INTERNATIONAL STANDARD

ISO 2697

Second edition
1999-12-15

Diesel engines — Fuel nozzles — Size “S”

Moteurs diesels — Injecteurs — Taille «S»

Reference number
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Foreword

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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 2697 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 7, *Injection equipment and filters for use on road vehicles*.

This second edition cancels and replaces the first edition (ISO 2697:1974), of which it constitutes a technical revision.

Annex A forms a normative part of this International Standard.

Diesel engines — Fuel nozzles — Size “S”

1 Scope

This International Standard specifies the essential dimensional requirements for size "S" fuel nozzles used in diesel engines.

These requirements allow the assembly and interchangeability of the nozzles in the corresponding nozzle holders.

This International Standard is applicable to size "S" nozzles, which comprise hole type, long-stem nozzles (types A1 and A2) and pintle nozzles (type B).

NOTE Type A1 and type B nozzles are the preferred types. The non-preferred hole type, short-stem nozzle, type C, is shown in annex A.

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.

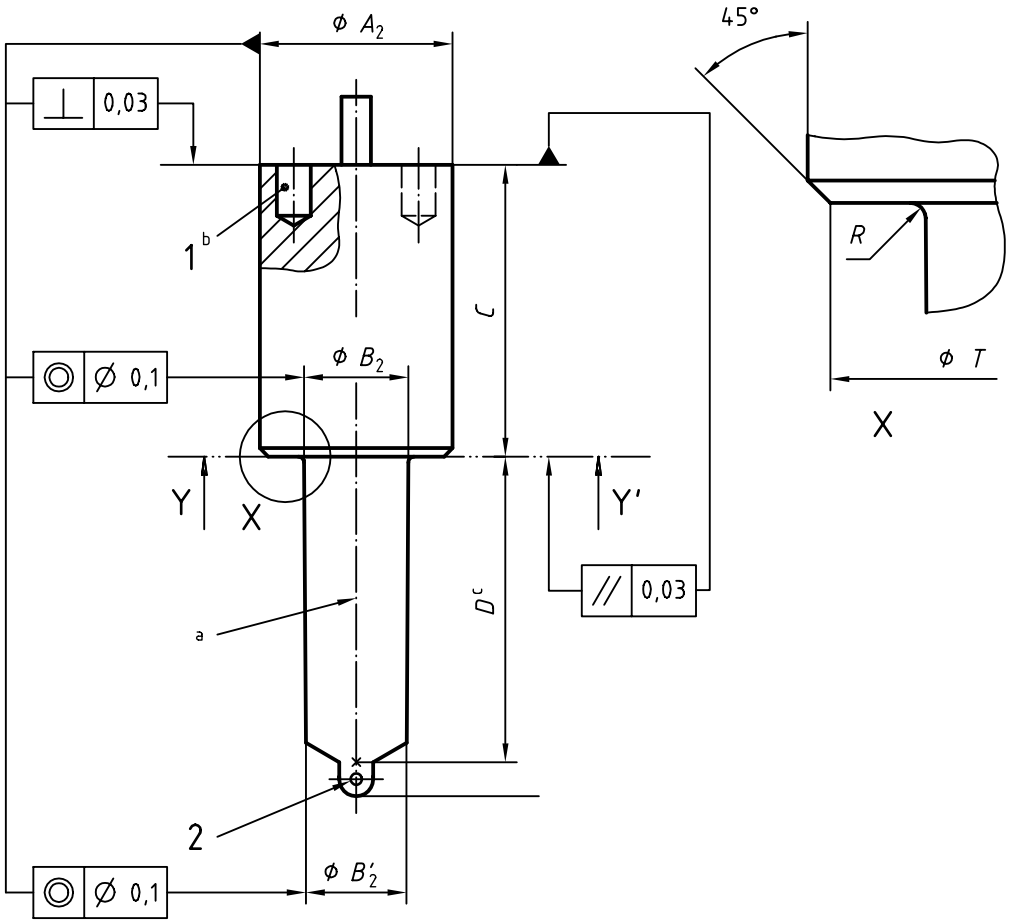
ISO 2699, *Diesel engines — Flange-mounted fuel injectors, size "S" — Types 2, 3, 4, 5 and 6*.

ISO 7026, *Diesel engines — Screw-in injection nozzle holders, types 20, 21, 21.1 and 27 for pintle nozzle size "S", type "B"*.

ISO 7030, *Road vehicles — Screw-mounted injection nozzle holders, types 12, 13, 14, 15, 16, 17, 18 and 19*.

3 Dimensions and tolerances

See Figures 1 and 2 and Table 1.



Key

1 Fuel feed groove

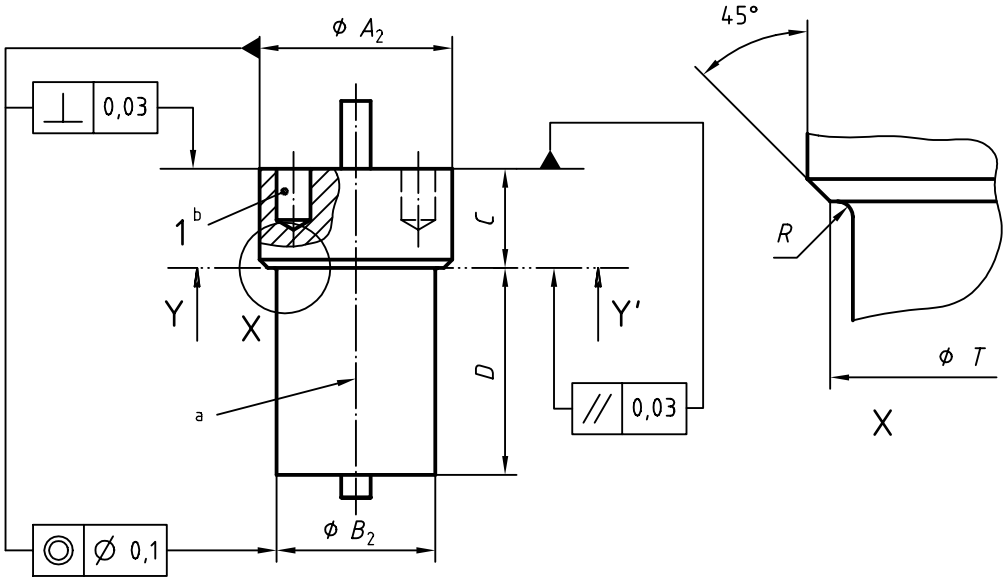
2 Injection holes

a The reference axis for the nozzle passes through the centre of the circle of diameter A_2.

b A fuel feed groove is necessary only on nozzles without dowel holes and on nozzles having multiple fuel feed holes.

c This dimension determines the distance between the reference plane YY′ and the point of intersection of the axes of the injection holes with the nozzle axis.

Figure 1 — Hole type, long-stem nozzle — Type A1 and Type A2



Key

1 Fuel feed groove

a The reference axis for the nozzle passes through the centre of the circle of diameter A_2.

b A fuel feed groove is necessary only on nozzles without dowel holes and on nozzles having multiple fuel feed holes.

Figure 2 — Pintle nozzle — Type B

Table 1

Dimensions in millimetres

Nozzle type	Dimension						
	A_2	B_2	B_2'	C	D	T	R
A1 [a]	17 h11	9,2 max. [b]	8,9 min.	$25\ ^{0}_{-0,6}$	$26,5\ ^{+0,2}_{-0,3}$	$15,5\ ^{+0,5}_{0}$	0,6 max.
A2					$38,5\ ^{+0,2}_{-0,3}$		
B		14 c11	—	$8\ ^{0}_{-0,4}$	$19 \pm 0,2$	$16,3\ ^{+0,2}_{0}$	0,25 max.

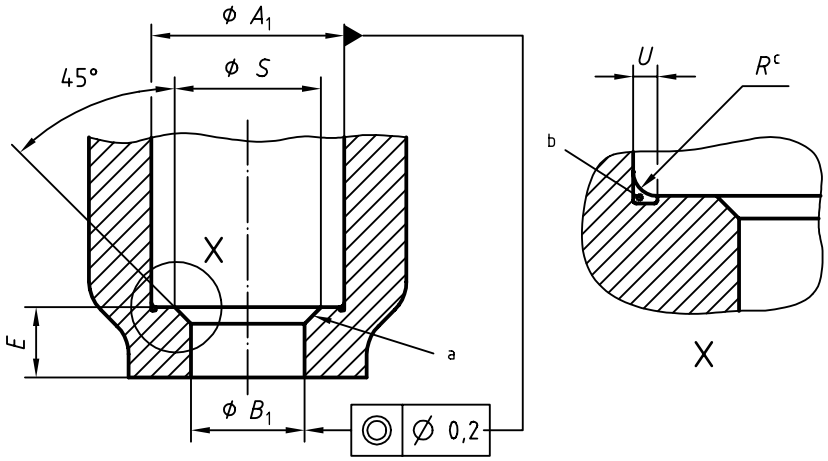
a Preferred type

b $B_2 \geqslant B_2'$

4 Assembly of nozzles in nozzle holders

4.1 Dimensions and tolerances of the nozzle cap nut

See Figure 3 and Table 2.



a Chamfer or similar form

b Undercut or radius within dimension U

c $R = U$

Figure 3 — Nozzle cap nut

Table 2

Dimensions in millimetres

Nozzle type	Dimension				
	A_1	B_1	E	S	U
A1 and A2	17 D13	$10\,^{+0,16}_{-0,05}$	$6,2\,^{0}_{-0,2}$	$11,5\,^{+0,3}_{0}$	0,4 max.
B		$14,3\,^{+0,2}_{0}$		$15,0 \pm 0,1$	0,2 max.

4.2 Dimensions and tolerances of the assembly

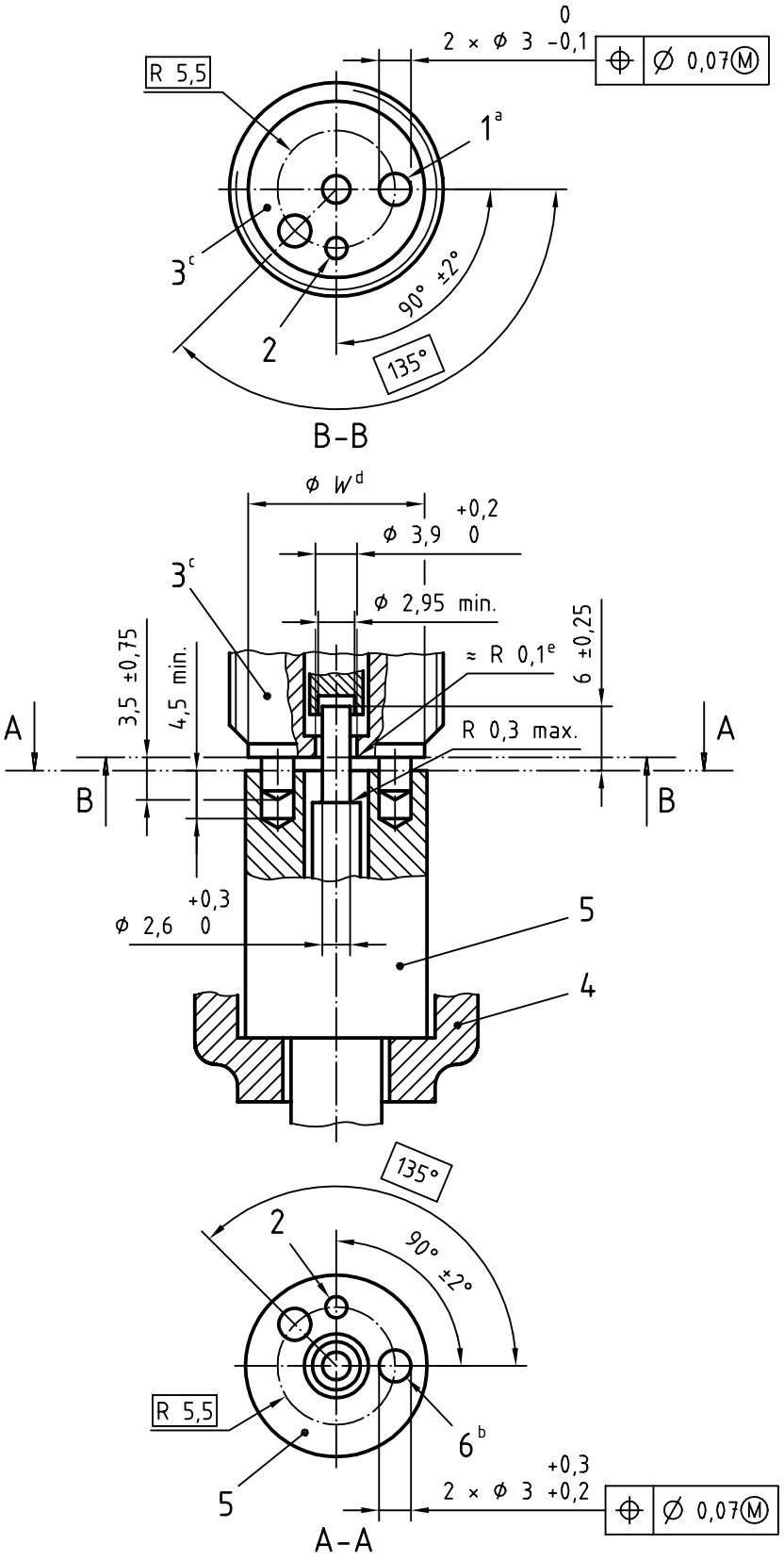
The assembly dimensions and tolerances given in Figure 4 apply to nozzle types A1, A2 and B and to nozzle holders of types 2 to 6 (ISO 2699), types 12 to 15 (ISO 7030) and types 20, 21, 21.1 and 27 (ISO 7026).

The dimensions of the nozzle holder dowels and the nozzle dowel holes, as well as the dimensions and tolerances for their position, are necessary only if requested by the customer.

5 Other dimensions and specifications

Dimensions and requirements not specified in this International Standard are left to the discretion of the manufacturer.

Dimensions in millimetres



Key

1 Reference dowel
2 Fuel feed hole position
3 Nozzle holder body
4 Nozzle cap nut
5 Nozzle
6 Reference dowel hole

a The angular tolerance between the reference dowel and the locating device which fixes the position of the nozzle holder in the diesel engine is ± 1°. Depending on the design of the locating device, it may be necessary to consider the axis of a hole in a fixing flange, a fixing lug, or a fixing slot.

b The angular tolerance between the reference dowel hole and the injection holes is ± 1° 30′.

c The reference axis of the nozzle holder shall pass through the centre of the circle of diameter *W*.

d Dimension *W* not specified.

e Optional: equivalent chamfer.

Figure 4 — Assembly

Annex A
(normative)

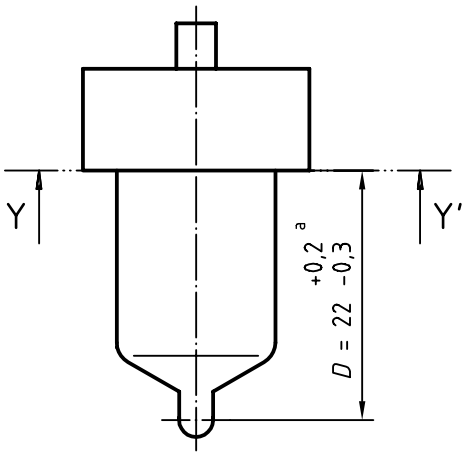
Hole type, short-stem nozzle — Type C

The hole type, short-stem nozzle, type C, conforms to the requirements for nozzle type B except for the dimension D shown in Figure A.1.

The cap nut used for fixing the type C nozzle shall be of the same type as that used for the type B nozzle (see 4.1).

Nozzle holders assembled with type C nozzles shall meet the requirements given in 4.2.

Dimensions in millimetres



a This dimension determines the distance between the reference plan YY′ and the point of intersection of the axes of the injection holes with the nozzle axis.

Figure A.1 — Hole type, short-stem nozzle — Type C

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