

Technical Support Sheet

Specifications and Installation Manual

Hynds Enviro-Valve

Specifications

Housing Components

Concrete Housing Chambers

1050 x 600H Hyseal concrete chamber with a heavy duty Hyseal concrete lid (1050 x 175mm thick) made to HN-HO-72 loading. The water and electric signal supply to the internal valve is supplied through 2 x 30mm holes on the wall of the concrete chamber. The housing chamber weighs 1.73 tonne.

The lid contains a Ø600 entry for access to valve components. The lid weighs 0.595 tonne.

Frame and Cover

Heavy duty Ø600 Ductile Iron frame and cover for manhole access to the Enviro-Valve components. Designed for heavy traffic loading.

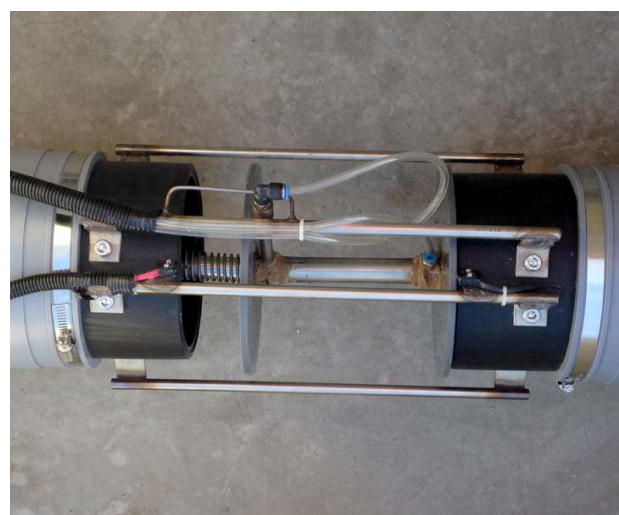
Internal Components

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.

Electronic Components

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



Rain Sensor

The rain sensor (Fig. 2) 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.

Enviro-Valve Actuator (Solenoid)

The Hynds Enviro-Valve is controlled by the rain sensor, flow switch and the control panel. The solenoid valve (Fig. 1) is used to activate the ram and divert the discharge to the required outlet (water mains pressure (300 kPa) required).

The solenoid valve has an inlet from the main water supply, an outlet to the Enviro-Valve, along with a bleed outlet which should drain to an appropriate location.

Control Panel

The control unit (Fig. 3) 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 (default), Stormwater, Power, Fault
- Manual / auto switch
- Fault Time-Out 5 min
- Alarm: 85 db @ 4.4 kHz

Water Flow Switch

The water flow switch (Fig. 4) 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 enclosure is rated to IP54.

- Product Code: C15-B-C-B
- Dry Reed Contact Switch
- Maximum operating flow: 30 l/min
- Maximum operating temperature: 90 C
- Maximum switched voltage: 240 VAC
- Maximum switched current: 1Amp AC (resistive load)
- Inlet thread connection size: ½" BSP
- Outlet Thread connection size: ½" BSP Female



FIG. 3 Enviro-Valve Actuator (Solenoid)



FIG. 1 Rain Sensor



FIG. 2 Control Panel



FIG. 4 Flow Switch

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, with a new sediment chamber or treatment systems or retrofit in series with existing sediment chambers or treatment systems.

You will need:

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

Installation Guide

1. The default position of the valve is to set to be open to the sewer connection.
2. Mount the main control box on a wall, preferably inside a building or alternatively installed in a casing where it is protected from rain.

The main control panel is connected to the micro switch box inside the concrete manhole using a 3 core, 0.5mm cable.
3. 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 through the flow switch should be free of solids particles exceeding 50 microns. The use of an appropriate upstream strainer is recommended.

The solenoid valve is connected to the main control box using a 2 core, 1mm cable. A 15 mm brass wall elbow is fitted inside the concrete chamber to connect water supply from outlet of the solenoid valve and then from the solenoid valve to the water mains supply.

4. Mount the Weather Sensor Unit at the highest point on the outside of the building. Ensure that the sensor is positioned where it will be fully exposed to any rainfall (360°). Connect the cable from the Weather Sensor to the Main control Box.

Notes:

- Ensure that all water lines have been flushed before connection to the Hynds "Enviro-Valve"
- The Enviro-Valve requires a receiving chamber up front (such as cesspit) of the Enviro-Valve chamber.
- The chamber up front should be monitored regularly to ensure it is free of obstructions and sediment build up. (refer to service provider)
- The Installer needs to also check that the micro switches in the unit are connecting with the P.E. Faceplate, all is pre fixed in place but make sure face plates are free of any construction material.
- The water pressure at the Enviro-Valve's hydraulic ram must be at least 300 kPa.

System Maintenance

Hynds Environmental recommends a full service to be completed yearly (depends on usage and sediment accumulation).

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

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 the Olive Seal. (Not Applicable to Kelco C15-B-C-B)
	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 activate 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.
Alarm activates when valve is closed.	The micro switches on the valve are not close enough to fully extended valve and thus not registering closed.	Activate valve and move micro switches lever arm could be bent to close to the main body. Gently extend to give you extra leverage.
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.	Note: Sewer is default as open, undo pipe clips on rubber couplers, undo 2 x Alan key bolts on the Micro switch bar then rotate valve system. Repeat the above in reverse order to secure.
Flow switch isn't picking up flow from hose.	Not enough flow going through flow switch to activate switch.	Under the 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.

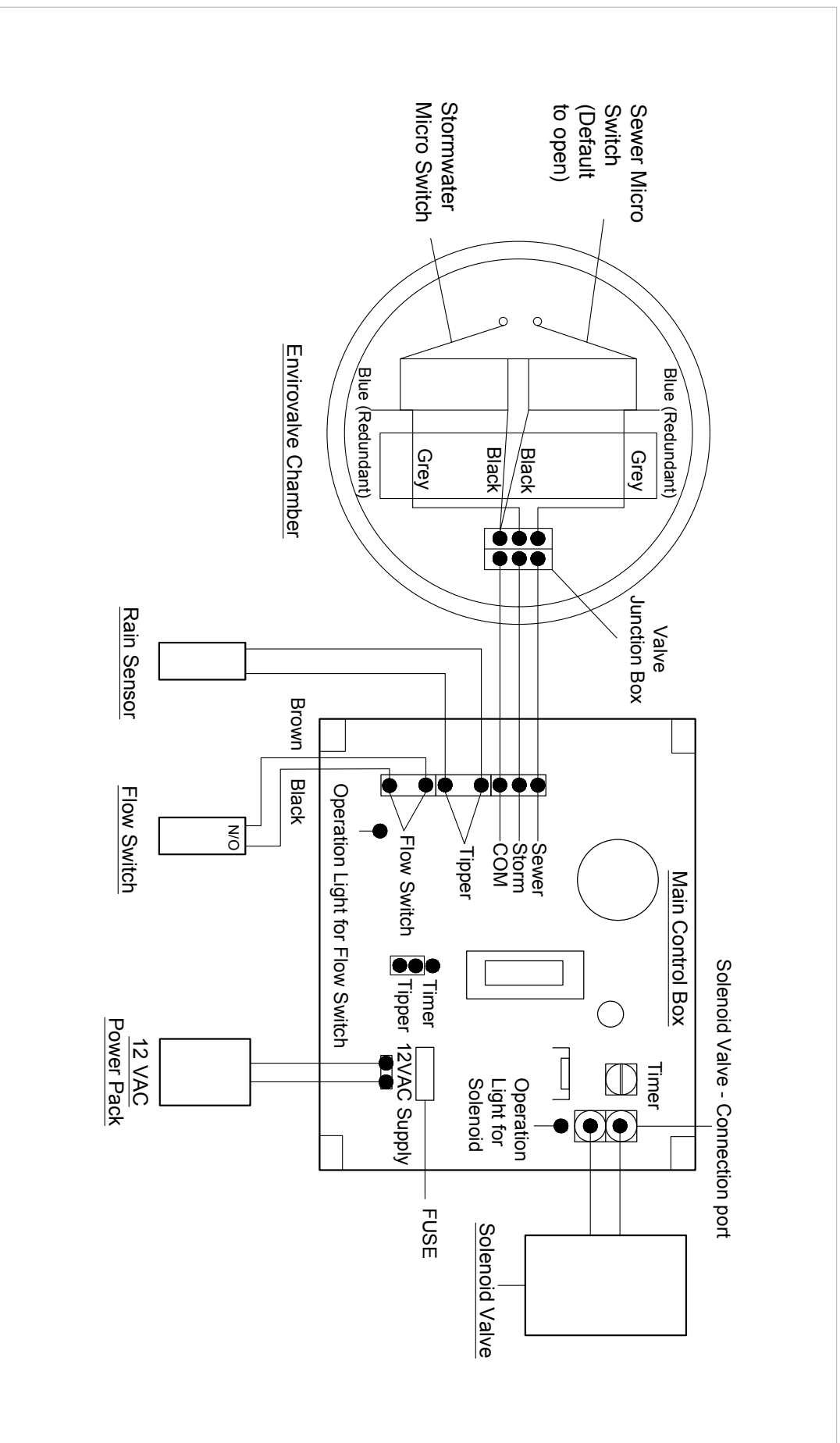
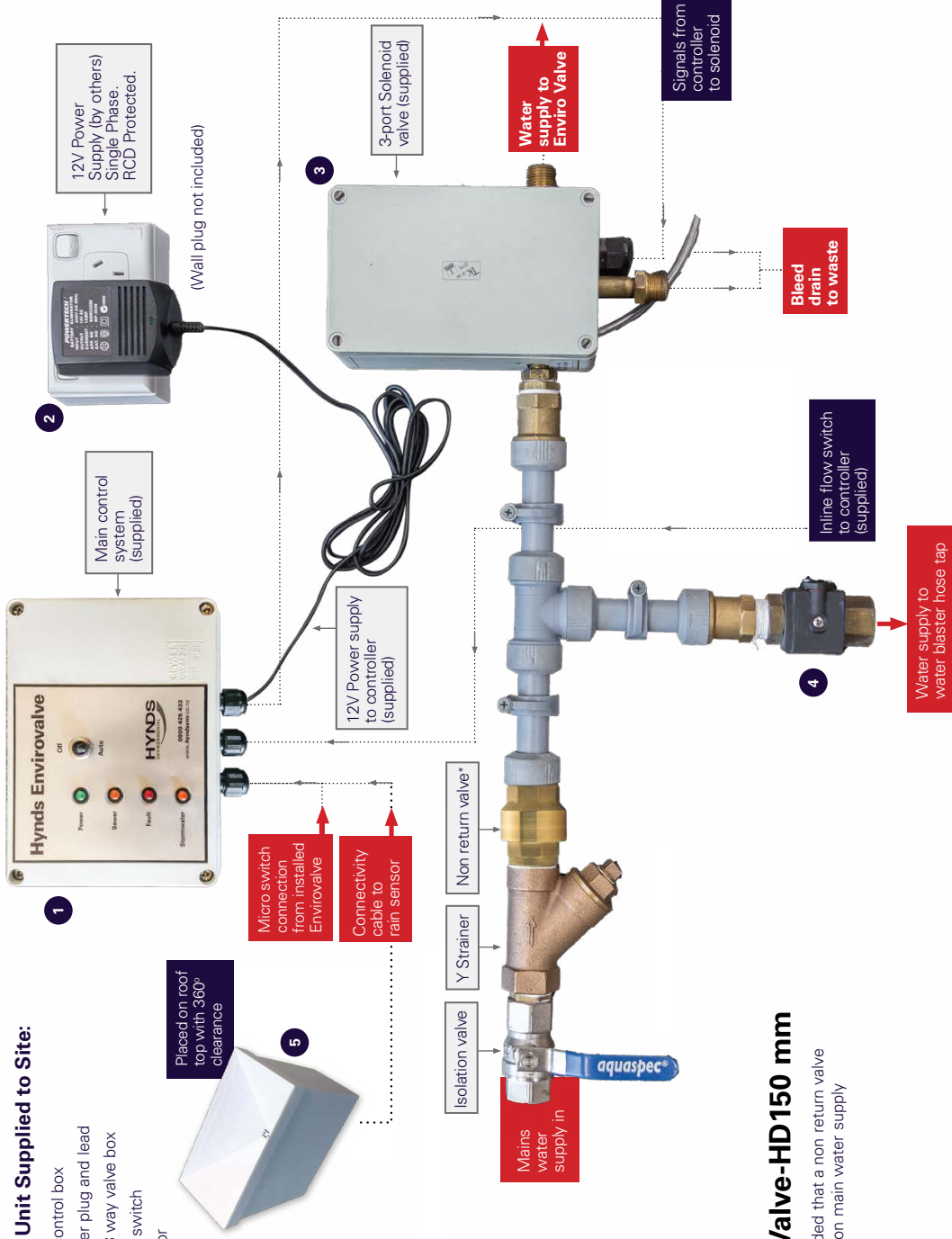


FIG. 5 Electrical Specification

Controller Unit Supplied to Site:

- 1 Maintain control box
- 2 Transformer plug and lead
- 3 Solenoid 3 way valve box
- 4 Inline flow switch
- 5 Rain sensor



Enviro Valve-HD150 mm

*Recommended that a non return valve be installed on main water supply

FIG. 6 Recommended System Layout



