

Welcome to the fourth and final lesson on Continental industrial pneumatic tires in which the following questions will be answered:

- How is a pneumatic tire fitted?
- What do I have to consider in the operation of an industrial pneumatic tire
- What future developments can be expected?

This information rounds off your knowledge about industrial pneumatic tires.

## Fitting with TSR:

Fitting with the „**Tubeless Sealing Ring**,, **TSR** for short, makes it possible to fit a tubeless Continental industrial pneumatic tire onto a standard rim.

1. Grease the **heel range** and **tire interior** up to at least halfway up the side wall.
2. Twist the TSR into an „**8**,, and insert one half of the „**8**,, as far as possible into the tire.
3. Turn the TSR in such a way that its axis corresponds to that of the tire.
4. Push the TSR along the ring fully into position. Also push the TSR wing into the tire. It is very important that the TSR sits **symmetrically** in the tire.
5. Grease the **visible surfaces** of the TSR now sitting correctly in the tire.
6. Grease the **wheel rim**.
7. Press the **TSR valve** onto the **valve slot** and align it, then push the tire into position. When doing this, also ensure that the valve is sitting **centrically** in the valve slot.
8. Push the valve into the valve slot using a **fitting iron**. When doing so, ensure that the TSR is also sitting **centrically**.
9. Now equip the wheel rim with all the standard wheel rim parts.
10. Fill the tire to **1 bar** and check that all parts are **correctly fitted**. When you have done this, fill to **10 bar** in a **pumping cage**; to do this, use a tire pressure sensor with an extension.
11. Fit the wheel to the vehicle in accordance with the **manufacturer's instructions**.



The TSR will become available for all radial-ply industrial pneumatic tires. These tires should be fitted without limitation, even with a conventional tube system. You can get further information about our TSR in lesson 4.3.

## Fitting with tube:

When fitting, first check whether that tire, heel band and tube are present, in perfect condition and in the correct size. You should comply with the following:

- **with new tires, the tube and heel band must also be replaced**
- **with tubeless tires, the sealing elements must be replaced**
- **only one type of tire per axle must be fitted**
- **for dual fitment tires, only the same outer diameters must be used**
- **wheel rims must be cleaned, de-rusted and painted with anticorrosion paint if necessary**
- **wheel fitting holes and plugs of multipart wheel rims must be checked and any defective parts must be replaced**

1. Powder the **tire interior** lightly with talcum powder.
2. Then the tube and the heel band must be **inserted correctly** and **without creases**. Make sure that the valve is correctly fitted when pushing the tire onto the wheel rim, so that the heel band does not shift.
3. Use a **lubricant** for the areas of contact of the tire to the wheel rim in order to carry out fitting

without forcing. This will also ensure that the wheel rim is fitted uniformly. Centrally divided wheel rims should be fitted with **special care**.

4. Lastly, the tire heel and lock rings must be checked to ensure that they are **fitted correctly**.
5. Now the **prescribed air pressure** can be put in.
6. After this, screw the wheel into the correct position with the hub and ensure that the wheel nuts are regularly and firmly fitted.

Avoid tire damage by always complying with the **technical specifications** of the tire in question.

Tire damage is often the result of **incorrect air pressure**. Permanent driving with the air pressure that is both **too low** or **too high** leads to tire damage.

In the case of cross-ply tires, **central wear** can be the result.

Obstacles such as pavements or rails should always be driven **over or mounted slowly**. The impact of such obstacles at high speeds can lead to **tire damage**.

It can lead to **breakage of the fabric layer** under the running surface.

## Tubeless Sealing Ring

The new tubeless system from Continental offers **more safety** and **mobility**.

The **TSR** makes it possible to fit **tubeless industrial tires** to **standard industrial tire rims**, which, due to their structure, normally require a tube and a heel band. The TSR consists of a **rubber ring with integrated tire valve**. The rubber ring sits on the cylindrical part of the rim between the two tire heels and ensures hermetic air chamber closing without a tube or heel band.

Advantages of the TSR:

- **no sudden pressure loss in case of puncture**
- **the vehicle ready for use and operation for longer**
- **there are no sudden weight shifts, giving the vehicle more driving stability**
- **turning on the rim is not critical (no danger of the valve being torn out)**
- **low cross-section tires are characterised by greater resistance**
- **simpler and faster tire fitting**
- **the use of a disk under the valve slot in order to prevent the heel rim being pressed out is not required**
- **fewer parts than for tires with tubes**



*fig. TSR*

## What are the advantages of TSR?

There is no sudden pressure loss in the case of tire failure.

It has fewer parts than a tire with tube.

Tires with TSR have a higher load-carrying capacity.

The shifting on the rim is not a critical factor (no risk of valve tearing off).

Tires with TSR have a lower rolling resistance.