INTERNATIONAL STANDARD

ISO 691

Fourth edition
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Assembly tools for screws and nuts — Wrench and socket openings — Tolerances for general use

Outils de manœuvre pour vis et écrous — Ouvertures de clés et d'embouts de serrage — Tolérances d'usage courant

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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 document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 691 was prepared by Technical Committee 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 691:1997), Table 1 of which has been technically revised.

Assembly tools for screws and nuts — Wrench and socket openings — Tolerances for general use

1 Scope

This International Standard specifies tolerances on wrench and socket openings for screws and nuts (or similar parts) having metric width across flats dimensions, as shown diagrammatically below.

It gives, for each dimension, the tolerances for general use, defined by its two deviations, minimum and maximum, with respect to the nominal value.

These deviations have been determined in relation to the width across flats tolerances for screws and nuts specified in ISO 4759-1 and with regard to the manufacture of tightening tools.

2 Normative references

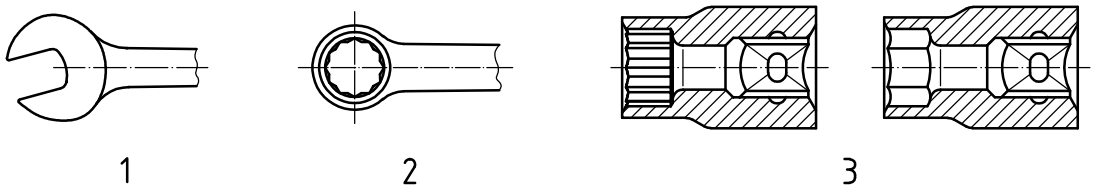
The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4759-1, *Tolerances for fasteners — Part 1: Bolts, screws, studs and nuts — Product grades A, B, and C*

3 Tolerances

The tolerances for the openings of wrenches, box wrenches and socket wrenches as shown in Figure 1 are given in Table 1.

For wrenches, only the tolerance class 1 shall be used.



1 2 3

Key

1 wrench (open)
2 box wrench (closed)
3 socket wrench (closed)

Figure 1 — Wrench (open), box wrench (closed) and socket wrench (closed)

Table 1 — Tolerances on wrench and socket openings

Dimensions in millimetres

Nominal dimension s	Tolerance class 1		Tolerance class 2 [a]	
	Deviations		Deviations	
	min.	max.	min.	max.
$2 \leqslant s < 3$	+ 0,02	+ 0,08	+ 0,02	+ 0,12
$3 \leqslant s < 4$	+ 0,02	+ 0,10	+ 0,02	+ 0,14
$4 \leqslant s < 6$	+ 0,02	+ 0,12	+ 0,02	+ 0,16
$6 \leqslant s < 10$	+ 0,03	+ 0,15	+ 0,03	+ 0,19
$10 \leqslant s < 12$	+ 0,04	+ 0,19	+ 0,04	+ 0,24
$12 \leqslant s < 14$	+ 0,04	+ 0,24	+ 0,04	+ 0,30
$14 \leqslant s < 17$	+ 0,05	+ 0,27	+ 0,05	+ 0,35
$17 \leqslant s < 19$	+ 0,05	+ 0,30	+ 0,05	+ 0,40
$19 \leqslant s < 26$	+ 0,06	+ 0,36	+ 0,06	+ 0,46
$26 \leqslant s < 33$	+ 0,08	+ 0,48	+ 0,08	+ 0,58
$33 \leqslant s < 55$	+ 0,10	+ 0,60	+ 0,10	+ 0,70
$55 \leqslant s < 75$	+ 0,12	+ 0,72	+ 0,12	+ 0,92
$75 \leqslant s < 105$	+ 0,15	+ 0,85	+ 0,15	+ 1,15
$105 \leqslant s < 150$	+ 0,20	+ 1,00	+ 0,20	+ 1,40
$150 \leqslant s \leqslant 210$	+ 0,25	+ 1,25	—	—

[a] This tolerance class is only applicable to box wrenches and socket wrenches that have not been finished by material removal.

4 Designation

An opening for a wrench or socket in conformance with this International Standard shall be designated by:

a) “Opening”;

b) reference to this International Standard, i.e. ISO 691;

c) its nominal dimension, s, in millimetres;

d) its tolerance class, 1 or 2.

EXAMPLE A wrench and socket opening according to ISO 691 with a nominal dimension s = 18 mm and a tolerance class 1 is designated as follows:

Opening ISO 691 - 18 - 1

Bibliography

[1] ISO 272, *Fasteners — Hexagon products — Width across flats*

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