

TECHNICAL DATA SHEET

SLIDING ELASTOMERIC BEARINGS – STRIPS

SLIDELINE is an elastomeric linear sliding bearing designed for the safe sliding of reinforced concrete structural elements (columns, beams, slabs, lintels, etc.) under high compressive loads. The bearing accommodates movements caused by temperature, shrinkage, creep and loading, while reliably transferring vertical loads to the support.

Fields of application:

- Supports of precast reinforced concrete structures;
- Supports of in-situ reinforced concrete structures;
- Mixed (precast and in-situ concrete) supports;
- Supports of timber structures;
- Steel, masonry or other contact surfaces – subject to agreement with the manufacturer.



SLIDELINE

The SLIDELINE core is an elastomer block made of synthetic EPDM rubber, with a sliding layer of special silicone grease applied to its surface. The entire bearing is enclosed in a continuous elastomer jacket, so the sliding zone is protected from moisture, dirt and mechanical damage and the bearing performs consistently throughout its service life.

The elastomer core together with the outer jacket carries the vertical loads and acts as a reservoir for the sliding lubricant. The silicone grease, also used in bridge bearings, ensures low initial (breakaway) friction and a constant coefficient of friction. The design value including a safety margin is $\mu = 0.15$ at temperatures down to -35 °C . The permissible sliding movement is up to $\pm 25\text{ mm}$ perpendicular to the bearing axis and up to $\pm 15\text{ mm}$ along the axis. At the maximum permissible vertical load the compression of the bearing does not exceed 25 % of its thickness.

DESIGN VALUES

Parameter	SLIDELINE	SLIDELINE (with protective shell*)
Overall bearing width a, mm	60	60
Protective shell width, mm	–	to suit support width, min. 100
Bearing thickness t, mm	10	10
Bearing length, mm	as required; roll up to 10 000	standard 1 000 (other lengths on request)
Permissible characteristic load, kN/m'	300	300
Permissible compressive stress, N/mm ²	5.0	5.0
Minimum compressive stress, N/mm ²	1.0	1.0
Permissible rotation α , ‰	15	15
Permissible movement $\perp$ to bearing axis, mm	± 25	± 25
Permissible movement $\parallel$ to bearing axis, mm	± 15	± 15
Coefficient of friction μ down to -35 °C (design value)	0.15	0.15
Compression at maximum load, %	≤ 25	≤ 25
Service temperature, °C	$-35 \dots +70$	$-35 \dots +70$
Elastomer hardness, Shore A	70 ± 5	70 ± 5

Values determined in the manufacturer's laboratory in accordance with company standard JST_302689515.05_2024.

* The protective shell is used to protect the bearing during concreting of in-situ structures.

TRANSVERSE TENSILE FORCES IN THE BEARING JOINT

The elastomer is practically incompressible, so under load it expands transversely to the direction of loading and, through friction, induces tensile stresses in the adjacent concrete elements. These forces must be resisted by reinforcement placed as close to the bearing as possible while maintaining the required concrete cover.

The transverse tensile force in the joint is determined from the empirical relationship of DAfStB Heft 339 (formerly DIN 4141-15, 5.3): $Z_q = 1.5 \times F \times t \times a \times 10^{-5}$, where F – vertical load [kN], t – bearing thickness [mm], a – dimension in the direction considered [mm]. The concrete in the support zone is additionally verified and reinforced in accordance with EN 1992-1-1, 6.7.

Example: bearing 1 000 mm long, $F = 300$ kN, $t = 10$ mm, bearing width 60 mm. Transverse direction $Z_q = 2.7$ kN, longitudinal direction $Z_q = 45$ kN. These forces must be verified in the adjacent elements and resisted by reinforcement.

INSTALLATION

Bearings are placed on clean, dry reinforced concrete surfaces with unevenness not exceeding ± 2 mm over 1 m, within the reinforced zone – this prevents concrete spalling. The strip may be cut on site with a sharp knife perpendicular to its longitudinal axis without damaging the jacket; the silicone grease must not be removed or cleaned with solvents. Reinforcement resisting the transverse tensile forces must be in place before the bearing is installed. Installation tolerances: position in plan ± 10 mm, axis rotation ± 5 mm/m.

In precast construction the bearing is placed before the element is installed – fixed only at points or with double-sided adhesive tape; the element is lowered vertically without dragging. In in-situ construction the bearing with its dummy formwork is fixed through the formwork edges, not through the bearing itself; concrete is placed evenly on both sides, the vibrator is not applied to the bearing, and cement laitance must not enter the sliding plane.

The installed bearing must be protected from mechanical damage, sparks, solvents and paint. The sliding gap must remain free and correspond to the design movement (± 25 mm perpendicular and ± 15 mm along the bearing axis); joints are sealed only with elastic materials. A damaged bearing cannot be repaired on site – it must be replaced.

STORAGE

Bearings are stored in their original packaging in a closed, dry and ventilated room at -20 °C to $+40$ °C, protected from direct sunlight, UV radiation and sources of ozone. They must not be stored near oils, fuels, solvents, acids or other chemicals, nor directly on the ground or on concrete floors – use pallets.

Strips are stored flat or upright on a flat base, undeformed and unloaded; cut lengths are stored horizontally, not folded. Stacking height – no more than 3 packages. Bearings must not be dragged, thrown or pulled by the jacket; during transport they are protected from sharp edges and mechanical damage.

Properly stored bearings retain their properties for at least 24 months from the date of manufacture. Before installation, check that the jacket is undamaged and that there are no cuts, deformations or grease squeezed out of the seam. Damaged bearings must not be used.

DIMENSIONS, SHAPES AND DIMENSIONAL TOLERANCES

The standard strip width is 60 mm and the thickness 10 mm; other widths are manufactured to order. The strip is supplied in rolls of up to 10 m or cut to length on request; with the protective shell – in 1 000 mm long elements.

Dimensional tolerances: width ± 2 mm, thickness ± 0.5 mm, length $+ 10 / - 0$ mm per metre.

TENDER / SPECIFICATION TEXT

Supply of sliding elastomeric bearings for the supports of precast and/or in-situ reinforced concrete elements. Permissible load 300 kN/m, permissible movement ± 25 mm perpendicular and ± 15 mm along the bearing axis, design coefficient of friction $\mu = 0.15$ at temperatures down to -35 °C.

Product: METALBETA SLIDELINE ☐ without protective shell ☐ with protective shell

Bearing width: 60 mm Thickness: 10 mm

Overall support width: _____ mm

Quantity: _____ m