

ecoStop®

(Oil & Water Management)

Technical Guide SW 1

The ecoStop® spill control system is a secure and reliable hydrocarbon spill management system suitable for bunded sites with a potential for concentrated spills.



05.20 | STORMWATER | SW1 ECOSTOP

Applications

Petrol stations and other fuelling facilities
Electrical transformers
Oil storage areas
Transportation fuelling systems
Any site where hydrocarbons are stored

Product Attributes

Closure valve watertight to 50kPa
(5m head)
Single precast concrete chambers
High operational reliability
Simple to install or retrofit
Minimises / eliminates failures caused by human error

Approvals/Standards

Precast Manufacture to NZS 3101
and 3109:1997
Concrete designed to 40MPa

Quality

ISO 9001:2008 Quality
Management Standard

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stormwater management and treatment solutions.*

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The ecoStop® is the downstream spill control device that works in concert with upgradient bunding or retention measures. The system detects and responds to spills automatically, thus minimising the chance of failures caused by human error.

Design and sizing

Three standard sizes are available for the ecoStop® oil-water separator which are based on the influent flow rates.

Systems with flows exceeding 20L/s and/or pipes larger than 200mm can be custom designed.

Installation

The ecoStop® is easy to install. The system can be installed in-line and downstream from any containment drainage area.

Maintenance

The ecoStop contains the spills on site. In the event of a spill, clean-up is required in the upstream containment area, and within the ecoStop system.

The system can be made operational again by emptying the float and re-attaching it to the shutdown valve. Regular maintenance is also recommended to remove pollutants accumulated under normal conditions.

On completion of regular or spill maintenance activities the chamber needs to be fully filled and the automatic shut-off valve refloated.

How it works

The ecoStop system is installed in a concrete chamber, downstream from a segregated hydrocarbon containment drainage area. The float actuated shut-off valve stops flow through the system when maximum hydrocarbon storage capacity is reached. This prevents the discharge of free hydrocarbons to municipal wastewater infrastructure or direct discharge to outfalls. The ecoStop maintains the spill on site where it can either be contained below ground or in an underground storage tank, large diameter pipe or above ground in a bunded area.



FIG. 1 ecoStop automatic shut-off device float

Performance

This system is designed to operate at the maximum specified flow. Any flow in excess of this may cause the float to sink and the stop valve to activate.

When a spill occurs light liquids / hydrocarbons rise to the water surface in the chamber due to the differential in specific gravity (oil floats on water). As the light liquids accumulate on the surface, the float sits lower in the liquid until the oil layer reaches its maximum depth of 230mm where the float is inundated and sinks causing the stop valve to activate.

TABLE 1 Eco Stop Kit System - Chamber dimensions

Product Code	Max Flow rate L/s	Lid Openings	Internal Fittings Ø(mm)	Dimension					Lid Thickness (mm)	Mass Total (kg)	Shipped from
				A (mm)	B (mm)	C (mm)	D (mm)	E (mm)			
ECOSTOPNS03KIT(*)	3	1	100	1647	1640	796	1595	841	200	3490	Auck/ Chc
ECOSTOPNS10KIT(*)	10	1	150	1647	1640	796	1595	841	200	3500	Auck/ Chc
ECOSTOPNS20KIT(*)	20	1	200	1647	1640	796	1595	841	200	3510	Auck/ Chc

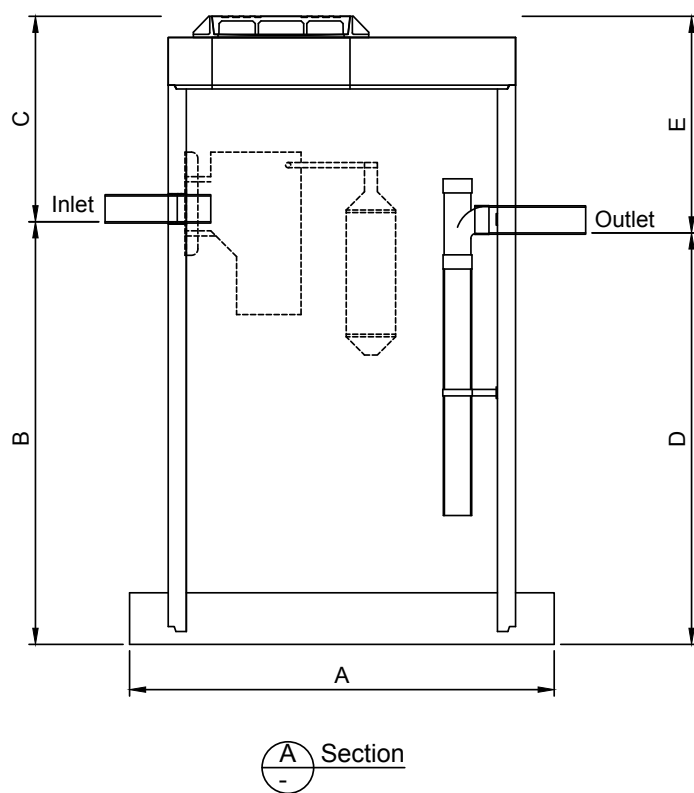
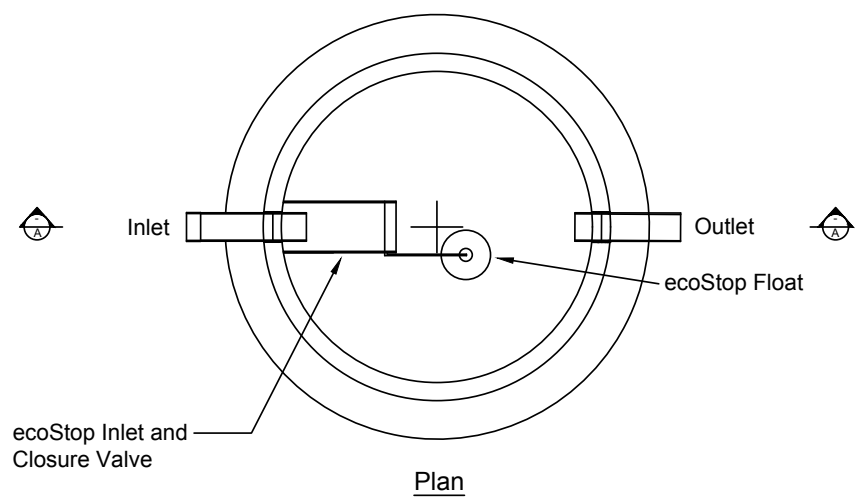


FIG. 2 General arrangement drawing

Lifting and Handling

All ecoStop® products incorporate Swiftlift lifting anchors for safe lifting and must be used with the correct lifting clutch.

Hynds Pipe Systems has designed and manufactured ecoStop® products with a minimum dynamic factor of 1.2.

This dynamic factor requires that all the following conditions are observed when lifting, moving or placing the system:

1. Lifting with mobile plant (*such as an excavator or similar*) where equipment is specifically exempt from the requirements of the PECPR Regulations 1999, subject to the conditions outlined in the New Zealand Gazette, No. 104, September 2015 and
2. Lifting, travelling and placing over rough or uneven ground where anchor failure is not anticipated to cause harm or injury, by adopting procedures such as:
 - a. Transporting the element as close as practical to ground level (300mm recommended)
 - b. Establishing and maintaining exclusion zones

- c. Transporting only precast concrete elements that are unlikely to topple if they were to hit the ground
- d. Inspecting lifting anchors both after transportation and before final lifting into place

Refer to "Safe work with precast concrete - Handling, transportation and erection of precast concrete elements" published by Worksafe New Zealand (October 2018)

Shock loads resulting from travelling with suspended API Separators over rough terrain and uneven ground may exceed design, dynamic and safety factors of the lifting systems. It is essential that care is taken during lifting and transporting as additional stresses could result in anchor failure.

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Disclaimer: While every effort has been made to ensure that the information in this document is correct and accurate, users of Hynds product or information within this document must make their own assessment of suitability for their particular application. Product dimensions are nominal only, and should be verified if critical to a particular installation. No warranty is either expressed, implied, or statutory made by Hynds unless expressly stated in any sale and purchase agreement entered into between Hynds and the user.