INTERNATIONAL STANDARD

ISO 9270

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7/24 tapers for tool shanks for automatic changing — Tapers for spindle noses

Cônes d'emmanchement d'outils à conicité 7/24 pour changement automatique — Cônes pour nez de broches

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Reference number
ISO 9270:1992(E)

Foreword

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International Standard ISO 9270 was prepared by Technical Committee ISO/TC 39, *Machine tools*.

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Annex A of this International Standard is for information only.

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7/24 tapers for tool shanks for automatic changing — Tapers for spindle noses

1 Scope

This International Standard specifies the dimensions and tolerances of tenons and 7/24 tapers for machine-tool spindle noses for automatic changing, intended for use with the corresponding tool shanks specified in ISO 7388-1 and ISO 7388-3.

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2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 297:1988, *7/24 tapers for tool shanks for manual changing.*

ISO 898-1:1988, *Mechanical properties of fasteners — Part 1: Bolts, screws and studs.*

ISO 1947:1973, *System of cone tolerances for conical workpieces from C = 1:3 to 1:500 and lengths from 6 to 630 mm.*

ISO 4762:1989, *Hexagon socket head cap screws — Product grade A.*

ISO 7388-1:1983, *Tool shanks with 7/24 taper for automatic tool changers — Part 1: Shanks Nos. 40, 45 and 50 — Dimensions.*

ISO 7388-3:—[1], *Tool shanks with 7/24 taper for automatic tool changers — Part 3: Retention knobs for shank No. 30 — Dimensions, conicity tolerances and mechanical characteristics.*

ISO 9524:1992[1], *Machine tools — Front faces of spindle holders for machining centres — Functional dimensions.*

3 Dimensions

See figure 1 and table 1.

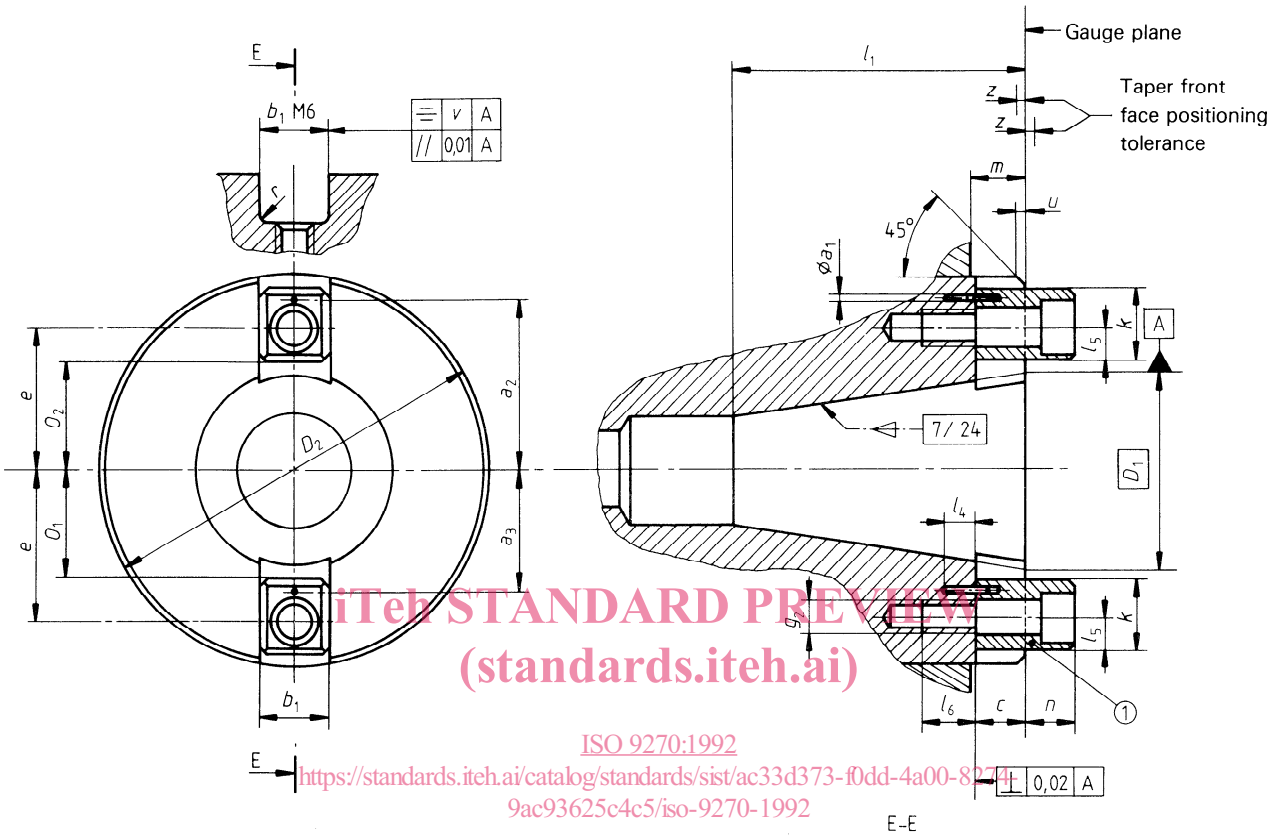
4 Conicity tolerances

The conicity tolerances shall conform with the cone angle tolerance grade AT4 specified in ISO 1947.

These values shall be negative.

1) To be published.

Perpendicularity, parallelism and symmetry tolerances in millimetres



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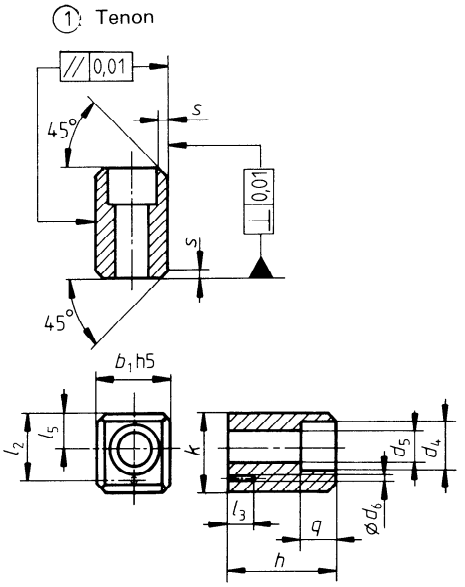

Figure 1

Table 1

Dimensions in millimetres

Designation No.	Taper			1), 2)			Tenon slot								
	D_1 3)	z	l_1	D_2	m min.	u	b_1 4)	v	c min.	O_1	O_2	e ± 0,2	g_2	l_4	l_6
30	31,75	0,2	47,4		12,5	2	15,9	0,06	8	17	19,5	25	M6	7	9
40	44,45	0,2	64,4		16	2	15,9	0,06	8	23,5	26	33	M6	7	9
45	57,15	0,2	81,8		18	2	19	0,06	9,5	30	32,5	40	M8	7	12
50	69,85	0,2	100,8		19	2	25,4	0,08	12,5	36,5	38,5	49,5	M12	7	18

1) When cutter mounting on the spindle is required, the tolerance on D_2 should be h5. For mounting dimensions, D_2, m and u, see ISO 297.

2) When connecting blocks in accordance with ISO 9524 are used, the maximum values for D_2 shall be 100 for taper shank No. 40 and 130 for taper shanks Nos. 45 and 50.

3) D_1 is the basic diameter contained in the gauge plane.

4) b_1 is the dimension of the tenon assembly in the slot: fit, M6-h5.

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Designation No.	Tenon slot (continued)				Tenon[1]											
	r max.	a_1 2)	a_2	a_3	n max.	k max.	h $^{0}_{-0,2}$	d_4	d_5	d_6	q	s min.	l_2	l_3	l_5 ± 0,1	Fixing screw 3)
30	1,6	2,5	30,6	19,4	16,5	13,5	24,5	10,4	6,4	2,6	6,2	1,6	11,1	4	5,5	M6 × 25
40	1,6	2,5	39,35	26,65	16,5	16,5	24,5	10,4	6,4	2,6	6,2	1,6	13,35	4	7	M6 × 25
45	1,6	2,5	47,1	32,9	16,5	17,5	26	13,4	8,4	2,6	10	1,6	14,6	4	7,5	M8 × 25
50	2	2,5	59,25	39,75	16,5	24	29	19	13	2,6	12,3	2	20,75	4	11	M12 × 30

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1) Tenon hardness (58 ± 2) HRC.

2) Stop pins of diameter a_1, and dimensions a_2, a_3, l_2, l_3, l_4 and d_6, are optional.

3) Screws conform with both ISO 4762 and ISO 898-1, class 8.8.

Annex A
(informative)

Bibliography

[1] ISO 7388-2:1984, *Tool shanks with 7/24 taper for automatic tool changers — Part 2: Retention knobs for shanks Nos. 40, 45 and 50 — Dimensions and mechanical characteristics.*

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