

Arsan[®]

Precise Connections - since 1957



SEM EXPANSION JOINTS

SEM EXPANSION JOINTS

www.arsankaucuk.com.tr

Arsan is a leading manufacturer in Structural and Seismic Bearings, Expansion Joints and various type of Pipe Gaskets and Tunnel Segment Gaskets for infrastructure and building construction sectors.

Arsan continues to develop with its policy focused on continuous improvement since 1957. Research and development department of Arsan works on innovative projects continuously. Arsan's vision is to be worldwide reliable supplier of structural products. Currently, 60% of total production is exported and 85% of this turnover is generated from Europe. In addition to these European countries, Arsan exports to more than 50 other countries as well.

Structural bearings include all types of elastomeric bearings, guided and restraint bearings, pot bearings, spherical and cylindrical bearings. All types of structural bearings have CE Certificate.

Arsan supplies seismic isolation systems for bridges and buildings using lead rubber bearing (CE) and friction pendulum systems. Arsan test laboratory is equipped with to carry out qualification and acceptance tests on structural bearings and seismic isolators. The factory production control tests are carried out in Arsan Factory according to the project requirements specified in the standards or client requests.

Expansion joints for bridges comprises mat expansion joints, single gap expansion joints, and modular expansion joints. Expansion joint type and design are determined as per project requirements.

Expansion joint type and design are prepared according to project needs.

Tunnel segment gaskets are designed by Arsan engineers and offer excellent water pressure resistance. Various types of pipe gaskets are also provided.

Design and drawings of all structural products are prepared by Arsan Engineers. Thus, Arsan is a reliable manufacturer for structural products with its experience, capacity in manufacturing and efficient engineering solutions.

Arsan factory operates in its facility in Ferizli, Sakarya, with a closed area of 35,000 square meters on an area of 60,000 square meters

Arsan Factory is equipped with various production methods such as extrusion, compression and injection for rubber products.

Rubber compound tests are also performed in Arsan R&D laboratory. Moreover, most tools required to produce rubber products are built in house with metal machining.

In addition, designing and producing molds, machining and assembly of structural bearings and expansion joints are completed by Arsan.





PROPERTIES

Bridge expansion joints are designed to permit the longitudinal, vertical movements and small rotation presented on bridge decks due to changes in environmental condition, live loads, and physical changes on the structural materials such as creep and shrinkage.

SEM expansion joints designed to fill the joints and gaps with their perfect ability to absorb expansion movements up to 800 mm.

The high quality rubber and the special design guarantee a long-time resistance to oils, fuel, U.V. radiation, ozone and many other chemicals. Arsan designed and developed SEM expansion joints with an engineering software.

The selection of the type of expansion joint for a specific project is commonly determined by the maximum joint opening.

MAIN ADVANTAGES

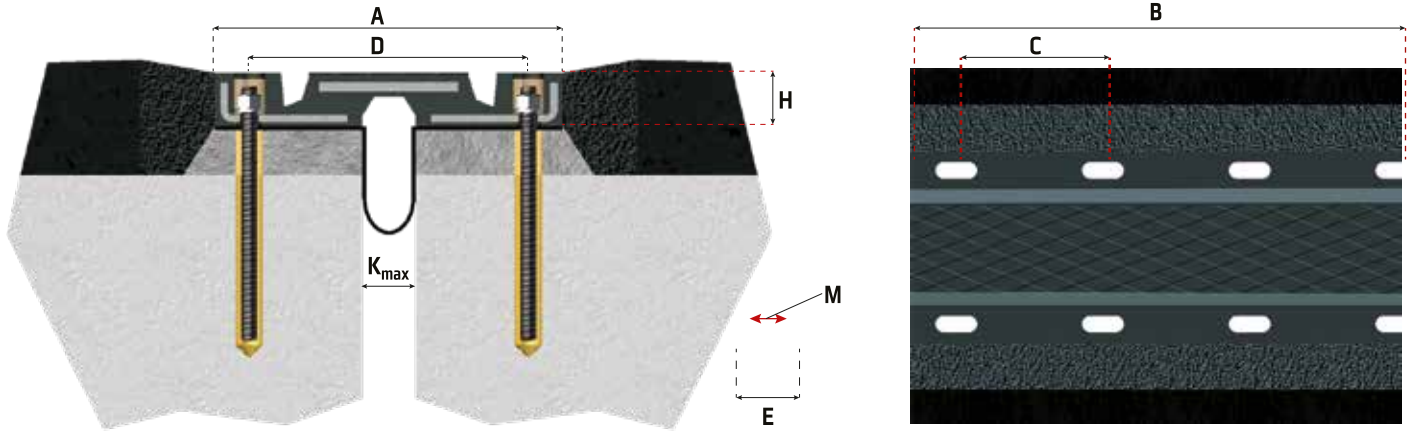
- SEM Expansion joints can easily be installed by using anchor bolts which are made of steel.
- All the inner metal laminations and the installation anchors are specially treated against corrosion.
- By the good designed surface, these joints provide good driving comfort without any noise and shock.
- SEM Expansion joints are entirely waterproof, the steel which embedded in rubber is protected against atmospheric agents.

TESTING AND QUALITY

SEM Expansion joints and all other technical products are manufactured with high quality standards and controlled (tested) in accordance with the international specifications. The main components, rubber and steel inside the product fulfill the physical and mechanical requirements. We can perform the needed tests in our own laboratory to ensure the best quality and high performance.

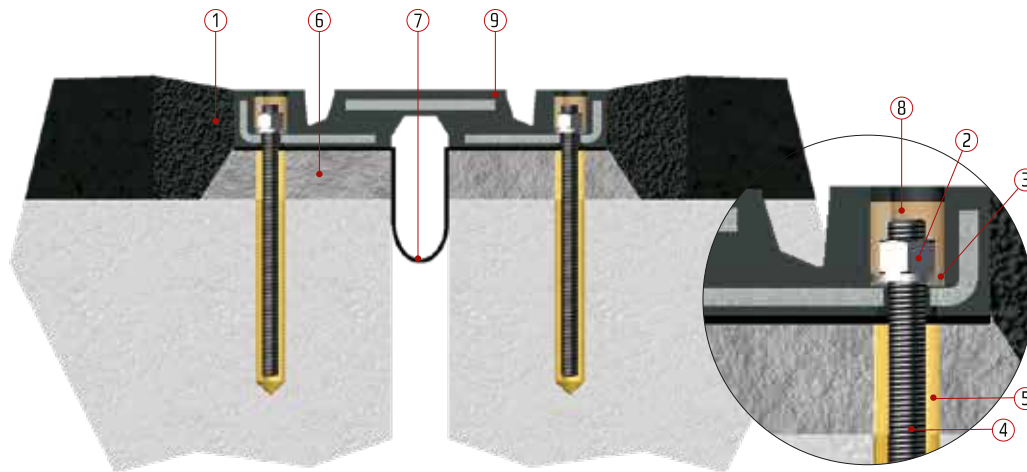


SEM - ST EXPANSION JOINTS



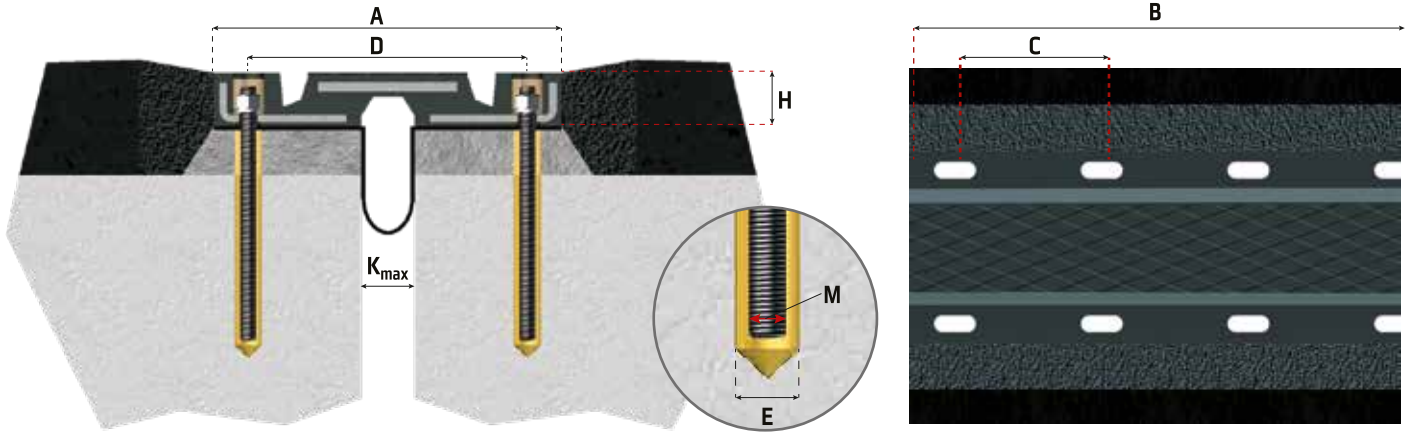
TYPE	MODEL	A (mm)	B (mm)	H (mm)	C (mm)	M (mm)	E (mm)	D (mm)	Vxy (mm)	K (max) (mm)
SEM - ST50		272	2000	43	200	M12x200	14	220	50 (±25)	75
SEM - ST70		383	2000	46	250	M14x200	16	280	70 (±35)	105
SEM - ST80		389	2000	53	250	M16x200	18	300	80 (±40)	115
SEM - ST100		589	2000	56	250	M16x200	18	500	100 (±50)	160
SEM - ST130		470	2000	80	250	M16x200	18	370	130 (±65)	155
SEM - ST160		498	2000	84	250	M16x200	18	400	160 (±80)	180
SEM - ST260		890	2000	78	250	M20x230	24	790	250 (±125)	300
SEM - ST330		1107	1000	100	250	M24x300	27	990	330 (±165)	380

A: Width, **B:** Length, **H:** Height, **C:** Distance Between Anchors / Length, **M:** Anchor, **E:** Hole Diameter, **D:** Distance Between Anchors / Width
Vxy: Movement Limit, **Kmax :** Max Width of Gap



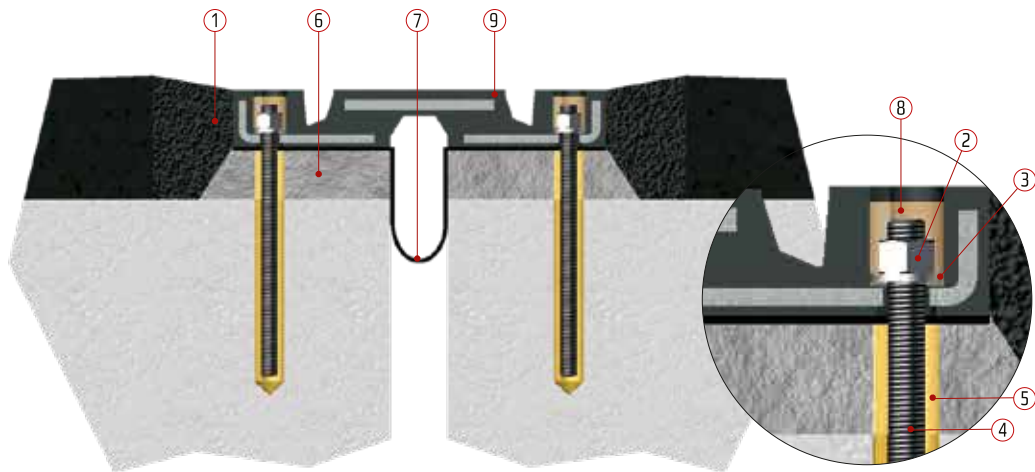
POS	DESCRIPTION	MATERIAL
①	Transition Mortar	Epoxy grout or flexible epoxy joint filler
②	Nut	Grade 8.8 steel
③	Washer	Grade 8.8 steel
④	Anchor Bolt	Grade 8.8 steel
⑤	Chemical Anchor	Epoxy adhesive anchoring system
⑥	Leveling Mortar	Epoxy baseplate grouting system
⑦	Rubber Strip	EPDM or NBR
⑧	Sealant	Self leveling polyurethane sealant
⑨	SEM Expansion Joints	Rubber and Steel

SEM - MK EXPANSION JOINTS



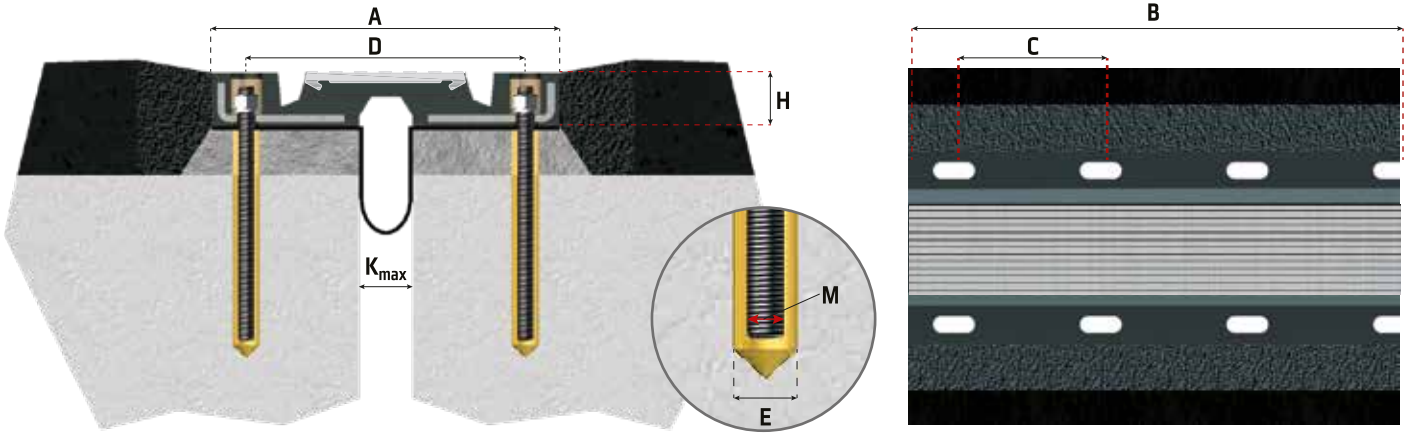
TYPE	MODEL	A (mm)	B (mm)	H (mm)	C (mm)	M (mm)	E (mm)	D (mm)	Vxy (mm)	K (max) (mm)
SEM-MK 70		272	2000	43	200	M12x200	14	220	70 (±35)	75
SEM-MK 80		353	2000	46	250	M14x200	16	280	80 (±40)	105
SEM-MK 100		389	2000	53	250	M16x200	18	300	100 (±50)	120
SEM-MK 120		589	2000	56	250	M16x200	18	500	120 (±60)	160
SEM-MK 140		470	2000	80	250	M16x200	18	370	140 (±70)	160
SEM-MK 180		498	2000	84	250	M16x200	18	400	180 (±90)	190
SEM-MK 250		890	2000	78	250	M20x230	24	790	250 (±125)	300
SEM-MK 330		1107	1000	100	250	M24x300	27	990	330 (±165)	380

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Vxy: Movement Limit, **Kmax:** Max Width of Gap



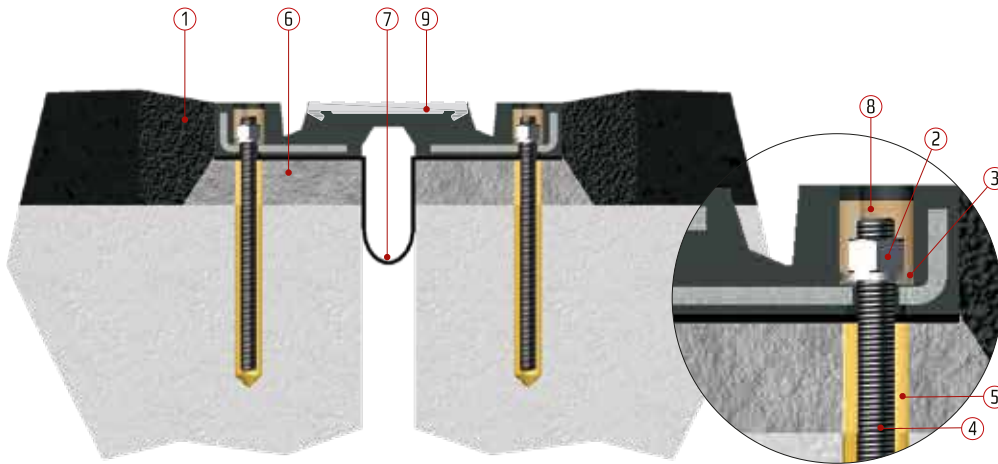
POS	DESCRIPTION	MATERIAL
①	Transition Mortar	Epoxy grout or flexible epoxy joint filler
②	Nut	Grade 8.8 steel
③	Washer	Grade 8.8 steel
④	Anchor Bolt	Grade 8.8 steel
⑤	Chemical Anchor	Epoxy adhesive anchoring system
⑥	Leveling Mortar	Epoxy baseplate grouting system
⑦	Rubber Strip	EPDM or NBR
⑧	Sealant	Self leveling polyurethane sealant
⑨	SEM Expansion Joints	Rubber and Steel

SEM - AL EXPANSION JOINTS

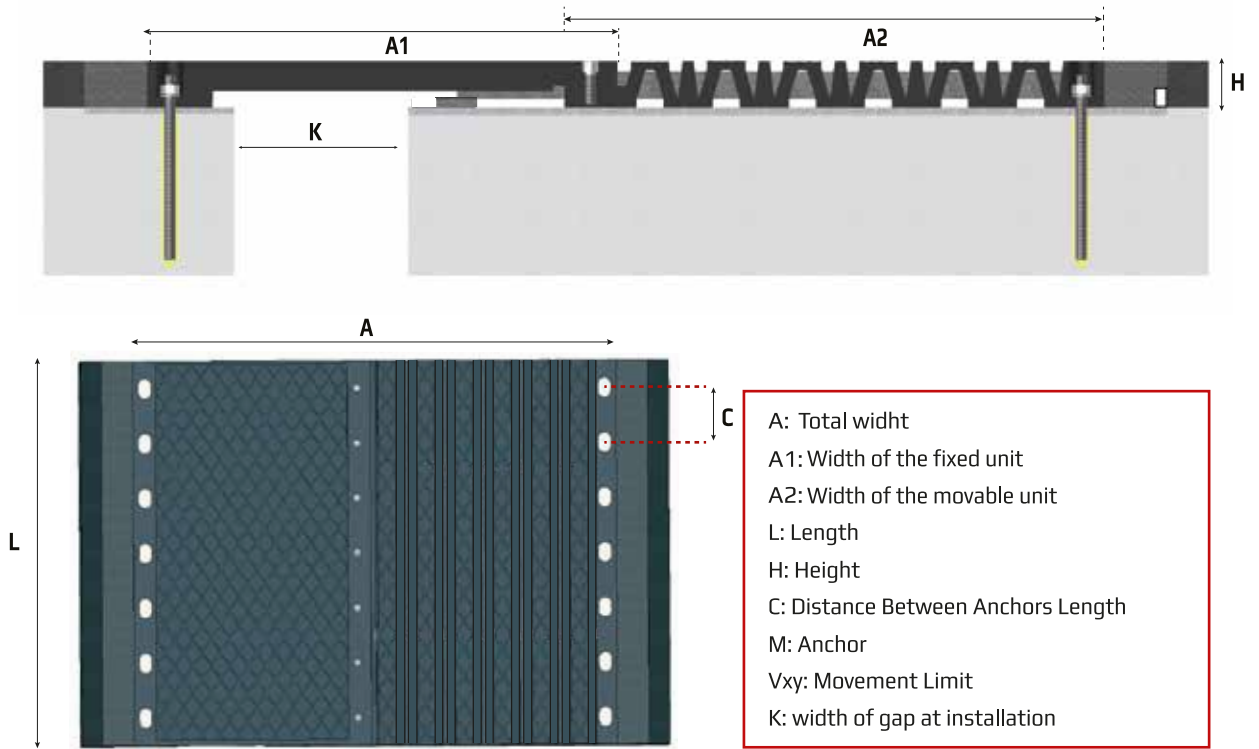


TYPE	MODEL	A (mm)	B (mm)	H (mm)	C (mm)	M (mm)	E (mm)	D (mm)	Vxy (mm)	K (max) (mm)
SEM-AL 50		272	2000	43	200	M12x200	14	220	50 (± 25)	75
SEM-AL 70		353	2000	46	250	M14x200	16	280	70 (± 35)	105
SEM-AL 80		389	2000	53	250	M16x200	18	300	80 (± 40)	115
SEM-AL 100		589	2000	56	250	M16x200	18	500	100 (± 50)	160
SEM-AL 130		470	2000	80	250	M16x200	18	370	130 (± 65)	155
SEM-AL 160		498	2000	84	250	M16x200	18	400	160 (± 80)	180
SEM-AL 250		890	2000	78	250	M20x230	24	790	250 (± 125)	300
SEM-AL 330		1107	1000	100	250	M24x300	27	990	330 (± 165)	380

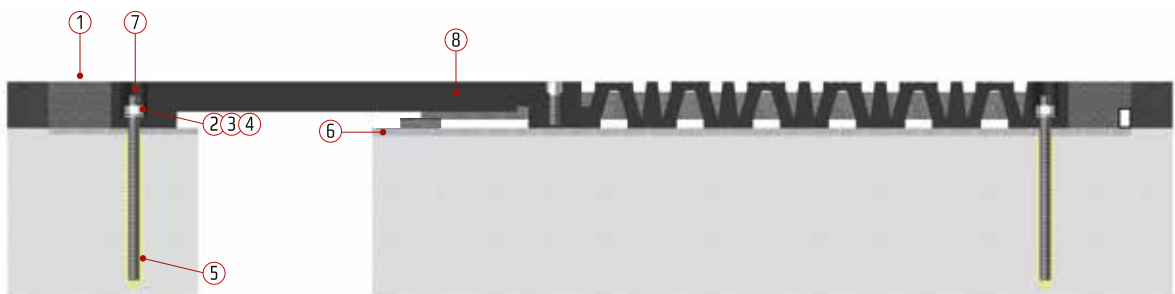
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POS	DESCRIPTION	MATERIAL
①	Transition Mortar	Epoxy grout or flexible epoxy joint filler
②	Nut	Grade 8.8 steel
③	Washer	Grade 8.8 steel
④	Anchor Bolt	Grade 8.8 steel
⑤	Chemical Anchor	Epoxy adhesive anchoring system
⑥	Leveling Mortar	Epoxy baseplate grouting system
⑦	Rubber Strip	EPDM or NBR
⑧	Sealant	Self leveling polyurethane sealant
⑨	Expansion Joints with Aluminium Cover	Rubber, Steel and Aluminium



TYPE	MODEL	A (mm)	A1 (mm)	A2 (mm)	L (mm)	H (mm)	C (mm)	MxL (mm)	Vxy (mm)	K (mm)
SEM-SIS 400		1280	670	670	1400	86	200	M20x200	+/- 200	220
SEM-SIS 500		1520	770	820	1400	86	200	M20x200	+/- 250	270
SEM-SIS 600		1760	871	949	1400	86	200	M20x200	+/- 300	320
SEM-SIS 700		2000	972	1088	1400	86	200	M20x200	+/- 350	370
SEM-SIS 800		2240	1073	1227	1400	86	200	M20x200	+/- 400	420



POS	DESCRIPTION	MATERIAL
①	Transition Mortar	Epoxy grout or flexible epoxy joint filler
②	Nut	Grade 8.8 steel
③	Washer	Grade 8.8 steel
④	Anchor Bolt	Grade 8.8 steel
⑤	Chemical Anchor	Epoxy adhesive anchoring system
⑥	Leveling Mortar	Epoxy baseplate grouting system
⑦	Sealant	Self leveling polyurethane sealant
⑧	SEM SIS Expansion Joints	Rubber and Steel

Seismic / High Movement Expansion Joints

Arsan SEM-SIS (SEM Seismic) expansion joints has 2 modules. One is steel with rubber covered which is called "fixed unit". The other module has steel reinforced rubber which accommodate the movement with its special shape. This second module is called as "movable unit".

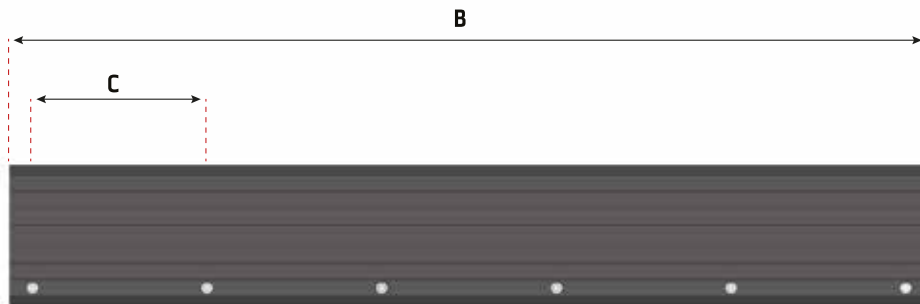
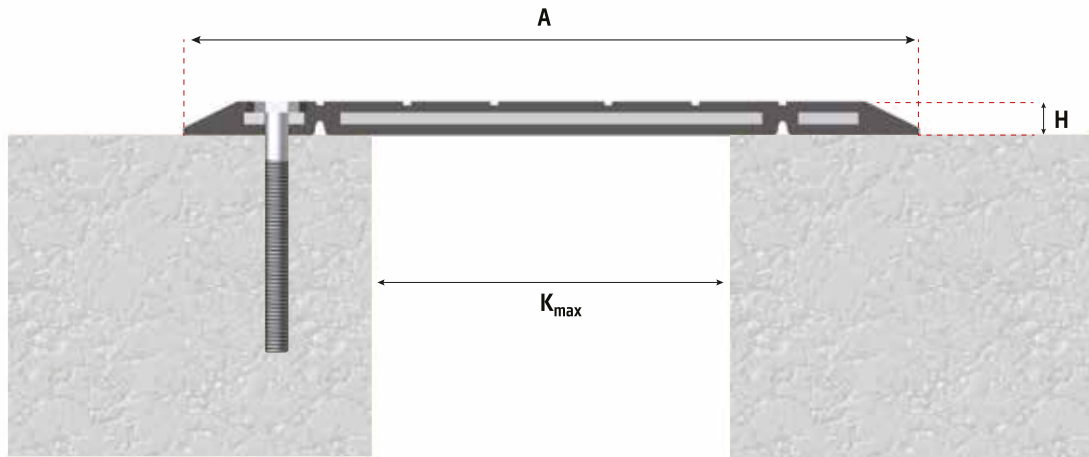
Movement capacity for SEM-SIS expansion joints starts from 400 mm and has a capacity up to 800 mm. The rubber on movable unit and fixed unit cover has a perfect abrasion resistance. This type of expansion joints are mostly used in birdges, viaducts, seismic areas which has also high dilatation gaps and high movement demand.

SEM-SIS expansion joints are the new generation for SEM expansion joint family and this type of expansion joint is the best alternative for modular expansion joints with easy installation & replacement and low maintenance.



SEM - PD EXPANSION JOINTS

SEM-PD expansion joints which are designed by ARSAN KAUCUK, provide economic, comfortable and safe usage where pedestrian traffic. SEM-PD has designed as to close the gaps from 75 mm to 225 mm. With special design by ARSAN KAUCUK, SEM-PD has been able to resist environmental impacts. Through its one side is fix and the other is free, SEM-PD allows any horizontal movements and works without effect on the frequency of structure.



TYPE	A (mm)	B (mm)	H (mm)	C (mm)	M (mm)	K _{max} (mm)
SEM-PD 35	255	2000	14	380	M10x110	75
SEM-PD 60	305	2000	14	380	M10x110	125
SEM-PD 85	355	2000	14	380	M10x110	175
SEM-PD 110	405	2000	14	380	M10x110	225

A: Width, **B:** Length, **H:** Height, **C:** Distance Between Anchors / Length, **M:** Anchor, **V_{xy}:** Movement Limit, **K_{max}:** Max Width of Gap (at the max V_{xy})



SEM EXPANSION JOINTS INSTALLATION INSTRUCTION

Cutting of paving demolition and cleaning of the slab. The cutting width must be 40-100 mm wider than expansion joint's width. You have to remove the asphalt till you see the concrete slab.

"If needed" after a through finishing, lay the rubber flashing with epoxy resin. The levels of the finished road and the height of SEM Expansion Joints need to be considered when the mortar bed and rubber flashing gets levelled.

Drilling of the holes for chemical fixing and installation of anchor bolts by hammering. The boreholes must be clean, dry and free of dust. The anchor bolts have to be shortened to the specified length to avoid that they protrude over the SEM expansion joint. Before starting drilling, SEM Expansion joint can be layed on its place. This helps to see and specify the drilling positions of the holes.

SEM Expansion joints get placed in its proposed position, so that the threaded anchors are accessible in the pockets. The SEM Expansion joints get fixed by using washer and nut. The needed torque is applied with a torque wrench. The first element must be installed at the end with the lowest level of joint. The following element is pressed against the fixed one the longitudinal tongue and groove connection before it gets fixed itself.

After a setting time of least 3 hours fittings have to be checked and if necessary tightened again.

Afterwards, the bolting pockets of SEM expansion joints can be cleaned and filled with a sealant.





Arsan®

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