INTERNATIONAL STANDARD

ISO 26622-1

First edition
2008-11-15

Corrected version
2009-07-01

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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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

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 26622-1 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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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

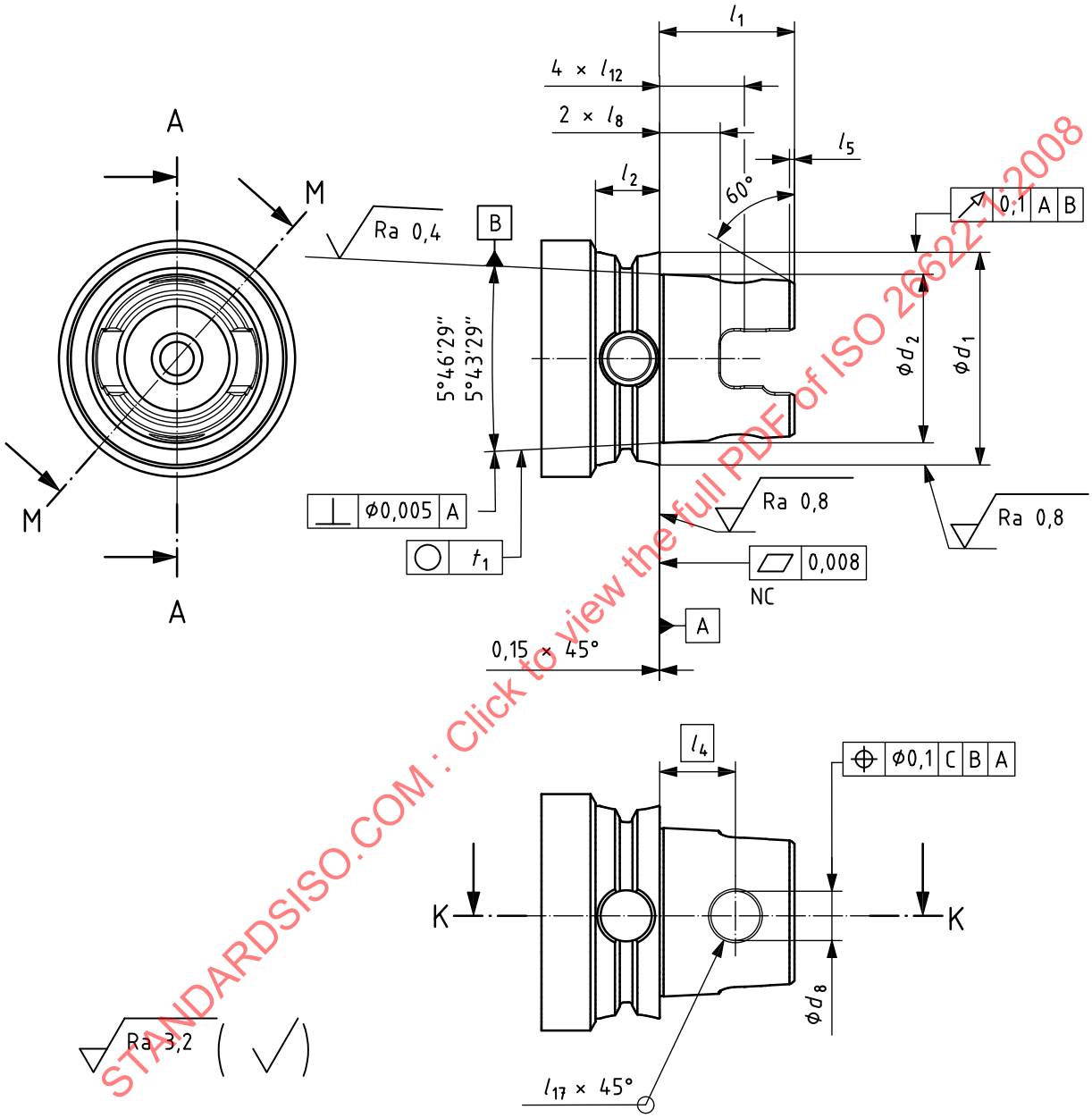

Figure 1 (*continued*)

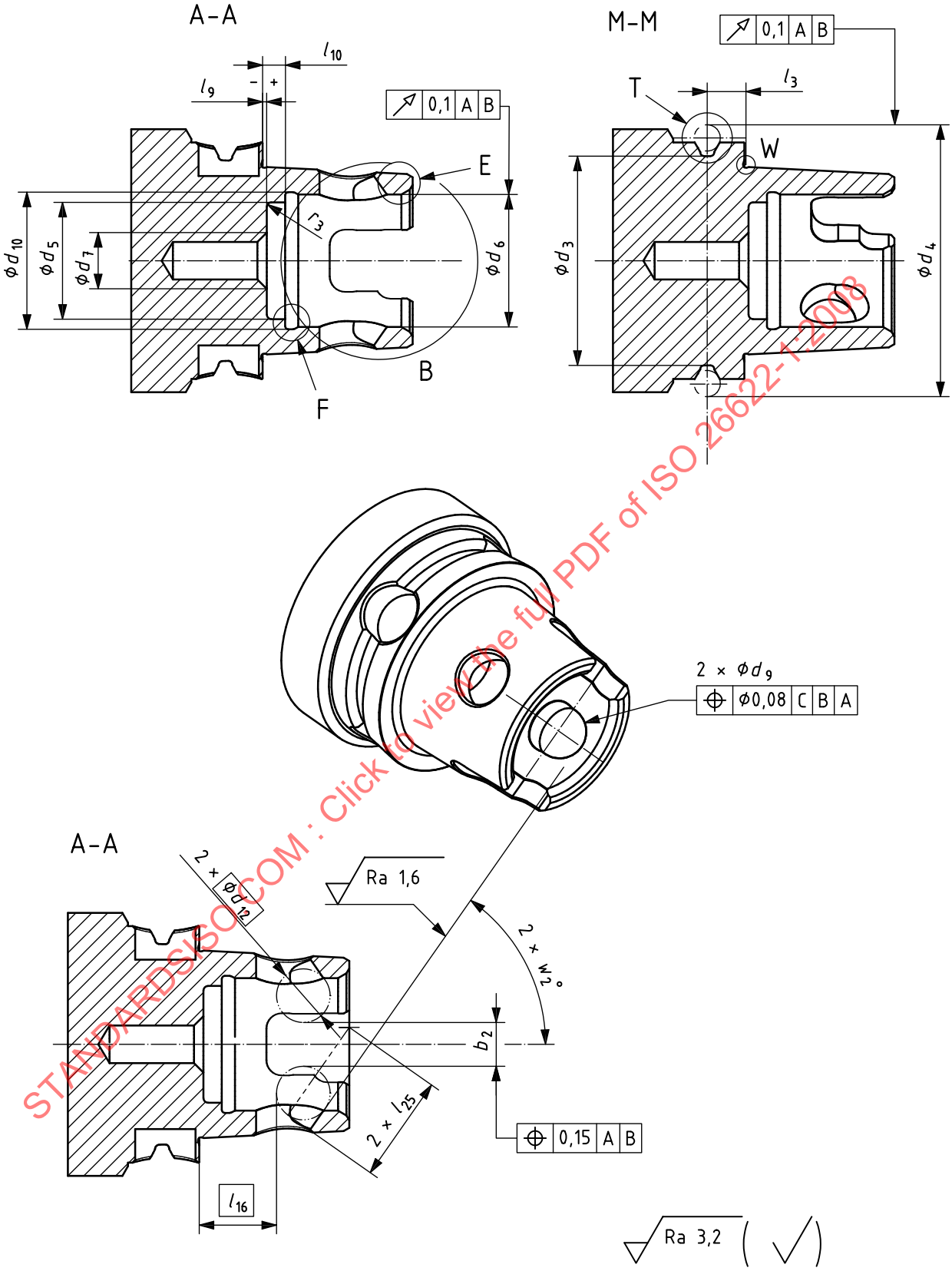

Figure 1 (*continued*)

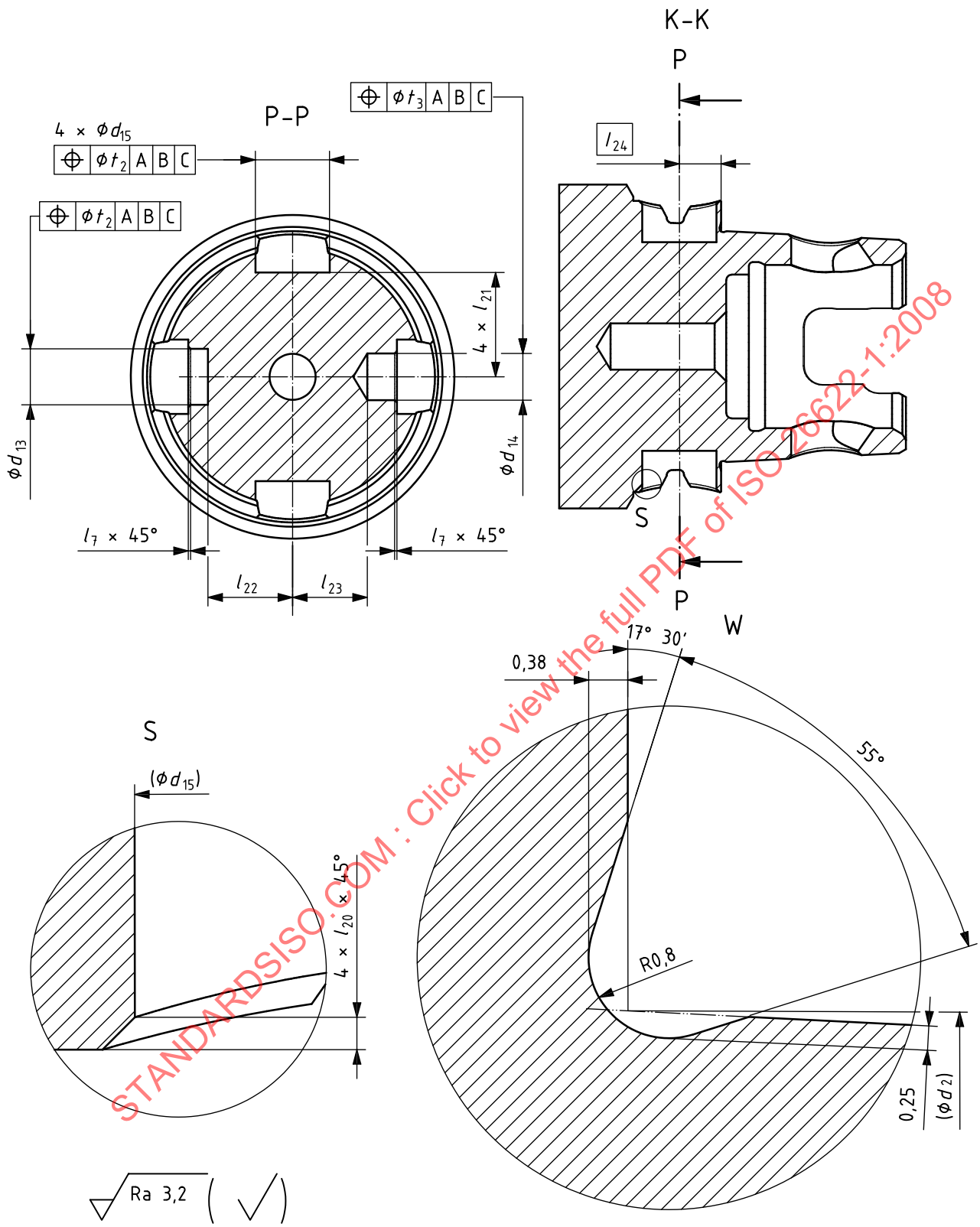

Figure 1 (*continued*)

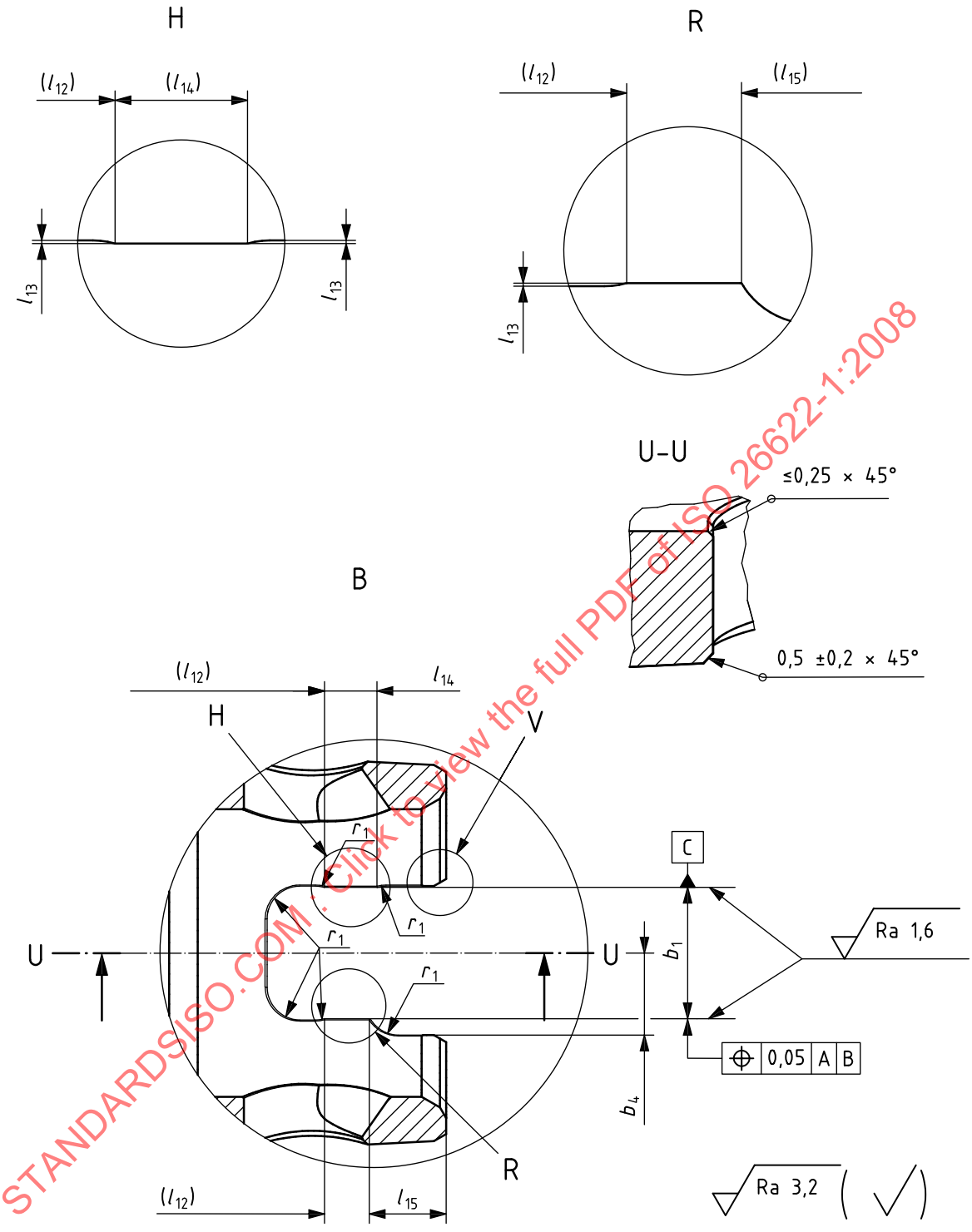

Figure 1 (*continued*)

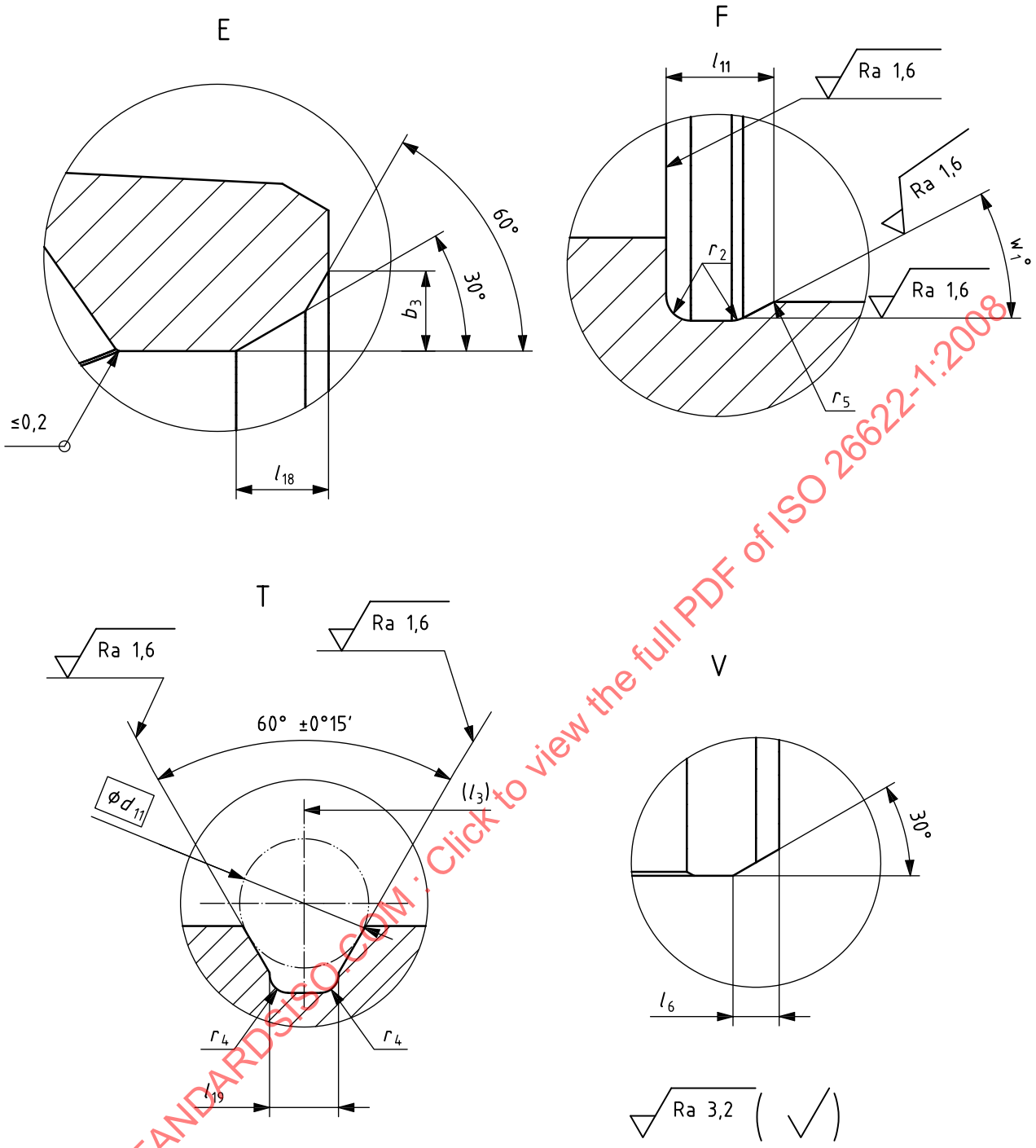

Figure 1 — Tapered hollow shank

Table 1 — Tapered hollow shank dimensions

Dimensions in millimetres

Nominal size	32	40	50	63	80	100
b_1 $^{+0,15}_{+0,1}$	8,9	10	14	16	20	24
b_2 ±0,125	7,775	8,175	11,065	15,245	22,825	34,985
b_3 ±0,1	1	1,85	2	2,6	2,6	2,6
b_4 $^{+0,11}_{+0,01}$	5,95	7	9	10	12,6	14,6
d_1 $^{0}_{-0,1}$	32	40	50	63	80	100
d_2 ±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 ±0,1	36,45	44,45	59,4	72,4	89,4	109,4
d_5 ±0,1	14,9	18	24,5	31,1	43,1	57,1
d_6 $^{+0,1}_{0}$	17,65	21	—	—	—	—
d_6 $^{+0,15}_{0}$	—	—	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 $^{+0,125}_{+0,025}$	7	9	12	14	18	20
d_{10} ±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} $^{+0,2}_{0}$	—	7	9	12	12	12
d_{14} $^{+0,2}_{0}$	—	5,5	7,5	10	10	10
d_{15} H11	—	9	12	16	16	16
l_1 $^{0}_{-0,1}$	20	25	32	40	45	50
l_2 min.	10	12	18	20	22	22
l_3 $^{0}_{-0,2}$	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 ±0,1	8	11	12	18	18,5	19

Table 1 (*continued*)

Nominal size		32	40	50	63	80	100
l_9	±0,1	–0,5	–0,5	–0,5	1,1	–0,1	–0,1
l_{10}	±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}	±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}	±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}	±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}	±0,25	2,25	2,25	3,75	3,75	3,75	3,75
l_{20}	±0,1	—	0,3	0,5	0,7	0,7	0,7
l_{21}	±0,05	—	14,45	17,55	22,55	31,25	41,45
l_{22}	±0,05	—	11,2	13,8	18,3	27	37,2
l_{23}	±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	±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	±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
Angles (degrees)							
w_1		30	45	60	90	90	90
w_2	±30′	55	55	55	55	60	60