

LUCOBRIDGE® BIT

WATERPROOFING MEMBRANES FOR CONCRETE BRIDGES

INSTRUCTION MANUAL





... Waterproofing that lasts

BRIDGE SEALING WITH LUCOBRIDGE® BIT



1 PREFACE

In Germany, the base structure of bridges is made from steel or concrete. The more than 120,000 bridges in Germany must withstand increasing heavy loads traffic, de-icing salt, UV radiation, heat, rain or frost and salt and must be free of corrosion, cracks and imperfections. All of the systems must be tested and approved by the Federal Highway Research Institute (BASt). These suitability tests are carried out by accredited test institutes to meet high quality standards.

The technology in most common use is bitumen membrane to seal building constructions (ZTV-ING, Part 7 Sections 1 and 2). Single or double layer polymer-modified bitumen membrane is used which is installed beneath the asphalt layer.

The number of bridges requiring renovation today, some 6,000 of the 40,000 bridges of German motorways makes an innovative sealing system necessary.

The Lucobridge[®] system from LUCOBIT AG is a major departure from the products which were always used in the past where the bitumen membrane was usually fixed onto the substrate (concrete or steel) by heating a polymer-modified bitumen (PmB) adhesive layer with the bitumen membrane taking on the sealing function at the same time.

Lucobridge[®] membranes feature a polymer modified bitumen membrane made of ECB tried and tested in roofing and waterproofing membrane applications for more than 50 years (Lucobit[®]) that assumes the sealing function, permanently applied to the concrete or steel construction in both the familiar PmB flame procedure (BIT type) and the innovative adhesive procedure (PV-BIT type) with the environmentally-friendly acrylate system.

2 APPLICATION

2.1 Preparing the surface of the Concrete bridge

Remove the surface evenly through (shot) blasting and/or additional milling. The tear strength must be at least 1.5 N/mm².



Figure 1: Remove the surface

2.2 Priming with Lucobridge® Primer 2000P

Concrete surfaces must be primed and/or sealed. The Lucobridge® Primer 2000P (mixing regulation, section 7) is mixed at the construction site and applied over the entire area. The thickness of the layer should be approx. 1 mm.



Figure 2: Priming the surface

Ensure no moisture or air bubbles are trapped.

With concrete depths >1.5 mm, a scratch coat of approx. 1 mm must be made beforehand to seal/prevent pores so that to exclude moisture to be trapped preventing blistering later.

2.3 Flaming Lucobridge® BIT

The plastic sealing sheet on top of the Lucobridge® BIT membrane and PmB layer underneath are flamed directly onto the prepared concrete surface using hot air or flame activation1. We recommend installing the membranes, edge-to-edge'. In a second step, the resulting butt-joint is welded over with a 20 cm wide membrane made of Lucobridge® BIT using hot air or flame as well.



Figure 3: Flaming the membrane

If overlapping installation is chosen, the upper- and lower layer joints must be produced with hot air or flame and welding (an overlap of at least 8 cm lengthways and 10 cm crossways and a minimum lateral offset of 50 cm).

The hot seal area must be compressed by means of a suitable tool (e.g. pressure block) in order to prevent cavities from forming in the area of overlap (see Figure 4a).



Figure 4a: Overlapping

If edge-to-edge welding was chosen, the overlay should be a 20cm Lucobridge BIT strip welded on top of the waterproofing layer with 10 cm on each side of the bottom edge-to-edge laid membranes (see Figure 4b).



Figure 4b: Edge-to-edge



Figure 5: Laying edge-to-edge membranes



Figure 6: Two-membrane layers (mandatory) Dutch Bridge Design

3 OTHER LAYERS

3.1 Mastic asphalt

The required layer of asphalt can be applied directly onto the closed surface of the welded Lucobridge[®] Bit membrane with PmB layer on top.

3.2 Porous asphalt

If a second sealing layer is required, a Lucobridge[®] BIT membrane can be welded onto the cooled asphalt. The hot seal must be compressed by means of a suitable tool (e.g. pressure block) in order to prevent cavities from forming in the area of overlap.

A cover layer can again be applied to this bituminous surface of the polymer membrane, e.g. mastic asphalt or also porous asphalt.

3.3 Additional scope of application

As well as sealing bridges made of pre-stressed concrete, carriageways based on Lucobridge[®] BIT is used for the permanent sealing of car parks, subterranean garages and tunnel construction according to DIN ISO 18532.

4 LUCOBRIDGE® PRIMER 2000P

The Lucobridge[®] Primer 2000P is mixed with the enclosed hardener Lucobridge[®] Hardener 2001H to form a ready-to-use mixture (Section 6).

The primer was tested by KIWA, Flörsheim, as per TL/TP-BEL-EP of ZTV-ING Part 7 Bridge Surfacing (test report 9526).

The Lucobridge[®] Primer 2000P, the manufacturing process and self-monitoring is certified according to EN ISO 9001.

The results are listed in Table 2

5 LUCOBRIDGE® BIT MEMBRANE

Lucobridge[®] BIT membranes consist of a "polymer core", an ECB (ethylene copolymer bitumen) membrane with centered glass-fibre mat which is enclosed on both sides with a polyester fleece. A heat-activated PmB adhesive layer is applied to it on both sides. Firstly, to torch on prepared surfaces, secondly as a contact surface and heat protection for the wearing surface to be applied later.

This ensures excellent crack-bridging caused by high elasticity even after ageing:

Table 2 shows the results of the Lucobridge[®] BIT membrane test ascertained by KIWA, Flörsheim based on pr-DIN EN 17048:2016 and in Table 3 results of the system test as per TP/ TP BEL-B1 for the concrete-Lucobridge[®] BIT joint composite.

6 MIXING AND PROCESSING OF LUCOBRIDGE® PRIMER 2000P

6.1 Mixing with Lucobridge® Hardener 2001H

The Lucobridge® Hardener 2001H must be added to for the Lucobridge® Primer 2000P in the amount indicated on the packaging and must be stirred intensively for at least 3 minutes. The powder must be dissolved fully in the primer. Do not stir by hand, always use a mechanical stirrer! (E.g. power drill with stirring apparatus etc.).

The sizes of the Lucobridge[®] Primer 2000P containers are 1 to 20 litres. A container of 20 L Lucobridge[®] Primer 2000P can be used to prepare from 40 m² (steel) up to 15 m² (concrete) depending on the substrate.

6.2 Processing and binding times

The Lucobridge[®] Primer 2000P mixed with the Lucobridge[®] Hardener 2001H responds quickly. The processing time for a

mixture is influenced by the temperature and the amount of hardener used as shown in the following chart. The gel time is the time in which the material transitions from liquid to a solid state. Afterwards, the activated primer can no longer be processed. The binding time is the period of time after the material was applied to the surface and has completely cured.

Gel times Lucobridge® Primer 2000P



Figure 7: Gel times of the Lucobridge Primer 2000P with different hardener additives

These gel times are laboratory values taken from 50 g samples in each case.

During the curing reaction of Lucobridge[®] Primer 2000P, reaction heat is released. This released heat accelerates the reaction and shortens the potential processing time and must be taken into account. This typical property of reaction resins can - for the most part - be compensated by splitting fresh mixtures into several smaller containers. The binding time of the primer depends on the temperature of the substrate and the layer thickness (approx. 60 minutes/20 °C). After this time, layers with a thickness of approx. 300 μ m are hard, adhesive-free and can be reworked. An additional waiting period for the next construction step is not required.

6.3 Requirements for the substrate

The following holds for all substrates: The surface must be dry, clean, free of substances which could interfere with adhesion as well as sufficiently firm and load-bearing. The dew point of air during processing must be at least 3 °C higher than the temperature of the substrate.

Take care with direct sunlight! Lucobridge[®] Primer 2000P responds more quickly to warm substrates!

Concrete: Cement laitance and fine layers must be removed, minimum strength 1.5 N/mm² in the tensile test.

6.4 Application

To prevent defects, Lucobridge[®] Primer 2000P must be applied in two layers. The product is liquid; it is appropriate to use rollers with a short thread as recommended similar to applying paint. The product should be rolled out fully and evenly; avoid puddling. Before applying the second layer, layer one should be fully hardened.

The primer does not need to be sanded down either after the 1st nor after the 2nd step. Work can be resumed directly after curing in both the bitumen based construction using the torching method using Lucobridge[®] BIT.

6.5 Cleaning agent

Fresh contamination through Lucobridge® Primer 2000P and the processing equipment can be removed by wiping off/

Table 1: Approx. Gel Times of Lucobridge® Primer 2000P in Minutes with Lucobridge® Hardener 2001H.

TEMPERATURE	0°C	5°C	10°C	15°C	20°C	25°C	30°C	40°C	50°C
1% Hardener	105	75	55	35	25	20	13	6	3
2% Hardener	55	40	28	20	14	10	6	3	1,5



Figure 8: Lucobridge® BIT membrane



Figure 9: Priming the surface

rinsing with the special cleaning agent (Lucobridge[®] Solvent 450); hardened product can only be removed mechanically.

6.6 Safety instructions

When working with the product, wear safety goggles and gloves. Lucobridge[®] Primer 2000P has an intensive odor before curing. When working with it in closed rooms, make sure there is adequate ventilation. The liquid product is combustible: avoid naked flames, fire and sparks.

Note the information and MSDS (material safety datasheet)!

How to apply correctly

- Store the Lucobridge® products in a cool place in the shade
- Never process Lucobridge® Primer 2000P without a hardener
- Always mix the primer and hardener thoroughly with a stirring machine
- Apply the primer thickly and evenly, avoid defects
- Note the dew point
- Do not mix too much material. Remember the reaction heat
- At excessive temperatures, distribute the material into multiple containers
- Remove fresh contamination from Lucobridge® Primer 2000P immediately
- When working with the product, wear safety goggles and gloves
- When working with the product, do not smoke,

avoid naked flames or light • Follow the safety datasheet

Disposal instructions

Polymer bitumen and bitumen membranes and site waste (European Waste Catalogue EWC Number 17 03 02 "Bitumen mixtures") can be used in thermal application processes without any harm to the environment.



Table 2: Primer Lucobridge® Primer 2000P – basic test according to TL/TP Bel-EP Test report P 9526 dated 17/09/2015, KIWA

TL/		STANDARD	CONDITION	UNIT		LUCOBRID-	TL-ING TEIL 7
TP-						GE [®] PRIMER	TL-BEL-EP
BEL-						2000P	
21						2 min (100 + 2	
3.1	COMPONENTS - ISOLATE				3	3 min / 100 + 2	
3.1.1	Density	ISO 2811	20 °C	g/o	cm²	0.994	± 2%
3.1.2	Dyn. viscosity	ISO 3219	23 ℃, 750 s-1	m	Pas	110	± 20%
3.1.3	IR spectrum	DIN 51451	ATR-IR, 4000-500 cm-1			o.k.	No deviation from composition
3.1.4	TGA	ISO 11358 ISO 7111	35°C - 900°C, 10K/min			1,5 % residue	No deviation from composition
3.1.5	Bulk density scratch-co- ating	EN-459-2		g/o	dm³	N/A	± 0,05 kg/dm³
3.1.6	Grain sizes allowance of scratch-coating					N/A	± 3% abs.
		••••••					
3.2	COMPONENTS – MIXED			Primer/hai	rdener ratio	100 + 1 (23°C)	
		•				100 + 3 (12°C)	
3.2.1	Viscosity	ISO 3219	12°C, 500 s-1	m	Pas	190	≤ 4000
3.2.2	Ash residue	acc. ISO 3451-1	3 h/ 550℃	%		0	≤ 1 %-Weight
3.2.3	Pot life	TP-BEL-EP 3.2.3	100 cm ³ ,	min		17	>10 min, ± 25%
	Max. temperature	•	23°C-40°C	°C		162	
	Reaction time	• • •		min		24	
3.2.4	Curing time	ISO 2815	7 d – 23°C	a. Final hardness		81	≥ 60
		Curing grade	18 h - 23℃	b. Indentation resistance		76	≥ 60
	•	aiter buchholz	40 h – 12°C/85% rF	c. Indentation resistance		72	≥ 60
3.2.5	Moisture sensitivity	TP-BEL-EP 3.2.5	40 h – 12°C/85% rF			o.k.	No white tarnish
3.2.6	Non-volatile ingredients	acc. ISO 3251	3h – 105°C	%		98,7	≥ 98
3.2.7	Extractable ingredients	acc. ISO 6427	16h –	%		2,5	≤ 11
•••••			n-Hexan			no plasticizer	
3.2.8	Water absorption	acc. ISO 62	14d – 23°C	%		1,8	≤ 2,5
3.2.9	Consistency of scratch-coating					N/A	Various
	••••••	••••••	•••••••••••••••••••••••••••••••••••••••		·····		••••••••••
3.3	TESTING THE COMPOSIT	E BODIES	•••••••••••••••••••••••••••••••••••••••	••••••			
3.3.1	Manufacture	acc. ZTV-StB 90 - J	Annex 2				•••••••••••••••••••••••••••••••••••••••
3.3.2	Free of defects	TP-BEL-EP	silicone - 60 min - 250)°C ΜΩ		> 10.000	> 10.000
3.3.3	Thermal stress	•				·····	·····
3.3.3.1	Silicone oil	TP-BEL-EP	silicone - 60 min - 250)°C ΜΩ		no complaint	no complaint
3.3.3.2	Welding tensile bond strength	ZTV-SIB Annex 2	100 N/s, 23°C	••••••	N/mm²	2,9 100% cohesive	
•••••				••••••		break concrete	

Table 3: Lucobridge® BIT – suitability test acc. TL-BEL-B 1, test report P9309 from XXXX

TL/TP- BEL- B-1-	TEST	STANDARD	UNIT	LUCOBRIDGE [®] BIT	REQUIREMENTS TL-ING PART 7
3.1	Surface weight, total membrane	DIN 52123	g/m²	4730	>4500
3.2	Surface weight Raw reinforcement insert	acc. to DIN 52123	g/m²	N/A	≥ 175
	Surface weight Raw reinforcement, extracted	acc. to DIN 52123	g/m²	N/A	
3.3			g/m²	1600 - plastic part of membrane	
3.4	Proportion of soluble binding agent in the adhesive mass	TP-BEL-B 1	%	N/A	≥ 60
	Proportion of polymers and type of polymers			8	
3 5	upper layer	DIN 51451	%	PmB, 15,3% SBS	
5.5	middle layer	DIN EN 13956	g/m²	ECB, 100% Lucobit® 1235	
	lower layer	DIN 51451	%	PmB, 15,3% SBS	
3.6	Distribution of polymers in the adhesive mass	TP-Min-StB 3.1.3		heterogeneous, 2-phase system	homogeneous
				o.k	particles - none ≥ 0,7mm
3.7	Type of fillers of the adhesive mass	TP-Min-StB 3.1.3		mineralic, clay	
3.8	Filler content of adhesive mass	DIN EN 53568	%	5,7	≤ 40
3.9	Type and property of reinforced sheet	DIN EN 18192		ECB-membrane, 50g/m ² glass-fleece reinforce- ment	
	Tensile strength at yield Elongation at yield	DIN EN 13956	N / 50 mm %	>1000 > 400	≥ 700 ≥ 30
3.10	External property of the sheet	TP-BEL-B 1		N/A	
3.11	Soaking of reinforced sheet	acc. to DIN 52123		totally soaked	
3.12	Thickness of sheet	acc. to DIN 52123	mm	xi = 5,0 xi, min = 4,5	4,5≤ xi ≤5,5
3 1 3	Thickness of adhesive layer underneath	TP-BEL-B 1	mm	1,8	≥ 3,0
	Thickness of adhesive layer above	TP-BEL-B 1	mm	1,3	≤ 0,5
3.14	Roll width	TP-BEL-B 1	cm	104,7	100 ± 2
3.16	Straightness	TP-BEL-B 1	cm	0,2	≤ 1 cm at 5 m
3 1 7	Tensile strength at yield	acc. to DIN 52123	N/50 mm	length/cross/diagonal 1160 / 690 / 810	length/cross/diagonal ≥ 550 / ≥ 550 / ≥ 550
	Elongation at yield	acc. to DIN 52123	%	length/cross/diagonal 53 / 109 / 78	length/cross/diagonal ≥ 30 / ≥ 30 / ≥ 30
3 18	Water impermeability	acc. to DIN 52123	2 bar/24h	Passed	Passed
5.10		DIN 1928-B	4 bar/48 h	Passed	Passed
2 10	Change by water immersion		%	0	Volume ≤ 5
3.19		acc. to DIN 52123	%	0	Mass ≤ 5
3.20	Low resistance at elevated temperatures	acc. to DIN 52123	°C	130	
3.21	Workability at low temperatures	acc. to DIN 52123		ref. 3.25	Crack-free at 0 °C
2 2 2	Softening point of adhesive layer underneath	DIN 52011	°C	152	SBS min. 125
5.22		DIN 52011	°C	-	APP min. 150
3.23	Needle penetration of adhesive layer underneath	DIN 52010	1/10 mm	34	
2 7 E	Foldability at low temperatures	DIN EN 1109	°C	-16	≤ -10
3.23		DIN 495-5	°C	< -40	

Table 4: Lucobridge® BIT membrane - Test report P 9309-01 24.10.2016, KIWA suitability test acc. TL-BEL-B 1 - adhered

TL/TP BEL B1	TEST	STANDARD	CONDITION	UNIT	LUCOBRIDGE® BIT	REQUIREMENTS TL-ING PART 7			
PROPERTIES OF LUCOBRIDGE® BIT MEMBRANE									
4.3	Tear strength of the sealing layer	acc. ZTV-StB 90 - Annex 2							
	βHZ		V-sample 8°C	N/mm²	1,2	≥ 0,7			
	βΗΖ		V-sample 23°C	N/mm²	0,6	≥ 0,4			
	Tear strength of the pro- tective and cover layer	acc. ZTV-StB 90 - Annex 2							
	βHZ		V-sample 8°C	N/mm²	1,0	≥ 0,7			
	βHZ		V-sample 23°C	N/mm²	0,7	≥ 0,4			
4.4	βHZ		B-sample 8°C	N/mm²	0,7	≤ 30			
	βHZ		B-sample 23°C	N/mm²	0,7	≤ 30			
	Δβ ΗΖ	stressed	B-sample 8°C	%	30	≤ 30			
	Δβ ΗΖ	stressed	B-sample 23°C	%	0	≤ 30			
	Crack bridging	TP-BEL-B 1							
4.5			dynamic: B-samp- le -20°C		passed	0,2 mm			
			static: B-sample +70°C		passed	1,0 mm			
	Shear strength S and distortion angle γ	TP-BEL-B 1	-						
	S		V-sample	N/mm²	0,21	≥ 0,15			
46	γ		V-sample	N/mm²	0,41	≤ 1,3			
	S		B-sample	N/mm²	0,47	≥ 0,15			
	γ		B-sample	N/mm²	0,52	≤ 1,3			
	ΔS	stressed	B-sample 8°C	%	124	≤ 30			
4.7	Cavities after installation of sealing layer	TL/TP-Min-STB 3.1.3			no complaint	no cavities			
4.8	Adhesion after installati- on of sealing layer	TP-BEL-B 1		%	>95	> 95			
4.9	Rise up of binder	TP-BEL-B 1			no complaint	no complaint			
4.10	Stability during installa- tion of sealing layer	TP-BEL-B 1	displacement	mm	0	≤ 2,0			

Table 5: Lucobridge® BIT membrane – suitability test acc. prDIN EN 17048, Test report P 9309-01 24.10.2016, KIWA

PR DIN EN 17048	TEST	STANDARD	CONDITION	UNIT	LUCOBRIDGE® BIT	PR DIN EN 17048
4.2 PROPERTIES OF LUCC	DBRIDGE® BIT MEMBRANE					
4.2.1	visible defects	EN 1850-2		-	no visible defects	no visible defects
	thickness, totally	EN 1849-2		mm	5	within MDV
	Thickness of binder underneath the sealing layer	EN 1849-2		mm	1,8	within MDV
	Thickness of binder above the sealing layer	EN 1849-2		mm	1,3	within MDV
4.2.2	length	EN 1848-2		mm	7500	within MDV
	width	EN 1848-2		mm	1045	within MDV
	mass per unit area	EN 1849-2		g/m²	4730	within MDV
	straightness	EN 1848-2	per 5m	mm	2 / 5m	< 20 / 10 m
	tensile strength at yield	EN 12311-2	length cross diagonal	N/50 mm	1160 690 810	≥ MDV
4.2.3	elongation at yield	EN 12311-2	length cross diagonal	%	53 109 78	≥MDV
4.2.4	water absorption	EN 14223		m-%	0,4	≤ MLV
425	Foldability at low temperature	DIN EN 495-5	- 20℃	· · ·	passed	≤ MLV
4.2.9	Foldability at low temperature	DIN EN 1109	-16°C		passed	
4.2.6	Flow resistance at elevated temperatures	EN 1110	2 h / 130°C	mm	1,0	≤ MLV
4.2.7	dimension stability at elevated temperatures	EN 1107-1	1 h / 160°C	%	-3,0	≤ MLV
	thermal ageing behaviour	EN 1296	12 weeks / 70°C	*		
4.2.8	Flow resistance at elevated temperatures after ageing	EN 1110	2 h / 130℃	mm	0,0	≤ MLV
	Foldability at low temperature after ageing	DIN EN 495-5	- 20°C	• • • • •	passed	≤ MLV
3 PERFORMANCE RELA	TED CHARACTERISTICS					
	Bond strength	EN 13596	Typ 1, 8℃	N/mm²	1,2 100% cohesive break, upper fleece layer	MLV
	Bond strength	EN 13596	Тур 1, 23℃	N/mm²	0,6 100% cohesive break, 60% lower fleece layer 40% upper fleece layer	MLV
4.3.2	Bond strength	EN 13596	Тур 3, 8℃	N/mm²	1,1 100% cohesive break, lower fleece layer	MLV
	Bond strength	EN 13596	Тур 3, 23℃	N/mm²	0,69 70% cohesive break, lower pmb layer 30% adhesive break, primer layer/pmb-memrane	MLV
	Distribution of polymers		- - - 	- - - - -	N/A	
4.3.3	shear strength	EN 13653	- - - 	N/mm²	0,21	MLV
	displacement			mm	2	MLV
4.3.4	crack bridging ability	EN 14224	-20°C, 10.000 cycles	• • • • • • • • • • • • • • • • • • •	passed	MLV
4.3.5	compatablitiy by heat condi- tioning	EN 14691		N/mm²	0,45	MLV
	displacement		-	mm	3	MLV
4.3.6	restistance to compaction of an asphalt layer	EN 14692		- - - - - - - - -	N/A	passed
4.3.7	behaviour of plastic sheets during application on mastic asphalt	EN 14693		- - - - - - - - -		
	aera with spots on surface	· · ·		%	0	passed
	thickness of membrane after application of mastic asphalt		difference	mm	-0,2	passed
	enclaves within the mastic asphalt	EN 14693 - picture 2	- - - - - - - - - - - - - - - - - - -	-	0	passed
4.3.8	Bitumen compatibility	EN 1548			N/A	passed
4.3.9	watertightness	acc. EN 14694	0 to 500 kPa, 1000 cycles	-	passed	passed







- 07 Spread (grit) 06 Spread (grit) 05 Bridge cap 04 Protective coat 03 Lucobridge BIT waterproofing membrane 02 Primer
- 01 Steel bridge construction



Detail 02 Bridge cap

- 05 Bridge cap, ferro-concrete
- 04 Protective coat
- 03 Lucobridge BIT waterproofing membrane
- 02 Primer
- 01 Steel bridge construction



Detail 03 Sealing connection beyond border cap

- 08 Cover up-bow
- 07 Sealing course
- 06 Glue mass
- 05 Cap joint band
- 04 Bituminous glue mass
- 03 Lucobridge BIT waterproofing membrane
- 02 Hot bituminous glue mass
- 01 Undercoat







Detail 04 Light tower

- 10 Spread (grit)
- 09 Bituminous joint
- 08 Wearing course of mastic asphalt
- 07 Protective coat of mastic asphalt 06 Safety curb
- 05 Protective layer
- 04 Integral flange construction with welded mast
- 03 Lucobridge BIT waterproofing membrane
- 02 Primer
- 01 Steel bridge construction

Detail 05 Expansion joint

- 08 Spread (grit)
- 07 Bituminous joint
- 06 Wearing course of mastic asphalt
- 05 Protective coat of mastic asphalt
- 04 Joint profile with integral flange
- 03 Lucobridge BIT waterproofing membrane
- 02 Primer
- 01 Steel bridge construction

Detail 06 Bridge drains

- 11 Spread (grit)
- 10 Bituminous joint
- 09 Wearing course of mastic asphalt
- 08 Protective coat of mastic asphalt
- 07 Bridge cap, ferro-concrete
- 06 Protective layer
- 05 Waterproofing subpart flange
- 04 Lucobridge BIT waterproofing membrane
- 03 Primer
- 02 Floor drain subpart, integral flange
- 01 Steel bridge construction







Detail 01 Completion of a open joint construction

Detail 02 Completion of waterproofing

Detail 03 Joint at the edge cap



luftseltig



luftseitig



Detail 04 Installation variants



14





Detail 01 Waterproofing with polymer waterproofing courses on transient area egde cap/track





Detail 02 Completion with frame constructions

Detail 03 Closed screwed joint and transition construction

1 CONCRETE BRIDGE-ROAD ONE LAYER





Detail 04 Transverse joints with abutment wall

Detail 05 Closed screwed joint and transition construction











Detail 01 Connecting track/bridge cap

- 09 Spread (grit)
- 08 Bituminous joint
- 07 Porous asphalt
- 06 Protective coat of mastic asphalt
- 05 Bridge cap, ferro-concrete
- 04 Protective coat
- 03 Lucobridge BIT / PV-BIT waterproofing membrane
- 02 Primer
- 01 Steel bridge construction

Detail 03 Mast

- 10 Spread (grit)
- 09 Bituminous joint
- 08 Wearing course of mastic asphalt
- 07 Protective coat of mastic asphalt
- 06 Safety curb
- 05 Protective layer
- 04 Integral flange construction with welded mast
- 03 Lucobridge BIT /PV-BIT waterproofing membrane
- 02 Primer
- 01 Steel bridge construction

Detail 04 Expansion joint

- 08 Spread (grit)
- 07 Bituminous joint
- 06 Porous asphalt
- 05 Protective coat of mastic asphalt
- 04 Joint profilewith integral flange
- 03 Lucobridge BIT / PV-BIT waterproofing membrane
- 02 Primer
- 01 Steel bridge construction



Detail 05 Bridge drains

- 11 Spread (grit)
- 10 Bituminous joint
- 09 Porous asphalt
- 08 Protective coat of mastic asphalt
- 07 Bridge cap, ferro-concrete
- 06 Protective layer
- 05 Waterproofing subpart flange
- 04 Lucobridge BIT / PV-BIT waterproofing membrane
- 03 Primer
- 02 Floor drain subpart, integral flange
- 01 Steel bridge construction



02 CONCRETE DECK BRIDGE-RAILWAY











Detail 01 Waterproofing beyond bridge cap

- 05 Bridge cap, ferro-concrete
- 04 Cap joint band
- 03 Lucobridge BIT waterproofing membrane
- 02 Primer
- 01 Steel bridge construction

Detail 02 Connection bridge cap

- 07 Track bed, gravels
- 06 Bridge cap, ferro-concrete
- 05 XPS-stand-by stripe
- 04 Protective coat of concrete
- 03 Lucobridge BIT waterproofing membrane
- 02 Primer
- 01 Steel bridge construction

Detail 03 Super structure Connection/waterproofing conclusion

- 09 Bituminous potting
- 08 Protective concrete
- 07 Filter stone
- 06 Drip tap or bituminous waterproofing layer, mounting with terminal strip
- 05 Lucobridge BIT waterproofing membrane
- 04 Primer
- 03 Border construction with concrete anchor and long hole
- 02 Counterfort
- 01 Super structure

Detail 04 Fudge counterfort support structure

- 08 Protective concrete
- 07 PE-waterproofing band
- 06 Retain element
- 05 Molded body, integrated in the waterproofing
- 04 Lucobridge BIT waterproofing membrane
- 03 Primer
- 02 Counterfort
- 01 Support structure

03 PARKING GARAGE





Detail 01 Ground/coating structure

- 07 Spread (grit)
- 06 Joint
- 05 Wearing course of mastic asphalt
- 04 Protective coat of mastic asphalt
- 03 Lucobridge BIT waterproofing membrane
- 02 Primer
- 01 Construction concrete with slope





Detail 02 Wall/sustain connection

- 11 Permanently elastic joint infill
- 10 Cover plate \geq 15 cm high with clamping effect
- 09 Spread (grit)
- 08 Joint
- 07 Wearing course of mastic asphalt
- 06 Protective coat of mastic asphalt
- 05 Lucobridge BIT waterproofing membrane
- 04 EP-fillet (PCC-mortar)
- 03 Primer
- 02 Raising component (concrete wall)
- 01 Construction concrete with slope

Detail 03 Free board connection

- 08 Spread (grit)
- 07 Bituminous joint
- 06 Wearing course of mastic asphalt
- 05 Protective coat of mastic asphalt
- 04 Lucobridge BIT waterproofing membrane
- 03 Primer
- 02 Boarder connection profile as integrated flange, mounting according to statics
- 01 Construction concrete with slope

03 PARKING GARAGE







Detail 04 Floor drain

- 08 Spread (grit)
- 07 Bituminous joint
- 06 Wearing course of mastic asphalt 05 Protective coat of mastic asphalt
- 04 Primer
- 03 Lucobridge BIT waterproofing membrane
- 02 Floor drain
- 01 Construction concrete with slope

Detail 05 Pipe implementation

- 08 Spread (grit)
- 07 Bituminous joint
- 06 Wearing course of mastic asphalt
- 05 Protective coat of mastic asphalt
- 04 Lucobridge BIT waterproofing membrane
- 03 Primer
- 02 Pipe with waterproofed welded integrated flange,
- mounted according to statics
- 01 Construction concrete with slope

Detail 06 Cable implementation

- 08 Spread (grit)
- 07 Bituminous joint
- 06 Wearing course of mastic asphalt
- 05 Protective coat of mastic asphalt
- 04 Lucobridge BIT waterproofing membrane
- 03 Primer

02 Pipe with waterproofed welded integrated flange, mounted according to statics

01 Construction concrete with slope

04 PARKING GARAGE



Detail 07 Safety curbs

- 09 Spread (grit)
- 08 Bituminous joint
- 07 Wearing course of mastic asphalt 06 Protective coat of mastic asphalt
- 05 Safety curb
- 04 Protection mat
- 03 Lucobridge BIT waterproofing membrane
- 02 Primer
- 01 Construction concrete with slope



Detail 08 Component joint, permanently elastic

- 11 Spread (grit)
- 10 Permanently elastic joint filler
- 09 Closed cell rear filling string
- 08 Bituminous joint
- 07 Wearing course of mastic asphalt
- 06 Protective coat of mastic asphalt
- 05 Integrated flange
- 04 Lucobridge BIT waterproofing membrane
- 03 Primer
- 02 Component joint
- 01 Construction concrete with slope
- 11 Abstreumittel (Splitt)



Detail 09 Expansion joint

- 08 Spread (grit)
- 07 Bituminous joint
- 06 Wearing course of mastic asphalt
- 05 Protective coat of mastic asphalt
- 04 Joint profile with integrated flange
- 03 Lucobridge BIT waterproofing membrane
- 02 Primer
- 01 Steel bridge construction



BRIDGE CROSSING THE MAIN-RIVER AT BETTINGEN



DONNERSBERGER BRIDGE, MUNICH



BRIDGE CROSSING THE MAIN-RIVER AT MARKTBREIT



GROSSHESSELOHER BRIDGE, MUNICH



ICE BRIDGE, WALLDORF





LOCATIONS



LUCOBIT Aktiengesellschaft Basell Polyolefine GmbH / Brühler Str. 60 • B100 D-50389 Wesseling Phone +49 2236 / 37859-0 Fax +49 2236 / 37859-99 info@lucobit.de www.lucobit.com

Note

The information provided in this document is based on our product tests and present technical knowledge. It does not release purchasers from the responsibility of carrying out their receiving inspections. Neither does it imply any binding assurance of suitability of our products for a particular purpose. As LUCOBIT cannot anticipate or control the many different conditions under which this product may be processed and used this information does not relieve processors from their own tests and investigations. Any proprietary rights as well as existing legislation shall be observed.