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## Machine tools — Connecting dimensions of spindle noses and workholding chucks —

### Part 1: Conical connection

*Machines-outils — Dimensions d'assemblage des nez de broche et des mandrins porte-pièces —*

*Partie 1: Raccordement conique*

[Revision of second edition (ISO 702-1:2001)]

ICS 25.060.20

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

ISO 702-1 was prepared by Technical Committee ISO/TC 39, *Machine Tools*, Subcommittee SC 8, *Work holding spindles and chucks*.

This third edition cancels and replaces the second edition (2001), tables and figures have been technically revised.

ISO 702 consists of the following parts, under the general title *Machine tools — Connecting dimensions of spindle noses and workholding chucks*:

- *Part 1: Conical connection*
- *Part 2: Camlock type*
- *Part 3: Bayonet type*
- *Part 4: Cylindrical connection*

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# Machine tools — Connecting dimensions of spindle noses and workholding chucks — Part 1: Conical connection

## 1 Scope

This International Standard specifies the sizes for interchangeability of conical spindle noses and corresponding connecting faces of face plates or work holding chucks.

NOTE The "Camlock type", "Bayonet type" and "Cylindrical connection" are dealt with in parts 2, 3 and 4 of ISO 702 respectively.

## 2 Interchangeability

In this part of ISO 702, all dimensions and tolerances are expressed in millimetres.

Although there are differences in the values of dimensions and assembly screws in metric and inch series, the connecting dimensions in Tables 1 and 2 allow for interchangeability metric- and inch-based chucks (see also footnote a in Table 2).

## 3 Sizes for interchangeability

### 3.1 Spindle noses

See Figure 1 and Table 1.

Type A<sub>1</sub>: Two bolt circles of diameter  $d_2$  and  $d_3$

Type A<sub>2</sub>: One outer bolt circle of diameter  $d_3$

(Type A<sub>2</sub> for Nos. 3 and 4; types A<sub>1</sub> and A<sub>2</sub> for Nos. 5 to 28)

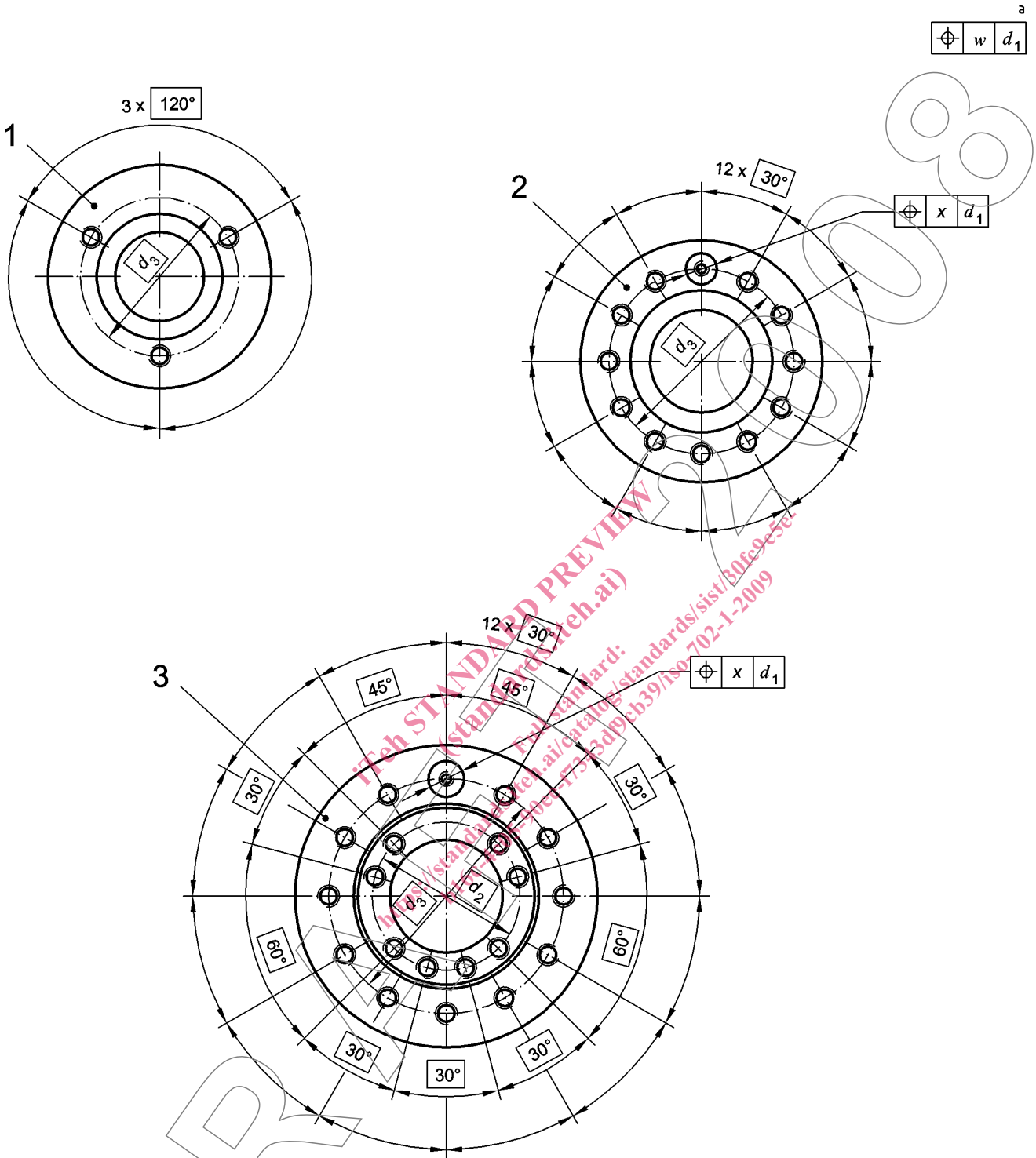


Figure 1—Spindle noses

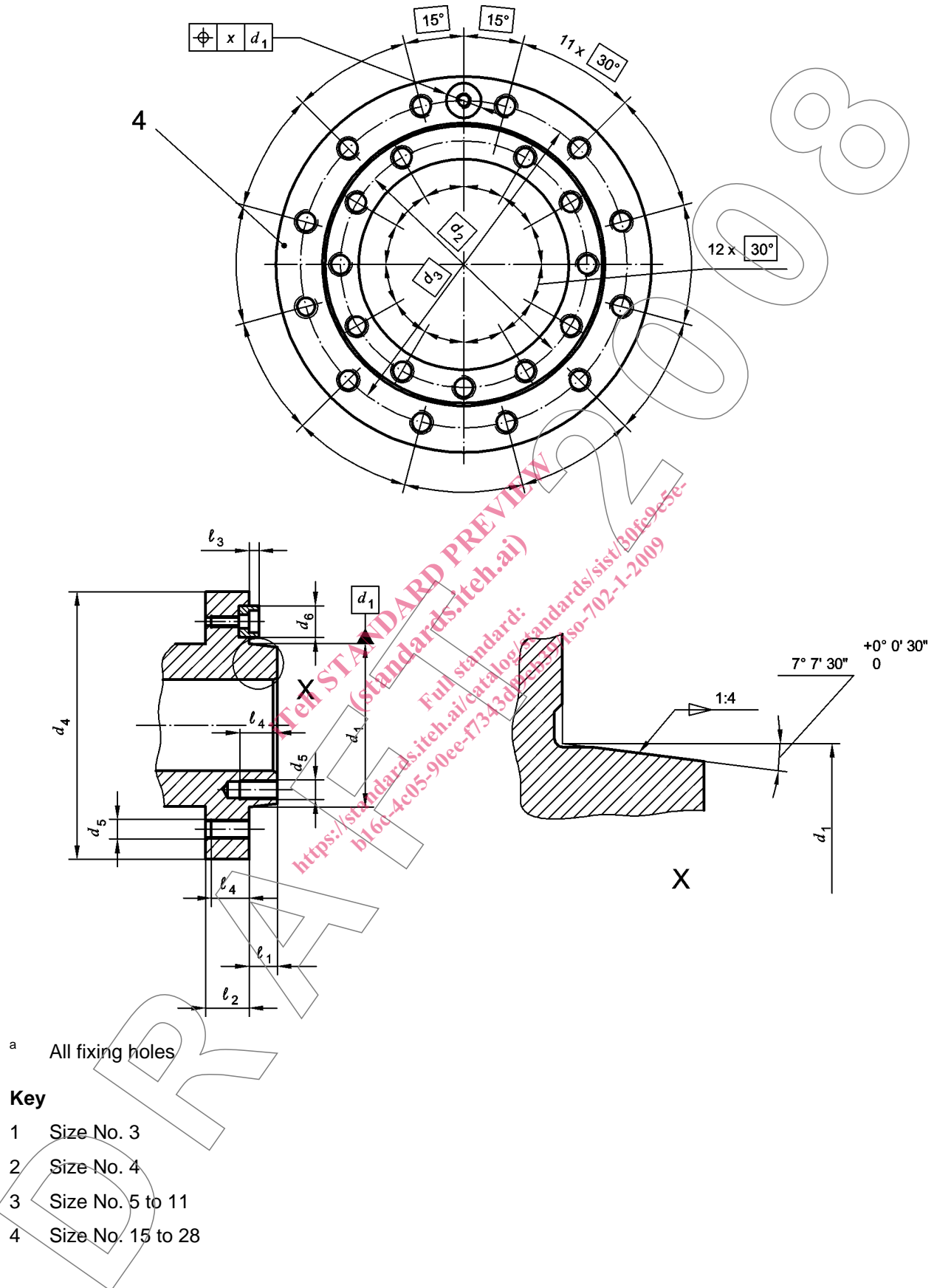


Figure 1 — Spindle noses (continued)

Table 1—Dimensions of spindle noses

Dimension	No.									
	3	4	5	6	8	11	15	20	28	
$d_1$	nom.	53,975	63,513	82,563	106,375	139,719	196,869	285,775	412,775	584,225
	tol.	+ 0,008 - 0	+ 0,008 - 0	+ 0,010 - 0	+ 0,010 - 0	+ 0,012 0	+ 0,014 0	+ 0,016 0	+ 0,020 0	+ 0,023 0
$d_2$	—	—	61,9	82,6	111,1	165,1	247,6	368,3	530,2	
$d_3$	70,6	82,6	104,8	133,4	171,4	235	330,2	463,6	647,6	
$d_4$	92	108	133	165	210	280	380	520	725	
$d_5$	M10	M10	M10	M12	M16	M20	M24	M24	M30	
$d_6$ H8/h8	—	14,25	15,9	19,05	23,8	28,6	34,9	41,3	50,8	
$l_1$ Type A <sub>1</sub>	<sup>0</sup> - 0,025	—	—	14,288	15,875	17,462	19,050	20,638	22,225	25,400
$l_1$ Type A <sub>2</sub>		11	11	13	14	16	18	19	21	24
$l_2$		16	20	22	25	28	35	42	48	56
$l_3$		—	5	5	5	6	8	8	8	8
$l_4$		14	17	19	22	25	32	37	42	50
$w$ and $x$		0,2	0,2	0,2	0,2	0,2	0,2	0,3	0,3	0,3
NOTE General tolerance for untoleranced dimensions: ± 0,4 mm										

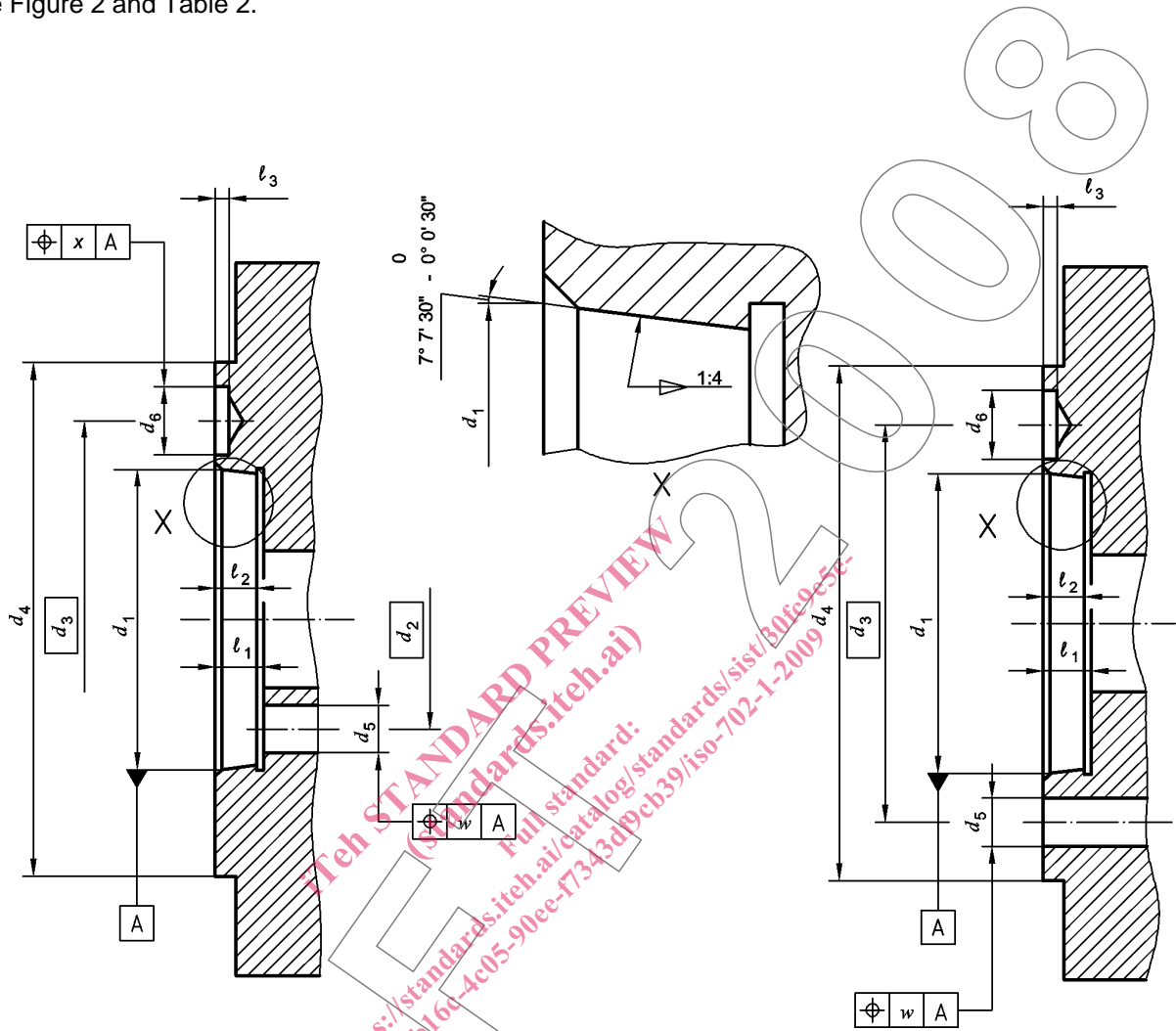
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3.2 Connecting face dimensions

See Figure 2 and Table 2.



With inner bolt circle (for mounting on spindle nose A<sub>1</sub> by means of its inner bolt circle)

With outer bolt circle (for mounting on spindle nose A<sub>1</sub>, or spindle nose A<sub>2</sub> by means of its outer bolt circle)

Figure 2 —Connecting face dimensions