



BSI Standards Publication

Tyre valves — Dimensions and designation

National foreword

This British Standard is the UK implementation of ISO 9413:2019. It supersedes BS ISO 9413:2012+A1:2012, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee AUE/4, Tyres and wheels for motor vehicles.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Date	Text affected
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Tyre valves — Dimensions and designation

Valves pour pneumatiques — Dimensions et désignation





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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 of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 31, *Tyres, rims and valves*, Subcommittee SC 9, *Valves for tube and tubeless tyres*.

This third edition cancels and replaces the second edition (ISO 9413:2012), which has been technically revised. It also incorporates the Amendment ISO 9413:2012/Amd.1:2012. The main change compared to the previous edition is as follows:

— Inclusion of new types of valves used for TPMS application.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Tyre valves — Dimensions and designation

1 Scope

This document defines the essential dimensions and the designation of tube valves and tubeless valves.

[Annex B](#) gives the correspondence between ISO designations and the designations established by:

- TRA (Tire and Rim Association Inc.);
- ETRTO (European Tyre and Rim Technical Organisation);
- JATMA (The Japan Automotive Tyre Manufacturer's Association, Inc.).

In the remainder of this document, all the dimensions are given at their nominal value except in cases where the tolerances are indicated.

The threaded length of valve stems for which no thread length is specified is the maximum possible length.

NOTE The drawings for valves are not all at the same scale.

2 Normative references

There are no normative references in this document.

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/>

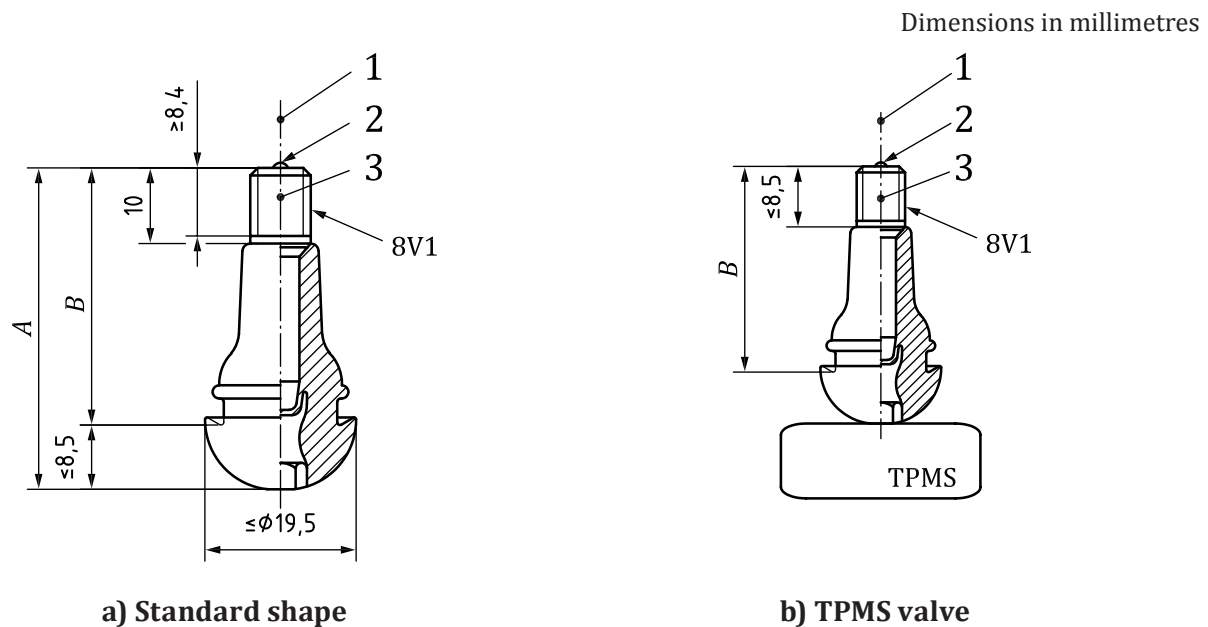
4 Valves and valve componente for tyres — Identification system

The designations of tyre valves and tyre valve components shall follow the identification system in accordance with [Annex A](#).

5 Tubeless valves only

5.1 Snap-in valves

5.1.1 Valve hole $11,3^{+0,4}_0$



Key

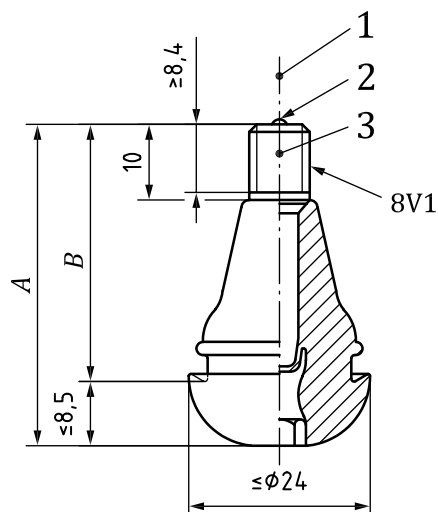
- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chambers No. 1 and No. 3

Designation	A mm	B mm
CQ 01 ^a	33	25
CQ 02	43	35
CQ 03	49	41
CQ 04	56,5	48,5
CQ 05	62	54
CQ 06	75	67
CQ 09 ^b	—	35
CQ 10 ^b	—	41
^a For short core only.		
^b TPMS valve/ short core preferred.		

Figure 1 — Valve hole $11,3^{+0,4}_0$

5.1.2 Valve hole $15,7^{+0,4}_0$

Dimensions in millimetres



Key

- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chambers No. 1 and No. 3

Designation	A mm	B mm
CR 01	43	35
CR 02	62	54

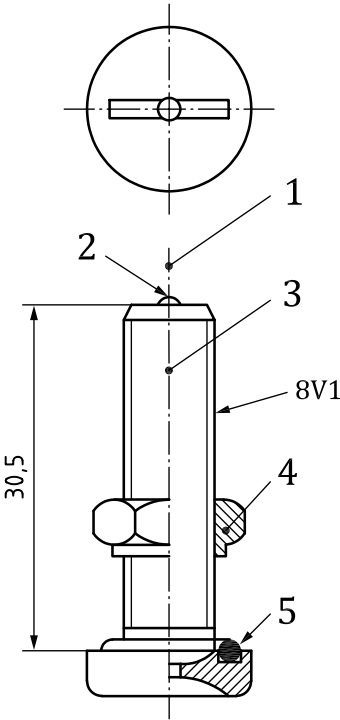
Figure 2 — Valve hole $15,7^{+0,4}_0$

5.2 Clamp-in valves

5.2.1 Clamp-in valves with O-ring

5.2.1.1 Valve hole $8,3^{+0,3}_0$

Dimensions in millimetres



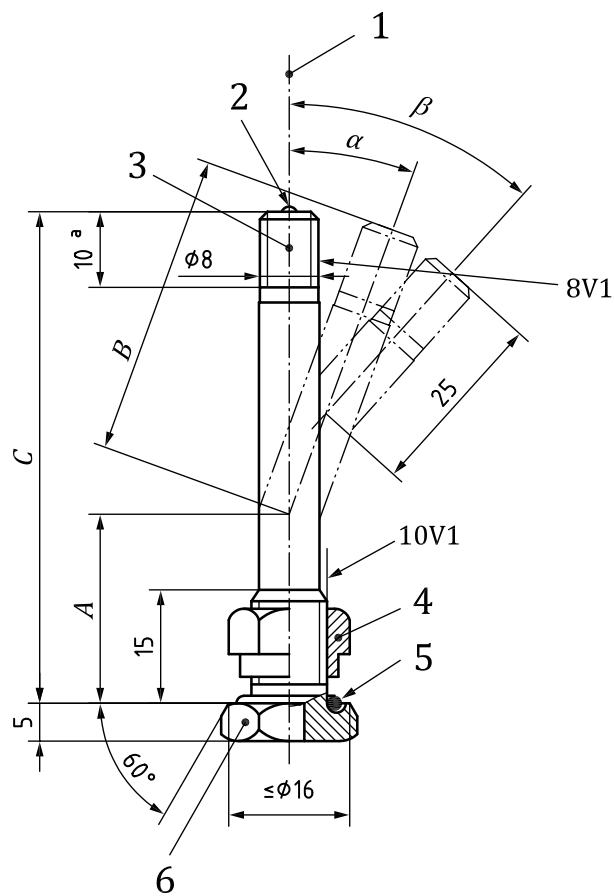
- Key**
- 1 cap [I 01 / I 02 / I 03]
 - 2 core [H 01]
 - 3 core chamber No. 1
 - 4 nut [E 02]
 - 5 rubber O-ring [C 05]

Designation
CM 01

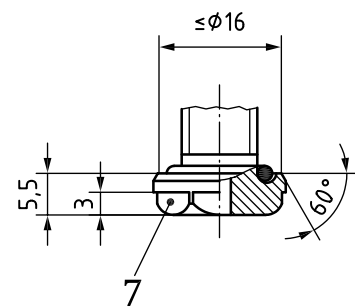
Figure 3 — Valve hole $8,3^{+0,3}_0$

5.2.1.2 Valve hole $9,7^{+0,3}_0$

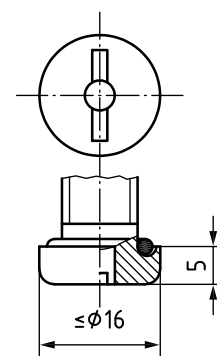
Dimensions in millimetres



a) Fully threaded



b) Optional shape with hex flats



c) Optional shape with slot

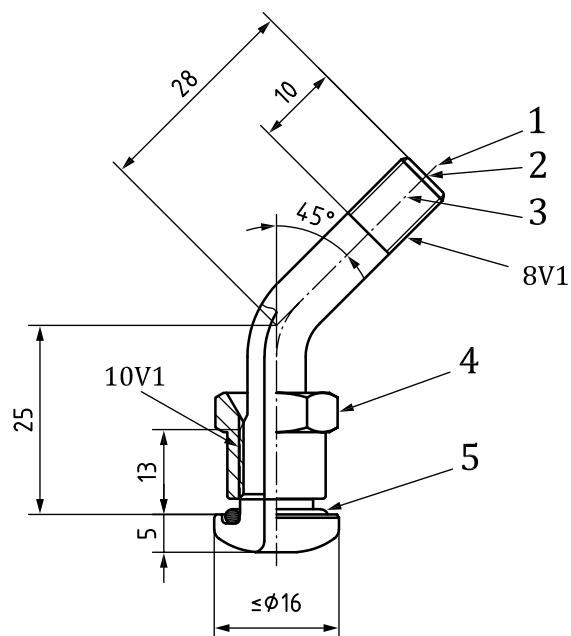
Key

- | | | | |
|---|--------------------------|---|----------------------|
| 1 | cap [I 01 / I 02 / I 03] | 5 | rubber O-ring [C 03] |
| 2 | core [H 01] | 6 | before chamfer |
| 3 | core chamber No. 1 | 7 | 16 on flats hex |
| 4 | hex nut [E 03] | a | Fully threaded. |

Designation	A mm	B mm	C mm	α °	β °
CP 01	—	—	36	—	—
DP 01	25	60	85	27	—
DP 02	25	40	65	27	—
DP 03	25	85	110	27	—
DP 04	25	50	75	27	—
DP 05 ^a	50	25	75	27	—
EP 01 ^a	25	—	95	27	42

^a Short core only.

Figure 4 — Valve hole 9,7 $^{+0,3}_0$



Key

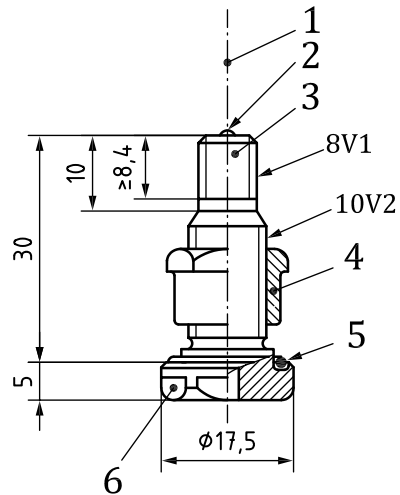
- 1 cap [I 01 / I 02 / I 03]
- 2 short core only [H 01]
- 3 core chamber No. 1
- 4 hex nut [E 03]
- 5 rubber O-ring [C 03]

Designation
DP 06

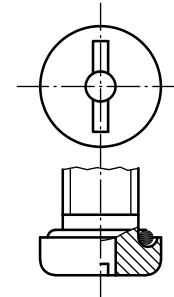
Figure 5 — Valve hole $9,7^{+0,3}_0$

5.2.1.3 Valve hole $11,3^{+0,4}_0$

Dimensions in millimetres



a) Standard shape



b) Optional shape with slot

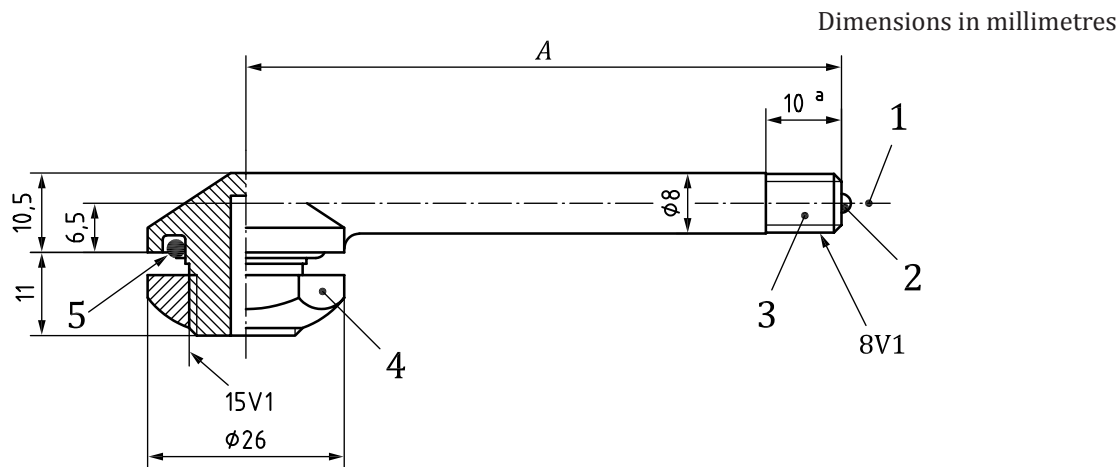
Key

- 1 cap [I 01 / I 02 / I 03]
- 2 short core only [H 01]
- 3 core chamber No. 1
- 4 hex nut [E 07]
- 5 rubber O-ring [C 04]
- 6 16 on flats

Designation
CQ 07

Figure 6 — Valve hole $11,3^{+0,4}_0$

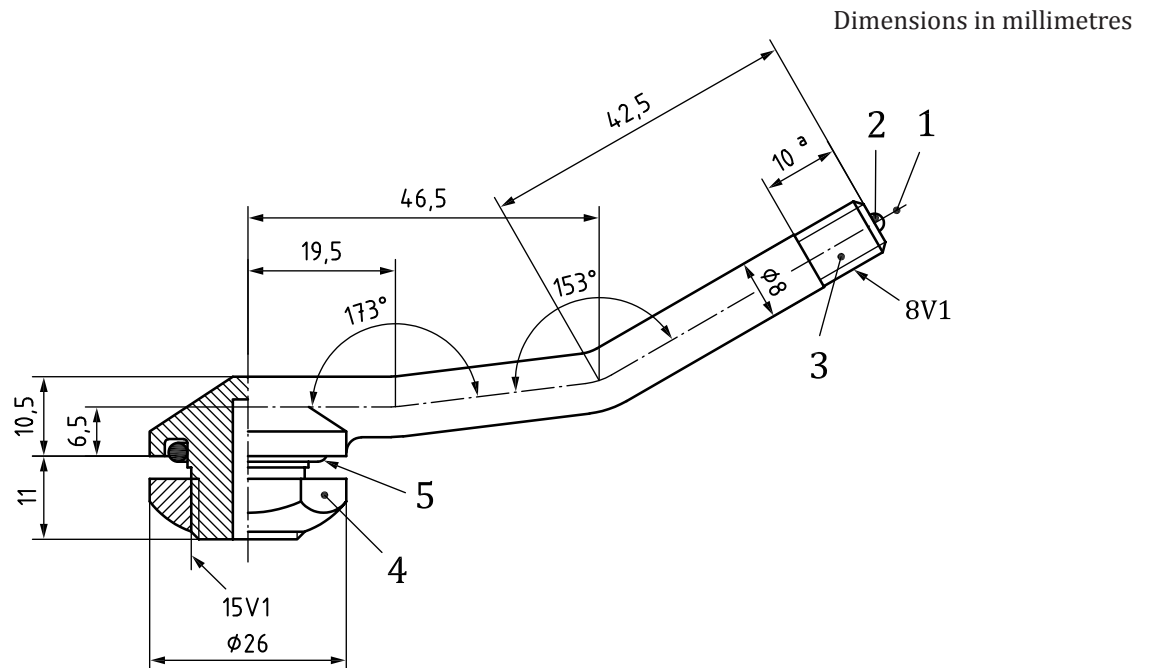
5.2.1.4 Valve hole $15,7^{+0,4}_0$



- Key**
- 1 cap [I 01 / I 02 / I 03]
 - 2 core [H 01]
 - 3 core chamber No. 1
 - 4 hex nut [E 09]
 - 5 rubber O-ring [C 02]
 - ^a Fully threaded.

Designation	A mm
DR 01	40
DR 02	95

Figure 7 — Valve hole $15,7^{+0,4}_0$



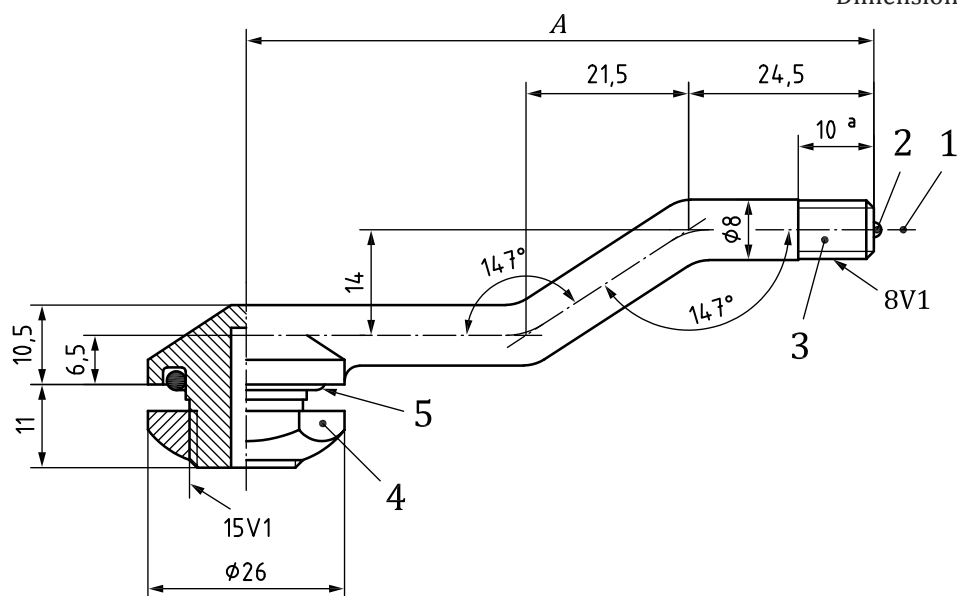
Key

- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chamber No. 1
- 4 hex nut [E 09]
- 5 rubber O-ring [C 02]
- ^a Fully threaded.

Designation
FR 01

Figure 8 — Valve hole $15,7^{+0,4}_0$

Dimensions in millimetres



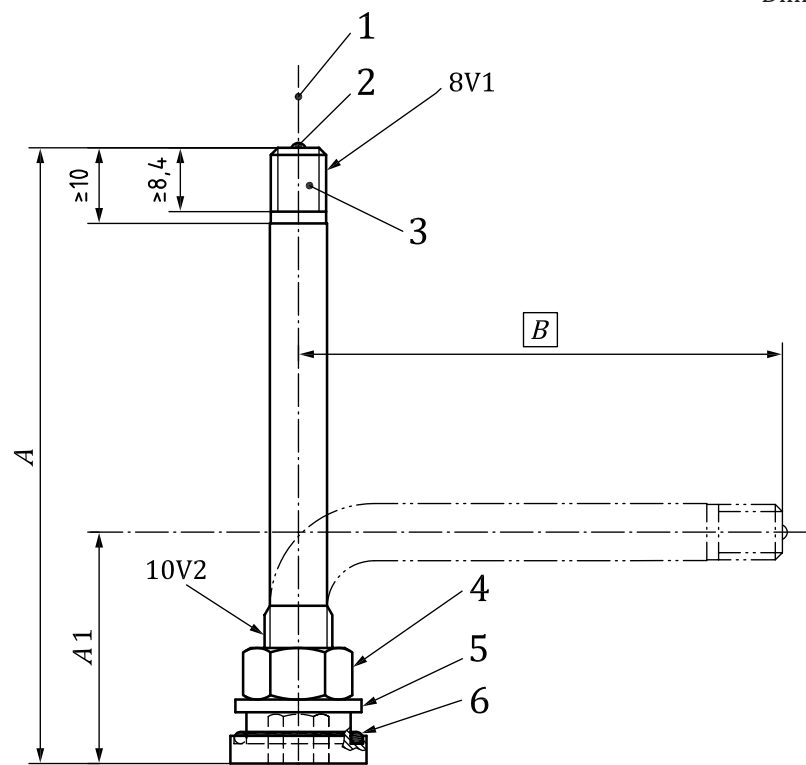
Key

- 1 cap [I 01 / I 02 / I 03]
- 2 short core only [H 01]
- 3 core chamber No. 1
- 4 hex nut [E 09]
- 5 rubber O-ring [C 02]
- a Fully threaded.

Designation	<i>A</i> mm
FR 02	91
FR 03	83

Figure 9 — Valve hole 15,7 $^{+0,4}_0$

Dimensions in millimetres



Key

- 1 cap [I 01 / I 02 / I 03]
- 2 short core only [H 01]
- 3 core chamber No. 4
- 4 hex nut [E 09]
- 5 ring washer [D 02]
- 6 rubber O-ring [C 02]

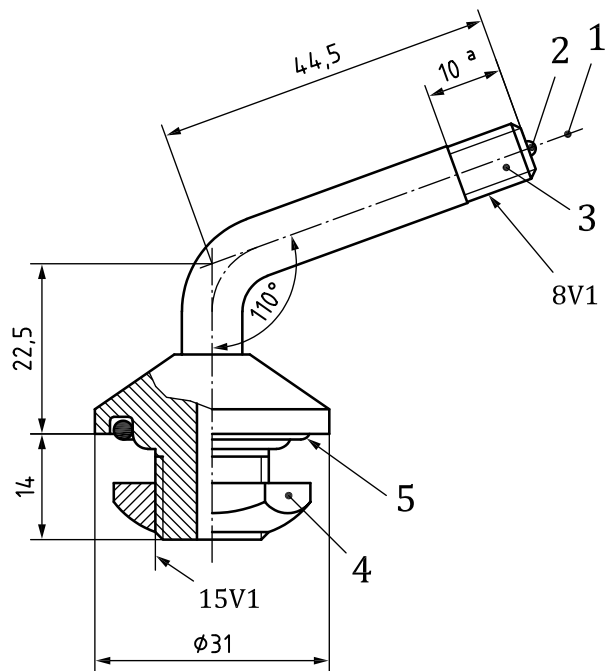
Designation	A mm
CR 13	51
CR 14	38
CR 15	79
CR 16	86
CR 17	95
CR 18	111
CR 19	127
CR 20	29

Designation	A1 mm	B Ref
DR 15	33	51
DR 16	33	58
DR 17	33	67
DR 18	33	83

Figure 10 — Valve hole $15,7^{+0,4}_0$

5.2.1.5 Valve hole $20,5^{+0,5}_0$

Dimensions in millimetres

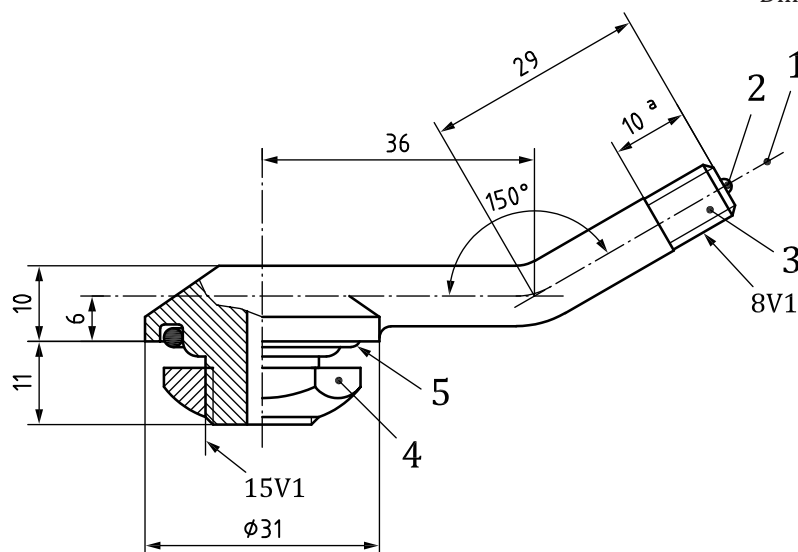


- Key**
- 1 cap [I 01 / I 02 / I 03]
 - 2 core [H 01]
 - 3 core chamber No. 1
 - 4 hex nut [E 09]
 - 5 rubber O-ring [C 01]
- ^a Fully threaded. For certain existing rigid extensions, an 8 mm diameter for a 22 mm min. length from valve mouth is required.

Designation
DS 01

Figure 11 — Valve hole $20,5^{+0,5}_0$

Dimensions in millimetres

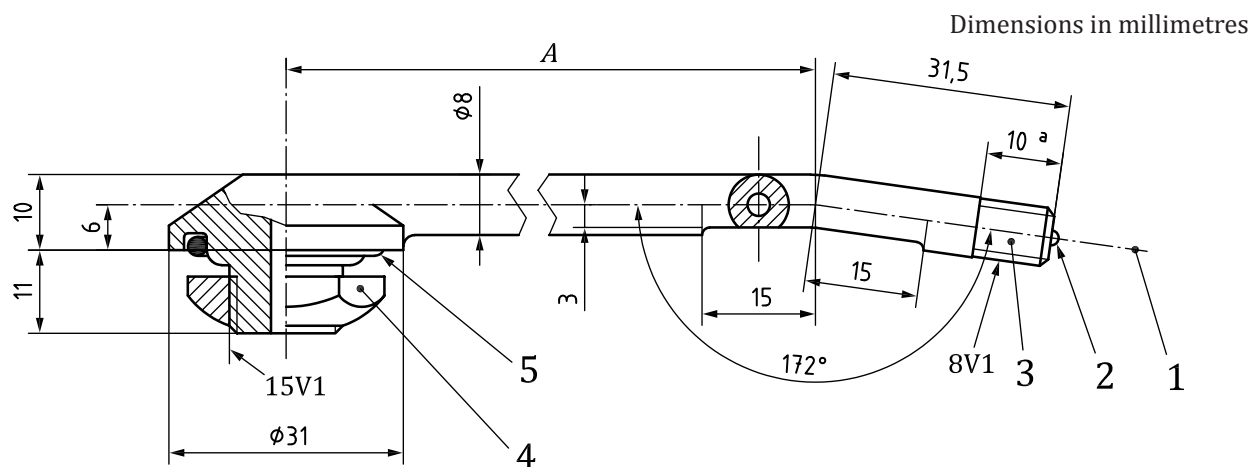


Key

- 1 cap [I 01 / I 02 / I 03]
- 2 short core only [H 01]
- 3 core chamber No. 4
- 4 hex nut [E 09]
- 5 rubber O-ring [C 01]
- ^a Fully threaded. For certain existing rigid extensions, an 8 mm diameter for a 22 mm min. length from valve mouth is required.

Designation
ES 01

Figure 12 — Valve hole $20,5^{+0,5}_0$

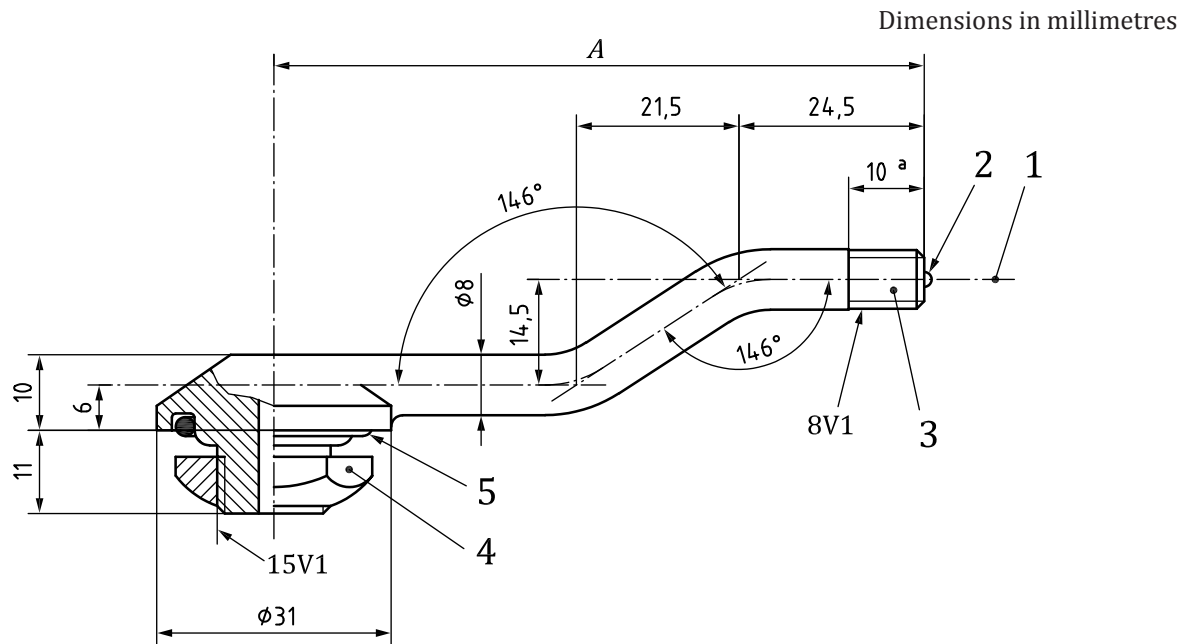


Key

- 1 cap [I 01 / I 02 / I 03]
- 2 short core only [H 01]
- 3 core chamber No. 4
- 4 hex nut [E 09]
- 5 rubber O-ring [C 01]
- a Fully threaded.

Designation	<i>A</i> mm
ES 02	99
ES 03	116

Figure 13 — Valve hole $20,5^{+0,5}_0$

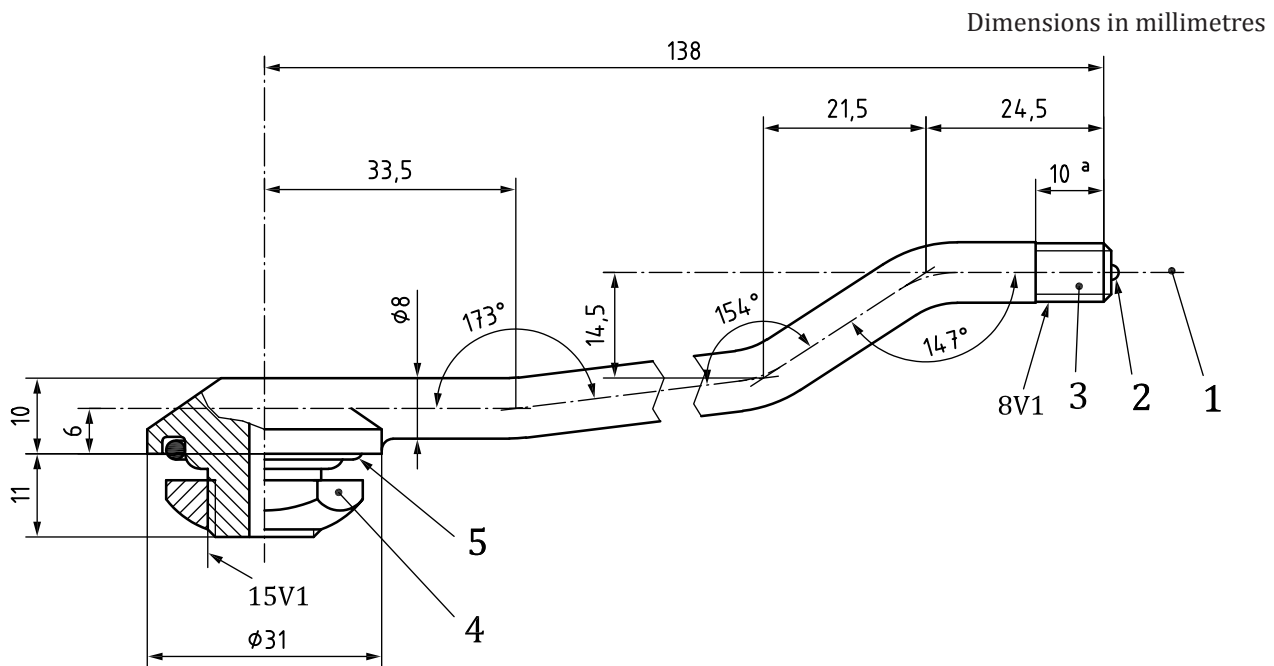


Key

- 1 cap [I 01 / I 02 / I 03]
 - 2 short core only [H 01]
 - 3 core chamber No. 4
 - 4 hex nut [E 09]
 - 5 rubber O-ring [C 01]
- ^a Fully threaded. For certain existing rigid extensions, an 8 mm diameter for a 22 mm min. length from valve mouth is required.

Designation	<i>A</i> mm
FS 01	110
FS 02	127

Figure 14 — Valve hole 20,5 $^{+0,5}_0$



Key

- 1 cap [I 01 / I 02 / I 03]
- 2 short core only [H 01]
- 3 core chamber No. 4
- 4 hex nut [E 09]
- 5 rubber O-ring [C 01]

a Fully threaded. For certain existing rigid extensions, an 8 mm diameter for a 22 mm min. length from valve mouth is required.

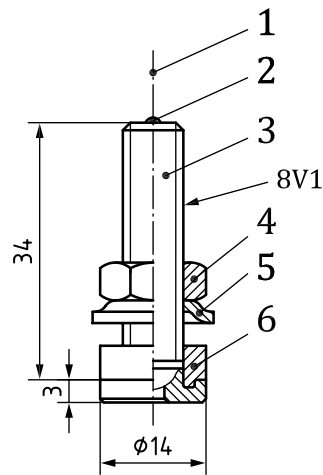
Designation
GS 01

Figure 15 — Valve hole $20,5^{+0,5}_0$

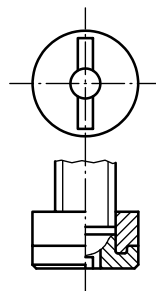
5.2.2 Clamp-in valves with grommet

5.2.2.1 Valve hole $8,3^{+0,3}_0$

Dimensions in millimetres



a) Standard shape



b) Optional shape with slot

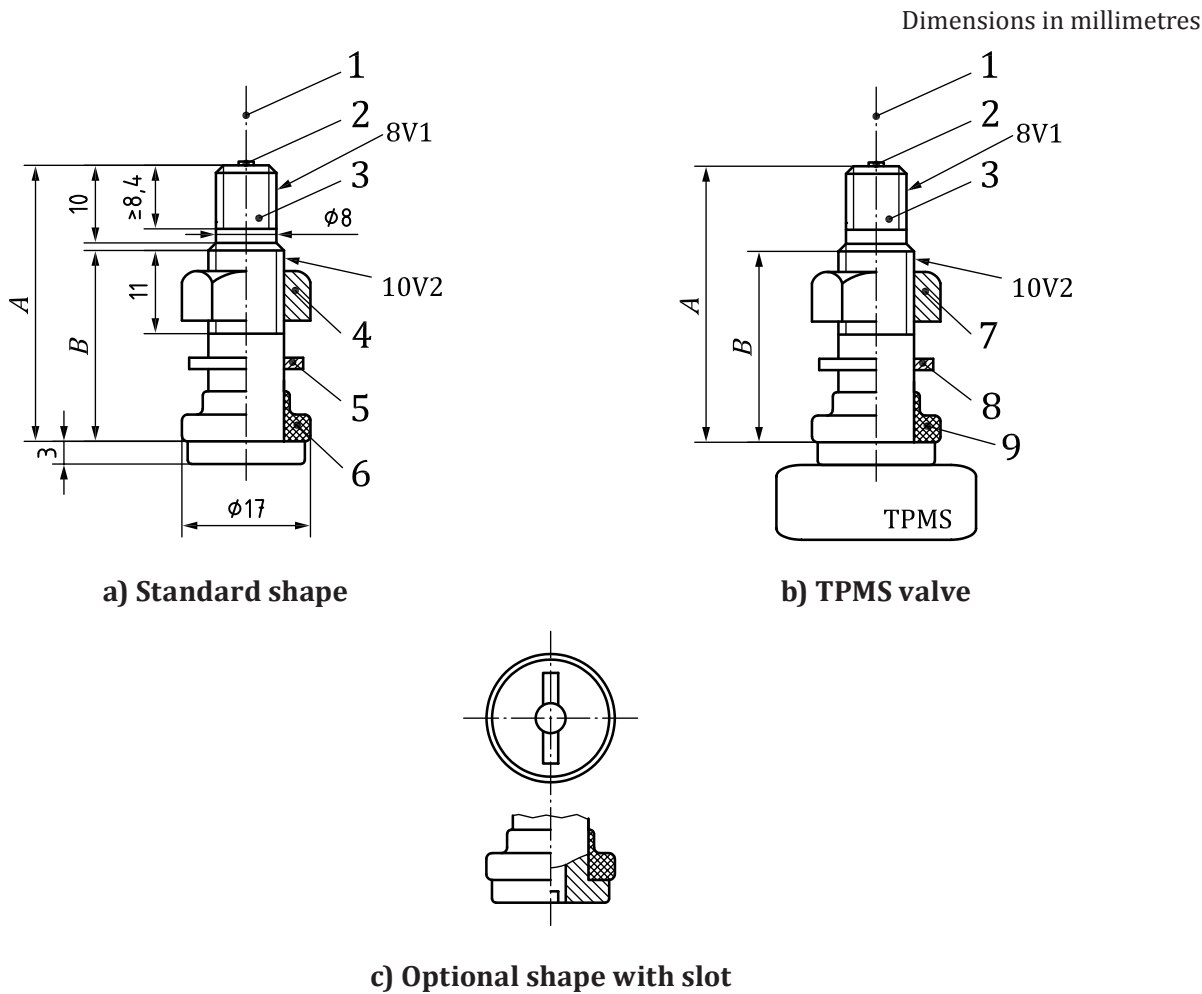
Key

- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chamber No. 1
- 4 hex nut [E 01]
- 5 ring washer [D 01]
- 6 rubber grommet [B 01]

Designation
CM 02

Figure 16 — Valve hole $8,3^{+0,3}_0$

5.2.2.2 Valve hole 11,3^{+0,4}₀



Key

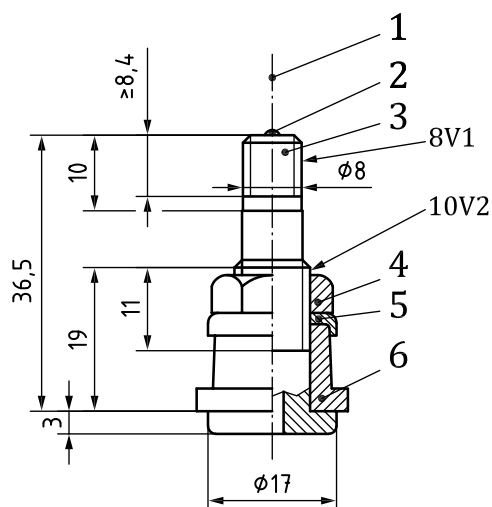
- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chamber No. 1
- 4 hex nut [E 04]
- 5 ring washer [D 04]
- 6 rubber grommet [B 05]
- 7 hex nut – design depends on TPMS system
- 8 ring washer – design depends on TPMS system
- 9 rubber grommet – design depends on TPMS system

Designation	A mm	B mm
CQ 08	36,5	23,5
CQ 11 ^a	35	14,5 min
CQ 12 ^a	41	14,5 min
^a TPMS valve.		

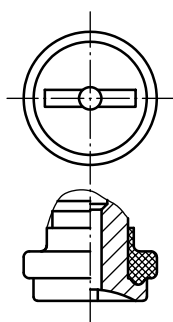
Figure 17 — Valve hole 11,3^{+0,4}₀

5.2.2.3 Valve hole $15,7^{+0,4}_0$

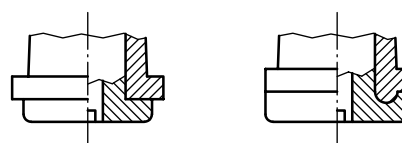
Dimensions in millimetres



a) Standard shape



b) Optional shape with slot



c) Optional head shape

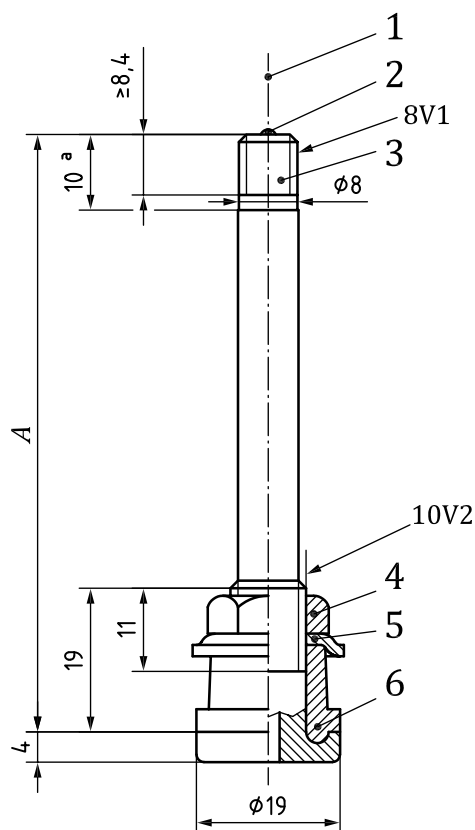
Key

- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chamber No. 1
- 4 hex nut [E 04]
- 5 ring washer [D 03 / D 08]
- 6 rubber grommet [B 04]

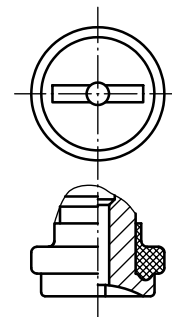
Designation
CR 03

Figure 18 — Valve hole $15,7^{+0,4}_0$

Dimensions in millimetres



a) Standard shape



b) Optional shape with slot

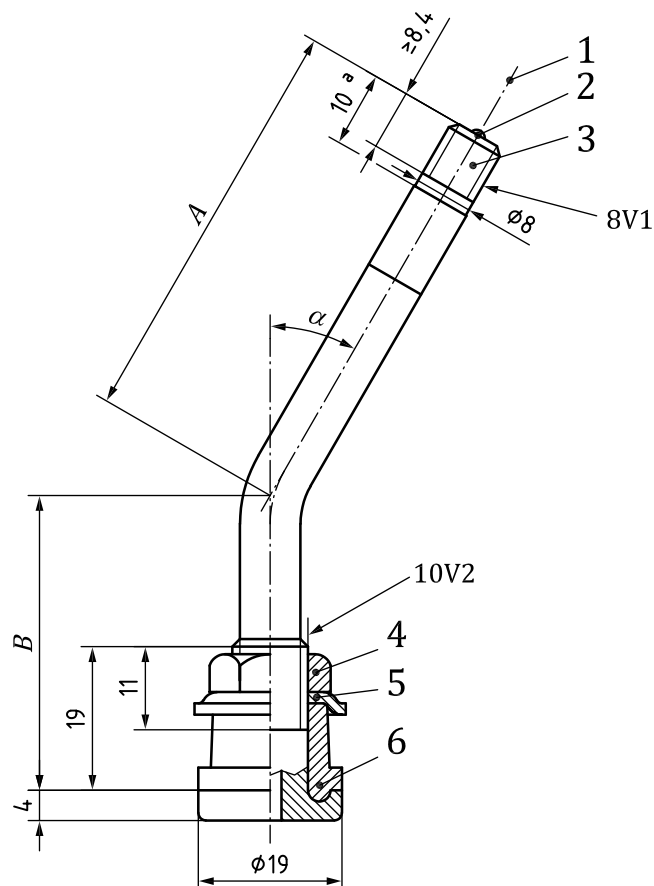
Key

- 1 cap [I 01 / I 02 / I 03]
 - 2 core [H 01]
 - 3 core chamber No. 1
 - 4 hex nut [E 05]
 - 5 ring washer [D 02 / D 08]
 - 6 rubber grommet [B 03]
- ^a For certain existing rigid extensions, an 8 mm diameter for a 22 mm min. length from valve mouth is required.

Designation	A mm
CR 04	79
CR 05	86
CR 06	95
CR 07	111
CR 08	127
CR 09	29
CR 10	38
CR 11	51

Figure 19 — Valve hole $15,7^{+0,4}_0$

Dimensions in millimetres



Key

- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chamber No. 1
- 4 hex nut [E 05]
- 5 ring washer [D 02 / D 08]
- 6 rubber grommet [B 03]

^a For certain existing rigid extensions, an 8 mm diameter for a 22 mm min. length from valve mouth is required.

NOTE See [Tables 1](#) and [2](#) for ISO designations and additional dimensions.

Figure 20 — Valve hole $15,7^{+0,4}_0$

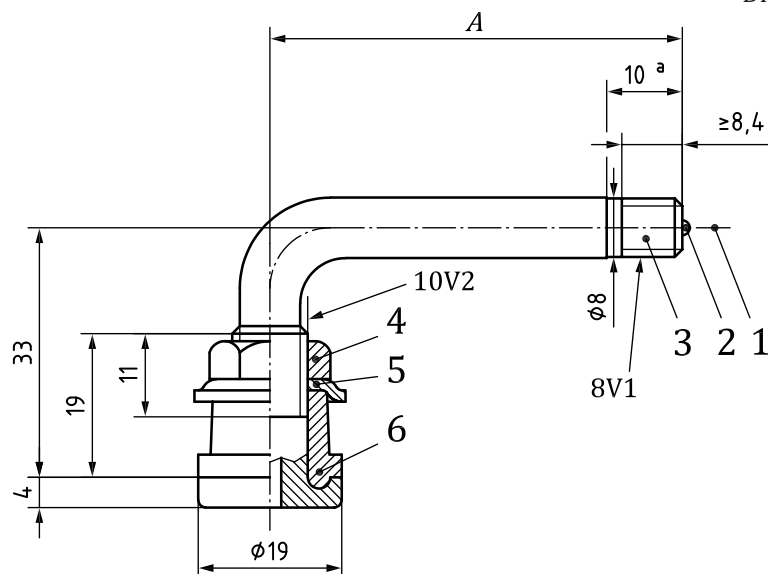
Table 1 — Tool setting to produce α angle

Tool setting	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Angle α	4°	11°	16°	21°	26°	31°	36°	41°	46°	51°	56°	61°	66°	71°	76°	81°	86°

Table 2 — Tool setting to produce lengths *A* and *B*

Tool setting	Length <i>A</i>	Length B^{+3}_0				
		CR 04 ^a	CR 05	CR 06	CR 07	CR 08
12	38	41	48	57	73	89
13	41	38	44,5	54	70	86
14	44,5	35	41	51	67	82,5
15	48		38	48	63,5	79,5
16	51		35	44,5	60,5	76
17	54			41	57	73
18	57			38	54	70
19	60,5			35	51	67
20	63,5				48	63,5
21	67				44,5	60,5
22	70				41	57
23	73				38	54
24	76				35	51
25	79,5					48
26	82,5					44,5
27	86					41
28	89					38
29	92					35
^a Valve identification: ISO designation of straight valves – tool setting. EXAMPLE CR 04 – C12. For 90° bend, see DR series (Figure 21).						

Dimensions in millimetres



Key

1 cap [I 01 / I 02 / I 03]

2 core [H 01]

3 core chamber No. 1

4 hex nut [E 05]

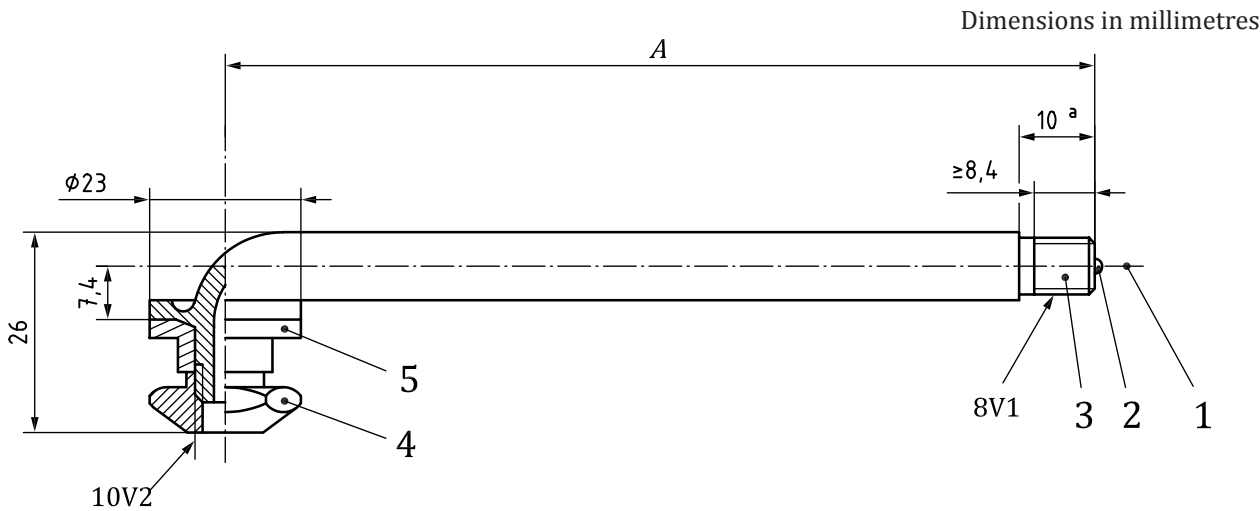
5 ring washer [D 02 / D 08]

6 rubber grommet [B 03]

^a For certain existing rigid extensions, an 8 mm diameter for a 22 mm min. length from valve mouth is required.

Designation	A mm
DR 04	51
DR 05	58
DR 06	67
DR 07	83
DR 08	99
NOTE These valves are obtained from valves CR 04 to CR 08.	

Figure 21 — Valve hole $15,7^{+0,4}_0$



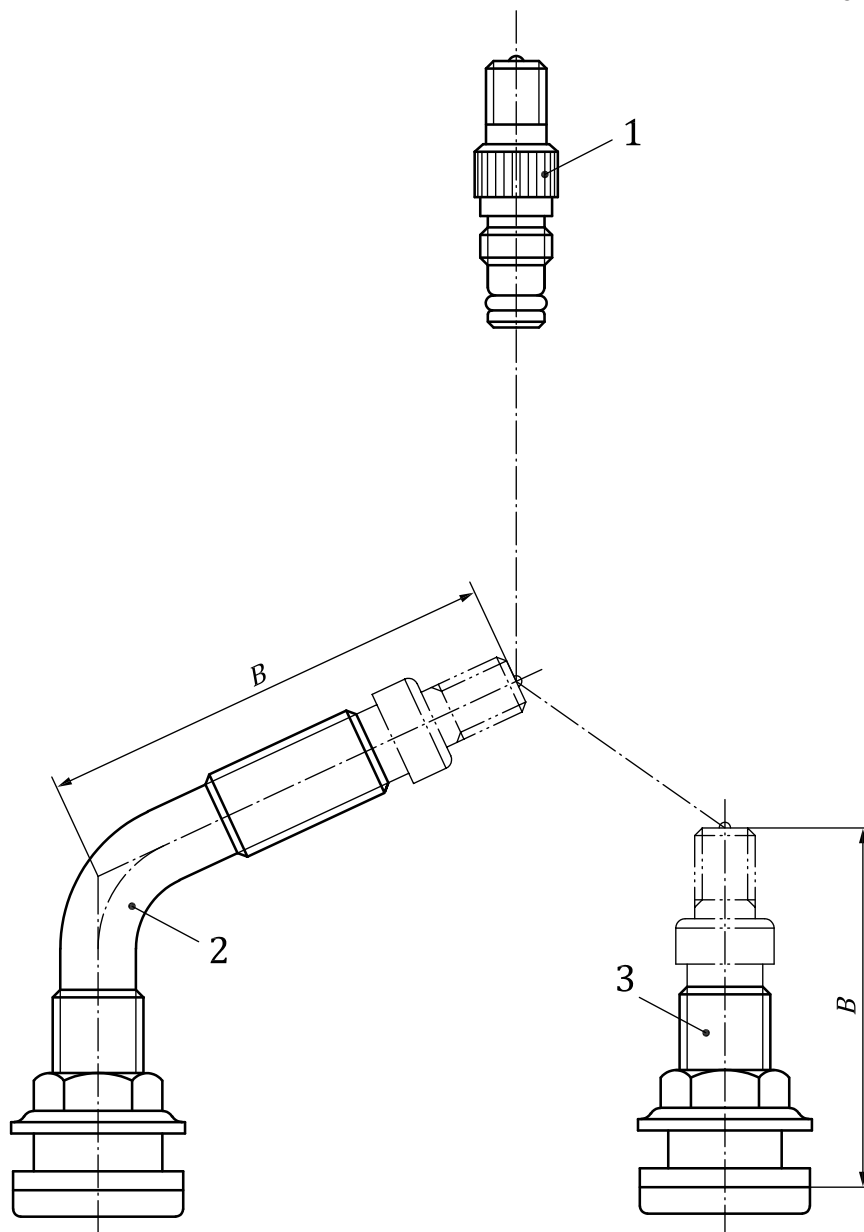
Key

- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chamber No. 1
- 4 hex nut [E 06]
- 5 rubber grommet [B 06]
- ^a For certain existing rigid extensions, an 8 mm diameter for a 22 mm min. length from valve mouth is required.

Designation	A mm
DR 09	121
DR 10	140
DR 11	108

Figure 22 — Valve hole $15,7^{+0,4}_0$

Dimensions in millimetres



Key

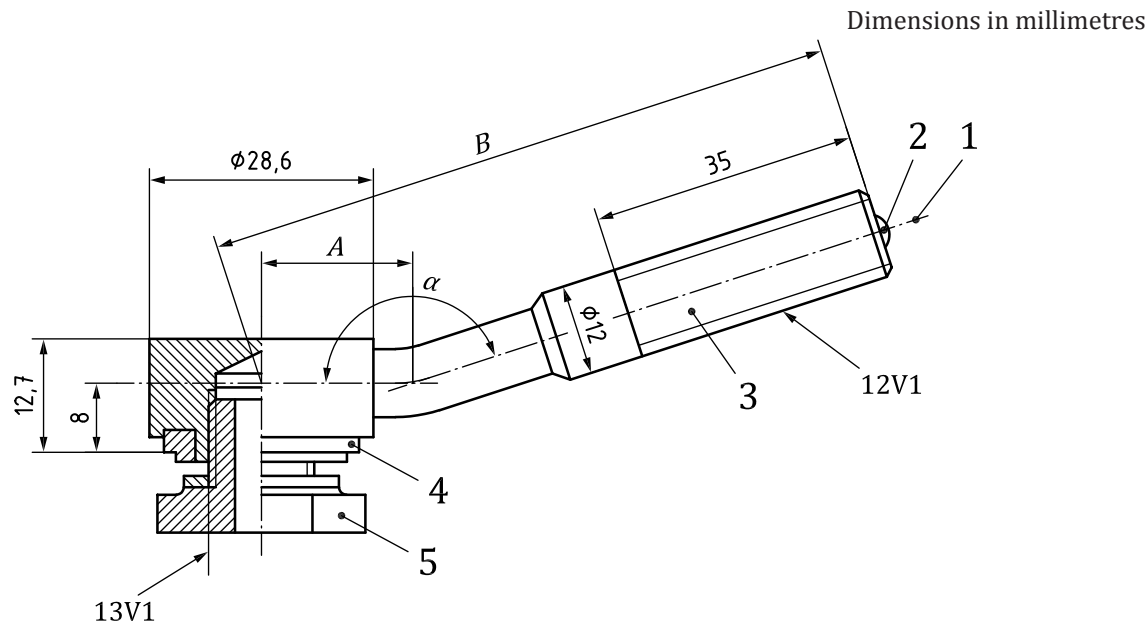
- 1 core housing CZ 01 ([Figure 66](#), Option 1 or 2)
- 2 ZR 02 to ZR 04 ([Figure 62](#))
- 3 ZR 01 ([Figure 61](#))

Designation	<i>B</i> mm
CR 12 = ZR 01 + CZ 01	48 ± 2
DR 12 = ZR 02 + CZ 01	75
DR 13 = ZR 03 + CZ 01	115
DR 14 = ZR 04 + CZ 01	57

Figure 23 — Mounting for tubeless air/liquid valves for valve hole $15,7^{+0,4}_0$

5.2.2.4 Valve hole $20,5^{+0,5}_0$

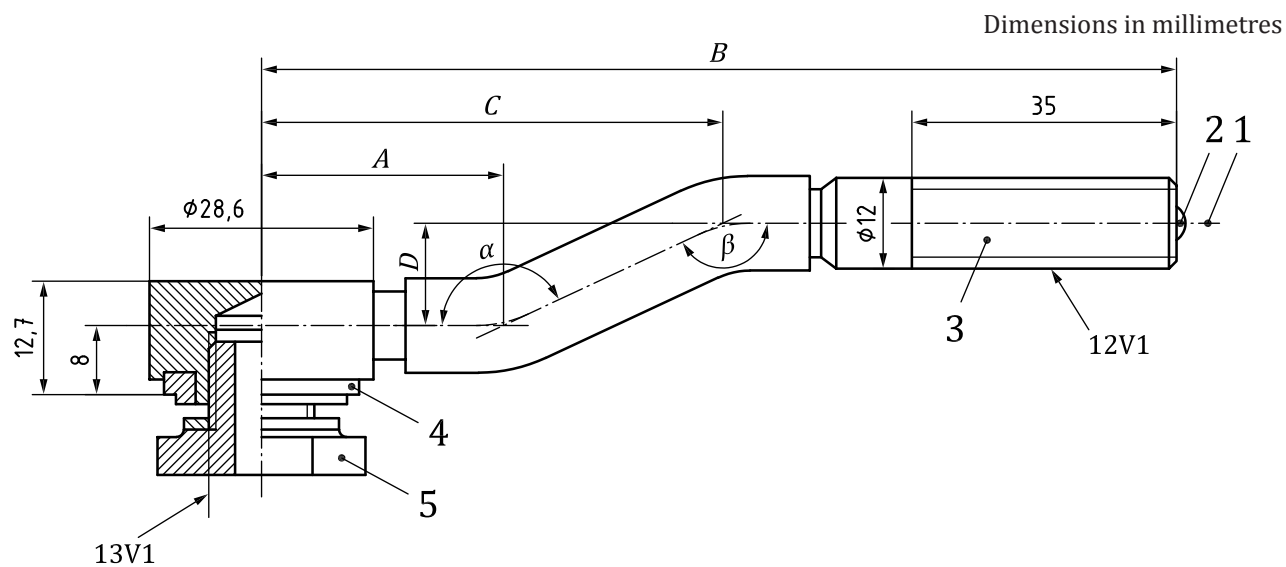
5.2.2.4.1 Large-bore valves and mounting figure



- Key**
- 1 cap [I 04 / I 05 / I 06]
 - 2 core [H 02]
 - 3 core chamber No. 2
 - 4 rubber grommet [B 08]
 - 5 lock screw [G 01]

Designation	A mm	B mm	α °
KS 01	16	84	162
KS 02	20	89	152

Figure 24 — Large bore valve

**Key**

- 1 cap [I 04 / I 05 / I 06]
- 2 core [H 02]
- 3 core chamber No. 2
- 4 rubber grommet [B 08]
- 5 lock screw [G 01]

Designation	<i>A</i> mm	<i>B</i> mm	<i>C</i> mm	<i>D</i> mm	α °	β °
LS 01	32	119	59	14	152	152
LS 02	32	119	59	14	162	162
LS 03	22	127	62	25	120	120
LS 04	21	105	56	25	130	130
LS 05	27	108	52	23	138	138

Figure 25 — Large bore valve