BS ISO 26623-2:2014

BSI Standards Publication

Polygonal taper interface with flange contact surface

Part 2: Dimensions and designation of receivers

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National foreword

This British Standard is the UK implementation of ISO 26623-2:2014. It supersedes BS ISO 26623-2:2008 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MTE/18, Tools tips and inserts for cutting applications.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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INTERNATIONAL STANDARD

ISO 26623-2

Second edition
2014-09-01

Polygonal taper interface with flange contact surface —

Part 2: Dimensions and designation of receivers

Interfaces à cône polygonal avec face d'appui —
Partie 2: Dimensions et désignation des nez de broche

Reference number
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Foreword

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 29, *Small tools*.

This second edition cancels and replaces the first edition (ISO 26623-2:2008), which has been technically revised.

ISO 26623 consists of the following parts, under the general title *Polygonal taper interface with flange contact surface*:

— *Part 1: Dimensions and designation of shanks*

— *Part 2: Dimensions and designation of receivers*

INTERNATIONAL STANDARD ISO 26623-2:2014(E)

Polygonal taper interface with flange contact surface —

Part 2:
Dimensions and designation of receivers

1 Scope

This part of ISO 26623 specifies dimensions for polygonal taper interfaces with flange contact surface, polygon-receivers for automatic and manual tool exchange to be applied on machine tools (e. g. turning machines, drilling machines, milling machines, and turn/milling centres as well as grinding machines). A range of receiver sizes is specified.

The torque is transmitted by form lock (polygon).

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable to its application. 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 26623-1, *Polygonal taper interface with flange contact surface — Part 1: Dimensions and designation of shanks*

3 Dimensions

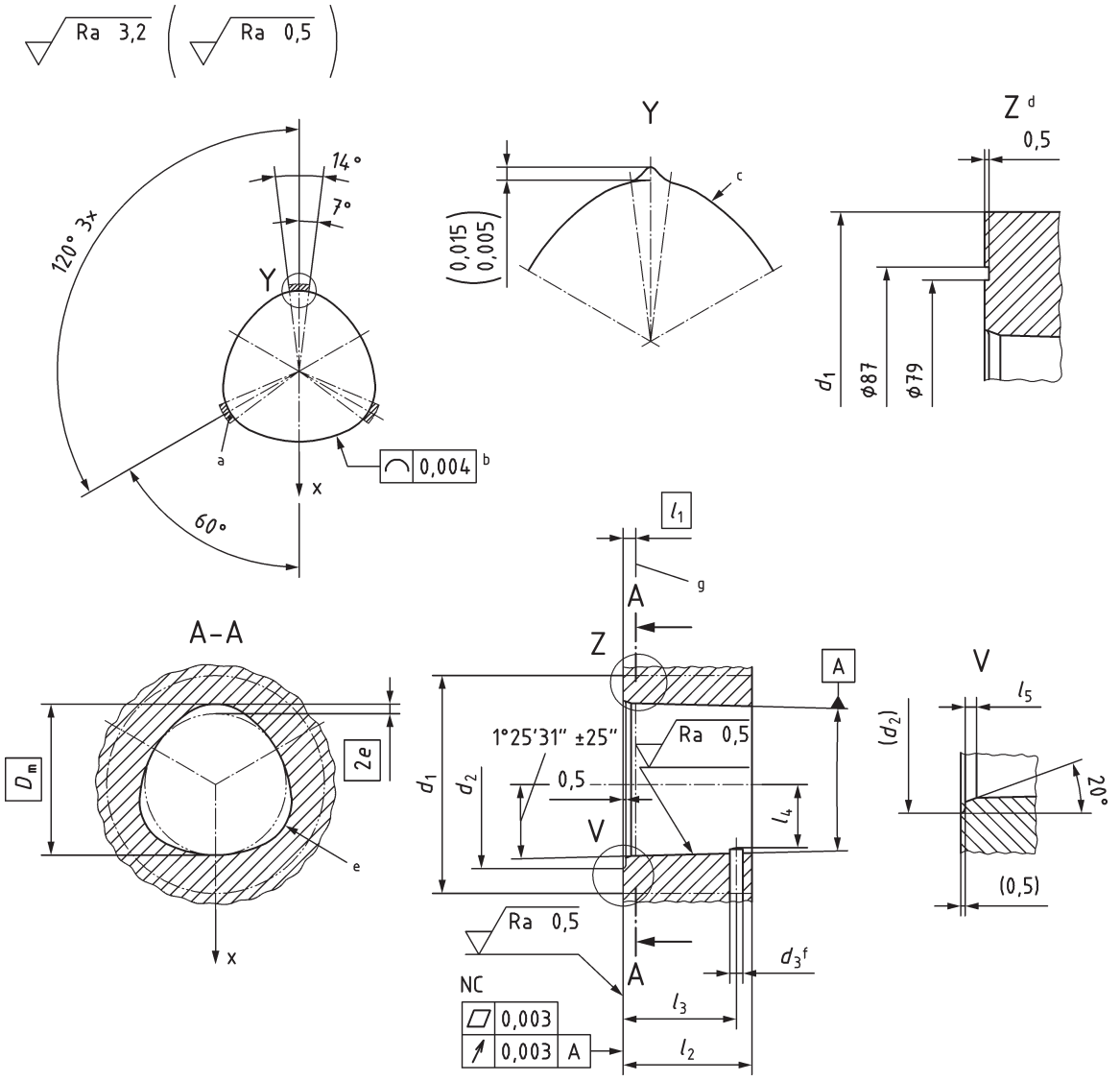
3.1 General

Tolerances for linear dimensions for features without individual tolerance indications shall be of tolerance class “m” in accordance with ISO 2768-1 and geometrical tolerances for features without individual tolerance indications shall be of tolerance class “K” in accordance with ISO 2768-2.

3.2 Polygon-receivers

The dimensions of polygon-receivers shall be as specified in Figures 1, in Table 1, and according to ISO 26623-1.

Surface roughness in micrometres
Dimensions in millimetres



a Form of profile from actual ground curve = $^{+0,015}_{+0,005}$ (sectioned areas).

b The theoretical polygon curve.

c The actual ground curve.

d Valid for size 80X only.

e Polygon curve.

f Position pin. The style of the position pin may have a different design from this drawing. In some cases, the position pin may be omitted.

g Gauge line

x axis for theoretical polygon curve.

Figure 1 — Polygon-receivers

Table 1 — Polygon-receivers — Dimensions

Dimensions in millimetres

Nominal size	32	40	50	63	80	80X	100
d_1 min	32	40	50	63	80	100	100
d_2	25,2	31,6	39,2	48,5	60,8	60,8	79,4
d_3	2	2,5	3	4	5	5	6
D_m	22	28	35	44	55	55	72
e	0,7	0,9	1,12	1,4	2	2	2,8
l_1	2,3	2,3	2,8	2,8	2,8	2,8	2,8
$l_2 \pm 0,1$	18,4	23,4	29,4	37,4	47,4	47,4	59,4
$l_3 \pm 0,2$	16,5	21	26	33,5	43	43	52,5
l_4	9,4 ± 0,1	11,5 ± 0,2	14,5 ± 0,2	18,5 ± 0,2	22,8 ± 0,2	22,8 ± 0,2	29,6
$l_5 \pm 0,1$	1	1	1,4	1,4	1,4	1,4	1,3

4 Clamping forces

The clamping system shall provide sufficient clamping force to ensure contact of the shank flange with the face of the receiver, as well as seating the taper by elastic deformation. The torque transmitting capacity of the interface is substantially determined by the size of the clamping force.

A guide to clamping forces for polygon-receivers is given in Annex A.

5 Designation

A polygon-receiver in accordance with this part of ISO 26623 shall be designated by:

a) “POLYGON-RECEIVER”;

b) reference to this part of ISO 26623, i.e. ISO 26623-2:2014;

c) designation symbols PSC;

d) nominal size, in millimetres.

EXAMPLE Designation of a polygon-receiver for automatic and manual tool exchange with nominal size 32 mm:

POLYGON-RECEIVER ISO 26623-2 — PSC 32

Annex A
(informative)

Recommendations for use and application

A.1 Clamping system

The clamping system should be specified by the manufacturer of the receiver or machine tool spindle. The system should provide sufficient clamping force to ensure contact of the shank flange with the receiver face, as well as seating the taper by elastic deformation.

A.2 Clamping forces

Variations of taper shank and -receiver size within the specified limits of tolerance will cause the portion of the clamping force acting on the flange surface to vary. However, the clamping forces given in Table A.1 will ensure that the portion of acting on the flange surface is never less than 80 % of the total. The flange contact is decisive for the stiffness of the polygonal taper interface.

Table A.1 — Clamping force

Nominal size, mm	32	40	50	63	80	80X	100
Clamping force, kN	15	20	25	30	40	40	60

Lower clamping forces can be sufficient when operational loads are low (e.g. cutting forces in finish machining). Conversely, higher clamping forces can be required when high operational loads are encountered (e.g. cutting and feed forces in heavy machining).

A.3 Information about speeds, torques, bending loads and stiffness

The manufacturer should provide information regarding permissible speeds, torque transmitting capacities.

Bibliography

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

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