



Why Pitch Measurements can be altered on Rubber Track Undercarriages

Pitch measurement is the distance from the center of the steel track pin and bushing to the center of the next pin and bushing. This measurement coincides with the pitch measurement of the sprocket. The sprocket will also be designed to accept certain bushing diameters.

In the world of steel tracks basically no change can be made in the pitch of a steel track used on a undercarriage set up to run steel chains. For instance, a Caterpillar E70B steel track machine has a pitch measurement of 135 mm or 5.314 inches. There are no other options in pitch for this machine. Why is this? The sprocket is designed to accept a certain pitch measurement along with a corresponding bushing diameter. In this case the pitch measurement is 135mm.

In the case of the Caterpillar E70B operating on the 135mm steel track chain and sprocket there are multiple options when it comes to operating this machine on a rubber track while using the same 135mm pitch sprocket. There are six (6) different pitch measurement rubber tracks which work on the same 135mm pitch sprocket.

142 mm Pitch

74 mm Pitch

73 mm Pitch

72.5 mm Pitch

72 mm Pitch

71 mm Pitch

The 142mm pitch is known as a “Long Pitch” rubber track. Long Pitch rubber tracks are the most closely related to steel tracks. Not only in pitch measurement but also in how the track operates on the undercarriage. A steel track bushing lands on every other sprocket tooth while rotating sprocket teeth every complete rotation of the sprocket. This aids in the even wear of the sprocket teeth.

The long pitch rubber track operates almost identical to the steel track. The long pitch rubber track pitch measurement is very close to the steel track pitch measurement. The long pitch rubber track links land on every other sprocket tooth just as the steel track.

The 74, 73, 72.5, 72 and 71 mm pitch rubber tracks are all known as “Short Pitch” rubber tracks. Sometimes the term “half” pitch is used but can be misleading causing the user to believe the pitch measurement is exactly half of the long pitch measurement. This is only the case in a very few scenarios.

Short pitch rubber tracks have become the preferred rubber track style whenever available. Offering a very smooth ride as compared to the long pitch rubber tracks. The shorter the pitch measurement the lower the rolling resistance of the track. This translates to a much smoother and less vibrating ride for the operator. There is slight noise reduction as well when the machine is in travel.

With the shorter pitch measurement, the links of the rubber track land on every sprocket tooth decreasing the machine’s power output. The question of “how can the pitch be shortened and still operate on the same steel track sprocket can be explained this way. In the beginning of this article we explained how the pitch of a steel track is measured at the center of the pin and bushing.

A rubber tracks pitch measurement is determined at the height of the steel cord inside the rubber track. By altering the height of the steel cord we can adjust the operational pitch measurement of the track thus allowing the track to operate on the same steel track sprocket.

Another example of this would be the Bobcat X331 mini excavator. The steel track pitch measurement for this machine is 101.6 mm. We can use

300x109 Long Pitch

300x56 Short Pitch

300x55 Short Pitch

300x54 Short Pitch

300x53 Short Pitch

300x52.5 Short Pitch

300x52 Short Pitch

Long Pitch and Short Pitch tracks have advantages and disadvantages. Short pitch tracks run more quiet with less vibration offering the operator a more comfortable experience when operating a machine for many hours per day. The disadvantage of the short pitch track is it is more susceptible to derailment due to the increased flexibility. Another downside to the short pitch track is the life of the steel cords is reduced due to the steel cords being closer to the center point of the turn radius of the sprocket. This increases the overall stress on the cables resulting in a shorter life span.

Long Pitch tracks are noisier and have significantly more vibration when traveling the machine. This is a downside to the operator. The advantage of the long pitch track is its ability to resist derail. The links seat deeper over the sprocket teeth making it more difficult in undulating terrain for the track to walk off the machine. The steel cords of the long pitch track also last longer as they are further from the center point of the turn radius of the sprocket resulting in less stress on the steel cords thus translating to longer life.