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JAY R. SMITH MFG. CO.
Member of Morris Group International

SMITH/ACO Trench Drain Series

Polymer Concrete, Fiberglass and Stainless Steel Surface Drainage Systems

MORRIS GROUP
INTERNATIONAL

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Design Approach

To select the proper drainage system:

1. Identify the appropriate loading and fall conditions based on the anticipated traffic, site topography or other physical constraints.

2. Calculate the length and depth of the catchment area.

3. Identify rainfall intensity over the given area; or identify the output position, source and flow rate of the liquid to be drained.

4. Determine runoff surface flow characteristics.

5. Calculate required flow rate per meter of drainage channel and its distribution (ie., evenly or unevenly distributed).

6. Select the system with the appropriate width for the conditions identified.

7. Determine the number, size and locations of outlets to the sewer system.

System Fall Types

Sloped .6%	9814, 9816, 9818 and 9828
Sloped 1.0%	9812
Sloped 1.0%	9810
Neutral	9810, 9812, 9814, 9816, 9818, 9828, 9832, 9833, 9836 and 9837

Nominal Width

2”	(51 mm) Inside Dim.	9833
6”	(155 mm) Outside Dim.	9810, 9814, 9816, 9818, 9832, 9836, and 9837
10”	(257 mm) Outside Dim.	9812
12”	(305 mm) Inside Dim.	9828

Channel Material

Polymer Concrete (Polyester or Vinylester)	9814, 9816, 9818, 9828, 9832, 9833, 9836 and 9837
Fiberglass (Polyester or Vinylester)	9810, 9812

*Load Rating and Application Guide

Pedestrians, Bicycles, Private Vehicles	9810, 9812, 9814, 9816, 9818, 9828, 9832, 9833, 9836 and 9837 (with appropriate grating)
Passenger Cars, Vans (with appropriate grating)	9810, 9812, 9814, 9816, 9818, 9828, 9832, 9833, 9836 and 9837
Commercial Vehicles, Buses (with appropriate grating)	9810, 9812, 9814, 9816, 9818, 9828, 9832, 9833, 9836 and 9837
Pneumatic Tire Forklift Traffic (with appropriate grating)	9810, 9812, 9814, 9816, 9818, 9828 and 9832
Solid Tire Forklift Traffic (with appropriate grating)	9810, 9812, 9816, 9818 and 9828
Heavy and Industrial Vehicles, Tracked Vehicles	9810, 9812, 9816, 9818 and 9828 (with appropriate grating)
Commercial and Military Aircraft (with appropriate grating)	9828

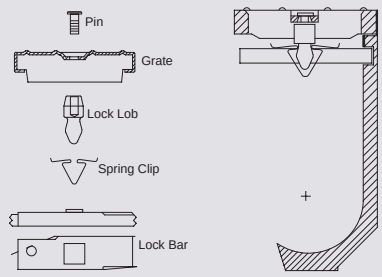
*See pages 20-22 for appropriate grating for load class requirements.

6" Wide Channel Slope® Precast Polymer Concrete System, Flagship Figure 9818

The 9818 Channel Slope® Precast Polymer Concrete System is the **flagship** trench drain in the Jay R. Smith Mfg. Co.® Drainage Systems product line.

The 9818 is a sloped trench drain system which incorporates an integral cast-in metal rail edge design. This innovative concept provides reinforced edge protection for the polymer concrete channel and offers a striking and distinctive finished appearance.

The 9818 Channel utilizes QuickLock® cover grate and rail which protects the polymer concrete edge. A number of different cover grates with matching cast-in rails are available. When fitted with a heavy duty ductile iron cover or grate, 9818 can be recommended for infrequent hard wheel traffic of 10 ton wheel loads and up to load class "E" (135,000 lbs.)



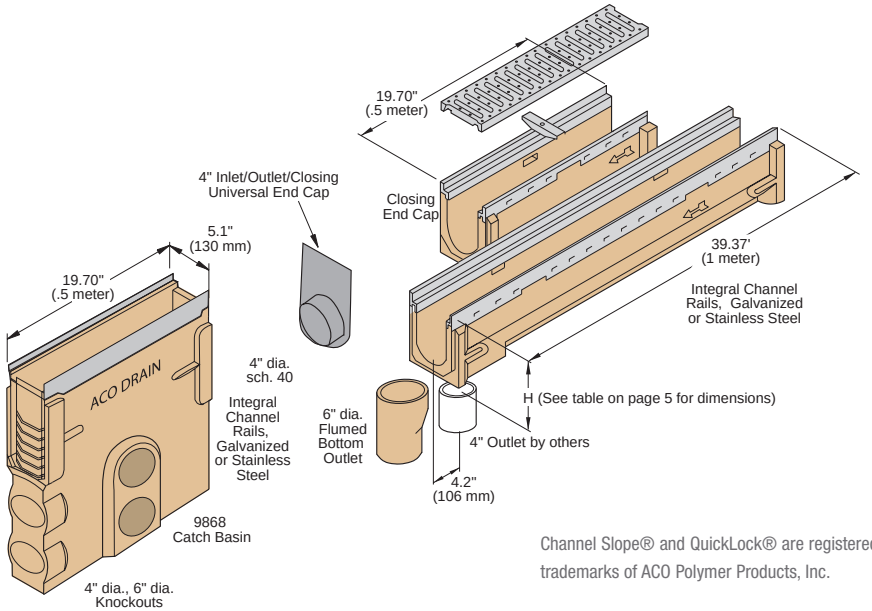
QuickLock® assembly components

Cross section with QuickLock®

Refer to page 16 for QuickLock® detail

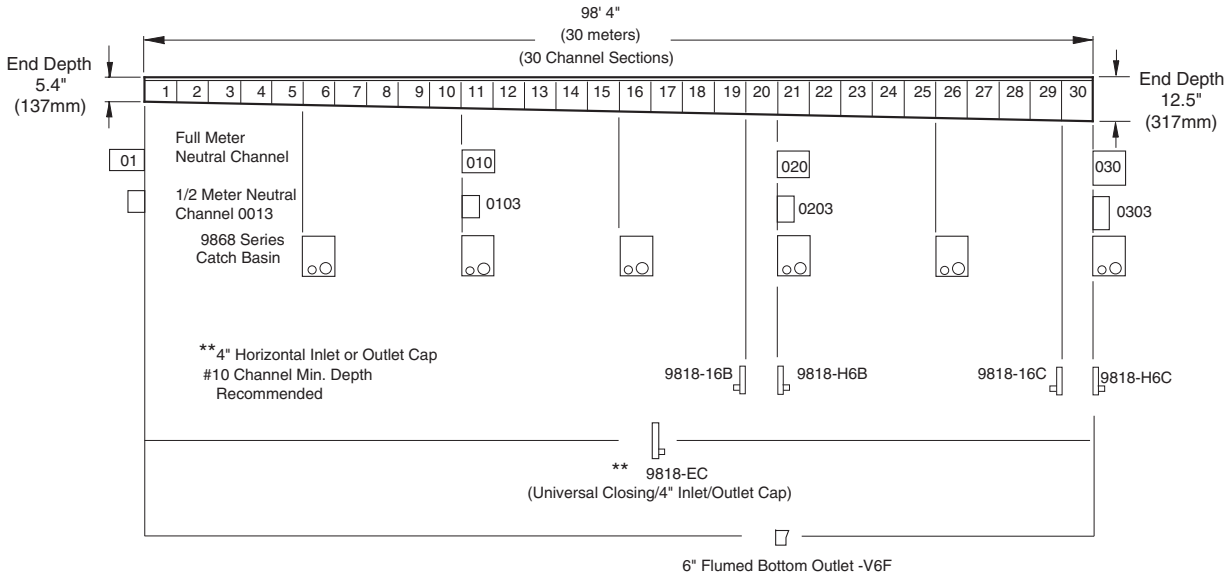
Where visual effect is of paramount importance, Jay R. Smith Mfg. Co. Drainage Systems can supply cover grates and matching integral rails from its precious metal series. These include attractive galvanized or stainless steel rail edge. This important feature allows architects and designers to provide efficient surface water drainage while enhancing the visual appearance of projects such as shopping malls, major entry ways and other locations where aesthetic appearance is paramount.

Refer to pages 20 - 22 for complete drainage system grate information.



Channel Slope® and QuickLock® are registered trademarks of ACO Polymer Products, Inc.

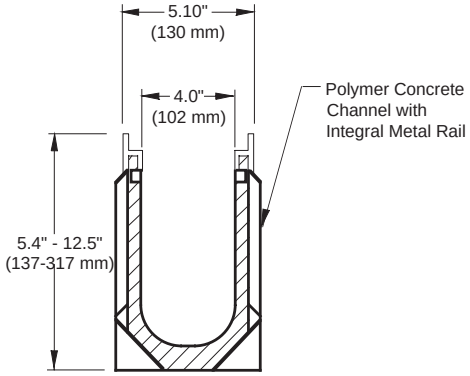
9818 System Overview



Capacity and Deep End Depths 9818 System

Channel Number	Deep End in.	Depth* mm	Slope	Holding Capacity (gallons)	Weight lbs.
9818-100S-0013*	5.4	137	0.0	1.0	15.0
9818-100S-01#	5.4	137	0.0	2.0	29.0
9818-100S-1	5.7	145	0.6	2.3	31.0
9818-100S-2	5.9	151	0.6	2.6	31.0
9818-100S-3	6.2	157	0.6	2.6	32.0
9818-100S-4	6.4	163	0.6	2.7	34.0
9818-100S-5	6.7	169	0.6	2.9	34.0
9818-100S-6	6.9	175	0.6	3.0	35.0
9818-100S-7	7.1	181	0.6	3.2	37.0
9818-100S-8	7.3	187	0.6	3.4	39.0
9818-100S-9	7.6	193	0.6	3.5	39.0
9818-100S-10	7.8	199	0.6	3.7	41.0
9818-100S-010#	7.8	199	0.0	3.6	39.0
9818-100S-0103*	7.8	199	0.0	3.6	21.0
9818-100S-11	8.1	205	0.6	3.8	41.0
9818-100S-12	8.3	211	0.6	4.0	42.0
9818-100S-13	8.5	217	0.6	4.2	42.0
9818-100S-14	8.8	223	0.6	4.3	43.0
9818-100S-15	9.0	229	0.6	4.5	43.0
9818-100S-16	9.3	235	0.6	4.6	44.0
9818-100S-17	9.5	241	0.6	4.8	45.0
9818-100S-18	9.7	247	0.6	4.9	46.0
9818-100S-19	9.9	253	0.6	5.1	47.0
9818-100S-20	10.2	259	0.6	5.3	50.0
9818-100S-020#	10.2	259	0.0	5.2	47.0
9818-100S-0203*	10.2	259	0.0	5.2	26.0
9818-100S-21	10.4	265	0.6	5.4	52.0
9818-100S-22	10.7	271	0.6	5.6	52.0
9818-100S-23	10.9	277	0.6	5.7	53.0
9818-100S-24	11.1	283	0.6	5.9	53.0
9818-100S-25	11.4	289	0.6	6.1	54.0
9818-100S-26	11.6	295	0.6	6.2	54.0
9818-100S-27	11.8	301	0.6	6.4	55.0
9818-100S-28	12.1	307	0.6	6.5	55.0
9818-100S-29	12.3	313	0.6	6.7	55.0
9818-100S-30	12.6	319	0.6	6.9	56.0
9818-100S-030#	12.5	317	0.0	6.8	55.0
9818-100S-0303*	12.5	317	0.0	6.8	31.0

Neutral Full Meter Channel
* Neutral Half Meter Channel



CROSS SECTION DETAIL

Note: This trench drainage system is designed for "on-grade" applications only, as there are no provisions for a flashing flange or flashing clamp.

6” Wide Channel Slope® Precast Polymer Concrete System, Figure 9814

Precision molded from durable polymer concrete, 9814 Channel Slope® System is the workhorse of the line. This precast system can be configured to accommodate a wide range of applications and site requirements.

Installation is quick and precise as the precast channels are joined via positive, interlocking tongue and groove ends. This reduces installation time and related costs.

The latest design has been engineered to provide the one meter length channels with improved security, reinforcement and flexibility for installation.

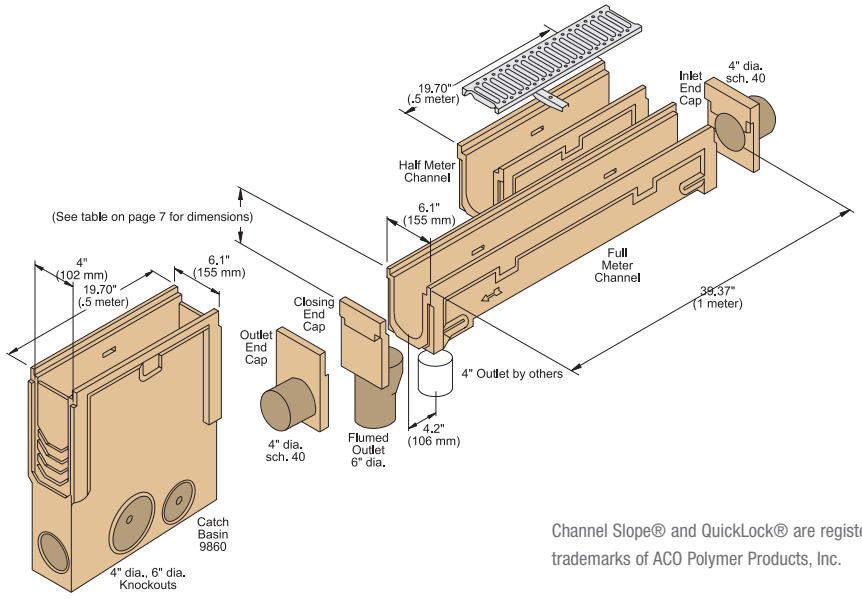
The 9814 utilizes the Quicklock® cover grate. Anchor ribs on the outside channel walls offer security against upward movement or shifting after installation. Inside the channel, reinforced locking areas protect against liquid buildup in surrounding concrete. A locking bar securely holds the cover grate in place.

Design flexibility is enhanced due to vertical 4” round or 6” flumed knockouts (all channels) and side knockouts to accept channels (half meter). These knockouts provide a wide range of vertical and horizontal evacuation points for on-site versatility during installation.

The system’s 30 channels employ a built in 0.6% slope and radiused bottom. Neutral channels are available in full and half meter sizes to lengthen the system.

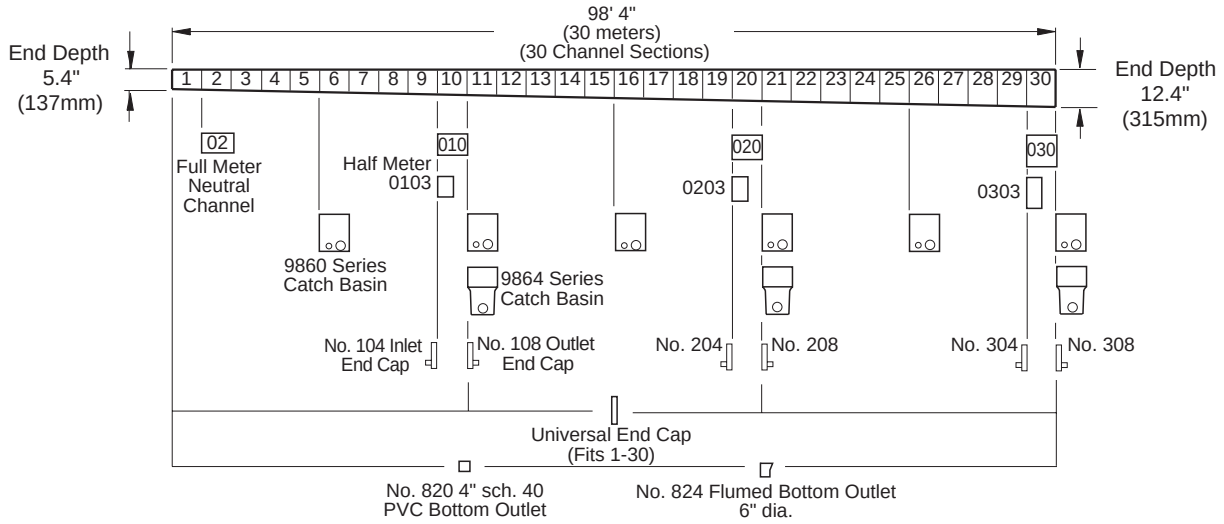
Jay R. Smith Mfg. Co.® Drainage Systems offer a line of cover grates and accessories engineered to fit securely with 9814 channels. Grate selection is determined by traffic conditions, chemical environments, hydraulic needs and aesthetic requirements. Refer to page 20 - 22 for drainage system grate information.

Accessories include catch basins, pipe and flumed outlets, installation and maintenance products are found on pages 18 and 23.



Channel Slope® and QuickLock® are registered trademarks of ACO Polymer Products, Inc.

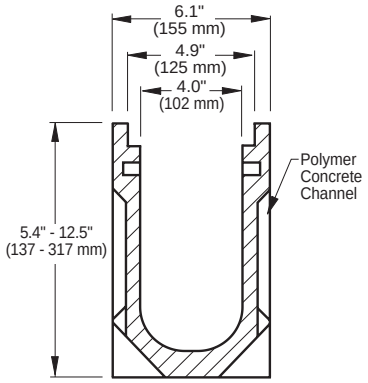
9814 System Overview



Capacity and Deep End Depths 9814 System

Channel Number	Deep End Depth in.	Deep End Depth mm	Slope	Holding Capacity (gallons)	Weight lbs.
9814-100-1	5.6	143	0.6	2.3	33.0
9814-100-02#	5.6	143	0.0	2.3	33.0
9814-100-2	5.8	149	0.6	2.6	33.0
9814-100-3	6.0	155	0.6	2.6	35.0
9814-100-4	6.3	161	0.6	2.7	35.0
9814-100-5	6.5	167	0.6	2.9	36.0
9814-100-6	6.7	173	0.6	3.0	36.0
9814-100-7	7.0	179	0.6	3.2	38.0
9814-100-8	7.2	185	0.6	3.4	40.0
9814-100-9	7.4	191	0.6	3.5	41.0
9814-100-010#	7.4	191	0.0	3.6	42.0
9814-100-0103*	7.4	191	0.0	1.8	22.0
9814-100-10	7.7	197	0.6	3.7	43.0
9814-100-11	7.9	203	0.6	3.8	44.0
9814-100-12	8.1	209	0.6	4.0	44.0
9814-100-13	8.4	215	0.6	4.2	45.0
9814-100-14	8.6	221	0.6	4.3	46.0
9814-100-15	8.9	227	0.6	4.5	47.0
9814-100-16	9.1	233	0.6	4.6	48.0
9814-100-17	9.3	239	0.6	4.8	49.0
9814-100-18	9.6	245	0.6	4.9	50.0
9814-100-19	9.8	251	0.6	5.1	51.0
9814-100-020#	9.8	251	0.0	5.2	52.0
9814-100-0203*	9.8	251	0.0	2.6	27.0
9814-100-20	10.0	257	0.6	5.3	53.0
9814-100-21	10.3	263	0.6	5.4	54.0
9814-100-22	10.5	269	0.6	5.6	55.0
9814-100-23	10.7	275	0.6	5.7	56.0
9814-100-24	11.0	281	0.6	5.9	56.0
9814-100-25	11.2	287	0.6	6.1	58.0
9814-100-26	11.5	293	0.6	6.2	58.0
9814-100-27	11.7	299	0.6	6.4	59.0
9814-100-28	11.9	305	0.6	6.5	59.0
9814-100-29	12.2	311	0.6	6.7	59.0
9814-100-030#	12.2	311	0.0	6.8	59.0
9814-100-0303*	12.2	311	0.0	3.4	32.0
9814-100-30	12.5	317	0.6	6.9	60.0

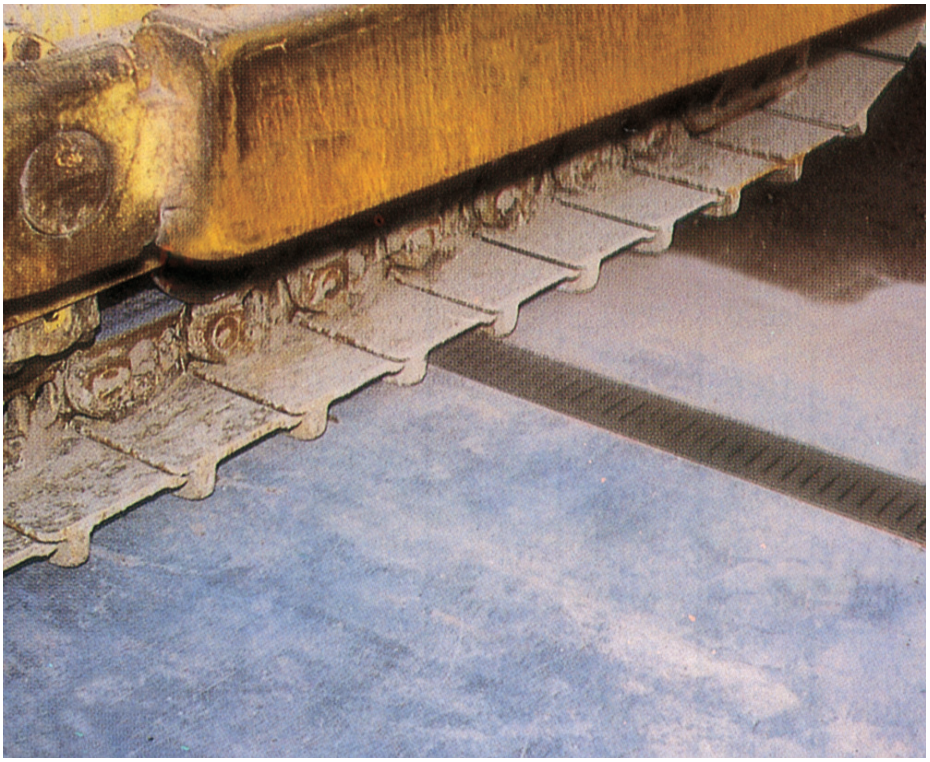
Neutral Full Meter Channel
* Neutral Half Meter Channel



CROSS SECTION DETAIL

Note: This trench drainage system is designed for "on-grade" applications only, as there are no provisions for a flashing flange or flashing clamp.

6" Wide Channel Slope® Extra Heavy Duty Polymer Concrete System, Figure 9816



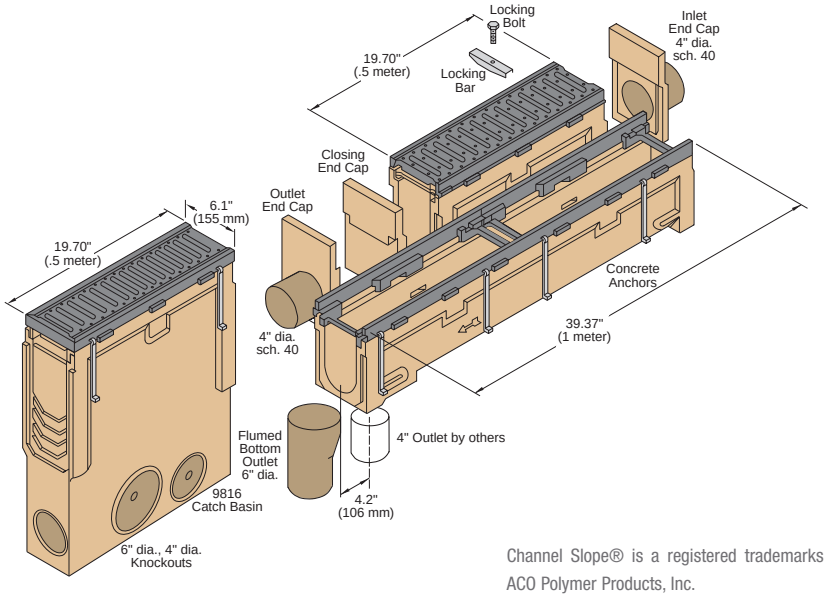
This extra heavy duty version of the 9814 system incorporates a ductile iron frame and grate. Recommended for situations requiring an extra heavy duty, fully sloped channel system, 9816 provides the perfect drainage solution. This system is capable of handling solid tire traffic and provides high resistance against impact from steel containers, struts and metal wheels.

The sturdy ductile iron framework will also accept any of the 9814 cast or ductile iron gratings or covers to meet specific site requirements. Refer to pages 21 and 22 for drainage system grate information.

The frame adds an additional height of 1.1" (28 mm) to channel units. See chart on the next page for details of channel depth, system design and holding capacity.

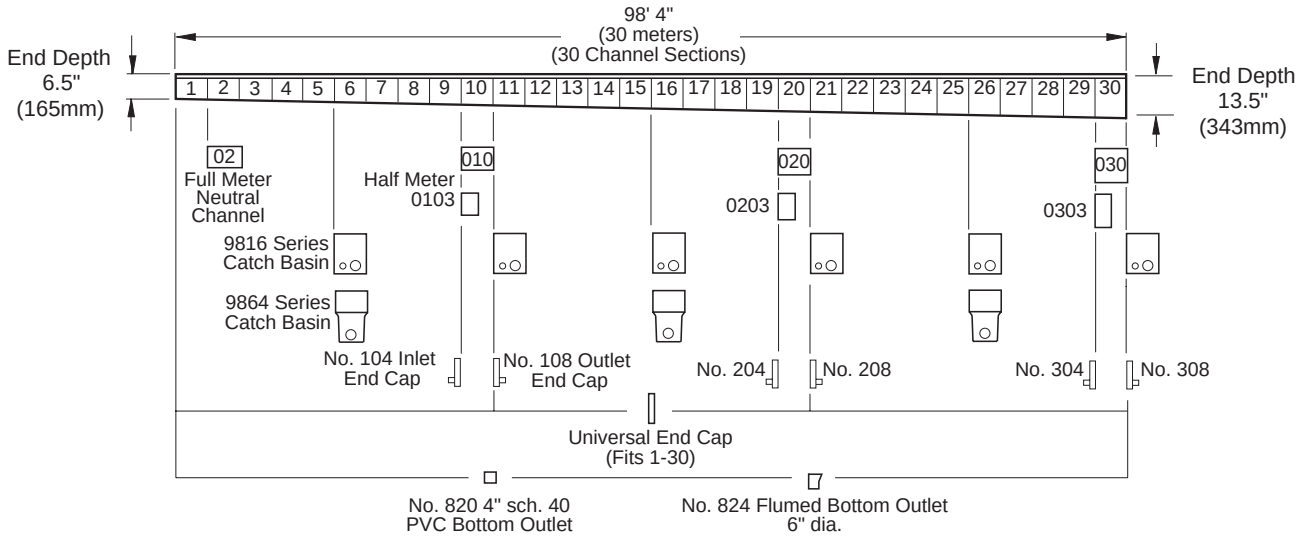
Supplied with concrete anchors that tie the ductile iron frames into the surrounding concrete. The 9816 series grates are specially designed to prevent longitudinal or lateral movement.

To provide additional finishing detail, end frames are available for each end of channel run. The complete line of 9814 accessories is available for use with the 9816 system.



Channel Slope® is a registered trademarks of ACO Polymer Products, Inc.

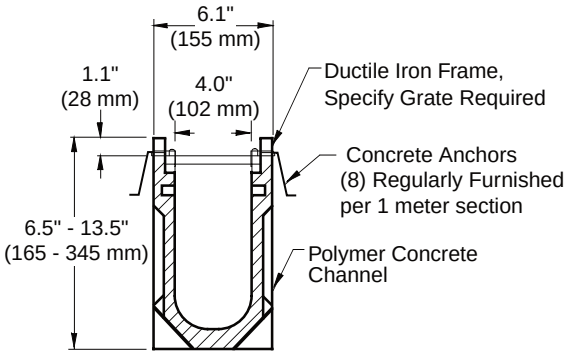
9816 System Overview



Capacity and Deep End Depths 9816 System

Channel Number	Deep End Depth in.	Deep End Depth mm	Slope	Holding Capacity (gallons)
9816-475-1	6.7	171	0.6	2.7
9816-475-02#	6.7	171	0.0	2.7
9816-475-2	6.9	177	0.6	3.0
9816-475-3	7.1	183	0.6	3.0
9816-475-4	7.4	189	0.6	3.1
9816-475-5	7.6	195	0.6	3.3
9816-475-6	7.8	201	0.6	3.4
9816-475-7	8.1	207	0.6	3.6
9816-475-8	8.3	213	0.6	3.8
9816-475-9	8.5	219	0.6	3.9
9816-475-010#	8.5	219	0.0	4.0
9816-475-0103*	8.5	219	0.0	2.0
9816-475-10	8.8	225	0.6	4.1
9816-475-11	9.0	231	0.6	4.2
9816-475-12	9.2	237	0.6	4.4
9816-475-13	9.5	243	0.6	4.6
9816-475-14	9.7	249	0.6	4.7
9816-475-15**	10.0	255	0.6	4.9
9816-475-16	10.2	261	0.6	5.0
9816-475-17	10.4	267	0.6	5.2
9816-475-18	10.7	273	0.6	5.3
9816-475-19	10.9	279	0.6	5.5
9816-475-020#	10.9	279	0.0	5.6
9816-475-0203*	10.9	279	0.0	2.8
9816-475-20	11.1	285	0.6	5.7
9816-475-21	11.4	291	0.6	5.8
9816-475-22	11.6	297	0.6	6.0
9816-475-23	11.8	303	0.6	6.1
9816-475-24	12.1	309	0.6	6.3
9816-475-25**	12.3	315	0.6	6.4
9816-475-26	12.6	321	0.6	6.6
9816-475-27	12.8	327	0.6	6.8
9816-475-28	13.0	333	0.6	6.9
9816-475-29	13.3	338	0.6	7.1
9816-475-030#	13.3	338	0.0	7.2
9816-475-0303*	13.3	338	0.0	3.6
9816-475-30	13.5	345	0.6	7.3

Neutral Full Meter Channel
* Neutral Half Meter Channel
** Indicates outlet depth compatible with 9864 Series Catch Basins



CROSS SECTION DETAIL

The end depths include grate frame of 1.1 inches (28 mm)

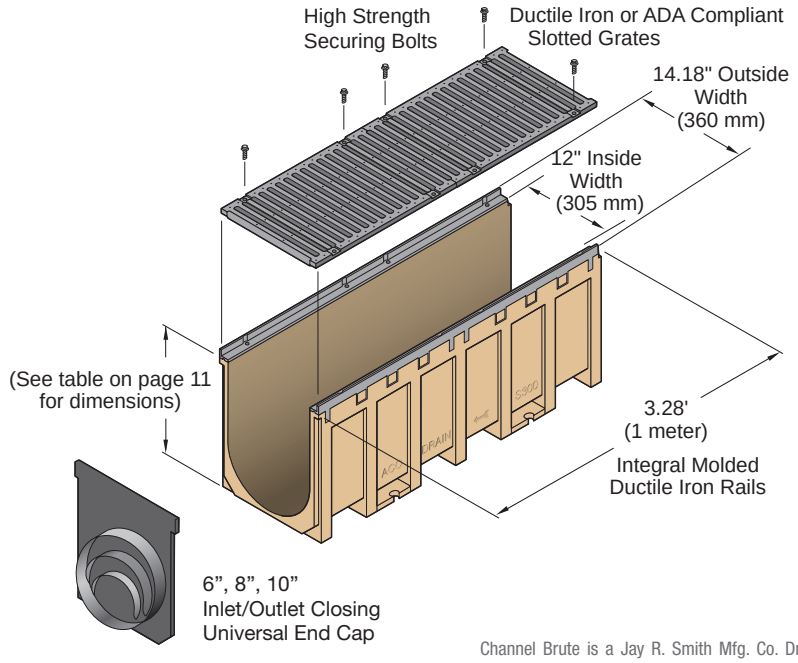
Note: This trench drainage system is designed for "on-grade" applications only, as there are no provisions for a flashing flange or flashing clamp.

12" Wide Channel Brute Extra Heavy Duty Polymer Concrete System, Figure 9828

The Jay R. Smith Mfg. Co.® 9828 Channel Brute Drainage System is a wider, high capacity version of our 9816 extra heavy duty polymer concrete system. The 9828 system is a pre-manufactured trench drain system with 12" of internal width and integral ductile iron rails. The channel in combination with our secured ductile iron slotted grate is rated for DIN 19580 Load Class "F" for 202,320 pound loads. The grate is secured with eight high strength bolts to the ductile iron frame.

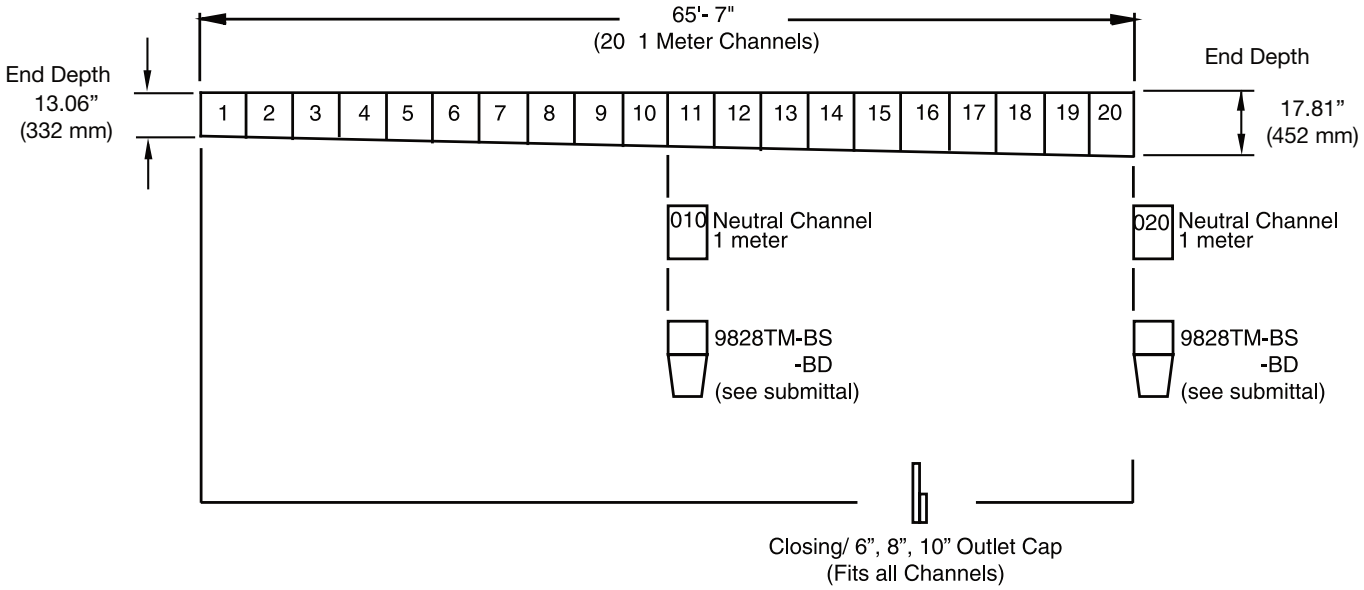
The Channel Brute System is available in two neutral depths and 20 interlocking, 0.6% pre-sloped channels. The shallowest channel is 13.06" and the deepest is 17.81". The 9828 system is available in one meter (3.28') sections. A closing end cap and a horizontal outlet caps provide for a complete drainage system. All channel sections are provided with a vertical performed knockout of 6" and 8" outlet discharge.

Channel Brute System is designed for extra heavy-duty installations such as airports, bus depots, military bases, warehouses, service stations, highways, and other industrial areas. Strengthening ribs on the channel sides create a stronger and safer system capable of withstanding the considerable loading imposed by the turning action of heavy wheeled vehicles. Side profiling also provides anchoring to the surrounding concrete to prevent movement due to freeze-thaw cycles.



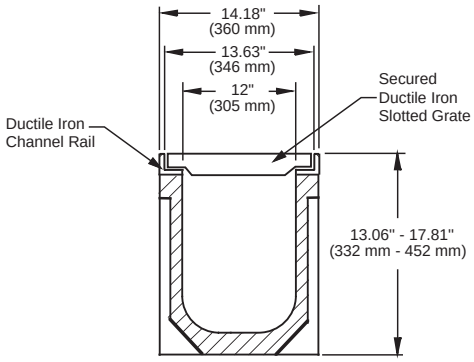
Channel Brute is a Jay R. Smith Mfg. Co. Drainage System product.

9828 System Overview



Channel Number	Deep End Depth in.	mm	Slope	Channel Length	Weight lbs. Channel w/Grates
9828-S300-1	13.31	338	0.6	39.37/1m	217
9828-S300-2	13.54	344	0.6	39.37/1m	218
9828-S300-3	13.78	350	0.6	39.37/1m	219
9828-S300-4	14.01	356	0.6	39.37/1m	220
9828-S300-5	14.25	362	0.6	39.37/1m	221
9828-S300-6	14.49	368	0.6	39.37/1m	222
9828-S300-7	14.72	374	0.6	39.37/1m	223
9828-S300-8	14.96	380	0.6	39.37/1m	224
9828-S300-9	15.20	386	0.6	39.37/1m	225
9828-S300-10	15.43	392	0.6	39.37/1m	226
9828-S300-010	15.43	392	0.0	39.37/1m	227
9828-S300-11	15.67	398	0.6	39.37/1m	227
9828-S300-12	15.91	404	0.6	39.37/1m	228
9828-S300-13	16.14	410	0.6	39.37/1m	230
9828-S300-14	16.38	416	0.6	39.37/1m	231
9828-S300-15	16.61	422	0.6	39.37/1m	232
9828-S300-16	16.85	428	0.6	39.37/1m	233
9828-S300-17	17.09	434	0.6	39.37/1m	234
9828-S300-18	17.32	440	0.6	39.37/1m	235
9828-S300-19	17.56	446	0.6	39.37/1m	236
9828-S300-20	17.81	452	0.6	39.37/1m	238
9828-S300-020	17.81	452	0.0	39.37/1m	238

NOTE: To calculate invert dimension on deep end of the channel, subtract 1.12" (28mm) from deep end depth shown in above table.



CROSS SECTION DETAIL

Note: All channels provided with vertical preformed knock out position for 6" (152 mm) and 8" (203 mm) outlet discharge.

Note: This trench drainage system is designed for "on-grade" applications only, as there are no provisions for a flashing flange or flashing clamp.

6" Wide Advanced Hydraulic Presloped Fiberglass Trench System, Figure 9810

Jay R. Smith Mfg. Co.® Drainage Systems offers a revolutionary concept in presloped drainage channels - 9810 System. The 9810 utilizes sophisticated hydraulics to maximize the use of each radiused bottom channel. The 9810 System is composed of 10 sloped and 6 neutral channels: (3) 3 meters (9 feet, 10 inches) in length, and (3) 1 meter (3 feet, 3 inches) in length.

The channels have a 1.0% slope to increase the velocity of the liquid flow. In comparison to conventional 4 inch width uniformly sloped systems, 9810 provides approximately 20% higher flow capacity and velocity. This is a substantial benefit in large applications where high capacity is a concern.

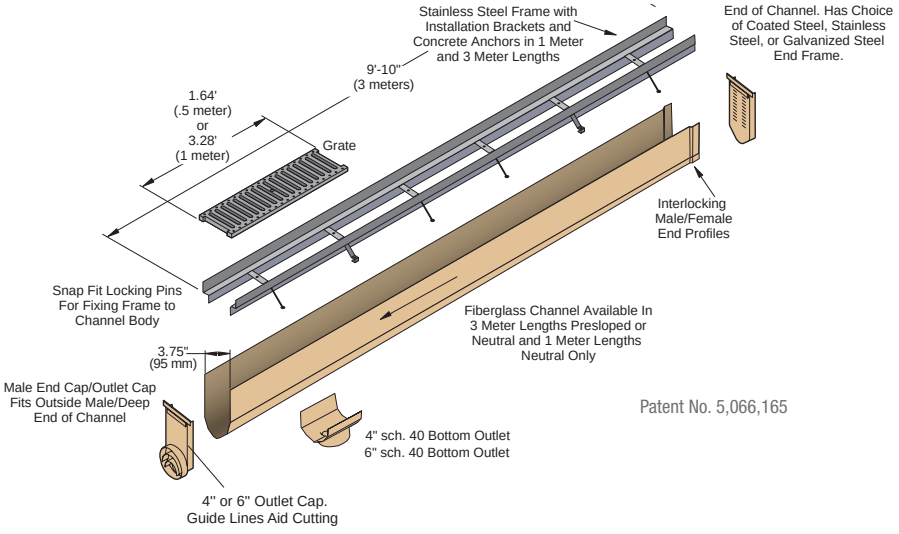
Channels are available in both high performance polyester and vinylester fiberglass and provide resistance to a variety of corrosive elements. This offers minimum maintenance costs and long service life to systems even in extreme chemical environments.

Channels are molded precisely with a smooth finish and are color coded for both material types. Polyester units are tan and vinylester units are gray: both are marked with flow direction arrows and progressive channel numbers. Male/female channel ends form high integrity lap joints.

The lightweight channels are easily assembled to the grate frame. Each channel is fitted with a "Z" profile, coated steel, galvanized or stainless steel frame, depending on the application. The grate frames are available in 3 meter and 1 meter lengths. The labor savings compared to shorter, heavier systems is substantial.

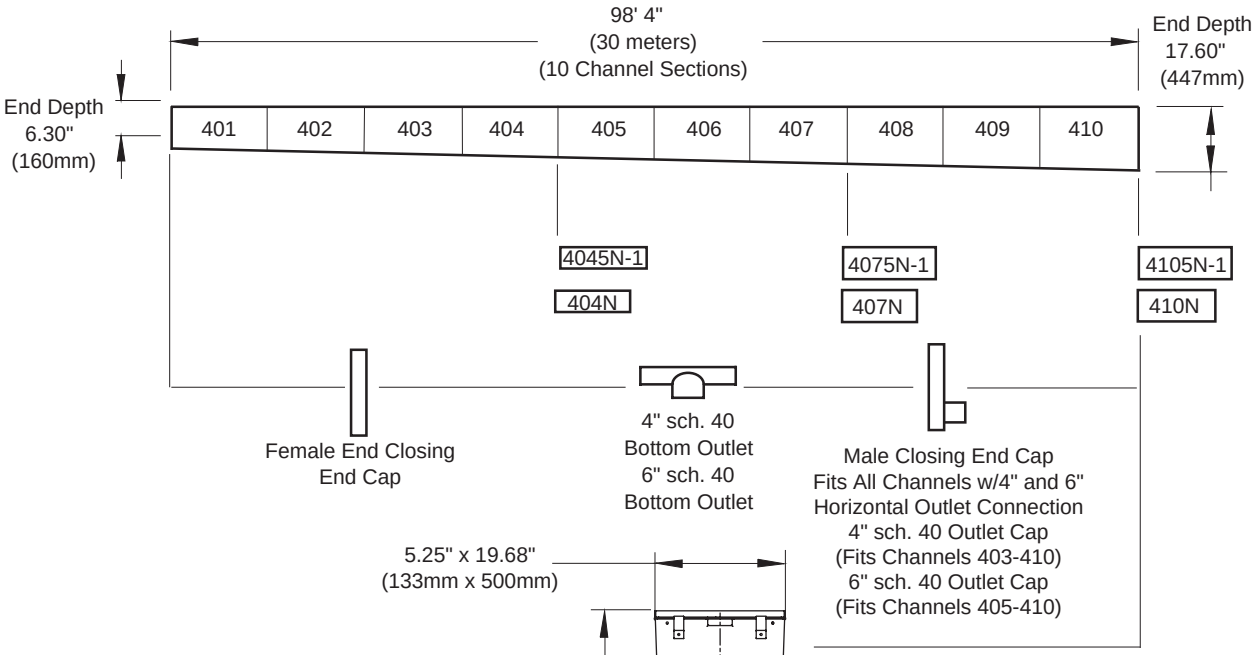
Jay R. Smith Mfg. Co. Drainage Systems offer a line of grates and covers engineered to fit securely with 9810 channels which come equipped with QuickLock® locking device. Grates are selected based on traffic conditions, chemical environments, hydraulic needs and aesthetic requirements. Refer to pages 20 through 22 for complete drainage system grate information.

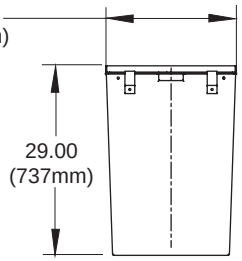
Accessories include bottom vertical outlet units, catch basins, outlet caps. The accessories are easily custom fit to the channel layout with on-site fabrications, providing maximum flexibility to designer and installer.



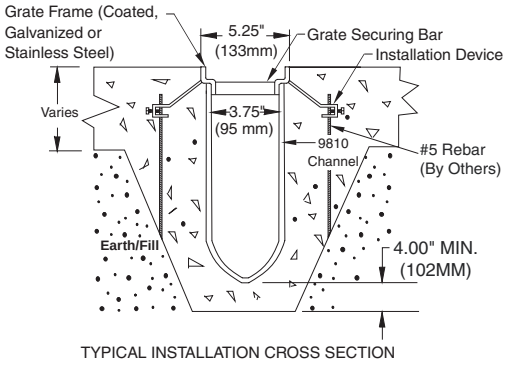
Patent No. 5,066,165

9810 System Overview

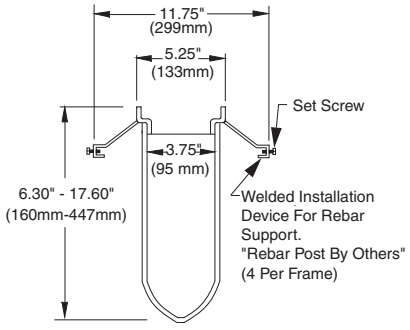




9810-CB4 In-Line Catch Basin



TYPICAL INSTALLATION CROSS SECTION



CROSS SECTION DETAIL

Note: This trench drainage system is designed for "on-grade" applications only, as there are no provisions for a flashing flange or flashing clamp.

Deep End Depths 9810 System

Channel Number	Deep End Depth in.	mm	Slope %
401	7.43	189	1.0
402	8.56	217	1.0
403	9.69	246	1.0
404	10.82	275	1.0
#404N	10.82	275	0.0
##4045N-1	10.82	275	0.0
405	11.95	304	1.0
406	13.08	332	1.0
407	14.12	361	1.0
#407N	14.12	361	0.0
##4075N-1	14.12	361	0.0
408	15.34	390	1.0
409	16.47	418	1.0
410	17.60	447	1.0
#410N	17.60	447	0.0
##4105N-1	17.60	447	0.0

NOTE: Depths are top of grate to invert.
3 meter Neutral Channel
1 meter Neutral Channel

10" Wide High Capacity Presloped Fiberglass Trench System, Figure 9812

Jay R. Smith Mfg. Co.® Drainage Systems now provides the industry with a precision engineered solution for high capacity drainage requirements.

The 9812 System combines high strength, corrosion resistant polyester (tan) or vinylester (gray) fiberglass with an innovative design. Channels have an 8" internal width with the additional feature of a built-in slope of 1.0%.

These features promote quick evacuation of large volumes of standing or surface liquids. The wider interior width allows not only for increased hydraulic capacity but also for an efficient means of handling solids.

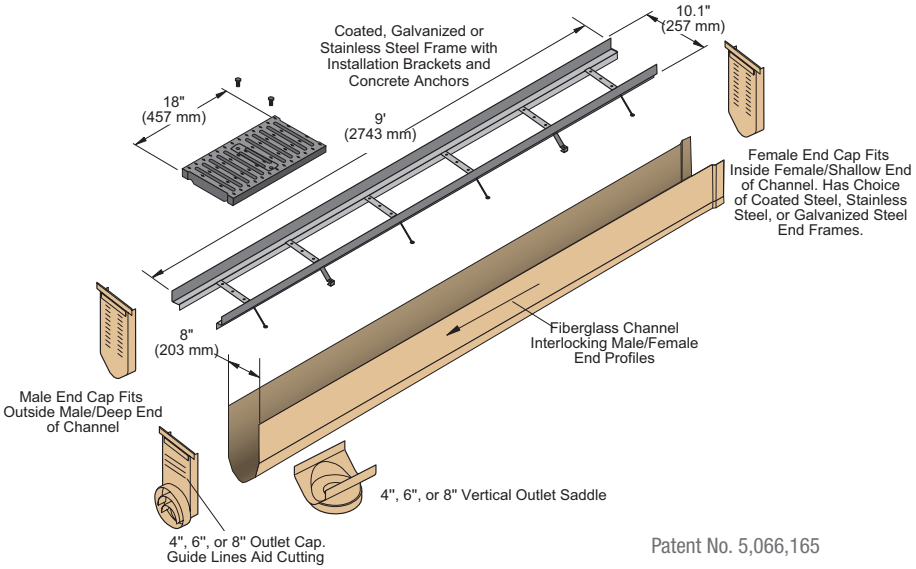
The system's twelve sloped channels are each nine feet in length and channel depth varies from 6.88 to 20.38 inches. Four neutral nine foot channels and four neutral three foot channels are available to lengthen the system.

The lightweight channel design of the 9812 System allows for exceptionally rapid installation. The heaviest nine foot channel and grate frame assembly is easily handled since it weighs only 81 pounds. Prior to installation, each channel is fitted with a frame using fourteen plastic push pins. The 9812 frame is equipped with concrete anchors (one pair per every 18 inches).

Frames are available in 3 or 9 foot lengths, allowing channel units to be installed in these lengths. Cast iron slotted grating is recommended for heavy duty pneumatic tire traffic and ductile iron slotted grating is recommended for extra heavy duty solid tire traffic applications. These 18 inch grates are securely locked to the sturdy grate frame with two stainless steel 1/2" bolts. For lighter duty applications, galvanized or stainless steel bar grating can be provided based on mechanical or chemical requirements. These three foot grates are locked down to the frame with four socket head bolts per grate. For extreme chemical conditions, vinylester fiberglass bar grating is available in three foot lengths. Refer to page 22 for 9812 Series grating information.

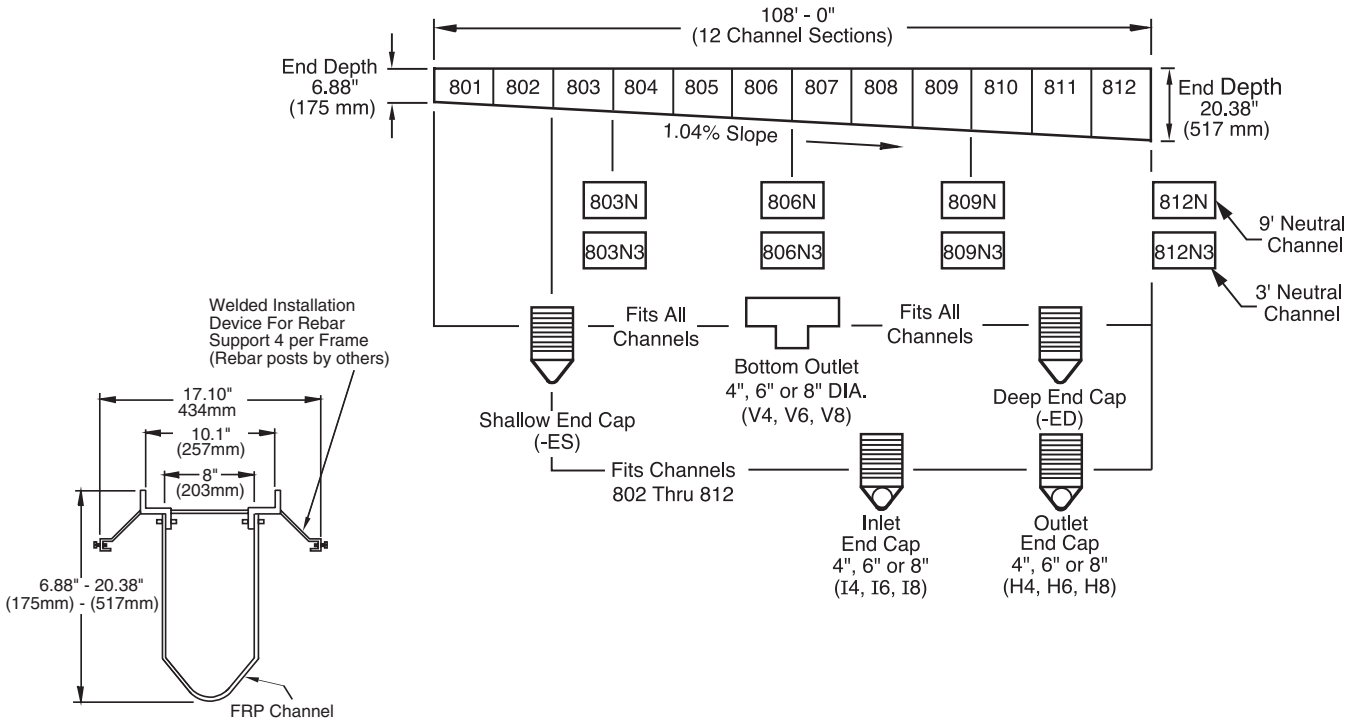
Accessory components include catch basins, universal end caps, universal outlet caps, 4", 6" and 8" bottom outlets to provide a high degree of flexibility when designing the system. Custom outlets are available upon customer request.

The 9812 Catch Basin comes with coated steel frame and ductile iron grate. These basins may be used with any channel section to serve as an outlet point for the trench system. Knockouts to accept trench inlets are easily fabricated in the catch basin walls on the job site.



Patent No. 5,066,165

9812 System Overview



CROSS SECTION DETAIL

- The end depths include grate frame of 1.5 inches (38 mm.).

Note: This trench drainage system is designed for "on-grade" applications only, as there are no provisions for a flashing flange or flashing clamp.

Deep End Depths 9812 System

	Channel Number	Deep End Depths* in .	Deep End Depths* mm	Holding Capacity (gallons)
	9812-801	8.00	203	18.37
	9812-802	9.13	232	22.58
	9812-803	10.25	260	26.79
**	9812-803N	10.25	260	28.80
***	9812-803N3	10.25	260	9.60
	9812-804	11.38	289	31.00
	9812-805	12.50	317	35.21
	9812-806	13.63	346	39.42
**	9812-806N	13.63	346	41.50
***	9812-806N3	13.63	346	13.83
	9812-807	14.75	374	43.63
	9812-808	15.88	403	47.84
	9812-809	17.00	432	52.05
**	9812-809N	17.00	432	54.10
***	9812-809N3	17.00	432	18.00
	9812-810	18.13	460	56.26
	9812-811	19.25	489	60.47
	9812-812	20.38	517	64.68
**	9812-812N	20.38	517	66.76
***	9812-812N3	20.38	517	22.25

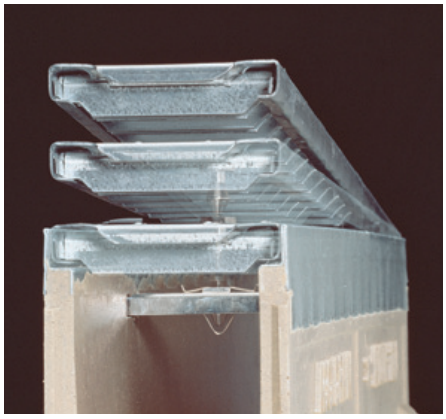
Outlet Cap Flow Rates

Outlet Size	Channel	Invert Depth	GPM	CFS
4" Vertical	801	7.88 (200)	154	0.34
4" Vertical	812	20.25 (514)	246	0.54
6" Vertical	801	7.88 (200)	346	0.77
6" Vertical	812	20.25 (514)	553	1.23
8" Vertical	801	7.88 (200)	616	1.37
8" Vertical	812	20.25 (514)	982	2.18
4" Horizontal	802	9.00 (229)	145	0.33
4" Horizontal	812	20.25 (514)	233	0.54
6" Horizontal	803	10.13 (257)	330	0.76
6" Horizontal	812	20.25 (514)	510	1.17
8" Horizontal	805	12.38 (314)	635	1.46
8" Horizontal	812	20.25 (514)	880	2.03

Dim's in ( ) are mm.

** 9' Long Neutral Channel
*** 3' Long Neutral Channel

9818 Series QuickLock® assembly and removal of the cover grate is easier than ever.



QuickLock® is a revolutionary grate locking system designed to improve accessibility to the channels for cleaning and maintenance. QuickLock® replaces the standard bolt and bar locking device used in many other trench drain systems.

The factory assembled components that make up the QuickLock® locking system include a glass nylon grate stud and a stainless steel spring clip type locking bar. (See page 4 for illustration).

QuickLock® is a registered trademark of ACO Polymer Products, Inc.

Grating Available with QuickLock®	Load Class "A"	Load Class "C"	Load Class "E"
9870-410-GP	•		
9870-420-G	•		
9870-445-SSADA	•		
9870-450-SS	•		
9870-451-SSPA	•		
9870-494-PADAB	•		
9870-494-PADAG	•		
9870-494-PADABR	•		
9870-494-PADAGR	•		
9870-405-GM		•	
9870-411GPHD		•	
9870-416-GS		•	
9870-425-GHD		•	
9870-430-SSM		•	
9870-455-SSHD		•	
9870-465-SSP		•	
9870-479-MD		•	
9870-485-PB		•	
9870-492-RC		•	
9870-435-GHDE			•
9870-461-M			•
9870-477-ADA			•
9870-477-ML			•
9870-490-SSHDE			•

Assembly and Removal

QuickLock® components are preassembled to the gratings and only the locking bar must be fit into place by the installer. The locking bar holds itself into the channel's locking pockets with tension side grips which can be released with a flat blade screwdriver. Removing the grates for channel cleaning is simple once the first grate is pulled out. A grate lifting tool, 9859 Quicklock® hook, is offered for safe removal.

The spring clip in the locking bar is designed to allow centering of the grates for final positioning.

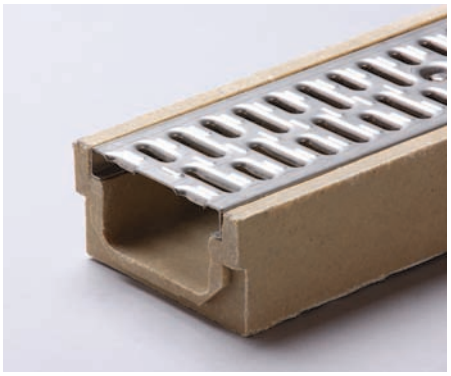
The locking force is sufficient to hold grates in place up to load Class E.

There is no need for tools to fasten the grate into the channel. The grate snaps into place with a quick impact.

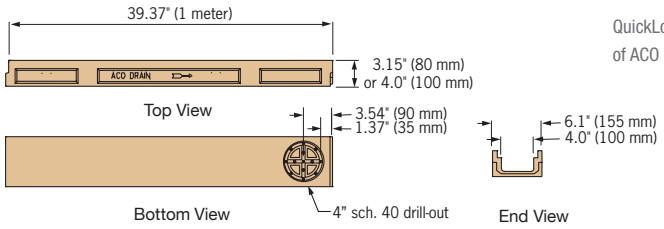
9859 QuickLock® Hook

The 9859 QuickLock® hook is designed to ease the removal of grates from trench drainage system using the QuickLock® securing method.

9832 Shallow Channel Systems



Note: This trench drainage system is designed for “on-grade” applications only, as there are no provisions for a flashing flange or flashing clamp.



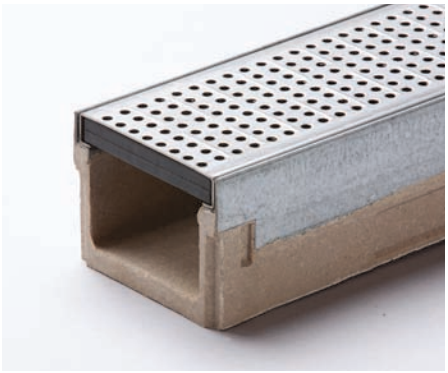
QuickLock® is a registered trademark of ACO Polymer Products, Inc.

The 9832 Shallow Channel Systems provide a cost effective solution in applications where surface drainage or ducting is needed but installation depth is restricted. 9832 Shallow Channel Systems (Channels #080 and #0100) consist of two depths, 3.15” and 4.0” (80 mm and 102 mm).

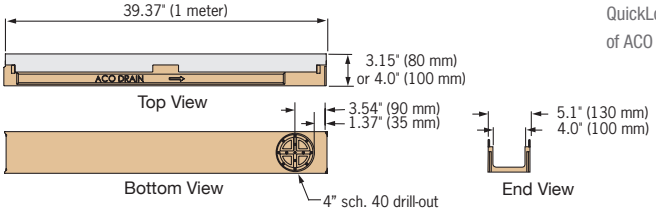
Made from high strength polyester or vinylester concrete, these units are lightweight and easy to install. Each channel has a groove profile to assist with alignment during installation.

All of the standard QuickLock® cover grates can be utilized with the 9832 Shallow Channel Systems. Refer to pages 20 - 22 for complete drainage system grate information. Closing end caps are also available.

9836 Shallow Channel with Rails



Note: This trench drainage system is designed for “on-grade” applications only, as there are no provisions for a flashing flange or flashing clamp.



QuickLock® is a registered trademark of ACO Polymer Products, Inc.

In general, the 9836 Shallow Channel Systems are identical to the 9832 systems but incorporate an integrally molded galvanized steel or stainless steel edge rail for applications up to DIN load class E.

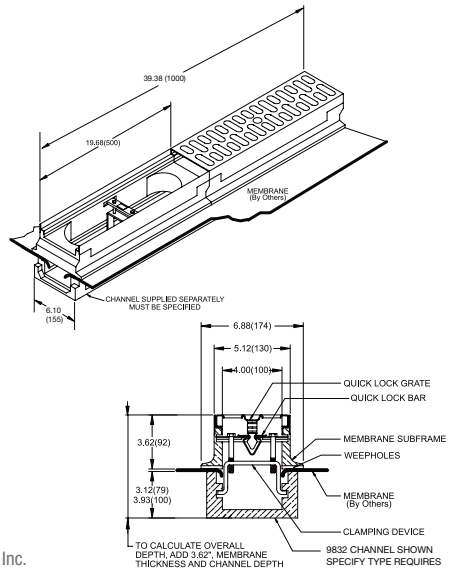
Also made from high strength polyester or vinylester concrete, these units are lightweight and easy to install. Each channel has a groove profile to assist with alignment during installation.

All of the standard QuickLock® cover grates can be utilized with the 9836 Shallow Channel Systems. Refer to pages 20 - 22 for complete drainage system grate information. Closing end caps in galvanized steel or stainless steel are also available. A 4.00 drill out is located on the bottom of each channel to fit schedule 40 PVC piping. (supplied by others)

9837 Membrane Drain

This trench drain is not intended for use above occupied spaces.

Channel Slope® is a registered trademark of ACO Polymer Products, Inc.



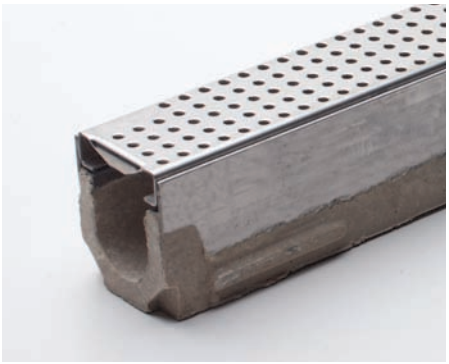
The 9837 Membrane Drain Waterproofing System is designed specifically for use in suspended slabs where any liquid permeating through the concrete is collected by a membrane and directed back into the trench drain via weepholes.

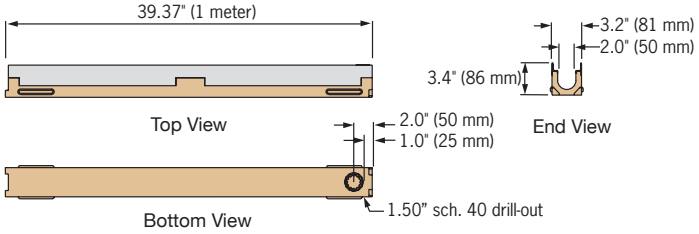
A pair of polymer concrete membrane clamping subframes are placed on top of either 9832 or the 9814 channel system after the membrane is laid and the channel and the subframes are clamped together with a metal clamping device, essentially sandwiching the membrane in between.

The subframes are available with galvanized steel or stainless steel edge rails. Loading is determined by the grating up to DIN load class C.

9833 MINIKLASSIC Narrow Channel, 9857 Oil Separator and 9846 Sump Boxes

9833 MINIKLASSIC Narrow Channel





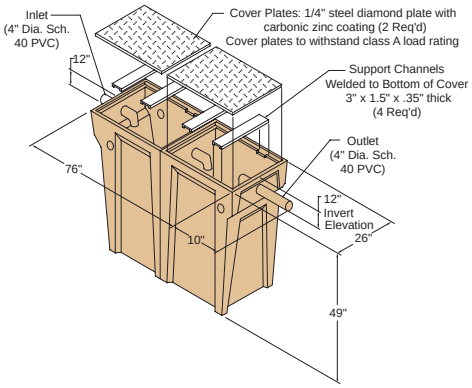
Note: This trench drainage system is designed for "on-grade" applications only, as there are no provisions for a flashing flange or flashing clamp.

The 9833 MiniKlassic Narrow Channel System is a 2" internal width system for high profile aesthetic applications where a barrier is required to separate wet and dry areas.

Made from high strength polyester polymer concrete, these units are available with integrally molded galvanized steel or stainless steel edge rails, which protect the channel edge from damage. 1.50" SCH 40 drill out allows vertical drainage of run at any point.

A choice of grates in various materials and styles (including ADA compliant) are available for applications from DIN load classes A through C. Closing end caps are also available in galvanized steel or stainless steel.

9857 Oil Separator



The Jay R. Smith Mfg. Co.® Drainage Systems 9857 Oil Separator effectively helps to separate oils, gases, acids, sand, food remains and sludges from waste water. It can be utilized in a variety of applications – auto body shops, gas stations, and manufacturing and food processing plants. The 9857 is a manufactured double-basin 220 gallon capacity design from polymer concrete. All PVC 4" piping and cover plates are provided.

Smith Drainage Systems will furnish engineering and installation drawings for your review.

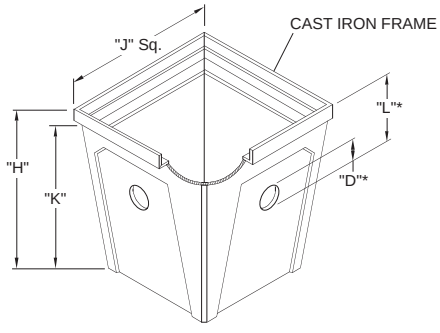
Technical assistance is also available for installation, which normally is accomplished in a few hours.

1/4" steel diamond cover plates with carbonic zinc coatings are standard for the 9857. The load rating is Class A, or light Duty, for slow speed pneumatic tire traffic only, gross vehicle weight of 3500 lbs – 70PSI.

Available options include holes for venting and Heavy Duty load class "C" covers.

.

9846 Sump Boxes



The Jay R. Smith Mfg. Co.® Drainage Systems 9846 Sump Boxes are preassembled modular units which offer solutions to many applications. Well suited for high capacity flow rates, solids and sludge handling, chemical containment and pump housing, the sump boxes are available in a range of sizes from 2'x2'x2' to 4'x4'x4'.

These polymer concrete sump boxes are easily adapted for uses with any of the Channel Slope Precast Polymer Concrete Systems. Upon specification, knockouts can be custom fabricated for pipe connections. Regularly furnished with cast iron frame and loose set cast iron slotted grate. Jay R. Smith Mfg. Co. Drainage Systems trained staff will assist in specifying the 9846 Sump Box to meet your special needs.

INLET	"D"	
INLET	"L"	

OUTLET	"D"	
OUTLET	"L"	

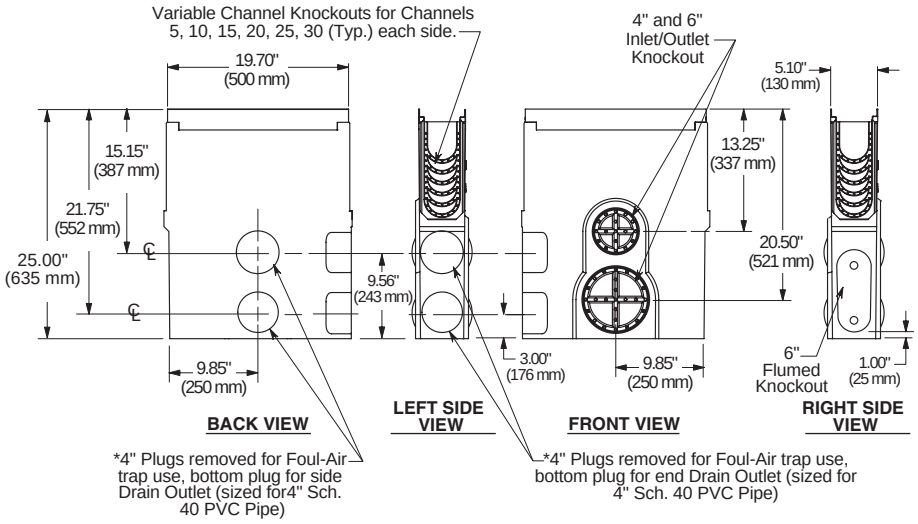
*Specify Inlet and Outlet Diameter and Invert Location

Figure Number	Inside Dimension of Sump Box	Capacity Gallons	Capacity Liters	Weight w/o Cover	"H" w/Frame	"K" w/out Frame	"J" SQ Outside DIM
9846	2' x 2' (610mm x 610mm)	43.3	164	197 (90 kg)	26.75 (680mm)	24.00 (610mm)	27.88 (708mm)
9847	3' x 3' (914mm x 914mm)	161.2	610	467 (212 kg)	38.50 (978mm)	35.75 (909mm)	40.50 (1029mm)
9848	4' x 4' (1219mm x 1219mm)	475	1798	808 (368 kg)	50.38 (1280 mm)	48.75 (1238mm)	51.38 (1305mm)

9860 and 9868 Catch Basin

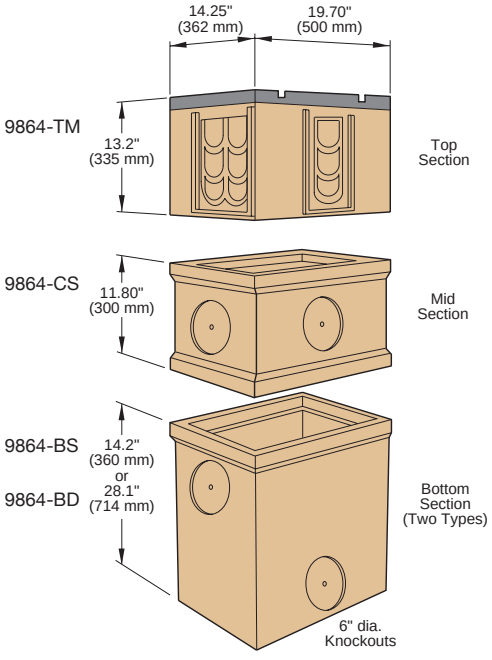
The 9860 and 9868 Series Catch Basins are designed for the 9814 and 9818 Channel Systems and accommodate any style 9870 series grate. Trash buckets in molded poly-propylene are available for easy collection and removal of debris. Knockout panels are provided on either end of the catch basin for connection with channels.

9868 Catch Basin



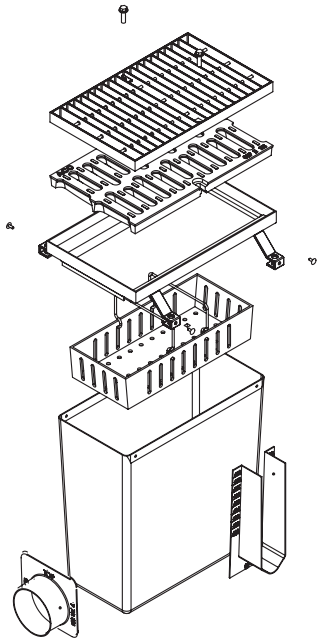
9864 Modular Catch Basins

The 9864 modular catch basins with extensions are available for the 9814 and 9818 systems. These stackable, modular units have center sections to extend the catch basin to meet depth requirements. Furnished with ductile iron slotted grate or ductile iron ADA compliant grate.

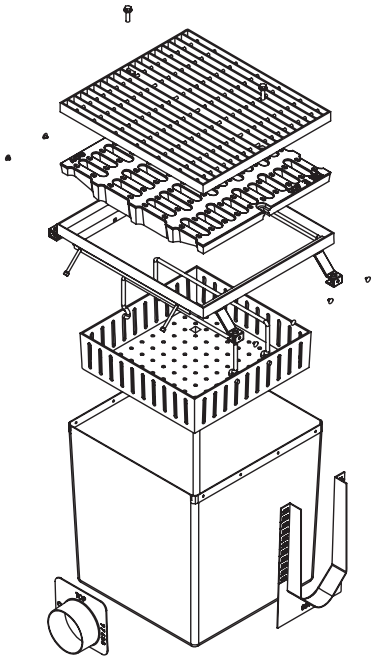


9812 Catch Basins

The 9812 Series Catch Basins are (9812-660-CB12) 1'-3" x 2' x 2'-3" deep and (9812-880-CB24) 2' x 2'-3" x 2'-4" deep units. It can be used in conjunction with either Fiberglass Trench System, 9810 or 9812. Knockouts to accept trench inlets or plumbing connections are easily fabricated on the job site. All units come standard with a secured, slotted ductile iron grate and coated steel frame, as well as installation brackets.



9812-660-CB12



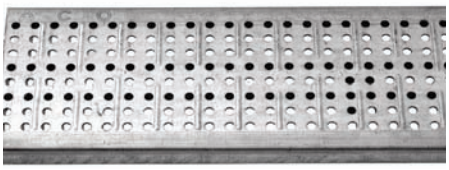
9812-880-CB24

9870 Series Drainage Systems Grates

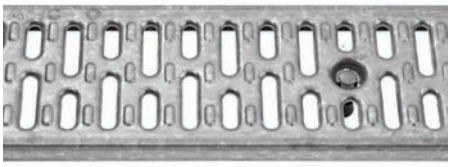
A range of gratings designed for use with channels from the 9810, 9814, 9818, 9832, 9836 and 9837 Systems

Load Class A: Light Duty

Light Duty, DIN 19580/EN 1433 Class A - 3,500 lbs - 70 psi for pedestrian, wheelchair and bicycle traffic.



9870-410-GP
Perforated Galvanized Steel
1/4" holes for effective surface drainage. Minimizes high heel hazard and large debris collection. 1 meter. 5 lbs. Open Area 27.60 Sq. In. Quicklock® securing device is regularly furnished.



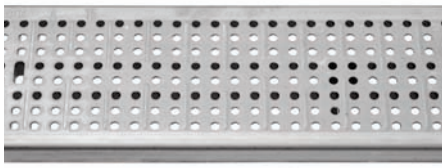
9870-420-G
Slotted Galvanized Steel
Resistant to bicycle and wheelchair tires; efficient drainage. 1 meter. 6 lbs. Open Area 42.60 Sq. In. Quicklock® securing device is regularly furnished.

9870-440-VF
Vinylester Fiberglass
For high chemical resistance or non-conductivity. 1/4" bars spaced on 1" centers. 1 meter. 4 lbs. Open Area 144.0 Sq. In.

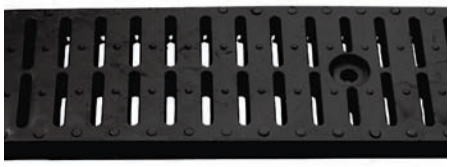
9870-440-VF2
Vinylester Fiberglass
For high chemical resistance or non-conductivity. 1/4" bars spaced on 5/8" centers. 1 meter. 4 lbs. Open Area 113.0 Sq. In.

9870-445-SSADA
ADA Stainless Steel
Stainless steel 11 ga. ADA compliant design rated for light duty loads. 1 meter. 8 lbs. Open area 95.00 Sq. In. Quicklock® securing device is regularly furnished.

9870-450-SS
Slotted Stainless Steel
For food and beverage processing areas. High corrosion resistance. 1 meter. 6 lbs. Open Area 42.60 Sq. In. Quicklock® securing device is regularly furnished.



9870-451-SSPA
Perforated Stainless Steel
1/4" holes for effective surface drainage. Minimizes high heel hazard and large debris collection. High corrosion resistance. 1 meter. 5 lbs. Open Area 27.60 Sq. In. Quicklock® securing device is regularly furnished.

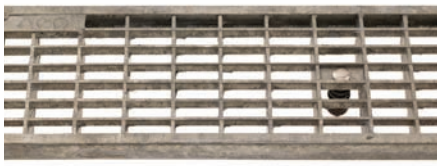


9870-491-HPP
Slotted Black Polypropylene
1/4" slots minimizes high heel hazard and large debris collection. Designed for light duty loads. 1/2 meter. 2 lbs. Open Area 17.55 Sq. In.

9870-494-PADAB/-PADAG/ -PADABR/-PADAGR
ADA Black Polypropylene
ADA compliant design that is rated for light duty loads. 1/2 meter. 2 lbs. Open area 28.00 Sq. In. Also available in gray color - PADAG, brick red color - PADABR, green color - PADAGR Quicklock® securing device is regularly furnished.

Load Class C: Heavy Duty

Heavy Duty, DIN 19580/EN 1433 Class C - 56,000 lbs. 1,162 psi for commercial pneumatic tire traffic patterns, forklifts, and tractor trailers



9870-405-GM
Mesh Galvanized Steel
Galvanized steel 14 ga. mesh designed for heavy loads and high intake capacity. 1 meter. 8 lbs. Open area 125.30 Sq. In. Quicklock® securing device is regularly furnished.

9870-411-GPHD
Perforated Galvanized Steel
(Reinforced). 1/4" holes for effective surface drainage. Minimizes high heel hazard and large debris collection. Heavy loads and frequent traffic. 1 meter. 10 lbs. Open Area 27.60 Sq. In. Quicklock® securing device is regularly furnished.

9835
Brick Slot Grate
Galvanized steel grates designed for heavy loads and use with brick or stone pavers. The grate features a ½" slot for paving joints. Quicklock® securing device is regularly furnished. For use with 9818 channel only.

QuickLock® is a registered trademark of ACO Polymer Products, Inc.

9870 Series Drainage Systems Grates

A range of gratings designed for use with channels from the 9810, 9814, 9818, 9832, 9836 and 9837 Systems

Load Class C: Heavy Duty, continued

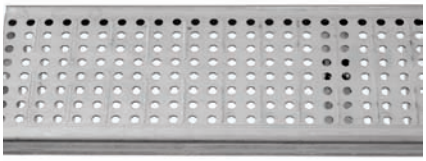
9870-416-GS
Solid Galvanized Steel
(Reinforced). For pipe or conduit housing. Protects channel from debris while allowing access. For heavy duty loads and frequent traffic. 1 meter. 11 lbs. Quicklock® securing device is regularly furnished.

9870-425-GHD
Slotted Galvanized Steel
(Reinforced) For heavy loads and frequent traffic. Less than half the weight of cast iron. 1 meter. 10 lbs. Open Area 42.60 Sq. In. Quicklock® securing device is regularly furnished.

9870-430-SSM
Mesh Stainless Steel
Stainless steel 14 ga. mesh designed for heavy loads and high intake capacity. 1 meter. 8 lbs. Open area 125.30 Sq. In. Quicklock® securing device is regularly furnished.

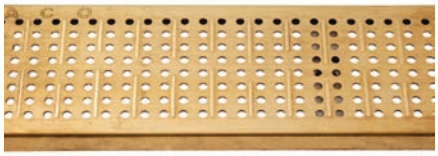
9870-455-SSHD
Slotted Stainless Steel
(Reinforced). For heavy loads and frequent traffic. High corrosion resistance. 1 meter. 10 lbs. Open Area 42.60 Sq. In. Quicklock® securing device is regularly furnished.

9870-460-CI
Slotted Cast Iron
Heavy loads and frequent traffic. 1/2 meter. 11 lbs. Open Area 26.40 Sq. In.



9870-465-SSP
Perforated Stainless Steel
(Reinforced). 1/4" holes for effective surface drainage. Minimizes high heel hazard and large debris collection. Heavy loads and frequent traffic. High corrosion resistance. 1 meter. 12.5 lbs. Open Area 27.60 Sq. In. Quicklock® securing device is regularly furnished.

9870-479-MD
MOSAIC Ductile Iron
Black duco coated ductile iron grate with mosaic pattern, designed for heavy duty loads. 1/2 meter. 10 lbs. Open Area 19.50 Sq. In. Quicklock® securing device is regularly furnished.



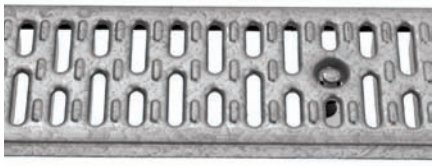
9870-485-PB
Perforated Brass
(Reinforced). 1/4" holes for effective surface drainage. Minimizes high heel hazard and large debris collection. Heavy loads, frequent traffic. Decorative. 1 meter. 13.5 lbs. Open Area 27.60 Sq. In. Quicklock® securing device is regularly furnished.

9870-492-RC
Resin Composite
Durable resin composite with 5/16" slots for effective surface drainage. For harsh chemical application, non-conductive and anti-spark. 1/2 meter. 4 lbs. Open Area 16.30 Sq. In. Quicklock® securing device is regularly furnished.

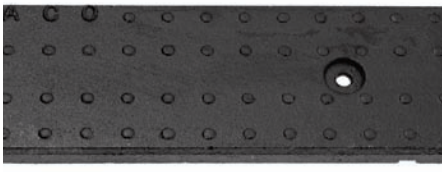
*Load Class E: Extra Heavy Duty

Extra Heavy Duty, DIN 19580/EN 1433 Class E - 135,000 lbs. - 2,788 psi for commercial solid tire traffic patterns, forklifts and impacts from steel struts or metal wheels.

9870-477D-ML
Longitudinal Slotted Ductile Iron
Larger, horizontal slots for increased intake capacity. For heavy loads, frequent traffic. 1/2 meter. 10 lbs. Open Area 41.90 Sq. In. per 1/2 meter.



9870-435-GHDE
Slotted Galvanized Steel
(Reinforced) For heavy loads and frequent traffic. 1 meter. 10 lbs. Open Area 42.60 Sq. In. per meter. QuickLock® securing device is regularly furnished.



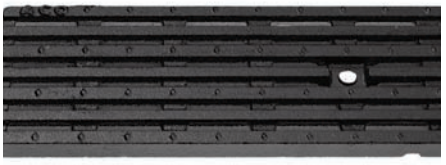
9870-456D-MS
Solid Ductile Iron
For pipe or conduit housing. Protects channel from debris while allowing access. 1/2 meter. 14 lbs.

QuickLock® is a registered trademark of ACO Polymer Products, Inc.

*Load Class E: Extra Heavy Duty, continued

9870-461-M
Slotted Ductile Iron
For dynamic loads and hard wheel forklifts. 1/2 meter. 11 lbs. Open Area 26.40 Sq. In.

9870-490-SSHDE
Slotted Stainless Steel
(Reinforced) For heavy loads and frequent traffic. High corrosion resistance. 1 meter. 10 lbs. Open Area 42.60 Sq. In. per meter. QuickLock® securing device is regularly furnished.



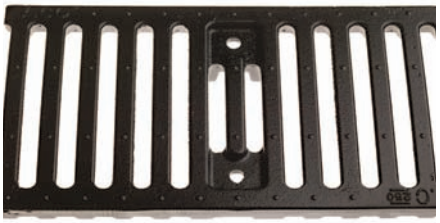
9870-477-MADA
ADA Ductile Iron
ADA compliant design that is rated for heavy loads and frequent traffic. 1/2 meter. 11 lbs. Open Area 28.50 Sq. In.

*Only meets Class E Rating when used with 9816 Frame or 9818 Series Channel.

9812 Series Drainage Systems Grates

Load Class C: Heavy Duty

Heavy Duty, DIN 19580 Class C -56,000 lbs -1,162 psi for commercial pneumatic tire traffic patterns, forklifts and tractor trailers.



9812-CI
Cast Iron Slotted
For frequent loads and heavy traffic. Open Area 61.25 Sq. In. per 18" grate.

9812-G
Galvanized Steel Bar
For high flow areas, allows larger fluid volumes and debris to enter. Open Area 263.50 Sq. In. per 3' grate.

9812-SS
Stainless Steel Bar
For high corrosion resistance, food processing. Open Area 263.50 Sq. In. per 3' grate.

9812-VF
Vinylester Fiberglass
For high chemical resistance or non-conductivity. Open Area 35.0 Sq. In. per 3' grate.

Load Class E: Extra Heavy Duty

Extra Heavy Duty, DIN 19580/EN 1433 Class E -135,000 lbs - 2,788 psi for commercial solid tire traffic patterns, forklifts and impacts from steel struts or metal wheels.

9812-M
Ductile Iron
For dynamic loads and hard wheel forklifts. Open Area 61.25 Sq. In. per 18" grate.

9812-MADA
Extra Heavy Duty
ADA compliant design that is rated for heavy loads and frequent traffic. Open area 42.00 sq. in. per 18" grate.

Polymer Concrete Drainage Systems Accessories

9849 Rante-Arrow

The 9849 Rante-Arrow is designed for use with the 9814, 9816, and 9818 Systems. The 9849 Rante-Arrow firmly anchors the channel system in most sub-base conditions, eliminating flotation allowing for a monolithic pour.

9869-D Double Arrow Channel Support

This installation device supports and holds two channel ends together, allowing vertical and horizontal adjustment.

9869-R Rebar Channel Support

This installation tool uses rebar or other jobsite materials to support and hold channel ends together, allowing vertical and horizontal adjustment.

9852 Channel Chair

The 9852 Channel Chairs support adjoining ends of channels for use with all 4" I. D. polymer concrete trench systems.

6" Pipe Outlets

Manufactured with quality, pipe outlets form a rugged connection between channels and underground piping systems. 6" flumed schedule 40 PVC.

9854 Strainer

Designed to fit a 4" diameter channel outlet hole, the strainer prevents debris from entering underground piping systems.

9853 Shovel Head

Shaped to match the inside diameter of all 4" I.D. channels, the 9853 Shovel Head is a convenient tool for channel cleaning.

ACO Bond - P (Polyester)
ACO Bond - V (Vinylester)

Polymer Joint sealant for use with polyester or vinylester polymer concrete channels. ACO-Bond sealant is available in 2 1/2 lb. size, enough for 25 joints.

Channel Slope®, Channel Brace, ACOWall® and QuickLock® are registered trademarks of ACO Polymer Products, Inc.

Smith Drainage Systems
Chemical Resistance Guide

Chemical Medium	Max. conc.	Short time exposure 72 hours Polyester	Long time exposure 42 days	Max. conc.	Short time exposure 72 hours Vinyl ester	Long time exposure 42 days
Acetic Acid	**30%**	✔	×	**75%**	✔	✔
Acetone	10%	✔	×	10%	✔	×
Ammonia	**10%**	✔	×	**10%**	✔	×
Aniline	100%	✔	×	100%	✔	×
Aniline in Ethyl Alcohol	**10%**	✔	✔	**10%**	✔	✔
Benzene	100%	✔	×	100%	✔	×
Boric Acid	**100%**	✔	✔	**100%**	✔	✔
Butyric Acid	25%	✔	✔	50%	✔	✔
Butyl Alcohol	**100%**	✔	✔	**100%**	✔	✔
Calcium Chloride	100%	✔	✔	100%	✔	✔
Calcium Hydroxide	**100%**	✔	×	**100%**	✔	✔
Caster Oil	100%	✔	✔	100%	✔	✔
Chloric Acid	**5%**	✔	×	**5%**	✔	✔
Chromic Acid	5%	✔	✔	20%	✔	✔
Citric Acid	**100%**	✔	✔	**100%**	✔	✔
Diesel Fuel	100%	✔	✔	100%	✔	✔
Ethanol	**100%**	✔	×	**95%**	✔	✔
Ethlendiamine	100%	✔	✔	100%	✔	✔
Ethyl Acetate	**100%**	✔	×	**100%**	✔	×
Ferrous Sulfate	30%	✔	✔	100%	✔	✔
Fluorallic Acid	**10%**	✔	✔	**10%**	✔	✔
Formaldehyde	35%	✔	✔	100%	✔	✔
Formic Acid	**10%**	✔	×	**10%**	✔	✔
Fuel Oil	100%	✔	✔	100%	✔	✔
Gasoline	**100%**	✔	✔	**100%**	✔	✔
n-Heptane	100%	✔	✔	100%	✔	✔
n-Hexane	**100%**	✔	✔	**100%**	✔	✔
Hydraulic Oil	100%	✔	✔	100%	✔	✔
Hydrochloric Acid	**10%**	✔	✔	**37%**	✔	✔
Hydrofluoric Acid	5%	✔	×	20%	✔	✔
JP4	**100%**	✔	✔	**100%**	✔	✔
JP8	100%	✔	✔	100%	✔	✔
Lactic Acid	**10%**	✔	✔	**100%**	✔	×
Methanol	5%	×	×	5%	✔	×
Methyl Amine	**100%**	✔	×	**100%**	✔	×
Methyl Ethyl Ketone	100%	✔	×	100%	✔	×
Mineral Oil SAE5W50	**100%**	✔	✔	**100%**	✔	✔
Monochlor Benzene	0.05%	×	×	0.05%	✔	✔
Monochloroacetic Acid	**10%**	✔	✔	**10%**	✔	✔
Nitric Acid	10%	✔	×	20%	✔	✔
n-Nonane	**100%**	✔	✔	**100%**	✔	✔
Iso-Octane	100%	✔	×	100%	✔	×
Oxalic Acid	**100%**	✔	✔	**100%**	✔	✔
Phenol	100%	✔	×	100%	✔	×
Phosphoric Acid	**10%**	✔	✔	**75%**	✔	✔
Potassium Hydroxide	10%	×	×	10%	✔	✔
Sodium Acetate	**100%**	✔	×	**100%**	✔	✔
Sodium Carbonate	20%	✔	✔	35%	✔	✔
Sodium Chloride	**100%**	✔	✔	**100%**	✔	✔
Sodium Hydroxide	15%	✔	×	25%	✔	✔
Sodium Hypochloric	**5%**	✔	✔	**5%**	✔	✔
Sulfuric Acid	40%	✔	✔	70%	✔	✔
Tetrafluoroborsaure	**20%**	✔	×	**20%**	✔	✔
Toluene	100%	✔	×	100%	✔	×
Trichloroethylene	**100%**	×	×	**100%**	×	×
Triethylamine	100%	✔	✔	100%	✔	✔
Xylene	**100%**	✔	×	**100%**	✔	×

Note: Maximum operating temperature of 180ºF (82ºC)

Smith/ACO Drain channel bodies are highly resistant to chemical attack and, with the appropriate grate, can be used in most environments where acids and dilute alkalis are encountered.

Refer to chemical chart left for resistance of Polyester and Vinyl ester polymer concrete. Fiberglass products use the same polyester resin - refer to Polyester details for chemical resistance.

When greater chemical resistance is required, Vinylester polymer concrete channels should be specified.

These recommendations are for guidance only. Customers are advised to test a coupon of polymer concrete to ensure suitability. Test coupons are available free of charge from Smith/ACO.

Polymer concrete is not affected by road deicing salts, and conforms to **ASTM - B117 Salt Spray Test.**

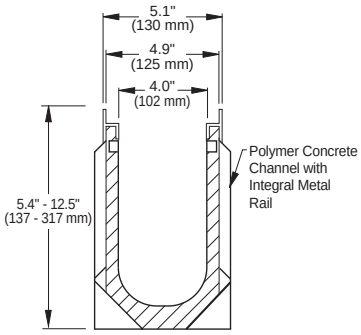
Important considerations for chemical environments

When reviewing potential applications of trench drains in chemical environments, the following issues should be considered:

1. Type(s) & mixture of chemical(s).
2. Concentration percentages.
3. Contact time with trench system.
4. Temperatures of chemicals flowing into the trench drain (180ºF, 82ºC max).
5. Flushing system employed to clear chemicals from the system.
6. Cleaning agents should be checked for compatibility with trench material.
7. Test coupons can be used for final determination of chemical resistance.
8. Grate, locking mechanism, edge rail, outlet and trash bucket materials should be checked for chemical resistance.
9. Check sealant for compatibility.

9818 Channel Slope® Precast Polymer Concrete System Specifications

Part 1



CROSS SECTION DETAIL

General

All materials, labor and equipment necessary to install a precast, presloped, chemical-resistant polyester concrete (or vinylester concrete) trench drainage system as specified and as shown on the working drawings shall be included. Install Smith Drainage Systems in strict accordance with manufacturer's recommendations and shop drawings.

Related Work

Work specified in other sections includes, but is not limited to: excavation and backfill, cast-in-place concrete, and mechanical equipment.

System Description

Modular trench drainage system precast from a corrosion resistant polyester concrete (or vinylester concrete) including interlocking modular components for on-site installation.

Submittals

Manufacturer will submit, when required, shop drawings showing a schematic plan of the total drainage system listing all parts being provided with exact centerline dimensions suitable for installation. Copies of the manufacturer's recommended method of installation, assembly, and anchorage shall be submitted for review.

Part 2

Products

Manufacturer shall be Jay R. Smith Mfg. Co.®, Montgomery, Alabama.

Product Description

Top Unit Width	5.1"
Internal Width	4.0"
Unit Depth	5.4" to 12.5"
Compressive Strength	14,500 psi
Tensile Strength	28,000 psi
Built-in Slope	.6%

Water Absorption not to exceed 1%

Each precast polyester polymer concrete one meter unit shall have a .6% built-in slope and a permanently cast-in integral galvanized steel or stainless steel rail with a maximum edge thickness of .10". The integral cast-in metal rail shall provide mechanical support as a one-part unit which can support 135,000 lbs. - 2,788 psi vehicle weight, with class "E" rated grates.

All metal material used in grate and rail construction shall be minimum of .10" thick.

Channel profile shall include positive interlocking tongue and groove connections (male and female joining ends) which can be sealed to provide water tight connections.

Locking device recesses are formed into the reinforced channel walls. All locking device recess material of construction shall be polymer concrete.

Quicklock® locking device is provided with selected grates. Quicklock® insures proper and secure grate lock down each time the grate is replaced in the trench.

The QuickLock® grates shall have a non-removal factory pressed glass nylon securing lug with mating stainless steel spring clip locking bar.

All precast polyester polymer concrete one meter units shall have a .6% built-in slope and cast-in integral solid metal rail and shall have a preformed vertical 4" and flumed 6" knock-out on the bottom of the unit.

All catch basins shall have a permanently cast-in integral solid metal rail with a maximum edge thickness of .10". The cast-in solid metal rail shall support 135,000 lbs. - 2,788 psi vehicle weight, with class "E" rated grates.

Part 3

Site Preparation

Excavate the area for channel placement wide and deep enough to accommodate the standard channel size and a minimum of 4" concrete encasement on both sides as well as underneath the channel. Channels require a minimum of 4" of concrete support and top of channel must be evenly aligned to the surface of the surrounding slab.

Installation

Channel sections are installed from the outlet end of the system, working from either catch basin or deeper channel sections to shallow channel sections. Insert channels from above to allow ends to interlock. Channel sections shall be placed on Rante Arrows, brick, rebar basket, Channel Chair, low slump concrete, grout slurry, or suspended to obtain correct finished elevation. Cutting will be made, if required, by masonry or concrete saw. Temporarily place grate in channel with shim spacer to avoid compression during concrete placement.

Concrete Pour

Protect grates and channel interior during pouring of concrete. Place concrete in a manner that will not dislodge the channels. Concrete shall be at finished level or 1/8" above the top of the channel to ensure efficient drainage and adequate channel edge protection.

Finishing and Clean up

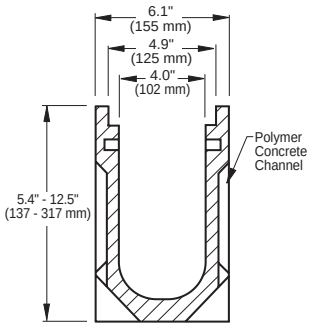
Following final set of concrete, remove grate protection, place grates in final position and engage locking bolts in correct location.

The approved supplier is Jay R. Smith Mfg. Co.®, 2781 Gunter Park Drive East, Montgomery, Alabama 36109. Telephone: 334-277-8520

Channel Slope® and QuickLock® are registered trademarks of ACO Polymer Products, Inc.

9814 Channel Slope® Precast Polymer Concrete System Specifications

Part 1



CROSS SECTION DETAIL

General

All materials, labor, and equipment necessary to install a precast, sloped or neutral, chemical resistant polymer concrete trench drainage system as specified and as shown on the working drawings shall be included. Install Smith Drainage Systems in strict accordance with manufacturer's recommendations and shop drawings.

Related Work

Work specified in other sections includes, but is not limited to: excavation and backfill, cast-in-place concrete, and mechanical equipment.

System Description

Modular trench drainage system precast from a corrosion resistant polymer concrete including interlocking modular components for on-site installation.

Quality Assurance

Manufacturer shall submit test results from an independent testing laboratory stating the uniform live compressive load in accordance with specification DIN 19580/EN 1433 for drainage channel sections.

Submittals

Manufacturer will submit, when required, shop drawings showing a schematic plan of the total drainage system listing all parts being provided with exact centerline dimensions suitable for installation. Copies of the manufacturer's recommended method of installation and assembly shall be submitted for review.

Part 2

Products

Manufacturer shall be Jay R. Smith Mfg. Co.®, Montgomery, Alabama.

Product Description

Product shall be the Channel Slope® Precast Polymer Concrete System including grates of a material recommended by the manufacturer. Trench drain channels shall be precast, sloped or neutral and interlocking, incorporating either polyester or vinylester resins and formulated aggregate, with recesses for grating lockdown devices molded into the channel walls. Recesses shall be formed from the same material as the channel.

Channels shall not have any projecting surfaces within 2" of the top surfaces.

Unit Width	6.1"
Unit Depth	5.4" to 12.5"
Internal Width	4.0"
Unit Length	39.37"
System Slope	.06%
Compressive Strength	14,500 psi
Flexural Strength	2,900 psi
Water Absorption not to exceed 1%	

Channel profile shall include positive interlocking tongue and groove connections (male and female joining ends) which can be sealed to provide water tight connections.

Locking device recesses are formed into the reinforced channel walls. All locking device recess material of construction shall be polymer concrete.

Quicklock® locking device is provided with selected grates. Quicklock® insures proper and secure grate lock down each time the grate is replaced in the trench.

The QuickLock® grates shall have a non-removal factory pressed glass nylon securing lug with mating stainless steel spring clip locking bar.

All precast polyester polymer concrete one meter units shall have a .6% built-in slope and shall have a preformed vertical 4" and flumed 6" knock-out on the bottom of the unit.

Part 3

Site Preparation

Install Smith Drainage Systems in strict accordance with manufacturer's recommendations and shop drawings. Excavate the area for channel placement wide and deep enough to accommodate the standard channel size and a minimum of 4" concrete encasement on both sides as well as underneath the channels. Channels require a minimum of 4" of support and the top of the grate must be evenly aligned with the surface of the surrounding slab. (Note: The thickness of the concrete encasement must be at least as thick as the slab and never less than 4".)

Installation

Channel sections are installed from the outlet end of the system working from either catch basins or deeper channel sections to shallow channel sections. Insert channels from above to allow ends to interlock. Channel sections shall be placed on brick, rebar basket, Channel Chairs, Channel Brace, or low slump concrete, grout slurry, or suspended to obtain correct finished elevation. Cutting will be made, if required, by masonry saw. Temporarily place grate in channel with shim spacer to avoid compression during concrete placement.

Concrete Pour

Protect grates and channel interior during pouring of concrete. Place concrete in a manner that will not dislodge the channels. Concrete shall be at finished level or 1/8" above the top of the channel to ensure efficient drainage and adequate channel edge protection.

Finishing and Clean up

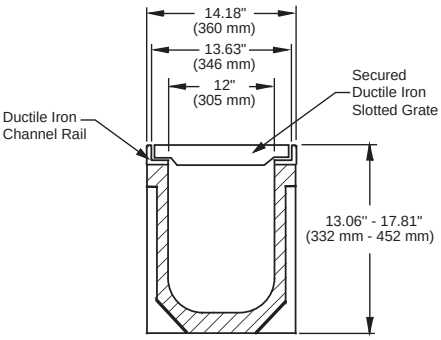
Following final set of concrete, remove grate protection, place grates in final position and engage locking bolts in correct location.

The approved supplier is Jay R. Smith Mfg. Co.®, 2781 Gunter Park Drive East, Montgomery, Alabama 36109. Telephone: 334-277-8520

Channel Slope® and QuickLock® are registered trademarks of ACO Polymer Products, Inc.

9828 Channel Brute Extra Heavy Duty Concrete System Specifications

Part 1



CROSS SECTION DETAIL

General

All materials, labor, and equipment necessary to install a precast, sloped or neutral, chemical resistant polymer concrete trench drainage system as specified and as shown on the working drawings shall be included. Install Smith Drainage Systems in strict accordance with manufacturer's recommendations and shop drawings.

Related Work

Work specified in other sections includes, but is not limited to: excavation and backfill, cast-in-place concrete, and mechanical equipment.

System Description

Modular trench drainage system precast from a corrosion resistant polymer concrete including interlocking modular components for on-site installation.

Quality Assurance

Manufacturer shall submit test results from an independent testing laboratory stating the uniform live compressive load in accordance with specification DIN 19580/EN 1433 for drainage channel sections.

Submittals

Manufacturer will submit, when required, shop drawings showing a schematic plan of the total drainage system listing all parts being provided with exact centerline dimensions suitable for installation. Copies of the manufacturer's recommended method of installation and assembly shall be submitted for review.

Part 2

Products

Manufacturer shall be Jay R. Smith Mfg. Co.®, Montgomery, Alabama.

Product Description

Product shall be the Channel Brute Extra Heavy Duty Polymer Concrete System including ductile iron slotted grates. Trench drain channels shall be precast, sloped or neutral and interlocking, incorporating either polyester or vinylester resins and formulated aggregate, with recesses for grating lockdown devices molded into the channel walls. Recesses shall be formed from the same material as the channel.

Channels shall not have any projecting surfaces within 2" of the top surfaces.

Unit Width	14.18"
Unit Depth	13.06"to 17.81"
Internal Width	12.0"
Unit Length	39.37"
System Slope	.06%
Compressive Strength	14,500 psi
Flexural Strength	2,900 psi
Water Absorption not to exceed	1%

Part 3

Site Preparation

Install Smith Drainage Systems in strict accordance with manufacturer's recommendations and shop drawings. Excavate the area for channel placement wide and deep enough to accommodate the standard channel size and a minimum of 8" concrete encasement on both sides as well as underneath the channels. Channels require a minimum of 8" of support and the top of the grate must be evenly aligned with the surface of the surrounding slab. (Note: The thickness of the concrete encasement must be at least as thick as the slab and never less than 8".)

Installation

Channel sections are installed from the outlet end of the system working from either catch basins or deeper channel sections to shallow channel sections. Insert channels from above to allow ends to interlock. Channel sections shall be placed on brick, rebar basket, low slump concrete, grout slurry, or suspended to obtain correct finished elevation. Cutting will be made, if required, by masonry saw. Temporarily place grate in channel to avoid compression during concrete placement.

Concrete Pour

Protect grates and channel interior during pouring of concrete. Place concrete in a manner that will not dislodge the channels. Concrete shall be at finished level or 1/8" above the top of the channel to ensure efficient drainage and adequate channel edge protection.

Finishing and Clean up

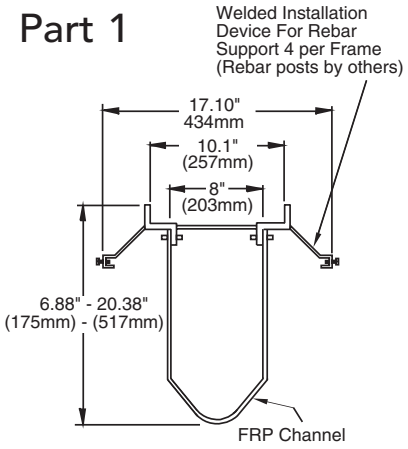
Following final set of concrete, remove grate protection, place grates in final position and engage locking bolts in correct location.

The approved supplier is Jay R. Smith Mfg. Co.®, 2781 Gunter Park Drive East, Montgomery, Alabama 36109. Telephone: 334-277-8520

Channel Brute is a Jay R. Smith Mfg. Co. Drainage System product.

9812 High Capacity Presloped Fiberglass Trench System Specifications

Part 1



CROSS SECTION DETAIL

General

All materials, labor, and equipment necessary to install a precast, pre-sloped, chemical resistant polyester fiberglass (or vinylester fiberglass) trench drainage system as specified and as shown on the working drawings shall be included. Install Smith Drainage Systems in strict accordance with manufacturer's recommendations and shop drawings.

Related Work

Work specified in other sections includes, but is not limited to: excavation and backfill, cast-in-place concrete, and mechanical equipment.

System Description

Modular trench drain system molded from chemical and corrosion resistant polyester or vinylester fiberglass for on-site assembly and installation.

Quality Assurance

Manufacturer shall submit test results from an independent testing laboratory stating the uniform live compressive load in accordance with specification DIN 19580/EN 1433 for ductile iron channel gratings.

Submittals

Manufacturer will submit, when required, shop drawings showing a schematic plan of the total drainage system listing all parts being provided with exact centerline dimensions suitable for installation. Copies of the manufacturer's recommended method of installation, assembly, and anchorage shall be submitted for review.

Part 2

Products

Manufacturer shall be Jay R. Smith Mfg. Co.®, Montgomery, Alabama.

Product Description

Product shall be the Presloped Fiberglass Trench System including grates as recommended by manufacturer. Channels shall be molded, presloped and interlocking, made from polyester or vinylester reinforced resin materials. Grates shall have integral lockdown capabilities with:

Unit Width	10.1"
Unit Depth	6.88" to 20.38"
Internal Width	8.0"
Unit Length	108.0"
System Length	108' (12 units)
System Slope	1.04%
Tensile Strength	16,400 PSI
Flexural Strength	24,000 PSI
Compressive Strength	32,000 PSI
Water Absorption	.15% net

Related Products

Smith Drainage Systems also has available the 9810 Fiberglass Sloped System as an alternate system. This specification is suggested for the 9812 System, although the 9810 System has similar properties with different dimensions.

Part 3

Site Preparation

Excavate the area for channel placement wide and deep enough to accommodate the standard channel size and a minimum of 4" concrete encasement on both sides as well as underneath the channel. Channels require a minimum of 4" of concrete support and top of channel must be evenly aligned with the surface of the surrounding slab.

Installation

Channel sections are installed from the outlet end of the system, working from either catch basins or deeper channel sections to shallow channel sections. Insert channels from above to allow ends to interlock. Channel sections shall be suspended to obtain correct finish height. Cutting will be performed with all purpose metal cutting saw or appropriate tool. Temporarily place expanded polystyrene block sidewall supports inside channels to avoid compression by concrete pour.

Concrete Pour

Protect channel interior during pouring of concrete. Place concrete in a manner that will not dislodge the channels. Concrete shall be at finished level or 1/8" above the top of the channel to ensure efficient drainage and adequate channel edge protection.

Finishing and Cleanup

Following final set of concrete, remove channel protection, place grates in final position and engage locking bolts in correct location.

The approved supplier is Jay R. Smith Mfg. Co.®, 2781 Gunter Park Drive East, Montgomery, Alabama 36109. Telephone: 334-277-8520

Smith Drainage Systems 9814, 9816, and 9818 Channel Slope® Trench Drain Installation

Installation of the Channel Slope® Precast Polymer Concrete Systems are achieved by following these basic steps.

1. Excavate a wide and deep trench to accommodate the channel and bedding concrete. Erect a temporary string line at each end of the drain run as a guide for laying the channels to the required level. Lay a bed of foundation concrete and place the first (deepest) drain channel or catch basin in position. The depth of the bedding concrete should be a minimum of 4" thick or equal to the surrounding slab thickness, whichever is thicker. **(Fig. A)**

2. Successive channels should be installed in order to ensure the top edge of the channel follows the string line. It is important that the arrow cast on the channel point toward the outlet or catch basin. **(Fig. B)**

3. The final channel in the run may require cutting to length with a masonry saw. End plates are placed in position and backfilled with concrete. **(Fig. C)**

4. Grate covers should be placed in the channels when filling the concrete along the sides. This ensures channel side walls are supported. During this process, mask the grates to protect against concrete splashes and stains. **(Fig. D)**

5. For drain channels laid in concrete floors, expansion joints must be provided parallel to each side of the drain run. Smith Drainage Systems also recommend placing crack control joints at right angles to the channels. Line up these joints with the joint lines of the channels. **(Fig. E)**

6. Installation is complete. A complete installation guide is available upon request.

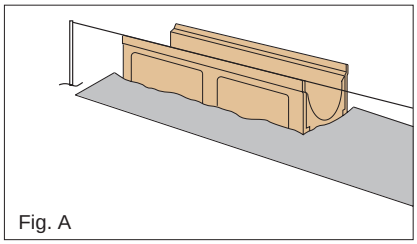


Fig. A

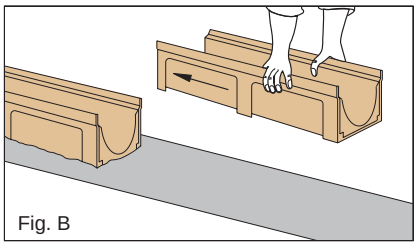


Fig. B

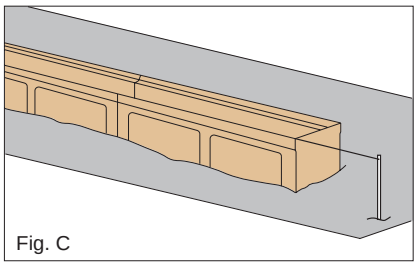


Fig. C

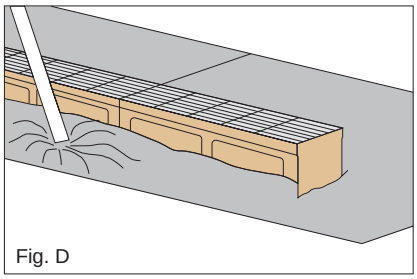


Fig. D

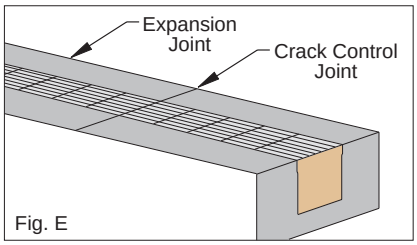
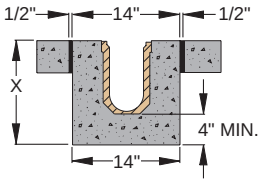


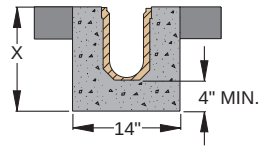
Fig. E

Channel Slope® is a registered trademark of ACO Polymer Products, Inc.

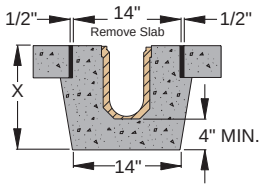
Installation into Different Materials



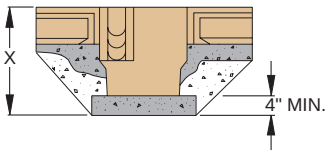
INSTALLATION IN CONCRETE



INSTALLATION IN ASPHALT



RETROFIT INSTALLATION



CATCH BASIN BEDDING

X=variable dimension

Sealing Channel joints and inlet/outlet connections

The following channel surface preparation steps must be followed in order for PJ-Seal-P (flexible one part urethane sealant), ACO Bond-P (2 part polyester polymer resin epoxy) or ACO Bond-V (2 part vinylester polymer resin epoxy) to seal the channel sections. The adjoining section surfaces **must** be cleaned using a wire brush or sand paper, which will expose a lighter color of the channel that will allow the sealant to bond. Please note that the channel sections have a wax release agent coating on the surface and it must be removed from any areas that are going to be sealed.

Smith Drainage Systems 9828 Channel Brute Trench Drain Installation

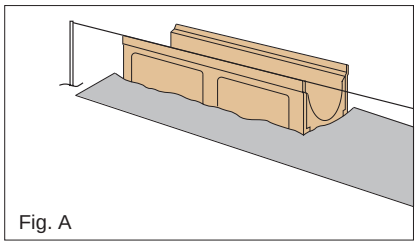


Fig. A

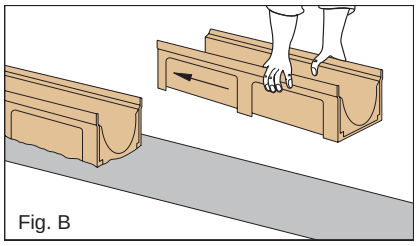


Fig. B

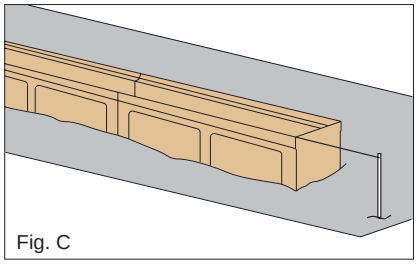


Fig. C

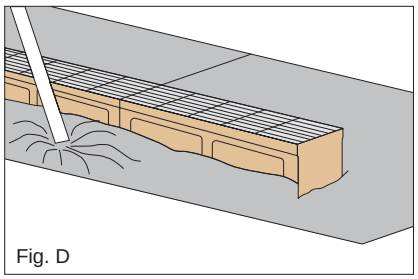


Fig. D

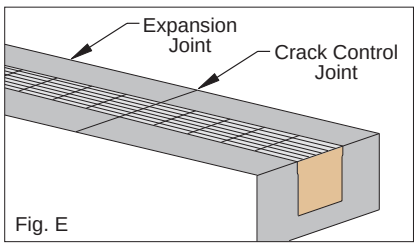


Fig. E

Installation of the 9828 Channel Brute Extra Heavy Duty Polymer Concrete System is achieved by following these basic steps.

1. Excavate a wide and deep trench to accommodate the channel and bedding concrete. Erect a temporary string line at each end of the drain run as a guide for laying the channels to the required level. Lay a bed of foundation concrete and place the first (deepest) drain channel or catch basin in position. The depth of the bedding concrete should be a minimum of 6.5" thick or equal to the surrounding slab thickness, whichever is thicker. **(Fig. A)**

2. Successive channels should be installed in order to ensure the top edge of the channel follows the string line. It is important that the arrow cast on the channel point toward the outlet or catch basin. **(Fig. B)**

3. The final channel in the run may require cutting to length with a masonry saw. End plates are placed in position and backfilled with concrete. **(Fig. C)**

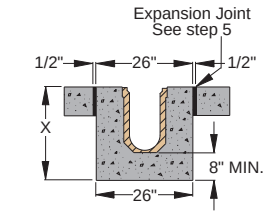
4. Grate covers should be placed in the channels when filling the concrete along the sides. This ensures channel side walls are supported. During this process, mask the grates to protect against concrete splashes and stains. **(Fig. D)**

5. For drain channels laid in concrete floors, expansion joints must be provided parallel to each side of the drain run. Smith Drainage Systems also recommend placing crack control joints at right angles to the channels. Line up these joints with the joint lines of the channels. **(Fig. E)**

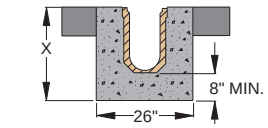
6. Installation is complete. A complete installation guide is available upon request.

Channel Brute is a Jay R. Smith Mfg. Co. Drainage System product.

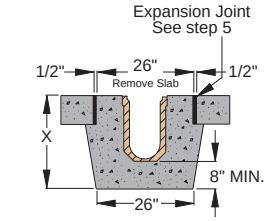
Installation into Different Materials



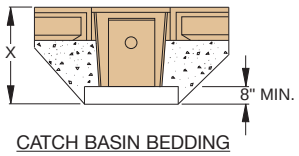
INSTALLATION IN CONCRETE



INSTALLATION IN ASPHALT



RETROFIT INSTALLATION



CATCH BASIN BEDDING

X=variable dimension

Sealing Channel joints and inlet/outlet connections

The following channel surface preparation steps must be followed in order for PJ-Seal-P (flexible one part urethane sealant), ACO Bond-P (2 part polyester polymer resin epoxy) or ACO Bond-V (2 part vinylester polymer resin epoxy) to seal the channel sections. The adjoining section surfaces **must** be cleaned using a wire brush or sand paper, which will expose a lighter color of the channel that will allow the sealant to bond. Please note that the channel sections have a wax release agent coating on the surface and it must be removed from any areas that are going to be sealed.

Smith Drainage Systems 9812 Fiberglass Trench Drain Installation

Installation of the 9812 series Presloped Fiberglass Trench System is achieved by following these basic steps.

Tools and supplies needed:
#5 rebar (5/8" dia.) 4 pcs. per Channel (by others)
Fiberglass repair kit – 8 oz. or 32 oz.
Adjustable wrench
Expanded polystyrene locks for internal bracing
Rags, sandpaper
Plywood (or similar) covers, 10" wide

1. Set the 9' or 3' frame on saw horses upside down and assemble the channel to the frame, making sure to line up the holes in the channel with the holes in the frame. Also make sure the male end of the channel is flush with the end of the frame.

2. Insert the supplied plastic ratchet fasteners through the holes in the frame from the inside and then through the holes in the channel. This fastens the channel to the frame. Use sandpaper and sand outside surface of the male (deep) end of the channel and the inside surface of the female (shallow) end of the channel. This step **must** be done before applying sealant to the channel sections.

3. Place the outlet (deepest) channel first. Attach the outlet to the stub-up pipe as required and align the channel to the string line. Drive the rebar through each of the four brackets coming off the frame into the subsoil (8 inches minimum).

4. Adjust the frame height by tightening the set screw bolts onto the rebar.

5. Place next channel into position slightly behind first channel. Set channel into female saddle at the shallow end of the channel placed in step 3. The protruding channel on the first channel will accept and support the male end of the second channel. Make sure the frames of both channels fit flush together. Smooth any sealant that oozes out with a putty knife or similar tool.

6. Fasten the installation brackets to the rebar as in step 4.

7. Repeat steps 3-6 for any remaining channels.

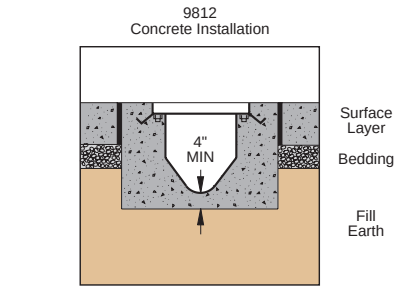
8. Attention: Step 8 must be followed or damage to channels will occur! For channel numbers 801-804 no interior support is required for the channel walls. For channels 805-807 place the supplied expanded polystyrene blocks into the channels with one at each end, one in the middle and one in between for a total of five blocks. For channels 808-812 place the blocks at each end and in between each cross bar for a total of eight blocks. PROPERLY BRACING THE DEEPER CHANNELS DURING CONCRETE PLACEMENT WILL PREVENT BOWING OR COLLAPSE OF THE CHANNELS DUE TO HYDROSTATIC PRESSURE FROM THE CONCRETE. REQUIRED INTERNAL BRACING SHOULD BE VIEWED AS ANY OTHER CONCRETE FORM.

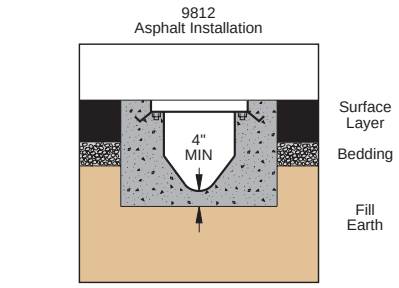
9. Place plywood or similar covers into the grate area to prevent concrete from entering the channels.

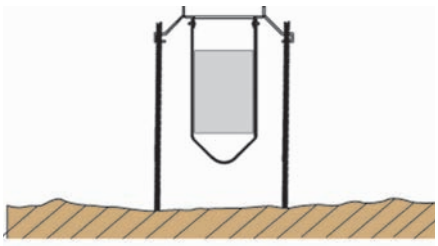
10. Recheck the tightness of all fasteners and reattach any questionable areas.

11. Cut the end caps to length per the markings on the end caps. Sand all matting surfaces prior to applying sealant to the end caps, inlet/outlet caps, and vertical outlets. Attach end caps with required sealant (PJ-Seal-P or Fiberglass resin, for vertical outlet Fiberglass resin). The flanges on the sides of the male end cap or the outlet cap fits over the outside of the channel. The female end cap fits inside the saddle on the end of the channel, but the flange faces away from the end of the channel. Attach the end frame by slipping the groove over the top of the cap.

Installation into Different Materials







9812 using rebar in installation brackets

NOTE: Foam block bracing to prevent channel crushing during concrete pour.

12. When placing the concrete around the channels, take care to place it equally on both sides of the trench system. Placing too much concrete on one side of the channel may cause the channel to twist.

13. If any concrete enters the channels, let it cure, it will not adhere, and is easily removed after it has cured. However, it is important to minimize the amount of concrete that enters the channel.

14. After concrete has taken its initial set, remove covers and internal bracing.

15. Install grates.

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JAY R.
SMITH MFG. CO.®
Member of Morris Group International

Plumbing and Drainage Products
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Tel 800-467-6484 • 334-277-8520
Fax 334-272-7396

www.jrsmith.com

Jay R. Smith Mfg. Co.® Drainage System
Smith/ACO Trench Drain Series

6" Wide
Channel Slope® Polymer Concrete System
9818 Series - Page 4

6" Wide
Channel Slope® Polymer Concrete System
9814 Series - Page 6

6" Wide
Extra Heavy Duty Polymer Concrete System
9816 Series - Page 8

12" Wide Channel Brute
Extra Heavy Duty Polymer Concrete System
9828 Series - Page 10

6" Wide
Advanced Hydraulic Fiberglass System
9810 Series - Page 12

10" Wide
High Capacity Fiberglass System
9812 Series - Page 14

This information is believed to be accurate but is not guaranteed to be so. Specifications subject to change without notice.

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