

INTERNATIONAL STANDARD

ISO
1174-1

First edition
1996-12-01

Assembly tools for screws and nuts — Driving squares —

Part 1: Driving squares for hand socket tools

*Outils de manœuvre pour vis et écrous — Carrés d'entraînement —
Partie 1: Carrés d'entraînement pour outils à main*



Reference number
ISO 1174-1:1996(E)

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.

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.

International Standard ISO 1174-1 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 10, *Assembly tools for screws and nuts, pliers and nippers*.

This first edition of ISO 1174-1 as well as ISO 1174-2 cancels and replaces ISO 1174:1975, which has been technically revised.

ISO 1174 consists of the following parts, under the general title *Assembly tools for screws and nuts — Driving squares*:

- *Part 1: Driving squares for hand socket tools*
- *Part 2: Driving squares for power socket tools*

Annex A of this part of ISO 1174 is for information only.

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Assembly tools for screws and nuts — Driving squares —

Part 1:

Driving squares for hand socket tools

1 Scope

This part of ISO 1174 specifies the dimensions, separation force and designation of driving squares for hand socket tools.

Driving squares for power socket tools are dealt with in ISO 1174-2.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 1174. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 1174 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 3:1973, *Preferred numbers — Series of preferred numbers*.

ISO 286-1:1988, *ISO system of limits and fits — Part 1: Bases of tolerances, deviations and fits*.

3 Dimensions

3.1 General

Nominal dimensions of driving squares, in millimetres, have been selected from the values of the R 10 series of preferred numbers in accordance with ISO 3.

3.2 Interchangeability

Driving square maximum and minimum dimensions have been selected for the types of tool described in 3.3 and 3.4 so as to allow for interchangeability, whatever the measurement system used.

Deviations, between maximum and minimum dimensions correspond

- for s_1 to tolerances of grade IT 11 in accordance with ISO 286-1;
- for s_2 to tolerances of grade IT 13 in accordance with ISO 286-1.

NOTE — When using male square drives with plunger retainer instead of a ball, only female squares with retaining holes as opposed to recesses should be used.

3.3 Male squares

See figures 1 and 2 and table 1.

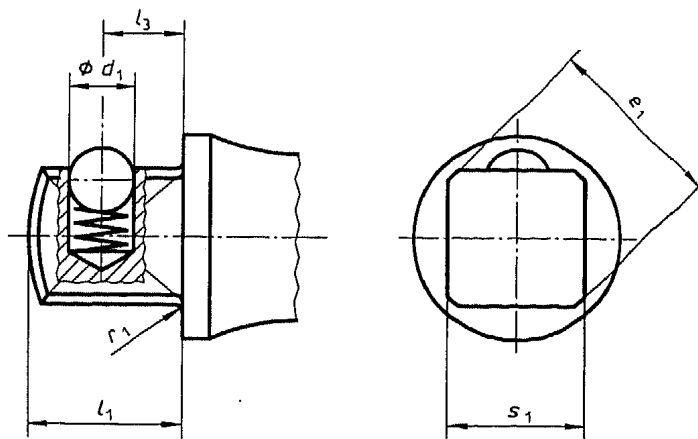


Figure 1 — Type A with ball

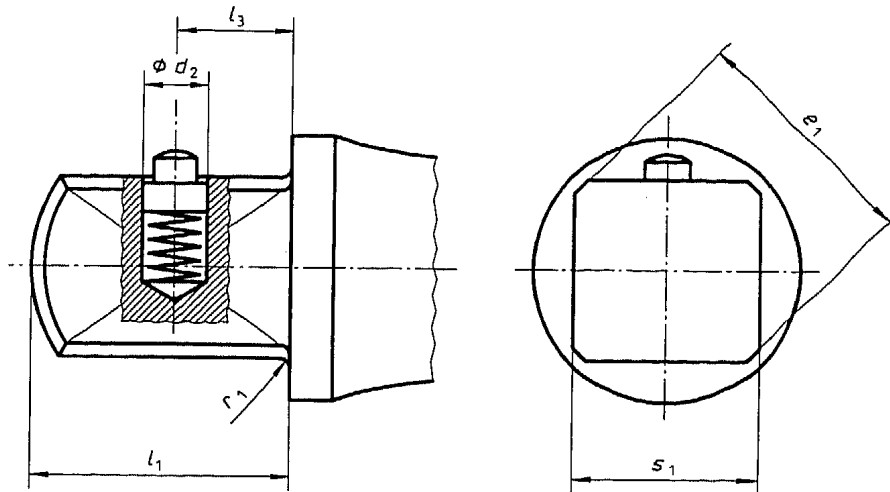


Figure 2 — Type B with plunger retainer

Table 1 — Male square dimensions, types A and B

Dimensions in millimetres

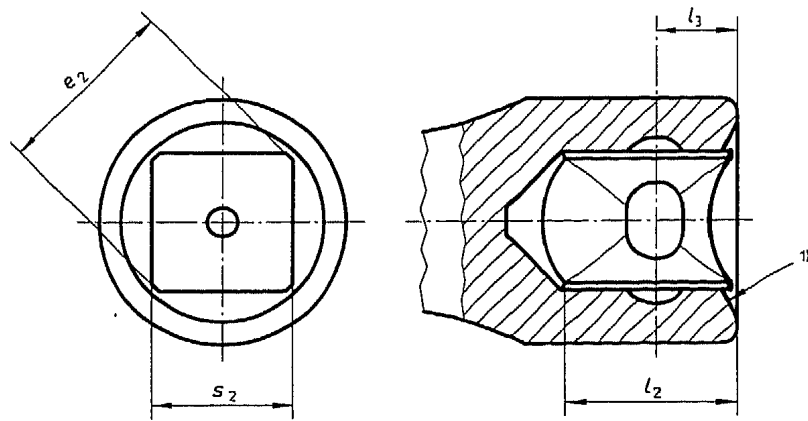
Type ¹⁾	s ₁			d ₁ ≈	d ₂ max.	e ₁		l ₁ max.	l ₃		r ₁ max.
	nom.	max.	min.			max.	min.		nom.	tol.	
A(B)	6,3	6,35	6,26	3	2	8,4	8,0	7,5	4	±0,2	0,5
A(B)	10	9,53	9,44	5	2,6	12,7	12,2	11	5,5	±0,2	0,6
A(B)	12,5	12,70	12,59	6	3	16,9	16,3	15,5	8	±0,3	0,8
B(A)	20	19,05	18,92	7	4,3	25,4	24,4	23	10,2	±0,3	1,2
B	25	25,40	25,27	—	5	34,0	32,4	28	15	±0,3	1,6

NOTE — It is not recommended that types B and C be used together.

1) Types given in brackets are non-preferred.

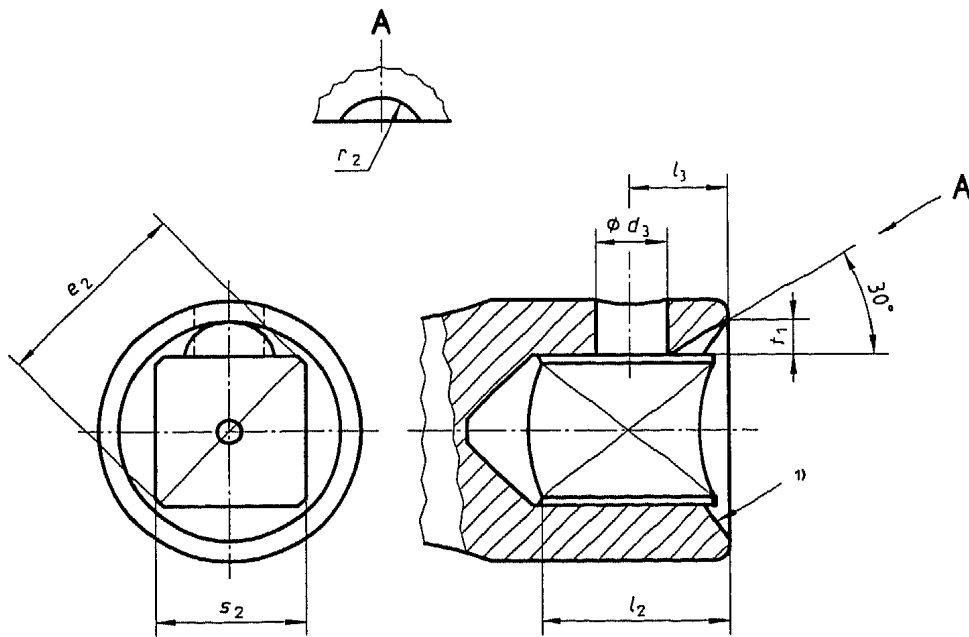
3.4 Female squares

See figures 3 and 4 and table 2.



1) Chamfered or rounded in conformity with radius r_1 of the male square.

Figure 3 — Type C



1) Chamfered or rounded in conformity with radius r_1 of the male square.

Figure 4 — Type D

Table 2 — Female square dimensions, types C and D

Dimensions in millimetres

Type ¹⁾	s_2			d_3 min.	e_2 min.	l_2 min.	l_3		r_2	t_1
	nom.	max.	min.				nom.	tol.		
C, D	6,3	6,63	6,41	2,5	8,5	8	4	± 0,2	—	—
C(D)	10	9,80	9,58	5	12,9	11,5	5,5	± 0,2	—	—
C(D)	12,5	13,03	12,76	6	17,1	16	8	± 0,3	4	3
D	20	19,44	19,11	6	25,6	24	10,2	± 0,3	4	3,5
D	25	25,79	25,46	6,5	34,4	29	15	± 0,3	6	4

NOTE — It is not recommended that types B and C be used together.

1) Types given in brackets are non-preferred.

4 Separation force

When the male and female squares are locked, the force to apply in order to separate the two parts shall not be less than

- 4 N for the 6,3 mm square,
- 11 N for the 10 mm square,
- 25 N for the 12,5 mm square,
- 45 N for the 20 mm square.

The force shall be applied gradually along the axis of the squares.

NOTE — The values of separation force apply to tools in the delivery condition and to parts supplied by one manufacturer.

5 Designation

A driving square for hand socket tools in accordance with this part of ISO 1174 shall be designated by

- a) "Male square" or "Female square" as appropriate;
- b) reference to this part of ISO 1174, i.e. ISO 1174-1;
- c) type;
- d) nominal dimension of driving square, in millimetres.

EXAMPLE

Male driving square for hand socket tools of type A with a nominal dimension 12,5 mm is designated as follows:

Male square ISO 1174-1 - A 12,5

Annex A
(informative)

Bibliography

- [1] ISO 1174-2:1996, *Assembly tools for screws and nuts — Driving squares — Part 2: Driving squares for power socket tools.*