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Go to the next page for the Component Measuring details.
Measuring Components

This is only required for calculating spoke lengths.

Measuring rims

The only rim dimension that matters for spoke length purposes is the Effective Rim Diameter (ERD), all other profiles and rim dimensions are irrelevant. You must measure the diameter before lacing the wheel. Rim diameter has the biggest effect on spoke calculations so measure it accurately.

Take two spokes and cut them down accurately to 200mm. Screw down the nipples so that the spoke ends are flush with the bottom of the slot and glue in position. I always kept a set of these in my toolbox.

Now place these spokes in opposite sides of the rim and measure the gap between the ends. Add 400mm to get the rim diameter. Average several diameters.

Figure 70 Measuring the rim diameter
I do not advise using any ERD measurements supplied by the rim manufacturers, I never trust their data and neither should you. The reason is that the ERD is not a fixed point on the rim and the ERD is not a strictly defined term. Some rim manufacturers guess correctly and some don’t and an error in the ERD will result in you calculating the wrong length spokes. So use the measuring technique above.

Write your measured rim diameter down, the reason why is given in the spoke length section Comparing rim diameters on page 94 and the diameter can also be entered directly into the online spoke calculator at www.wheelpro.co.uk/spokecalc

<table>
<thead>
<tr>
<th>Rim name</th>
<th>Diameter</th>
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*Figure 71  Rim data*
Measuring hubs

There are only a few key dimensions on the hub that are required for spoke length purposes.

The dimensions A, B, C and D relate to the data entry boxes at the online spoke calculator at www.wheelpro.co.uk/spokecalc

If you don’t yet have your hubs you can safely take the figures supplied by the hub manufacturer which are usually available on their website. Unlike rims the hub measurements are to fixed points on the hub with no ambiguity. They will refer to dimension C as centre to left flange and dimension D as centre to right flange.

Measuring your own hubs is straight forward. With standard symmetrical front hubs obtain dimensions C and D by measuring across the hub flanges and dividing by two (C and D being identical). For the rear and front disc hubs which are non symmetrical use the following technique to measure dimensions C and D.
First measure \( x \) and \( y \) (see below)

Then:

\[ C = z - x \]

\[ D = z - y \]

\( z = \) Half the over locknut dimension.

---

**Measuring \( x \) and \( y \)**

To gain greater accuracy when measuring \( x \) and \( y \), drill a piece of wood and let the hub stand upright on its locknut. Take the measurement then turn over and repeat.

If the hub flange diameters are a different size then using a ruler is impractical (try it and see why). Instead use a piece of card and mark the position then measure separately.

---

**Figure 73  Measuring the rear hub**

Always record your measurements for future reference. The table on the next page is provided for this purpose.
**Hub data sheet**

Measure the dimensions A, B, x, y.

Use your ruler to measure the distance between the flanges - dimension F in the table below.

Now calculate C and D where:

\[ C = z - x \]

\[ D = z - y \]

z = half the over locknut dimension.

Check your calculation since C + D should be the same as F.

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<thead>
<tr>
<th>Hub name</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>z</th>
<th>x</th>
<th>y</th>
<th>F</th>
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