

Flexible Sealing of Floor Joints exposed to

Floor joints are exposed to a high level of mechanical stress, especially in public and industrial areas, due to the movement of people or vehicles and special cleaning processes (such as high-pressure cleaning). In some cases they must also withstand chemical stress and/or exposure to weather conditions. For this reason, special epoxy resin-based jointing mortars are often used in joints between elements such as ceramic tiles, or concrete floors are coated with a layer of epoxy resin or polyurethane.

When forming flexible joints, it is important to select the correct joint compound for the floor joints and for the connecting joints between floor and wall. For these OTTO supplies the floor silicone OTTOSEAL® S34, which has the following special properties:

- neutrally cross-linking
- high resistance to mechanical stress, high notch and tear resistance
- excellent chemical resistance
- unusually high resistance to temperatures of up to +265 °C
- very resilient to effects of weather, aging and UV exposure
- non-corrosive
- for areas with traffic, e.g. forklift trucks (as defined in the IVD guidelines Nr. 1)
- resistant to high-pressure mechanical cleaning

OTTOSEAL® S34 is suitable for the sealing of floor and connecting joints between concrete elements, coated concrete, ceramic surfaces and metals exposed to the high chemical stress which is to be found in dairies, commercial kitchens, abattoirs or food and drinks factories. It is also suitable for floor and connecting joints in areas subject to high mechanical stress, such as warehouses and production halls, underground car parks, parking decks, workshops, washing installations and courtyards. However, for seals between natural stones such as granite paving, we recommend OTTOSEAL® S70.

Practical experience has shown that, with the use of OTTOSEAL® S34 rather than a standard sealant, the durability of the joint is significantly increased. Due to the high resistance - to mechanical stress, to very high temperatures and to chemicals - floor joints last longer with OTTOSEAL® S34! Quite apart from its high mechanical strength, OTTOSEAL® S34 is so flexible that mechanical tension and movement are continuously stabilised.



Sealants • Adhesives

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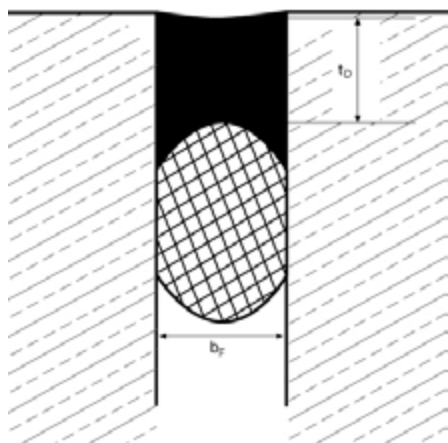
of Floor Joints exposed to

Correct formation of floor joints

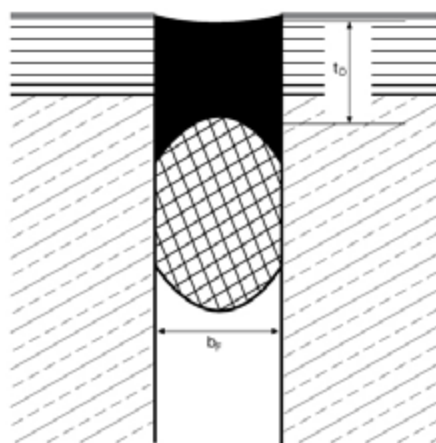
Forming a floor joint correctly depends on both optimal dimensions and the use of the correct sealant and other materials. The dimensions are determined by the joint spacing, the expected mechanical stress and the thermal expansion of the construction materials. These factors should be taken into consideration when planning the joint. The OTTO PE-B2 (the closed-cell PE back-up foam rod) is the ideal tool for establishing professional dimensions of the sealant and therefore the joint. The sealant does not bond with the OTTOCORD PE-B2 (PE back-up rod) and so prevents the formation of a three-sided bond. The illustrations 1-5 demonstrate in which way a back-up rod can be used for the completion of joints in different situations.

Illustrations of joints in different situations

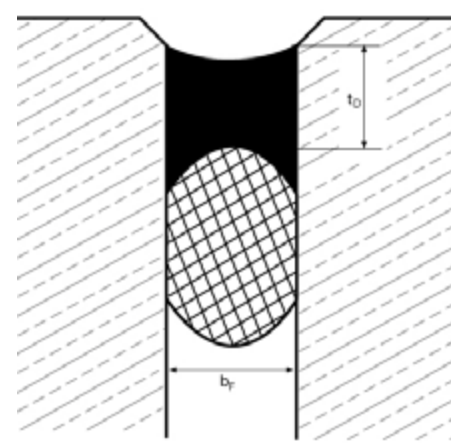
Source of diagrams: IVD Guidelines Nr.1 (Pictures 1-5)



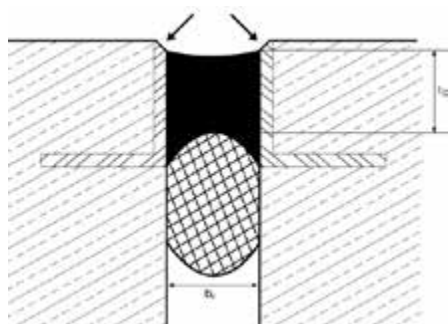
1: Joint for movement of persons



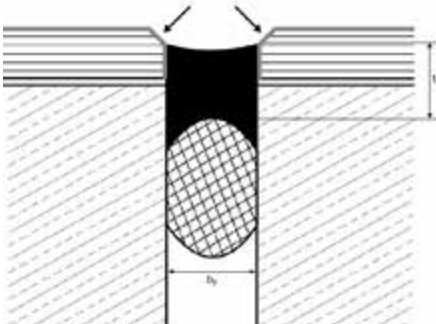
2: Joint in surface layer for movement of persons



3: Joint with chamfer for movement of vehicles



4: Joint with chamfered edge profiles for movement of persons



5: Joint with chamfered surface layer for movement of persons



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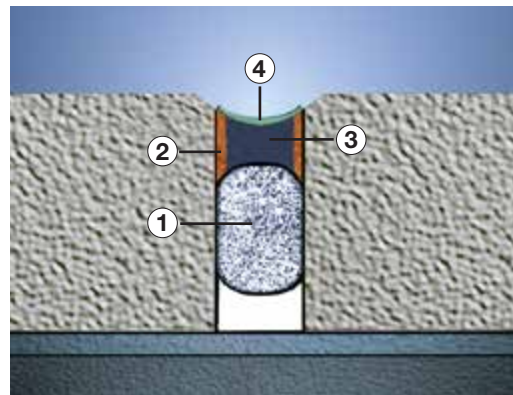
Joins exposed to mechanical stress – movement of vehicles

OTTOSEAL® S34 is particularly suitable for areas with vehicle traffic due to its resistance to high-pressure mechanical cleaning and the high notch and tear resistance. Floor joints subject to vehicle loads should be chamfered or edge protection profiles used to protect the edges of concrete and screed and the sealant should be inserted at a lower level.

See the following diagram.

Forming a floor joint for vehicle load:

1. OTTOCORD PE-B2 back-up rod
2. OTTO Primer
3. OTTOSEAL® S34
4. OTTO Smoothing Agent

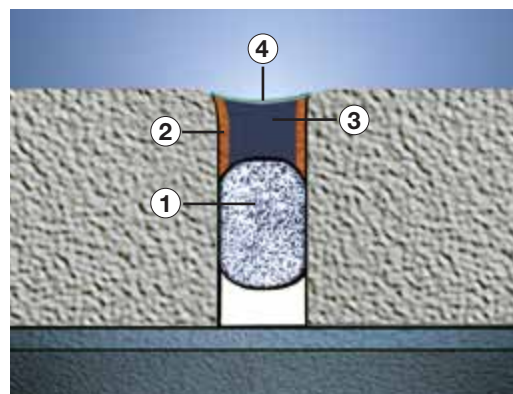


Joins exposed to chemical stress – movement of persons

It is advisable to insert the sealant flush with the surface in such joints in order to reduce the risk of tripping or accumulation of fluids.

Forming a floor joint for movement of persons:

1. OTTOCORD PE-B2 back-up rod
2. OTTO Primer
3. OTTOSEAL® S34
4. OTTO Smoothing Agent



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The following dimensions are valid for joints in, respectively, interior and exterior areas as defined in the IVD Guidelines Nr.1:

Joint spacing	Joint width in interior areas	Joint depth in interior areas
2,0 m	10-12 mm	10 mm
4,0 m	10-12 mm	10 mm
6,0 m	14-16 mm	12 mm

Joint spacing	Joint width in exterior areas	Joint depth in exterior areas
2,0 m	10-12 mm	10 mm
3,0 m	14-16 mm	12 mm
4,0 m	18-20 mm	15 mm

This table is a guide for the user to check the minimum joint width and is not intended as an assessment basis. The joint dimensions are determined by the total amount of stress and the physical properties of the adjoining construction elements. The engineer who calculates the dimensions must also take into account the shrinkage of the construction materials, the variations in temperature and the temperature of the compounds at the time of installation.

The joint width of expansion joints in floors should, as a rule, be at least 10 mm. The joint depth should be restricted to a maximum of 15mm by backfilling the joint.

Floor joints having a width exceeding 15 mm in areas with or without vehicle traffic should either be covered with protective plates or the sealant otherwise protected from mechanical damage. In addition to the special silicone sealant, OTTO-CHEMIE supplies primers which are specialised for particular contact materials and substrates. This ensures a durable bond between the OTTOSEAL® S34 and the substrates, even when the joints are exposed to extreme stress such as high-pressure cleaning. In order to keep the seals of the joints functional for as long as possible, cleaning processes with high-pressure equipment should be carried out in a way that does not damage the sealant. Modern high-pressure cleaners have the capacity to produce such immense water pressure that even hard rubber car tyres can be destroyed. It is important to bear this in mind when cleaning joints which have been sealed with soft and supple rubber material. Therefore do not „aim“ at the joints using high pressure and a hard jet of water but keep a distance of at least 50 cm between the nozzle and the joint. Better still, clean these areas using lower pressure and a wider jet of water.



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