INTERNATIONAL STANDARD

ISO 26622-2

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Modular taper interface with ball track system —

Part 2: Dimensions and designation of receivers

Interfaces à cône modulaire avec système de serrage à billes —

Partie 2: Dimensions et désignation des nez de broche

Reference number
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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.

ISO 26622-2 was prepared by Technical Committee ISO/TC 29, *Small tools*.

ISO 26622 consists of the following parts, under the general title *Modular taper interface with ball track system*:

— *Part 1: Dimensions and designation of shanks*

— *Part 2: Dimensions and designation of receivers*

This corrected version of ISO 26622-2:2008 incorporates the following corrections:

— detail B in Figure 1

Introduction

The modular taper with ball track system design originated from a joint development effort between two prominent tooling manufacturers in 1985. The benefits to be achieved by the joint development effort were to offer a complete, but flexible, tooling system–to-machine connection by joining the strengths of two tooling suppliers for the European and North American markets. The modular taper with ball track system product was first introduced at EMO (exposition mondiale de la machine-outil) in Milan in 1987.

Since its introduction, this tooling system has become a globally accepted design for both static and rotating applications. The design characteristics of the modular taper interface with ball track system allow it to be used equally well on both turning and rotating applications. The high mechanical advantage of the modular taper with ball track system design application allows for small springs, small bearings and high spindle speeds. This tool interface uses three areas of contact (one face and two on the taper) that provide a very simple, but rigid, tool design. These features have made the modular taper with ball track system the quick-change tooling of choice on many tens of thousands of machine tools throughout the world.

The purpose of this part of ISO 26622 is to ensure compliance of the manufacturing accuracy and quality of the modular taper with the ball track system tool interface.

The International Organization for Standardization (ISO) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent concerning the modular taper with ball track system.

ISO takes no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has assured ISO that he/she is willing to waive the exercise of this patent right throughout the world. In this respect, the statement of the holder of this patent right is registered with ISO. Information may be obtained from:

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Modular taper interface with ball track system —

Part 2:
Dimensions and designation of receivers

1 Scope

This part of ISO 26622 specifies the dimensions for modular taper interface with ball track system: tapered receivers for automatic and manual tool exchange to be applied on machine tools (e.g. lathe machines, drilling machines, milling machines and turn/milling machine centres). A range of receiver sizes is specified.

The torque is transmitted by friction, locking elements and keys.

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 1101, *Geometrical Product Specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out*

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*

3 Dimensions

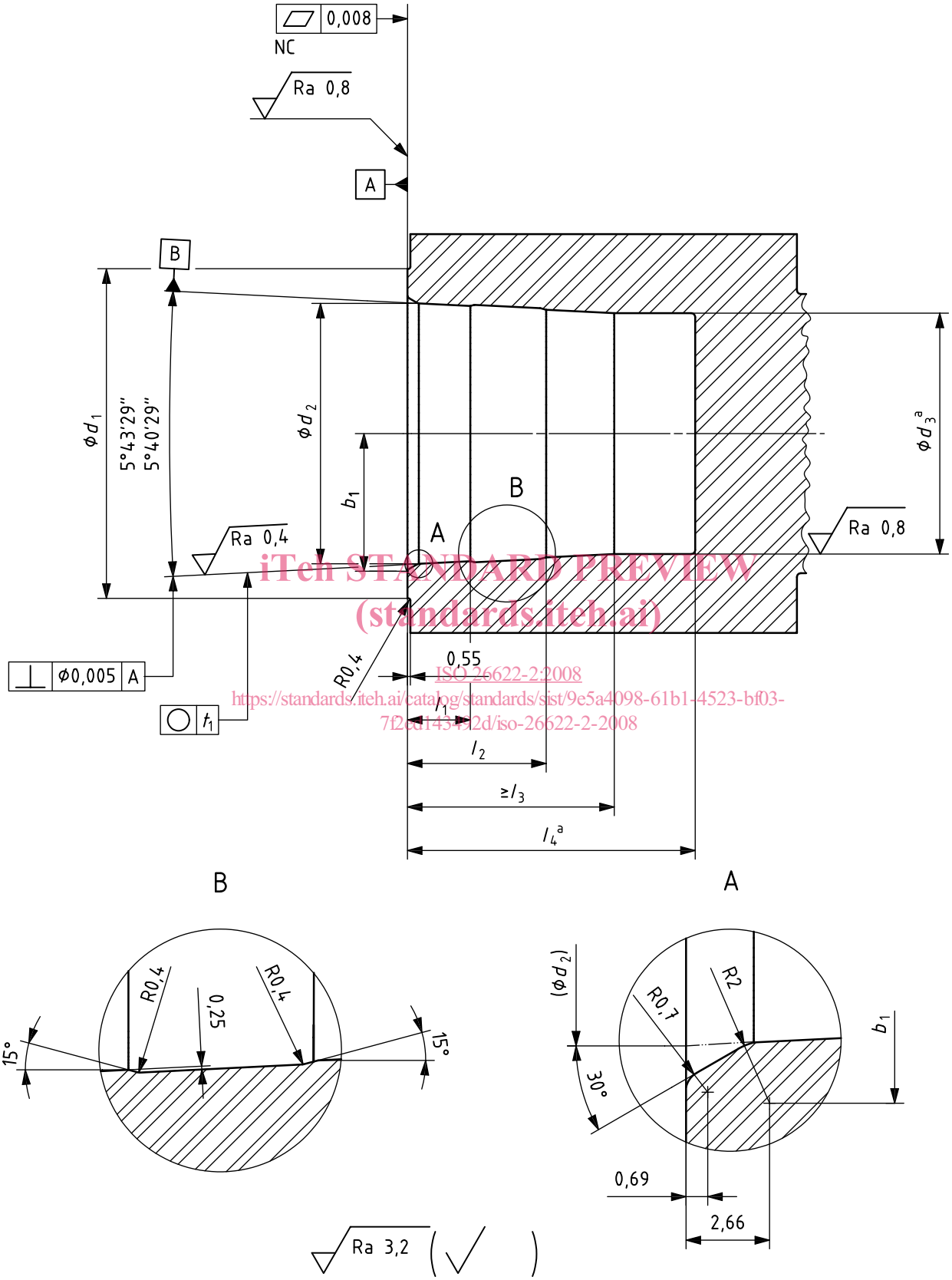
3.1 General

Tolerancing of form, orientation, location and run-out shall be in accordance with ISO 1101. Tolerances not specified shall be of tolerance class “m” in accordance with ISO 2768-1 and tolerance class “k” in accordance with ISO 2768-2.

3.2 Tapered receiver

The dimensions of modular taper receivers with the ball track system are shown in Figure 1 and given in Table 1.

Surface roughness in micrometres
Dimensions in millimetres



[a] Dependant on the clamping mechanism.

Figure 1 — Tapered receiver

Table 1 — Tapered receiver dimensions

Dimensions in millimetres

Nominal size	32	40	50	63	80	100
b_1	13,82	16,81	21,81	26,81	33,8	42,79
d_1 $^{0}_{-0,1}$	32	40	50	63	80	100
d_2 ±0,002 5	23,975	29,97	—	—	—	—
d_2 ±0,005	—	—	39,96	49,96	63,94	81,925
d_3 [a]	—	—	—	—	—	—
l_1 ±0,38	5,895	7,8	8,825	12	15	15
l_2 ±0,38	12,575	16	20,125	26,5	35	38
l_3 min.	20	25	32	40	45	50
l_4 [a]	—	—	—	—	—	—
t_1	0,005	0,005	0,008	0,010	0,01	0,01

[a] Dependent on the clamping mechanism.

4 Clamping force

The clamping system shall provide sufficient clamping force to ensure contact of the face of the receiver with the shank flange, as well as seating the taper of the shank by elastic deformation. The torque-transmitting capacity of the interface is increased by an increase in the magnitude of the clamping force.

A guide to clamping forces for modular taper receivers is given in Annex A.

5 Designation

A modular taper receiver with ball track system in accordance with this part of ISO 26622 shall be designated as follows:

a) “Modular taper receiver”;

b) reference to this part of ISO 26622 (i.e. “ISO 26622-2”);

c) designation symbol “TS”;

d) nominal size, in millimetres.

EXAMPLE Designation of a modular taper receiver with ball track system of nominal size 63 mm:

Modular taper receiver ISO 26622-2 - TS 63

Annex A
(informative)

Recommendation for use and application

A.1 Clamping forces

Variations of modular taper shank and modular taper receiver size within the specified limits of tolerances will cause the portion of the clamping force acting on the flange surface to vary. The flange contact surface is decisive for the stiffness of the modular taper interface with ball track system.

The clamping forces listed in Table A.1 only apply to modular taper receivers with the ball track system.

Table A.1 — Range of clamping forces

Nominal size	**32**	**40**	**50**	**63**	**80**	**100**
Minimum clamping force, kN	9	13	22	36	53	75
Maximum clamping force, kN	18	27	40	58	80	110
Minimum clamping forces can be sufficient when operational loads are low (e.g. cutting and feed forces in finish machining). Maximum clamping forces can be required when high operational loads are encountered (e.g. cutting and feed forces in heavy machining).						
NOTE Mechanical force derives from the clamping force and from the locking mechanism design.						

A.2 Information about speeds, torques, bending loads and stiffness

The manufacturer should provide information regarding permissible speeds, torque-transmitting capacities, bending loads and stiffness.

A.3 Material and heat treatment

Material and heat-treatment specifications for modular taper receivers should be selected considering strength, hardness, toughness and wear requirements.

The recommended minimum material hardness is 48 HRC. In general, the hardness of the receiver should exceed the hardness of the shank.