

Comparison between bonded and chambered PTFE sliding bearings

Bonded PTFE bearings usually consist of a thin 1,5 to 3 mm PTFE sheet glued onto a metal sheet (normally 2 or 3 mm thick).

Chambered PTFE bearings are made of a 5 mm thick PTFE sheet which is inserted into a 3mm depth recess and therefore not losable.

PG Systemtechnik advises against the use of bonded PTFE as this technique has a lot of disadvantages even though they are slightly cheaper. The technical disadvantages can lead to medium or long term failures. The **disadvantages** are in particular:

1. Due to its chemical molecular structure the bondage of PTFE is very poor. It is possible to improve the ability of the bonding by etching or roughening the surface and using special bonding agent. However the bonding glue is subject to ageing and will lose its strength by the time. This behavior has negative impact and can even lead to a peeling away of the PTFE with a total loss of function.
2. The thermal expansion of PTFE is around 10 times higher than stainless steel (even 20 times compared with carbon steel). This fact leads to high shear stress between the materials with fatigue and possible damage of the bonding.
3. Thin glued PTFE sheets are vulnerable to damages by foreign particles (small stones, sand, welding drips etc.). This is in opposite to thicker PTFE sheets in which the particles can totally disappear without damaging the counter bearing.
4. The welding of steel plates with bonded PTFE can destroy the PTFE by the insertion of the heat.

Please also consider that the maximum specific load of PTFE sheets is 5 to 10 N/mm², whereas chambered PTFE can be designed for specific loads of ≥ 60 N/mm² (at central load and normal ambient temperature).

All PTFE bearings **PGslide**[®] of PG Systemtechnik are state-of-the-art and based on the European Standard **EN 1337** (Structural Bearings). The **advantages** of **PGslide**[®] sliding bearings are in particular:

- the PTFE sheets are embedded and therefore cannot be fall out
- small dirt and contaminations can be covered by the thicker PTFE sheets
- the design allows much higher loads

Please do not hesitate to call or e-mail us!

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