

WP0327

Dodge® Quantis gear reducers: allowable misalignment

Dodge Customer/Order Engineering



One cause of gearbox output seal leaking that can be overlooked is seal misalignment or seal cock. If the seal is pressed into the reducer and is slightly skewed, this can result in an oil leak from the gearbox. Ideally, the seal must be installed concentric and right angled with the shaft it rides on.

This is important because if a customer decides to replace a gearbox's seals, they must install it with as little misalignment as possible or else they can have another leaking seal.

The amount of allowable misalignment will depend on the type of seal and the supplier. For Quantis gearboxes, the seals are supplied by Freudenberg-NOK. Quantis output seals can have up to 0.5° of misalignment according to Freudenberg-NOK. The figure below shows a seal in misalignment with a shaft.

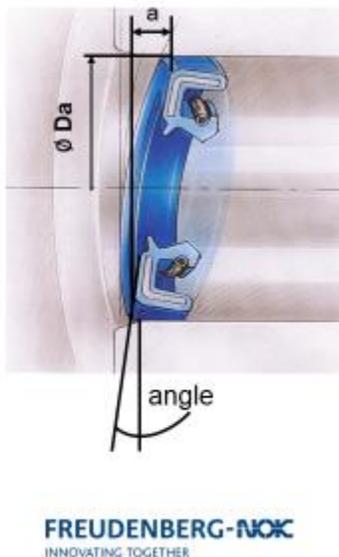


Figure 1. Misaligned seal example

The best method for measuring Quantis output seal misalignment is to measure the runout of the seal in relation to the output shaft using a dial indicator. **Figure 2** displays the locations where you can measure the runout of the seal in relation to the shaft.

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ABB Motors and Mechanical Inc.

6040 Ponders Court

Greenville, SC 29615

Phone: +1 864 284 5700

Email: DodgeEngineering@abb.com

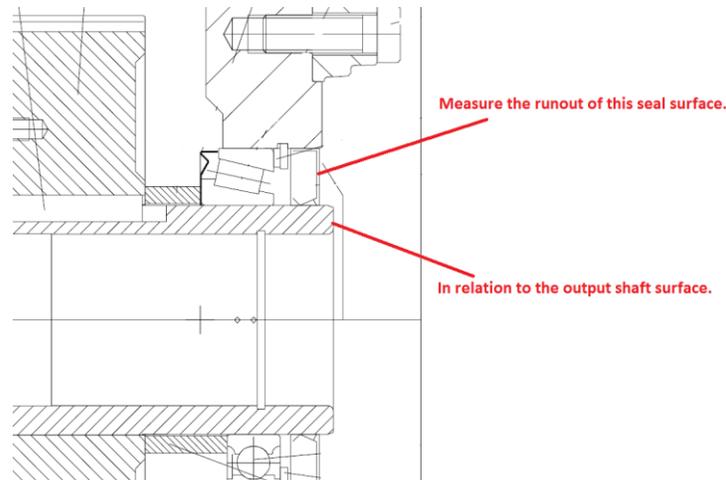


Figure 2. Location for dial indicator to measure seal runout.

Using trigonometry, we can find the maximum allowable runout of the seal based on the seal OD and the 0.5° allowable misalignment.

Reducer Size	Seal OD (mm)	Maximum Allowable Runout (in)
38	75	0.013
48	90	0.015
68	100	0.017
88	125	0.021
108	145	0.025
128	170	0.029
148	180	0.031
168	225	0.039

Quantis XT seals have the same OD so they have same maximum allowable runout as standard output seals. But the location to measure the runout is different. You must place the dial indicator on the face of the inner seal in reference to the shaft. See figure 3.

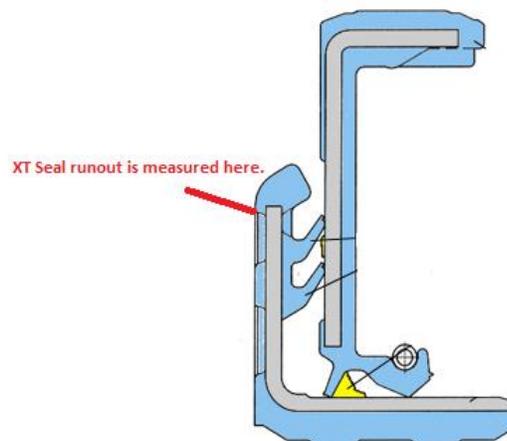


Figure 3. XT Seal runout measurement location.