

GET TO KNOW YOUR TYRES WITH TOYOTA TYRE CARE



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TOYOTA

MATERIAL HANDLING

RESILIENT TYRES

The tread pattern on solid resilient tyres has two primary functions. Firstly, it enhances the traction of the tyre on both soft ground and damp, smooth surfaces by increasing the contact pressure under the lug. Secondly, it helps to improve heat dissipation. Although solid tyres do not have cooling properties, certain tread patterns can help manage the heat generated during use, thereby contributing to a longer tyre lifespan.

Full-depth pattern grooves are not visible on all solid tyres. Depending on the size, some grooves extend to between 50% and 75% of the usable tread rubber.

Although the original tread pattern is worn and no longer visible, the tyre has only reached 40-60% of its service life. The tread life limit is indicated by the "Kerbing Band" or "60 Joule Line" on the sidewall. It is crucial to consider replacing the tyre when it appears to have reached this level of wear. Operating with a lug at full depth (to the 60J) will result in poor performance, as the lug will flex under braking, causing saw tooth wear and leading to high vibration.

In most applications, the traction and safety requirements are maintained, even with smooth treads. In general, up to a speed of 10 mph (16 km/h) on a dry surface, the grip of a smooth tyre is higher than that of a patterned tyre. Treaded tyres used on passenger cars and commercial vehicles are essential to disperse water from the tyre contact patch when driving on a smooth highway. Due to the low operating speed of a forklift truck and the high vertical load, the solid resilient tyre maintains full contact with the ground surface by pushing any standing water away from the contact patch. On wet smooth surfaces, traction is enhanced due to higher contact pressure rather than water dispersion.

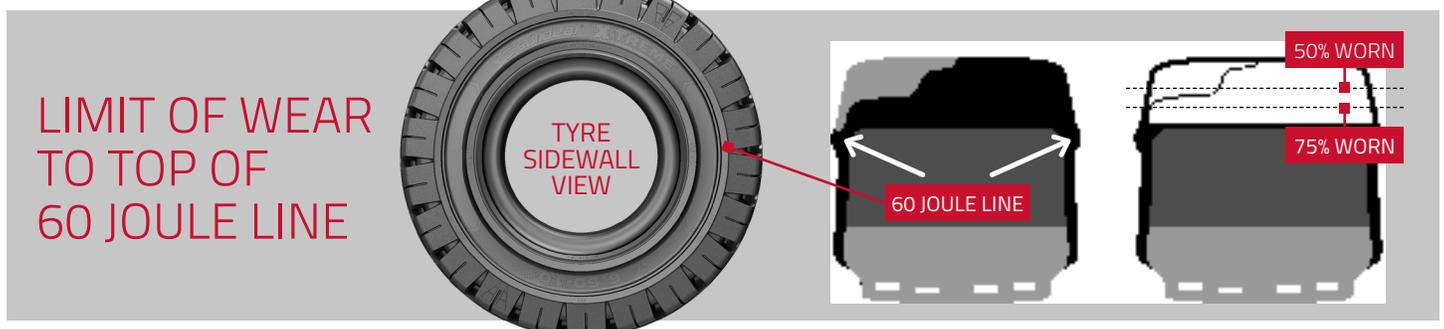
Note that it is common and normal for solid resilient tyres to appear "slick", or devoid of tread pattern. However, in most applications, the traction and safety properties of the tyre are maintained.

It is therefore totally normal for a solid tyre used on a forklift to have no tread pattern.

WHEN TO CHANGE A SOLID RESILIENT TYRE

A solid resilient tyre can be worn down to the 60 Joule (or J Line) as indicated on the sidewall of Solideal tyres.

Subsequently, if the tyre is too worn and not replaced, this can lead to a safety risk for operators, unexpected tyre failure and potential damage to the forklift truck.



PRESS-ON BAND TYRES OR CUSHION TYRES

The press-on tyre is constructed by bonding rubber to a mild steel band. This band is pressed onto the wheel as an interference fit.

There are several reasons why it is important to replace PON tyres at the right time. Worn tyres reduce the load carrying capacity, compromising stability and safety. Proper clearance between the mast and the ground is essential; worn tyres reduce this distance, increasing the risk of collision and tipping. Timely tyre replacement minimises excessive vibration and shock, reducing maintenance costs and wear on lift components. It also improves ride quality and protects the load from damage. Replacing tyres before these limits are reached will help maintain the overall condition of the machine and optimum operating efficiency.

WHEN TO CHANGE A SOLID TYRE

Tyres feature a safety line similar to those on a resilient tyre. You should replace the tyre when it reaches this line in order not to compromise performance and safety.

In other cases, it is recommended to replace press-on tyres when the total rubber height reaches 2/3 of the original rubber height. Dimensions are usually available in the product's technical documentation.

In most cases, a column called "replacement overall diameter" can be found on the product data sheet. The figure shown indicates when the tyre should be replaced.

The tyre size on the side of a solid tyre indicates the unworn tyre dimensions. For example:

15" X 5" X 11 1/4"
385 X 102 X 112

The first number is the overall diameter (D New)

The second number is the tyre width

The third number is the internal dimension of the steel band (D rim)

D WORN

=

The outside diameter of the worn tyre

D NEW

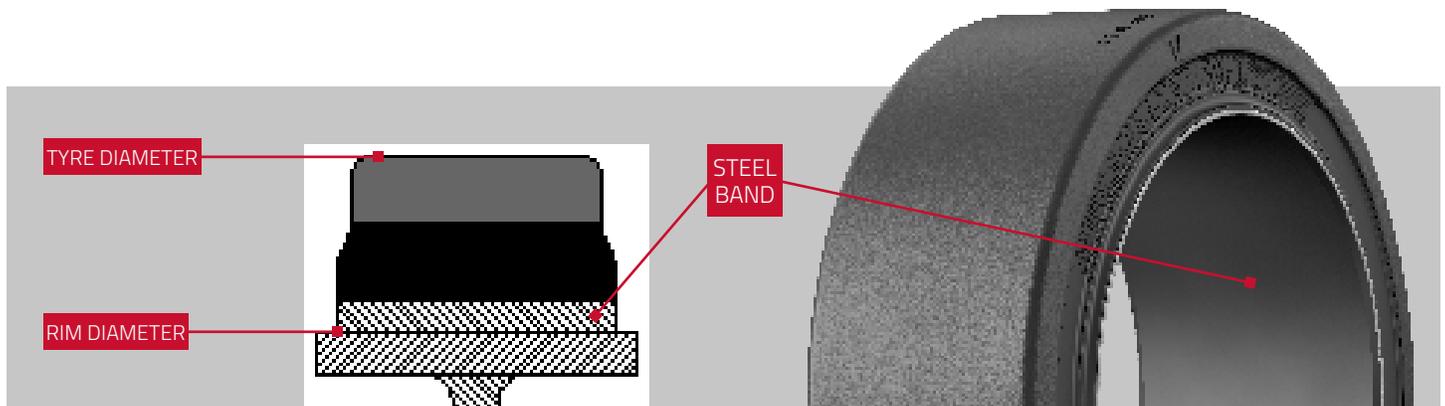
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The outside diameter of an unworn tyre

D RIM

=

The diameter of the wheel rim



PNEUMATIC TYRES

A pneumatic tyre is designed to be mounted on the wheel with inflation and deflation facilitated by a valve. The operating pressure of a pneumatic tyre is determined by the vehicle axle load and the maximum pressure specified by the tyre manufacturer.

There are two main types of pneumatic tyre: Radial and Bias Ply (also known as Cross Ply). The two construction types are identified in the size designation – “R” for Radial Construction and “-” for Cross Ply Construction.

Due to the different stability characteristics of Radial and Cross Ply tyres, the two types shouldn't be mixed on the same forklift. In terms of axles, the near-side and the off-side tyres should be of the same manufacturer, size and remaining tread depth.

8.25 R 15

IS A
RADIAL PLY TYRE

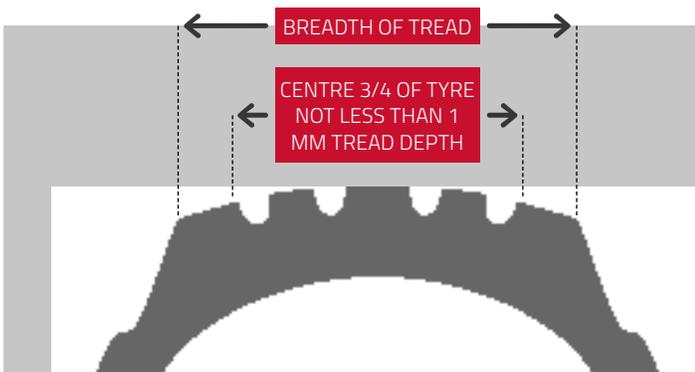
8.25 – 15

IS A
DIAGONAL PLY TYRE
OF THE SAME SIZE

WHEN TO CHANGE A PNEUMATIC TYRE

The tyre wear can differ based on the tyre model and the manufacturer. Generally, pneumatic tyres should maintain at least 1 mm of the original tread pattern across the central three-quarters (3/4) of the tread around the entire circumference. It is important to replace tyres when they reach this minimum tread depth. In all other cases, please consult your dealer or tyre expert.

If the fabric or steel plies of a pneumatic tyre become exposed or visible, either due to excessive wear or damage, the forklift should be taken out of service immediately, and the tyres should be replaced as scheduled.



CHOOSING THE RIGHT TYRE FOR YOUR OPERATION

In general, the advantages of a solid tyre are that there is no need for pressure management, no risk of punctures, and excellent stability. This often results in a longer lifespan and reduced downtime. For pneumatic tyres, their advantages are often noted in terms of comfort, versatility, traction, and shock absorption.

CONTACT US

Call Toyota Tyre Care to ensure you have the right tyre for your operation: **0371 964 2290**



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