

Fitting instructions

iglidur® plain bearings are press-fit bearings. The inner diameter adjusts only after press-fit in the proper housing hole with a recommended (H7) tolerance. The press-fit excess dimension can be up to 2% of the inner diameter. This ensures the secure press-fitting of the bearing. Axial or radial movement in the housing are also prevented this way. The hole in the housing should be produced with the recommended tolerance (H7) for all bearings and be smooth, flat and chamfered at between 20 and 30 degrees. The bearing should be press-fitted using a flat press. The use of centring or calibrating pins can cause damage to the bearings and bring a greater amount of clearance.

Adhesion

It is not usually necessary to use an adhesive to fit the bearing. If a bearing is likely to lose its firm fit on account of high temperatures, a more temperature-resistant plain bearing should be used. If, however, there are plans to secure the bearings with adhesive, it will be necessary to perform suitable tests in each case. It is not possible to simply transfer the successful results seen in other applications.

Machining

iglidur® plain bearings are delivered ready-to-fit. The extensive product line makes it possible to use a standard dimension in most cases. If for some reason, a subsequent machining of the plain bearing is necessary, the adjacent table shows the machining standard values. The subsequent machining of the sliding surfaces is to be avoided if possible. Higher wear rate is most often the result. An exception is iglidur® M250 which is suitable for subsequent machining. In other iglidur® plain bearings, disadvantages of a sliding surface machining can be counteracted by lubrication during installation.

Process	Turning	Drilling	Milling
Tool material	Stainless steel	Stainless steel	Stainless steel
Feed [mm]	0.1...0.5	0.1...0.5	to 0.5
Clearance angle	5...15	10...12	3
Rake angle	0...10	3...5	
Cutting speed [m/min]	200...500	50...100	to 1,000

Table 09: Guidelines for machining



Picture 12: The bearing should be press-fitted using a flat press



Press-fitting plain bearings made easy

iglidur® plain bearings are press-fit bearings, which are dimensionally oversized and pressed into a housing with H7 tolerance. This is not always done in an assembly line using suitable tools. The igus® assembly aid flexibly and reliably accepts plain bearings for shaft diameters from 13–50mm (PT-1350) and 6–20mm (PT-0620) and even permits assembly using a hammer – simple and fast.



PT-1350



PT-0620

Tolerances and measurement system

The installation dimensions and tolerances of the iglidur® plain bearings are a function of the material and wall thicknesses. For each material, the moisture absorption and the thermal expansion are imperative. Plain bearings with low moisture absorption can be designed with a minimal amount of bearing clearance. For wall thickness, the rule is: the thicker the bearings are, the larger the tolerances must be. Thus, different tolerance classes exist for iglidur® plain bearings. Within these tolerances, iglidur® plain bearings can operate in the permissible temperature range and in humidity conditions up to 70% according to the installation recommendations. Should higher air moisture levels be present, or the bearing is used under water, we provide advice with regard to applications, in order to help you use your bearings correctly.

Testing methods

iglidur® plain bearings are press-fit bearings for housings with a H7 standard hole. This press-fitting of the bearing fixes the bearing in the housing, and the inner diameter of the plain bearing is also formed upon press-fit. The bearing size test is performed when the bearing is installed in a hole with the minimum specified dimension; both using a 3 point probe and a plug gauge:

- The "Go-Side" of the plug gauge, pressed into the hole, must pass easily through the bearing
- With the 3 point probe, the inner diameter of the bearing must lie within the prescribed tolerance on the measurement plane (diagram 20)

Troubleshooting

In spite of careful manufacturing and assembly of the bearings, differences and questions regarding the recommended installation dimensions and tolerances can result. For this reason, we have compiled a list of the most frequent reasons for differences. In many cases, with this troubleshooter, the reasons for the differences can be found quickly:

- The hole is not chamfered correctly, so the bearing material is removed upon press-fitting
- A centring pin was used which expanded the inside diameter of the bearing during press-fit
- The hole does not meet the recommended housing hole specifications (usually H7)
- The housing is made out of a soft material that was expanded by the bearing installation
- The shaft is not within recommended tolerances
- The measuring doesn't take place within the measuring lines



Picture 13: Measurement of the inner diameter of a press-fit plain bearing

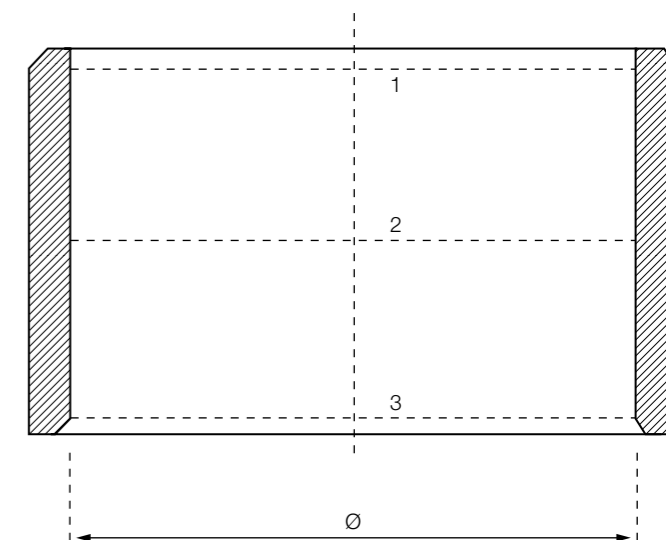


Diagram 20: Positions of the measurement lines

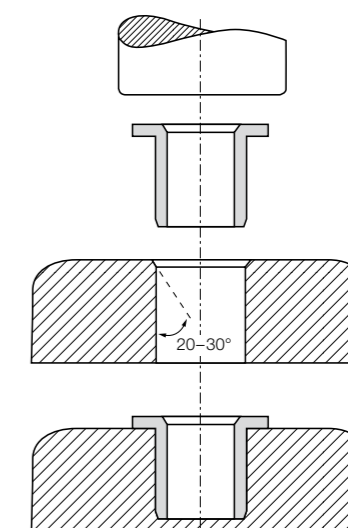


Diagram 21: Press-fit of the bearing (section view)