

PTFE in bridge bearing quality



➤ Basis: EN 1337 – Standard for structural bearings

Since more than 30 years PTFE (PolyTetraFluorEthylen) - well-known as Teflon® - is used in bridge and other bearings for steel constructions of different types.

The European standard EN 1337 (former DIN 4141) is the technical basis.

PTFE materials used in bearings must meet the highest specifications regarding mechanical and tribological properties.

➤ Material combination

PTFE in bridge bearing quality is combined with an austenitic steel sheet and special silicon grease. This forms a complete sliding bearing.

The different materials are described and technically defined in EN 1337 and are third-party supervised by independent test institutes (e.g. the MPA Stuttgart).

➤ Definitions

The so called „bridge bearing quality“ is the material which is supervised independently by approved authorities. On the other hand a „bearing quality“ is available which meets the same technical standards but is not tested externally.

PG Systemtechnik can supply both grades.

➤ Application fields of the PTFE grades

While the European bridge bearing manufacturer usually work with bridge bearing quality the areas outside this business normally use bearing quality. In steel constructions, for power plants, pipework etc. cost reasons make bearing quality the more demanded grade. However an advanced quality management system must be guaranteed by the supplier and respective documents must be provided.

➤ Recommendation for bearings

In order to be on the safe side regarding all quality issues we recommend using the following specification for bids and requests for quotation:

Bearing – lower part: steel plate with embedded PTFE sliding pad in bridge bearing quality, thickness 5 mm, with certificate 3.1 acc. to EN 10204.

A friction diagram has to be provided on request.

Bearing - counterpart: austenitic steel plate, one-side covered with protection foil, thickness 2-3 mm, roughness $R_z \leq 1 \mu\text{m}$, with certificate 3.1 acc. to EN 10204, to be well and tightly sealed or bolted to the upper steel base plate.

for „friction values“ see reverse side

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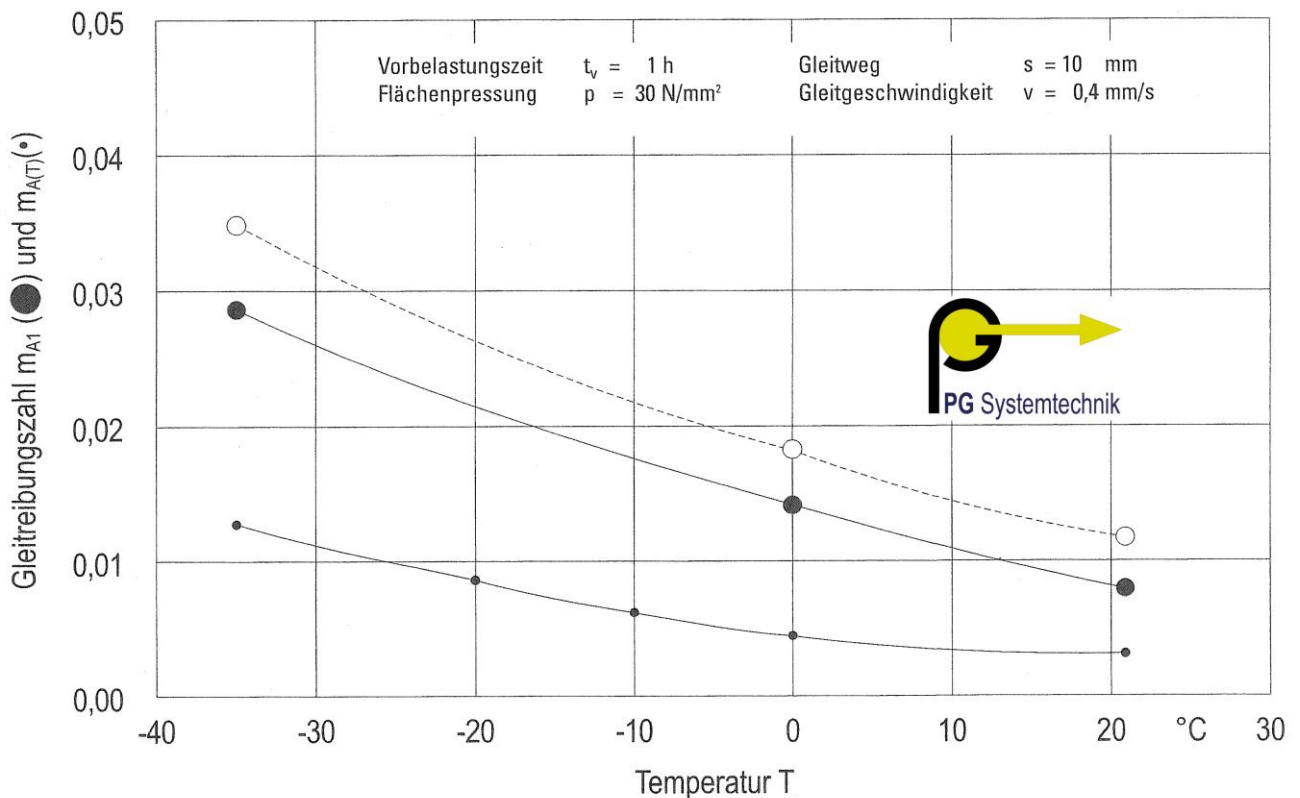
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➤ Friction values

Below mentioned values are the maximum allowed coefficients of friction acc. to EN 1337. These values can be taken for engineering calculations. The values are for lubricated version only.

Table: Coefficients of friction of PTFE type PGslide® bearing quality



Shown are :

- Maximum values acc. to EN 1337 „structural bearings“ part 2
- static coefficient of friction (start-up value)
- dynamic coefficient of friction

Sliding material:

PTFE white virgin, type PGslide® bearing quality with dimples

Counter bearing:

austenitic steel plate, roughness $R_z \leq 1 \mu\text{m}$

Lubricant:

silicon grease in bridge bearing quality

- above mentioned values are examples taken from a random lot
- The friction values are frequently tested by external institutes
- A certificate 3.2 acc. to EN 10204 can be provided on request

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