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Assembly tools for screws and nuts — Double-headed open-ended engineers' wrenches — Outside dimensions

Outils de manoeuvre pour vis et écrous — Clés à fourche doubles — Dimensions extérieures

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Contents

Page

Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html

This document 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 10102:2001), which has been technically revised with the following changes:

— Tables 1 and 2 have been merged into one Table 1;

— sizes of pairings have been added;

— title has changed.

Assembly tools for screws and nuts — Double-headed open-ended engineers' wrenches — Outside dimensions

1 Scope

This document specifies the overall length and the maximum head thickness for double-headed open-ended engineers' wrenches.

NOTE The wrenches covered by this document are the ones identified in ISO 1703:2005 under reference No. 1 1 01 02 0.

This document does not cover technical specifications for these products. Technical specifications are given in ISO 1711-1:2016, series C.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 691, *Assembly tools for screws and nuts — Wrench and socket openings — Tolerances for general use*

ISO 3318, *Assembly tools for screws and nuts — Open-ended wrenches, box wrenches and combination wrenches — Maximum widths of heads*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Dimensions

The length, l, and thickness, e, are given in Table 1, which is based on the following formulae:

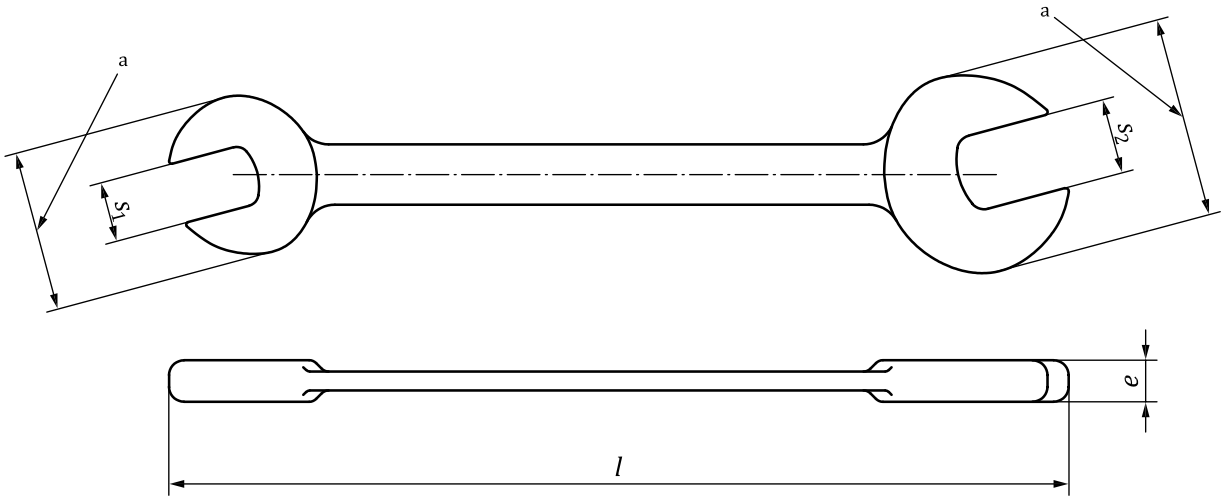
— $l_{min} = s_1 \times 8 + 55$ mm, except for pairing 34 × 36

— $e_{max} = s_2^{0,75}$

— $l_{max} = l_{min} \times 1,4$

The maximum outside head dimensions shall be those specified in ISO 3318.

Figure 1 is given only as an example. It is not intended to influence the manufacturer's design.



Key

e	thickness
l	length of the wrench
s_1, s_2	nominal width across flats
a	Maximum outside head dimensions according to ISO 3318.

Figure 1 — Double-headed open-ended engineers' wrench

Table 1 — Lengths of wrenches and thickness of the heads

Pairing[a] Nominal sizes $s_1 \times s_2$	l mm minimum	l mm maximum	e mm maximum
3,2 × 4	81	113	3
3,2 × 5,5	81	113	3,5
4 × 5	87	122	3,5
5 × 5,5	95	133	3,5
5,5 × 7	99	139	4,5
6 × 7[b]	103	144	4,5
7 × 8	111	155	4,5
8 × 9[b]	119	167	5
8 × 10	119	167	5,5
10 × 11	135	189	6
10 × 12[b]	135	189	6,5
10 × 13	135	189	7
11 × 13	143	200	7
12 × 13[b]	151	211	7
12 × 14[b]	159	223	7
13 × 14[b]	159	223	7
13 × 15	159	223	7,5
13 × 16	159	223	8

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

b The pairing contains at least one value of s not covered by ISO 272:1982.

c This pairing is not covered by ISO 1085.

Table 1 *(continued)*

Pairing[a] Nominal sizes $s_1 \times s_2$	***l*** mm minimum	***l*** mm maximum	***e*** mm maximum
13 × 17[b]	159	223	8,5
14 × 15	167	234	7,5
14 × 16	167	234	8
14 × 17[b]	167	234	8,5
15 × 16	175	245	8
15 × 17[b]	175	245	8,5
15 × 18	175	245	8,5
16 × 17[b]	183	256	8,5
16 × 18	183	256	8,5
17 × 19[b]	191	267	9
18 × 19[b]	199	279	9
18 × 21	199	279	10
19 × 22[b]	207	290	10,5
19 × 24[b]	207	290	11
20 × 22[b]	215	301	10
21 × 22[b]	223	312	10
21 × 23[b]	223	312	10,5
21 × 24	223	312	11
22 × 24[b]	231	323	11
24 × 26[b, c]	247	346	11,5
24 × 27	247	346	12
24 × 30	247	346	13
27 × 29[b, c]	271	379	13
27 × 30	271	379	13
27 × 32[b]	271	379	13,5
30 × 32[b]	295	413	13,5
30 × 34	295	413	14
30 × 36	295	413	14,5
32 × 34[b]	311	435	14
32 × 36[b]	311	435	14,5
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 conform with ISO 691.

[b] The pairing contains at least one value of s not covered by ISO 272:1982.

[c] This pairing is not covered by ISO 1085.

5 Designation

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

a) “wrench”;

b) a reference to this document, i.e. ISO 10102;

c) pairing according to Table 1.

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

Wrench ISO 10102 — 18 × 21

6 Marking

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

a) nominal widths across flats;

b) name or trademark of the manufacturer (or the responsible supplier).

Bibliography

[1] ISO 1085, *Assembly tools for screws and nuts — Double-ended wrenches — Size pairing*

[2] ISO 1703:2005, *Assembly tools for screws and nuts — Designation and nomenclature*

[3] ISO 1711-1:2016, *Assembly tools for screws and nuts — Technical specifications — Part 1: Hand-operated wrenches and sockets*