

PRE-SLOPED CHANNEL DRAIN

DURA SLOPE™ CHANNEL DRAINS

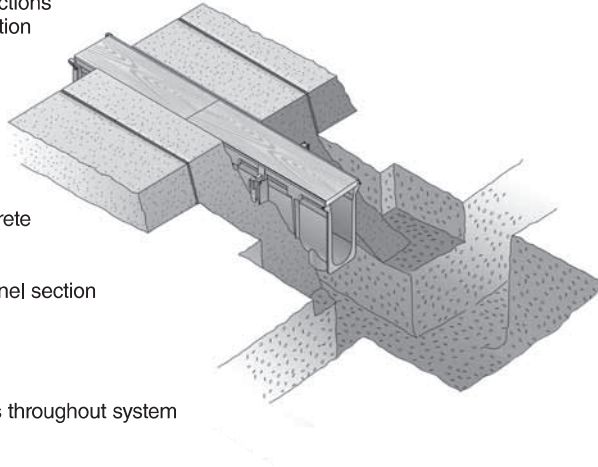
Lightweight 4 ft. modular sections
Easier handling and installation
Lower freight costs

2" radius bottom
Minimizes debris build-up

Polyethylene material
Durable and inexpensive
Less breakage versus concrete
High chemical resistance

Bottom outlet on each channel section
System versatility
Requires fewer accessories

0.7% built-in slope
Maintain optimum flow rates throughout system



LevelLoc™ re-bar supports with
integral protruding knob

- Levels channel and grips re-bar
- Requires fewer accessories



ProFit™ locking system

- Locks grate to integral frame
- Supports product in shipping and installation (included)



Interlocking tongue and groove joints

- Secures alignment
- Ensures straight channel runs
- Easy assembly and installation

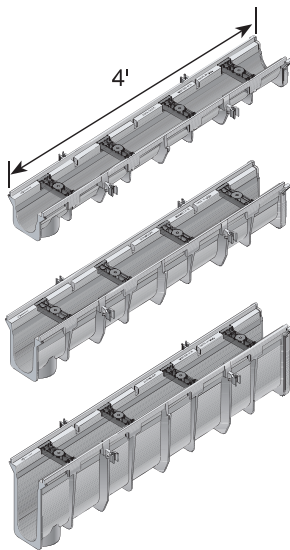


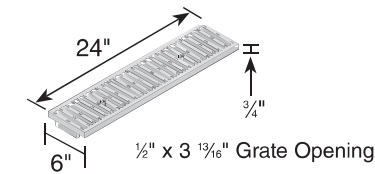
DuraLoc™ integral joint lock

- Prevents joint movement during installation
- No extra clamps or screws needed

Specifications: NDS Dura Slope™ is a 6 $\frac{5}{8}$ " wide, 48" long trench drain system with a built-in slope of 0.7%. Each channel section is molded of gray structural foam polyethylene with UV inhibitors and has a 4" inside diameter with a 2" radius bottom. The system consists of 4-foot channel sections including 24 pre-sloped channel sections and 9 neutral channel sections. The sloped channel sections enable the system to extend to a length of 96 feet with a continuous slope. Add neutral channels to extend the system run to an excess of 132 feet. By incorporating central collection through the use of the catch basin assembly, the Dura Slope™ trench drain system can be extended to lengths up to 266 feet. Dura Slope™ channels are designed with the pre-installed ProFit™ locking system, which maintains structural integrity during installation and locking devices for the grating. LevelLoc™ integral re-bar supports are located at 24" intervals along each side of the channel and contain an internal protruding knob designed to grip #3 or #4 re-bar ($\frac{3}{8}$ " – $\frac{1}{2}$ ") for easier channel height adjustment during installation. DuraLoc™ tongue and groove ends connect allowing for a precise fit and ensure straight channel runs, incorporating an integral snap-lock feature that prevents joint movement during channel installation. Each channel section is molded with a bottom outlet allowing for system versatility and ensuring proper drainage. Expansion joints must be provided parallel to each side of the drain run.

| Part No. | Description | Color | Pkg. Qty. | Wt. Ea. (lbs.) | Product Class | |
|----------|--|-------|-----------|----------------|---------------|--------------------------|
| DS-090N | 3.99" Deep Neutral Dura Slope Channel | Gray | 1 | 7.45 | 25DS | For Grates, see page 42. |
| DS-091 | 3.99" to 4.34" Deep Dura Slope Channel | Gray | 1 | 7.52 | 25DS | |
| DS-091N | 4.34" Deep Neutral Dura Slope Channel | Gray | 1 | 7.81 | 25DS | |
| DS-092 | 4.34" to 4.67" Deep Dura Slope Channel | Gray | 1 | 7.92 | 25DS | |
| DS-093 | 4.67" to 5.00" Deep Dura Slope Channel | Gray | 1 | 8.27 | 25DS | |
| DS-094 | 5.00" to 5.34" Deep Dura Slope Channel | Gray | 1 | 8.64 | 25DS | |
| DS-094N | 5.34" Deep Neutral Dura Slope Channel | Gray | 1 | 8.93 | 25DS | |
| DS-095 | 5.34" to 5.68" Deep Dura Slope Channel | Gray | 1 | 8.99 | 25DS | |
| DS-096 | 5.68" to 6.01" Deep Dura Slope Channel | Gray | 1 | 9.36 | 25DS | |
| DS-097 | 6.01" to 6.35" Deep Dura Slope Channel | Gray | 1 | 9.74 | 25DS | |
| DS-097N | 6.35" Deep Neutral Dura Slope Channel | Gray | 1 | 10.04 | 25DS | |
| DS-098 | 6.35" to 6.69" Deep Dura Slope Channel | Gray | 1 | 10.11 | 25DS | |
| DS-099 | 6.69" to 7.02" Deep Dura Slope Channel | Gray | 1 | 10.48 | 25DS | |
| DS-100 | 7.02" to 7.36" Deep Dura Slope Channel | Gray | 1 | 10.86 | 25DS | |
| DS-100N | 7.36" Deep Neutral Dura Slope Channel | Gray | 1 | 11.16 | 25DS | |
| DS-101 | 7.36" to 7.69" Deep Dura Slope Channel | Gray | 1 | 11.23 | 25DS | |
| DS-102 | 7.69" to 8.03" Deep Dura Slope Channel | Gray | 1 | 11.60 | 25DS | |
| DS-103 | 8.03" to 8.37" Deep Dura Slope Channel | Gray | 1 | 11.98 | 25DS | |
| DS-103N | 8.37" Deep Neutral Dura Slope Channel | Gray | 1 | 12.27 | 25DS | |
| DS-104 | 8.37" to 8.70" Deep Dura Slope Channel | Gray | 1 | 12.34 | 25DS | |
| DS-105 | 8.70" to 9.04" Deep Dura Slope Channel | Gray | 1 | 12.71 | 25DS | |
| DS-106 | 9.04" to 9.37" Deep Dura Slope Channel | Gray | 1 | 13.07 | 25DS | |
| DS-106N | 9.37" Deep Neutral Dura Slope Channel | Gray | 1 | 13.39 | 25DS | |
| DS-107 | 9.37" to 9.70" Deep Dura Slope Channel | Gray | 1 | 13.4 | 25DS | |
| DS-108 | 9.70" to 10.05" Deep Dura Slope Channel | Gray | 1 | 13.83 | 25DS | |
| DS-109 | 10.05" to 10.38" Deep Dura Slope Channel | Gray | 1 | 14.20 | 25DS | |
| DS-109N | 10.38" Deep Neutral Dura Slope Channel | Gray | 1 | 14.50 | 25DS | |
| DS-110 | 10.38" to 10.71" Deep Dura Slope Channel | Gray | 1 | 14.57 | 25DS | |
| DS-111 | 10.71" to 11.05" Deep Dura Slope Channel | Gray | 1 | 14.95 | 25DS | |
| DS-112 | 11.05" to 11.39" Deep Dura Slope Channel | Gray | 1 | 15.32 | 25DS | |
| DS-112N | 11.39" Deep Neutral Dura Slope Channel | Gray | 1 | 15.6 | 25DS | |
| DS-113 | 11.39" to 11.72" Deep Dura Slope Channel | Gray | 1 | 15.69 | 25DS | |
| DS-114 | 11.72" to 12.06" Deep Dura Slope Channel | Gray | 1 | 16.06 | 25DS | |



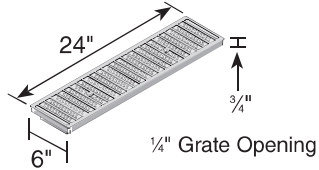


| Part No. | Description | Color | Pkg. Qty. | Wt. Ea. (lbs.) | Product Class | Specifications |
|----------|---------------------|-----------|-----------|----------------|---------------|---|
| 660 | 2 ft. Channel Grate | White | 24 ft | 2.92 | 25DS | NDS #660, #661, #662, #663, #664, 2 ft. Structural Foam Polyolefin secured channel grate with UV inhibitor. Open surface area 20.61 square inches per foot. 27.00 GPM per foot. |
| 661 | | Dark Gray | 24 ft | 2.92 | 25DS | |
| 661LG | | Gray | 24 ft | 2.92 | 25DS | |
| 662 | | Green | 24 ft | 2.92 | 25DS | |
| 663 | | Black | 24 ft | 2.92 | 25DS | |
| 664 | | Sand | 24 ft | 2.92 | 25DS | |

Use with Dura Slope Drains (page 41), Dura Slope Catch Basins (page 43).



(See pg. 48) ADA Compliant

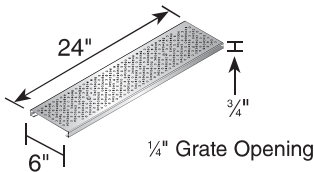


| | | | | | | |
|--------|--|------|--------|-----|------|--|
| DS-670 | 2 ft. Plastic Perforated Channel Grate | Gray | 24 Ft. | 3.0 | 25DS | NDS #DS-670, 2' Structural Foam Polyolefin, secured channel grate with UV inhibitor, light traffic rated, heel-proof, ADA compliant. Open surface area 9.36 square inches per foot. 12.2 GPM per foot. |
|--------|--|------|--------|-----|------|--|

Use with Dura Slope Drains (page 41), Dura Slope Catch Basins (page 43).



(See pg. 48) ADA Compliant/Heel-proof

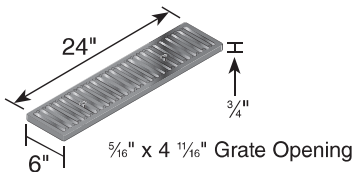


| | | | | | | |
|--------|---|-------|--------|------|------|--|
| DS-226 | 2 ft. Stainless Steel Perforated Channel Grate | Steel | 24 Ft. | 3.22 | 25DS | NDS #DS-226 Stainless Steel grate, light traffic rated, heel-proof, ADA compliant. Open surface area 7.92 square inches per foot. 10.4 GPM per foot. |
| DS-228 | 2 ft. Galvanized Steel Perforated Channel Grate | Steel | 24 Ft. | 3.22 | 25DS | |

Use with Dura Slope Drains (page 41), Dura Slope Catch Basins (page 43).



(See pg. 48) ADA Compliant/Heel-proof

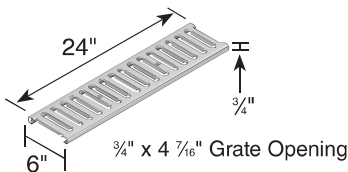


| | | | | | | |
|--------|----------------------------------|-------|---|-------|------|---|
| DS-231 | 2 ft. Cast Iron Channel Grate | Black | 1 | 15.00 | 25DS | #DS-231 2 ft. Heavy Duty Cast Iron Channel Grate. NDS #DS-232, 2 ft. Heavy Duty Ductile Iron Channel Grate. Open surface area 15.27 square inches per foot. 20.00 GPM per foot. H-20 Load Rating. |
| DS-232 | 2 ft. Ductile Iron Channel Grate | Black | 1 | 16.00 | 25DS | |

Use with Dura Slope Drains (page 41), Dura Slope Catch Basins (page 43).



(See pg. 48) ADA Compliant/Heel-proof



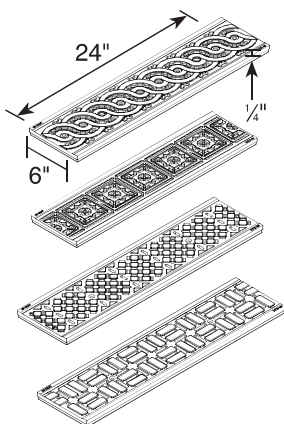
| | | | | | | |
|--------|--------------------------------------|-------|-------|------|------|---|
| DS-221 | 2 ft. Galvanized Steel Channel Grate | Steel | 24 ft | 4.00 | 25DS | NDS #DS-221, 2 ft. Galvanized Rolled Steel Grate. Open surface area 19.85 square inches per foot. 26.00 GPM per foot. |
|--------|--------------------------------------|-------|-------|------|------|---|

Use with Dura Slope Drains (page 41), Dura Slope Catch Basins (page 43). Includes bracket to attach grate to channel and screws.



(See pg. 48)

DECORATIVE GRATES



| Part No. | Description | Color | Pkg. Qty. | Wt. Ea. (lbs.) | Product Class | Specifications |
|----------|-----------------|----------|-----------|----------------|---------------|---|
| DS-601 | Weave Pattern | Raw Iron | 1 | 14.5 | 25DS | Decorative grates are made of ductile iron. Additional colors available: Black (K), White (W), Silver (S), Bronze (Z), Green (G), Blue (B), Orange (O), Gray (Y), Brown (N) |
| DS-602 | Diamond Pattern | Raw Iron | 1 | 14.3 | 25DS | |
| DS-603 | Tile Pattern | Raw Iron | 1 | 14.7 | 25DS | |
| DS-604 | Brick Pattern | Raw Iron | 1 | 14.3 | 25DS | |
| DS-609 | Deco Slot | Raw Iron | 1 | 14.5 | 25DS | |

Use with Dura Slope Drains (page 41), Dura Slope Catch Basins (page 43).



(See pg. 48) ADA Compliant/Heel-proof

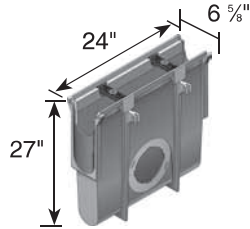
Note: All dimensions are nominal. All weights are for shipping purposes only. Availability is subject to change.

To place an order, visit: ndspro.net, fax: 1-800-726-1998 or call 1-800-726-1994.

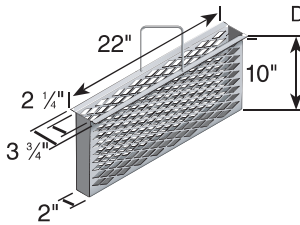
PRE-SLOPED CHANNEL DRAIN

DURA SLOPE™ CHANNEL DRAINS

Specifications: NDS Dura Slope™ in-line catch basins are a 6-5/8" wide, 24" long gray structural foam polyethylene catch basin with UV inhibitors. In-line catch basins are designed to provide an optional in-line junction or outlet piping connection location for NDS Dura Slope™ trench drain systems. Each Dura Slope™ Catch Basin Module is 2 feet long and 2 feet deep. The catch basin modules will fit all depth ranges of the Dura Slope™ trench drains. Dura Slope™ in-line catch basins are provided with the pre-installed ProFit™ locking system, which maintains structural integrity during shipping and installation, and provides locking devices for the grating. LeveLoc™ integral re-bar supports located along each side of the catch basin contain an internal protruding knob to grip #3 or #4 re-bar (3/8" – 1/2") providing height adjustment during installation. DuraLoc™ tongue and groove ends connect allowing for a precise fit and ensure straight channel runs. DuraLoc™ joints incorporate a snap-lock feature that prevents joint movement during channel and basin installation. Basin inlets are to be sized as required to accept matching trench drain by the use of a saw during installation eliminating the need for multiple basin configurations. The Dura Slope™ in-line catch basin has an outlet on both sides of the basin. NDS universal basin outlets are used to adapt basin to 3", 4", 6" and 8" pipe. Plugs are also available if one outlet is preferred. All universal outlets are ordered separately (see page 24 for details). For additional catch basin options see the NDS Drainage Catalog or NDS Dura Slope Catalog. Expansion joints must be provided parallel, but not immediately adjacent to each side of the drain run and crack control joints utilized at right angles to the channel for installation in concrete. One Universal Adaptor Plug (part number 1206) included with each catch basin.








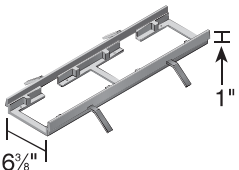


| Part No. | Description | Color | Pkg. Qty. | Wt. Ea. (lbs.) | Product Class |
|--|----------------------------------|-------|-----------|----------------|---------------|
| DS-340 | Dura Slope™ in-line Catch Basins | Gray | 1 | 12.00 | 25DS |
| DS-340 replaces DS-140 (DS-140 will not work with channels DS-090N to DS-100 and DS-113 or deeper. Available for use of one or two outlets. Use #1242, #1243, #1245, #1266, #1206, or #1888 Universal Outlets (see page 25). | | | | | |



| Part No. | Description | Color | Pkg. Qty. | Wt. Ea. (lbs.) | Product Class |
|---|--------------------------|-------------------------|-----------|----------------|---------------|
| DS-240 | Dura Slope™ Trash Bucket | Steel Zinc Plated Steel | 1 | 5.0 | 25DS |
| Note – DS-240 Trash Bucket is not for use with the DS-200 Ductile Iron Frame. | | | | | |



DURA-SLOPE™ ACCESSORIES

| | Part No. | Description | Color | Pkg. Qty. | Wt. Ea. (lbs.) | Product Class |
|---|----------|--|-------|-----------|----------------|---------------|
|  | DS-122 | ProFit™ Grate Lock | Black | 8 | 0.80 | 25DS |
|  | DS-123 | Dura Slope Frame & End Cap Screws PH. # 6 x 3/4" Use on DS-124 universal end cap & DS-127 Universal End Outlet downstream for (male) end. Use to attach DS-200 DI Frame to Channel | Steel | 12 | | 25DS |
|  | DS-224 | Universal End Cap Replaces DS-124, which will not work with DS-113 or deeper channels. Slides into upstream (female) end. Requires DS-123 screws on downstream (male) end. | Gray | 8 | 0.63 | 25DS |
|  | DS-227 | Universal End Outlet Replaces DS-127, which will not work with DS-113 or deeper channels. Requires DS-123 screws for use on downstream (male) end. Fits to 4" S&D Pipe | Gray | 6 | 0.75 | 25DS |
|  | DS-126 | Bottom Outlet Adapter Fits to 4" S&D Pipe. DS-126 not required for Sch. 40 connection. | Gray | 6 | 0.53 | 25DS |
|  | 629 | Grate Screws FH # 1/4 - 20 x 1 1/2" Use with Grate # DS-231, DS-232, DS-670, DS-226 and 660-665. Use to secure grates in applications without DS-200 DI Frame | Steel | 40 | 0.70 | 25PF |
|  | DS-225 | Dura Slope Ductile Iron Frame Screws FH # 1/4 - 20 x 2 1/2" Use to secure grates in applications that utilize DS-200 DI Frame | Steel | 12 | | 25DS |
|  | DS-200 | Dura Slope Ductile Iron Frame Use with Dura Slope Drains (page 40), Dura Slope Catch Basins (page 42). To be used with DS-231 or DS-232 grates. | Black | 2 ft | 7.50 | 25DS |



(See pg. 48) ADA Compliant/Heel-proof

DURA SLOPE™ RADIUS COUPLING & GRATES

| | Part No. | Description | Color | Pkg. Qty. | Wt. Ea. (lbs.) | Product Class |
|---|------------|--|------------|-----------|----------------|---------------|
|  | DSRC-097 | 6.35" Deep Neutral Dura™ Slope Radius Coupling | Gray | 6 | 0.81 | 25DS |
| | DSRC-100 | 7.36" Deep Neutral Dura™ Slope Radius Coupling | Gray | 6 | 0.82 | 25DS |
| | DSRC-103 | 8.37" Deep Neutral Dura™ Slope Radius Coupling | Gray | 6 | 0.83 | 25DS |
| | DSRC-106 | 9.37" Deep Neutral Dura™ Slope Radius Coupling | Gray | 6 | 0.84 | 25DS |
|  | DS-660MG | 1.25" Plastic Slotted Radius Coupling Grate | White | 6 | 0.08 | 25DS |
| | DS-661MG | 1.25" Plastic Slotted Radius Coupling Grate | Dark Gray | 6 | 0.08 | 25DS |
| | DS-661LGMG | 1.25" Plastic Slotted Radius Coupling Grate | Light Gray | 6 | 0.08 | 25DS |
| | DS-662MG | 1.25" Plastic Slotted Radius Coupling Grate | Green | 6 | 0.08 | 25DS |
| | DS-663MG | 1.25" Plastic Slotted Radius Coupling Grate | Black | 6 | 0.08 | 25DS |
| | DS-664MG | 1.25" Plastic Slotted Radius Coupling Grate | Sand | 6 | 0.08 | 25DS |
| | DS-665MG | 1.25" Plastic Slotted Radius Coupling Grate | Brick Red | 6 | 0.08 | 25DS |
| | DS-681LGMG | 1.25" Plastic Standard Radius Coupling Grate | Light Gray | 6 | 0.16 | 25DS |
| | DS-232MG | 1.25" Ductile Iron Radius Coupling Grate | Black | 6 | 0.93 | 25DS |

Note: All dimensions are nominal. All weights are for shipping purposes only. Availability is subject to change.

Dura Slope System Profiles

Neutral run

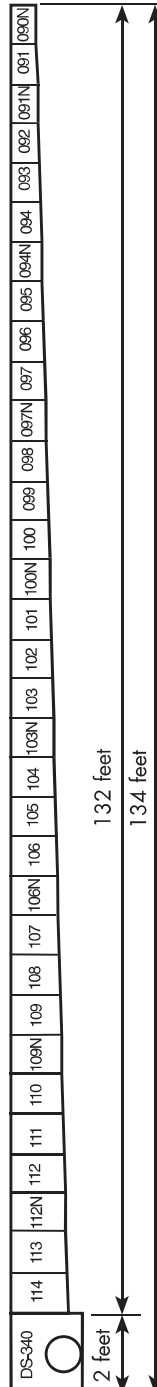


*Any neutral channel can be used in this application.

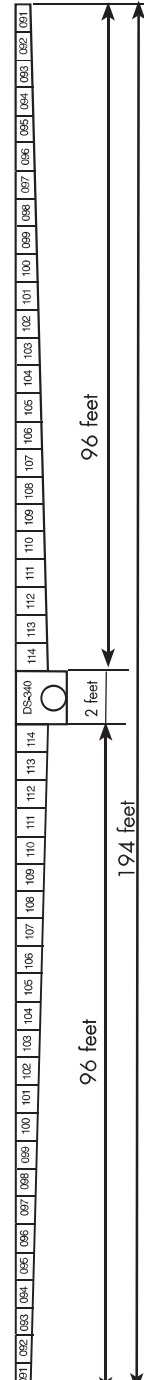
Linear fall without neutrals



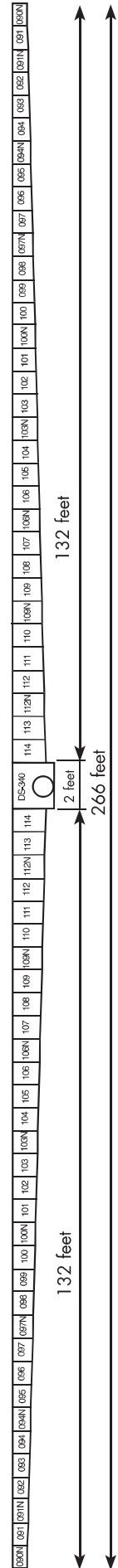
Linear fall with neutrals



Counter directional fall without neutrals



Counter directional fall with neutrals



Note: Drawings are not to scale. See previous pages for actual product dimensions.

The following installation instructions are recommendations for typical installations. Please refer to project plans and specs for any deviation to these instructions.

1 Excavate a trench for the channels

Excavate a trench with a minimum concrete-surround, by load class:

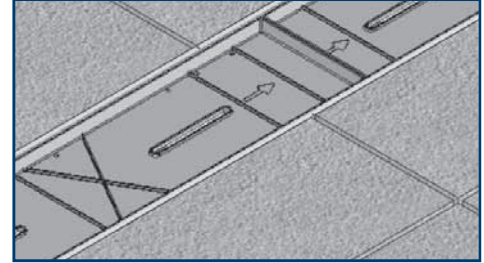
Note: The channel must be recessed 1/8" for pedestrian traffic and 1/4" for vehicular traffic.

2 Lay the channels alongside the trench

- Start the layout at the drain outlet with the deepest (highest numbered) channel section, proceeding to the shallowest (lowest numbered) channel section.
- Point the arrows on each channel section towards the drain outlet.

3 Locate the expansion joints

Plan to install expansion joints parallel and perpendicular to channel according to plan specification. Locate perpendicular expansion joints crossing the channel at the channel joints (if possible).



Expansion joints

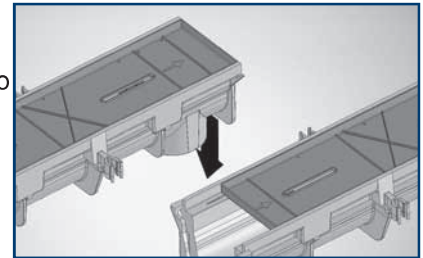
4 Assemble the drain outlet

- Assemble the drain outlet with DS-224 End Cap, End Outlet DS-227, or using a Catch Basin DS-340.
- Use End Cap DS-224 at the shallowest end of the run.
- Set a string line in trench along each side of where channel will be placed, at final elevation of channel. If using ductile iron frame place string line 1" below finished grade to accommodate the frame.

5 Assemble the channels

The outlet will be at the deepest end. Assemble the channel section from the deepest to the shallowest.

- Place a bead of butyl caulking or silicone sealant in the channel's joint or groove (if a water tight seal is required).
- Snap the channel sections together in multiples of two.

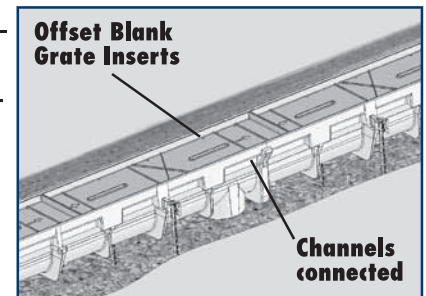


Joined channels

Note: If using Ductile Iron Frames skip to **Step 5A**.

- Remove the screws from the end of the Blank Grate Insert located on the male side of the channel (do not remove the center screws from the insert). Start at the drain outlet.
- Loosen the center screws on the Blank Grate Insert; slide the Insert in the direction of the male end (downstream) so it overhangs or is staggered.
- Align channel with Blank Grate Insert for straightness. Use self tapping screws to fasten the Inserts to the channel; ensure the ends are flush with the edge of the Insert. Cover the slots on the Insert with tape to prevent concrete from getting into the channel.
- Place the pre-assembled channel sections in the trench beginning from the outlet end.

Tip: Cover screw heads and the slots in the Blank Grate Insert with tape for easy removal after the concrete is poured.



Offset blank grate inserts

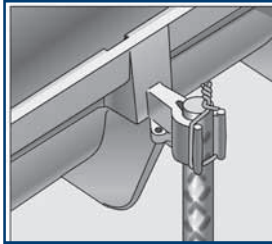
5A If using Ductile Iron Frame: Assemble the channels

- Assemble the channels. Snap the channel sections together in multiples of two.
- Remove all Blank Grate Inserts from all channel sections.
- Secure the Ductile Iron Frames to the channel using the DS-123 screws. Install iron grates using DS-225 screws.
- Apply a covering or tape to the grates for protection and to prevent concrete from entering the channel.

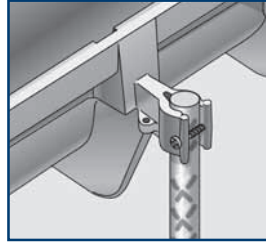
Note: All dimensions are nominal. All weights are for shipping purposes only. Availability is subject to change.

6 Install the rebar for each channel section assembled

- Insert rebar into the Leveloc rebar support. Drive rebar straight into the ground about 6" to 12" or until rebar is firmly held in place.
- Set channel to desired grade level and align for straightness using string line.
- Continue attaching pre-assembled channel sections and install rebar until run is complete.
- Proceed with final adjustments for grade level and straightness using wire tie or self-tapping screws, secure the rebar to the Leveloc rebar support.



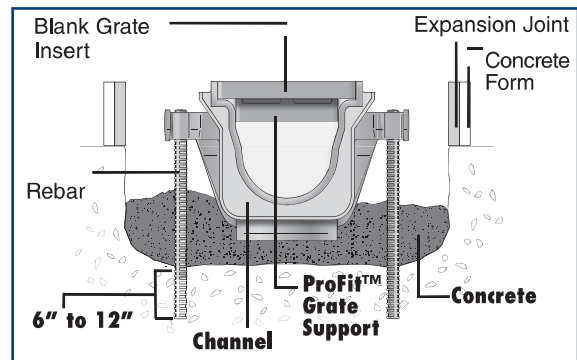
Wire support



Screw support

7 Cradle the channel with concrete

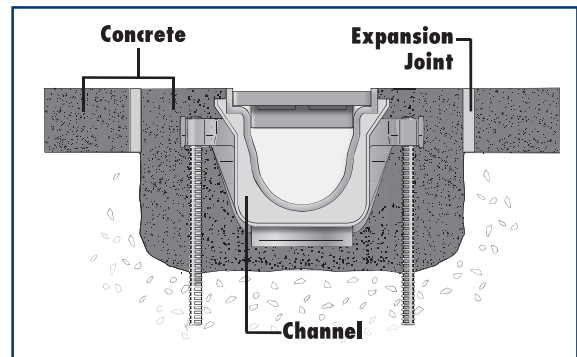
- Place concrete around base of rebar post on each side of the channel as well as underneath the channel between the two rebar posts.
- Repeat concrete cradle for each pair of rebar posts.



Concrete cradle

8 Pour the concrete in the channel trench

- Pour equal amounts of concrete on each side of the channel to prevent the channel from shifting.
- Vibrate the concrete to avoid bubbles or voids. Installations in asphalt require the same concrete encasements.

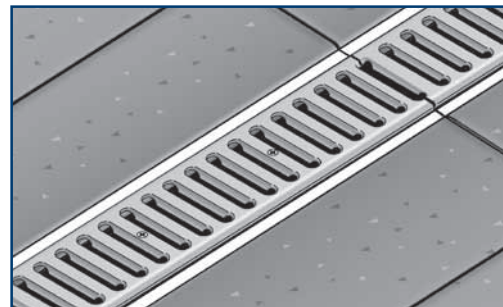


Channel cross-section for pour

9 Clean up the installation

- After the concrete has set for a minimum of 24 hours, remove the Blank Grate Inserts.
- Install the grates.
- Ensure that all the grates are securely fastened.

Note: Follow the concrete manufacturer's recommendations for set-up time and loading.



Finished installation