

Installation Guide

200 Series

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1.0 Tools

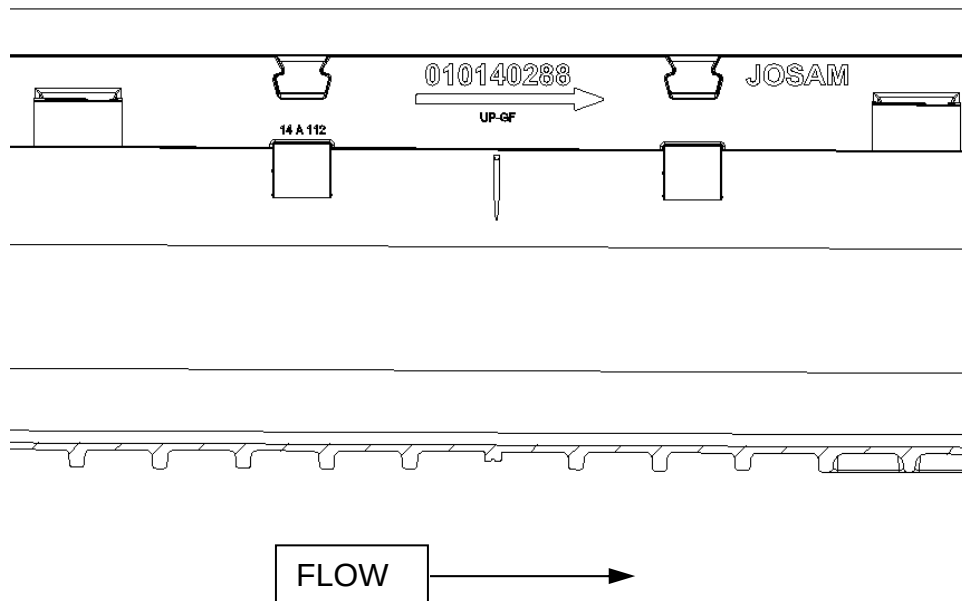
Some or all of the following tools may be required during installation:

- Layout drawing
- Sledge or large hammer
- Stringline
- Chalkline
- Level
- Square
- Drill
- ¼" or similar size drill bits
- Core drill
- #3 (Ø3/8"), #4 (Ø1/2"), or #5 (Ø5/8") rebar or Ø1/4", Ø3/8", Ø1/2", Ø5/8" threaded rod and two nuts/rod
- Duct tape
- Concrete vibrator (finger type)
- Rubber mallet
- Concrete saw
- Cold chisel
- Caulking gun
- Shovel or spade
- Grinder
- Acetone if using sealants
- Standard socket set
- Visqueen or plastic wrap
- Safety glasses or goggles
- Gloves
- Respirator mask
- Phillips screwdriver
- Utility knife

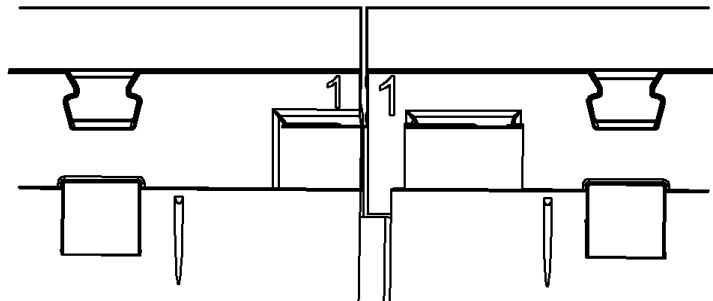
2.0 Installation

IMPORTANT: READ ALL INSTALLATION INSTRUCTIONS PRIOR TO STARTING THE JOB. THIS WILL AVOID COSTLY MISTAKES

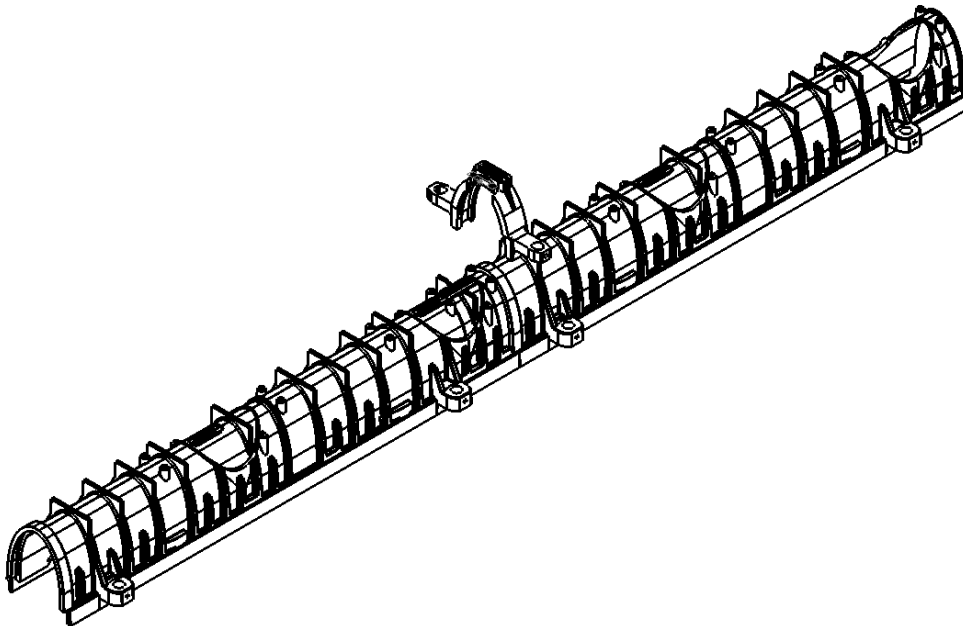
- 1) Excavate soil or saw cut existing concrete to a sufficient width and depth to create a trench. Ensure that at least 3 inches (class A15) of bedding concrete can be placed under and on both sides of the channel. For higher loadings see the chart in figure A. The carrying capacity of the subsoil must also be taken into account, or respectively, the carrying capacity of the trench floor must be established. When sawing concrete always wear gloves, protective eyewear and a respirator mask! Avoid breathing the dust.
- 2) The direction of flow is marked on the inside of every channel element by directional arrows on both sides of the channel body. The arrows point downstream or in the direction of the outlet. In rare cases, a channel section may be reversed from normal flow direction to facilitate easier run assembly. See layout drawing.



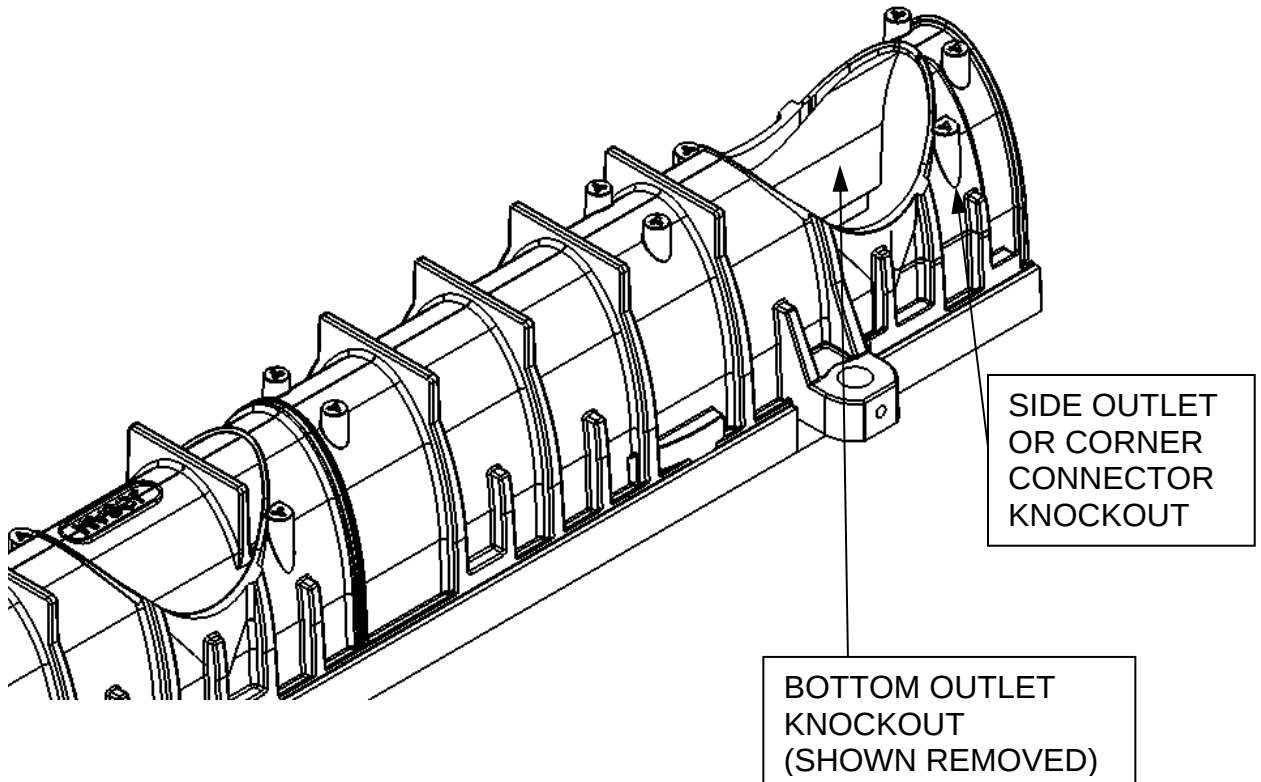
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- 3) Visible numbers on the inside ends of the channel mate with like numbers on the downstream channel. For example, a “1” on the upstream end of the first channel will mate with a “1” on the downstream end of the second channel. A “2” on the upstream end of the second channel will mate with a “2” on the downstream end of the third channel and so on. A channel with a “0” and a “1” is known as a #1 channel. A channel with a “1” and a “2” is known as a #2 channel and so forth. We offer sloped channels 1-20 and neutral channels 5N and 15N.



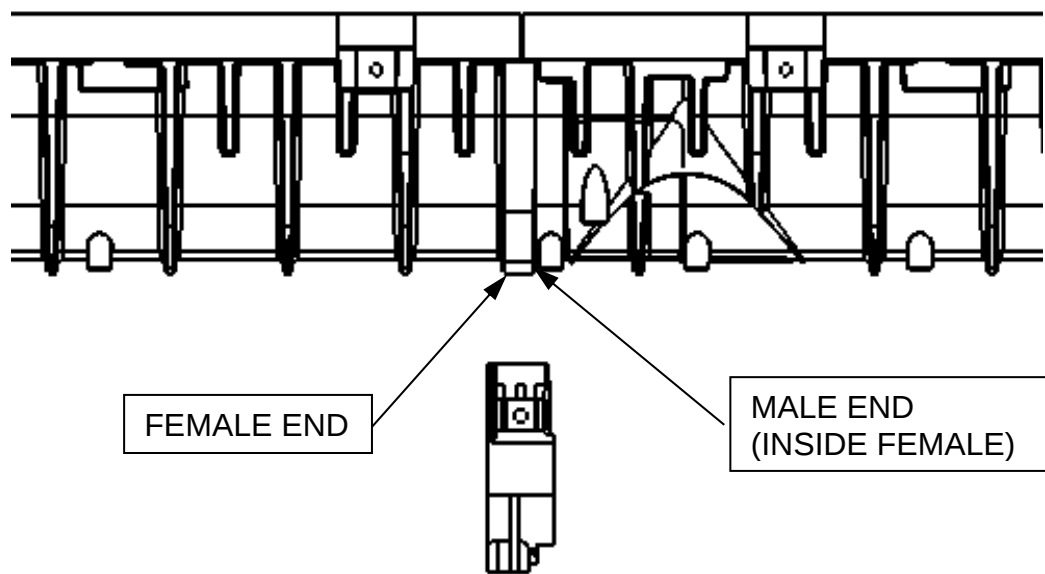
- 4) Lay out and orient the channel elements upside down in the proper sequence alongside the excavated trench (as per installation plan, if available). Give attention to the channel numbers. If the layout has a T connection or right angles, you must use “-T” channels as explained in the appendix. The -T modification allows for side connections. If the layout has MMS (Male Male Standard flow) or MMR-T (Male Male Reverse flow) channels they must be placed where the layout drawing shows.



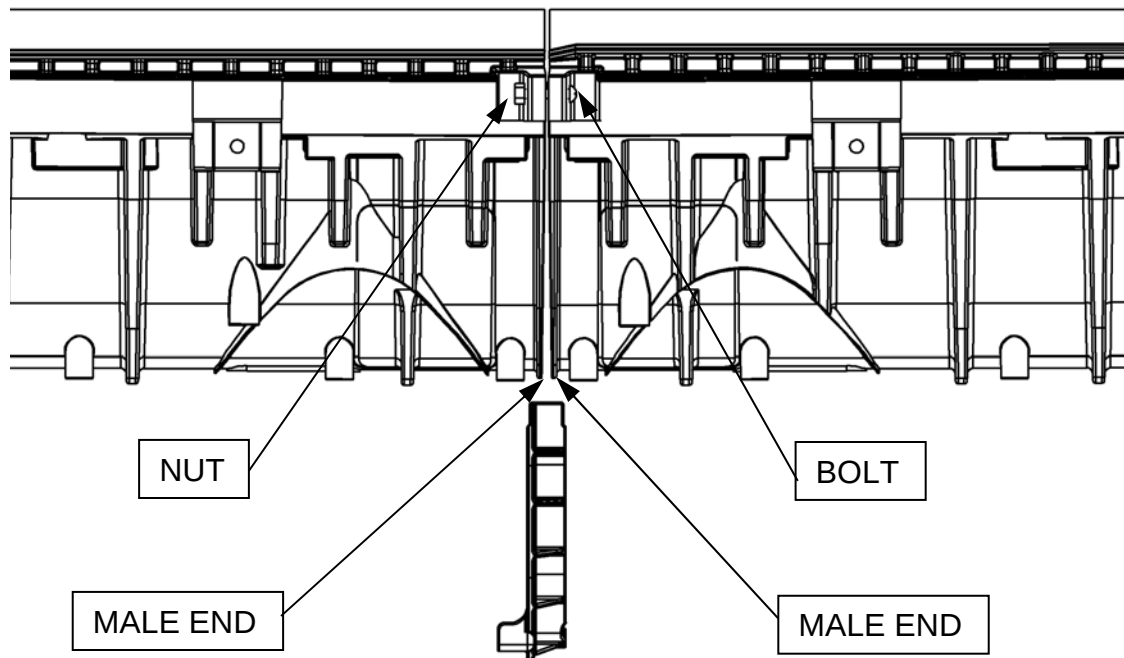
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- 5) If required, remove preformed knockouts from the channel or silt box for the discharge outlet. Knockouts must be removed with the aid of suitable tools (drill, grinder, chisel, etc.). Always use protective equipment while drilling, grinding, or chiseling. Secure outlet to trench with screws. Screws will not penetrate into trench interior.



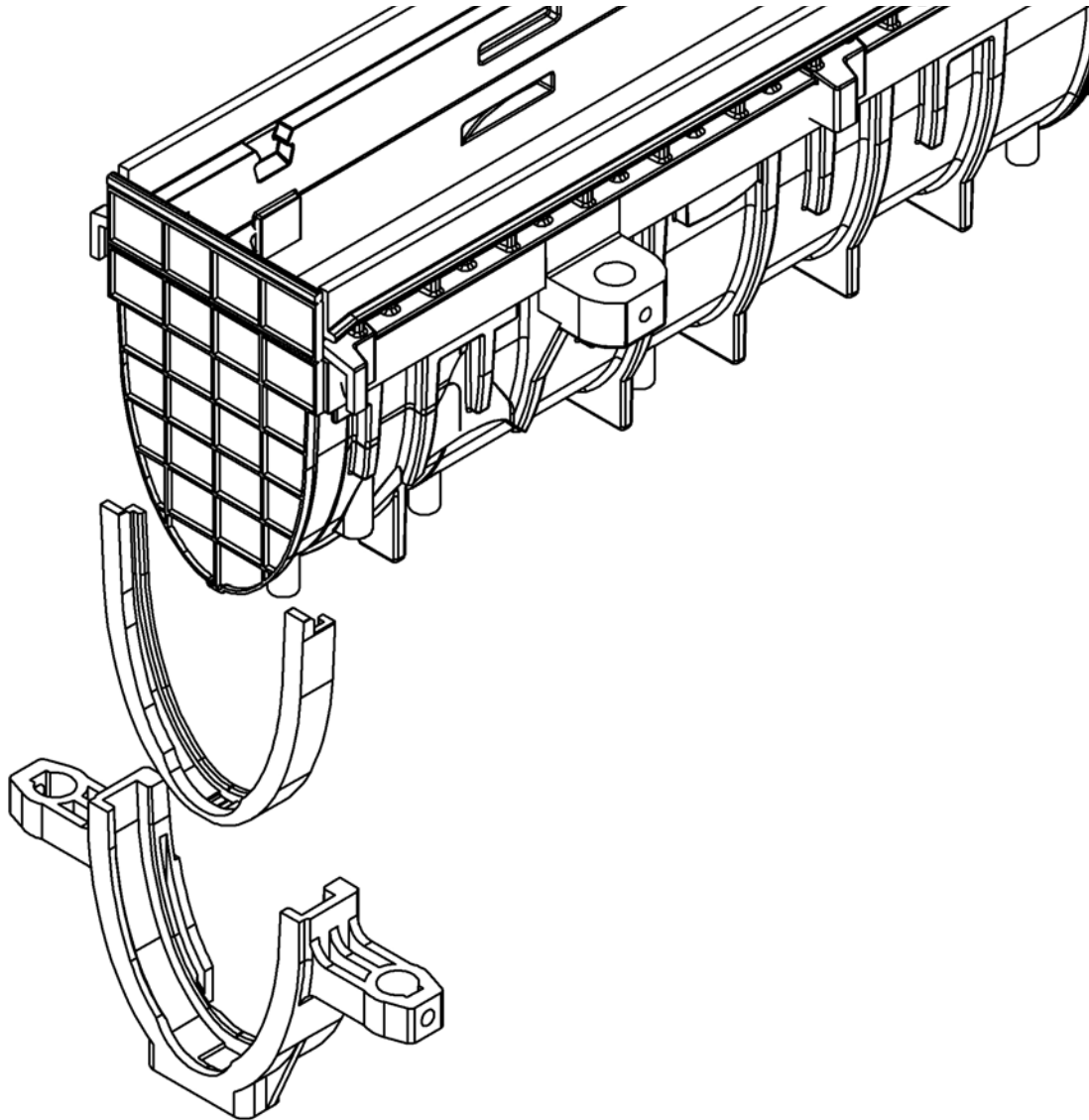
The new version of Pro-plus has integral rebar supports. If brackets are still desired, there are three types of brackets available. A standard bracket 100-BS or 200-BS supports a male-to-female connection.



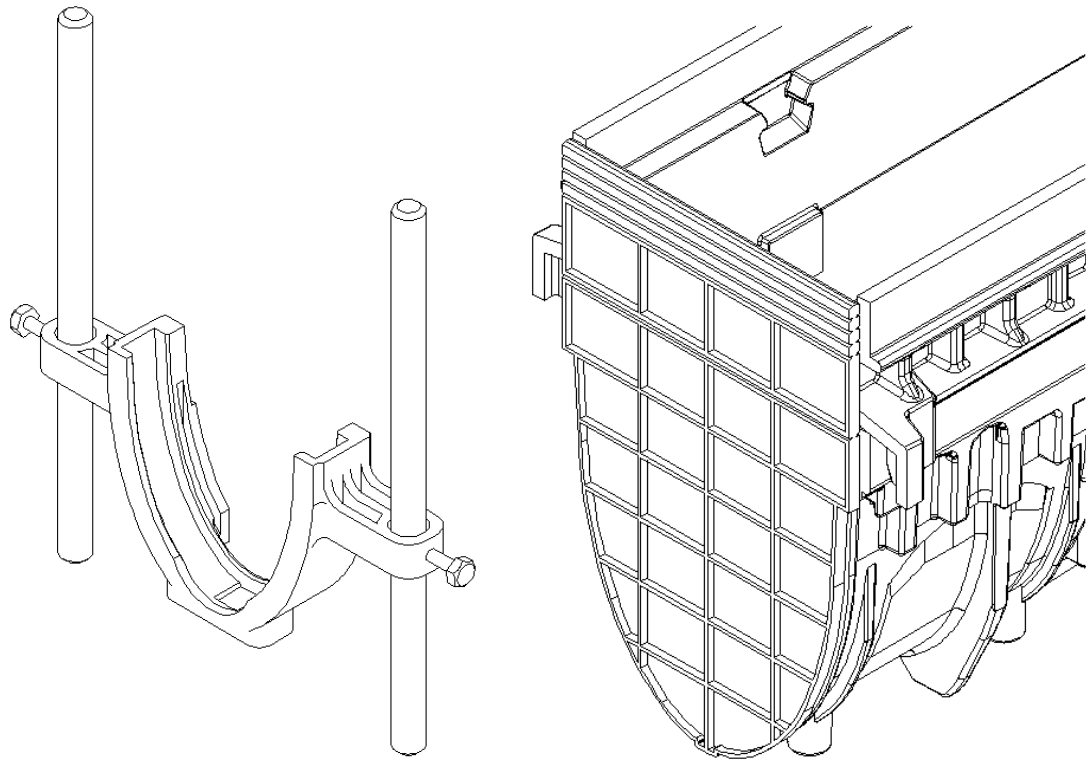
For male-to-male connections, a 100-BSC or 200-BSC bracket is used. Secure BSC to bottom of one channel with screws (provided). To add rigidity to the joint, drill holes through the concrete anchors and install bolts and nuts (not provided). A standard bracket can be set several inches away from this joint to provide support via rebar.



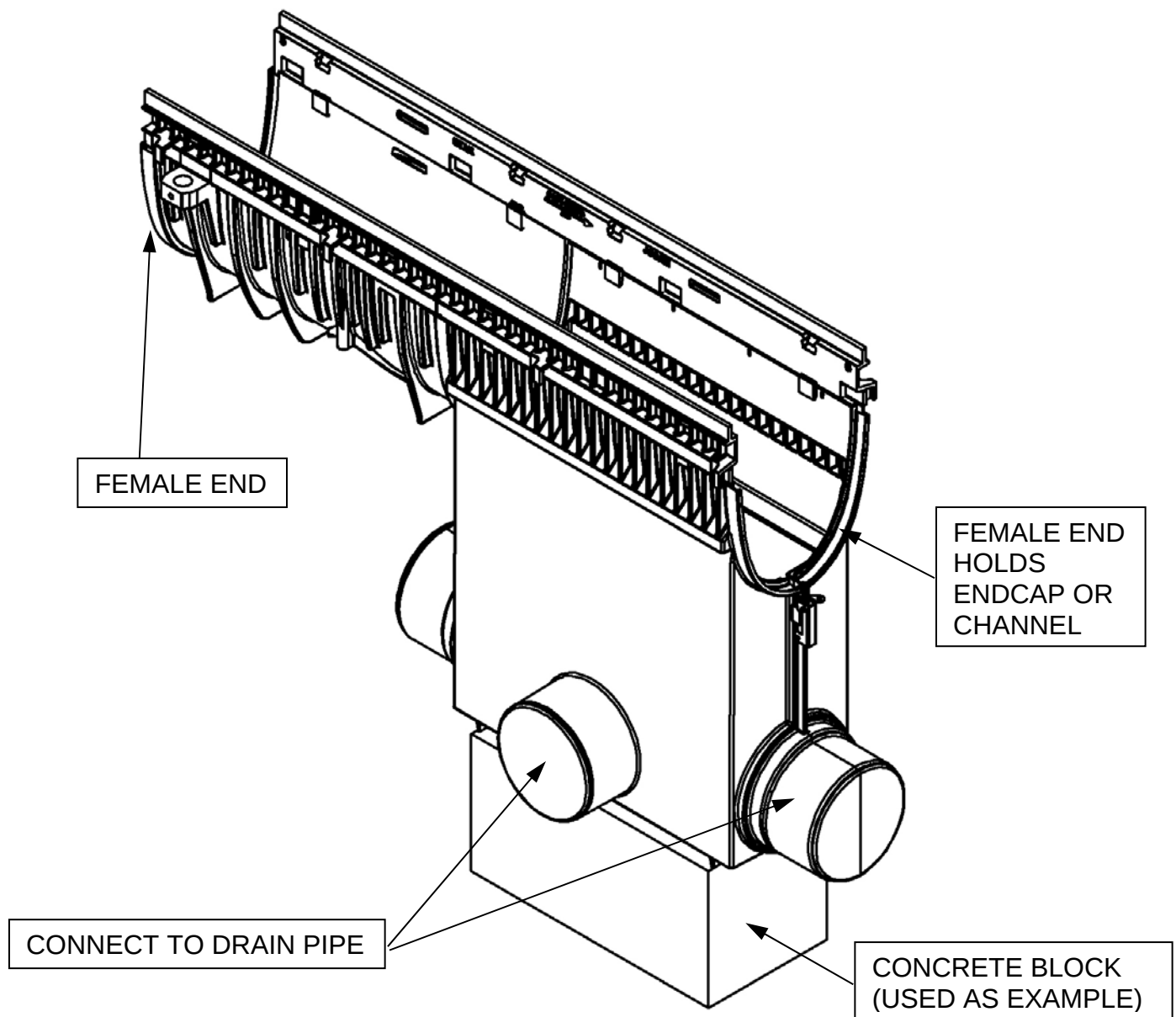
A 100-BSW or 200-BSW is used on male ends where it is necessary to hold an endcap or endcap outlet.



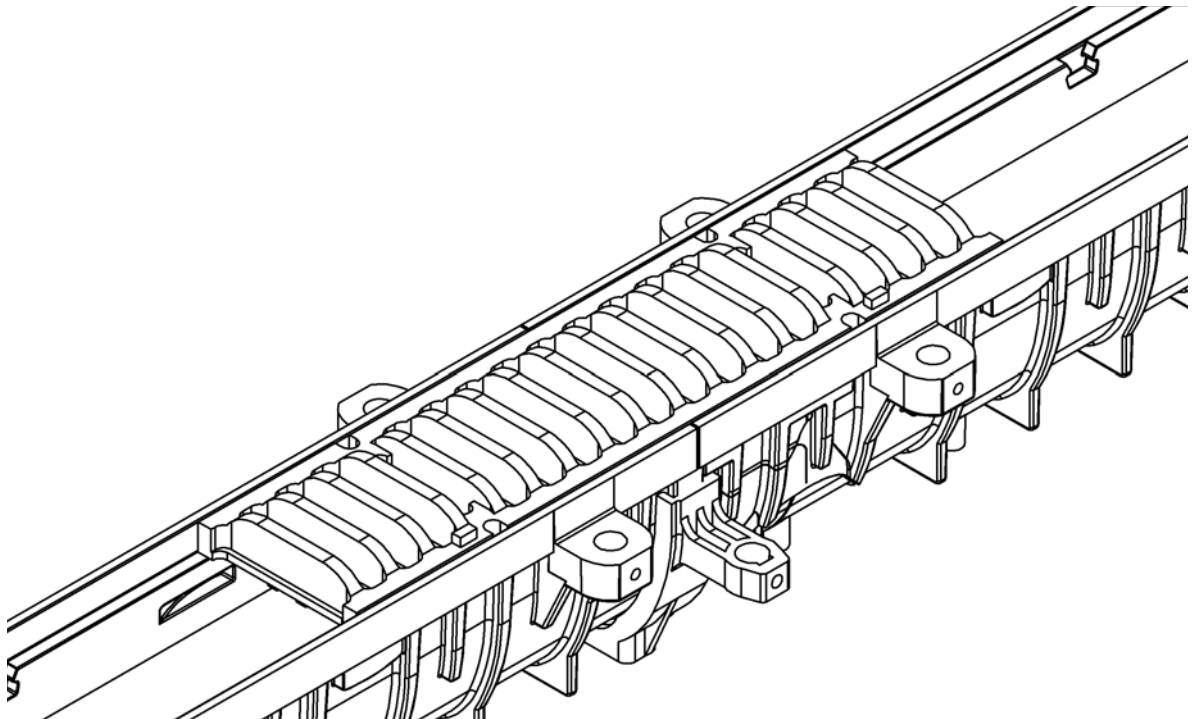
- 6) Stretch a stringline about 1/8" lower than the ground surface to provide slope for the water to run into drain. Set the outlet channel or siltbox first to make sure the outlet is in the proper location. Drive rebar or threaded rod stakes into soil sufficiently and secure support brackets to stakes by gently tightening the screws on the support brackets. We recommend a screwdriver, however if using power drill, set torque to low. Ensure that directional arrows point towards the outlet. Reference the layout drawing. Set channel level and at the correct elevation. If necessary, take into account the extra height required for the ductile iron frame. Insert endcap or endcap outlet on end of trench. If required, score the height to match trench height.



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- 7) Connect pipe to silt boxes and gullies. Support them with concrete blocks, rebar, concrete mix, etc. Embed silt boxes and gullies similar to the installation of channels so that the thickness of concrete surround is identical and consistent. Set male end of next channel into female end of outlet channel or silt box. Continue setting channels until run is complete.

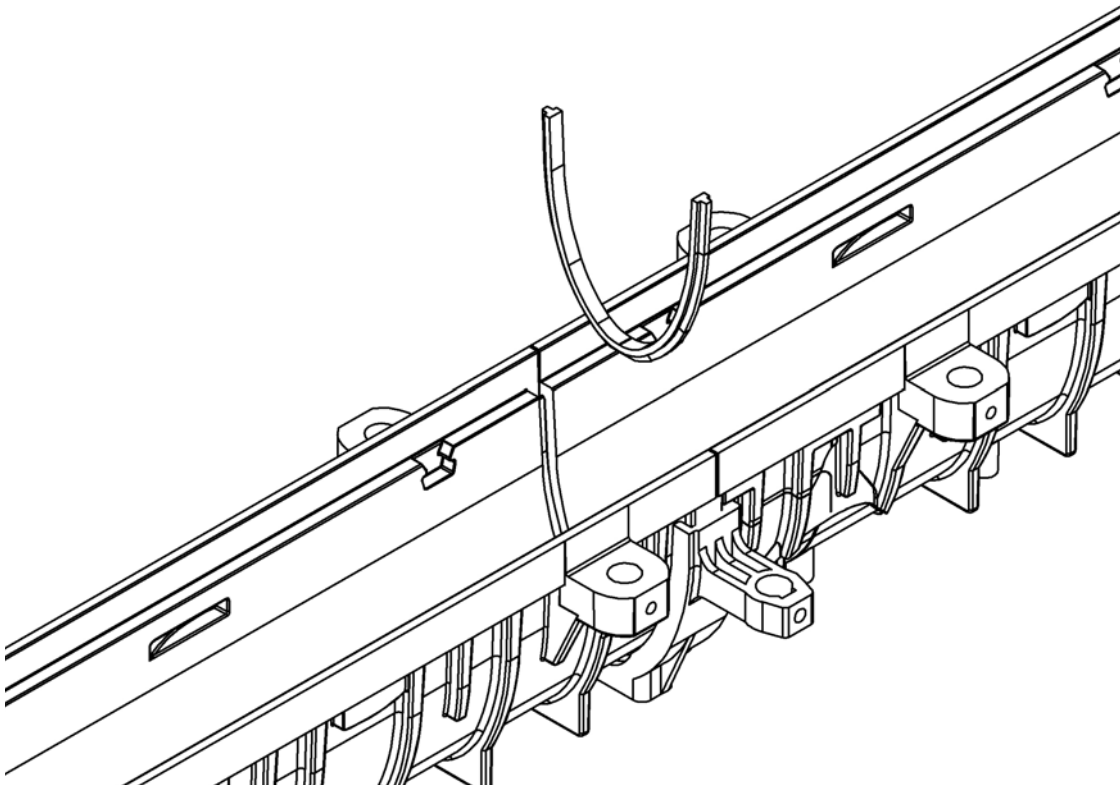


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- 8) Inspect packaging material on gratings and remove any excessive plastic. Install the pre-wrapped gratings in the channels. This will protect the trench interior from any concrete spillage. Josam gratings must be used to maintain the correct spacing. Grates may be placed upside down to preserve the top surface or placed right side up if there is concern that a power concrete screed could damage them. Place the gratings across section joints. This will aid in channel alignment at the top surface. The weight of the gratings will also help prevent the trench from floating when the concrete is poured.



- 9) Ensure the concrete surround is equal on both sides of the channel. If installing in concrete slabs, provide for expansion/contraction joints and do not let the drainage line interrupt existing expansion/contraction joints. If possible, locate the expansion/contraction joints near the channel joint. Maximum allowable distance between expansion joints is 25 feet, but the engineer should provide a recommendation.
- 10) Pour concrete. Do not chute concrete directly against channels! This will disturb the alignment. Consider doing an initial pour to secure the bottom of the channels down. Vibrate concrete for best results. Let it cure slightly or completely. This will further prevent floating of the trench in the concrete. After completing the final pour allow the concrete to fully cure.

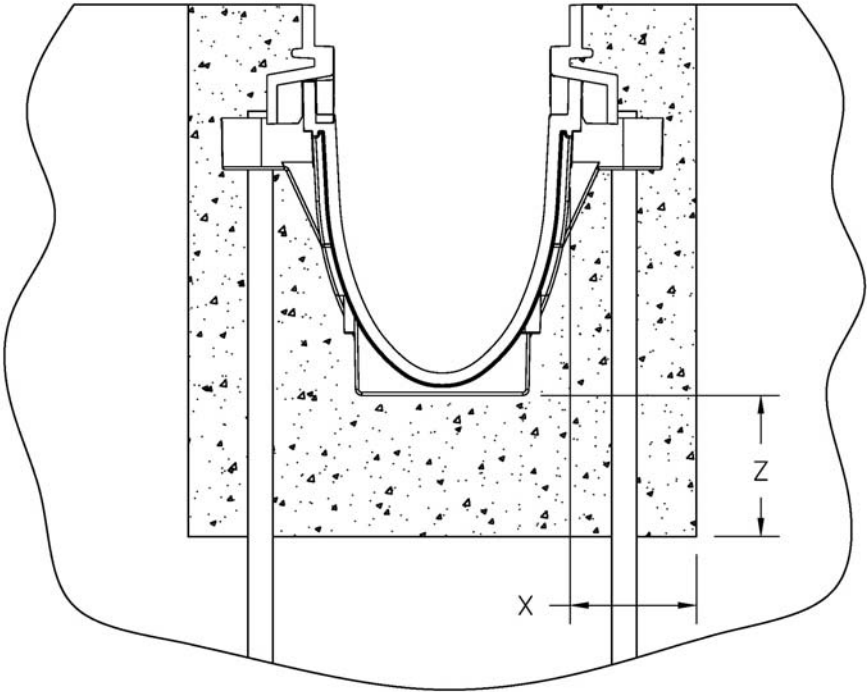
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- 11) If applicable, snap the rebate inserts into the rebate. Or, if the drain system requires a sealant in the joints, apply a construction grade polyurethane or silicone sealant (provided by others). Make sure the sealant is compatible with any extreme temperatures or corrosive fluids that may be in use. If both options are required, snap the rebate inserts into the bead of sealant or silicone and press firmly and clean off excess. The 100-RI or 200-RI will not fit at joints with BSC or BSW bracket.



- 12) Clean any spilled concrete from gratings, channels, and outlet points. Remove plastic wrap from gratings. Insert and secure gratings to channel body using the appropriate grating locking system.

3.0 Figures

Figure A: Concrete dimensions (inches)



		LOADING CLASS					
		A	B	C	D	E	F
DIMS	X (IN)	>3	>4	>6	>8	>8	>10
	Z (IN)	>3	>4	>6	>8	>8	>10

APPENDIX

