

ISO/TC 31/SC 9

Date: 2023-02-14

**ISO/DIS/FDIS 24163-1:2022(E)**

ISO/TC 31/SC 9

Secretariat: AFNOR

Date: 2023-12-06

**Clamp-in tyre valves for tyre pressure monitoring ~~system~~ —  
~~systems~~ —**

**Part 1:  
Definition, types, dimensions and valve interface**

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~~CP 401~~ • Ch. de Blandonnet 8 • ~~CP 401~~

CH-1214 Vernier, Geneva, ~~Switzerland~~

~~Tel. Phone:~~ + 41 22 749 01 11

~~Fax + 41 22 749 09 47~~

~~E-mail:~~ [copyright@iso.org](mailto:copyright@iso.org)

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## Foreword

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

A list of all parts in the ISO 24163 series can be found on the ISO website.

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](http://www.iso.org/members.html).

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# Clamp-in tyre valves for tyre pressure monitoring ~~system~~ — systems —

## Part 1: Definition, types, dimensions and valve interface

### 1 Scope

This document specifies types of clamp-in TPMS tubeless valves and associated requirements. It applies to the tyre valves assembled on a valve hole of rim with diameter 11,3 mm for passenger cars and light commercial vehicles (M1 and N1 categories). This document does not include the design, development or requirements of the TPMS housing or the interface between said housing and the valve.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 9413, *Tyre valves — Dimensions and designation*

~~ISO 4000-2, Passenger car tyres and rims — Part 2: Rims~~

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain ~~terminological~~terminology databases for use in standardization at the following addresses:

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

#### 3.1

##### **clamp-in valve**

~~clamp-in type~~ valve for tubeless tyre, designed to be used with a valve core, a cap, an O-ring or a rubber grommet and to be fixed with a hex nut and ~~eventually~~potentially a ring washer

#### 3.2

##### **retainer washer**

washer mounted on valve body that retains sealing element

#### 3.3

##### **tyre pressure monitoring system**

##### **TPMS**

system which directly monitors the ~~tire~~tyre pressure and which alert in case of under pressure

3.4

**traceability**

code referring to production date

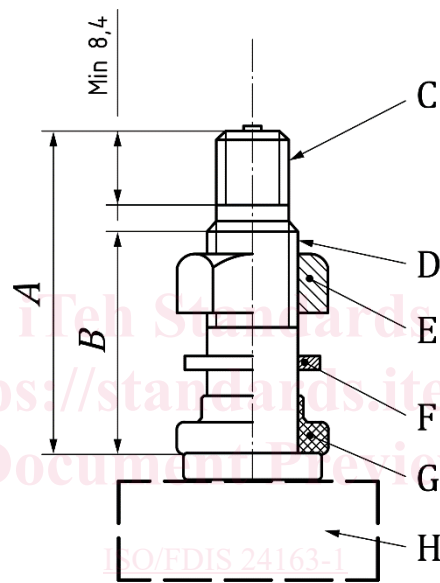
3.5

**valve body**

elongated part of valve usually with thread for nut and for cap in the external part and thread for inner core inside

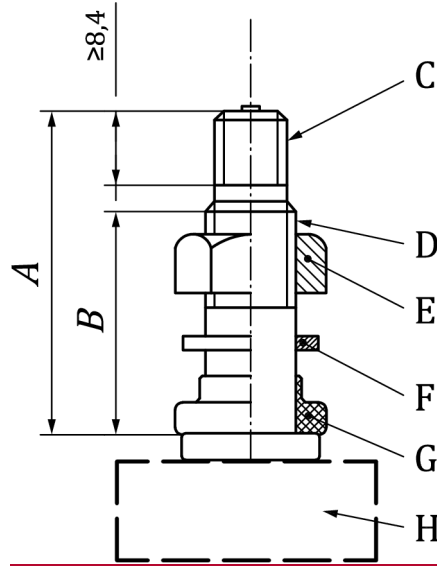
**4 Valve body dimensions**

Main body dimensions are listed in Table 1~~Table 1.~~ Cap thread length: min should be a minimum of 8,4 mm but 5 mm as a minimum is accepted ~~also a min of 5 mm acceptable~~ to improve nose resistance; see Figures 1. See Figures 1 and 2.



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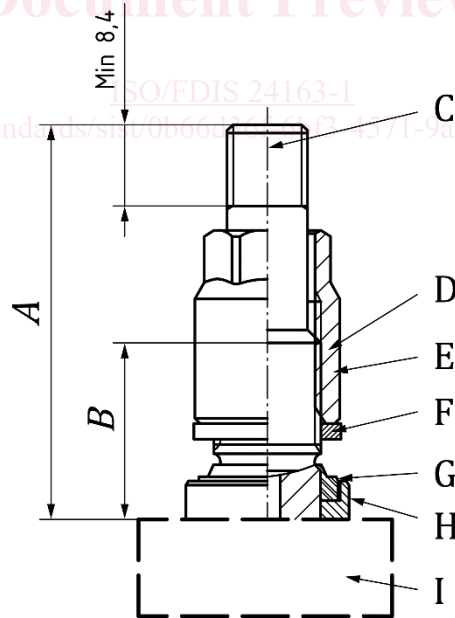
Dimensions in millimeters



**Key**

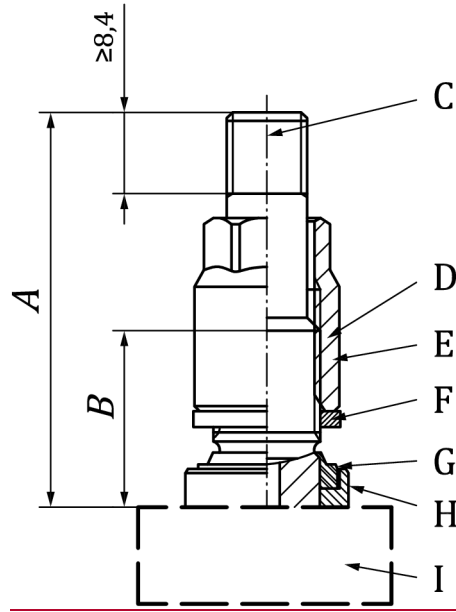
- C cap thread (8V1)
- D nut thread
- E nut (shape only illustrative)
- F nut washer (optional)
- G sealing (shape only illustrative)
- H TPMS housing

Figure 1 — Valve body scheme



Dimensions in millimeters

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**Key**

- C cap thread (8V1)
- D nut thread
- E nut (shape only illustrative)
- F nut ~~Washer~~washer (optional)
- G sealing (shape only illustrative)
- H retainer washer (shape only illustrative)
- I TPMS housing

**Figure 2 — Alternative valve body scheme**

**Table 1 — Valve body dimensions and threads**

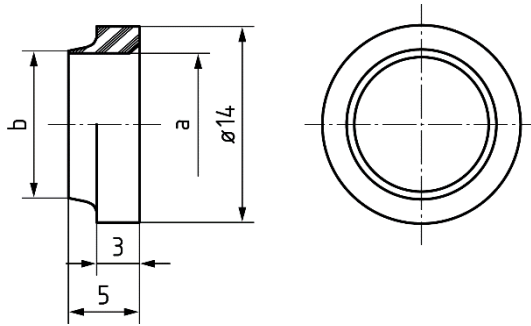
Type	A mm	B mm	Thread for nut	Correspondence with ISO 9413
VB1	$33 \leq A < 37$	min. 14,5	10V2 or M11- <del>x</del> x 0,75	CQ- <del>09</del> 09 <sup>a</sup>
VB2	$37 \leq A < 39$	min. 14,5	10V2 or M11- <del>x</del> x 0,75	-
VB3	$39 \leq A < 43$	min. 14,5	10V2 or M11- <del>x</del> x 0,75	CQ- <del>10</del> 10 <sup>a</sup>

<sup>a</sup> The valve code names are specified in ISO 9413.

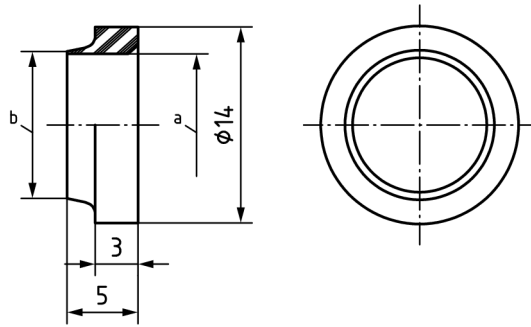
**5 Sealing types**

There are three types of rubber sealing: grommet, T-grommet and O-ring. Sealing type and dimensions (see ~~Table 2~~Table 2)) depend on valve manufacturer. See ~~Figures 3~~Figures 3 to 77 for some examples of T-grommet and O-ring.





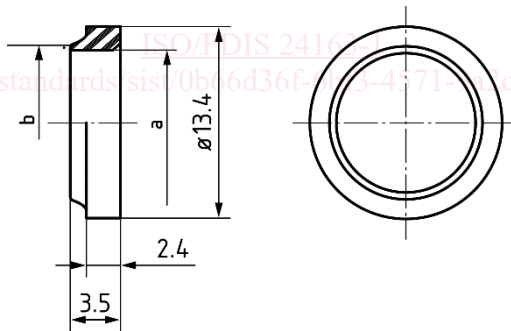
Dimensions in millimeters



**Key**

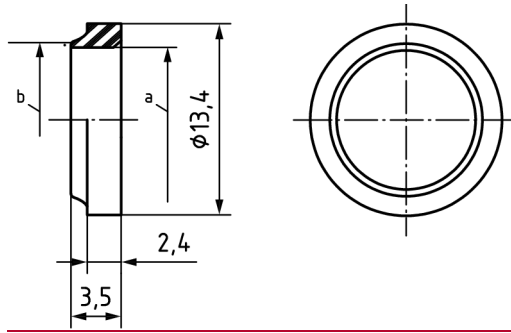
- a Fits to 10V2 thread.
- b Fits to 11,3 mm valve hole.

**Figure 3 — T-grommet type GV1 (B05 range according to ISO 9413)**



Dimensions in millimeters

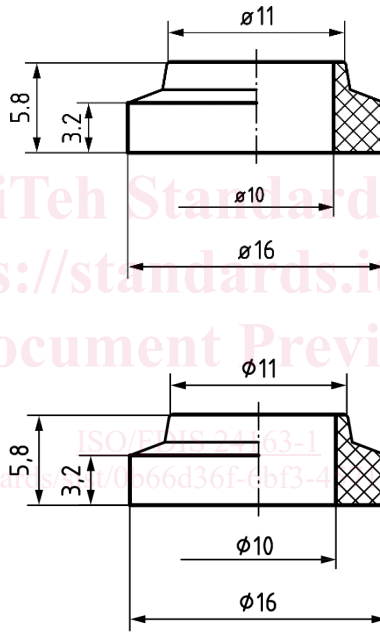
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**Key**

- a fits to 10V2 thread.
- b fits to 11,3 mm valve hole.

**Figure 4 — T-grommet type GV2**



Dimensions in millimeters

**Figure 5 — T-grommet type GV3 (B05 range according to ISO 9413)**

