EXPANSION JOINTS

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Series

SM | MEG | SP

PT PTW | RAILWEJ | STs

EXPANSION JOINTS

The EXPANSION JOINTS are designed to ensure continuity between two structural elements and to follow the displacements of the structure, generally due to:

- Hygrometric shrinkage of concrete;
- Thermal expansion of the deck;
- Wind forces;
- Braking forces;
- Seismic actions.

The joints manufactured by SOMMA are able to absorb displaements ranging FROM 20 TO 1200 MM, their performces are guaranteed also in case of intense traffic conditions and to continuous exposure to atmospherical agents.

All joints are equipped with a water drainage system and are designed to minimize traffic noise and ensure maximum comfort for passing passengers.

The joints comply to EAD 120

JOINTS MADE BY REINFORCED RUBBER FOR LITTLE AND MEDIUM RANGE OF DISPLACEMENTS – SM SERIES

The device is made with deformable rubber, internally reinforced with vulcanized metal elements, completely covered by the rubber itself, in order to guarantee the anticorrosive protection. Any section of the device When cutting the joint vertically, at least one reinforcement element is always encountered.

*The joints comply with the **EAD 120110-00-0107** standard.

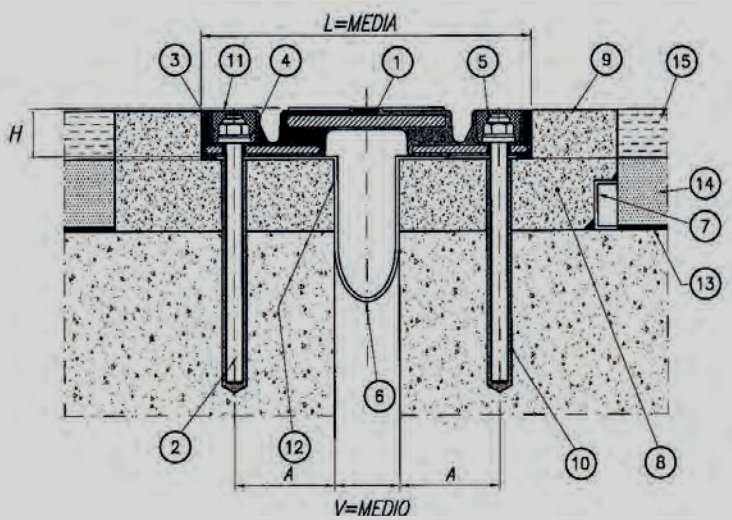
The joint panel is endowed with a rubber flashing for water collection and with the fixing system, consisting of anchoring brackets, washers and self-locking nuts.
It has a water drainage system tank to the insertion of an aluminum C-profile.

JOINTS MADE BY REINFORCED RUBBER SM SERIES FOR **SMALL DISPLACEMENTS**

POS	OBJECTS	MATERIAL
1	MAT	ELASTOMER
2	THREATH ROD	8.8 GALVANIZED
3	WASHER	ISO 7089
4	OVAL WASHER	ISO 7089
5	LOCKNUT	8.8 EN 20898 EN 10083
6	WATERTIGHT MEMBRANE	EPDM/polyethylene + PVC REINF. WITH NYLON NET
7	DRAINAGE SYSTEM	ALUMINIUM
8	BETTING MORTAR	HIGH STRENGHT REOPLASTIC CONCRETE
9	TRANSITION STRIP	HIGH STRENGHT REOPLASTIC CONCRETE
10	ANCHORING RESIN	R - SM EFIX
11	SEALING	R - SM P -FILL
12	LAYING OF MORTAR ON VERT SURF.	R - SM EBOND
13	DECK WATERPROOFING	
14	BINDER	
15	LAYER	

TYPE	LONG. DISPLAC. (mm) (X)	TRANSV. DISPLAC. (mm) (Y)	VERT. DISPLAC. (mm) (Z)	LENGTH	H	L = MEDIUM	V = MEDIUM	A
SM 50N	±25	±25	±30	2000	33	230	45	70
SM 110N	±55	±55	±30	2000	47	355	70	105
SM 150 N	±75	±75	±30	1000	64	440	95	130

Joints in reinforced rubber SM for **small displacements**

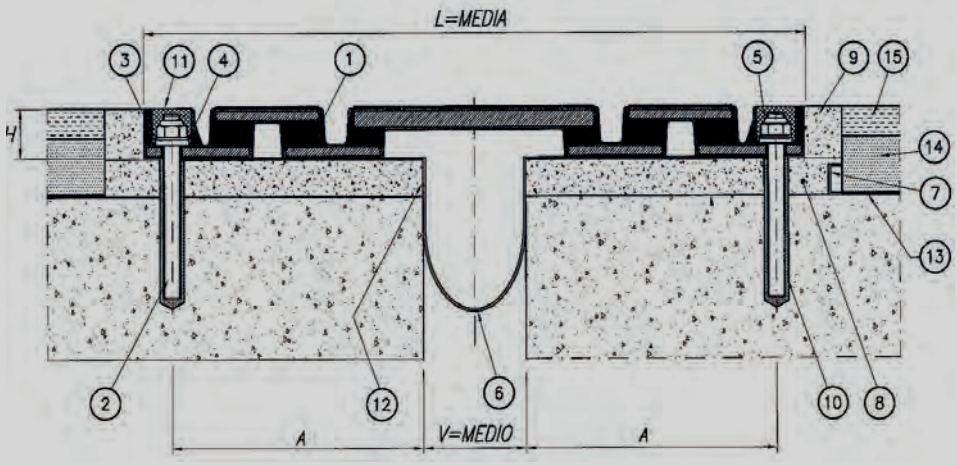


JOINTS MADE BY REINF. RUBBER SM SERIES **FOR MEDIUM DISPLACEMENTS**

POS	OBJECT	MATERIAL
1	MAT	ELASTOMER
2	THREATH ROD	8.8 GALVANIZED
3	WASHER	ISO 7089
4	OVAL WASHER	ISO 7089
5	LOCKNUT	8.8 EN 20898 EN 10083
6	WATERTIGHT MEMBRANE	EPDM/polyethylene + PVC REINF. WITH NYLON NET
7	DRAINAGE SYSTEM	ALUMINIUM
8	BETTING MORTAR	HIGH STRENGHT REOPLASTIC CONCRETE
9	TRANSITION STRIP	HIGH STRENGHT REOPLASTIC CONCRETE
10	ANCHORING RESIN	R - SM EFIX
11	SEALING	R - SM P -FILL
12	LAYING OF MORTAR ON VERT SURF.	R - SM EBOND
13	DECK WATERPROOFING	
14	BINDER	
15	LAYER	

TYPE	LONG. DISPLAC. (mm) (X)	TRANSV. DISPLAC. (mm) (Y)	VERT. DISPLAC. (mm) (Z)	LENGTH	H	L= MEDIUM	V = MEDIUM	A
SM 200N	±100	±120	±30	1000	57	772	120	290
SM 300P	±150	±150	±30	1000	75	890	170	305
SM 400P	±200	±200	±30	1000	96	1189	220	430

Joints made by reinforced rubber SM series for **medium displacements**



JOINTS MADE BY REINFORCED RUBBER FOR **LARGE DISPLACEMENTS** MEG

They are composed by a main plate that covers the gap between the two structures, vulcanized and completely embedded by rubber component.
Sliding is guaranteed by the presence of deformable rubber modules, vulcanized to steel plates and containing anti-lifting bars made by stainless steel. The sliding capacity of the joint depends by the quantity of rubber modules of which it is made.
The system is made in a such way that when cutting the joint vertically, at least one reinforcement element is always encountered.

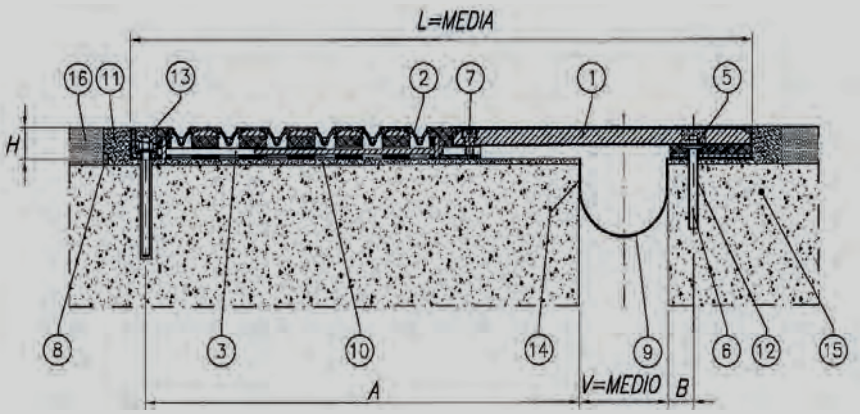
*The joints comply with the **EAD 120110-00-0107 standard.**

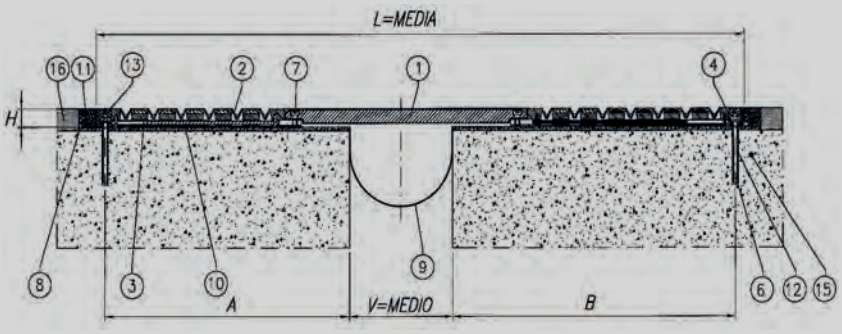
The joint panel has a length of 1.5 m, is supplied with a rubber flashing for water collection and with the fixing system, consisting of anchoring brackets, washers and self-locking nuts.
It has a water drainage system tank to the insertion of an L-shaped aluminum profile.

JOINTS MADE BY REINF. RUBBER MEG SERIES, FOR **LARGE DISPLACEMENTS**

POS	OBJECT	MATERIAL
1	STEEL PLATE	EN 10025 - S355J2G3
2	MAT	ELASTOMER
3	ANTILIFTING SYSTEM	CL. 8.8 UNI EN ISO 898
4	OVAL WASHER	S275JR - GALVANIZED
5	LOCKNUT	CLASSE 6 - GALVANIZED
6	THREADED ROD	CL. 8.8
7	SCREW	CL. 8.8 UNI EN ISO 898
8	DRAINAGE SYSTEM	ALUMINIUM
9	WATERTIGHT MEMBRANE	EPDM/polyethylene + PVC REINFORCED WITH NYLON NET
10	BETTING MORTAR	HIGH STRENGHT REOPLASTIC CONCRETE
11	TRANSITION STRIP	HIGH STRENGHT REOPLASTIC CONCRETE
12	ANCHORING RESIN	R - SM EFIX
13	SEALING	R - SM P -FILL
14	MEMBRANE BONDING	R - SM EBOND
15	SLAB	
16	PAVE	

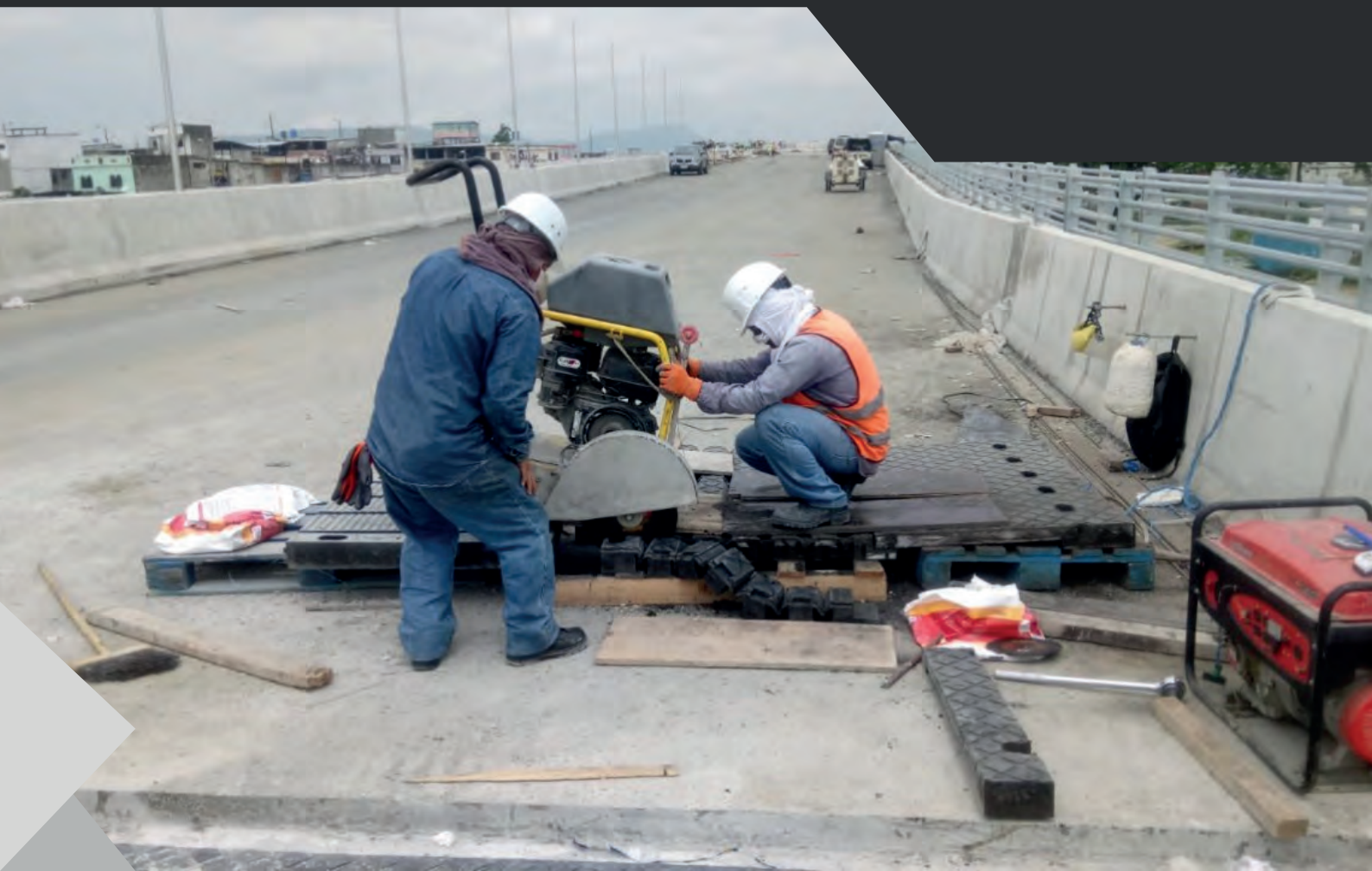
‹‹‹ Setting for **displacements** till to +/- 300 mm





››› Setting for **displacements** till to +/- 600 mm

TYPE	LONG. DISPLAC. (mm) (X)	TRANSV. DISPLAC. (mm) (Y)	VERTICAL DISPLAC. (mm) (Z)	LEN-GHT (mm)	H	L= MEDIUM (mm)	V= MEDIUM (mm)	A (mm)	B (mm)
MEG 400	±200	±150	±30	1500	85	1590	220	1070	80
MEG 480	±240	±200	±30	1500	85	1830	260	1270	80
MEG 560	±280	±200	±30	1500	85	2070	300	1470	80
MEG 640	±320	±200	±30	1500	85	2210	340	1570	80
MEG 720	±360	±300	±30	1500	85	2390	380	890	1030
MEG 800	±400	±300	±30	1500	85	2630	420	1060	1060
MEG 900	±450	±400	±30	1500	85	2870	470	1085	1225
MEG 1000	±500	±400	±30	1500	85	3250	520	1250	1390
MEG 1100	±550	±450	±30	1500	85	3490	570	1415	1415
MEG 1200	±600	±450	±30	1500	85	3730	620	1440	1580



"MEG" JOINT SERIES

UNDERPAVEMENT JOINTS
SP 20

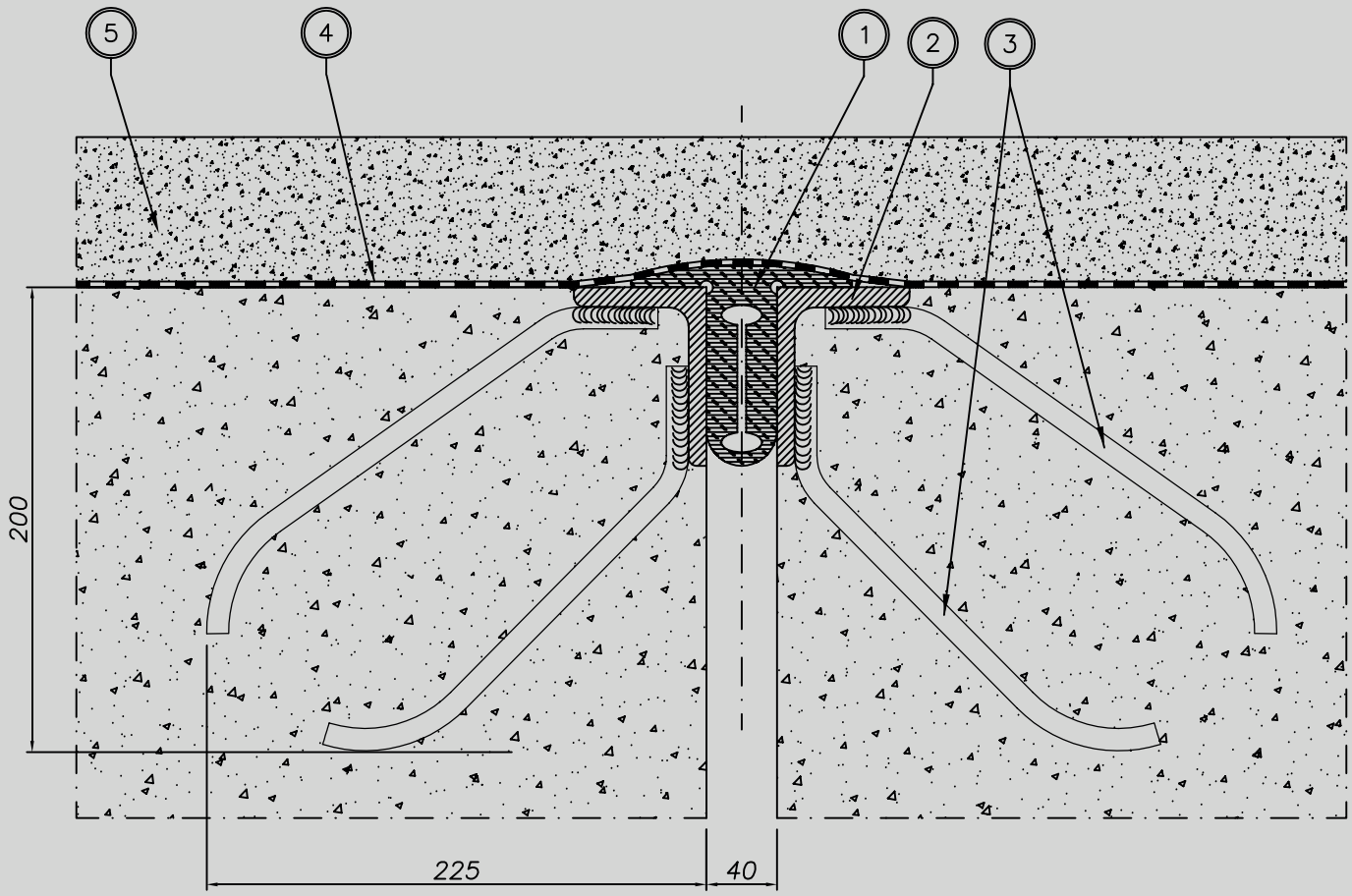
The joint consists of two L-shaped metal profiles, welded to a steel locking plate.
A vulcanized rubber pad is inserted between the two profiles.
The anchoring to the slab is made with brackets with a diameter of 10 mm and a distance of 200 mm.
The flashing for water collection is included in the supply.

*The joints comply with the **EAD 120110-00-0107 standard.**

UNDERPAVEMENT JOINT
SP 20

POS	OBJECT	MATERIAL
1	L-SHAPED PROFILE 60x120x8	S275 JR
2	ANCHOR A. Ø10x150	B450C
3	ANCHOR B 100x6	S275 J0
4	RUBBER ELEMENT	EPDM
5	FIXING WELDING	
6	WATERTIGHT MEMBRANE	EPDM/polyethylene + PVC REINFORCED WITH NYLON NET
7	ANCHORING RESIN	R - SM EFIX
8	MEMBRANE BONDING	R - SM EBOND

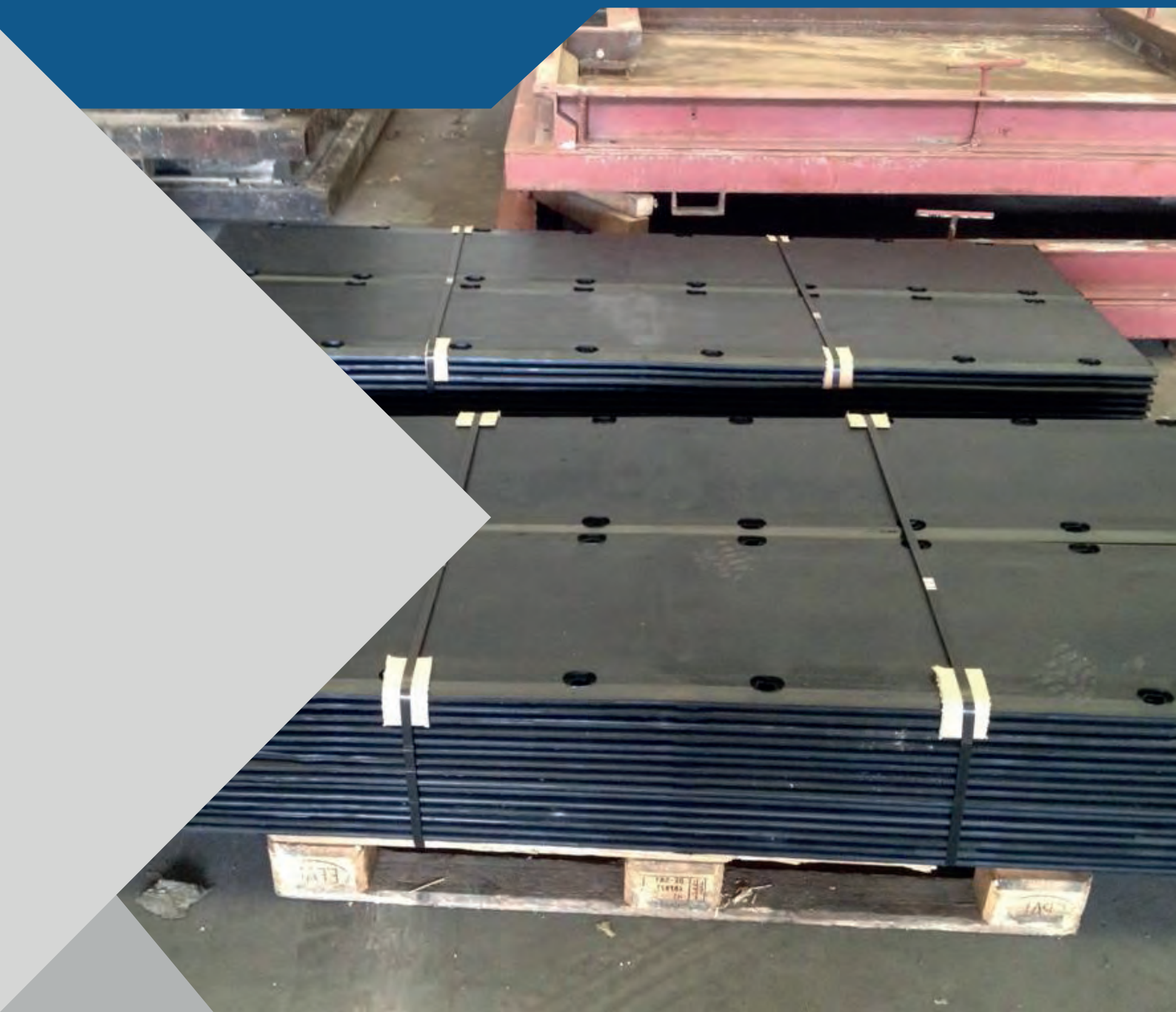
Underpavement joint
SP 20



UNDERPAVEMENT JOINTS
SPS

The joint consists of an elastomer pad for transversal sliding. vulcanized on a steel bridge plate.
The supply of flashing and anchors is included.

*The joints comply with the **EAD 120093-00-0107 standard.**

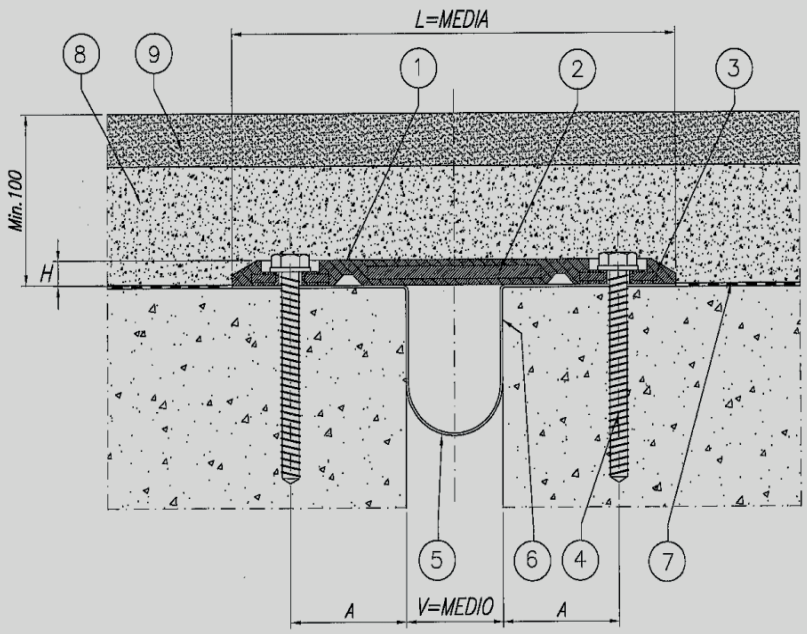


UNDERPAVEMENTS JOINTS
SPS

POS	OBJECT	MATERIAL
1	MAT	ELASTOMER
2	STEEL PLATE	S275 JR EN 10025
3	ANCHORPLATE	S235 JR EN 10025
4	SELFTAPPING SCREW	M8X100 CL. 8.8 ZN EN 20898
5	WATERTIGHT MEMBRANE	EPDM/POLYETHYLENE + PVC REINFORCED WITH NYLON NET
6	GLUE FLASHING	R-SM EBOND
7	DECK WATERPROOFING	
8	TRANSITION STRIP	
9	ASPHALT	

TYPE	LONG. DISPLAC. (mm) (X)	TRANSV. DISPLAC. (mm) (Y)	VERTIC. DISPLAC. (mm) (Z)	LENGHT	H	L=MEDIUM	V = MEDIUM	A
SPS 50	±10	±15	±15	2000	12	230	50	60
SPS 200	±15	±20	±20	2000	16	400	200	70

>>> Underpavement joints SPS



CANTILEVER EXPANSION JOINTS
PT50

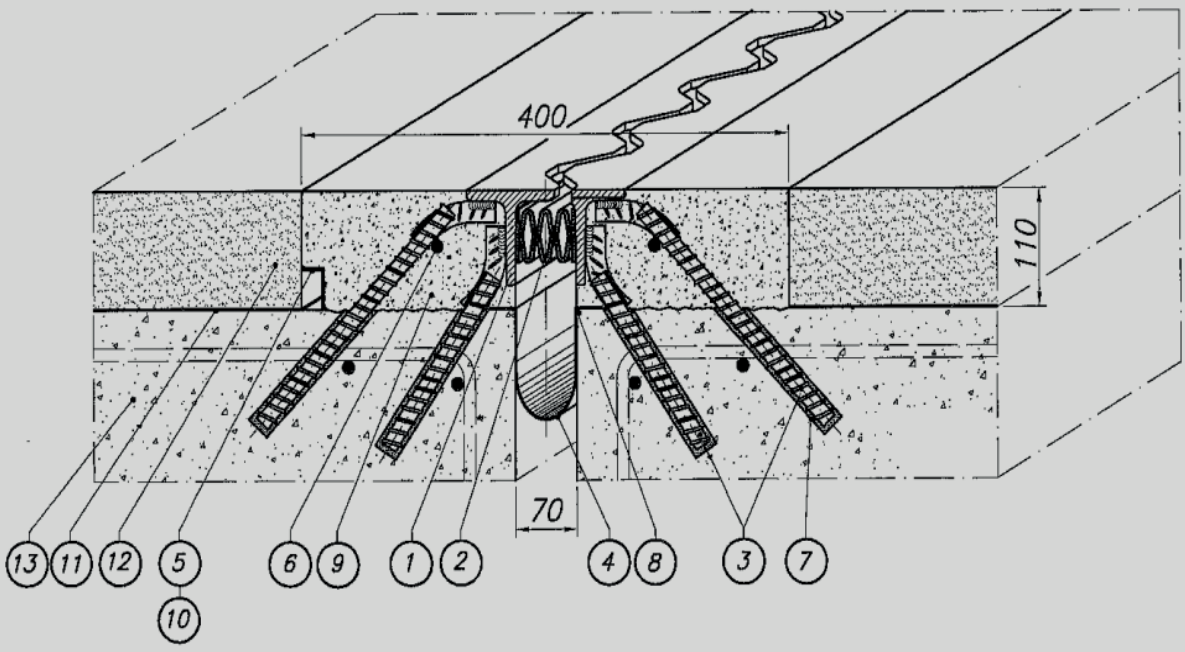
The joint is composed by two T-shaped metallic profiles, set up like a comb. This configuration guarantees the mutual interpenetration of the profiles during the phases of dilatation and contraction of the joint. A rubber pad is provided between the two profiles. Two dowels having 12 mm as diameter and spaced by 200 mm are fixed in order to anchor the profiles to the structure.

The joints comply to **EAD 120111-00-0107 standard.**

CANTILEVER EXPANSION JOINTS
PT50

POS	OBJECT	MATERIAL
1	T-SHAPED PROFILE 80x80x9	S355J2W UNI EN 10025
2	RUBBER ELEMENT	EPDM
3	ANCHORING SYSTEM Ø 16 A.M.	B450C
4	WATERTIGHT MEMBRANE	EPDM/polyeth. + PVC REINFORCED WITH NYLON NET
5	DRAINAGE SYSTEM	ALUMINIUM
6	SUPPLEM. REINF. REBAR Ø 10	B450C
7	ANCHORING RESIN	R - SM EFIX
8	FLASHING GLUE	R - SM EBOND
9	POURING	HIGH STRENGHT REOPLASTIC CONCRETE
10	GROUTING	R - SM EBOND
11	DECK WATERPROOFING	
12	BINDER	
13	LAYER	

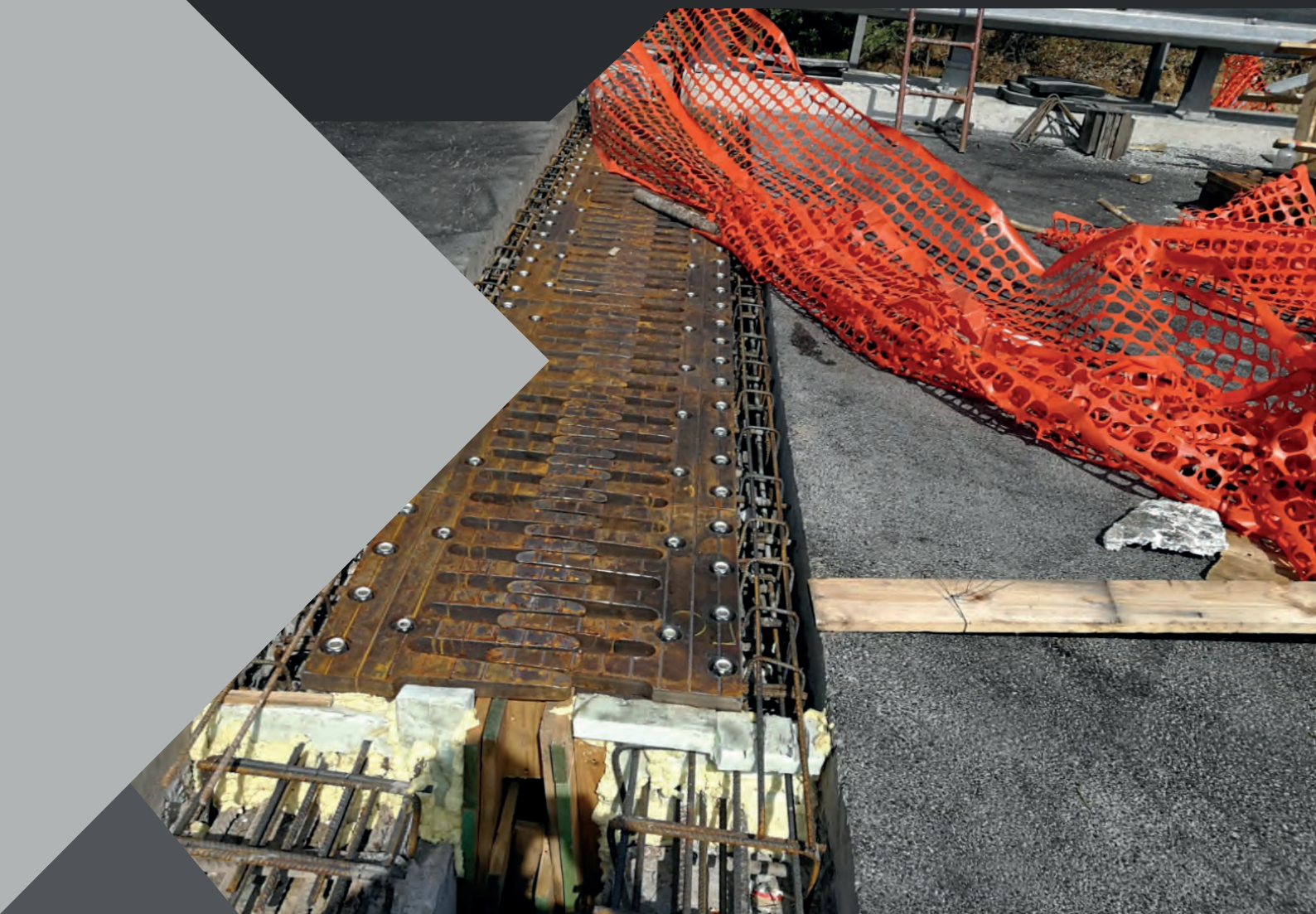
CANTILEVER EXPANSION joints
PT50



CANTILEVER EXPANSION JOINTS
PTW-PTWC

The joints is composed by two plates, made by weathering steel, comb-shaped, where the teeth are designed like selve. The anchoring to the below structure is performer by opportune dowels, while the drainage system is provided by a L-shaped steel profile, protected against corrosion by hot dip galvanization.
*The joints comply to **EAD 120111-00-0107 standard.**

The drainage system is included in the supplying.

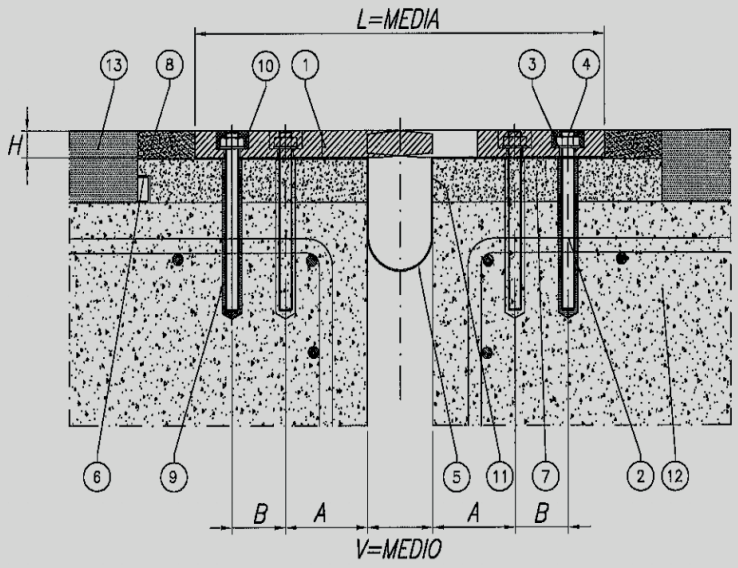


CANTILEVER EXPANSION JOINTS
PTW-PTWC

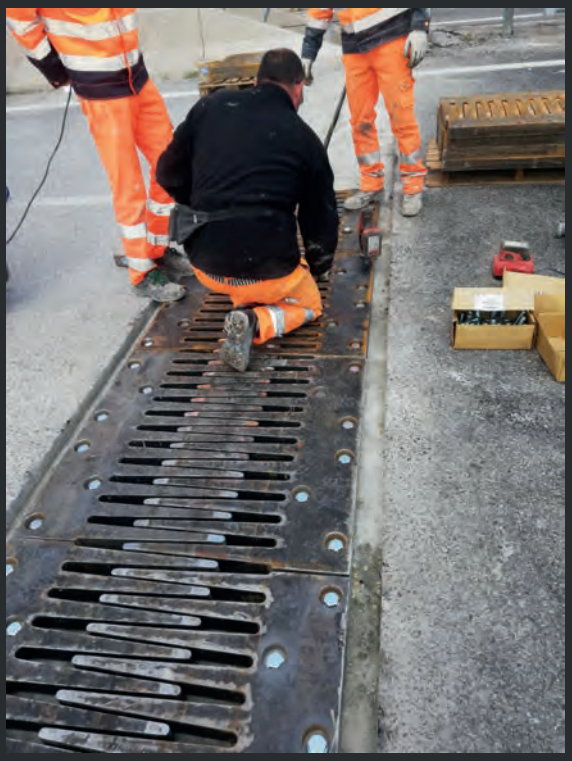
POS	OBJECT	MATERIAL
1	COMB SHAPED PROFILE	S355J2W UNI EN 10025
2	ANCHOR	CL. 8.8
3	WASHER	C50 UNI EN 14399
4	LOCKNUT	CL. 8.8 UNI EN ISO 898
5	WATERTIGHT MEMBRANE	EPDM/POLYETH. + PVC REINF. WITH NYLON NET
6	DRAINAGE SYSTEM	ALUMINIUM
7	GROUTING	HIGH STRENGHT REOPLASTIC CONCRETE
8	TRANSITION STRIP	HIGH STRENGHT REOPLASTIC CONCRETE
9	ANCHORING RESIN	R - SM EFIX
10	SEALING	R - SM P -FILL
11	MEMBRANE BONDING	R - SM EBOND
12	SLAB	
13	ASPHALT	

TYPE	LONG. DISPLAC. (mm) (X)	LENGHT (mm)	H (mm)	L= MEDIUM (mm)	V=MEDIUM (mm)	A (mm)	B (mm)
PTW 50	±25	955	25	400	55	130	0
PTW 100	±55	955	30	500	80	100	65
PTW 200	±100	955	40	650	130	150	65
PTW 100	±125	955	45	705	155	185	45
PTW 100	±150	955	50	870	180	200	100
PTW 100	±200	955	60	1050	230	255	115

CANTILEVER EXPANSION profile PTW-PTWC

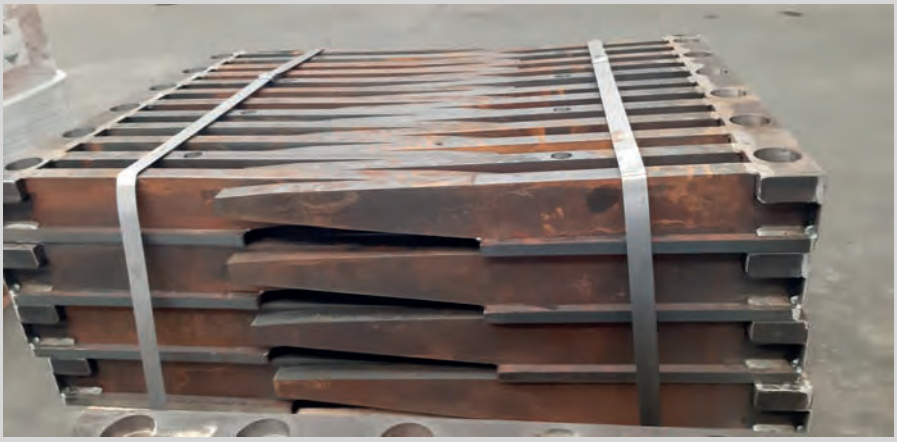


CANTILEVER EXPANSION JOINTS **PTW-PTWC**



CANTILEVER
EXPANSION JOINTS
PTW-PTWC

CANTILEVER EXPANSION JOINTS **PTW-PTWC**



RAILWEJ JOINTS

The railway joints are designed with precise adjustments in order to be suitable for the application for railway structures and fulfill the requirements prescribed by the National Authorities, such as Italian RFI. In particolar, a dielettric rubber is employed and it is prescribed a stainless plate on the above surface of the joint, that prevent the ballast to go thought. The anchoring system is composed by threaded dowels. The supplying includes the water tight membrane for the water collecting.

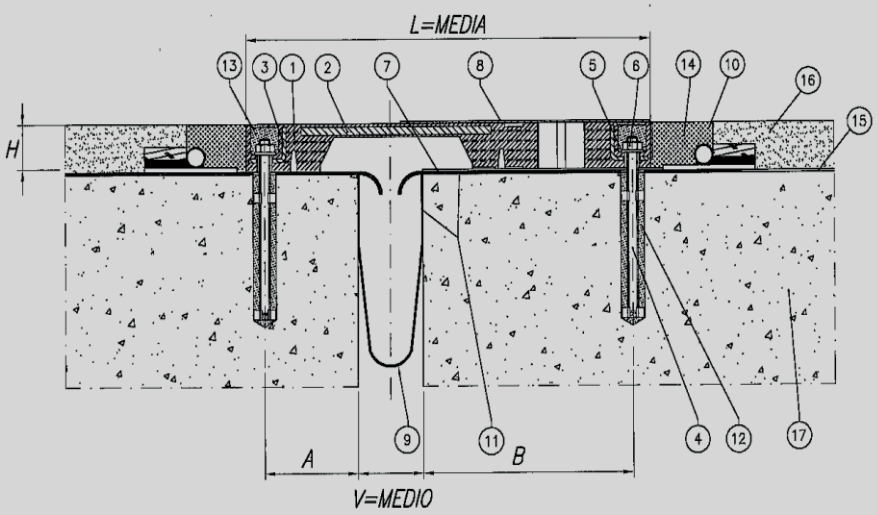
*The joints comply to the requirements of **RFI DTC SI PS SP IFS 002D**

RAILWEJ JOINTS

POS	OBJECT	MATERIAL
1	MAT	ELASTOMER
2	STEEL PLATE	S355JR EN 10025
3	T SHAPED ANCHOR	S275J2
4	ANCHOR BAR M12X165	A4 X2CRNIMO 17-12
5	WASHER	A4 X2CRNIMO 17-12
6	FIXING BOLT	EPDM/POLYETHYLENE + PVC REINFORCED WITH NYLON NET
7	STEEL PLATE	X5 CRNIMO 17-12
8	PROTECTIVE STEEL PLATE	X5 CRNIMO 17-12
9	WATERTIGHT MEMBRANE	HYPALON
10	DRAINAGE SYSTEM	PVC
11	MEMBRANE BONDING	R-SM EBOND
12	ANCHORING RESIN	R-SM EFIX
13	SEALING	R-SM P-FILL
14	MORTAR POURING	
15	DECK WATERPROOFING	
16	BINDER	
17	SLAB	

TYPE	LONG. DISPLAC. (mm) (X)	TRANSV. DISPLAC. (mm) (Y)	VERT. DISPLAC. (mm) (Z)	LENGHT (mm)	H (mm)	L= MEDIUM (mm)	V= MEDIUM (mm)	A	B
RAILWEJ 100	±50	±50	±50	1000	47	437	70	100	227
RAILWEJ 200	±100	±100	±50	1500	47	640	120	100	380
RAILWEJ 250	±125	±125	±50	1500	47	828	145	110	533

RAILWEJ Joints



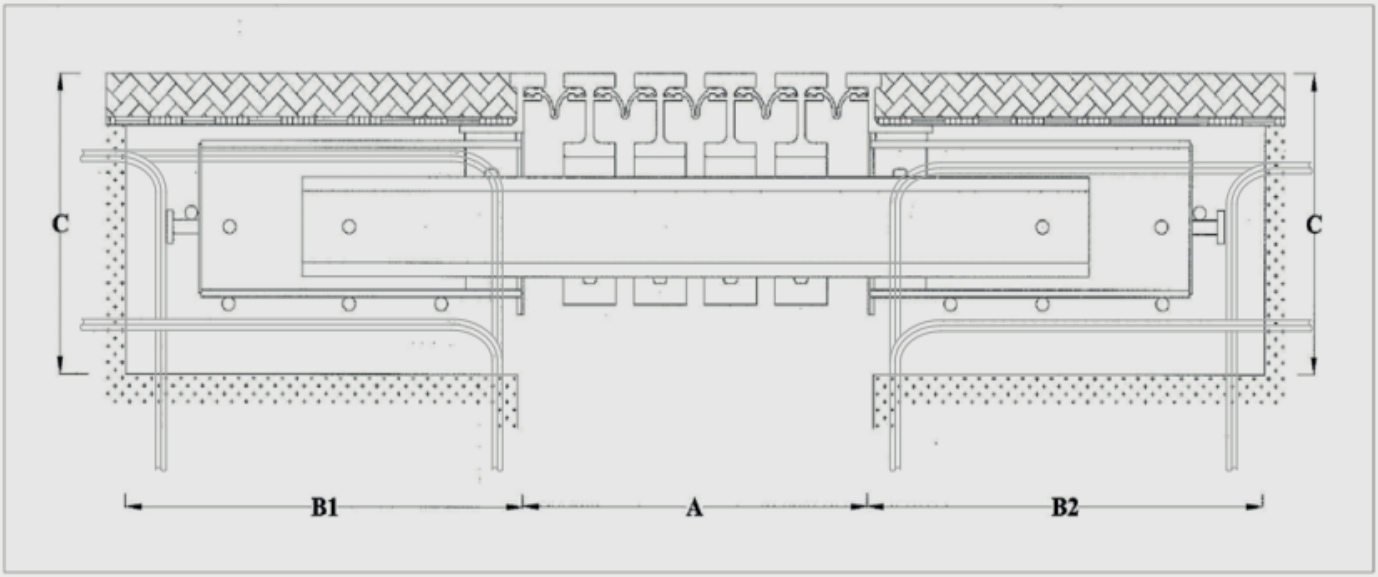
STS
MODULAR JOINTS STs

STs modular joints are designed to adapt to structural movements through the arrangement of connection gaskets which have a self-adjusting system designed to ensure that all gaskets are open equally.
The joints consist of an arrangement of lateral and central beams that develop perpendicular to the longitudinal axis of the bridge and are interpenetrated by neoprene seals.
The central beams in turn slide on support beams which are arranged to move along one or both edges. The support beams are designed to allow for rotating and sliding movements.
STs modular couplings considerably reduce road traffic noise and vibrations and minimize noise, and the correct design approach also leads to a leak-proof continuous connection with minimum and maximum openings, connections and components without fatigue strain and so longlasting.

STS
STS MODULAR JOINTS

TYPE	ELONGATION	Amin (mm)	Amax (mm)	B1	B2	C
STS 160	160	150	310	200	200	290
STS 240	240	230	470	300	300	290
STS 320	320	310	630	380	380	320
STS 400	400	390	790	460	460	320
STS 480	480	470	960	540	540	330
STS 560	560	550	1110	620	620	330
STS 640	640	630	1270	700	700	330
STS 720	720	710	1430	780	780	350
STS 800	800	790	1590	860	860	350
STS 880	880	870	1750	940	940	370
STS 960	960	950	1910	1020	1020	370
STS 1040	1040	1030	2070	1100	1100	400
STS 1120	1120	1110	2230	1180	1180	420
STS 1200	1200	1190	2390	1260	1260	420

>>> STs modular joints



INSTALLATION

The laying of the joint, when allowed, must take place after a sufficient period of settlement of the flooring. The different settlement of the asphalt over time due to vehicular transit differs from the “joint” system where the use of high-strength mortars in the substrates and transition areas does not actually allow for any lowering.

Therefore, for an optimal response, installation is recommended after at least 6 months from the opening to traffic on the definitive flooring. Alternatively, if the conditions do not provide for it, we invite you to pay attention on the possible emplyment of vibro-rolling cycles in the joint area, in order to reduce the voids and limit subsequent settlements of the flooring as much as possible.

>>> PRELIMINARY PHASE

- Road pavement cutting (carried out with an asphalt cutter)
- Removal of the flooring and bush hammering of the slab.
- Installation and set-up drainage arrangement on the upper side of the joint.
- Preparation of the joint seat.
- Casting with compensated shrinkage mortar or grout, to create the joint support surface.
- Hole marking

>>> PLACEMENT OF THE JOINT

- Positioning of the joint (in the case of loads over 30 kg, provide for a lifting device for positioning)
- Drilling and anchoring of rods for anchoring
- Tightening of the anchor nuts with the torque indicated on the project
- Creation of transition areas
- Sealing of the anchoring slots until complete filling

INSTALLATION

INSTALLATION

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