

Measurement of the belt line for Bicycles with rear Internally Geared Hubs – using a Vernier Caliper

Step 1:

The belt line is measured from the center of the frame to the center of the belt / sprocket.

The beltline can be directly measured from the front with a Vernier Caliper. Therefore, firstly we must measure the diameter of the Seat tube (see Figure 1).



Figure 1: Measuring the seat tube

In the example measurement photo, the Vernier Caliper shows a diameter of 32.23mm. This diameter is now divided by two. This gives a value of 16.11mm.

Step 2:

In the second step, the Vernier Caliper is placed on the left side of the seat tube in the direction of travel and applied to the center of the belt or sprocket (see Figure 2).



Figure 2: Measurement to center of belt / sprocket

In the example measurement photo, the Vernier Caliper shows a diameter of 71.09mm. From this value you must subtract the half of the seat tube (16.11mm from Step 1).

$$\rightarrow 71.09\text{mm} - 16.11\text{mm} = 54.98\text{mm}$$

This calculated value gives you the belt line at the front sprocket which in-turn, this value must be transferred to the rear sprocket with the max beltline tolerance of +/- 1.5mm.

The belt line on the rear sprocket is given by the hub and the values can be found in our technical manual -

(<http://www.gatescarbondrive.com/~media/files/gcd/gates-tech-manualen.pdf?la=en>) on pages 51-55.

The requirement for this type of measurement, is to ensure the frame is free of large tolerances, and very well aligned.