INTERNATIONAL STANDARD 1651

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

Tube drawing mandrels

Mandrins d'étirage de tubes

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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.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 29 has reviewed ISO Recommendation R 1651 and found it technically suitable for transformation. International Standard ISO 1651 therefore replaces ISO Recommendation R 1651-1970 to which it is technically identical.

ISO Recommendation R 1651 was approved by the Member Bodies of the following countries :

Belgium	India	South Africa, Rep. of
Czechoslovakia	Ireland	Spain
Egypt, Arab Rep. of	Israel	Switzerland
Finland	Italy	Thailand
France	Netherlands	Turkey
Greece	Poland	United Kingdom
Hungary	Portugal	Yugoslavia

The Member Body of the following country expressed disapproval of the Recommendation on technical grounds :

Sweden

The Member Body of the following country disapproved the transformation of ISO/R 1651 into an International Standard :

Germany

Printed in Switzerland

Tube drawing mandrels

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the general dimensions of tube drawing mandrels with respect to their diameter d_1.

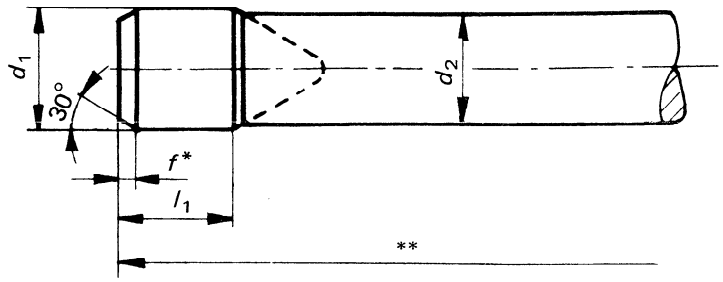
It applies to brazed drawing mandrels and sleeved drawing mandrels.

The dimensions have been determined taking existing practice into account as far as possible.

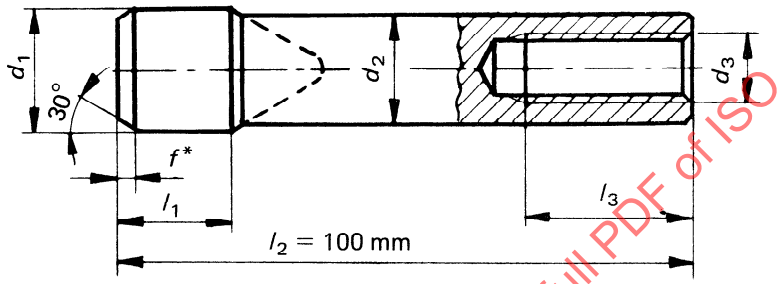
Threads are given in both measurement systems (metric and in inches) so as to allow the use of these mandrels on any machine.

2 BRAZED DRAWING MANDRELS

Form A – Welded on rod



Form B – With female thread



Form C – With male thread

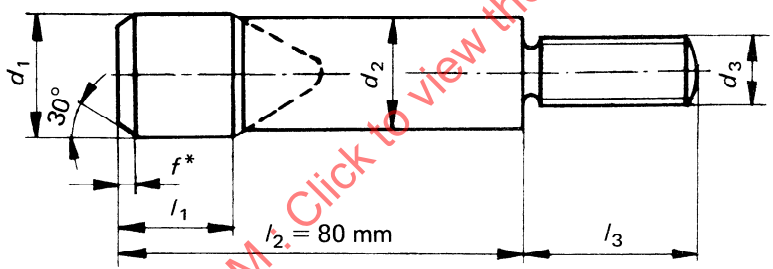


TABLE 1

Dimensions in millimetres

Form	d_1 above	d_1 up to	d_1 tolerance	d_2	l_1	f* max.	Form B d_3 Metric thread	Form B d_3 Inch thread	Form B l_3	Form C d_3 Metric thread	Form C d_3 Inch thread	Form C l_3
A	3	6	+ 0,01 0	$d_2 = d_1$	10	2	–	–	–	–	–	–
	6	8			12							
B,C	8	10	+ 0,01 0	$d_2 = d_1 \,^{-0,2}_{-0,6}$	15	2	M 5	N° 10–32 UNF	10	M 6	$\frac{1}{4}$ – 20 UNC	12
	10	12,5			18		M 6	$\frac{1}{4}$ – 20 UNC	12	M 8	$\frac{5}{16}$ – 18 UNC	16
	12,5	16			20		M 8	$\frac{5}{16}$ – 18 UNC	16	M10	$\frac{3}{8}$ – 16 UNC	20
	16	20	+ 0,02 0		22		M10	$\frac{3}{8}$ – 16 UNC	20	M12	$\frac{1}{2}$ – 13 UNC	24
	20	25			25		M12	$\frac{1}{2}$ – 13 UNC	24	M16	$\frac{5}{8}$ – 11 UNC	32

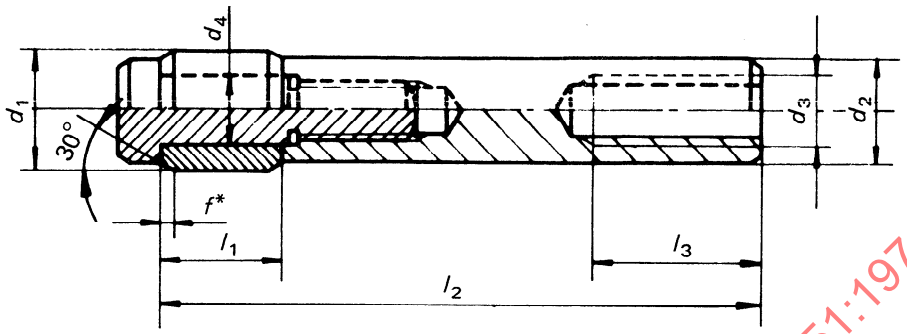
* A radius can be provided in place of a chamfer if required.

** The total length should be subject to agreement between manufacturer and purchaser.

NOTE – Details not stated are left to the discretion of the manufacturer.

3 SLEEVED DRAWING MANDRELS

Form D — With female thread



Form E — With male thread

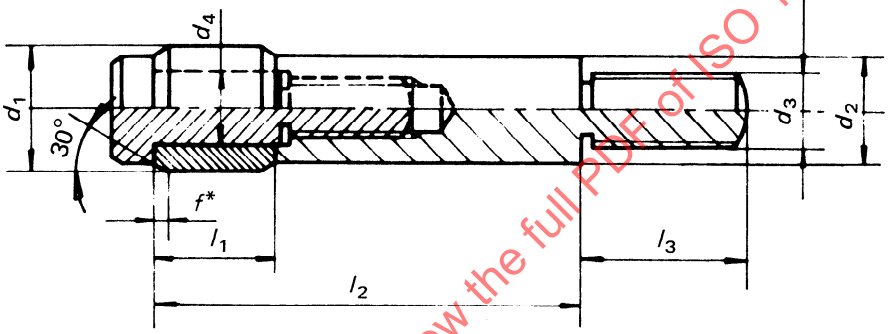


TABLE 2

Dimensions in millimetres

Form	d_1 above	d_1 up to	d_1 tolerance	d_2	d_4	l_1	f^* max.	Form D d_3 Metric thread	Form D d_3 Inch thread	Form D l_2	Form D l_3	Form E d_3 Metric thread	Form E d_3 Inch thread	Form E l_2	Form E l_3
D,E	8	10	+0,01 0	$d_2 = d_1 - 0{,}2 - 0{,}6$	$d_4 \approx 0{,}5\,d_1$	15	2	M 5	N° 10–32 UNF	100	10	M 6	$\frac{1}{4}$ – 20 UNC	80	12
	10	12,5				18		M 6	$\frac{1}{4}$ – 20 UNC		12	M 8	$\frac{5}{16}$ – 18 UNC		16
	12,5	16				20		M 8	$\frac{5}{16}$ – 18 UNC		16	M10	$\frac{3}{8}$ – 16 UNC		20
	16	20	+0,02 0			22		M10	$\frac{3}{8}$ – 16 UNC	100	20	M12	$\frac{1}{2}$ – 13 UNC	80	24
	20	25				25		M12	$\frac{1}{2}$ – 13 UNC		24	M16	$\frac{5}{8}$ – 11 UNC		32
	25	32				28		M16	$\frac{5}{8}$ – 11 UNC	150	32			110	
	32	40	+0,02 0			30		M20	$\frac{3}{4}$ – 10 UNC	150	35	M20	$\frac{3}{4}$ – 10 UNC	110	35
	40	50				35		M24	1 – 8 UNC		40	M24	1 – 8 UNC		40
	50	60						M30	1 $\frac{1}{4}$ – 7 UNC		45	M30	1 $\frac{1}{4}$ – 7 UNC		45
	60	70	+0,03 0			40		M30	1 $\frac{1}{4}$ – 7 UNC	180	45	M30	1 $\frac{1}{4}$ – 7 UNC	125	45
	70	80						M36	1 $\frac{1}{2}$ – 6 UNC		54	M36	1 $\frac{1}{2}$ – 6 UNC		54
	80	100						M42	1 $\frac{3}{4}$ – 5 UNC		63	M42	1 $\frac{3}{4}$ – 5 UNC		63

* A radius can be provided in place of a chamfer if required.

NOTE — Details not stated are left to the discretion of the manufacturer.

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