

Transformed

**ISO**

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION  
**R 239**

DRILL CHUCK TAPERS

---

1st EDITION  
December 1961

COPYRIGHT RESERVED

The copyright of ISO Recommendations and ISO Standards belongs to ISO Member Bodies. Reproduction of these documents, in any country, may be authorized therefore only by the national standards organization of that country, being a member of ISO.

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 239, *Drill Chuck Tapers*, 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 1952 and led, in 1958, to the adoption of a Draft ISO Recommendation.

In September 1959, this Draft ISO Recommendation (No. 305) 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:

Austria	Hungary	Portugal
Belgium	India	Romania
Burma	Italy	Sweden
Czechoslovakia	Mexico	Switzerland
France	Netherlands	United Kingdom
Germany	Pakistan	U.S.A.
Greece	Poland	U.S.S.R.

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 December 1961, to accept it as an ISO RECOMMENDATION.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

ISO/R 239:1961

<https://standards.iteh.ai/catalog/standards/sist/455883b5-94ea-453d-bed1-f73ebdbae9d5/iso-r-239-1961>

## DRILL CHUCK TAPERS

### INTRODUCTION

#### I. SCOPE

This ISO Recommendation relates to drill chuck tapers and deals with two distinct types:

1. Morse taper type . . . . . Tables 1.1 and 1.2,
2. Jacobs taper type . . . . . Tables 2.1 and 2.2.

For each type of taper, this ISO Recommendation comprises two tables giving respectively:

- (1) the dimensions in millimetres and
- (2) the corresponding dimensions in inches.

#### II. INTERCHANGEABILITY

For each type of taper, Morse or Jacobs, complete interchangeability is assured between the two systems of units of measurement, millimetres and inches, as the dimensions expressed in any one system have been converted from those expressed in the other with sufficiently close approximation, having regard to the magnitude of the tolerances.

#### III. MORSE TAPER TYPE

Tables 1.1 and 1.2 relate to drill chuck tapers of the Morse taper type.

The tapered portions are identical with Morse tapers:

- 1 for tapers B10 and B12,
- 2 for tapers B16 and B18,
- 3 for tapers B22 and B24.

The length of each of these tapers is, of course, distinctly less than the overall length of the corresponding Morse taper; each taper may be regarded as corresponding approximately

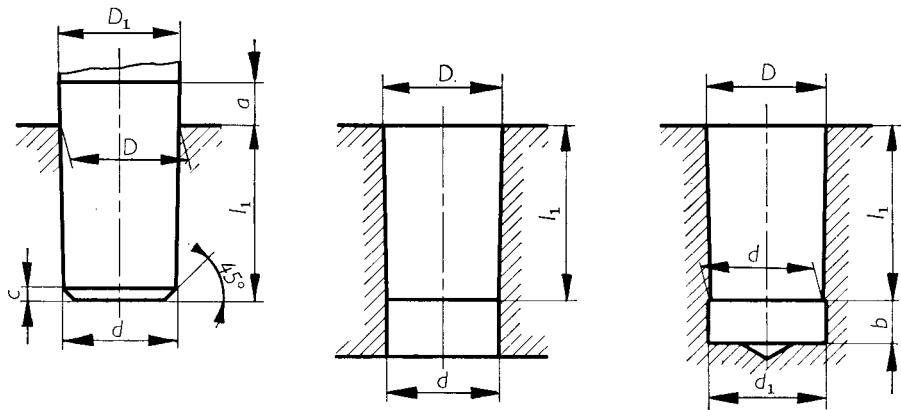
- either to that part of the Morse taper nearest the small end (e.g.: B10)
- or to the part nearest the large end (e.g.: B12).

#### IV. JACOBS TAPER TYPE

Tables 2.1 and 2.2 merely reproduce and classify the normal dimensions of Jacobs tapers; they also observe the generally accepted designations, in spite of their somewhat illogical appearance.

In effect, the range of increasing values for diameter  $D$  contains two 2 tapers, the first of which is a short taper 2, and between the tapers 2 and 3, there are two interpolated tapers which bear the out-of-series numbers 33 and 6 respectively.

## 1. MORSE TAPER TYPE



## 1.1 Dimensions in millimetres

Reference No.	$D$	$D_1^*$	$d^*$	$d_1$	$l_1$	$a$ max.	$b$	$c$	Taper	
									Morse	on diameter
B10	10.094	10.3	9.4	9.8	14.5	3.5	3.5	1.0	1	0.049 88
B12	12.065	12.2	11.1	11.5	18.5					
B16	15.733	16.0	14.5	15.0	24.0	5.0	4.0	1.5	2	0.049 95
B18	17.780	18.0	16.2	16.8	32.0					
B22	21.793	22.0	19.8	20.5	40.5	5.0	4.5	2.0	3	0.050 20
B24	23.825	24.1	21.3	22.0	50.5					

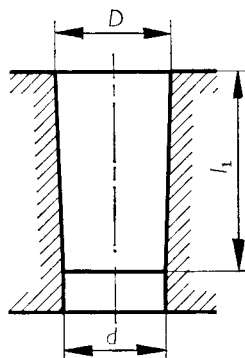
## 1.2 Dimensions in inches

Reference No.	$D$	$D_1^*$	$d^*$	$d_1$	$l_1$	$a$ max.	$b$	$c$	Taper	
									Morse	on diameter
B10	0.397 4	0.403 6	0.368 9	$\frac{25}{64}$	0.571	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{3}{64}$	1	0.049 88
B12	0.475 0	0.481 2	0.438 7	$\frac{29}{64}$	0.728					
B16	0.619 4	0.628 8	0.572 2	$\frac{19}{32}$	0.945	$\frac{3}{16}$	$\frac{5}{32}$	$\frac{1}{16}$	2	0.049 95
B18	0.700 0	0.709 4	0.637 1	$\frac{21}{32}$	1.260					
B22	0.858 0	0.867 4	0.778 0	$\frac{13}{16}$	1.594	$\frac{3}{16}$	$\frac{3}{16}$	$\frac{5}{64}$	3	0.050 20
B24	0.938 0	0.947 4	0.838 2	$\frac{7}{8}$	1.988					

\*  $D_1$  and  $d$  = calculated values given for information.

(The effective values are obtained by applying the rate of taper and the basic dimension  $D$  to the actual values of  $a$  and  $l_1$  respectively.)

## 2. JACOBS TAPER TYPE



## 2.1 Dimensions in millimetres

Jacob's taper	$D$	$d$ ~	$l_1$	Taper on diameter
0	6.350	5.802	11.112	0.049 29
1	9.754	8.469	16.669	0.077 09
2 short	13.940	12.386	19.050	0.081 55
2	14.199	12.386	22.225	0.081 55
33	15.850	14.237	25.400	0.063 50
6	17.170	15.852	25.400	0.051 91
3	20.599	18.951	30.956	0.053 25
(4)	28.550	26.346	42.069	0.052 40
(5)	35.890	33.422	47.625	0.051 83

Sizes shown in brackets should be avoided whenever possible.

⚡

## 2.2 Dimensions in inches

Jacob's taper	$D$	$d$ ~	$l_1$	Taper on diameter
0	0.250 0	0.2 284	0.437 50	0.591 45
1	0.384 0	0.333 4	0.656 25	0.925 08
2 short	0.548 8	0.487 6	0.750 00	0.978 61
2	0.559 0	0.487 6	0.875 00	0.978 61
33	0.624 0	0.560 5	1.000 00	0.761 94
6	0.676 0	0.624 1	1.000 00	0.622 92
3	0.811 0	0.746 1	1.218 75	0.638 98
(4)	1.124 0	1.037 2	1.656 25	0.628 86
(5)	1.413 0	1.316 1	1.875 00	0.620 10

Sizes shown in brackets should be avoided whenever possible.