

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 298

LATHE CENTRES
SIZES FOR INTERCHANGEABILITY

1st EDITION
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BRIEF HISTORY

The ISO Recommendation R 298, *Lathe Centres – Sizes for Interchangeability*, was drawn up by Technical Committee ISO/TC 39, *Machine 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, taking into account the studies which had been made by the former International Federation of the National Standardizing Associations (ISA), and led, in 1955, to the adoption of a Draft ISO Recommendation.

In July 1960, this Draft ISO Recommendation (No. 390) was circulated to all the ISO Member Bodies for enquiry. It was approved by the following Member Bodies:

Argentina	Hungary	Portugal
Belgium	India	Romania
Chile	Israel	Spain
Colombia	Italy	Sweden
Czechoslovakia	Japan	Switzerland
Denmark	Netherlands	United Kingdom
France	New Zealand	U.S.A.
Germany	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 March 1963, to accept it as an ISO RECOMMENDATION.

LATHE CENTRES

SIZES FOR INTERCHANGEABILITY

1. SCOPE

This ISO Recommendation deals principally with lathe centres. However, its scope should not be regarded as restricted to lathes only, but may be extended to all the other machine tools with centres of the same type.

The centre sizes given in the tables which follow are only those necessary for interchangeability; details of design (e. g. for the extracting device), which do not directly affect interchangeability, are not included.

2. SIZES

Sizes for interchangeability of the taper shank with the machine are in compliance with ISO Recommendation R 296, *Self-Holding Tapers for Tool Shanks*.

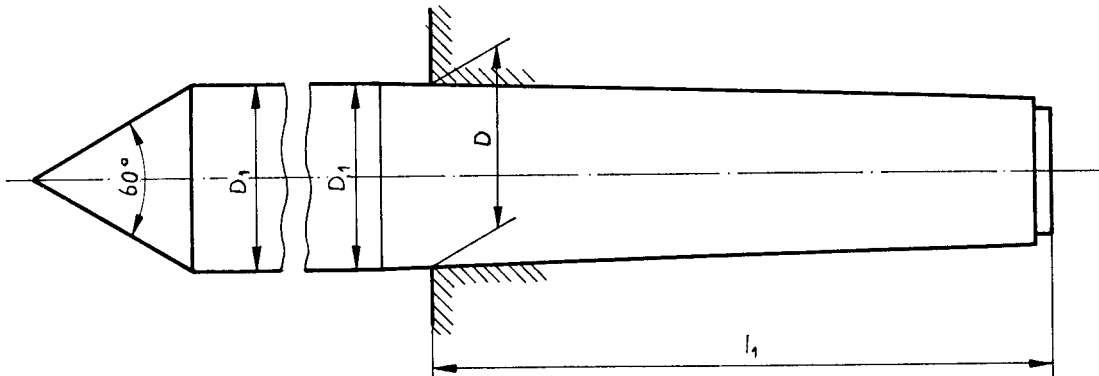
Table 1, page 6, gives sizes in millimetres for centres with No. 0 to 6 Morse or metric 5 per cent taper shanks.

Table 2, page 7, gives sizes in inches for centres with No. 1 to 6 Morse or No. 1 to 3 Brown & Sharpe taper shanks.

The angle of the centre itself is fixed at 60°. When a greater angle is really necessary for particularly heavy workpieces, it is recommended that only one of the two alternatives 75° and 90° should be given preference in national standards*. In this case, the following designation should be stated: "75° Centre" or "90° Centre".

* Final choice between the two values will be made later after further study.

2.1 Sizes in millimetres

Interchangeability
with the workpieceInterchangeability
with the machine

Example of designation of a lathe centre
with No. 3 Morse taper shank:
"No. 3 Morse Centre"

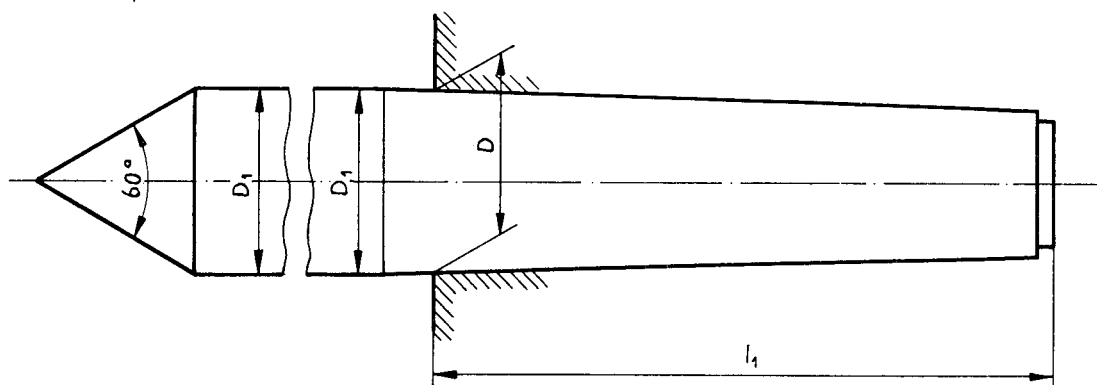
TABLE 1. — Lathe centres with No. 0 to 6 Morse or metric 5 per cent taper shanks

Designation		Taper shank			Centre
		Taper	D	l_1 max.	D_1 h9*
Type	No.				
Metric 5 per cent	4	1 : 20 = 0.05	4	23	4.1
	6	1 : 20 = 0.05	6	32	6.2
Morse	0	0.624 6 : 12 = 0.052 05	9.045	50	9.2
	1	0.598 58 : 12 = 0.049 88	12.065	53.5	12.2
	2	0.599 41 : 12 = 0.049 95	17.780	64	18.0
	3	0.602 35 : 12 = 0.050 20	23.825	81	24.1
	4	0.623 26 : 12 = 0.051 94	31.267	102.5	31.6
	5	0.631 51 : 12 = 0.052 63	44.399	129.5	44.7
	6	0.625 65 : 12 = 0.052 14	63.348	182	63.8
Metric 5 per cent	80	1 : 20 = 0.05	80	196	80.4
	100	1 : 20 = 0.05	100	232	100.5

For sizes of centres with Brown & Sharpe taper shanks, see Table 2, page 7.

* See ISO Recommendation R 286, *ISO System of Limits and Fits*.

2.2 Sizes in inches

Interchangeability
with the workpieceInterchangeability
with the machine

Example of designation of a lathe centre
with No. 3 Morse taper shank:
"No. 3 Morse Centre"

TABLE 2. — Lathe centres with No. 1 to 6 Morse or No. 1 to 3 Brown & Sharpe taper shanks

Designation		Taper shank			Centre
		Taper	D	l_1 max.	D_1 h9*
Type	No.				
Brown & Sharpe	1	0.502 00 : 12 = 0.041 83	0.239	$15/16$	0.243
	2	0.502 00 : 12 = 0.041 83	0.299	$13/16$	0.303
	3	0.502 00 : 12 = 0.041 83	0.375	$1 1/2$	0.379
Morse	1	0.598 58 : 12 = 0.049 88	0.475	$2 1/8$	0.481
	2	0.599 41 : 12 = 0.049 95	0.700	$2 9/16$	0.709
	3	0.602 35 : 12 = 0.050 20	0.938	$3 3/16$	0.947
	4	0.623 26 : 12 = 0.051 94	1.231	$4 1/16$	1.244
	5	0.631 51 : 12 = 0.052 63	1.748	$5 3/16$	1.760
	6	0.625 65 : 12 = 0.052 14	2.494	$7 1/4$	2.510

For sizes of centres with metric 5 per cent taper shanks and with No. 0 Morse taper shanks, see Table 1, page 6.

* See ISO Recommendation R 286, *ISO System of Limits and Fits*.