

● Tyre care manual



- **Section Height:**

The height of a tyre from the nominal rim diameter to the top of the tread.

- **Section Width:**

The width of a tyre including normal sidewalls, but not including protective side ribs, bars, or other decorations.

- **Overall Diameter:**

Twice the section height (unloaded) plus the nominal rim diameter.

- **Rim Width:**

The measurement on the inside of the rim between the two flanges.

- **Rim Diameter Code:**

The nominal rim diameter in inches.

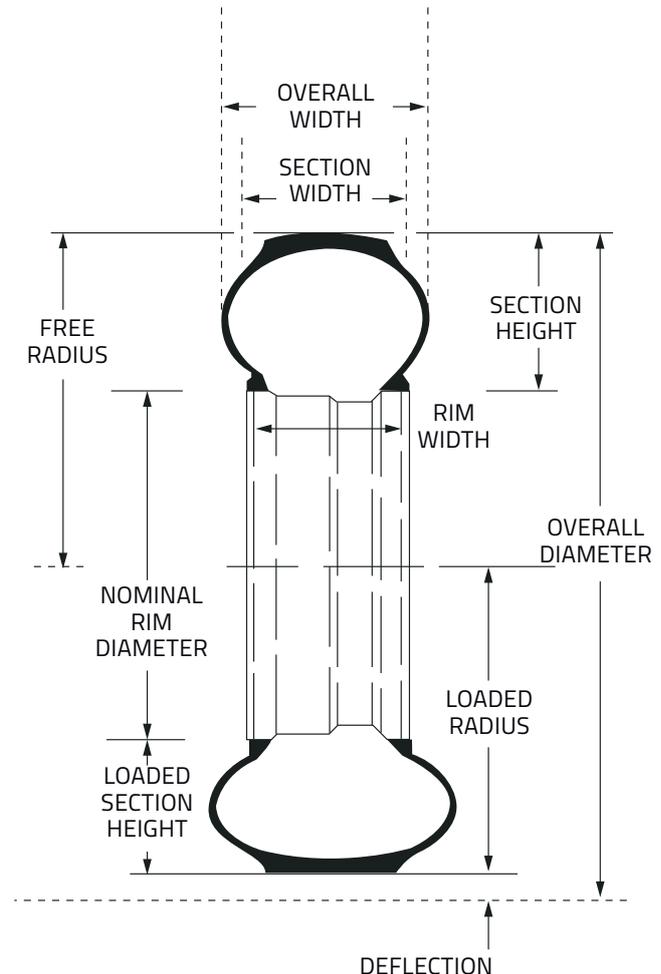
- **Rolling Circumference:**

The distance an inflated and loaded tyre will roll in one revolution.

- **Aspect Ratio:**

Used to describe the ratio of tyre "section height" to "section width."

A tyre with an aspect ratio of 85 would have a tyre height equal to 85% of the tyre's width.



Conversion factors

1 millimetre (mm)	= 0.03937 inches	1 inch (")	= 25.4 millimetres
1 metre (m)	= 1.09361 yards	1 yard	= 0.9144 metres
1 kilometre (km)	= 0.62137 miles	1 mile (mi)	= 1.609344 kilometres
1 litre (l)	= 0.21997 gallons (UK)	1 gallon (UK)	= 4.5461 litres
1 litre (l)	= 0.26417 gallons (USA)	1 gallon (USA)	= 3.7854 litres
1 gram (g)	= 0.035274 ounces	1 ounce (oz)	= 28.34952 grams
1 kilogram (kg)	= 2.205 pounds	1 pound (lb)	= 0.45359 kilograms
1 kilometre per hour (km/h)	= 0.62137 miles per hour	1 mile per hour (mph)	= 1.609344 kilometres per hour
1 kilopascal (kPa)	= 0.145 pounds per square inch	1 pound per square inch (psi)	= 6.895 kilopascal
1 bar	= 100 kilopascal	1 pound per square inch (psi)	= 0.06895 bar
1 kilowatt (kW)	= 1.34 horsepower	1 horsepower (HP)	= 0.746 kilowatts
1 Newton metre (N.m)	= 0.113 inch pound	1 inch pound (in-lb)	= 8.85 inch-pound

Pressure conversion table

PSI	BAR	KPA	PSI	BAR	KPA	PSI	BAR	KPA
10	0.7	70	29	2	200	48	3.3	330
11	0.8	80	30	2.1	210	49	3.4	340
12	0.8	80	31	2.1	210	50	3.4	340
13	0.9	90	32	2.2	220	51	3.5	350
14	1	100	33	2.3	230	52	3.6	360
15	1	100	34	2.3	230	53	3.7	370
16	1.1	110	35	2.4	240	54	3.7	370
17	1.2	120	36	2.5	250	55	3.8	380
18	1.2	120	37	2.6	260	56	3.9	390
19	1.3	130	38	2.6	260	57	3.9	390
20	1.4	140	39	2.7	270	58	4	400
21	1.4	140	40	2.8	280	59	4.1	420
22	1.5	150	41	2.8	280	60	4.1	410
23	1.6	160	42	2.9	290	61	4.2	420
24	1.7	170	43	3	300	62	4.3	430
25	1.7	170	44	3	300	63	4.3	430
26	1.8	180	45	3.1	310	64	4.4	440
27	1.9	190	46	3.2	320	65	4.5	450
28	1.9	190	47	3.2	320	66	4.5	450

Storage

- Keep the tyres clean and away from heat, light, ozone or hydrocarbon sources.
- Avoid prolonged exposure of the tyres to direct sunlight.
- Avoid any contact with grease, petrol, volatile solvents or other substances that may deteriorate the rubber.
- Avoid horizontal storage for tubeless tyres, only small size tyres may be stacked or stored flat (maximum 6 months).
- When tyres are stored flat (horizontal), the position must be lug against lug.
- Reduce inflation pressure when tyres are stored fitted on rims.
- Ensure there is no water or moisture inside the tyre.
- Never store tyres directly in contact with the ground for long periods.

Tyre repairs

For safety reasons, repairs should only be carried out by specialists using the correct tools.

Proper use of tyres

- When loading tyres you have to consider the correlation between speed, inflation pressure and load capacity.
- Overloading results in premature tyre failure. Use the technical documentation and inflation tables which show the load and pressure figures for different operating speeds.
- Underinflation results not only in incorrect tread wear but also in ply separation and eventually further damage to the ply. Overinflation makes the tyre stiff and decreases its resistance against hits, leading to ply tear.

Demounting and mounting procedures can be dangerous, and should be performed only by trained and qualified staff, using proper tools and procedures. Failure to comply with these procedures may result in faulty positioning of the tyre on the rim, and cause the tyre to burst with explosive force leading to serious physical injury or death.

Fitting

01. Make sure that the rim, the tyre and the tube are compatible.
02. Check that the tyre is suitable for the machine. Use only rims recommended or permitted by the tyre manufacturer.
03. Always use the proper specialised equipment and tools.
04. The rim must be clean and in perfect condition (no damage, etc.). If necessary, clean the rim thoroughly with a wire brush. Never fit a tyre onto a rim that shows cracks, significant distortion, and evidence of welded repair.
05. Thoroughly inspect the inside as well as the outside of the tyre in order to identify any damage which may be present. If the damage is considered to be beyond repair, the tyre should be scrapped.
06. If fitting with a tube, always use the correct new tube and flap for the tyre size. For fitting tubeless tyres without tubes, on tubeless rims, always use a new tubeless valve.
07. Before fitting, lubricate the rim and the beads. Use only a suitable lubricant that will not damage the tyre (never use silicone or petroleum-based products).
08. We recommend vertical fitting. In case of a horizontal fitting, it is impossible to see if the lower bead is correctly seated.
09. Fit the tyre on the rim diametrically opposite to the valve hole (respect, if present, the rotation direction indicated by the arrows). With the help of a suitable lever and closely repeated applications, get the first bead over the rim flange. Then pose the lightly inflated talc coated tube (if fitted) inside the tyre. Locate the valve, fitting the ferrule loosely. Fit the second bead, lever it progressively over the rim flange, finish at the valve.
10. For seating the beads and centring of the tyre, remove the valve core. Slowly inflate to ensure correct seating of the beads. Ensure that the beads do not pinch the tube.
11. While inflating a tyre keep at a safe distance and always use a safety cage. If possible, fasten the tyre to the wall or use retaining chains. During pressure readings, ensure that no part of the body is within the possible trajectory of the valve mechanism or of the caps. It is recommended to use suitable pressure limitation gauges. Use a filter and dehumidifier on the compressed air line to avoid introducing humidity or dirt. Never use a hammer to make a tyre bead seat by hitting it.
12. Continue inflation. Make sure that you do not inflate beyond 2.5 bar if the beads are not well seated and centred on the wheel.
13. If the beads are not correctly seated, deflate, lubricate and inflate again. Repeat these operations until the beads are correctly seated.

14. When all the previous operations have been correctly done, refit the valve core. Set the pressure according to the load: see tables in technical databook.
15. Make sure the valves do not touch the rims, the brake drums or other fixed mechanical parts.

Removing

- Never try to unseat the beads of an inflated tyre.
- Always remove the valve core.
- Let the tyre deflate, check before unseating that the tyre is completely deflated. Never use tools that could damage the rims or the beads of the tyre.

Recommendations to extend the lifespan of a tyre

Tyre pressure

Correct inflation pressure is important for performance, durability, comfort and traction. It is of crucial importance for the life expectancy of your tyres that you adjust the tyre pressure according to usage and check it regularly. To ensure accurate measurement, the pressure gauge must be calibrated once a year. Measurement of tyre inflation pressure must be done when the tyres are cold. If the pressure in a warm tyre is correct, then it would be too low when the tyre has cooled.

Inflation pressure too low

Underinflation can reduce the lifespan due to:

- Damaged carcass cord plies, which can render the tyre unusable
- Increased wear
- Carcass damage close to the bead

Road use and operation in the field

These two kinds of usages require different tyre inflation pressures. Allowance has been made for this in the tyre pressure graphs. Radial and crossply tyres must not be used on the same axle, as this can lead to unstable handling.

Visual check

Tyres must be checked regularly for damage. Incision damage can be particularly harmful to the cord tissue layers of the tread.

Oil and grease

To avoid damage to the rubber, tyres should not come in contact with oil and grease.

Frost protection

To protect against frost when water ballasting, sufficient calcium chloride should be added. Please consult your supplier of calcium chloride about the right ratio.

Slippage of the tyre

The following can increase the likelihood of slippage of the tyre on the rim:

- Tyre pressure too low
- Faulty fitting of the tyre bead on the rim
- Overuse of lubricant when fitting a tyre
- Wrong rim size

The minimum tyre pressure for high-traction work (for example, ploughing) is 11.6 Psi when using an inner tube. A lower pressure increases the chances of the tyre turning on the rim and tearing off the valve.

Direction of steering wheels on four wheel drive tractors

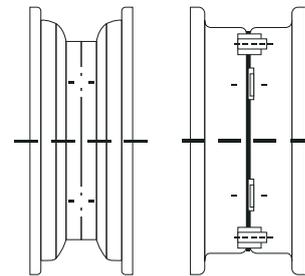
When fitting or changing tyres ensure that the directional arrow on the sidewall is pointing forward. It is possible to fit the front tyres in such a way that the tread turns against the direction of rotation on four wheel drive tractors that are primarily used for transport activities. This will extend the lifespan of the tyres. Such fitting is not recommended for field activities, as it radically reduces traction and self-cleaning properties.

Transport instructions



Rim and Wheel Discs

A wheel is made up of a rim and a wheel disc that are fixed to or detachable from each other and must exactly match. The rim size is of crucial importance to the tyre/rim combination.



Size designations of rims

Two wheels are shown here with the associated meanings of the size indications.

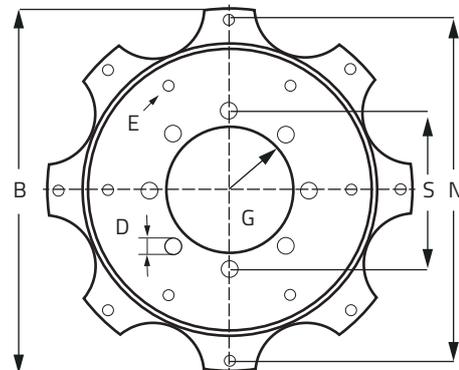
Rim choice

When using tubeless tyres, tubeless rims should also be used. A protective flap must always be used when combining inner tubes with multi-piece rims. This prevents damage to the inner tube.

Single rim	Multi-piece rim
4.00 E x 16	13 - 508
<p>This means:</p> <p>4.00 = rim width code (inches)</p> <p>E = rim flange height</p> <p>x = one piece rim</p> <p>16 = rim diameter code (inches)</p>	<p>This means:</p> <p>13 = rim width code (inches)</p> <p>- = rim flange height</p> <p>508 = rim diameter code (inches)</p>

The most important size indications of wheel discs are the following:

- G = diameter of the central hole
- S = pitch circle diameter of the stud holes and number of stud holes
- N = diameter cleat circle and number of cleats
- D = diameter stud hole and stud hole shape
- E = extra stud holes in case of double fitting
- B = outside diameter disc



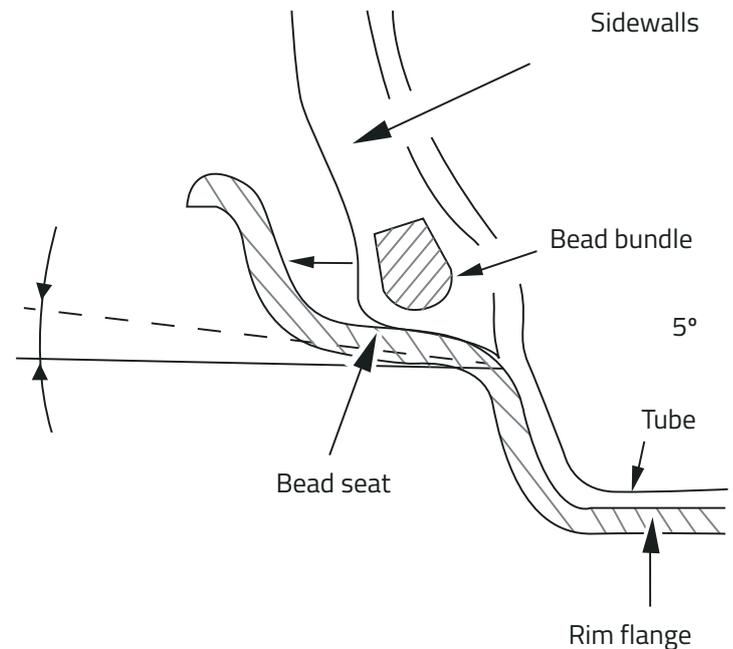
Warning

The diameter of different rim sizes may look very similar, but they're not equal as you can see in the table.

"Small" overall diameter		"Large" overall diameter	
Rim size code	Rim diameter D (mm)	Rim size code	Rim diameter D (mm)
430mm	430.9	17	436.6
15	380.2	15.3	388.3
508mm	508	20	512.8

Always use the rim stipulated

If you use a rim which is too narrow, the tread will be convex and, as is the case where tyre pressure is too high, there will be excessive wear of the centre of the tread. The fitting of a tyre to the wrong rim can lead to highly dangerous consequences! Fitting a "large" tyre (like 10.0/75-15.3) on a smaller rim (say rim size code 15) is dangerous. The tyre is loose-fitting and in extreme conditions can "blow-off" the ring. Rim chafing can be the consequence. Fitting a "smaller" tyre on a rim which is too large in overall diameter can also be dangerous! As the bead diameter of the tyre is smaller than the base rim flange diameter, by inflating the tyre, the chances of the bead breaking and the tyre exploding are high.





Our philosophy to conserve and protect natural resources for future generations through enviromental stewardship



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