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SLAB JOINT

ARMoured JOINT PROFILES

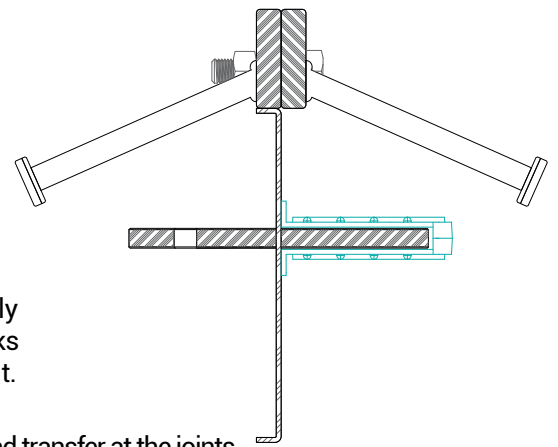


Modern and Economic Solution for Industrial Areas





WHY WE SHOULD USE SLAB JOINTS?



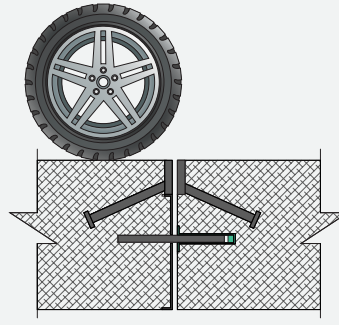
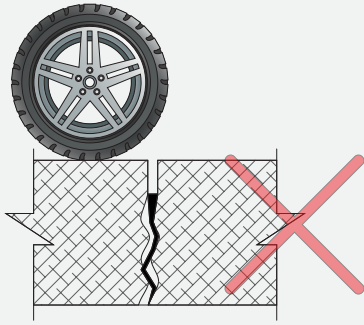
- ✓ Arfen Crack control joints are, resistant to heavy loads, which can be easily applied in industrial floor concrete applications, minimize uncontrolled cracks by providing equal load distribution in the concrete section around the joint.
- ✓ Unlike traditional systems, it is a modern system that can provide continuous load transfer at the joints.
- ✓ While it allows easy, precise and lower cost applications, it also prevents breakage and deformations on the joint edges
- ✓ High precision cold drawn blades used in production provide a problem-free industrial floor use throughout the life of the structure.
- ✓ Does not require additional labor and equipment during and after application.
- ✓ It is a system that does not require additional costs, as it does not require operations such as joint cutting and joint cleaning.



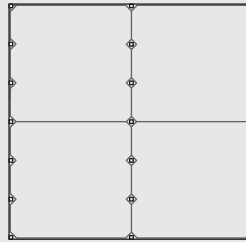
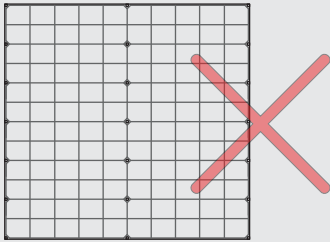
Utilized Resources

Guide to design of slabs on ground ACI American Concrete Institute
Design of concrete pavement

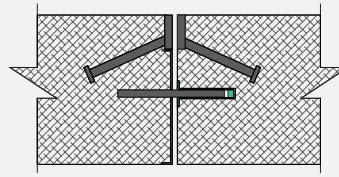
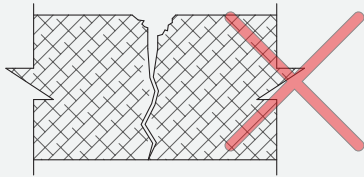
WHAT ARE THE ADVANTAGES?



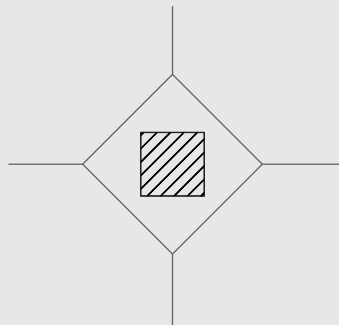
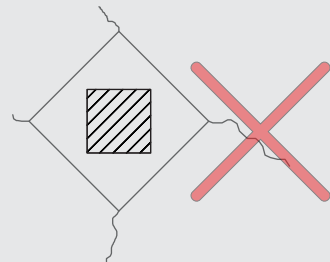
CONTINUOUS AND
SAFE LOAD TRANSFER



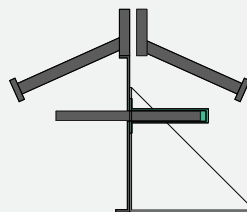
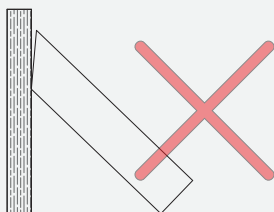
ACCORDING TO THE TRADITIONAL
METHOD 90% LESS JOINT
APPLICATION AND SEAMLESS
CONCRETE SURFACE



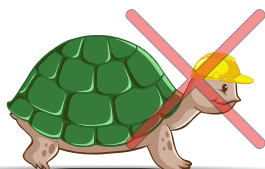
HIGH COMFORT



PREVENT UNCONTROLLED
CRACK OCCUPATION



CONCRETE CASTING ON 900-1000 m²
AREA IN A SINGLE TIME
WITHOUT THE NEED FOR MOLD



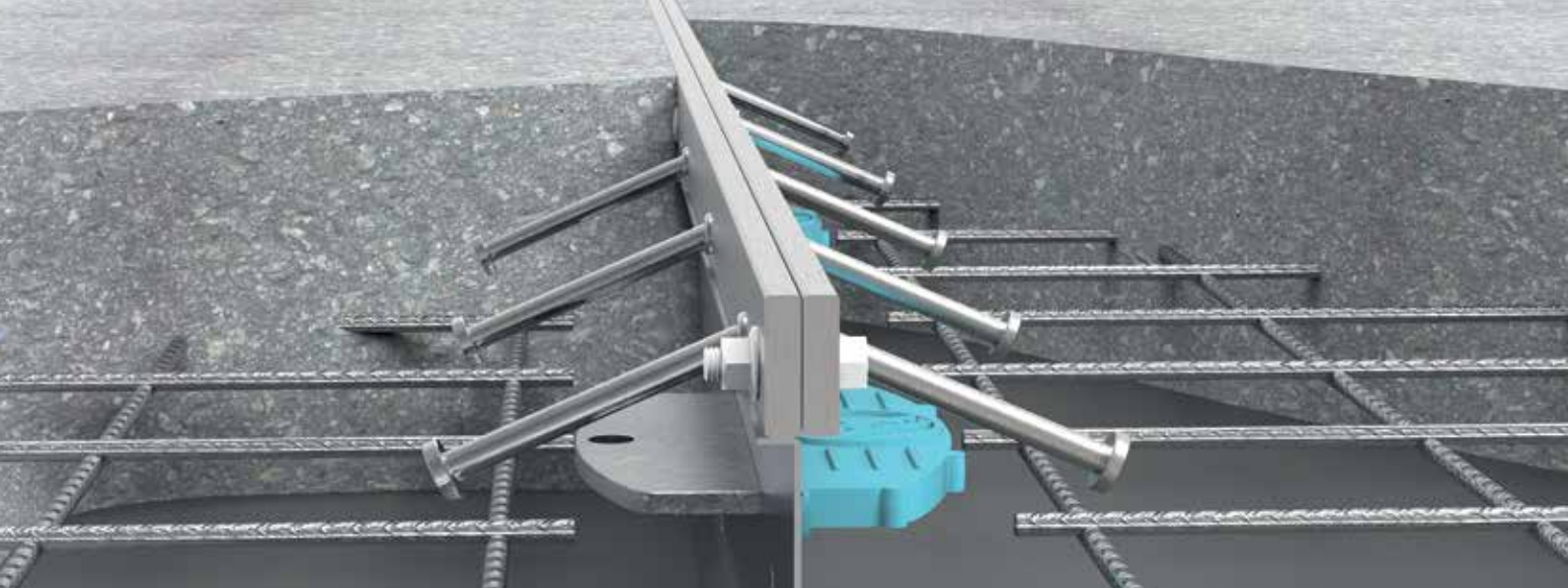
QUICK AND EASY INSTALLATION



Figure-1

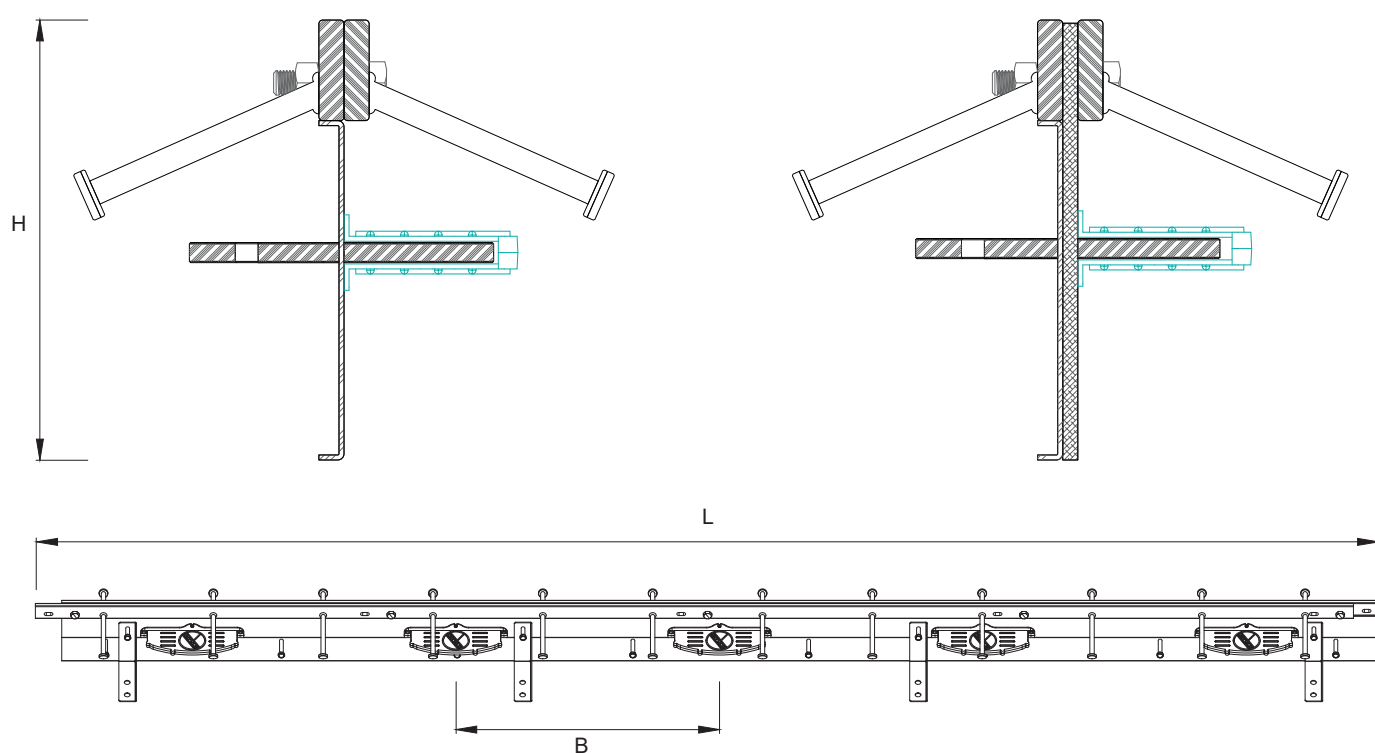
Figure-2

Arfen Slab Joint profiles is placed at the right level with the right distances before concrete casting industrial floor. During concrete casting, the concrete undergoes a volumetric shrinkage between 0.04% and 0.07%. This shrinkage breaks the plastic bolts on the slab joint and the joint is formed by itself. (Figure-2)



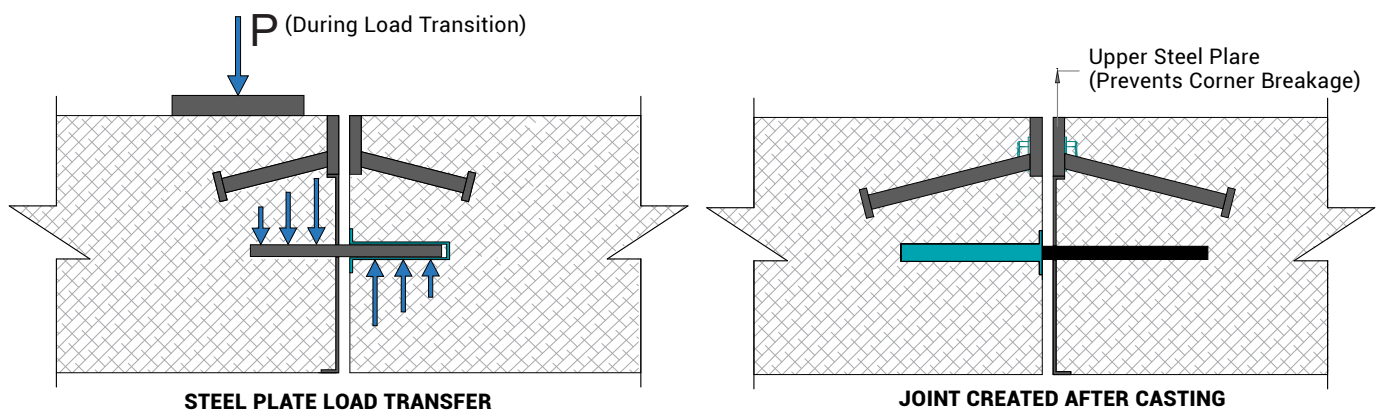
SLAB JOINT SECTION

6 MM SLAB JOINT WITH POLYETHYLENE GASKET

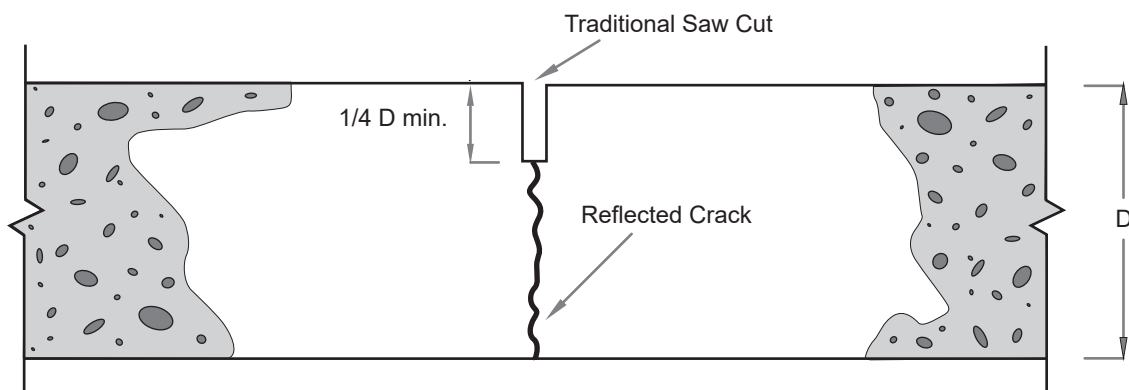


ARFEN Slab joint, provides less joint formation compared to the traditional joint cutting method. Instead of 5x5 mt it provides 25 - 30 mt interval joints. This reduces the total joint amount to approximately 10 times. Such crack control joints are recommended by American Concrete Institute (ACI) instead of joint cutting.

PRODUCT CODE	SLAB JOINT LENGTH (L mm)	SLAB JOINT HEIGHT (H mm)	RECOMMENDED DEPTH (mm)	LOAD PLATE CENTRE (B mm)
SJ 115	3000	115	115 - 140	600
SJ 140	3000	140	140 - 165	600
SJ 165	3000	165	165 - 185	600
SJ 185	3000	185	185 - 235	600
SJ 235	3000	235	235 - 285	600
SJ 285	3000	285	285 - 330	600

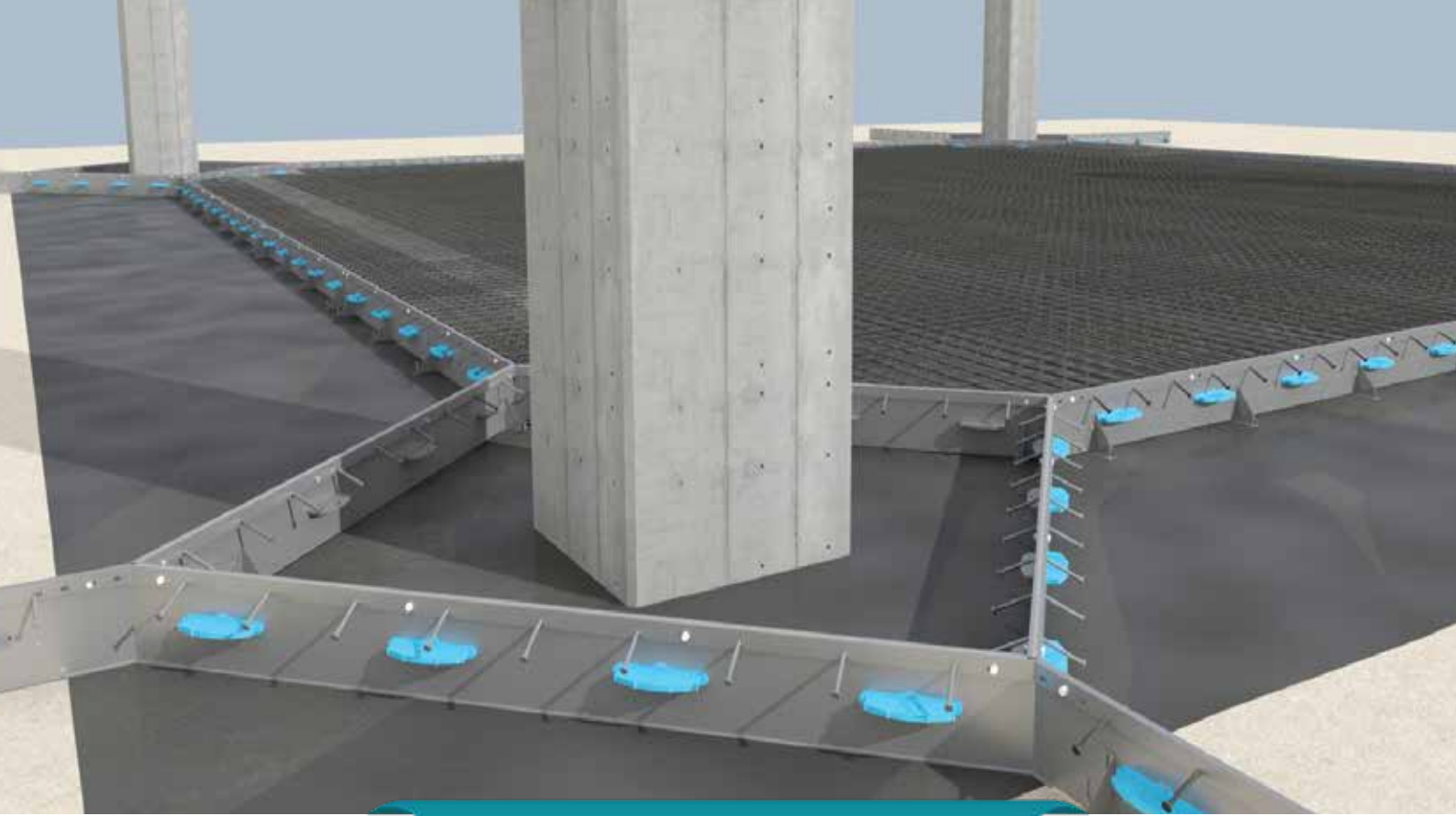


Up to 24 hours after the concrete casting, in the traditional method of jointing, the slab concrete is cut in widths 24 to 30 times the slab concrete thickness,
During a time period between 4 and 18 hours after the concrete is poured, internal stresses begin to form cracks by breaking the bond between aggregate and cement at the weakest points



» BEHAVIOR OF CONCRETE AFTER CUT

ARFEN Slabjoints, provides joint formation during concrete casting. After this method for concrete casting, weak lines are created in predetermined places and the concrete is allowed to crack in a straight line along this line. Inside of the joint, in order to prevent vertical movements and ensure load transfer, 8 mm steel plates made of S355JR (St52) are placed in the sliding slot in such a way that they do not hinder horizontal movement, with 600 mm intervals. Joints are formed between the first day and 2 or 3 weeks after concrete casting, without the need for additional cutting and molding.



APPLICATION OF COLUMN ISOLATION JOINT

Special precautions need to be taken at column edges, one of the most critical areas in industrial floor applications. The best method for this is to create a joint around the column. In this way, the column is isolated from the ground concrete and the settlements that will occur in the column are prevented from affecting the ground concrete. In isolation joints, the joint gap is produced ready-made, unlike flat parts.

- ✓ New Generation
- ✓ Fast and Sensitive
- ✓ High Performance
- ✓ Durable
- ✓ Long Lasting

ARFEN SLAB JOINT crack control joints, they are steel expansion joints that can be easily applied on industrial floors, minimize uncontrolled crack formation, and extend the service life of slab concrete that is resistant to heavy loads. SLABJOINT joint profiles designed for various concrete heights are produced as black sheet or hot-dip galvanized and stainless steel (SS304 grade).

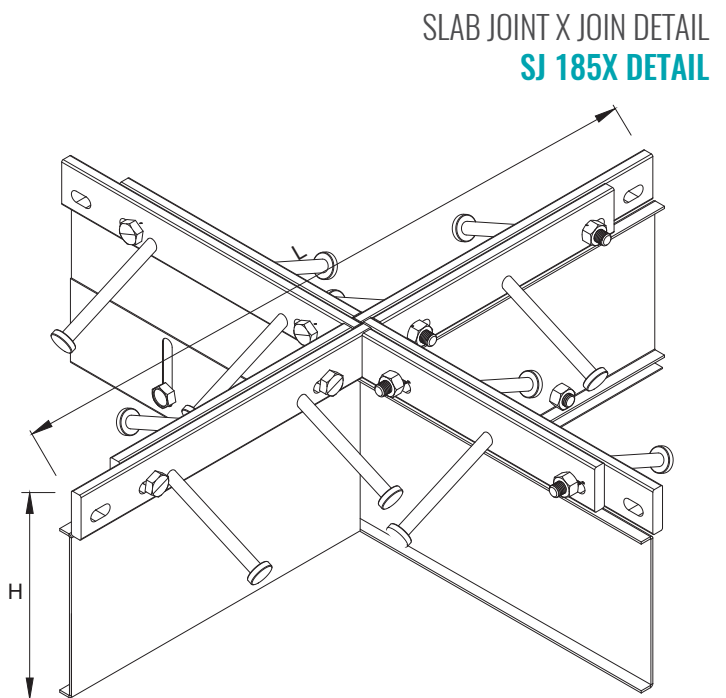
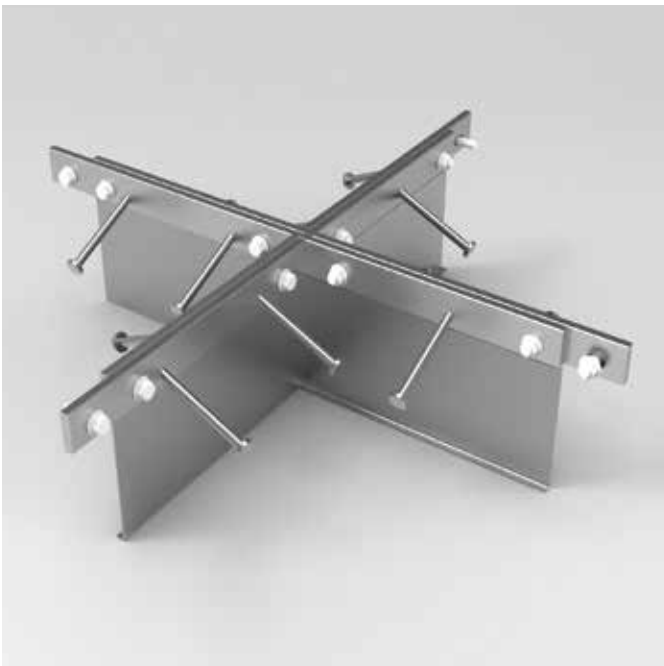
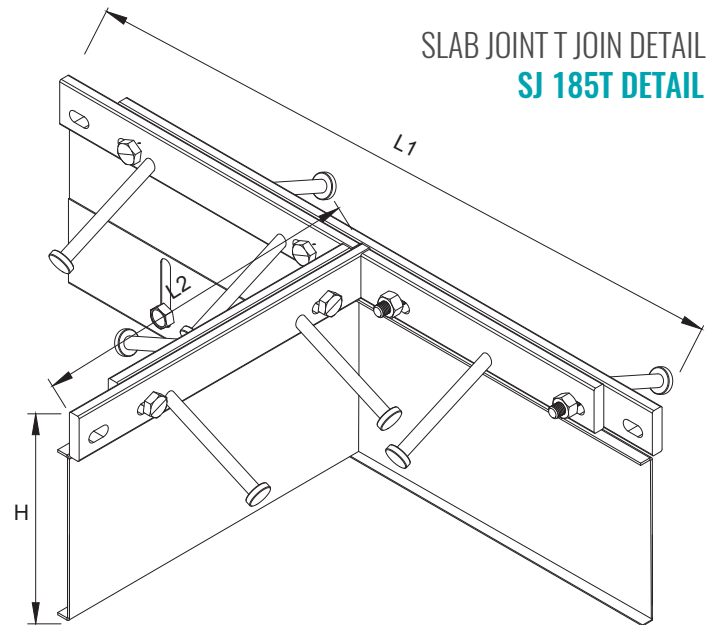


JUST AFTER CONCRETE CASTING



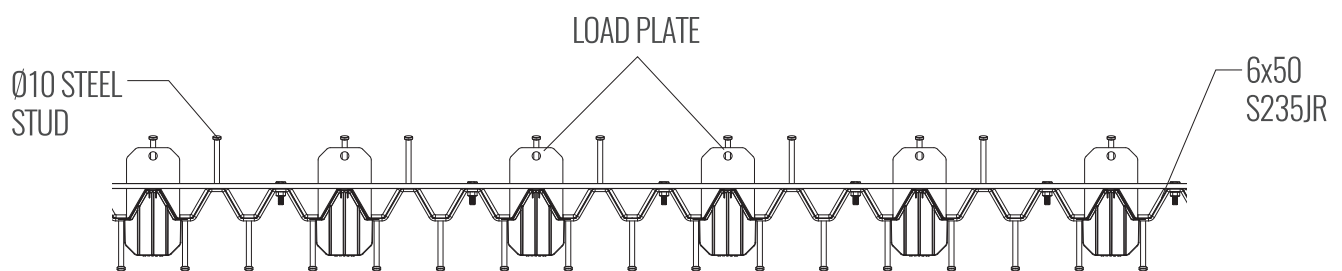
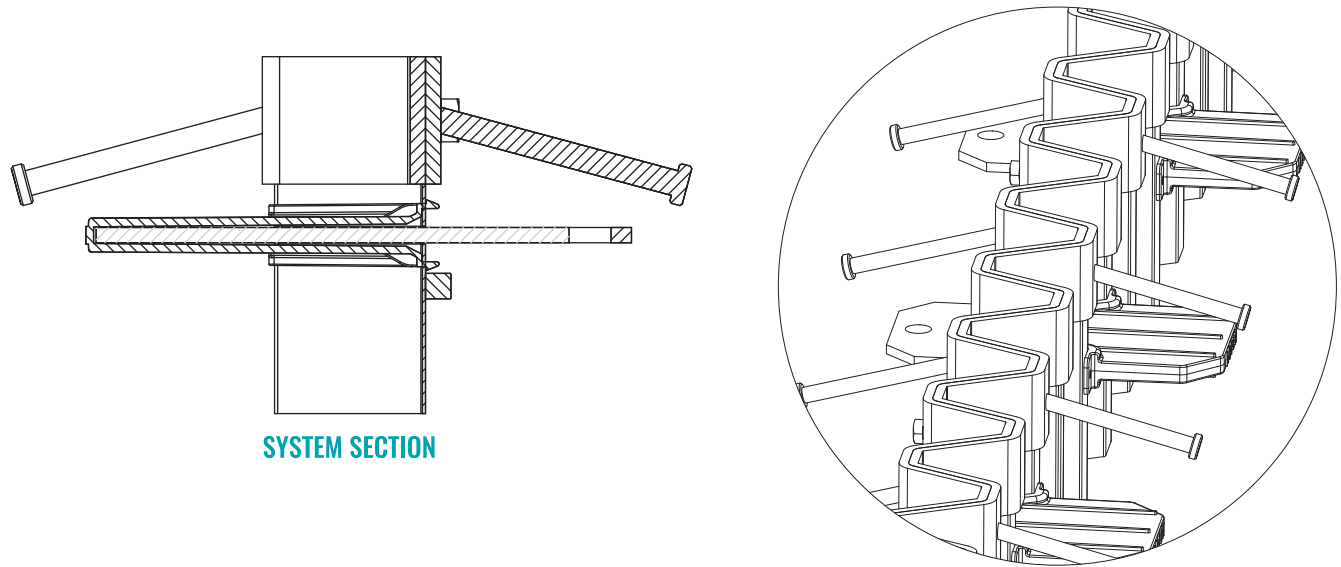
2-3 WEEKS AFTER CONCRETE CASTING

JOINT ACCESSORIES



TYPE	HEIGHT(H)	WIDTH (L1)	WIDTH (L2)	WEIGHT
SJ 115T	115	500	250	6,2 kg
SJ 140T	140	500	250	6,3 kg
SJ 165T	165	500	250	6,7 kg
SJ 185T	185	500	250	6,9 kg
SJ 235T	235	500	250	7,4 kg
SJ 285T	285	500	250	8 kg

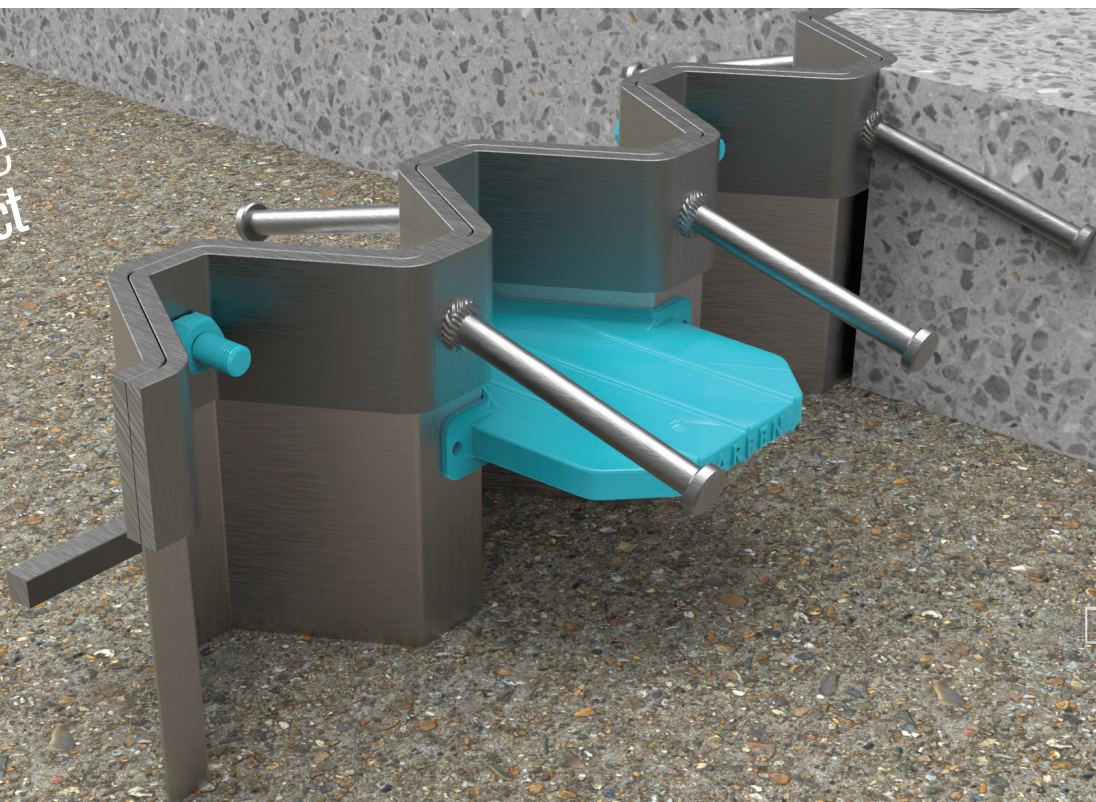
TYPE	HEIGHT(H)	WIDTH (L)	WIDTH (L)	WEIGHT
SJ 115X	115	500	500	8 kg
SJ 140X	140	500	500	8,4 kg
SJ 165X	165	500	500	8,8 kg
SJ 185X	185	500	500	9 kg
SJ 235X	235	500	500	9,9 kg
SJ 285X	285	500	500	10,7 kg

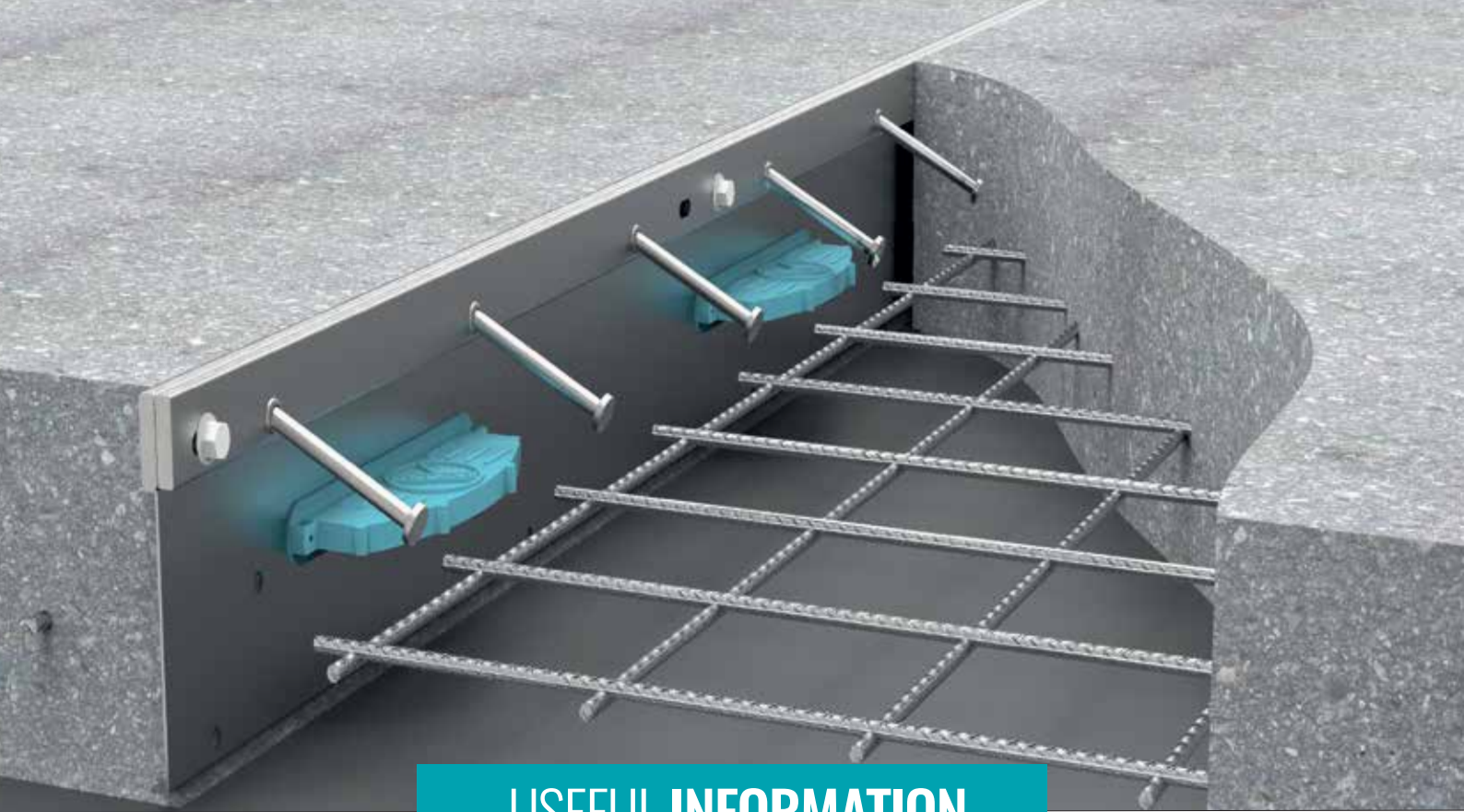


SLAB JOINT TRAPEZOIDAL CRACK CONTROL JOINTS

Because of the trapezoidal superstructure, it is a control joint that prevents the formation of sound and impact in case the shrinkage crack control joints are opened more than expected. Suitable for use on floors subject to light or heavy loads. It provides a quiet working environment because of its structure that eliminates the impact effect. It also prevents concrete edges and forklift wheels from being damaged.

less noise
less impact





USEFUL INFORMATION

Steel surface is produced as standard. Our products with dip galvanized coating are recommended in highly corrosive areas. Products with stainless steel blades can be used in food and pharmaceutical facilities. In airport constructions, if the slab concrete thickness is less than 30 cm, the joint gap can be taken as between 9 and 12 mm, and if it is more than 30 cm, the joint cutting interval can be taken as 15 mm. Although the shrinkage coefficient of the concrete is taken as $9.9 \times 10^{-6} / ^\circ\text{C}$, the class of the concrete may vary between $7 \times 10^{-6} / ^\circ\text{C}$ and $12 \times 10^{-6} / ^\circ\text{C}$ depending on the granulometric structure and pouring conditions. Shrinkage of a concrete mass of size L:

$$\Delta L = C \cdot \Delta T \cdot L$$

L : Length of concrete slab in the direction of extension (mm)

ΔT : ($T_2 - T_1$) T_2 : Highest ambient temperature ($^\circ\text{C}$)

T_1 : Lowest ambient temperature ($^\circ\text{C}$)

ΔL : Total elongation or shortening (mm)

C: Coefficiency: 9.9×10^{-6}

SAMPLE of CALCULATION:

Assume; slab concrete dimensions 30 mt x 30 mt.

L: 30 mt x 100 x 10 = 30000 mm

Let's find the change in length in one direction.

T_2 : 40°C T_1 : -5°C

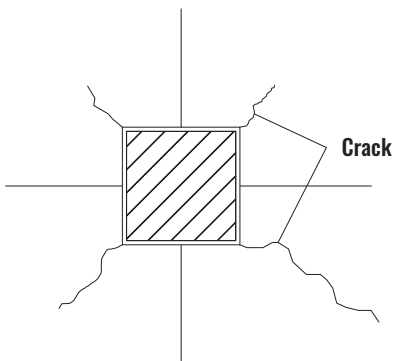
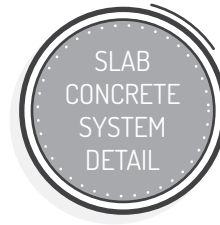
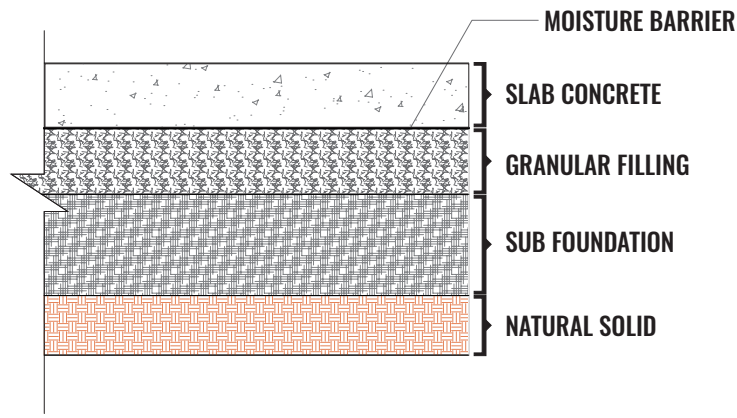
ΔT : $40 - (-5) = 45^\circ\text{C}$

$$\Delta L = 9.9 \times 10^{-6} \cdot \Delta T \cdot L$$

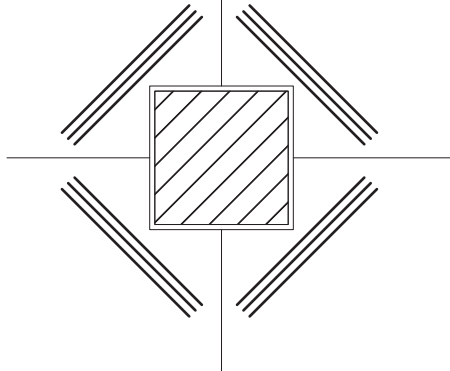
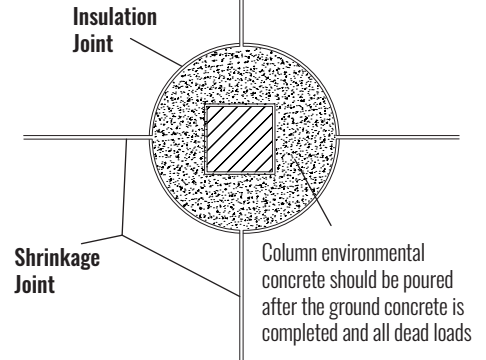
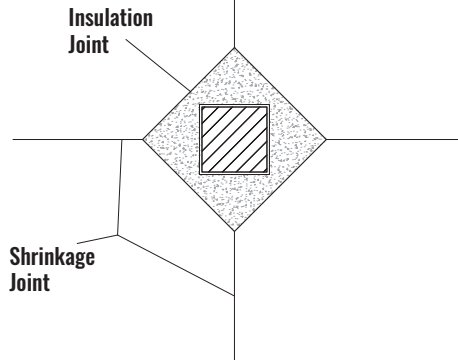
ΔL : $9.9 \times 10^{-6} \cdot 45 \cdot 30000 = 13.36 \text{ mm}$

(Length reduction independent of friction with the ground)





When there is no joint, cracks occur in the corners



At least 20 mm thick polyethylene around the column
Plate or styrofoam will be applied, and diagonally cross reinforcements
will be connected to the upper reinforcement as above.



ISSUES TO BE CONSIDERED IN APPLICATION

- ✓ Arfen Slab Joint should be placed upright.
- ✓ The height of the joint should be at least 10-15 mm lower than the application height.
- ✓ Before starting the slab concrete casting, a casting plan should be made and the joints should be placed accordingly.
- ✓ Slab Joint placement should be started from the additional parts or after the column isolation joints are placed, if it will be applied.
- ✓ If elements such as T or X will not be used, assembly should be started after the joint is formed with polyethylene sheet or styrofoam in the column or wall composition.
- ✓ Spirit level, Nivo, Rope, welding machine and cutting motor should always be available in the application area.
- ✓ Reinforcement irons should be used at least 5 pieces in one joint. By using 14-16 mm diameter irons, the side where the first concrete will not be poured should be reinforced against the concrete pressure.
- ✓ The upper blades should be connected to each other by means of bolts and wing nuts so that there is at least 2 mm clearance between the two Slab Joint length profiles.
- ✓ Care should be taken to vibrate these parts so that there is no gap under the load plates during concrete casting.
- ✓ In slab joint application, concrete can be poured on both sides simultaneously if desired. Segregation and weak points due to water leakage in space areas at bottom can be prevented during concrete pouring by closing them with the adjustable skirt profile and support apparatus specially produced by our company.





ADJUSTABLE SUPPORT APPARATUS



SETTING PLATE
(OPTIONAL)



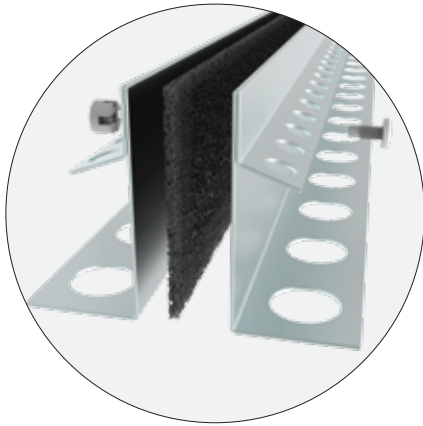
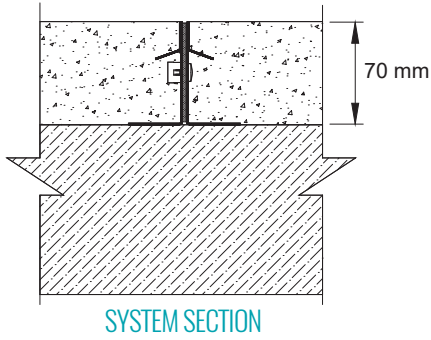
SET PLATE
SUPPORT
APPARATUS
(OPTIONAL)

Arfen Slab Joint Crack Control and Shrinkage Joints are fast and economical with specially produced mounting apparatus. and precisely applied.



SJ 70

SCREED CRACK CONTROL JOINT



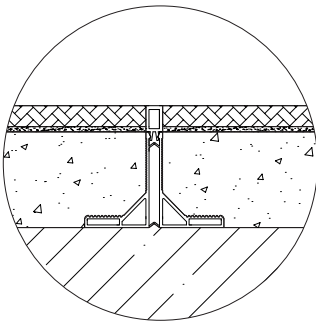
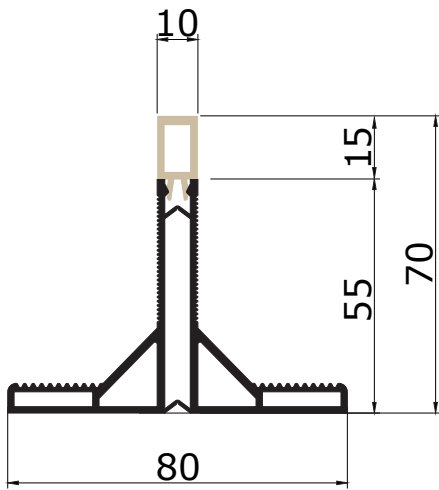
SCREED CRACK CONTROL AND EXPANSION JOINTS

They are joints that are used to prevent uncontrolled crack formation and breakage of the edges of the joints, especially in industrial floor applications with surface hardeners, on factory floors and in heavily used parking areas. It is preferred on industrial floors with its structure that does not require mold and reduces the amount of joint. Mastic is applied directly after the polishing process.



DP70

(70 mm Height Thermal Expansion Joint Profile)



DP70 THERMAL EXPANSION JOINT PROFILE

DP70 It is a thermal expansion joint profile that automatically determines the height of the screed, which provides joint formation during the start of marble, granite, ceramic applications. The top can then be filled with our thermal expansion joints or with mastic.



Placed at the correct elevation with fresh mortar.



At least one day later, the screed is poured at the planned thickness.



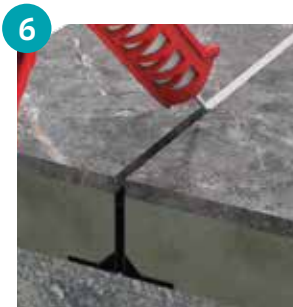
Joint protected until ceramic stage.



Ceramic or marble applied.



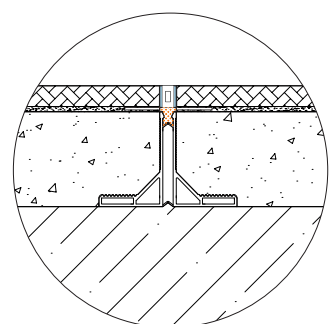
At least one day later the top hard plastic is removed.



Joints are filled with suitable joint sealant or standard wedge joint profile



Many years of trouble-free use.





Screed Joint Thermal
Expansion Joint Profiles



Screed Joint
Control Joints

Slab Joint
Crack Control Joints

