INTERNATIONAL STANDARD

ISO 10649-5

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Cutter arbors with parallel key and tenon drive —

Part 5: Dimensions and designation of tool holders with polygonal taper interface with flange contact surface

Mandrins porte-fraise à entraînement par clavette et tenon —

Partie 5: Dimensions et désignation des porte-outils avec interface à cône polygonal avec face d'appui

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Foreword

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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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 10649-5 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 2, *High speed steel cutting tools and their attachments*.

ISO 10649 consists of the following parts, under the general title *Cutter arbors with parallel key and tenon drive*:

— *Part 1: General dimensions*

— *Part 2: Dimensions and designation of tool holders with hollow taper interface with flange contact surface*

— *Part 3: Dimensions and designation of tool holders with 7/24 taper for automatic tool changers*

— *Part 4: Dimensions and designation of tool holders with 7/24 taper without automatic tool changers*

— *Part 5: Dimensions and designation of tool holders with polygonal taper interface with flange contact surface*

— *Part 6: Dimensions and designation of tool holders with modular taper interface with ball track system*

Introduction

The aim of ISO 10649 (all parts) is to specify the main dimensions for tool holders for this type of interface, and prevent the risk of collision when exchanging the assembled tool within the machine tools.

Cutter arbors with parallel key and tenon drive —

Part 5:
Dimensions and designation of tool holders with polygonal taper interface with flange contact surface

1 Scope

This part of ISO 10649 specifies the dimensions of cutter arbors with parallel key and tenon drive with polygonal taper interface (PSC) with flange contact surface.

The relationship between symbols in this part of ISO 10649 and the ISO 13399 series is given for information in Annex A.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2768-1, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

ISO 2768-2, *General tolerances — Part 2: Geometrical tolerances for features without individual tolerance indications*

ISO 2780, *Milling cutters with tenon drive — Interchangeability dimensions for cutter arbors — Metric series*

ISO 10643, *Dimensions of accessories for cutter arbors with parallel key and tenon drive*

ISO 10649-1, *Cutter arbors with parallel key and tenon drive — Part 1: General dimensions*

ISO 26623-1, *Polygonal taper interface with flange contact surface — Part 1: Dimensions and designation of shanks*

3 Dimensions

3.1 General

All dimensions and tolerances are given in millimetres. Tolerances not specified shall be of tolerance class “m” in accordance with ISO 2768-1 and of class “K” in accordance with ISO 2768-2.

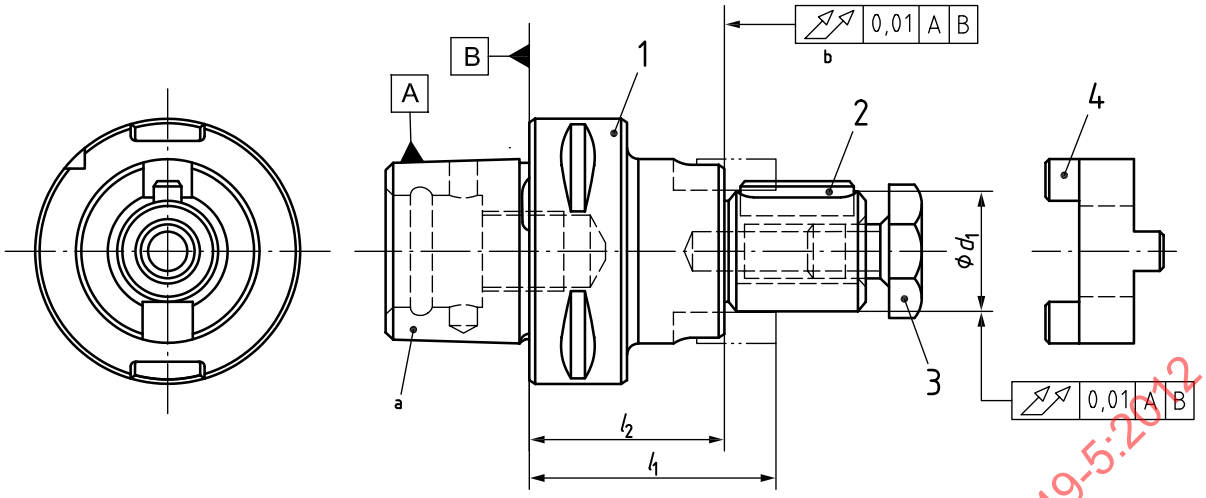
The interchangeability dimensions of the milling cutter bearing on the cutter arbors shall be in accordance with ISO 2780.

The dimensions of the tool interface for arbors with parallel key and tenon drive shall be in accordance with dimensions given in ISO 10649-1.

The figures are schematic and are not intended to specify a given design; only the given dimension shall be met.

3.2 Cutter arbors with parallel key and tenon drive with polygonal taper interface

The dimensions for cutter arbors with parallel key and tenon drive with polygonal taper interface with flange contact surface shall be in accordance with the dimensions shown in Figure 1 and given in Table 1.



Key

1 tool holder with PSC in accordance with ISO 26623-1
2 parallel key in accordance with ISO 10643
3 cutter retaining screw in accordance with ISO 10643
4 clutch drive ring in accordance with ISO 10643
a Polygonal taper interface (PSC) in accordance with ISO 26623-1.
b Not convex.

Figure 1 — Cutter arbors with parallel key and tenon drive with polygonal taper interface

Table 1 — Dimensions

PSC no.	32		40		50				63					80				
d_1	16	22	16	22	16	22	27	32	16	22	27	32	40	16	22	27	32	40
l_1	40	45	45	50	45	50	50	55	50	50	55	55	60	55	60	60	65	65
l_2	30	33	35	38	35	38	38	41	40	38	43	41	46	45	48	48	51	51

4 Material

The material is left to the manufacturer's discretion; the tensile strength shall be at least 800 N/mm^2.

The surface hardness shall be (56 + 4) HRC in the area of the taper surface and the surfaces of the spigot. The hardness depth is left to the manufacturer's discretion.

5 Designation

The cutter arbors with parallel key and tenon drive with polygonal taper interface in accordance with this part of ISO 10649 shall be designated by:

a) "Arbor";

b) a reference to this part of ISO 10649, i.e. ISO 10649-5;

c) a hyphen;

d) PSC;

e) a hyphen;

f) the shank number;

g) a hyphen;

h) the cutter diameter, d_1.

EXAMPLE A regular contact surface arbor with polygonal taper interface with shank No. 63, cutter diameter d_1 = 16 mm, clutch drive ring and cutter retaining screw is designated as follows:

Arbor ISO 10649-5 - PSC - 63 - 16

6 Delivery conditions

The cutter arbors with parallel key and tenon drive with polygonal taper interface in accordance with this part of ISO 10649 shall be delivered with at least the following:

— the parallel key in accordance with ISO 10643;

— the clutch drive ring in accordance with ISO 10643;

— the cutter retaining screw in accordance with ISO 10643.

Annex A
(informative)

Relationship between symbols in this part of ISO 10649 and the ISO 13399 series

For the relationship between symbols in this part of ISO 10649 and symbols according to the ISO 13399 series, see Table A.1.

Table A.1 — Relationship between symbols in this part of ISO 10649 and the ISO 13399 series

Symbol in this part of ISO 10649 (ISO 10649-5)	Reference in this part of ISO 10649 (ISO 10649-5)	Property name in the ISO 13399 series	Symbol in the ISO 13399 series	ISO 13399 series BSU code
d_1	Figure 1	Shank diameter	DMM	ISO/TS 13399-3 71CF29862B277
l_1	Figure 1	Functional length	LF	ISO/TS 13399-3 71DCD39338974
l_2	Figure 1	Functional length secondary	LFS	ISO/TS 13399-3 71D078F5BEDBE