

Tubeless Compatible Technology- Bontrager wheel systems

Tubeless Compatible technology allows the owner of these wheels to choose between a conventional tire with inner tube, or a tubeless tire, including all current tubeless-type tires. However, a conventional tire mounted on a tubeless compatible rim will not hold air without an inner tube.



WARNING

Do not attempt to use a standard tire without an inner tube. Such use may cause a rapid deflation of the tire resulting in loss of control resulting in personal injury. If you are unsure if a tire is a compatible tubeless design, consult your dealer.

The key to using tubeless tires on Tubeless Compatible rims is a special rim and its mated rim strip. This rim strip is made of a thermoplastic rubber material, so its impervious to air. Installed correctly in the special mated rim, it seals tightly to the tubeless tire to prevent air escaping through the spoke holes. There are additional surfaces which must seal tightly for the tubeless system to hold air. The rim's hook allows greater contact with the tubeless tire's smooth, enlarged bead so these two surfaces also seal up tight. The inside of the tubeless tire has a special coating to prevent air from escaping through the tire casing. When these features are all in order, no tube is needed. Just install a special presta valve stem into the rim, and inflate.

A properly mounted tubeless tire will 'bleed' air, up to 4 PSI (0.25 ATM) per day. If a tubeless tire loses air faster than 4 PSI (0.25 ATM) make sure the valve nut is tight, check for punctures, and make sure all sealing surfaces are smooth and clean. The sealing surfaces include the tire to rim contact, the tire to rim strip contact, the valve stem to rim strip contact, and the rim strip to rim contact. Dirt, sand, grime or roughness on any of these surfaces may allow extra air to escape. If necessary, purchase a replacement rim strip from your dealer.

In the case of a punctured tubeless tire, you can patch a small (less than 3mm) hole from the inside of the tire. A sticky glueless patch is recommended. If the puncture is greater than 3mm, or the tire casing is damaged instead of merely punctured, with any broken threads, replace the tire. If the air leaks rapidly and the source is not immediately obvious, it may be difficult to inflate the tire enough to locate the puncture. However, its easy to convert from tubeless to the use of a standard inner tube.

Complete bicycles sold with Tubeless Compatible wheels may have inner tubes installed in the tubeless tires to protect the rims in shipping and allow easy display. To convert these wheels to tubeless, see step #3.

1. Installing and inflating a tubeless tire

To inflate a newly installed tubeless tire, the tire must make full contact with the rim strip at the bottom of the rim well. To achieve this contact a tubeless tire has to fit on the rim more tightly than a similarly sized conventional tire. With the tire beads contacting the rim strip at the bottom of the rim well, air pressure is used to push the beads into their seated, sealed position against the rim hooks. A compressor is not required to seat the tire beads. A good floor pump or an air cartridge work, and a hand pump may work if nothing else is available. With a snug fitting tubeless tire, barehanded installation may be difficult. If you use tire levers for installation or removal, do not damage the rim or abrade the tire beads. If either surface is damaged, the roughened surface may allow a greater rate of air to bleed from the mounted tire.

Install the valve stem.

1. Center the special rim strip in the rim. Make sure it fully covers all spoke holes.
2. Align the slot on the head of the special tubeless valve with the rim (Fig. 1). Press the valve stem through the rim strip and rim.
3. Install the tubeless valve nut (Fig. 1) onto the valve, and tighten firmly. There should be no gap between the valve and the rim strip.
4. Inspect the rim strip. Make sure the rim strip lies centered in the rim well, with no wrinkles or unevenness.



WARNING

Make sure the rim strip covers all of the spoke holes or spoke heads. If they are exposed they may allow air loss, or puncture the inner tube, and may cause loss of control resulting in personal injury.

Install the tubeless tire.

5. Lay one tire bead into the center of the rim well. Start opposite the valve to give the tire beads the maximum slack. If you start at the valve, the bead will lie on top of the valve. With the bead on top of the valve, some slack will be taken up which is needed to lift the tire bead over the rim shoulder (Fig. 2).

Note: If desired, the tire bead can be lubed with soapy water to aid in tire installation and seating of the bead.

6. Start opposite the valve again, and install the second tire bead. Before installing the last 10 inches (25cm) of the second bead, pivot the beads so the second bead is at the bottom of the rim well. With the additional slack afforded by this bead placement, finish installing the second bead until it is completely in the rim well.

Note: If you choose to use tools to mount the tire, be careful not to mar the rim or abrade the tire as this could reduce the required ability of the rim to seal to the special beads of a tubeless tire.

Inflate the tubeless tire

Tip: During initial inflation it may be helpful to hold both beads, adjacent to the valve stem, up and out of the center channel with your fingers. This will help remove any gaps between the tire beads and rimstrip.

1. Begin to inflate the tire. The tubeless valve stem works just like a standard presta valve. Unlock the presta nut (Fig. 1), and use a pump with a presta fitting. Initially, its best to inflate the tubeless tire as rapidly as possible. This forces the beads out to the rim hook where they will seal (Fig. 3).

2. With the tire beads sealed to the rim hook, inflate the tire to about 60PSI (4 ATM) until the tire beads lock into the rim well (Fig. 3).

3. Visually check that the beads are seated correctly in their locked position(Fig. 3). Most tires have lines or marks running around the casing, just above the bead. When correctly installed, these lines are at an even distance from the rim. When the beads are correctly seated all around the rim, inflate (or deflate) to the desired pressure.



WARNING

Failure to maintain a minimum tire inflation of 30PSI (2ATM) may result in rapid deflation causing a loss of control resulting in personal injury.

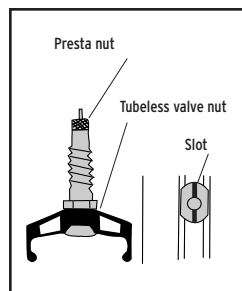


Fig. 1

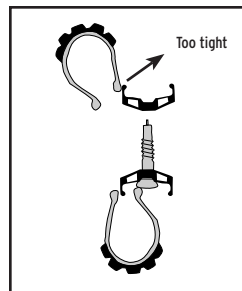


Fig. 2

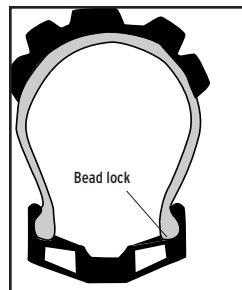


Fig. 3

2. Adding an inner tube

Remove the tubeless tire

1. Let all the air out of the tire.
 2. On tubeless compatible rims the bottom of the well is too narrow for both beads to rest fully against the rim bottom at the same time, so the tire must be placed to get one bead down. With the wheel facing you (Fig. 4), roll the tire up and away from the rim with your thumbs while you use your fingers to tuck the opposite bead into the rim well (Fig. 5).
 3. At the valve, pull the lower, slacker bead of the tire up, out, and away from the rim (Fig. 6).
 4. Pull the loosened bead up and out of the rim, rolling and pushing the tire toward the hub (Fig. 7) until the first bead is completely off the rim. Repeat to remove the other bead.
- Note: If you choose to use tools to remove the tire, be careful not to mar the rim as this could reduce its ability to seal to the special beads of a tubeless tire.

Remove the valve stem

5. Remove the tubeless valve nut. Thread the presta nut into the valve stem, and push the stem out of the rim.

Install the tire and tube

6. Make sure the rim strip is centered in the rim well and fully covers all spoke holes. Install the tire and tube in the normal manner. With an inner tube, either a conventional or tubeless tire can be used.

3. Changing to a tubeless tire

Remove the tire and inner tube.

1. Remove the tire by following item #2 Adding an Inner Tube, except start removing the tire opposite the valve.
2. Refer to item #1, Installing and Inflating a Tubeless Tire.

4. Removal and installation of a rim strip

Remove the rim strip

1. After removing the tire (and tube, or tubeless valve stem) insert a round-bladed screwdriver (or similar tool) through the valve hole, and between the rim and rim strip (Fig 8). If the rim strip is to be used again, be careful not to tear or stretch the hole.
3. Lift the rim strip and place a tire lever underneath. Use the tire lever to lift and then roll the rim strip over the opposite rim hook (Fig. 9). Be careful not to mar or damage the rim, or rim strip, with the tire lever.
4. Continue to roll the rim strip up and out of the rim as you work your way fully around the rim.

Install the rim strip

1. Make sure the rim strip is in good condition, with no tears, holes, or deformed areas near the valve hole or along its edges.
2. Align the rim valve hole and rim strip valve hole. Place the special tubeless valve (or a similar item) through the rim strip valve hole, and then the rim. The 'U' shape of the rim strip should face the same direction as the 'U' shape of the rim well (Fig. 10).
3. Work the rim strip into the rim, moving away from the valve stem in both directions. With six to ten inches (15 to 25 cm) rim strip remaining outside the rim, manually lift and slightly stretch the rim strip so that it can be laid flat in the rim well.
4. Follow the appropriate installation procedures to install a tire.

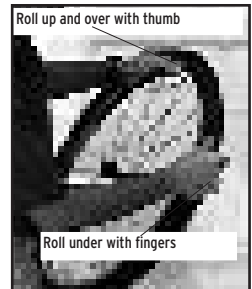


Fig. 4

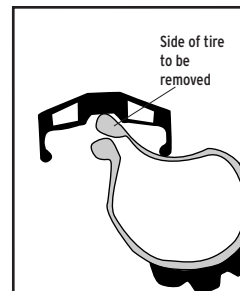


Fig. 5

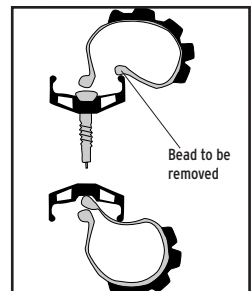


Fig. 6



Fig. 7

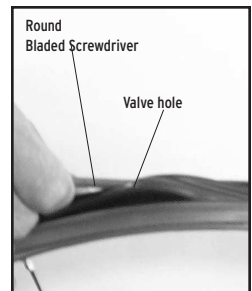


Fig. 8

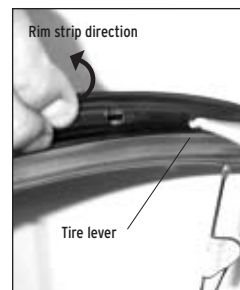


Fig. 9

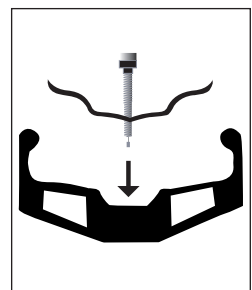


Fig. 10