



## DSM SYSTEM

DO NOT OPEN ANY PACKAGES or install this material until all members of your crew have read and understand these instructions as well as all relevant MSDS sheets. If you do not understand any part of these instructions CALL EMSEAL : 800-526-8365 or 508-836-0280

This document does not purport to address all of the safety concerns, if any, associated with this products use. It is the responsibility of the user of this document to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use. The use of a dust mask, safety goggles and gloves is recommended. Keep out of reach of children.

# INSTALL DATA

### 1 Equipment & Material Storage

In addition to safety equipment required to comply with applicable Federal, state and local safety regulations, equipment to prepare and repair the joint-faces, as well as normal tools for the trade, the following are required:

#### Equipment Checklist:

- Propane torch with 1 1/2" (40mm) diameter nozzle and long hose. Do not use small hand torch. (For cold weather installation)
- Tape measure
- Mixing paddle and drill for mixing epoxy adhesive
- "bulk" caulking guns & tips for silicone sausages provided
- Long-bladed, serrated bread knife
- Hacksaw
- Miter box or miter block
- Spray bottle with water
- Duct Tape (2 1/2 times the length of joint)
- Spatula to scrape epoxy from can
- Chemical resistant gloves
- 2-inch wide (50mm) margin trowels for applying epoxy adhesive on material
- Toluene for cleaning joint-faces, trowels and mixer
- Clean lint-free, 100% cotton rags

#### STORAGE:

**Cold Days**  
Below 41°F (5°C):  
Store sealant inside off the floor, at above 68°F (20°C) or, ideally, in a hot box at job site.

#### Hot Days

Above 60°F (15°C):  
Keep sealant at room temperature and out of direct sun. At very hot temperatures, to slow foam expansion, cool material in boxes with ice or dry ice.

### 2 Prepare & Solvent-Wipe Joint Faces

#### Concrete:

- Remove loose particles and weak concrete to ensure sound concrete substrate. Spalls, chipped edges and uneven surfaces must be repaired using suitable patching material and proper patching geometry and techniques. Joint faces must be parallel. Joints must have unobstructed depth greater than or equal to the full depth of the largest material supplied plus 1/2-inch (6mm).
- Remove all contaminants by sandblasting or grinding to ensure a thoroughly clean and sound substrate for the full sealant depth. NOTE: DO NOT use a wire wheel--this will polish the substrate and cause bond-failure.
- Dry all wet surfaces. NOTE: Do not use flame to dry substrate--this will leave carbon on the substrate and cause bond-failure.
- Wipe joint faces with solvent-dampened, lint-free rags to remove all concrete dust and contaminants.

#### Metal:

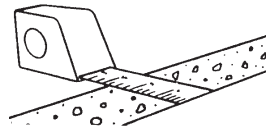
- Sandblast or grind to rough, white metal and solvent-wipe immediately prior to applying DSM epoxy.

**IMPORTANT:** Ensure that no oxidation (rusting) occurs before the epoxy is applied.

**Other Substrates:** Contact EMSEAL.

### 3 Measure Joint Width & Find Correct Size Material

- Measure joint width at deck surface and below to ensure joint faces are parallel.
- Material has been supplied to suit your mean-temperature field-measured joint widths. Widths of material supplied are marked on each stick of material.
- Find correct box and open it.
- Compare width of material supplied as marked on each stick against mean joint width. Actual width of material as measured between hardboard will be slightly less than marked size because material is over compressed for ease of installation.



NOTE: If unsure of correct material selection, consult EMSEAL.

### 4 Mask Deck & Mix Epoxy Adhesive

- Using duct-tape, tape off the deck on both sides of the joint.

#### Mix Epoxy

- EMSEAL epoxy adhesive may be used in the 41°F (5°C) to 95°F (35°C) temperature range.
- Using a trowel, transfer the entire contents of Part B (hardener) into the contents of Part A (base).
- Mix the material thoroughly with a drill and mixing paddle. Scrape the walls and bottom of the container to ensure uniform and complete mixing.
- Always mix component B (hardener) into component A (base). Ensure that a uniform gray color with no black or white streaks is obtained.

**IMPORTANT:** DO NOT thin the epoxy.

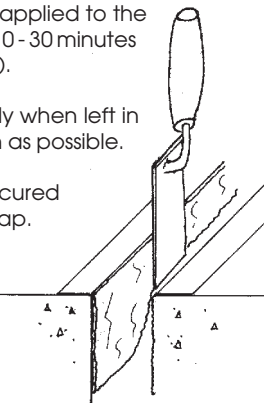
### 5 Apply Epoxy to Substrate, Unwrap DSM Sticks

Ensure that the mixed epoxy adhesive is applied to the substrate before the pot life has expired (10 - 30 minutes depending on the ambient temperature).

**WARNING:** Epoxy will harden more quickly when left in the pot--get it onto the joint face as soon as possible.

**IMPORTANT:** The epoxy must still be uncured when installing DSM foam into the joint-gap.

If the epoxy cures before installing the DSM foam then reapply new epoxy. If work is interrupted for more than 2 hours after initial cure then grind the old epoxy and apply new wet epoxy.



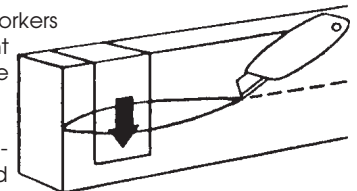
**NOTE:** If preferred, you may use a bulk gun to draw up and apply epoxy to the joint faces and to the side of the foam before spreading it with the margin trowels.

**IMPORTANT:** While one or more workers are applying epoxy to the joint faces, others must prepare the DSM foam.

The DSM foam is kept under compression by plastic wrapping and hardboard on both sides.

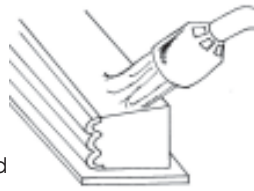
- Slit the plastic packing by cutting on the hardboard and remove hardboard and inner release liner. DO NOT cut along the silicone face.

**IMPORTANT:** Work quickly and deliberately after cutting the shrink-wrap to avoid material expanding beyond a usable size.



### 6 Heat DSM Foam if necessary

- On cool days and if DSM material is expanding slowly, apply heat from torch to both sides, and the bottom, and/or the top of the DSM foam. Use steady sweeping strokes. DO NOT stop and hold the flame at any one spot.



**Note:** Heating expands the foam to a size that ensures a snug fit and allows the foam to support its own weight in the joint while the epoxy cures.

### 7 Apply Epoxy to Foam

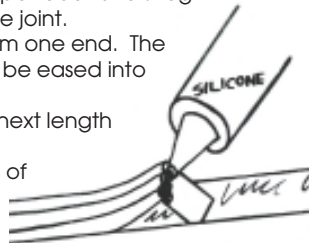
- Using a margin trowel, scrape a skim coat of epoxy adhesive into the cells of both sides of the DSM foam.
- DO NOT apply epoxy on the underside of the material.
- DO NOT apply epoxy on the ends or miters of material.



**TIP:** Use the hardboard packaging as a flat, clean working surface.

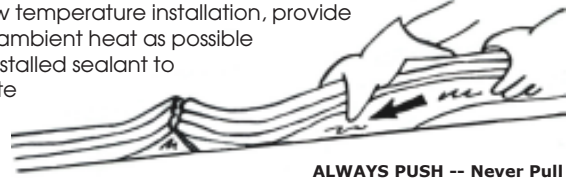
### 8 Install First DSM Foam Length into Joint & Apply Silicone to Bellows Face

- Immediately after coating foam with epoxy, install the foam into the joint. **Ensure that epoxy on the joint face has not cured.**
- When installed, the DSM must be recessed 1/4" (6mm) from the top of the joint.
- Note:** When material is correctly expanded for a snug fit it will support its own weight in the joint.
- Feed material into joint, starting from one end. The material should fit snugly and must be eased into the joint with steady, firm pressure.
- Leave the end to be joined to the next length sticking proud of the joint.
- Using a bulk gun and the sausages of silicone provided, and apply liquid silicone to the face of the bellows..



### 9 Install Next Length. Repeat.

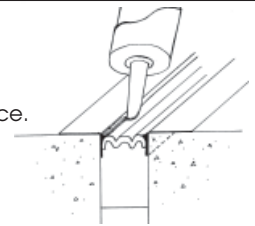
- Work in one direction towards the previously installed length or end of joint. Do not stretch material.
- Leave the end to be joined to the previous length sticking proud of the joint--push the joining faces together.
- Push Hard** on the stick to compress joins firmly together. Ensure there are no voids at joins.
- Once the full length is installed, push the protruding join into the joint and tool off the excess silicone.
- During low temperature installation, provide as much ambient heat as possible around installed sealant to accelerate recovery.



**ALWAYS PUSH -- Never Pull**

### 10 Inject Silicone Sealant Bands At Substrates & Tool Excess Silicone

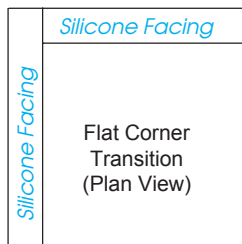
- Wipe any excess epoxy from top of material using a clean rag.
- Before the epoxy cures, force the tip of the caulk tube between the substrate and the DSM foam.
- Inject a 3/4-inch (20mm) deep silicone sealant band between the foam, cured silicone facing and the joint-face.
- Tool the freshly applied silicone firmly to blend with the substrates and cured silicone facing, and to ensure a proper bond and seamless appearance.
- Where DSM foam meets at butt joints, tool the excess silicone that squeezes out from the top and between the bellows. **IMPORTANT:** Silicone left between the wrinkles of the bellows could constrain movement.



### 11 Transitions, Ends, and Special Conditions

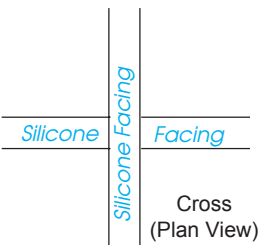
#### FLAT CORNERS :

- Work towards the corner so that the last two pieces to install will join at the corner.
- Cut each piece to be joined 3/8-inch (10 mm) longer than needed.
- Install one piece so that it runs through the intersecting joint-gap. Firmly push and compress the extra length so that a tight fit in the corner is achieved.
- Butt the intersecting end firmly into the previously installed stick.



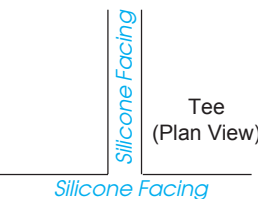
**NOTE:** The extra length will make it a tight fit--this results in a compression fit.

- Inject a bead of liquid silicone where the silicone faces join and where the silicone faces meet the substrate.



#### CROSSES and TEES:

- Run one piece of material across the intersection. Firmly butt intersecting pieces into sides of already placed material.
- Inject a bead of liquid silicone where the silicone faces join.

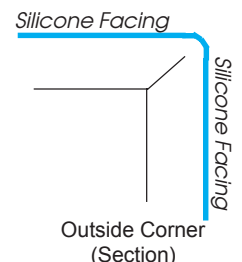


#### EXPOSED FOAM ENDS:

- If joint does not terminate in an upturn or downturn transition to another EMSEAL joint system, lightly coat any exposed foam ends using the liquid silicone provided.

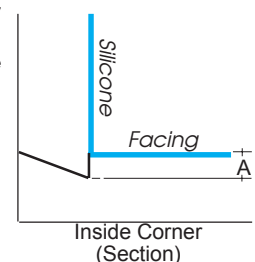
#### OUTSIDE CORNERS (Curb-to-sidewalk, riser-to-tread etc.):

- Notch** the back of the foam only about 2/3 of the way through at a **40-degree** angle. **Bend** the foam over keeping the silicone face intact.



#### INSIDE CORNERS (Deck-to-curb, tread-to-riser etc.):

- Cut the material for the horizontal joint to be longer than needed by an amount equal to the depth of the material being installed.
- The inside corner must be joined by cutting a keyway in the horizontal material with a matching keyway in the vertical material.
- To cut the keyway, first make a template using a piece of the hardboard packaging and a hacksaw.



#### Keyway Dimensions:

Nominal Material Size	Dim. "A"
Up to 3/4-in (20mm)	1/2-in (12mm)
Over 1-in (25mm)	1-in (25mm)

- Using the template and a water-sprayed bread knife or hack saw, cut the key at the end of the foam for the vertical section and the keyway in the end of the horizontal section.
- Install the horizontal section ensuring that the keyway is inserted past the vertical face of the joint.
- Inject some liquid silicone into the face of the keyway and install the vertical section of material into the wet silicone. Be sure of a tight fit with no voids.