



TRI OMEGA INŽENJERING

**Alga** .  
TECHNOLOGICAL THINKING

**Algajoint**

**AlgaFlex TX**

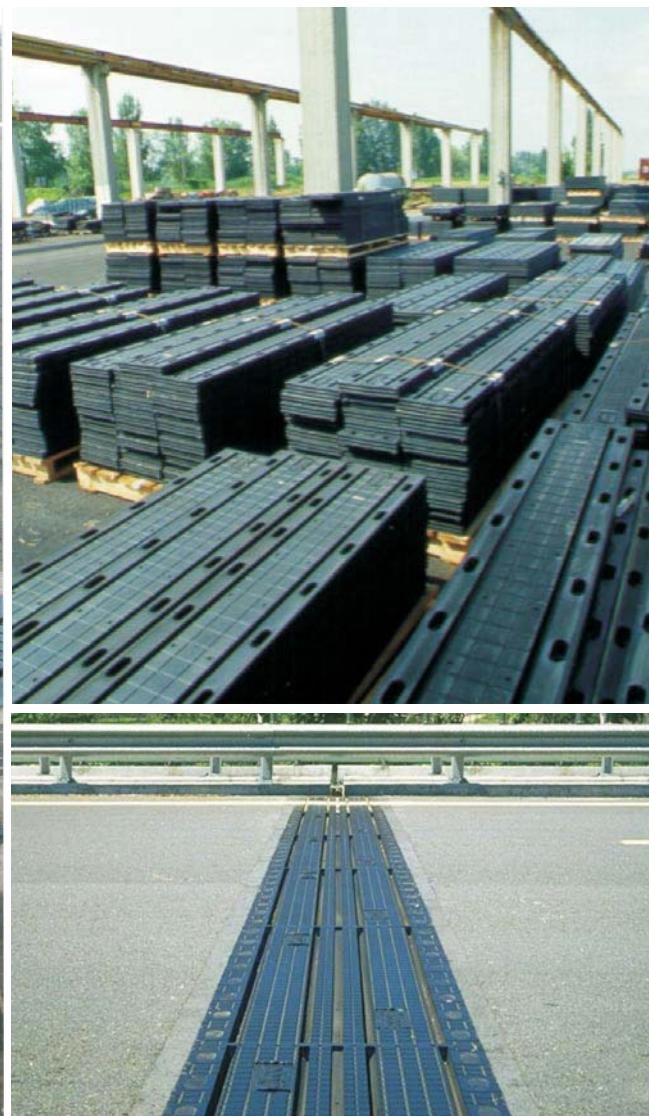
GUMENE DILATACIONE SPOJNICE  
RUBBER EXPANSION JOINTS



ANTISEISMIC DEVICES | BEARINGS | EXPANSION JOINTS | POST TENSIONING SYSTEMS | STRUCTURAL REPAIR AND MAINTENANCE



Ugrađena dilatacionalna spojnica Algaflex TX. Skladište.  
Algaflex TX expansion joint installed. Storage.



## Generalne karakteristike

Algaflex TX je vodonepropusna dilatacionalna spojnica koja omogućava pomeranje kolovozne ploče. Ove dilatacione spojnice su izrađene od gumenih elemenata i pričvršćuju se za konstrukciju anker-vijcima. Metalni profili koji armiraju spojnicu su od čelika i kompletno su obavijeni i vulkanizirani gumom. Ovaj proces je garancija za zaštitu od korozije i omogućava dugotrajan vek proizvoda. Gumena mešavina je tako formulisana da je otporna na uticaje ulja, masti, benzina, soli i peska i pored toga je otporna na fenomen starenja usled uticaja sunčevih zraka, soli i peska.

Sve ALGAFLEX dilatacione spojnice prate deformacije i kretanje konstrukcije (kretanje može biti podržano do ugla zakošenja od 0° do 90°) preko smičućih deformacija gumenih elemenata. Ankerni zavrtnjevi su od čelika i zaštićeni su antikorozivnim tretmanom, a apsorbuju elastične reakcije i sve ostale mehaničke napone.

ALGAFLEX spojnice su takođe sposobne da kompenzuju razlike u visini i vertikalna pomeranja. Ova karakteristika je veoma važna u svim slučajevima gde opterećenje i uslovi pomeranja spojnice mogu biti uzrok relativnih vertikalnih pomeranja. Svaka vrsta spojnice može biti kombinovana sa aluminijumskim ili gumenim ivičnjakom ili spojnicom na pešačkoj stazi. Proizvode se u ALGI od 1978. godine.

## General features

The Algaflex TX are waterproof expansion joints that allow absorption of the deck movements. These joints are manufactured with rubber elements and are restrained to the structure with proper anchor bolts. The reinforcing metal profiles made of steel are completely inserted and vulcanised 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 structures (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 differences or vertical movements. This characteristic is very important in all the cases where load and movement conditions can cause relative vertical movements. Each kind of joint may be combined with aluminium or rubber kerb units or sidewalk joints. The joint series is manufactured by Alga since 1978.

## Glavne prednosti

Prost proizvod s nekoliko elemenata | Niska visina profila | Potpuna vodonepropusnost | Jednostavna montaža kako na betonskim tako i na čeličnim mostovima | Nije potrebno ostavljati prostor u betonskoj konstrukciji | Pogodno za zamenu postojećih spojnica | Laka i brza zamena | Dobra otpornost na proklizavanje vozila | Amortizovanje vertikalnih pomeranja |

Dužina elementa dilatacione spojnica zavisi od tipa dilatacije koji se isporučuje. Dilataciona spojница na objektu se sastoji od više tepiha spojenih međusobno na pero i žljeb zapepljenih specijalnim lepkom. Pričvršćavanje dilatacije se postiže hemijskim ankerima, matice se pritežu moment-klučem, tako da je unet stalni napon u spojnicu.

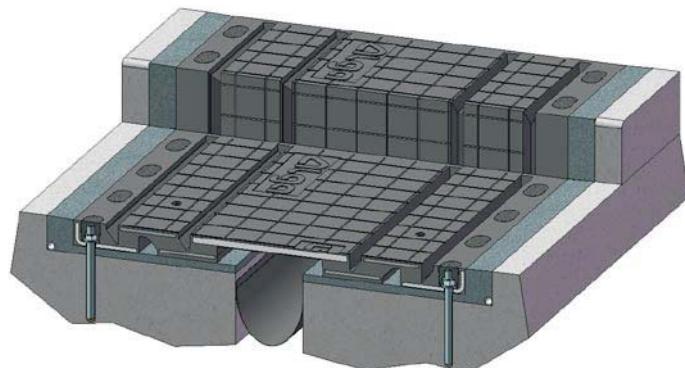
Ankeri od nerđajućeg čelika mogu se isporučiti na zahtev. Na taj način horizontalne sile se, usled sile kočenja vozila i reakcija izazvanih suprotstavljanjem gume deformacijama spojnica (skupljanja, temperaturnih deformacija itd.), prenose trenjem gume i betona. Spojnice se mogu montirati na čeličnu potkonstrukciju. Spojnice većeg pomeranja sa četiri gornja žljeba su proizvedene da bi sprečile podizanje elemenata za vreme kontrakcije. Ovi uređaji garantuju dobro prijanjanje za konstrukciju i bešumni su u saobraćaju.

## Main advantages

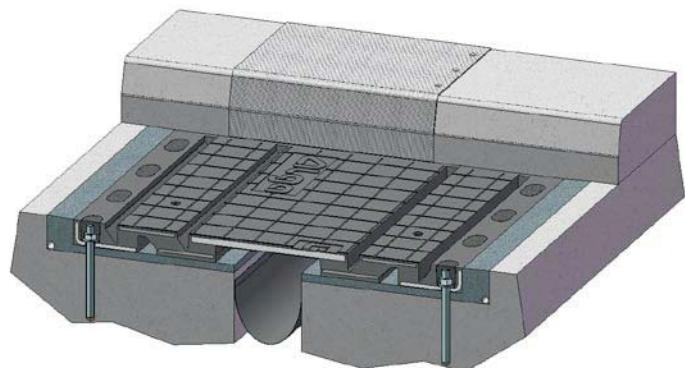
*Simple and linear design with few elements | Low height of the profile | Total impermeable | Easy assembling either on concrete bridges or on steel bridges | No box out requested in the concrete structure | Suitable for the replacement of existing joints | Easy and quick to be replaced | Good resistance 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 joints fixing is obtained by chemical anchors; the nuts are locked using a dynamometric key so that a permanent compression strength is given to the joint.*

*Stainless steel anchors may be provided on request. In that way the horizontal forces, due to braking of vehicles and to the reaction that rubber opposes to the joint deformations (shrinkage, flange, 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.*



Otvor pokriven kontinualnom vulkaniziranom dilatacionom spojnicom  
Gap covering with continuous vulcanized expansion joint



Otvor pokriven aluminijumom ili čelikom  
Gap covering with aluminium or steel

FIZIČKE OSOBINE – PHYSICAL PROPERTIES				
FIZIČKE OSOBINE PHYSICAL PROPERTIES	Polimer / Polymer	Prirodna guma / Natural rubber		
	Tvrdoča / Hardness	Shore A3	56±65	UNI ISO 7619-1
	Zatezna čvrstoča / Tensile Strength	MPa	≥15,5	ISO 37
	Krajnje izduženje / Elongation at break	%	≥350	ISO 37
	Deformacija na pritisak podešena na 25% - 24h na 70 °C Compression set of 25% - 24 h at 70°C	%	≤20	ISO 815
	Ozonska otpornost 50 p.p.c.m. sa 20% izduženja posle 96 sati na 40°C / Ozone resistance 50 p.p.h.m. 20% elongation after 96 h at 40°C	Nema vidljivih prslina No cracks at visual sight		ISO 1431-1
	- Tačka krutosti / Brittleness temperature	°C	≤-25	UNI ISO 812
	- Test prijanjanja / Bond test	N/mm	≥10	UNI ISO 813
	- Modul G / G modulus	N/mm <sup>2</sup>	0.9 ± 15%	EN 1337-3 Annex F
	Varijacijs nakon 96 sati na 70°C - ISO 188-90 Variation after ageing for 96 h at 70°C - ISO 188-90			
Tvrdoča / Hardness		Shore A3	Max ±10	ISO 7619-1
Zatezna čvrstoča / Tensile Strength		%	Max -15	ISO 37
Izduženje pri prekidu / Elongation at break		%	Max - 20	ISO 37

Materijal dilatacionalih spojnica može biti u skladu sa standardima ASTM ili AASHTO na poseban zahtev  
Materials of the expansion joint may also be supplied according to ASTM or AASHTO standard

# AlgaFlex TX 50

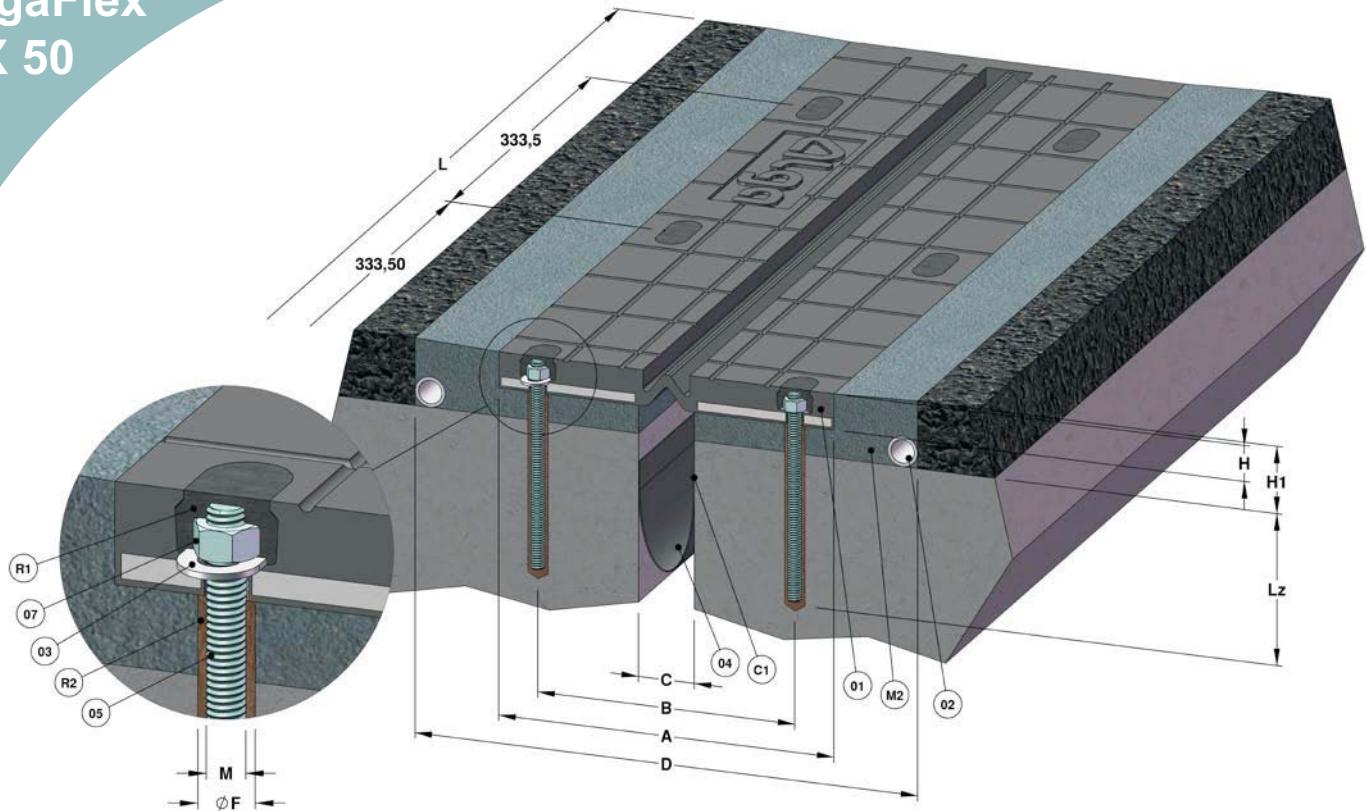
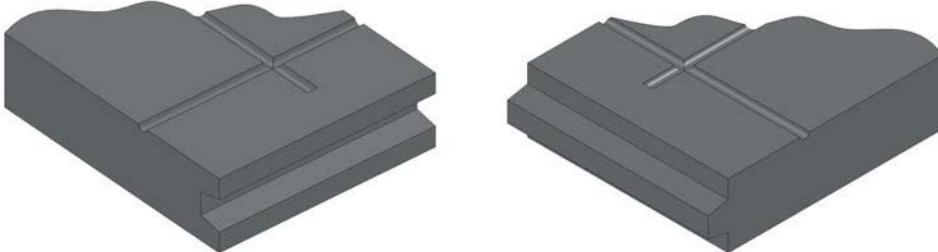


TABELA S DIMENZIJAMA / DIMENSIONAL TABLE

dilatacija / Joint	Podužno pomeranje Longitudinal movement	Poprečno pomeranje Transversal movement	A (mm)	B (mm)	C (mm)	D (mm)	L (mm)	Lz (mm)	H (mm)	H1 (mm)	M	Øf (mm)
TX50	±25	±25	280	220	45	450	2000	135	32	60	M12x190	14

Nastavak pero-žljeb  
Male-female junction



Materijal / Materials				Standard / Standard
Malter i lepak Mortar and resin	C1	Epoksi lepak / Epoxy adhesive	Tigiepox T01	
	R2	Smola za ankere / Resin for anchor bolt	Tigiepox Grout	
	R1	Smola za zalinjanje / Resin for slot	Tigitar A	
	M2	Reoplastični malter fibroarmiran / Fibre reinforced reoplastic mortar	Tigigrout 102FR	
Navrtke i vijci Bolts and nuts	07	Šestougaona navrtka / Hexagon nut	Cl./Gr. 6S + Dacromet 320	ISO 4035
	06	Obična podloška / Plain washer	Cl./Gr. R40 + Dacromet 320	UNI 6592
	03	Ovalna podloška / Oval washer	Cl./Gr. R60 + Dacromet 320	UNI 6592
	05	Anker vijak / Anchor bolt	C40 + Dacromet 320	EN 10083/1
Delovi spojnice Construction details	04	Neoprensko platno / Flashing	TPE	EN 1849-2
	02	Drenažna cev / Drain pipe	PVC dia.21/27	ALGA 668-M1029
	01	Standardna dilataciona spojница / Standard expansion joint	Prirodna guma / Natural rubber + S235JR	ALGA ST006 + EN 10025

# AlgaFlex TX

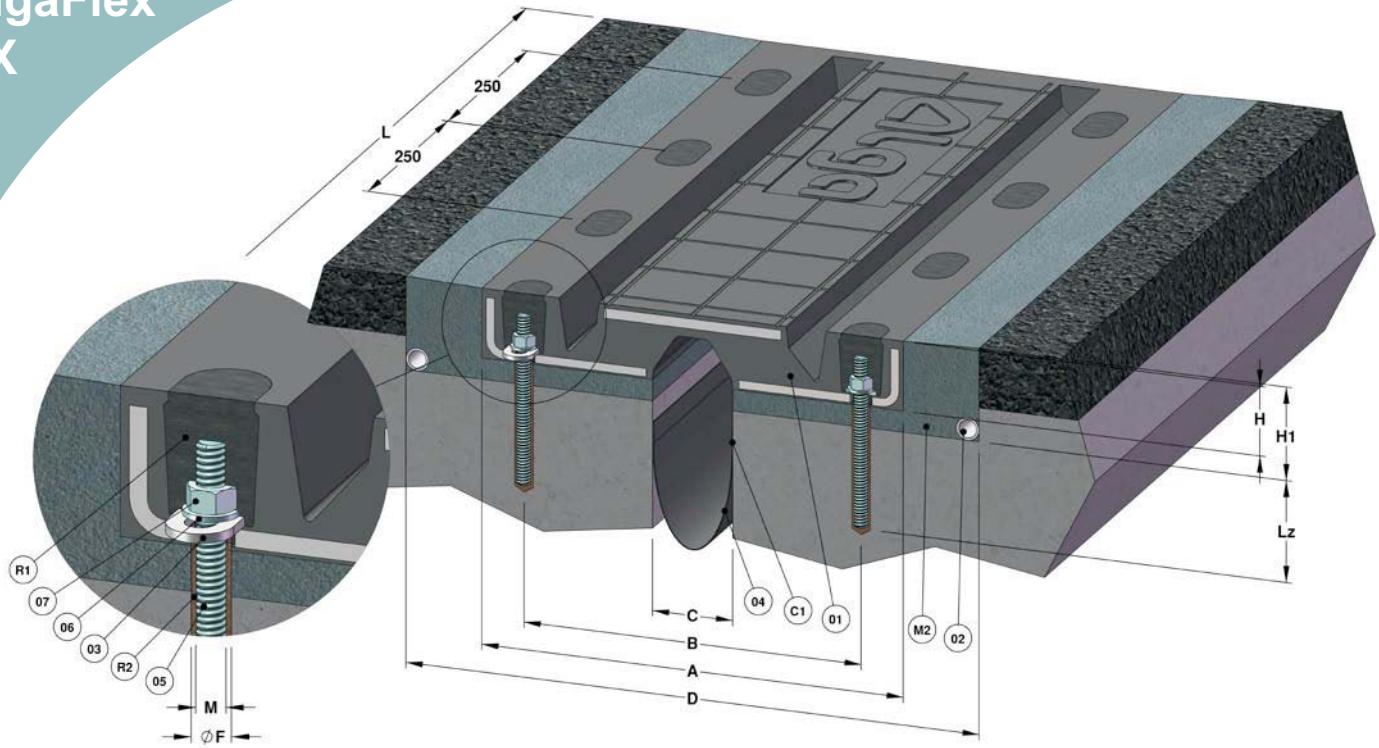
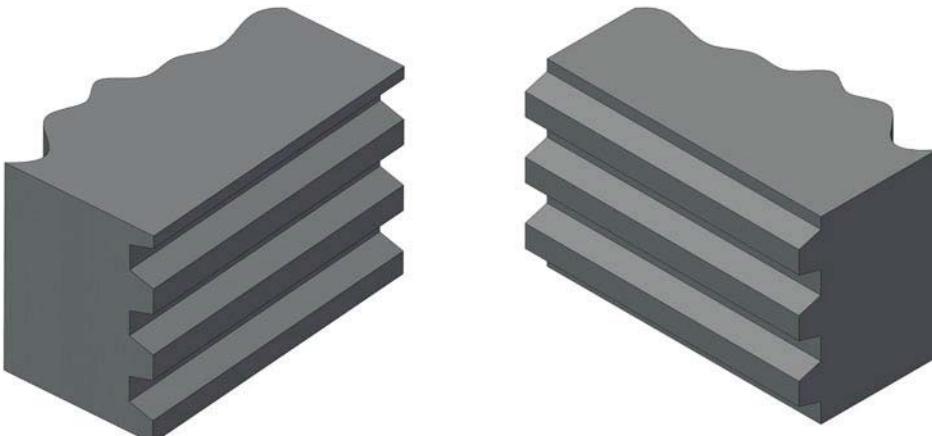


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Dilatacija / Joint	Podužno pomeranje Longitudinal movement	Poprečno pomeranje Transversal movement	A (mm)	B (mm)	C (mm)	D (mm)	L (mm)	Lz (mm)	H (mm)	H1 (mm)	M	Øf (mm)
TX80	±40	±40	275	220	50	450	2000	140	42	70	M12x190	14
TX100	±50	±50	355	280	60	520	2000	145	46	70	M14x200	16
TX120	±60	±60	390	300	70	560	2000	140	53	80	M16x200	18
TX160	±80	±80	470	370	90	640	2000	130	78	100	M16x200	18
TX180	±90	±90	500	400	100	670	2000	130	82	110	M16x200	18

Nastavak pero-žljeb  
Male-female junction



			Materijal / Materials		Standard / Standard
Malter i lepak Mortar and resin	C1	Epoksi lepak / Epoxy adhesive		Tigiepoxy T01	
	R2	Smola za ankere / Resin for anchor bolt		Tigiepoxy Grout	
	R1	Smola za zalivanje / Resin for slot		Tigitar A	
	M2	Reoplastični malter fibroarmiran / Fibre-reinforced reoplastic mortar		Tigigrout 102FR	
Navrtke i vijci Bolts and nuts	07	Šestougaona navrtka / Hexagon nut		Cl./Gr. 6S + Dacromet 320	ISO 4035
	06	Obična podloška / Plain washer		Cl./Gr. R40 + Dacromet 320	UNI 6592
	03	Ovalna podloška / Oval washer		Cl./Gr. R60 + Dacromet 320	UNI 6592
	05	Anker vijak / Anchor bolt		C40 + Dacromet 320	EN 10083/1
Delovi spojnice Construction details	04	Neoprensko platno / Flashing		TPE	EN 1849-2
	02	Drenažna cev / Drain pipe		PVC dia.21/27	ALGA 668-M1029
	01	Standardna dilataciona spijnica / Standard expansion joint		Prirodna guma / Natural rubber + S235JR	ALGA ST006 + EN 10025

# AlgaFlex TX

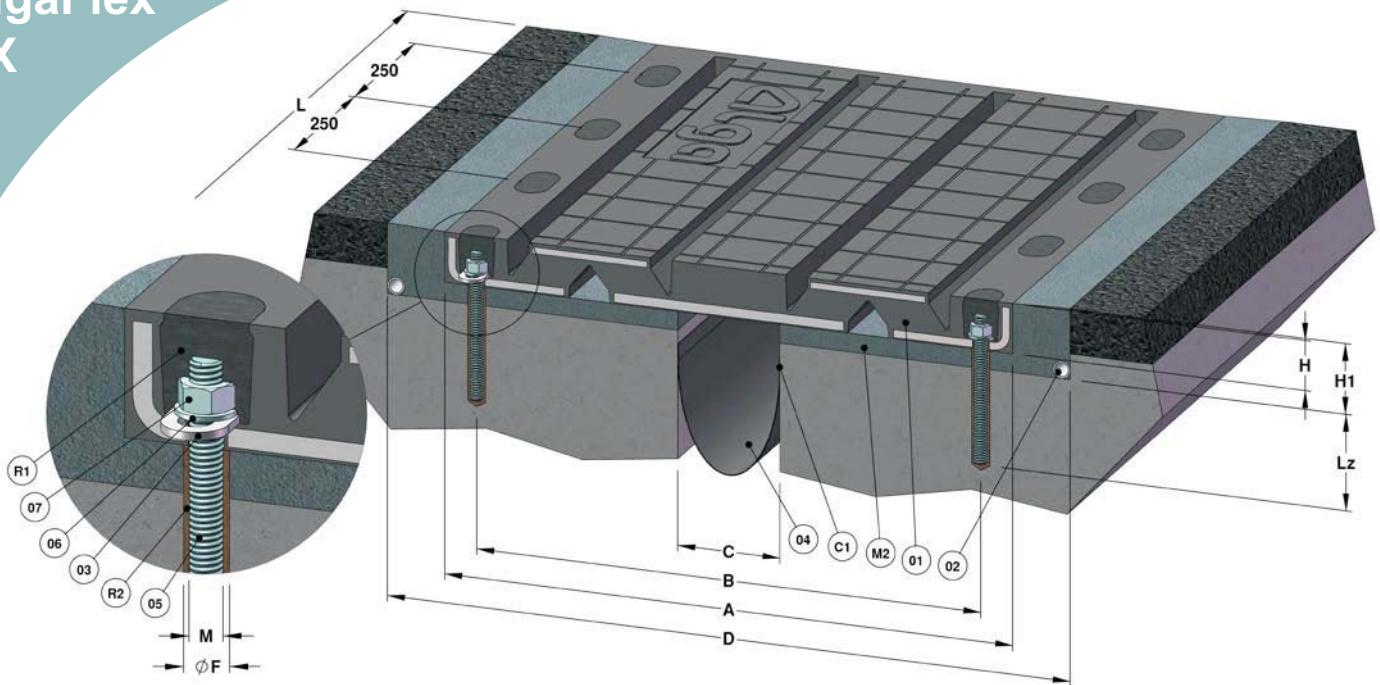
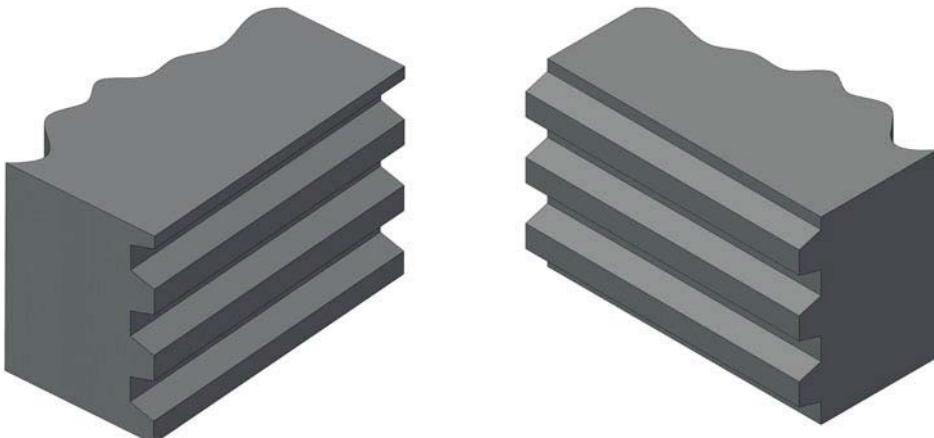


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TX140	±70	±70	590	500	80	750	2000	140	55	80	M16x200	18
TX220	±110	±110	800	700	120	980	2000	150	69	100	M20x230	24
TX270	±135	±135	890	790	150	1070	2000	150	78	110	M20x230	24
TX330	±165	±165	1105	985	220	1290	1000	200	100	130	M24x300	27
TX345	-160/185	±170	1260	1140	420	1450	1000	200	95	120	M24x300	27

Nastavak pero-žljeb  
Male-female junction



Materijal / Materials				Standard / Standard
Malter i lepak Mortar and resin	C1	Epoksi lepak / Epoxy adhesive	Tigiepoxy T01	
	R2	Smola za ankere / Resin for anchor bolt	Tigiepoxy Grout	
	R1	Smola za zalinjanje / Resin for slot	Tigitar A	
	M2	Reoplastični malter fibroarmiran / Fibre reinforced reoplastic mortar	Tigigrout 102FR	
Navrtke i vijci Bolts and nuts	07	Šestougaona navrtka / Hexagon nut	Cl./Gr. 6S + Dacromet 320	ISO 4035
	06	Obična podloška / Plain washer	Cl./Gr. R40 + Dacromet 320	UNI 6592
	03	Ovalna podloška / Oval washer	Cl./Gr. R60 + Dacromet 320	UNI 6592
	05	Anker vijak / Anchor bolt	C40 + Dacromet 320	EN 10083/1
Delovi spojnice Construction details	04	Neoprensko platno / Flashing	TPE	EN 1849-2
	02	Drenažna cev / Drain pipe	PVC dia.21/27	ALGA 668-M1029
	01	Standardna dilataciona spojnica / Standard expansion joint	Prirodna guma / Natural rubber + S235JR	ALGA ST006 + EN 10025

# AlgaFlex

## TX

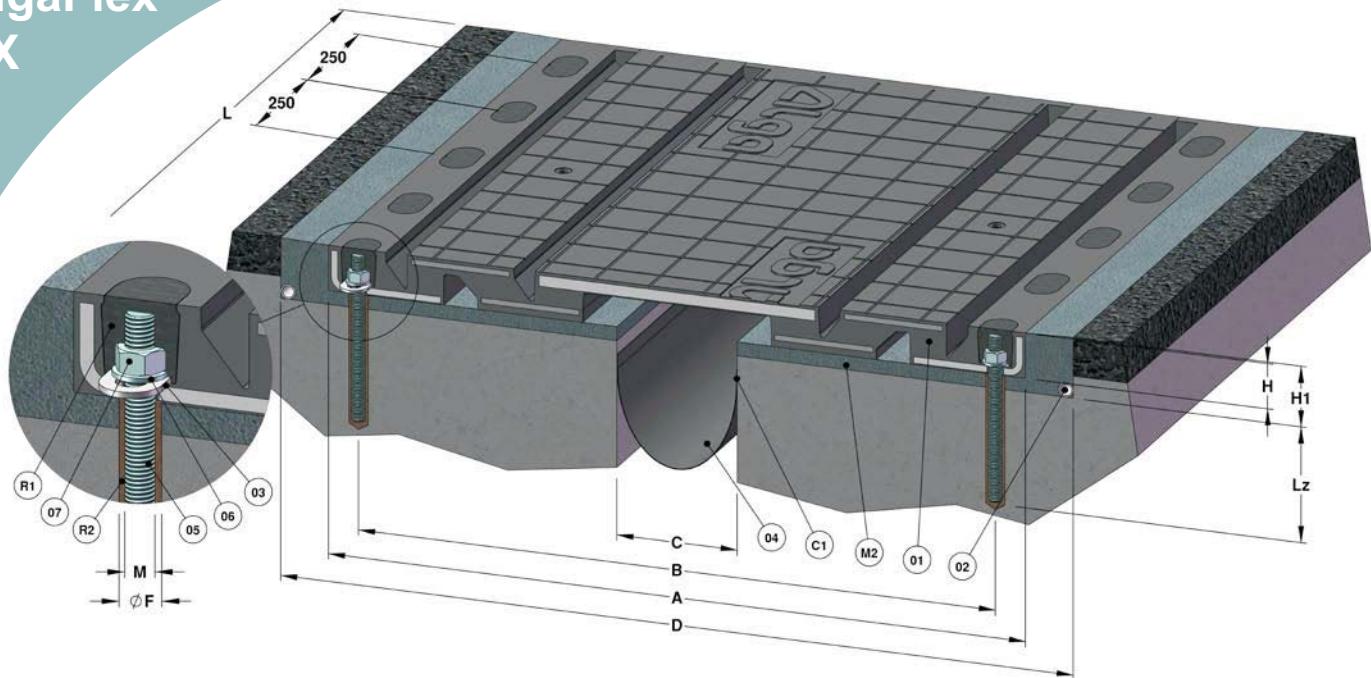
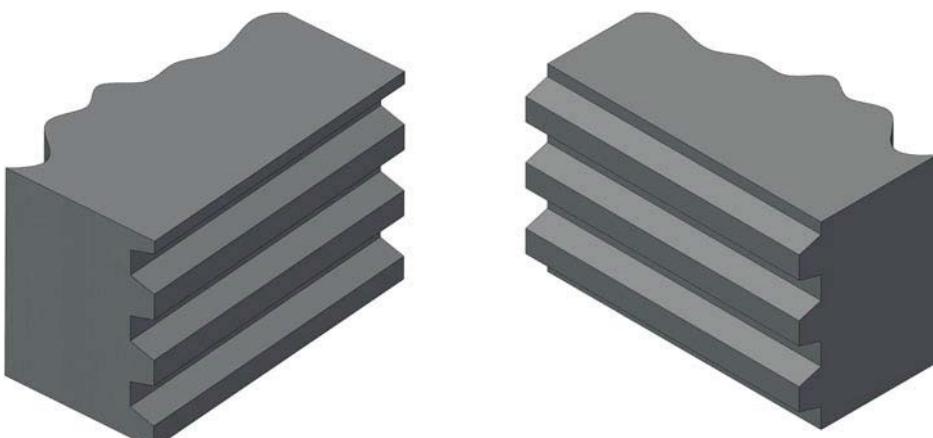


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Dilatacija / Joint	Podužno pomeranje Longitudinal movement	Poprečno pomeranje Transversal movement	A (mm)	B (mm)	C (mm)	D (mm)	L (mm)	Lz (mm)	H (mm)	H1 (mm)	M	Øf (mm)
TX200	±100	±100	895	795	110	1070	2000	150	60	80	M20x230	24
TX250	±125	±125	1040	940	135	1210	2000	150	69	90	M20x230	24
TX400/320	±200*/±160	±160	1275	1165	220	1450	1250	210	82	110	M24x300	27
TX700/320	±350*/±160	±160	1450	1340	360	1620	2000	210	82	110	M24x300	27
TX1000/320	±500*/±160	±160	1620	1510	510	1800	1500	210	82	110	M24x300	27

\*Iskazana vrednost se odnosi na seizmičko pomeranje | The figure is related to the seismic displacement

Nastavak pero-žljeb  
Male-female junction



			Matrijal / Materials		Standard / Standard
Malter i lepak Mortar and resin	C1	Epoksi lepak / Epoxy adhesive	Tigiepoxy T01		
	R2	Smola za ankere / Resin for anchor bolt	Tigiepoxy Grout		
	R1	Smola za zalivanje / Resin for slot	Tigitar A		
	M2	Reoplastični malter fibroarmiran / Fibre-reinforced reoplastic mortar	Tigigrout 102FR		
Navrtke i vijci Bolts and nuts	07	Šestougaona navrtka / Hexagon nut	Cl./Gr. 6S + Dacromet 320		ISO 4035
	06	Obična podloška / Plain washer	Cl./Gr. R40 + Dacromet 320		UNI 6592
	03	Ovalna podliška / Oval washer	Cl./Gr. R60 + Dacromet 320		UNI 6592
	05	Anker vijak / Anchor bolt	C40 + Dacromet 320		EN 10083/1
Delovi spojnica Construction details	04	Neoprenska platno / Flashing	TPE		EN 1849-2
	02	Drenažna cev / Drain pipe	PVC dia.21/27		ALGA 668-M1029
	01	Standardna dilataciona spojница / Standard expansion joint	Prirodna guma / Natural rubber + S235JR		ALGA ST006 + EN 10025

# AlgaFlex

## AW 100

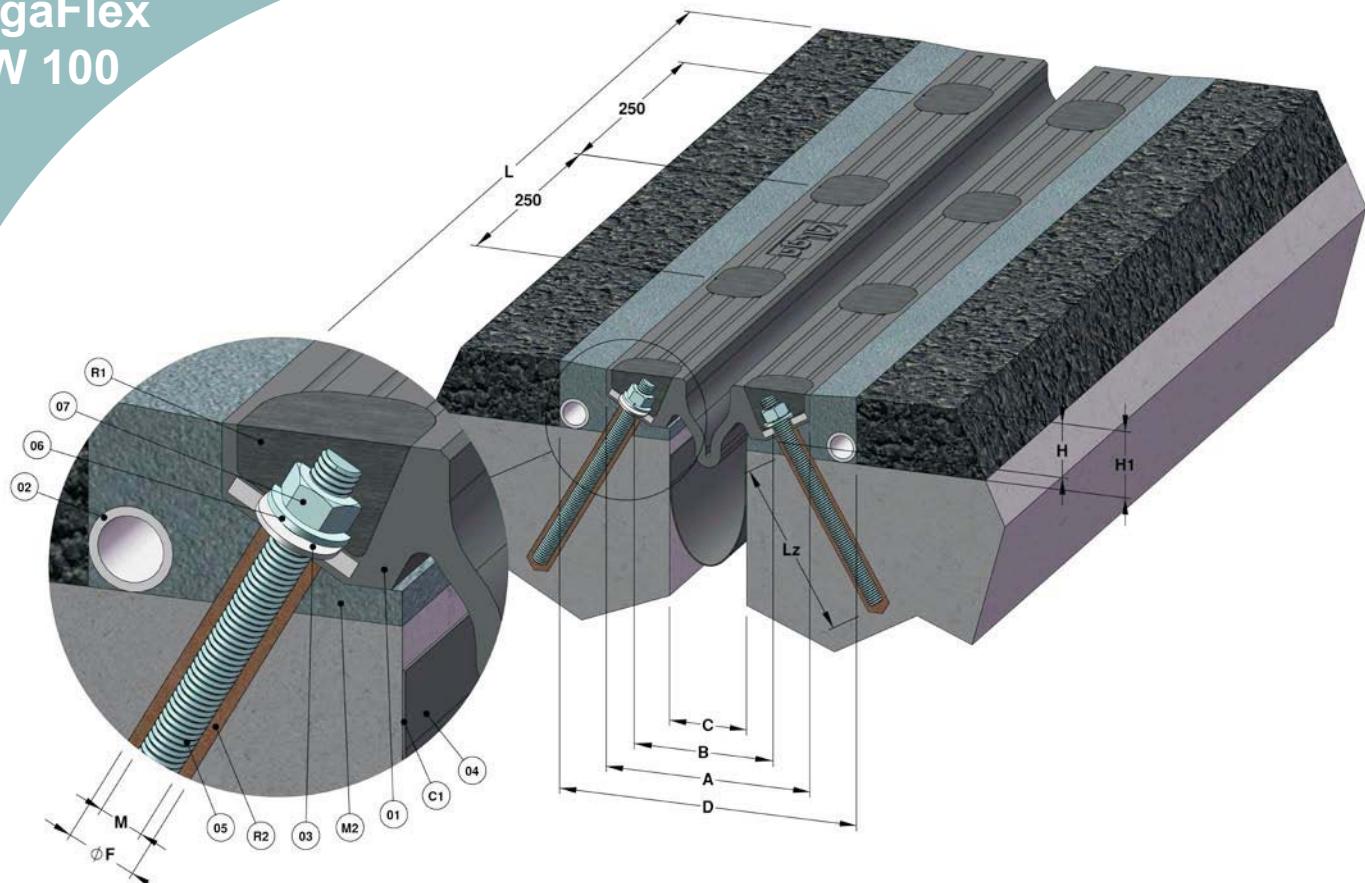
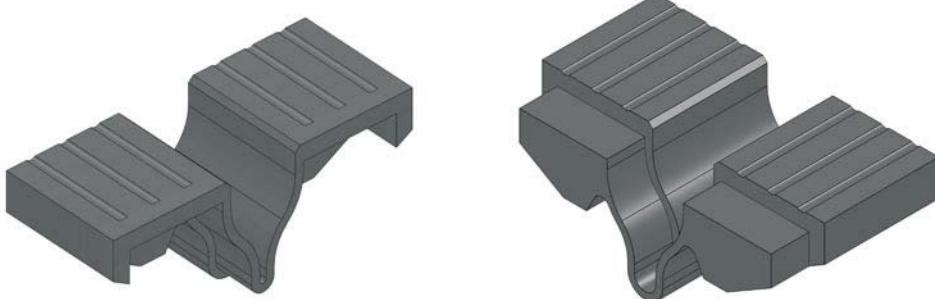


TABELA SA DIMENZIJAMA / DIMENSIONAL TABLE

Dilatacija / Joint	Poduzno pomeranje Longitudinal movement	Poprečno pomeranje Transversal movement	A (mm)	B (mm)	C (mm)	D (mm)	L (mm)	Lz (mm)	H (mm)	H1 (mm)	M	Øf (mm)
AW100	±50	±50	185	145	70	270	2000	170	46	60	M14x200	16

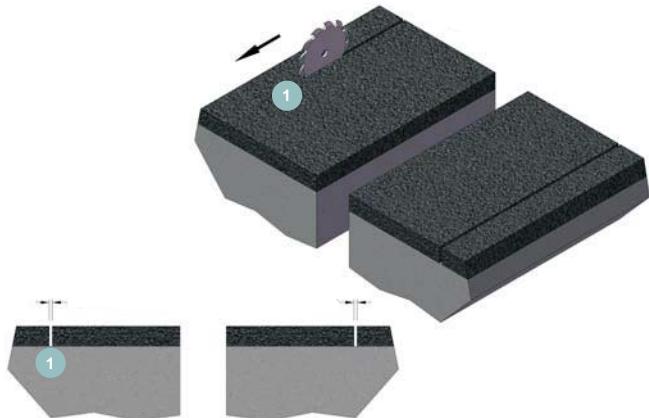
Nastavak pero-žljeb  
Male-female junction



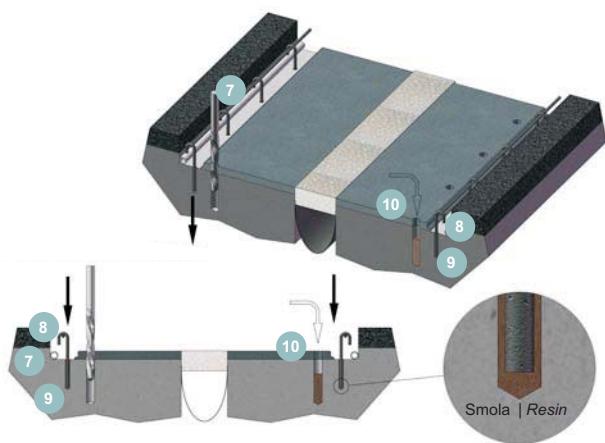
			Materijal / Materials	Standard / Standard
Malter i lepak Mortar and resin	C1	Epoksi lepak / Epoxy adhesive	Tigiepox T01	
	R2	Smola za ankere / Resin for anchor bolt	Tigiepox Grout	
	R1	Smola za zalivanje / Resin for slot	Tigitar A	
	M2	Reoplastični malter fibroarmiran / Fibreinforced reoplastic mortar	Tigigrout 102FR	
Navrtke i vijci Bolts and nuts	07	Šestougaona navrtka / Hexagon nut	Cl./Gr. 6S + Dacromet 320	ISO 4035
	06	Obična podloška / Plain washer	Cl./Gr. R40 + Dacromet 320	UNI 6592
	03	Ovalna podloška / Oval washer	Cl./Gr. R60 + Dacromet 320	UNI 6592
	05	Anker vijak / Anchor bolt	C40 + Dacromet 320	EN 10083/1
Delovi i spojnice Construction details	04	Neoprenska platnina / Flashing	TPE	EN 1849-2
	02	Drenažna cev / Drain pipe	PVC dia.21/27	ALGA 668-M1029
	01	Standardna dilataciona spojница / Standard expansion joint	Gomma naturale / Natural rubber + S235JR	ALGA ST006 + EN 10025

## Procedura za montažu

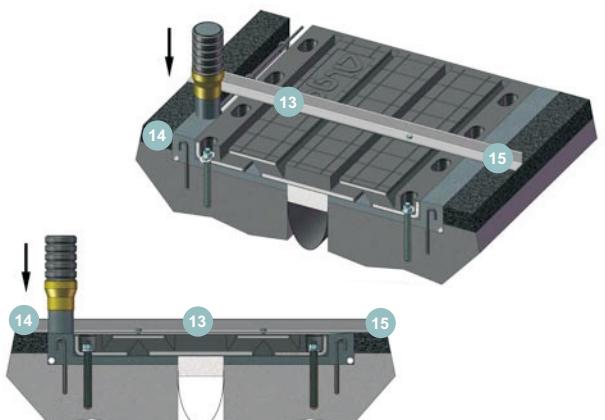
1. Isecanje asfalta
2. Uklanjanje asfaltog zastora
3. Bušenje rupa za armaturu
4. Postavljanje neoprenskog platna i lepljenje
5. Postavljanje stiropora kao oplate
6. Ugradnja reoplastičnog maltera za izravnjanje ( $R_{ck} \geq 45 \text{ N/mm}^2$ ) (Tigigrout 102 FR)



7. Postavljanje drenažne cevi
8. Zalivanje armature (Tigiepoxy Grout)
9. Fiksiranje armature epoksidnom smolom
10. Bušenje rupa za ankere i zalivanje epoksidnom smolom
11. Montaža dilatacije s postavljanjem na pravu poziciju
12. Zalivanje kompletnih ankernih zavrtnjeva

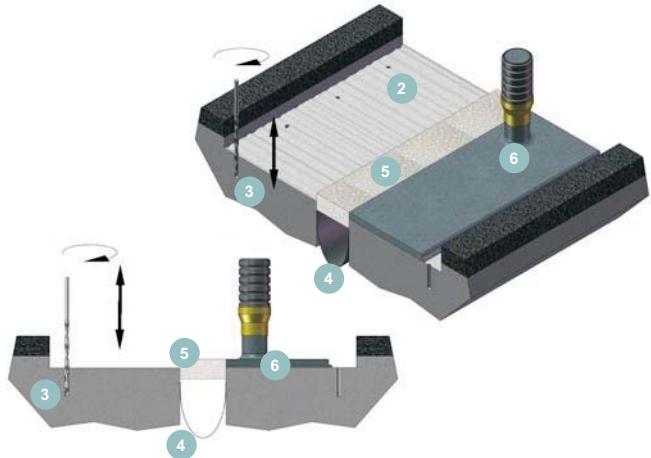


13. Provera konačne pozicije dilatacije pre podливаваја како би се осигурали накиби и падови
14. Podливаваје реопластичног малтера у јубе између асфалта ( $R_{ck} \geq 45 \text{ N/mm}^2$ ) и дилатације (Tigigrout 102 FR)
15. Уклањаје привремене анкере
16. Пritezanje zavrtnjeva na određeni momenat
17. Zalivanje ovalnih rupa epoksi katranom (Tigitar A)

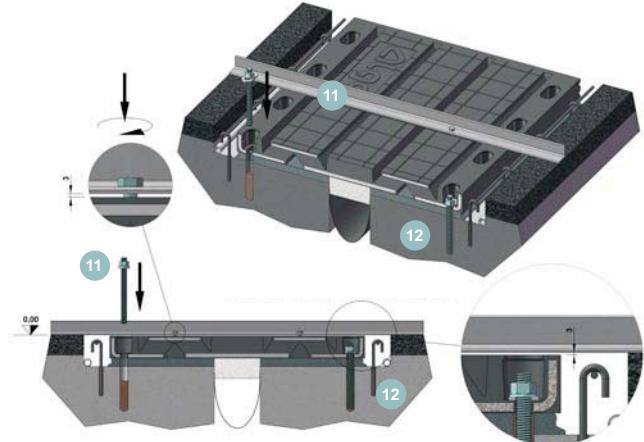


## Installation procedure

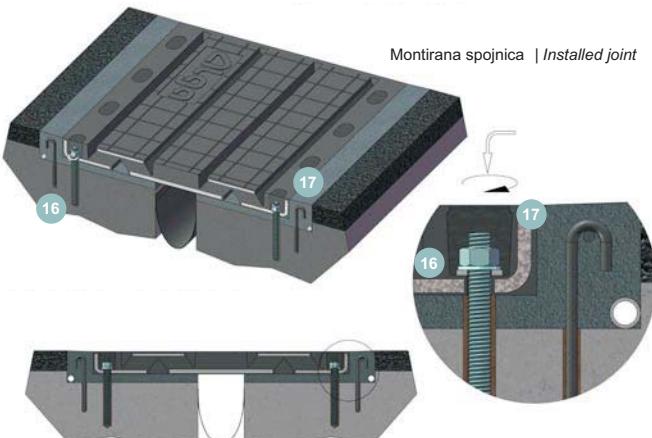
1. Asphalt layer cutting
2. Break down the asphalt layer
3. Execute holes for reinforced bars
4. Position and paste the flashing with epoxy adhesive (Tigiepoxy T01)
5. Position polystyrene formwork
6. Cast the fiber reinforced mortar or rheoplastic concrete ( $R_{ck} \geq 45 \text{ N/mm}^2$ ) for level bearing plane (Tigigrout 102FR)



7. Position drain pipe
8. Grout of reinforcement bars with epoxy resin (Tigiepoxy Grout)
9. Fix reinforcement bars with epoxy resin
10. Execute holes for anchor bolts and pour epoxy resin
11. Position at the correct level expansion joint with angolars 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 (Tigigrout 102 FR)
15. Remove reference angle beams
16. Bolts fastening
17. Sealing of joint slotted holes with epoxi resin (Tigitar A)





Faze montaže  
Installation phases.

### Tip instalacije

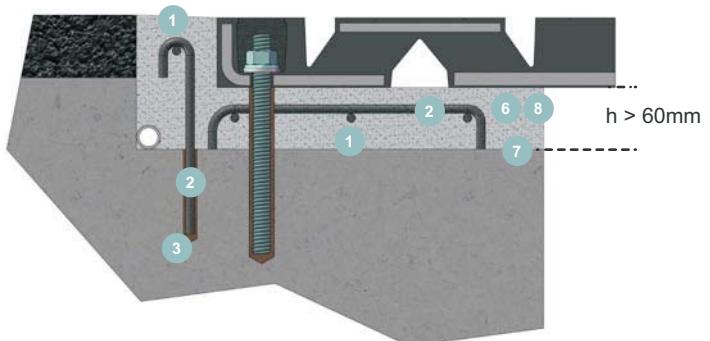
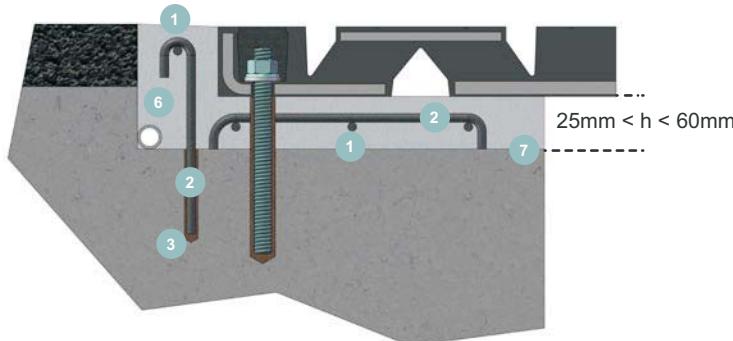
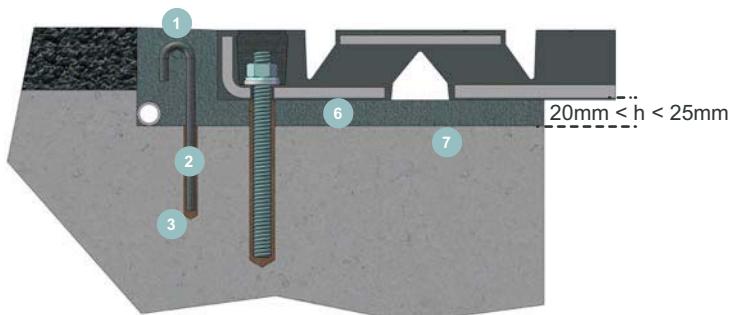
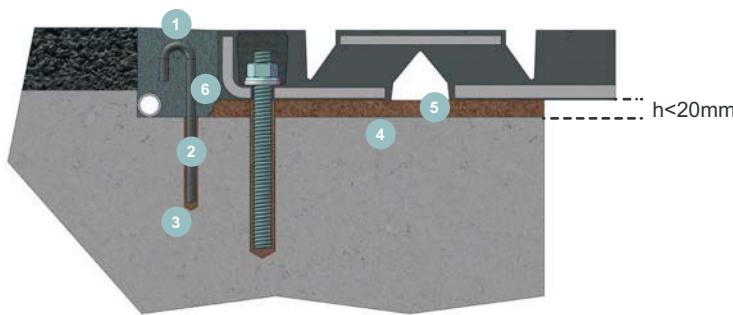
Na slici dole prikazana je šema instalacije propisana od ALGE u zavisnosti od dubine prostora za smeštaj dilatacije.

1. Poprečna armaturna šipka
2. Podužna armaturna šipka
3. Smola (Tigiepoxy Grout)
4. Prajmer (Primer M109)
5. Malter za izravnavanje (Tigiepoxy M109)
6. Reoplastični beton (Tigigrout 102 FR)
7. Oštemovana površina
8. Šljunak

### Installation type

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

1. Transversal reinforcement bar
2. Longitudinal reinforcement bar
3. Resin (Tigiepoxy Grout)
4. Primer (Primer M109)
5. Epoxy leveling mortar (Tigiepoxy M109)
6. Fibroreinforced reoplastic mortar (Tigigrout 102 FR)
7. Rough surface
8. Gravel





## Dispositivi antismismici Antiseismic devices

### HDRB

Appoggi in gomma ad alta dissipazione di energia  
*High Damping Rubber Bearings*

### LRB

Appoggi in piombo-elastomero  
*Lead Rubber Bearings*

### PND | PNDU

Isolatori isteretici con appoggio a disco elastomerico  
*Hysteretic Isolators with pot bearings*

### CSD | CSDU

Isolatori isteretici con appoggio a calotta sferica  
*Hysteretic isolators with spherical bearing*

### EP

Ammortizzatori isteretici  
*Hysteretic Dampers*

### ED

Ammortizzatori elastici  
*Elastic Dampers*

### AlgaPEND

Isolatori a pendolo scorrevole  
*Sliding Pendulum Isolators*

### DECS

Ammortizzatori elettroinduttivi  
*Electro Inductive Dampers*

### STU

Accoppiatori Idraulici  
*Shock Transmission Units*

### FD

Ammortizzatori Viscosi  
*Viscous Dampers*

### VED

Ammortizzatori Viscoelasticci  
*Visco-Elastic Dampers*



## Giunti di dilatazione Expansion joints

### AlgaFLEX TX

Giunti stradali elastomerici  
*Road Rubber Mat Joints*

### AlgaFLEX TM

Giunti stradali elastomerici per grandi escursioni fino a 800 mm  
*Road Rubber Mat Joints for large displacements up to 800 mm movement*

### AlgaFLEX TW

Giunti ferroviari fino a 350 mm di escursione  
*Railway joints up to 350 mm movement*

### AlgaMOD LW

Giunti modulari a lamelle in acciaio fino a 2000 mm di escursione e oltre  
*Steel profile Modular Joints up to 2000 mm movement and more*

### Alga R

Giunti a piastre articolate fino a 2000 mm di escursione e oltre  
*Roller Shutter Joints up to 2000 mm movement and more*



## Sistemi di postensione Post tensioning system

### AlgaCABLE

Sistema di postensione a trefoli  
*Strands Post-tensioning system*

### AlgaBAR

Sistema di postensione a barre  
*Bars post-tensioning system*

### AlgaSTAY

Stralli | Stay cables

### PT SLAB

Soluzione per solai postesi  
*Postensioned slabs*



## Appoggi Bearings

### ALGAPOT

Appoggi a disco elastomerico  
*Pot bearings*

### AlgaFLON

Appoggi in gomma armata e PTFE  
*Elastomeric Bearings with PTFE*

### AlgaBLOC

Appoggi in gomma armata  
*Elastomeric Bearings*

### SFERON

Appoggi sferici  
*Spherical Bearings*

### FSK | MSK

Chiavi di taglio fisse e mobili  
*Fixed and Movable Shear Keys*



## Ripristini strutturali Structural repair

Adeguamento sismico mediante l'inserimento di isolatori o altri dispositivi antismismatici

Rinforzi strutturali e adeguamenti sismici con fibre di carbonio

Sollevamento dal basso o dall'alto di campate di ponti e viadotti

Sostituzione dei vincoli strutturali

Trasferimenti di carico

Aggiunta o rimozione di elementi portanti

Spostamenti di interi manufatti

Regolazione dei carichi presenti

Monitoraggio di carichi e spostamenti

Metodi di costruzione innovativi

Aggiunta di precompressione esterna

Ripristino di calcestruzzi ammalorati mediante metodi meccanici o elettrochimici

*Lifting of bridge spans from top or bottom*

*Replacement of the structural bearings*

*Load transfers*

*Installing or removing structural components*

*Adjustment of the bearing reactions*

*Monitoring of loads and displacement*

*Innovative construction methods*

*Application of external post-tensioning*

*Seismic retrofitting by use of isolators or other antiseismic devices*

*Repair of damaged concrete by mechanical or electro-chemical means*



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