

# PolyDrain<sup>®</sup>

Polymer Concrete

PDX<sup>®</sup>

Versatile Modular Trench System



Industrial Mechanical Applications



Complex System Layouts



Stormwater Site Applications

[www.abtdrains.com](http://www.abtdrains.com)

Today's Hydraulic Solutions



**ABT, INC.**

Advanced Building Technologies, Inc.

# PolyDrain® PDX®

ABT®, Inc. manufactures PolyDrain® PDX® trench drains; the standard for pre-engineered trench drains. Over the years the PolyDrain® name has become synonymous with trench drain design. Architects and engineers, recognizing the benefits of pre-engineered polymer concrete trench drains, specify PolyDrain® PDX® for a wide variety of applications. Included among these applications are food processing plants,

airports, highways, loading docks, garden centers and chemical processing plants. PolyDrain® polymer concrete trench drain assures the specifier of the precision and accuracy required to satisfy load, hydraulic or chemical resistant demands. PolyDrain® PDX® offers design flexibility, as well as ease of installation. In addition, expensive labor and material costs associated with hand-forming methods are eliminated.

## Product Features

**Channels** - PDX polymer concrete channels are available with interior widths of 6" [152mm], 8" [203mm], 10" [260mm], 12" [305mm], 15" [381mm], 18" [457mm], and 24" [609mm]; available in depth increments of .197" [5mm] up to 19.69" [500mm] channel depth. The channels are available either non-sloping or with sloped in 0% to 4% in 0.5% increments are available. Each channel features a high precision tongue and groove joint for positive alignment and superior configuration for sealant when the application requires.

**Ease of Installation** - Installation can easily be accomplished utilizing the no-float U-leg installation device allowing for elevation adjustments prior to final concrete placement.

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

**Flammability and NFPA Codes** - Trench drains are often the collection point for flammable liquids and heavier than air vapor, and can contribute to the spread of fire. Selecting a trench drain with the proper material properties is critical to the life cycle of the product and life safety of a buildings inhabitants.

ABT® Inc's Polyester Polymer Concrete products carry the UL-723 Classified mark for Class A fire rating and are ULC listed. Demand a UL Classified / ULC Listed product.

## PolyDrain® PDX® Formulations

ABT® offers two compositional formulations for PolyDrain® PDX® channels, depending on the effluent and chemical environment. Both offer superior strength and durability as well as marked cost advantages over alternative materials.

Standard PolyDrain® PDX® channels are manufactured from PolyDyn®, an advanced formulation of selected aggregates and inert mineral fillers bonded together in a high-grade polyester resin. This formulation is suitable for use in both exterior and interior applications and are UL Classified and ULC Listed.

When a higher level of chemical resistance is required, ABT® offers PolyDrain® PDX® in a special formulation called PolyChampion®, which has the same aggregates and mineral fillers as the PolyDyn® formulation, but with a premium grade vinylester resin binder. This formulation will withstand a broader range of corrosive salts, fuels, acids and alkalis. *Please see chemical resistance guide.*

Fluid	PolyDyn	PolyChampion	Portland Cement
Water	•	•	Permeable
Gasoline	•	•	Permeable
Diesel Fuel	•	•	Permeable
Aviation Fuel	•	•	Permeable
Hydraulic Oil	•	•	Permeable
Fuel Oil	•	•	Permeable
Hydraulic Fluid	•	•	Permeable
Motor Oil	•	•	Permeable
Sea Water	•	•	Permeable
Acids		•	Corrodes
Road Salts	•	•	Corrodes
Caustic		•	Corrodes

Physical Properties of PolyDyn® Thermoset Polyester Polymer Concrete		
Property	Test Method	Value
Compressive Strength	ASTM C579	17,000 psi Minimum
Bending Strength	ASTM C580	4,000 psi Minimum
Tensile Strength	ASTM C307	2,000 psi Minimum
Moisture Absorption	ASTM C140	0.1% Maximum
Freeze/Thaw (1,600 cycles)	ASTM C666	No Weight Loss
Fungi Growth Resistance	ASTM G21	Zero Mold Growth
Flame Spread - UL/ULC	UL 723	Class A

# Design Chart Instructions

Available Widths: 6", 8", 10", 12", 15", 18", 24"  
Available Channel Depths: 3.94" - 19.69"  
Slopes: 0% to 4% in 0.5% increments



## Utility Trench -

Select the width and depth sufficient to contain the application's wire or pipes for each run. Select materials and the style of cover desired.

## Containment or Storage Trench -

Lay out the length of trench for the site. Determine the maximum storage volume required for this trench run. Divide volume storage by trench length. In "Trench Storage Capacity" below, find which trench widths and depths provide sufficient storage and select the one that is best for the application.

## Grate Options -

A wide range of grate options exist for pedestrian to airport applications. Select grates with the right strength, style, and corrosion resistance for the application.

## Frame Options -

Steel, stainless steel, painted steel, galvanized steel, or FRP styles are available. Select the best rail material for your application. All rails are independently anchored and supported by the into the surrounding concrete so that the encapsulation concrete receives the loads, not the channel walls.

## Variable Grate

### Retention Systems -

For applications with substantial longitudinal loads, pin locks are available and recommended. Toggle locks can be used when longitudinal loads are low. No grate lock is an option where horizontal forces and grate retention are not a consideration. ABT can assist you in making a suitable selection.

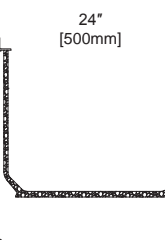
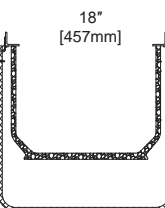
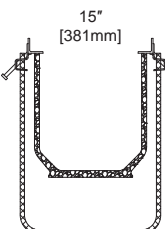
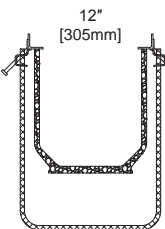
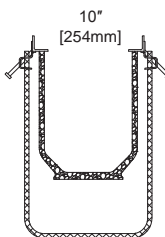
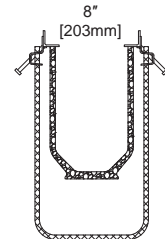
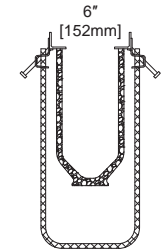
## Catch Basins -

Adaptable catch basins are available to accommodate various outlet piping requirements.

## Installation Eliminates Sub-Slab Barrier Penetration -

The system is installed by the suspension method using no-float legs. Installing the system does not require heavy equipment, expensive highly skilled labor, keyways, or water stops saving 33% or more. Installed per instructions, the system will not float. Utilizing the suspension method eliminates the need of penetrating a sub-slab barrier to support or position the trench drain during installation.

Contact ABT®, Inc. for your special requirements not satisfied with standard products.



# Drainage Trench

Simple drainage systems can be determined if the application's run length and hydraulic load are known. In the "Run Length vs. Slope" table, select a slope which equals or exceeds the required run length. Add or subtract any site slope to the channel slope. Determine what trench width is required for this

hydraulic load using the "Flat Site Flow" table on the opposite page. Additional technical information is available in the "Hydraulic Design Guide" at [www.abtdrains.com](http://www.abtdrains.com). For more complex hydraulic applications, contact ABT®, Inc. for assistance.

## PDX Run Length vs. Slope

### Channel Slope Run Lengths

Channel Slope	Run Length Channel / Meters	Run Length Feet
0.5%	80	262.5
1.0%	40	131.2
1.5%	27	87.6
2.0%	20	65.6
2.5%	16	52.5
4.0%	10	32.8

**Note:** Intermediate slopes in 0.5% increments between those shown above are possible with decreased run lengths. Non-sloped trenches are available in .197" [5 mm] depth increments. Contact ABT for availability and additional information.



### PDX Flat Site Flow Capacity & Velocity / 19.69" Deep Channel

Invert Slope	6"			8"			10"			12"			15"			18"			24"		
	GPM	CFS	FPS	GPM	CFS	FPS	GPM	CFS	FPS	GPM	CFS	FPS	GPM	CFS	FPS	GPM	CFS	FPS	GPM	CFS	FPS
0.5%	1391	3.10	3.86	2289	5.10	4.74	3321	7.40	5.50	4533	10.10	6.22	6631	14.70	7.10	8977	20.00	8.18	14587	32.50	9.96
1.0%	1975	4.40	5.48	3232	7.20	6.69	4713	10.50	7.80	6418	14.30	8.81	9378	20.90	10.20	12702	28.30	11.58	20601	45.90	14.06
1.5%	2424	5.40	6.72	3950	8.80	8.17	5790	12.90	9.50	7855	17.50	10.78	11486	25.50	12.50	15574	34.70	14.20	25269	56.30	17.25
2.0%	2783	6.20	7.72	4578	10.20	9.47	6688	14.90	10.90	9111	20.30	12.50	13263	29.50	14.40	17998	40.10	16.41	29174	65.00	19.91
2.5%	3142	7.00	8.71	5117	11.40	10.59	7451	16.70	12.20	10144	22.60	13.92	14829	33.00	16.20	20108	44.80	18.33	32585	72.60	22.24
4.0%	3950	8.80	10.95	6463	14.40	13.37	9470	21.10	15.50	12881	28.70	17.68	18757	41.80	20.30	25449	56.70	23.20	41248	91.90	28.16

### PDX Flat Site Flow Capacity & Velocity for 500mm Deep Channel

Invert Slope	152 mm			203 mm			254 mm			305 mm			381 mm			457 mm			610 mm		
	LPS	CMS	MPS	LPS	CMS	MPS	LPS	CMS	MPS	LPS	CMS	MPS	LPS	CMS	MPS	LPS	CMS	MPS	LPS	CMS	MPS
0.5%	88.70	0.09	0.08	144.50	0.14	0.08	210.80	0.21	0.08	286.60	0.29	0.54	417.20	0.42	0.54	566.70	0.57	0.54	917.90	0.92	0.54
1.0%	125.50	0.13	0.12	204.40	0.20	0.12	298.10	0.30	0.12	405.40	0.41	0.76	590.00	0.59	0.76	801.40	0.80	0.76	1298.20	1.30	0.76
1.5%	153.70	0.15	0.14	250.40	0.25	0.14	365.10	0.37	0.14	496.50	0.50	0.94	722.70	0.72	0.94	981.50	0.98	0.94	1590.00	1.59	0.94
2.0%	177.40	0.18	0.17	289.10	0.29	0.17	421.60	0.42	0.17	573.30	0.57	1.08	834.50	0.83	1.08	1133.40	1.13	1.08	1835.90	1.84	1.08
2.5%	198.40	0.20	0.19	323.30	0.32	0.19	471.40	0.47	0.19	641.00	0.64	1.21	933.00	0.93	1.21	1267.20	1.27	1.21	2052.70	2.05	1.21
4.0%	251.00	0.25	0.24	408.90	0.41	0.24	596.20	0.60	0.24	810.80	0.81	1.53	1180.10	1.18	1.53	1602.90	1.60	1.53	2596.40	2.60	1.53

## PDX Flat Site Trench Storage Capacity & Cross Section Area

Lay out the length of trench for the site. Determine the maximum storage volume required for this trench run. Divide volume storage by trench length. In "Trench

Storage Capacity" below, find which trench widths and depths provide sufficient storage and select the one that is best for the application.

Channel Depth	6"		8"		10"		12"		15"		18"		24"	
	Gal/Ft	In <sup>2</sup>	Gal/Ft	In <sup>2</sup>	Gal/Ft	In <sup>2</sup>	Gal/Ft	In <sup>2</sup>	Gal/Ft	In <sup>2</sup>	Gal/Ft	In <sup>2</sup>	Gal/Ft	In <sup>2</sup>
3.94	1.10	21.20	1.51	29.07	1.92	36.95	2.33	44.82	2.94	56.63	3.56	68.44	4.78	92.07
5.91	1.71	33.01	2.33	44.82	2.94	56.63	3.56	68.44	4.48	86.16	5.40	103.88	7.24	139.31
7.87	2.33	44.82	3.15	60.57	3.96	76.32	4.78	92.07	6.01	115.69	7.24	139.31	9.69	186.55
9.84	2.94	56.63	3.96	76.32	4.99	96.00	6.01	115.69	7.54	145.22	9.08	174.74	12.15	233.80
11.81	3.56	68.44	4.78	92.07	6.01	115.69	7.24	139.31	9.08	174.74	10.92	210.18	14.60	281.04
13.78	4.17	80.26	5.60	107.81	7.03	135.37	8.46	162.93	10.61	204.27	12.76	245.61	17.05	328.29
15.75	4.78	92.07	6.42	123.56	8.06	155.06	9.69	186.55	12.15	233.80	14.60	281.04	19.51	375.53
17.72	5.40	103.88	7.24	139.31	9.08	174.74	10.92	210.18	13.68	263.33	16.44	316.48	21.96	422.78
19.69	6.01	115.69	8.06	155.06	10.10	194.43	12.15	233.80	15.21	292.85	18.28	351.91	24.42	470.02

Channel Depth	152 mm		203 mm		254 mm		305 mm		381 mm		457 mm		610 mm	
	L/M	M <sup>2</sup>	L/M	M <sup>2</sup>	L/M	M <sup>2</sup>	L/M	M <sup>2</sup>	L/M	M <sup>2</sup>	L/M	M <sup>2</sup>	L/M	M <sup>2</sup>
100	13.68	0.01	18.76	0.02	23.84	0.02	28.92	0.03	36.54	0.04	44.16	0.04	59.40	0.06
150	21.30	0.02	28.92	0.03	36.54	0.04	44.16	0.04	55.59	0.06	67.02	0.07	89.88	0.09
200	28.92	0.03	39.08	0.04	49.24	0.05	59.40	0.06	74.64	0.07	89.88	0.09	120.36	0.12
250	36.54	0.04	49.24	0.05	61.94	0.06	74.64	0.07	93.69	0.09	112.74	0.11	150.84	0.15
300	44.16	0.04	59.40	0.06	74.64	0.07	89.88	0.09	112.74	0.11	135.60	0.14	181.32	0.18
350	51.78	0.05	69.56	0.07	87.34	0.09	105.12	0.11	131.79	0.13	158.46	0.16	211.80	0.21
400	59.40	0.06	79.72	0.08	100.04	0.10	120.36	0.12	150.84	0.15	181.32	0.18	242.28	0.24
450	67.02	0.07	89.88	0.09	112.74	0.11	135.60	0.14	169.89	0.17	204.18	0.20	272.76	0.27
500	74.64	0.07	100.04	0.10	125.44	0.13	150.84	0.15	188.94	0.19	227.04	0.23	693.58	0.69



## Sealants

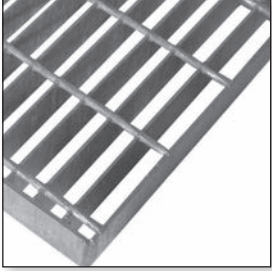
Usually the encasement concrete forms a suitable seal for the trench drain system. However, some applications require sealing the joints to minimize seepage leaks. Three options are available for those occasions.

**PolySeal 1** is a single-part polyurethane in a standard paper caulk tube, and is used as a general purpose sealant for gray water applications.

**PolySeal 2** is a two-part epoxy in a double tube with a static mixing nozzle. PolySeal 2 maintains a permanent flexibility and offers a good range of chemical resistant properties.

**PolySeal 3** is a two-part vinylester sealant which sets hard in about 30 minutes. It is recommended for sealing all joints in a PolyChampion installation or where the chemical resistance of PolySeal 2 is insufficient. It is also ideal for bonding all PolyDrain fabrications and miters.

# Grate Options



#208  
Banded Bar Grating



#502  
High Intake Slotted



#504  
8" Slotted ADA



#504  
12" Slotted ADA



#506  
Herringbone



#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 (ft <sup>2</sup> per lin ft)
12.208C.FG	12"	C	T	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 (ft <sup>2</sup> per lin ft)
08.502F.GB	8"	F	T	19.64"	2.00"	18	0.47
12.502D.FB	12"	D	T	18"	1.75"	26.1	0.76
12.502E.GB	12"	E	T	19.64"	2"	35	0.81

## Slotted ADA — 504 Series

Part No.	Trench Width	Load Class	Locking Mech.	Grate Length	Angle Size	Weight (lbs)	Open Area (ft <sup>2</sup> per lin ft)
08.504F.FE	8"	F	T	16"	1.75"	21	0.27
12.504G.FB	12"	G	T	18"	1.75"	51	0.25

## Slotted ADA — 506 Series

Part No.	Trench Width	Load Class	Locking Mech.	Grate Length	Angle Size	Weight (lbs)	Open Area (ft <sup>2</sup> per lin ft)
08.506F.GB	8"	F	T	19.64"	2"	24	0.3

## Standard Slotted — 603 Series

Part No.	Trench Width	Load Class	Locking Mech.	Grate Length	Angle Size	Weight (lbs)	Open Area (ft <sup>2</sup> per lin ft)
06.603D.FB	6"	D	N	24"	1.75"	37	0.2
08.603D.FB	8"	D	N	24"	1.75"	41	0.3
10.603D.FB	10"	D	N	24"	1.75"	53	0.4
15.603D.FB	15"	D	N	24"	1.75"	76	0.5
18.603D.FB	18"	D	N	24"	1.75"	103	0.7
24.603D.FB	24"	D	N	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 (ft <sup>2</sup> per lin ft)
06.606D.FB	6"	D	N	24"	1.75"	47	0.1
08.606D.FB	8"	D	N	24"	1.75"	61	0.1
10.606D.FB	10"	D	N	24"	1.75"	69	0.1
12.606D.FB	12"	D	N	24"	1.75"	89	0.2
15.606D.FB	15"	D	N	24"	1.75"	69	0.2
18.606D.FB	18"	D	N	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 (ft <sup>2</sup> per lin ft)
08.601D.FB	8"	D	N	24"	1.75"	50	-
10.601D.FB	10"	D	N	24"	1.75"	80	-
12.501G.FB	12"	G	T	17.88"	1.75"	55	-
15.601D.FB	15"	D	N	24"	1.75"	95	NA
18.601D.FB	18"	D	N	24"	1.75"	129	-
24.601D.FB	24"	D	N	24"	2"	181	-

### Static Load Classifications (based on AASHTO M-306 for Trench Drains)

	Load Class						
	A	B	C	D	E	F	G
Application	Light Duty <i>Pedestrian Traffic</i>	Medium Duty <i>Sidewalks &amp; Residential Parking</i>	Heavy Duty <i>Commercial</i>	Extra Heavy Duty <i>Roads &amp; Highways</i>	Extreme Heavy Duty <i>Hard Tire Forklift, Heavy Vehicles</i>	Airport Rated <i>Municipal &amp; Regional Airports</i>	Airport Rated <i>International Airports or Intermodal - Port Facilities</i>
Application Proof Load (psi)	75psi	150psi	310psi	494psi	620psi	1235psi	2469psi
Typical Standard	Pedestrian Ind. Std.	Non-Commercial Pneumatic	A-A60005 Federal	AASHTO M306 H-20	AASHTO M306 HS-25	Airport 100,000 lbs FAA AC-150	Airport / Port 200,000 lbs Ind. Std.

= Vehicular Traffic

= ADA Compliant

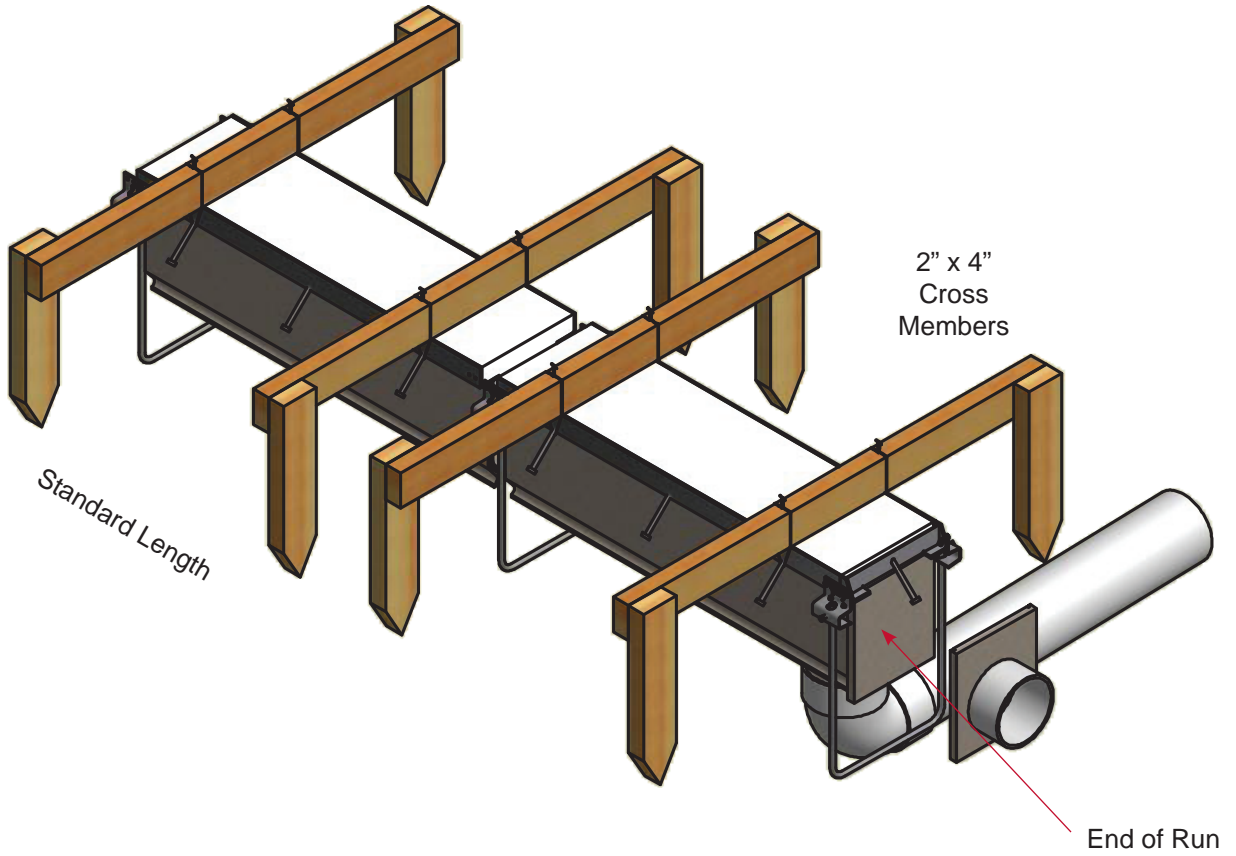
= Heel Proof

#### Locking Mechanism

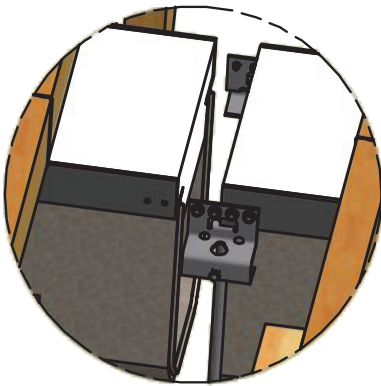
N = Non-Locking

T = Toggle

# PolyDrain PDX Run Assembly

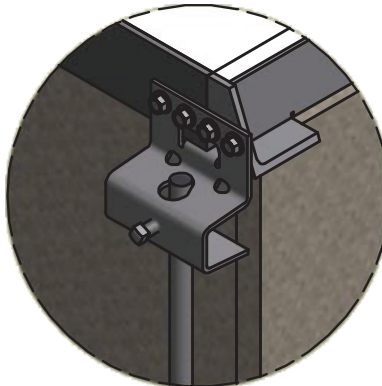


## Rail Connection



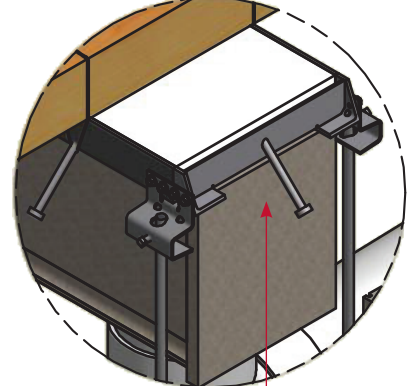
Drive Screws into Preformed Holes

## Adjustable Up & Down



U-Legs are Adjustable Up & Down

## End of Run



End Frame Connection

# PolyDrain®

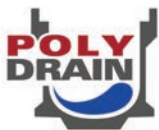
Polymer Concrete

## PDX®

Versatile Modular Trench System

Visit our website, [www.abtdrains.com](http://www.abtdrains.com) for the latest details, specifications, catalog updates

The screenshot shows the ABT, Inc. website interface. At the top left is the ABT, Inc. logo. To its right is the tagline "World Leader in Surface Drainage Solutions" and a search bar. Below these are navigation tabs for Home, About Us, Commercial, Industrial, Transportation, Residential, Technical, Catalogs, Installation, and Contact. A left sidebar menu lists product categories: TRENCH FORMER (with sub-items TrenchFormer TFX 6" - 24", TrenchFormer-MHD, TrenchFormer-XHD), POLY DRAIN (with sub-items PolyDrain, PolyDrain PDX 6" - 24", Interceptor, Interceptor Super-Slope, PolyDrain Shallow, PaverGrate, VectorDrain, PolyDuct, PolySelf), and FIRST FLUSH (with sub-items Trench Former FF, Polydrain FF, Oil-Water Separator, Sandtrap). A "Visit SportsEdge" link is at the bottom of the sidebar. The main content area features a large photograph of a factory floor with blue industrial machinery. The text "Complex Designs" is overlaid on the bottom of this image.



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