

Discussion of “Joint Sealant Gaps in Mifab Trench Drains”

One of the frequent discussions regarding trench drains is the slight indentation or “Gap” that is created in trench drains and identified on the interior surface when two or more individual sections are put together (Photo 1). Another term used to describe the void is “joint sealant groove”.

Frequently asked questions

Question: Why is there a Gap?

All linear trench drain products irrespective have some form of joint where the channels connect. What to do with the gap is the common consideration.

Question: Why is the gap designed to appear at the joint?

The intention of the gap (or groove) is to address the longitudinal expansion and contraction that occurs when the concrete the drains gets encased in is exposed to temperature variations. Hopefully, the Trench drain product selected for the project has similar expansion and contraction characteristics as the concrete in which it gets encased. If the correct trench drain product is selected, and the drain and the concrete both expand and contract at similar rates, successive channels should rarely separate.

The gap allows for a solution to the potential problem of successive channels separating too much, thus allowing the fluid being carried by the trench drain to leak into the concrete encasement or the substrate. The purpose of a sealant *when required* by the Engineer, is to create a smooth transition at the joints and to guard against leakage at the joint. A “rigid” filler plate material can also be used as a substitute for the Flexible joint sealant material, however, does nothing to overcome leakage.

Question: Does the “gap” need to be filled?

Mifab’s GRP and Polymer Concrete channels are manufactured utilizing EN1433 standards which require the joint sealant groove. In **most applications** (notably and primarily Stormwater applications) the “sealant gap” is rarely utilized. In that case, the eventual outcome is that dirt fills the “gap”.

Question: What solutions are in place if there is a requirement to fill the “gap”?

If there is a requirement to fill the “gap”, the best recommended material for MIFAB trench drains for both the GRP and Polymer Concrete products is a readily available one component Polyurethane Joint Sealant material.

MIFAB also offers a “rigid” filler plate, however, this will not overcome leakage. (Photo 3).

When Mifab’s GRP channels (or the Polymer concrete product) are placed during construction, the best practice is to start at the deepest channel, Bottom Outlet or Catch Basin, whichever is the outlet point. The contractor then works toward the shallowest channel in the run.

The shallow end of each channel has a female extension (or lap) which accepts the deep end of the previous depth channel. At the completion of the concrete installation and after the concrete is suitably cured, it is a good time to install the flexible sealant or the more rigid filler plate option.

If using a Flexible one component Polyurethane sealant, refer to the specific sealant manufacturers installation recommendations. Those recommendations would specify a certain volume of its sealant (depth and width) to be placed in the channel joint in order to ensure sufficient expansion and contraction of the sealant and thus the integrity of the channel joint.

Photos

Refer to photo #1 below to view the joint sealant groove in a Mifab GRP product

Refer to photo #2 for a visual of what a flexible joint sealant looks like when being placed.

Refer to photos #3 & #4 for a visual of what a Mifab GRP trench drain looks like when a “rigid” filler plate is installed.

Refer to photo #5 for a visual of the “rigid” CPVC filler that Mifab can supply.

Photo #1



Photo #2



Photo #3



Photo #4

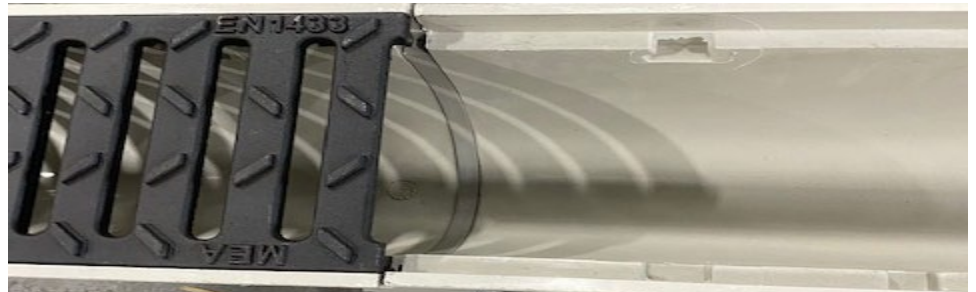


Photo #5



The rigid gap filler is made from CPVC. Its sole purpose is to fill the gap.

Summary:

ALL linear trench drain products have some form of joint sealant gaps where the channels connect.

- In most cases, there is no requirement or relevance to “filling the gap”, therefore no further steps need to be taken.
- Using a joint Sealant material is the only option that fits the manufacturers requirements to guard against leakage at the joint.
- Adding the rigid gap filler can be utilized, if preferred, for esthetic purposes.

Mifab recommends that all Trench Drains are encased in a concrete surround thus minimizing the potential for leakage particularly in Stormwater applications. Other manufacturers might not produce material that conforms to EN1433 which explains why they might not have a sealant groove that is wide enough to conform to the recommended width and depth the polyurethane sealant manufacturers recommend.

Please contact MIFAB at <https://www.mifab.com/> or 800 465-2736 for additional information.

Understanding why the gap appears in linear trench drain products is answered by understanding the EN Standards to which trench drains should be manufactured.

The specifics of EN1433 Standard are as follows:

Possibility of sealing drainage channels according to EN1433

7.5 Connecting channel elements

7.5.1 Watertightness

The joint between channel elements must be designed in such a way that it can be permanently sealed.

During the test in accordance with 9.3.6, no leaks shall be visible at the joint or at the channel body.

The manufacturer must specify the design of the tight connection in his installation instructions

(see section 11).

9.3.6 Joining of channel elements (see 7.5)

Fulfillment of the requirements described in 7.5 must be checked by visual inspection of the joining and sealing of two channel elements in accordance with the manufacturer's installation instructions.

After both open ends have been closed and sealed, the components shall be filled to the maximum of the design wetted area.

During a period of 30 min \pm 30 s, no seeping water shall be allowed to escape at the joint and at the channel.