

Recommended Practice Shaft ISO Limits

Tolerances

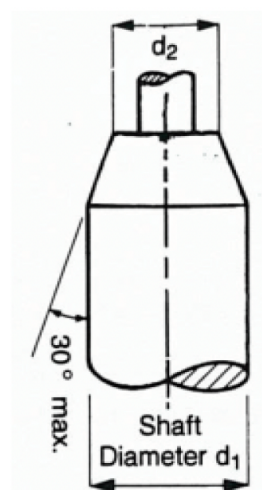
Shaft diameters should conform to the tolerance bands of ISO h.11.

Relative to the application, departures from roundness of shafts must be kept as low as practicable.

Shaft lead-in chamfer to ISO Standards.

If a shaft lead-in chamfer is used, it cannot be less than d1-d2 diametral difference in the table below.

d1 (mm)	d1-d2 (mm)
Up to 10	1.5
11-20	2
21-30	2.5
31-40	3
41-50	3.5
51-70	4
71-95	4.5
96-130	5.5
131-240	7
241-400	11



Shaft Eccentricity

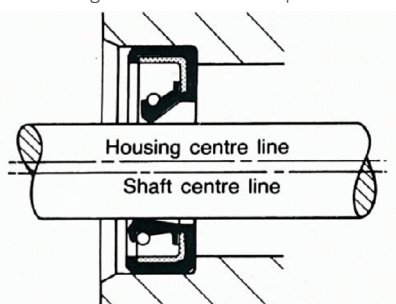
Shaft should run in true concentricity with the bore of the housing. When this cannot be assured, eccentricity must be kept to a minimum. Due to inertia, excessive eccentricity may cause the sealing lip to lift at high surface speeds resulting in leakage.

Ideally the seal will be located next to a bearing and bearing play should be minimized.

Eccentricity appears in two forms and may unfavorably affect the seal.

Shaft to Housing Bore Misalignment

Errors machining or excessive build-up of adverse tolerances can cause excessive wear on one side of sealing lip because of unilateral loading of lip.



Shaft Runout or Whip

This is when the geometric axis does not coincide with the axis of rotation which may cause lift in the bearing due to wear, flexing of the shaft due to imbalance and excessive overhang or overloading. These conditions may extremely impair the effectiveness of the seal. When operating at high speeds the rate of recovery of the seal lip may not be sufficient to maintain constant contact with the shaft.

