T2000 – INSTALLATION GUIDE

1 PREPARATIONS.

A) ALL COMPONENTS FOR INSTALLATION.

Check all components are correct and on hand for your particular channel section trench layout and installation including:

CHANNELS (correct sections for layout)
GRATES
END CAPS
OUTLETS (Bottom or End)
TOP FINISH CAPS
CATCH BASIN & SEDIMENT BUCKET (if applicable.)
BODY CLIPS (for Securing channels, Outlets and End caps.)
SELF-TAPPING SCREWS ¾" #10-12 (for all Bottom Outlets.)

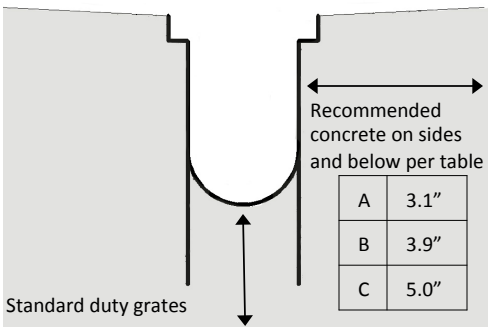
B) TOOLS AND LAYOUT MATERIALS REQUIRED.

- #5 Rebar or 5/8" All-thread Rod/nuts/washers
- 4" or 6" Hole Saw & Centering drill (req. for Bottom Outlets)
- Adhesive (for Top Finish caps)
- Caulking gun
- Concrete vibrator
- Drill & drill bits
- Duct Tape (for masking grates)
- Hammer
- Jig Saw or Plastic saw
- Level or laser line
- Masking tape (for covering grates during pour)
- Pliers
- Philips screwdrivers
- Shovel
- String-line
- Tie wire (for rebar)
- Wrenches/Sockets (for securing grates)

2 EXCAVATE THE TRENCH

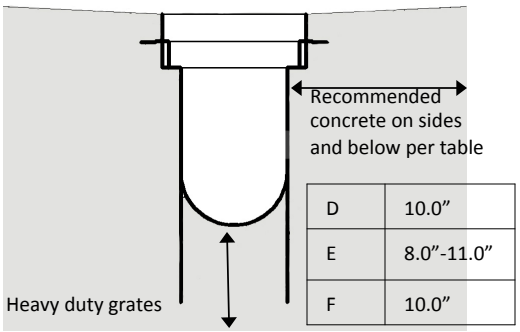
Prepare the trench for the **T2000** with a minimum concrete-surround by load class:

LIGHT AND MEDIUM DUTY CLASS A-C



Use Light or Medium (DIN A, C) duty grates.

HEAVY AND SPECIAL DUTY CLASS D-F



Use Light Heavy and Special Duty Iron Grates.

LOAD CLASS	EACH SIDE-MINIMUM	DEPTH BELOW-MINIMUM
CLASS A	3.10” [79mm]	3.10” [79mm]
CLASS B	3.90” [100mm]	3.90” [100mm]
CLASS C	6.00” [153mm]	6.00” [153mm]
CLASS D	10.00” [254mm]	10.00” [254mm]
CLASS E	8”- 10” [203-254]	8”- 10” [203-254]
CLASS F	10.00” [254mm]	10.00” [254mm]

RECOMMENDED CONCRETE PLAN – T2000 SERIES

General Notes on Installation:

- Requires frames to be in place and assembled in channels before/during cement pour.
- Concrete to have minimum 28 day compressive strength of 3,000 PSI.
- Concrete to be vibrated in place to eliminate entrapped air on all sides and bottom.
- T2000 channels to be anchored via rebar to prevent flotation.
- Concrete to cure at least 24 hours prior to form removal.
- If required, install water-stops per manufacturer’s instructions at least 3 inches below concrete surface.
- Water-stops and elastomeric joint sealants to be inspected and repaired on a regular basis.

3 ASSEMBLY

A. STARTING END CAP (SC): Layout run in sequential order. Identify starting upstream and ending downstream channels and assemble Starting End cap (s) SC and Outlet end cap (s) OC.
The Flow arrows on the channel always point towards the Outlet End.

For **CONTINUOUS FALL** – the END CAP OUTLET would be assembled to the highest numbered channel section being installed.
For **STEPPED FALL** – the END CAP OUTLET would be assembled to the highest numbered Neutral channel section being installed.
For **NO SLOPE/NEUTRAL** – the END CAP OUTLET would be assembled to the highest numbered Neutral channel section being installed.

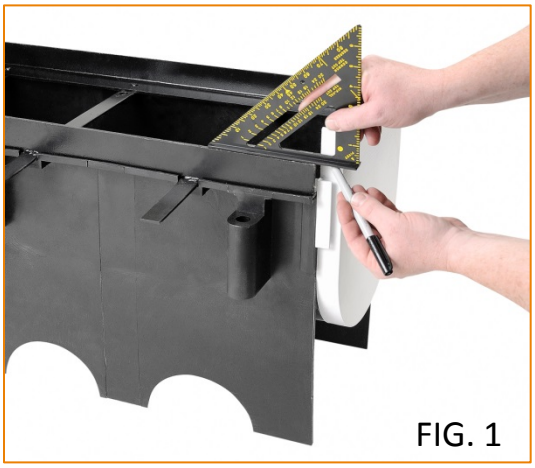


FIG. 1

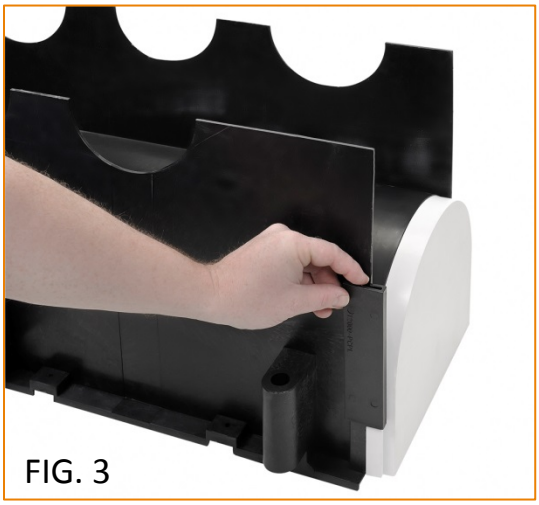


FIG. 3

Measuring End Cap:
Insert starting end cap on the most upstream channel (the lowest channel number).
Mark SC to top of frame and adjust down ¼" for cut line (allows for ¼" height of finish cap FC).
See FIG. 1 & 2

FIG. 2

Starting End Cap (SC) Assembly:
Cut the SC and apply appropriate sealant on tongue and recess area. Use Body Clip to clip starting end cap to the channel. See FIG. 3

3 ASSEMBLY – Continued.

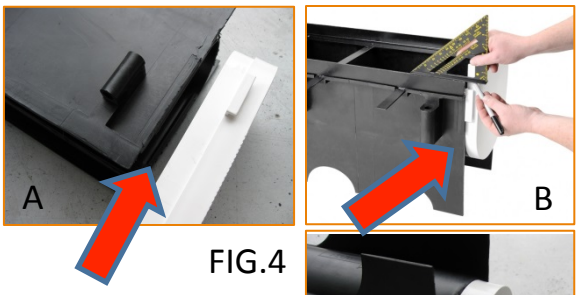


FIG.4

1. **CUT OFF MALE TONGUE.**
2. **-1/4" CUT-LINE.**

3. & 4. SEAL, SECURE & ATTACH FINISH CAP.

FIG.5

FIG.6

FIG.7

A. (Cont.) End Cap Modification:

When using Bottom Outlets for drainage:

See FIG.4 A, B & C (C.is Completed modification).

1. Remove the 1" male tongue with a suitable saw from the last channel section in the run. (after the Bottom Outlet.)
2. Mark an SC (Starting cap) to top of frame and adjust down ¼" for the cut line (allows ¼" Height of the finish cap. FC).
3. Apply appropriate sealant on Channel or underside of the End Cap. Use Body Clip(s) to secure!
4. Attach Finish Cap. FC. and glue if necessary.

B. Outlet End Cap (OC) Assembly:

Fix the OC to the most downstream channel tongue.

Mark the OC to the top of the frame and adjust down ¼" for the cut line (allows ¼" height of the Finish Cap FC).

Squarely cut the OC and then apply the appropriate sealant to the tongue area and then assemble the OC to the channel with the Body Clip. See FIG.5

C. Bottom Outlet (BO) Position:

Bottom outlets can be installed on any channel. Simply locate the lowest point on the pre-sloped channel, mark the hole and drill out with a 4" or 6" hole saw to suit the BO size.

We recommend using ½" long #8-10 self-tapping screws for mounting, along with an appropriate sealant between the BO fitting and the Channel. The bottom outlet has bosses that flush out against the channel legs to drill and thread into to secure during pour.

See FIG. 6 & 7.

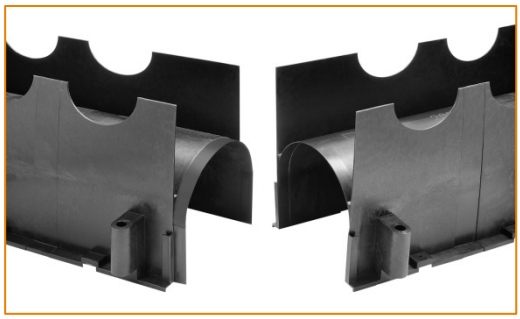
DRILL & SECURE EACH SIDE WITH AT LEAST (2)SELF-TAPPING SCREWS PER SIDE!

FOR GENDER-MENDERING BOTTOM OUTLET (BO) CONNECTIONS

(SEE SECTION E. FIG. 8 thru. 15 On Pages 6 & 7).

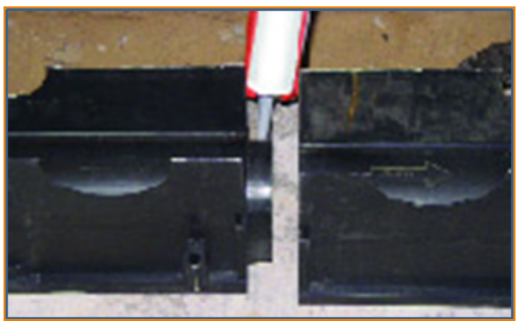
3 ASSEMBLY – Continued.

D. CHANNEL ASSEMBLY:



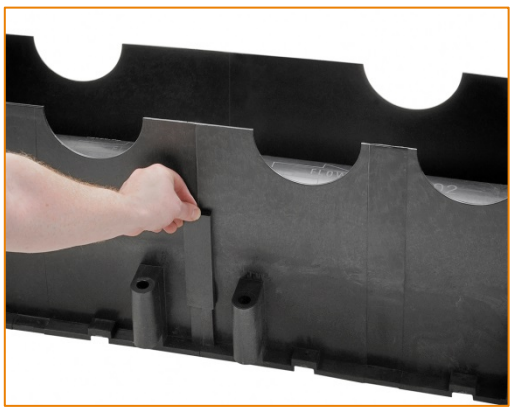
Channel Assembly:

All 16 T2000 channels have the same exterior profile. The channels are all tongue and recess to allow for an easy fit with the next sequenced channel either upstream or downstream. Follow the flow arrows on the bottom of each channel and reference each channel number to stay in sequence.
Assemble the channels, outlets and end caps etc UPSIDE DOWN.



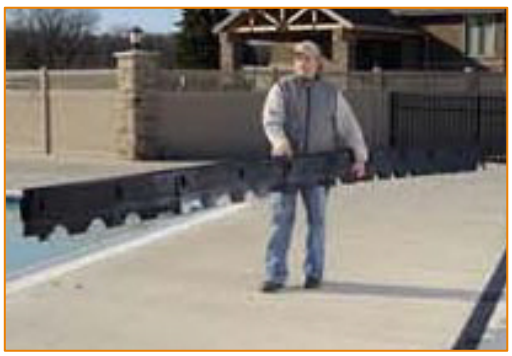
Sealant:

Apply the required sealant to the tongue and recess of each channel.



Install Body Clips:

The Body Clip (inset) performs a mechanical lock to secure each channel together. Each channel provides a slide groove that matches up with the attaching channel allowing the Body Clip to lock the channels together. (The Body Clip is also used on the various End Caps).



Assemble Multiple Channels:

For greater ease and robust assembly the entire length of run can be pre-assembled with the Body Clips, end caps and outlet components prior to inserting into the trench.
Eg. One person can handle up to a 4-6 channel-sections with the grating frames installed.
Notes: All T2000 channels come pre-assembled with grating frames securely fastened!
Frames must be installed before Pour!

3 ASSEMBLY – Continued.

E. GENDER-MENDERING CHANNELS:

Connect <u>two of the same part body numbers</u> for center bottom outlet by simply:

FOR DOWNSTREAM.

1) Cutting off the MALE TONGUE from each channel.
2) Apply appropriate sealant in joint area.
3) Clip together with Body Clips (2).

FOR UPSTREAM.

1). Form Upstream connection by just clipping FEMALE ENDS together with Body Clips (2).
2) Apply appropriate sealant in joint area.

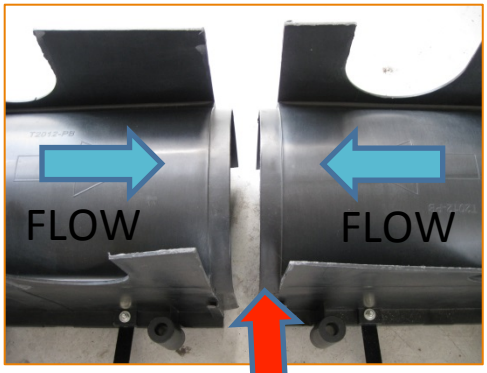


FIG.8

CUT OFF BOTH MALE TONGUES

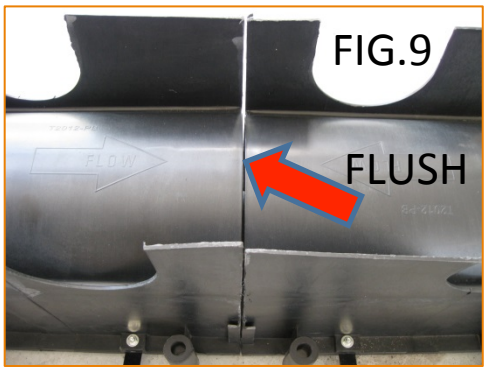


FIG.9

Special Note: Channels for both upstream and downstream connections need to be the same part body number. Neutral channels are normally recommended for these connections, but two of <u>any part body numbers</u> can be connected. (See FIG's 8 thru. 15 in this section).

STEPS 1 & 2. Cut & Deburr: (Downstream)

Remove Both Male tongues (with a suitable saw) by cutting them off flush to the Body Clip tab end faces and deburr for any sharp edges and loose material. (See FIG's 8 & 9).

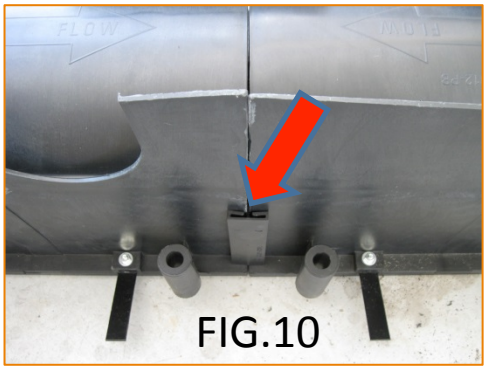


FIG.10

STEP 3. Install Body Clips (2):

Butt together the (2) previously Cut Channel Ends and install the (2) Body Clips to secure! (See FIG. 10).
A hammer may be required to Tap down the Body Clips.

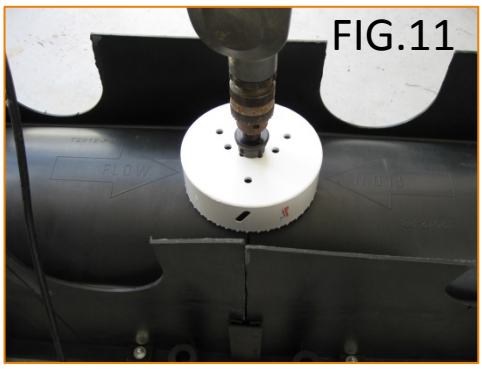
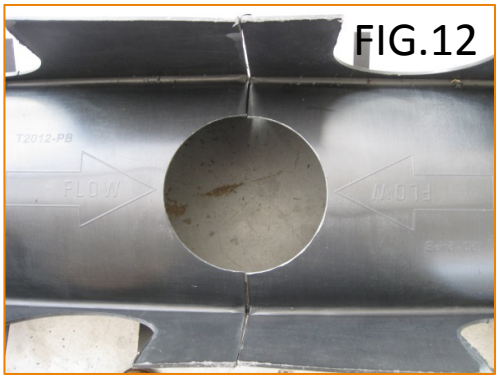


FIG.11

STEP 4. Mark for Center & Cut 4" or 6" Dia. Hole:

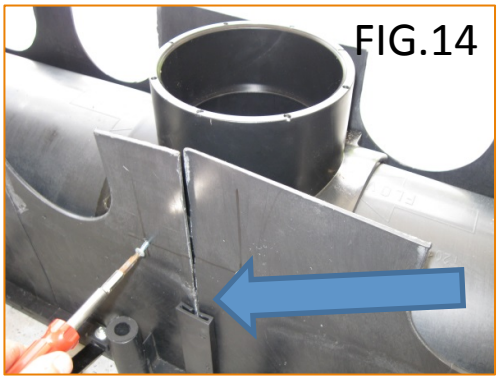
Measure for the center of the channel section at the joint and cut out using a 4" or 6" Dia. hole saw. (See FIG 11). (To suit Bottom Outlet size).

3. ASSEMBLY : Cont E. Gender-Mendering of Channel Sections.

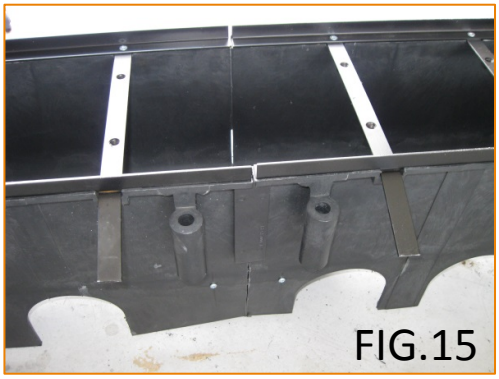


STEP 5. Deburr All Sharp Edges:
Remove all sharp edges and debris around the hole sealing face and inside the channel. (See FIG.12). (Rough grit Sandpaper does a great job of this).

STEP 6. Position the Bottom Outlet:
Position the Bottom Outlet on Hole center, measure and mark for the locations of the suggested 3/4" long #10-12 Self-tapping screws. (Self drilling screws can also be used).
The Bottom Outlets have side bosses on both sides to pilot drill and Tap/screw into. (See FIG's 13 & 14).
A minimum 2 or more screws on each side is required.



STEP 7. Apply a Sealant & Fasten:
Apply a suitable sealing caulk to the Bottom outlet and channel sealing faces and fasten both sides to secure. Apply additional sealant to any gaps that may be evident in the channel sides near the Body Clips. (See FIG.14).



STEP 8. Clean-Up to Complete:
Wipe off any excess sealant.
The Connection task of the Bottom Outlet is now completed.

4 INSTALL & POUR


FIG.16

A. Place the pre-assembled length of run into your trench:

FIG. 16 Shows all grating frames in place before pour. **Ensure that all appropriate Grating frames are in place before pouring concrete! <u>They cannot be installed later!</u>**

i) Insert #5 rebar into Integral Ears, drive rebar into the ground about 6" to 12" inches or until firmly held in place to support Trench and 60lb grates. (See FIG. 17)

ii) Set the T2000 trench to desired grade level and align for straightness and secure with Tie Wire or cable ties.
(Adjust Nuts if using Threaded Rod method.)

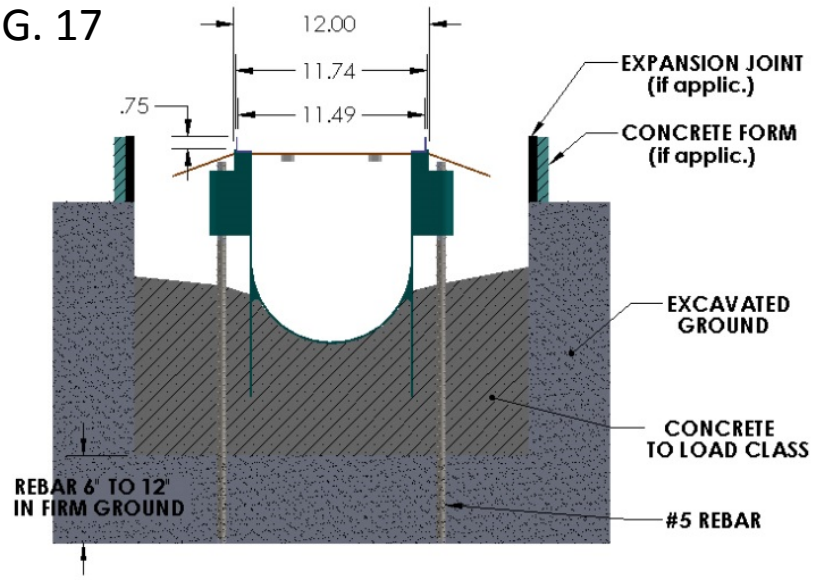
iii) Connect to all Planned drainage fittings.

iv) Install the Grates and Mask over before Pour.

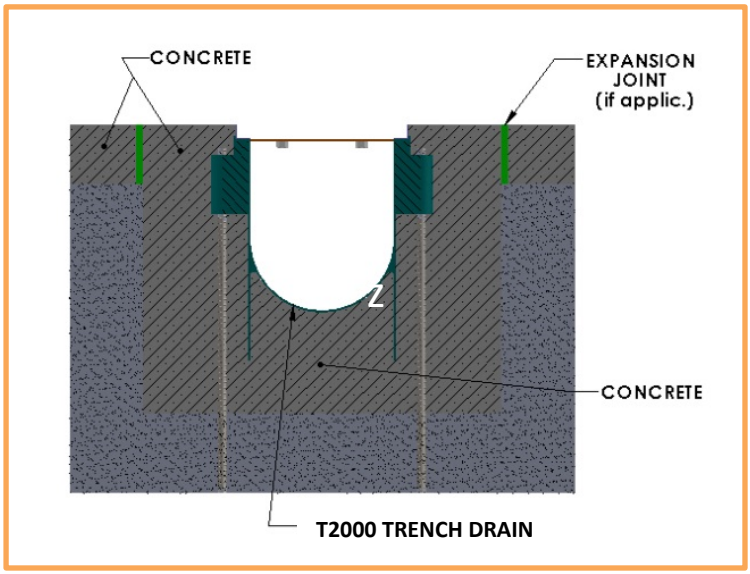
B. TO LIMIT TRENCH SHIFTING:

1st Pour concrete to cradle around the rebar or threaded–rod, supports and under the trench through the Side-skirt cut-outs to minimize shift of the Trench-run. Repeat for each pair of trench channels.

FIG. 17



4 INSTALL & POUR – Continued.



C. FINISH POUR:

Finish pour evenly to prevent the trench from shifting!

Vibrate the concrete to remove trapped air bubbles.

5 FINISH CLEAN-UP.

A. Clean Up Installation:

! After the concrete has set for at least **24 Hours**, Remove masking from Grate tops.
Securely fasten the grates using **a 14mm** Socket for the Hex bolt type grate lock downs.

B. Set-Up Time and Loading:

Follow the concrete manufacturers recommendations for the appropriate set-up time and loading.