

Smart Chamber

(Oil & Water Management)

Technical Guide SW 9

The Hynds Smart Chamber is a simple and effective oil and grit separation system and helps to remove residual oils discharging to the pipe network.



09.24 | STORMWATER | SW9 SMART CHAMBER

Applications

Garages / truck wash down areas

Driveways

Small sealed / paved parking areas

Service stations

Product Attributes

Twin chambered system manufactured from precast concrete manholes

Robust and easy to maintain

Watertight seal between lid and tank walls

Four compartments for greater solids retention and treatment potential

Quality

ISO 9001:2008 Quality Management

We are the supply partner of choice for New Zealand's stormwater management and treatment solutions.

HYNDS
STORMWATER

Hynds Smart chamber is designed to take HD60 loading. It can be modified to take HN-HO-72 traffic loading on request.

Kit Units

The Smart Chamber has 150mm diameter PVC fittings. Standard 200mm thick precast concrete lids are supplied for most trafficable applications. Thicker lids for heavier loads are available on request, though the manhole wall thickness may need to be increased. Ductile iron frames and covers are supplied loose.

Installation

The tank and lids are supplied separately for easier transport and installation. Hynds Smart Chambers are manufactured with lifting anchors and must be handled using a spreader beam. Manhole units must be placed on solid compacted level hardfill and surrounded by compacted backfill to avoid differential settlement. External pipework and couplers are not supplied as part of the system. The OGS2KIT and OGS6KIT Smart Chambers include HDPE Smart Shields to house the Smart Paks and are bolted to the baffle wall.

Unit Maintenance

The efficiency of a Hynds Smart Chamber System is dependent on the use and maintenance the system receives. To obtain the full benefit of the unit, checks are recommended to determine the removal frequency of trapped oils and grits.

Cleaning Smart Paks

After removing sediment attached to the Pak wall, each Smart Pak can be weighed to determine if the sponge has reached its maximum absorption rates – 3 times its starting weight. New Smart Paks weight 1.5kgs. Trapped pollutants and spent Smart Paks removed from a Hynds Smart Chamber must be disposed of in accordance with the relevant local authority regulations.

Smart Sponge® Treatment

Smart Sponge® fully encapsulates recovered oil and prevents absorbed oil from leaching. This technology is also capable of removing low levels of oil from water, thereby reducing oil sheen.



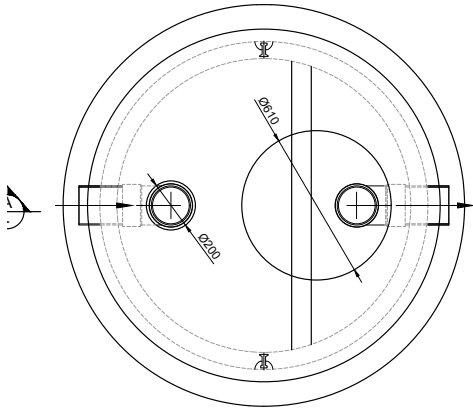
FIG. 1 Smart Shield with Smart Sponge®

Once oil is absorbed, the Smart Sponge® transforms the pollutants into a stable solid, providing a closed-loop solution to water pollution. Smart Sponge® technology is a cost-effective best management practice device with low installation and maintenance costs. Liquid oil and other pollutants are transformed into a stable solid, that is easily handled and disposed. Smart Sponge® is designed not to deteriorate in water.

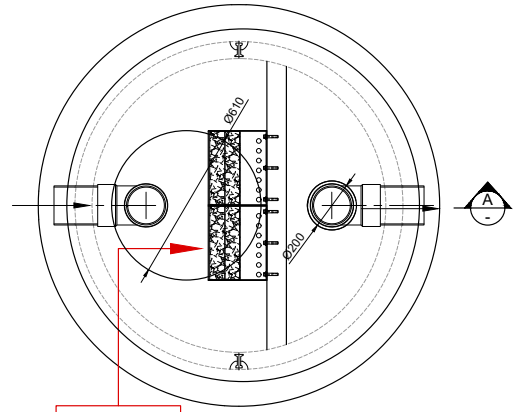
Proven Performance

Field and laboratory tests have confirmed the capability of the Smart Sponge® to absorb, depending on the type of oil contaminant, up to three times its own weight. The device can remove up to 95% of hydrocarbons present in stormwater runoff, typically in the range of 5 to 30mg/L (ppm).

Captured oil is permanently bound within the Smart Paks, eliminating leaching, and allowing for easy disposal of the filtration media.



Plan
Scale 1:20



Smart Shield
Plan
Scale 1:20

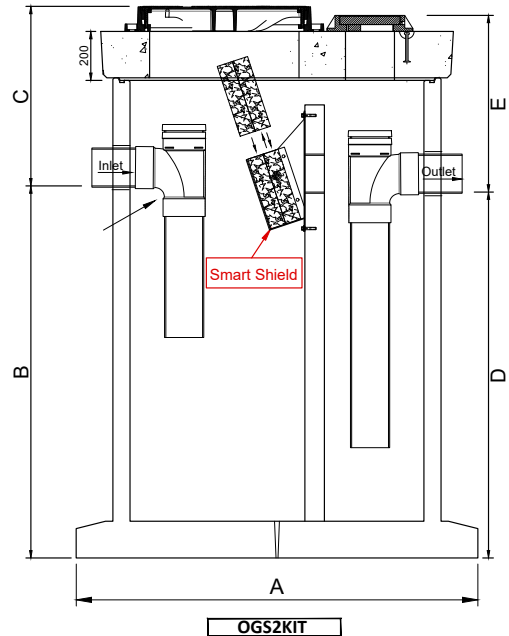
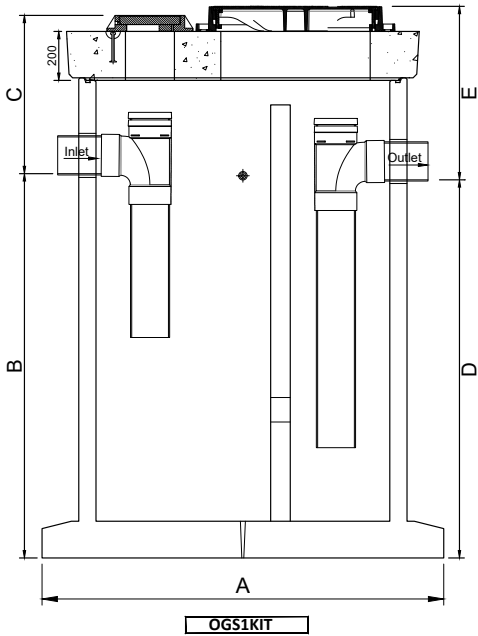


FIG. 2 General arrangement drawing

TABLE 1 Hynds Smart Chamber Kit System – Dimensions

Product codes: OGS1KIT + OGS2KIT		Total Tank Capacity: 3000L								
Chamber	Internal Fittings Ø (mm)	Chamber dimensions (Refer Figure 2)					Lid Thickness (mm)	Lid openings	Total Mass (T)	Shipped from
		A (mm)	B (mm)	C (mm)	D (mm)	E (mm)				
OGS1KIT	150	1640	1569	646	1544	708	200	2	3.510	Auck/Chch
OGS2KIT	150	1640	1519	733	1494	721	200	2	3.860	Auck/Chch

TABLE 2 Hynds Smart Chamber Kit System – Dimensions

Product codes: OGS4KIT + OGS6KIT		Total Tank Capacity: 4500L								
Chamber	Internal Fittings Ø (mm)	Chamber dimensions (Refer Figure 2)					Lid Thickness (mm)	Lid openings	Total Mass (T)	Shipped from
		A (mm)	B (mm)	C (mm)	D (mm)	E (mm)				
OGS4KIT	150	2350	1170	673	1145	698	200	3	7.472	Auck/Chch
OGS6KIT	150	2350	1120	723	1095	748	200	3	7.472	Auck/Chch

Note: Heavy Duty System comes complete with a concrete lid, ductile iron & cast iron cover and frames.

Invert level is indicative only and may vary depending on inlet/outlet invert to finish floor levels.

(*) Chambers OGS2KIT and OGS6KIT contains Smart Sponge® Filter

Lifting and Handling

Hynds Pipe Systems has designed and manufactured Hynds Smart Chambers 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 chambers:

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 Smart Chambers 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.