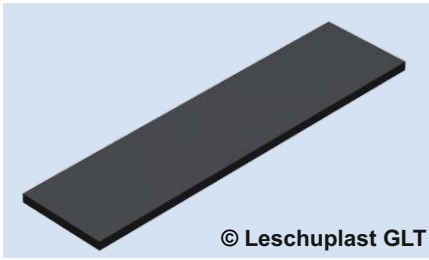


Sliding- and bearing technology



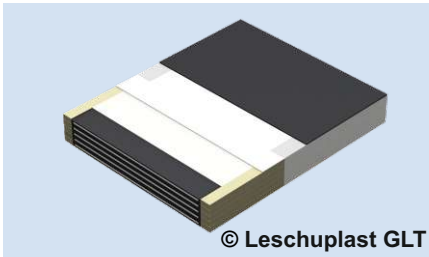


Non-reinforced elastomer bearings

For supporting girders, beams, trusses etc.

Type N 15 **Page 3-6**

Type N 20 **Page 3-6**

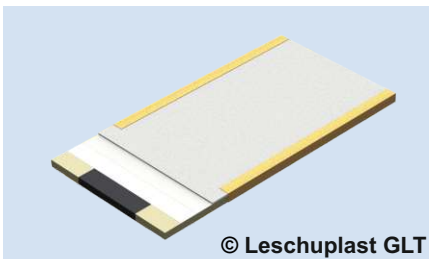


Elastomer slide bearings

For supporting girders, beams, trusses etc. with bigger movements

Type NEG non reinforced (for low surface loads) **Page 7-9**

Type B1EG steel reinforced (for high surface loads) **Page 10-12**

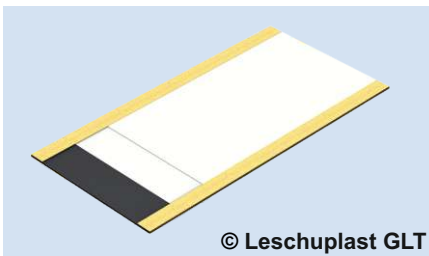


Core stripe bearings

For ceiling or flat roof support with load centring

Type TDG 27 SZ slide bearing **Page 13-14**

Type TD 21 S fixed bearing **Page 15-16**

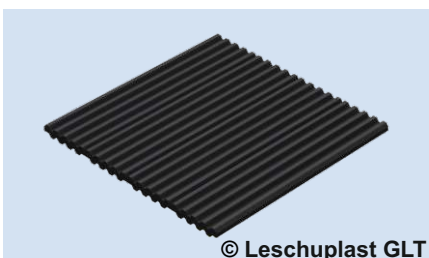


Sliding foils

For horizontal displacements with surface load distribution

Type TG 1 A... **Page 17-19**

Type TG 5 POM... (For foundation supports) **Page 20**

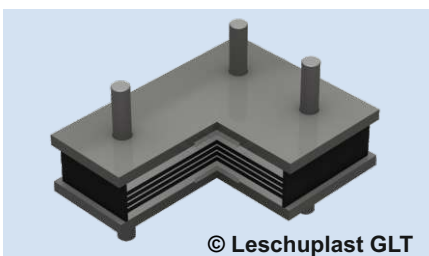


Sound damping bearings

For supporting underneath flight of stairs, floors, bond bridges etc.

Type SD-ribbed bearing, TD 21 SD **Page 21-23**

Type Z, TD 21 SD, Type B **Page 21-23**



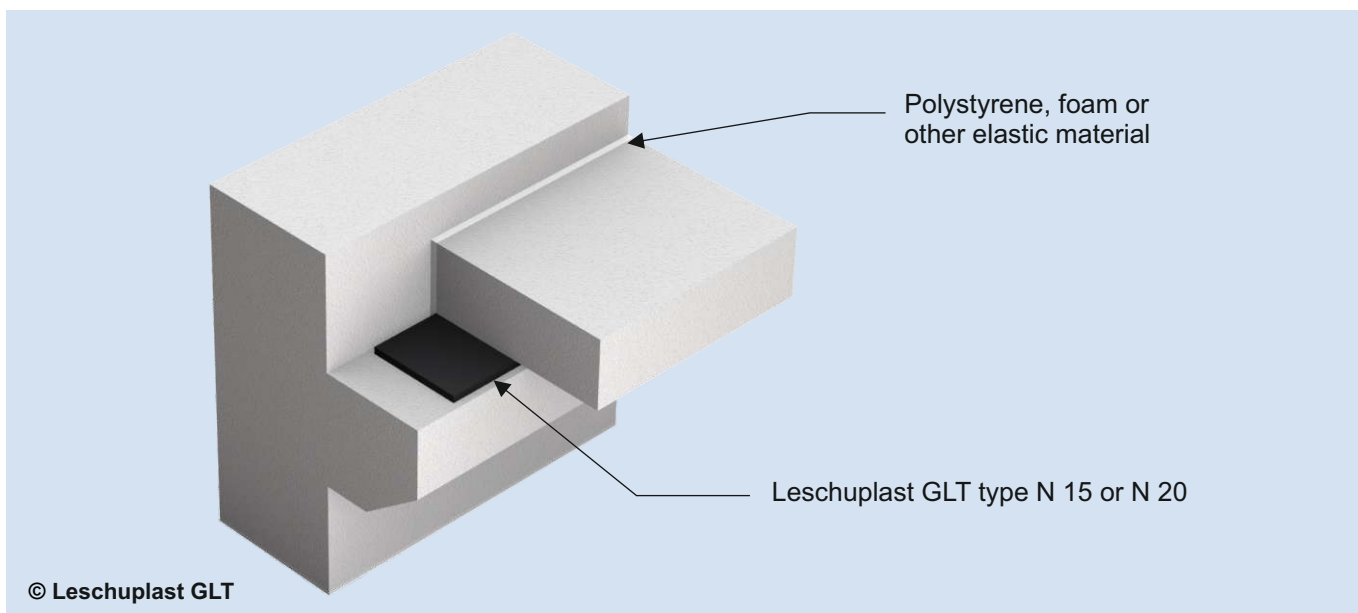
Steel reinforced elastomeric bearings

Supporting of bridges and comparable constructions

Elastomer bearing in accordance to DIN EN 1337-3 **Page 27-33**

Bearings for incremental launching Type BSL **Page 34**

Supporting girders, beams, trusses etc.



Heavy load-bearing, non reinforced elastomer bearing N 15 and N 20.

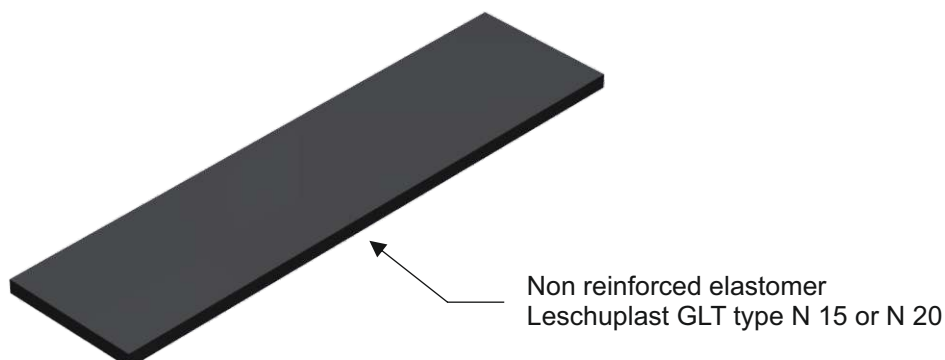
for compressions **up to 15 N/mm² (N 15) as well as up to 20 N/mm² (N 20)**.

Non reinforced elastomer bearings ensure a controlled load distribution and enable stress-free horizontal movements as well as twisting in supports. They prevent excessive load eccentricities and edge compression. At the same time, unevenness and deviations from parallelism in bedding surfaces are compensated.

- **Structural designing**

Non reinforced elastomer bearings N 15 and N 20 are produced in 5, 10, 15 and 20 mm thickness. The smaller side should be at least five times the bearing thickness. The bearing must be placed within the static reinforcement of the adjacent components present in the concrete.

- **Non-reinforced elastomer bearings should be used for predominantly static loads. For dynamic loads reinforced elastomer bearings should be used. (See page 27-35)**



Supporting girders, beams, trusses etc.

Non reinforced elastomer bearings are only allowed to be used, if the component of continuous load is more or equal 75 %. If it is lower, or in all cases, where too high loads or a defect of the bearing could result in a lack of stability, we recommend to use steel reinforced elastomer bearings. Adjacent components should be stressed only marginally by restoring forces and -moments.

- **Stress perpendicular to the bearing plane (surface load)**

In the following design tables, the maximum linear compression was limited to approx. 20 % in order to ensure additional safety for practical irregularities.

- **Stress parallel to the bearing plane (shear deformation), anti-skid stability**



The maximum permissible deformation angle and the displacement will be dimensioned as follows:

$$\tan \gamma = 0,7 \times \frac{t - 2}{t}$$

$$w = t \times \tan \gamma$$

$\tan \gamma$ = deformation angle [-]
 t = bearing thickness [mm]
 w = characteristic displacement [mm]

Continuous stresses parallel to the bearing plane are not permitted. The following analysis of anti-skid stability is recommended for absorbing short-time external horizontal stresses:

$$H_1 + H_2 \leq 0,05 \times F$$

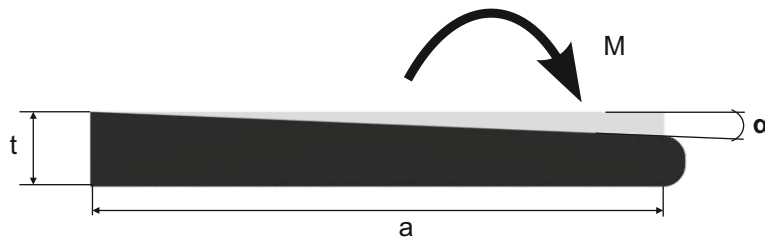
$$H_2 = a \times b \times G \times \tan \gamma$$

H_1 = char. external horizontal stress [N]
 H_2 = char. stress force due to deformation [N]
 $\tan \gamma$ = deformation angle [-]
 G = shear modulus (1,5 N/mm²)
 F = char. surface load [N]
 a, b = side length [mm]

The maximum permissible deformation angle should not be exceeded due to, short-time, external horizontal stress.

If the anti-skid stability is not given, appropriate constructive measures must be applied.

• **Torsion**



The permissible torsion due to elastic and plastic deformation of the components plus the part of unevenness and skewing bedding surface is restricted as follows :

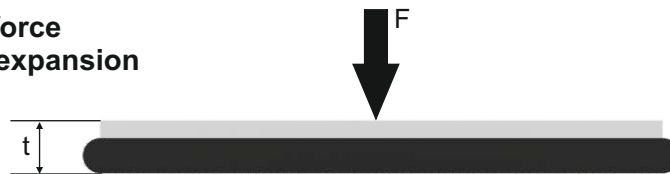
perm $\alpha < 0,2 \times \frac{t}{a}$ however a max. 0,03 rad α = char. twisting angle

Excentricity due to bearing torsion is taken into account for designing of adjacent components as :

$e = \frac{a^2}{2t} \times \alpha$

e = excentricity

• **Lateral tensile force due to bearing expansion**



If no specific analysis is requested, calculations can be done for bearing class 2 as mentioned below:

$Z_q = 1,5 \times F \times t \times a \times 10^{-5}$

Z_q = lateral tensile force [N]
 F = surface load [N]
 t = bearing thickness [mm]
 a = smaller bearing side [mm]

Corresponding additional reinforcement is to be inserted into the concrete for absorbing lateral tensile forces.

• **Rigidity**

If more than two bearings of different format are arranged in a row under one component, then the ratio :

$\frac{\text{max. } A/t}{\text{min. } A/t} \leq 1,2$

should not be exceeded.

Otherwise an analysis of stress absorption for individual bearings must be carried out.

<u>Specification:</u>	non-reinforced elastomer bearing type N 15 or N 20 for char. compressions up to 15 N/mm ² (N 15) or up to 20 N/mm ² (N 20), supply dim.: ... x ... x ... mm and set on a smooth, levelled and horizontal bedding surface. The surface should be clean and free from oils. Leschuplast GLT type N 15 or N 20
-----------------------	---

- permissible characteristic vertical pressure load of N 15 / N 20

total thickness 5 mm: load in kN

N15										N20									
[mm]	50	75	100	125	150	175	200	250	300	[mm]	50	75	100	125	150	175	200	250	300
50	38	56	75	94	113	131	150	188	225	50	47	75	100	125	150	175	200	250	300
75	56	84	113	141	169	197	225	281	338	75	75	113	150	188	225	263	300	375	450
100	75	113	150	188	225	263	300	375	450	100	100	150	200	250	300	350	400	500	600
125	94	141	188	234	281	328	375	469	563	125	125	188	250	313	375	438	500	625	750
150	113	169	225	281	338	394	450	563	675	150	150	225	300	375	450	525	600	750	900
175	131	197	263	328	394	459	525	656	788	175	175	263	350	438	525	613	700	875	1050
200	150	225	300	375	450	525	600	750	900	200	200	300	400	500	600	700	800	1000	1200

The smallest side length is 50 mm.

total thickness 10 mm: load in kN

N15										N20									
[mm]	50	75	100	125	150	175	200	250	300	[mm]	50	75	100	125	150	175	200	250	300
50	12	25	42	52	63	73	83	104	125	50	12	25	42	52	63	73	83	104	125
75	25	59	103	141	169	197	225	281	338	75	25	59	103	154	211	246	281	352	422
100	42	103	150	188	225	263	300	375	450	100	42	103	188	250	300	350	400	500	600
125	52	141	188	234	281	328	375	469	563	125	52	154	250	313	375	438	500	625	750
150	63	169	225	281	338	394	450	563	675	150	63	211	300	375	450	525	600	750	900
175	73	197	262	315	378	459	525	656	788	175	73	246	350	438	525	613	700	875	1050
200	83	225	300	375	450	525	600	750	900	200	83	281	400	500	600	700	800	1000	1200

The smallest side length is 50 mm.

total thickness 15 mm: load in kN

N15										N20									
[mm]	75	100	125	150	175	200	250	300	350	[mm]	75	100	125	150	175	200	250	300	350
75	26	46	69	94	109	125	156	188	219	75	26	46	69	94	109	125	156	188	219
100	46	83	129	180	236	296	370	444	519	100	46	83	129	180	236	296	370	444	519
125	69	129	203	281	328	375	469	563	656	125	69	129	203	291	388	493	625	750	875
150	94	180	281	338	394	450	563	675	788	150	94	180	291	422	525	600	750	900	1050
175	109	236	328	394	459	525	656	788	919	175	109	236	388	525	613	700	875	1050	1225
200	125	296	375	450	525	600	750	900	1050	200	125	296	493	600	700	800	1000	1200	1400
250	156	370	469	563	656	750	938	1125	1313	250	156	370	625	750	875	1000	1250	1500	1750

The smallest side length is 75 mm.

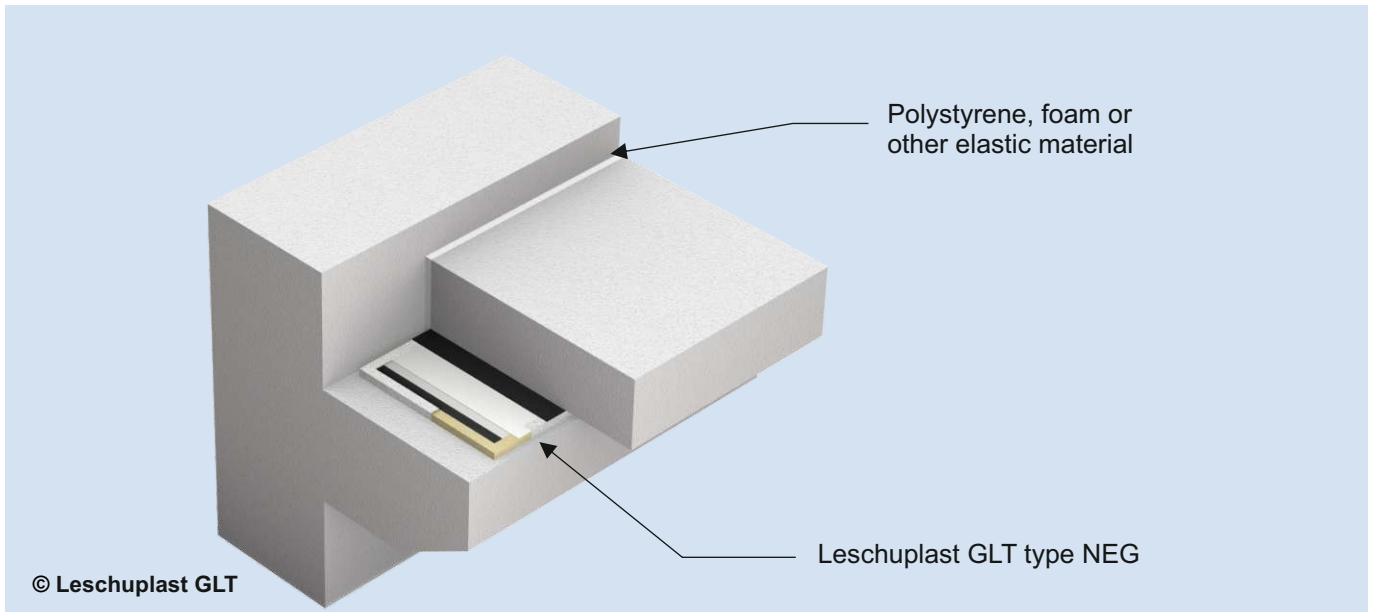
total thickness 20 mm: load in kN

N15										N20									
[mm]	100	125	150	175	200	250	300	350	400	[mm]	100	125	150	175	200	250	300	350	400
100	47	72	101	133	167	208	250	292	333	100	47	72	101	133	167	208	250	292	333
125	72	114	163	218	277	407	488	570	651	125	72	114	163	218	277	407	488	570	651
150	101	163	237	321	413	563	675	788	900	150	101	163	237	321	413	618	844	984	1125
175	133	218	321	440	525	656	788	919	1050	175	133	218	321	440	572	869	1050	1225	1400
200	167	277	413	525	600	750	900	1050	1200	200	167	277	413	572	750	1000	1200	1400	1600
250	208	407	563	656	750	938	1125	1313	1500	250	208	407	618	869	1000	1250	1500	1750	2000
300	250	488	675	788	900	1125	1350	1575	1800	300	250	488	844	1050	1200	1500	1800	2100	2400

The smallest side length is 100 mm.

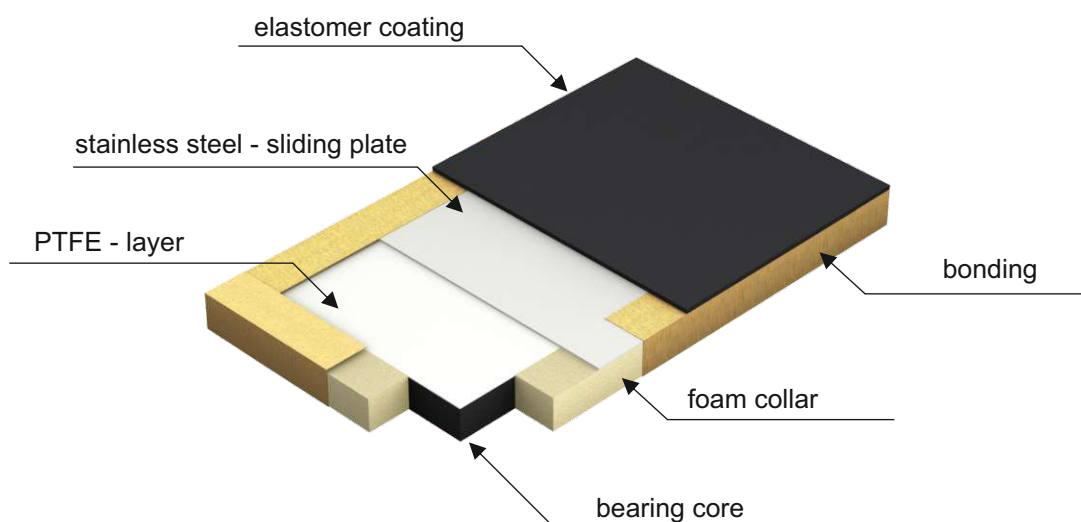
Bearings with other lengths and widths are to be correspondingly interpolated. The maximum permissible surface compression for larger bearings is 15 N/mm² (N15) or 20 N/mm² (N20).

**Supporting girders, beams, trusses etc.
with bigger displacement clearances and
low surface loads**



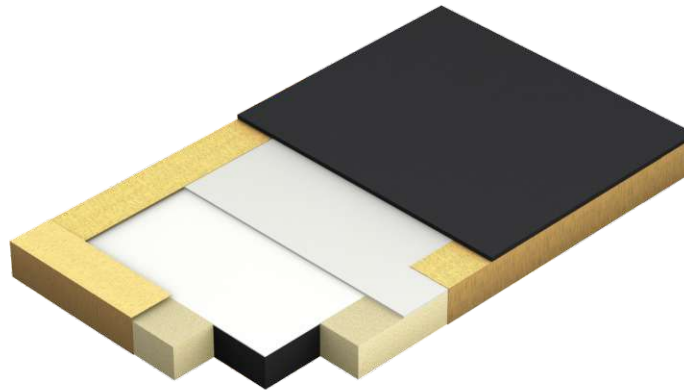
Non reinforced elastomer slide bearing type NEG

For all point bearings with bigger displacement clearances at **characteristic compressions up to 5 N/mm²**. Low coefficient of friction and high functional stability are ensured due to high-quality slide matching. Non reinforced elastomer slide bearings absorb horizontal displacements by slides of the sliding plate on the bearing support. At the same time, they ensure a controlled load distribution and compensate similar systematic twisting in supports as well as unevenness and deviations from parallelism in bedding surfaces.

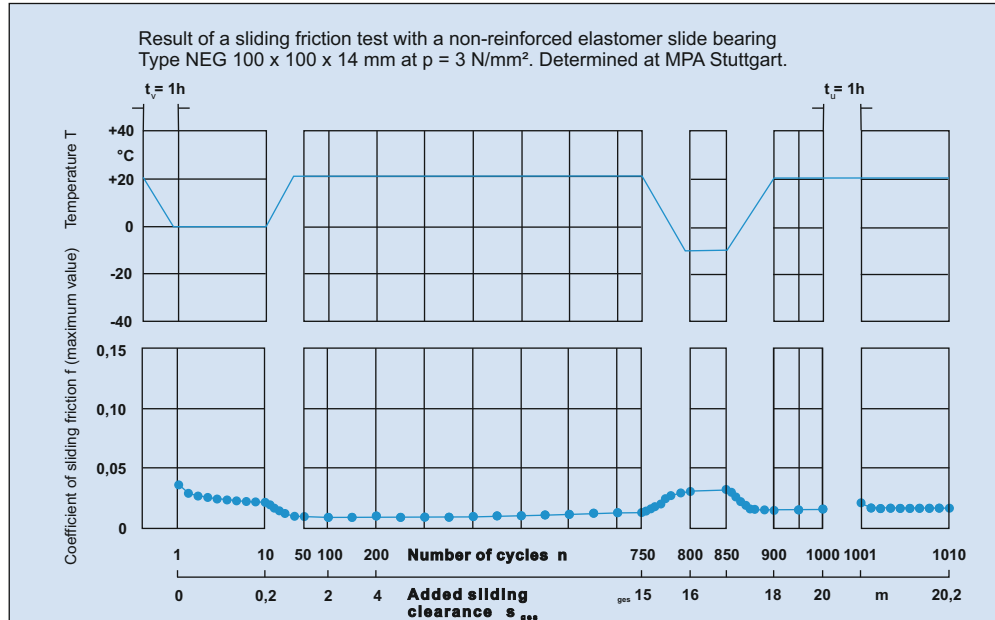


**Supporting girders, beams, trusses etc.
with bigger displacement clearances and
low surface loads**

NEG



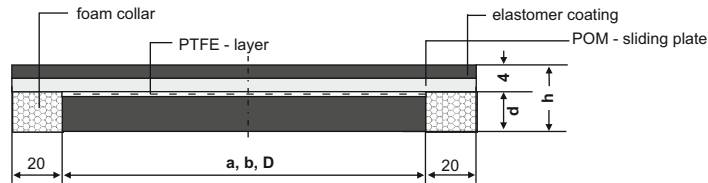
Coefficient of friction 0.01 up to 0.05 at 23°C. Standard displacement clearance: ± 20 mm



Permissible loads and torsion are to be extracted from the following design table.
Other dimensions and displacement clearances can be supplied on request.

Specification: non-reinforced elastomer slide bearing, dim.: ...x...x... mm, perm. char. surface load:.... kN, permissible displacement clearance: +/-... mm, supply and technical correct installation.
Leschuplast GLT type NEG

Non reinforced elastomer slide bearing type NEG



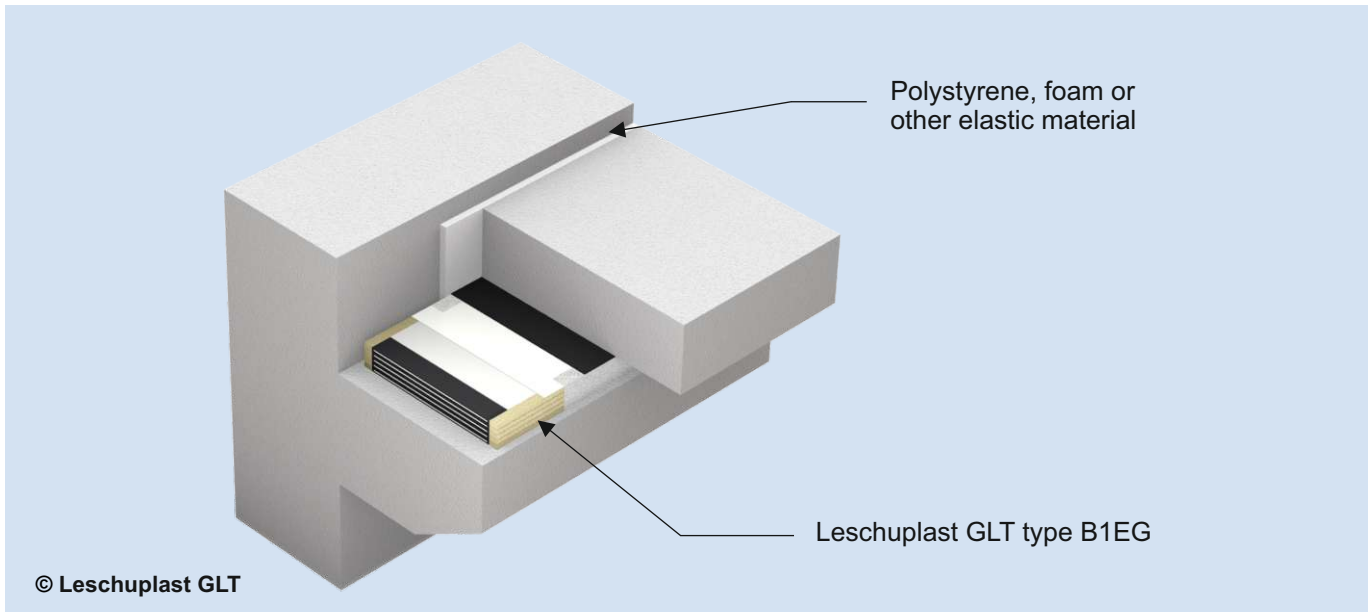
bearing dimensions		total height h	elastomer height d	permissible load F	permissible twisting angles		permissible mean bearing compression
bearing support a x b	sliding plate standard				smaller side	larger side	
mm	mm	mm	mm	kN	°/00	°/00	N/mm ²
100 x 100	140 x 140	9	5	50	10	10	5
		14	10	30	20	20	3
100 x 150	140 x 190	9	5	75	10	7	5
		14	10	54	20	13	3,6
150 x 200	190 x 240	9	5	150	7	5	5
		14	10	150	13	10	5
200x 200	240 x 240	9	5	200	5	5	5
		14	10	200	10	10	5
		19	15	170	15	15	4,3
200 x 250	240 x 290	9	5	250	5	4	5
		14	10	250	10	8	5
		19	15	222	15	12	4,4
200x 300	240 x 340	9	5	300	5	3	5
		14	10	300	10	7	5
		19	15	288	15	10	4,8
250 x 300	290 x 340	9	5	375	4	3	5
		14	10	375	8	7	5
		19	15	370	12	10	4,9
200 x 400	240 x 440	9	5	400	5	3	5
		14	10	400	10	5	5
		19	15	400	15	8	5
		24	20	320	20	10	4
250 x 400	290 x 440	9	5	500	4	3	5
		14	10	500	8	5	5
		19	15	500	12	8	5
		24	20	462	16	10	4,6
300 x 400	340 x 440	9	5	600	3	3	5
		14	10	600	7	5	5
		19	15	600	10	8	5
		24	20	600	13	10	5

Standard displacement clearance : ± 20 mm

Other dimensions can be supplied on request.

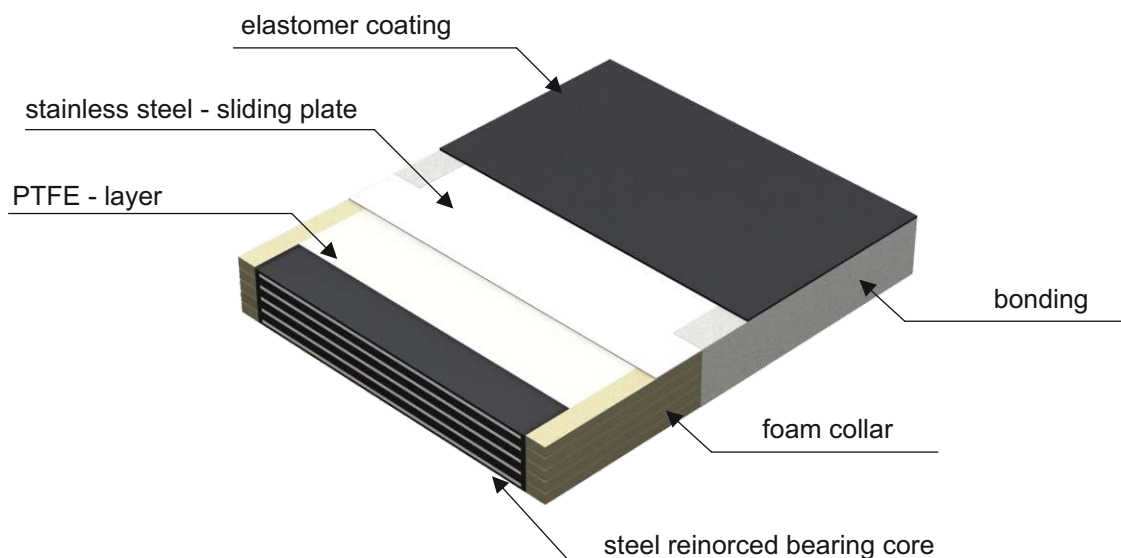
Hint: above given values are characteristic loads.

**Supporting girders, beams, trusses etc.
with bigger displacement clearances and
high surface loads**



Reinforced elastomer slide bearings type B1EG

For all point bearings with bigger displacement clearances **at characteristic compressions up to 15 N/mm²**. Low coefficient of friction and high functional stability are ensured due to high-quality slide matching. Reinforced elastomer slide bearing supports comply with the reinforced elastomer bearings according to DIN 4141, part 14/140 or EN 1337-3 by their design and material. The allowed, if compared, low vertical loads and twisting angles result on the high security level of bearing class 1 according to DIN 4141, part 3, and are founded on decades of experience with high level uses in bridges. They absorb horizontal displacements by movements of the sliding plate on the bearing support. At the same time, they ensure a controlled load distribution and compensate similar systematic twisting in the support as well unevenness and deviations from parallelism in bedding surfaces.

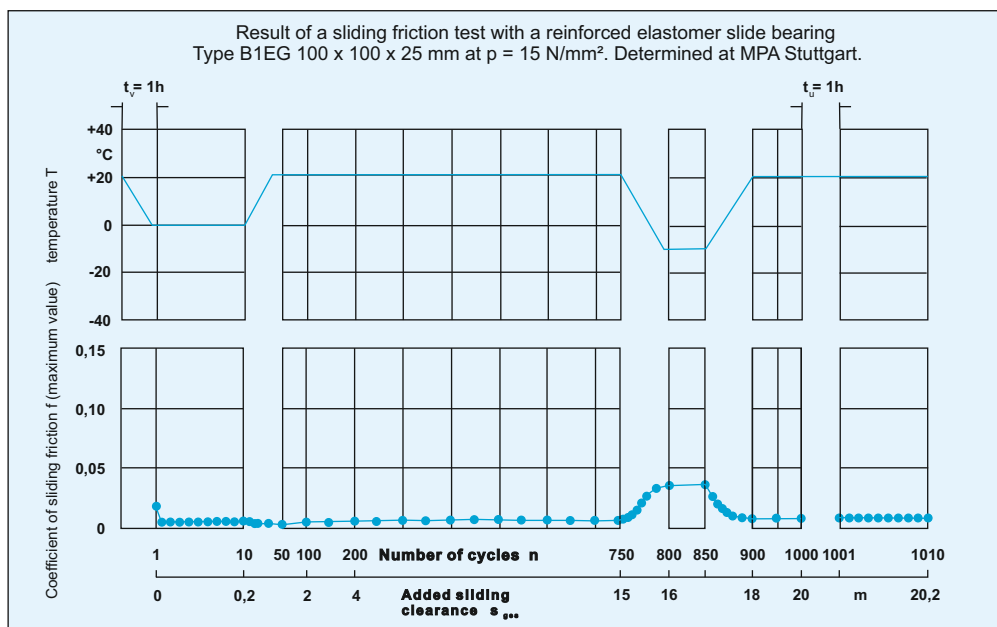


**Supporting girders, beams, trusses etc.
with bigger displacement clearances and
high surface loads**

B1EG



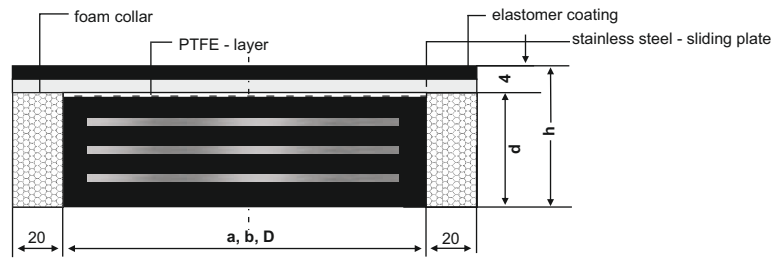
Coefficient of friction 0.01 up to 0.05 at 23°C. Standard displacement clearance: ± 20 mm



Permissible loads and torsion are to be extracted from the following design table.
Other dimensions, displacement clearances and shear protected types (like B2EG or B5EG)
can be supplied on request.

Specification: reinforced elastomer slide bearing, dim.: ... x ... x ...mm, permissible char. load: kN, permissible displacement clearance: +/-.....mm, supply and technical correct installation. Leschuplast GLT type **B1EG**

Reinforced elastomer slide bearing type B1EG



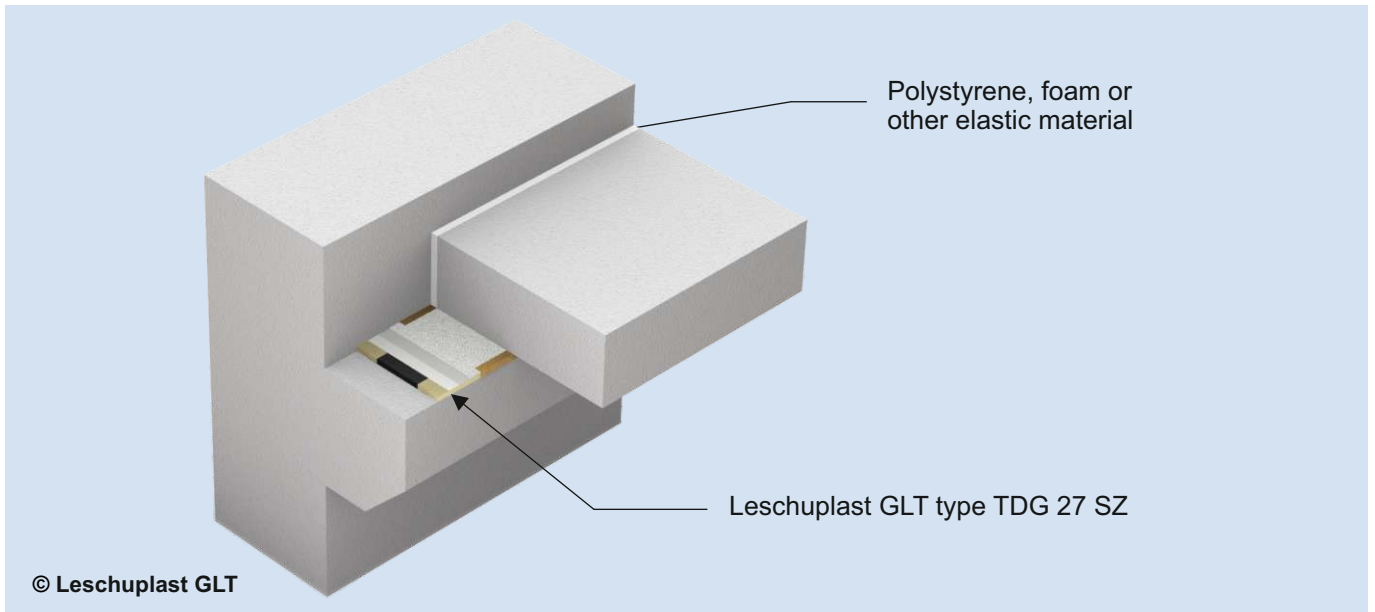
bearing dimensions					permissible load F	permissible twisting angles		permissible mean bearing compression
bearing support	sliding plate standard	total height h	bearing support height h	elastomer height T		smaller side	larger side	
mm	mm	mm	mm	mm	kN	‰	‰	N/mm ²
100 x 100	140 x 140	14	10	8	150	4	4	15
		18	14	10		4	4	
		25	21	15		8	8	
		32	28	20		12	12	
100 x 150	140 x 190	14	10	8	225	4	3	
		18	14	10		4	3	
		25	21	15		8	6	
		32	28	20		12	9	
150 x 200	190 x 240	14	10	8	450	3	3	
		18	14	10		3	3	
		25	21	15		6	6	
		32	28	20		9	9	
		39	35	25		12	12	
200 x 250	240 x 290	14	10	8	750	3	3	
		23	19	13		3	3	
		34	30	21		6	5	
		45	41	29		9	8	
200 x 300	240 x 340	14	10	8	900	3	2	
		23	19	13		3	2	
		34	30	21		6	4	
		45	41	29		9	6	
250 x 300	290 x 340	14	10	8	1125	2	2	
		23	19	13		3	2	
		34	30	21		5	4	
		45	41	29		7	6	
200 x 400	240 x 440	14	10	8	1200	3	1	
		23	19	13		3	1	
		34	30	21		6	2	
		45	41	29		9	4	
250 x 400	290 x 440	14	10	8	1500	3	1	
		23	19	13		3	1	
		34	30	21		5	2	
		45	41	29		7	4	
		56	52	37		10	5	
300 x 400	340 x 440	14	10	8	1800	2	1	
		23	19	13		2	1	
		34	30	21		4	2	
		45	41	29		6	4	
		56	52	37		8	5	

Standard displacement clearance : ± 20 mm

Other dimensions can be supplied on request.

Hint: above given values are characteristic loads.

Ceiling or flat roof support by slide bearing stripes with load centring

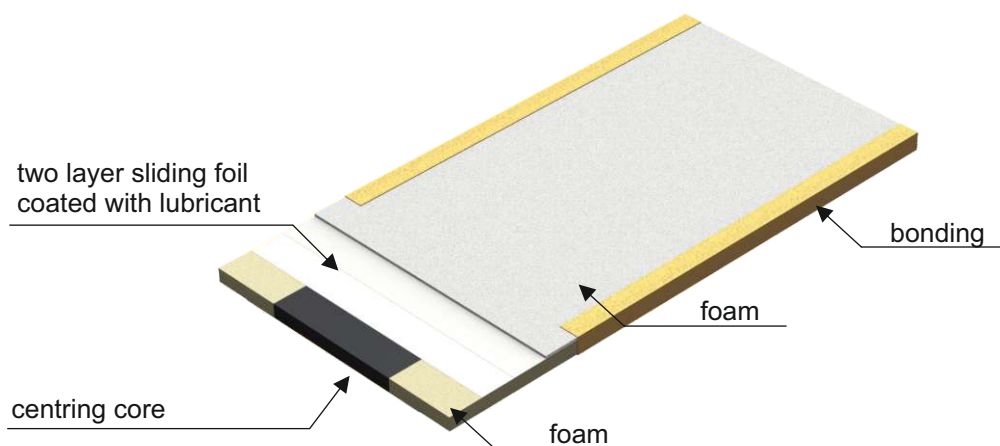


Core stripe slide bearing type TDG 27 SZ

Due to the concentrically arranged elastomer core, it is ensured that the surface load in case of twisting in supports is transferred to one - third of the centre of the load-bearing member.

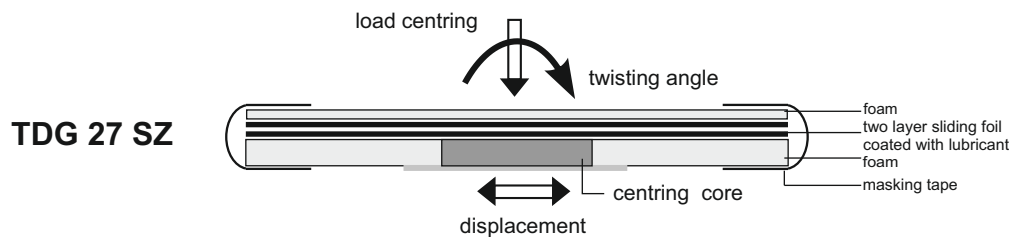
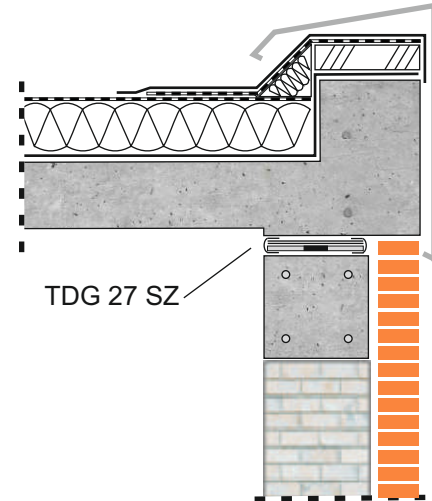
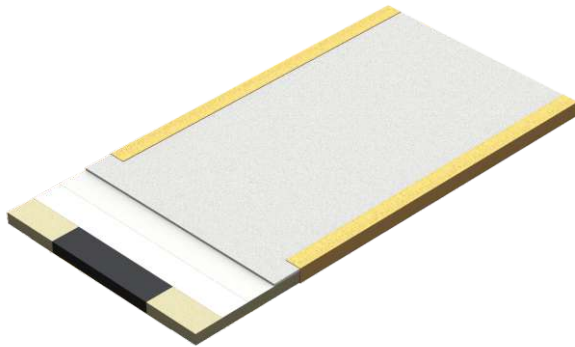
Apart from shear cracks excessive edge compressions, spalling and tip cracks in walls are also prevented.

Coefficient of friction 0.05 up to 0.10 at 23°C.



Ceiling or flat roof support by slide bearing stripes with load centring

- ✘ for in-situ concrete and pre-cast units
- top-coated core stripe slide bearing



core thickness t [mm]	core width b [mm]	torsion* [‰]	permissible σ_m [N/mm ²]	permissible char. F [kN/m]
5	25	40	3	75
5	50	20	3	150
5	75	13	3	225
5	100	10	3	300
10	50	40	3	150
10	75	27	3	225
10	100	20	3	300

* for centric core and wall width up to 365 mm

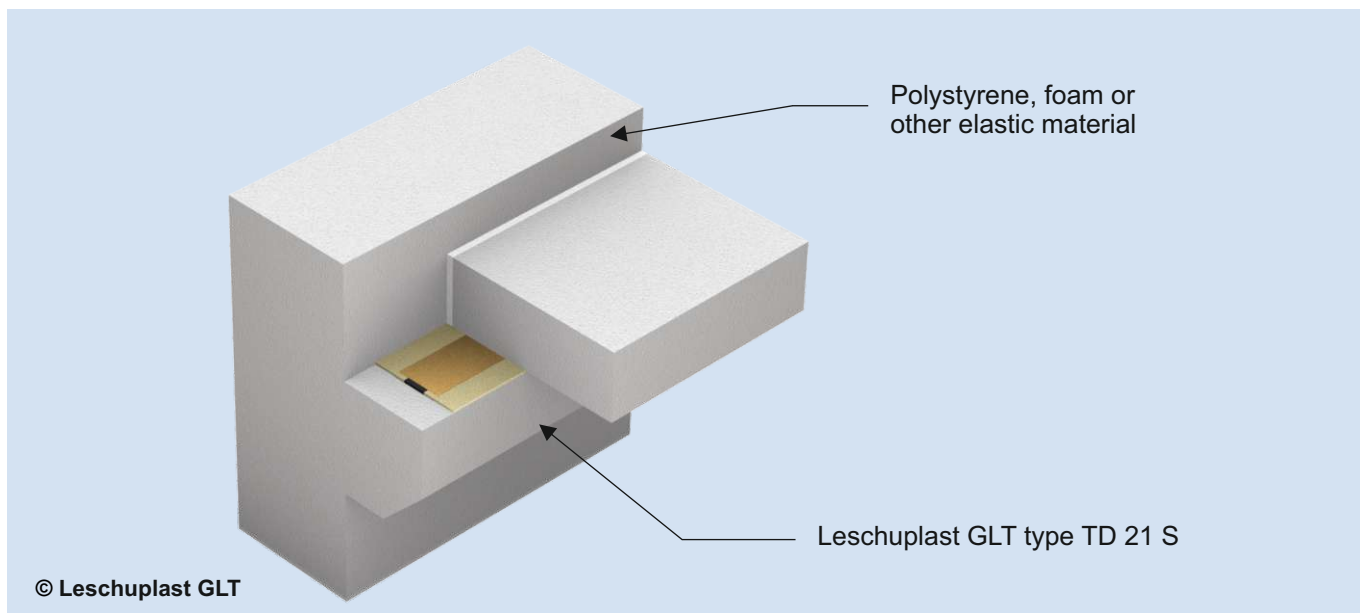
supply length : 1 m

width: all established wall widths

Specification:

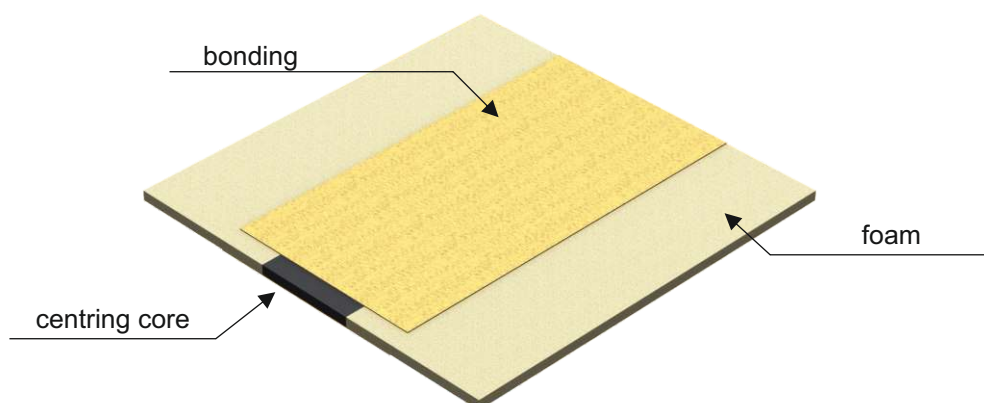
core stripe slide bearing widthmm with load centring coremm xmm for char. surface load ofkN/m for technical correct setting on the smoothed surface of the reinforced collar beam as well as reinforced walls. Ends should have butt joints and should be connected with adhesive tape. In case of in-situ concrete roofs, formwork should be applied 15 to 20 mm higher than the upper edge of bearing. Leschuplast GLT type TDG 27 SZ

Fixed point formation or floor ceiling suport



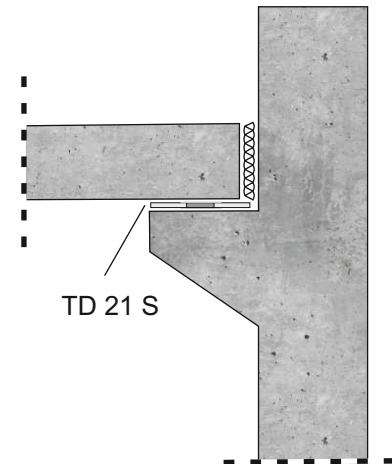
Core stripe fixed bearing TD 21 S

The core stripe fixed bearing is used for formation of a fixed point or minimum displacement clearances for the roof or floor ceilings. The centring core accepts changes of lengths and twisting angle by deformation. Excessive edge compressions and tip cracks will be prevented by load centring.



Fixed point formation or floor ceiling suport

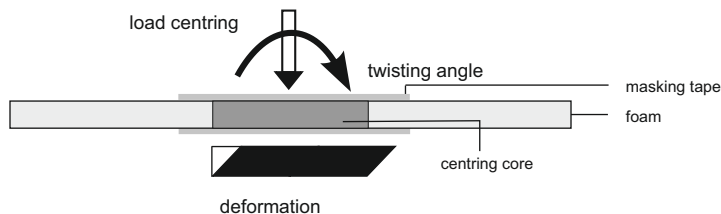
- X** for in-situ concrete and pre-cast units
- top-coated core stripe fixed bearing



$$\text{zul. } w = 0,7 \times (t - 2)$$

w = displacement clearance
t = core thickness

TD 21 S



core thickness t [mm]	core width b [mm]	torsion* [%]	permissible σ_m [N/mm ²]	permissible char. F [kN/m]
5	25	40	8	200
5	50	20	15	750
10	50	40	8	400

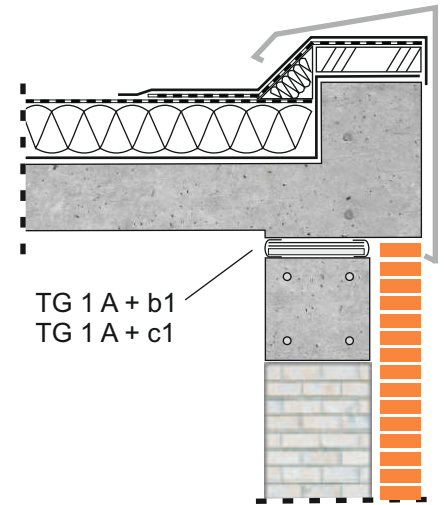
* for centric core and wall width up to 365 mm

supply length : 1 m
width: all established wall widths

Specification: core stripe fixed bearing widthmm with load centring coremm xmm for char. surface load ofkN/m. For technical correct setting on the smoothed surface of the reinforced collar beam as well as reinforced walls. Ends should have butt joints and should be connected with adhesive tape. In case of in-situ concrete roofs, formwork should be applied 15 to 20 mm higher than the upper edge of bearing. Leschuplast GLT type **TD 21 S**

Flat roof support

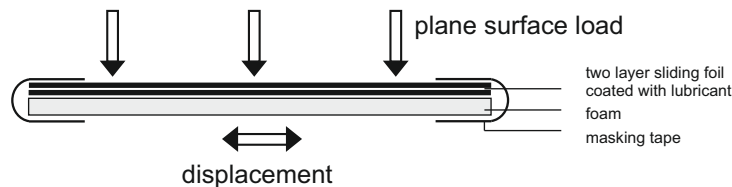
Sliding foil TG 1 A with Certificate (MPA Hannover) for ceilings with small span widths. Using the sliding foil ensures reduction of forces caused due to shrinkage and creep as well as thermal elongation of reinforced concrete ceilings. This prevents shear cracks in walls. See slide bearing stripes with load centring for larger span widths.



X For in-situ concrete

- sliding foil coated on one side

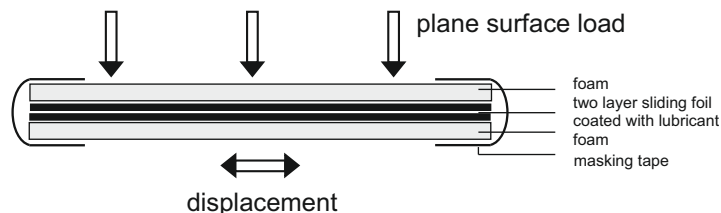
TG 1 A + b1



X For pre-cast units

- sliding foil coated on both sides

TG 1 A + c1



The function of the foam coat is to compensate minor unevenness and grains on the bedding surface.

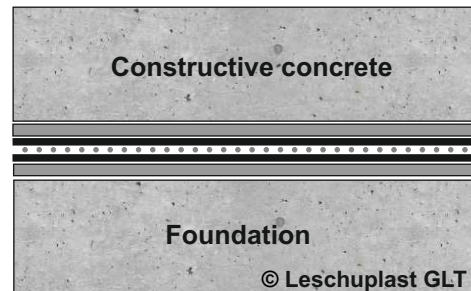
type	max. char. compression	coefficient off friction	temperature	thickness
sliding foil TG 1 A + b1	1 N/mm ²	0,05 up to 0,10	23°C	3 mm
sliding foil TG 1 A + c1	1 N/mm ²	0,05 up to 0,10	23°C	5 mm

supply length : 1,5 m
width: all established wall widths

Specification:	two-layer sliding foil with foam material coating on one / both sides ... mm width, for char. compressions up to 1 N/mm ² with Certificate of MPA Hannover, technical correct setting on the smoothed surface of the reinforced concrete collar beam as well as reinforced walls. Ends should have butt joints and should be connected with adhesive tape. In case of in-situ concrete roofs, formwork should be 15 to 20 mm higher than the upper edge of the sliding foil. Leschuplast GLT type TG1A +...
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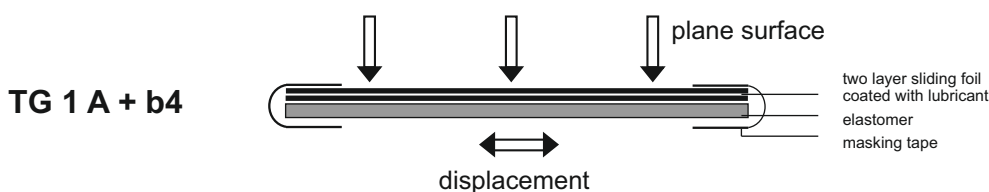
Foundation supports

sliding foil TG 1 A coated with elastomer for compressions **up to 3 N/mm²** for separation of components e.g. in the foundation area and reduction of forces caused by shrinkage and creep and changing the temperature of components or underground settlement. See TG 5 POM for higher compressions up to 10 N/mm².



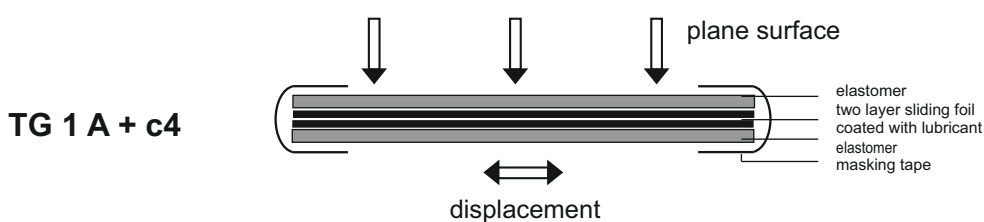
X for in-situ concrete

- sliding foil coated on one side with elastomer



X for pre-cast units

- sliding foil coated on both sides with elastomer



Elastomer coatings are absolutely necessary to compensate existing grains and minor deviations from parallelism in bedding surfaces.

type	max. char. compression	coefficient off friction	temperature	thickness
sliding foil TG 1 A + b4	3 N/mm ²	0,05 up to 0,10	23°C	3 mm
sliding foil TG 1 A + c4	3 N/mm ²	0,05 up to 0,10	23°C	5 mm

supply length : 1 m
width: all established wall widths

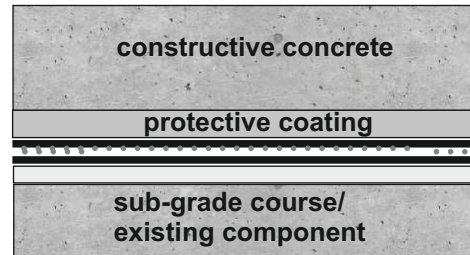
Specification:

sliding foil with elastomer coating on one / both sidesmm width, for char. compressions up to 3 N/mm² technical correct setting on the levelled smoothed bedding surface. Ends should have butt joints and should be connected with adhesive tape. Leschuplast GLT type **TG 1 A +...**

Large-area sliding foil

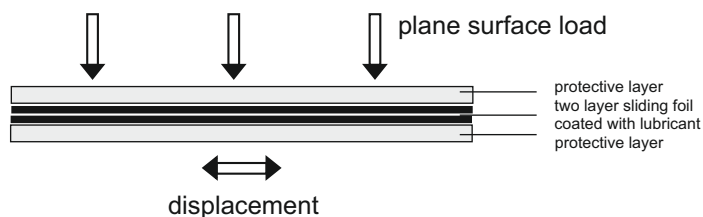
Type TG 1 A with Certificate (MPA Hannover)

for separation of large-area components and reduction of forces caused by thermal and concrete-technology related elongations between the component and basement or between existing and new components e.g. at swimming pools, storage basins, tanks, ice rinks or in case of bridge-plate renovations of existing frameworks.



X for large-area sliding foil - large-area sliding foil

TG 1 A + c3



Top and bottom protective layer are recommended for mechanical protection of the sliding foil and for compensation of the remaining unevenness in the bedding surface. If other protective measures are taken into consideration by the builder due to special stresses, in special cases the sliding foil can also be supplied as TG 1 A uncoated or as TG 1 A + b3 coated on one side.

type	max. char. compression	coefficient off friction	temperature	thickness
sliding foil TG 1 A + b3	0,5 N/mm ²	0,05 up to 0,15	23°C	3 mm
sliding foil TG 1 A + c3	0,5 N/mm ²	0,05 up to 0,15	23°C	5 mm

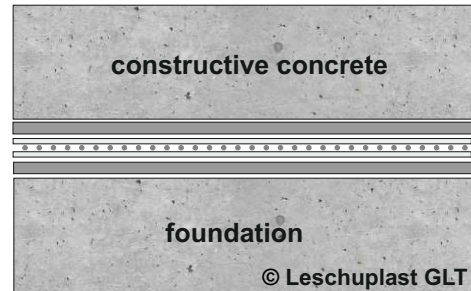
supply length : up to 25 m
width : 1 m standard

Specification:

large-area sliding foil with top and bottom non-woven coating - tested by MPA Hannover - coefficient of friction < 0,2, supply and setting according to details given by the manufacturer. Individual 1 m wide tracks are to be set with 5 cm overlapping. Leschuplast GLT type **TG1A + c3**

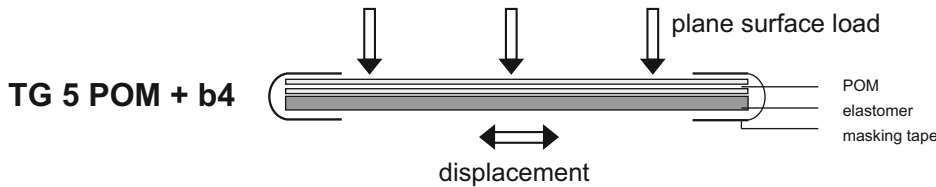
Foundation supports for bigger surface loads

Sliding foil TG 5 POM coated with elastomer for compressions **up to 10 N/mm²** for separation of components with heavy loads, e.g. in foundation area and reduction of forces caused by temperature variations, shrinkage and creep of components or underground settlements.



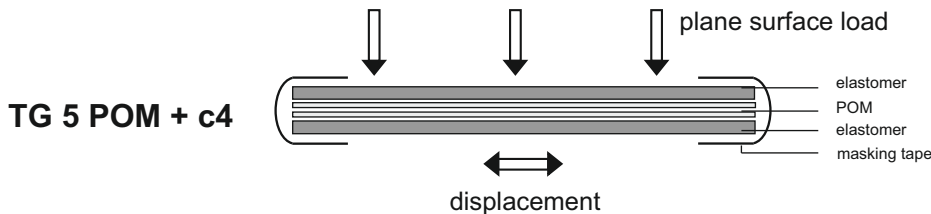
X for in-situ concrete

- sliding foil coated on one side with elastomer



X for pre-cast units

- sliding foil coated on both sides with elastomer



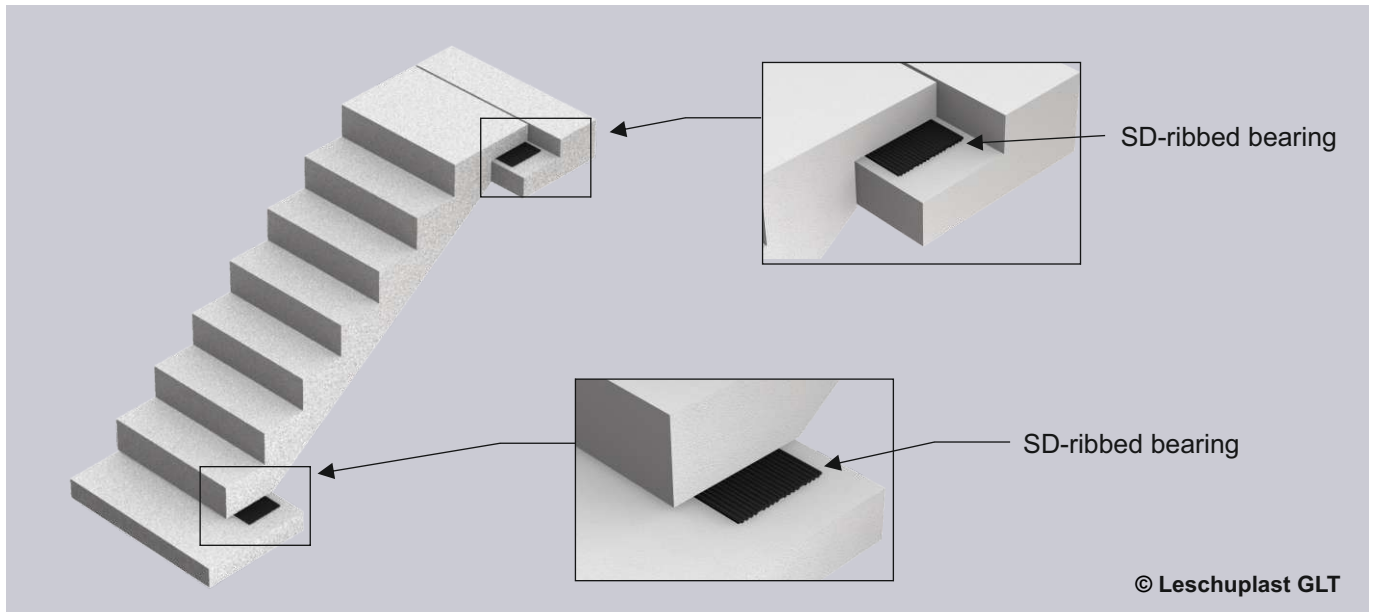
Elastomer coatings are absolutely necessary to compensate existing grains and minor deviations from parallelism in bedding surfaces.

type	max. char. compression	coefficient off friction	temperature	thickness
sliding foil TG 5 POM + b4	10 N/mm ²	0,05 up to 0,10	23°C	4 mm
sliding foil TG 5 POM + c4	10 N/mm ²	0,05 up to 0,10	23°C	6 mm

supply length : 1 m
width: all established wall widths

Specification: sliding foil with elastomer coating on one/both sidesmm width, for char. compressions up to 10 N/mm² technical correct setting on the levelled smoothed surface of the bedding surface. Ends should have butt joints and should be connected with adhesive tape. Leschuplast GLT type **TG 5 POM +...**

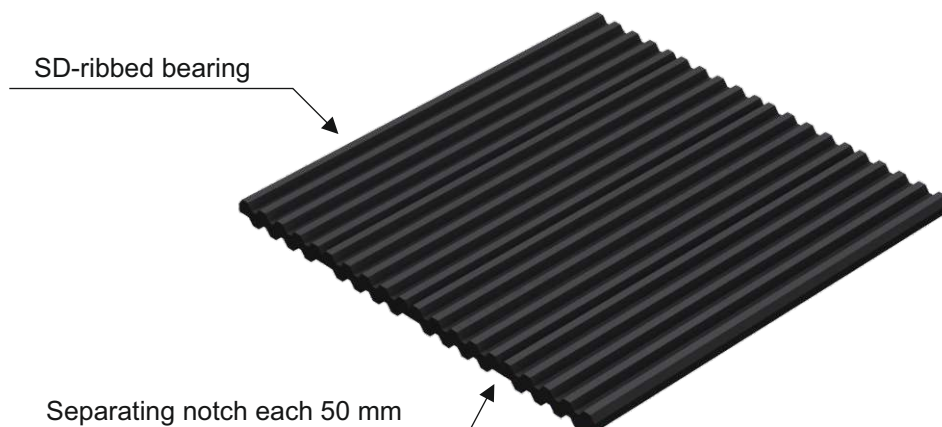
Sound damping of impact noise



SD-ribbed bearing

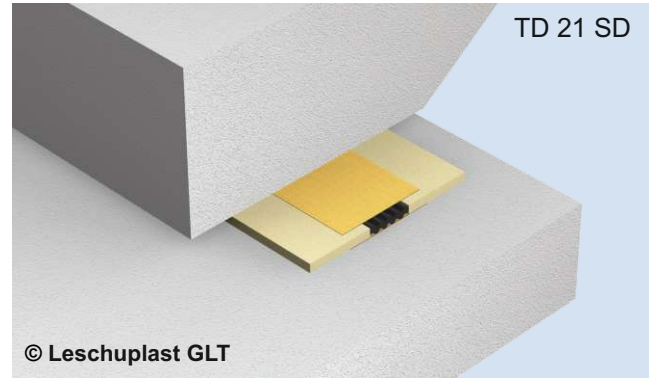
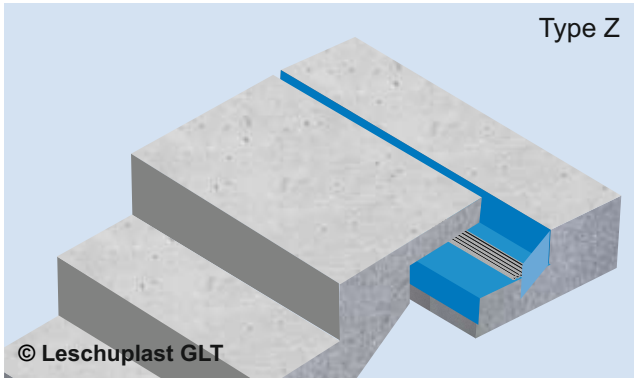
With test report for sound damping of impact noise. Sound damping bearing underneath flight of stairs, floors, joint stems etc. help to separate subsonic noise and impact sounds in residential buildings, offices and hospitals. Profiled, non-reinforced elastomer bearings are especially suitable in this case due to their soft absorption qualities.

A part from sound absorption, they also ensure a controlled load distribution and prevent excessive edge compression and spalling at the components. Improvement in evaluated impact noise protection is **at least 27 dB** for compressions between 0.1 and 1.0 N/mm² as compared to a rigid support. 31 dB is attained at 0.3 N/mm² compression.

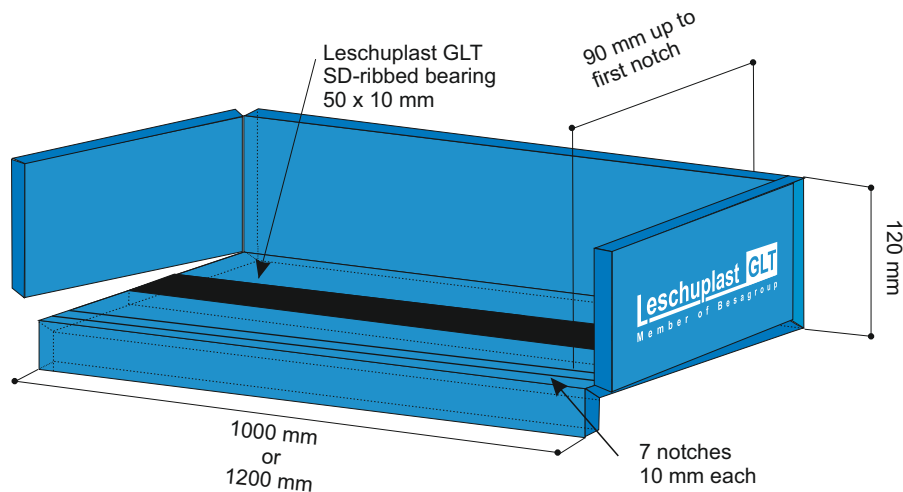


Supply: as roll 10 m long, 200 mm width or cutted on demand.
The profil is notched. This allows a separating in 50 or 100 mm wide stripes.

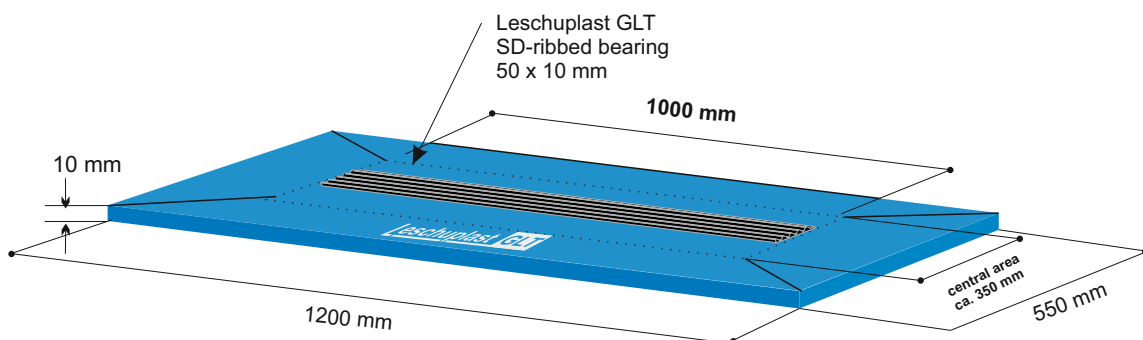
Sound damping of impact noise



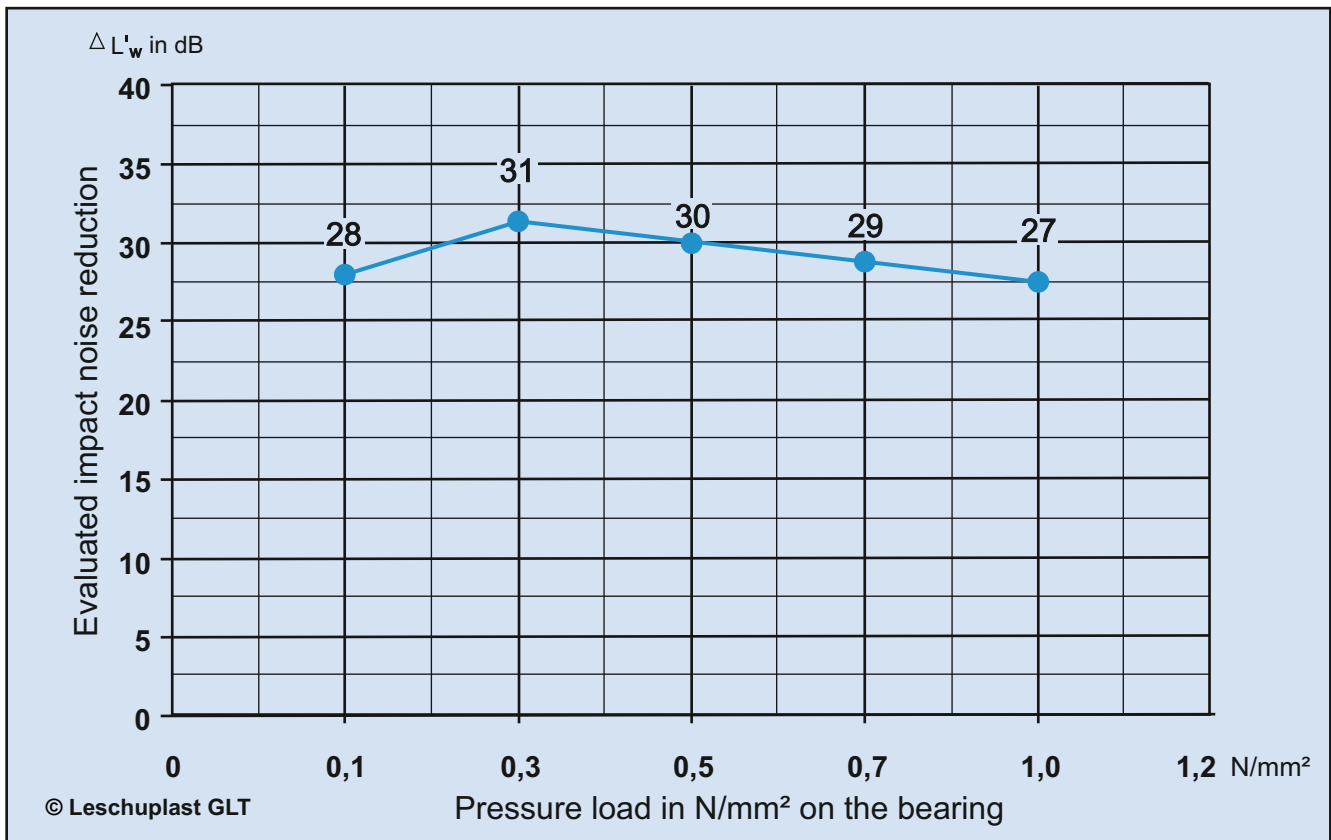
The sound damping elements type Z, type B and TD 21 SD include the high reduction of impact noise of the Leschuplast GLT SD-ribbed bearing and ensure, that no dirt reduces the function of sound damping. Caused by the notches type Z might be fitted to the situation on site easily. Not needed parts of the foam might be cutted of. Special dimensions might be produced on demand.



Sound damping element type B for stairs (350 x 1000 mm)



X Summary of sound damping test of the SD-ribbed bearing



The Leschuplast GLT SD-ribbed bearing can be used in a wide pressure load range from 0.1 N/mm² to 1.0 N/mm² due to excellent sound absorption properties. In this case, evaluated impact noise reduction of **at least 27 dB** is achieved. An evaluated impact noise reduction of 31 dB is attained with an optimum design at a pressure load of 0.3 N/mm².

Test report : Nr. 1440-001-13 on 24.04.2013
SG-Bauakustik, Institut für schalltechnische Produktoptimierung

Specification: sound damping bearing mm width, thickness 10 mm, with test report about an impact sound insulation up to 31 dB, supply and correct technical setting. Leschuplast GLT type SD-ribbed bearing

Specification: sound damping bearing mm width, thickness 10 mm, with sound damping core, width mm, with test report about an impact sound insulation up to 31 dB, supply and correct technical setting. Leschuplast GLT type TD 21 SD

Specification: sound damping bearing mm width, thickness 10 mm, with sound damping core, width mm, with test report about an impact sound insulation up to 31 dB, supply and correct technical setting. Leschuplast GLT type Z

Specification: sound damping bearing mm width, thickness 10 mm, with sound damping core, width mm, with test report about an impact sound insulation up to 31 dB, supply and correct technical setting. Leschuplast GLT type B

**N 15, N 20,
NEG, B1EG,
SD-ribbed bearing,
TD 21 SD**

Flawless function of a bearing is ensured only by correct technical installation.

Adequate carrying capacity could be minimised if the following instructions are not observed.

The fitting bedding surfaces must be smoothed, horizontal, levelled and have to be parallel to each other.

The fitting bedding surface must have an adequate compressive strength. Adequate strength against lateral tensile force must be ensured (see brochures N15/N20). The bearing has to be placed in the range of the corresponding static reinforcement inside the concrete of nearby components.

The edges of bearings mustn't be constrained in similar systematic deformations (expansion by linear compression, displacement, torsion). Installation must take place with dry bearings and dry fitting bedding surfaces. It's not allowed to fix bearings with glue. If the anti-skid stability is not ensured, then appropriate constructive measures are to be taken. Bearings have to be free from grease solvents or similar materials, but in particular free from formwork release oil.

By the use of in-situ concrete the surrounded area has to be filled up with a suitable soft material (e.g. foam) which must be connected to the bearing with adhesive tape.

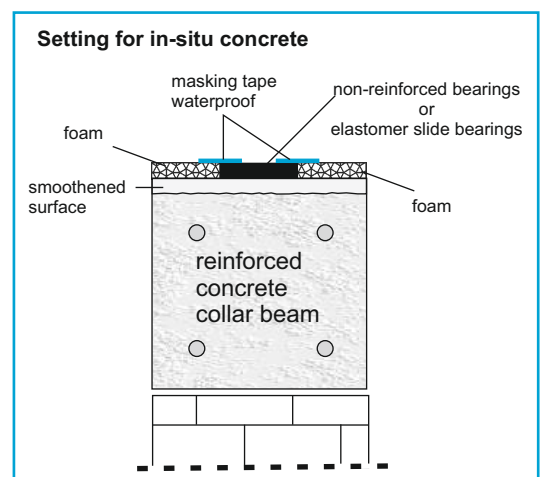
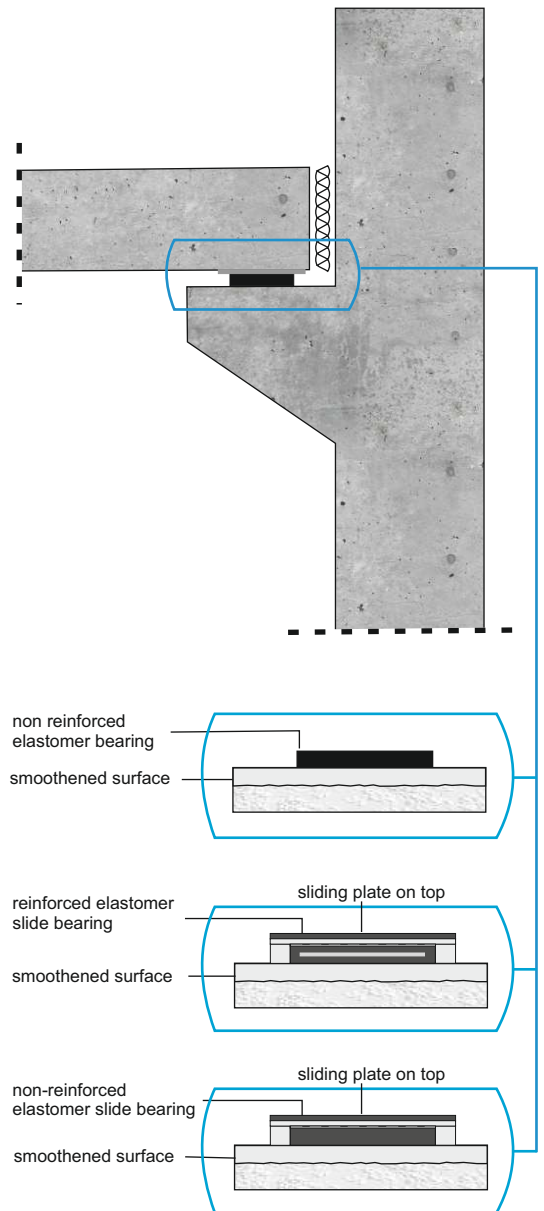
Additional instructions for NEG, B1EG

Usually elastomer slide bearings will be fitted with the sliding plate on top (continuous "hard" surface). Please pay attention to deviating designations of planner.

Additional instructions for SD-ribbed bearing

By using pre-cast units, the joint beneath the bearing has to be filled up with suitable soft material, directly after setting.

By using of in-situ concrete the surface of the SD-ribbed bearing has to be protected with a solid material (e.g. Paperboard)



TG 1 A...
TG 5 POM...
TD 21 S...
TDG 27 SZ...

Flawless functioning of stripe slide bearings is ensured only by correct technical installation.

The bedding surfaces must be smoothed, horizontal and levelled and also clean and free from oils.

In case of in-situ concrete roofs, formwork should be 15 to 20 mm higher than the upper edge of stripe bearing.

If the inner wall will be rendered, the plaster must be separated between wall and ceiling with a cut.

TG 1 A

The bedding surface must be extremely smooth, very even and clean for installation of uncoated sliding foil so that the functionality is not hampered. Otherwise, protective layers, which compensate remaining unevenness of the bedding surface, are to be used.

TG 1 A + b1, TG 1 A + b4 and TG 5 POM + b4

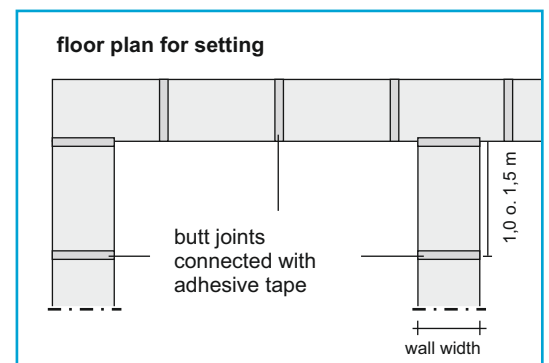
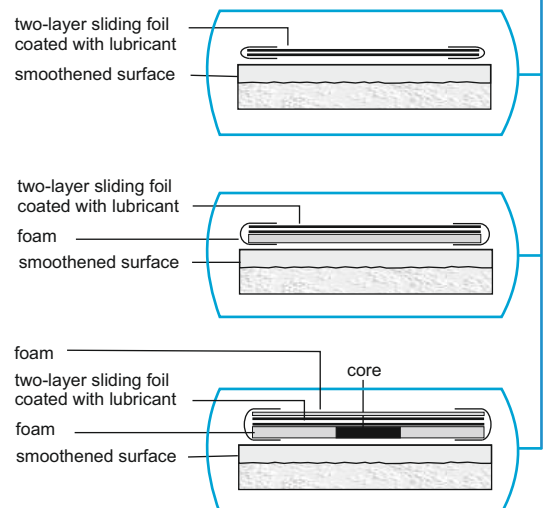
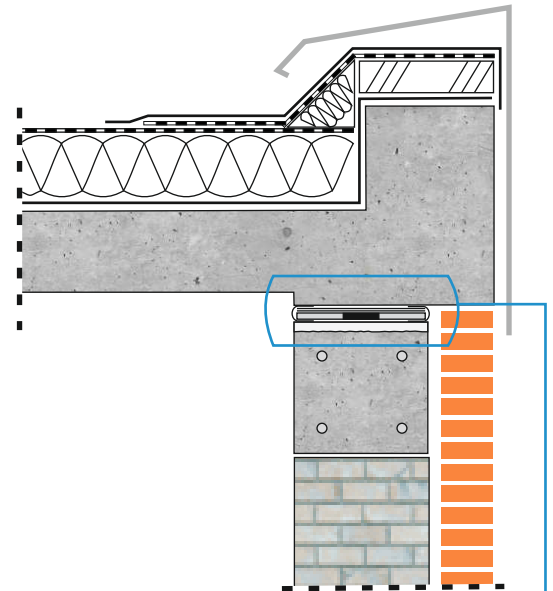
Coated on one side sliding foils are to be set with the underlying coating.

TDG 27 SZ, TD 21 S

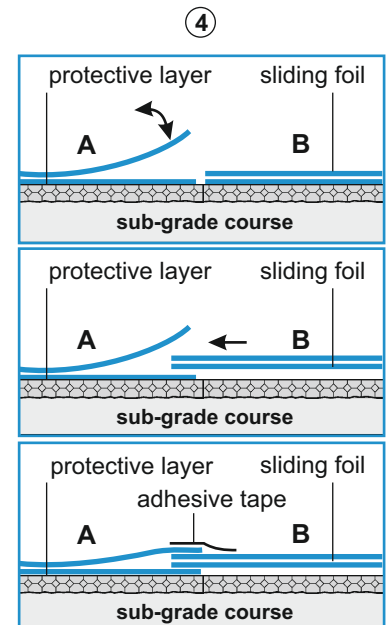
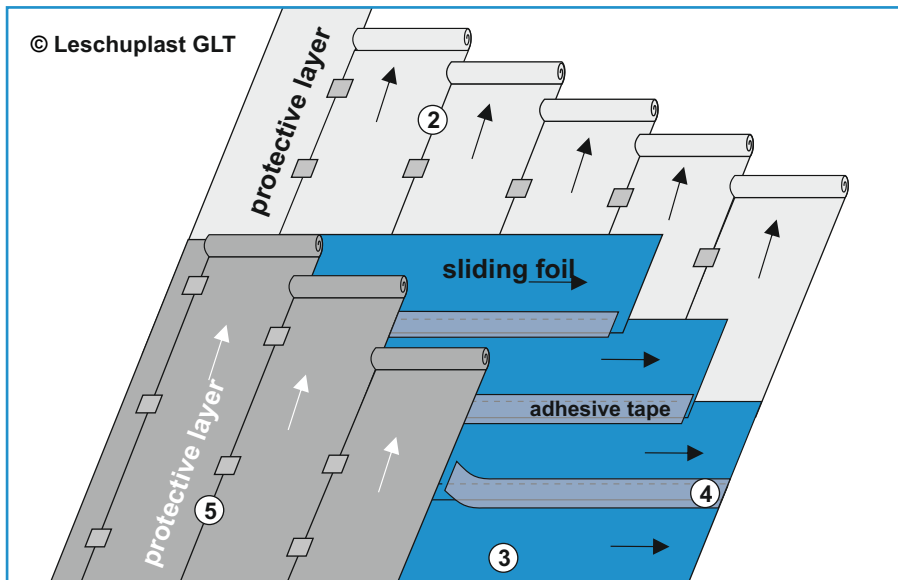
Core sliding bearings are to be inserted with the underlying core.

Stripe bearings should have butt joints without overlapping and must be connected with adhesive tape so that concrete cannot penetrate.

NEVER FIX WITH NAILS !



**large-area sliding foil
TG 1 A**



Flawless functioning of large-area sliding foil is ensured only by correct technical installation. The friction coefficient of the support might be degraded if the following instructions are not observed.

- ① Basement must be horizontal, levelled and smoothened.
- ② The bottom protective layer should be placed on the clean swept sub-grade course in the way of the longer side of the layer without any overlapping. The separate layers should be connected with adhesive tape.
- ③ The first two-layer sliding foils should be placed perpendicular to the protective layer and the second beside of it.
- ④ The adhesive tape at long sides of the sliding foils have to be deleted. The first foil (A) has to be opened on a width of approx. 20 cm to lay into the second foil (B) with overlapping of approx. 5 cm. The top ends as well as the long-side joints of each sliding foil sheet have to be closed with adhesive tape. This procedure has to be repeated for each sliding foil sheet.

The top protective layer should be placed without any overlapping, in the same way as the protective bottom layer. The separate layers should be connected with adhesive tape and be protected against wind gusts.

- ⑤



Foto: Störfix

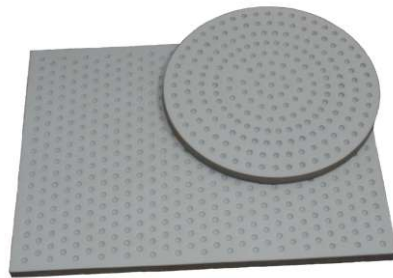
Type B (EN 1337-3)



Type C (EN 1337-3)



Bearings for incremental launch



Type B/C (EN 1337-3)



Type C-PSP (EN 1337-3)



© Leschuplast GLT

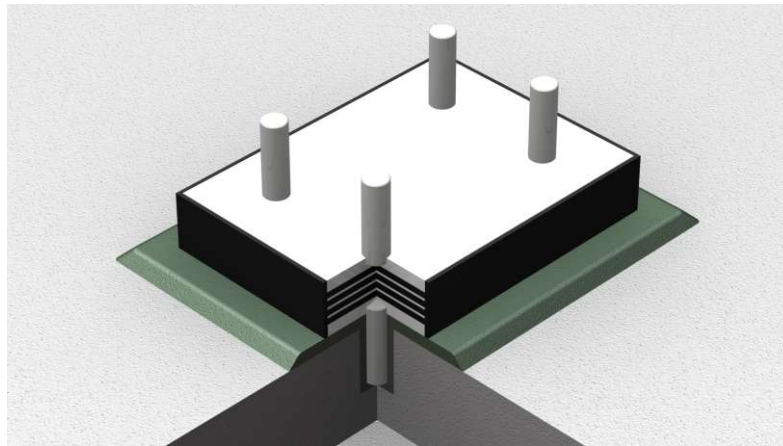


© Leschuplast GLT



Supporting of bridges and comparable constructions

Steel reinforced Leschuplast GLT elastomer bearing
Type A, B and C
according to DIN EN 1337-3 (with CE-mark)

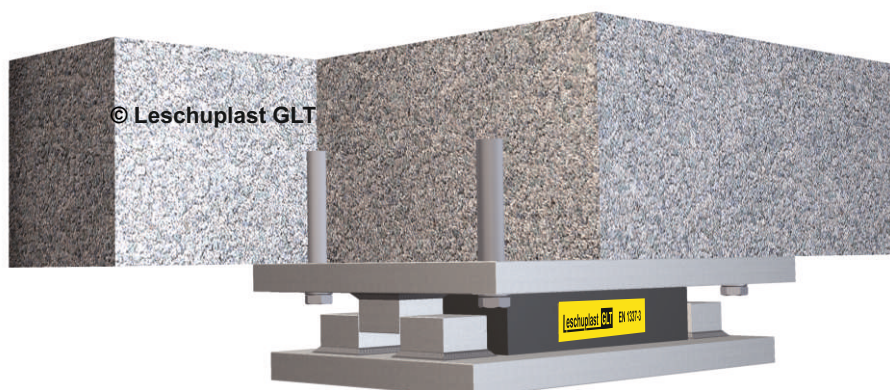


- **Application**

Leschuplast GLT steel reinforced elastomer bearings provide a secure, reliable and maintenance-free supporting of bridges and comparable constructions for more than 30 years. They transmit heavy vertical loads and compensate tangential deviations as well as translational displacements with low restraint in the bearing area.

- **Mode of operation**

The special assembly of Leschuplast GLT reinforced elastomer bearings enables by the vulcanised reinforcing plates a secure, reliable and maintenance-free transmission of heavy vertical loads caused by self-weight and working load. At the same time tangential deviations, e.g. caused by deflection as well as translational displacements, e.g. caused by thermal modifications, will be compensated by deformation of the high-grade elastomer with low restraint.



- **Characteristics**



High-grade steel plates are used as reinforcing intermediate layers together with elastomer, which is especially resistant to age and weather-proof, to vulcanise load-resistant Leschuplast GLT steel reinforced bearings in our own place of production. Caused by the assembly in layers, the reinforcing plates are protected against corrosion and support to the endurance of our bearings. Using different kinds of especially high-grade chloropren- and natural rubber enable the application of the bearings at temperatures from -40°C to +50°C (temporary to +70°C) and the protection against environmental and weather influences, in particular against ozone concentration and ultraviolet rays.

- **CE-Certification**

In order to be certified for the production of reinforced elastomer bearings in accordance to DIN EN 1337-3, a variety of tests had to be successfully completed. These tests were e.g.:

- ✗ Compression stiffness
- ✗ Shear modulus (even at low and very low temperature as well as aging)
- ✗ Shear bond strength (even after aging)
- ✗ Resistance to repeated loading in compression
- ✗ Ozone resistance



- **Conformity to standard with external- and internal quality control**

In our own place of production we are producing the Leschuplast GLT reinforced elastomer bearings according to DIN EN 1337-3. This standard is introduced by the building authorities and is applied throughout the EU. According to the applicable regulations, our bearings are subject to continuous external quality control. The internal quality control takes place by our quality assurance. After successful CE-Certification, we are entitled to sign our bearings with the CE-mark according to the EG-certificate of conformity. Additional to the appropriate documents, the conformity of the production according to DIN EN 1337-3 is demonstrated through this.



- **Design of bearings**

Paragraph 4, DIN EN 1337-1:2000 postulates :

“Bearings have to be designed so, that they enable the expected movements with response forces which are as small as possible.”

This demand can be met by our own flexible production. Our high-grade Leschuplast GLT steel reinforced elastomer bearings according to DIN EN 1337-3 can be manufactured contemporary in all lengths and widths between 100 and 1000 mm with total heights up to 400 mm. Round shapes up to 1000 mm are also possible. The offer of Leschuplast GLT goes beyond standard assemblies and enables a bearing design with low response forces in terms of demands of DIN EN 1337-1:2000, by utilisation of these special production facilities.

Our own flexible production also offers following additional advantages:

- x More design opportunities by flexible adaptation of bearing dimensions
- x Standard elastomer for bearings with shear modulus 0.9 MPa in CR and NR
- x Special natural rubber LPGLT 115 N with shear modulus 1.15 Mpa for even better flexible adaptation possible
- x All permitted elastomer layer thicknesses according to DIN EN 1337-3 (5-25 mm) are possible
- x Reinforcing steels with higher yield strength for reducing the bearing dimensions are possible
- x Profiled cover steel plates, drill-holes, threaded holes, pins and turned grooves for dowel plates are possible

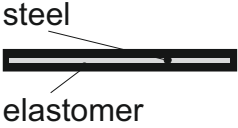





- **Non-reinforced bearings type F**

Naturally we are producing also non-reinforced bearings Leschuplast GLT type F according to DIN EN 1337-3 with the same care and the same high-grade materials.

- **Quality**

For more than 30 years Leschuplast GLT reinforced elastomer bearings provide a secure, reliable and maintenance-free supporting of bridges and comparable constructions. This high quality is achieved by our qualified, experienced professionals, which are producing the Leschuplast GLT elastomer bearings according to DIN EN 1337-3 with our modern manufacturing facilities. Consistent internal quality control by our quality assurance ensures, together with the external quality control by an independent institute for testing, a consistently high manufacturing quality, on which you “can build”.

• Types of bearings according to DIN EN 1337-3 (Combinations are possible)

<p>Type A</p>  <p>steel</p> <p>elastomer</p>	<p>Leschuplast GLT reinforced elastomer bearings type A are completely covered with elastomer and reinforced with only one steel plate.</p> <p>These bearings are elected, to transmit at low tangential deviations and translational displacements, heavy vertical loads secure, reliable and maintenance-free. Any response-forces will be transmitted onto the bedding surfaces by the elastomer.</p>
<p>Type B</p> 	<p>Leschuplast GLT reinforced elastomer bearings type B are completely covered with elastomer and reinforced with at least two steel plates.</p> <p>These bearings are elected when tangential deviations and translational displacements are too big for Typ A. Any response-forces will be transmitted onto the bedding surfaces by the elastomer.</p>
<p>Type B/C</p> 	<p>Leschuplast GLT reinforced elastomer bearings type B/C are designed like Typ B, but with an additional cover steel plate flush with the bearing surface.</p> <p>These bearings are elected, if it is necessary to secure the bearing mechanically against slipping. Any response-forces will be transmitted by vulcanised steel plates, e.g. by shear device onto the bottom bedding surface and by the elastomer onto the top bedding surface.</p>
<p>Type C</p> 	<p>Leschuplast GLT reinforced elastomer bearings type C are designed like Typ B, but with additional cover steel plates flush with the bearing surface.</p> <p>These bearings are elected, if the transmission of resistant-forces by elastomer is no longer possible. Any response-forces will be transmitted by vulcanised steel plates, e.g. by shear device onto the bedding surfaces.</p>
<p>Type C-PSP</p> 	<p>Leschuplast GLT reinforced elastomer bearings type C-PSP are designed like Typ C, but with additional profiled cover steel plates.</p> <p>These bearings are elected, if the transmission of resistant-forces by elastomer is no longer possible. Any response-forces will be transmitted by vulcanised profiled steel plates onto the bedding surfaces.</p>
<p>Type F</p> 	<p>Leschuplast GLT non-reinforced elastomer bearings type F consist entirely of elastomer.</p> <p>These bearings are elected, to transmit at tangential deviations and translational displacements, low vertical loads secure, reliable and maintenance-free. Any response-forces will be transmitted onto the bedding surfaces by the elastomer.</p>

pos.	quantity	technical specification	unit price	total price
	...pc.	Reinforced elastomer bearing type A , xx mm, according to DIN EN 1337-3, with CE-mark design: thickness of top/bottom elastomer layers:..... mm (minimum 2,5 mm) thickness of inner steel layer: mm (minimum 2 mm) special features: manufacturer: Leschuplast GLT GmbH & Co. KG		
	...pc.	Reinforced elastomer bearing type B , xx mm, according to DIN EN 1337-3, with CE-mark design: thickness of top/bottom elastomer layers:..... mm (minimum 2,5 mm) number of inner elastomer layers: pcs. thickness of inner elastomer layers: mm (min. 5 mm / max. 25 mm) thickness of inner steel plates: mm (minimum 2 mm) special features: manufacturer: Leschuplast GLT GmbH & Co. KG		
	...pc.	Reinforced elastomer bearing type B/C , xx mm, according to DIN EN 1337-3, with CE-mark design: thickness of top elastomer layer: mm (minimum 2,5 mm) number of inner elastomer layers: pcs. thickness of inner elastomer layers: mm (min. 5 mm / max. 25 mm) thickness of cover steel plate: mm (min. 15 mm or 20 mm) thickness of inner steel plates: mm (minimum 2 mm) special features: manufacturer: Leschuplast GLT GmbH & Co. KG		
	...pc.	Reinforced elastomer bearing type C , xx mm, according to DIN EN 1337-3, with CE-mark design: number of inner elastomer layers: pcs. thickness of inner elastomer layers: mm (min. 5 mm / max. 25 mm) thickness of cover steel plates: mm (min. 15 mm or 20 mm) thickness of inner steel plates: mm (minimum 2 mm) special features: manufacturer: Leschuplast GLT GmbH & Co. KG		
	...pc.	Reinforced elastomer bearing type C-PSP , xx mm, according to DIN EN 1337-3, with CE-mark design: number of inner elastomer layers: pcs. thickness of inner elastomer layers: mm (min. 5 mm / max. 25 mm) thickness of profiled cover steel plates: mm (min. 15 mm or 20 mm) thickness of inner steel plates: mm (minimum 2 mm) special features: manufacturer: Leschuplast GLT GmbH & Co. KG		
	...pc.	Non-reinforced elastomer bearing type F , xx mm, according to DIN EN 1337-3, with CE-mark design: thickness of elastomer layer: mm (minimum 8 mm) special features: manufacturer: Leschuplast GLT GmbH & Co. KG		

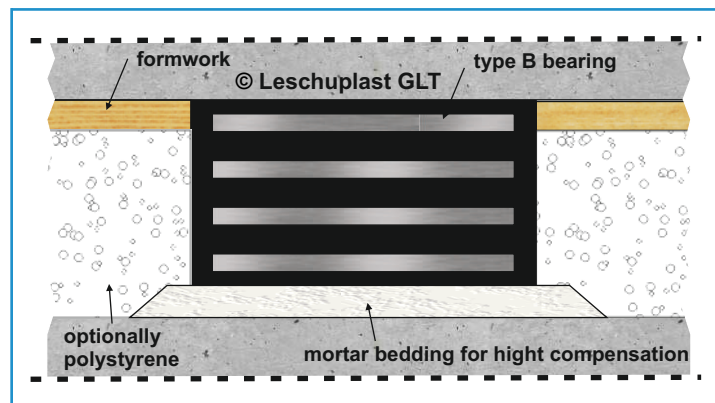
Setting instruction - reinforced elastomer bearings

Unanchored bearings

- Type B / Type A

The bedding surfaces should be smooth, horizontal, flat and free of fats or oils. Differences of level have to be compensated by a mortar bedding if necessary. Mortar with suitability test according to DIN 1045.

The side surfaces of the bearing must be free and not constrained in their deformation .



The bearing type B is usually installed to the smooth, substantiated mortar bedding. On the upper side, the formwork has to be arranged close to the side surfaces of the bearing, so that no concrete can intrude between the bearing and the formwork. Open spaces between bedding benching and formwork are possibly to fill with polystyrene, or similar. Bearing surface and supported component should have direct contact. There must be no foils in between.

The arrangement of two or more bearings consecutively is not permitted. The arrangement of bearings side by side is only permitted if their rigidity is equal or the bearings are nearly equal. The use of other bearing types is possible if only bearings of the same kind are used for the individual bedding benches.

Anchored bearings

- Type C by pins

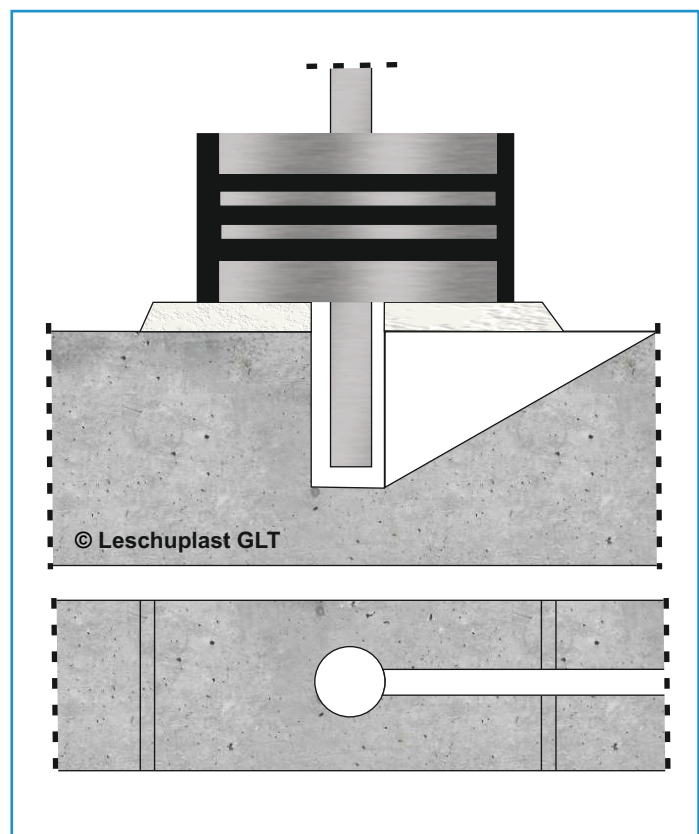
For the installation of anchored elastomer bearings should be provided, already at the concreting of the bedding benches, recesses for the pins and slits for their compounds.

After removal of the formwork there is the bedding surface given to the prescribed level of height and smoothed. After hardening, the bearings will be installed and compound-filled.

At the upper side of the bearing the same method is used like with the unanchored bearings.

- Type C-PSP by profiled cover steel plates

The bearing Type C-PSP has to be installed with the profiled cover steel plate in the fresh mortar bedding. The required level of height will be secured by using wedges. After hardening, the wedges are removed again.



Incremental launch and bridge displacement

Highly stressable steel reinforced bearings for incremental launching

BSL

In conformity with the applicable regulations suitable for pressures **up to 22,5 N/mm²**.

Steel reinforced bearings for incremental launching provide the rational production and displacement of bridge constructions. They ensure a controlled load transfer and enable horizontal displacements with very low restraint as well as smallest bearing rotation.



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- **Structural designing**

Steel reinforced bearings for incremental launching BSL are produced in standard thickness of 13, 18 and 25 mm. Other thicknesses are possible. They consist of layers of high-quality specialty elastomer in grey colour and steel reinforcement, as well as a PTFE-layer with embossed lubricant-slots, to improve the long-term-friction behaviour. The grey elastomer is advantageous against black elastomer concerning a discolouration of the concrete.

- **Application**

The incremental launching method takes the place of the traditional production of valley- and river-bridges on falsework or with launching girders. The advantages of in-situ concrete and prefabricated construction method are thereby optimally combined. The name INCREMENTAL LAUNCHING METHOD indicates a mechanized method of production for large bridges. In a stationary formwork, behind the abutments, the superstructure is produced in individual working cycles. The individual pieces are concreted immediate in succession and connected together flexural resistant by prestressing. The centrally prestressed superstructure is moved by hydraulic presses intermittently in longitudinal direction. Under the superstructure you arrange the specially developed Leschuplast GLT bearings for incremental launching BSL, which move on suitable low friction sliding plates. Adequate lubrication with silicone grease Leschuplast GLT Typ BSL-SF must be ensured. The edges of the stainless steel plate have to be rounded. The feed of the bridge must be plane parallel to the bearing.

- **Technical data**

type	max. width	max. length	thick- nesses	max. pressure	friction coefficient
BSL	1000 mm	1000 mm	13 mm 18 mm 25 mm	up to 22,5 N/mm ² (characteristic)	Depending on e.g. grease, cleanliness, counterpart sliding surface, surface pressure and temperature. Max. coefficient of friction, according to test certificate 852.0653-7 : $\gamma = 0,009$

Accessories : Silicon grease Leschuplast GLT type BSL-SF

Specification:

steel reinforced bearing for incremental launching Typ BSL for char. pressures up to 22,5 N/mm² dim.: x x mm provide and insert to a smooth, flat and horizontal support surface. The surface must be clean and free of oils. Leschuplast GLT type BSL



MATERIALPRÜFUNGSAMT NORDRHEIN-WESTFALEN

EC-CERTIFICATE OF CONFORMITY

0432 - CPD – 223286/3

In compliance with the Directive 89/106/EEC of the Council of European Communities of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to the construction products (Construction Products Directive - CPD), amended by the Directive 93/68/EEC of the Council of European Communities of 22 July 1993, it has been stated that the construction product

Elastomeric bearings type A, type B, type C and type F without sliding surfaces or sliding elements made from CR (chloroprene rubber); compound LPGLT 009C, and from NR (natural rubber), compounds LPGLT 009N, and LPGLT 115N, proved to –40°C, for high building and civil engineering works with critical requirements on single bearings

placed on the market by

**Leschuplast GLT GmbH & Co. KG
Refrather Weg 42 - 44
51469 Bergisch Gladbach
Germany**

and produced in the factory

Leinefelde

is submitted

- by the manufacturer to a factory production control and
- to the further testing of samples taken at the factory in accordance with a prescribed test plan

and that the approved body – *MPA NRW* - has performed

- the initial type-testing for the relevant characteristics of the product
- the initial inspection of the factory and of the factory production control and
- performs the continuous surveillance, assessment and approval of the factory production control.

This certificate attests that all provisions concerning the attestation of conformity and the performances described in Annex ZA of the standard.

EN 1337-3

were applied and that the product fulfils all the prescribed requirements.

This certificate was first issued on 05.03.2007 and remains valid as long as the conditions laid down in the harmonised technical specification in reference or the manufacturing conditions in the factory or the FPC itself are not modified significantly.

Dortmund, 17. July 2012



[Signature]
Dr. Krasch
Head of Certification Department

This document was originally written in German. In cases of doubt the German version shall prevail.

MPA NRW · Marsbruchstraße 186 44287 Dortmund · Telefon: (+49) 231 - 4502-0 · Telefax: (+49) 231 - 458549 · Internet: www.mpanrw.de



reinforced elastomer bearings according to EN 1337-3 are signed with an individual number and the CE - mark with producer, number of the certificate and relevant technical rule

General information

Information Applications

All details contained in the brochure are product descriptions. They are general recommendations based on extensive research and practical experience but do not consider the actual application work. No indemnities may be claimed from the given information.

If necessary, please contact our technical department for more information.

Technical changes

We reserve the right to alter the material properties of our products in case of new technical developments.

Recommendations for use

The information and recommendations have to be considered.

Terms of business

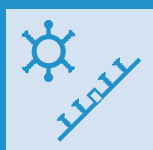
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