INTERNATIONAL STANDARD

ISO 10649-6

First edition
2012-07-15

Cutter arbors with parallel key and tenon drive —

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

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Mandrins porte-fraise à entraînement par clavette et tenon —
Partie 6: Dimensions et désignation des porte-outils avec interface à cône modulaire avec système de serrage à bille

ISO 10649-6:2012
https://standards.iteh.ai/catalog/standards/sist/b4156781-983c-4527-a510-7497d7f3e3cb/iso-10649-6-2012

Reference number
ISO 10649-6:2012(E)

© ISO 2012

iTeh STANDARD PREVIEW
(standards.iteh.ai)
ISO 10649-6:2012
https://standards.iteh.ai/catalog/standards/sist/b4156781-983c-4527-a510-7497d7f3e3cb/iso-10649-6-2012

COPYRIGHT PROTECTED DOCUMENT

© ISO 2012

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

© ISO 2012 – All rights reserved

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.

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 10649-6 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 2, *High speed steel cutting tools and their attachements*.

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*

iTeh STANDARD PREVIEW
(standards.iteh.ai)
ISO 10649-6:2012
https://standards.iteh.ai/catalog/standards/sist/04159781-9850-4527-a510-7497d7f3e3cb/iso-10649-6-2012

© ISO 2012 – All rights reserved

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.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
ISO 10649-6:2012
https://standards.iteh.ai/catalog/standards/sist/b4156781-983c-4527-a510-7497d7f3e3cb/iso-10649-6-2012

© ISO 2012 – All rights reserved

Cutter arbors with parallel key and tenon drive —

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

1 Scope

This part of ISO 10649 specifies the dimensions of cutter arbors with parallel key and tenon drive with modular taper interface (TS) with ball track system.

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.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

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 10649-6:2012
https://standards.iteh.ai/catalog/standards/sist/b4156781-983c-4527-a510-f497d7b83c8/iso-10649-6-2012

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 26622-1, *Modular taper interface with ball track system — 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.

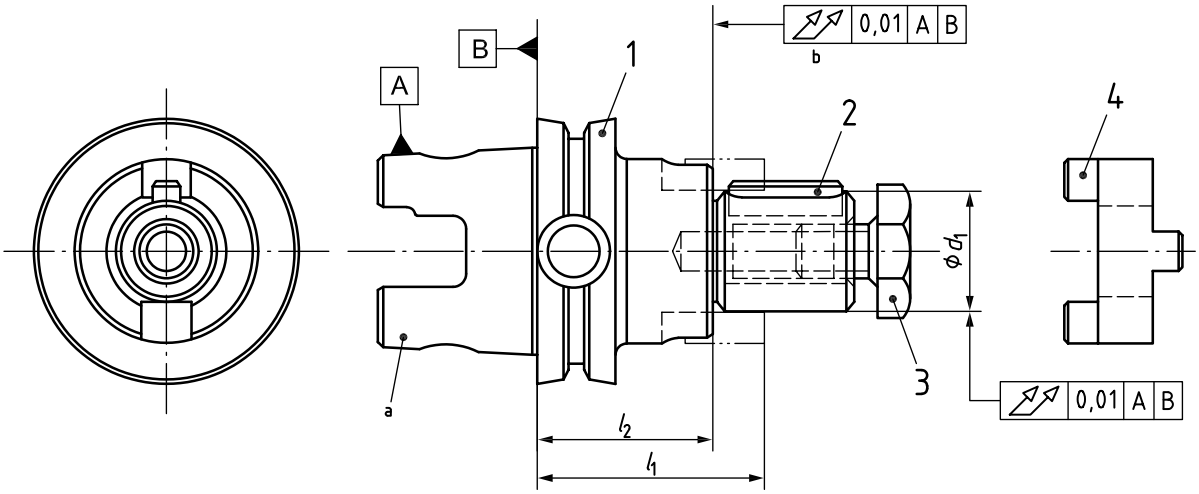
The dimensions of the tool interface shall be in accordance with dimensions given in ISO 10649-1.

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 modular taper interface

The dimensions for cutter arbors with parallel key and tenon drive with modular taper interface with ball track system shall be in accordance with the dimensions shown in Figure 1 and given in Table 1.

© ISO 2012 – All rights reserved



Key

1 Tool holder with TS in accordance with ISO 26622-1
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 Modular taper interface (TS) in accordance with ISO 26622-1.
b Not convex.

iTeh STANDARD PREVIEW

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

(standards.iteh.ai)

Table 1 — Dimensions

ISO 10649-6:2012
https://standards.iteh.ai/catalog/standards/sist/b4156781-983e-4527-a510-7497d7f3e3cb/iso-10649-6-2012

TS no.	32		40		50				63					80					100				
d_1	16	22	16	22	16	22	27	32	16	22	27	32	40	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	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	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 modular 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 10649-6;

c) a hyphen;

d) TS;

e) a hyphen;

f) the shank number;

© ISO 2012 – All rights reserved

g) a hyphen;

h) the cutter diameter, d_1.

EXAMPLE A regular contact surface arbor with modular 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 10649-6 - TS - 63 - 16

6 Delivery conditions

The cutter arbors with parallel key and tenon drive with modular 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.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
ISO 10649-6:2012
https://standards.iteh.ai/catalog/standards/sist/b4156781-983c-4527-a510-7497d7f3e3cb/iso-10649-6-2012

© ISO 2012 – All rights reserved

Annex A
(informative)

Relationship between designations 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 this part of ISO 10649 and the ISO 13399 series

Symbol in this part of ISO 10649 (ISO 10649-6)	Reference in this part of ISO 10649 (ISO 10649-6)	Property name in the ISO 13399 series	Symbol in the ISO 13399 series	The 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

iTeh STANDARD PREVIEW
(standards.iteh.ai)
ISO 10649-6:2012
https://standards.iteh.ai/catalog/standards/sist/b4156781-983c-4527-a510-7497d7f3e3cb/iso-10649-6-2012

© ISO 2012 – All rights reserved

Bibliography

[1] ISO 13399-1, *Cutting tool data representation and exchange — Part 1: Overview, fundamental principles and general information model*

[2] ISO/TS 13399-2, *Cutting tool data representation and exchange — Part 2: Reference dictionary for the cutting items*

[3] ISO/TS 13399-3, *Cutting tool data representation and exchange — Part 3: Reference dictionary for tool items*

[4] ISO/TS 13399-4, *Cutting tool data representation and exchange — Part 4: Reference dictionary for adaptive items*

[5] ISO/TS 13399-5, *Cutting tool data representation and exchange — Part 5: Reference dictionary for assembly items*

[6] ISO/TS 13399-50, *Cutting tool data representation and exchange — Part 50: Reference dictionary for reference systems and common concepts*

[7] ISO/TS 13399-60, *Cutting tool data representation and exchange — Part 60: Reference dictionary for connection systems*

[8] ISO/TS 13399-100, *Cutting tool data representation and exchange — Part 100: Definitions, principles and methods for reference dictionaries*

[9] ISO/TS 13399-150, *Cutting tool data representation and exchange — Part 150: Usage guidelines*

iTeh STANDARD PREVIEW
(standards.iteh.ai)
ISO 10649-6:2012
https://standards.iteh.ai/catalog/standards/sist/b4156781-983c-4527-a510-7497d7f3e3cb/iso-10649-6-2012

© ISO 2012 – All rights reserved