
TPMS snap-in valves —

**Part 2:
Valve environment**

*Valves à boutonner («snap-in») pour TPMS —
Partie 2: Environnement des valves*

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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 on 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 the following URL: 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*.

A list of all parts in the ISO 18885 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.

TPMS snap-in valves —

Part 2: Valve environment

1 Scope

This document specifies some characteristics of TPMS snap-in valves geometry, valve hole of the rim, mounting process and valve limits.

These parameters are defined to facilitate the use of snap-in valve for TPMS applications on passenger vehicles in different countries.

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 3877-2, *Tyres, valves and tubes — List of equivalent terms — Part 2: Tyre valves*

ISO 18885-1, *TPMS snap-in valves — Part 1: Identification*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 3877-2, ISO 18885-1 and the following apply.

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/>

3.1

clamp-in valve

tyre valve having a metallic nut designed to retain and seal the valve in the rim hole

Note 1 to entry: Sealing is usually made by a rubber seal mounted on the valve stem.

3.2

lubricant

substance applied to reduce the insertion force of snap-in valve in the valve hole of the rim

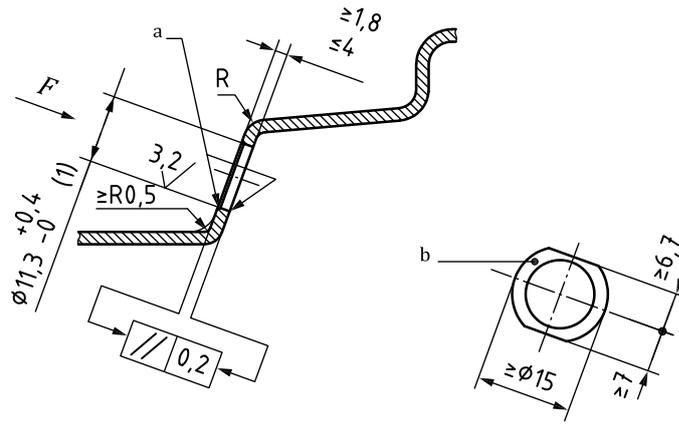
4 Rim hole geometry

Valve hole edges on the tyre side of rims shall be rounded or chamfered; valve hole edges on the weather side of rims shall be free from burrs that could damage the valve.

There should be no radial striations on the flat area around the valve hole.

Valve hole details for snap-in valves shall be as shown in [Figure 1](#) or [2](#) for rims with 17,3 mm minimum well depth.

Dimensions in millimetres



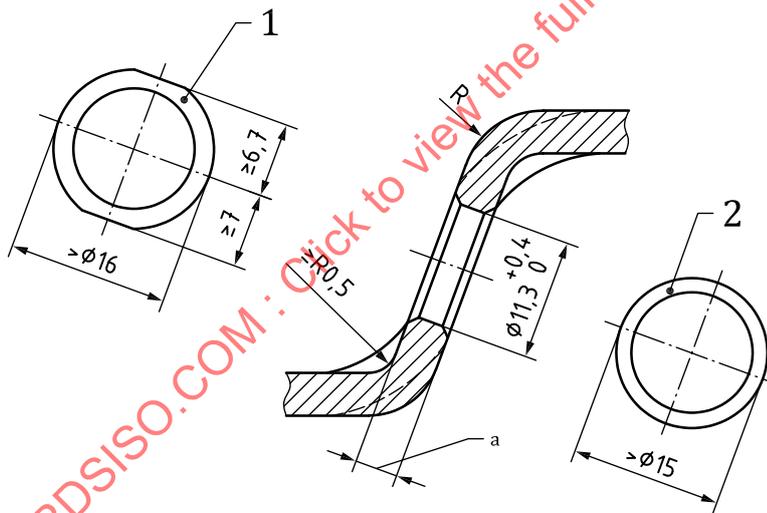
Key

- a Rounded or chamfered.
- b Thickness: 1,8 mm – 4 mm.

NOTE The right drawing shows the view in direction *F*.

Figure 1 — Valve hole dimensions for snap-in valves (source ETRTO)

Dimensions in millimetres



Key

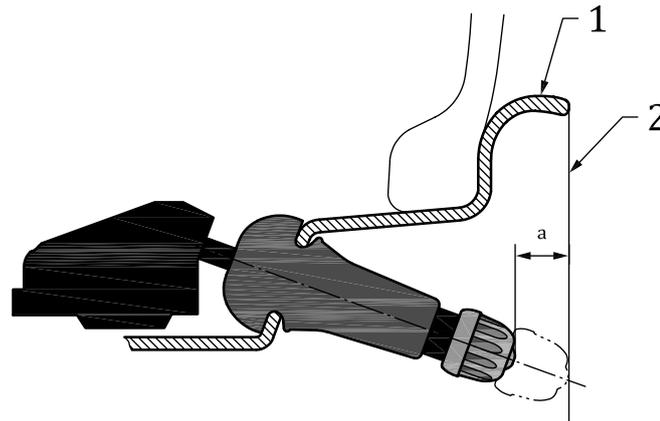
- 1 flat surface with no radial striations
- 2 flat surface for clamp-in valves
- a Thickness: 1,8 mm – 4 mm.

Figure 2 — Valve hole dimensions around valve hole

The valve hole definition should be agreed between the valve manufacturer and the customer.

5 Valve protrusion

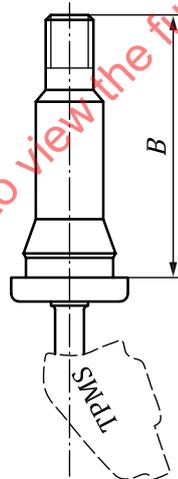
The protrusion of TPMS snap-in valves shall not go beyond the rim plan (see [Figure 3](#)).

**Key**

- 1 rim
- 2 rim plan
- a Valve shall not go beyond rim plan.

Figure 3 — Valve protrusion limits

The protrusion of TPMS snap-in valve on weather side should be approximately the same as CQ09 or CQ10.

**Key**

- B effective length

NOTE B dimension depends on valve type.

Figure 4 — Valve dimension

The valve hole definition should be agreed between the valve manufacturer and the customer.

6 Valve limits

In TPMS application, the stress on the rubber is higher for an increased weight of the system.

The maximum deflexion of the valve axis is recommended to be limited to 25° (by valve support or wheel counterbore, for example).

In the case where the valve should be used at >210 kph, the use of a clamp-in TPMS valve is recommended.

In case of tyre renewal, rubberized valves shall be changed.

TPMS valves shall be used with proper sensor attached.

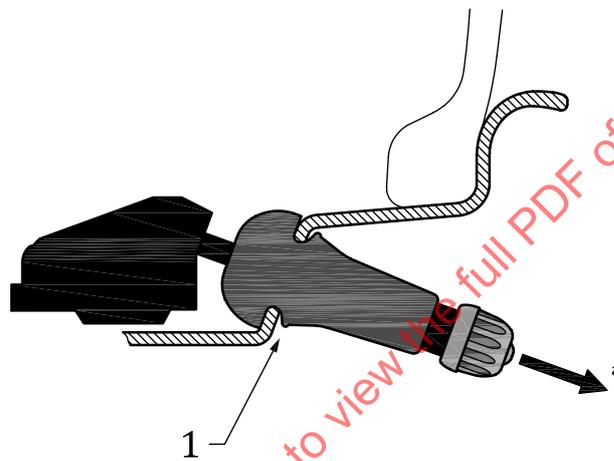
7 Insertion

Before insertion, the valve should be lubricated following the valve supplier recommendation.

The valve hole conditions should be checked before insertion. In particular, there should not be any sharp edges, burrs, damages or corrosion to avoid any rubber tearing during the valve insertion and seating.

It is recommended, when inserting the valve, that a force coaxial to the valve hole of the rim be applied.

A valve shall be considered properly seated when the entire indicator ring is observed to be through the valve hole of the rim (see [Figure 5](#)).



Key

a Insertion force direction.

1 indicator ring: when the valve is properly seated the indicator ring is completely visible on weather side

Figure 5 — Valve mounting configuration

After valve mounting, it should be verified that the sensor housing is not damaged and properly oriented in accordance with manufacturer indications.