
**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.

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 7738 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 7738:1990), which has been technically revised.

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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 modified offset (Form B).

NOTE Combination wrenches are listed in ISO 1703:1983, *Assembly tools for screws and nuts — Nomenclature*, under number 13 (Form A) and 14 (Form B).

2 Normative reference

The following normative document contains 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 edition of the normative document 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*.
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3 Dimensions

See Figure 1 and Table 1.

The tolerances of the wrench opening, s , shall conform to those shown in ISO 691, "machined" series.

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

4 Designation

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

- 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.

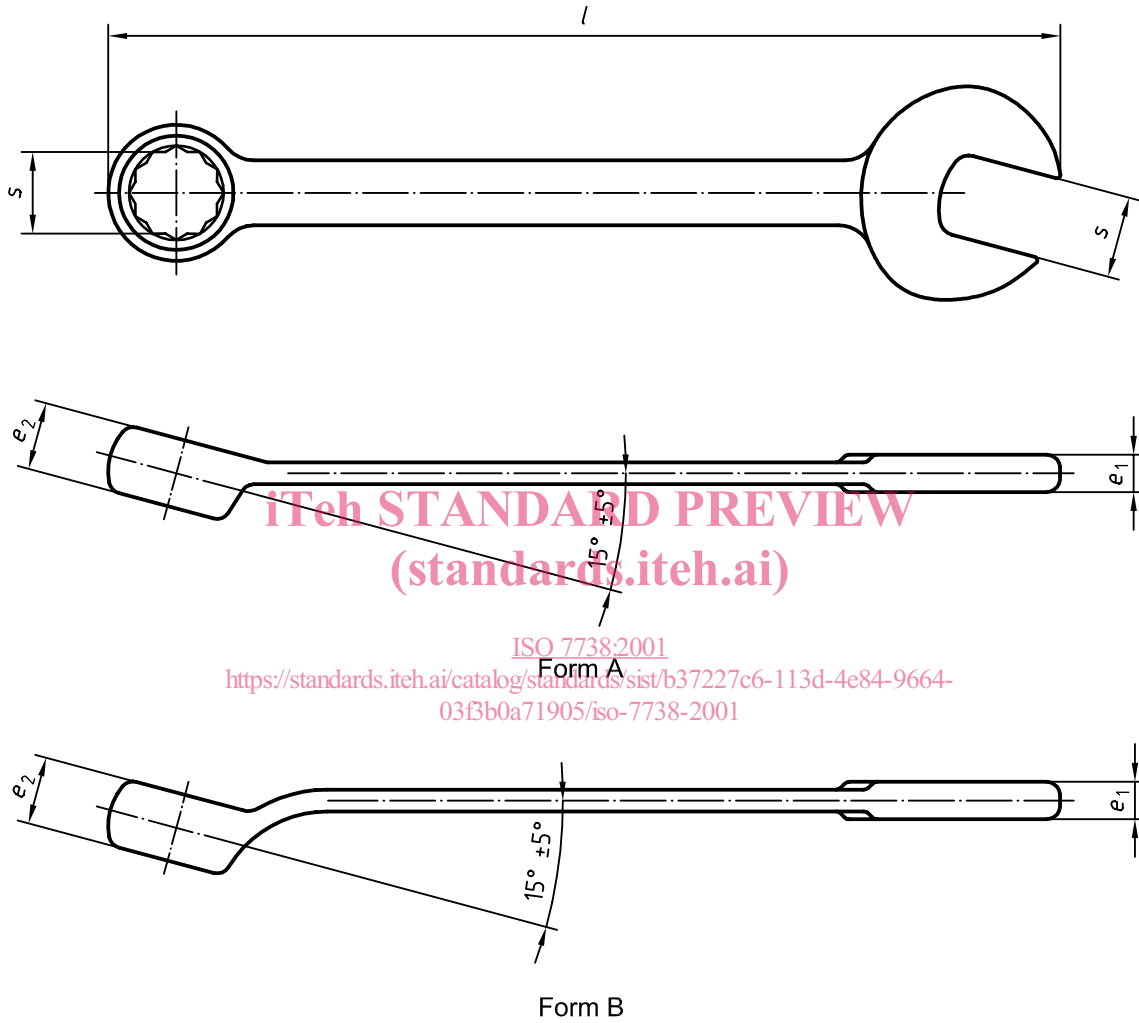
EXAMPLE A modified offset (Form B) combination wrench, medium series, with the wrench opening of 12 mm is designated as follows:

Wrench ISO 7738 - Medium B 12

5 Marking

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

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



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Figure 1

Table 1 — Lengths of wrenches and thickness of the heads

Dimensions in millimetres

Opening s	Series "short"		Series "medium"		Series "long"		Thickness of the heads		Opening s
	l_{\max}	l_{\max} (non-preferred)	l_{\min}	l_{\max}	l_{\min} (non-preferred)	l_{\min}	$e_{1, \max}$	$e_{2, \max}$	
3,2	54	80	55	110	—	—	3,3	5	3,2
4	54	80	55	110	—	—	3,5	5,5	4
5	64	85	65	115	—	—	4	6	5
5,5	69	85	70	120	—	—	4,2	6,3	5,5
6	74	90	75	120	—	—	4,5	6,5	6
7	79	95	80	130	—	—	5	7	7
8	89	100	90	145	120	146	5	8	8
9	99	105	100	150	125	151	5,5	8,5	9
10	109	115	110	155	135	156	6	9	10
11	114	120	115	160	140	161	6,5	9,5	11
12	124	135	125	175	155	176	7	10	12
13	134	145	135	190	165	191	7	11	13
14	144	150	145	200	175	201	7,5	11,5	14
15	149	155	150	210	185	211	8	12	15
16	159	170	160	225	205	226	8	12,5	16
17	169	180	170	240	215	241	8,5	13	17
18	179	190	180	250	230	251	9	14	18
19	184	200	185	260	230	261	9	14,5	19
21	—	—	205	270	250	271	10	15,5	21
22	—	—	215	280	260	281	10,5	16	22
24	—	—	230	300	270	301	11	17,5	24
27	—	—	255	330	300	331	12,5	19	27
30	—	—	285	370	330	371	13,5	20	30
32	—	—	300	390	350	391	14,5	21	32
34	—	—	320	415	385	416	15	22,5	34
36	—	—	335	435	405	436	15,5	23,5	36
41	—	—	380	495	455	496	17,5	26,5	41
46	—	—	425	555	515	556	19,5	29,5	46
50	—	—	460	600	560	601	21	32	50

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