
**Assembly tools for screws and nuts —
Drive ends for hand- and machine-operated
screwdriver bits and connecting parts —
Dimensions, torque testing**

*Outils de manœuvre pour vis et écrous — Entraînements des embouts
tournevis à main et à machine et éléments de connexion — Dimensions,
couple d'essai*

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

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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 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 1173 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 10, *Assembly tools for screws and nuts, pliers and nippers*.

This third edition cancels and replaces the second edition (ISO 1173:1988), which has been technically revised.

Annex A of this International Standard is for information only.

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Assembly tools for screws and nuts — Drive ends for hand- and machine-operated screwdriver bits and connecting parts — Dimensions, torque testing

1 Scope

This International Standard specifies the dimensions and torque testing of drive ends for hand- and machine-operated screwdriver bits as well as to driving spindles of screw driving machines.

It ensures the interchangeability of tool bits and tool holders.

This International Standard defines only the distinctive features of individual drive ends. Details of design, e.g. of fixing devices, are left to the user of this International Standard.

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2 Dimensions

See Figures 1 to 8 and Tables 1 to 8.

Details not given shall be chosen appropriately.

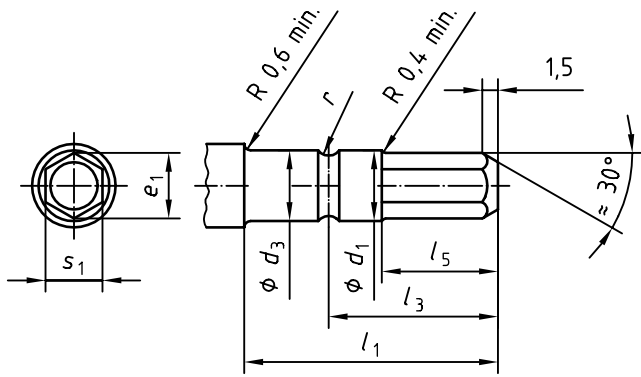
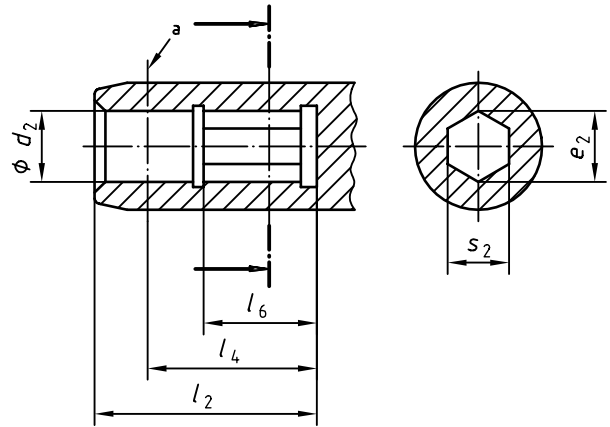


Figure 1 — Male hexagon form A



a Retaining system of the manufacturer's choice

Figure 2 — Female hexagon form B

Table 1 — Male hexagon form A

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Dimensions in millimetres

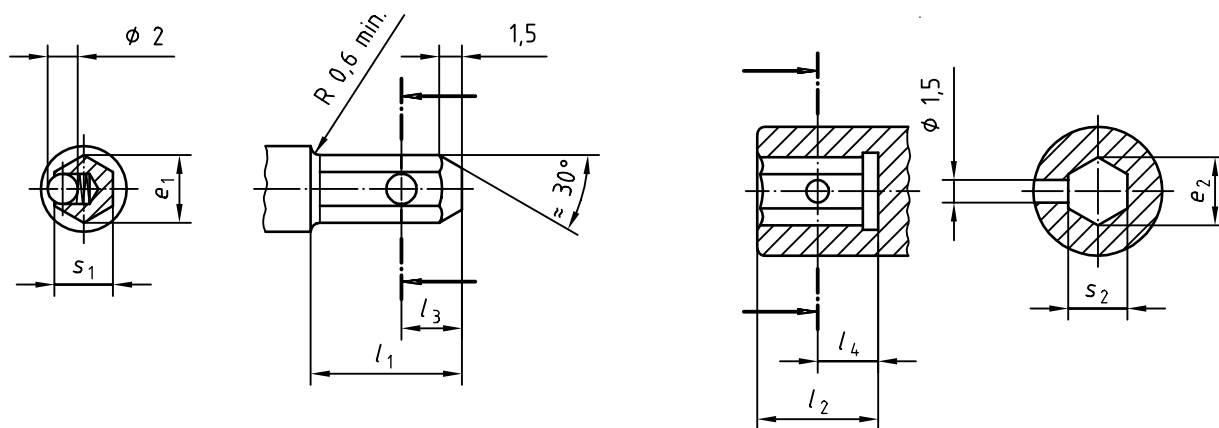
| Form | Nominal dimension | s_1 | | d_1 | d_3 | e_1 | l_1 | l_3 | l_5 | r | |
|------|-------------------|-------|------|-------|-------|-------|-------|-------|-------|------|------|
| | | max. | min. | h9 | h12 | max. | | | | | min. |
| A | 3 | 3 | 2,96 | 3,6 | 3 | 3,39 | 3,34 | 19,5 | 11,9 | 7,4 | 1 |
| | 5,5 | 5,50 | 5,45 | 6,7 | 5,7 | 6,21 | 6,16 | 24 | 16 | 10,9 | 1,25 |

Table 2 — Female hexagon form B

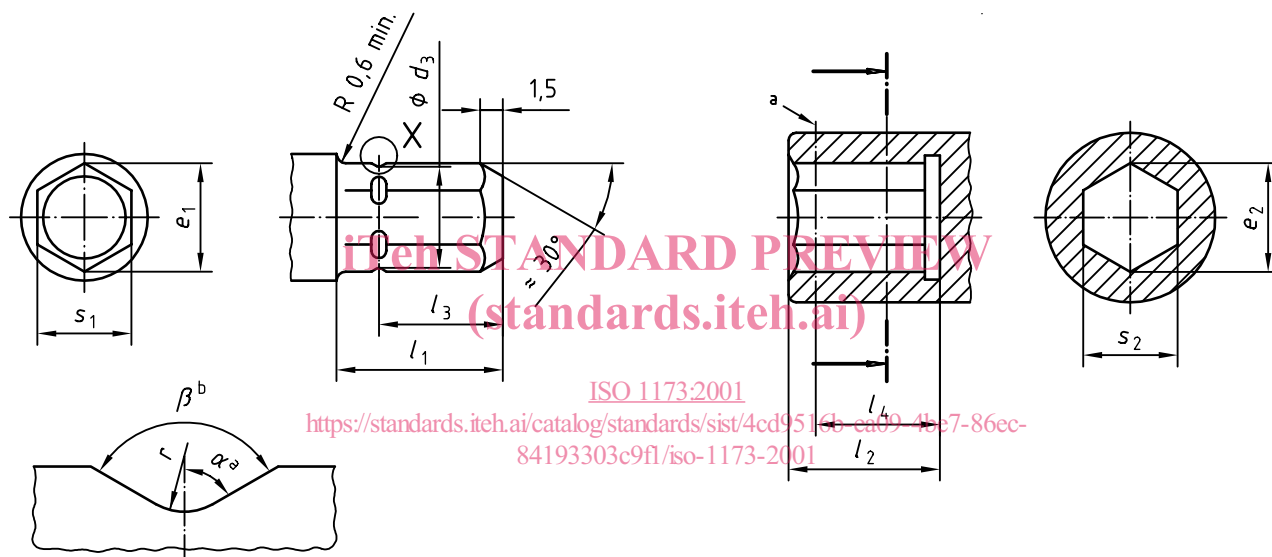
Dimensions in millimetres

| Form | Nominal dimension | s_2 | | d_2 | e_2 | l_2 | l_4 | l_6 |
|------|-------------------|-------|------|-------|-------|-------|-------|-------|
| | | max. | min. | | | | | |
| B | 3 | 3,06 | 3,02 | 3,6 | 3,41 | 16,5 | 11,9 | 7,2 |
| | 5,5 | 5,58 | 5,53 | 6,7 | 6,25 | 21 | 16 | 10,7 |

Nominal dimension 4

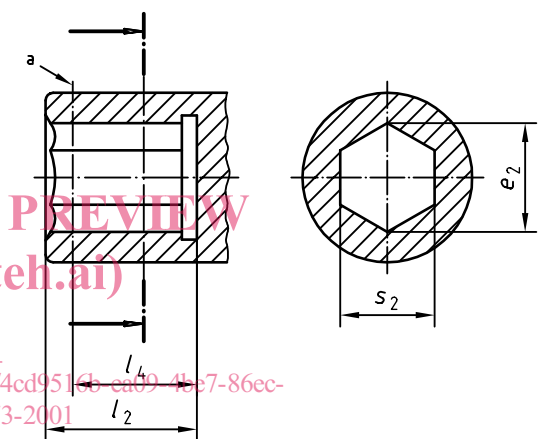


Nominal dimensions 6,3, 8 and 12,5



- a $40^\circ \leq \alpha \leq 60^\circ$
- b $80^\circ \leq \beta \leq 120^\circ$

Figure 3 — Male hexagon form C



- a Retaining system of the manufacturer's choice.

Figure 4 — Female hexagon form D

Table 3 — Male hexagon form C

Dimensions in millimetres

| Form | Nominal dimension | s_1 | | d_3 | e_1 | | l_1 | l_3 | r |
|------|-------------------|-------|-------|-------|-------|-------|-------|---|------|
| | | max. | min. | h12 | max. | min. | min. | $\begin{matrix} 0 \\ -0,2 \end{matrix}$ | min. |
| C | 4 | 3,96 | 3,91 | — | 4,48 | 4,42 | 9 | 4 | — |
| | 6,3 | 6,35 | 6,29 | 6,7 | 7,18 | 7,11 | 11 | 8,2 | 0,3 |
| | 8 | 7,93 | 7,87 | 8,2 | 8,96 | 8,90 | 13,5 | 10,2 | |
| | 12,5 | 12,70 | 12,63 | 13,5 | 14,35 | 14,27 | 15,9 | 12,7 | |

Table 4 — Female hexagon form D

Dimensions in millimetres

| Form | Nominal dimension | s_2 | | e_2 | l_2 | l_4 |
|------|-------------------|-------|-------|-------|-----------|---|
| | | max. | min. | min. | $\pm 0,1$ | $\begin{matrix} +0,2 \\ 0 \end{matrix}$ |
| D | 4 | 4,04 | 3,99 | 4,51 | 8 | 4 |
| | 6,3 | 6,45 | 6,39 | 7,22 | 10 | 8,2 |
| | 8 | 8,03 | 7,97 | 9 | 12,5 | 10,2 |
| | 12,5 | 12,80 | 12,75 | 14,4 | 14,9 | 12,7 |

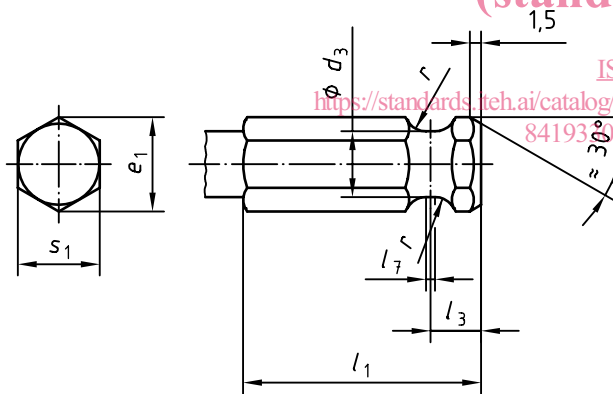
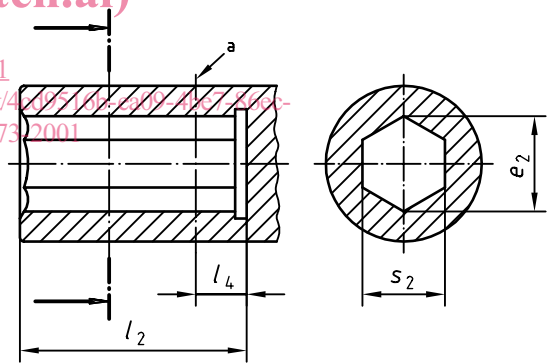


Figure 5 — Male hexagon form E



a Retaining system of the manufacturer's choice.

Figure 6 — Female hexagon form F

Table 5 — Male hexagon form E

Dimensions in millimetres

| Form | Nominal dimension | s_1 | | d_3 | e_1 | | l_1 | l_3 | l_7 | r |
|------|-------------------|-------|-------|-------|-------|-------|-------|---|-----------|------|
| | | max. | min. | h12 | max. | min. | min. | $\begin{matrix} 0 \\ -0,1 \end{matrix}$ | \approx | min. |
| E | 6,3 | 6,35 | 6,29 | 4,7 | 7,18 | 7,11 | 25 | 9,5 | 1 | 2,4 |
| | (8) ^a | 7,93 | 7,87 | 6,3 | 8,96 | 8,90 | 27 | 5,4 | 1,2 | 2,4 |
| | 11,2 | 11,11 | 11,04 | 8,7 | 12,56 | 12,48 | 31,5 | 6,7 | 1,2 | 2,8 |

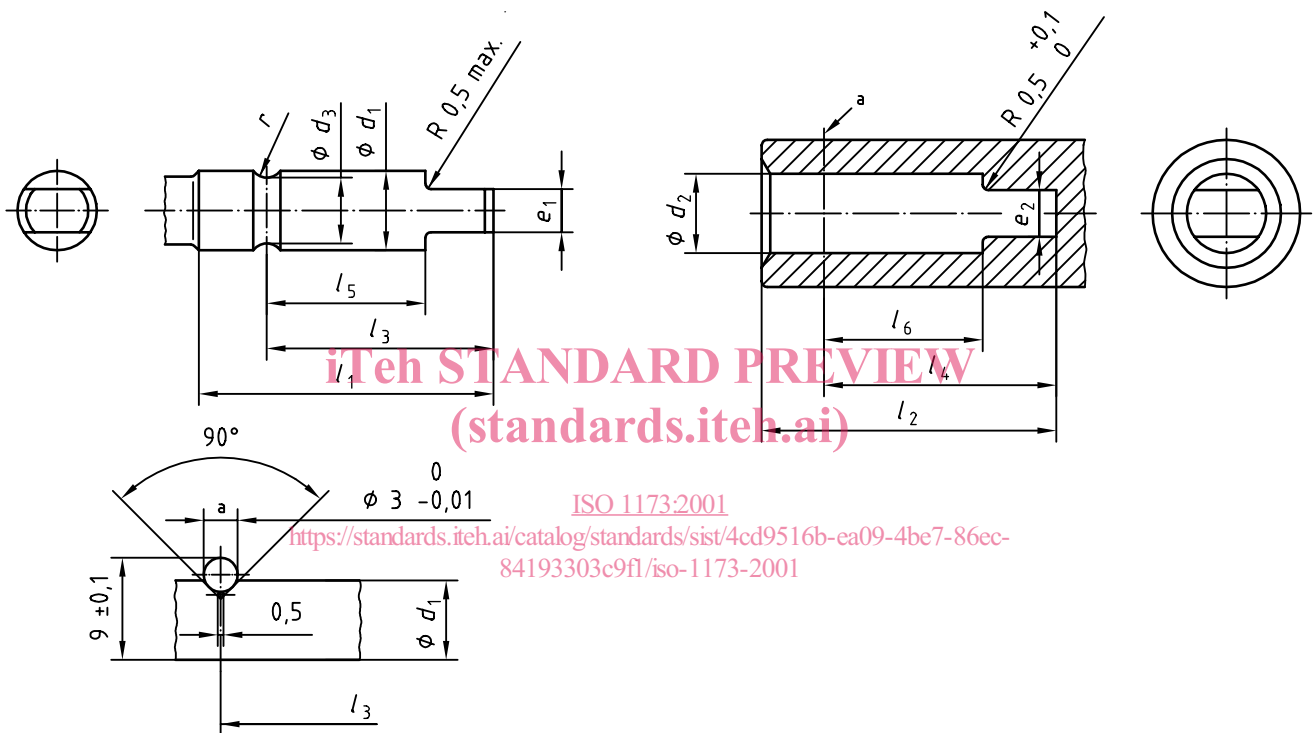
^a Non-preferred dimension.

Table 6 — Female hexagon form F

Dimensions in millimetres

| Form | Nominal dimension | s_2 | | e_2 | l_2 | l_4 |
|------|-------------------|-------|-------|-------|-------|---------------|
| | | max. | min. | min. | max. | $+0,1$ 0 |
| F | 6,3 | 6,45 | 6,39 | 7,22 | 24 | 9,5 |
| | (8) ^a | 8,03 | 7,97 | 9 | 25,5 | 5,4 |
| | 11,2 | 11,23 | 11,16 | 12,61 | 30 | 6,7 |

^a Non-preferred dimension.



^a Arrangement with test role for the determination of the groove depth.

^a Retaining system of the manufacturer's choice.

Figure 7 — Male flat end form G

Figure 8 — Female flat end form H

Table 7 — Male flat end form G

Dimensions in millimetres

| Form | Nominal dimension | d_1 | d_3 | e_1 | | l_1 | l_3 | l_5 | r |
|------|-------------------|-------|-------|-------|------|-------|-----------|-----------|------|
| | | f8 | h12 | max. | min. | min. | $\pm 0,2$ | $\pm 0,2$ | min. |
| G | 7 | 7 | 5,8 | 3,86 | 3,74 | 26 | 20 | 14 | 1,5 |

Table 8 — Female flat end form H

Dimensions in millimetres

| Form | Nominal dimension | d_2 | e_2 | l_2 | l_4 | l_6 |
|------|-------------------|-------|---------------|-------|-------|-----------|
| H | 7 | 7 | $+0,1$ 0 | max. | min. | $\pm 0,2$ |
| | | | 4,1 | 26 | 20,5 | 14 |