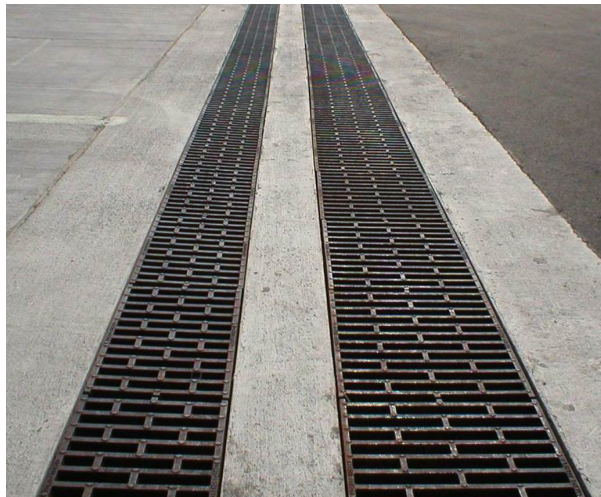


# TrenchFormer® TFX

ENHANCED HEAVY DUTY TRENCH DRAIN FORMING SYSTEMS



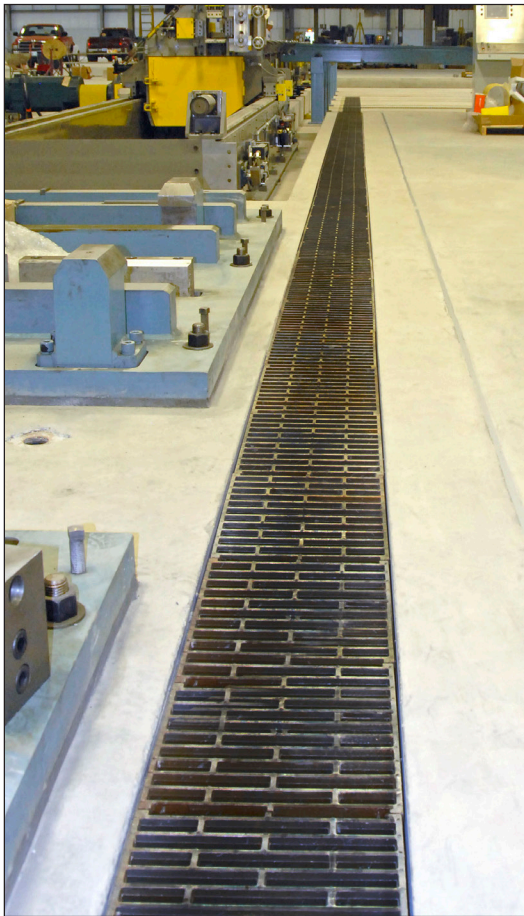
TRENCHFORMER TFX



# TrenchFormer®

**TrenchFormer®** is the preeminent pre-engineered concrete forming system. The system allows the designer to select trench width, depth, shape and slope as the hydraulic capacity or application requires. The designer is not forced to make compromises due to the limitations of other pre-manufactured products. In addition, the concrete former is entirely removed after installation. This allows for complete inspection of the workmanship and quality of the final product to be easily accomplished.

## Product Features



**Formers** - Manufactured from expanded polystyrene (EPS), the light-weight and environmentally safe disposable formers create a high precision monolithic trench. Shape may be radius, square, or trapezoidal along with other custom shapes, whichever option is best for the application. A full range of outlet options also exist.



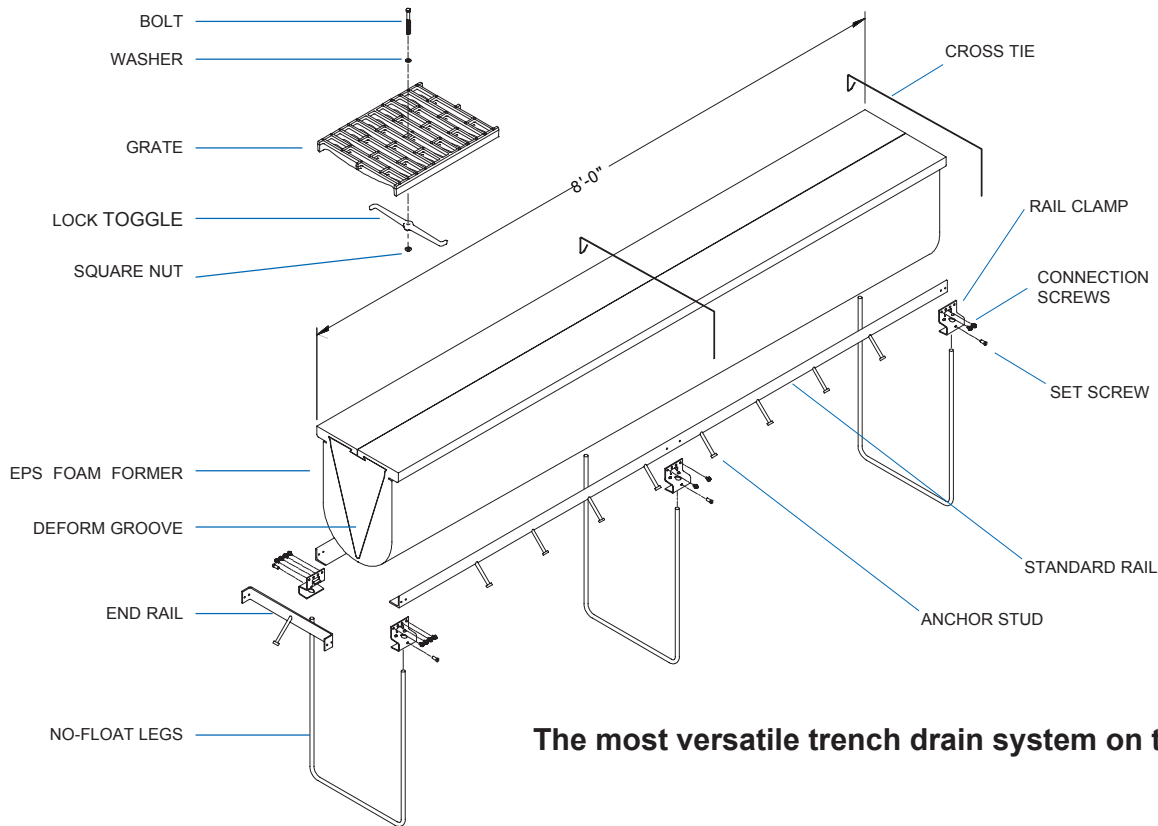
**Grate Options** - A wide range of grate and cover options exist from pedestrian to airport applications. Simply select the right strength, style, and corrosion resistance for the application. For applications with substantial longitudinal loads, bar locks are available and recommended. Toggle locks can be used when longitudinal loads are low. No grate locks are common in applications where the weight of the grates are adequate retention for the applications. ABT can assist you in making a suitable selection.

**Frame Options** - Stainless steel, painted steel, galvanized steel, FRP and Aluminum styles are available. Select the best rail material for your application. Rail size is determined by grate selection. All rails are independently anchored into the surrounding concrete for maximum service life.

**Ease of Installation** - Utilizing ABT's no-float U-legs and horizontal suspension, installation does not require heavy equipment, expensive highly-skilled labor, keyways, or water stops. The installation method allows for elevation adjustments prior to the final concrete placement. This results in a potential savings of 33% or more on total installation and material costs compared to conventional hand forming methods.

**Eliminates Sub-Slab Barrier Penetration** - Sub-slab barrier penetrations during trench drain installation and monolithic pours are eliminated using no-float legs and anchor slab.





**The most versatile trench drain system on the market**

TrenchFormer is a trench forming system that utilizes standard metal components and customizable forming sections. Its components are made in the most commonly constructed sizes.

They have integral deforming grooves for easy removal.

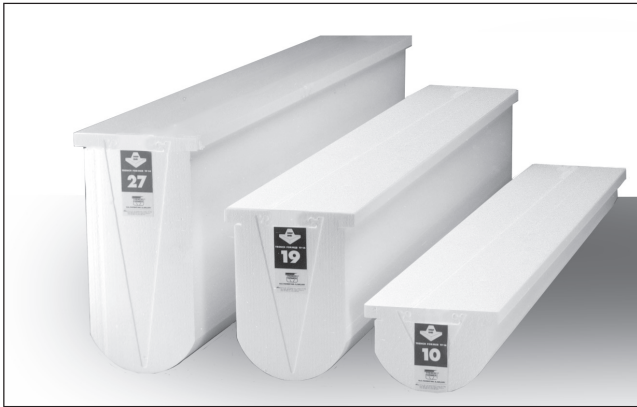
The steel angle rails include anchoring studs welded on predetermined centers to the outside corners. U-shaped no-float legs (#4 rebar) attach to rail clamps on each rail. Each rail end is designed to accept a rail clamp which connects adjacent rail segments.

Prefabricated L-rail and T-rail assemblies allow for field installation of 90° turns anywhere in the pre-sloped layout.

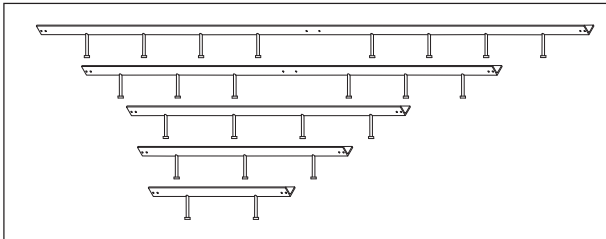
Outlet piping is butted to an annular groove made in the EPS form prior to concreting. For trench junctions or for large outlet sizes, four catch basins are available. A wide selection of retainable grates and solid covers are available for various loadings.



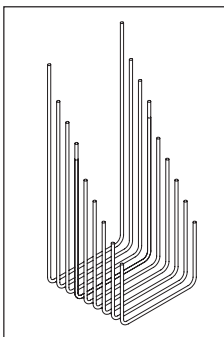
# TrenchFormer® Components



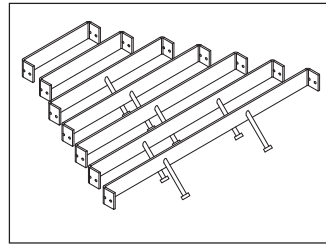
**EPS Forms** - Our EPS forms include unique deforming grooves which keep the foam segments together during the concrete pour. Each form can be pre-sloped or neutral with a radius, square, trapazoidal, or custom shaped bottom. Non-sloping lengths are 4 ft. and 8 ft. Part identifiers are marked on the deep (downstream) end of each section.



**Rails** - Structural steel rails are manufactured in five lengths: 8,6,4,3, and 2 ft. The ends of all the rails are punched to receive the rail clamps on which the no-float legs and cross ties are attached. Anchor studs are welded on predetermined centers. Standard rail components are a powder coated black epoxy paint and are also available in the hot dip galvanized if required. Finishes: Black Epoxy, Galvanized, Stainless Steel, and FRP, and Aluminum.



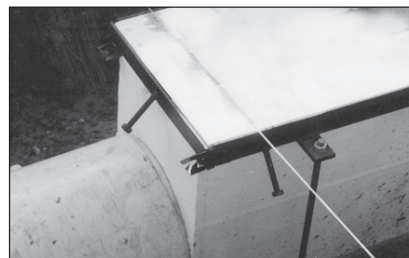
**No-Float Legs** - This patented feature is at the heart of the TrenchFormer no-float guarantee. Legs are secured to rails by set screws for stability and strength.



**End Frames** - End frames close off the end of the trench run preventing concrete from entering the end of a trench. Rail Clamps will attach end frames to rails.



**Grate Locking Devices** - Lock toggles tie down grates by turning against the trench wall and securing to the underside of the steel rail.



**Outlet / Connects** - Prior to concrete placement, butt outlet pipe to former or connect former to catch basin. As with any typical cast-in-

place system, standard fittings may be used to connect to sanitary sewer or storm water piping.



**Rail Clamp** - Rail clamps are used to connect all rail segments, end frames, and catch basin frames to prevent uneven joints. No-float legs and cross-ties are positioned into opposing rail clamps. The rail

clamps provide longitudinal alignment, stiffness, and vertical adjustment.



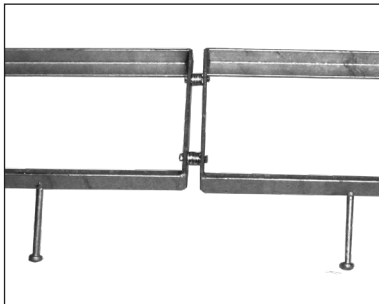


**Former Release -**  
Former release is a non-petroleum based product which is to be applied to all EPS forming surfaces. It provides good concrete release properties without

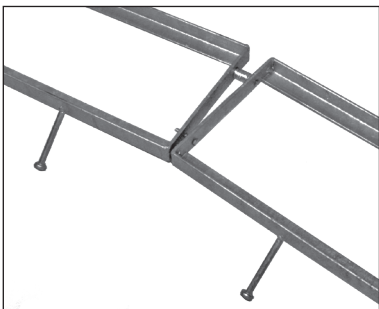
attacking EPS foam. Form Release is best applied with a brush and is available in one and five gallon cans.



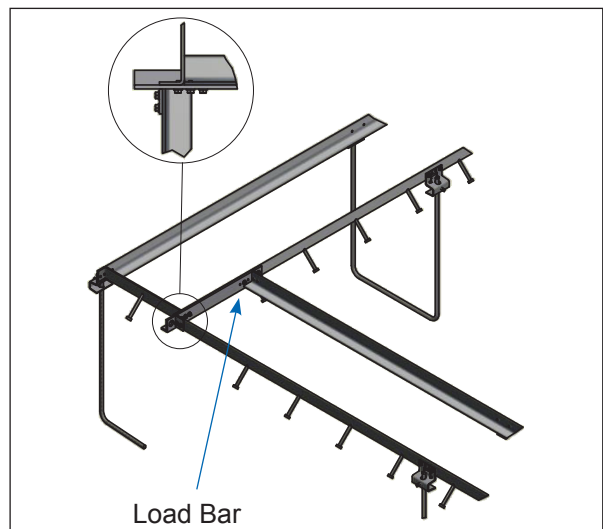
**T-Rail Assembly -** Trench intersections are easily formed using rails with pre-mounted load bars.



**Auxiliary Rail Assembly / Expansion Joint -**  
Two Auxiliary rail assemblies can be joined to create an expansion joint.



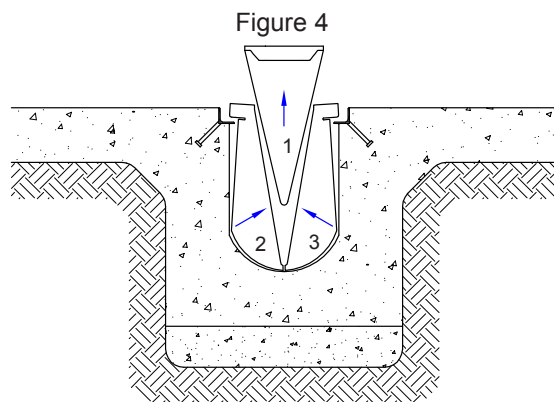
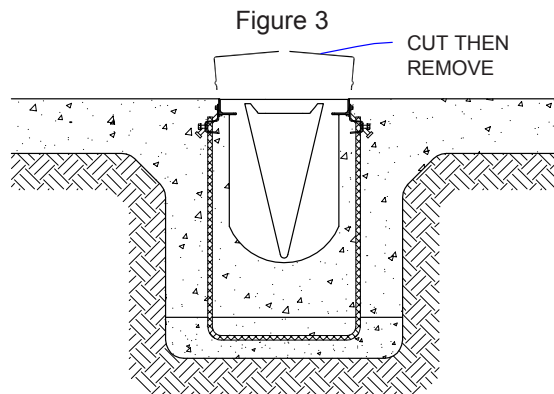
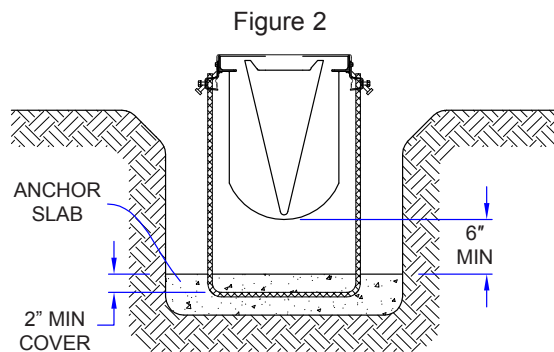
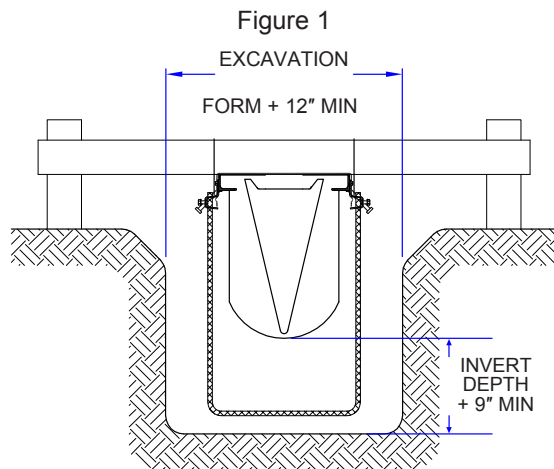
**Auxiliary Rail Assembly / Radius -** Two auxiliary rail assemblies can be used to create a custom radius.



**L-Rail Assembly -** L-Rail assemblies with pre-mounted load bars are right and left turns anywhere in trench layout.

**Load Bar -** exclusive to ABT®, Inc. Reinforcement for unsupported rail.

# TrenchFormer® Components



**Excavation** - must provide for 6 inches (minimum) on both sides of the former and 9 inches (minimum) below the trenchform on the bottom. Structural slabs may require additional excavation. Consult your structural engineer. Bottom allowance includes 3 inches of clearance for the no-float U-legs and anchoring slab.

**Assembly** - Mix form release and brush onto the bottom and sides of all the formers. Allow form release to dry completely. **DO NOT USE PETROLEUM BASED FORM RELEASE** - it will severely attack the EPS foam. Lay out the former and rail sections along the excavation in the proper sequence. Assemble all rails, legs, and formers. Connect rail clamps to the rails, one on an end and one in the middle. With the former upside-down, push each rail into the groove of the former. Attach the U-legs to the rails by inserting each U-leg into the holes of opposing rail clamps. Use set screws to hold the U-leg in position. Turn the former upright and install a Cross Tie tightly across rails to ensure a snug fit and precise grate seat dimension.

**Component Placement** - Begin installation at the outlet, deep end, of the trench. Attach a length of supporting lumber near each joint (at anchor studs). Hold the top of rail to finished grade and attach lumber to grade stakes. See Figure 1. Butt the next section against the one in position, attach to rail clamps, and then set to elevation.

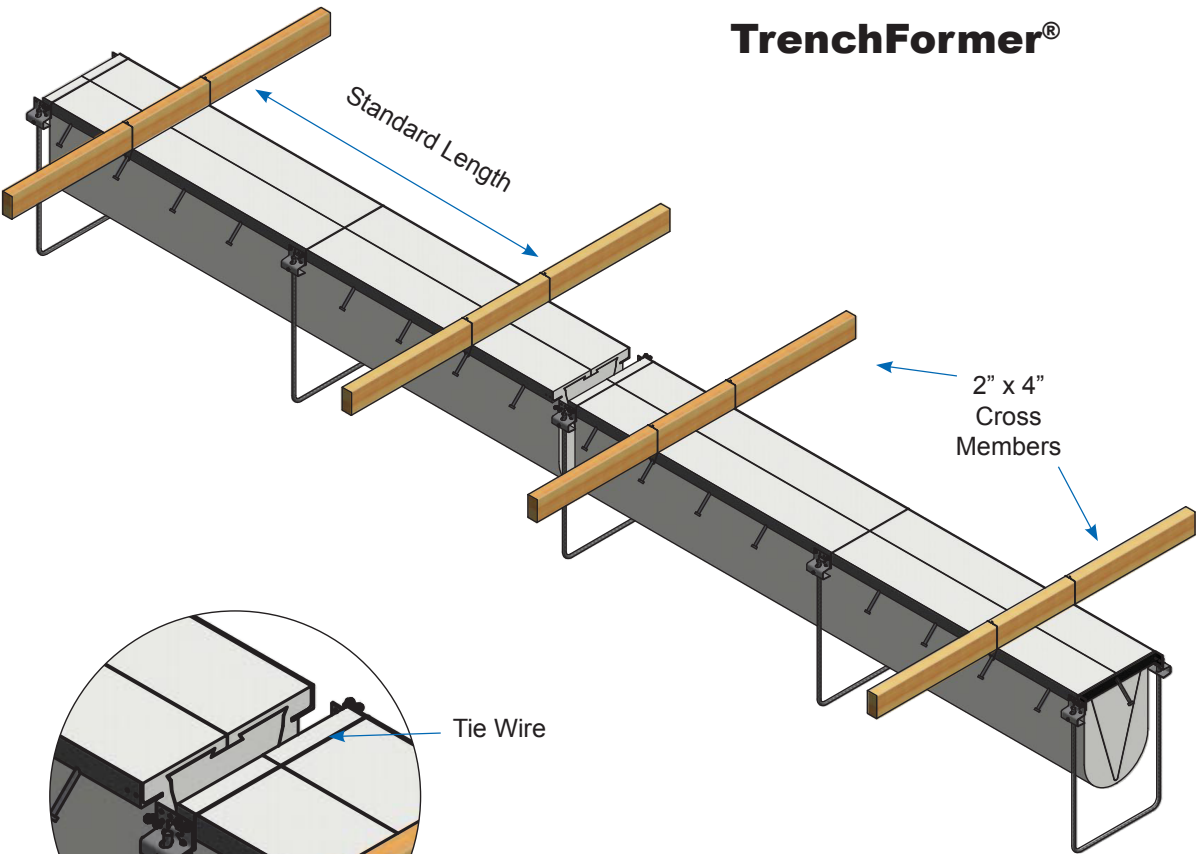
**Concrete Placement** - Place a concrete anchoring slab wall-to-wall and end-to-end in the bottom of the excavation. Cover the U-legs with 2 inches (minimum) of concrete. Allow this slab to set hard. See Figure 2. Monopour trench bottom and walls, vibrating at the rails for good consolidation. While finishing concrete, remove Cross Ties by trimming below angle. See Figure 3.

**Deforming** - After 24 hours, you can deform the trench. Drive a pry bar between former and trench floor, exerting upward force. The center V-shaped section will break free and can be easily removed. Pull remaining pieces from the wall and remove. See Figure 4.

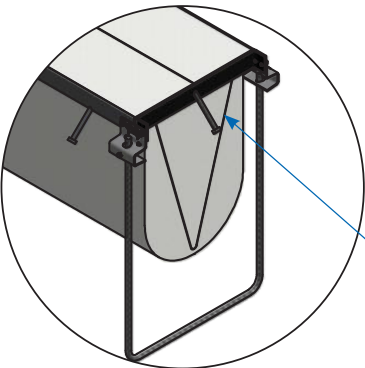


# TrenchFormer TFX System

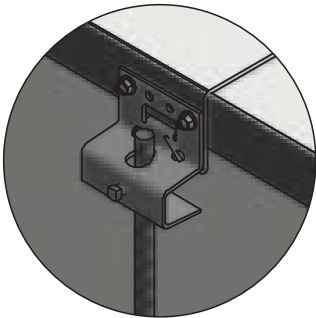
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**Rail Connection**



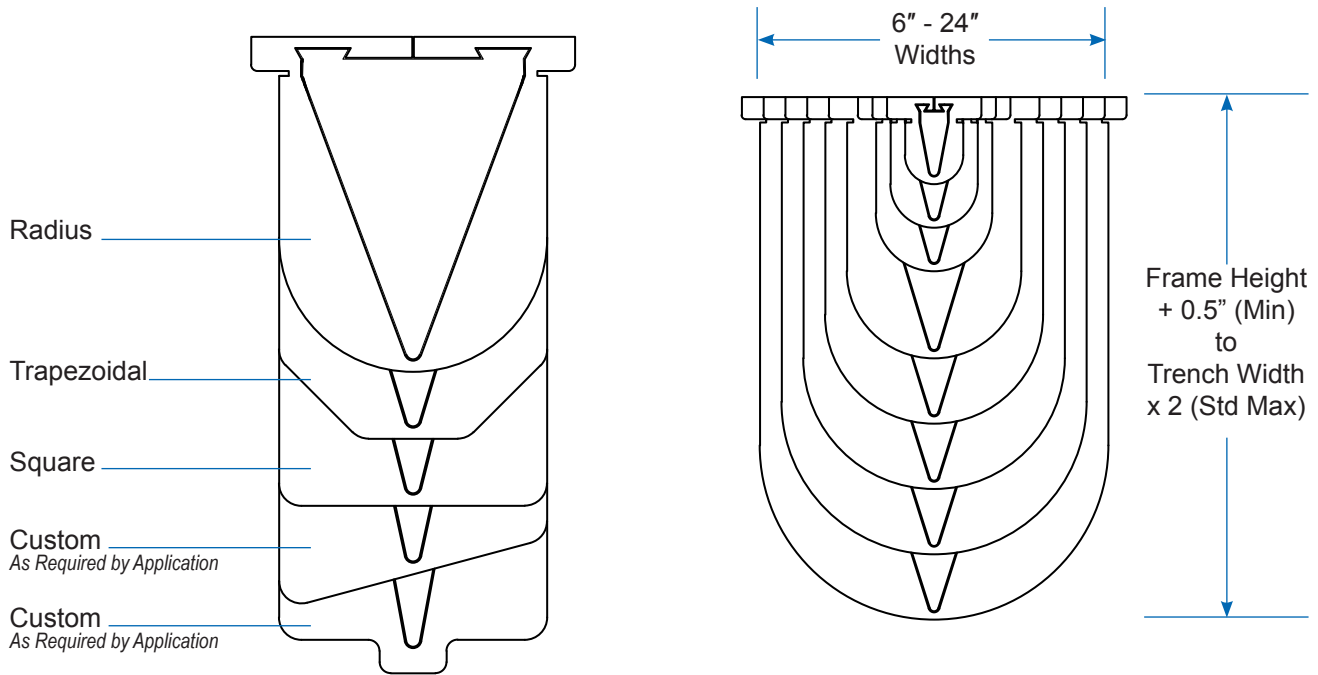
**End of Run**



**Adjustable Up & Down**

# TrenchFormer® Variations

TrenchFormer TFX is available in an array of widths, shapes, and depths.



## Flat Site Flow Capacity for 6"-24" Trench Width TFX Systems

Invert Slope	6"		8"		10"		12"		15"		18"		24"	
	Max. Depth = 20 In.		Max. Depth = 36 In.		Max. Depth = 36 In.		Max. Depth = 36 In.		Max. Depth = 42 In.		Max. Depth = 42 In.		Max. Depth = 48 In.	
	Run Lgth Ft	Flow Rate CFS	Run Lgth Ft	Flow Rate CFS	Run Lgth Ft	Flow Rate CFS	Run Lgth Ft	Flow Rate CFS	Run Lgth Ft	Flow Rate CFS	Run Lgth Ft	Flow Rate CFS	Run Lgth Ft	Flow Rate CFS
0.5%	250	2.25	490	7.09	479	9.96	465	12.73	435	18.37	510	29.06	545	51.97
1.0%	123	3.22	245	10.03	239	14.10	235	17.91	219	25.89	255	41.09	275	73.02
1.5%	82	3.94	163	12.30	159	17.29	155	22.06	145	31.82	170	50.33	184	89.27
2.0%	61	4.57	123	14.16	119	19.98	116	25.50	109	36.70	128	58.07	138	103.08
2.5%	49	5.10	98	15.87	96	22.25	93	28.48	87	41.08	102	64.98	110	115.45
3.0%	41	5.57	82	17.35	80	24.37	78	31.10	73	44.85	85	71.18	92	126.24
3.5%	35	6.03	70	18.78	68	26.43	66	33.81	62	48.67	73	76.81	79	136.24
4.0%	30	6.52	61	20.11	59	28.34	58	36.06	54	52.15	64	82.03	69	145.78

## Flat Site Flow Capacity for 152mm-610mm Trench Width TFX Systems

Invert Slope	152mm		203mm		254mm		305mm		381mm		457mm		610mm	
	Max. Depth = 20 In.		Max. Depth = 36 In.		Max. Depth = 36 In.		Max. Depth = 36 In.		Max. Depth = 42 In.		Max. Depth = 42 In.		Max. Depth = 1219mm	
	Run Lgth M	Flow Rate CMS	Run Lgth M	Flow Rate CMS	Run Lgth M	Flow Rate CMS	Run Lgth M	Flow Rate CMS	Run Lgth M	Flow Rate CMS	Run Lgth M	Flow Rate CMS	Run Lgth M	Flow Rate CMS
0.5%	75	0.06	150	0.20	146	0.28	142	0.36	132	0.52	155	0.82	167	1.46
1.0%	37	0.09	74	0.28	73	0.40	70	0.51	66	0.73	77	1.16	83	2.07
1.5%	25	0.11	50	0.35	48	0.49	47	0.62	44	0.90	52	1.42	56	2.52
2.0%	18	0.13	37	0.40	36	0.56	34	0.73	33	1.03	39	1.64	42	2.91
2.5%	15	0.14	30	0.45	29	0.63	28	0.81	26	1.16	31	1.83	33	3.29
3.0%	12	0.16	25	0.49	24	0.69	23	0.89	22	1.27	26	2.00	28	3.57
3.5%	11	0.17	21	0.53	21	0.74	20	0.95	19	1.37	22	2.18	24	3.86
4.0%	9	0.18	19	0.57	18	0.80	18	1.01	16	1.47	20	2.29	21	4.12

\*\*\*Note:

As Trench Former is produced per requirements it can accommodate most any system slope including variable slopes.

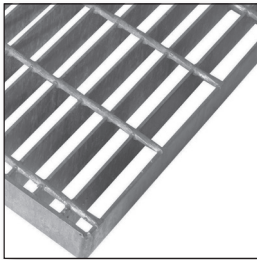
See our website for interactive Hydraulic Calculator for each system size.

Other trench widths available. Contact ABT, Inc. to accommodate depth requirements exceeding listed maximum depths.

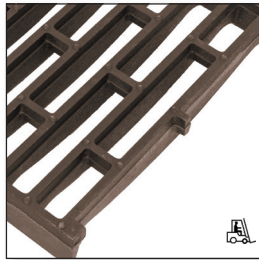


# Grate Options

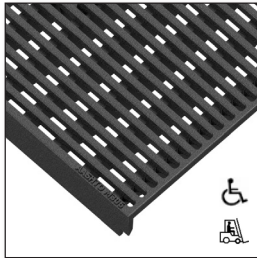
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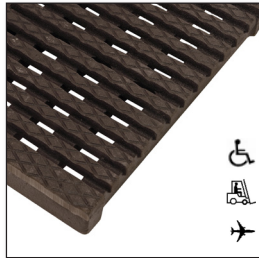
#208  
Banded Bar Grating



#502  
High Intake Slotted



#504  
8" Slotted ADA



#504  
12" Slotted ADA



#603  
Standard Slotted



#606  
Slotted Heel Proof



#501/601  
Solid Cover

## Banded Bar Grating — 208 Series

Part No.	Trench Width	Load Class	Locking Mech.	Grate Length	Angle Size	Weight (lbs)	Open Area (ft² per lin ft)
12.208C.FG	12"	C	1	24"	1.75"	19	0.9

## High Intake Slotted — 502 Series

Part No.	Trench Width	Load Class	Locking Mech.	Grate Length	Angle Size	Weight (lbs)	Open Area (ft² per lin ft)
08.502E.FB	8"	E	1	19.64"	1.75"	14.2	.50
12.502E.FB	12"	E	1	19.64"	1.75"	26.1	.75

## Slotted ADA — 504 Series

Part No.	Trench Width	Load Class	Locking Mech.	Grate Length	Angle Size	Weight (lbs)	Open Area (ft² per lin ft)
08.504E.FB	8"	E	1	19.64"	1.75"	18	0.12
12.504E.FB	12"	E	1	19.64"	1.75"	51	0.30
12.504G.FB	12"	G	1	18"	1.75"	51	0.25

## Standard Slotted — 603 Series

Part No.	Trench Width	Load Class	Locking Mech.	Grate Length	Angle Size	Weight (lbs)	Open Area (ft² per lin ft)
06.603D.FB	6"	D	0	24"	1.75"	37	0.2
08.603D.FB	8"	D	0	24"	1.75"	41	0.3
10.603D.FB	10"	D	0	24"	1.75"	53	0.4
15.603D.FB	15"	D	0	24"	1.75"	76	0.5
18.603D.FB	18"	D	0	24"	1.75"	103	0.7
24.603D.FB	24"	D	0	24"	1.75"	143	0.9

## Slotted Heel Proof — ADA - 606 Series

Part No.	Trench Width	Load Class	Locking Mech.	Grate Length	Angle Size	Weight (lbs)	Open Area (ft² per lin ft)
06.606D.FB	6"	D	0	24"	1.75"	47	0.1
08.606D.FB	8"	D	0	24"	1.75"	61	0.1
10.606D.FB	10"	D	0	24"	1.75"	69	0.1
12.606D.FB	12"	D	0	24"	1.75"	89	0.2
15.606D.FB	15"	D	0	24"	1.75"	69	0.2
18.606D.FB	18"	D	0	24"	1.75"	106	0.5

## Solid Cover — 501/601 Series

Part No.	Trench Width	Load Class	Locking Mech.	Grate Length	Angle Size	Weight (lbs)	Open Area (ft² per lin ft)
08.601D.FB	8"	D	0	24"	1.75"	50	-
10.601D.FB	10"	D	0	24"	1.75"	80	-
12.501G.FB	12"	G	1	17.88"	1.75"	55	-
15.601D.FB	15"	D	0	24"	1.75"	95	-
18.601D.FB	18"	D	0	24"	1.75"	129	-
24.601D.FB	24"	D	0	24"	1.75"	181	-

\*\*Contact ABT, Inc. at 800-438-6057 for other grate material, pattern, and size options.

## Static Load Classification

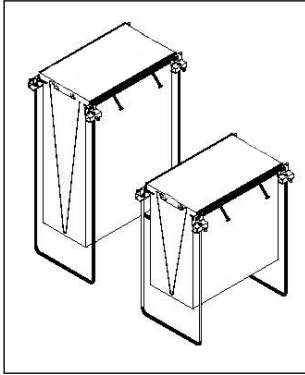
Load Class	A	B	C	D	E	F	G
Description	Light Duty	Medium Duty	Heavy Duty	Extra Heavy Duty	Extreme Heavy Duty	Airport Rated	Airport Rated
Typical Application	Pedestrian	Residential	Commercial	Industrial	Highway	Regional Airport	Port/Intermodal
Category Standard Basis	Industry Standard	Industry Standard	Federal A-A60005	AASHTO H-20	AASHTO HS-25	FAA AC-150	Industry Standard
Maximum Proof Load	6,000 Lbs	12,150 Lbs	25,000 Lbs	40,000 Lbs	50,000 Lbs	100,000 Lbs	200,000 Lbs
Proof Load Pressure	75 psi	150 psi	310 psi	494 psi	620 psi	Variable	2469 psi

- ADA Compliant** - Grate's slot width does not exceed 1/2 Inch in the predominant travel direction .
- Hard Tire Rated** - TFX rails, PDX rails, and PolyDrain frames are Hard Tire Fork Lift Rated to grate and encapsulation concrete load limits.
- Heel Proof Rated** - Grate's slot width does not exceed 5/16 Inch.
- Dynamic Load Rated** - Grates, rails, frames, and grate retention are designed for 0.7g transverse and longitudinally dynamic loads.
- Airport Rated** - Designed for both large vertical and dynamic loads. Common conditions in Airport, Port, and Intermodal applications.

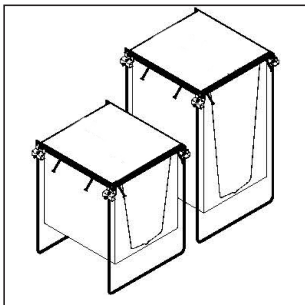
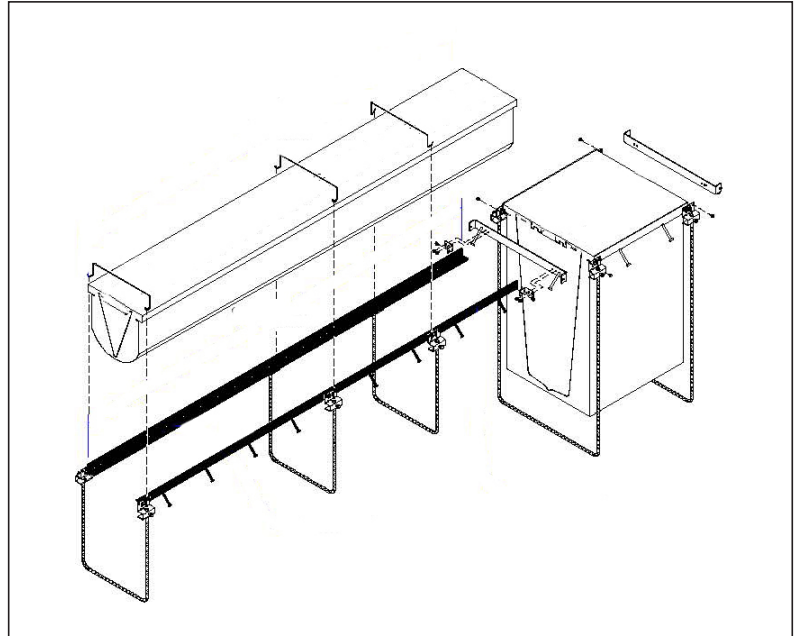
**Locking Mechanism**  
 0 = Non-Locking  
 1 = Toggle Lock  
 2 = Pin Lock

# TrenchFormer® Catch Basins

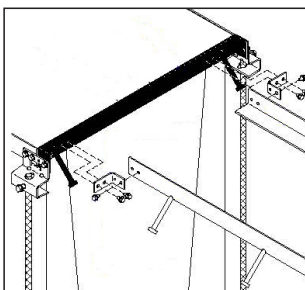
TrenchFormer catch basins are available in both the 1600 and 1900 series. The catch basins can be used at any point throughout a trench run as well as termination point or a stand alone area drain. Both series utilize deforming grooves and a no-float leg system. The components are color coded for easy installation.



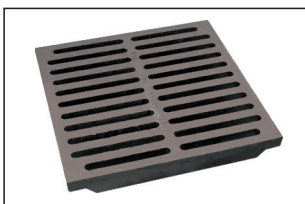
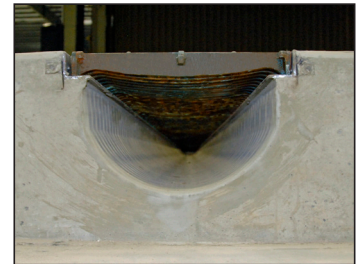
**1900 series** - Catch basins are the same trench width and are 24 inches long flat bottom units, manufactured in variable depths as required. They utilize 24 inch long rail, standard TrenchFormer grates, locking devices, and end rails.



**The 1600 series** - Catch basins are 21 inches wide by 24 inches long and are available in variable depths as required. This series uses two 24 inches long frame rails, two end frames, and C.I. grate.



**Special End Rail** - If a 1600 series catch basin is used at the end of a trench run, brackets connect to rails end frames. This aligns and retains the end of the trench rails for a secure and precise fit.



**1600 Series Grate** - The catch basin grate is 23 inches by 24 inches by 1.5 inches cast iron and meets AASHTO H-20 Load Rating.





# TrenchFormer® vs. Hand forming

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TrenchFormer® has revolutionized trench drain installation and performance. Compare the differences between TrenchFormer and hand forming.

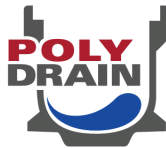
## TrenchFormer®

- Creates monolithic trench walls and floor.
- Rail accuracy assured by precision cut foam shapes.
- Hundreds of feet installed per day with a 2 laborer crew.
- Simple wood supports used for holding sections to grade.
- Standard radius bottom improves flow and reduces deposits.
- Forms can be left in for job site safety.
- Fast, low cost deforming.
- All necessary trench components available from one source in off-the-shelf design.
- Requires installation of keyway and waterstop at cold joint.
- Complex carpentry skills required to create coplanar rails.
- 2 skilled carpenters average 50 feet per day.
- Requires sturdy and complex wooden form work.
- Square bottom creates turbulence and deposits.
- Open pits are hazardous and collect job site debris.
- Forms must be re-used to be economical
- Three separate sources for materials create risk of dimensional inaccuracies.



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ABT designs and manufactures some of the most extensive, reliable, and versatile lines of channel drains, grates, and water management solutions in the industry. If you're an engineer or designer and need performance-based specifications and details for your project, we can help. Visit [www.abtdrains.com](http://www.abtdrains.com) for details on all our products.



**permavoid**

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Toll-free: 800.438.6057  
Phone: 704.528.9806

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6/30/2023