LASTO® – sliding point bearing with PTFE sliding surface

LASTO® FLONPAD
Low-friction, durable, high-quality
**Properties & technical data**

**Principle**
The free-sliding LASTO®FLONPAD point bearing is a high-quality structural support bearing for buildings or civil engineering structures. It is used as a low-height solution for accommodating significant structural movements with minimal friction. It consists of a PTFE-coated elastomeric load-bearing core, and a separate stainless steel sliding sheet with a specially treated, highly polished surface across which it can slide. This high-quality sliding pairing offers excellent sliding properties, durably and reliably. Two types are available: GP6, with an unreinforced core of thickness 6 mm, and GP9, with a steel-reinforced core of thickness 9 mm.

**Application areas**
LASTO®FLONPAD is an optimal solution in many situations where a durable, low-friction bearing solution is required. The freely definable dimensions of the bearing enable loads to always be transmitted directly and efficiently to the supporting structure.

LASTO®FLONPAD can be used to achieve high-quality bearing support for slabs on walls, columns and brackets and for prestressed slabs. It is particularly suitable for steel construction, timber construction, pipelines, machines, reservoirs and water tanks. Within the 1000 × 2000 mm maximum dimensions of the sliding plate, any shape is possible.

<table>
<thead>
<tr>
<th>Type</th>
<th>LASTO®FLONPAD GP 6</th>
<th>LASTO®FLONPAD GP 9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="illustration" alt="Unreinforced bearing" /></td>
<td><img src="illustration" alt="Steel-reinforced bearing" /></td>
</tr>
<tr>
<td>Description</td>
<td>Unreinforced bearing</td>
<td>Steel-reinforced bearing</td>
</tr>
<tr>
<td>Sliding surface</td>
<td>PTFE, smooth</td>
<td>PTFE, with grease pockets</td>
</tr>
<tr>
<td>Base material</td>
<td>CR</td>
<td>CR</td>
</tr>
<tr>
<td>Elastomer thickness</td>
<td>t = 5 mm</td>
<td>t = 5 mm</td>
</tr>
<tr>
<td>Core thickness</td>
<td>6 mm</td>
<td>9 mm</td>
</tr>
<tr>
<td>Sliding plate thickness</td>
<td>2 mm</td>
<td>2 mm</td>
</tr>
<tr>
<td>Installation height</td>
<td>8 mm</td>
<td>11 mm</td>
</tr>
<tr>
<td>Allowable pressure (SLS)</td>
<td>5 N/mm²</td>
<td>15 N/mm²</td>
</tr>
<tr>
<td>Weight of load-bearing core</td>
<td>9.61 kg/m²</td>
<td>27.23 kg/m²</td>
</tr>
<tr>
<td>Weight of sliding plate</td>
<td>27.70 kg/m²</td>
<td></td>
</tr>
</tbody>
</table>

**Movement capacity**
The standard movement capacity of a LASTO®FLONPAD sliding bearing is ±25 mm in both the longitudinal and transverse directions. The sliding plate is then 60 mm longer and wider than the elastomer/PTFE part of the bearing; the length of the sliding plate along each axis generally exceeds the length of the elastomer/PTFE part by an amount equal to the sliding capacity in that direction plus 10 mm. The installation dimensions of the fully fabricated bearing can be freely specified within certain limits, but must be at least as big as the sliding plate. To prevent the bearing from becoming displaced from its position on the supporting structure, a minimum pressure of 0.5 N/mm² is required.

**Rotation**
The bearing’s maximum permissible rotation angle, α, can be calculated using the following equations:
- GP 6 (unreinforced): perm. α = \( \frac{0.2 \times 3 \times 1,000}{a} \)
- GP 9 (reinforced): perm. α = \( \frac{0.2 \times 5 \times 1,000}{a} \)

where a is the bearing core length [mm] perpendicular to the rotation axis.

For larger angles of rotation to be required, we recommend the use of our LASTO®FLONBLOCK bearing.

1. Edge distance from load-bearing core: min. 30 mm
2. Sliding plate may be supplied with anchors, on request

**Installation**
LASTO®FLONPAD sliding point bearings are supplied ready to install, and must not be disassembled. They have to be laid on a smooth, flat and horizontal mortar bed. An additional fixing is not necessary. The sliding plate is placed, or cast in place, to leave its sliding surface flush with the surface of the superstructure.

**Pressure [N/mm²]** | 5 | 10 | 15
---|---|---|---
**Coefficient of friction** | 0.05 | 0.04 | 0.03

Intermediate values may be linearly interpolated

Special designs for larger sliding movements available on request
Bearing construction and design example

**Spring characteristic**

![Graph showing spring characteristic with compression in mm on the x-axis and pressure in N/mm² on the y-axis. The graph includes lines for GP 9 and GP 6.]

**Bearing construction**

<table>
<thead>
<tr>
<th>EW</th>
<th>PW</th>
<th>BW</th>
<th>EL</th>
<th>PL</th>
<th>BL</th>
</tr>
</thead>
<tbody>
<tr>
<td>External width</td>
<td>Sliding plate width</td>
<td>Bearing width</td>
<td>External length</td>
<td>Sliding plate length</td>
<td>Bearing length</td>
</tr>
</tbody>
</table>

EW: External width  
PW: Sliding plate width  
BW: Bearing width  
H: Installation height (8, 11 mm)  
T: Thickness of core (6, 9 mm)

![Diagram depicting bearing construction with labels for EW, PW, BW, EL, PL, BL, H, and T.]

**Design example**

Specified:
- Load: \( F = 320 \, \text{kN} \)
- Movement capacity: \( s = \pm 20 \, \text{mm} \)
- Rotation: \( \alpha = 1.5 \% \) over \( BW \) about axis \( x \)
- Support structure dimensions: \( SW \times SL = 200 \times 300 \, \text{mm} \)

Solution:
1. Determine size of load-bearing core
   \( BW \times BL \) core dimensions as depicted should be appropriate for the support structure dimensions.
   \( \rightarrow \) Selected: \( BW = 110 \, \text{mm}, BL = 210 \, \text{mm} \)
   \( \rightarrow \) Selected: \( BW = 110 \, \text{mm}, BL = 210 \, \text{mm} \)
   \( \rightarrow \) Selected: \( BW = 110 \, \text{mm}, BL = 210 \, \text{mm} \)
   \( \rightarrow \) Type GP 9 required

2. Check angle of rotation:
   \( \rightarrow \) perm. \( \alpha = \frac{0.2 \times 5}{110} \times 1'000 = 9 \% > 1.5 \% \) as specified

3. Dimensions of sliding plate:
   \( PW = 110 \, \text{mm} + 2 \times 20 \, \text{mm} + 10 \, \text{mm} = 160 \, \text{mm} \)
   \( PL = 210 \, \text{mm} + 2 \times 20 \, \text{mm} + 10 \, \text{mm} = 260 \, \text{mm} \)
   (10 mm extra as reserve)

4. Installation dimensions:
   Support structure dimensions = 200 x 300 mm
   \( \rightarrow \) Installation dimensions = 200 x 300 mm \((SW \times SL)\)
Supply and install an installation-ready, free-sliding PTFE-sliding point bearing with a stainless steel sliding plate of thickness 2 mm.

Type: LASTO®FLONPAD GP 6
Movement capacity: ±25 mm
Allowable pressure (Gk): 5 N/mm²
Max. load: 150 kN
Installation height: 8 mm
Load-bearing core (BW x BL): 150 x 200 mm
Sliding plate (PW x PL): 210 x 260 mm
Inst. dimensions (EW x EL): 230 x 280 mm

Supplier:
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Tel.: +41-44-872 41 52
Email: buildings.ch@mageba-group.com
www.mageba-group.com

Supply and install a steel-reinforced, installation-ready, free-sliding PTFE-sliding point bearing with a stainless steel sliding plate of thickness 2 mm.

Type: LASTO®FLONPAD GP 9
Movement capacity: ±25 mm
Allowable pressure (Gk): 15 N/mm²
Max. load: 450 kN
Installation height: 11 mm
Load-bearing core (BW x BL): 150 x 200 mm
Sliding plate (PW x PL): 210 x 260 mm
Inst. dimensions (EW x EL): 230 x 280 mm

Supplier:
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Product groups (building construction)

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