

Fat Bike Tire Pressure

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Presentation Topics

- Why does tire pressure matter?
- Tools to help you set the correct fat tire pressure
- Pressure changes with temperature
- Riding (trail/snow) conditions
- Tubes vs. tubeless for fat tires
- Using the Wolf Tooth tire pressure app



Why does tire pressure matter?

Short answer: getting your tire pressure set correctly means you will have more fun riding!

Setting the right tire pressure for a fat bike is perhaps the most difficult yet important of any cycling discipline. Having the right pressure can be the difference between a fun and rewarding ride and having to walk or between floating over a fragile snow crust and leaving deep ruts that ruin the experience for other riders.

Understanding fat bike tire pressure is a key factor in your successful journey from beginner to intermediate to advanced rider. Using the information presented here, combined with the Wolf Tooth tire pressure app as a guide, you can quickly find the best pressure for your weight, tire size and riding conditions.

It's like a shortcut to fat bike riding success!



Tools to help set the correct pressure

Pump

A small and reliable pump that can be carried while riding is essential. Changing snow conditions or a slow leak can ruin your ride if you don't have a pump with you.

A floor pump is helpful for quickly adding air before your ride. Note that the pressure gauge on most floor pumps is not very helpful at fat tire pressures.

An electric inflator can get you to the correct pressure with minimal effort and the built in pressure gauge will usually work well down to about 3 PSI.



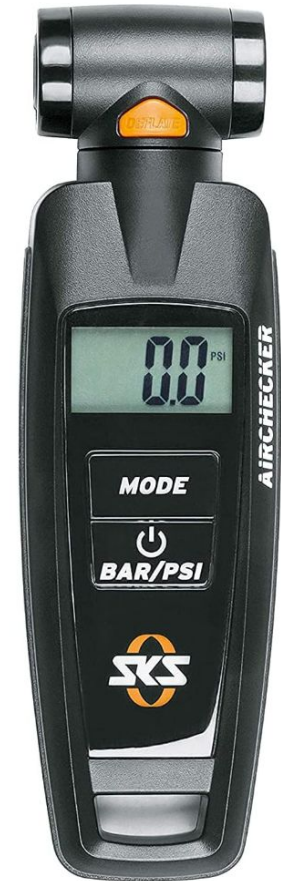
Tools to help set the correct pressure

Pressure Gauge

A pressure gauge with good resolution in the 0-10 PSI range is essential for fat bike tires. There are a few options but none of them are perfect.

Low pressure analog gauge – works well at low pressure but accuracy is usually poor and they are easily damaged. Low cost and easy to use.

Digital bike tire pressure gauge – many choices, usually good accuracy. Most do now work below ~3 PSI and may not work reliably in cold weather.



Tools to help set the correct pressure

Scale to weigh you and your bike

Overall weight of you+bike+gear is one of the most important factors in setting tire pressure. An easy way to get this number is to just stand on a bathroom scale with all of your riding gear on and pick up your bike.

As an approximation you can also add 35-40 lb to your own weight or you can use the basic mode in the tire pressure app and just enter your weight (the app will automatically add estimated weight for your bike and gear)



Tools to help set the correct pressure

Width is marked on the sidewall or use a wire to measure tire width (optional)

Tire width is an important factor in setting your tire pressure but can be difficult to measure. Using the width marked on the tire sidewall is acceptable but not as accurate as measuring.

To measure the width, you can bend a wire or cut a piece of cardboard to just touch the widest part of the tire casing (not the tread) and then measure the gap in the wire or you can measure directly with a caliper.



Temperature Change = Pressure Change

Changes in temperature will change the pressure in your tires. This is not a factor during your ride but it can be a huge factor if you inflate your tires in a warm house or garage and then ride in much colder temperatures. Fortunately, the pressure change is easily calculated and the app can account for this if you know the temperature you are inflating at and the temperature you are riding at.



Inflation Temp	70
Inflation Pressure	6
Riding Temp	Riding Pressure
30	4.4
20	4
10	3.6
0	3.2
-10	2.9
-20	2.5

Riding Conditions

Riding on very hard packed snow or dirt is more like mountain biking where you can be over-inflated and still ride. As soon as the conditions get softer, having the right pressure becomes critical. Even if you are able to pedal, you may leave deep ruts in the trail that the other trail users and groomers will not appreciate.

For the app, we rate the riding conditions on a scale of 1 to 5 with 1 being the softest ungroomed snow and 5 being pavement. Learning to predict and read the riding condition is an essential skill for fat bike riding. Most fat bike rides will include 2 or 3 different riding conditions so any tire pressure will be a compromise. There is no single tire pressure that will be perfect for your entire ride.

It's always best to start with your pressures a bit higher than what you think is needed and then let air out to match the actual conditions. Experimenting is essential and always bring a pump in case you air down too low!



Riding Condition 1: Ungroomed, very soft snow

Riding at all can be challenging but super low pressure combined with lots of practice can make the difference between hike-a-bike and at least some riding! Only advanced riders will enjoy condition 1 riding.

Reliable tubeless tire setup and a mini-pump to add more air if you go too low are essential. Extra fat tires help here as well.



Riding Condition 2: Groomed, soft snow

Riding comfortably in soft snow is the true fat bike experience. It can be difficult for beginners and doing it well is one of the indicators that you have progressed to an intermediate level.



Riding Condition 3: Firm snow or dirt

Condition 3 riding is ideal for beginners. Found on well groomed trails that have had time to fully set up. Frozen dirt with light snow cover is also great for condition 3 pressures.



Riding Condition 4: Hard packed snow or dirt

Condition 4 snow riding is somewhat unusual and can feel more like riding on dirt. It is rare to have a firm enough snow base to support the higher pressures of condition 4. Some Fat Bike Birkie races have been condition 4 riding. Trails that have thawed and refrozen may also be condition 4.

Even if you can ride at condition 4 pressure, you may have better bike control and comfort at condition 3 pressure.



Tubes vs. Tubeless Fat

The low pressures and cold temperatures of fat biking can make a successful tubeless setup challenging. Many people give up and just run tubes but this is a huge compromise in weight and more importantly in rolling resistance and traction so taking the time to get a solid tubeless setup is worth it for intermediate and advanced riders. Beginners will likely be happier sticking with tubes.

Tube pros

- no special setup techniques
- very reliable, even at cold temps
- little pressure loss over days/weeks

Tube cons

- higher rolling resistance
- heavier
- does not work well at very low pressures
- risk of pinch flats at lower pressure

Tubeless pros

- lower rolling resistance
- lighter
- better traction

Tubeless cons

- can be difficult to set up
- making it reliable at cold temps and low pressures can be challenging
- requires checking/adding air before every ride
- requires adding new sealant every year

Using the Wolf Tooth Tire Pressure App

Basic mode: Basic requires fewer parameters to calculate pressure but the results will be less accurate.

Rider Weight – enter your weight. The app will approximate the weight of your bike and gear to arrive at a total weight used in the pressure calculation

Riding Conditions – your estimate of the most prevalent riding/trail condition expected on your ride

Sidewall Tire Width – the width printed on your tire

Inflation Pressure – the calculated pressure for your front and rear tires

*** remember to tap on the circle-i info text icons for more information ***

The screenshot shows the app's input screen for 'Fat (Basic)' mode. At the top, there are navigation options: a back arrow, the title 'Fat (Basic)', and a 'Save +' button. The form consists of several sections, each with an information icon (i):

- Rider Weight:** A text input field containing '165' and a unit selector dropdown set to 'Lb'.
- E-Bike:** A toggle switch currently set to 'No'.
- Riding Conditions:** A dropdown menu showing '3: Firm Snow or Sand'.
- Sidewall Tire Width:** A range selector with '4.0' on both ends and a unit dropdown set to 'In'.
- Inflation Pressure:** Two pressure input fields for 'Rear' (5.3) and 'Front' (3.9), with a unit dropdown set to 'PSI'.

At the bottom of the screen, there is a warning message: "Warning never exceed maximum or minimum recommended pressure of the tire or rim manufacturer. Pressure recommendations provided may or may not be suitable for your equipment and riding conditions. Improper inflation pressure can result in equipment damage or personal injury." Below the warning is a navigation bar with icons for Calculator, Temp Comp, My Bikes, Info, and Settings.

Using the Wolf Tooth Tire Pressure App

Advanced Mode: requires entering a few more parameters but will provide the most accurate output. Also allows temperature compensation.

Weight (Bike+Rider+Gear) – the weight you measured by stepping on a scale with your bike and all of our gear. Or you can get close by adding 30-35 lbs to your weight.

Tube/Tubeless – if you are unsure, assume you have tubes.

Inflation Temp – the temperature in the location you are setting your tire pressure (e.g. your house or garage).

Riding Temp – the expected temperature out on the trail. Note: if you allowed location tracking during install, the app will default to the outside temperature at your location. This is the only reason the app asks for your location.

Inflation Pressure – the pressures calculated based on all of your inputs. If it is warmer where you are setting your pressure vs. where you are riding, the inflation pressure will be higher than your actual riding pressure.

Expected Riding Pressure – the pressure of your tires on the trail

The screenshot shows the 'Fat (Advanced)' settings screen of the Wolf Tooth Tire Pressure App. At the top, there are navigation options: a back arrow, the title 'Fat (Advanced)', and a save icon. The settings are organized into sections, each with an information icon (i):

- Weight (Bike + Rider + Gear):** A text input field containing '195' and a unit selector dropdown set to 'Lb'.
- Tube/Tubeless:** A dropdown menu currently set to 'Tubeless'.
- Casing Type:** A dropdown menu currently set to 'Medium'.
- Riding Conditions:** A dropdown menu currently set to '4: Hard Packed Snow or Dirt'.
- Inflation Temp:** A text input field containing '70', a unit selector dropdown set to '°F', and a 'Riding Temp' field containing '15'.
- Tire/Wheel Diameter:** A dropdown menu currently set to '26"'. Below this is a 'Tire Width' dropdown menu.
- Tire Width:** Two radio buttons are present: 'Measured (Best)' (which is selected) and 'Sidewall'.
- Inflation Pressure:** Two text input fields for 'Rear' (containing '4.0') and 'Front' (containing '4.0'). Below these is a large display showing '10.3' and a unit selector dropdown set to 'PSI', followed by another large display showing '8.2'.

At the bottom of the app, there is a navigation bar with five icons and labels: 'Calculator', 'Temp Comp', 'My Bikes', 'Info', and 'Settings'.

Conclusion

- Finding the right tire pressure means you will have more fun and be able to ride more and walk less. The Wolf Tooth tire pressure app is a helpful tool for finding the right pressure.
- Learning to read the trail conditions and make adjustments to your tire pressure is an essential fat biking skill.
- There is no one perfect tire pressure so experiment and find what works best. Don't be afraid to try lower pressures!
- If you are unsure, start at Condition 3 pressure and adjust downward based on actual conditions.

