AMT102, AMT103 Mechanical Tolerances

Axial end play

The sensor in this encoder is very insensitive to axial position of the encoder disk. The limitation in axial play is only mechanical. There are two parts of mechanical limitation.

1. The shaft adaptor can slide in the hub up to + /- 1.5 mm. This slide action presently has a slight friction, but it will adjust for this amount of misalignment during assembly.
2. The hub is mechanically limited to move +/- 0.15 mm from center position. If the motor shaft is moving more than that amount the hub will hit its mechanical limitation and further movement will be taken up by the sliding between hub and shaft adaptor.

When mounting the shaft adaptor and sleeve on the shaft according to instruction, there is no axial force on the motor shaft and the shaft adaptor should come just in the right position.

If there are operations on the motor shaft load end after assembly of the encoder, that causes the shaft to move axially, this will be taken up by the sliding between shaft adaptor and hub. When the shaft returns to its nominal position, the hub will be sliding on it's lower limit, which may cause some slight acoustical noise, that disappears after some time. The encoder function will not be influenced by this.

Eccentricity and radial play

In this encoder, eccentricity and radial play of the shaft has little influence on accuracy because the sensing is done over the whole area of the rotor pattern. But by mechanical reasons we specify the max deviation from center to be 0.1 mm.