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**Modular taper interface with ball track  
system —**

**Part 1:  
Dimensions and designation of shanks**

*Interfaces à cône modulaire avec système de serrage à billes —*

*Partie 1: Dimensions et désignation des queues*



Reference number  
ISO 26622-1:2008(E)

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## 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.

ISO 26622-1 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 26622-1:2008 incorporates the following corrections, in the drawings of Figure 1:

- gauge diameter  $d_2$
- tool changer groove diameter  $d_3$
- ball track dimensioning, related to  $b_2$ ,  $w_2$  and  $d_9$
- flange hole dimensioning, related to  $l_{24}$  and  $d_{13}$
- taper undercut depth
- divers other corrections in the drawings

## 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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International Organization for Standardization (ISO)  
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CH-1211 Geneva 20, Switzerland

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

# Modular taper interface with ball track system —

## Part 1: Dimensions and designation of shanks

### 1 Scope

This part of ISO 26622 specifies the dimensions for modular taper interface with ball track system: tapered shanks 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 shank sizes is specified, with details of the coolant-sealing O-ring being given in Annex A.

The shank incorporates a flange with a groove to enable automatic tool exchange. The tools can also be exchanged manually. The clamping of the shank can be realized by the use of locking balls of a standard size and by a variety of mechanisms.

The torque is transmitted at the tail end of the shank 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 hollow shank

The dimensions of modular tapered shanks with the ball track system, the details of automatic tool changer/chip hole configuration, are shown in Figure 1 and given in Table 1.

Surface roughness in micrometres  
Dimensions in millimetres

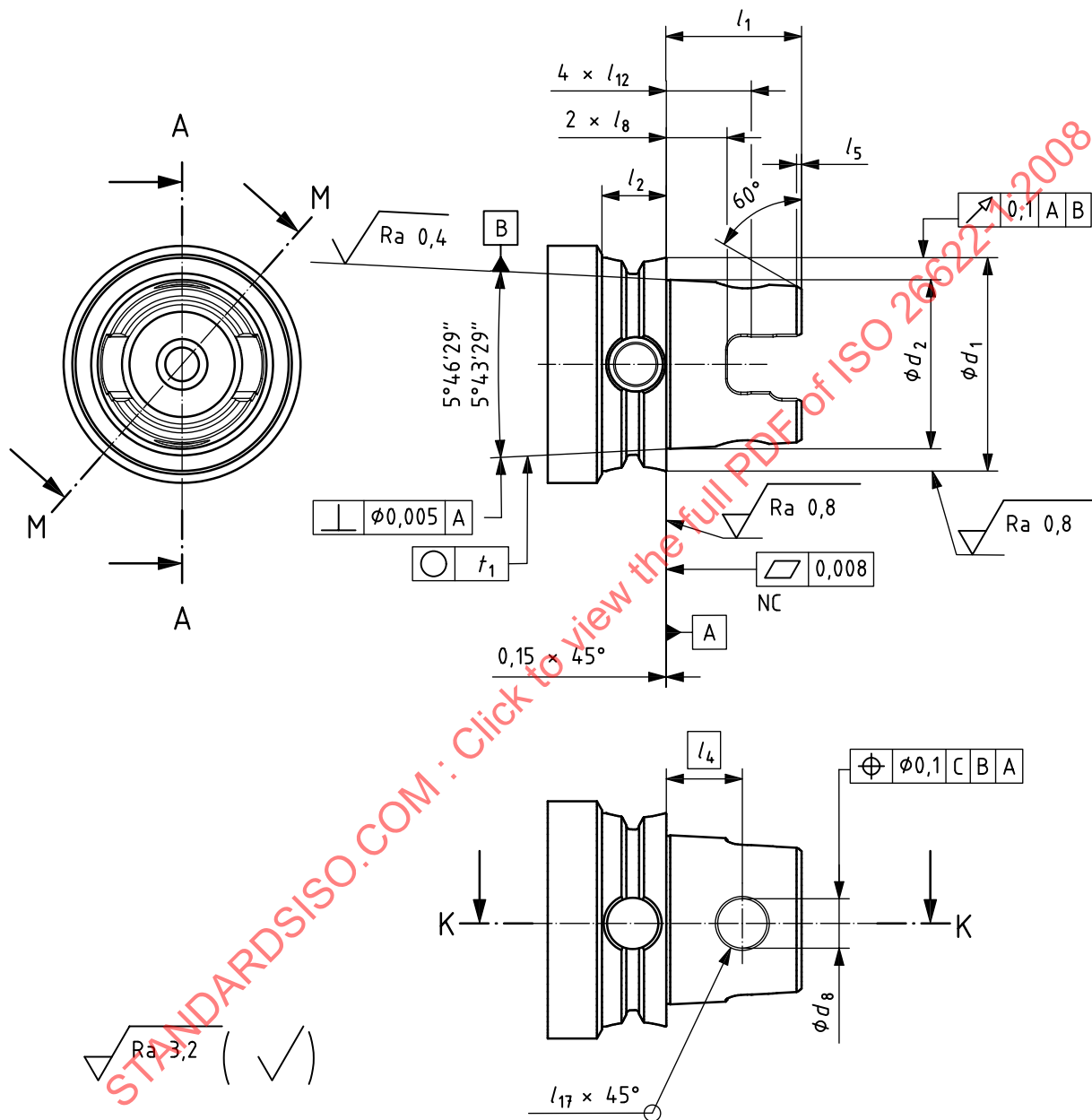


Figure 1 (continued)

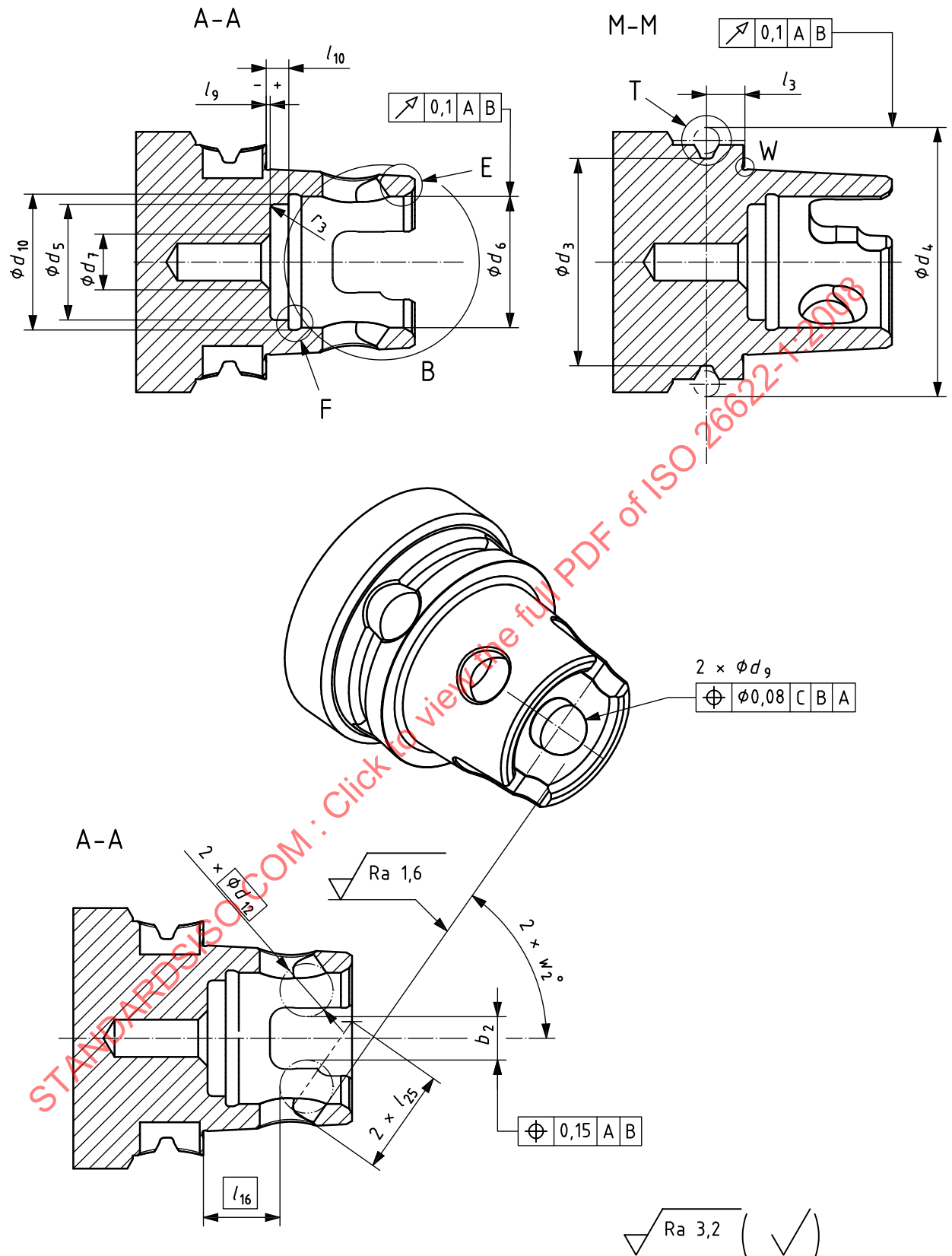


Figure 1 (continued)

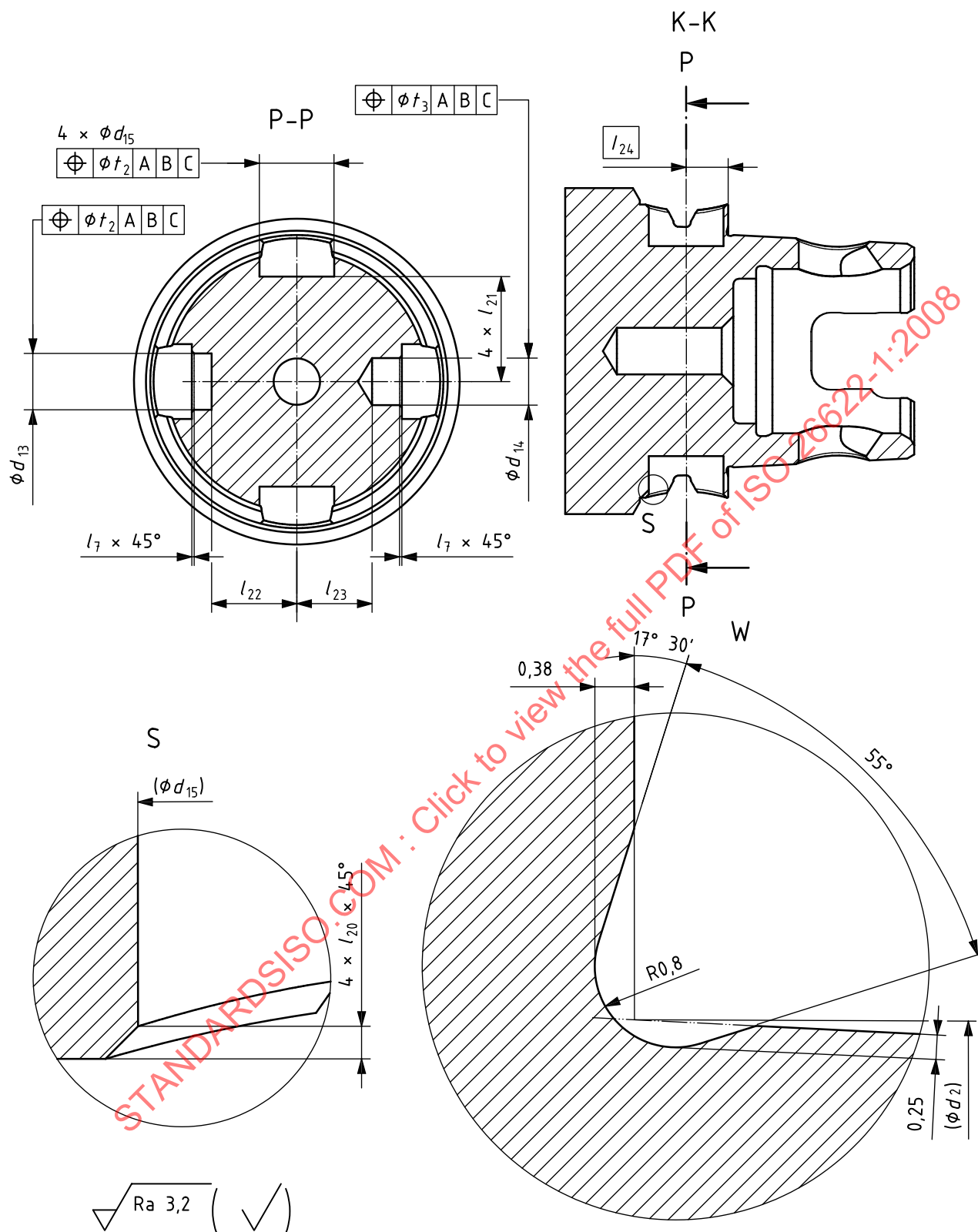


Figure 1 (continued)

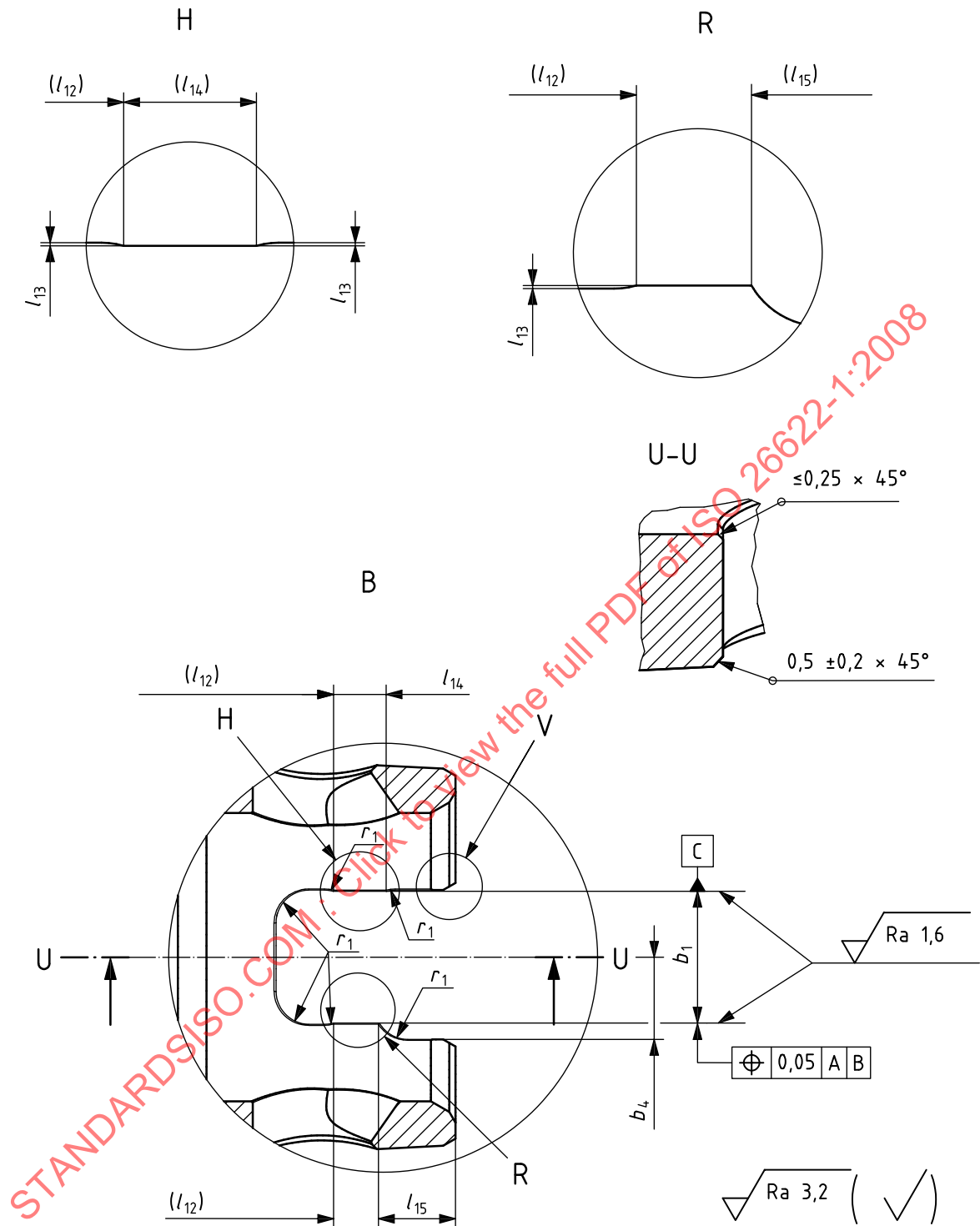


Figure 1 (continued)

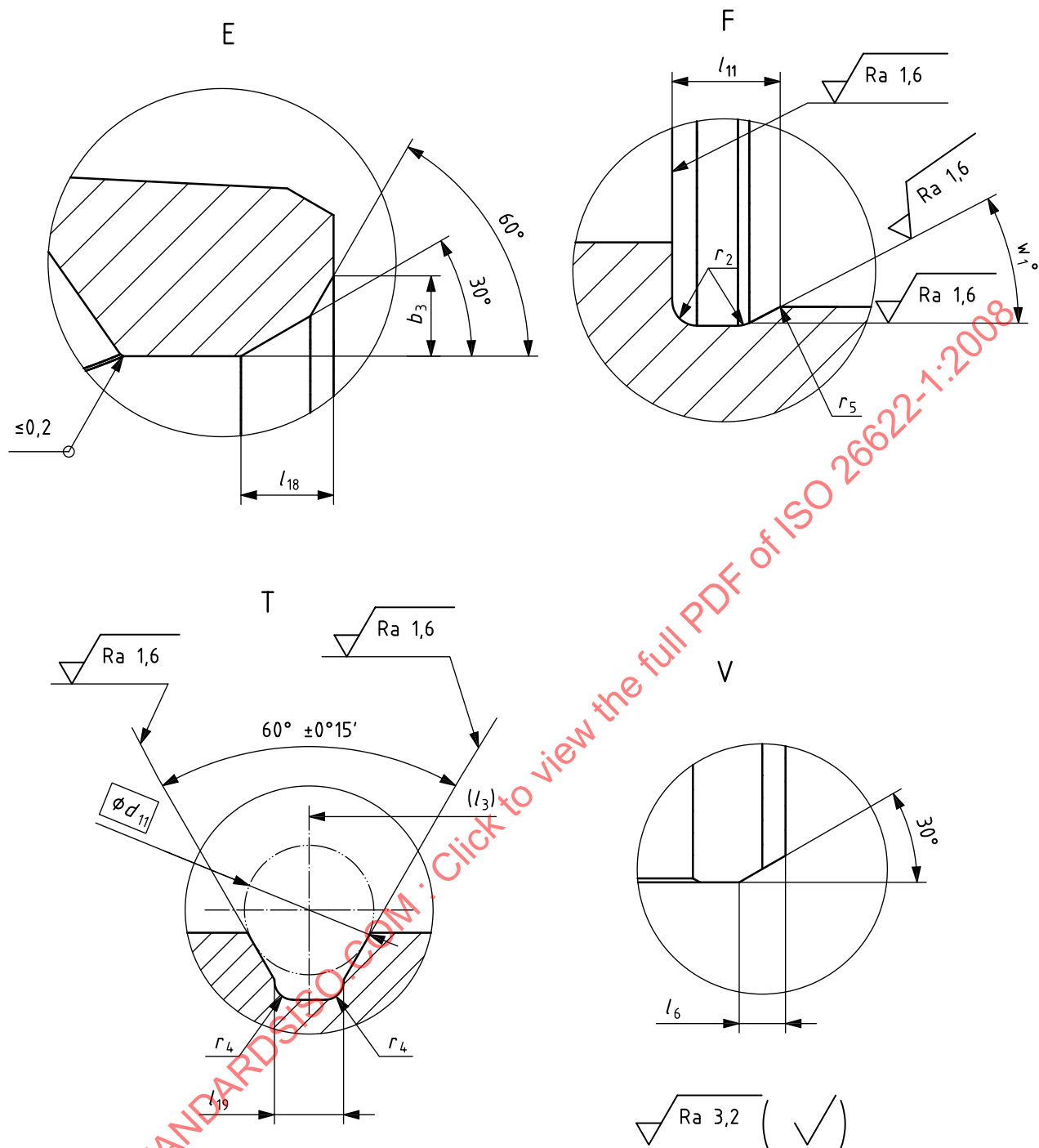


Figure 1 — Tapered hollow shank

Table 1 — Tapered hollow shank dimensions

Dimensions in millimetres

| Nominal size                                                   | 32       | 40       | 50       | 63       | 80       | 100      |
|----------------------------------------------------------------|----------|----------|----------|----------|----------|----------|
| $b_1$ $\begin{smallmatrix} +0,15 \\ +0,1 \end{smallmatrix}$    | 8,9      | 10       | 14       | 16       | 20       | 24       |
| $b_2$ $\pm 0,125$                                              | 7,775    | 8,175    | 11,065   | 15,245   | 22,825   | 34,985   |
| $b_3$ $\pm 0,1$                                                | 1        | 1,85     | 2        | 2,6      | 2,6      | 2,6      |
| $b_4$ $\begin{smallmatrix} +0,11 \\ +0,01 \end{smallmatrix}$   | 5,95     | 7        | 9        | 10       | 12,6     | 14,6     |
| $d_1$ $\begin{smallmatrix} 0 \\ -0,1 \end{smallmatrix}$        | 32       | 40       | 50       | 63       | 80       | 100      |
| $d_2$ $\pm 0,007\ 5$                                           | 23,997 5 | 29,997 5 | 39,997 5 | 49,997 5 | 63,997 5 | 81,997 5 |
| $d_3$                                                          | 28,96    | 36,96    | 42,7     | 55,7     | 72,7     | 92,7     |
| $d_4$ $\pm 0,1$                                                | 36,45    | 44,45    | 59,4     | 72,4     | 89,4     | 109,4    |
| $d_5$ $\pm 0,1$                                                | 14,9     | 18       | 24,5     | 31,1     | 43,1     | 57,1     |
| $d_6$ $\begin{smallmatrix} +0,1 \\ 0 \end{smallmatrix}$        | 17,65    | 21       | —        | —        | —        | —        |
| $d_6$ $\begin{smallmatrix} +0,15 \\ 0 \end{smallmatrix}$       | —        | —        | 28,2     | 35,2     | 48       | 62       |
| $d_7$ max.                                                     | 5        | 7        | 9        | 12       | 16       | 18       |
| $d_8$                                                          | 7,5      | 9,5      | 12,5     | 14,5     | 18,5     | 20,5     |
| $d_9$ $\begin{smallmatrix} +0,125 \\ +0,025 \end{smallmatrix}$ | 7        | 9        | 12       | 14       | 18       | 20       |
| $d_{10}$ $\pm 0,05$                                            | 18,6     | 21,87    | 30       | 38,4     | 50,4     | 64,35    |
| $d_{11}$                                                       | 3,5      | 3,5      | 7        | 7        | 7        | 7        |
| $d_{12}$                                                       | 7        | 9        | 12       | 14       | 18       | 20       |
| $d_{13}$ $\begin{smallmatrix} +0,2 \\ 0 \end{smallmatrix}$     | —        | 7        | 9        | 12       | 12       | 12       |
| $d_{14}$ $\begin{smallmatrix} +0,2 \\ 0 \end{smallmatrix}$     | —        | 5,5      | 7,5      | 10       | 10       | 10       |
| $d_{15}$ H11                                                   | —        | 9        | 12       | 16       | 16       | 16       |
| $l_1$ $\begin{smallmatrix} 0 \\ -0,1 \end{smallmatrix}$        | 20       | 25       | 32       | 40       | 45       | 50       |
| $l_2$ min.                                                     | 10       | 12       | 18       | 20       | 22       | 22       |
| $l_3$ $\begin{smallmatrix} 0 \\ -0,2 \end{smallmatrix}$        | 5        | 6        | 9        | 10       | 11       | 11       |
| $l_4$                                                          | 10,8     | 13,6     | 17,2     | 22,4     | 24,9     | 26,7     |
| $l_5$                                                          | 0,75     | 1        | 1,5      | 1,5      | 1,5      | 1,5      |
| $l_6$                                                          | 1        | 1        | 1,5      | 1,5      | 1,5      | 2        |
| $l_7$                                                          | —        | 0,5      | 0,5      | 0,5      | 0,5      | 0,5      |
| $l_8$ $\pm 0,1$                                                | 8        | 11       | 12       | 18       | 18,5     | 19       |

Table 1 (continued)

| Nominal size            | 32    | 40    | 50    | 63    | 80    | 100   |
|-------------------------|-------|-------|-------|-------|-------|-------|
| $l_9 \pm 0,1$           | −0,5  | −0,5  | −0,5  | 1,1   | −0,1  | −0,1  |
| $l_{10} \pm 0,05$       | 2     | 3     | 5     | 5,15  | 9,2   | 9,9   |
| $l_{11}$                | 2,2   | 2,4   | 3,2   | 4,5   | 4,5   | 4,5   |
| $l_{12}$                | —     | 15,3  | 18,3  | 25    | 27,5  | 28    |
| $l_{13} \pm 0,05$       | —     | 0,15  | 0,15  | 0,15  | 0,15  | 0,15  |
| $l_{14}$                | —     | 4,7   | 6,25  | 6,5   | 8,5   | 9,5   |
| $l_{15} \pm 0,1$        | 4,8   | 6     | 8,5   | 9,3   | 10,4  | 13,4  |
| $l_{16}$                | 9,5   | 11,86 | 14,5  | 19,6  | 20,7  | 22,5  |
| $l_{17} \pm 0,25$       | 0,5   | 0,75  | 0,75  | 0,75  | 1     | 1,25  |
| $l_{18}$                | 1,2   | 2     | 2,5   | 3     | 3     | 3     |
| $l_{19} \pm 0,25$       | 2,25  | 2,25  | 3,75  | 3,75  | 3,75  | 3,75  |
| $l_{20} \pm 0,1$        | —     | 0,3   | 0,5   | 0,7   | 0,7   | 0,7   |
| $l_{21} \pm 0,05$       | —     | 14,45 | 17,55 | 22,55 | 31,25 | 41,45 |
| $l_{22} \pm 0,05$       | —     | 11,2  | 13,8  | 18,3  | 27    | 37,2  |
| $l_{23} \pm 0,1$        | —     | 9,15  | 11,7  | 16,15 | 24,85 | 35,05 |
| $l_{24}$                | —     | 5,95  | 8,95  | 9,95  | 10,95 | 10,95 |
| $l_{25}$                | 16,5  | 20    | 25    | 29,5  | 39,5  | 48    |
| $r_1$                   | 3     | 3,1   | 3,5   | 4     | 6     | 6     |
| $r_2 \pm 0,1$           | 0,4   | 0,4   | 0,4   | 0,8   | 0,8   | 0,8   |
| $r_3$                   | 0,4   | 0,8   | 1,2   | 1,2   | 1,2   | 1,2   |
| $r_4 \pm 0,25$          | 0,5   | 0,5   | 1     | 1     | 1     | 1     |
| $r_5$                   | —     | —     | —     | 0,5   | 0,5   | 0,5   |
| $t_1$                   | 0,008 | 0,01  | 0,013 | 0,015 | 0,015 | 0,015 |
| $t_2$                   | —     | 0,08  | 0,1   | 0,1   | 0,15  | 0,15  |
| $t_3$                   | —     | 0,13  | 0,15  | 0,15  | 0,2   | 0,2   |
| <b>Angles (degrees)</b> |       |       |       |       |       |       |
| $w_1$                   | 30    | 45    | 60    | 90    | 90    | 90    |
| $w_2 \pm 30'$           | 55    | 55    | 55    | 55    | 60    | 60    |