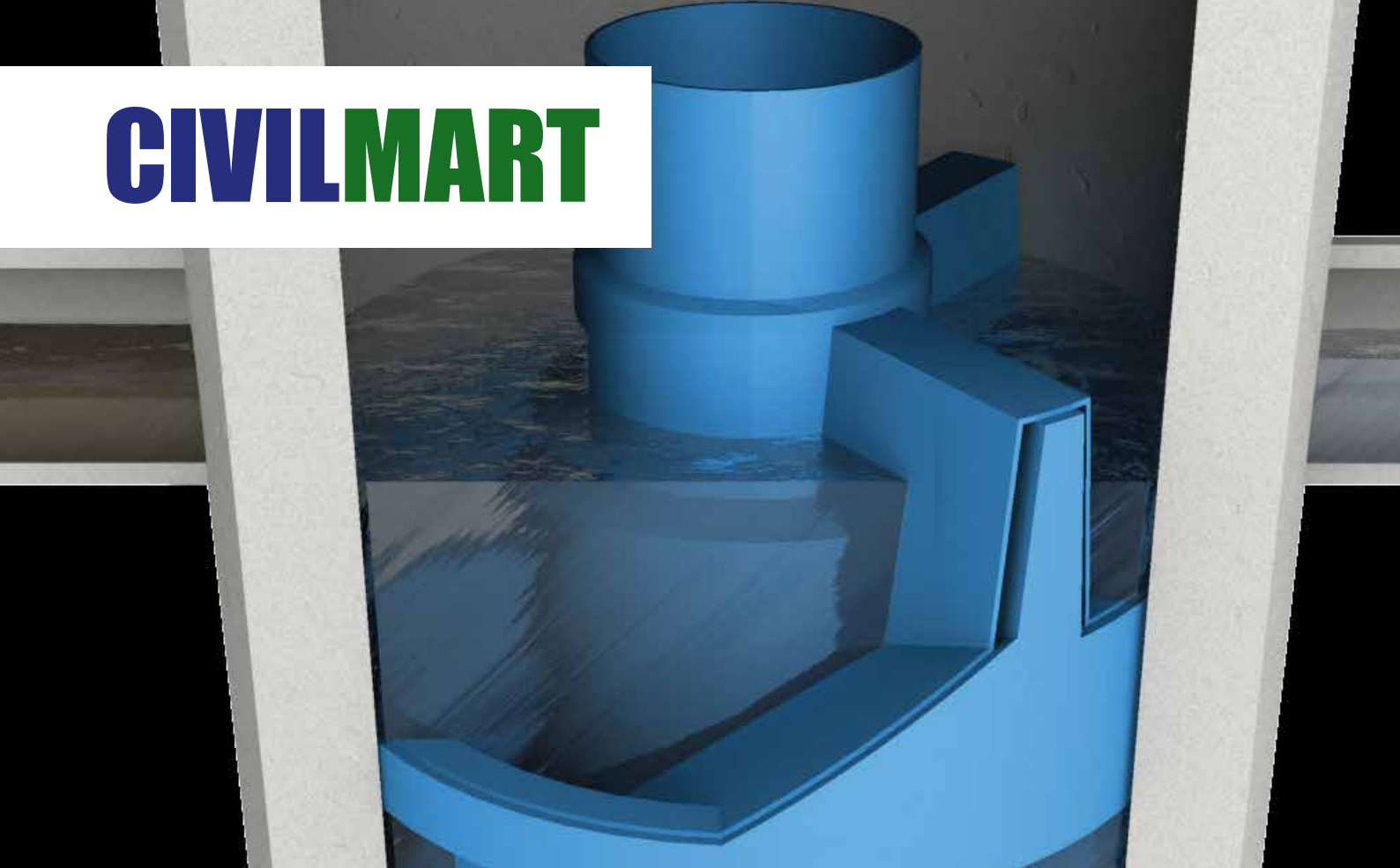
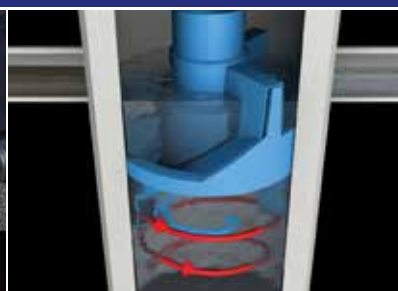


CIVILMART



First Defense[®] **HIGH CAPACITY**



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Hydro
International 





First Defense® High Capacity



High Quality. High Efficiency.

The First Defense® High Capacity by Hydro International is an advancement on the First Defense® enhanced vortex separator, available in Australia exclusively through Civilmart.

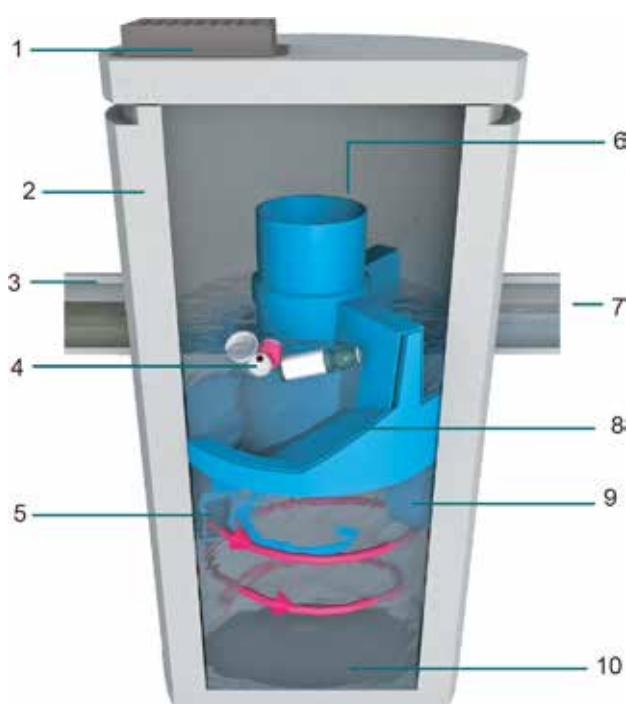


Fig.1 The First Defense® High Capacity separator has internal components designed to efficiently capture stormwater pollutants and prevent washout at peak flows.

1. Inlet Grate (optional)
2. Precast chamber
3. Inlet Pipe (optional)
4. Floatables Draw Off Slot (not pictured)
5. Inlet Chute
6. Internal Bypass
7. Outlet pipe
8. Oil and Floatables Storage
9. Outlet chute
10. Sediment Storage Sump

New Features

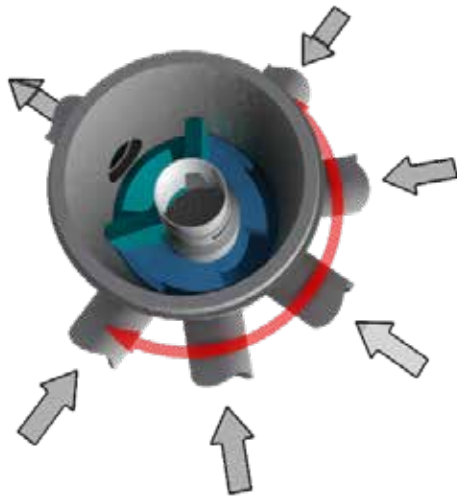
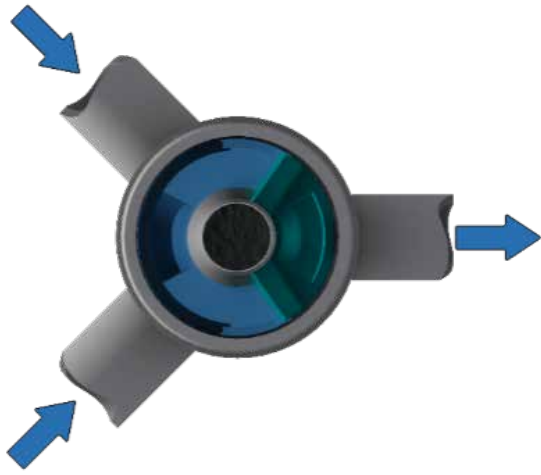
- More model sizes - from 900mm dia. to 2400mm dia. systems
- Improved treatment flow rates
- Accommodates larger pipe diameters and higher peak flow rates
- Accommodates more design scenarios requiring multiple inlets
- Requires a shallower installation depth

Applications

- Stormwater treatment at the point of entry into the drainage line
- Sites constrained by space, topography or drainage profiles with limited slope and depth of cover
- Retrofit installations where stormwater treatment is placed on or tied into an existing storm water line
- Pretreatment for filters, infiltration and storage

Advantages

- Inlet options include surface grate or multiple inlet pipes
- Delivered to site pre-assembled and ready for installation
- Proven to prevent pollutant washout
- Long flow path through the device ensures a long residence time within the treatment chamber, enhancing pollutant settling
- Integral high capacity bypass conveys large peak flows without the need for "offline" arrangements using separate junction manholes



Tested To Reduce Average Annual Loads:

- **80%** - Total Suspended Solids (TSS)
- **99%** - Gross Pollutant Solids (GP) >3mm
- **40%** - Total Phosphorous (TP)
- **PLUS** - Free Oil & Hydrocarbons

How It Works

The First Defense® High Capacity separator has internal components designed to remove and retain gross debris, total suspended solids (TSS) and hydrocarbons (Fig.1).

Contaminated stormwater runoff enters the inlet chute from a surface grate and/or inlet pipe. The inlet chute introduces flow into the chamber tangentially to create a low energy vortex flow regime (magenta arrow) that directs sediment into the sump while oils, floating rubbish and debris rise to the surface.

Treated stormwater exits through a submerged outlet chute located opposite to the direction of the rotating flow (blue arrow). Enhanced vortex separation is provided by forcing the rotating flow within the vessel to follow the longest path possible rather than directly from inlet to outlet.

Higher flows bypass the treatment chamber to prevent turbulence and washout of captured pollutants. An internal bypass conveys infrequent peak flows directly to the outlet eliminating the need for, and expense of, external bypass control structures. A floatables draw off slot functions to convey floatables into the treatment chamber prior to bypass.

First Defense® High Capacity Model Number	Diameter	Typical TSS Treatment Flow Rates for Removal of 106µm Particles ⁴	Peak Online Flow Rate	Maximum Pipe Diameter ¹	Oil Storage Capacity	Typical Sediment Storage Capacity ²	Minimum Distance from Outlet Invert to Top of Rim ³	Standard Distance from Outlet Invert to Sump Floor
	(Nominal)	(L/s)	(L/s)	(Nominal)	(L)	(m ³)	(m)	(m)
FD-HCM	DN900	26	350	DN375	473	0.22	0.6 - 1.0	0.98
FD-HC3	DN900	32	424	DN450	473	0.3	0.6 - 1.0	1.13
FD-HC4	DN1200	58	510	DN600	723	0.5	0.7 - 1.2	1.5
FD-HC6	DN1800	132	906	DN750	1,878	1.2	0.9 - 1.6	1.8
FD-HC8	DN2400	236	1,415	DN1200	4,239	2.1	0.9 - 1.8	2.2

1 Contact Civilmart when larger pipe sizes are required.

2 Contact Civilmart when additional sediment storage capacity is required.

3 Minimum distance for models depends on pipe diameter. Contact Civilmart for technical assistance.

4 PSD of d50 = 106µm for 80% TSS removal



Sizing And Design

This adaptable online treatment system works easily with large pipes, multiple inlet pipes, inlet grates and now, contains a high capacity bypass for the conveyance of large peak flows.

Designed with site flexibility in mind, the First Defense® High Capacity separator allows engineers to maximize available site space without compromising treatment level.

Product Application Design (PAD)

Rocla offers a complimentary design service to assist with providing the most appropriate solution to your stormwater treatment projects.

Inspection And Maintenance

Inspection and maintenance are conducted from the surface, without need for man-entry into the First Defense® High Capacity separator.

Inspection is conducted by visually assessing the rate of rubbish accumulation in the device and measuring sediment and oil depth accumulations with measuring probes.

Maintenance is conducted with a standard sump vac, and typically takes less than an hour.





Custom Precast Specialists



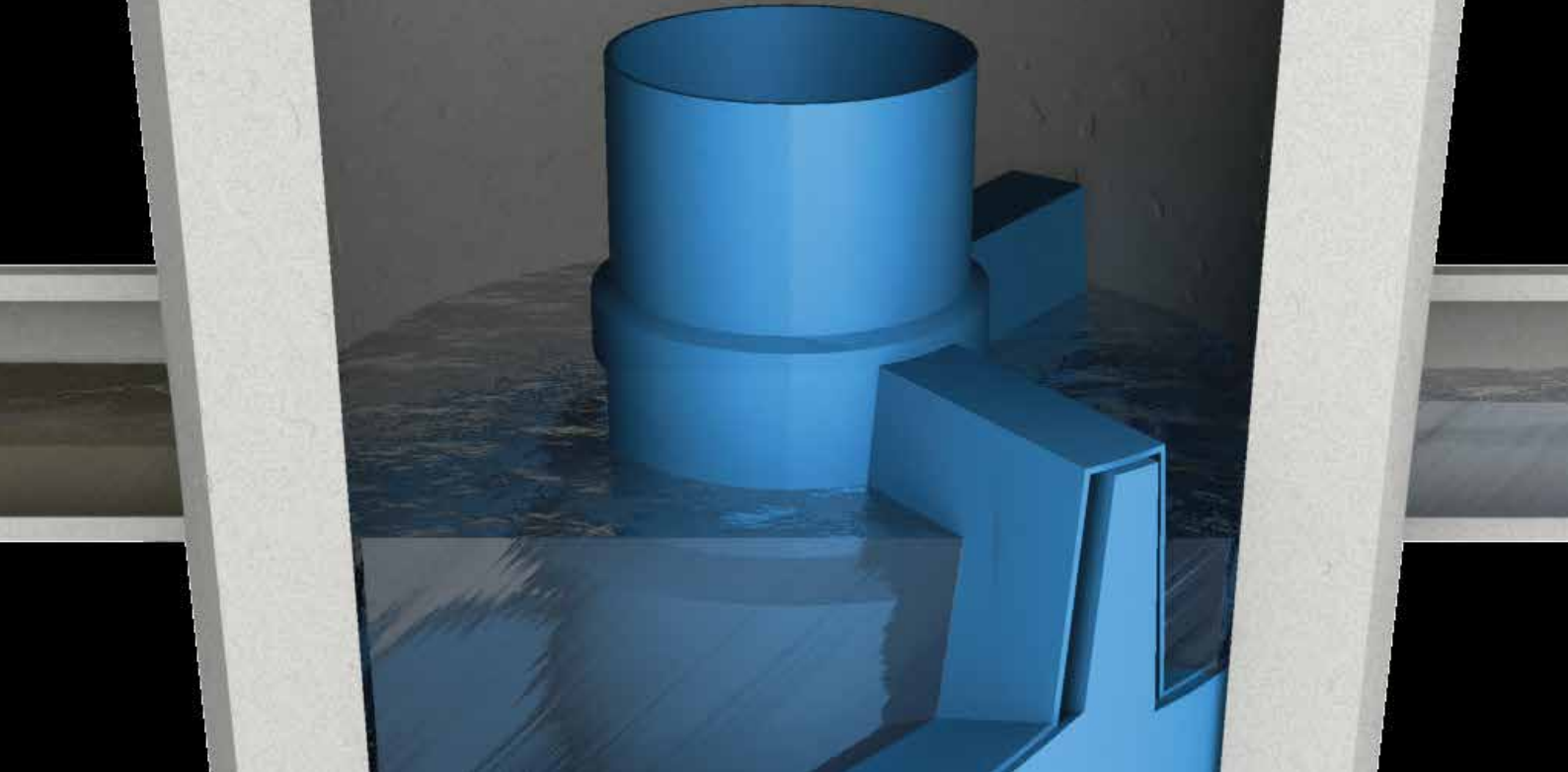
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Civilmart is uniquely positioned amongst precast concrete suppliers in that we are experts in designing and manufacturing custom precast products. If non-standard specifications are involved in a project, we will do what it takes to make it a reality. We have extensive custom-manufacturing capabilities and if necessary, we will build new moulds to create exactly what you need. Our agility and flexibility when creating products is unmatched, it's something we're extremely proud of.

Submit your plans or let us work with you to design a product that will perfectly fit your next project. Whether it's a small variation to a standard product or a completely new idea built from scratch, Civilmart will help you get it done.







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