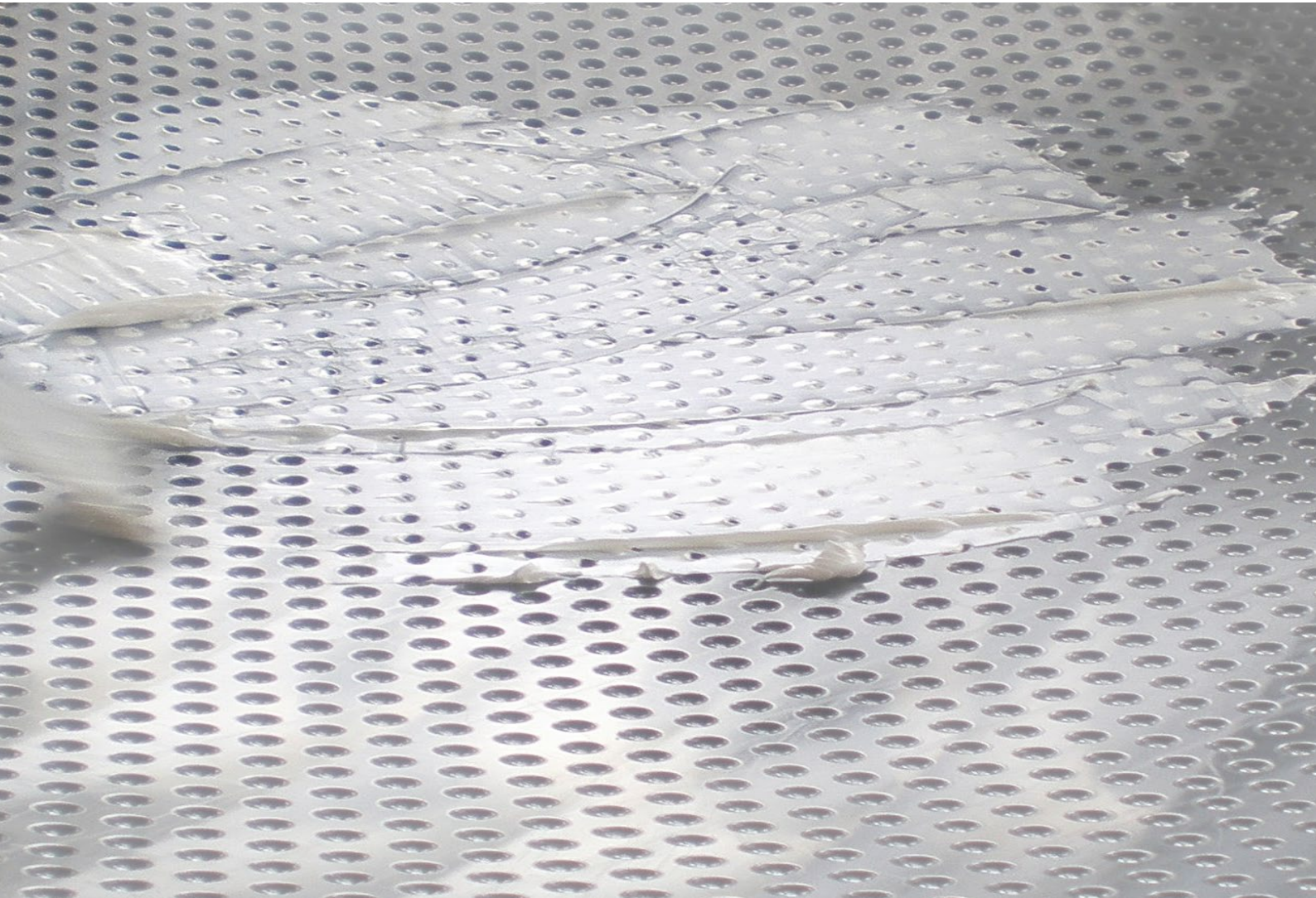




Structural bearings

Infrastructure | Buildings | Industrial structures

# mageba high-performance sliding material for maximised durability



## ROBO<sup>®</sup>SLIDE 75

durable, compact, PFAS free



mageba



# Superior sliding material for demanding requirements

## Introduction

Bearings are constantly exposed to daily movements caused by temperature, ever increasing traffic and other loads. In addition, the structures themselves become larger and more complex. These conditions ask for a sliding material with high strength and minimum wear.

PTFE<sup>1</sup> has been the standard sliding material for many decades. Whilst performing well in terms of sliding friction coefficients, there are **3 disadvantages of PTFE**:

- It's **high wear** compromises the durability of the overall product.
- Pure PTFE is clearly inferior to UHMWPE<sup>2</sup> in terms of **strength**.
- PTFE is a so-called **PFAS**<sup>3</sup> which does not self-degrade but persists practically forever. In fact a ban of these "eternal chemicals" by the European Union is in preparation.

## mageba's solution

To counteract these disadvantages, mageba has been using UHMWPE for years and is now going one step further in terms of strength and durability with the newest generation ROBO®SLIDE 75.

The well-proven system of small reservoirs (so-called dimples as shown on the front page) provides a permanent supply of silicone grease, thereby ensuring high durability and low sliding friction.

## Testing

Extensive testing has been carried out by the independent Materials Testing Institute (MPA) of the Karlsruhe Institute of Technology (KIT) in accordance with the European Assessment Document EAD-050004-00-0301.

The assessed sliding friction coefficients are below the maximum value of 3% defined for PTFE acc. to EN 1337-2.

Furthermore, the operating temperature range is extended from -35/+48 °C for PTFE to -50/+80 °C for ROBO®SLIDE 75.

Samples of ROBO®SLIDE 75 were successfully tested for a record accumulated sliding path of 75 km, under a continuous pressure of 60 MPa.

This sliding path demonstrates a 7.5 times higher durability than that of PTFE acc. to EN 1337-2 or acc. to various ETAs.

## Key characteristics and benefits of ROBO®SLIDE 75

- **Newest generation UHMWPE**
- **Market-leading durability / resistance to abrasion tested for 75 km or 75 years respectively**
- **Doubled compressive strength, compared to PTFE, for compact bearings**
- **Tested for use with stainless steel, hard chromed, and special alloy mating surfaces**
- **PFAS free**

## Comparison of ROBO®SLIDE 75 and PTFE

|                     | ROBO®SLIDE 75 acc. to ETA 23/0831 | PTFE acc. to EN 1337-2     |
|---------------------|-----------------------------------|----------------------------|
| Char. strength      | 180 MPa (T ≤ 35 °C)               | 90 MPa (T ≤ 30 °C)         |
| Expectable lifetime | 75 years <sup>a</sup>             | max. 25 years <sup>b</sup> |
| Min/Max temperature | -50 °C / +80 °C                   | -35 °C / +48 °C            |
| Sliding friction    | 2.3 – 2.8 % <sup>c</sup>          | 2.0 – 3.0 % <sup>c</sup>   |
| PFAS free           | Yes                               | No                         |

<sup>a</sup> acc. to EAD 050004-00-0301 for 75 km accum. sliding path

<sup>b</sup> acc. to EN 1990. 10 km accum. sliding path acc. to EN 1337-2

<sup>c</sup> main surface, at 50% utilization

## Comparison of durability of various sliding materials

| Material                     | Standard     | Tested accum. sliding path [km] |
|------------------------------|--------------|---------------------------------|
| New UHMWPE ROBO®SLIDE 75     | ETA 23/0831  | 75                              |
| First generation UHMWPE      | various ETAs | 50                              |
| Modified, high strength PTFE | various ETAs | 10                              |
| PTFE                         | EN 1337-2    | 10                              |



mageba in house production facility of structural bearings

## Customer support

Our product specialists will be pleased to advise you in the selection of the most suitable bearing type for your project.

<sup>1</sup> Polytetrafluoroethylene

<sup>2</sup> Ultra-high-molecular-weight polyethylene

<sup>3</sup> Per- and polyfluoroalkyl substances

## mageba infrastructure products



Structural bearings



Expansion joints



Seismic devices



Structural monitoring

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