INTERNATIONAL STANDARD ISO 702/II

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

Machine tools — Spindle noses and face plates — Sizes for interchangeability — Part II : Camlock type

Machines-outils — Nez de broches et faux-plateaux — Dimensions d'interchangeabilité
Partie II : Type Camlock

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Descriptors : machine tools, spindle noses, lathes, face plates, dimensions, interchangeability.

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 39 has reviewed ISO Recommendation R 702 and found it technically suitable for transformation. It was decided, however, to divided it into two parts. International Standard ISO 702/II (together with ISO 702/I) therefore replaces ISO Recommendation R 702-1968 to which it is technically identical.

ISO Recommendation R 702 was approved by the Member Bodies of the following countries :

Belgium	India	Spain
Chile	Israel	Sweden
Czechoslovakia	Italy	Switzerland
Denmark	Japan	Turkey
Egypt, Arab Rep. of	Netherlands	United Kingdom
France	Poland	U.S.A.
Germany	Portugal	U.S.S.R.
Hungary	South Africa, Rep. of	

No Member Body expressed disapproval of the Recommendation.

The Member Body of the following country disapproved the transformation of ISO/R 702 into an International Standard :

United Kingdom

Machine tools — Spindle noses and face plates — Sizes for interchangeability — Part II : Camlock type

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the sizes for interchangeability of Camlock-type lathe spindle noses and corresponding face plates.

NOTE — The types "A" and "bayonet" are dealt with in parts I and III respectively.

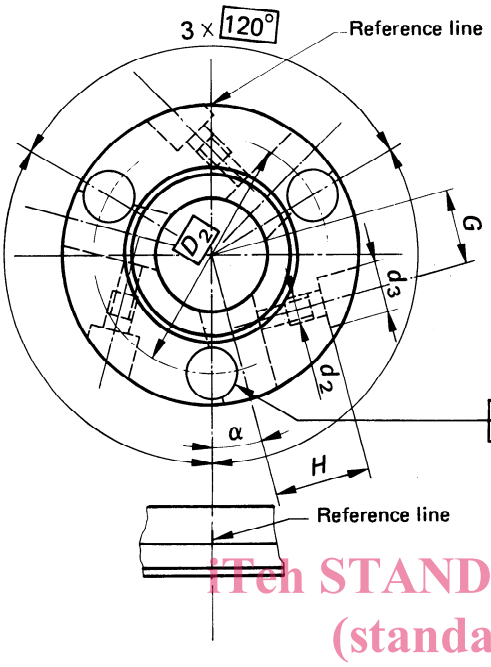
2 INTERCHANGEABILITY

Although internal mounting components and assembly screws are not respectively interchangeable as they may conform with either metric or inch series, there is complete interchangeability between metric spindle noses and face plates in inches and vice versa.

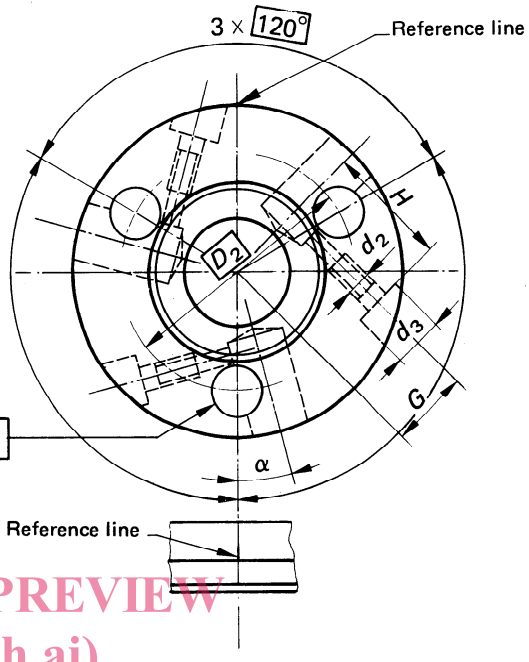
3 SIZES FOR INTERCHANGEABILITY

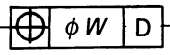
3.1 Spindle noses

No. 3

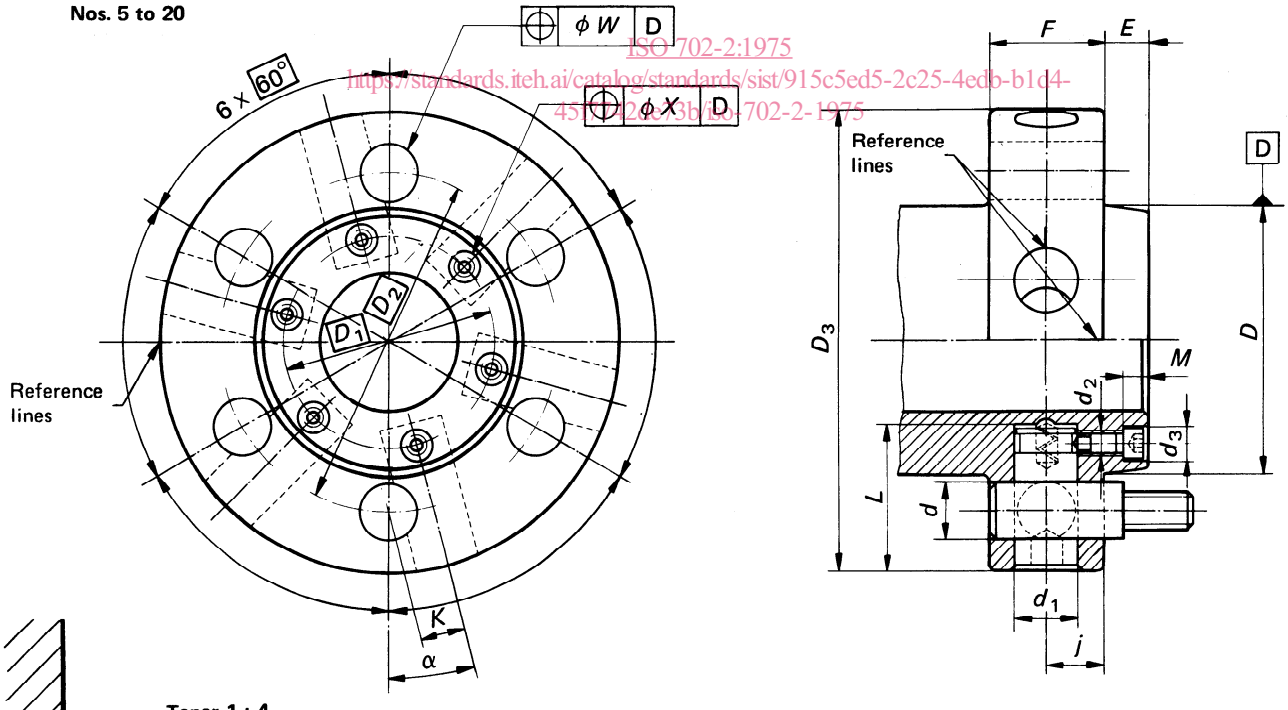


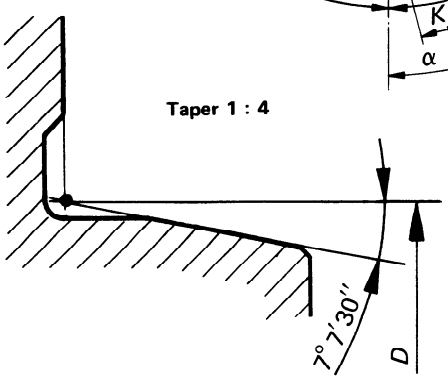
No. 4





Nos. 5 to 20





3.1.1 *Sizes in millimetres*

No. / Dimension	3	4	5	6	8	11	15	20
D	53,975	63,513	82,563	106,375	139,719	196,869	285,775	412,775
tol.	$+\frac{0,008}{0}$	$+\frac{0,008}{0}$	$+\frac{0,010}{0}$	$+\frac{0,010}{0}$	$+\frac{0,012}{0}$	$+\frac{0,014}{0}$	$+\frac{0,016}{0}$	$+\frac{0,020}{0}$
D_1			65	82	114	172	258	380
D_2	70,6	82,6	104,8	133,4	171,4	235,0	330,2	463,6
D_3	92	117	146	181	225	298	403	546
d $+\frac{0,05}{0}$	15,1	16,7	19,8	23,0	26,2	31,0	35,7	42,1
d_1 H8	19	19	22	26	29	32	35	42
d_2	M 8	M 8	M 6	M 8	M 8	M 8	M 10	M 10
d_3	15,5	15,5	10,5	13,5	13,5	13,5	16,5	16,5
E	11	11	13	14	16	18	19	21
F min.	32	34	38	45	50	60	70	82
G ± 0,05	22,6	27,0						
H ± 0,2	30	40						
J	17,5	17,5	20,6	23,8	27,0	31,8	36,5	42,9
K ± 0,1	11,1	11,1	13,5	15,9	18,25	21,45	24,6	28,6
L $+\frac{0,2}{0}$	27,5	36	46	57	64	75	84	94
M			7	9	9	9	11	11
W	0,1	0,15	0,15	0,15	0,15	0,15	0,15	0,15
X	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2
α	18° 18,6′	15° 36′	14° 55′	13° 46′	12° 18′	10° 30′	8° 35′	7° 05′

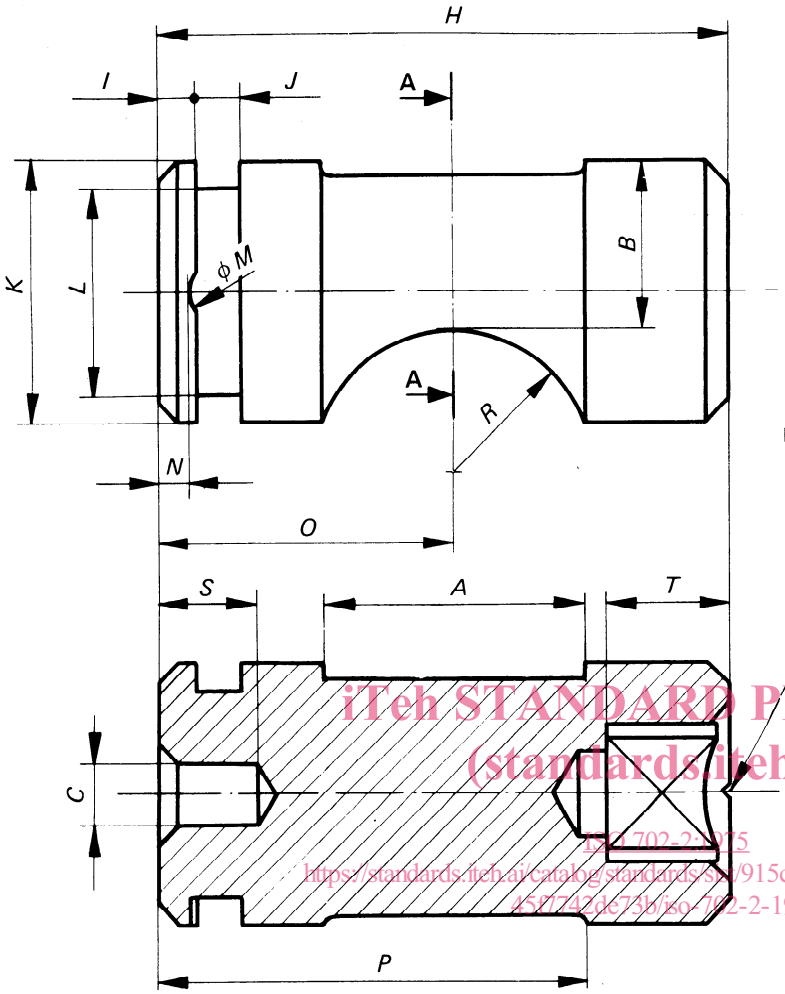
NOTE — General tolerance for untoleranced dimensions : ± 0,4 mm.

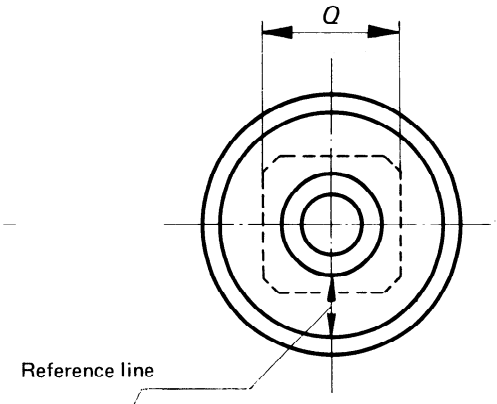
3.1.2 *Sizes in inches*

No. / Dimension	3	4	5	6	8	11	15	20
D	2.125 0	2.500 5	3.250 5	4.188 0	5.500 75	7.750 75	11.251 0	16.251 0
tol	+ 0.000 25 0	+ 0.000 5 0	+ 0.000 5 0	+ 0.000 5 0	+ 0.000 5 0	+ 0.000 5 0	+ 0.001 0	+ 0.001 0
D_1			2.50	3.25	4.50	6.75	10.125	15.000
D_2	2.782	3.250	4.125	5.250	6.750	9.250	13.000	18.250
D_3	3 5/8	4 5/8	5 3/4	7 1/8	8 7/8	11 3/4	15 7/8	21 1/2
d + 0.002 0	0.593 7	0.656 2	0.781 25	0.906 25	1.031 25	1.218 75	1.406 25	1.656 25
d_1 + 0.002 0	0.75	0.75	0.875	1.00	1.125	1.25	1.375	1.625
d_2	5/16-18 UNC	5/16-18 UNC	5/16-18 UNC	3/8-16 UNC	3/8-16 UNC	3/8-16 UNC	3/8-16 UNC	3/8-16 UNC
d_3	29/64	29/64	29/64	37/64	37/64	37/64	37/64	37/64
E	7/16	7/16	1/2	9/16	5/8	11/16	3/4	13/16
F	1 1/4	1 5/16	1 1/2	1 3/4	2	2 3/8	2 3/4	3 1/4
G ± 0.002	0.890	1.062						
H ± 0.008	1.195	1.600						
J	11/16	11/16	13/16	15/16	1 1/16	1 1/4	1 7/16	1 11/16
K ± 0.004	0.437	0.437	0.531	0.625	0.719	0.844	0.969	1.125
L + 0.016 0		1.453	1.875	2.250	2.531	2.937 5	3.312 5	3.687 5
M			11/32	13/32	13/32	13/32	13/32	13/32
W	0.004	0.006	0.006	0.006	0.006	0.006	0.006	0.006
X	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
α	18° 18,6′	15° 36′	14° 55′	13° 46′	12° 18′	10° 30′	8° 35′	7° 05′

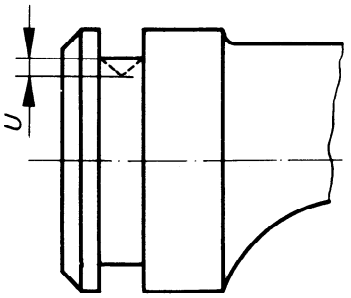
NOTE — General tolerance for untoleranced dimensions : ± 1/64 in.

3.2 Cams





No. 3



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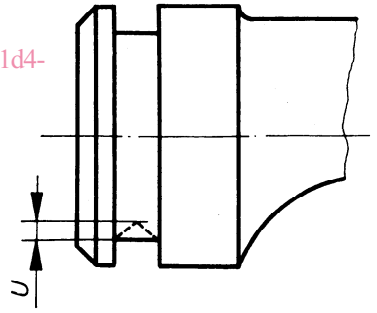

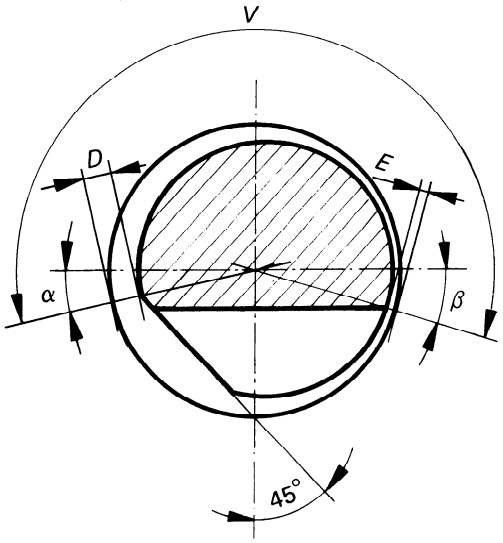

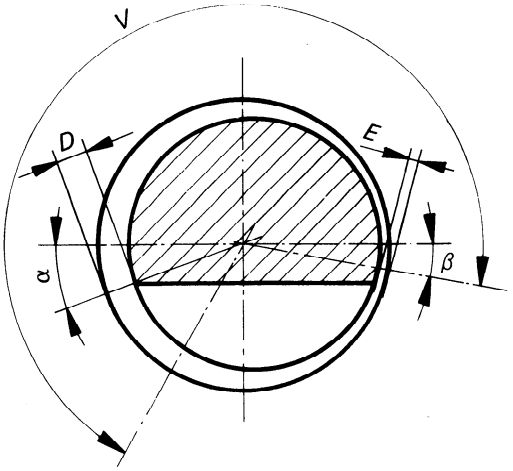

Section A-A

For No. 3 only $V = 210°$

For Nos. 4 to 20 $V = 250°$

3.2.1 *Sizes in millimetres*

No. / Dimension	3	4	5	6	8	11	15	20
A min.	13	17	22	25	28	32	37	43
$B\ ^{0}_{-0,2}$	13,4	11,9	14,2	16,7	18,9	21,2	23,5	27,8
C			7	10	10	10	10	10
$D\ ^{+0,3}_{0}$	1,65	1,60	1,45	2,56	2,46	2,44	2,35	3,10
$E\ ^{+0,1}_{0}$	0,15	0,15	0	0,45	0,36	0,28	0,20	0,50
$H\ ^{0}_{-0,1}$	26,5	35	45	56	63	73	82	92
I ± 0,1	2,2	2,2	3,0	4,2	5,3	8,7	6,0	6,0
J	3,6 ± 0,05	3,6 ± 0,05	5,0 ± 0,1	6,5 ± 0,1	6,5 ± 0,1	6,5 ± 0,1	8,5 ± 0,1	8,5 ± 0,1
K e 8	19	19	22	26	29	32	35	42
L	13 ± 0,2	13 ± 0,2	14	17	21	24	27	33
M ± 0,05			4,5	6	6	6	8	8
N ± 0,1			2,0	2,85	3,95	7,35	5,2	5,2
O ± 0,2	14,9	16,7	22,4	30,2	33,2	39,5	43,6	48,4
P	21,4	26,5	35,0	43,0	49,0	59,0	62,0	69,0
Q D 12	8	10	11	12	14	17	17	22
R	7,5	9,5	11,1	12,7	14,2	16,7	19,0	22,2
S			13	15	15	15	15	15
T	8	9	11	12	14	16	16	20
U	1,2	1,2						
Slope on *V**	1,60	1,90	1,90	2,64	2,64	2,64	2,64	3,18
β	15°	10°	10°	10°	10°	15°	15°	15°
α	15°	15°	15°	20°	20°	20°	20°	20°

* See tolerance on dimensions *D* and *E*.

NOTE — General tolerance for untoleranced dimensions : ± 0,4 mm.

3.2.2 *Sizes in inches*

Dimension \ No.	3	4	5	6	8	11	15	20
A min.	33/64	11/16	13/16	31/32	1 1/16	1 1/4	1 7/16	1 11/16
B[1]	0.528 0	0.469 0	0.562 5	0.640 6	0.734 0	0.828 0	0.922 0	1.078 0
C			5/16	3/8	3/8	3/8	3/8	3/8
D $^{+0.012}_{0}$	0.063	0.061	0.061	0.087	0.087	0.089	0.089	0.107
E $^{+0.004}_{0}$	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
H[2]	1.046	1.406	1.844	2.219	2.500	2.875	3.250	3.625
I[3]	0.086	0.116	0.125	0.156	0.187 5	0.250	0.250	0.250
J[4]	0.142	0.142	0.243	0.296	0.296	0.296	0.296	0.296
K $^{0}_{-0.002}$	0.746	0.746	0.871	0.996	1.121	1.246	1.371	1.621
L[5]	0.500	0.500	9/16	11/16	13/16	15/16	1 1/16	1 5/16
M ± 0.002			0.230	0.283	0.283	0.283	0.283	0.283
N ± 0.004			0.094	0.125	0.156	0.219	0.219	0.219
O ± 0.008	0.587	0.687	0.953	1.187	1.344	1.531	1.719	1.906
P	27/32	1 1/32	1 3/8	1 11/16	1 7/8	2 5/32	2 7/16	2 3/4
Q[6]	0.314	0.379	0.441	0.504	0.566	0.629	0.691	0.816
R	5/16	3/8	7/16	1/2	9/16	21/32	3/4	7/8
S			9/16	5/8	5/8	5/8	5/8	5/8
T	5/16	11/32	7/16	1/2	9/16	5/8	3/4	13/16
U	3/64	3/64						
Slope on *V**	0.063	0.075	0.075	0.104	0.104	0.104	0.104	0.125
β	15°	10°	10°	10°	10°	15°	15°	15°
α	15°	15°	15°	20°	20°	20°	20°	20°

* See tolerances on dimensions *D* and *E*.

1) $^{0}_{-0.004}$ in for No. 3 and $^{0}_{-0.008}$ in for Nos. 4 to 20

2) $^{0}_{-0.016}$ in for No. 3 and $^{0}_{-0.008}$ in for Nos. 4 to 20

3) ± 0.004 in for No. 3; + 0.002 in for No. 4; ± 0.004 in for Nos. 5 to 20

4) ± 0.002 in for Nos. 3 and 4; ± 0.004 in for Nos. 5 to 20

5) ± 0.008 in for Nos. 3 and 4 only

6) ± 0.008 in for No. 3 and ± 0.012 in for Nos. 4 to 20

NOTE — General tolerance for untoleranced dimensions : ± 1/64 in.