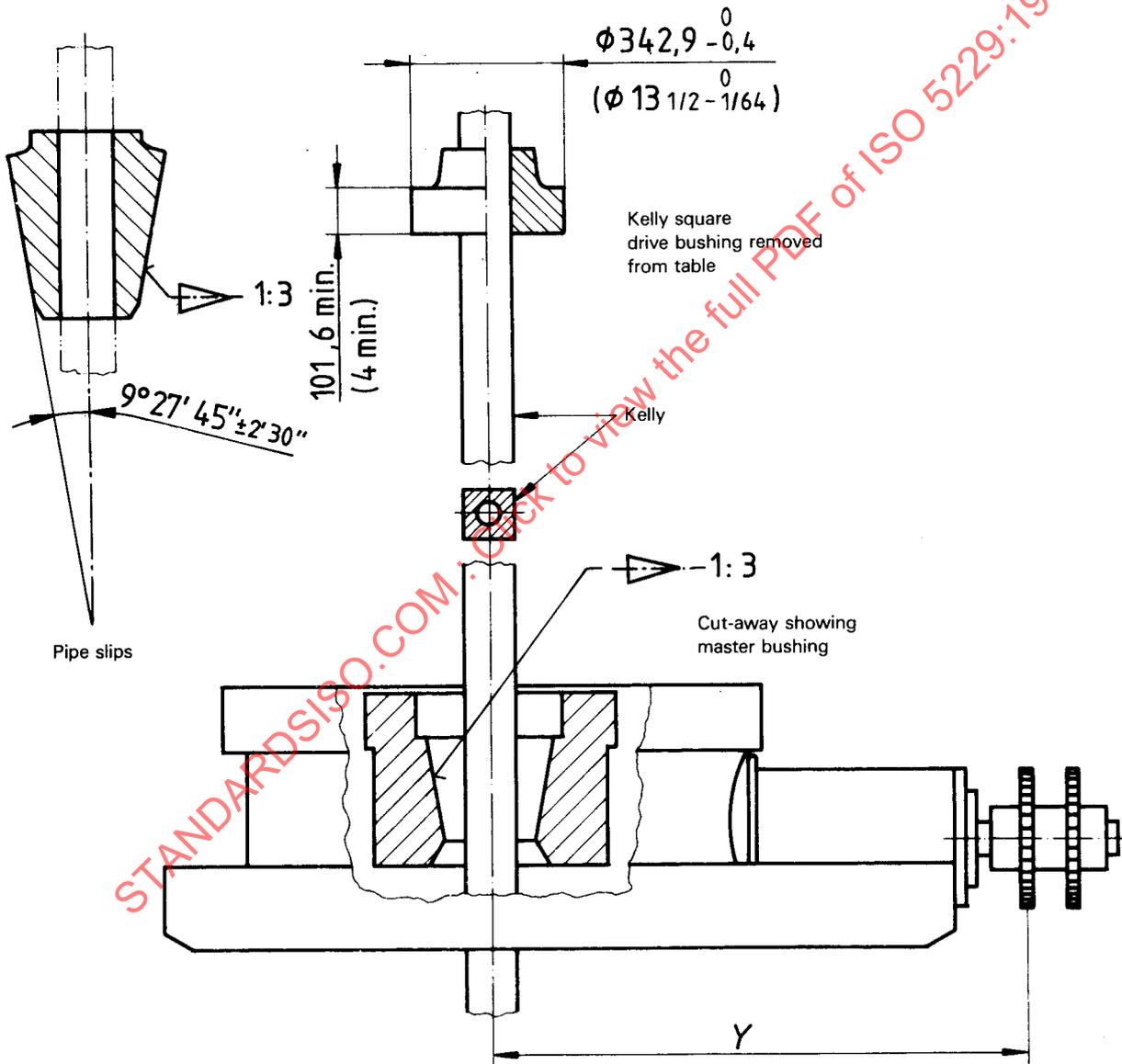


Figure 1 — Rotary table with square kelly bushings

Dimensions in millimetres  
(Inch dimensions in parentheses)

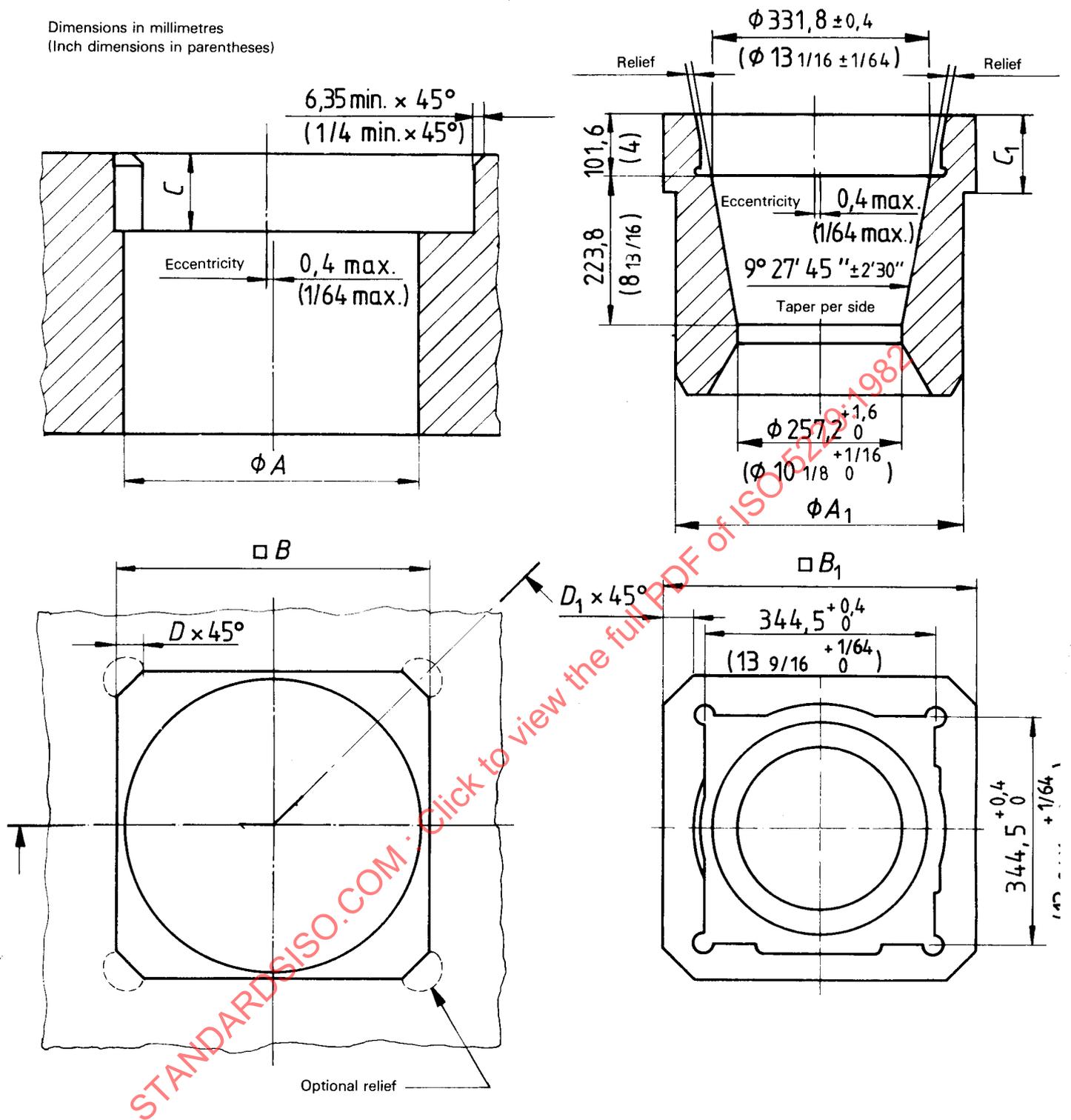


Figure 2 – Rotary table opening and square drive master bushing

Table 1 – Dimensions of rotary table opening

Nominal rotary table size		A		B		C		D max.	
mm	in	+ 0,381 0	+ 0,015 0	+ 0,762 0	+ 0,030 0	mm	in	mm	in
444,5	17 1/2	444,5	17 1/2	462,0	18 3/16	133,4	5 1/4	44,4	1 3/4
520,7	20 1/2	520,7	20 1/2	538,2	21 3/16	133,4	5 1/4	44,4	1 3/4
698,5	27 1/2	698,5	27 1/2	716,0	28 3/16	133,4	5 1/4	44,4	1 3/4
952,5	37 1/2	952,5	37 1/2	—	—	—	—	—	—
1 257,3	49 1/2	1 257,3	49 1/2	—	—	—	—	—	—

**3.2** The square drive master bushings shall conform to the dimensions specified in table 2 and shown in figure 2. Dimensions for four-pin drive master bushing and kelly bushing shall conform to the dimensions specified in table 3 and shown in figure 3.

**3.3** Pipe slips operating in the standard master bushing shall have a taper of 1:3 ( $9^{\circ}27'45'' \pm 2'30''$ ).

**3.4** Kelly bushings are manufactured in two types :

- a) square drive kelly bushing complying with figures 1 and 2;
- b) pin-drive kelly bushing complying with figure 3 and table 3.

**Table 2 — Dimensions of square drive master bushing**

Nominal rotary table size		$A_1$		$B_1$		$C_1$		$D_1$		$A_1 - B_1$ concentricity	
		0 -0,381	0 -0,015	0 -0,762	0 -0,030			+ 6,350 0	+ 0,250 0		
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
444,5	17 1/2	442,9	17 7/16	460,4	18 1/8	133,4	5 1/4	44,4	1 3/4	0,794	1/32
520,7	20 1/2	519,1	20 7/16	536,6	21 1/8	133,4	5 1/4	44,4	1 3/4	0,794	1/32
698,5	27 1/2	696,9	27 7/16	712,8	28 1/16	133,4	5 1/4	44,4	1 3/4	0,794	1/32
952,5	37 1/2	950,9	37 7/16	—	—	—	—	—	—	—	—
1 257,3	49 1/2	—	—	—	—	—	—	—	—	—	—

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Dimension in millimetres  
(Inch dimension in parentheses)

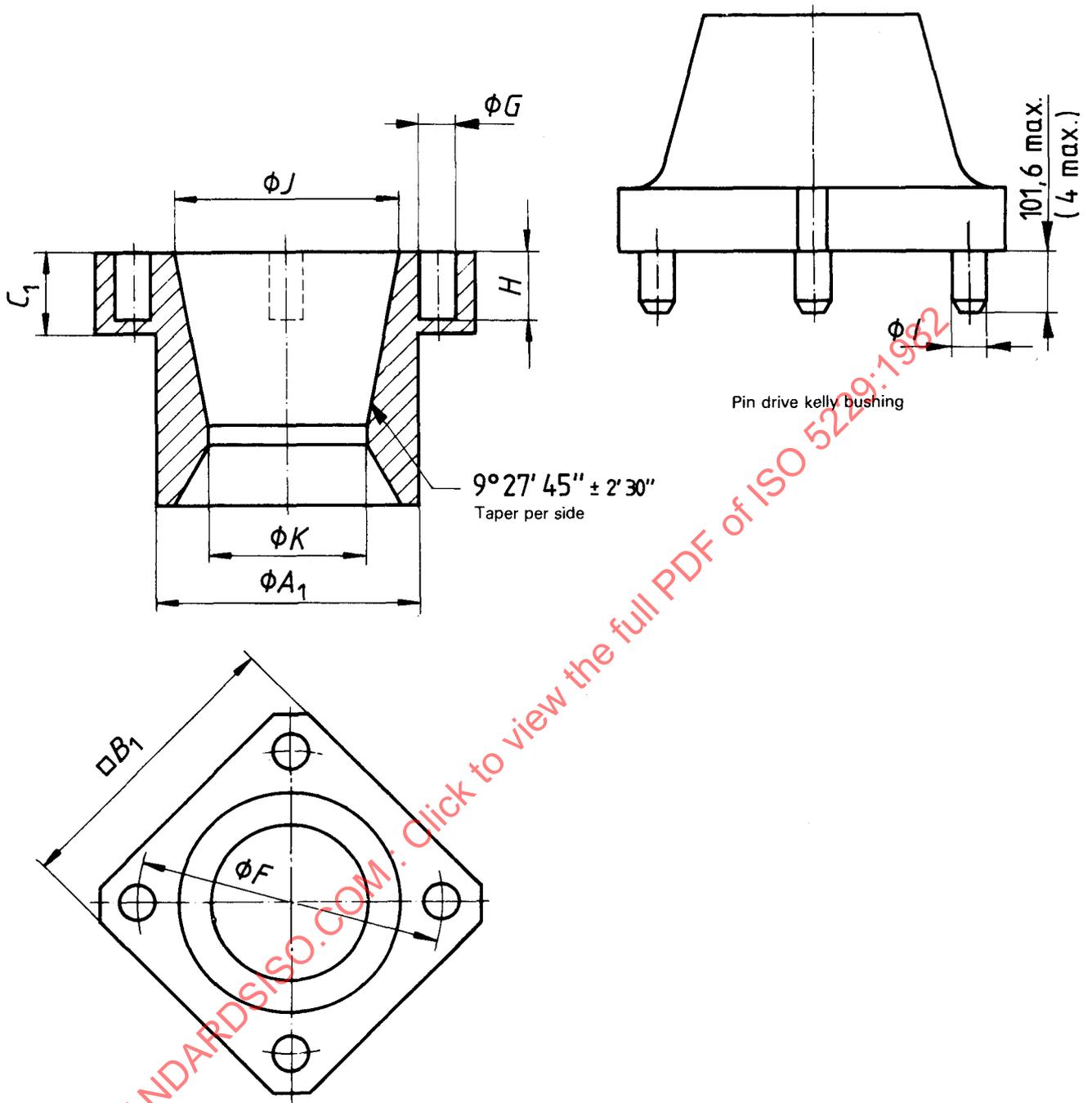


Figure 3 — Four-pin drive master bushing and kelly bushing

Table 3 — Dimensions of four-pin drive kelly bushing and master bushing

Nominal rotary table size		F		G		H		I		J		K	
		± 1,6	± 1/16	± 0,13	± 0,005			± 0,13	± 0,005	+ 1,6 0	+ 1/16 0	+ 1,6 0	+ 1/16 0
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
444,5	17 1/2	482,6	19	65,15	2,565	108	4 1/4	62,79	2,472	365,1	14 3/8	257,2	10 1/8
520,7	20 1/2	584,2	23	65,15	2,565	108	4 1/4	62,79	2,472	365,1	14 3/8	257,2	10 1/8
698,5	27 1/2	654,0	25 3/4	86,23	3,395	108	4 1/4	82,93	3,265	365,1	14 3/8	257,2	10 1/8
952,5	37 1/2	654,0	25 3/4	86,23	3,395	108	4 1/4	82,93	3,265	—	—	—	—
1 257,3	49 1/2	—	—	—	—	—	—	—	—	—	—	—	—

NOTE — For rotary table opening dimensions and other master bushing dimensions (A<sub>1</sub>, B<sub>1</sub>, C<sub>1</sub>) see tables 1 and 2.

3.5 The rotary table pinion-shaft extension is shown in figure 4 and its dimensions are specified in table 4.

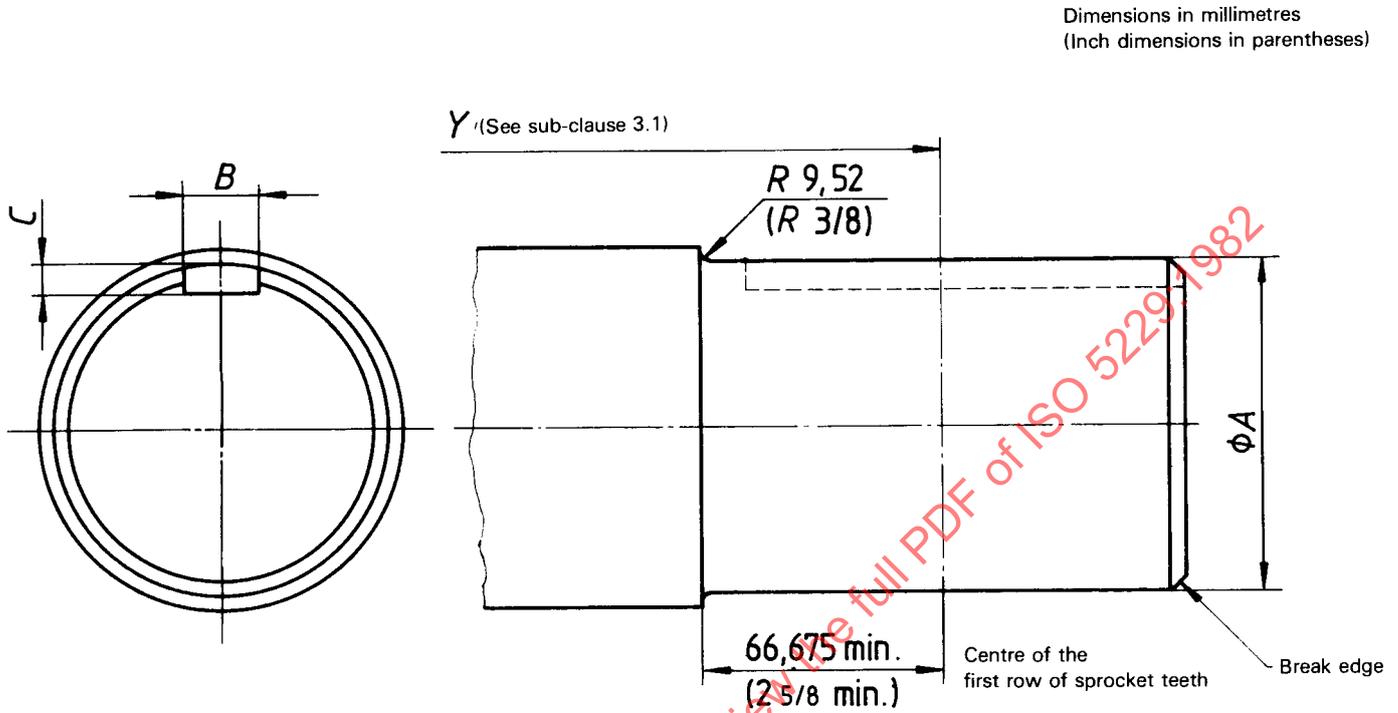


Figure 4 – Rotary table pinion-shaft extensions

Table 4 – Dimensions of rotary table pinion-shaft extensions

Nominal rotary table size		A		B		C	
		0 -0,025	0 -0,001	0 -0,025	0 -0,001	mm	in
mm	in	mm	in	mm	in	mm	in
444,5	17 1/2	82,55	3,250	19,05	0,750	6,35	1/4
520,7	20 1/2	100,02	3,938	25,4	1,000	9,52	3/8
698,5	27 1/2	107,95	4,250	25,4	1,000	9,52	3/8
952,5	37 1/2	114,30	4,500	25,4	1,000	9,52	3/8
1 257,3	49 1/2	125,42	4,938	31,75	1,250	11,11	7/16

3.6 The rotary table sprocket is shown in figure 5 and its dimensions are specified in table 5.

3.6.1 The sprockets, single strand and double strand have one common hub with identical bolt circle, number of bolts and size of bolts.

3.6.2 If a universal joint is used instead of a sprocket, the dimensions of the pinion shaft extension will dictate the size of the companion flange.

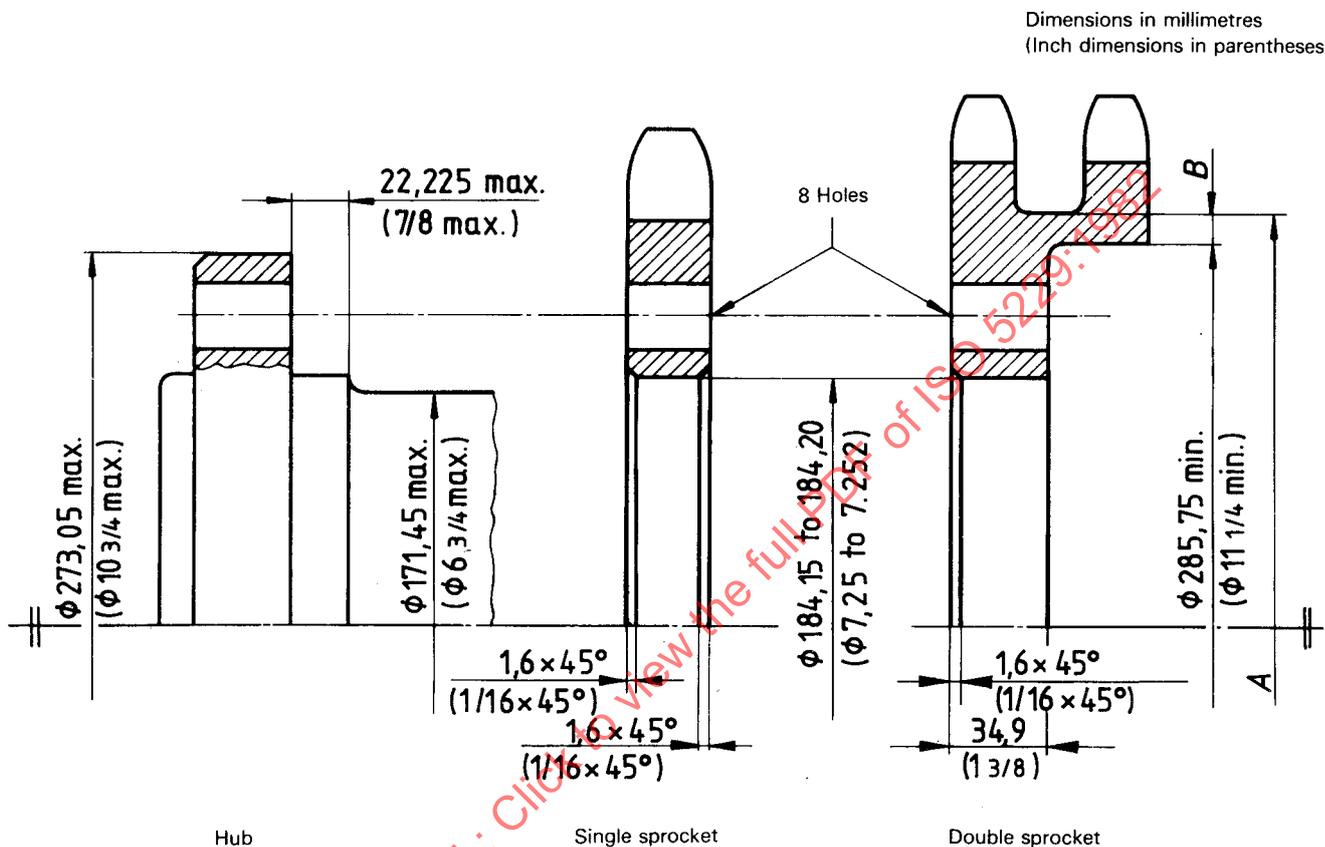


Figure 5 — Demountable rotary table sprocket

NOTES

- 1 The maximum hub diameter allowed for chain clearance is 273,05 mm (10 3/4 in).
- 2 The counterbore diameter of 285,75 mm (11 1/4 in) applies to sprockets with a minimum number of teeth. This diameter can be increased for sprockets having a greater number of teeth, to as much as the limit of difference A minus B.
- 3 The eight holes are drilled with a 26,2 mm (1 1/32 in) bit and are equally spaced on the bolt circle of diameter 228,6 mm (9 in).

Table 5 — Dimensions of demountable rotary table sprocket

Sprocket type	Teeth of sprocket min.	A max.		B min.	
		mm	in	mm	in
1 3/4 P single	23	—	—	—	—
2 P single	21	—	—	—	—
2 1/2 P single	17	—	—	—	—
API 3 P single	14	—	—	—	—
API 3 1/8 P single	14	—	—	—	—
1 3/4 P double	25	306,4	12 1/16	10,3	13/32
2 P double	22	301,6	11 7/8	7,9	5/16
2 1/2 P double	19	315,9	12 7/16	15,1	19/32