



Comparison of a standard bicycle rim to a Stan's BST Rim

Stan's bicycle rims are setting a new standard for performance. There are several reasons why a BST Rim outperforms a standard bicycle rim.

Stan's Rim Store Less Energy. Most think the bead of the tire positions itself into the bead hook of the rim when inflated as shown in drawing # 1. This is not the case. When inflated the tire stretches and centers itself on the inner bead diameter (559mm for 26in rims) of every rim. If the rim is manufactured to the correct size the tire will always sit at the bottom of the rim sidewall as shown in drawing # 2. Tire companies understand this and add a chafer strip on every tire to protect it from being cut by the bead hook of the rim.

The taller the sidewall of the rim, the more stored energy added to the tire. This stored energy prevents the tire from forming its natural round shape. In addition, this stored energy preloads the tire which contributes to the tire folding under lateral force (think cornering). By using a higher sidewall rim the tire will be less stable, requiring higher pressure to maintain control during high speed cornering. The same tire mounted on a BST rim, as shown in drawing #3 will allow the rider to run 30% less air pressure to remain stable while cornering. Drawing #3 shows a tire inflated on a Stan's BST rim conforming to its natural round shape.

BST Rims allow the tire to achieve greater air volume. When mounted on conventional rims part of the tire (2-4 mm) is held down below the top of the rim (see Drawing #2). With shorter sidewalls the tire is allowed to expand to its true shape and size. This gives the tire increased volume and size as shown in drawing # 3.

BST Rims reduce pinch flats when used with tubes. BST rims have sidewalls that are 2-4 mm lower than conventional rims. With a lower sidewall there is less rim material to pinch the tube and sidewall of the tire when the tire is compresses to the rim.

BST Rims are not restricted to unsafe and ineffective standards. ISO standards 5775-2 teaches rim designers the wider the rim, the taller the rim sidewall, the deeper the drop channel, and the fatter the bead hook is to be.

When running a tubeless system some of these standards are not safe. If the drop channel is too deep the tire will fit loose while uninflated. This loose fit will make inflating tubeless very difficult, but of greater concern is safety. If you get a large cut in a tire while riding, the tire will deflate rapidly and, because it is a loose fit, may work its way off the rim before you come to a complete stop which will drastically impair handling. BST rims and other rims designed for tubeless use will have a shallower drop channel to prevent this.

BST Rims are lighter without sacrificing strength. The rim and tire are the largest rotating mass we have on a bicycle. When we can reduce the rim weight we gain speed.

BST rim designs do not have a bead hook. By eliminating the bead hook we can remove 35g or more from the rim weight. As you can see in drawing # 2 the bead hook is not used at all.

When the bead hook is removed it makes the inside of the rim wider. Wider rims give better tire stability. When we shorten the rim sides we remove another 35g or more from the rim weight.

By lowering the rim sidewall by 2-4mm we greatly reduce the mechanical leverage the air pressure can exert on the rim. With less mechanical leverage designers can make the center part of the rim thinner thus making it lighter.

The combination of these features allows NoTubes to make rims that are up to 100g to 160g lighter but just as strong as rims that are much heavier.

BST Rims Are Faster. BST Rims allow for lower tire pressure and lower tire pressure equals a faster rolling tire. At lower pressures tires will smooth out rough terrain. The tire will absorb bumps much better instead of bouncing which significantly improves speed and handling. A tire at low inflation pressure adapts better to uneven surfaces. It sinks into the ground less. Overall it suffers less retardation.

BST Rims Handle better. Lower pressure will not only increase speed, it will improve handling. Since a lower pressure tire absorbs bumps better, it remains in contact with the ground better resulting in better traction. The larger contact patch of a lower pressure tire will also improve traction in cornering and climbing.

Stan's ZTR Rims with BST offer significant performance gains

- Short sidewalls trap air better when running tubeless
- By making the inner rim sidewall the same shape as the tire bead we can trap air pressure much better when running tubeless.
- When tubes are used the lower sidewall of a BST rim will eliminate many of the pinch flats that occur when the tire is driven into the top of the rim.
- The combination of short sidewalls and wider internal rim widths makes a 24mm wide rim perform like much wider 30mm wide rims but in a much lighter package. This is why the ZTR rims have won so many races it's not just the light weight but the tire performance every rider gets from this rim.
- The rim and tire are the largest rotating mass we have on a bicycle. When we can reduce the rim weight by 100 to 160g we gain speed.
- Tire performance is greatly improved thus allowing riders to run pressures lower than ever before.
- Lower pressures will make the bike smoother over rough terrain.
- Lower pressures will have less rebound when hitting rocks roots etc.
- This lower pressure will allow the tire to conform and absorb much of the impact putting suspension into the bicycle.
- The combination of the lower air pressure better tire stability makes riders faster and with better control.