

Catalogue

**EXPANSION
JOINT**



**EXPANSION
JOINT**

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ABOUT US

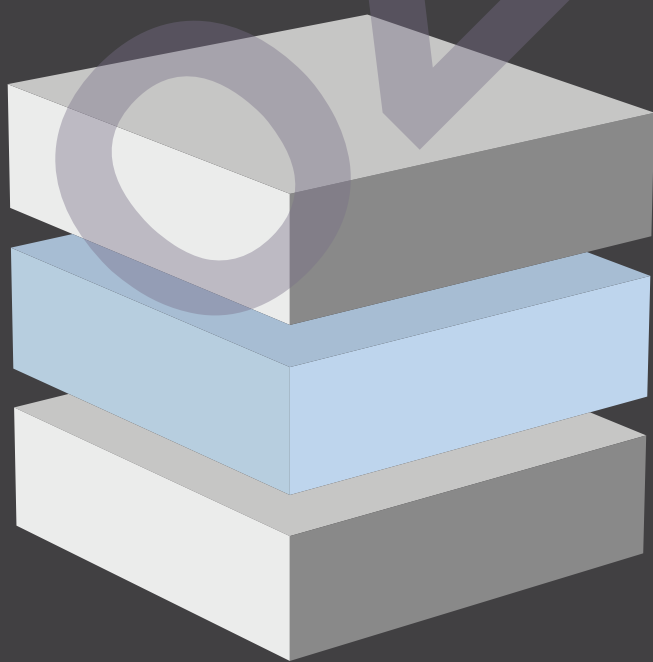
OZDEKAN RUBBER is one of the leading manufactures in the rubber industries since 1982. Established in Ostim Organized Industrial Zone, Ankara, and continuing engineering and manufacturing activities within the years, it has become a well-known trade mark in the Turkey and worldwide. Our company manufactures more than 2000 tons of rubber products per year and our engineers and design teams support our customers in selection of bridge bearing, providing a service beyond that of manufacturing of elastomeric bearings. Our company is capable of manufacturing different sizes of elastomeric bearings varying from 150 mm to 1500 mm in diameter with different geometrical properties. Ozdekan applies quality control tests at all phases of production process and performs required tests in conjunction with university laboratory according to different international standards. Ozdekan holds ISO 9001, ISO 14001, ISO 18001, BS OHSAS 18001 and manufacturing capacity certificate from Turkish government and trade mark. On the following pages, we provide information about expansion joints. Please contact us for further information, as we are always pleased to assist our customers and consulting engineers.

Ozdekan Rubber Co.

- Elastomeric Plain Pads
- Elastomeric Bridge Bearings
- Multiflex Expansion Joint
- Lead Rubber Bearing (LRB)
- Ball Rubber Bearings (BRB)
- High Damping Rubber Bearing (HDRB)
- Vibration Lastics
- Neoprene Bands
- Earth Moving Machine Rubber Parts

Ozdekan's products are designed and tested according to the following standards;

- BS 5400
- TS-ISO-6446
- AASHTO-M251-74
- AS 5100-4
- EN 1337-3
- EN 1337-5
- DIN 4141
- EN 15129





The Ozdekan EX are waterproof expansion joints that allow absorption of the deck movements. These joints are manufactured with rubber elements and restrained to the structure with proper anchor bolts. The reinforcing metal profiles made of steel are completely inserted and vulcanized to the rubber. This process is a total guarantee against corrosion and allows a longer life to the product. The rubber compound, too, has been intentionally formulated to resist the oil, grease, petrol, salt and sand, without besides, suffering premature ageing phenomena due to sun rays, salt and snow. All the joints follow the deformations and movements of the structure (the movement can exist with every skew angle from 0° to 90°) by shear deformation of the rubber elements. Anchor bolts, made of steel and protected with anticorrosion treatments, absorb the elastic reactions and all the other kind of mechanical solicitations. The joints are also able to compensate height difference or vertical movements. This characteristic is very important in all the cases where load and movement conditions can cause relative vertical movements. The joint series is manufactured by Ozdekan since 2006.

Main advantages:

- Simple and linear design with few elements
- Low height of the profile
- Total impermeable
- Easy assembling either on concrete structure
- Suitable for the replacement of existing joint
- Easy and quick to be replaced
- Good resistance to vehicles sliding
- Vertical movements absorption

The joints are supplied in variable length elements depending to the joint type. A joint line consists in fact of many units joined together with a groove-and-tongue junction welded with special glue. The joint fixing is obtained by chemical anchors; the nuts are locked using a dynamometric key so that permanent compression strength is given to the joint. Stainless steel anchors may be provided on request. In that way the horizontal forces, due to breaking of vehicles and to the reaction that rubber opposes to the joint deformations (shrinkage, creep, thermal variations etc.), are transmitted by friction between the rubber and the concrete. The joints can be assembled on a metallic infrastructure. The joints of bigger movements with four upper grooves are manufactured in order to prevent the lifting of the elements during the contraction. These devices guarantee the adhesion of the elements to the structure and the noiseless of the traffic.

TABLE - 1 Physical Properties

PHYSICAL PROPERTIES				
Physical Properties	Polymer	Natural Rubber		
	Hardness	Shore A	56-65	UNI ISO 7619-1
	Tensile strenght	MPa	≥ 15,5	ISO 37
	Elongation at Break	%	≥ 350	ISO 37
	Compresion set of %25 - 24 h at 70°C	%	≤ 20	ISO 815
	Ozone resistance 50 p.p.h.m. 20% elongation after 96 h at 40°C	No cracks at visual sight		ISO 1431-1
	Brittleness temperature	°C		UNI ISO 812
	Bond test	N/mm		UNI ISO 813
	G modulus	N/mm ²		EN 1337-3 Annex F
	Variation after ageing for 96 h at 70°C-ISO 188-90			
Hardness	Shore A	Max ±10	ISO 7619-1	
Tensile strenght	%	Max -15	ISO 37	
Elongation at break	%	Max -20	ISO 37	

* Materials of the expansion joint may also be supplied according to ASTM or AASHTO standard

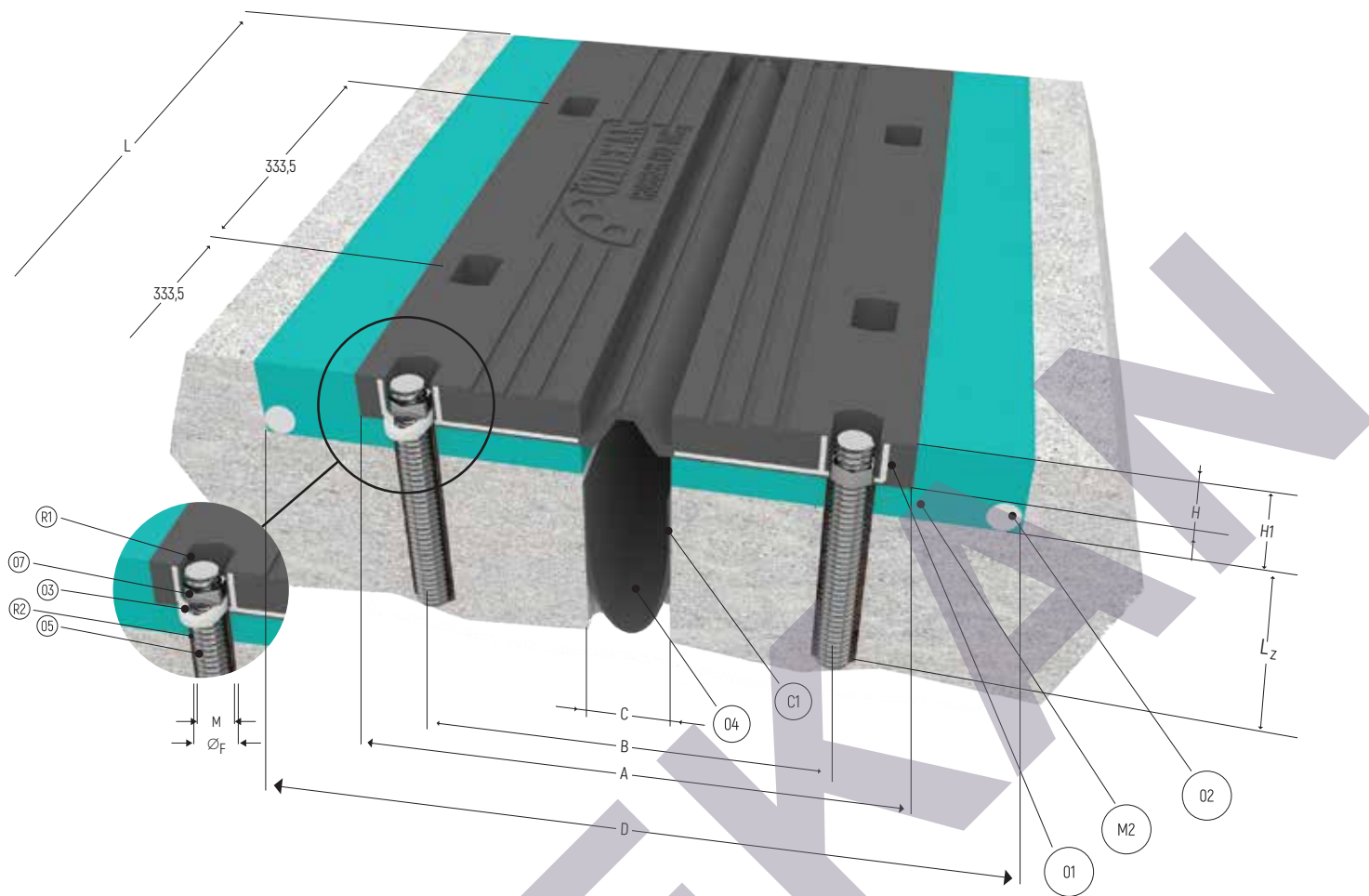
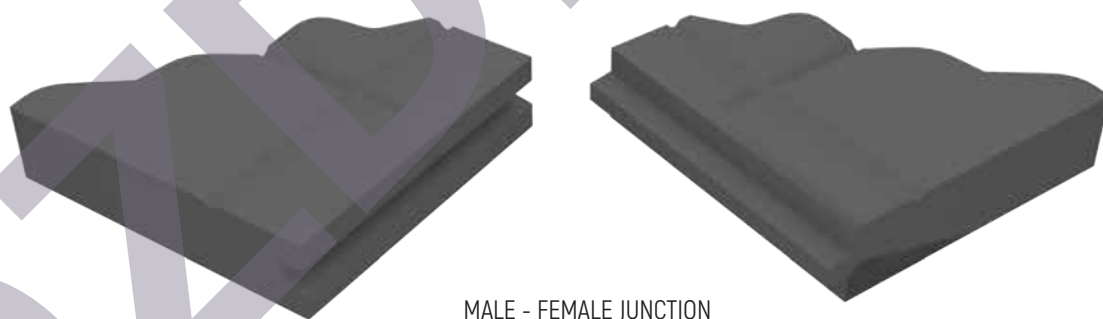


TABLE - 2 OZDEKAN EX 50 Dimensional Table

DIMENSIONAL TABLE												
Joint	Longitudinal movement	Transversal movement	A (mm)	B (mm)	C (mm)	D (mm)	L (mm)	L _Z (mm)	H (mm)	H ₁ (mm)	M	Ø _F (mm)
EX 50	±25	±25	280	220	45	450	1000	135	32	60	M12*190	14



MALE - FEMALE JUNCTION

TABLE - 3 Physical Properties

PHYSICAL PROPERTIES			Standard
Mortar and resin	C1	Epoxy adhesive	
	R2	Resin for anchor bolt	
	R1	Resin for slot	
	M2	Fiber reinforced reoplastic mortar	
Bolts and nuts	O7	Hexagon nut	ISO 4035
	O6	Plain washer	UNI 6592
	O3	Oval washer	UNI 6592
	O5	Anchor bolt	EN10083/1
Construction details	O4	Flashing	EN1849-2
	O2	Drain pipe	
	O1	Natural rubber + S235JR	EN10025



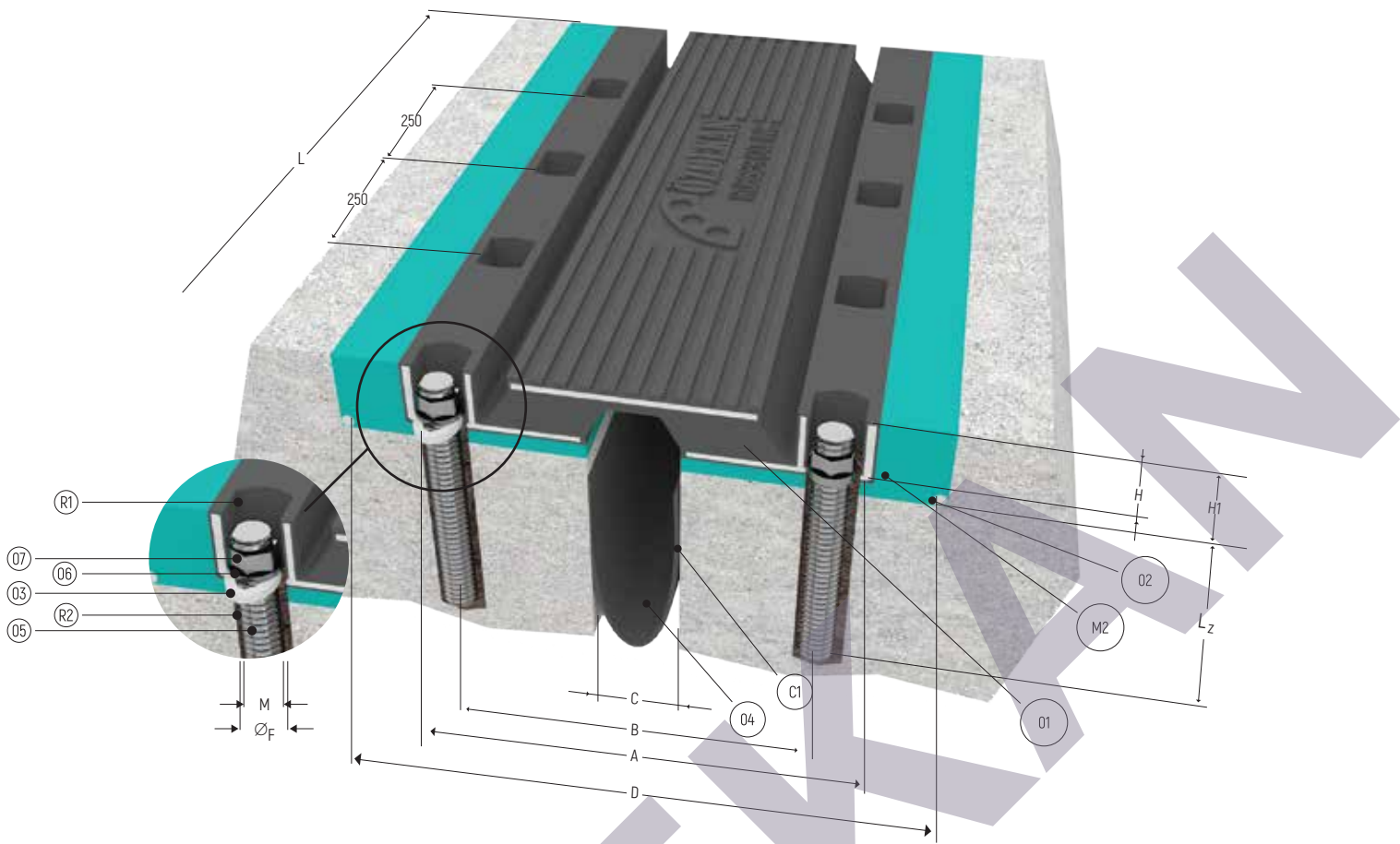
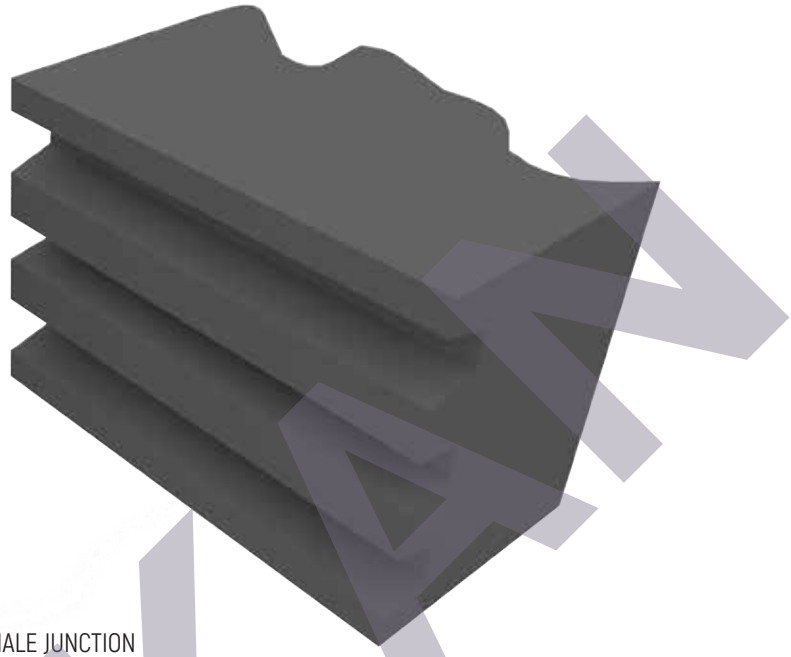
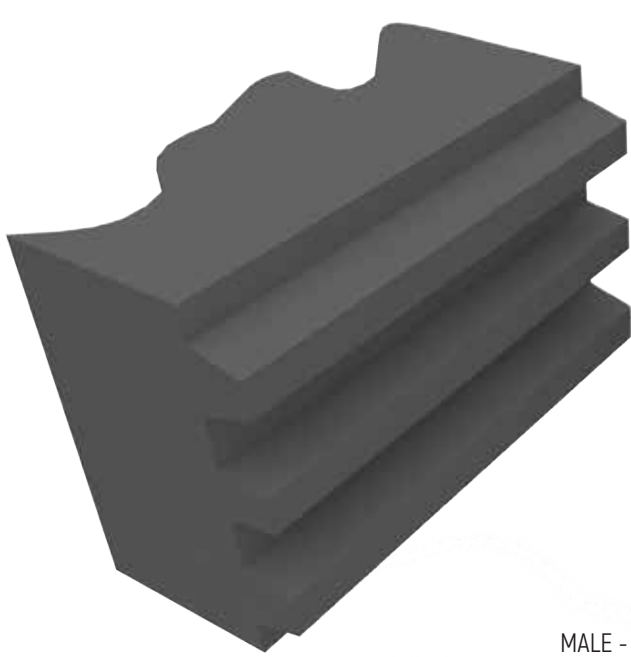


TABLE - 4 Dimensional Table

DIMENSIONAL TABLE												
Joint EX	Longitudinal movement	Transversal movement	A (mm)	B (mm)	C (mm)	D (mm)	L (mm)	L _z (mm)	H (mm)	H ₁ (mm)	M	Ø _F (mm)
80	±40	±40	275	220	50	450	1000	140	42	70	M12*190	14
100	±50	±50	355	280	60	520	1000	145	45	70	M14*200	16
120	±60	±60	390	300	70	560	1000	140	53	80	M16*200	18
160	±80	±80	470	370	90	640	1000	130	78	100	M16*200	18
180	±90	±90	500	400	100	670	1000	130	82	110	M16*200	18



MALE - FEMALE JUNCTION

TABLE - 5 Physical Properties

PHYSICAL PROPERTIES			Standard
Mortar and resin	C1	Epoxy adhesive	
	R2	Resin for anchor bolt	
	R1	Resin for slot	
	M2	Fiber reinforced reoplastic mortar	
Bolts and nuts	07	Hexagon nut	ISO 4035
	06	Plain washer	UNI 6592
	03	Oval washer	UNI 6592
	05	Anchor bolt	EN10083/1
Construction details	04	Flashing	EN1849-2
	02	Drain pipe	
	01	Natural rubber + S235JR	EN10025

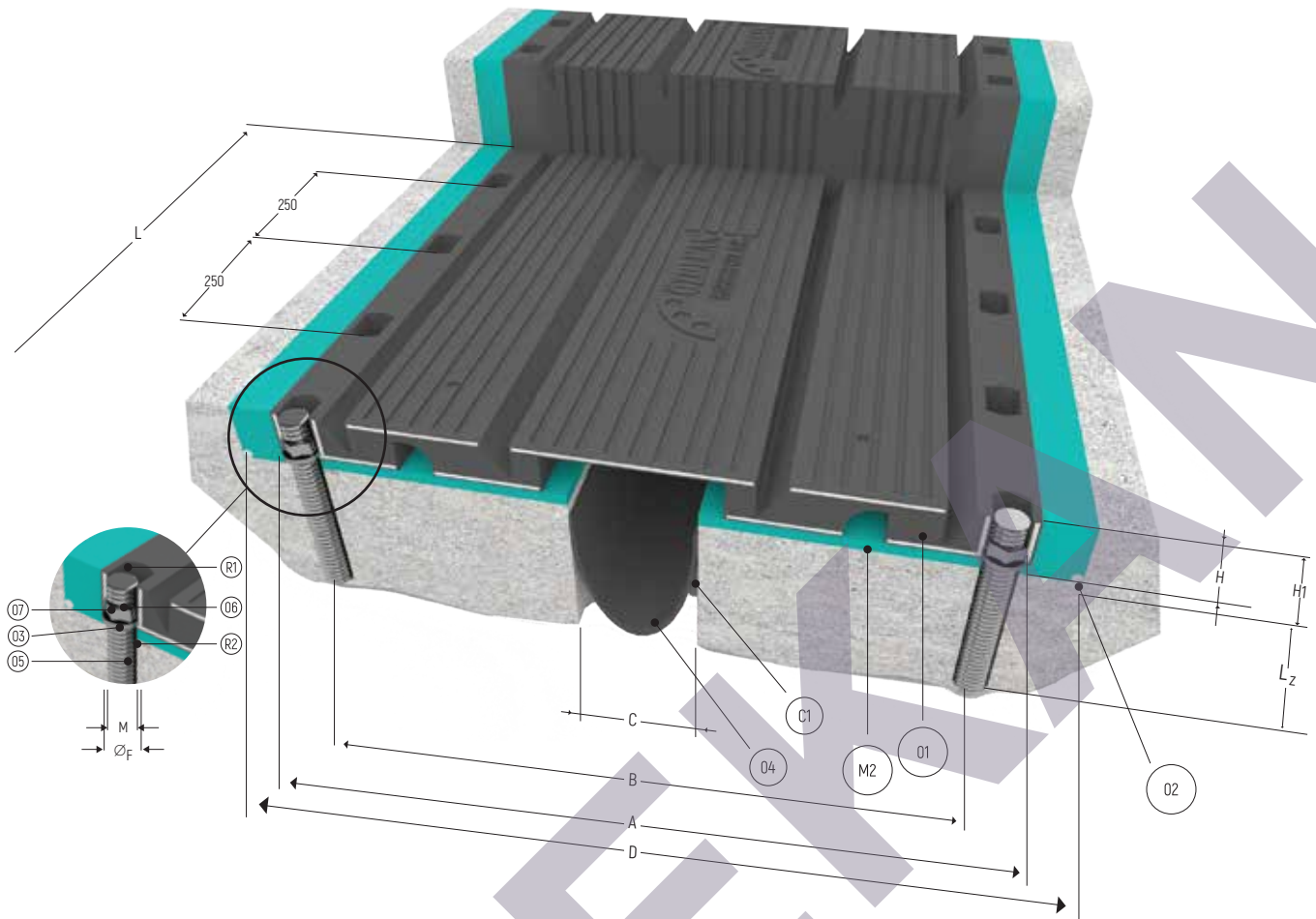
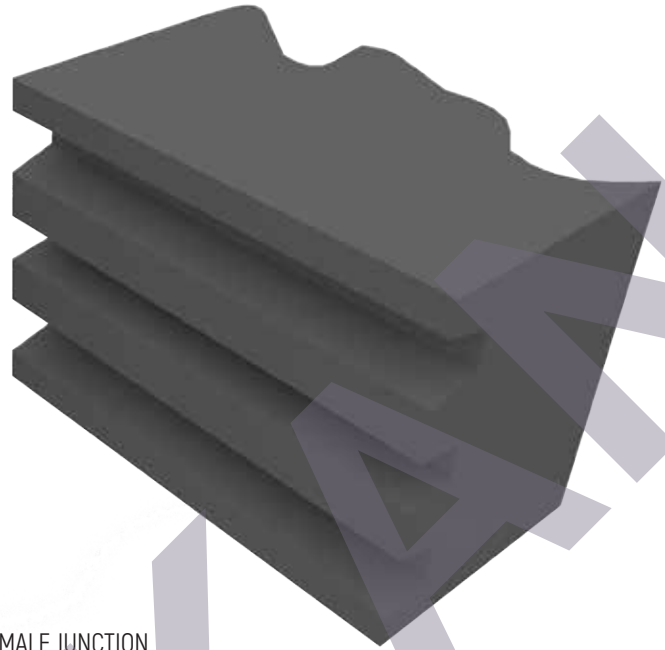
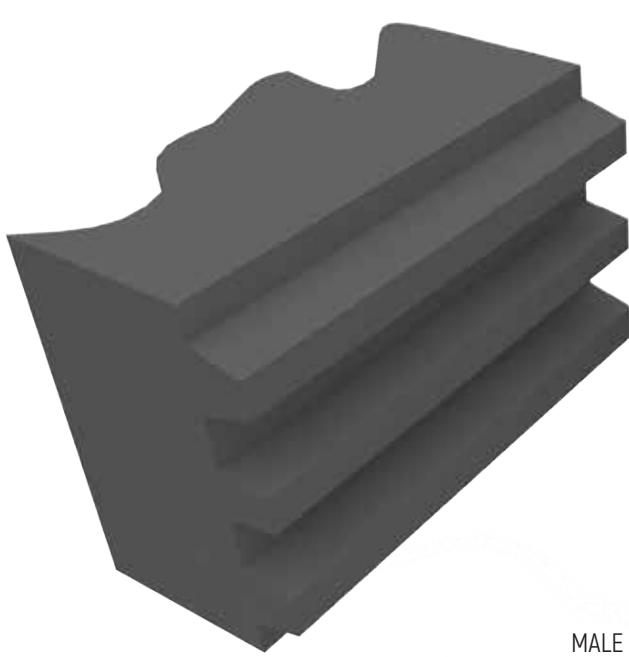


TABLE - 6 Dimensional Table

DIMENSIONAL TABLE												
Joint EX	Longitudinal movement	Transversal movement	A (mm)	B (mm)	C (mm)	D (mm)	L (mm)	L _z (mm)	H (mm)	H ₁ (mm)	M	Ø _F (mm)
140	±70	±70	590	500	80	750	1000	140	55	80	M16*200	18
220	±110	±110	800	700	120	980	1000	150	69	100	M20*230	24
270	±135	±135	890	790	150	1070	1000	150	78	110	M20*230	24
330	±165	±165	1105	985	220	1290	1000	200	100	130	M24*300	27
345	-165/180	±170	1260	1140	420	1450	1000	200	95	120	M24*300	27



MALE - FEMALE JUNCTION

TABLE - 7 Physical Properties

PHYSICAL PROPERTIES			Standard
Mortar and resin	C1	Epoxy adhesive	
	R2	Resin for anchor bolt	
	R1	Resin for slot	
	M2	Fiber reinforced reoplastic mortar	
Bolts and nuts	07	Hexagon nut	ISO 4035
	06	Plain washer	UNI 6592
	03	Oval washer	UNI 6592
	05	Anchor bolt	EN10083/1
Construction details	04	Flashing	EN1849-2
	02	Drain pipe	
	01	Natural rubber + S235JR	EN10025

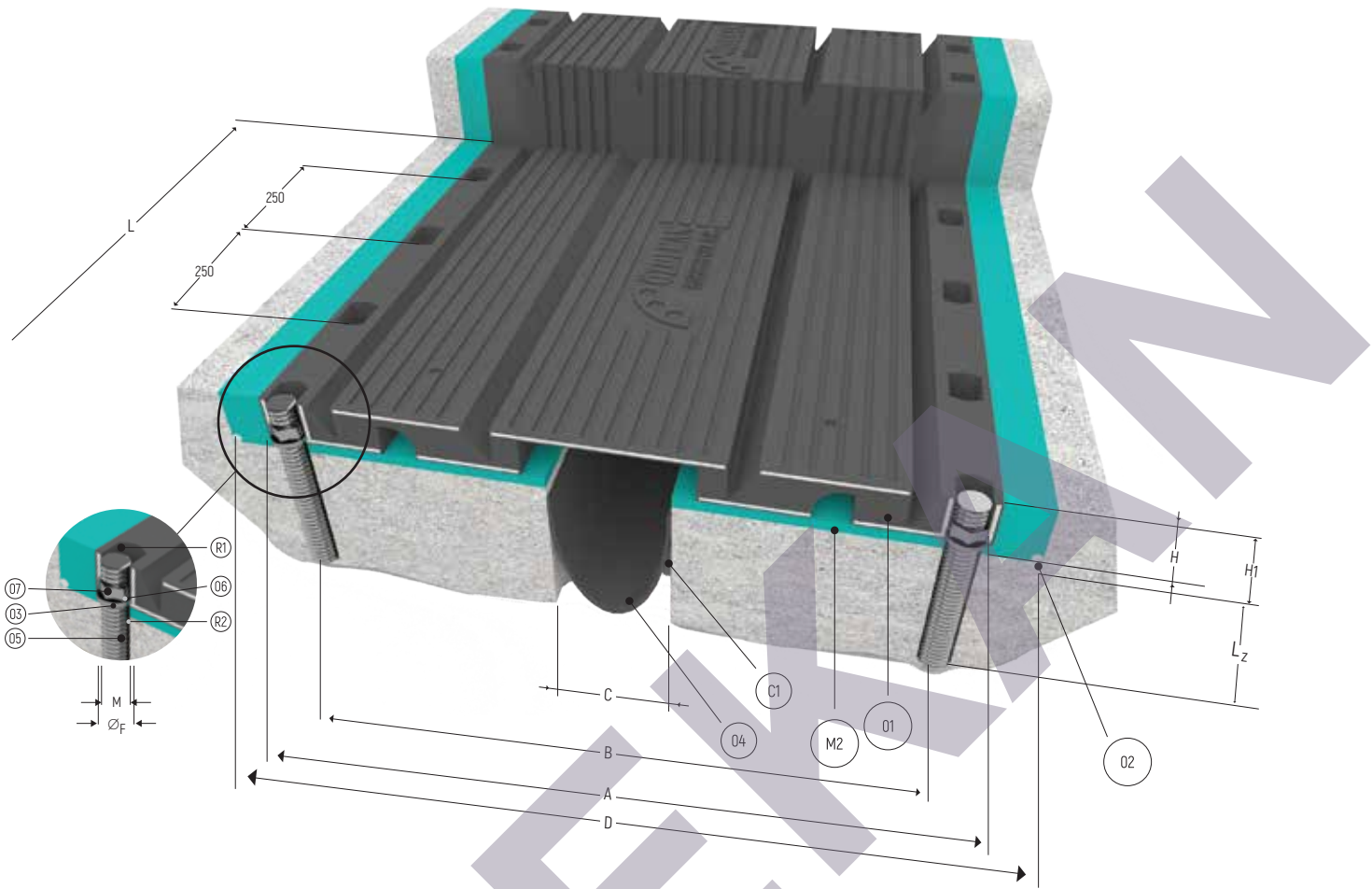
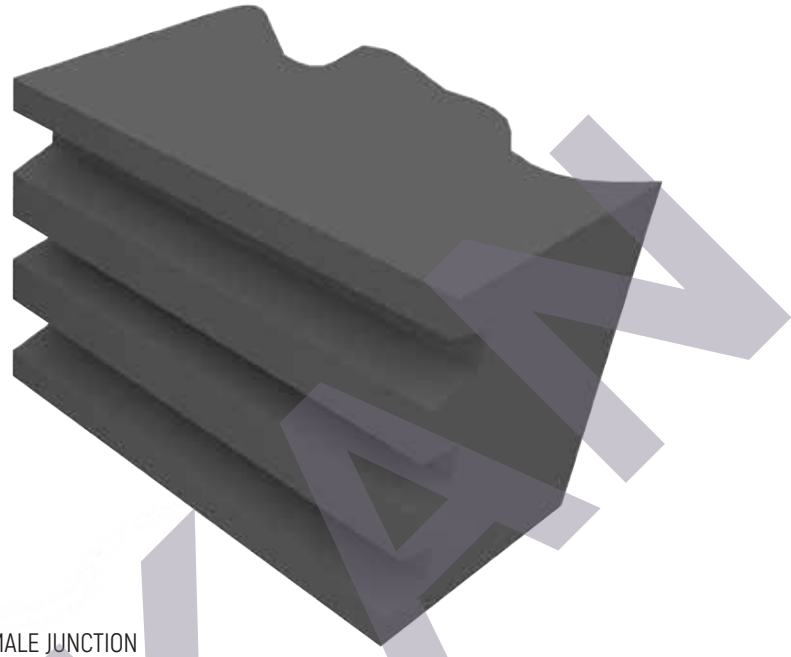
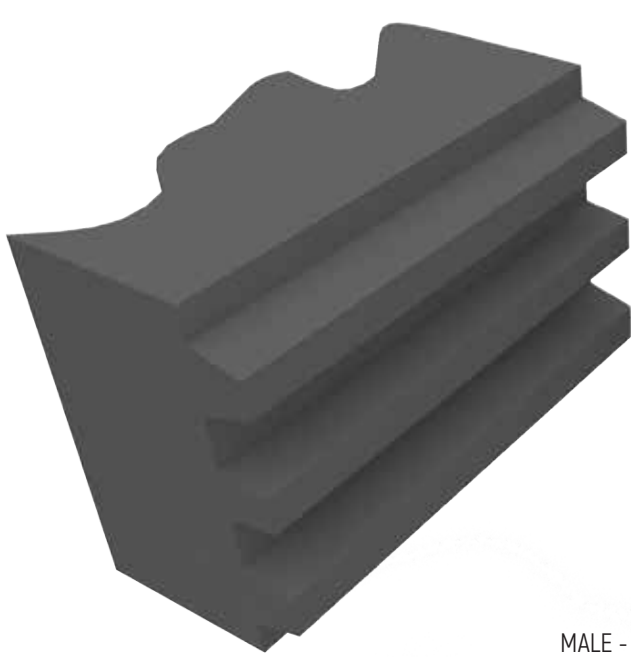


TABLE - 8 Dimensional Table

DIMENSIONAL TABLE												
Joint EX	Longitudinal movement	Transversal movement	A (mm)	B (mm)	C (mm)	D (mm)	L (mm)	L _Z (mm)	H (mm)	H ₁ (mm)	M	Ø _F (mm)
200	±100	±100	895	795	110	1070	1000	150	60	80	M20*230	24
250	±125	±125	1040	940	135	1210	1000	150	69	90	M20*230	24
400/320	±200*/±160	±160	1275	1165	220	1450	1000	210	82	110	M24*300	27
700/320	±350*/±160	±160	1450	1340	360	1620	1000	210	82	110	M24*300	27
1000/320	±500*/±160	±160	1620	1510	510	1800	1000	210	82	110	M24*300	27



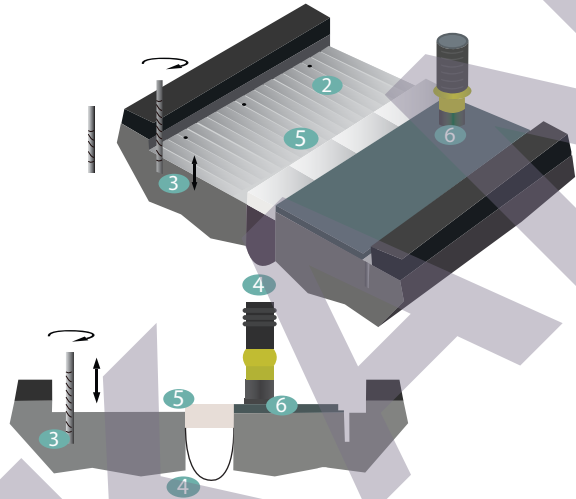
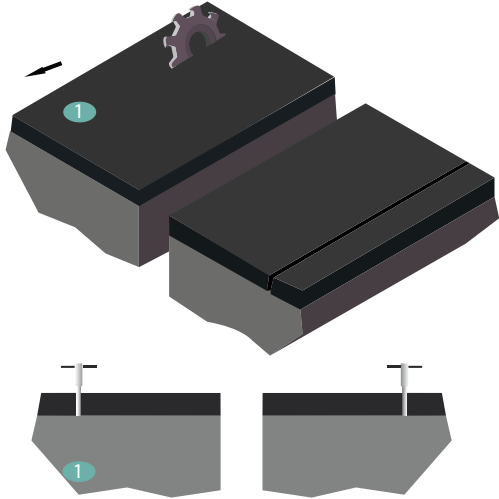
MALE - FEMALE JUNCTION

TABLE - 9 Physical Properties

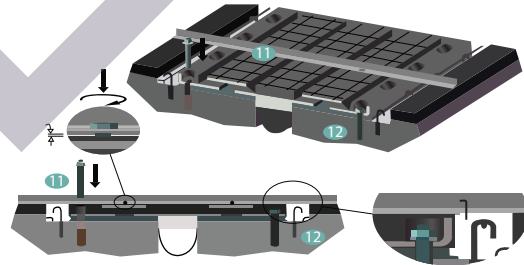
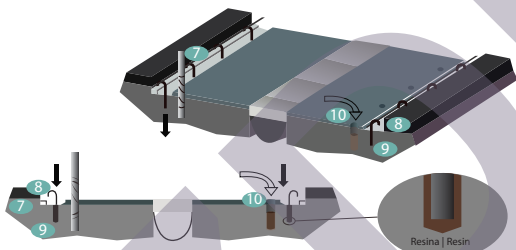
PHYSICAL PROPERTIES			Standard
Mortar and resin	C1	Epoxy adhesive	
	R2	Resin for anchor bolt	
	R1	Resin for slot	
	M2	Fiber reinforced reoplastic mortar	
Bolts and nuts	07	Hexagon nut	ISO 4035
	06	Plain washer	UNI 6592
	03	Oval washer	UNI 6592
	05	Anchor bolt	EN10083/1
Construction details	04	Flashing	EN1849-2
	02	Drain pipe	
	01	Natural rubber + S235JR	EN10025



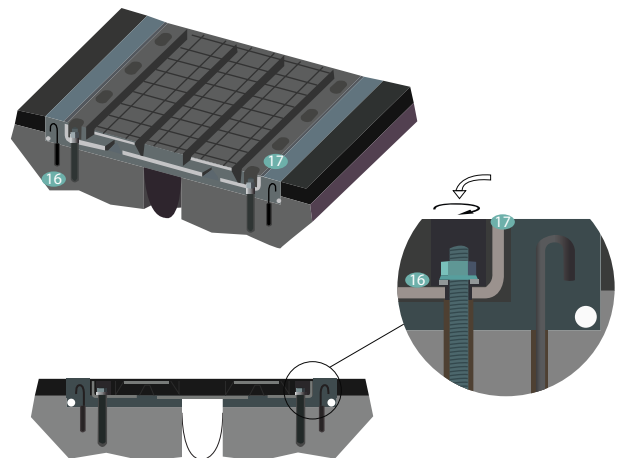
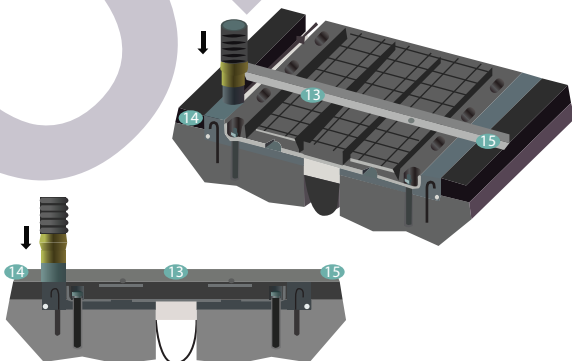
1. Asphalt layer cutting
2. Break down the asphalt layer
3. Execute holes for reinforced bars
4. Position and paste the flashing with epoxy adhesive
5. Position polystyrene formwork
6. Cast the fiber reinforced mortar or rheoplastic concrete ($R_{ck} \geq 45 \text{ N/mm}^2$) for level bearing plane



7. Position drain pipe
8. Grout of reinforcement bars with epoxy resin
9. Fix reinforcement bars with epoxy resin
10. Execute holes for anchor bolts and pour epoxy resin
11. Position the correct level expansion joint with angular beam and bolts
12. Grout the complete anchor bolts

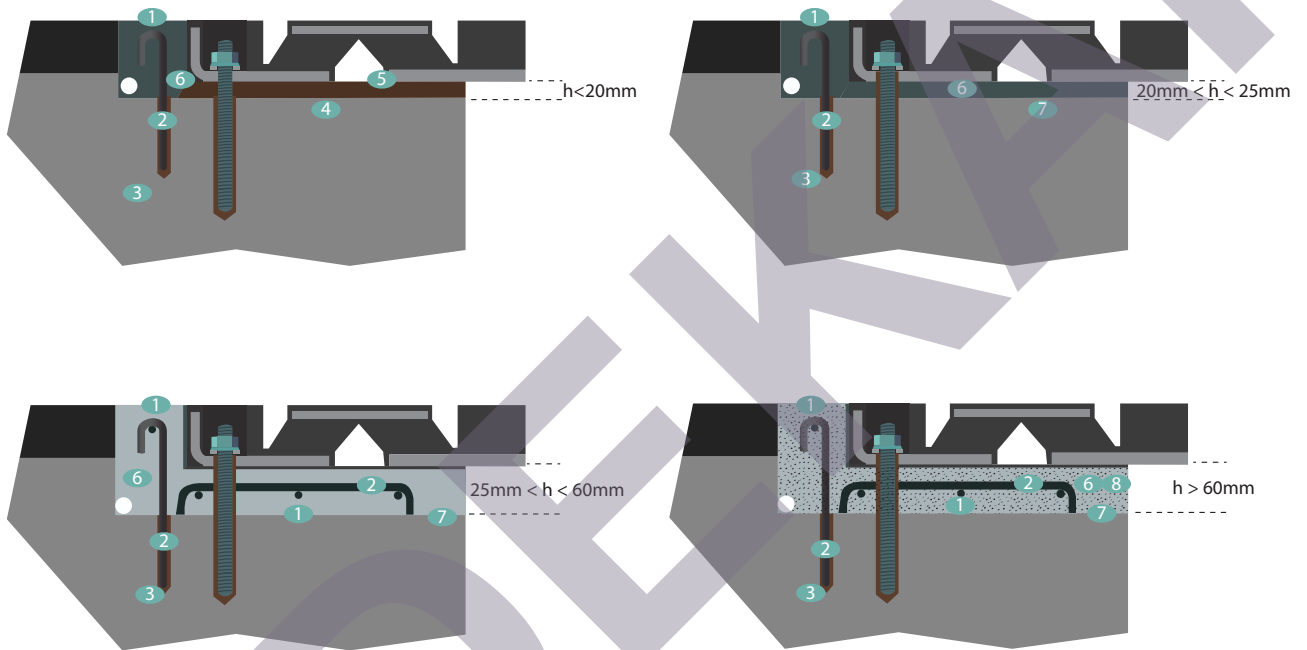


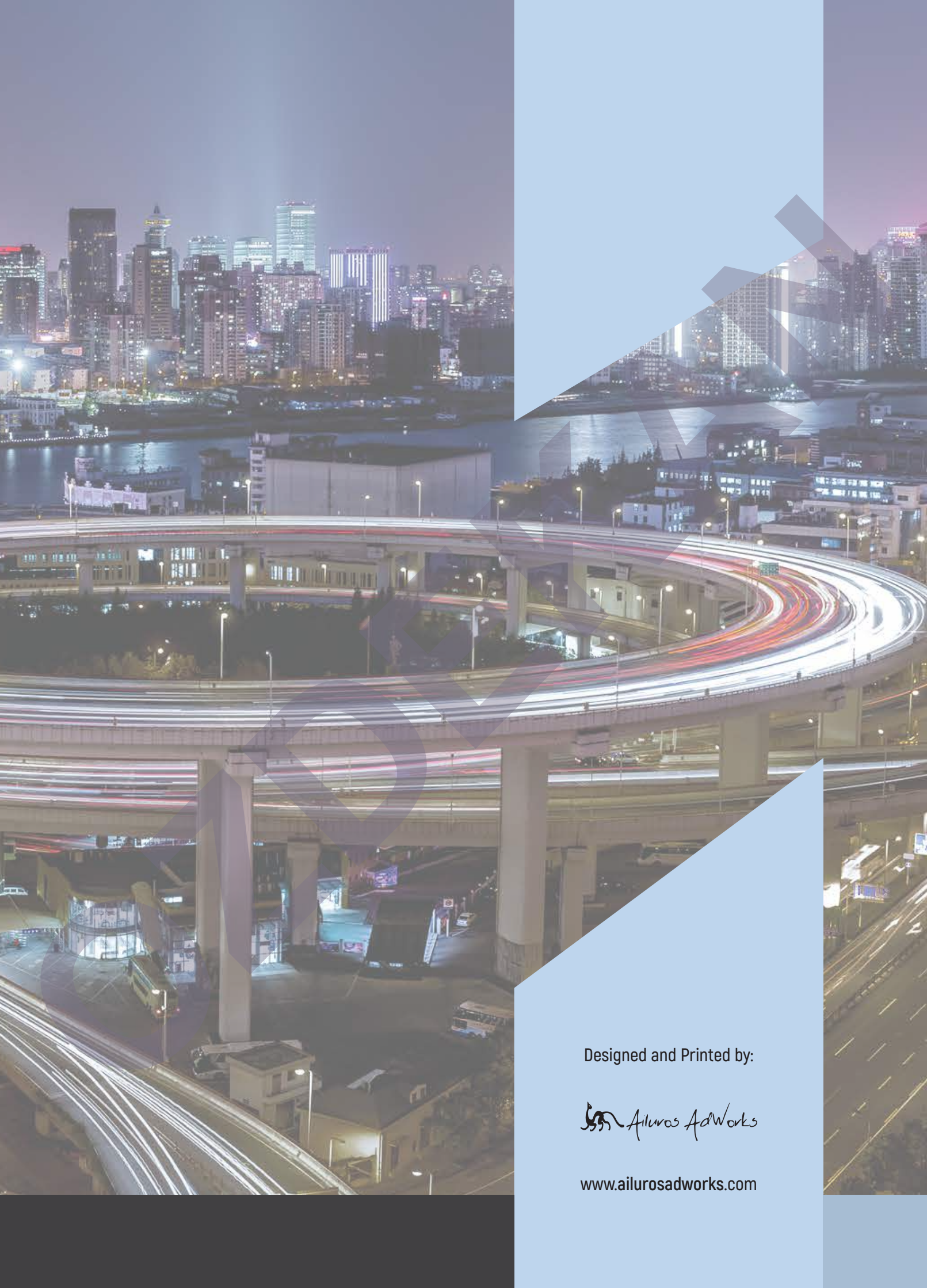
13. Verify final position of the joints before the casting, in order to assure grades and elevations
14. Cast the fiber reinforced mortar or rheoplastic concrete ($R_{ck} \geq 45 \text{ N/mm}^2$) into lateral strips
15. Remove reference angle beams
16. Bolts fastening
17. Sealing of joint slotted holes with epoxy resin



Below are represented the installation schemes prescribed by Ozdekan depending on the available slab recess thickness (h).

1. Transversal reinforcement bar
2. Longitudinal reinforcement bar
3. Resin
4. Primer
5. Epoxy leveling mortar
6. Fibre-reinforced reoplastic mortar
7. Rough surface
8. Gravel





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