

Hydro DryScreen® Next Generation Baffle Box

Sediment Removal and Screening Device in One

Product Profile

The Hydro DryScreen® is a next generation baffle box designed to effectively remove a wide range of solids from stormwater runoff. It augments the typical baffle box design, wherein vertical baffles are used to create a series of sediment settling chambers, with a patented flow-diffusing mechanism to improve sediment capture.

The chamber contains both horizontal and vertical screens to capture larger materials such as trash and leaf litter. The horizontal screen sits above the standing water level in the sump, preventing captured gross organic solids from leaching dissolved nutrients between storm events.

Components

- | | |
|---------------------------------|---------------------------|
| 1. Inlet Pipe | 5. Vertical Screened Weir |
| 2. Access Lids | 6. Flow Spreader |
| 3. Precast Vault | 7. Sediment Storage Sump |
| 4. Adjustable Height Dry Screen | 8. Outlet Pipe |

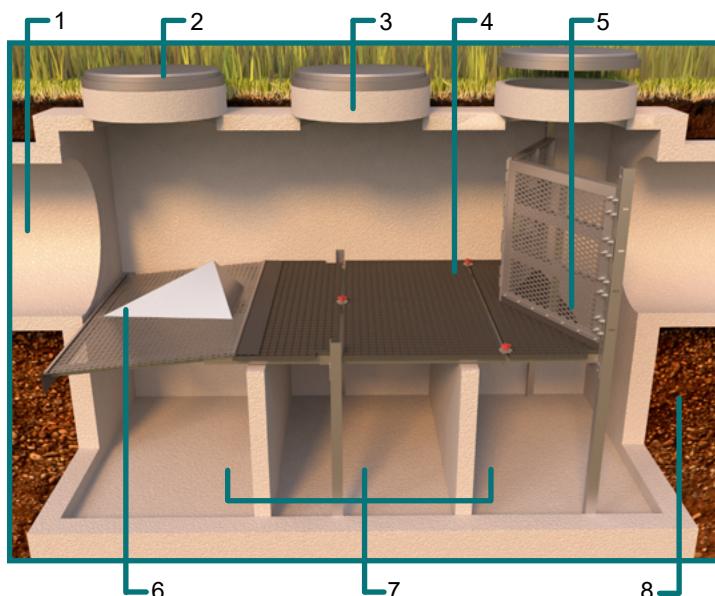


Fig.1 The Hydro DryScreen® has internal components designed to increase particulate pollutant capture and minimize nutrient leaching.

Applications

- Removal of leaf litter, total suspended solids (TSS) and trash from stormwater runoff
- New construction or redevelopment of commercial and residential sites
- Retrofit installations onto previously existing storm drain lines
- Shallow installations where high groundwater or bedrock present excavation challenges
- Installations requiring low headloss, such as relatively flat drainage profiles

Advantages

- Captures and retains a wide range of solid and particulate pollutants
- Organic debris is stored dry, preventing nutrient leaching between storm events
- Larger screenings storage capacity than other baffle boxes
- Patented flow spreader slows influent flows to increase sediment settling
- Horizontal screen elevation can be adjusted to account for tail water or base flows
- Extensive range of available models treat a wide range of flows

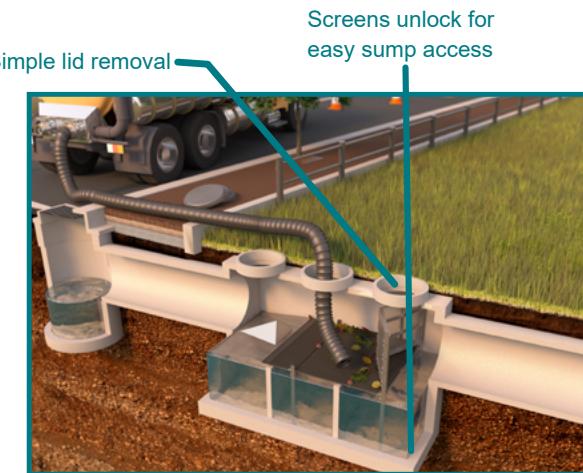
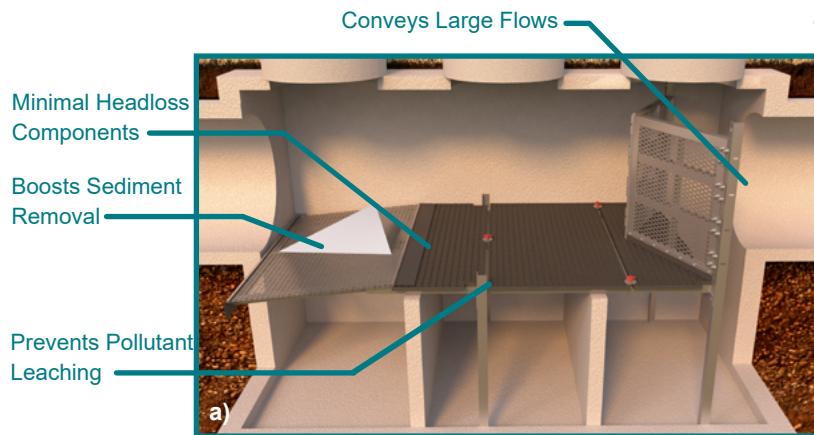
How it Works

Baffle box sedimentation is a relatively simple pollutant removal process based on the principle of slowing the velocity of flow through a pipe in order to allow solids to settle out of the flow stream.

As stormwater enters the Hydro DryScreen® chamber, the flow is diffused and slowed by the Flow Spreader. Gross solids are conveyed around the spreader and captured on the horizontal screen (**Fig.1**).

As the flow encounters the first baffle wall, the velocity slows again allowing particles to settle. Other solids in the flow stream strike the baffle wall and settle to the sump where their further movement is impeded by the presence of the baffle. Flow continues through the next two baffle chambers where smaller particles settle.

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Design Notes

Drainage Profile

Headloss across the Hydro DryScreen® is minimal, therefore it can fit onto almost any new or pre-existing drainage line.

Trash and Debris Removal

Leaf litter, trash and other screenable debris is captured and stored above the standing water level, preventing pollutant leaching between storm events.

Total Settleable Solids (TSS) Removal

Conventional sedimentation is enhanced by patented flow-distribution technology that spreads and slows the flow at the inlet to allow more solids to settle.

Conveyance Capacity

The Hydro DryScreen® is designed to be placed on the main drainage line. It accommodates large pipe sizes and large peak flows.

Sizing & Design

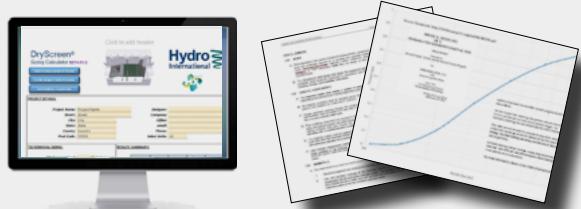
The Hydro DryScreen® can be used to meet a wide range of stormwater treatment objectives. It is available in 5 precast models that fit easily into the drainage network (**Table 1**). Selection of the appropriate Hydro DryScreen® model depends on pollutant removal targets, site hydraulics, site constraints and local regulations.

Table 1. Hydro DryScreen® Specifications Chart¹.

| Hydro DryScreen™ Dimensions | | Maximum Treatment Capacity | | Typical Treatment Flow Rate | | Maximum Pipe Diameter | | Screenings Storage Capacity | | Sediment Storage Capacity | |
|-----------------------------|-----------|----------------------------|-------|-----------------------------|-------|-----------------------|-------|-----------------------------|------|---------------------------|------|
| (ft) | (m) | (cfs) | (L/s) | (cfs) | (L/s) | (in) | (mm) | (yd³) | (m³) | (yd³) | (m³) |
| 4 x 8 | 1.2 x 2.4 | 29 | 821 | 11 | 303 | 30 | 762 | 2.2 | 1.7 | 3.6 | 2.8 |
| 6 x 12 | 1.8 x 3.7 | 66 | 1,869 | 24 | 681 | 42 | 1,067 | 6.6 | 5.0 | 8.0 | 6.1 |
| 8 x 14 | 2.4 x 4.3 | 93 | 2,633 | 37 | 1,060 | 48 | 1,219 | 11.9 | 9.1 | 13.8 | 10.6 |
| 10 x 16 | 3.0 x 4.9 | 124 | 3,511 | 53 | 1,514 | 54 | 1,372 | 19.2 | 14.7 | 22.7 | 17.3 |
| 12 x 20 | 3.7 x 6.1 | 162 | 4,587 | 80 | 2,262 | 60 | 1,524 | 35.0 | 26.8 | 35.4 | 27.1 |

¹ This table is intended to be used as a guide for selecting standard model sizes. Contact Hydro International for custom sizing needs.

FREE Hydro DryScreen® Sizing Calculator for Engineers



This simple tool will recommend the best baffle box size and arrangement based on site-specific data entered by the user. Go to hydro-int.com/dryscreensizing to access the tool.