

### How to fit and adjust encoders

When fitting a new encoder make sure there is none of the plastic body in contact with any metal part of the robot. A locking washer around the bush will ensure that the plastic pip on the body will not touch metalwork.

Take care not to put any side loads on the encoder shaft. This is a very small shaft with tiny bearings and the shaft will bend or the bearings fail if too much side load is applied. Do not try to use the encoder as a belt tensioner. This applies serious side loads which will increase substantially when the motor runs against a load.

The encoder pulley should be loosely meshed with the belt such that it follows the belt motion but as there is no torque required to turn the encoder a firm mesh is not required. The belt alongside the encoder pulley should be straight. Check with a rule as shown in the picture.

In some circumstances, if the belt is too slack then the belt may come away from the encoder pulley when the robot moves, resulting in an encoder mismatch. If this is the case the belt should be tightened by inserting shims behind the motor mounting plate and not by moving the encoder.

