
INTERNATIONAL STANDARD



3590

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

Modular units for machine tool construction – Spindle units

Éléments standard pour la construction des machines-outils – Unités de broche d'usinage

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[ISO 3590:1976](https://standards.iteh.ai/catalog/standards/sist/6ff250ee-facd-419b-8220-c3fe6d91ab6f/iso-3590-1976)

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UDC 621.9-112

Ref. No. ISO 3590-1976 (E)

Descriptors : machine tools, metalworking machinery, dimensions, modular units, spindles, multi-spindle heads, specifications, dimensions.

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.

International Standard ISO 3590 was drawn up by Technical Committee ISO/TC 39, *Machine tools*, and circulated to the Member Bodies in November 1974.

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It has been approved by the Member Bodies of the following countries :

Australia	Germany	Spain
Austria	Hungary	Sweden
Belgium	Italy	Switzerland
Bulgaria	Mexico	Turkey
China	Poland	United Kingdom
Czechoslovakia	Romania	U.S.S.R.
France	South Africa, Rep. of	Yugoslavia

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The Member Bodies of the following countries expressed disapproval of the document on technical grounds :

Japan
U.S.A.

Modular units for machine tool construction – Spindle units

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1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies dimensions relating to the interchangeability of the following types of spindle unit used in special purpose machines constructed from modular units :

- Quill feed (self-feeding) single spindle drilling units (clause 4);
- Quill feed (self-feeding) single spindle drilling units with adjusting slide for tool changing (clause 5);
- Single spindle drilling units (clause 6);
- Single spindle milling units (clause 7);
- Single spindle facing and boring units (clause 8).

2 REFERENCES

ISO/R 297, *7/24 tapers for tool shanks.*

ISO 702, *Machine tools – Spindle noses and face plates – Sizes for interchangeability. (Parts I, II and III.)*

ISO 2905, *Modular units for machine tool construction – Spindle noses and adjustable adaptors – 16 to 48 mm.*

ISO 3476, *Modular units for machine tool construction – Flanges for mounting multi-spindle heads.*

3 DIMENSIONS

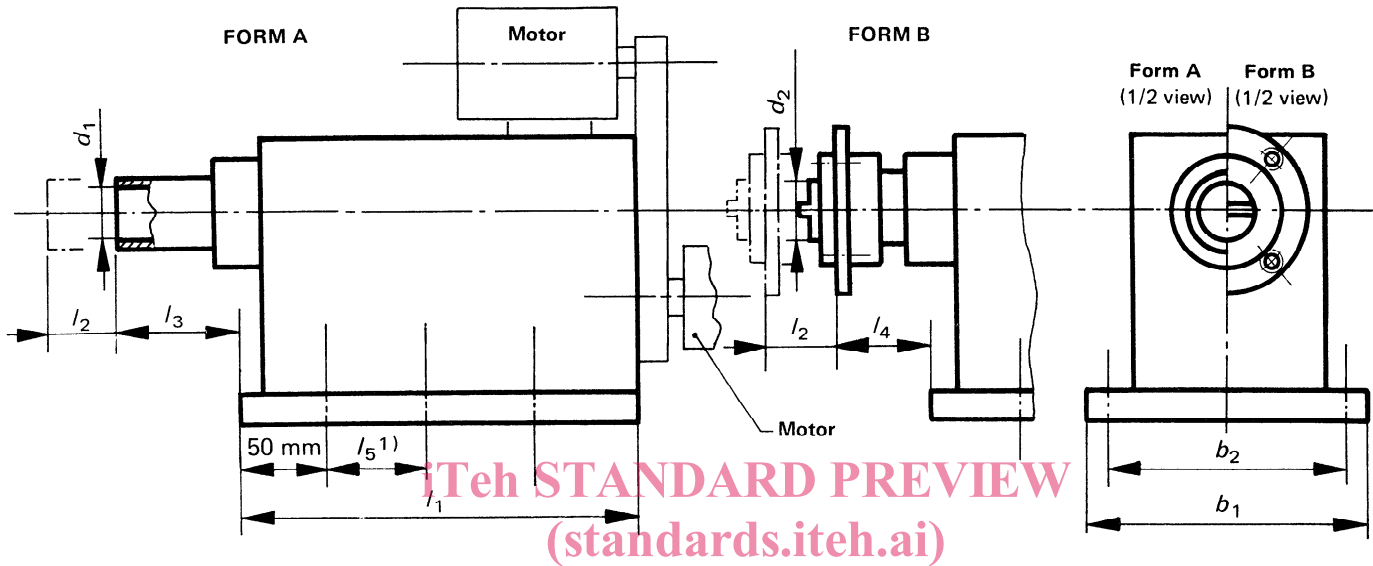
Dimensions for spindle units shall be in accordance with tables 1 to 5 as appropriate.

Spindle heights are not standardized.

4 QUILL FEED (SELF-FEEDING) SINGLE SPINDLE DRILLING UNITS

Form A : Parallel bore spindle nose to ISO 2905.

Form B : Multi-spindle head mounting flange and tenon drive to ISO 3476.



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TABLE 1 – Dimensions of quill feed (self-feeding) single spindle drilling units

Dimensions in millimetres

Nominal size	Overall width b_1	Length of base l_1	Stroke l_2 min.	Distance between bolt centres b_2 $\pm 0,2$	Form A		Form B		Fixing bolt size
					Bore of spindle nose d_1 H 7	Standout of spindle l_3	Drive shaft diameter d_2	Standout of flange l_4	
160	160	280	50	135	16	125	25	60	M 8
200	200	320	63	170	20	140	32	70	M 10
250	250	360	80	220	28	160	40	80	M 10
320	320	400	100	280	36	180	50	90	M 12

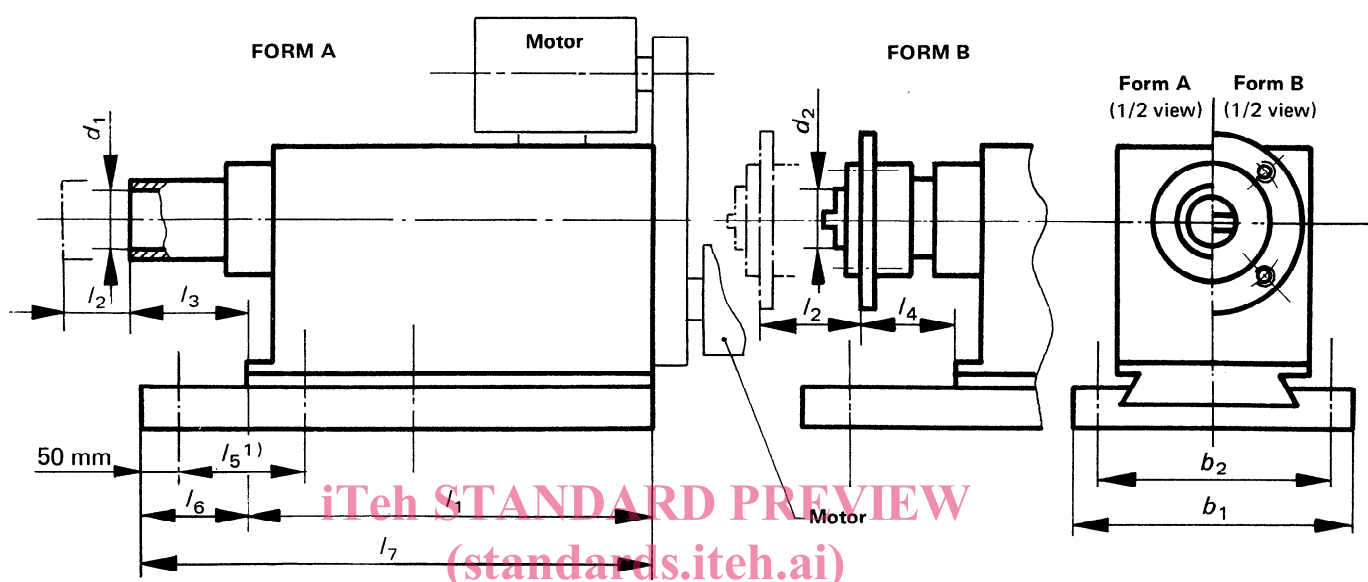
NOTES

- l_5 Lateral fixing bolt holes shall be spaced in increments of 25 mm or whole multiples of 25 mm (manufacturer's selection). Tolerances between extreme holes : $\pm 0,2$ mm.
- Size and position of motors together with detail design and size of unit body is left to the discretion of the manufacturer.
- Two dowels may be used for location purposes.

5 QUILL FEED (SELF-FEEDING) SINGLE SPINDLE DRILLING UNITS WITH ADJUSTING SLIDE FOR TOOL CHANGING

Form A : Parallel bore spindle nose to ISO 2905.

Form B : Multi-spindle head mounting flange and tenon drive to ISO 3476.



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TABLE 4 – Dimensions of quill feed (self-feeding) single spindle drilling units with adjusting slide for tool changing

Dimensions in millimetres

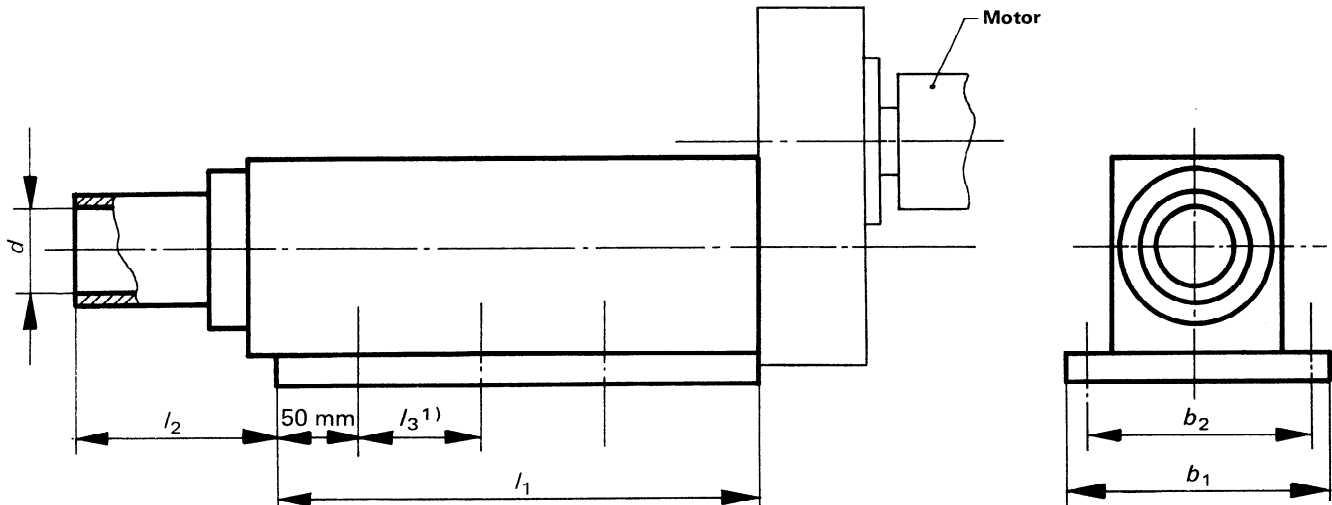
Nominal size	Overall width b_1	Length of base l_1	Stroke l_2 min.	Distance between bolt centres b_2 $\pm 0,2$	Form A		Form B		Adjustment l_6	Overall, length of slide base l_7	Fixing bolt size
					Bore of spindle nose d_1 H 7	Standout of spindle l_3	Drive shaft diameter d_2	Standout of flange l_4			
160	160	280	50	135	16	125	25	60	120	400	M 8
200	200	320	63	170	20	140	32	70	130	450	M 10
250	250	360	80	220	28	160	40	80	140	500	M 10
320	320	400	100	280	36	180	50	90	160	560	M 12

NOTES

- l_5 Lateral fixing bolt holes shall be in increments of 25 mm or whole multiples of 25 mm (manufacturer's selection). Tolerances between extreme holes : $\pm 0,2$ mm.
- Size and position of motors together with detail design and size of unit body is left to the discretion of the manufacturer.
- Two dowels may be used for location purposes.

6 SINGLE SPINDLE DRILLING UNITS

Parallel bore spindle nose to ISO 2905.



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TABLE 2 – Dimensions of single spindle drilling units

Dimensions in millimetres

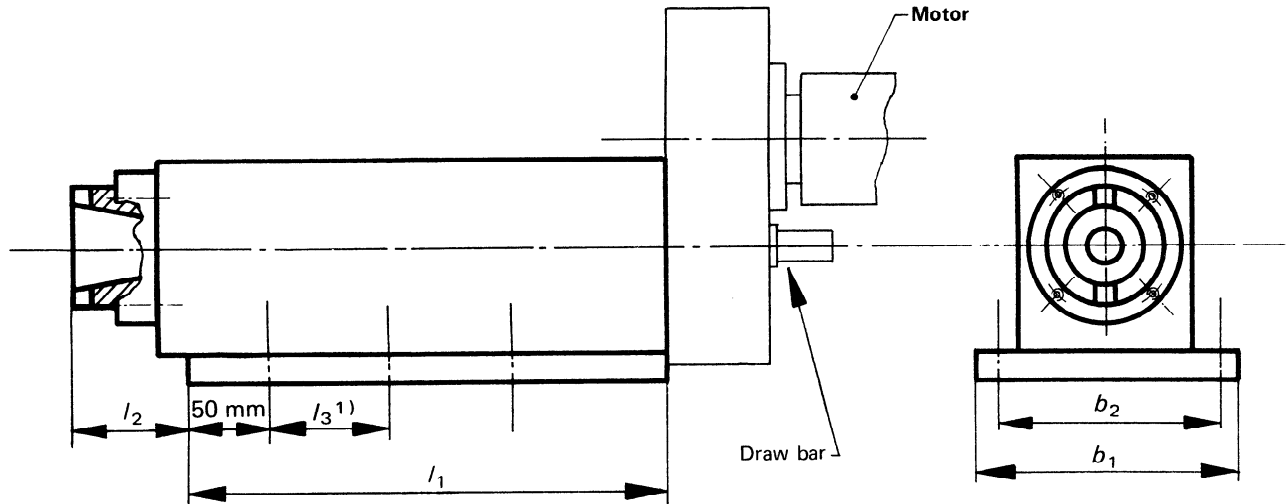
Nominal size	Overall width b_1	Length of base l_1	Bore of spindle nose d H 7	Standout of spindle l_2	Distance between bolt centres b_2 $\pm 0,2$	Fixing bolt size
125	125	250	28	125	100	M 10
160	160	320	28	125	135	M 10
200	200	400	36	160	170	M 12
250	250	500	36	160	220	M 12
320	320	630	48	200	280	M 12
400	400	800	48	200	355	M 16

NOTES

- l_3 Lateral fixing bolt holes shall be spaced in increments of 25 mm or whole multiples of 25 mm (manufacturer's selection). Tolerances between extreme holes : $\pm 0,2$ mm.
- Size and position of motor together with detail design and size of unit body is left to the discretion of the manufacturer.
- Two dowels may be used for location purposes.

7 SINGLE SPINDLE MILLING UNITS

7/24 taper bore spindle nose to ISO 297.



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TABLE 3 – Dimensions of single spindle milling units

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Dimensions in millimetres

Nominal size	Overall width b_1	Length of base l_1	Designation No. of 7/24 taper spindle nose	Standout of spindle l_2	Distance between bolt centres $b_2 \pm 0,2$	Fixing bolt size
125	125	250	30	100	100	M 10
160	160	320	30	100	135	M 10
200	200	400	40	125	170	M 12
250	250	500	40	125	220	M 12
320	320	630	50	160	280	M 12
400	400	800	50	160	355	M 16
500	500	1 000	60	200	450	M 16
630	630	1 250	60	200	580	M 16

NOTES

- l_3 Lateral fixing bolt holes shall be spaced in increments of 25 mm or whole multiples of 25 mm (manufacturer's selection). Tolerances between extreme holes : $\pm 0,2$ mm.
- Size and position of motor together with detail design and size of unit body is left to the discretion of the manufacturer.
- Two dowels may be used for location purposes.

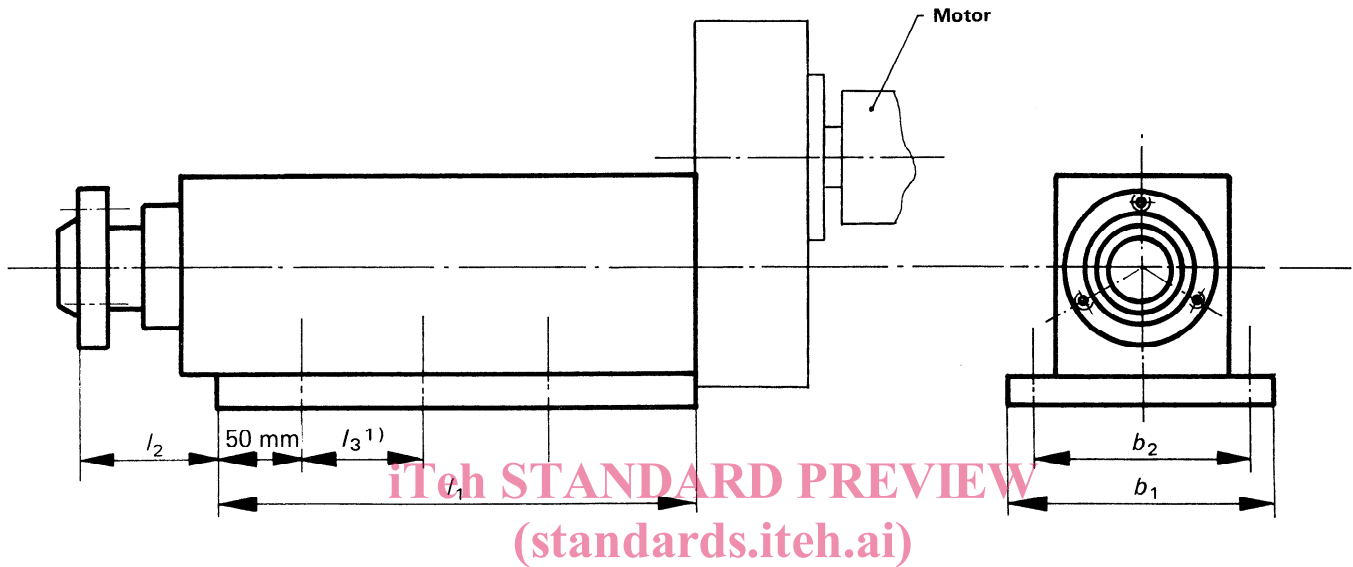
8 SINGLE SPINDLE FACING AND BORING UNITS

Form A : Type A spindle nose to ISO 702/I.

Form B : Bayonet type spindle nose to ISO 702/III.

Form C : Camlock spindle nose to ISO 702/II.

These units are not intended for fine boring operations.



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 TABLE 5 – Dimensions of single spindle facing and boring units

Dimensions in millimetres

Nominal size	Overall width b_1	Length of base l_1	Designation No. of spindle nose Form A, B or C	Standout of spindle l_2	Distance between bolt centres $b_2 \pm 0,2$	Fixing bolt size
125	125	250	3	100	100	M 10
160	160	320	3	100	135	M 10
200	200	400	4	125	170	M 12
250	250	500	5	125	220	M 12
320	320	630	6	160	280	M 12
400	400	800	8	160	355	M 16
500	500	1 000	11	200	450	M 16
630	630	1 250	15	200	580	M 16

NOTES

- l_3 Lateral fixing bolt holes shall be spaced in increments of 25 mm or whole multiples of 25 mm (manufacturer's selection). Tolerances between extreme holes : $\pm 0,2$ mm.
- Size and position of motor together with detail design and size of unit body is left to the discretion of the manufacturer.
- Two dowels may be used for location purposes.