



SLAB JOINT PROFILES







Modern And Economic Solution For Industrial Areas

www.arfen.com



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.
- \checkmark 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 İndustrial Design of concrete pavement





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

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Figure-2

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Figure-1

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breaks the plastic bolts on the slab joint and the joint is formed by itself. (Figure-2)





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





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





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.

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,



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 Sensetive

✓ 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







SLAB JOINT X JOIN DETAIL SJ 185X DETAIL



TYPE	HEIGHT(H)	WIDTH (L)	WIDTH (L)	WEIGTH
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
SJ235X	235	500	500	9,9 kg
SJ285X	285	500	500	10,7 kg



TYPE	HEIGHT(H)	WIDTH (L1)	WIDTH (L2)	WEIGTH
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
SJ235T	235	500	250	7,4 kg
SJ285T	285	500	250	8 kg





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 m, and if it is more than 30 cm, the joint cutting interval can be taken as 15 m. Although the shrinkage coefficient of the concrete is taken as 9.9 x10 / C, the class of the concrete may vary between 7x10⁶/°C and 12x10⁶/°C depending on the granulometric structure and pouring conditions.

Shrinkage of a concrete mass of size L:

ΔL= C. ΔΤ. L

L : Length of concrete slab in the direction of extension (mm) $\Delta T: (T_2-T_1) \ T_2: \text{Highest ambient temperature (°C)} \ T_1: \text{Lowest ambient temperature (°C)}$ $\Delta L: \text{Total elongation or shortening (mm)}$ C: Coefficiency: 9,9x10⁶

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. $T_2: 40 \text{ C} \quad T_1: -5^{\circ}\text{C}$ $\Delta T: 40-(-5)=45^{\circ}\text{C}$

ΔL= 9,9 x10⁻⁶ ΔT. L

 $\Delta L:$ 9,9 x 10 $^{\circ}.$ 45 . 30000 = 13.36 mm (Length reduction independent of friction with the ground)



Acceptable Application



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.



APPLICATION

- ✓ Arfen Slab Joint should be placed upright.
- \checkmark 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.







SJS SERIES - SINUSOIDAL SLAB JOINT

Arfen Sinusoidal Slab Joint provides a superstructure design that provides a quiet working environment during the passage of heavy vehicles such as forklifts and prevents damage to concrete joint edges. This system provides these advantages with its sinus wave shaped structure while minimizing vertical displacements between slabs through load bearing plates. It also provides a more balanced load distribution by transferring wheel loads between the slabs. These specifications both increase work safety and enhance the durability of slab and flooring materials.









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.











SYSTEM SECTION

REPAIR JOINT

Damaged joints pose a significant problem for all factories and warehouses. These types of joints, which have been opened using traditional methods, begin to deteriorate over time due to the impact of passing wheel loads, material drops, and similar situations. What starts as a small crack can escalate into serious issues over time.

However, advancing technology is leading to the replacement of the carrier vehicles used in factories and/or warehouses with more modern ones. Tire-wheel and gasoline-powered forklifts are being replaced by electric, small, solid-wheel ones. These types of carriers subject joints to more impact compared to tire-wheel ones, further accelerating damage. When damage begins to occur in these joints, quick repairs are necessary. However, to ensure sustainability, a more accurate and long-lasting system should be chosen instead of mortar for repairs. Repaired joints using only mortar will eventually experience this type of damage again under repeated loads. This is where the Arfen Repair Joint system comes into play. It provides a permanent solution against the damage caused by repetitive wheel loads and impact effects on industrial floors and joints, while also reducing sound and vibration thanks to its trapezoidal shape.

Benefits

- Provides a permanent solution for joint repairs.
- Protects joints against impact thanks to its trapezoidal shape.
- Reduces noise and vibration.
- · Does not require maintenance after installation









SYSTEM SECTION

SJ90 - CRACK CONTROL JOINTS

Arfen Slab Joint SJ90 is a product that can create widely spaced joints in low-height concrete flooring and prevent concrete corners and edges from being damaged under repeater wheel loads. Also increases durability by transferring wheel loads between different slabs. It ensures the longevity of floor concretes and reduces maintenance costs . Arfen Slab Joint SJ90 can be used in a variety of applications from industrial to commercial areas.





40 mm x 10 mm S235JR DOWEL PLATE





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.



Ceramic or marble applied.



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



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



Joint protected until

ceramic stage.

3

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



Many years of trouble-free use.





SJ80 - 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.











ARFEN İNŞAAT VE YAPI TEKNOLOJİLERİ SAN. TİC. A.Ş.

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