

Welcome to the third lesson on Continental industrial solid tires. We will now provide you with a background understanding of the tire technology and address the following questions:

- How is the Continental industrial solid tire constructed?
- How is the industrial solid tire labelled?
- Which tread and wheel rim markings are there for industrial pneumatic tires?
- Which Continental industrial solid tires are there?

The following lesson informs you about the technology behind industrial solid tires.

Super Elastic tires

Continental Super Elastic tires consist of a **base** with embedded rectangular **steel wire cores**. This is supplemented by the **cushion compound** and **tread** with ROBUST sidewall protection.

Tire base with rectangular steel wire cores

The tire base consists of a tough rubber compound in which the **rectangular steel wire cores** are embedded. They ensure that the tire sits securely on the wheel rim.

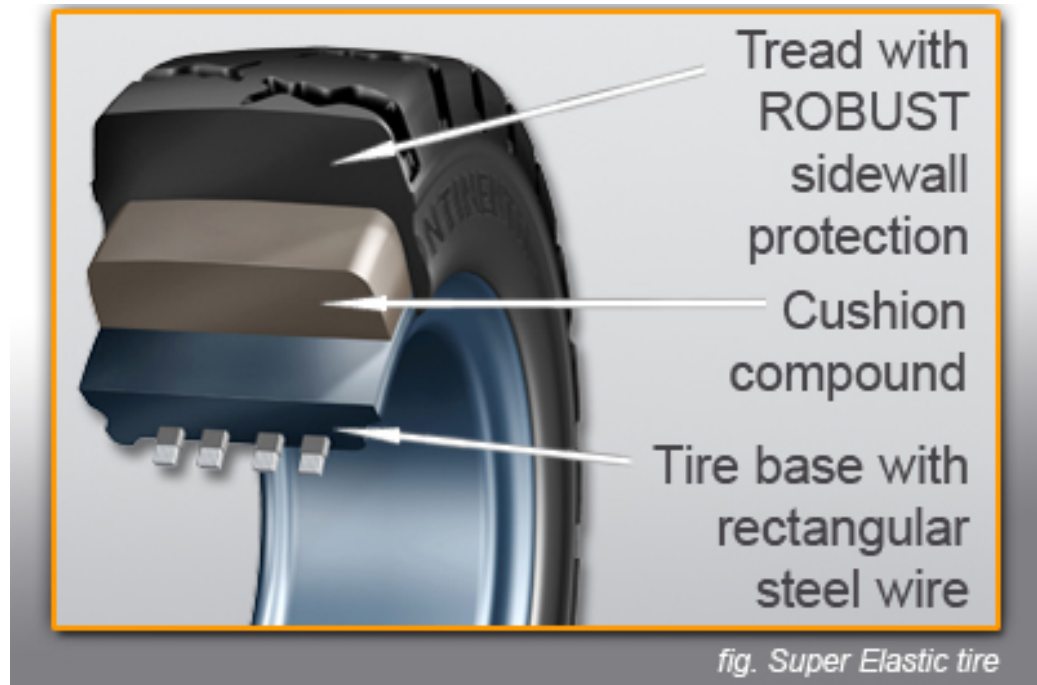


fig. Super Elastic tire

Cushion compound

The whole structural and material content of the tire guarantees not only good impact and vibration-damping properties but also a low rolling resistance.

Tread

The tread area with **ROBUST sidewall protection** is exceptionally tough and wear resistant, giving the tire a long service life. It contains the **60-Joule-Indicator** shows the tire's maximum limit for wear.

Continental Press on Bands

These are divided into:

Press on Bands steel-base

The tire consists of a steel ring with a vulcanised rubber cushion. This structure provides the best possible adhesion of rubber to steel. The steel ring provides for good heat dissipation and effectively protects the sides.

Press on Bands with steel wire reinforcement

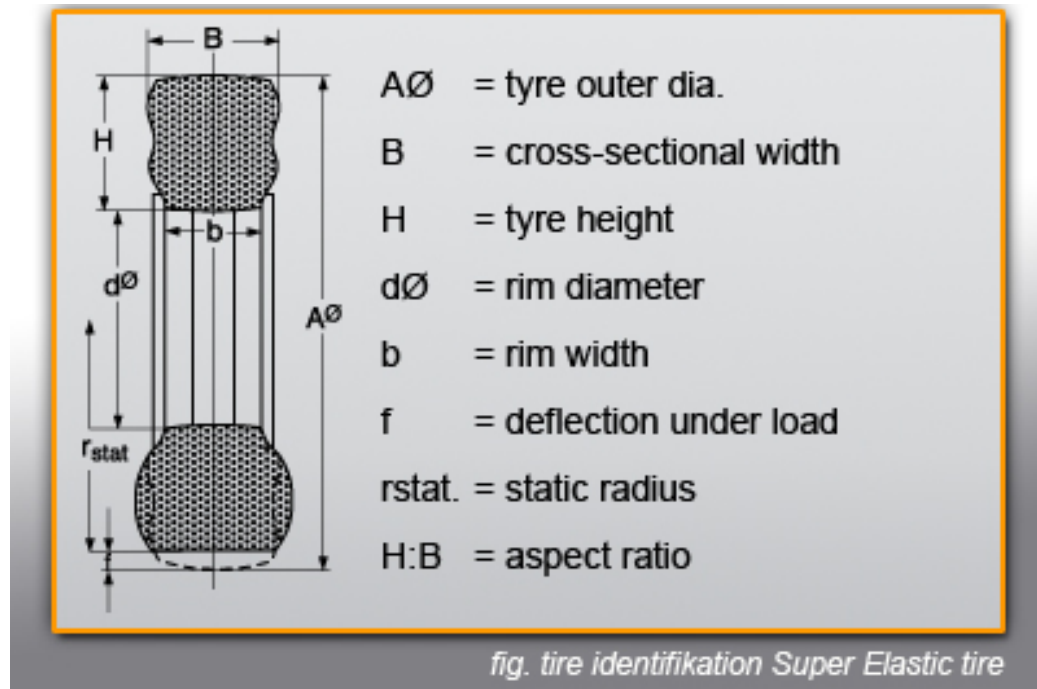


fig. Press-on Bands

Several wire cores made of a tough, hard rubber are embedded in the tire base. This design guarantees the tire a close fit on the rim through high friction between rubber and steel.

Super Elastic tires have the same markings but the **tread type** must be noted. Tread layer designs include **CSEasy**, **SIT**, **S** and **M** and will be covered later in section 3.3.

Continental Super Elastic tires comply with DIN 7845 and ETRTO standards and can be replaced with industrial pneumatic tires. The most important features are the **tire width (B)**, the **rim diameter (d)**, the **cross section ratio (H:B)** and the **outer diameter (A)**. This marking corresponds to the pneumatic tire designation but can differ as necessary.



Super Elastic tires have several designations that are used in parallel.

Press on Bands also comply with DIN 7845 and ETRTO standards. It is important to observe the correct construction (section 3.3). In this case, the tires are marked with their **outer diameter (A)**, **width (B)** and **inner diameter (C)**.

On Super Elastic tires, the tread width of the tire and rim width must match. The rim markings are particularly important. See figure – Wheel rim markings.

Continental Super Elastic tires are available in various tread designs:

CSEasy

This innovative Super Elastic tire can be fitted **without a press**. It is quick and simple to fit on any **Lemmerz rim**. All it takes is two hands and a torque wrench.

Increased flexibility

- No press required, shorter downtimes
- No rim pool, no replacement system, no special tools
- Adapter can be re-used several times

Increased performance

- Optimised rim fit, greater resistance
- Lower rolling resistance means reduced energy consumption
- Quicker, more precise steering around corners
- Greater security thanks to improved tilting stability
- Lower temperature build-up
- Increased performance reserves under harsh conditions

4.33 R-8
4.33 = rim width in inches
R = distinguishing letter for the flange construction
- = flat base
8 = rim diameter in inches

fig. rim marking



fig. CSEasy

SIT — Snap in tyre

This tire base system from Continental fits one-piece Lemmerz basic rims without **taper, rim flange** or **locking rings**. As shown in the illustration, this system has no detachable rim elements.

This **simplifies fitting** and **reduces costs**.



fig. SIT

M and S designs

The S design includes **detachable elements** such as taper, rim flange or locking rings.

The “M” design offers centre-split rims.



fig. s design

Press on Bands

Steel-based bands are only available with a cylindrical base which is marked with “**STB**”. **Bands with steel wire reinforcement** have a cylindrical base marked with “**Z**” and two cones. One for the conical centre-split base “**km**” and one for the conical offset-split “**ks**”. These are clearly shown in the figure.

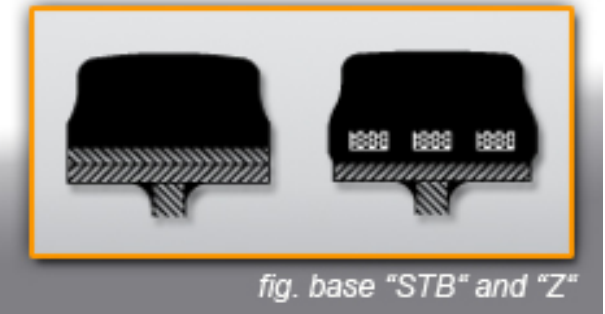


fig. base “STB” and “Z”

Continental Super Elastic tires have the following characteristics:

- **Can be fitted on pneumatic tire rims (according to DIN 782 or DIN 7820 and ETRTO)**
- **ROBUST* sidewall (sidewall protection)**
- **Simple and innovative rim assembly (only CSEasy)**
- **Easy to fit thanks to the retaining bead (only SIT design)**
- **Specially suited for areas where cleanliness plays a key role (Clean design)**

***ROBUST**

On Continental Super Elastic tires the side **ROBUST layer** of tread rubber protects the entire sidewall from external damage. The tire is therefore suitable for extremely harsh operating conditions.

As the properties already indicate, there are also further various special designs:

Continental Super Clean

The tread and sidewall (ROBUST layer) is made of a wear-resistant, **light-coloured rubber compound** with high resistance to tears. The Super Clean design combines all the product features of the standard tire in addition to offering the following:

- **good mileage performance**
- **no contact discolouration**
- **no black tire tracks or skid marks**

Ideally suited for the following branches of industry:

- **foodstuffs**
- **paper**
- **beverages**
- **electronics**
- **optics**
- **aerospatial etc.**
- **paint**

This Clean design is **electrically non-conductive**. The vehicle must therefore be earthed in another suitable way following consultation with the supervisory authorities.

Continental Antistatic tires

Good **electrical resistance** ($>10e6 \Omega$) thanks to the special rubber compound. Ideal areas of application include:

- **Textile industry**
- **Pharmaceutical industry**



fig. Continental Super Clean

- **Electronics**
- **Petrochemical industry**

Continental Press on Bands have the following characteristics:

- **high stability**
- **high load capacity with small dimensions**

Continental Press on Bands are also available in various tread designs:

The Tread Layer Designs




Type	Symbol	Application
L		Press-on tyres with an exceptional free running ability for non-driven and non-braked wheels.
A		For driven and braked wheels which perform under arduous conditions and need to be exceptionally wear resistant and of high structural durability.
A-ROBUST	A-ROBUST	Well-cushioned, wide elastic tyres are made in this version to lower both the rolling resistance and the heat build-up, with the following distinctive features: <ul style="list-style-type: none"> • extreme cost-efficiency • excellent rolling resistance • capability of with standing sustained use under maximum load. (For sizes see page 36-39).
ANTISTATIC		Electrostatically effective with an electrical resistance of less than 10^6 Ohms. Electric contact between tyre and rim must be ensured. Note: Prolonged contact with media that cause swelling (such as oil or solvents) reduces the conductivity.
CLEAN	CLEAN	A non-marking compound for light-coloured, clean industrial floors.

fig. tread designs

This Clean design is **electrically non-conductive**. The vehicle must therefore be earthed in another suitable way following consultation with the supervisory authorities.

Look at the following figure which explains the **various** constructions.

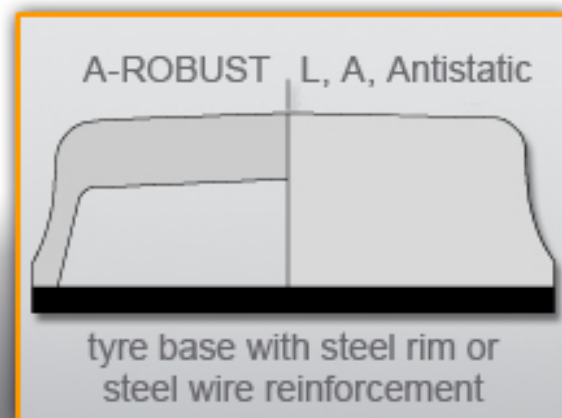


fig. construction of Press-on Bands

In the case of Continental Super Elastic tires, what does ROBUST refer to and what characteristics does it indicate?

The ROBUST intermediate layer is extremely hard.

The ROBUST steel wire cores are very stable.

The tread with ROBUST sidewall protection is extremely resistant to damage.

- **Super Elastic tires are fitted on the same rims as industrial pneumatic tires.**
- **The Super Elastic tire consists of:**
 - **Tire base with wire cores**
 - **Cushion compound**
 - **Tread with ROBUST sidewall protection**
- **The Joule-Indicator shows the maximum limit for wear and regrooving.**
- **The following tire base versions are available:**
 - **CSEasy**
 - **SIT**
 - **M and S designs**
- **Super Elastic tires are available as Super Clean and Antistatic versions.**
- **Press on Bands are reliable, maintenance-free, extremely stable and have a long service life.**