

Trench Former[®] HD200[™] / 300[™]

Trench Drain Forming System



**INTERMODAL
FACILITIES**



Photograph by Don Wilson
Port Photograph

PORTS

AIRPORTS



ABT, INC.[®]

Advanced Building Technologies

www.abtdrains.com

Today's Hydraulic Solutions

The HD200™/300™ Technology

The revolutionary HD200 and HD300 Grated Line Drain System provides technology needed but previously unavailable to handle the extreme requirements found specifically in airports, ports, and intermodal facilities.

Engineering Design Flexibility

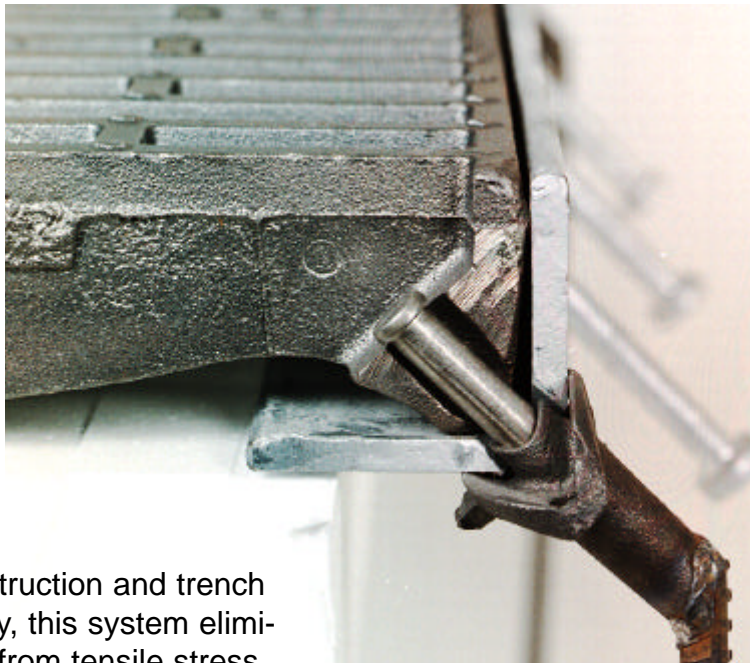
The System can be configured for the Engineer's special flow and depth requirements. A large range of trench depths, slopes, and configurations provides the Engineer with greater flexibility for challenging projects. Additionally, the system is pre-engineered and factory fabricated reducing the potential for construction error in the field.

High Strength Ductile Iron Grates

The HD200/300's advanced grate design is engineered to provide both performance and appearance. The attractive design provides lighter weight and greater inflow area with no sacrifice in strength.

Improved Grate Retainer System

The HD200/300 system utilizes two removable stainless steel pins per every two grates providing both longitudinal and vertical grate retention. An average of only one pin must be removed per grate for easier construction and trench maintenance. Additionally, this system eliminates concrete cracking from tensile stress caused by constrained thermal expansion and contraction in a rigid four-bolt system.



* Patents Pending

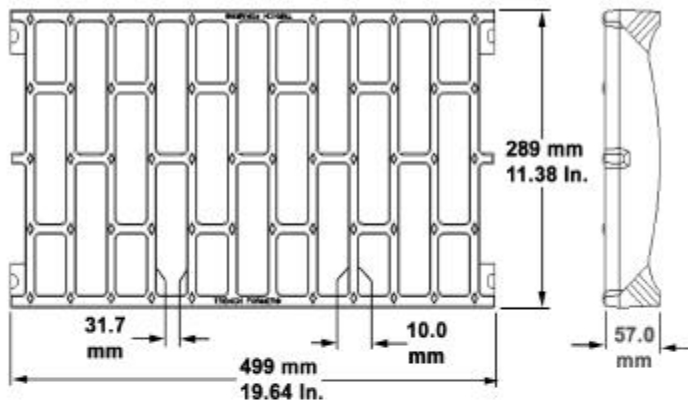
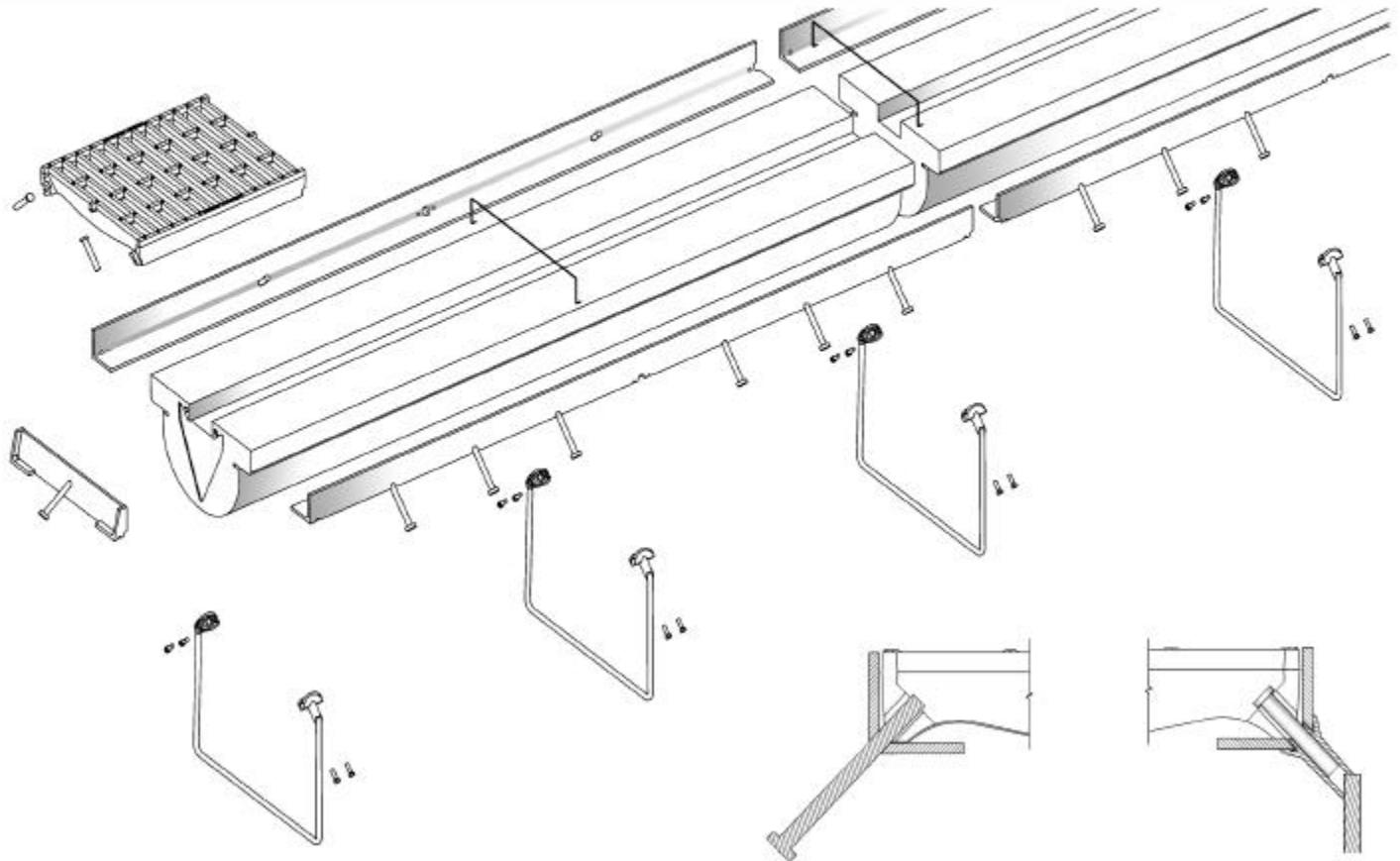
Lower Cost per Q

The HD200/300's lower Manning's roughness coefficient (n) increases trench hydraulic capacity and self-cleaning velocity while reducing trench size and cost.

Robust Rail Support Design

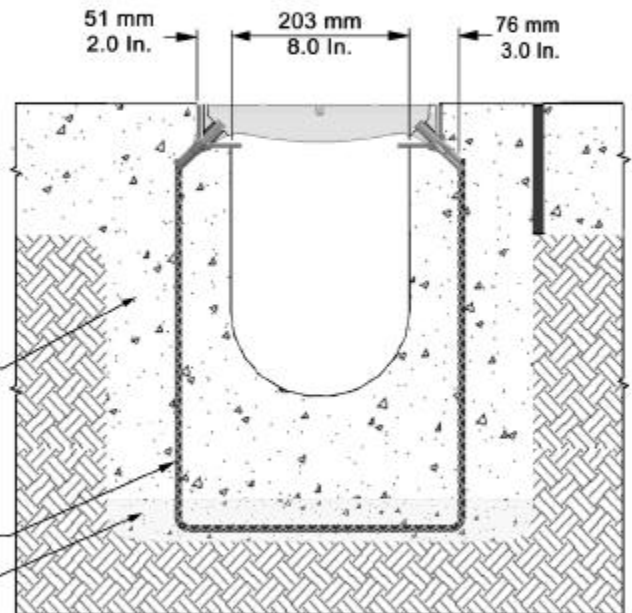
The HD200/300 galvanized steel rail's concrete bearing width is the *widest* in the industry. The large bearing area of the HD200/300 rail system maximizes load capacity and reduces the probability of concrete shear failure -- even if the supporting concrete is not properly placed or if it is of sub-standard strength. Also, HD200/300 does not create the additional failure liability between the rail and concrete that can be introduced by HDPE, fiberglass, etc. due to their low compressive strength, creep, and thermal expansion properties.

HD200™ Technical Data



**GRATE RETAINER
PIN - FIXED**
Galvanized

**GRATE RETAINER
PIN - REMOVABLE**
Stainless



TRENCH SECTION

DATA

- Grate Proof Strength - 200,000 Lbs.
- Grate Open Area - 0.61 Ft² / L. Ft. (64%)
- Vertical Grate Restraint - 2,000 Lbs.
- Longitudinal Grate Restraint - 10,000 Lbs.
- Rails - 2.5" x 2.5" x 1/4" A-36 Steel Angle
- Rail Bearing Area - 2.0 In.² / L. In. per rail
- For Hydraulic Capacity for specific conditions, Drawings, Specifications, and other information, go to www.abtdrains.com

Concrete thickness, specifications, and reinforcement per structural engineer's design. (By other)

No Float Leg
No Float Anchor Slab

DISCLAIMER

The customer and the customer's architects, engineers, consultants, and other professionals are completely responsible for the selection, installation, and maintenance of any product purchased from ABT, and EXCEPT AS EXPRESSLY PROVIDED IN ABT'S STANDARD WARRANTIES, ABT MAKES NO WARRANTY, EXPRESSED OR IMPLIED, AS TO THE SUITABILITY, DESIGN, MERCHANTABILITY, OR FITNESS OF THE PRODUCT FOR CUSTOMER'S APPLICATION. Copies of ABT's standard warranties are available upon request. Trench Former® is a registered trademark of ABT, Inc®. USA Patent Numbers 5,281,051 5,348,421 5,393,171 5,399,047 5,478,169 5,573,350 5,702,204 5,890,839 Canada 2,080,136 2,131,866 2,131,867 2,139,405 2,139,407 Mexico 189,218 189,436 197,851 Other US and foreign patents pending.

ABT[®], INC. HD200 Series Trench Former

Pre-Engineered Surface Drain Forming System

Specification

SYSTEM

Description:

1. A system of pre-engineered components for forming concrete cast-in-place surface drainage trenches, catch basins and utility chases.
2. System: consists of non-CFC expanded polystyrene (EPS) forms; embedded steel inlay rails; legs for alignment and float control; and grates with a non-rigid, longitudinal restrained, grate retention system.

PRODUCT

Components:

Forms:

1. Forming system: Pre-manufactured using non-CFC EPS foam.
2. Forms: pre-sloped or non-sloped form segments with 2.0 M (6.56 Ft) length standard and 1.0 M (3.28 Ft), or 0.5 M (1.64 Ft) lengths available.
3. Each segment is 203mm (8 In) wide trench with radius bottom and 292.3mm (11 1/2 In) grate seat width. Invert slope is per application requirement.

Rails:

1. Steel components: Post fabrication hot dipped galvanized 63.50 mm x 63.50 mm x 6.35 mm (2.5 In x 2.5 In x 1/4 In) A-36 steel angle rails. Rail length 2.0 M (6.56 Ft) standard with 1.0 M (3.28 Ft), and 0.5 M (1.64 Ft) long available.
No-float leg / alignment / grate retainer anchor lugs are located on 1.0 M (3.28 Ft) centers along the rails bisected by non-removable grate retaining / rail anchoring studs also on 1.0 M (3.28 Ft) centers. Standard headed concrete anchor studs bisect these members providing a rail anchoring every 250 mm (9.84 In).
2. Grate rails to provide a minimum of 2.0 square inches concrete bearing area per inch of trench length.
3. Grate retainers and rails to withstand the following loads:
 - a. Vertical up - 2,000 lbs
 - b. Transverse - 10,000 lbs
 - c. Longitudinal - 10,000 lbs
4. Grate retainer performance is not to degrade with service loads or thermal cycling.
5. Galvanizing: ASTM A123-89a
6. Steel: ASTM A 36/A36M-93a

Grates:

1. Ductile iron: ASTM A 536-84 (1993).
2. Grates to have a minimum of 64% open area and be flush with top of rails.
3. Grates to sustain a vertical down test load of 200,000 lbs for 1 minute through a 9" by 9" centered contact area without failure or permanent deformation.
4. Allowable tolerances: Setting plus/minus 1.5mm (1/16 In)

Former release:

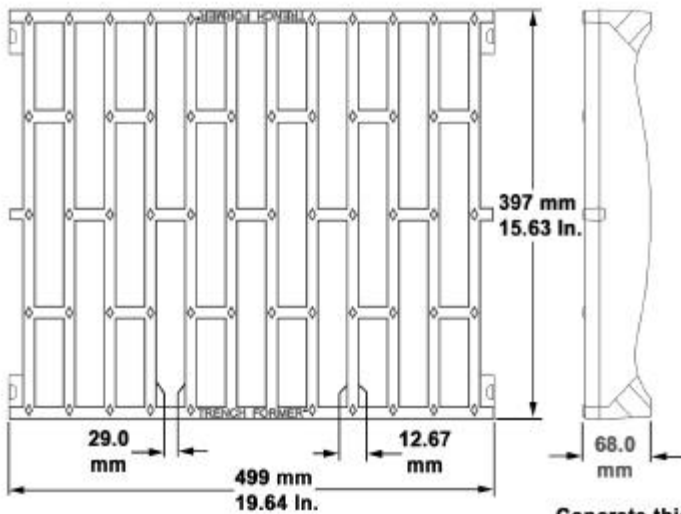
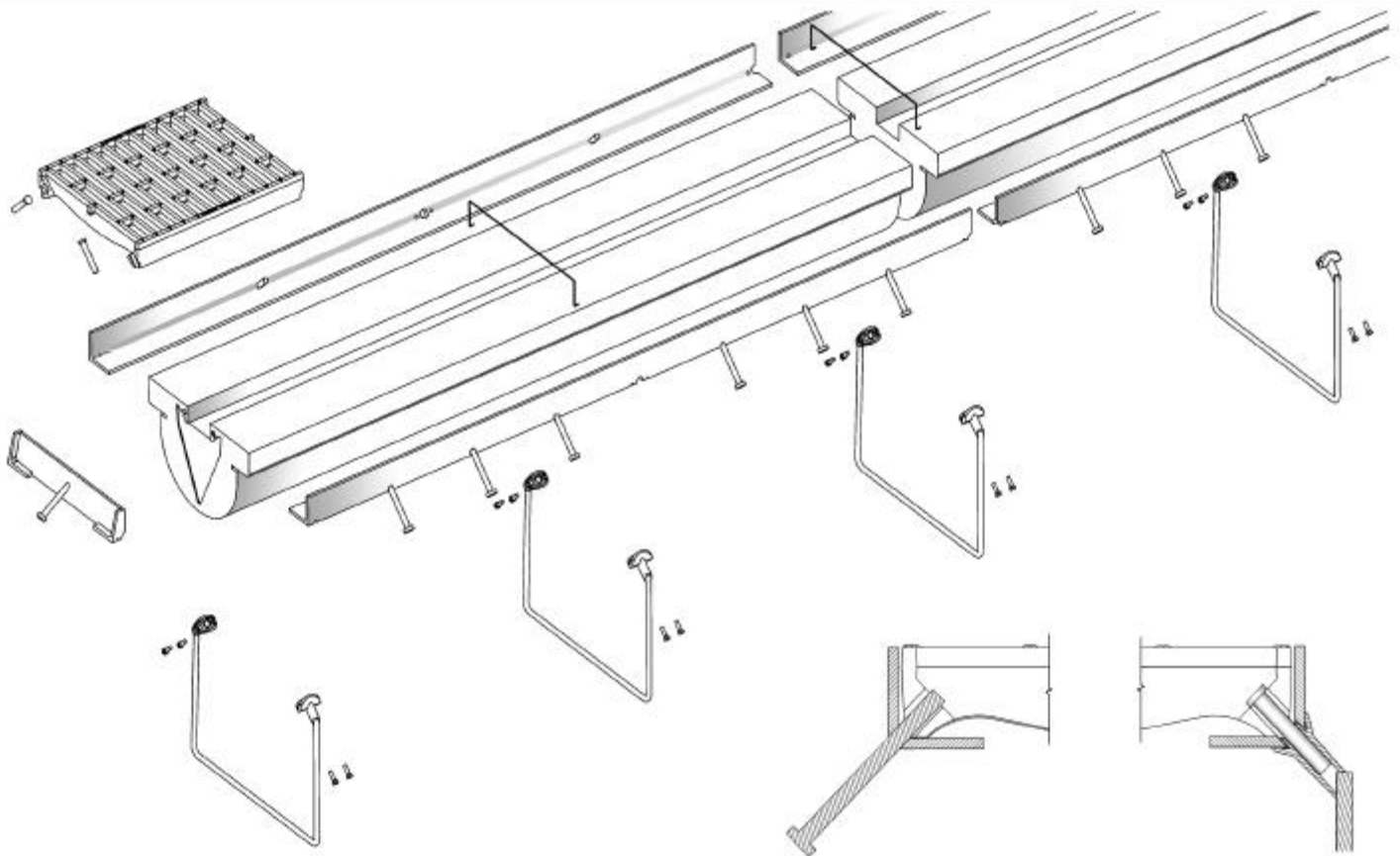
1. Non-petroleum based, which will not attack EPS.

Acceptable manufacturers:

Surface drain system:

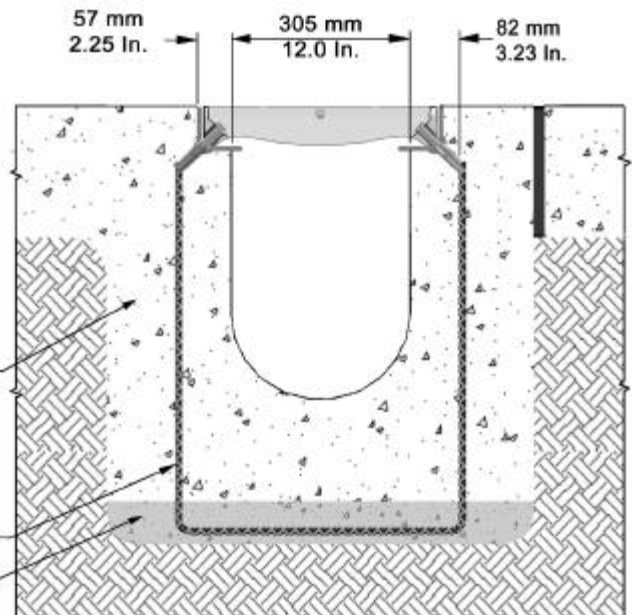
1. Trench Former HD-200: manufactured by ABT Inc, PO Box 837, 259 Murdock Rd., Troutman, NC 28166 800-438-6057. www.abtdrains.com

HD300™ Technical Data



**GRATE RETAINER
PIN - FIXED**
Galvanized

**GRATE RETAINER
PIN - REMOVABLE**
Stainless



TRENCH SECTION

DATA

- Grate Proof Strength - 200,000 Lbs.
- Grate Open Area - 0.79 Ft² / L. Ft. (61%)
- Vertical Grate Restraint - 2,000 Lbs.
- Longitudinal Grate Restraint - 10,000 Lbs.
- Rails - 3" x 3" x 5/16" A-36 Steel Angle
- Rail Bearing Area - 2.25 In.² / L. In.
- For Hydraulic Capacity for specific conditions, Drawings, Specifications, and other information, go to www.abtdrains.com

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PRODUCT

Components:

Forms:

1. Forming system: Pre-manufactured using non-CFC EPS foam.
2. Forms: pre-sloped or non-sloped form segments with 2.0 M (6.56 Ft) length standard and 1.0 M (3.28 Ft), or 0.5 M (1.64 Ft) lengths available. Each segment is 305mm (12 In) wide trench with radius bottom and 402mm (15 13/16 In) grate seat width. Invert slope is per application requirement.

Rails:

1. Steel components: Post fabrication hot dipped galvanized 76.20 mm x 76.20 mm x 7.94 mm (3 In x 3 In x 5/16 In) ASTM A 36 steel angle rails. Rail length 2.0 M (6.56 Ft) standard with 1.0 M (3.28 Ft), and 0.5 M (1.64 Ft) long available. No-float leg / alignment / grate retainer anchor lugs are located on 1.0 M (3.28 Ft) centers along the rails bisected by non-removable grate retaining / rail anchoring studs also on 1.0 M (3.28 Ft) centers. Standard headed concrete anchor studs bisect these members providing a rail-anchoring device every 250 mm (9.84 In).
2. Grate rails to provide a minimum of 2.25 square inches concrete bearing area per inch of trench length each side.
3. Grate retainers and rails to withstand the following loads:
 - a. Vertical up - 2,000 lbs
 - b. Transverse - 10,000 lbs
 - c. Longitudinal - 10,000 lbs
4. Grate retainer performance is not to degrade with service loads or thermal cycling.
5. Galvanizing: ASTM A123-89a
6. Steel: ASTM A 36/A36M-93a

Grates:

1. Ductile iron: ASTM A 536-84 (1993).
2. Grates to have a minimum of 61% open area and be flush with top of rails.
3. Grates to sustain a vertical down test load of 200,000 lbs for 1 minute through a 9" by 9" centered contact area without failure or permanent deformation.
4. Allowable tolerances: Setting plus/minus 1.5mm (1/16 In)

Acceptable Manufacturers:

Surface drain system:

1. Trench Former HD300: manufactured by ABT, Inc., P.O. Box 837, 259 Murdock Rd., Troutman, NC 28166 800-438-6057.

Other quality drainage products by ABT, Inc.



ABT, INC.

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