SAINT IGNATIUS SENIOR SCHOOL

27 PENINSULA DRIVE, DRYSDALE

HYDRAULIC SERVICES

DRAWING INDEX

ALL PURPOSE PUMPS - RAINWATER REUSE PRESSURE PUMP SYSTEM
All Purpose Pumps - Hysave Packaged Rainwater Pressure Pump System Model 1 L/SEC 855017 mounted onto a common galvanised steel skid base, and with:

PUMP MODEL PHMS4-60 Horizontal multistage pump, with:
- 1.1kW, 6.9 Amps -240 Volt, single phase motor.

AUTOMATIC Judo automatic screen filter, with:
- 100 micron filtration.
- Stainless steel screen with hygienic anti bacterial silver coating.
- Low waste, point rotation suction scanning screen cleaning cycle.
- Uninterrupted water flow during cleaning cycle.
- Adjustable cleaning cycle intervals.
- Voltage free (BMS) fault alarm indicator.

MANIFOLD: 25mm pump discharge manifold, with:
- Isolation and non-return valves.
- Pressure gauge.
- Pressure switch.
- Pressure accumulator tank.
- Mains water back-up solenoid control valve.
- Main water backflow protection high hazard rating.

CONTROLS: Hysave pressure pump level interlock controller, with:
- Mains isolator switch.
- Motor thermal overload protection.
- DOL pump starter.
- Automatic mains water supply changeover activated on low tank level, power failure, or pump fault.
- Individual indicator lights for power on, rainwater use, mains water use, and pump fault.
- Storage tank 24 Volt low level sensing float switch.

Provide and supply an anti tamper Weather Proof Cover

RAINWATER REUSE SYSTEM

6 MAINTENANCE

In normal operation, the maintenance schedule for the Rainwater Reuse System is:

Filters, pressure accumulator	3 – 6 months
Other equipment	6 – 12 months

The maintenance of your Rainwater Reuse System will vary with every installation and the actual service intervals will need to be determined once the unit is in operation. Under severe conditions the System may need to be checked as often as weekly.

When performing a service, the following should be checked:

6.1 Manual Filters
1. Remove and clean filter screen
2. Check screen for damage or deterioration. Replace if necessary
3. Replace screen annually.

6.2 Automatic Filters
1. Press manual backwash button if provided.
2. Remove and clean cartridges.
3. Check cartridges for damage or deterioration. Replace if necessary
4. Replace cartridges annually.

6.3 Pressure Accumulator
1. Check pre-charge air pressure and adjust accordingly.
2. For pressure controlled or pressure switch controlled systems, the air pressure is to be 10% below cut in pressure.
3. For variable speed systems, the air pressure is to be 30% below pump cut in pressure.

6.4 Pumps
1. Check the motor insulation resistance
2. Check the motor current draw
3. Check operation by opening and closing a tap up stream of the unit.
4. Check for excessive bearing noise
5. Inspect submersible cable for damage or wear. (submersible pumps only)

6.5 Controller
1. The controller should be cleaned externally to remove build-up of dust.
2. The controller should be kept dry at all times. Inspect for any moisture ingress.
3. Check for correct operation of any visual/audible alarms.
4. Check pressure settings on Pressure Pump Controller (pressure controlled systems only).

6.6 UV Sterilisation
1. Check site glass to ensure lamp is operating.
2. Clean quartz sleeve.
3. Check run timer for remaining hours. Replace when hours fall to zero.

RAINWATER REUSE SYSTEM

6.7 Valves & pipe-work
1. Check for satisfactory operation of check valves and isolation valves.
2. Check pipe work for damage or leaks.

6.8 Level Float Switch
1. Clean level float switch.
2. Inspect cable for damage or deterioration.
3. Check level set points and adjust if necessary.

6.9 Ancillary Equipment
1. Consult ancillary equipment manuals for any additional maintenance procedures.

RAINWATER REUSE SYSTEM

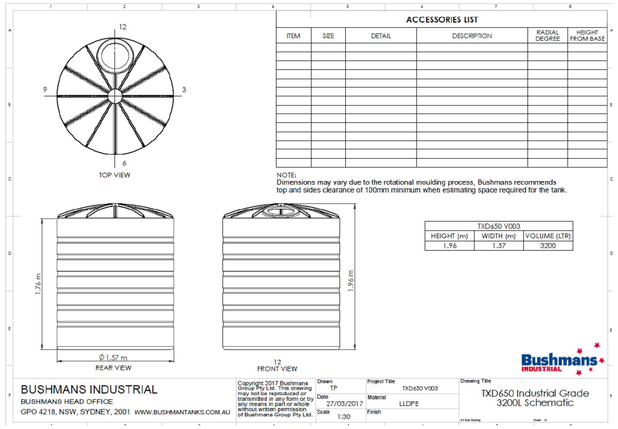
7 FAULT FINDING

Read and understand the safety and operating instructions in this manual before undertaking any work on a pump.

WARNING: Before removing equipment for service, always isolate the electrical power, live services and pressure sources. The system has the potential to store water pressure even when turned off.

Only qualified trade personnel should electrically test the pump motors and controller.

Symptom	Possible Cause	Corrective Action
System does not run	No power supply to unit	Turn on or reconnect supply
	Pump power lead or float switch not plugged into controller	Ensure power and float cables are plugged into power outlets on the underside of the controller
	Loose electrical connections	Check & tighten connections
	Water level below low level float switch	Add water to storage tank Check level of float switch
System trips circuit breaker or thermal overload after short period of operation	Blockage in pump	Remove blockage and clean tanks if necessary
	Overload setting is incorrect	Adjust setting
	Electrical supply is not sufficient	Investigate and rectify supply
System runs but does not deliver water	Isolation valve shut	Check that all valves up and down stream of unit are open
	Air in suction line or pump	Remove high points in suction line. Re-prime suction line and pump
	Leak in suction line	Inspect and repair leaks
	Suction line is not installed correctly	Check suction conditions
	Filters are blocked	Clean filters. Replace filter element if necessary.
	Leak in discharge pipe-work	Inspect and repair leak.
System runs but capacity is not constant	Suction pipe is too small for capacity of system	Replace suction line or restrict pump discharge flow
	Insufficient water is available at the pump inlet	Check suction conditions
	Water level is too low	Check suction conditions
	Suction side is partially blocked	Remove blockage and clean tanks if necessary
Pump starts and stops too frequently	Pressure switch setting is incorrect	Check setting and adjust if necessary
	Tank pre-charge pressure is incorrect	Ensure pressure is correct
	Check valve in suction line is not seating correctly	Clean or replace valve
Pump run continuously	Pump not achieving pre-set stop pressure setting	Remove high points in suction line. Re-prime suction line and pump
		Pressure test suction line and pump
		Check suction conditions
		Clean filters. Replace filter element if necessary
		Repair leak in discharge line



Use and Service of the Tank

- We recommend that you hydro test (water test) your tank system for 24 hours before introduction of chemicals. This verifies that no damage has occurred to fittings during transport and final installation on site. If necessary, remove all test water to prevent reaction with chemical stored.
- Follow chemical manufacture's "best practices" for product being stored.
- Confirm compatibility of tank, fittings, and gaskets for chemical to be stored before permanent installation. If necessary test the tank, fitting, and gasket materials of construction for compatibility with the specific chemical application.
- Obtain, utilise and retain Material Safety Data Sheets (MSDS) for the chemical to be stored.
- Do not change chemical being stored unless certain there will be no hazardous chemical reaction.
- Fill vertical tanks only to top of sidewall
- Prevent over pressurisation of tank during pneumatic or mechanical filling.
- Prevent excessive heat near or inside the tank. Polyethylene tanks are designed to store liquids at continuous service temperature of 23C, with maximum liquid temperature not to exceed 40C.
- Maintain secondary containment of proper size and chemical resistance to comply with local, state, and National regulations. Protect personnel from possible chemical release.
- Maintain guards, shields, barriers, and walkways to protect tank, fittings, and piping from damage by impact and to protect personnel from chemical release.
- Label tank with the appropriate warning label for the particular chemical to be stored. Do not remove Bushmans general warning labels. Replace damaged or illegible labels immediately.
- Keep vents and vent lines clear of obstructions to prevent pressure or vacuum.
- Service fume scrubber systems (if used) to prevent tank over pressurisation.
- Accessory items are HEAVY. Use adequate equipment and properly trained personnel when servicing internal fittings and other external accessories.
- DO NOT STAND OR WORK ON TOP OF TANK. The tank surfaces are flexible and slippery and a dangerous fall could occur. Remember – Safety First
- Tanks are confined spaces. Follow proper entry procedures. Establish an adequate retrieval plan.
- Conduct annual inspections of tank. Refer Bushmans inspection guide. Look for and address stress cracking, especially on interior surface, worn or leaking fittings and flexible connections, leaking or poorly working valves, restricted vent lines, and needed repairs to other accessories.

WARNING: Failure to adequately support tank, fittings, valves, piping, and hoses and to protect them from impact can cause chemical release resulting in serious injury or death.

Annual Chemical Tank Inspection Checklist

WARNING: Failure to follow these inspection guidelines and take necessary corrective actions can result in unintended chemical release.

Even relatively new polyethylene tanks should receive routine and careful visual inspections. These inspection guidelines should be followed at least annually to ensure the safety of personnel and the preservation of the chemical stored. **The tank should be replaced if it displays stress cracking, crazing, or embrittlement.**

- Empty the tank. Neutralized any chemical remaining. Thoroughly clean the exterior of the tank.
- When a confined space entry is possible, thoroughly clean the interior of the tank.
- A dirty tank cannot be properly inspected.
- Examine the exterior and the interior of the tank for cracking, crazing, and brittle appearance.
- Pay particular attention to areas around any fittings. Give special attention to "corners" where sidewall and roof meet and where sidewall and bottom floor meet.
- If confined space entry is not feasible, use a bright light source to inspect the tank interior from the manhole opening. An interior inspection is essential because stress cracks normally show up on the *inside* of a tank before appearing on the outside.
- DO NOT STAND OR WORK ON TOP OF TANK. The tank surfaces are flexible and slippery and a dangerous fall could occur. Remember – Safety First
- Don't forget to inspect areas of the tank that never actually come in contact with the chemical stored. With fume-emitting chemicals, oxidation and the embrittlement of the roof can occur without any actual contact with the chemical stored.
- Inspect fittings, sight glass connections, flexible couplings, flexible connection hoses, and gaskets for leaks and signs of general corrosion or deterioration.
- Inspect vents to ensure adequate venting for pressure and vacuum.
- Confirm that filling of the tank via the fixed fill port does not cause over pressurisation within the tank.
- Confirm secondary containment bund is appropriate for chemical stored and has been maintained in good condition.

WARNINGS:

Chemical fumes may be present in the area of the manhole opening.

A tank is a confined space. Do not enter any tank without Confined Spaoe Entry training and a permit.

Use lift equipment and/or fall protection to prevent fall into or away from tank.

Do not stand or work on top of tank. Roof surfaces can be flexible and slippery. If the tank has had long term sunlight exposure and/or internal oxidisation attack the roof may be embritled and a failure of the roof could occur with the weight of a person standing on the roof.

REV	AMENDMENTS	DATE
TP1	TOWN PLANNING ISSUE	21.06.21

CLIENT

BUILDER

PRELIMINARY ISSUE

CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING ANY WORK OR MAKING ANY SHOP DRAWING. FIGURED DIMENSIONS TO BE USED IN PREFERENCE TO SCALED DRAWINGS.

mja consulting engineers
Suite 14, 70 Racecourse Rd, North Melbourne, Vic, 3051
Telephone: (03) 9329-4644 Mobile (043) 337-1252
nuwan@mjaengineers.com.au

PROJECT
SAINT IGNATIUS SENIOR SCHOOL
27 PENINSULA DRIVE, DRYSDALE

DRAWING
HYDRAULIC SERVICES
COVER SHEET , PUMP AND TANK SPECIFICATION AND MAINTENANCE SCHEDULES

SHEET SIZE	A1
SCALE	1:100 @ A1
DESIGNED	FC
DRAWN	FC
JOB REF	2025
DRAWING No	H01 OF 2
REV	TP1

A1 0 5m 10m 15m 20m 25m 30m 35m 40m 45m 50m

REFER TO GROUND FLOOR SOUTH

150ø @ 1:100 (FLOODED SYSTEM)

150ø DP F/A TO CIVIL STORMWATER (3 L/S)

150ø @ 1:100 (FLOODED SYSTEM)

150ø DP F/A TO CIVIL STORMWATER (3 L/S)

150ø @ 1:100

100ø DP F/A (1 L/S)

150ø DP F/A (7 L/S)

150ø DP F/A TO CIVIL STORMWATER (14L/S)

150ø O/F F/A TO DISCHARGE TO ATMOSPHERE @ LOW LEVEL ABOVE GRASS (19.4 l/s)

150ø @ 1:100 (FLOODED SYSTEM)

GROUND FLOOR TERRACE DRAINAGE BY CIVIL CONTRACTOR

150ø DP F/A (9L/S)

150ø DP F/A (4.5L/S)

150ø @ 1:100

225ø @ 1:200

150ø DP F/A (22L/S)

GROUND FLOOR PLANTER BOX DRAINAGE BY CIVIL CONTRACTOR

225ø @ 1:200 (FLOODED SYSTEM)

150ø DP F/A (3.5L/S)

GROUND FLOOR PLANTER BOX DRAINAGE BY CIVIL CONTRACTOR

225ø @ 1:200 (FLOODED SYSTEM)

150ø DP F/A (5L/S)

150ø DP F/A (3L/S)

GROUND FLOOR TERRACE DRAINAGE BY CIVIL CONTRACTOR

150ø DP F/A (5L/S)

GROUND FLOOR PLANTER BOX DRAINAGE BY CIVIL CONTRACTOR

300ø @ 1:200 (FLOODED SYSTEM)

225ø @ 1:200 (FLOODED SYSTEM)

100ø DP F/A (2L/S)

GROUND FLOOR PLANTER BOX DRAINAGE BY CIVIL CONTRACTOR

150ø DP F/A (5L/S)

300ø @ 1:200 (FLOODED SYSTEM)

REFER TO RAIN WATER TANK SPECIFICATION ON SHEET H01

TYPICAL 100ø INTERCONNECTING PIPEWORK

7NO- 3200 LITRE RAINWATER TANKS TOTAL CAPACITY 22,400 LITRES

300ø INLET TO RAINWATER TANK

RE-USE PUMP

RWT1

300ø RISE AND OFFSET AT H/L

300ø INLET TO RAINWATER TANK

150ø DP F/A TO CIVIL STORMWATER (4L/S)

REFER TO GROUND FLOOR SOUTH

225ø @ 1:200 (FLOODED SYSTEM)

100ø DP F/A (1.5L/S)

RE-USE PUMP
REFER TO SPECIFICATION AND MAINTENANCE SCHEDULE

REV	AMENDMENTS	DATE
TP1	TOWN PLANNING ISSUE	21.06.21

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PROJECT
SAINT IGNATIUS SENIOR SCHOOL
27 PENINSULA DRIVE, DRYSDALE

DRAWING
HYDRAULIC SERVICES
PROPOSED DOWNPIPES AND RAIN WATER TANKS

SHEET SIZE	A1
SCALE	1:100 @ A1
DESIGNED	FC
DRAWN	FC
JOB REF	2025
DRAWING No	H02 OF 2
REV	TP1

A1 0 5m 10m 15m 20m 25m 30m 35m 40m 45m 50m