



VDO REDI-Sensor

EN Installation Manual

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1 General

1.1 Validity

This manual applies to the VDO REDI-Sensor valveless "VL".

1.2 Important information about these instructions

These instructions describe how to install the VDO REDI-Sensor safely. Therefore, always keep the installation instructions readily available at the workstation.

The sensor must only be installed by trained tire and motor vehicle specialists who have read and understood the instructions. All named safety instructions must be complied with.

1.3 Limitation of liability

The manufacturer does not assume any liability for damage or malfunctions due to non-compliance with this manual, use other than the intended use, improper installation, or technical modifications and conversions not agreed upon with the manufacturer.

1.4 Copyright

This document is provided for use during the installation and replacement of the VDO REDI-Sensors, and must be copied and circulated for this purpose only. The document must not be used for any other purpose unless explicit written approval has been granted by Continental Aftermarket GmbH in advance. © 2016 Continental Aftermarket GmbH.

1.5 Safety instructions marking

WARNING!

Texts marked in this way indicate a possible danger of death or risk of serious injuries.

- They also explain how the danger must be avoided.

NOTE

Texts marked in this way indicate how material damage, e.g. to the sensor or tire, can be avoided.

2 Safety

2.1 Occupational health and safety

WARNING!

Danger to life and limb for user or third parties can arise during installation of the sensor or if the sensor is installed incorrectly.

- Always keep the installation instructions readily available at the workstation.
- Only install undamaged original sensors in a technically perfect state.
- Only use the sensor for the intended purpose.
- Comply with the safety regulations in these instructions and all other valid safety regulations.

2.2 Intended use of the VDO REDI-Sensors

The sensors are intended exclusively for measuring the tire pressure and temperature in suitable wheels, and for reporting this to a suitable original equipment tire pressure monitoring system for which the VDO REDI-Sensor has been approved.

Maximum permitted speed: 250 km/h

Any other use, or use above and beyond this, is deemed improper.

Intended use also involves complying with these installation instructions.

The manufacturer assumes no liability for damage resulting from improper use. In such cases, the risk is borne solely by the user.

2.3 Organizational measures

WARNING!

Even dangers to life and limb cannot always be recognized unless safety information has been provided in advance.

- The personnel to whom installation is entrusted must have read the installation instructions, and in particular Chapter 2 "Safety", before starting work.
- The sensor must only be installed by trained specialists.
- Keep tools, cleaning agents, adhesives, and other objects that endanger safety out of the reach of unauthorized parties and children.

WARNING!

Numerous dangers not described in the instructions can arise at the workstation. These instructions only describe how to safely install the sensor itself.

- In addition to the installation instructions, comply with and provide training in the general statutory and other binding regulations on accident prevention and environmental protection.
- Keep the safety data sheets for the operating materials (Continental/VDO, REMA TipTop, or PREMA, Cyberbond 2250 liquid buffer) readily available at the workstation and comply with them.
- The workstation must be well ventilated.
- Ensure good lighting in all areas of the workstation.
- The workstation and the necessary tools must be in a clean and safe state.

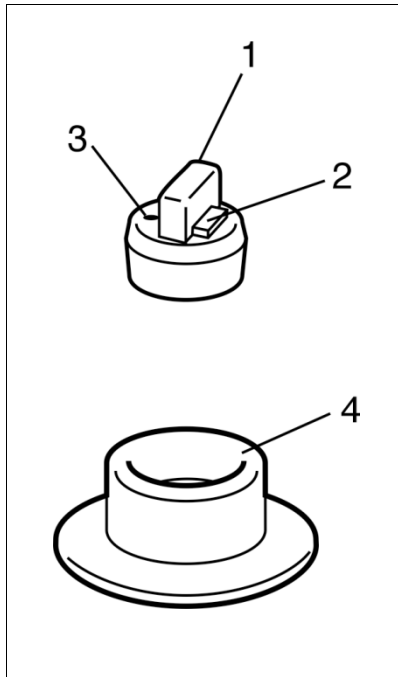
WARNING!

Danger of death in the event of tire punctures if the tire pressure monitoring system is not working.

- Comply with the installation instructions during installation.
- Only install the sensor in suitable tires.
- Only use the sensor as a spare part for suitable original tire pressure monitoring systems.

3 Design

3.1 Components



- 1 RF (radio frequency) antenna
- 2 LF (low frequency) antenna
- 3 Pressure monitoring opening
- 4 Rubber container

Figure 1 Components

3.2 Marking

Marking of the VDO REDI-Sensor

The VDO REDI-Sensor has a laser engraving on the top and bottom. The engraving on the bottom is no longer visible once the sensor has been inserted into the rubber container.

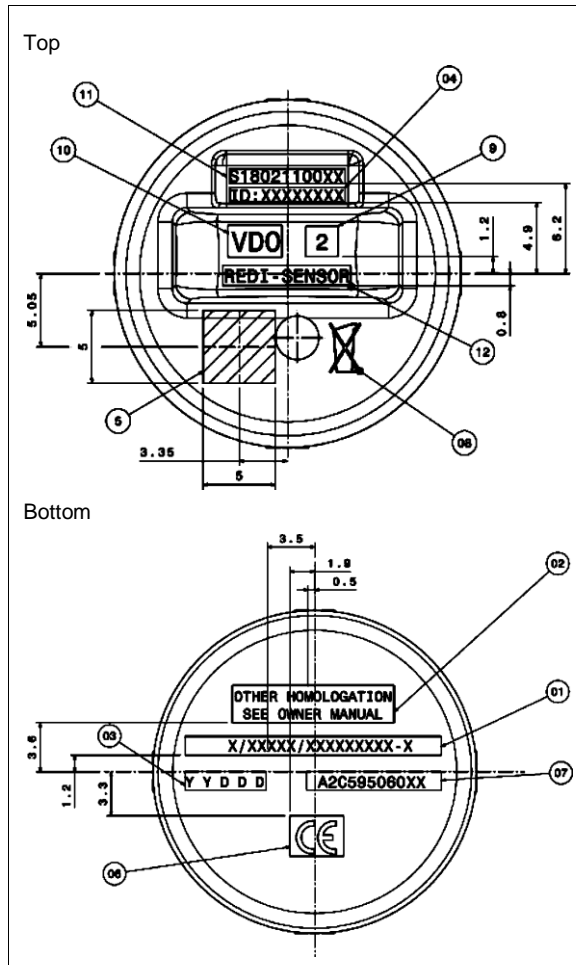


Figure 2 Marking of the VDO REDI-Sensor

Item	Description
01	Visual code
02	Homologation number
03	Production date
04	Sensor ID (identification) number
05	Data matrix code
06	CE sign
07	Customer reference number (the last two digits designate the special sensor variant)
08	Recycling symbol
09	Variant number
10	Product designation 1
11	Continental reference number (the last two digits designate the special sensor variant, incl. the rubber container)
12	Product designation 2

Marking of the rubber container

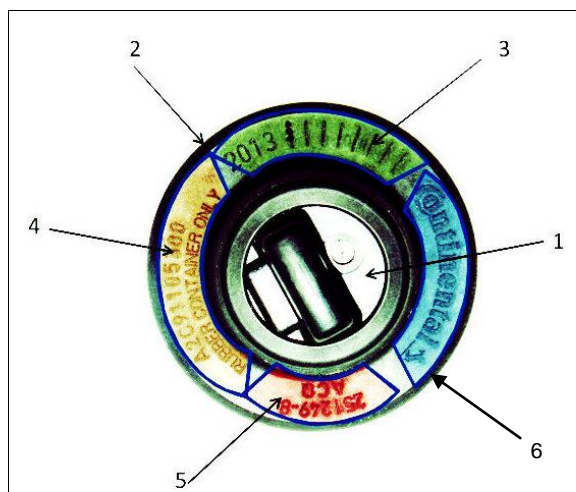


Figure 3 Marking of the rubber container

Item	Description
1	VDO REDI-Sensor
2	Rubber container
3	Production year and quarter (each line designates a year starting with 2013, every point a quarter)
4	Rubber container's order number
5	Production code
6	Continental logo

3.3 Technical data of the VDO REDI-Sensor

Housing		
Material	Polyurethane	
Diameter	24	mm
Height	17.5	mm
Weight	11.6	g
Operating data		
Operating temperature	- 40 ... + 120	°C
Average battery service life*: When changing from winter to summer tires (sensor in use for 5 out of 12 months a year)	5	years
When using all-weather tires (sensor in use for entire year) <small>*also depends on driving profile</small>	3	years
Rubber container		
The rubber container should be installed within two years of manufacture.		

3.4 CE declaration of conformity

The system meets the basic statutory requirements and relevant regulations of the European Union (EU).

3.5 Certifications

Radio license/homologation

A radio license has been granted for the system in all EU member states. Information about additional countries in which the system has been approved is available on request.

4 Installation

WARNING!

Even dangers to life and limb cannot always be recognized unless safety information has been provided in advance.

- Read the installation instructions, in particular Chapter 2 "Safety", before starting work.

4.1 Necessary materials and tools



Protective gloves



Protective goggles



Source: REMA TIP TOP AG

Naphtha-based solvent – Continental/VDO, REMA TipTop, or PREMA liquid buffer

Cleaning agent to pre-treat the inside of the tire and the container's adhesive surface



Fiber-free, tear-resistant disposable paper towels
(not included in delivery)



Hand press tool: order no. A2C59506049

Spare part for tool insert – spare part order no.:
A2C59506050Z



Cyberbond 2250 special adhesive

Adhesive for attaching the container in the tire (comply with storage conditions and do not exceed the best before date)

- Use up quickly after opening
- Close the bottle securely when it is not in use
- Store in a cool, dry place

Order no.:

A2C59506147 (9.6 g bottle)

A2C59506148 (100 g bottle)



Container spreader (only for maintenance or replacement of the sensor)

Order no.: A2C59506059

4.3 Workstation

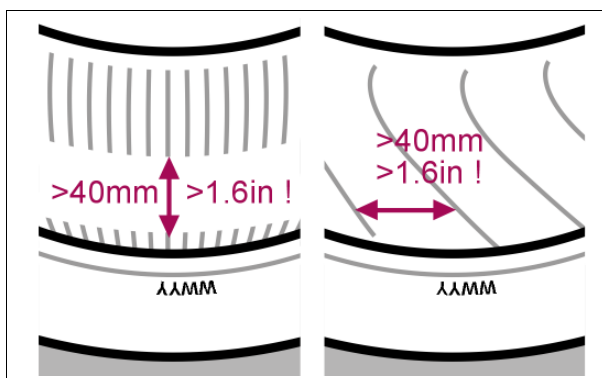
For the purpose of adhesion, the ambient temperature should be between 15°C and 35°C (59°F and 95°F).

Before starting work, lay out all necessary materials and tools so they are readily available.

The workstation must be sufficiently ventilated.

Position the tire in such a way that the inside is easily accessible and well lit.

4.4 Approved tires



All standard tires for passenger cars and small vans are suitable for the installation of a VDO REDI-Sensor, as long as the tire surface where the adhesive needs to be applied is even and not strongly structured, i.e. is free of thick venting grooves (Ø 40 mm, 1.6 in).

Figure 4 Approved tires

Exception:

The VDO REDI-Sensor must not be installed in tires with a special interior coating such as "self-sealing" tires or tires with an additional foam layer.

Examples:

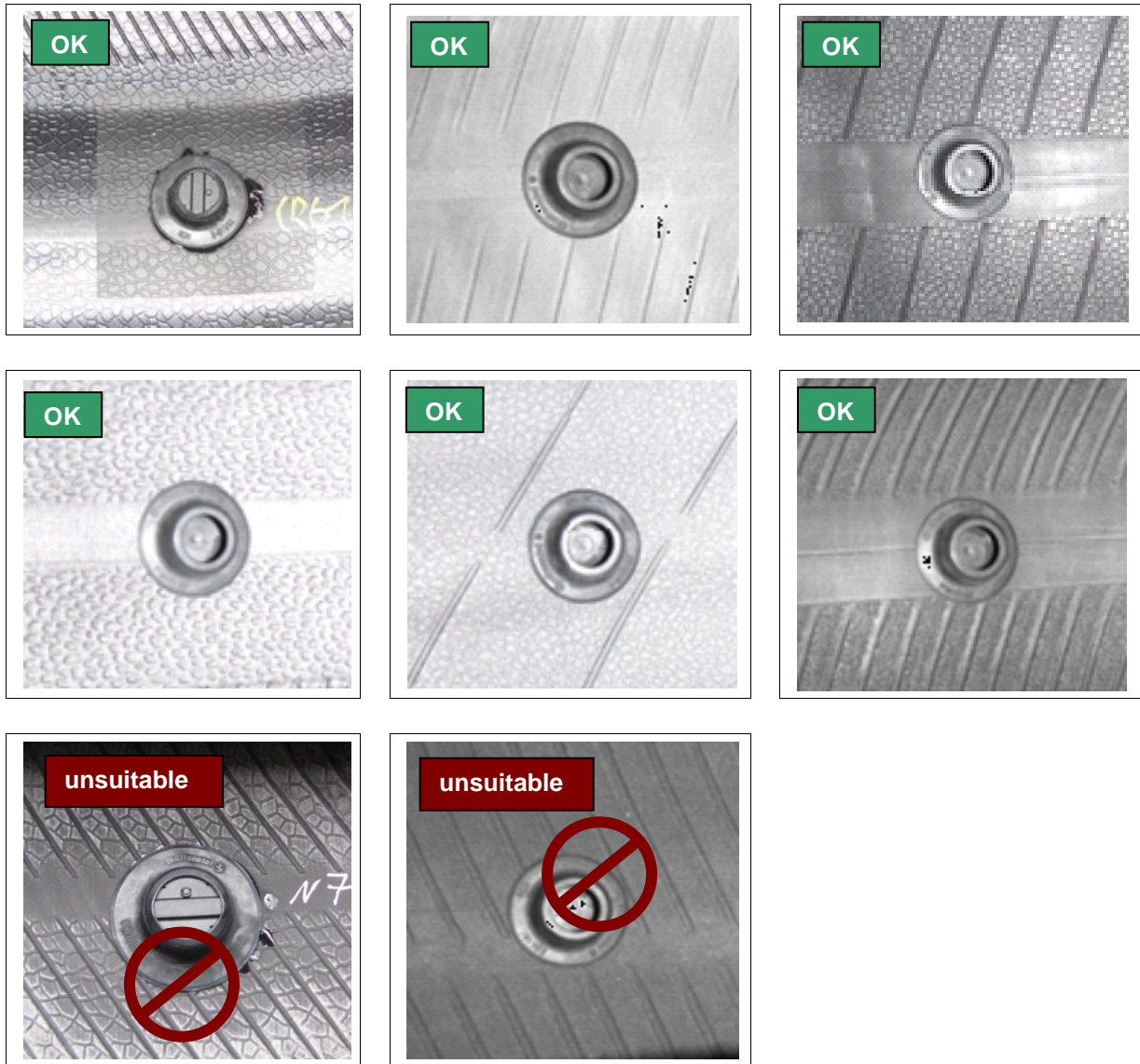
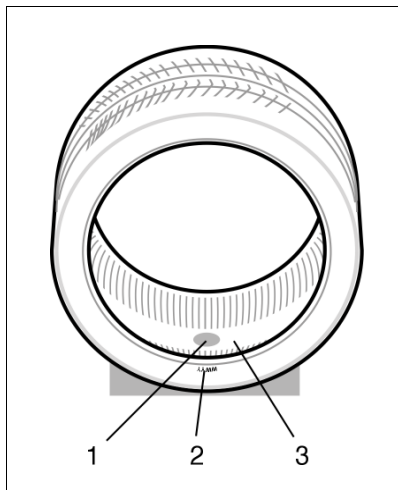


Figure 5 Examples of the container's adhesive application position

4.5 Adhesive application position in the tire

To apply the adhesive, select an even surface without scratch marks or grooves that can accept adhesive without any problems.



- 1 Adhesive application position in the tire
- 2 Manufacturing date on the tire wall
- 3 Tire inner surface

Figure 6 Adhesive application position in the tire

The right adhesive application position is located:

- In the middle of the tire inner surface (see Figure 5 Examples of the container's adhesive application position).
- In the area around the manufacturing date (weekly key) so that the sensor can be found again easily for maintenance purposes in the future, and so that the sensor (which cannot be seen from outside) can be easily activated with a TPMS service device.

NOTE

The VDO REDI-Sensor must not be attached directly to visible grooves.

4.6 Pre-treating (cleaning) the adhesive surface



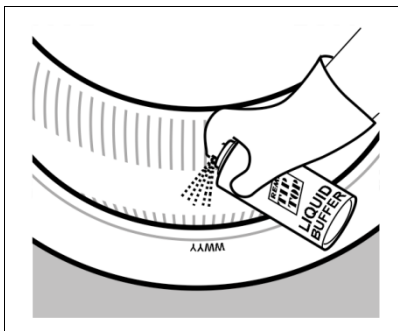
! WARNING!

Cleaning agents pose a risk to health.

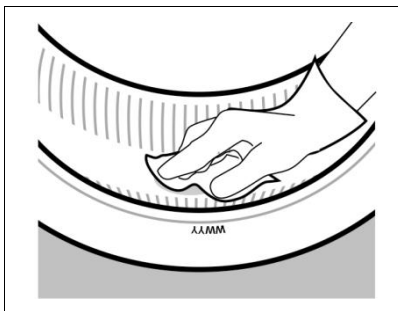
Cleaning agents can cause burns and skin irritations.
Inhaling the vapors poses a risk to health.



- Comply with the cleaning agent's safety instructions.
- Comply with the cleaning agent's safety data sheet.
- Wear protective gloves and protective goggles.
- Ensure sufficient ventilation.



- 1 Shake the spray can (naphtha-based solvent – Continental/VDO, REMA TipTop, or PREMA liquid buffer)
- 2 Spray the cleaning agent onto the entire dry adhesive surface (approx. 60 x 60 mm) from a distance of 10 cm for 2 to 3 seconds.



- 3 Clean the surface with disposable paper towels immediately after spraying. Wipe in the direction of any grooves that may be present beside the adhesive surface to prevent any dirt from being left behind.
- 4 Repeat the cleaning process until the adhesive surface is clean and free of residue.
- 5 Mark the edge of the adhesive surface with a (white) marker for subsequent adhesive application (optional).
- 6 Let the surface ventilate briefly after cleaning.

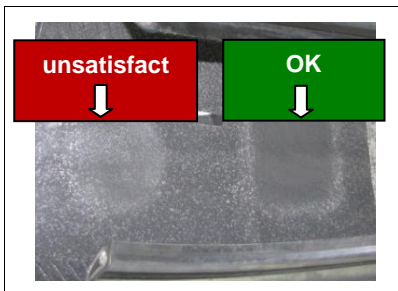


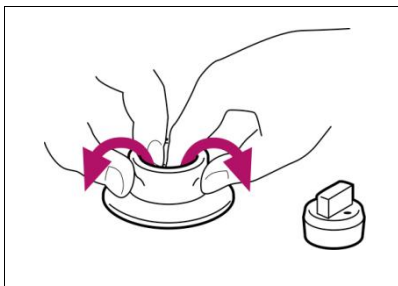
Figure 7 Cleaning the adhesive surface

4.7 Inserting the sensor into the rubber container

A new sensor is always delivered in the rubber container. In this case, proceed with Chapter 4.8.

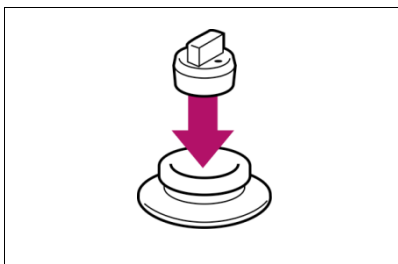
Otherwise, the sensor can be inserted into the rubber container manually or with the optional container spreader.

Inserting the sensor manually



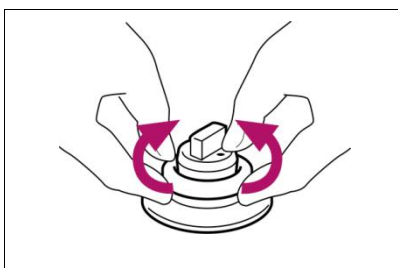
- 1 Fold the rubber container's sealing lip downwards towards the outside.

Do not contaminate the rubber container with tire mounting lubricant or other lubricants.

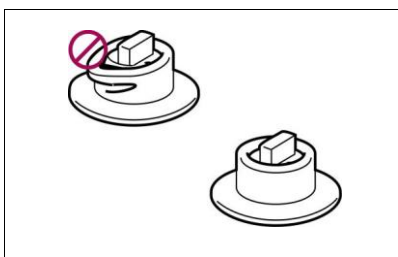


- 2 Insert the VDO REDI-Sensor into the rubber container.

Ensure that no air gets trapped beneath the sensor. This could press against the sensor when it is leaving the rubber container.



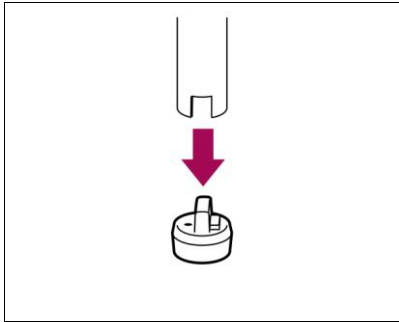
- 3 Fold the container's sealing lip back upwards.



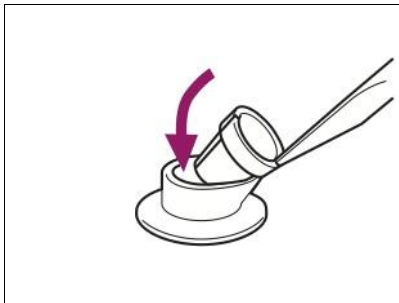
- 4 The sealing lip must surround the sensor evenly on all sides at the top.

Figure 8 Inserting the sensor manually

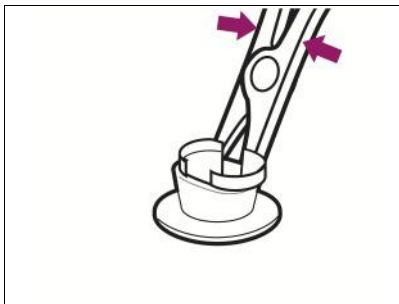
Inserting the sensor with the optional container spreader



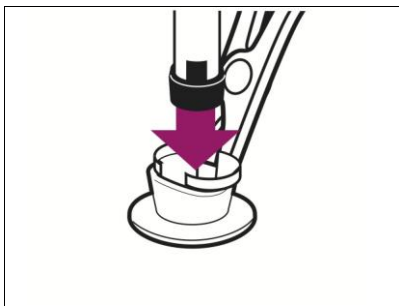
- 1 Pick up the sensor with the mounting bar as shown in the Figure.



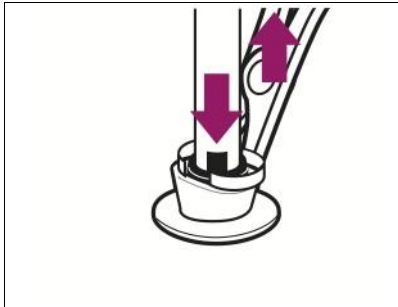
- 2 Insert the container spreader into the empty rubber container.



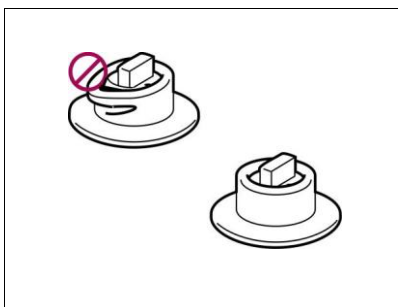
- 3 Open the container with the container spreader.
The container is very elastic. Nevertheless, do not expand it any more than is necessary in order to insert the sensor.



- 4 Insert the VDO REDI-Sensor into the rubber container with the mounting bar.
Ensure that no air gets trapped beneath the sensor. This could press against the sensor when it is leaving the container.



- 5 Remove the container spreader while pressing the sensor against the container's base.



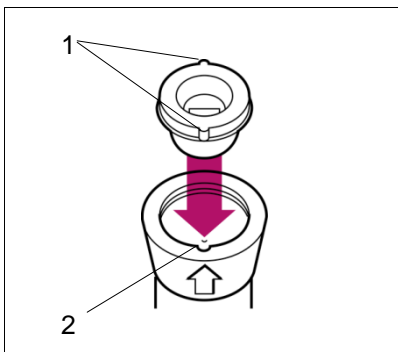
- 6 Ensure that the sealing lip surrounds the sensor evenly on all sides at the top.

Figure 9 Inserting the sensor with the container spreader

4.8 Inserting the rubber container, including sensor, into the hand press tool

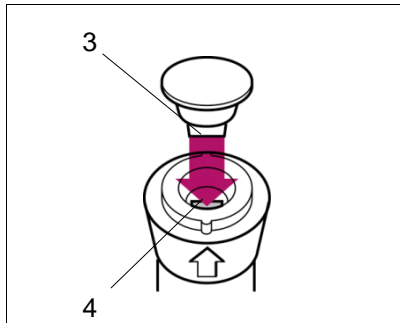
NOTE

Do not try to stick the rubber container in place without the hand press tool! The tool uses a spring to signal the correct pressure for an optimum adhesive effect.

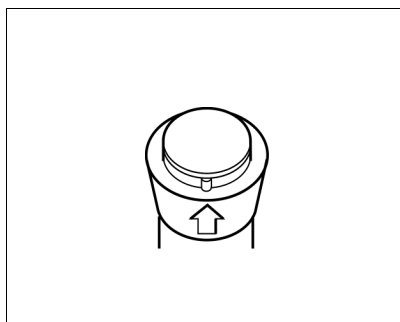


- 1 Insert the insert into the hand press tool in such a way that the "noses" (1) reach right into the intended slot (2). Align the noses as necessary.

Never use the tool without the insert. The insert can be replaced if it is contaminated with adhesive or damaged in any other way.
- 2 Press the insert firmly into the tool so that it bonds seamlessly with the tool.



3 Insert the rubber container with the inserted sensor into the tool's insert in such a way that the antenna (3) fits exactly into the designated recess (4).



4 The rubber container must form a seamless bond with the insert on all sides. If it does not, turn the rubber container in such a way that the antenna slides right into the recess.

Figure 10 Inserting the rubber container into the hand press tool

4.9 Cleaning the rubber container's adhesive surface

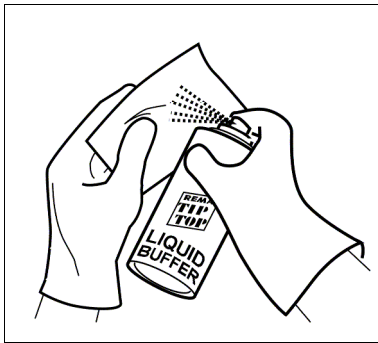

! WARNING!

Cleaning agents pose a risk to health.

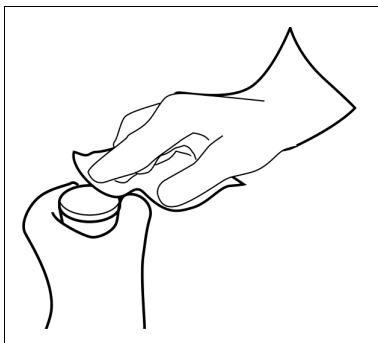
**Cleaning agents can cause burns and skin irritations.
Inhaling the vapors poses a risk to health.**



- Comply with the cleaning agent's safety instructions.
- Comply with the cleaning agent's safety data sheet.
- Wear protective gloves and protective goggles.
- Ensure sufficient ventilation.



- 1 Shake the spray can (naphtha-based solvent – Continental/VDO, REMA TipTop, or PREMA liquid buffer)
- 2 Spray sufficient cleaning agent onto a disposable paper towel.



- 3 Carefully clean the adhesive surface with the paper towel so that the adhesive can stick well.
- 4 Let the surface ventilate briefly after cleaning.

Figure 11 Cleaning the rubber container's adhesive surface

4.10 Sticking the rubber container (with inserted sensor) to the tire's inner surface



! WARNING!

Danger of injury due to the Cyberbond 2250 adhesive!

Sticks skin and eyelids together within a matter of seconds. Keep out of the reach of children. Causes skin irritations. Causes serious eye irritation. Can irritate the respiratory system.



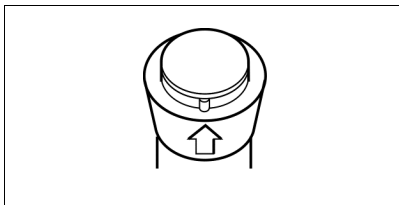
- Comply with the manufacturer's safety instructions.
- Wear protective gloves and protective goggles.

NOTE

The rubber container can only be stuck in place successfully if it contains a sensor. An empty rubber container cannot be correctly pressed firmly in place.

It should be stuck in place at an ambient temperature of between 15°C and 35°C (59°F and 95°F) and a tire temperature of over 15°C (59°F).

Do not use any adhesive other than Cyberbond 2250.



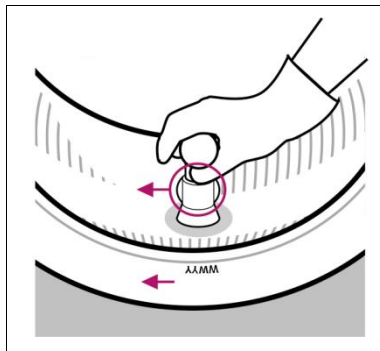
- 1 Ensure that the rubber container has been correctly inserted into the hand press tool.

The rubber container must form a seamless bond with the insert on all sides. If it does not, turn the rubber container in such a way that the antenna slides right into the recess.



- 2 Use the bottle tip to apply the adhesive in a spiral shape to the bottom of the rubber container.

The surface of the rubber container should then be covered with a thin, spiral-shaped adhesive layer. Under no circumstances should you apply adhesive to the tires as well.

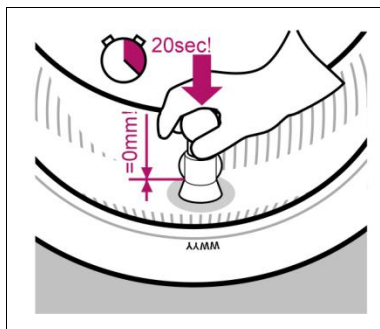


- 3 Immediately after applying the adhesive, press the hand press tool onto the cleaned adhesive surface in the tire in a vertical position.

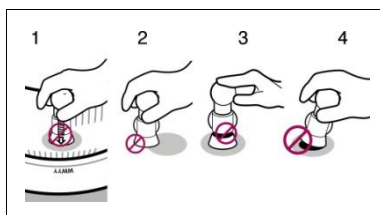
NOTE

Work accurately, but quickly, as the adhesive sets after just 10 seconds.

While doing this, align the hand press tool in such a way that its miniature tire points in the same direction as the real tire. This causes the sensor antenna to be aligned at a right angle (90°) to the direction of travel.



- 4 Press the hand press tool against the spring force onto the tire as far as it will go, applying equal pressure on all sides. Press and hold for 20 seconds, being careful not to tilt the hand press tool.



Avoid the following errors:

- 1 Incorrect alignment of the hand press tool
- 2 Applying adhesive outside the cleaned tire surface
- 3 Insufficient pressure
- 4 Tilting of the hand press tool
- 5 Pulling on the container or sensor during hardening (approx. 5 min.)

Figure 12 Sticking the rubber container onto the inner liner

NOTE

The sensor must not be contaminated with adhesive.
 Never stick the sensor directly to the tire.
 Do not apply any adhesive to the inside of the rubber container.

If the rubber container falls onto the ground after the adhesive has been applied, it should no longer be used. In this case, let the adhesive dry in the air, take the sensor out of the rubber container, and insert it into a new rubber container.

4.11 Final inspection

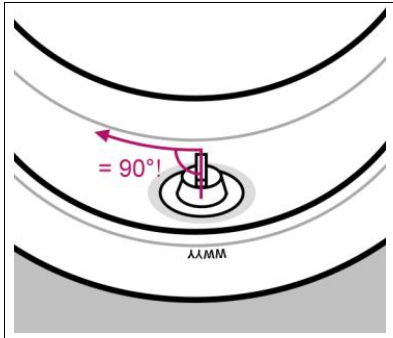


Figure 13 Antenna alignment

- 1 Check whether the antenna forms a right angle (90°) with the tire's direction of travel, as required.

Otherwise, remove the sensor from the rubber container once the adhesive has dried, turn it, and re-install it (manually or with the container spreader – see also Chapter 5 and 4.7). Do not turn the sensor directly in the rubber container (e.g. with tongs).

- 2 Check whether the rubber container with the sensor is seated flat on the tire on all sides.

Excess adhesive beside the rubber container does not have to be removed and dries quickly.

Larger quantities of adhesive can be carefully wiped away with a disposable paper towel before they dry. In such cases, use less adhesive in the future.

- 3 Check that the sensor is working with a designated TPMS service device/scan tool.

4.12 Tire mounting

Mount the tires with the stuck-on sensor in the usual way with the available tire mounting machines.

Note the following points:

- Do not damage the sensor while mounting the tire with tools such as mounting levers.
- After mounting the bottom tire bead: When pressing the tire down onto the rim, leave sufficient distance between the tire's inner surface with the sensor and the rim flange.
- When mounting the top tire bead, initially position the tire in such a way that the REDI-Sensor is located between 1 o'clock and 5 o'clock in relation to the mounting head.
- When mounting the tire or performing maintenance work, no soapsuds or fitting lubricant must land on the sensor or rubber container.

The wheels can be balanced in the usual way after mounting.

4.13 Teaching the sensor to the vehicle

The VDO REDI-Sensor follows the OE tire pressure sensor's teaching processes. A TPMS service device/scan tool may be necessary.

Some vehicles require a 20-minute stationary downtime after the sensor has been replaced before the new sensor can be taught to the vehicle.

When using the VDO REDI-Sensor, hold the device close to the manufacturing date on the tire wall. When using other sensors (tire pressure sensors with a valve), hold the device close to the valve.

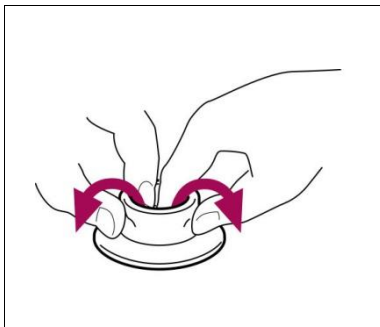
5 Removal

The sensor can be easily removed from the rubber container in order to be replaced (e.g. during installation of an inverted version, or if there is a defect or the batteries are empty).

Please comply with the recycling instructions in Chapter 6.

NOTE

The VDO REDI-Sensor should be removed immediately after the vehicle has been driven with a flat tire, and replaced with a new VDO REDI-Sensor. It should not be used any longer.



- 1 Fold the rubber container's side wall downwards.
- 2 Remove the sensor.

Figure 14 Removing the sensor

If the rubber container has already been used (tire was driven after the container has been installed), install the sensor with a new rubber container.

Otherwise, continue with Chapter 4.7. Remember that the sensor antenna must be at a right angle to the driving direction (see Figure 13 Antenna alignment).

6 Recycling

Remove the sensor before disposing of the tire.

If its service life permits it, it can be used in a different tire.

Otherwise, it must be disposed of in a professional manner in accordance with all applicable regulations.

NOTE

The sensor contains a lithium button cell that cannot be changed. It must be given to an authorized vehicle parts dealer or an authorized central collection point to be disposed of in order to protect the environment and prevent violation of laws in force.

In accordance with EU directive 2006/66/EC for the European market, products must be collected once their service life is up so that the lithium button cells they contain can be removed and recycled.

7 Troubleshooting

Problem	Possible cause and rectification
<p>Rubber container does not stick to the tire.</p>	<p>Incorrect or out-of-date adhesive (only use Cyberbond 2250)</p> <p>Incorrect cleaning of the adhesive surface on the rubber container or tire. Only use the naphtha-based solvent (Continental/VDO, REMA TipTop, or PREMA liquid buffer). Let the adhesive set after applying it.</p> <p>Adhesive's storage temperature or ambient or tire temperature during installation outside the permitted limits (see Chapter 4.3)</p> <p>The tire is unsuitable for the VDO REDI-Sensor (see Chapter 4.4).</p>
<p>No signal from the sensor when triggered by the TPMS service device</p>	<p>TPMS service device could require updating. To do this, follow the TPMS service device manufacturer's instructions.</p> <p>TPMS service device is not compatible: TPMS service device may not be compatible with the OE sensor and/or the VDO REDI-Sensor.</p> <p>Sensor not working (e.g. empty battery): replace immediately.</p>

Problem	Possible cause and rectification
<p>Warning signal from the tire pressure monitoring light 10 minutes after driving starts or at a later time following a longer journey with no pressure loss in the tire.</p>	<p>Sensor not working: check the sensor with the TPMS service device. If the sensor is faulty, replace it immediately.</p> <p>If mounting has been performed improperly or incorrectly, the sensor may become loose in the tire. Loose sensors in the tire trigger a warning signal from the tire pressure monitoring light. Replace the loose sensor immediately with a new one. The sensor no longer has a function.</p> <p>Ensure that there are no sensors missing from the vehicle.</p> <p>Incorrect sensor: the sensor and monitoring system are not compatible. Only use the VDO REDI-Sensor as a spare part for listed applications together with a tire pressure monitoring system installed by the manufacturer.</p>

If you have further problems, please contact your local dealer.
More information is available at www.vdo.de.

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