

INTERNATIONAL
STANDARD

ISO
7738

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**Assembly tools for screws and
nuts — Combination wrenches —
Lengths of wrenches and maximum
thickness of heads**

*Outils de manœuvre pour vis et écrous — Clés mixtes de serrage —
Longueurs des clés et épaisseurs maximales des têtes*

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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.

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: [Foreword — Supplementary information](#).

The committee responsible for this document is ISO/TC 29, *Small tools*, Subcommittee SC 10, *Assembly tools for screws and nuts, pliers and nippers*.

This fourth edition cancels and replaces the third edition (ISO 7738:2001), which has been technically revised with the following changes:

- a) This International Standard has been editorially updated, including editorial changes in the scope;
- b) the normative references have been updated;
- c) a new [Clause 4](#) about technical specifications has been included;
- d) additional opening sizes have been included in [Table 1](#);
- e) a bibliography has been added.

Assembly tools for screws and nuts — Combination wrenches — Lengths of wrenches and maximum thickness of heads

1 Scope

This International Standard specifies the overall length and the maximum head thickness of combination wrenches, offset (Form A) and offset (Form B).

NOTE Combination wrenches are listed in ISO 1703, under designation 1 1 01 05 0 (Form A) and designation 1 1 01 06 0 (Form B).

2 Normative reference

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 691:2005, *Assembly tools for screws and nuts — Wrench and socket openings — Tolerances for general use*

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

3 Dimensions

Dimensions shall be according to [Figure 1](#) and [Table 1](#).

The tolerances of the wrench opening, s , shall conform to those shown in ISO 691:2005, Table 1, "Tolerance class 1" series.

[Figure 1](#) of this International Standard is only an example and should not influence the design of the wrench.

4 Technical specifications

The technical specifications shall be in accordance with ISO 1711-1.

5 Designation

A combination wrench in accordance with this International Standard shall be designated by the following:

- a) "Wrench"
- b) reference to this International Standard, i.e. ISO 7738;
- c) series, i.e. short, medium, or long;
- d) Form, i.e. A or B;
- e) wrench opening.

EXAMPLE A modified offset (Form B) combination wrench, medium series, with the wrench opening of 12 mm is designated as follows:

Wrench ISO 7738 - Medium B 12

6 Marking

Combination wrenches, offset and modified offset, shall be marked, permanently and legibly, with the following:

- wrench opening;
- name or trademark of the manufacturer (or the responsible supplier).

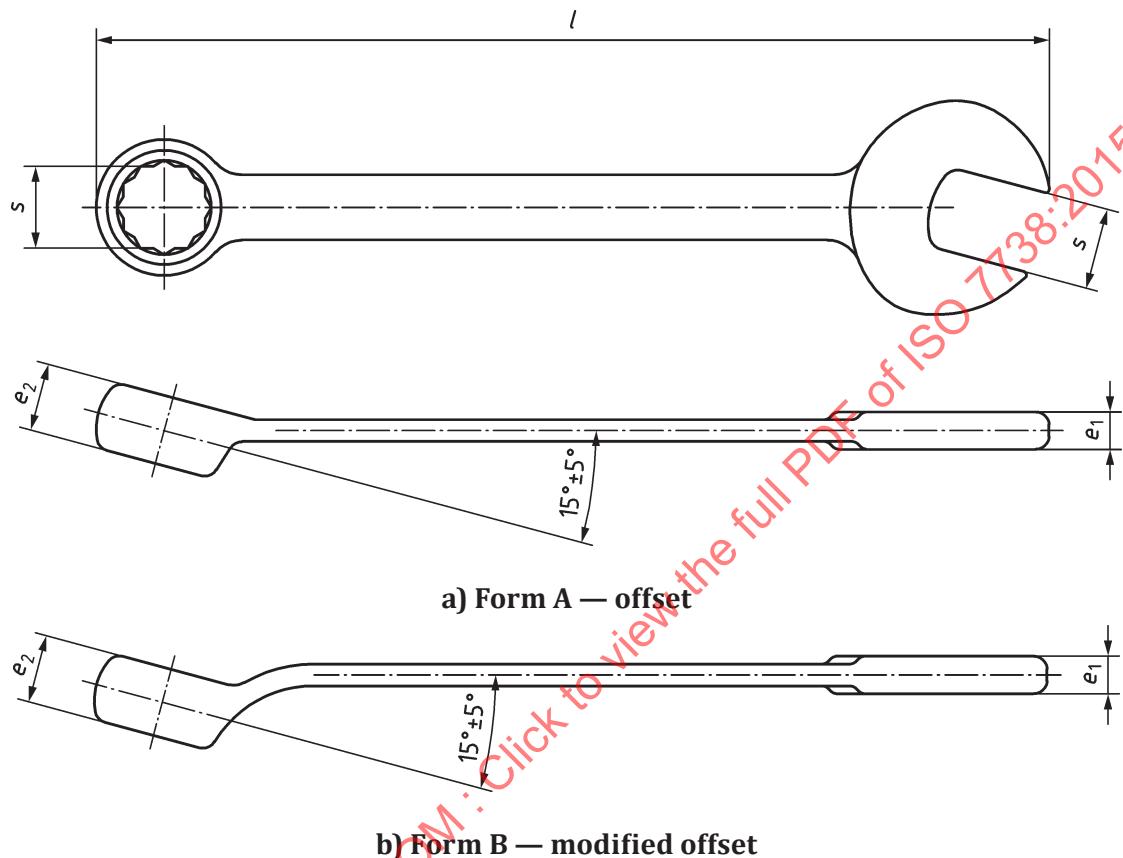


Figure 1 — Combination wrenches

Table 1 — Lengths of wrenches and thickness of the heads

Nominal width across flat s	Series "short"		Series "medium"		Series "long"		Thickness of the heads	
	l_{\max} mm	l_{\max} (non-preferred) mm	l_{\min} mm	l_{\max} mm	l_{\min} (non-preferred) mm	l_{\min} mm	$e_{1, \max}$ mm	$e_{2, \max}$ mm
3,2	54	80	55	110	—	—	3,3	5
3,5 a	54	80	55	110	—	—	3,5	5,5
4	54	80	55	110	—	—	3,5	5,5
4,5 a	64	85	65	115	—	—	4	6
5	64	85	65	115	—	—	4	6
5,5	69	85	70	120	—	—	4,2	6,3
6 a	74	90	75	120	—	—	4,5	6,5

^a Not according to ISO 272.

Table 1 (continued)

Nominal width across flat <i>s</i>	Series "short"		Series "medium"		Series "long"		Thickness of the heads	
	<i>l</i> _{max} mm	<i>l</i> _{max} (non-preferred) mm	<i>l</i> _{min} mm	<i>l</i> _{max} mm	<i>l</i> _{min} (non-preferred) mm	<i>l</i> _{min} mm	<i>e</i> _{1, max} mm	<i>e</i> _{2, max} mm
7	79	95	80	130	—	—	5	7
8	89	100	90	145	120	146	5	8
9 a	99	105	100	150	125	151	5,5	8,5
10	109	115	110	155	135	156	6	9
11	114	120	115	160	140	161	6,5	9,5
12 a	124	135	125	175	155	176	7	10
13	134	145	135	190	165	191	7	11
14 a	144	150	145	200	175	201	7,5	11,5
15 a	149	155	150	210	185	211	8	12
16	159	170	160	225	205	226	8	12,5
17 a	169	180	170	240	215	241	8,5	13
18	179	190	180	250	230	251	9	14
19 a	184	200	185	260	230	261	9	14,5
20 a	—	—	200	265	—	266	10	15
21	—	—	205	270	250	271	10	15,5
22 a	—	—	215	280	260	281	10,5	16
23 a	—	—	220	290	—	291	11	17
24	—	—	230	300	270	301	11	17,5
25 a	—	—	240	310	—	311	12	18
27	—	—	255	330	300	331	12,5	19
30	—	—	285	370	330	371	13,5	20
32 a	—	—	300	390	350	391	14,5	21
34	—	—	320	415	385	416	15	22,5
36	—	—	335	435	405	436	15,5	23,5
41	—	—	380	495	455	496	17,5	26,5
46	—	—	425	555	515	556	19,5	29,5
50	—	—	460	600	560	601	21	32
55	—	—	560	650	—	651	22	33
60	—	—	595	710	—	701	24	35

^a Not according to ISO 272.

Bibliography

[1] ISO 1703, *Assembly tools for screws and nuts — Designation and nomenclature*

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