

HYNDS HEAVY DUTY FIRST FLUSH “ENVIRO –VALVE”

INSTALLATION AND SPECIFICATIONS



SECTION 1: SPECIFICATIONS

1 HOUSING COMPONENTS

1.1 Concrete Housing Chambers

1400 x 1100 x 1280mm (l x w x h) rectangular concrete chamber with a heavy duty oversized lid (1600 x 1300 x 200mm) made to NZS3109:1997. The water and electric signal supply to the internal valve is supplied on outside of concrete chamber (refer to picture at right). The housing chamber weighs 1.8 tonne.

The lid contains a grate for water entry and manhole for access to valve components. The lid weighs 1.1 tonne.

1.2 Polyethylene Sump

640 x 320 x 340mm deep UV stabilised, black polyethylene sump, 12mm thick.

1.3 Leaf Trap

Stainless steel trap with handles for ease of removal.

1.4 Frame and Cover

Heavy duty cast iron frame and cover for manhole access to the Enviro-Valve components. Designed for heavy traffic loading.

1.5 Frame and Grate

Heavy Duty cast iron frame and grate for water entry to the sedimentation pit. Designed for heavy duty traffic loading.



2 INTERNAL COMPONENTS

2.1 Hydraulic Valve

Hydraulic cylinder with alloy body, stainless steel shaft and spring.

Stainless Steel fastenings.

Brass connection to mains water supply.

Sealed micro switches (IP67) that senses valve's position.

3 ELECTRONIC COMPONENTS

All electrical components conform to standard 3100:2002 (AS/NZS).

3.1 Rain Sensor

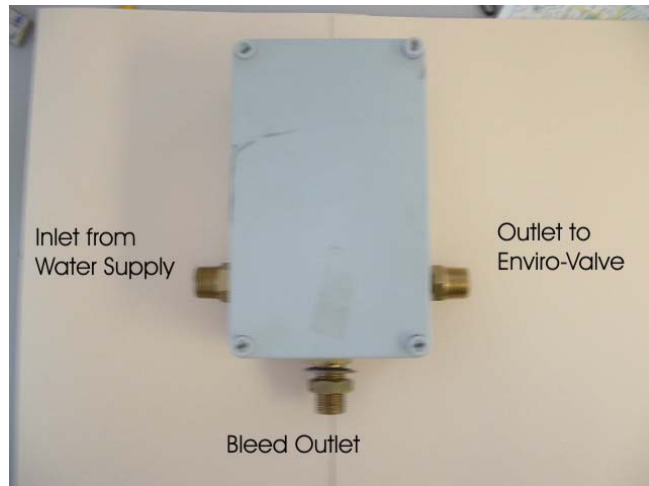
The rain sensor consists of a self-emptying, 100% frost-proof electronic rain gauge that measures the rate of rainfall. The measuring method is extremely accurate (maximum deviation +/- 2%). The unit is wired directly into the control panel.



3.2 Enviro-Valve Actuator (Solenoid)

The Hynds Enviro-Valve is controlled by the weather sensor and the control panel. The solenoid valve (pictured) provides water at mains pressure to activate the ram and divert the water to the required outlet. If the position remains unknown for a period of time a visual and audible alarm is indicated. The solenoid has three plumbing outlets (refer to picture) it requires a drain line to be installed on the bleed outlet of the solenoid.

The inlet (from water supply) and outlet (to Enviro-Valve) are inline and come out of the box opposite to each other. The exhaust outlet is the outlet that comes out of the bottom of the box, in an opposite direction to the inlet and outlet fittings. Each time the Enviro-Valve diverts the runoff to storm water, water will be emitted out of this bleed valve. This means that the drain line for the bleed outlet will need to be run either to drain or an area where the water will drain away.



3.3 Control Panel

The control unit displays the status of the Power, Stormwater and Sewer outlets and Faults. It incorporates an alarm system and a manual diversion to sewer switch.

The unit is powered from a 12 VAC 1A Power Pack that plugs into a normal 3 pin plug.

LED Indicators: Sewer, Stormwater, Power, Fault

Manual/Auto Switch

Fault Time Out 2 min

Alarm 85 db @ 4.4 kHz



3.4 Water Flow Switch

The water flow switch detects when a wash down hose or water blaster is being operated. When this occurs, the control panel will over-ride the weather sensor and divert all flow to the sewer outlet. The flow switch's enclosure is rated to IP54.

Product Code:
Dry Reed Contact Switch

C20-BCB

Maximum operating flow
Maximum operating temperature
Maximum switched voltage
Maximum switched current:
Inlet thread connection size:
Outlet Thread connection size:

30 l/min
90⁰C
240 VAC
1Amp AC (resistive load)
3/4" BSP
3/4" BSP Female



SECTION 2: INSTALLATION

INSTALLATION REQUIREMENTS

The Hynds Enviro Valve is a complete water diversion system ready to install directly into the wash pad area, either on its own or in series with new or existing treatment systems.

You will need:

- Ability to lift 1.8tn.
- A permanent supply of water with at least 300 kPa of water pressure (most tap water pressure)
- Single phase 240 volt power outlet
- An electrician
- A plumber

Steps:

1. Excavate a suitable hole to suit the sump size being installed. Prepare a compacted sub-base using approved materials.
2. Install the Heavy Duty Enviro-valve unit and housing at the required levels. The default position of the valve is the stormwater outlet **closed**.
3. Connect the stormwater and sewer PE outlet couplers protruding from the concrete chamber to the appropriate receiving pipeline systems. Please ensure these outlet pipe sizes are specified.
4. Place the lid onto the concrete chamber and seal as per best management practice. If the frame and cover and frame and grate are supplied loose, ensure they are positioned precisely over their respective openings and seal into place.

Ensure that the Manhole frame and cover is over the Enviro-valve unit and that the frame and grate should be over the empty area of the chamber.

5. Once the chamber is installed it **must** be filled with water until it starts to enter the PE sump housing the valve. This is to ensure that only clean stormwater will enter the stormwater pipe once the valve is activated.
6. Mount the control box on a wall, preferably inside a building or alternatively installed in a casing where it is protected from rain.
7. The water flow switch is installed on the water supply to the wash-down hose or water blaster. Where possible, install a union on the inlet and outlet of the flow switch to allow easy removal for cleaning and servicing. **Ensure the flow switch is oriented correctly to direction of flow. The male threaded end of the switch is the inlet.** When installing, make sure no thread tape or other foreign matter from the installation becomes entrained in the switch.

This switch is connected to the main control panel using a 2 core, 1 mm² cable. Water passing the flow switch should be free of solids particles exceeding 50 microns. The use of an appropriate upstream strainer is recommended. .

FIRST FLUSH DIVERSION SYSTEM



8. The solenoid valve to be installed as follows:
 - The valve is connected to the main control box using a 2 core, 1 mm² cable.
 - A 15mm hose is fitted from the outlet in the PE sump to the solenoid valve and then from the valve to the water mains supply.

NB: The water pressure at the Enviro-Valve's hydraulic ram must be at least 300 kPa.
9. The control panel is connected to the micro switch box in the PE sump using a 3 core, 0.5 mm cable.
10. Backfill and compact around the Enviro-Valve sump and landscape as required. Refer to Engineers specifications for backfilling requirements. It is vital that there is sufficient support under the PE outlet lines to ensure the lines don't buckle under compression and restrict the valve's full movement.
11. Mount the Weather Sensor Unit at a high point on the outside of the building. Ensure that the sensor is positioned where it will be fully exposed to any rainfall. Connect the cable from the Weather Sensor to the Control Box.
12. Plug the 12-volt power pack into your 240-volt power supply. The Power and Sewer light should be activated.
13. The Hynds Enviro-Valve is now installed and fully automatic.

NOTES:

1. Ensure that all water lines have been flushed before connection to the Hynds "Enviro-Valve"
2. Handle the Hynds "Enviro Valve" with care to avoid damage to the sensors.
3. The leaf trap and PE sump should be monitored regularly to ensure it is free of obstructions.

SYSTEM MAINTENANCE

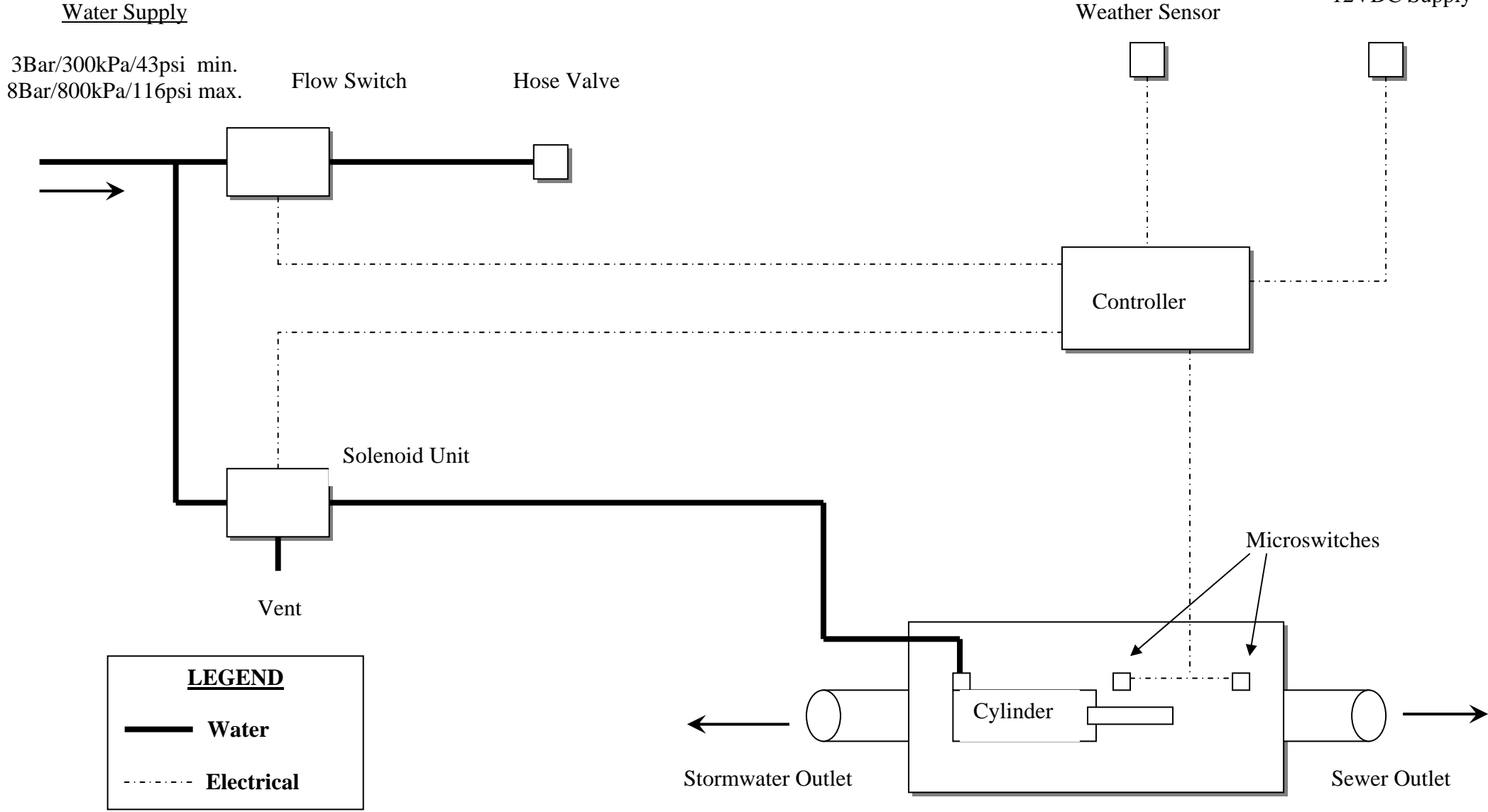
Hynds Environmental offers a full maintenance contract with the Enviro Valve. A six monthly service is recommended and includes the following procedures:

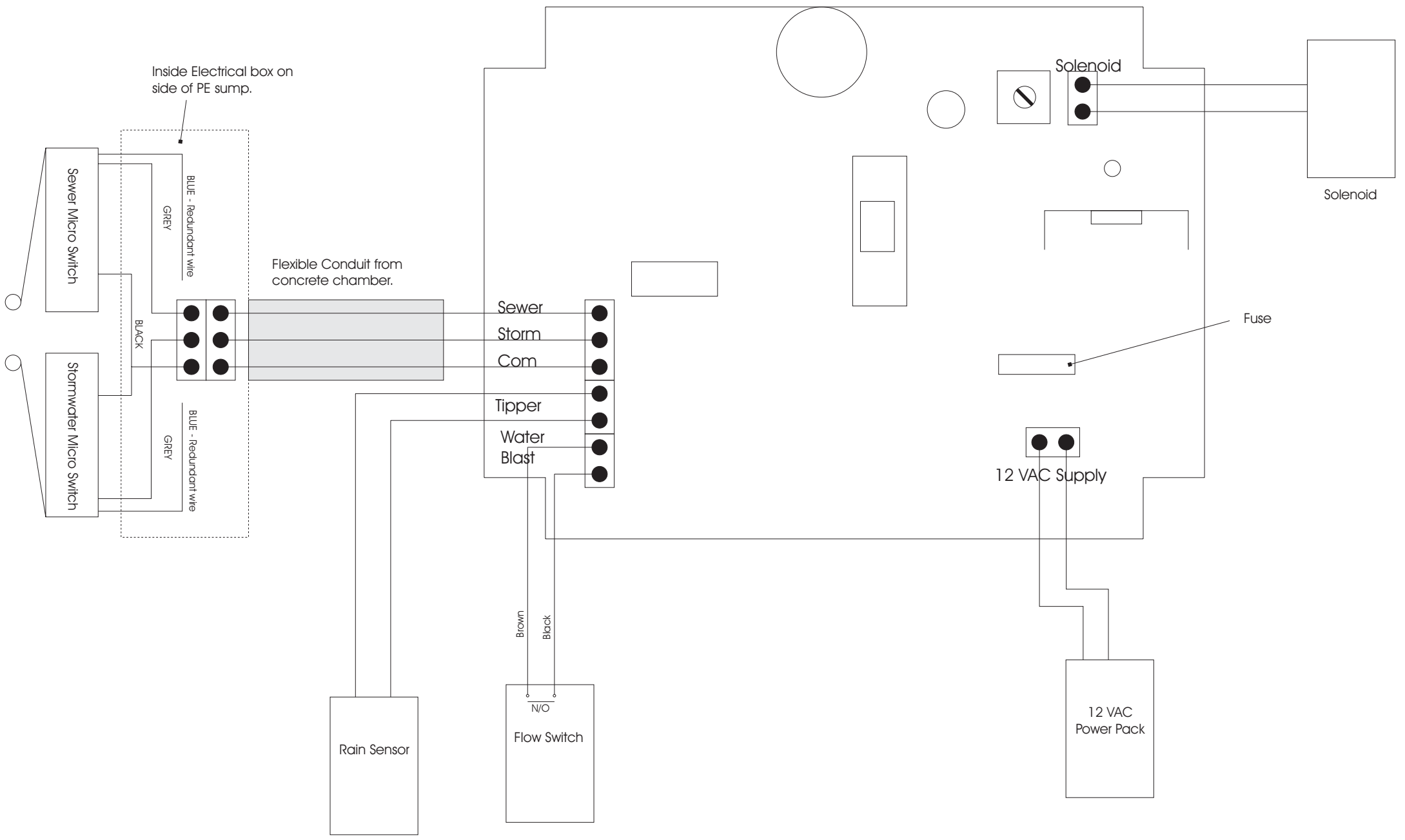
- Clean Out of Unit
- Electrical Checkup
- Full test run of the system

SECTION 3: TROUBLE SHOOTING

Problem	Possible Cause	Possible Solution
Valve doesn't shut off sewer outlet when weather sensor activated.	Water pressure in flow switch line is greater than 8 bar leaving flow switch activated.	Place a pressure-reducing valve prior to flow switch.
	Grit or solids are caught in the flow switch leaving the flow switch activated.	Clean the switch and blow out line. If necessary place a strainer upstream of switch.
	Pipe protruding too far into flow switch.	Cut off excess pipe at flow switch. There should be no more than 5mm of pipe protruding from Olive. (Not Applicable to Kelco C20-BCB)
	Hydraulic ram not receiving sufficient water pressure.	Ensure the solenoid valve's water supply is on and there are no blockages. Ensure the water supply pressure is above 300 kPa.
Valve doesn't close stormwater outlet when wash down hose is used.	Water flow isn't high enough.	There must be 3-6 l/min of flow to activated flow switch.
Stormwater LED activated when in Sewer mode.	Micro switch wired the wrong way around in control panel.	Referring to wire diagram swap the stormwater and sewer line around (STM and SEW).
Alarm activated.	Valve stuck between stormwater and sewer outlet.	Inspect valve to ensure no debris is obstructing the movement. Check valve has full, unimpeded movement. Check micro switches on valve
	Micro switches too far away from valve's open positions.	Using a Allen key loosen problem micro switch and move to more suitable position and secure.
Alarm activates when valve is closed.	The micro switches in sump are not close enough to fully extended valve and thus not registering closed.	Activate valve and move micro switches closer to valve and ensure micro switch is fully closed. An Allen key is required for this.
Valve doesn't close completely.	Mains water pressure isn't high enough to close valve.	Increase water pressure.
	Debris or similar obstructing valve	Remove debris and clean around valve.
Valve appears to be in wrong position	The micro-switch was wire incorrectly –	Swap the sewer and stormwater lines over.
	The valve was installed the wrong way around.	Contact Hynds Environmental. The valve may be able to be physically changed.
Flow switch isn't picking up flow from hose	Not enough flow going through flow switch to activate switch	Under the blue cover of the flow switch, (cover needs to be removed) there is a small screw (require Allen key) that decreases the sensitivity of the flow switch. Turn until the flow switch can sense the flow this. (Not Applicable to Kelco C20-BCB)

HEAVY DUTY ENVIRO-VALVE SCHEMATIC





If dimension unknown, please ask.

	TITLE Hynds Heavy Duty Enviro-Valve Electrical Drawing			SCALE	NTS	DATE DRWN	06/04/06	DRWN by	A. PERCIVAL
	PROJECT			DRWG#		DATE CHKD		CHKD by	
CLIENT			SHEET#		CODE	GD	AMENDMENT	DATE	Revision No.
			SERIES		STORAGE				RO