

ELGOGLIDE® maintenance-free spherical plain bearings and plain bushes



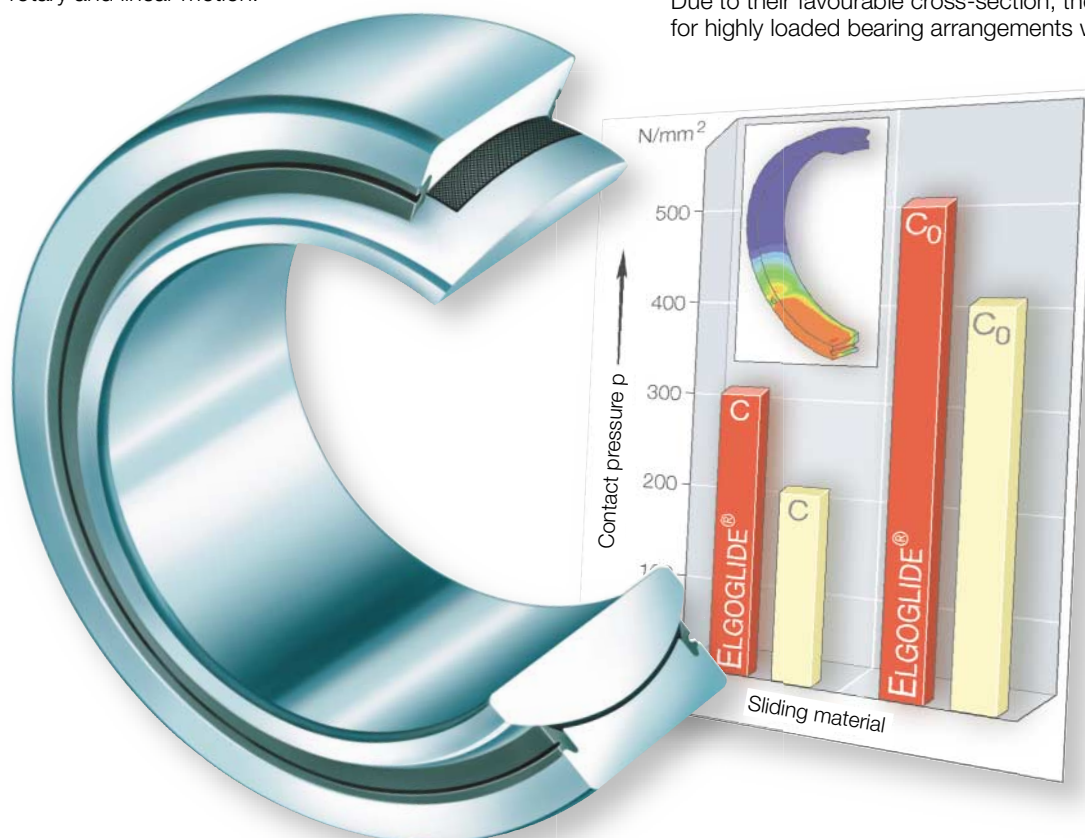
The new
S Class

Not everything that is presented on paper as giving very high performance actually fulfils the expectations raised in practice. Nothing is more annoying than promises that cannot then be kept in technical terms. That is absolutely not the case with our ELGES plain bearings based on ELGOGLIDE®. These high-performance plain bearings are in a class of their own. What they promise on paper, they deliver in actual operation. Why? Because they have proved themselves with distinction time and time again. And because they have been completely revised, so that they now give even better performance.

ELGOGLIDE® is a maintenance-free dry plain bearing material. The sliding layer is a PTFE (polytetrafluoroethylene) fabric comprising Teflon and support fibres. This fabric is embedded in a resin matrix and bonded with high strength to a steel support body. The bond is resistant to swelling and unaffected by moisture. The sliding material does not weld to metals and is substantially resistant to chemical influences. The material supports the loads occurring and also provides lubrication by means of the flakes of wear debris between the sliding surfaces. It is particularly suitable for oscillating motion but can also be used for rotary and linear motion.

The good sliding characteristics and the low coefficient of friction of the sliding material ensure low-friction movement. ELGES ELGOGLIDE® bearings can support very high loads with a unilateral load direction, alternating loads and high shock loads without transmitting moments. The calculation of the basic dynamic load ratings C is based on contact pressures of 300 N/mm^2 , while the calculation of basic static load ratings C_0 is based on p values of 500 N/mm^2 . Compared to earlier series, the load carrying capacity and sliding distance of the new ELGOGLIDE® series have been increased even further and by a considerable amount. This also gives a significant increase in the rating life of the bearings. This provides enormous performance reserves and additional large safety margins. In some applications, it is therefore possible to use smaller bearings.

The plain bearings give good heat dissipation and remain securely fixed in the locating bore even at high temperatures. They are simply pressed in and are thus particularly easy to fit. Any additional axial location required will depend on the bearing type and the application. ELGOGLIDE® plain bearings can replace steel, bronze and plastic bearings and often have a higher load capacity than conventional plain bearings. Due to their favourable cross-section, they are very suitable for highly loaded bearing arrangements with limited space.



*All in all,
the new
ELGOGLIDE®
series is in
a class of its
own.
It is quite
simply
the S Class
of plain
bearings.*

ELGOGLIDE®

maintenance-free spherical plain bearings and plain bushes

ELGES radial spherical plain bearings



Features

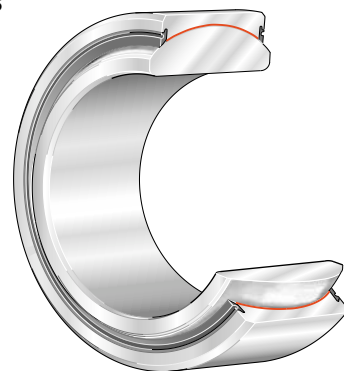
Radial spherical plain bearings

- are complete units comprising an inner ring, an outer ring and a maintenance-free ELGOGLIDE® sliding layer
 - the inner ring has a cylindrical bore and a convex outer slideway
 - the outer ring has a cylindrical outer surface, a concave inner slideway and a sliding layer fixed by adhesive
- are maintenance-free
 - the use of lubricant leads to a considerable reduction in bearing life
- are preferably used to support radial loads
- are used where:
 - there are particular requirements on bearing life under maintenance-free operation
 - bearings with a metallic sliding contact surface are not suitable for lubrication reasons, e.g. under unilateral load.

Radial spherical plain bearings



GE..UK-2RS

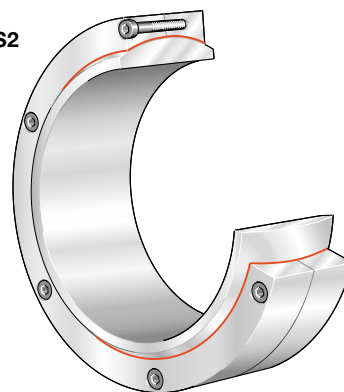


117 078

- to ISO 12240-1, dimension series E
- hard chromium/ELGOGLIDE® sliding contact surface
- suitable for alternating loads up to $p = 100 \text{ N/mm}^2$
- lip seals on both sides, for operating temperatures from -30 °C to $+130 \text{ °C}$
- for shaft diameters from 17 mm to 300 mm



GE..DW GE..DW-2RS2



117 079

- to ISO 12240-1, dimension series C
- classified as large radial spherical plain bearings
- hard chromium/ELGOGLIDE® sliding contact surface
- suitable for alternating loads up to $p = 100 \text{ N/mm}^2$
- GE..DW-2RS2 with increased sealing action on both sides
- for shaft diameters from 320mm to 1000 mm

ELGOGLIDE®
maintenance-free spherical plain bearings
and plain bushes

ELGES angular contact spherical plain bearings
 ELGES axial spherical plain bearings



Features

Angular contact spherical plain bearings

- are complete units comprising an inner ring, an outer ring and a maintenance-free ELGOGLIDE® sliding layer
 - the inner ring has a convex outer slideway
 - the outer ring has a concave inner slideway with a sliding layer fixed by adhesive
- are maintenance-free
 - the use of lubricant leads to a considerable reduction in bearing life
- can support axial loads as well as radial loads
 - they are thus suitable for alternating dynamic loads
- can be used in paired arrangements as preloaded units
- are used, for example, to support high loads in conjunction with small motions
 - they are a plain bearing alternative to tapered roller bearings.

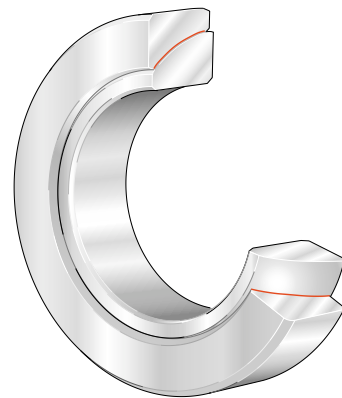
Axial spherical plain bearings

- are complete units comprising an inner ring, an outer ring and a maintenance-free ELGOGLIDE® sliding layer
 - the shaft locating washer is supported in the ball socket-shaped sliding zone of the housing locating washer
- are maintenance-free
 - the use of lubricant leads to a considerable reduction in bearing life
- are preferably used to support axial loads
- are suitable for use as support or base bearings
- can be combined with radial spherical plain bearings of dimension series E to ISO 12 240-1.

Angular contact spherical plain bearings



GE..SW



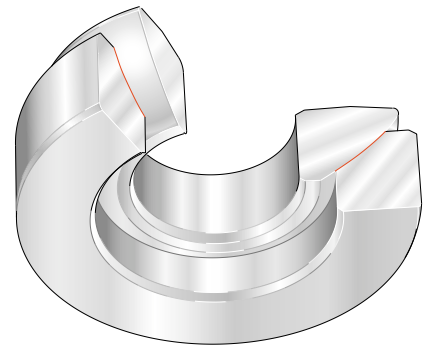
117 091

- to ISO 12 240-2
- mounting dimensions as for tapered roller bearings to DIN 720, 320X
- hard chromium/ELGOGLIDE® sliding contact surface
- for shaft diameters from 25 mm to 200 mm

Axial spherical plain bearings



GE..AW



117 092

- to ISO 12 240-3
- hard chromium/ELGOGLIDE® sliding contact surface
- for shaft diameters from 10 mm to 360 mm
- from $d \geq 220$ mm, classified as large axial spherical plain bearings

ELGOGLIDE® maintenance-free spherical plain bearings and plain bushes

Cylindrical ELGES plain bushes



Features

Cylindrical plain bushes

- are radial dry plain bearings comprising a cylindrical steel bush and a maintenance-free ELGOGLIDE® sliding layer
 - the steel bush gives protection during handling and fitting
- are maintenance-free
 - the use of lubricant leads to a considerable reduction in bearing life
- can be used to replace steel, bronze and plastic plain bearings
 - the plain bushes can support higher loads than conventional plain bearings
- can support very high radial loads with unilateral load direction and high shock loads
- are used with high alternating loads and swivel motion
- have low friction
- have good damping characteristics
- allow some axial motion
- are easy to fit
 - they are simply pressed into the housing bore
 - no further axial location is required
- can also be combined with separate, additional seals.

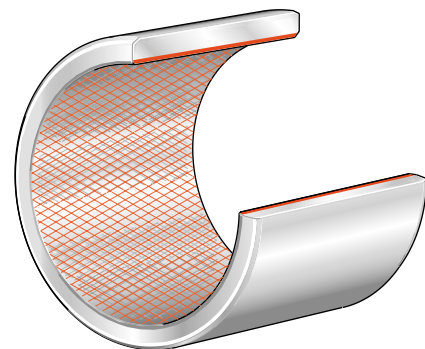
Note

In cylindrical plain bushes, the contact pressure value p for C_0 is 400 N/mm^2 . See *INA Catalogue 238*.

Cylindrical plain bush



ZGB



117 098

- dimensions to ISO 4 379, diameter series 2 and 3
- operating temperatures from -50 °C to $+150 \text{ °C}$
- for shaft diameters from 30 mm to 200 mm;
for shaft diameters $>200 \text{ mm}$ by agreement

ELGOGLIDE® maintenance-free spherical plain bearings and plain bushes

Essential features of ELGOGLIDE®

Load carrying capacity and sliding distance

The contact pressure p has a decisive influence on the life of a spherical plain bearing. It is determined on the basis of the equivalent bearing load P , the basic dynamic load rating C and a specific load parameter K .

The new ELGES plain bearings based on ELGOGLIDE® have basic dynamic and static load ratings that are significantly higher than those of earlier series (Figure 1). This has been achieved by increasing the contact pressure values p to 300 N/mm² under dynamic load and 500 N/mm² under static load. For application use, the higher dynamic and static load carrying capacity gives:

- longer sliding distances
- higher loads
- smaller dimensions
- longer bearing life.

As a result, the new ELGES plain bearings are not only maintenance-free but also particularly economical.

Behaviour in the presence of moisture

A further central criterion for the assessment of maintenance-free plain bearings is the reaction of the material to moisture. In addition to the sliding material, however, the adhesive bond to the support body also influences the stability of the connection. ELGOGLIDE® does not undergo swelling or welding. This PTFE fabric is embedded in resin and bonded with high strength to the support body. The adhesive bond is also resistant to moisture and swelling.

The high resistance is shown by tests (Figure 2). In competitor bearings with other sliding materials, the fabric had become completely detached after only 2 weeks in one case and severe peeling of the fabric occurred after 26 weeks in the other. The ELGOGLIDE® sliding layer ran for 312 weeks in the test without detachment of the fabric. This gives security for applications involving moisture.

Test bearings

- ① Radial spherical plain bearing
GE 40 UK-2RS/ELGES bearing with ELGOGLIDE®
– no detachment of fabric after 312 weeks
- ② Radial spherical plain bearing
GE 40...-2RS/competitor bearing
– severe detachment of fabric after 26 weeks
- ③ Radial spherical plain bearing
GE 40...-2RS/competitor bearing
– 100% detachment after 2 weeks.

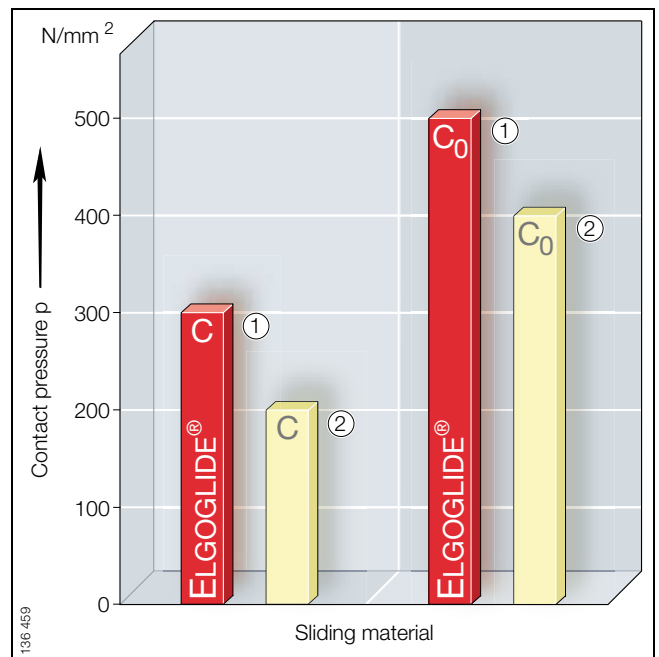


Figure 1 · Load carrying capacity – comparison of ELGES ELGOGLIDE®: new ① / old ②

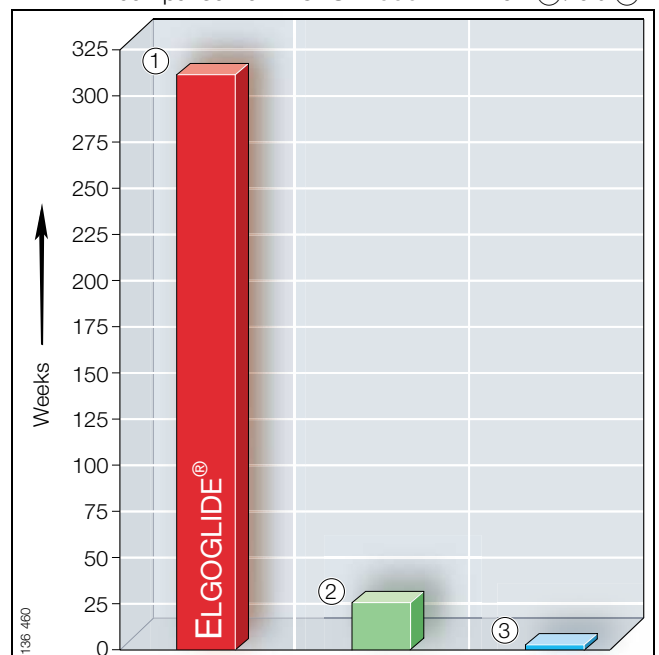


Figure 2 · Resistance to moisture



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