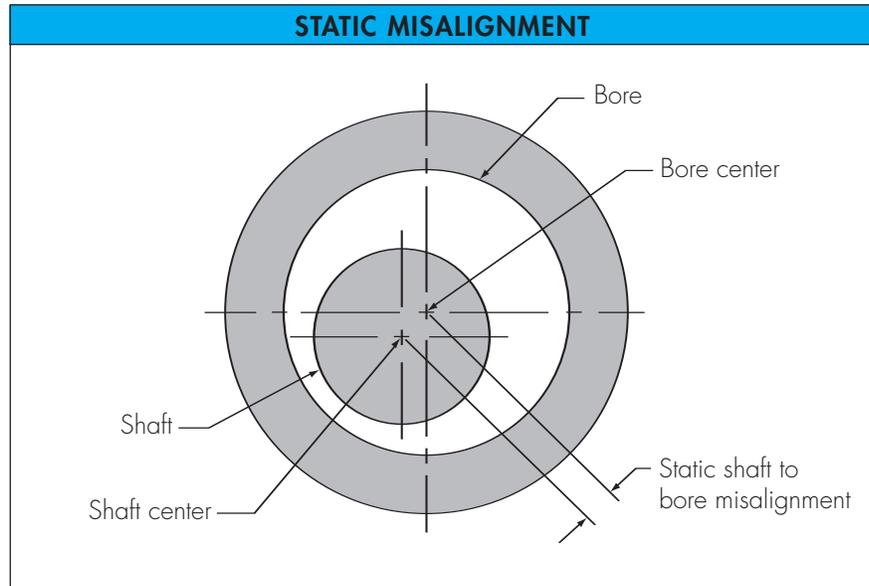


SHAFT TO BORE MISALIGNMENT

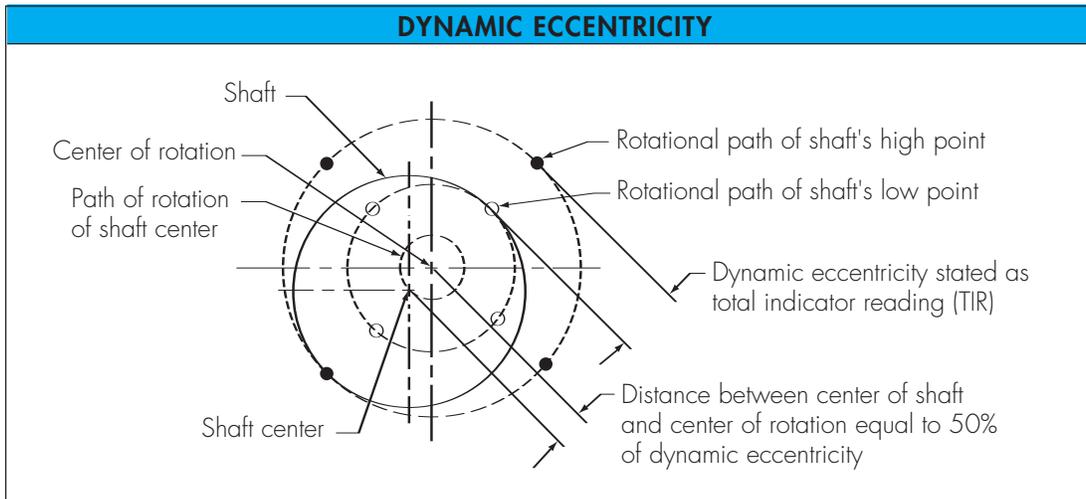
Misalignment between the shaft and bore is a static condition caused by their center-lines being offset. Evidence of this condition is seen by a wear pattern on the lip that is wider on one side of the seal. Shaft-to-bore misalignment should not exceed .003 inches (0.08 mm) for maximum seal life.

DYNAMIC ECCENTRICITY

Dynamic eccentricity is the variation between the high and low point on a shaft as it rotates in the bore in which the seal is installed. As the high point on the seal rotates through 360 degrees, it causes the seal lip to flex outward. Conversely, as the low point on the shaft rotates, it requires the seal lip to flex inward with each rotation. The elasticity of the lip and its garter spring energize the lip to follow this eccentricity. As shaft RPM or



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eccentricity increase, the demand on the lip to follow the shaft increases, resulting in shortened seal life. High RPM and eccentricity can cause the seal lip to raise off the shaft, being unable to follow its low point, inducing leakage. Maximum recommended dynamic eccentricity is .005 inches total indicator reading (TIR) or 0.13 mm.

TOTAL ECCENTRICITY

Total eccentricity is the sum of the dynamic eccentricity and shaft-to-bore misalignment. This value should not exceed .008 inches (0.2 mm) to ensure maximum seal life.