

# MEADRAIN

## Drainage System

# Installation Instructions

Our service representatives and distributors want to help you plan your drainage system and support you with technical assistance.

**READ ALL INFORMATION FOR YOUR TYPE OF INSTALLATION BEFORE STARTING PROJECT.**

### CONTENTS

Summary Installation Instructions	2
Detailed Installation Instructions	3
Drainage System Design	3
Preparation	3
Excavation	4
Minimum Required Concrete Thickness	
Channel Layout	5
Knockout Removal	5
Channel Installation and Bracing	6
Installations in Asphalt and Macadam	
Retrofit Installations	
Installations across Expansion Joints	
Miter Joints	
Pouring Concrete	8
Cleanup and Final Grate Installation	8

## Summary

These installation instructions are applicable to most installations. System designers must determine whether site conditions have special requirements regarding channel installation.

### 1. DRAINAGE SYSTEM DESIGN

The drainage system selected must be suitable for the customer's application and for the location where installation is to take place.

### 2. PREPARATION

Read all information for your type of installation before starting project. Collect tools and supplies needed to do the job. See list of suggested tools and supplies in the detailed installation instructions (Page 3).

### 3. EXCAVATION

Excavate trenches to a width and depth sufficient to ensure that there is room for the minimum required thickness of concrete to be placed under and alongside the channels. Remember that the pavement surface next to the channels must be laid so that it is 1/8 in. (3 mm) above the top of the channel.

### 4. CHANNEL LAYOUT

Lay out channel system parts in the planned sequence alongside the excavated trench according to the installation plan. Ensure that channels are placed in the proper position and in the proper direction. Set outlet channel first (highest channel number),

### 5. KNOCKOUT REMOVAL

Remove preformed knockouts from channels and catch basins for required piping connections.

### 6. INSTALLATION AND BRACING

Begin installing channels at the downstream discharge end of the drainage system. Install and brace channels so that channels will remain in place without sagging prior to pouring concrete and so that channels will not float out of position during or after pouring concrete. Channels must also be braced against any side loading that would prevent easy installation of grates after the concrete sets up.

### 7. POURING CONCRETE

Do not bump or jar channels out of alignment during the pouring of concrete. Pour concrete slowly enough to ensure that channels do not float out of alignment and do not pour concrete directly against channels. Pour the same amount of concrete on both sides of channels to avoid pushing channels out of alignment. The pavement surface next to the channels must be laid so that it is 1/8 in. (3 mm) above the top of the channels.

### 8. CLEANUP

Clean any spilled concrete from grates, channels and outlet points. Insert and secure grates to channels using the optional locking devices.

## Detailed Installation Instructions

### 1. DRAINAGE SYSTEM DESIGN

The drainage system selected must be suitable for the customer's application and for the location where installation is to take place. The carrying capacity of the subsoil and the strength of the trench floor must be considered. Consideration should also be given to the use of expansion joints in both longitudinal and transverse directions to minimize horizontal forces which would distort the channel system.

### 2. PREPARATION

Read all information for your type of installation before starting project.

Collect tools and supplies needed to do the job. The following may be useful for your installation:

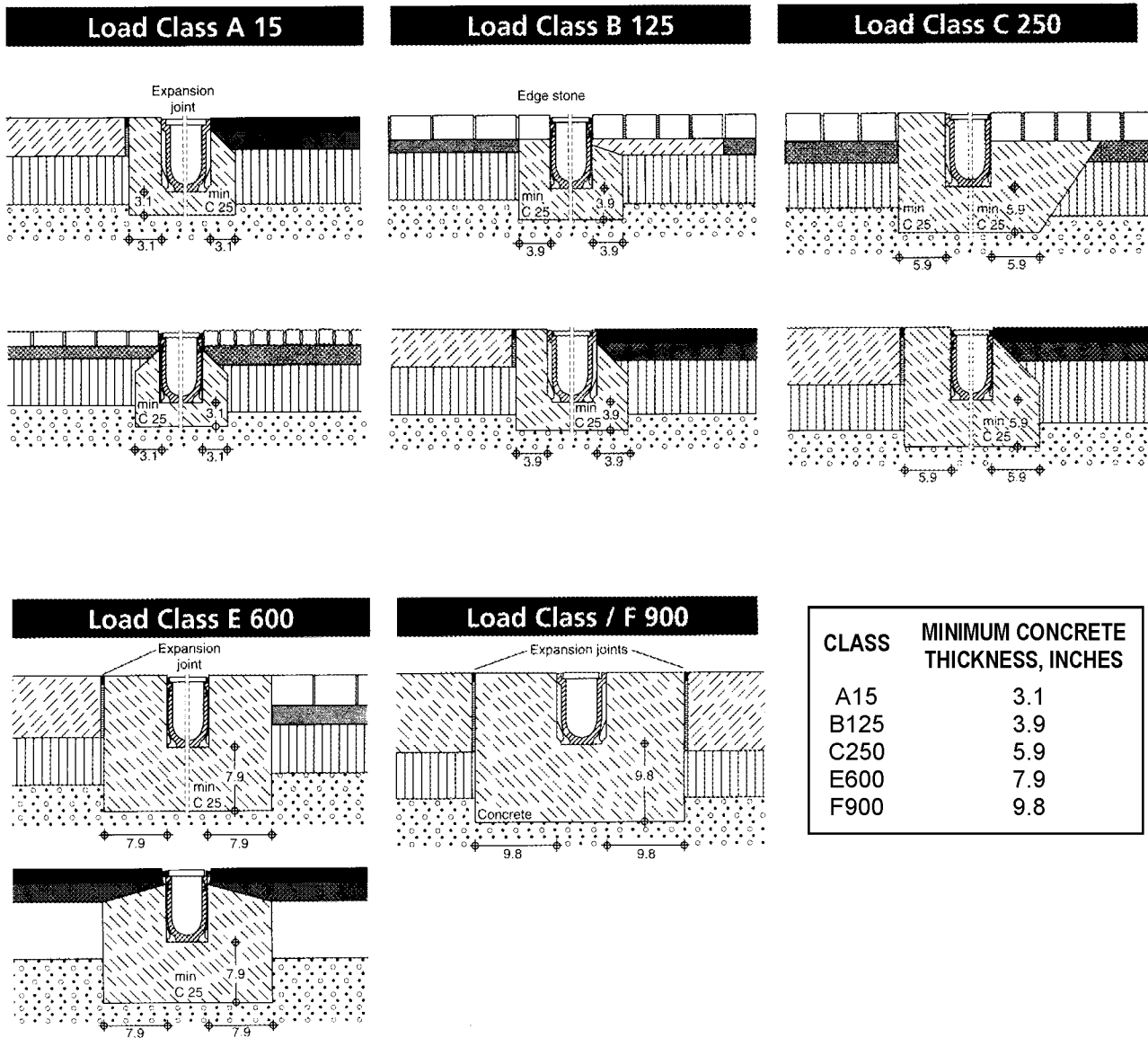
Shovel	Screwdriver	Wooden or steel stakes
Level	Saw with masonry or diamond blade	Grout and adhesives*
Square	Grinder	2" x 4" boards
Chalkline	Caulk gun and caulk sealant*	Plywood
Large hammer	Vibrator	Gloves
Cold chisel	Drill and masonry bits, about 3/8 in. (10 mm) diameter	Respirator
		Safety glasses or goggles
		3" schedule 40 PVC pipe

**\*Selection of Caulks, Grouts and Sealants:** Adhesives, caulking compounds, grouting and sealants used on the drainage system must be compatible with all chemicals that will flow through the system. Openings and joints may be filled with one of several materials. Silicone caulk should be used when a flexible joint is needed. A two-component epoxy grout should be used when a rigid joint is needed. A fast setting cement type grouting compound may be used where high durability is not needed.

## 3. EXCAVATION

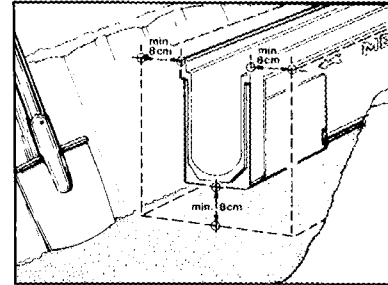
Excavate trenches to a width and depth sufficient to ensure that there is room for the minimum required thickness of concrete to be placed under and alongside the channels. Bedding concrete should be as thick as the adjoining slab thickness. Excavations must ensure a minimum thickness of bedding concrete as shown in the chart below. Deeper and wider excavations must be made for catch basins. Remember that the pavement surface next to the channels must be laid so that it is 1/8 in. (3 mm) above the top of the channels.

### Example Installations:



**4. CHANNEL LAYOUT**

Lay out channel system parts in the planned sequence alongside the excavated trench according to the installation plan. Ensure that channels are placed in the proper position and in the proper direction. The number on the side of each channel shows the position of the channel within the drainage line. The direction of flow is shown by arrows on the channel sides which point to the outlet.



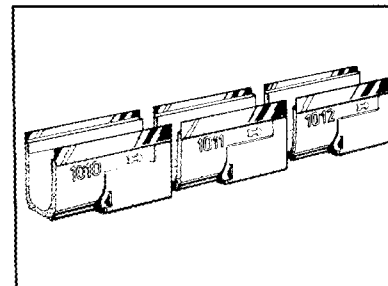
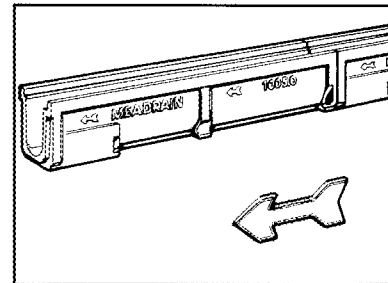
**5. KNOCKOUT REMOVAL**

**CAUTION**

**Knockouts should be removed carefully in order to prevent cracking of the channel around the knockout hole.**

Drill holes around the perimeter of knockout breaking point using a masonry bit about 3/8 in. (10 mm) diameter. Carefully remove the knockout from inside the channel using a hammer and cold chisel. Clean up edges of hole using a hammer and cold chisel or a grinder. Invert channel and insert outlet connector from bottom and apply sealant. Allow proper time for sealant to set before handling.

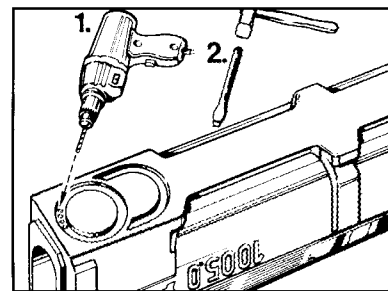
Catch basins and outlet channels contain preformed cutouts for piping, channel and catch basin conn. Remove these knockouts only as needed.



**WARNING**

**Wear protective eyeglasses or goggles, a respirator mask and gloves when cutting, chiseling, drilling or grinding concrete or asphalt. Avoid breathing concrete and asphalt particles since they could be harmful to your health.**

**Observe all safety precautions when operating electrical or hand tools.**



## 6. INSTALLATION AND BRACING

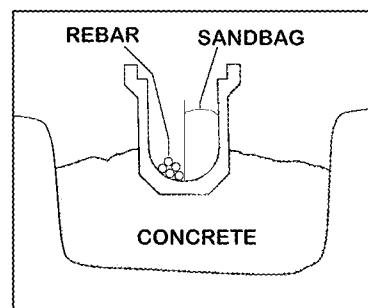
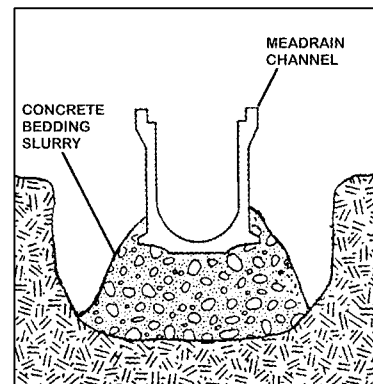
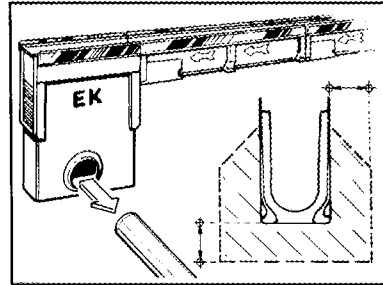
- Stretch a stringline to ensure accurate alignment of channels.
- Install channels in proper order starting at the system downstream discharge end; **at the outlet.**
- Flow arrows must point towards the outlet.
- Allow room for the minimum required thickness of concrete under and alongside the channels. See minimum concrete thickness chart under Excavation.
- Use 3" in. PVC pipe placed inside bottom of channel across joints to help in ensuring straight lines.
- Brace channels elements to counteract lateral compression, or insert gratings in the channel groove. Protect the gratings from any concrete spillage.
- Channels must remain in place without sagging prior to pouring concrete and channels must not float out of position during or after pouring of concrete.

Channels may be supported by using:

- channel chairs,
- brackets mounted on reinforcing bars,
- reinforcing bar framing,
- Concrete blocks placed under channel joints
- 2" x 4" boards to suspend channels,
- the concrete bedding slurry method.

Channel floating can be prevented by placing reinforcing bars or bags of sand inside channels. Channel alignment can be maintained by placing grates or plywood strips in the channels across channel connections. If grates are placed in channels, they should be wrapped in plastic or otherwise protected from concrete spillage and then placed in position upside down. Grates should be shimmed snugly in the channels to prevent channels from being compressed against grates and to ensure ease of final placement after concrete has set up. Do not lock grates in place until after final placement. If plywood is used, the strips should be cut to fit snugly in the channels. Shim the plywood strips as needed. Placing grates or plywood in channels will help maintain channel alignment, prevent channel walls from being compressed, and prevent concrete from spilling into the channels.

Fit solid end caps at the upstream end of the channel system and connect the downstream discharge end to the sewer system.



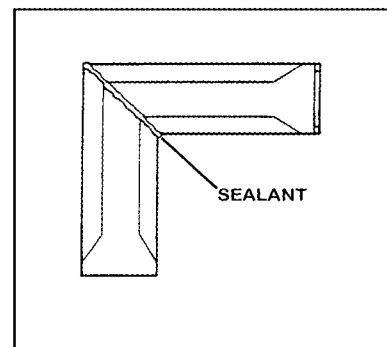
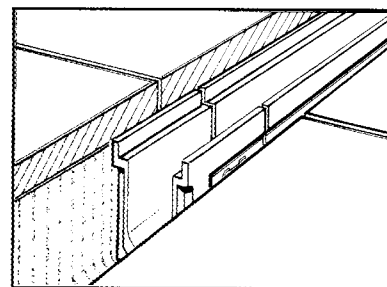
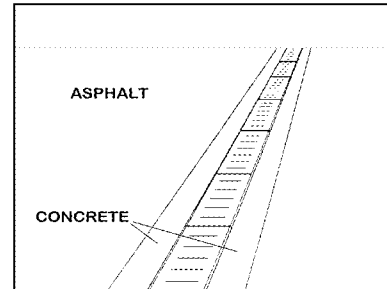
**Installation in Asphalt Surfaces:** When installing MEADRAIN in asphalt surfaces, encase the channel system in concrete in the same as when installing a system in soil. This must be done since asphalt is a flexible pavement.

**Installations In Existing Hard Surfaces:** MEADRAIN can be used to provide drainage in existing hard surfaces by saw cutting the existing surface with 2 cuts, 8 in. (20 cm) wider than the width of the channels. The concrete is then removed and an excavation is made for the channel system. Install the channel system as described above and concrete into place as described in Point 7 below.

**Installation across Expansion Joints:** When a system is being installed across an expansion joint in a slab, the following steps should be taken. Mark the channel where it crosses the expansion joint. Cut the channel into two sections at this point. Separate the two channel pieces by the width of the expansion joint. Fill this space with a silicone or other suitable material.

**NOTE:** If parallel expansion joints are installed near the trench, they must be far enough away from the channels to allow the minimum required thickness of concrete to surround the channels. See minimum concrete thickness chart under Excavation, Point 3.

**Miter Joints:** Miter joints can be made by sawing channels to the desired angle and butting them together. An adhesive can be used to bond the two channel sections together.



**WARNING**

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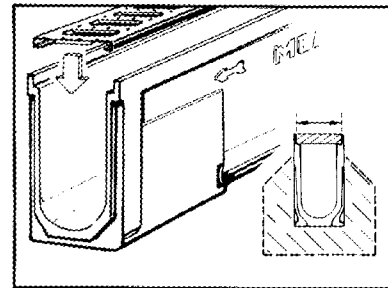
**Observe all safety precautions when operating electrical or hand tools.**

**7. POURING CONCRETE**

Pour concrete slowly and pour the same amount of concrete on both sides of channels to ensure that channels do not float and are not pushed out of alignment.

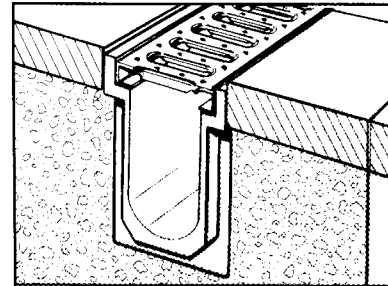
Lay the ground surface which is next to the channels so that it is 1/8 in. (3 mm) above the top of the channels.

A finished slope of 1/8 in. per foot (10 mm per meter) for at least 2 feet (0.6 meters) is recommended. This will provide positive drainage flow into the channel drainage system.



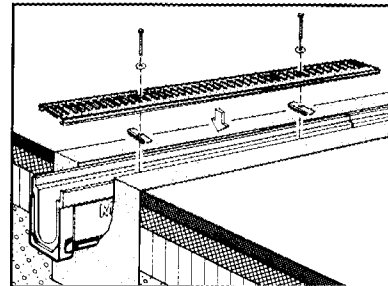
**8. SEALANT**

Mea-Drain polymer concrete channels contain sealable rebates at all channel joints. This 1/4' x 1/4" recess allows sealant to bond to both channels and provide a water-tight seal with expansion properties. Polyurethane or silicone sealants recommended; depending on application.



**8. CLEANUP**

Clean any spilled concrete from grates, channels and outlet points. Clean out all debris in the system and make sure all outlet pipes are open. Install accessories such as strainers and buckets. Insert and secure grates to channels using the optional locking devices.



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