

# Smart Shield

(Stormwater Treatment)

Technical Guide SW 8

Hynds Smart Shield offers a simple and effective solution to manage oil residues in the stormwater network. The Hynds Smart Shield can be retrofitted to existing chambers and cesspits.



08.24 | STORMWATER | SW8 SMART SHIELD

## Applications

Roads  
Driveways  
Small sealed / paved parking areas  
Service stations

## Product Attributes

Manufactured from polyethylene with polyester based Smart Paks  
Robust and easy to maintain  
High flow rate  
Built-in bypass  
Removes 80% of contaminants greater than 300 microns

## Quality

ISO 9001:2008 Quality Management

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



# The Smart Shield incorporates Smart Sponge® that has a distinct, innovative molecular structure, and is designed to be chemically selective to hydrocarbons.

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.

Once oil is absorbed, the Smart Sponge® transforms the pollutants into a stable solid, providing a closed-loop solution to water pollution. The Smart Shield 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 are easily handled and disposed.

The Smart Sponge® was designed not to deteriorate in water, allowing for a longer product life.

## Design and sizing

- As rainfall and debris enter the cesspit or manhole, stormwater rises to the level of the discharge invert. Water passes through the HDPE screen, media pack, and backing screen before discharging to through the outlet pipe.
- Models
  - Single Smart Shield, for a 150-225 nominal outlet pipe
  - Tandem Smart Shield, for a 300-450 nominal outlet pipe

## Engineered for performance

- Inclined angle of outer shield promotes self-cleaning
- Overflow screen included

## Installation

The Smart Shield is simply dyna-bolted to the chamber wall using the top and bottom lug plates, or by side lugs if required.

## Maintenance

The standard maintenance procedure for generic cesspits remains unchanged although the frequency of the vector suck out should increase due to the volumes of pollutants captured and retained. The Smart Shield unit is easily maintained by brushing or hosing down the perforated surfaces to remove any pollutants. The media pack is easily withdrawn from the media tray and if unspent can be rinsed off by a hose before being inserted back into place.

## 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.

## 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.

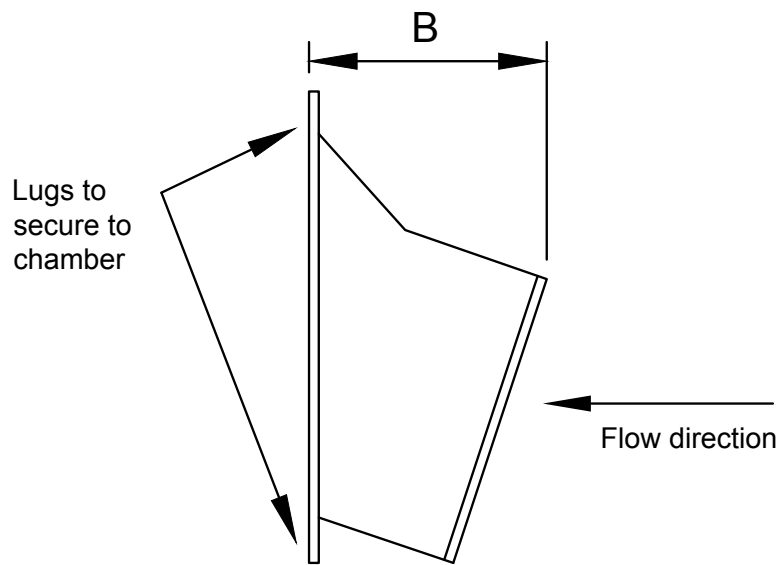
The device can remove up to 95% of hydrocarbons present in stormwater runoff, typically in the range of 5 to 30mg/L (*ppm*).

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

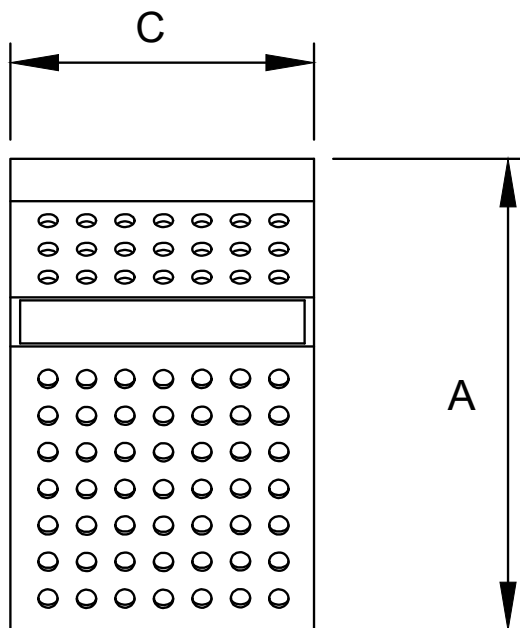
**TABLE 1**

| Product Code         | Covers Pipe Ø<br>(mm) | Dimension A<br>(mm) | Dimension B<br>(mm) | Dimension C<br>(mm) | Mass<br>(kg) | Shipped from |
|----------------------|-----------------------|---------------------|---------------------|---------------------|--------------|--------------|
| (*) SMARTSHIELDKIT1  | 100-300               | 490                 | 247                 | 316                 | 10           | Auck/Chch    |
| (**) SMARTSHIELDKIT2 | 300-450               | 490                 | 247                 | 621                 | 15           | Auck/Chch    |

**Note:** (\*) Smart Shield comes with 2 Smart Paks.  
 (\*\*) Smart Shield comes with 4 Smart Paks.  
 Replacement media available on request.



Side



Front

FIG. 1 Typical elevations

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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.