API Separator

(Oil & Water Management)

Technical Guide SW 3

The American Petroleum Institute standard device for oil / water separation incorporating emergency storage and manual isolation valve for spill conditions

Applications

- Fuelling facilities
- Truck stops
- Vehicle service centres
- Treatment of non-detergent wash water from vehicle washing and repair shops

Product Attributes

- Meets American Petroleum Institute separation standard of 15ppm (mg/L)
- Separates free oil from water
- Manual shut-off valve
- Designed 2500 litres of emergency storage capacity
- Easy access for servicing

Approvals/Standards

- Complies with Auckland Council TP10
- Complies with Ministry of Environment Environmental Guidelines for Water Discharges from Petroleum Industry Sites in New Zealand (1998)

Quality

- ISO 9001:2008 Quality Management

The API oil and water separator is a secure and reliable spill management system designed to separate hydrocarbons from stormwater.

In the event of an accidental spillage the integrated butterfly shut-off valve will be manually closed to eliminate the risk of spilt hydrocarbons entering the stormwater network. The system has an emergency storage capacity of 2500 litres and separates free oil from water to <15ppm (mg/L).

Design and sizing

TABLE 1 **The API Separator is available in the following sizes**

Size	API 3.0	API 3.5	API 4.0	API 4.5	API 5.0	API 5.5
Internal Length (mm)	3000	3500	4000	4500	5000	5500
External Length (mm)	3300	3800	4300	4800	5300	5800
Internal Width (mm)	1580	1580	1580	1580	1580	1580
External Width (mm)	1880	1880	1880	1880	1880	1880
Weight (T)	12	13.5	15	16.5	18	19.5

TABLE 2 **Auckland Regional Council TP10**

Size	API 3.0	API 3.5	API 4.0	API 4.5	API 5.0	API 5.5
Catchment Area (m^2)	117	140	160	183	203	227
Design Flow (L/s)	0.68	0.82	1.32	1.1	1.21	1.33

TABLE 3 **Oil Industry Design Guidelines (Rainfall intensity used - 15mm/hr)**

Size	API 3.0	API 3.5	API 4.0	API 4.5	API 5.0	API 5.5
Catchment Area (m^2)	163	197	230	263	290	320
Design Flow (L/s)	0.68	0.82	1.32	1.1	1.21	1.33

Installation

A level and uniform sub-base is required, which is to provide a safe bearing capacity of a minimum 100kPa. The sub-base should be pre-prepared with at least 100mm of compacted granular material. The precast concrete lid must be bedded uniformly on all sides using SM 9020, or similar to ensure a watertight seal between the lid and the chamber.

How it works

The Hynds API Separator is designed on the principles of the differing specific gravity between water and hydrocarbon contaminants. The tank is designed with an initial gross pollutant screen followed by a weir wall and discharge manifold and manual isolating valve.

The bufferfly valve allows for the complete isolation of the tank under hydrocarbon spill conditions.

Lifting and Handling

All Hynds API Separators incorporate Swiftlift lifting anchors for safe lifting and must be used with the correct lifting clutch.

Hynds Pipe Systems has designed and manufactured Hynds API Separators 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 units:

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.

FIG. 1 API separator

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