

HUB SHAFT INSTALLATION INSTRUCTIONS

The Hub Shaft H25 Resolvers, DC25 DuraCoders, and NR25 Networked Resolvers employ a hollowed shaft and three clamping set screws to lock the device to the shaft. The largest hollow shaft available is 0.500". Hollow shafts of 3/8" to 12 mm are available through the use of a highly accurate factory installed hollow shaft insert. An anti-rotation bracket prevents rotation of the encoder while allowing for shaft end float and axial movement.



Shaft Engagement

Shaft insertion/engagement should be 0.95" to 1.1" [24mm to 27mm] (maximum), with the anti-rotation bracket just touching the motor face in order to attach the bracket to the motor.

For shaft lengths greater than the maximum engagement allowed, end of shaft mounting may still be employed by using a spacer between the mounting surface and anti-rotation bracket.

Installation



Installation should only be performed by qualified personnel. Safety precautions must be taken to ensure that the machinery cannot rotate and all sources of power are removed during installation.



This procedure may use both thread locker and anti-seize compounds. Be certain to identify the thread locker and anti-seize compounds correctly. Using anti-seize in place of thread locker can cause mechanical failure and lead to equipment failure, damage, and operator injury.

- 1) Disconnect power from equipment and the transducer cable.
- 2) Use a caliper gauge to verify that the motor shaft is the proper diameter and within the allowable tolerances of: +0.000", -0.0005" [+0.00mm, -0.013mm].
- 3) Clean the machine shaft of any dirt and remove any burrs.
- 4) Use a dial indicator gauge to verify that the motor shaft's Total Indicated Runout (TIR) is less than or equal to 0.002" [0.05mm].
- 5) Test fit the assembly by carefully sliding the transducer onto the shaft to verify fit. **Do Not Force**. The transducer should slide on easily. If the transducer does not fit easily, remove it, verify the shaft size, and check for burrs and shaft damage.
- 5a) *This step only applies for H25/DC25/NR25 units with 0.5" hollow shafts:*
Remove encoder, apply Permatex or equivalent anti-seize compound to the shaft and reinstall encoder, the anti-rotation bracket should just touch the motor face. (See [Shaft Engagement](#) above.)
- 6) Apply Loctite 222ms or an equivalent thread locker to the set screws on the hub shaft. Tighten screws evenly until snug, then tighten each screw to 35-50 in-lb [4-6 Nm]. **Do Not use a standard right angle wrench**. Use *only* a T-handle hex wrench or torque wrench with a 0.050" hex bit.
- 7) Secure the free end of the anti-rotation bracket to the frame. Use additional washers if necessary to install the bracket without a large deflection or bend.
- 8) Turn the input shaft by hand and verify the shaft turns freely and does not produce excessive runout/wobble of the encoder. The Total Indicator Reading (TIR) must measure less than <0.005". The section: [Adjusting the Transducer to Eliminate Excess Runout/Wobble](#) is provided on the following page if additional instructions are needed

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Adjusting the Transducer to Eliminate Excess Runout/Wobble

In a typical installation, a housing movement of 0.005" TIR or less (as measured at the outside diameter of the main encoder body) will not have any adverse effect. If excessive housing movement is detected in the installation:

- 1) Check the shaft the H25/DC25/NR25 is mounted on for excessive shaft runout. NEMA MG1 calls for 0.002" TIR or less.
- 2) Verify that the mounting shaft meets minimum and maximum diameter tolerances.
- 3) Maximize the shaft insertion into the transducer. (See [Shaft Engagement](#) on the previous page.)
- 4) Loosen the setscrews and rotate the motor shaft 180° within the transducer's hollow shaft sleeve. Retighten the set screws.

If excessive housing movement still exists after the above steps, it may be necessary to physically bias the attitude of the encoder on the motor shaft while the set screws are being tightened.