

INTERNATIONAL
STANDARD

ISO
10102

Second edition
2001-04-01

**Assembly tools for screws and nuts —
Double-headed open-ended engineers'
wrenches — Length of wrenches and
thickness of the heads**

*Outils de manœuvre pour vis et écrous — Clés à fourche doubles —
Longueurs des clés et épaisseurs des têtes*

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Reference number
ISO 10102:2001(E)

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Printed in Switzerland

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 10102 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 10, *Assembly tools for screws and nuts, pliers and nippers*.

This second edition cancels and replaces the first edition (ISO 10102:1990), which has been technically revised.

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Assembly tools for screws and nuts — Double-headed open-ended engineers' wrenches — Length of wrenches and thickness of the heads

1 Scope

This International Standard specifies the overall length and the maximum head thickness for double-headed open-ended engineers' wrenches complying with the test torque, series C, of ISO 1711-1:1996.

NOTE Double-headed open-ended engineer's wrenches are listed in ISO 1703:1983 under number 4.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 691, *Assembly tools for screws and nuts — Wrench and socket openings — Tolerances for general use.*

ISO 1711-1:1996, *Assembly tools for screws and nuts — Technical specifications — Part 1: Hand-operated wrenches and sockets.*

ISO 3318, *Assembly tools for screws and nuts — Double-headed open-ended wrenches, double-headed ring wrenches and combination wrenches — Maximum widths of heads.*

3 Dimensions

See Figure 1 and Tables 1 and 2.

— $l_{\min} = s_1 \times 8 + 55$ mm except for pairing 34 × 36

— $e_{\max} = s_2^{0,75}$

— $l_{\max} = l_{\min} \times 1,4$

NOTE Figure 1 of this International Standard is only an example and should not influence the design of the wrench.

4 Designation

A double-headed open-ended engineer's wrench in accordance with this International Standard shall be designated by:

- a) "wrench";
- b) reference to this International Standard, i.e. ISO 10102;
- c) its openings.

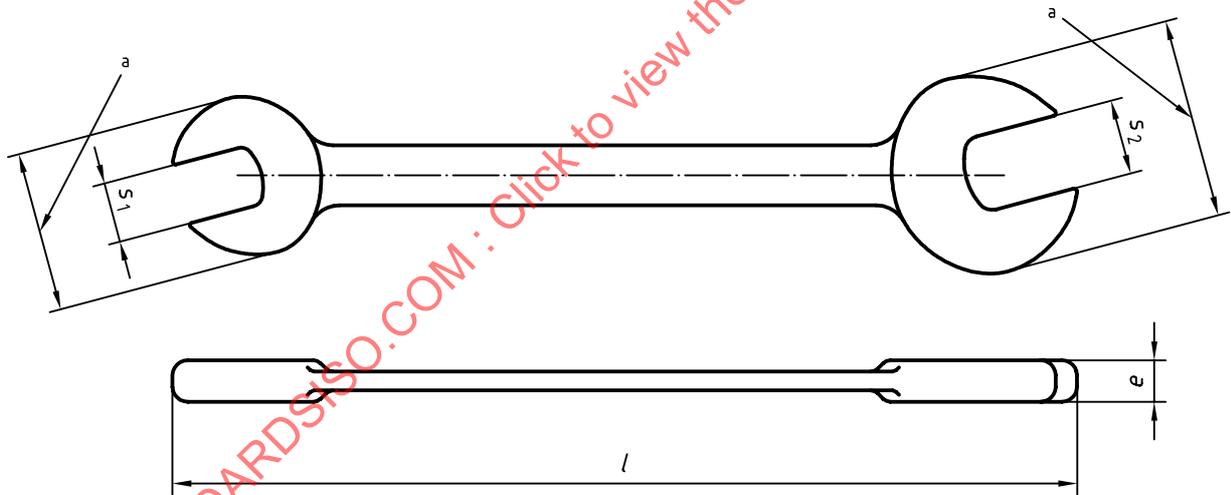
EXAMPLE A double-headed open-ended engineer's wrench with the wrench openings $s_1 = 18$ mm and $s_2 = 21$ mm is designated as follows:

Wrench ISO 10102 - 18 x 21

5 Marking

Double-headed open-ended engineers' wrenches shall be marked, permanently and legibly, with at least the following:

- a) the value of the two wrench openings;
- b) the name or trademark of the manufacturer (or the responsible supplier).



^a Overall dimensions of heads in accordance with ISO 3318, with the exception of the width across flat 20 mm, 23 mm, 25 mm and 28 mm.

Figure 1

Table 1 — Lengths of wrenches and thickness of the heads, preferred pairings

Dimensions in millimetres

Pairing ^a $s_1 \times s_2$	l		e
	min.	max.	max.
3,2 × 4	81	113	3
4 × 5	87	122	3,5
5 × 5,5	95	133	3,5
5,5 × 7	99	139	4,5
7 × 8	111	155	4,5
8 × 10	119	167	5,5
10 × 11	135	189	6
10 × 13	135	189	7
11 × 13	143	200	7
13 × 15	159	223	7,5
13 × 16	159	223	8
15 × 16	175	245	8
16 × 18	183	256	8,5
18 × 21	199	279	10
21 × 24	223	312	11
24 × 27	247	346	12
27 × 30	271	379	13
30 × 34	295	413	14
34 × 36	327	458	14,5
36 × 41	343	480	16
41 × 46	383	536	17,5
46 × 50	423	592	19
50 × 55	455	637	20,5
55 × 60	495	693	22

^a The tolerances on openings s_1 and s_2 shall comply with ISO 691.

Table 2 — Lengths of wrenches and thickness of the heads, non-preferred pairings

Dimensions in millimetres

Pairing ^a $s_1 \times s_2$	l		e
	min.	max.	max.
6 × 7	103	144	4,5
8 × 9	119	167	5
12 × 13	151	211	7
12 × 14	159	223	7
13 × 14	159	223	7
13 × 17	159	223	8,5
14 × 15	167	234	7,5
14 × 17	167	234	8,5
15 × 18	175	245	8,5
16 × 17	183	256	8,5
17 × 19	191	267	9
18 × 19	199	279	9
19 × 22	207	290	10,5
19 × 24	207	290	11
20 × 22	215	301	10
21 × 22	223	312	10
21 × 23	223	312	10,5
22 × 24	231	323	11
24 × 26	247	346	11,5
24 × 30	247	346	13
25 × 28	255	357	12
27 × 29	271	379	12,5
27 × 32	271	379	13,5
30 × 32	295	413	13,5
30 × 36	295	413	14,5
32 × 34	311	435	14
32 × 36	311	435	14,5

^a The tolerances on openings s_1 and s_2 shall comply with ISO 691.

Bibliography

- [1] ISO 1085, *Assembly tools for screws and nuts — Double-ended wrenches — Size pairing*.
- [2] ISO 1703:1983, *Assembly tools for screws and nuts — Nomenclature*.

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