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BML SYSTEMS - TESTED QUALITY FOR THE MOST DEMANDING REQUIREMENTS

PREIS®
DRAINAGE SYSTEMS

BML - Cast Iron Socketless Drain Pipe Systems

for road, bridge and tunnel construction

Tested quality for the highest demands in road, bridge and tunnel construction.

PREIS is a leading European manufacturer of drainage pipe systems made of cast iron.

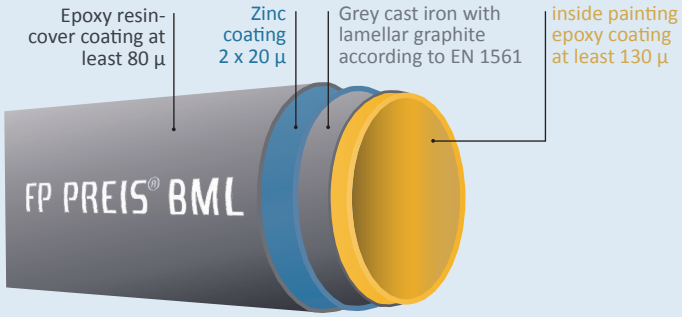
The future-oriented infrastructure construction focuses on the entire life cycle of the building - both with regard to the costs of future customers and in relation to the long-term effects on environment and society.

Cast iron pipe systems according to EN 877 from PREIS® DS offer a robust and durable pipe system for road, bridge and tunnel drainage due to their specific material properties.

Due to the insensitivity of the material to shocks and high temperature fluctuations and its inherent dimensional stability, PREIS® BML piping system has another unique selling point in infrastructure construction compared to other products and has a positive influence on the life cycle of the entire construction.

In addition, PREIS® BML drainage pipes and fittings meet the high safety requirements in modern drainage and are the ideal product to withstand acidic exhaust gases and road salts.

Coating structure



The heavy corrosion protection of the pipe outer coating corresponds to the requirements of ZTV-ING Part 4, Section 3, Appendix A, Table A 4.3.2, component no. 3.3.3 and the TL / TP-KOR steel structures for use on structures and components of federal traffic routes.

The advantages of cast iron bridge drainage

Cold and heat resistant:
Low thermal expansion

Weatherproof
Defies the weather

Conserving resources and 100% recyclable
Consists mainly of scrap iron

Stable
Dimensionally stable and shockproof, prevents vandalism

Abrasion resistant
Streamlined through smooth surface

Linear expansion (0,0100 mm/mK), same as reinforced concrete

Comparison of changes in length of different materials

Extract from RVS 15.04.31, edition 11/2013, table

Material	α mm/mK	ΔT [°C] 55 ΔL [mm/10m]
PREIS® BML	0,0100	5,500
TW-reinforced concrete	0,0100	5,500
TW steel	0,0120	6,600
Stainless steel tube	0,0165	9,075
GF-UP	0,0300	16,500
PP-ML	0,0440	24,200
PE	0,1700	93,500

Relevant standards and regulations for PREIS® BML products are:

EN 877| Cast iron pipes and fittings, their joints and accessories for the evacuation of water from building. Requirements, test methods and quality assurance.

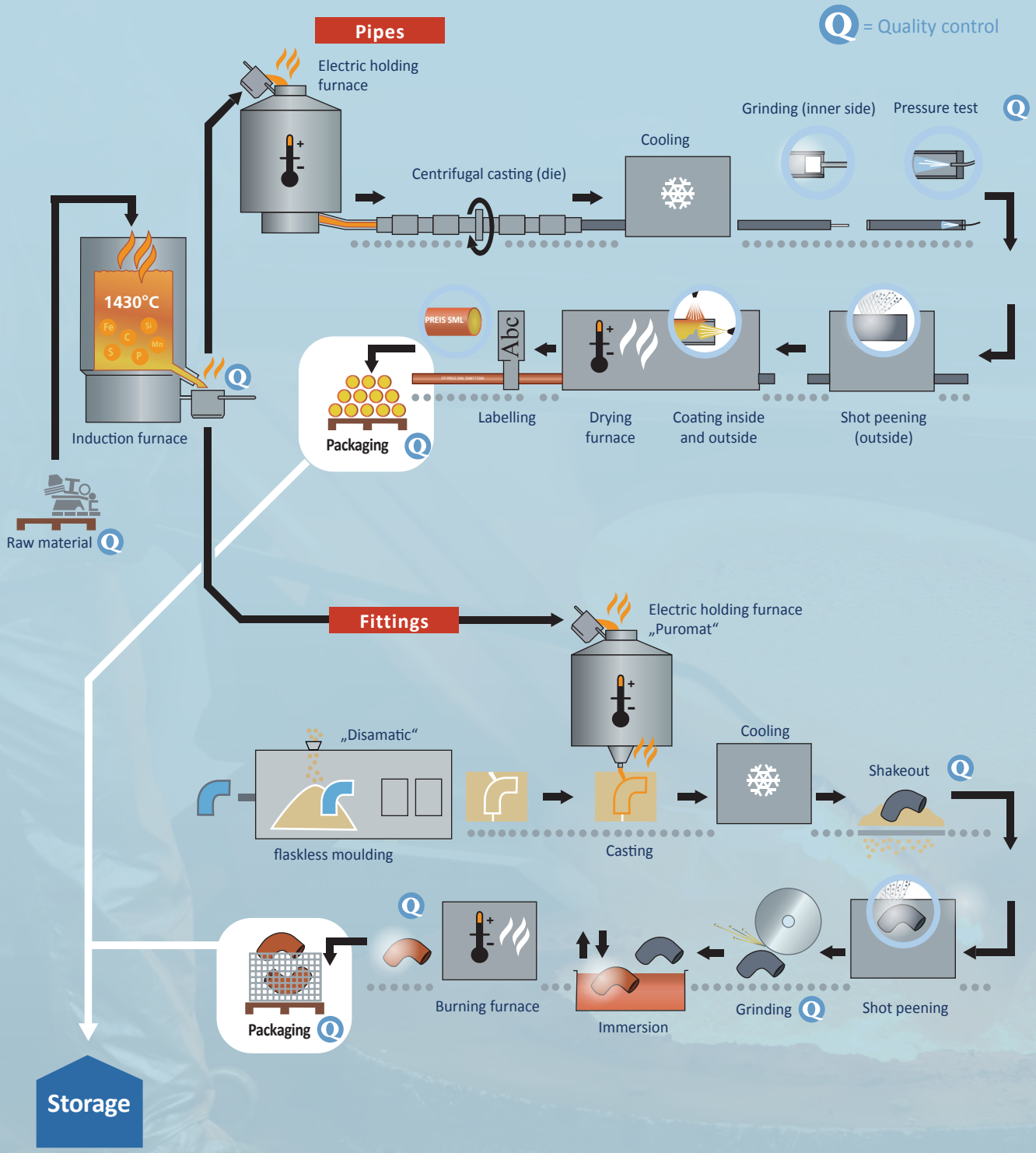
DIN 19522| Complementary standard to EN 877. This standard mainly includes details about design and layout measurements of pipes and fittings.

RAL-GZ 698| RAL quality label demanding a notably extended test range and stricter requirements on quality, which goes far beyond the requirements of EN 877.

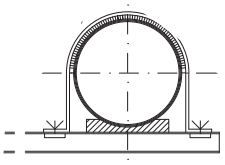
CE Kennzeichen| Declaration of conformity according to the European Directive for construction products (89/106/EEC).

EN 1561| Standard for casting of products made from grey cast iron with lamellar graphite.

Production process



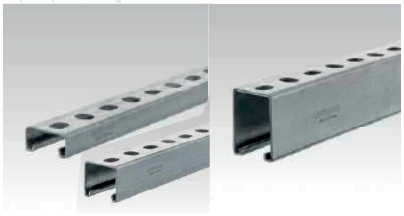
BML pipe fastenings



Bridges are naturally exposed to heavy environmental influences. The used materials have to withstand the high loads safely and reliable for a long period of time.

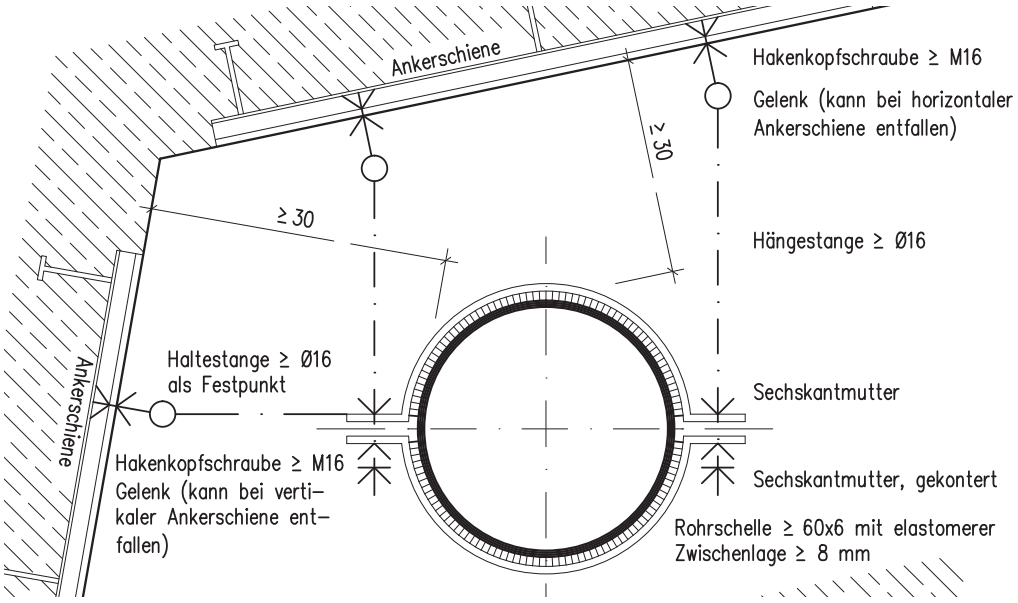
In fastening technology, corrosion resistance and static requirements are of decisive importance.

BML pipe fastenings are supplied completely in stainless steel and therefor meets the highest quality requirements.



Due to the different installation situations of the fastenings, the right solutions are always project-related calculated and offered according to the respective requirements.

Applicable regulations, static requirements and environmental influences are vastly important for the project-related calculation, so that an ideally designed system can be tailored for every project.



Schematic sketch of the pipe suspension according to Was 13 of the German Federal Road Research Institute (BAST)

The complete package tailor-made for your project!

Dimensions

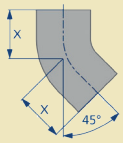
Pipes / fittings / couplings

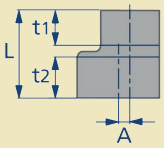
Nominal width DN	External diameter DE	Permitted deviation	Wall thickness e	Pipes and fittings permitted deviation	Insertion length (sealing zone) t	Pipe weight empty approx. kg/m	Pipe weight full approx. kg/m	Surface approx. m^3 per m
100	110	+2/-1	3,5	-0,5	40	9,5	16,7	0,35
125	135	+2	4,0	-0,5	45	12,6	24,5	0,42
150	160	-2	4,0	-0,5	50	15,3	32,2	0,50
200	210	+2,5	5,0	-1,0	60	23,1	54,5	0,65
250	274	-2,5	5,5	-1,0	70	33,3	87,6	0,85
300	326		6,0	-1,0	80	43,2	120,6	1,02
400	429	+2/-3	6,3	-1,3	80	60,1	197,6	1,35
500	532	+2/-3,5	7,0	-1,8	80	82,9	295,3	1,68
600	635	+2/-4	7,7	-1,9	80	108,8	412,3	2,00

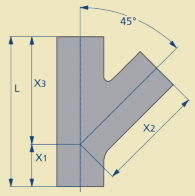
BML Pipes and fittings

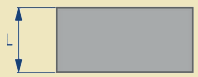
Product overview

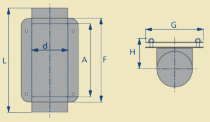
3000 mm PIPE	DN	kg/pcs.	ART.NR.	PU
	100	25,40	41913	38
	125	35,70	41914	23
	150	42,50	41915	20
	200	69,80	41916	10
	250	100,50	41917	8
	300	130,70	41918	6
	400	192,20	41919	2
	500	247,70	41920	2
	600	325,50	41921	3

45° BEND	DN	kg/pcs.	ART.NR.	X
	100	1,60	41922	70
	125	2,30	41925	80
	150	3,50	41926	90
	200	5,70	41927	110
	250	10,30	41928	130
	300	16,50	41929	155

ECCENTRIC REDUCER	DN	kg/pcs.	ART.NR.	A	L
	125/100	1,80	41961	12,5	95
	150/100	2,40	41962	25	105
	150/125	2,60	41963	12,5	110
	200/100	4,10	41964	50	115
	200/125	4,10	41965	37,5	120
	200/150	4,30	41966	25	125
	250/150	4,10	42032	57	140
	250/200	4,30	41968	32	145
	300/250	4,10	41969	26	170

45° BRANCH	DN	kg/pcs.	ART.NR.	X1	X2	X3	L
	100x100	4,40	41936	70	205	205	275
	125x100	5,00	41937	60	220	220	280
	125x125	6,10	41938	80	240	240	320
	150x100	6,50	41939	55	240	240	295
	150x125	7,20	41940	70	255	255	325
	150x150	8,30	41941	90	265	265	355
	200x100	10,00	41942	40	265	265	305
	200x125	11,60	41943	55	280	280	325
	200x150	13,30	41944	75	300	300	375
	200x200	17,20	41945	115	340	340	455
	250x100	13,60	41946	15	310	310	325
	250x125	16,30	41947	35	335	335	370
	250x200	20,40	41948	90	385	385	475
	250x250	31,50	41949	130	430	430	560
	300x125	21,00	41950	15	360	360	375
	300x200	30,00	41951	70	440	415	485
	300x250	36,90	41952	115	465	465	580
	300x300	48,20	41953	155	505	505	660

PLUG	DN	kg/pcs.	ART.NR.	L
	100	0,80	41930	40
	125	1,10	41931	45
	150	1,60	41932	50
	200	3,10	41933	60
	250	6,00	41934	70
	300	9,50	41935	80

CLEANING PIPE WITH RECTANGLE COVER	DN	kg/pcs.	ART.NR.	H	G	d	A	F	L
	100	7,00	41954	83	160	100	200	230	340
	125	10,00	41955	101	190	125	225	255	370
	150	12,80	41956	112	215	150	250	280	395
	200	25,20	41957	137	265	200	300	330	465
	250	36,50	41958	170	330	259	350	426	570
	300	51,00	41959	195	380	309	400	476	640

Material characteristics

Density
approx. 7.2 kg/dm3 (71.5 kN/m3)

Tensile strength
≧150 MPa for fittings
≧200 MPa for pipes

Compressive strength
approx. 3 to 4 times the value for tensile strength

Shear strength
approx. 1.1 to 1.6 times the value for tensile strength

Crushing strength
(peak compressive strength)
≧350 MPa

Modulus of elasticity
8. 10^4 to 12.10^4 N/mm^3

Poisson's ratio - (0,3)

Heat resistance
PREIS® BML complies with fire resistance class A2 according to EN 13501 - not combustible*

Coefficient of thermal conductivity
50-60 W/mk (at 20°C)

Coefficient of linear expansion
only 0.0100 mm/mK (between 0 and 100º C) more or less similar to concrete; can be set in concrete without any difficulty

Chemical resistance
PREIS® BML is highly resistible against domestic sewage water with a pH value between pH2 and pH12

Couplings and clamps

Properties

Rapid INOX coupling with EPDM casket

- Applications: for underground laying and may also be exposed to all weather conditions for aggressive environments (when air contains salt, ...)
- Axial restraint up to 0.5 bar inner pressure
- Locked with only one screw (up to DN100)
- Materials:
  - Coupling: stainless steel V4A 1.4571
  - Locked by a screw M6 x 45 mm, 6 mm Hexagon socket: stainless steel A4-80
  - Clamping bolt: stainless steel V4A 1.4404
  - Rubber gasket for sound reduction: EPDM- Shore=55° +/-5°

DN	PU	ART.NR.	Torque (Nm)
100	50	26685	13-15
125	70	21866	13-15
150	25	26687	13-15
200	15	21868	13-15
250	4	25785	13-15
300	4	25786	13-15

BML-INOX-coupling

- axial not tensile
- Building component approved according to EN 877
- Coupling made of ozone-resistant EPDM elastomer according to DIN EN 681-1
- Clamping bolts made of stainless steel V4A / 1.4404 according to DIN EN 10088-2
- Reinforced clamping bolts
- Angled up to a maximum of 3 ° is possible
- Pressure tight up to 2.5 bar water / -0.3 bar vacuum
- high pressure resistant up to 120 bar
- temperature resistant from -40°C to + 120°C (briefly up to + 160°C)
- Approved for bridge drainage according to DIN EN 16397-2

DN	PU	ART.NR.	Torque (Nm)
400	1	42480	20
500	1	42481	20
600	1	42482	20

Rapid clamp

- Material: DD11 - galvanized
- Clip collar with axial restraint
- For internal pressure loads up to 10 bar
- Two parts clip collar with claws and four Allen screws (up to DN 125)
- The same tools to be used as for PREIS® Rapid - couplings, therefore, no change of tools necessary = safes time
- Applications: Pressurized pipes, rainwater and wastewater pipelines in areas affected by backwaterproduct

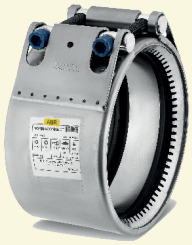
DN	PU	ART.NR.	Torque (Nm)
100	25	21857	27-29
125	10	21858	27-29
150	10	21859	27-29

BML-CONNECT-F-INOX-coupling

- axial not tensile
- EPDM elastomer seal
- temperature resistant from -20°C to +80°C
- Two-lip sealing system
- Housing made of stainless steel 1.4571
- Locking bolt made of stainless steel 1.4401
- 1.4404 stainless steel screw
- standard band insert
- Stainless steel protective ring on both sides

DN	PU	ART.NR.	Torque (Nm)
100	100	44020	10
125	100	44022	25
150	100	44023	30
200	50	44024	25
250	50	44025	25
300	25	44027	25
400	20	44035	40
500	10	44036	40
600	20	44037	40

BML-CONNECT-G-INOX-coupling



- axially tensile coupling
- EPDM elastomer seal
- temperature resistant from -20°C to +80°C
- Two-lip sealing system
- Housing made of stainless steel 1.4571
- Locking bolt made of stainless steel 1.4401
- 1.4404 stainless steel screw
- standard band insert
- With conically stamped toothed ring made of stainless steel on both sides
- withstands strong vibrations
- shockproof

DN	PU	ART.NR.	Torque (Nm)
100	100	44041	30
125	100	44042	50
150	100	44043	60
200	50	44044	150
250	50	44045	180
300	25	44046	180
400	20	44047	180
500	10	44048	180
600	20	44049	200

Universal clamp

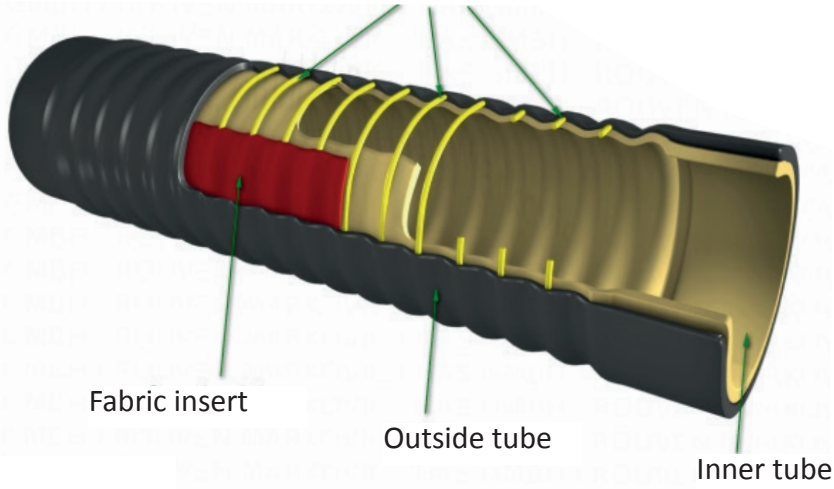
- The clamp for high tensile loads
  - PREIS® RAPID for pressure loads up to 10 bar
  - CV for a maximum pressure load of 5 bar (DN 50–200)
  - CV for a maximum pressure load of 3 bar (DN 250–300)
- Only two screws--> shorter assembly time
- Block tightening --> no special tools required (visual check)
- Only one clamp for several couplings --> a 15% reduction in stockholding costs
- Applications: Pump pressure lines for pump stations, rainwater and wastewater pipelines in areas at risk from backwater

DN	PU	ART.NR.	Torque (Nm)
200	4	19997	15-20
250	4	23196	15-20
300	4	23197	15-20

Flexible pipe couplings

Properties

Highly flexible pipe connectors, consisting of a high-quality elastic hose made of EPDM elastomer, are used in modern bridge construction to compensate linear expansion.



The pipe connectors are available in the dimensions from DN 100 to DN 500.

BML pivot bolt clamp

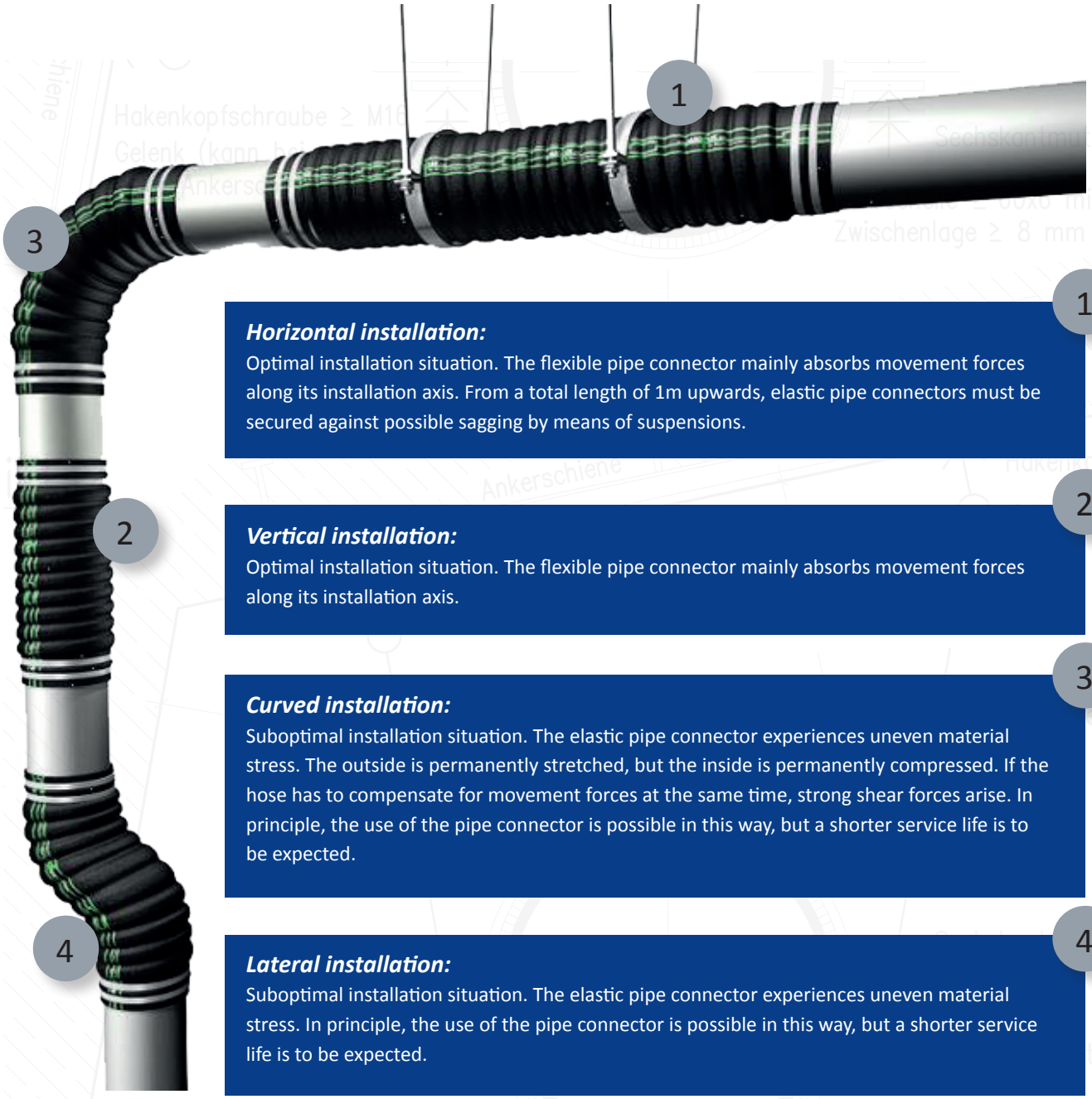
- for fastening the elastic BML pipe coupling
- completely made of stainless steel V4A/14571 (1.4401)

BML pipe connector flexible 5G

- ✔ axial not tensile
- ✔ only for pressureless installation
- ✔ highly flexible
- ✔ very resistant to aging
- ✔ very weatherresistant
- ✔ compensates length expansions
- ✔ other lengths on request

BML pipe connector flexible CR

- ✔ axial not tensile
- ✔ only for pressureless installation
- ✔ highly flexible
- ✔ resistant to aging
- ✔ weatherproof
- ✔ compensates length expansions
- ✔ other lengths on request



1

Horizontal installation:
Optimal installation situation. The flexible pipe connector mainly absorbs movement forces along its installation axis. From a total length of 1m upwards, elastic pipe connectors must be secured against possible sagging by means of suspensions.

2

Vertical installation:
Optimal installation situation. The flexible pipe connector mainly absorbs movement forces along its installation axis.

3

Curved installation:
Suboptimal installation situation. The elastic pipe connector experiences uneven material stress. The outside is permanently stretched, but the inside is permanently compressed. If the hose has to compensate for movement forces at the same time, strong shear forces arise. In principle, the use of the pipe connector is possible in this way, but a shorter service life is to be expected.

4

Lateral installation:
Suboptimal installation situation. The elastic pipe connector experiences uneven material stress. In principle, the use of the pipe connector is possible in this way, but a shorter service life is to be expected.

Pelješac Bridge in Croatia

One of our greatest projects

BML pipe DN150 - total 1,230m

For particularly demanding environments and requirements for the material, as well as special UV protection, we apply an additional layer of polyurethane (PU) (approved by ZTV-ING and TL / TP-KOR). The standard color is gray, but any RAL color can be specified upon customer request.

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