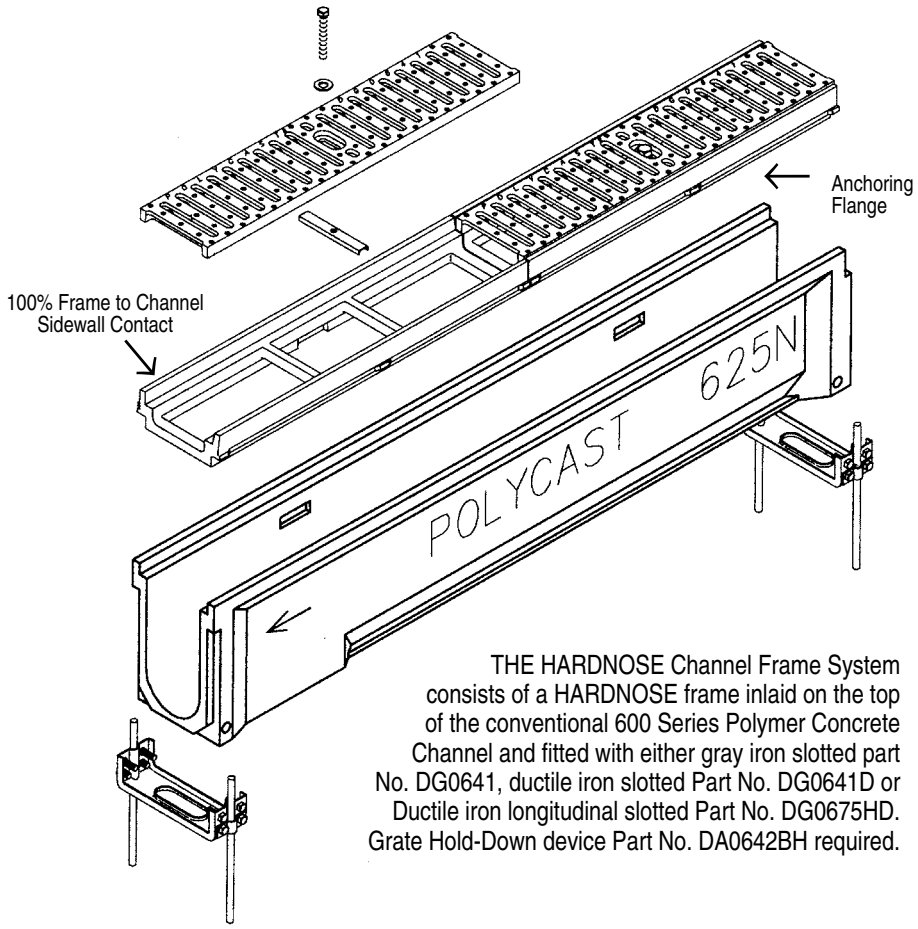
Traffic Conditions Requiring Channel Reinforcement (700 Series Frames, DURAGUARD®, POLYGUARD)

- **Solid Tires**
- **Moderate Speed (over 15mph)**
- **Frequent Traffic**

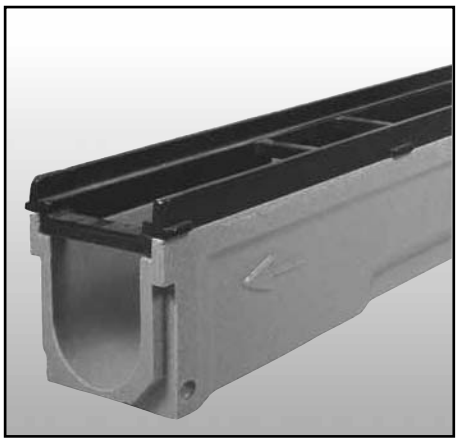
Grate hold-down devices are available and must be maintained secure to reduce grate movement during loading.

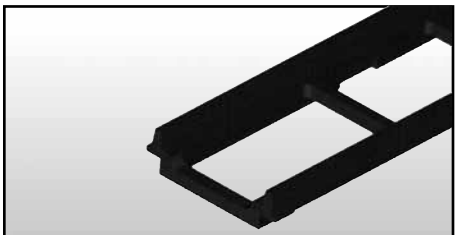
700 Series HARDNOSE Presloped Extra Heavy Duty

The POLYCAST® 700 Series Channels are designed for heavy commercial and military aircraft traffic, hard wheel forklifts, pallet jacks, solid wheel carts, construction equipment and off-road vehicles at moderate speeds (exceeds FAA Airport Pavement Design loads per AC 150/5320-6D). The flow rates are comparable to the conventional 600 Series. The 700 Series assembly consists of cast iron frames inlaid on the top of the conventional 500 Series and 600 Series Channels and fitted with either Cast Iron (DG0641), Ductile Iron (DG0641D), or Longitudinal Slotted Ductile Iron (DG9675HD) grates. Optional anchoring bolts are available



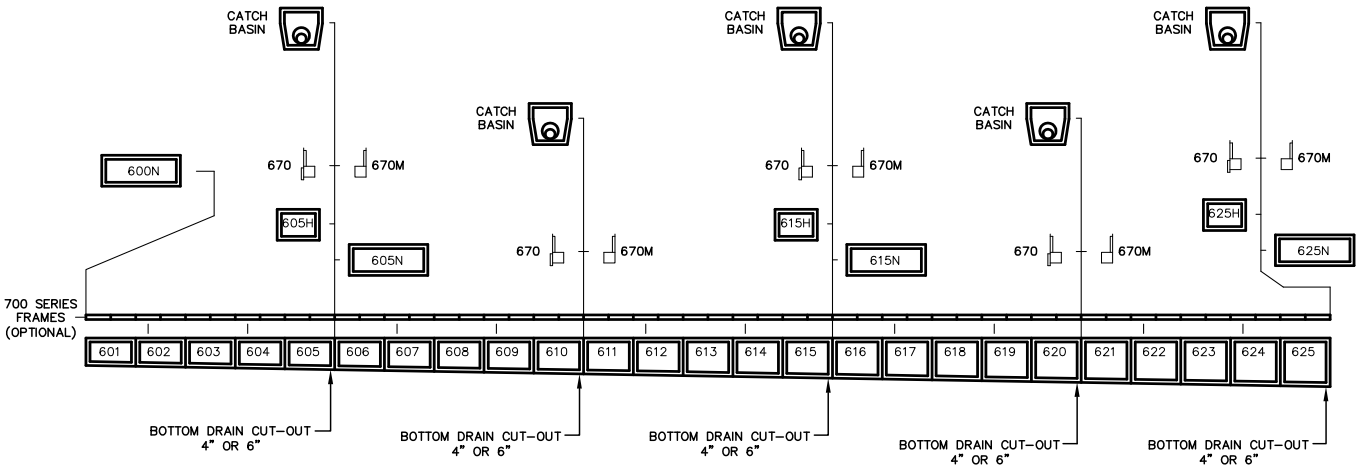
THE HARDNOSE Channel Frame System consists of a HARDNOSE frame inlaid on the top of the conventional 600 Series Polymer Concrete Channel and fitted with either gray iron slotted part No. DG0641, ductile iron slotted Part No. DG0641D or Ductile iron longitudinal slotted Part No. DG0675HD. Grate Hold-Down device Part No. DA0642BH required.





HARDNOSE Gray Iron Frame
Part No. DG0700AA
Part No. DG0970 (not shown) includes anchoring bolts

For use with 500/600 Series Channels

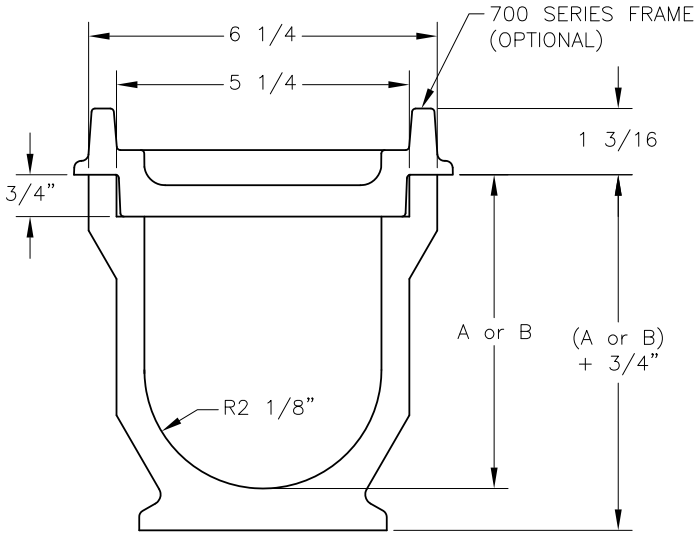


NOTE 1: All half and neutral channels have bottom cut outs. NOTE 2: All half and neutral channels accept the corresponding end caps.

DG0700AA Hardnose™ Frame

Channel Number	Weight Lbs.	Inlet DIM 'A'	Inlet DIM 'B'
600N (non-sloped)	73	5-1/4"	5-1/4"
601	74	5-1/4"	5-9/16"
602	75	5-9/16"	5-7/8"
603	76	5-7/8"	6-3/16"
604	76	6-3/16"	6-1/2"
605	77	6-1/2"	6-13/16"
605N (non-sloped)	78	6-13/16"	6-13/16"
605H (non-sloped 24")	37	6-13/16"	6-13/16"
606	79	6-13/16"	7-1/8"
607	80	7-1/8"	7-7/16"
608	81	7-7/16"	7-3/4"
609	82	7-3/4"	8-1/16"
610	84	8-1/16"	8-3/8"
611	85	8-3/8"	8-11/16"
612	86	8-11/16"	9
613	87	9	9-5/16"

Channel Number	Weight Lbs.	Inlet DIM 'A'	Inlet DIM 'B'
614	88	9-5/16"	9-5/8"
615	89	9-5/8"	9-15/16"
615N (non-sloped)	91	9-15/16"	9-15/16"
615H (non-sloped 24")	44	9-15/16"	9-15/16"
616	92	9-15/16"	10-1/4"
617	93	10-1/4"	10-9/16"
618	94	10-9/16"	10-7/8"
619	95	10-7/8"	11-3/16"
620	96	11-3/16"	11-1/2"
621	98	11-1/2"	11-13/16"
622	101	11-13/16"	12-1/8"
623	102	12-1/8"	12-7/16"
624	105	12-7/16"	12-3/4"
625	106	12-3/4"	13-1/16"
625N (non-sloped)	106	13-1/16"	13-1/16"
625H (non-sloped 24")	53	13-1/16"	13-1/16"

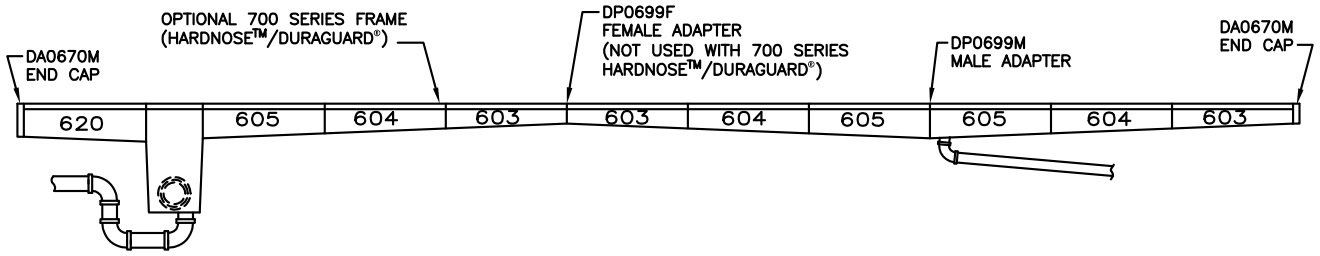


700 Series HARDNOSE and DURAGUARD® frames add 1-3/16" to dimensions A or B.

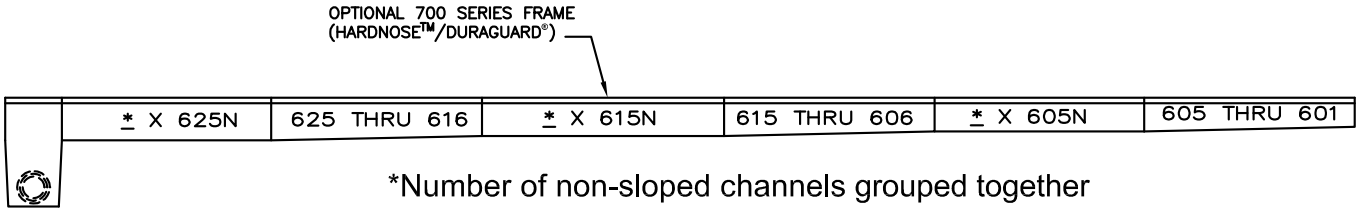
Extender Panels add 7-13/16" to dimensions A or B.

Bottom of Channel Drill-Out

OUTLET VARIATIONS

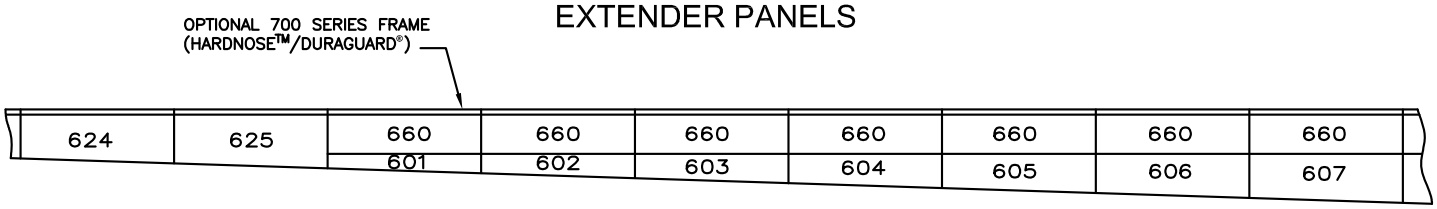


USE OF NEUTRAL CHANNELS FOR LONG RUNS

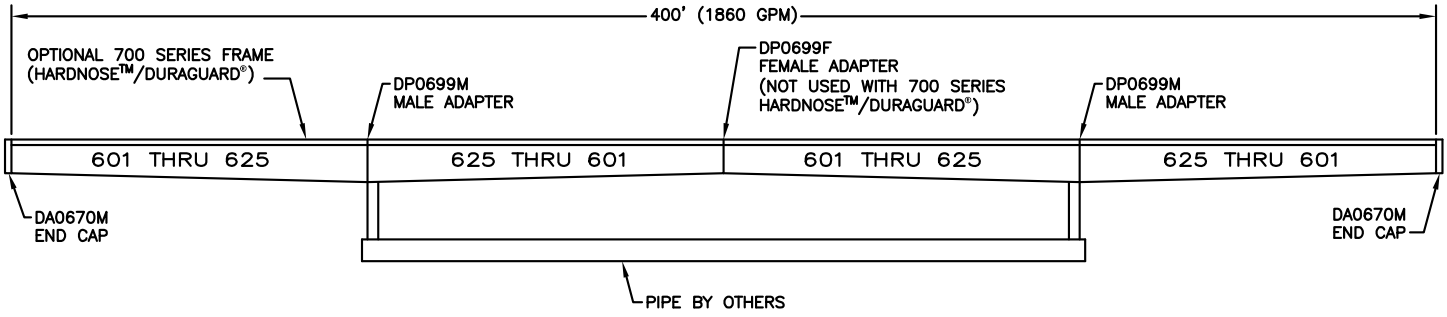


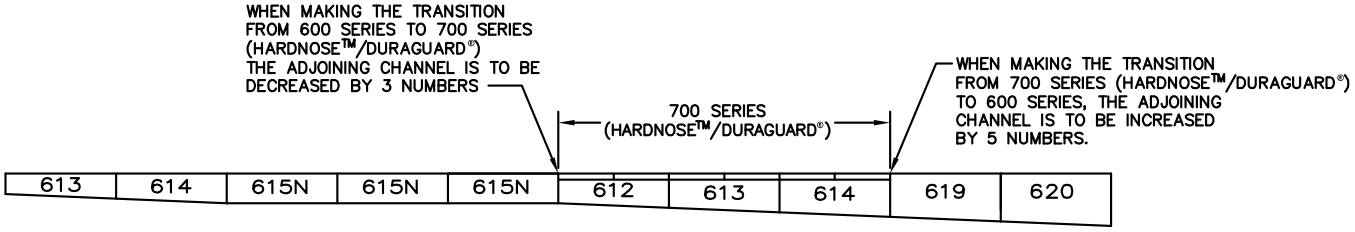
*Number of non-sloped channels grouped together

EXTENDER PANELS



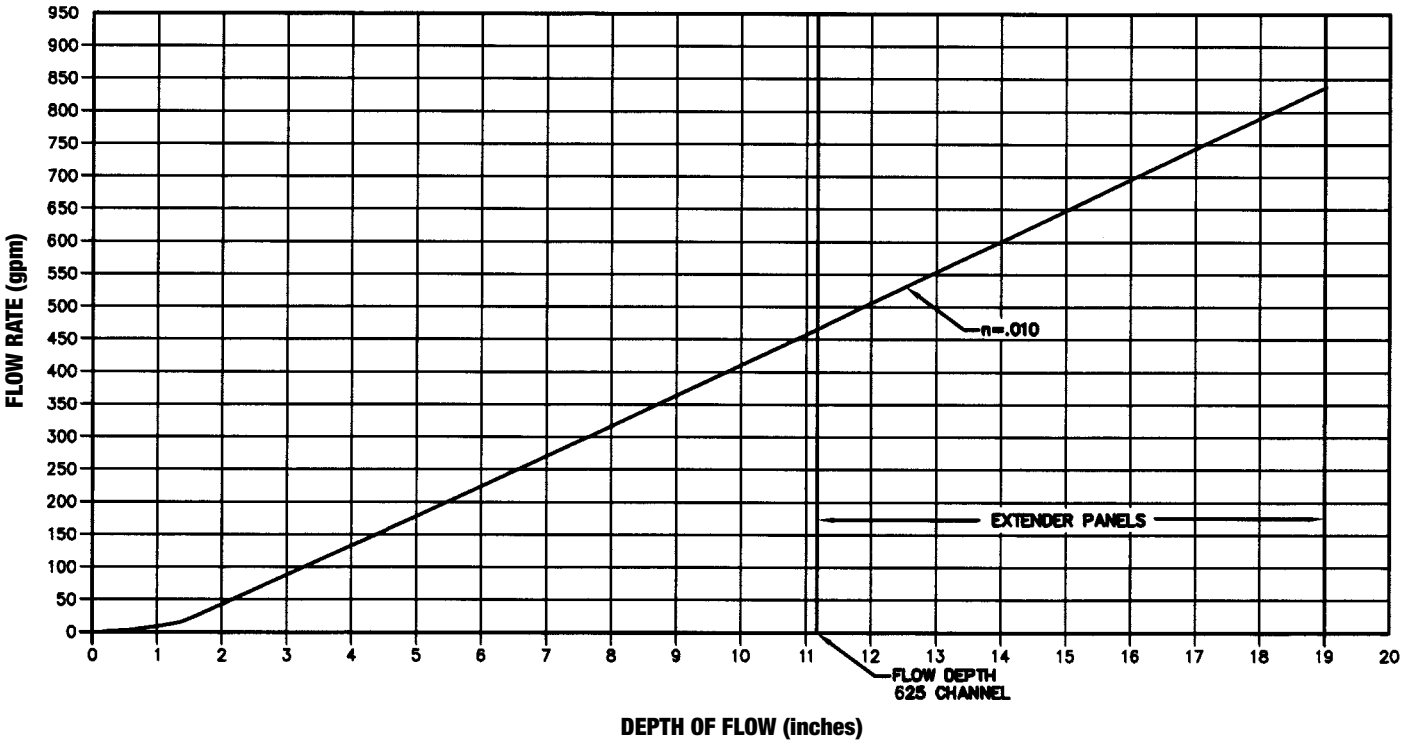
HIGH VOLUME FLOW



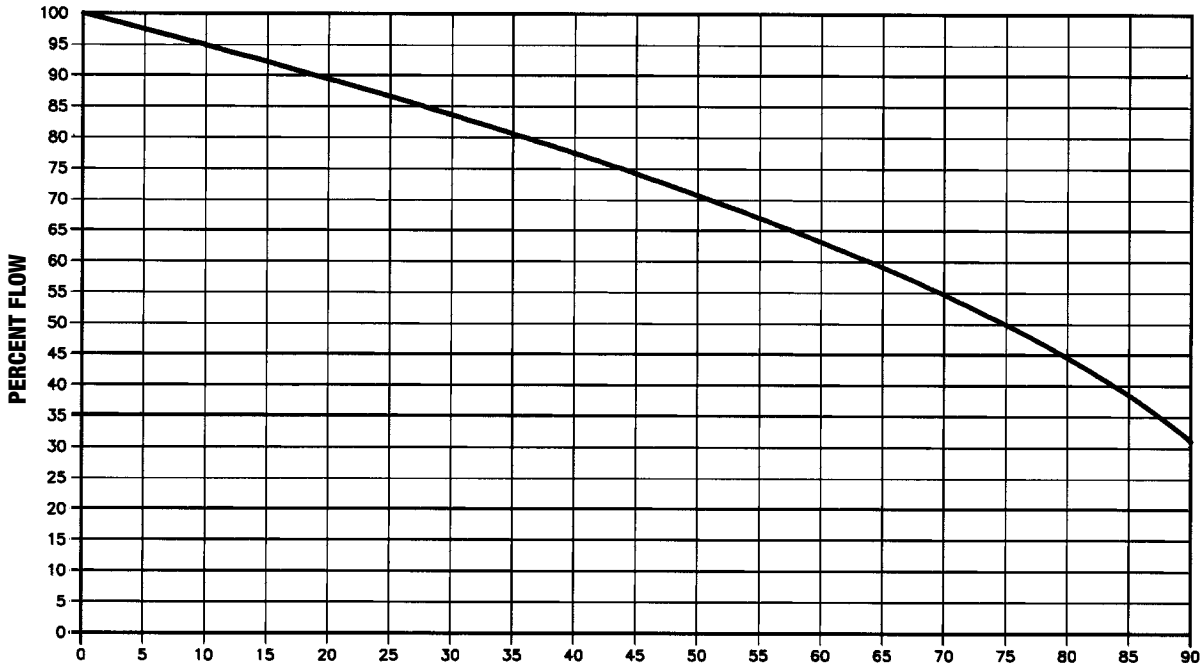


Performance Graphs for 700 Series Hardnose

FLOW CAPACITY



EFFECT OF NEUTRALS ON FLOW CAPACITY



* This graph is based on the Manning Equation.

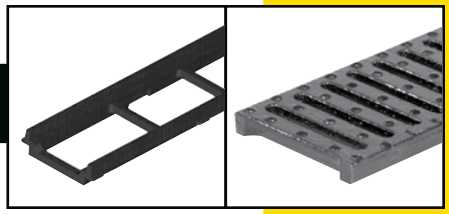
700 Series Frames and Grates

Application Load Class E **(pg. 57)**

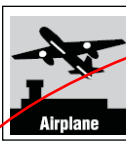
700 Series HARDNOSE Gray Iron Frame w/Iron Slotted — Part No. DG0700AA w/DG0641

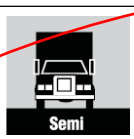
DG0700 Series Frame and Part No. DG0641 grates used in areas exposed to heavy traffic and solid tire vehicles. Grate hold-down device DA0642BH must be maintained secure. Offers exceptional impact resistance. High frequency forklift traffic, low speed. Heavy duty.

Open Area: 19.8 in^2/Linear Foot
Dimensions: 5-1/4" x 24"
Weight (grate plus frame): 30 lbs.
Black Finish
Grate In-Flow: See chart pg. 37



DG0700AA DG0641





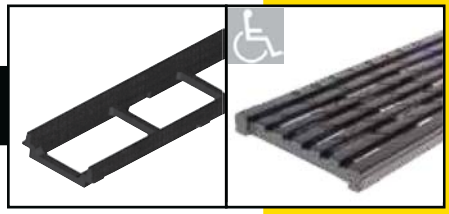
Application Load Class F **(pg. 57)**

700 Series HARDNOSE Iron Frame w/Ductile Iron Longitudinal Slotted — Part No. DG0700AA w/DG0675HD

DG0700 Series Frame and Part No. DG0675HD grates used in areas exposed to heavy traffic and solid tire vehicles. Grate hold-down device DA0642BH must be maintained secure. Offers exceptional impact resistance. High frequency forklift traffic, low speed. Heavy duty

ADA Compliant.

Open Area: 32 in^2/Linear Foot (26%)
Dimensions: 5-1/4" x 24"
Weight (grate plus frame): 30 lbs.
ASTM A536 Class 65-45-12
Black Finish
Grate In-Flow: See chart pg. 37

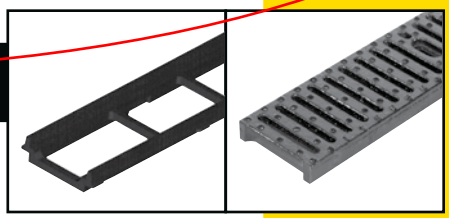


DG0700AA DG0675HD

700 Series HARDNOSE Iron Frame w/Ductile Iron Slotted — Part No. DG0700AA w/DG0641D

DG0700 Series Frame and Part No. DG0641D grates used in areas exposed to heavy traffic and solid tire vehicles. Grate hold-down device DA0642BH must be maintained secure. Offers exceptional impact resistance. High frequency forklift traffic and/or speeds above 15 mph. Extra heavy duty.

Open Area: 19.8 in^2/Linear Foot
Dimensions: 5-1/4" x 24"
Weight (grate plus frame): 30 lbs.
ASTM A536 Class 65-45-12
Black Finish
Grate In-Flow: See chart pg. 37

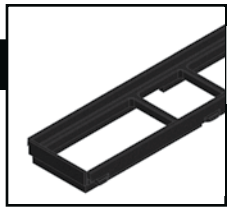


DG0700AA DG0641D

700 Series HARDNOSE End Frame — Part No. DG0700AC

For use with the DP0650 Catch Basin. Prevents concrete back fill from spilling into the catch basin during concrete placement.

Dimensions: 5-1/4" x 24"
Weight: 15 lbs.
ASTM A536 Class 65-45-12
Black Finish



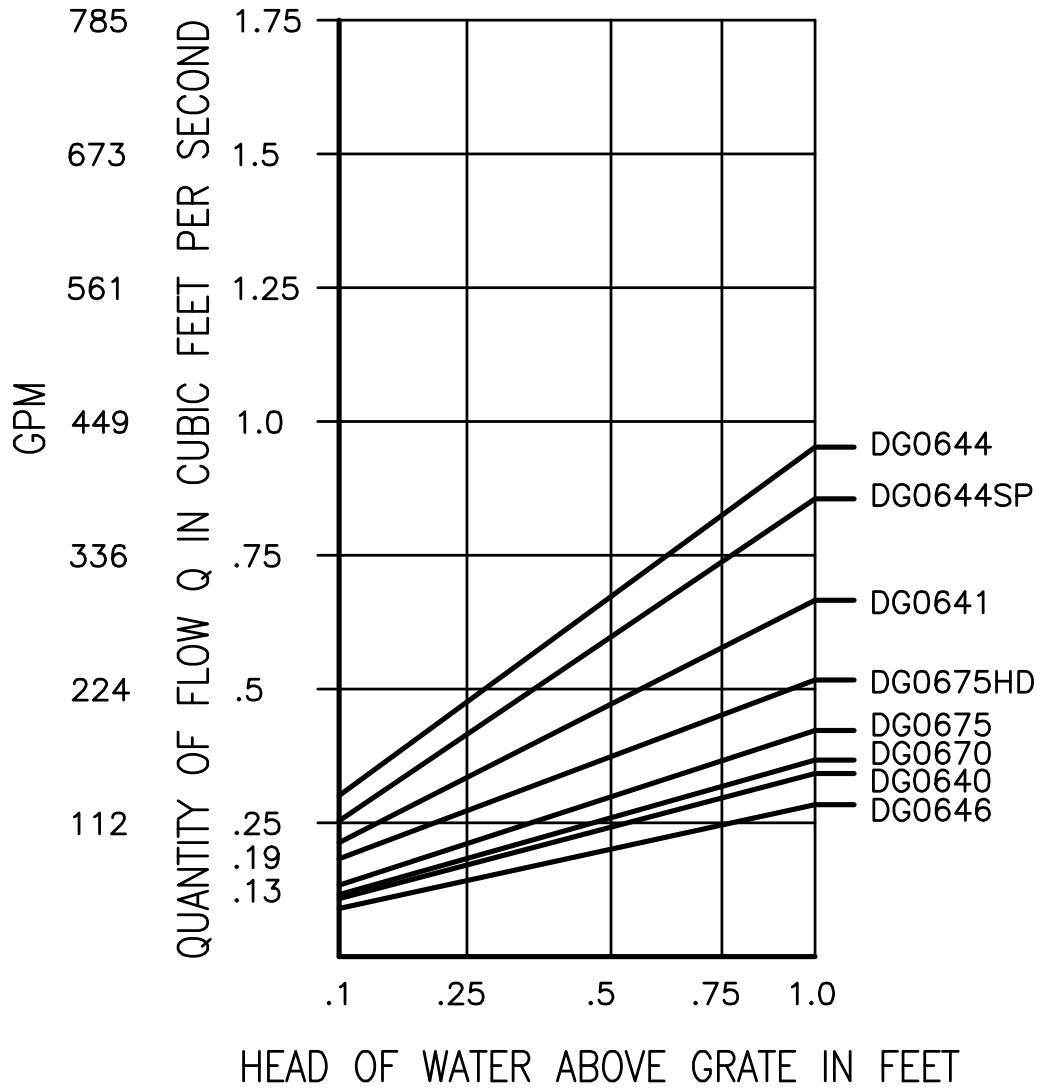
DG0700AC

NOTE: ADA Code—4.5.4 gratings. If gratings are located in walking surfaces, then they shall have spaces no greater than 1/2" (13mm) wide in one direction. If gratings have elongated openings, then they shall be placed so that the long dimension is perpendicular to the dominate direction of travel.

Grate In-Flow Chart

Quantity of Flow Through 600 Series Grates

Based on 1 foot 600 Series Channel
Computed using Orifice Equation $Q=CA\sqrt{2gh}$



Channel Installation Alignment Chair

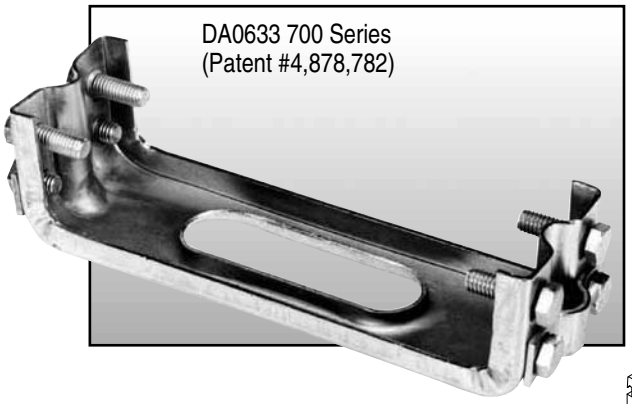
Installation Rates of 60'- 90' Per Hour Are Easily Attainable With a 2-Person Crew.

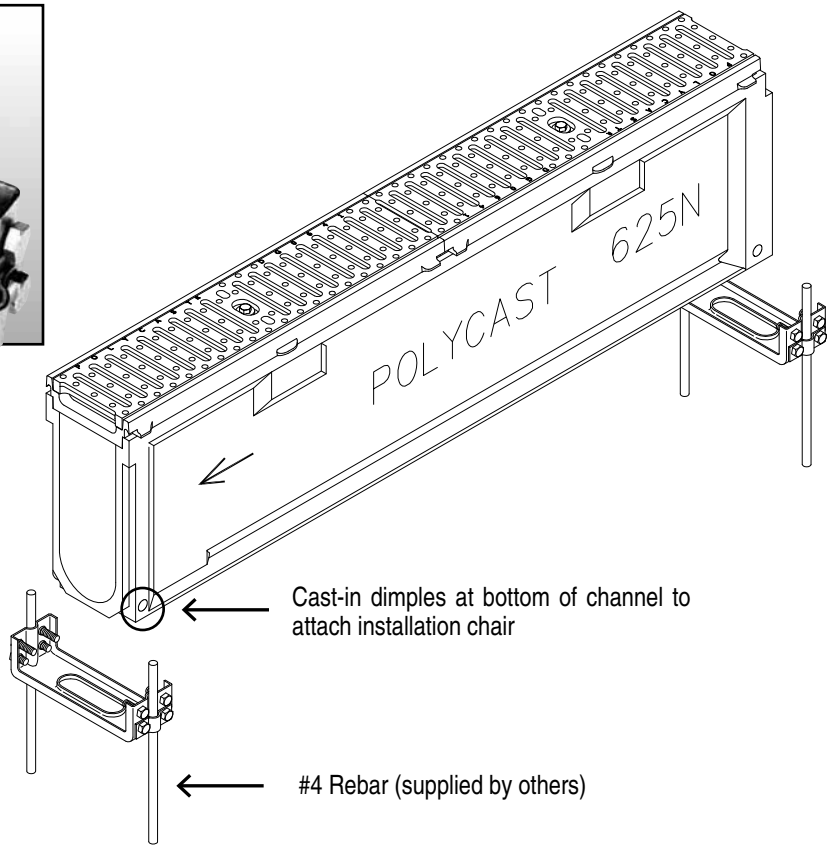
The POLYCAST® Installation Chair is the most efficient and economical means of setting a precast trench system. The installation chair supports the ends of the channels, aligns and locks the joint rigidly together and prevents the channels from floating. Adjusting channel elevation is easy with the POLYCAST® Installation Chair.

The installation chair is attached by tightening the alignment bolts into the channel "dimples". Two pieces of rebar are set every 4' to correspond with the channel joints, placed through the connecting clamp on the installation chair and driven into the sub-base. The channels are then aligned and adjusted to achieve the proper elevation.

One chair per joint required.

NOTE: For use with 700 Series Channels.

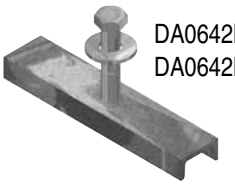




- **Rapid, accurate installation**
- **Aligns channels**
- **Sets elevation**
- **Tightens joint**
- **Reduces leakage during concrete placement**
- **Prevents channels from floating during concreting**

Accessories

GRATE HOLD-DOWN DEVICES



DA0642B
DA0642BH

Grate hold-down devices are to be used with all grating systems where wheel traffic occurs. This is necessary to provide system integrity.

END CAPS

POLYCAST® end caps are used to enclose or provide piping transitions to the female and male ends of the channels where catch basins are not being used. They fit all channels ending in five (5), zero (0), neutrals (N) and halves (H).

ABS Plastic End Caps

DA0670*
FEMALE
Universal Closed/
Outlet (cutout)

DA0670M*
MALE
Universal Closed/
Inlet (cutout)

Patent #6,027,283

Male End Caps

POLYCAST® Universal male end caps are used to enclose or provide 4" pipe inlets to the female channel ends. Inlets accommodate 4" pipes.

Female End Caps

POLYCAST® Universal female end caps are used to enclose or provide 4" pipe inlets to the male channel ends. Inlets accommodate 4" pipes.

***Fits ALL POLYCAST® 600 Series Channels**

Polymer Concrete End Caps

DP0620D6**
DP0625D6**

DP0625DM6**

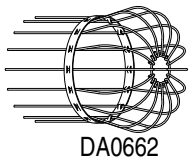
These inlets and outlets accommodate 6" pipes.

** **Fits CORRESPONDING 600 Series Channels**

DEBRIS STRAINER

Debris Outlet strainers are ideal for outdoor environments where debris can clog outlets.

Debris Outlet Strainer



DA0662

For use with 4" Pipe, Channel and End Cap Outlets.

CHANNEL TRANSITION

Male to Male or Female to Female transitions can be easily accomplished by field modifying the channel ends using a diamond or abrasive blade in a concrete cut off (chop saw).

Male to Male – transitions require no channel modifications. Butt joint the channel ends together using 1 part polyurethane or a 2 part construction epoxy to seal and bond the channels together. Polycast Installation Alignment Chair part number DA0633 can be used to hold the joint together and stabilize the channel ends to facilitate construction.

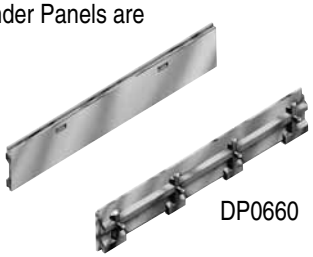
Female to Female – transitions require trimming off the protuding female channel ends of both channels flush with the top channel dimensions. Use 1 part polyurethane or a 2 part construction epoxy to seal and bond the (butt joint) channels together. Polycast Installation Alignment Chair part number DA0633 can be used to hold the joint together and stabilize the channel ends to facilitate construction.

EXTENDER PANEL

The Extender Panel Set (DP0660) provides additional design flexibility in meeting requirements of extended run lengths and/or higher flow capacities.

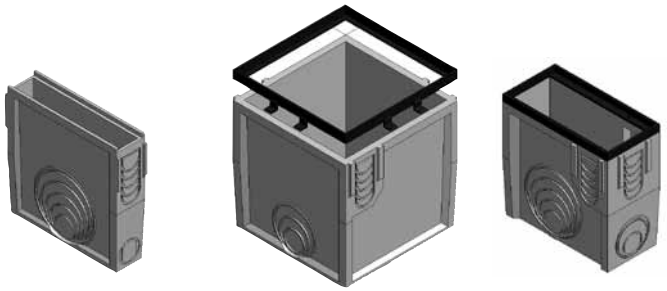
The Extender Panel adds an additional depth of 7-13/16" to the 600 Series Channels. Extender Panels are available in 48" lengths.

See detail — page 34.



DP0660

CATCH BASIN



Information about Catch Basins can be found on Page 50.