3. Notes on Design and Installation

3.3 Mounting the guide shaft

Unlike the guide bush, the guide shaft can be clamped or pressed in.

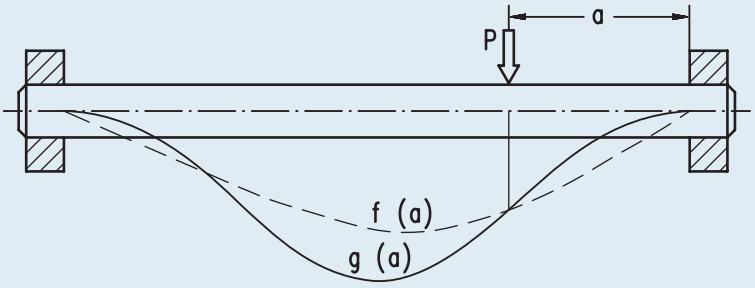
A radially loaded rotary stroke bearing is subject to elastic deformation on the rolling faces and the guide shaft. The rigidity of the guide shaft is largely determined by the type of clamping used.

With a relatively high load, a long shaft and a need for very accurate guiding over the entire stroke path, at least one of the two holders should be designed with a clamping length of

$s \geq 1.5 \cdot d_w$

If there is a clamp on one side only (cantilever beam), the application point of the load should be placed as close as possible to the clamped end.

Beam "on two supports" (loose bearing)
f(a) Deflection at force application point
g(a) Elastic curve



Clamped beam

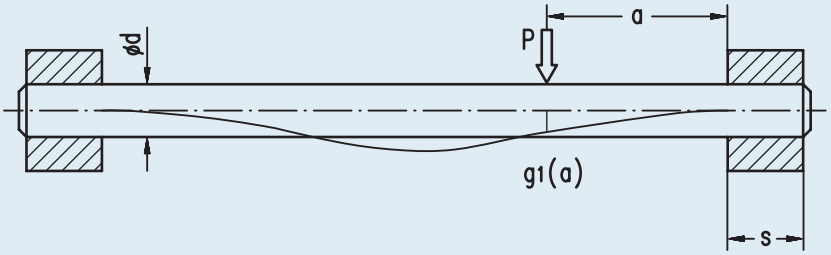


Fig. 10

s ≥ 1,5 d

Pressing in

Make the location bore e.g. ISO-R6 with axis in true alignment. The parallelism deviation of two paired shafts should not exceed the preloading value.

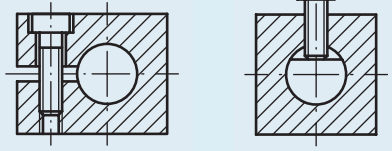
Clamping in the location bore, e.g. ISO-H6

- Indirectly with a slot and tension bolt.
- Directly with a pressure screw. The end of the shaft must be slightly flattened, tapped or turned in to secure it axially.

Clamping in vee-block

- With a clamp
- With a tension bolt

Clamping in location bore



Clamping in vee-block

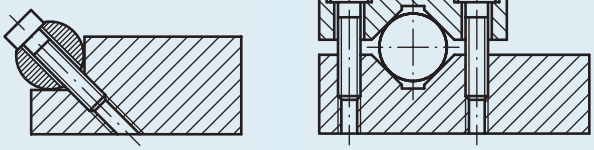


Fig. 11

Adhesive fittings

Poorly aligned location bores can result in tension in the shaft and rotary stroke bearing. This can be prevented by providing the bores with some fitting clearance, e.g. ISO F7-H7. At the final assembly stage, glue the shafts together with the rotary stroke bearing and allow to harden when properly aligned. The manufacturers' gluing instructions in terms of the gluing aperture, hardening time, etc. must be adhered to.