

Installation of a Housed Resolver:

1. Secure the shaft of the resolver to a coupling if mounting to a motor shaft, otherwise secure the shaft in the motor's hollow shaft. Maintain uniform force around the shaft during mounting. The shaft should not turn when the housing of the resolver is turned.
2. Align the resolver zero position with a motor pole for commutation. This can be accomplished several different ways. One common method is to apply a DC current across two motor phases, which "locks" the motor shaft at a pole position. The resolver is then connected to an angle position indicator, a drive, or an analog to digit convertor. The device must provide a signal to the resolver and measure the angle from the stator. Rotate the housing until the indicated angle is zero degrees. Secure the resolver in this position. A second method is to mechanically drive the motor with a second motor. While spinning, the back EMF of the motor being configured is viewed on an oscilloscope. The resolver signals are also viewed on the scope, and the resolver housing is rotated until the zero crossing of the back EMF coincides with the resolver zero position signal. Secure the resolver in this position.
3. Securing the resolver can be accomplished by using servo clamps or washers in the servo groove of the stator. Use 2 to 3 washers or servo clamps to hold down the resolver. Tighten the down the washers uniformly.

Mounting Considerations

Housed resolvers are a complete package of a stator, rotor, and bearings that can simplify the mounting process compared to a frameless resolver if the following tips are factored into the installation process.

1. Coupling between the shaft of the resolver and motor shaft should have uniform force securing the resolver shaft to the coupling.
2. Coupling between the shaft of the resolver and motor shaft should be secure and prevent slipping of the resolver shaft when turned.
3. Coupling between the shaft of the resolver and motor shaft should not put any axial force over 8 oz. on the resolver.
4. The resolver housing should be mounted perpendicular to the shaft within .0005 inch.
5. The designer should select housing and shaft materials with thermal coefficients of expansion that are similar to that of the resolver housing and shaft.

The above guidelines are for a typical application. Depending on the unit size, accuracy, and other electrical requirements, these guidelines may require looser or tighter tolerances.

Effects of Improper Mounting:

If due to system tolerance build up or defective system hardware, the preceding guidelines are exceeded, some changes in the electrical characteristics can be anticipated. The magnitude of these changes will depend on the resolver size and whether it is a single speed or multispeed resolver. The drag of the bearings could increase if a radial force is applied to the shaft above 4 oz or if an axially force is applied over 8 oz. Increasing drag can result in the shortening of the bearing lifespan.

JDM and JLP- Housed resolver install