
Tyre valves — Dimensions and designation

Valves pour pneumatiques — Dimensions et désignation

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Contents

	Page
Foreword	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Valves and valve components for tyres – Identification system	1
5 Tubeless valves only	2
5.1 Snap-in valves	2
5.1.1 Valve hole 11,3 ^{+0,4} ₀	2
5.1.2 Valve hole 15,7 ^{+0,4} ₀	3
5.2 Clamp-in valves	4
5.2.1 Clamp-in valves with O-ring	4
5.2.2 Clamp-in valves with grommet	17
6 Valves for tubes only	30
6.1 Rubber-covered valves	30
6.1.1 Valve hole 8,3 ^{+0,5} _{-0,1}	30
6.1.2 Valve hole 11,3 ^{+0,4} ₀	31
6.1.3 Valve hole 15,7 ^{+0,4} ₀	32
6.2 Rubber-base valves	38
6.2.1 Valve hole 6,2	38
6.2.2 Valve hole 8,3 ^{+0,5} _{-0,1}	40
6.2.3 Rim slot 12,5 ⁺² ₀ and 14 ⁺³ ₀	42
6.2.4 Valve hole 12,5 ^{+0,4} ₀	45
6.2.5 Valve hole 15,7 ^{+0,4} ₀	46
6.3 Rubber semi-covered-base valve — Valve hole 10,2 ^{+0,3} ₀ or 11,3 ^{+0,4} ₀	47
6.4 Screw-on universal valves — Rim slots 12,5 ⁺² ₀ and 14 ⁺³ ₀	48
6.5 Large-bore valves — Rim slot 19 ⁺³ ₀	54
6.6 Metal-base valve	57
6.6.1 Valve hole 6,2	57
6.6.2 Valve hole 8,3	58
7 Spuds, valve bodies and adaptors	60
7.1 Rubber spuds	60
7.1.1 Spuds for screw-on universal valves — Rim slots 12,5 ⁺² ₀ and 15 ⁺² ₀	60
7.1.2 Rubber-covered air/liquid spuds — Valve hole 15,7 ^{+0,4} ₀	61
7.1.3 Screw-on large-bore spuds — Valve hole 20,5 ^{+0,5} ₀ and rim slot 19 ⁺³ ₀ mm	62
7.2 Clamp-in spuds	62

7.2.1	Air/liquid large-bore spud — Valve hole $15,7 \begin{smallmatrix} +0,4 \\ 0 \end{smallmatrix}$	62
7.2.2	Valve hole $20,5 \begin{smallmatrix} +0,5 \\ 0 \end{smallmatrix}$	64
7.3	Valve body and core housing	66
7.3.1	Tubeless and tube-type core housing for spuds with valve hole $15,7 \begin{smallmatrix} +0,4 \\ 0 \end{smallmatrix}$	66
7.3.2	Large and super-large-bore valve body for spuds with valve hole $20,5 \begin{smallmatrix} +0,5 \\ 0 \end{smallmatrix}$	67
7.4	Adaptors	73
7.4.1	Straight adaptor	73
7.4.2	Bent adaptor	74
8	Valve components	75
8.1	O-rings	75
8.2	Ring washers	75
8.3	Hex nuts	76
8.4	Knurled nuts, hex nuts, screw	78
8.5	Rubber grommets	81
8.6	Valve caps	83
8.7	Valve core	88
8.7.1	For ISO core chamber No. 1, No. 3 (short core only) and No. 4 (short core only)	88
8.7.2	For ISO core chamber No. 2	89
Annex A (normative) Valves and valve components for tyres — Identification system		90
Annex B (informative) Correspondence between ISO designations and other designations		94
Bibliography		105

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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.

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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:

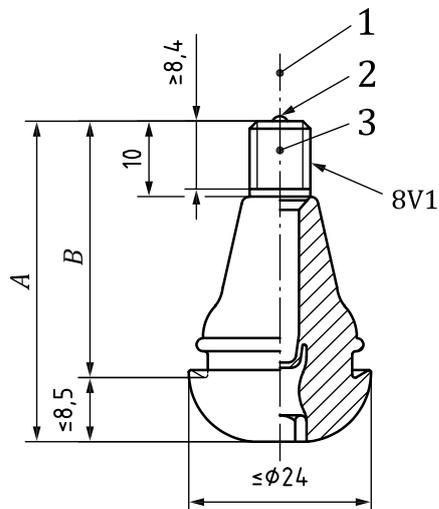
- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Valves and valve components for tyres — Identification system

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

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

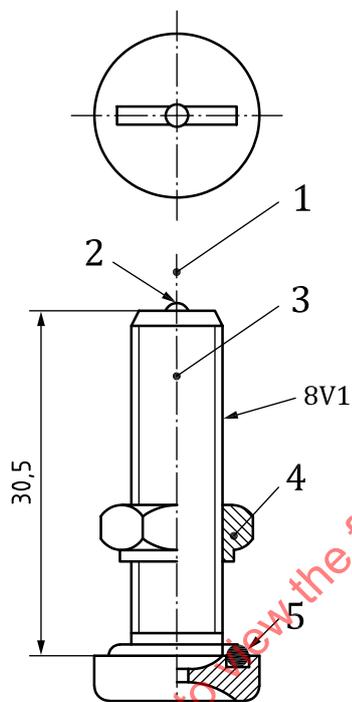
Figure 2 — Valve hole $15,7^{+0,4}_0$

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



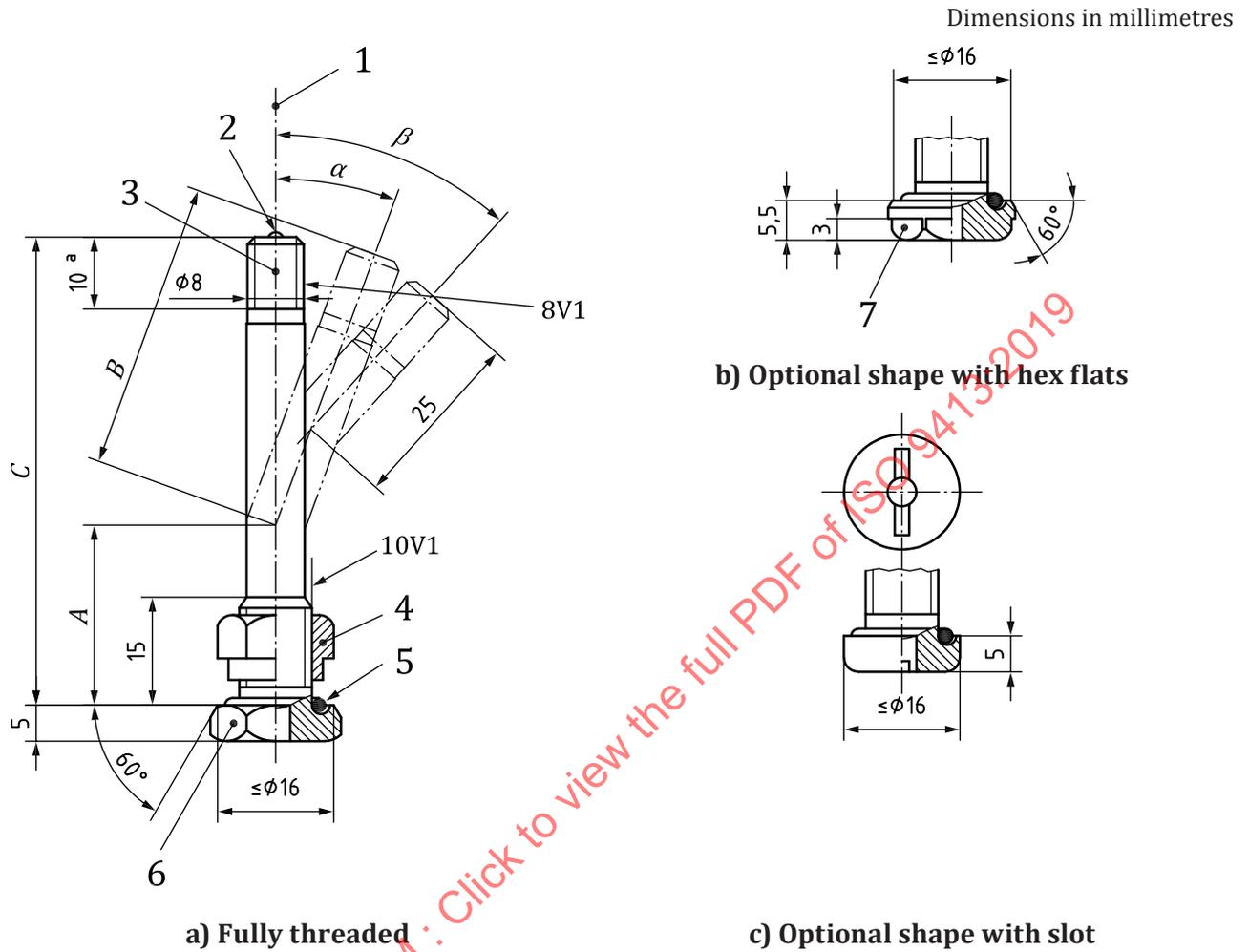
Key

- 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 $9,7^{+0,3}_0$



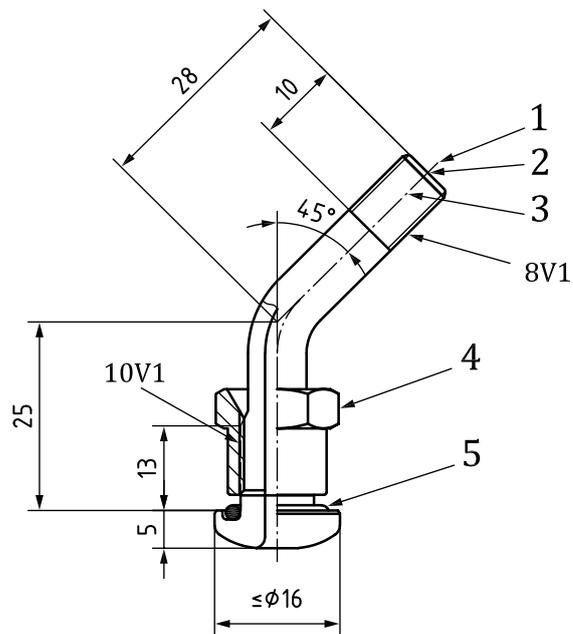
Key

- | | |
|----------------------------|------------------------|
| 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

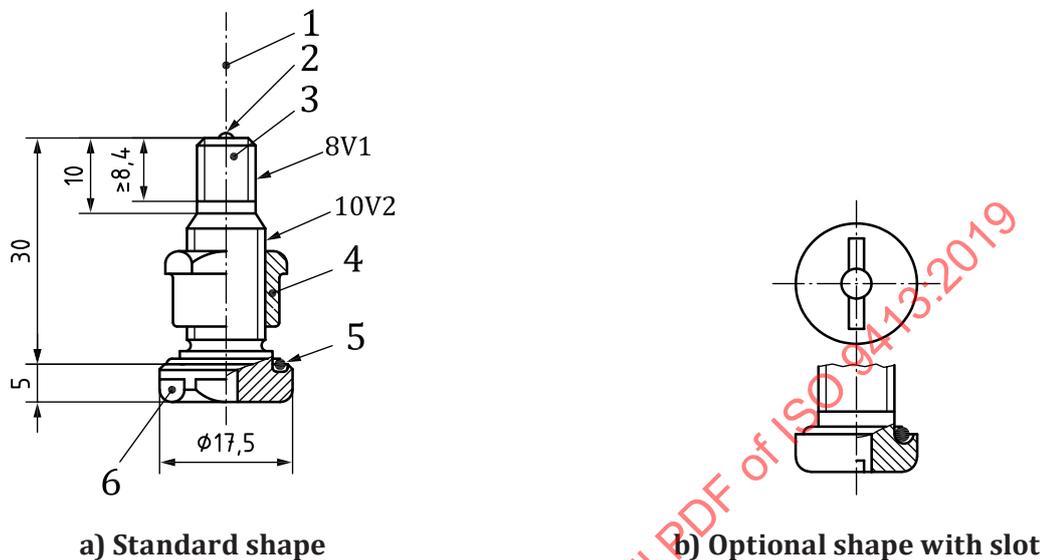
- 1 cap [I 01 / I 02 / I 03]
- 2 short core only [H 01]
- 3 core chamber No. 1
- 4 hex nut [E 03]
- 5 rubber O-ring [C 03]

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



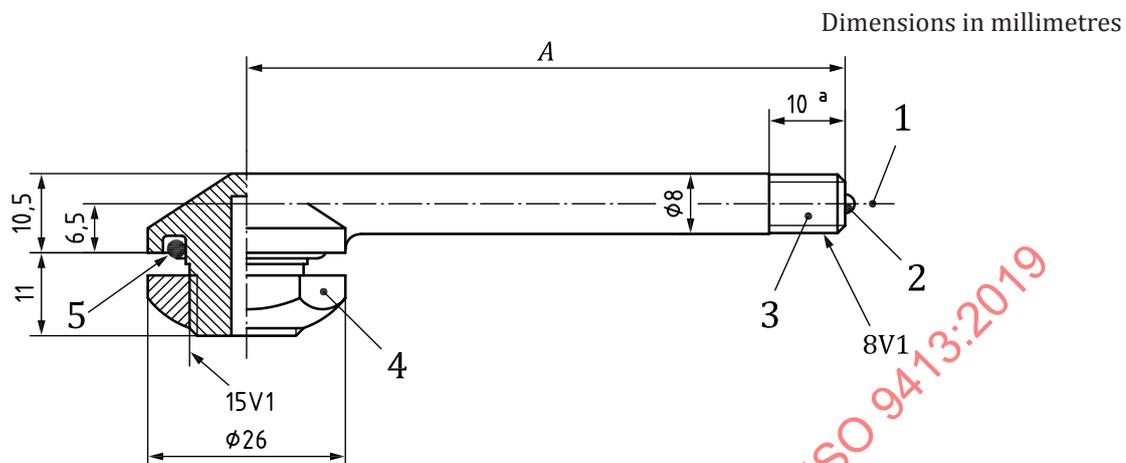
Key

- 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 $15,7^{+0,4}_0$



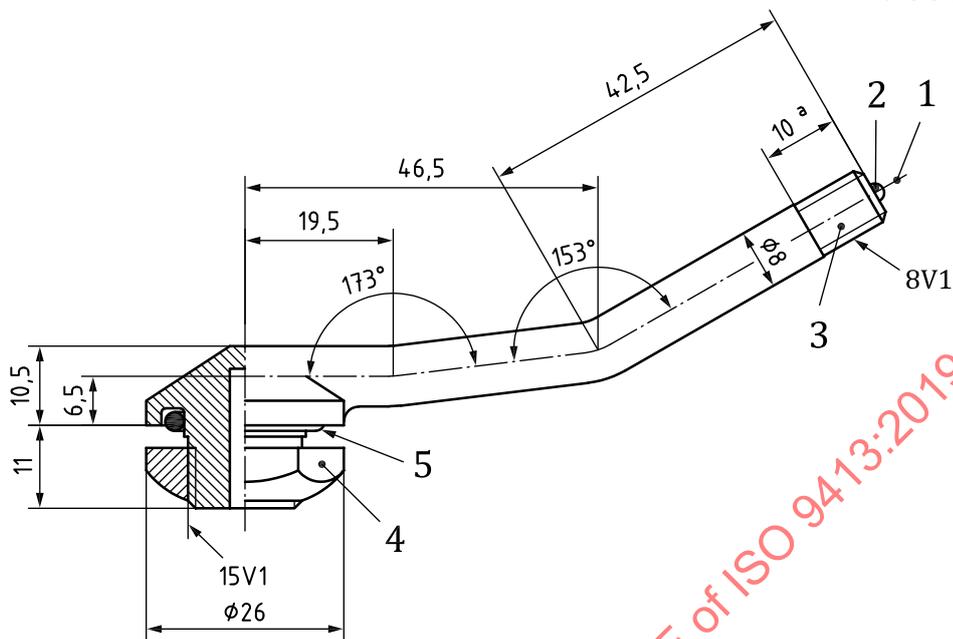
Key

- 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 $15,7^{+0,4}_0$

Dimensions in millimetres

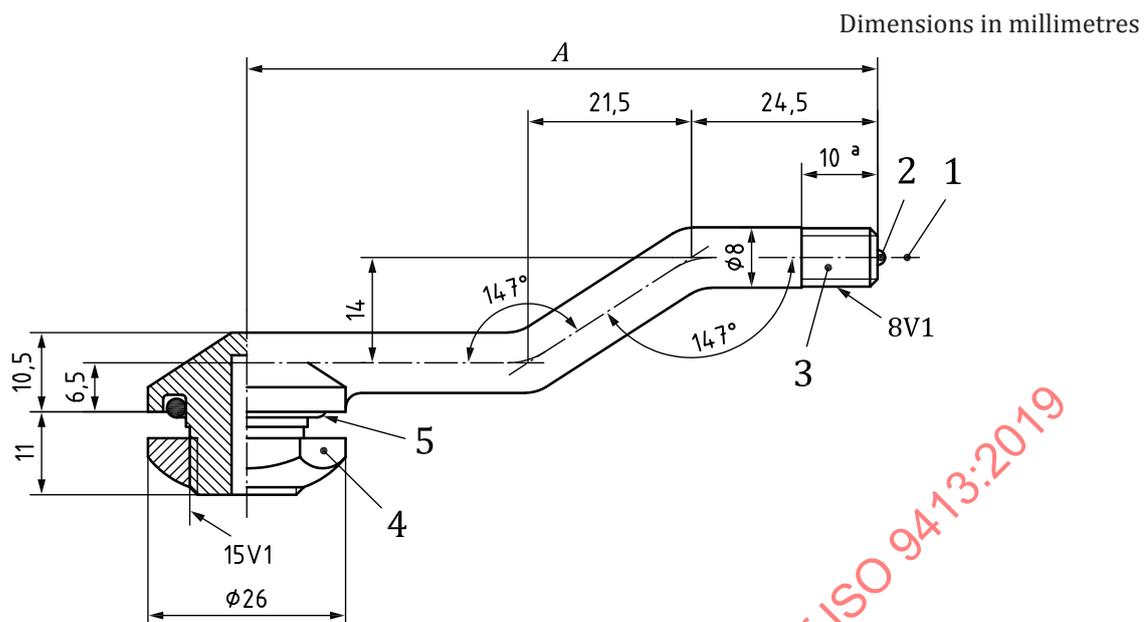


Key

- 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 02]
- a Fully threaded.

Designation
FR 01

Figure 8 — Valve hole $15,7^{+0,4}_0$



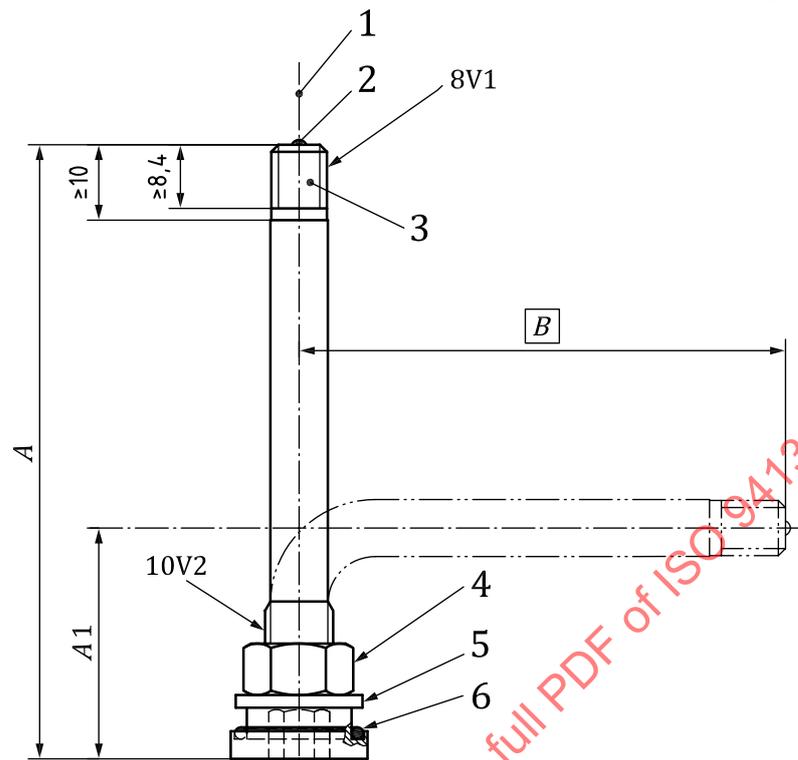
Key

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

Designation	A 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]

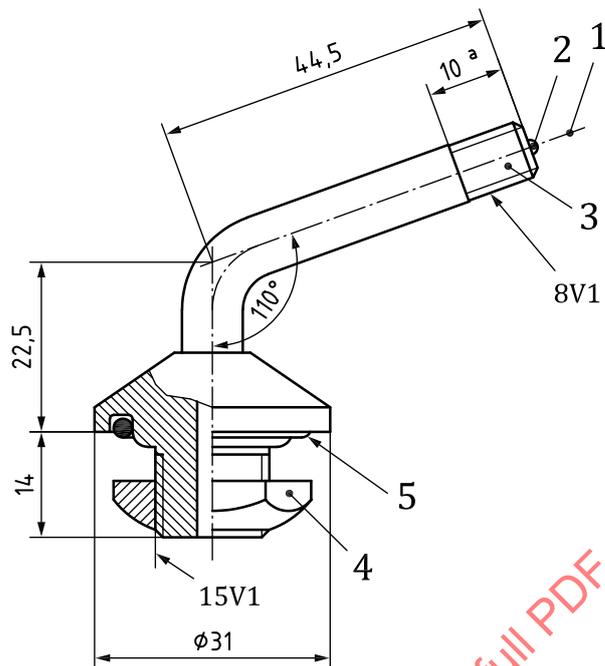
Designation	A mm
CR 13	51
CR 14	38
CR 15	79
CR 16	86
CR 17	95
CR 18	111
CR 19	127
CR 20	29

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 $15,7 \begin{smallmatrix} +0,4 \\ 0 \end{smallmatrix}$

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

Dimensions in millimetres



Key

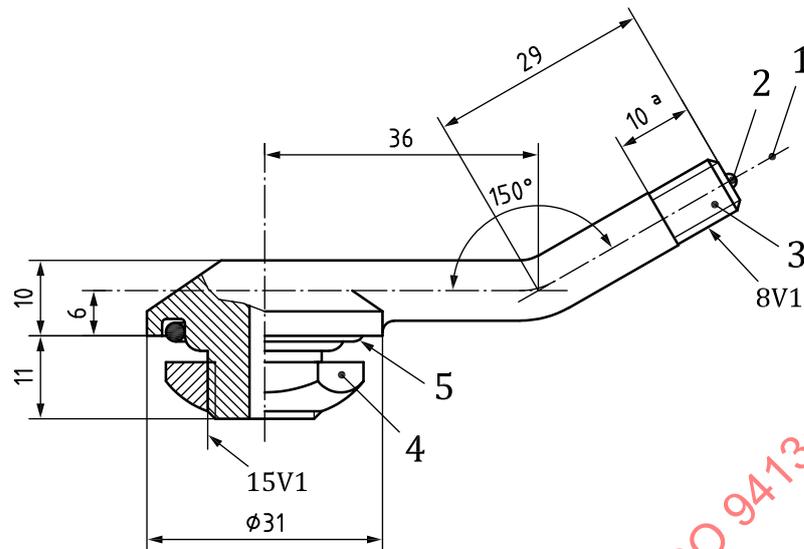
- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chamber No. 1
- 4 hex nut [E 09]
- 5 rubber O-ring [C 01]

^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

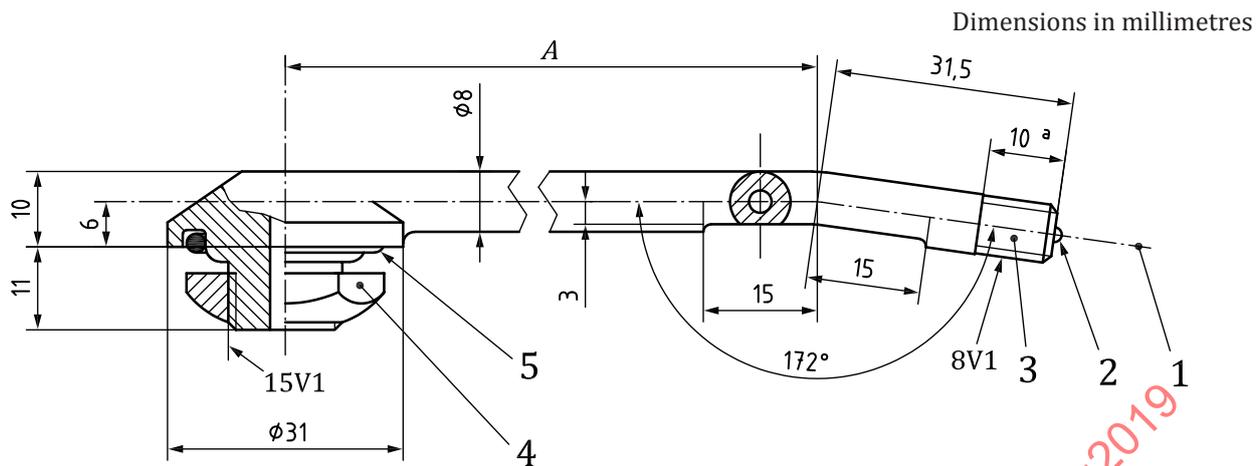
- 1 cap [I 01 / I 02 / I 03]
- 2 short core only [H 01]
- 3 core chamber No. 4
- 4 hex nut [E 09]
- 5 rubber O-ring [C 01]

^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 $20,5^{+0,5}_0$

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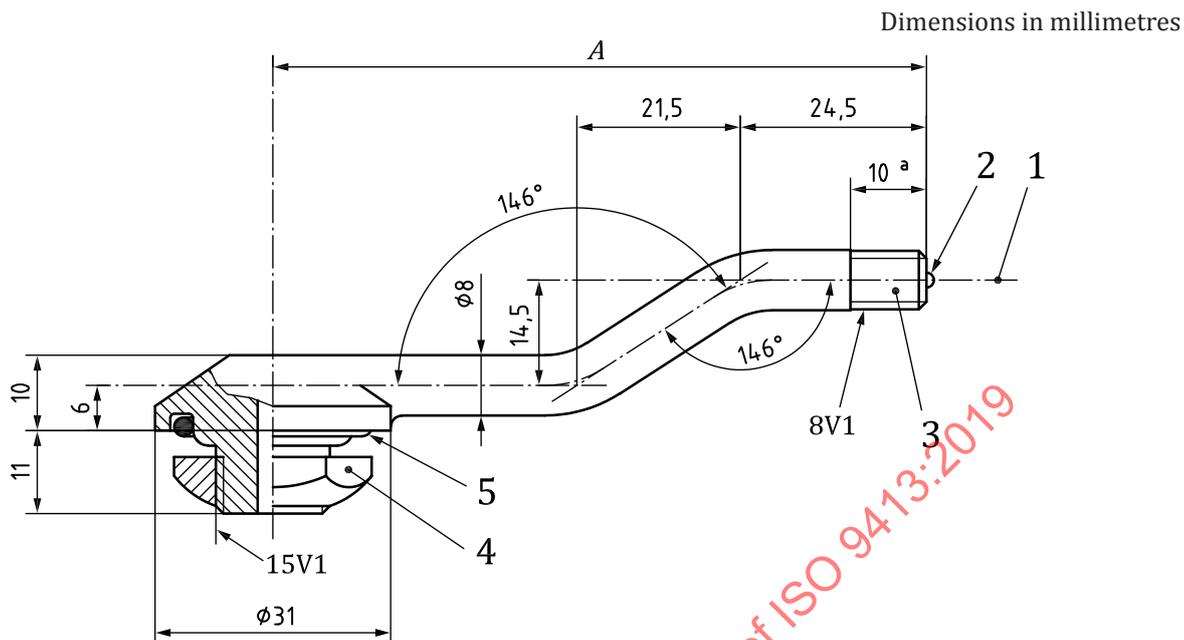


Key

- 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	A 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.

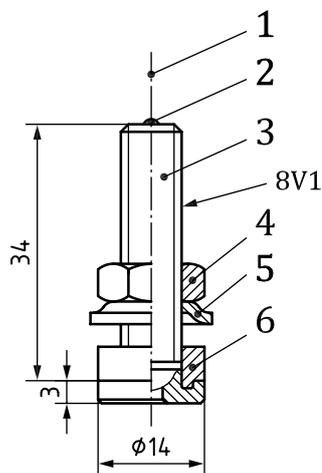
Designation	A mm
FS 01	110
FS 02	127

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

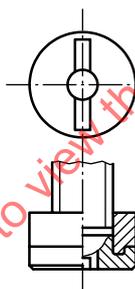
5.2.2 Clamp-in valves with grommet

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

Dimensions in millimetres



a) Standard shape



b) Optional shape with slot

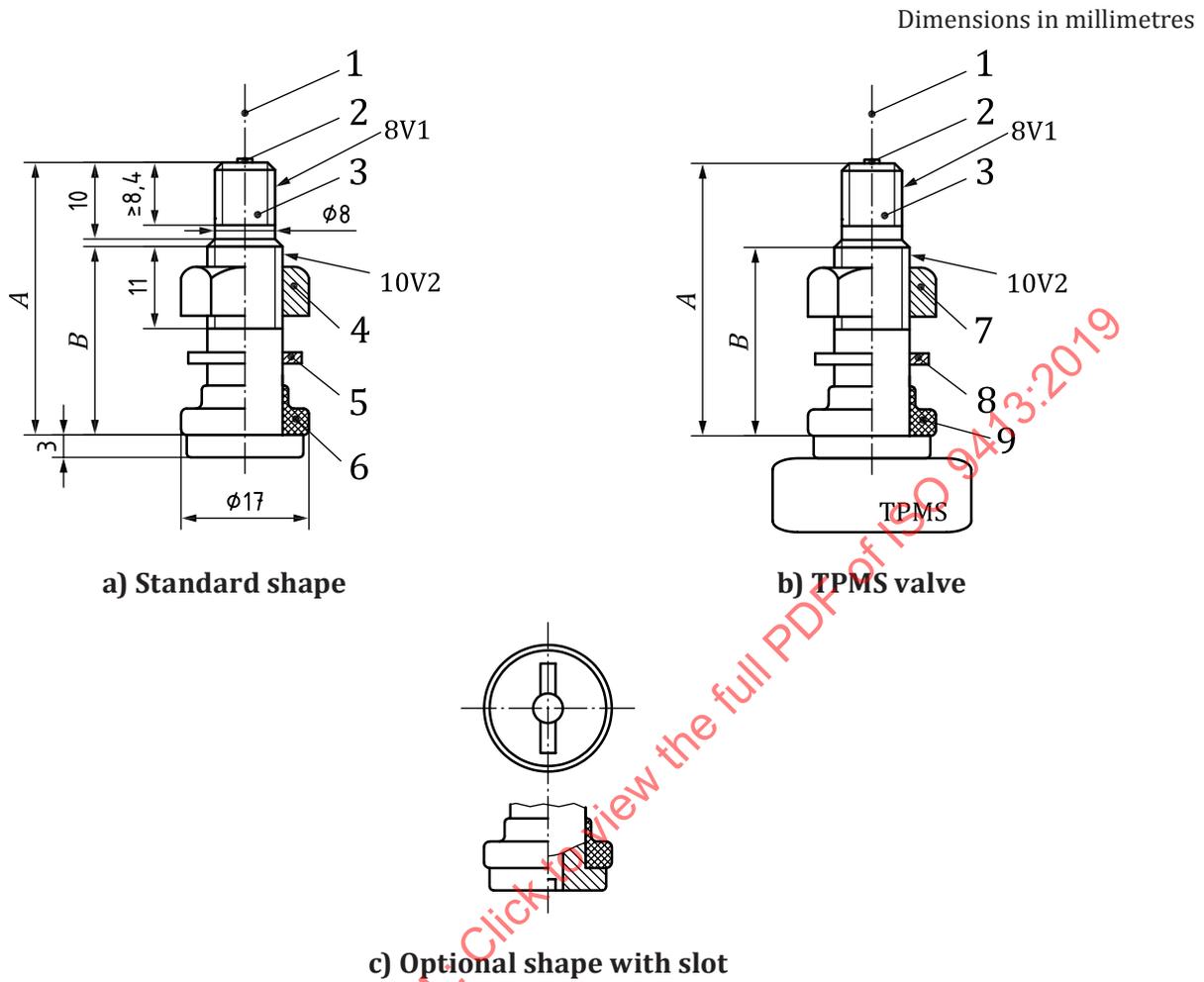
Key

- 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

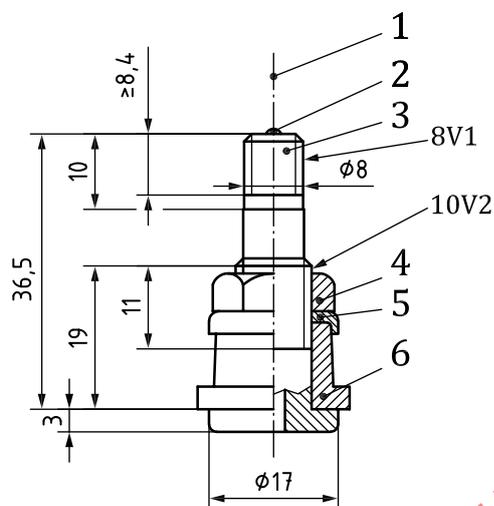
- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chamber No. 1
- 4 hex nut [E 04]
- 5 ring washer [D 04]
- 6 rubber grommet [B 05]
- 7 hex nut – design depends on TPMS system
- 8 ring washer – design depends on TPMS system
- 9 rubber grommet – design depends on TPMS system

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.		

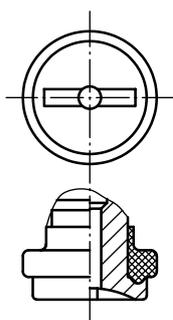
Figure 17 — Valve hole $11,3^{+0,4}_0$

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

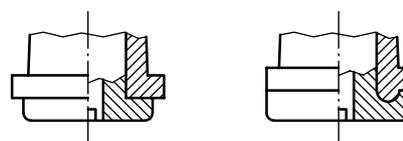
Dimensions in millimetres



a) Standard shape



b) Optional shape with slot



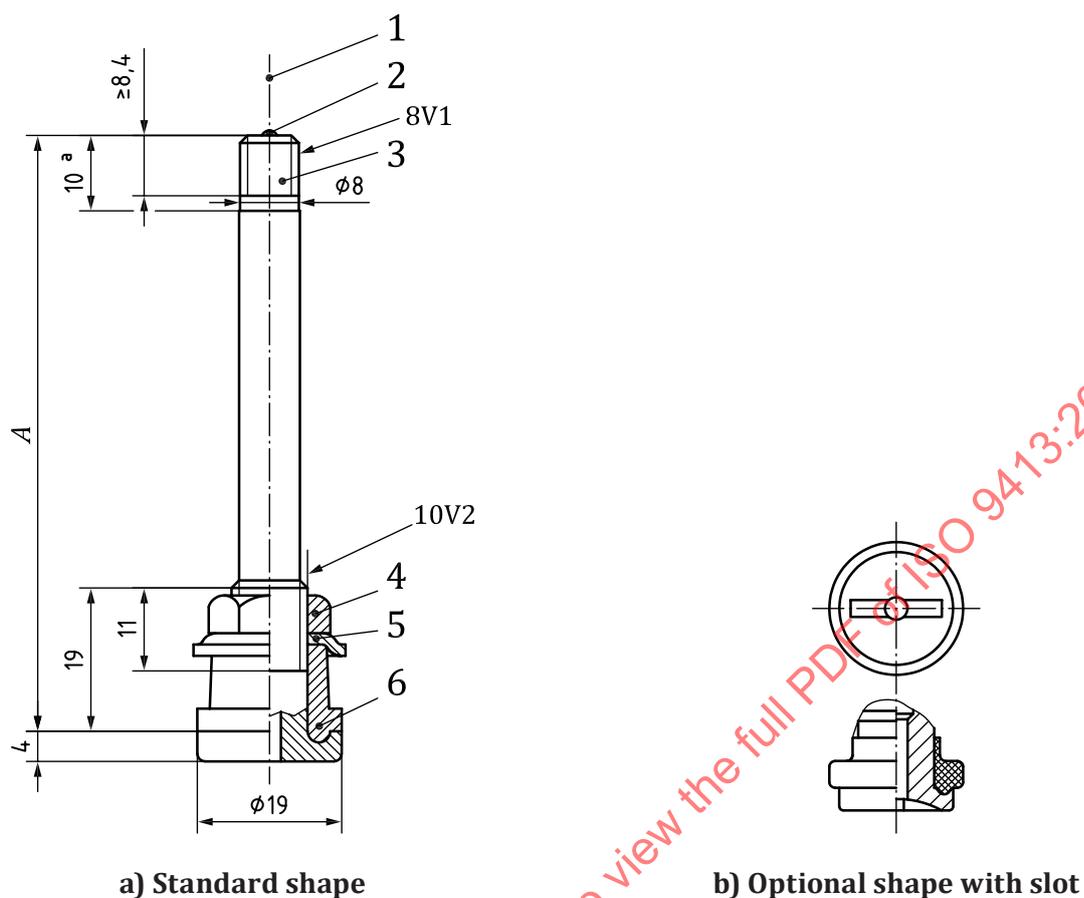
c) Optional head shape

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 $15,7^{+0,4}_0$



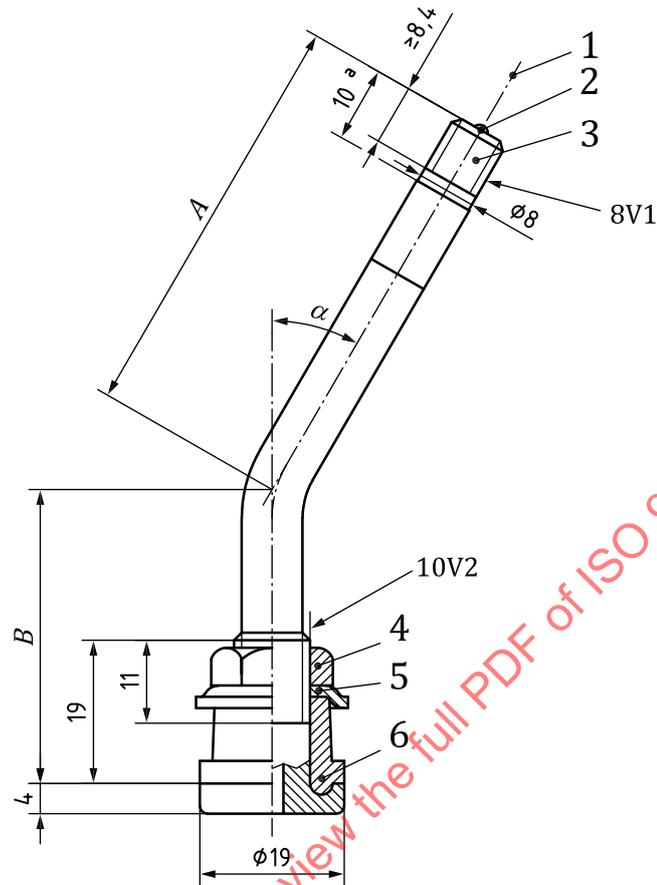
Key

- 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*

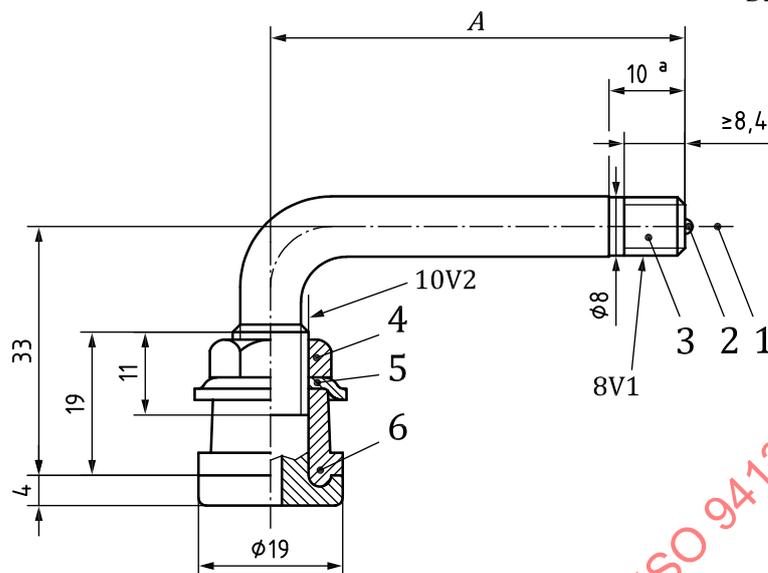
Tool setting	Length <i>A</i>	Length B^{+3}_0				
		CR 04 ^a	CR 05	CR 06	CR 07	CR 08
12	38	41	48	57	73	89
13	41	38	44,5	54	70	86
14	44,5	35	41	51	67	82,5
15	48		38	48	63,5	79,5
16	51		35	44,5	60,5	76
17	54			41	57	73
18	57			38	54	70
19	60,5			35	51	67
20	63,5				48	63,5
21	67				44,5	60,5
22	70				41	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

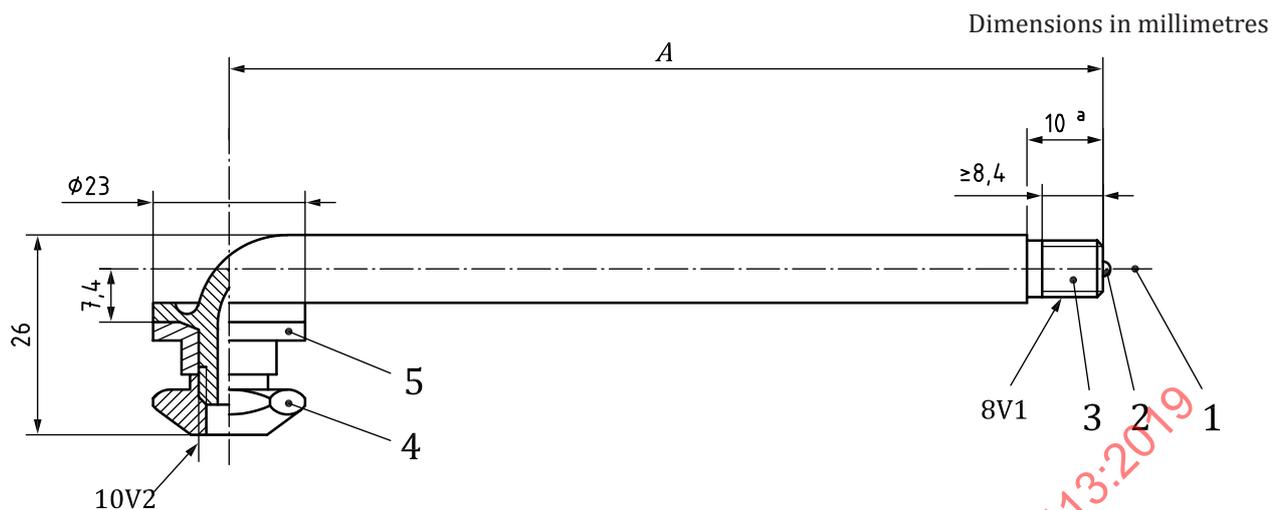
- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chamber No. 1
- 4 hex nut [E 05]
- 5 ring washer [D 02 / D 08]
- 6 rubber grommet [B 03]

^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

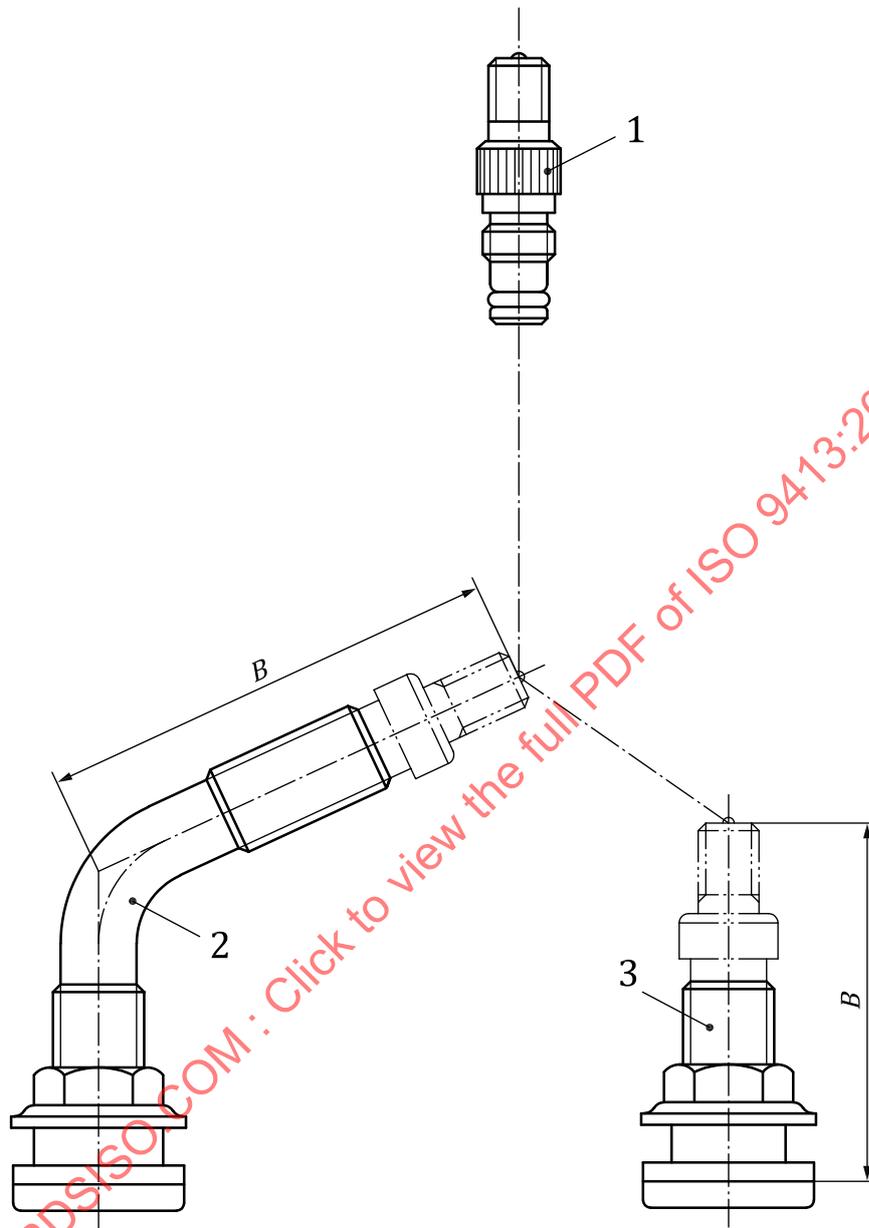
- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chamber No. 1
- 4 hex nut [E 06]
- 5 rubber grommet [B 06]

^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

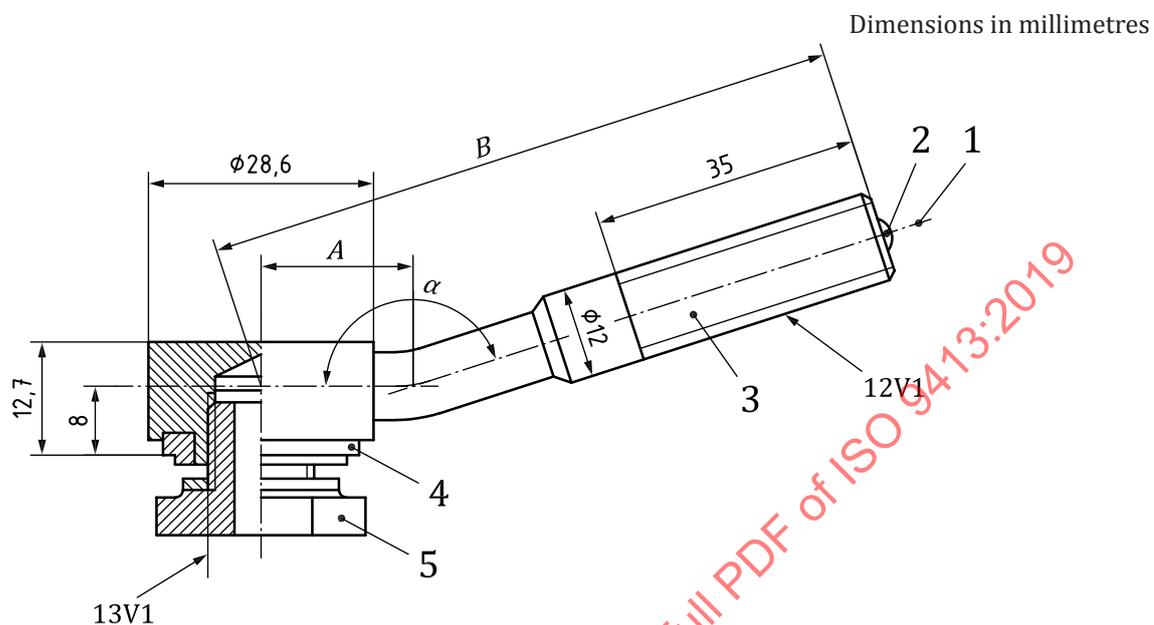
- 1 core housing CZ 01 ([Figure 66](#), Option 1 or 2)
- 2 ZR 02 to ZR 04 ([Figure 62](#))
- 3 ZR 01 ([Figure 61](#))

Designation	B 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

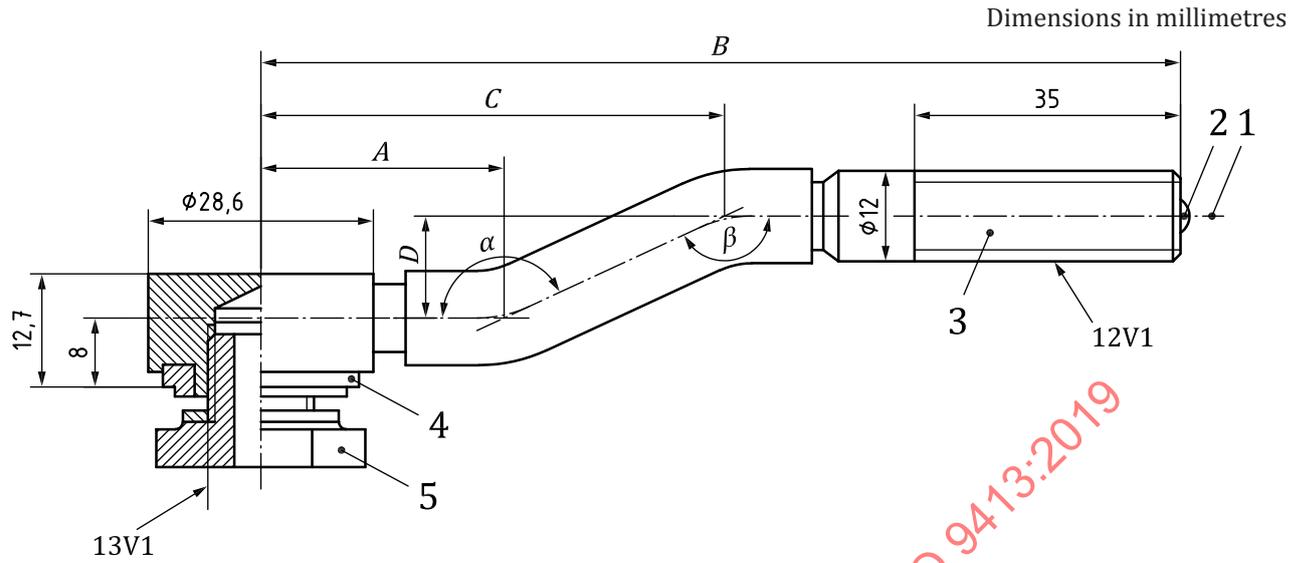


Key

- 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

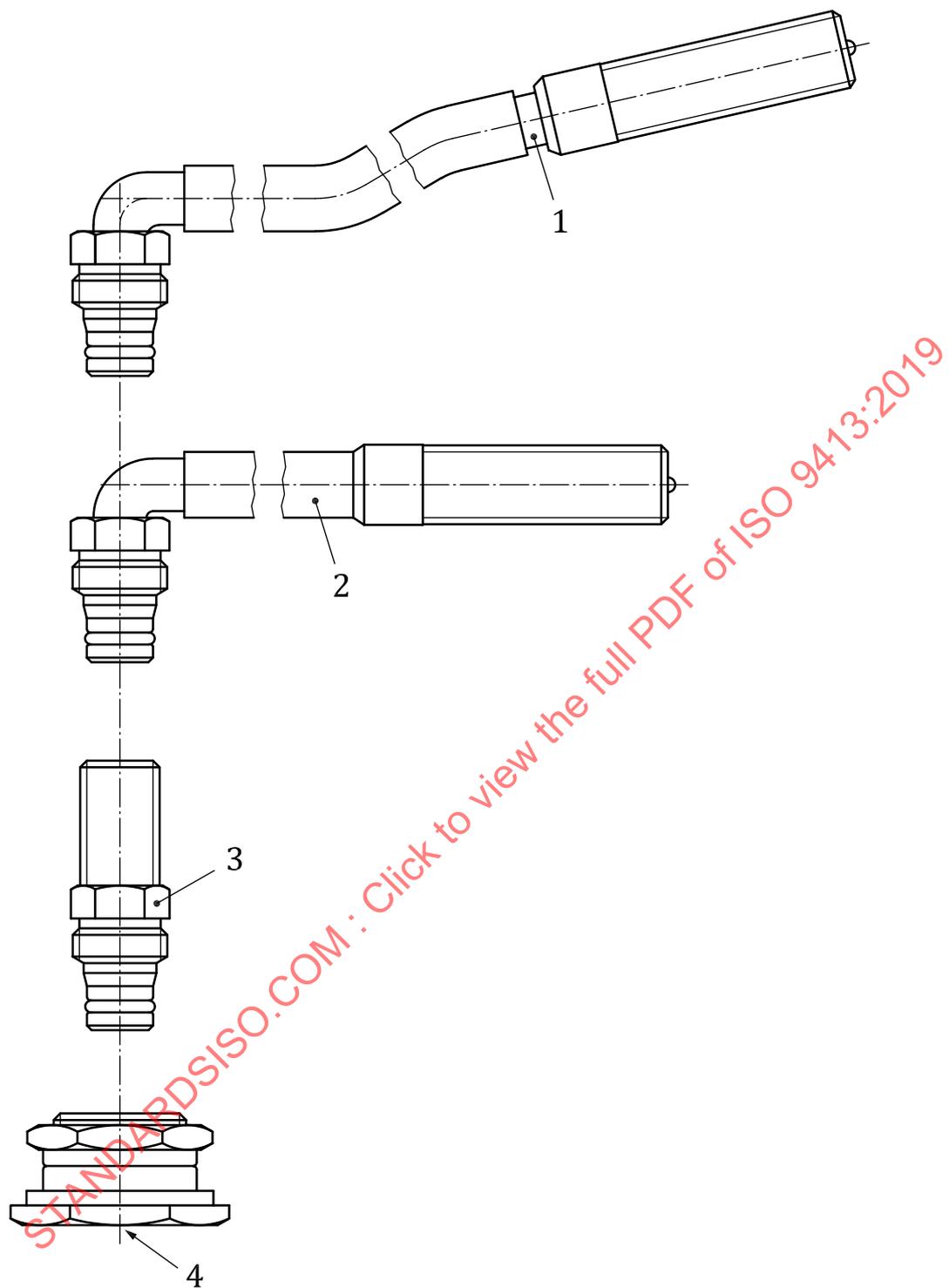


Key

- 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	A mm	B mm	C mm	D 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

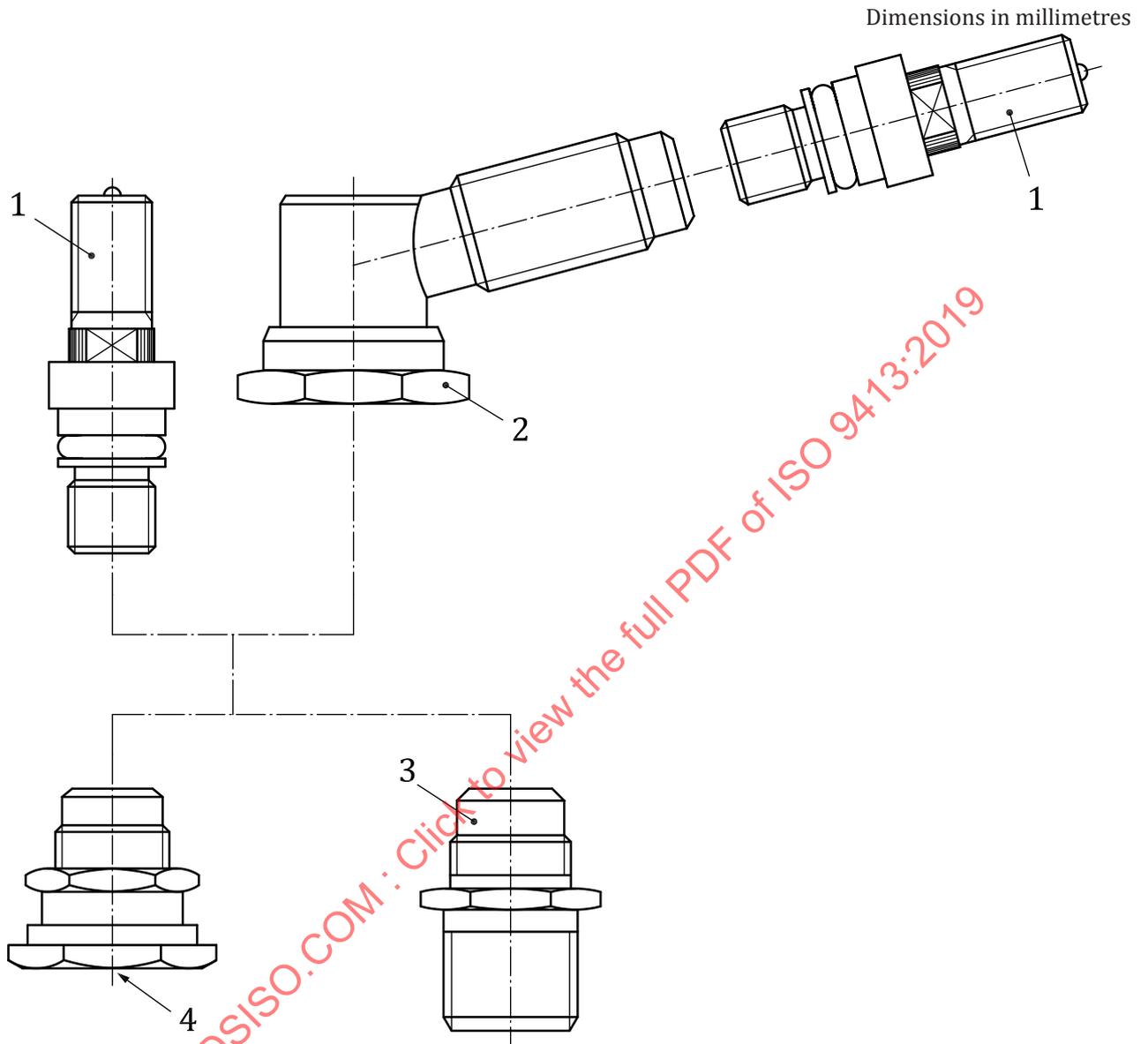


Key

- 1 KZ 01 to KZ 03 ([Figure 70](#)), MZ 01 to MZ 04 ([Figure 71](#))
- 2 JZ 01 to JZ 22 ([Figures 68 and 69](#))
- 3 HZ 01 ([Figure 67](#))
- 4 large-bore tubeless spud, ZS 01 ([Figure 63](#))

Figure 26 — Mounting for tubeless large-bore valves for valve hole $20,5^{+0,5}_0$

5.2.2.4.2 Super-large-bore valves and mounting figure

**Key**

- 1 HZ 02 ([Figure 72](#))
- 2 super-large-bore valve adapter L 02 to L 06 ([Figure 75](#))
- 3 screw-on super-large-bore tubeless spud Z 01 ([Figure 65](#))
- 4 super-large-bore tubeless spud ZS 02 ([Figure 64](#))

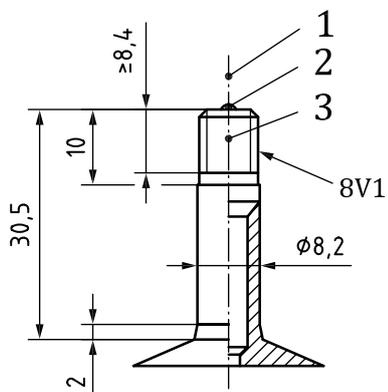
Figure 27 — Mounting for tubeless super-large-bore valves for valve hole or threaded

6 Valves for tubes only

6.1 Rubber-covered valves

6.1.1 Valve hole $8,3^{+0,5}_{-0,1}$

Dimensions in millimetres



Key

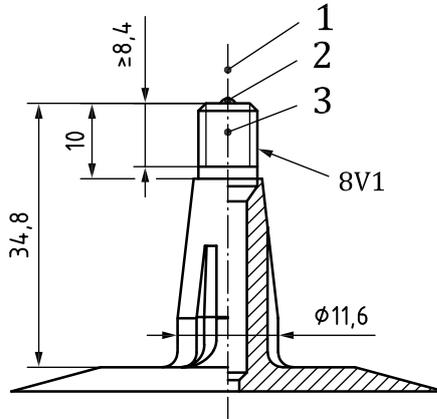
- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chamber No. 1

Designation
CB 01

Figure 28 — Valve hole $8,3^{+0,5}_{-0,1}$

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

Dimensions in millimetres



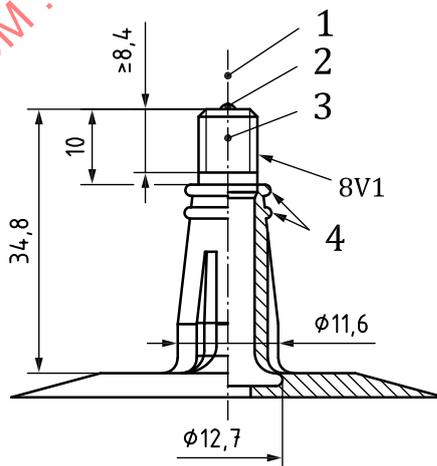
Key

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

Designation
CF 01

Figure 29 — Valve hole $11,3^{+0,4}_0$

Dimensions in millimetres



a) Standard shape



b) Optional head shapes

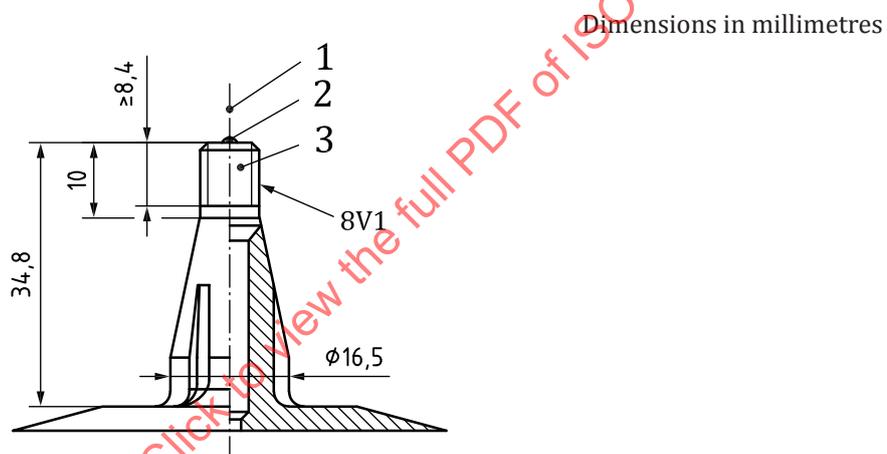
Key

- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chamber No. 1
- 4 identifying rings for air/liquid applications

Designation^a
CF 03
^a Air/liquid valve.

Figure 30 — Valve hole $11,3^{+0,4}_0$

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



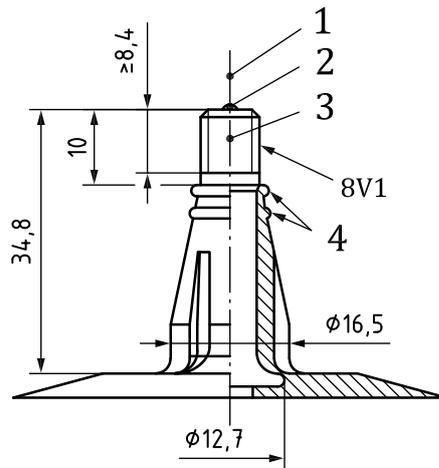
Key

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

Designation
CJ 01

Figure 31 — Valve hole $15,7^{+0,4}_0$

Dimensions in millimetres



a) Standard shape



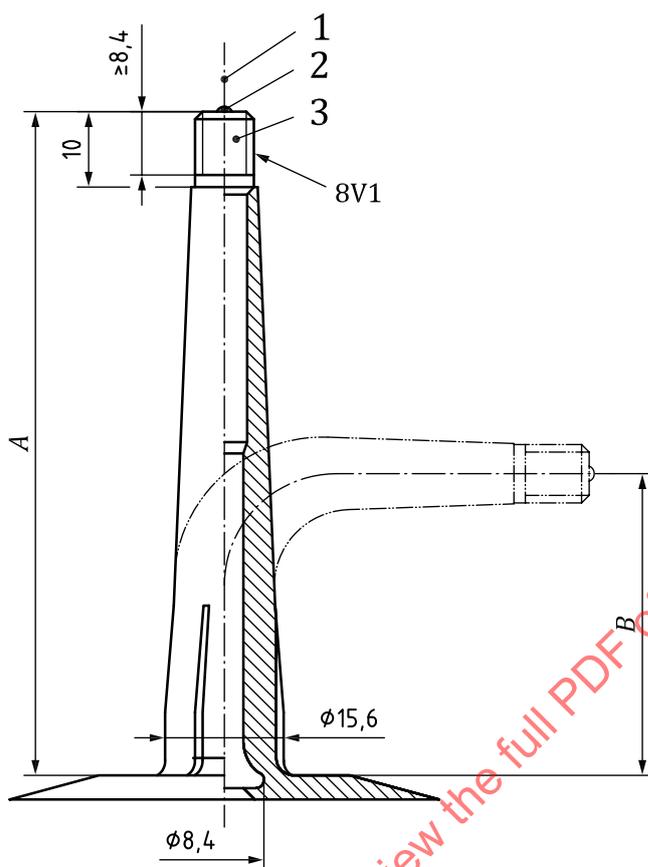
b) Optional head shapes

Key

- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chamber No. 1
- 4 identifying rings for air/liquid applications

Designation^a
CJ 07
^a Air/liquid valve.

Figure 32 — Valve hole 15,7 ^{+0,4}₀



Key

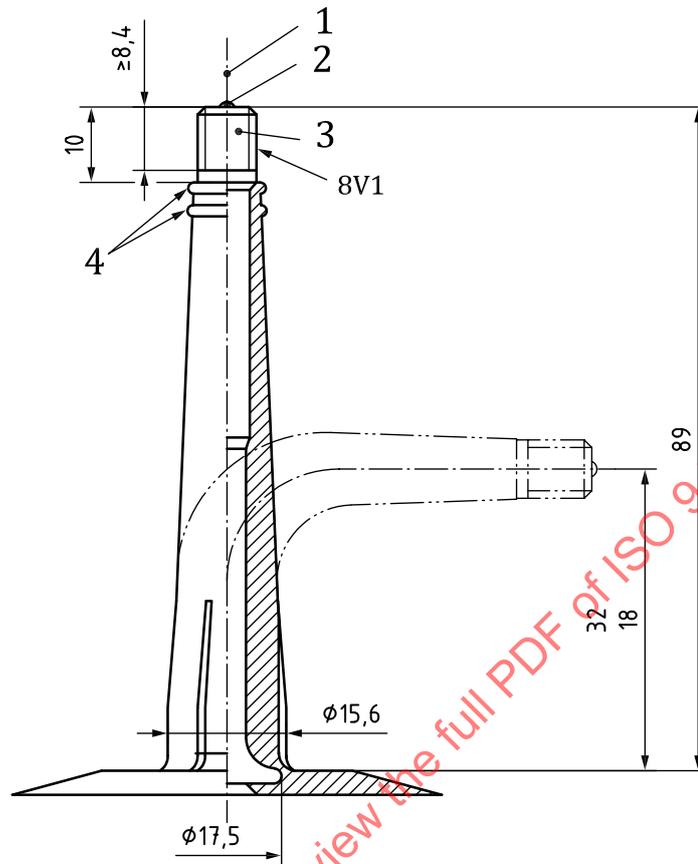
- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chamber No. 1

Designation ^a	A mm	B mm
CJ 02	62	18 min. 25 max.
CJ 03	89	18 min. 32 max.

^a Hand-bendable valves.

Figure 33 — Valve hole $15,7^{+0,4}_0$

Dimensions in millimetres



a) Standard shape



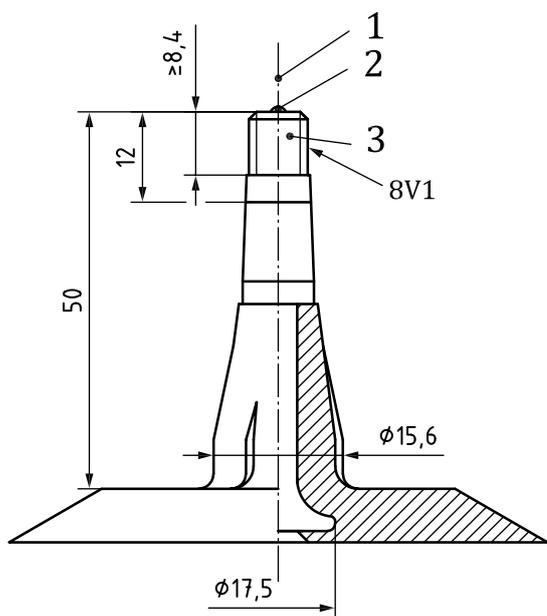
b) Optional head shapes

Key

- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chamber No. 1
- 4 identifying rings for air/liquid valves

Designation^a
CJ 04
^a Air/liquid hand-bendable valve.

Figure 34 — Valve hole $15,7^{+0,4}_0$



a) Standard shape



b) Optional head shapes

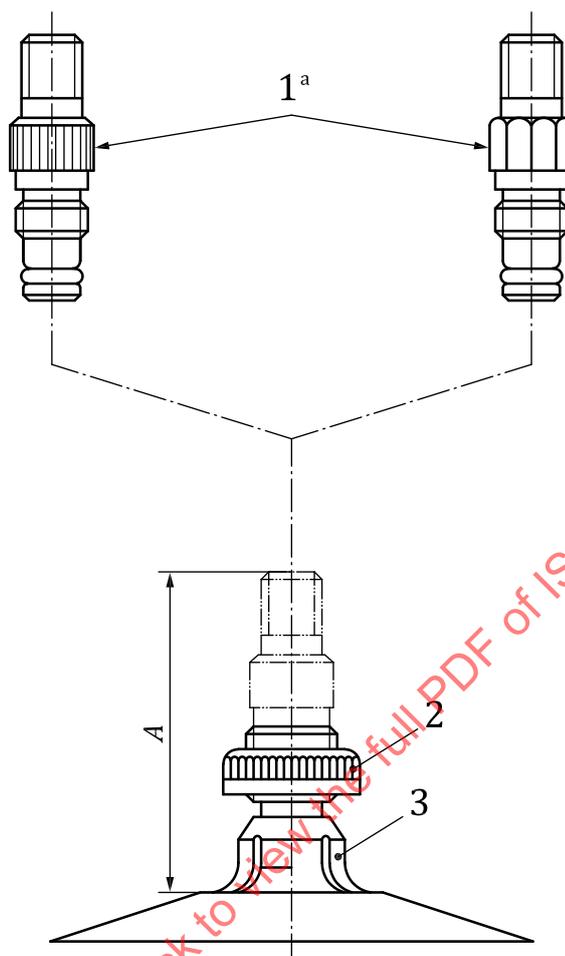
Key

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

Designation^a
CJ 05
^a Air/liquid valve.

Figure 35 — Valve hole $15,7^{+0,4}_0$

Dimensions in millimetres



Key

- 1 core housing TL or TT (Z 01, [Figure 65](#)), option 1 or 2
- 2 nut [F 02]
- 3 spud ZJ 01 or ZJ 02 ([Figure 59](#))
- a CZ 01 ([Figure 66](#)).

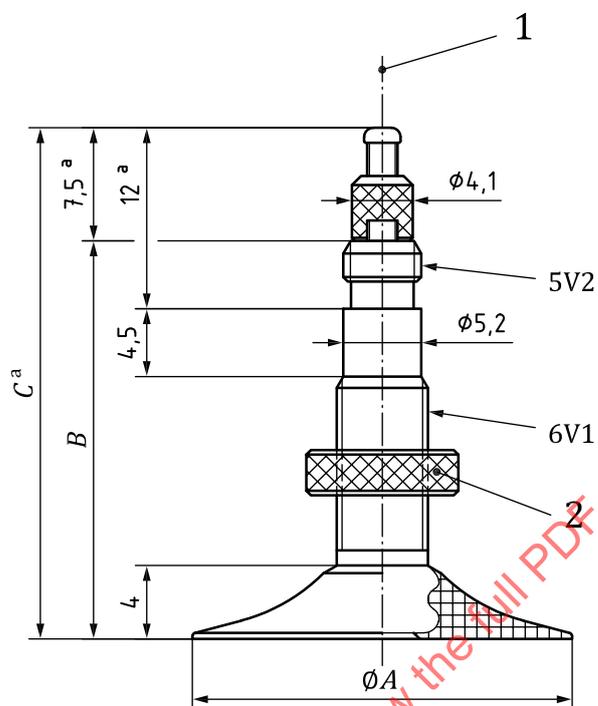
Designation	A mm
CJ 08 = ZJ 01 + CZ 01	41
CJ 09 = ZJ 02 + CZ 01	51

Figure 36 — Valve hole $15,7^{+0,4}_0$

6.2 Rubber-base valves

6.2.1 Valve hole 6,2

Dimensions in millimetres



Key

1 cap [I 07]

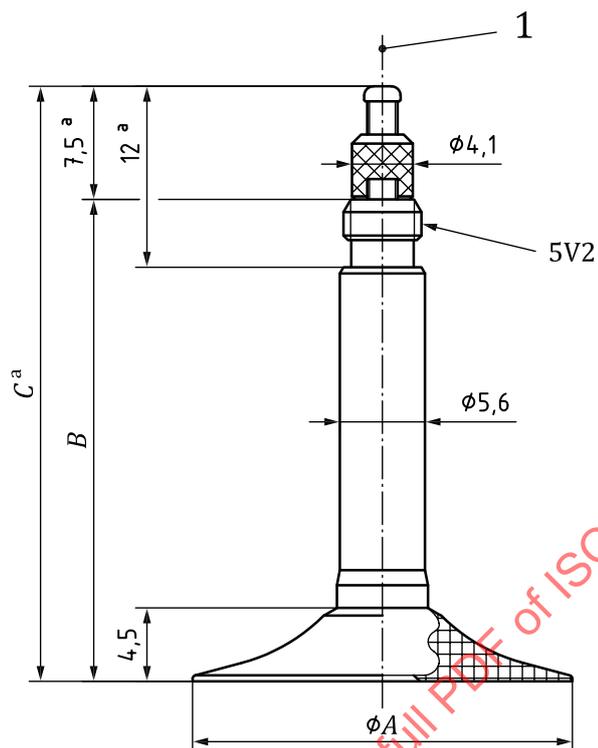
2 nut [F 03]

^a Dimension taken with Ø4,1 nut tightened.

Designation	Type	A mm	B mm	C mm
AA 02	Circular	25	26	33,5
AA 03	Circular	18	32	39,5
AA 04	Circular	21	32	39,5
AA 05	Oval	18 × 30	32	39,5
AA 06	Oval	20 × 40	29	36,5

Figure 37 — Valve hole 6,2

Dimensions in millimetres



Key

1 cap [I 07]

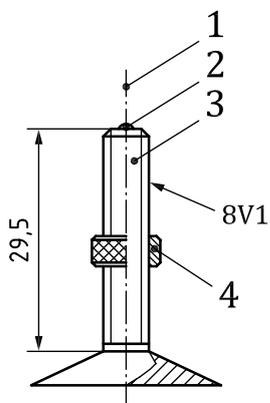
^a Dimension taken with $\phi 4,1$ nut tightened.

Designation	Type	A mm	B mm	C mm
AA 07	Circular	21	32	39,5

Figure 38 — Valve hole 6,2

6.2.2 Valve hole $8,3^{+0,5}_{-0,1}$

Dimensions in millimetres



Key

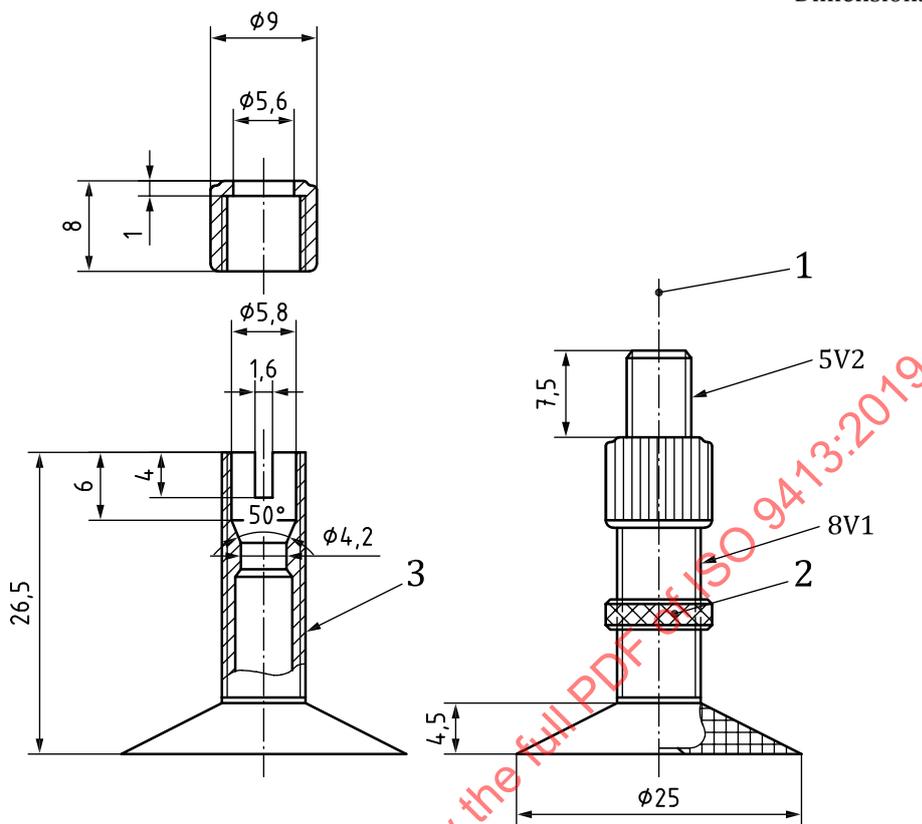
- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chamber No. 1
- 4 nut [E 01 / F 01]

Designation
CB 02

Figure 39 — Valve hole $8,3^{+0,5}_{-0,1}$

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Dimensions in millimetres



Key

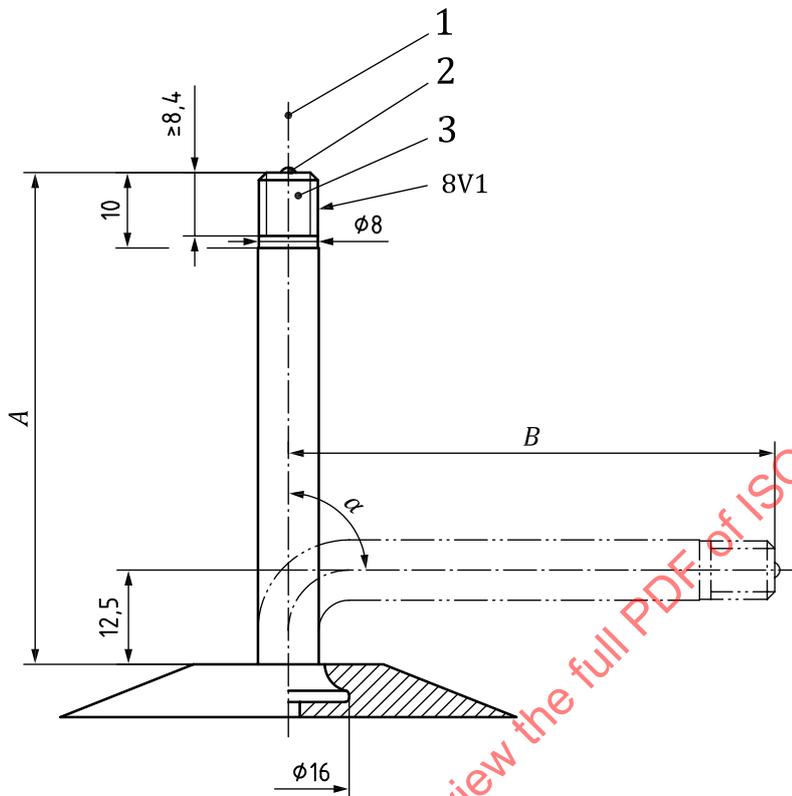
- 1 cap [I 07 / I 08]
- 2 nut [F 01]
- 3 flats 6,5 optional on 8V1 thread

Designation
AB 02

Figure 40 — Valve hole $8,3^{+0,5}_{-0,1}$

6.2.3 Rim slot $12,5^{+2}_0$ and 14^{+3}_0

Dimensions in millimetres



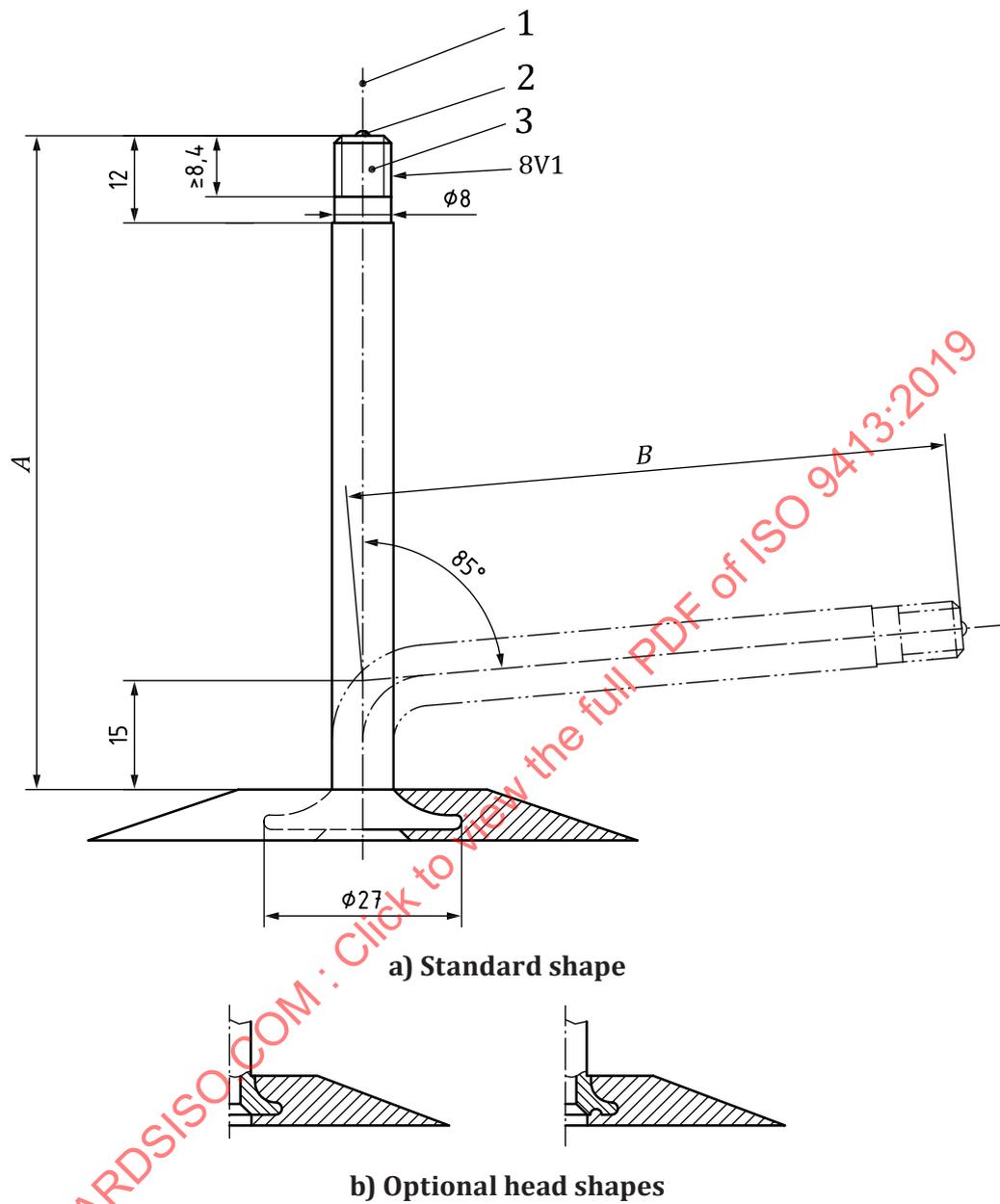
Key

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

Designation	A mm	B mm	α °
CF 04	58,5	—	0
CF 05	68	—	0
DG 01	58,5	51	90
DG 02	68	60,5	90

Figure 41 — Rim slot $12,5^{+2}_0$ and 14^{+3}_0

Dimensions in millimetres



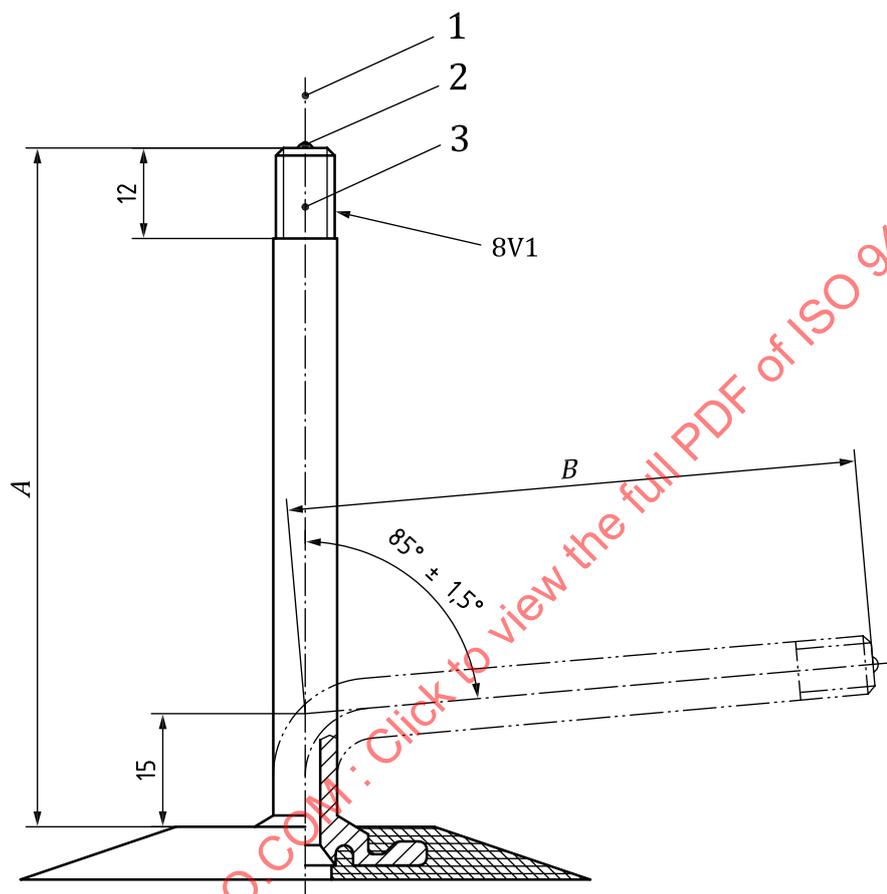
Key

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

Designation		A mm	B mm
Air/liquid straight hand-bendable valves	Bent valves		
CG 01	DG 04	85	75
CG 02	DG 05	105	95
CG 03	DG 06	115	105
CG 04	DG 07	125	115
CG 05	DG 08	140	130

Designation		A	B
Air/liquid straight hand-bendable valves	Bent valves	mm	mm
CG 06	DG 09	155	145

Figure 42 — Rim slot $12,5^{+2}_0$ and 14^{+3}_0



Key

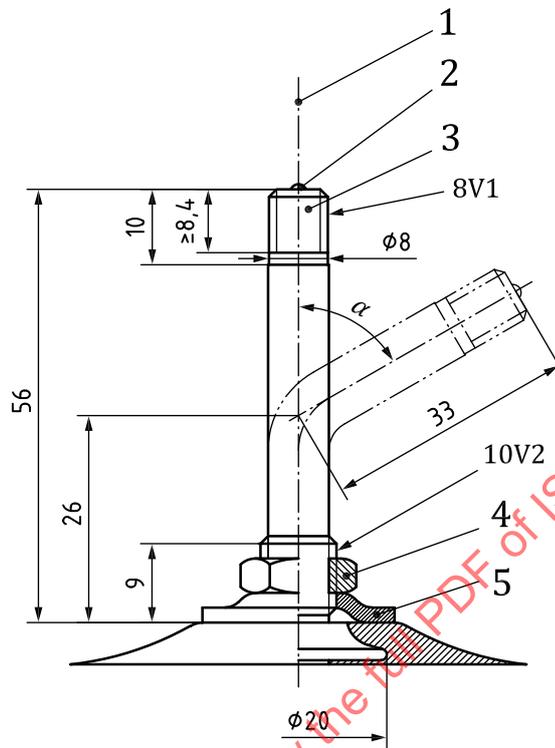
- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chamber No. 3

Designation		A	B
Air/liquid straight hand-bendable valves	Bent valves	mm	mm
CG 08	DG 10	85	75
CG 09	DG 11	105	95
CG 10	DG 12	115	105
CG 11	DG 13	125	115
CG 12	DG 14	140	130
CG 13	DG 15	155	145

Figure 43 — Rim slot $12,5^{+2}_0$ and 14^{+3}_0

6.2.4 Valve hole $12,5^{+0,4}_0$

Dimensions in millimetres



Key

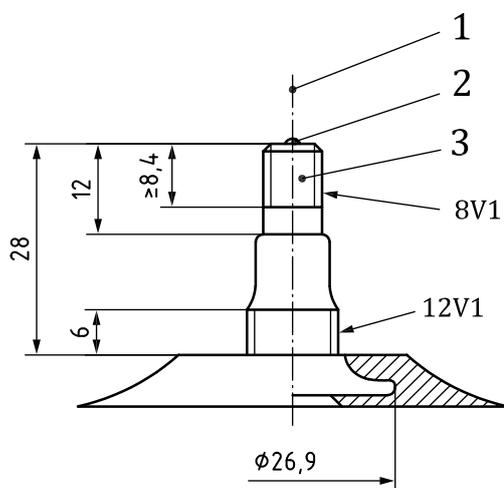
- 1 cap [I 01 / I 02 / I 03]
- 2 short core only [H 01]
- 3 core chamber No. 1
- 4 hex nut [E 04]
- 5 ring washer [D 07]

Designation	α °
CG 07	0
DG 03	70

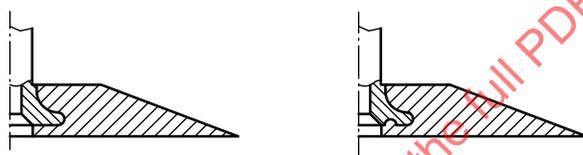
Figure 44 — Valve hole $12,5^{+0,4}_0$

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

Dimensions in millimetres



a) Standard shape



b) Optional head shapes

Key

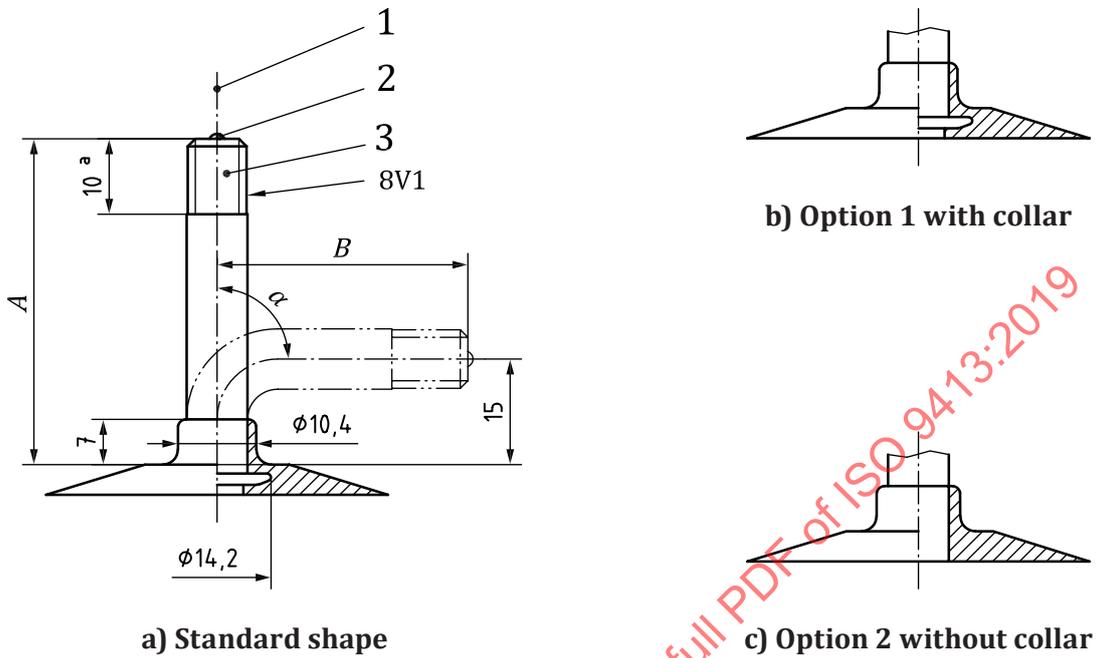
- 1 cap [I 01 / I 02 / I 03]
- 2 short core only [H 01]
- 3 core chamber No. 1

Designation^a
CJ 06
^a Rubber-spud air/liquid valve.

Figure 45 — Valve hole $15,7^{+0,4}_0$

6.3 Rubber semi-covered-base valve — Valve hole $10,2^{+0,3}_0$ or $11,3^{+0,4}_0$

Dimensions in millimetres



Key

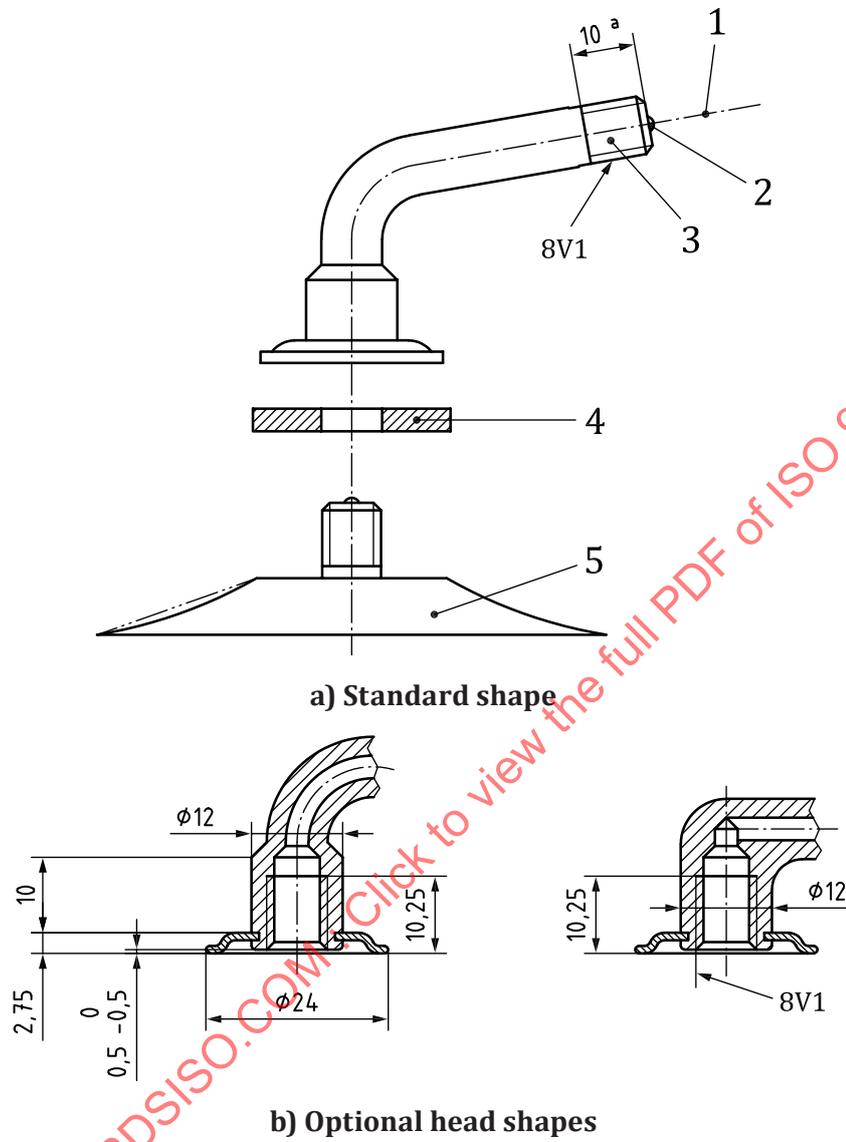
- 1 cap [I 01 / I 02 / I 03]
- 2 short core only [H 01]
- 3 core chamber No. 1 and, for valve DF 01, only core chamber No. 4
- a Fully threaded.

Designation	A mm	B mm	α °
CF 02	25	—	—
CF 06	44	—	—
DF 01	44	33	90

Figure 46 — Rubber semi-covered-base valve — Valve hole $10,2^{+0,3}_0$ or $11,3^{+0,4}_0$

6.4 Screw-on universal valves — Rim slots $12,5^{+2}_0$ and 14^{+3}_0

Dimensions in millimetres

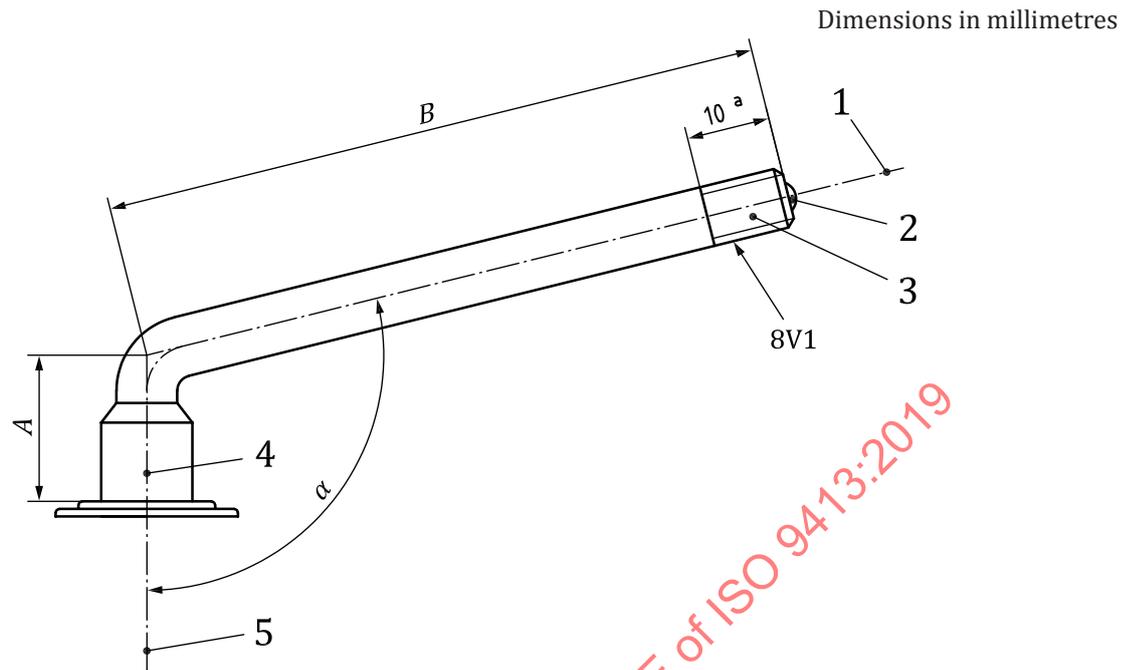


Key

- 1 cap [I 01 / I 02 / I 03]
- 2 short core only [H 01]
- 3 core chamber No. 1
- 4 flat grommet [B 02]
- 5 rubber spud ZG 01 (Figure 58)

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

Figure 47 — Mounting for screw-on universal valve

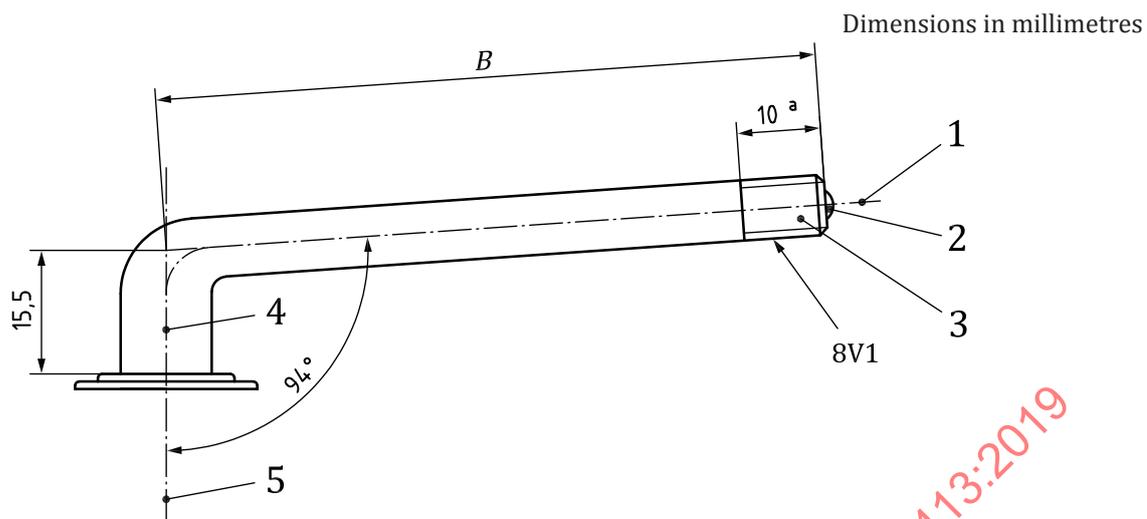


Key

- 1 cap [I 01 / I 02 / I 03]
- 2 short core only [H 01]
- 3 core chamber No. 1
- 4 head shape (Figure 47)
- 5 rubber spud ZG 01 (Figure 58)
- ^a Fully threaded. For certain existing rigid extensions, an 8 mm diameter for a 22 mm min. length from valve mouth is required.

Designation	A mm	B mm	α °
DZ 01	22,5	43	120
DZ 02	33	44,5	95
DZ 03	39,5	44,5	110
DZ 04	22,5	71,5	100
DZ 05	20,5	99,5	94
DZ 06	20,5	115	94
DZ 07	20,5	132	94
DZ 08	20,5	138,5	94
DZ 09	20,5	145,5	94
DZ 10	20,5	149,5	90
DZ 11	29,5	66,5	90
DZ 12	20,5	117	90

Figure 48 — Screw-on universal valves — Rim slots $12,5^{+2}_0$ and 14^{+3}_0



Key

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

2 short core only [H 01]

3 core chamber No. 1

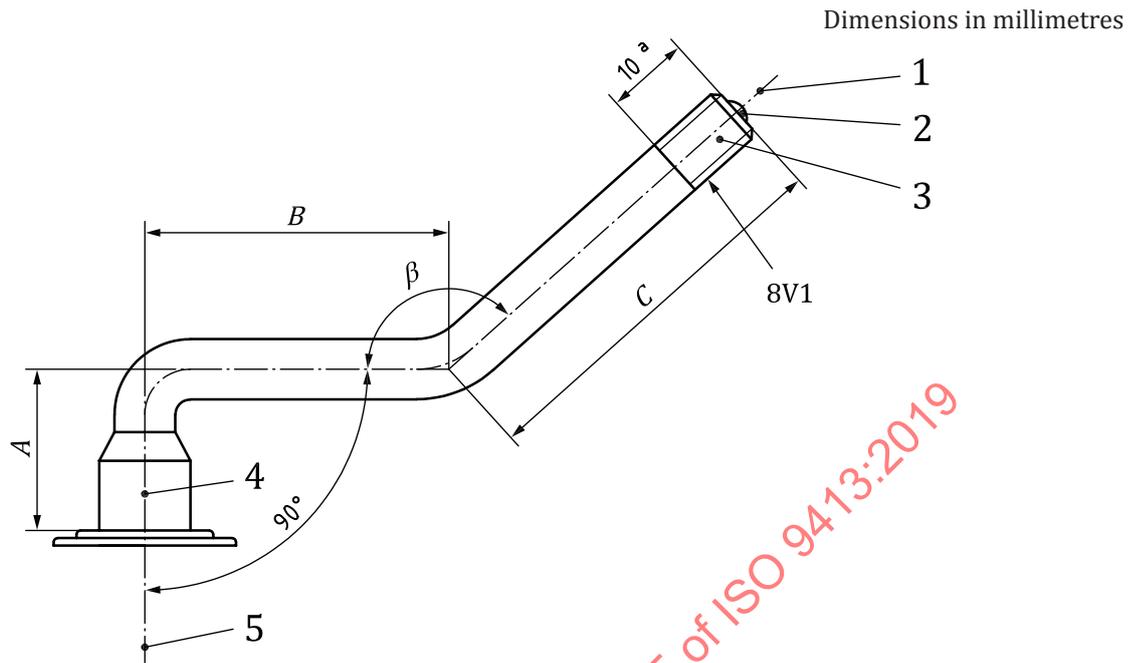
4 head shape (Figure 47)

5 rubber spud ZG 01 (Figure 58)

^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>B</i> mm
DZ 13	71,5
DZ 14	84,5

Figure 49 — Screw-on universal valves — Rim slots $12,5^{+2}_0$ and 14^{+3}_0



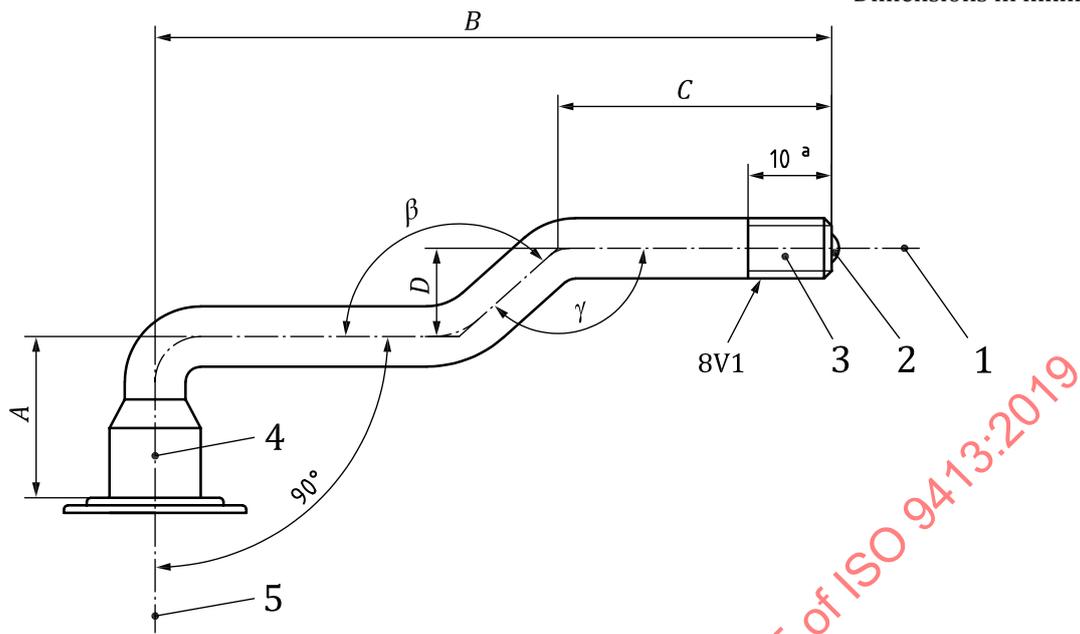
Key

- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chamber No. 1
- 4 head shape (Figure 47)
- 5 rubber spud ZG 01 (Figure 58)
- ^a Fully threaded. For certain existing rigid extensions, an 8 mm diameter for a 22 mm min. length from valve mouth is required.

Designation	A mm	B mm	C mm	β °
EZ 01	20,5	32	37	138
EZ 02	20,5	38	41,5	153
EZ 03	20	76	47,5	153
EZ 04	20	86	47,5	153

Figure 50 — Screw-on universal valves — Rim slots $12,5^{+2}_0$ and 14^{+3}_0

Dimensions in millimetres



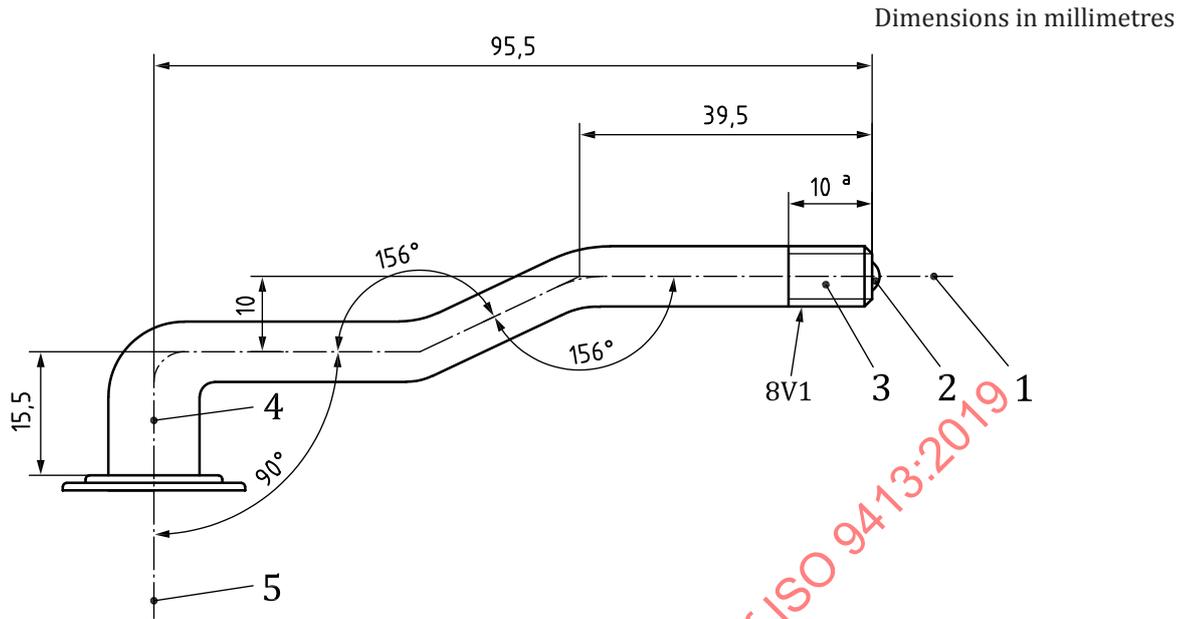
Key

- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chamber No. 1
- 4 head shape (Figure 47)
- 5 rubber spud ZG 01 (Figure 58)
- ^a Fully threaded. For certain existing rigid extensions, an 8 mm diameter for a 22 mm min. length from valve mouth is required.

Designation	A mm	B mm	C mm	D mm	β °	γ °
FZ 01	20,5	94	37,5	17	125	125
FZ 02	20,5	114	47,5	17	140	140
FZ 03	20,5	131	49	17	139	139
FZ 04	20	136,5	37,5	17	139	139
FZ 05 ^b	23,5	116,5	25,5	11,5	150	150

^b Short core only.

Figure 51 — Screw-on universal valves — Rim slots $12,5^{+2}_0$ and 14^{+3}_0



Key

- 1 cap [I 01 / I 02 / I 03]
 - 2 core [H 01]
 - 3 core chamber No. 1
 - 4 head shape (Figure 47)
 - 5 rubber spud ZG 01 (Figure 58)
- ^a Fully threaded. For certain existing rigid extensions, an 8 mm diameter for a 22 mm min. length from valve mouth is required.

Désignation
FZ 06

Figure 52 — Screw-on universal valves — Rim slots $12,5^{+2}_0$ and 14^{+3}_0

6.5 Large-bore valves — Rim slot 19^{+3}_0

Dimensions in millimetres

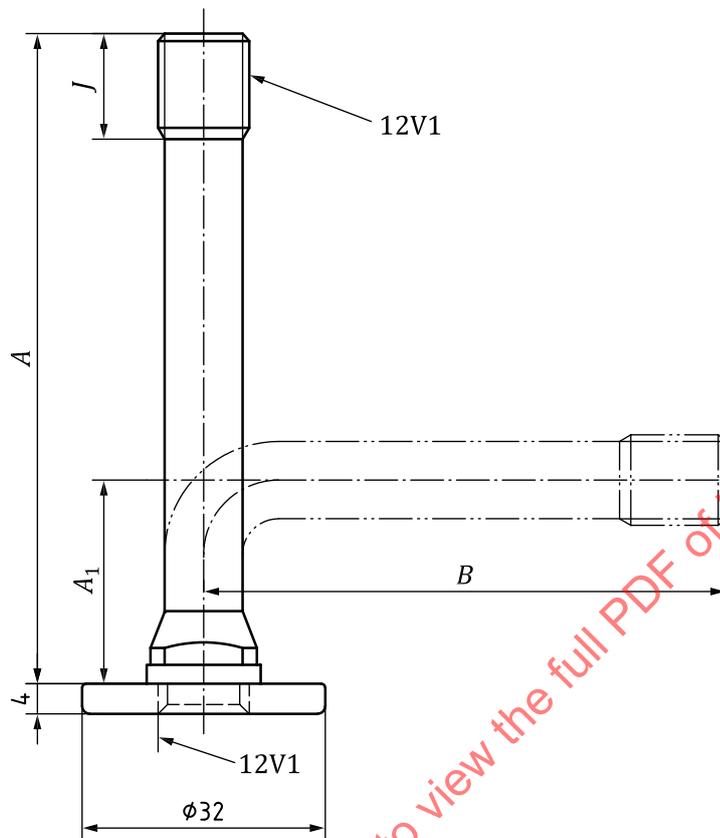
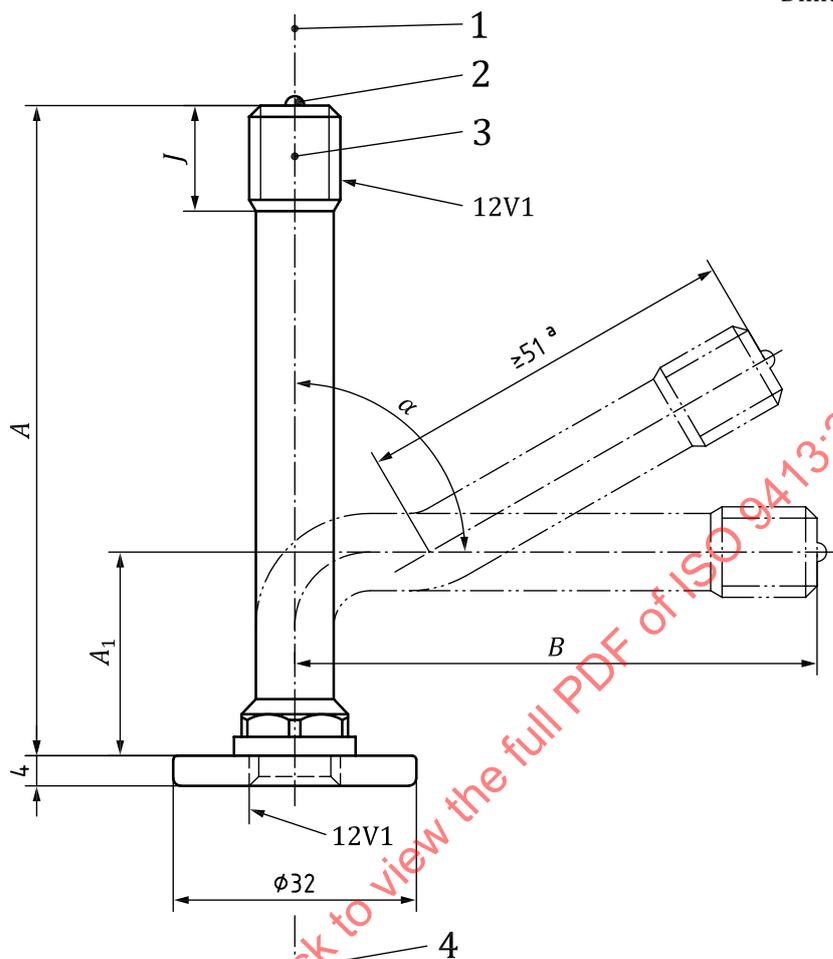


Figure 53 — Mounting for large-bore convertible tubed valve with rim slot 19 mm (see dimensions in [Figure 54](#))

Dimensions in millimetres



Key

- 1 cap [I 04 / I 05 / I 06]
- 2 core [H 02]
- 3 core chamber No. 2
- 4 rubber spud ZK 01
- ^a Required for valve core for second bend.

Designation	A mm	A ₁ mm	B mm	J mm	α °
HZ 03	49	—	—	37	—
HZ 04	106	—	—	19	—
HZ 05	134	—	—	19	—
HZ 06	147	—	—	19	—
HZ 07	163	—	—	19	—
JZ 23	106	52	59	19	90
JZ 24	106	35	76	19	88
JZ 25	134	35	105	19	88
JZ 26	147	35	117	19	82
JZ 27	163	35	133	19	88

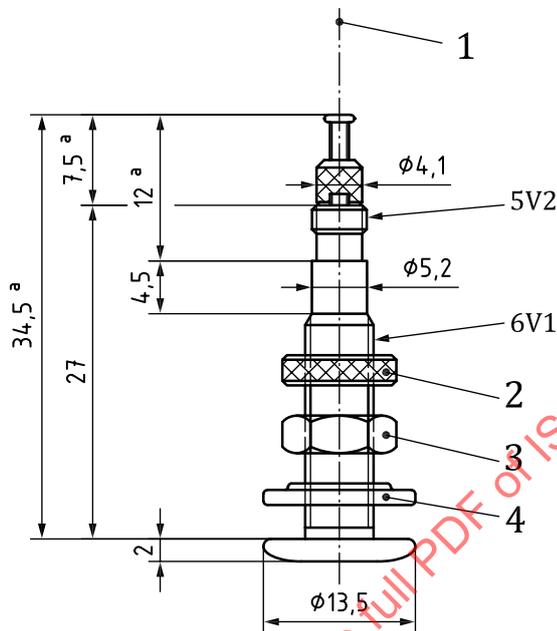
Figure 54 — Large-bore valves — Rim slot 19^{+3}_0

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6.6 Metal-base valve

6.6.1 Valve hole 6,2

Dimensions in millimetres



Key

- 1 cap [I 07]
- 2 nut [F 03]
- 3 hex nut [E 12]
- 4 ring washer [D 06]

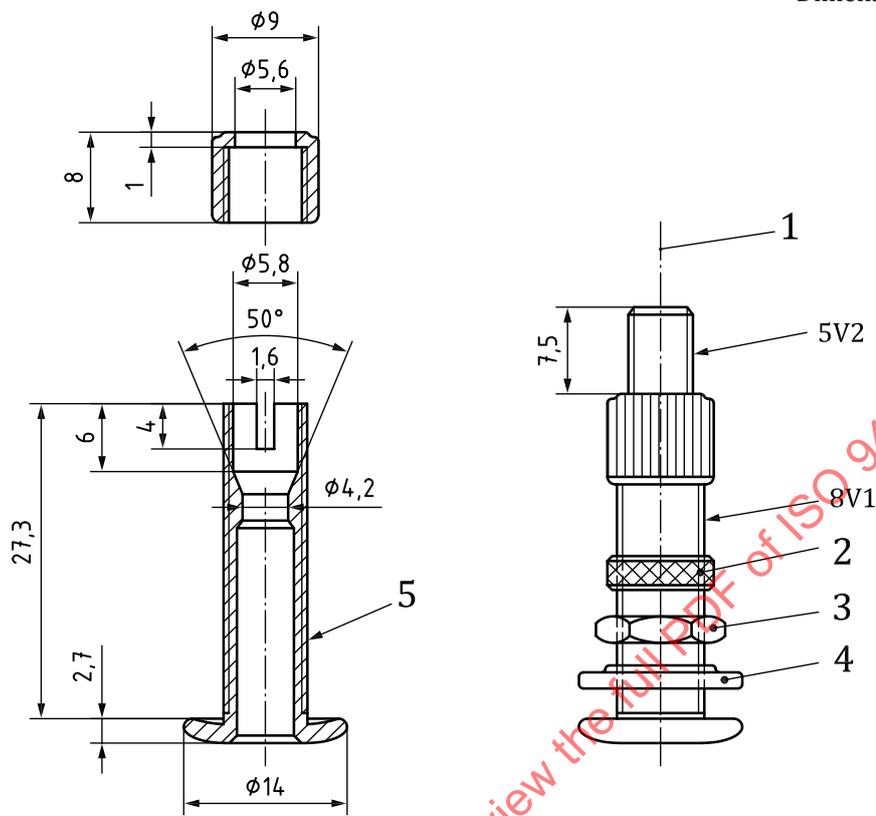
^a Dimension taken with $\phi 4,1$ nut tightened.

Designation
AA 01

Figure 55 — Valve hole 6,2

6.6.2 Valve hole 8,3

Dimensions in millimetres



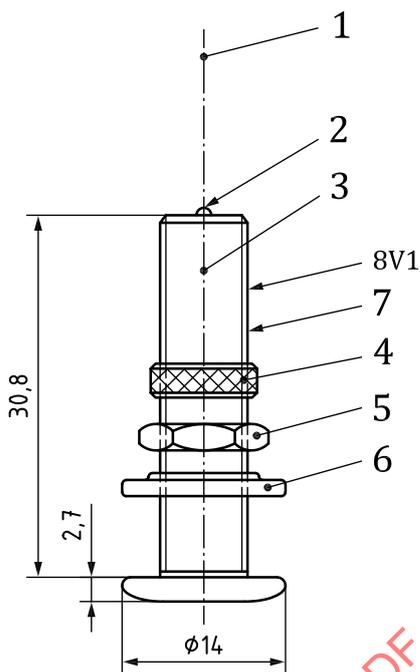
Key

- 1 cap [I 07 / I 08]
- 2 nut [F 03]
- 3 hex nut [E 01]
- 4 ring washer [D 01]
- 5 flats 6,5 optional on 8V1 thread

Designation
AB 01

Figure 56 — Valve hole 8,3

Dimensions in millimetres



Key

- 1 cap [I 02]
- 2 short core only [H 01]
- 3 core chamber No. 1
- 4 nut [F 01]
- 5 hex nut [E 01]
- 6 ring washer [D 01]
- 7 flats 6,5 optional on 8V1 thread

Designation
CB 03

Figure 57 — Valve hole 8,3

7 Spuds, valve bodies and adaptors

7.1 Rubber spuds

7.1.1 Spuds for screw-on universal valves — Rim slots $12,5^{+2}_0$ and 15^{+2}_0

Dimensions in millimetres

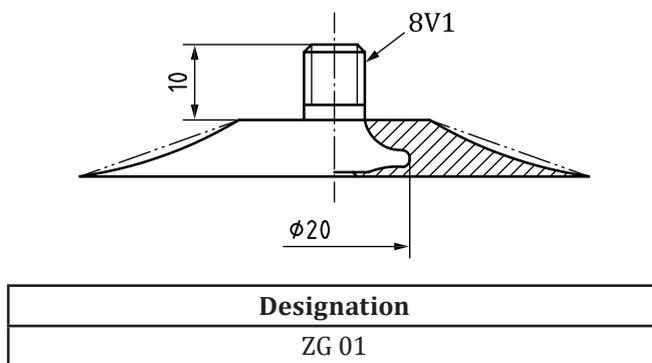
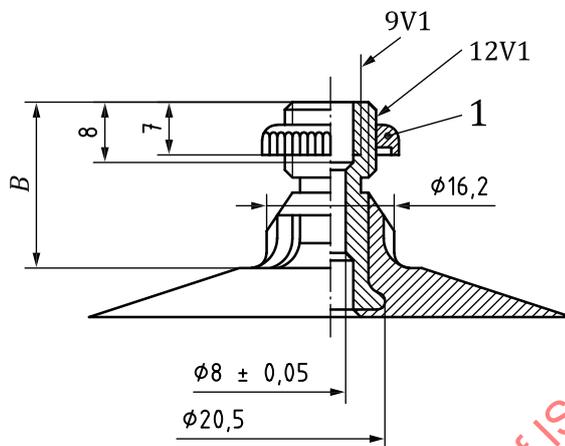


Figure 58 — Spuds for screw-on universal valves — Rim slots $12,5^{+2}_0$ and 15^{+2}_0

7.1.2 Rubber-covered air/liquid spuds — Valve hole $15,7^{+0,4}_0$

Dimensions in millimetres



a) Standard shape



b) Optional head shapes

Key

1 nut [F 02]

Designation	B mm
ZJ 01	20,5
ZJ 02	29,5

Figure 59 — Rubber-covered air/liquid spuds — Valve hole $15,7^{+0,4}_0$

7.1.3 Screw-on large-bore spuds — Valve hole $20,5^{+0,5}_0$ and rim slot 19^{+3}_0 mm

Dimensions in millimetres

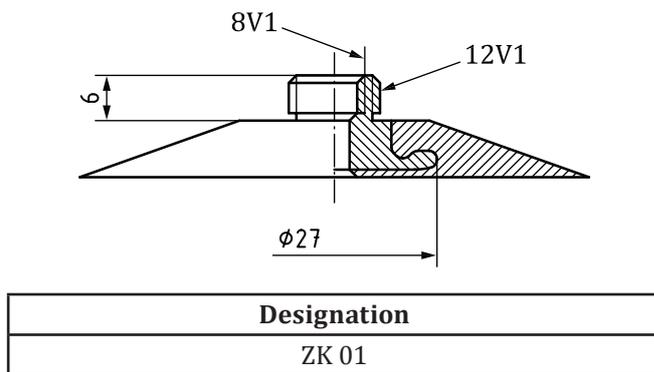
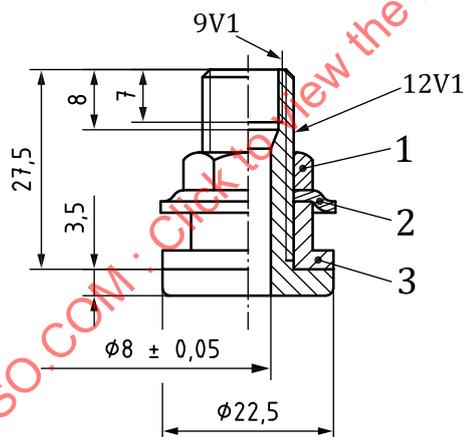


Figure 60 — Screw-on large-bore spuds — Valve hole $20,5^{+0,5}_0$ and rim slot 19^{+3}_0 mm

7.2 Clamp-in spuds

7.2.1 Air/liquid large-bore spud — Valve hole $15,7^{+0,4}_0$

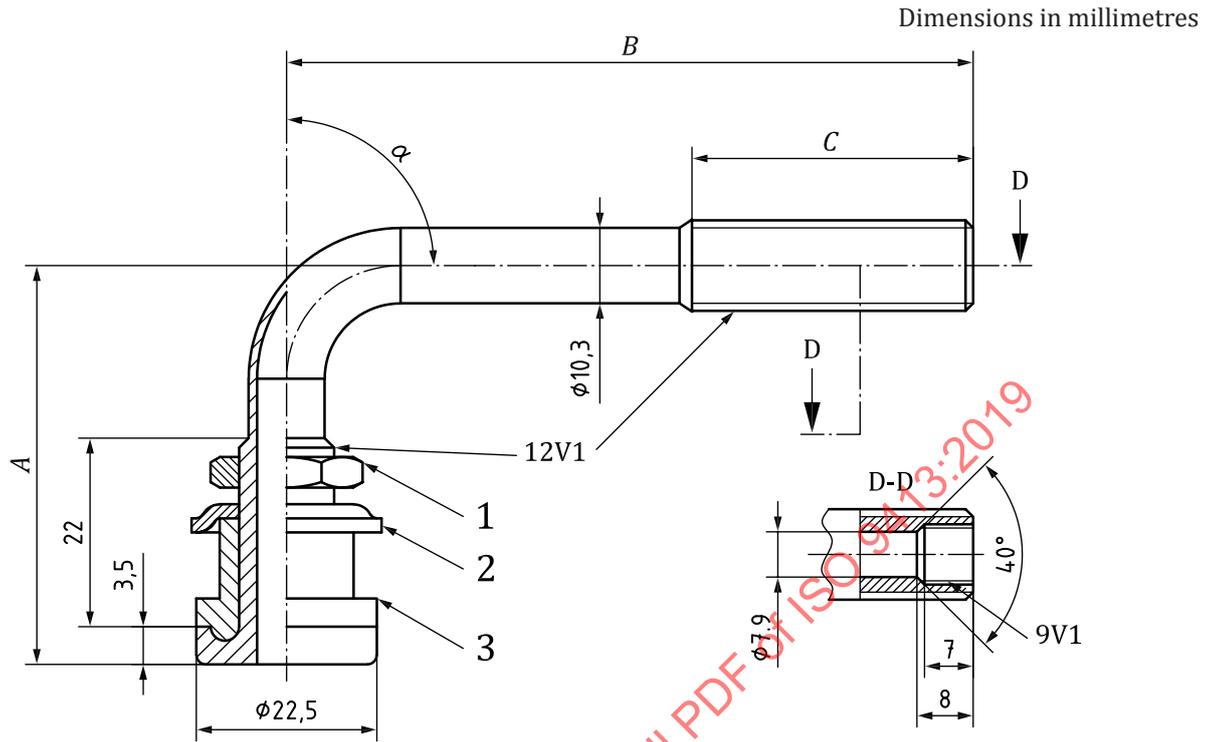
Dimensions in millimetres



Key

- 1 hex nut [E 08]
- 2 ring washer [D 05]
- 3 rubber grommet [B 07]

Figure 61 — Air/liquid large-bore spud — Valve hole $15,7^{+0,4}_0$



Key

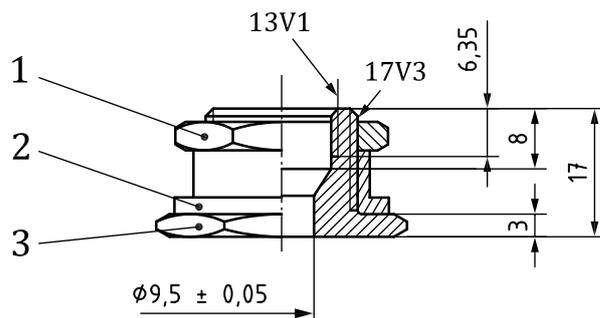
- 1 hex nut [E 08]
- 2 ring washer [D 05]
- 3 rubber grommet [B 07]

Designation	A mm	B mm	C mm	α °
ZR 02	39	54	40	65
ZR 03	44	94	47	90
ZR 04	39	36	22	65

Figure 62 — Air/liquid large-bore spud — Valve hole $15,7^{+0,4}_0$

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

Dimensions in millimetres



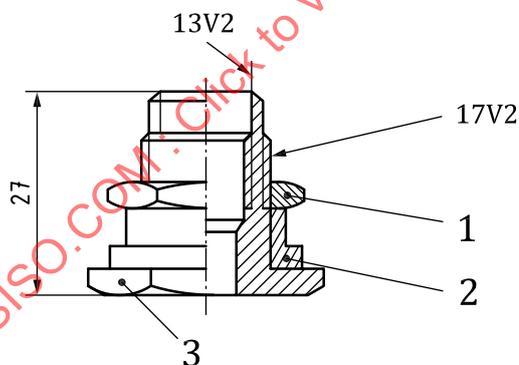
Key

- 1 hex nut [E 11]
- 2 rubber grommet [B 09]
- 3 27 across flats

Designation ^a
ZS 01
^a Large-bore spud.

Figure 63 — Valve hole $20,5^{+0,5}_0$

Dimensions in millimetres



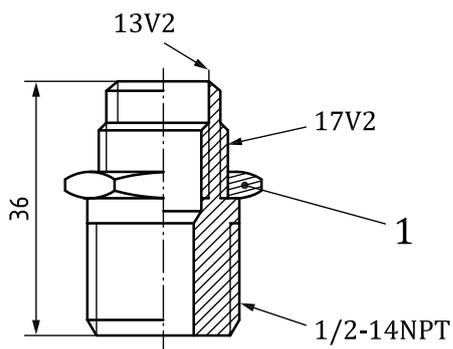
Key

- 1 hex nut [E 10]
- 2 rubber grommet [B 08]
- 3 27 across flats

Designation ^a
ZS 02
^a Super-large-bore spud.

Figure 64 — Valve hole $20,5^{+0,5}_0$

Dimensions in millimetres



Key

1 22 across flats

Designation^a
Z 01
^a Screw-on super-large-bore spud.

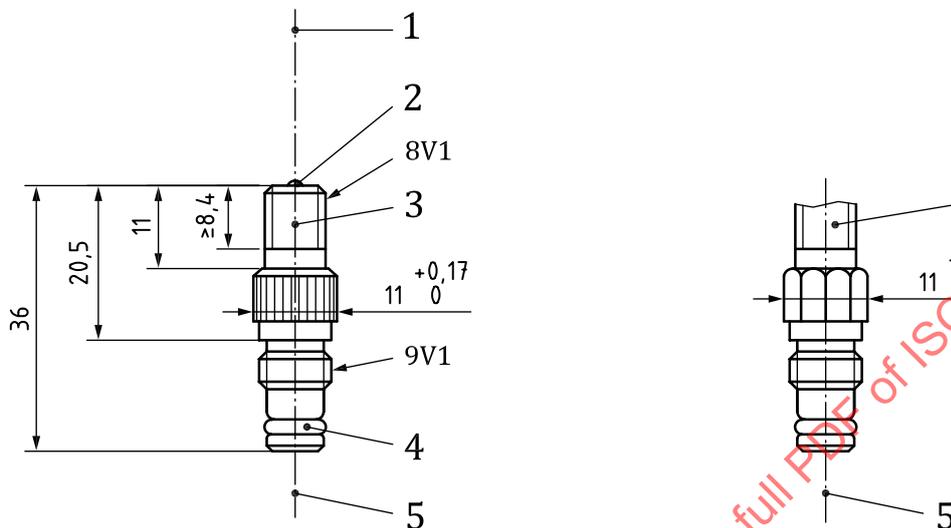
Figure 65 — Valve hole $20,5^{+0,5}_0$

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7.3 Valve body and core housing

7.3.1 Tubeless and tube-type core housing for spuds with valve hole $15,7^{+0,4}_0$

Dimensions in millimetres



Key

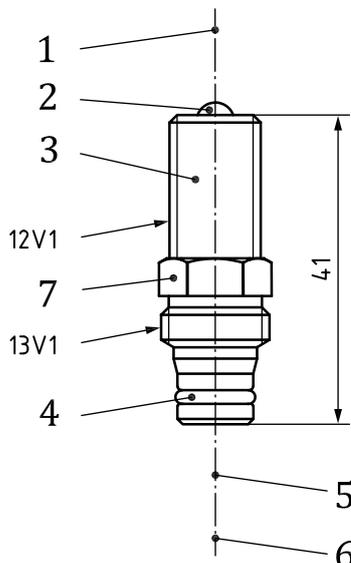
- 1 cap [I 01 / I 02 / I 03]
- 2 core [H 01]
- 3 core chamber No. 1
- 4 rubber O-ring [C 06]
- 5 spuds ZR 02 to ZR 04 (Figure 62)
ZR 01 (Figure 61)
ZJ 01 and ZJ 02 (Figure 59)
- 6 10,4 across flats octagonal

Designation
CZ 01

Figure 66 — Tubeless and tube-type core housing for spuds with valve hole $15,7^{+0,4}_0$

7.3.2 Large and super-large-bore valve body for spuds with valve hole $20,5^{+0,5}_0$

Dimensions in millimetres

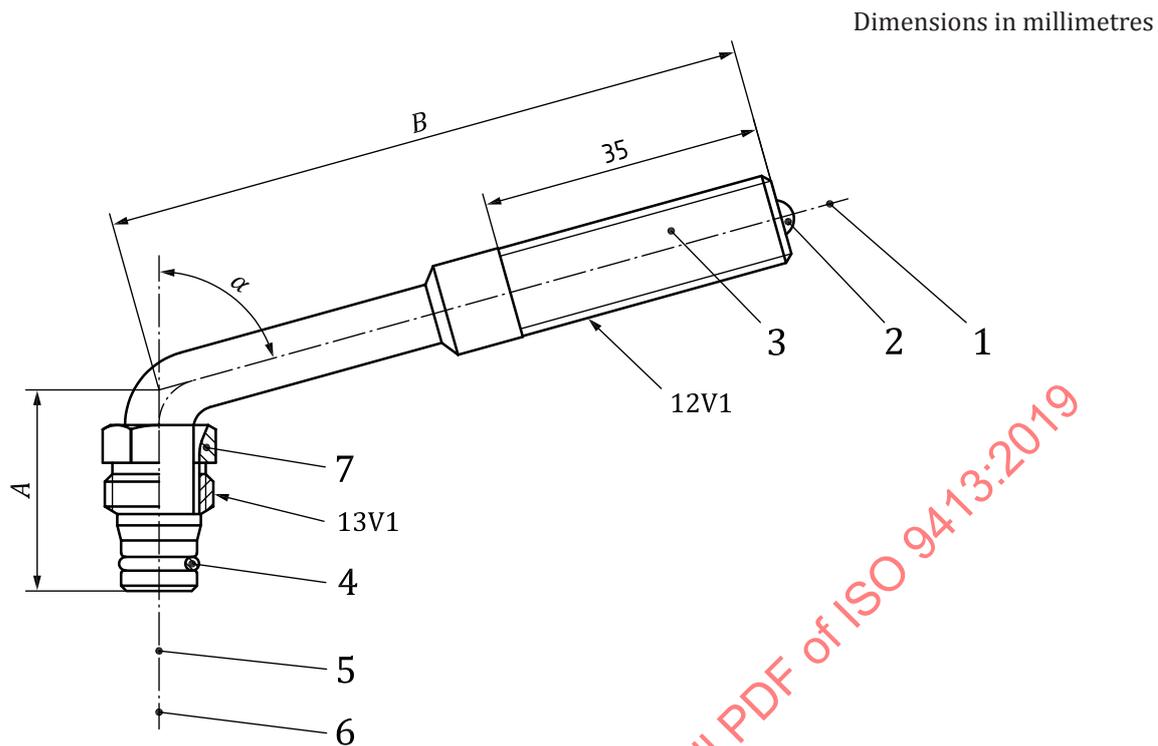


Key

- 1 cap [I 04 / I 05 / I 06]
- 2 core [H 02]
- 3 core chamber No. 2
- 4 rubber O-ring [C 07]
- 5 spud ZS 01 ([Figure 63](#))
- 6 adaptor L 01 ([Figure 73](#))
- 7 12,7 across flats

Designation
HZ 01

Figure 67 — Large and super-large-bore valve body for spuds with valve hole $20,5^{+0,5}_0$



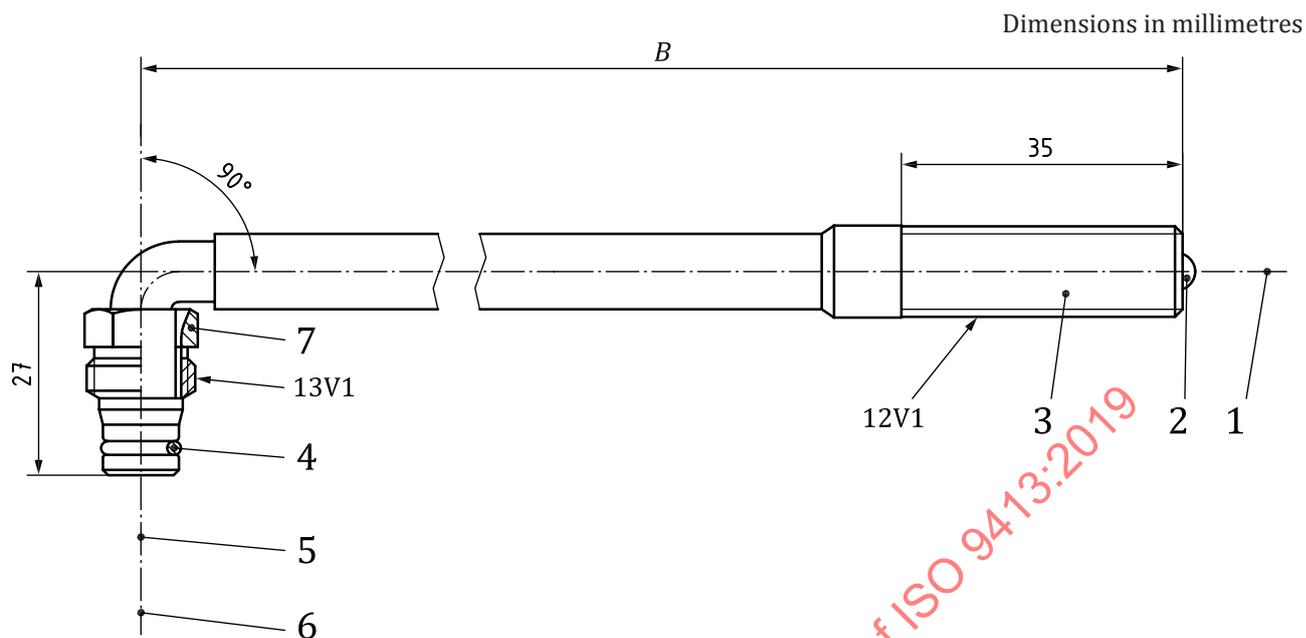
Key

- 1 cap [I 04 / I 05 / I 06]
- 2 core [H 02]
- 3 core chamber No. 2
- 4 rubber O-ring [C 07]
- 5 spud ZS 01 (Figure 63)
- 6 adaptor L 01 (Figure 73)
- 7 12,7 hex nut across flats (free nut)

Designation ^a	A mm	B mm	α °
JZ 01	27	79	80
JZ 02	32	119	90
JZ 03	27	140	86
JZ 04	27	64	80
JZ 05	27	79	60
JZ 06	27	79	74
JZ 07	67	94	90
JZ 08	27	102	80
JZ 09	27	140	80
JZ 10	48	89	90
JZ 11	48	222	90
JZ 12	27	64	90

^a Swivel stem.

Figure 68 — Large and super-large-bore valve body for spuds with valve hole $20,5^{+0,5}_0$

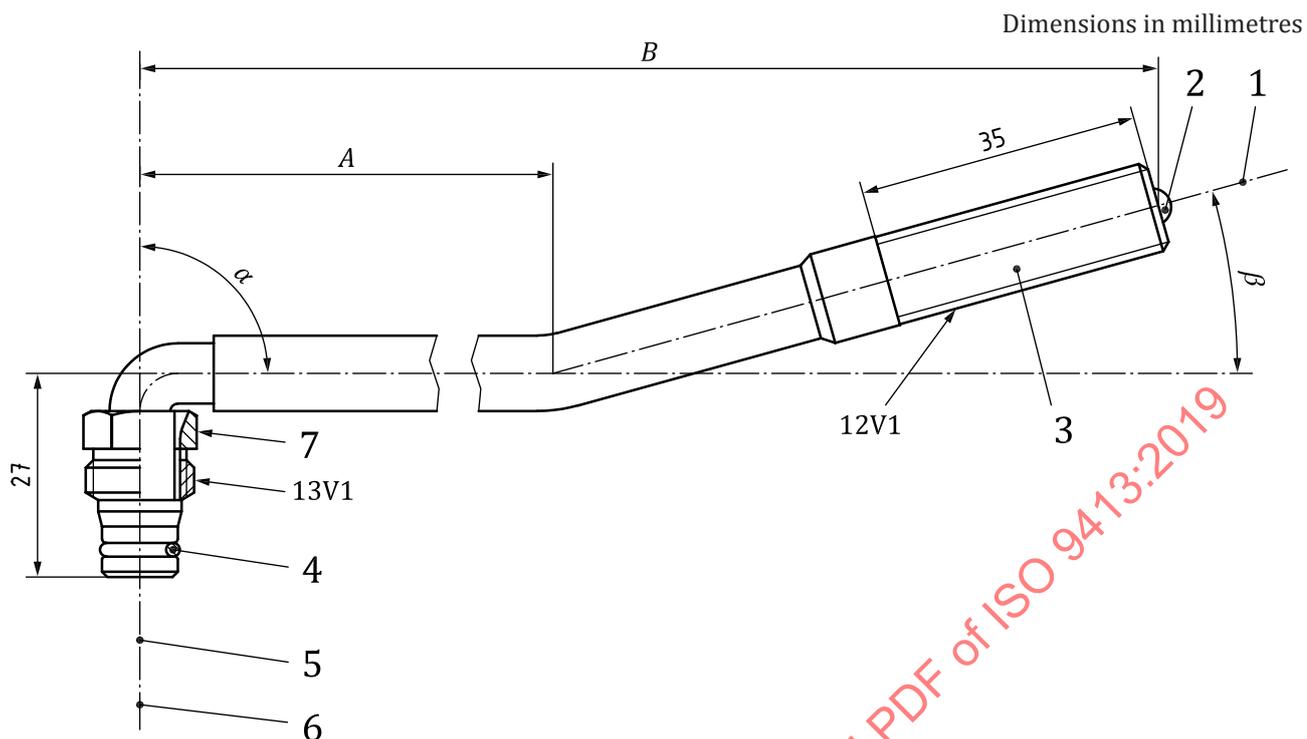


Key

- 1 cap [I 04 / I 05 / I 06]
- 2 core [H 02]
- 3 core chamber No. 2
- 4 rubber O-ring [C 07]
- 5 spud ZS 01 ([Figure 63](#))
- 6 adaptor L 01 ([Figure 73](#))
- 7 12,7 hex nut across flats (free nut)

Designation ^a	B mm
JZ 13	64
JZ 14	102
JZ 15	114
JZ 16	152
JZ 17	191
JZ 18	203
JZ 19	229
JZ 20	254
JZ 21	305
JZ 22	762
^a Swivel stem.	

Figure 69 — Large and super-large-bore valve body for spuds with valve hole $20,5^{+0,5}_0$

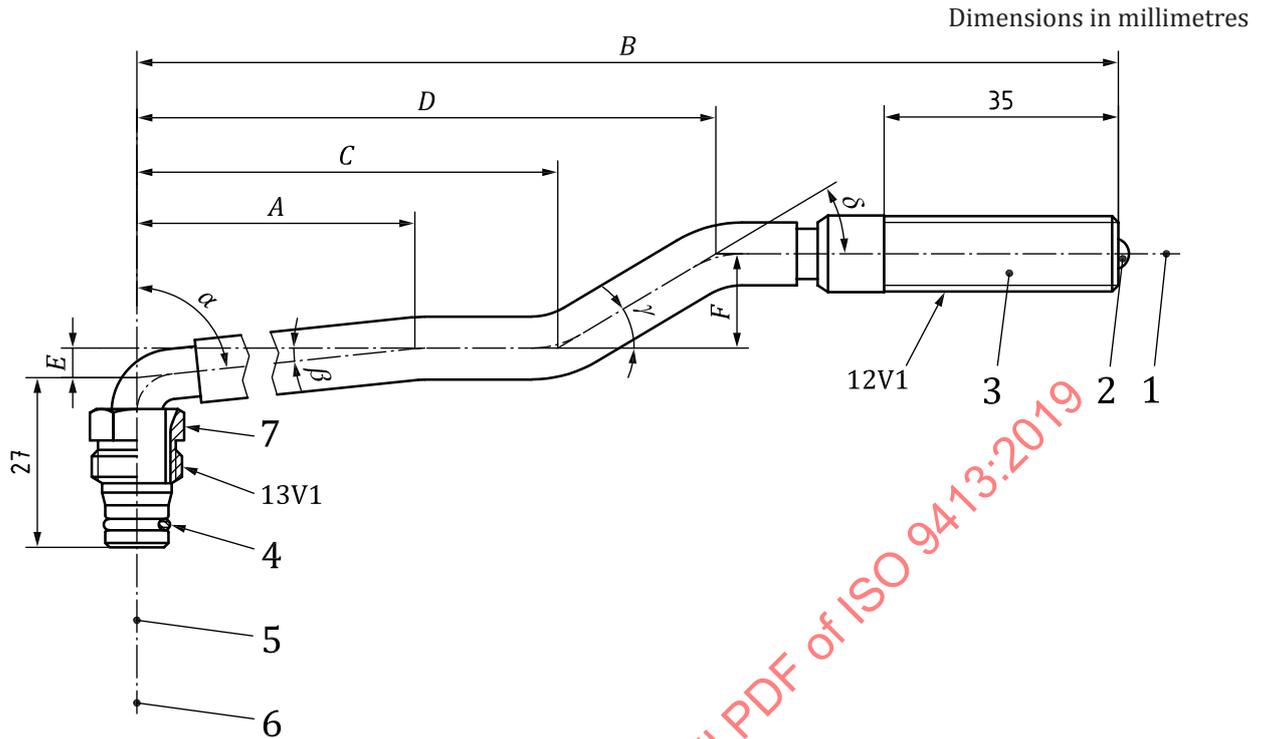


Key

- 1 cap [I 04 / I 05 / I 06]
- 2 core [H 02]
- 3 core chamber No. 2
- 4 rubber O-ring [C 07]
- 5 spud ZS 01 ([Figure 63](#))
- 6 adaptor L 01 ([Figure 73](#))
- 7 12,7 hex nut across flats (free nut)

Désignation ^a	A mm	B mm	α °	β °
KZ 01	48	114	82	8
KZ 02	102	222	90	13
KZ 03	76	191	90	11
^a Swivel stem.				

Figure 70 — Large and super-large-bore valve body for spuds with valve hole $20,5^{+0,5}_0$



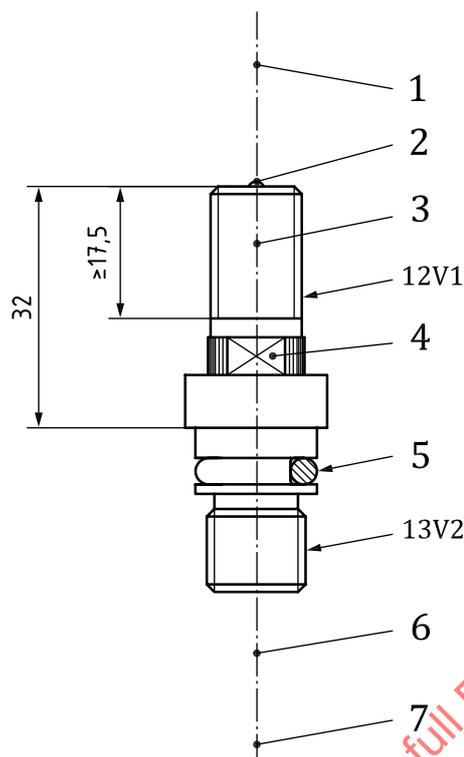
Key

- 1 cap [I 04 / I 05 / I 06]
- 2 core [H 02]
- 3 core chamber No. 2
- 4 rubber O-ring [C 07]
- 5 spud ZS 01 ([Figure 63](#))
- 6 adaptor L 01 ([Figure 73](#))
- 7 12,7 hex nut across flats (free nut)

Designation ^a	A mm	B mm	C mm	D mm	E mm	F mm	α °	β °	γ °	δ °
MZ 01	—	356	114	149	—	13	90	—	20	20
MZ 02	—	635	51	152	—	14	90	—	8	8
MZ 03	—	813	51	151	—	24	90	—	13	13
MZ 04	83	511	111	158	9	28,5	84	6	31	31

^a Swivel stem.

Figure 71 — Large and super-large-bore valve body for spuds with valve hole $20,5^{+0,5}_0$



Key

- 1 cap [I 04 / I 05 / I 06]
- 2 core [H 02]
- 3 core chamber No. 2
- 4 flat 12,7
- 5 rubber O-ring [C 08]
- 6 spuds Z 01 ([Figure 65](#)) and ZS 02 ([Figure 64](#))
- 7 adaptors L 02 to L 06 ([Figure 75](#))

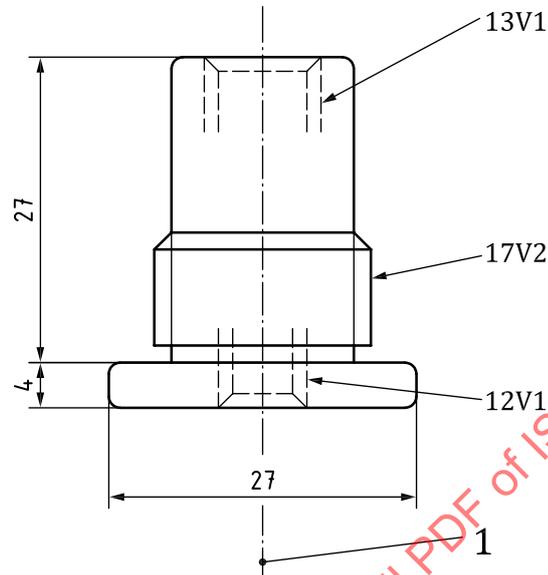
Designation ^a
HZ 02
^a Super-large-bore core housing.

Figure 72 — Large and super-large-bore valve body for spuds with valve hole $20,5^{+0,5}_0$

7.4 Adaptors

7.4.1 Straight adaptor

Dimensions in millimetres



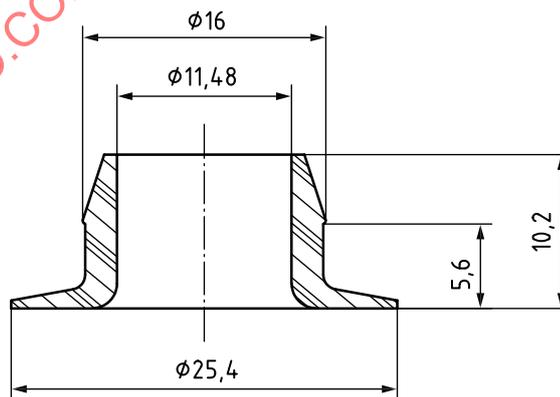
Key

1 rubber spud ZK 01 (Figure 60)

Designation
L 01

Figure 73 — Straight adaptor

Dimensions in millimetres

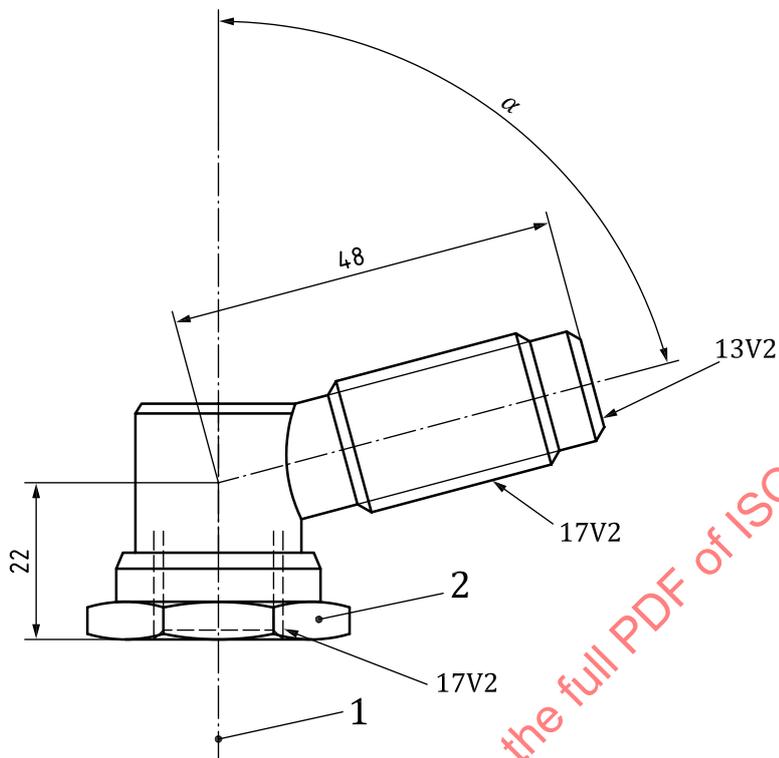


Designation
L 07

Figure 74 — Straight adaptor

7.4.2 Bent adaptor

Dimensions in millimetres



Key

- 1 spuds Z 01 (Figure 65) and ZS 02 (Figure 64)
- 2 25 hex nut

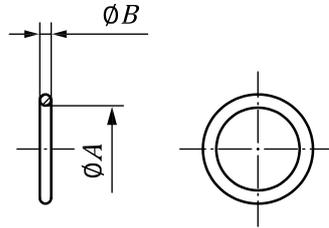
Designation	a °
L 02	90
L 03	85
L 04	80
L 05	75
L 06	60

Figure 75 — Bent adaptor

8 Valve components

8.1 O-rings

Dimensions in millimetres



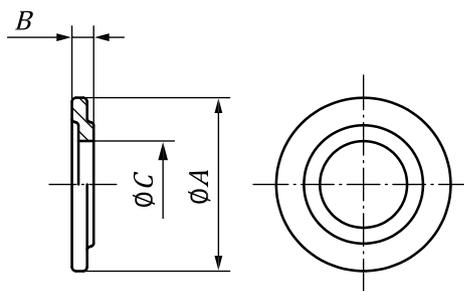
Designation	A mm	B mm
C 01	20,7	2,6
C 02	15,6	2,6
C 03	8,9	1,9
C 04	11	2
C 05	8	1,9
C 06	4,4 - 4,5 ^a	1,8
C 07	6 - 6,1	1,8
C 08	7,6	2,6
C 09	12,4	2,6

^a Values specified represent nominal ranges and do not include tolerances.

Figure 76 — O-ring

8.2 Ring washers

Dimensions in millimetres

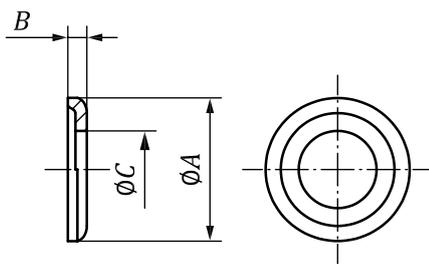


Designation	A mm	B mm	C min
D 01	14 - 16 ^a	1,8 - 2,9 ^a	7,9
D 05	23 - 23,4 ^a	2,5 - 3,2 ^a	12,4
D 06	13,5	1,8	6,1
D 07	21	2,9	10,4
D 08	20	2,5	10,5

^a Values specified represent nominal ranges and do not include tolerances.

Figure 77 — Ring washer

Dimensions in millimetres

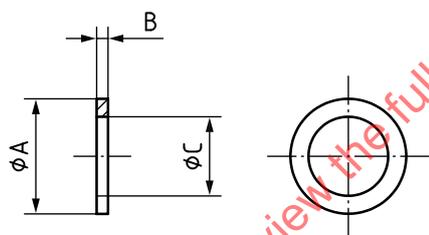


Designation	A mm	B mm	C min
D 02	19 - 20 ^a	2,5 - 3,2 ^a	10,4 min.
D 03	19	1,5	10,5 min

^a Values specified represent nominal ranges and do not include tolerances.

Figure 78 — Ring washer

Dimensions in millimetres



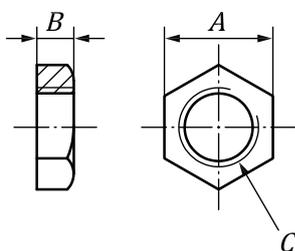
Designation	A mm	B mm	C min
D 04	14,4 - 15,2 ^a	1,6	10,4 - 10,7

^a Values specified represent nominal ranges and do not include tolerances.

Figure 79 — Ring washer

8.3 Hex nuts

Dimensions in millimetres



Designation	A mm	B mm	C
E 01 ^a	10 - 12,7 ^b	2,5 - 4 ^b	8V1
E 04 ^a	14 - 14,2 ^b	4,6 - 5 ^b	10V2

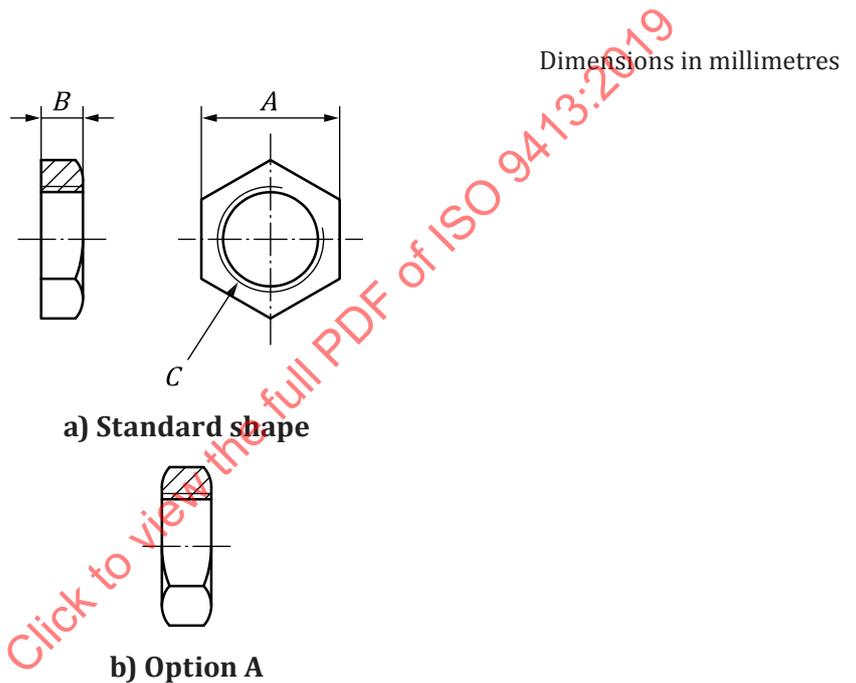
^a Optional form permitted.

^b Values specified represent nominal ranges and do not include tolerances.

Designation	A mm	B mm	C
E 05	14 - 14,2 ^b	5 - 7,9 ^b	10V2
E 08 ^a	15,9 - 16 ^b	4,5 - 4,8 ^b	12V1
E 12	9 ^b	2,5 ^b	6V1

^a Optional form permitted.
^b Values specified represent nominal ranges and do not include tolerances.

Figure 80 — - Hex nut



Désignation	A mm	B mm			C
E 02	11	5			8V1
E 10	23,8 - 24 ^a	4,8			17V2
HZ 05	23,8 - 24 ^a	6,4 - 6,5 ^a			17V3

^a Values specified represent nominal ranges and do not include tolerances.

Figure 81 — Hex nut

Dimensions in millimetres

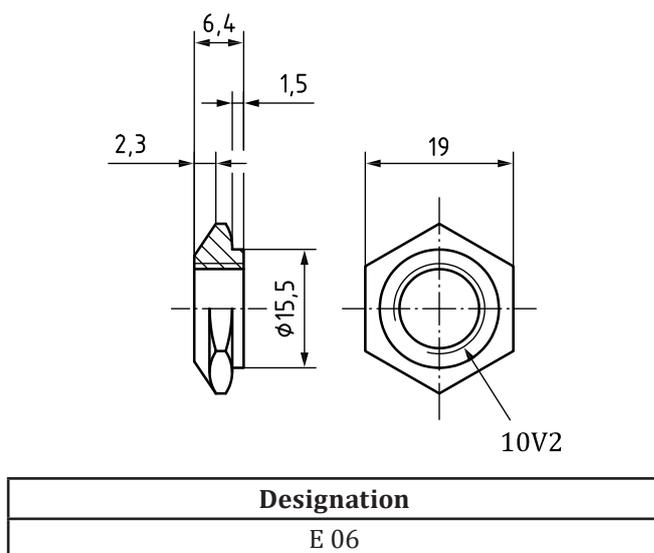
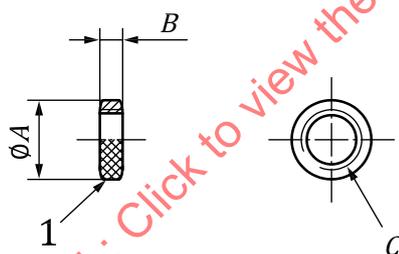


Figure 82 — Hex nut

8.4 Knurled nuts, hex nuts, screw

Dimensions in millimetres



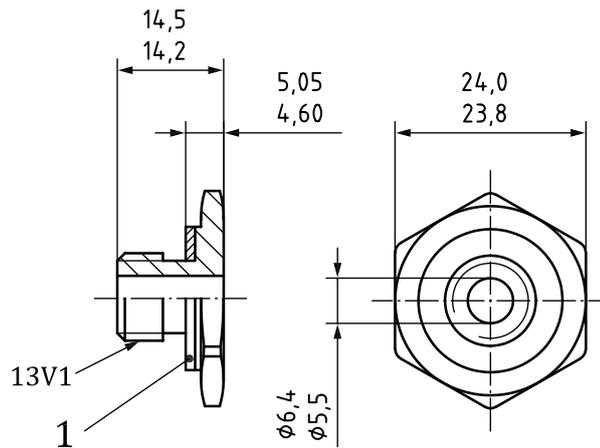
Key

1 knurl

Designation	A mm	B mm	C
F 01	10	3	8V1
F 03	10	3	6V1

Figure 83 — Knurled nuts, hex nuts, screw

Dimensions in millimetres



Key

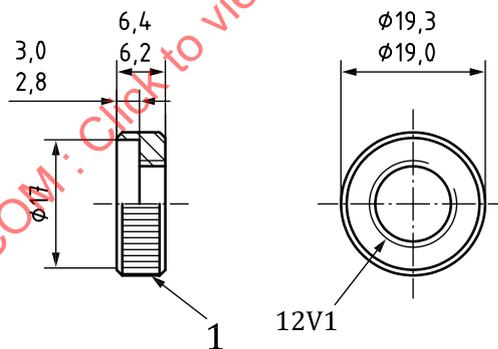
1 spacer (optional)

Designation
G 01

NOTE Values specified represent nominal ranges and do not include tolerances.

Figure 84 — Knurled nuts, hex nuts, screw

Dimensions in millimetres



Key

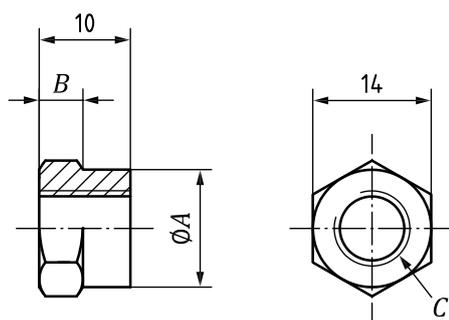
1 knurl

Designation
F 02

NOTE Values specified represent nominal ranges and do not include tolerances.

Figure 85 — Knurled nuts, hex nuts, screw

Dimensions in millimetres

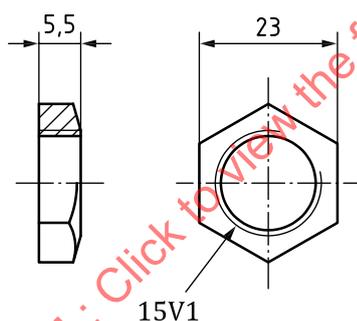


Designation	A mm	B mm	C
E 03	12	5	10V1
E 07	14	3,5	10V2

NOTE Values specified represent nominal ranges and do not include tolerances.

Figure 86 — Knurled nuts, hex nuts, screw

Dimensions in millimetres



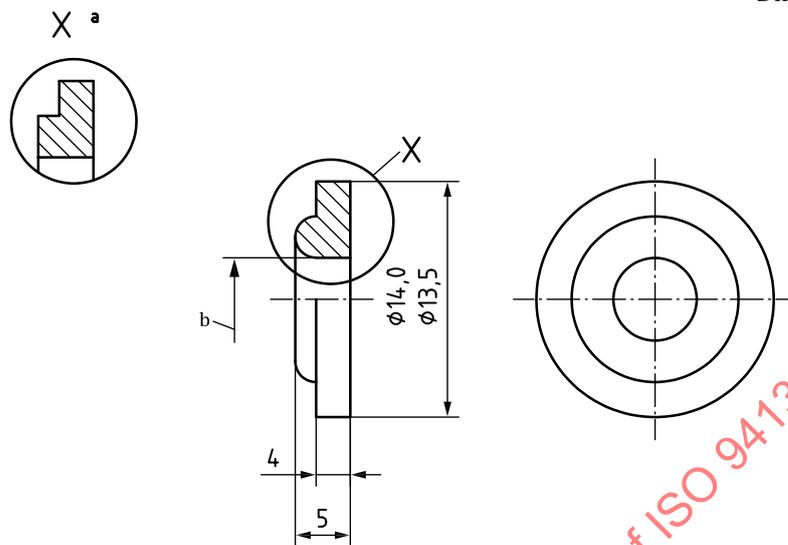
Designation
E 09 ^a

^a Optional form permitted.

Figure 87 — Knurled nuts, hex nuts, screw

8.5 Rubber grommets

Dimensions in millimetres

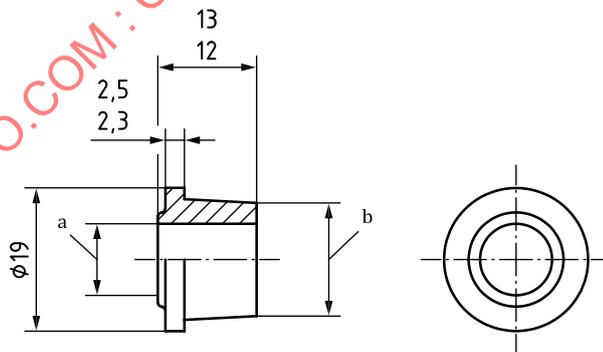


- a Optional shape.
- b Fits 8V1.

Designation
B 01

Figure 88 — Rubber grommet

Dimensions in millimetres

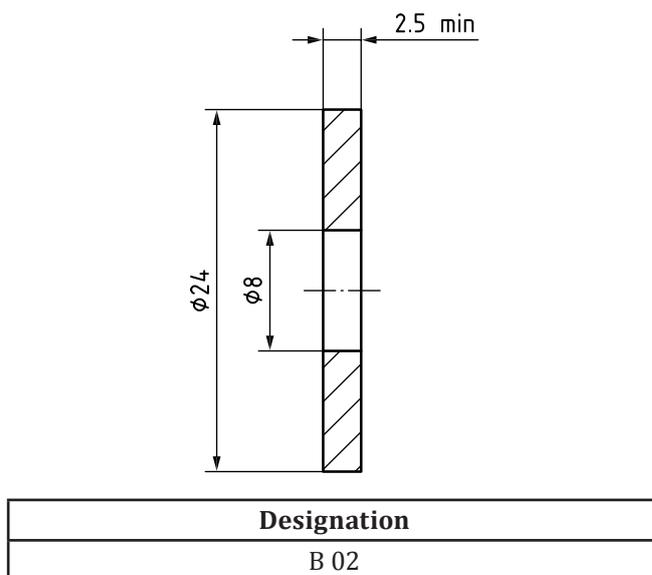


- a Fits 10V2.
- b Fits 15,7 valve hole.

Designation
B 03

Figure 89 — Rubber grommet

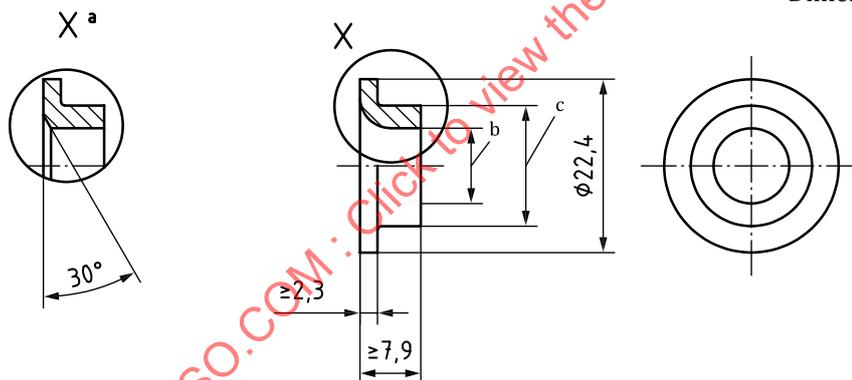
Dimensions in millimetres



NOTE Values specified represent nominal ranges and do not include tolerances.

Figure 90 — Rubber grommet

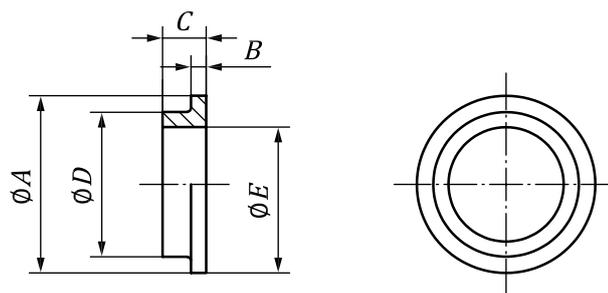
Dimensions in millimetres



- a 30° angle optional.
- b Fits 10V2.
- c Fits 15,7 valve hole.

Figure 91 — Rubber grommet

Dimensions in millimetres



Designation	A mm	B mm	C mm	D (fits rim hole) mm	E (fits thread)
B 04	17,8 - 19 ^a	2,3 - 2,5 ^a	7,9 - 8 ^a	15,7	10V2
B 05	14 - 16,5 ^a	3	5 - 6,4 ^a	11,3	10V2
B 07	22 - 22,4 ^a	3 - 3,3 ^a	8,6 - 9 ^a	15,7	12V1
B 08	25,4 - 26 ^a	2,3 - 3 ^a	4,8 - 5 ^a	20,5	17V3
B 09	25 - 25,4 ^a	2 - 2,4 ^a	6 - 6,5 ^a	20,5	17V3

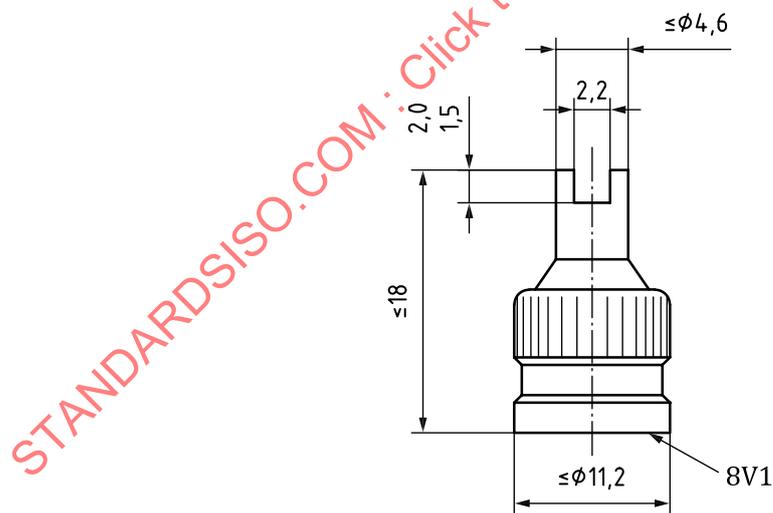
^a Values specified represent nominal ranges and do not include tolerances.

Figure 92 — Rubber grommet

8.6 Valve caps

NOTE All valve cap configurations can vary from illustration shown below.

Dimensions in millimetres



Designation	Type
I 01	sealing type with gasket

Figure 93 — Valve cap