

Technical Bulletin # 662D

Product Description

To maintain alignment of grouted equipment, most epoxy machinery grouts are designed to be rigid and to resist movement. As a result, stresses developed during cure and subsequent temperature changes that may result in cracking. Cracks do not usually impair the grout's ability to support the equipment but cracks are undesirable because of both their cosmetic appearance and the fact that they allow oil and water to migrate down to the concrete substrate and destroy the concrete. Expansion joints will also help reduce the possibility of cracking on long grout pours.

Locating Expansion Joints

After the concrete surface has been chipped and the forms erected, the expansion joints may be installed. Expansion joints should be located every 1m to 2m (3-ft to 7-ft), depending on the length and width of the foundation. Placement also depends on the grouting material used. When using CHOCKFAST Blue on long pours, divide the pour into sections not exceeding 3'-6" (1.1m) in length. When using CHOCKFAST Red or ESCOWELD 7505E/7530 pours should not exceed 7 ft x 7 ft (2 m long x 2 m wide). When using CHOCKFAST Blue on top of CHOCKFAST Red install the expansion joints as you would for CHOCKFAST Blue. See Technical Bulletin 642 for additional information on installing grout.

Expansion joints should be positioned so as not to interfere with soleplates, chocks or anchor bolt locations. For best results, always consult your Chockfast Grouting Systems representative or ITW Polymer Technologies about expansion joint design and location.

Install expansion joints on the concrete foundation only after the surface of the foundation is properly prepared and cleaned. As far as possible all concrete vulnerable to contact with oil or other harmful liquids should be coated with IMPAX 2001 or IMPAX 6700 prior to installing the expansion joints or pouring grout.

Construction Materials

There are a number of materials that can be used to construct an expansion joint. The primary material should be 1" to 2" (24 mm to 50 mm) thick. Redwood, Styrofoam or Ethafoam make excellent expansion joint materials. They are resistant to water and oil, and are easily compressible.

Ethafoam 220 skinless (Made by Dow Chemical) is a stiff closed-cell foam sheet. While this particular foam is recommended other rigid neoprene or urethane foam sheets may also be used. A suitable thickness is 1" (25mm). The faces of the foam sheet must be must be roughened by sanding so the epoxy will bond to it.

Styrofoam is probably the most popular as it is easily obtained, sufficiently rigid and simple to fit. Unfortunately it is not resilient or oil proof, so a method of sealing it on top and bottom must be provided.

Sealing Expansion Joints

It is very important that expansion joints are oil, chemical and water tight. For this reason, we recommend the use of both a primary and secondary seal on the expansion joint. The primary seal is located at the top of the joint and the secondary seal is located at the bottom of the joint. Removing some or all of the foam or wood and replacing it with Expansion Joint Compound creates the primary seal. All of the Styrofoam may be removed with a solvent if desired, but this is not essential. It is sufficient to remove only the top 1/2" (12mm).

A secondary seal or oil barrier is formed at the epoxy/concrete interface. This secondary seal is made from a mixture of one (1) part Expansion Joint Compound and four (4) to seven (7) parts dry blasting sand. The mixture is applied on top of the concrete 3" (75 mm) wide and 1" (25 mm) thick along the area to receive the expansion joint. The expansion joint material is then pressed into this mixture to a depth of 1/2" to 3/4" (12 mm to 18 mm). The expansion joint compound and sand must be fully cured before pouring the grout so that it can support the expansion joint.

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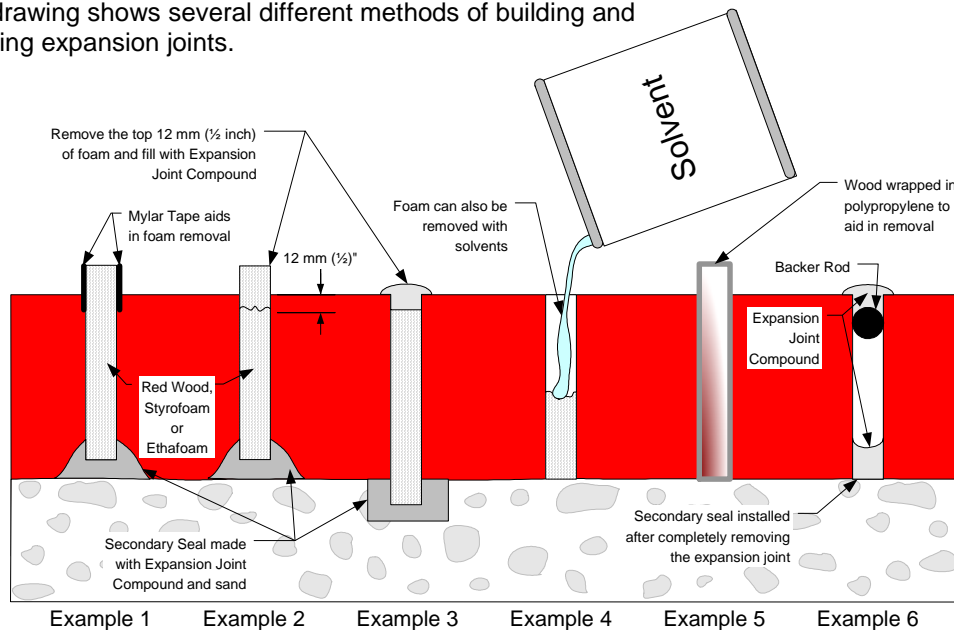


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An alternate method of creating a secondary seal is to chip a 1" (25 mm) deep groove into the concrete at the expansion joint locations. This groove should be about 1" (25 mm) wider than the expansion joint material. A mixture of Expansion Joint Compound with a slight amount of sand (coarse) is poured into the groove. A light sand and compound mix is used to keep the mixture fluid yet cost effective. Once the Expansion Joint Compound is in place, the expansion joint material is pressed into it, and the Expansion Joint Compound is allowed to cure.

Construction Methods

This drawing shows several different methods of building and installing expansion joints.



- Examples 1 & 2: This example shows Mylar tape placed along both sides of the top edge of the Styrofoam or Ethafoam to aid in the removal of the top 12 mm (1/2"). It also shows the Joint Compound and sand mixture applied to the foundation to form a secondary seal.
- Example 3: After the top 12 mm (1/2") is removed, the groove is filled with Expansion Joint Compound. Note the secondary seal made by chipping a groove in the concrete.
- Example 4: Styrofoam can also be removed by melting it with solvent. This example shows no secondary seal so one will have to be installed after the joint is completely removed.
- Example 5: This example shows a piece of wood wrapped with polypropylene or duct tape so that it can easily be removed after the grout sets up. It will also require a secondary seal be installed.
- Example 6: If the expansion joint material is completely removed, both a primary and a secondary seal must be installed. In this case the primary seal is made using both Backer Rod and Expansion Joint Compound. The secondary seal is made by pouring Expansion Joint Compound into the bottom of the cavity.

Date

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