

Installation and Operating Guidelines

MAGNA360PROTWIN™



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1.0 Product Summary

The Magna360Pro Twin™ is a fully automatic pumping station specifically designed for pumping both foul and/or storm water when gravity drainage is not possible or economical to install.

The system is suitable for installing either at the initial building stage or for retrofitting to existing buildings.

The system consists of a tank, locking access cover, internal pipework and fittings, control panel, float switches and two submersible pumps.

The Magna360Pro Twin is easy to install as inlets can be positioned to your requirements (inlet information to be supplied at time of order).

2.0 Installation Guidelines

It is important to note that these instructions are for guidance only and it is the installer's responsibility to satisfy them self that the installation procedure is in accordance with the prevailing ground conditions and good building practice, to eliminate any potential damage to the pumping station either during or after installation. The installer should also satisfy them self that the system can be installed in conjunction with these guidelines, prior to work commencing.

The tank is manufactured from polyethylene and as such is extremely robust. However, as with any preformed tank they are susceptible to floatation and hydrostatic pressures exerted in high water table conditions therefore must always be supported by a concrete base and surround.

Please read these instructions in full, prior to commencement of the installation. If you are unsure on any point then ask for advice before proceeding. Our technical help desk is available on 0845 4006666 from 8.30am – 5.30pm, Monday to Friday

1. Select a suitable location for the pumping station. Where possible, installation of a pumping station in a roadway should be avoided due to the need for periodic maintenance of the pumps contained therein. If the location is adjacent to a roadway, the installation method should take account of the imposed loads likely to be transmitted to the tank by traffic etc.
2. Excavate the minimum opening in the ground to receive the tank and external connections (please refer to section 6.0 'Dimensions'). It is the installer's responsibility to measure the tank before sizing the excavation. If a machine is used to remove the spoil, the sides of the excavation should be battened for stability. Where ground water is present in the excavation you must make a provision for a sump in one corner for dewatering purposes.
3. The tank is only suitable for installations to a maximum of 300mm deeper than supplied from finished cover level, i.e. maximum 300mm slab.
4. Where ground water is present in the excavation, de-watering must be undertaken throughout the installation procedure and until the backfill has completely set.
5. Simply lay clean hardcore to the base of the excavation ensuring that it is consolidated to a thickness of 200mm, then lay a mass concrete (minimum grade 25) to a thickness adequate for the ground conditions (minimum 150mm), on top of the hardcore.

6. Carefully position the tank onto the WET concrete base ensuring that no loose debris is inadvertently knocked onto the base, under the tank during this procedure. Position it such that the inlet and outlet pipework is correctly aligned.
7. Once the tank is positioned connect the 110mm cable duct, 110mm vent duct (if applicable) and incoming pipe/s to the tank via the fittings supplied. The discharge pipework can then be connected via the fitting supplied (please refer to section 5.0 'Technical Specifications' for the discharge size). We recommend that all discharge pipework be black MDPE or HDPE pipe.
8. The vent duct (if applicable) should be vented to atmosphere, (no durgo valve) to be used. This is applicable when the incoming waste is not vented to atmosphere.
9. The tank MUST be ballasted with water at the same rate as backfilling such that the level difference between the water and backfill does not exceed 300mm at any time.
10. Whilst the concrete base is still WET pour a mass concrete surround to a thickness adequate for the ground conditions (minimum 150mm) and to a height of 600mm from the concrete base using minimum grade 25 concrete. The concrete must be evenly poured around the tank ensuring that no voids are left within the concrete. Care must be taken to ensure that any pipes (or other connections) made, are not damaged. During the concrete pour, ensure that the tank is vertical (by use of a spirit level across the tank's opening). Additionally, ensure that the tank is at the correct depth level. Allow this concrete 'anchor' to set.

DO NOT REMOVE THE WATER FROM THE TANK.

11. In dry stable ground conditions where the water table will never rise above the base slab, we recommend to backfill the remaining excavated surround using a dry lean mix concrete to a thickness adequate for the ground conditions (minimum 150mm). Ensure that the backfill is consolidated and supports the connections.

In wet unstable ground conditions or conditions where traffic may pass within 3 metres of the tank, we recommend to backfill the remaining excavated surround using a mass concrete mix minimum grade 25 to a thickness adequate for the ground conditions (minimum 150mm).

In both dry and wet conditions it is essential that the tank remains level at all times, and the concrete must be evenly poured around the tank, and must not exceed 300mm between the water and backfill at any time.

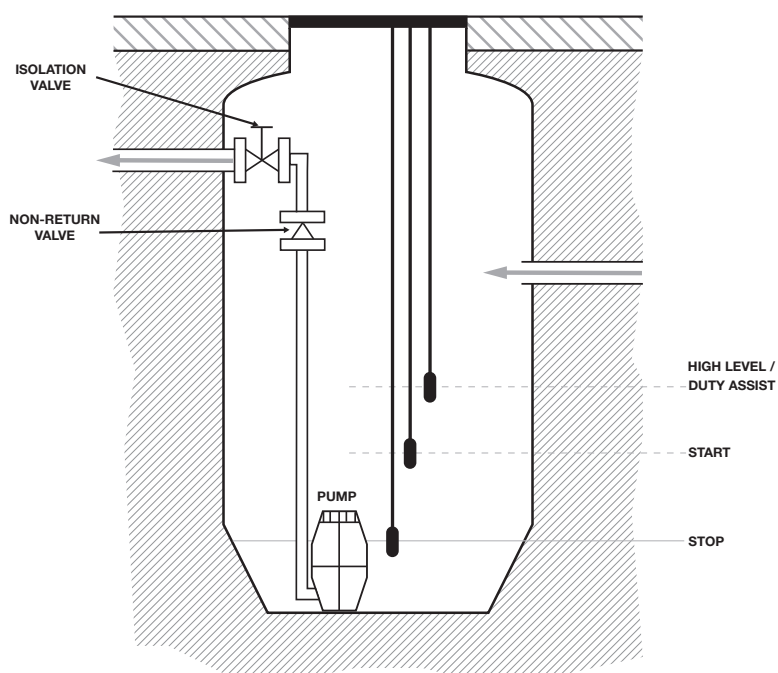
THE BALLAST WATER INSIDE THE TANK SHOULD NOT BE REMOVED UNTIL THE BACKFILL HAS FULLY SET.

12. The system is supplied as standard with a pedestrian duty access cover fitted onto the top of the access shaft such that the tank should be installed with the cover flush with finished ground level.
13. In a roadway application, the tank should be installed with the top of the access shaft 300mm below the finished cover level ensuring that the slab is supported by consolidated backfill. A suitable rated cover and frame are to be bedded into the reinforced cover slab (to be specified at time of order), such that it does not bear on undisturbed ground around the excavation and not directly onto the tank, to allow imposed loads to be deflected away from the tank. Design of the cover slab is the responsibility of the installer/structural engineer.

14. The control panel housing 'KIOSK' (if applicable) must be sited adjacent to the tank on a suitably sized concrete plinth complete with cable ducts for the cabling from the tank and the incoming power supply. If the control panel is not to be sited adjacent to the tank we must be advised at time of ordering so that we can make recommendation as to the cabling required.
 15. It is extremely important that once the tank has been installed and water drained that all sand, silt, rubble and general debris is removed from the tank. **FAILURE TO DO THIS WILL INVALIDATE THE WARRANTY ON THE PUMPS.** Partly refill the tank with clean water for testing the system upon commissioning, and to facilitate a flush-through of the discharge pipe.
 16. Install the pumps and float switches (see section 3.0 'Float Configuration') and draw these cables through the 110mm cable duct back to the control panel location.
 17. Mount the control panel within the desired location.
 18. Provide a suitable electrical connection (as per technical specifications), this is to be isolated and adjacent to the now positioned control panel.
 19. Make the final electrical connections (as per the control panel wiring diagrams – found within control panel).
- A QUALIFIED ELECTRICIAN MUST CARRY OUT ALL ELECTRICAL CONNECTIONS.**
20. Commission the pumping station. A commissioning service is available, simply contact us on 0845 4006666 for further information.

3.0 Float Configuration

The control panel is designed to operate from 3 float switches, which are as follows: Stop, Pump Start, and High Level/Duty Assist.



STOP FLOAT

The Stop float controls the level at which the pumps turn off. It also needs to be in the On position for the pumps to start.

START FLOAT

The Start float controls the level at which the duty pump will activate. The Start float and Stop float both need to be in the On position for the duty pump to start.

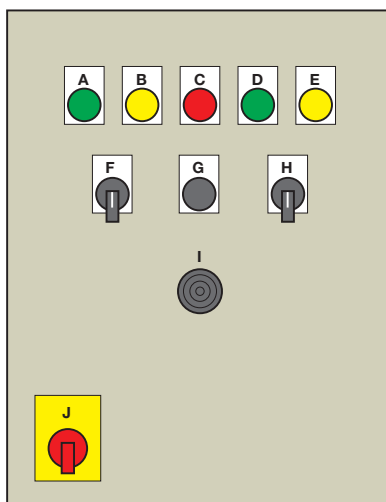
HIGH LEVEL/DUTY ASSIST FLOAT

The High Level float will activate the alarm/beacon on the control panel should the level inside the tank continue to rise due to a pump failure or the volume of waste water exceeds the discharge capability of the pumps. This float switch will also activate the standby pump should the duty pump fail or if the level inside the tank continues to rise even after the duty pump has activated.

IMPORTANT INFORMATION

- The Stop float should be positioned approximately 100mm above the intake of the pumps.
- The Start float should be positioned to activate approximately 150mm below the High Level/Duty Assist float.
- The High Level float should be positioned to activate just above the inlet level of the incoming pipework.

4.0 Control Panel Operation



A. Pump 1 Running Indicator. When lit this signifies that pump 1 is in operation.

B. Pump 1 Tripped Indicator. When lit this signifies that there is a problem with pump 1 causing the overload relay within the panel to trip.

C. High Level Indicator. When lit this signifies that there is a high level situation within the tank.

D. Pump 2 Running Indicator. When lit this signifies that pump 2 is in operation.

E. Pump 2 Tripped Indicator. When lit this signifies that there is a problem with pump 2 causing the overload relay within the panel to trip.

F. Pump 1 Control Switch. This switch controls the operation of Pump 1. It has 3 settings:

HAND This will run the pump without the use of the float switches.

OFF This will remove all power to the pump for maintenance and break downs to prevent any further damage to the pump.

AUTO This will run the pump according to the float switches within the tank. This is the setting for normal operation.

G. Alarm Mute Button. This button will silence the audio alarm should there be a high level situation within the tank.

H. Pump 2 Control Switch. This switch controls the operation of Pump 2. It has 3 settings:

HAND This will run the pump without the use of the float switches.

OFF This will remove all power to the pump for maintenance and break downs to prevent any further damage to the pump.

AUTO This will run the pump according to the float switches within the tank. This is the setting for normal operation.

I. High Level Alarm. This is the audio alarm that will sound if there is a high level situation within the tank.

J. Mains Isolator Switch. This switch controls the main electrical supply to the unit.

IMPORTANT INFORMATION

- Never leave a pump running on manual unattended, this can lead to the pump taking in air, which will cause an air lock within the pipework or may lead to permanent damage to the pump.
- Should a Pump Tripped Indicator become lit it is advised that the Pump Control Switch be put into the OFF position to prevent any potential damage to the pump and contact the technical helpdesk on 0845 4006666 for further advice.

5.0 Technical Specifications

Power Supply	230V AC
Rated Current	5.1A per pump
Motor Rating	750W
Frequency	50Hz
Revolutions per Minute	2850rpm
Max. Vertical Output	12.5m
Max. Horizontal Output	150m
Max. Flow Rate	450l/min
Max. Liquid Temperature	<40°C
Discharge Size	63mm OD
Cable Length	10m
Weight	115Kg
Colour	White

6.0 Dimensions

Diameter	850mm
Height	1250mm

Add 150mm for external dimensions.

7.0 Parts List

Qty	Product Name	Part Number
1	Tank	9400
1	Access Cover 600 x 450mm (Locking)	2138
2	Pump	3060
2	Non-return Valve	9067
1	Gate Valve	9070
2	110mm Rubber Wall Seal	8001
1	MDPE Compression Fitting	3094
3	Float Switch	3107
1	Dual Pump Control Panel	3002

8.0 Accessories

Product	Product Code
63mm OD MDPE Pipework (25m Coil)	3081
63mm OD MDPE Pipework (50m Coil)	3082
Access Cover 600 x 450mm Locking, Inlay	2903
Access Cover 600 x 450mm Locking, H/Duty	7070
110mm Rubber Wall Inlet	8001
Kiosk	1205

9.0 Wiring Diagrams

The wiring diagram can be found within the control panel.

10.0 Transport

Carefully unpack the product from its packaging and inspect for any signs of damage. Should there be any damage or parts missing this must be reported immediately (no claim will be considered after 24 hours from time of delivery).

11.0 Maintenance

IMPORTANT – Before carrying out any maintenance work the system should be completely disconnected from the mains, and measures should be taken to prevent the unit being inadvertently switched back on.

We recommend that the unit be inspected every three months. The inside of the tank should be inspected to ensure that the floats are clean and free of any build up of materials that may inhibit its operation. Hose down the interior of the tank, if necessary, to remove any build up of solid materials. Furthermore the bottom of the tank should be checked to make sure there is no debris or materials that could enter the pumps and cause damage.

IMPORTANT – The following items must not be disposed of via the pumping station:

- Any hard objects i.e. wood, metal, plastic etc.,
- Any fibrous materials such as cloths, baby wipes, rags, sanitary towels, nappies, tampons etc.,
- Or similar.

In addition we highly recommend that a service agreement be taken out, please refer to section 14.0 for further information.

12.0 Health and Safety

Please pay attention to the following regulations when installing the pumps or ask your qualified electrician/distributor.

Safety Precautions

In order to minimise the risk of accidents in connection with the service and installation work the following guidelines should be followed:

- Never work alone. Use a lifting harness, safety line and respirator as required. Do not ignore the risk of drowning.
- Make sure there are no poisonous gases within the work area.
- Check the explosion risk before welding or using electric hand tools.
- Do not ignore health hazards. Observe strict cleanliness.
- Bear in mind the risk of electrical accidents.

- Make sure that the lifting equipment is in good condition.
- Provide a suitable barrier around your work area, e.g. guard rail.
- Make sure you have a clear path of retreat
- Use a safety helmet, safety goggles and protective shoes.
- All personnel who work with sewage systems must be vaccinated against diseases to which they may be exposed.
- A first aid kit must be close to hand.
- Note that special rules apply to installations in an explosive atmosphere.

Electrical Connections

- The following works should only be done by qualified and authorized electricians.
- Edincare disclaims all responsibility for work done by untrained or/and unauthorized personnel.
- Heed operating voltage (see name plate and additional labels).
- Take out the main fuses to isolate the mains supply from the control unit before repairs or any other works and ensure it cannot be energized again.
- If the pumps are equipped with an automatic level control, there is a risk of a sudden restart.
- Before starting check the efficiency of the protective arrangements of the pump and the monitoring equipment. Failure to heed this warning may cause a lethal accident.
- Do not put the lead ends into water! Irruption of water may cause malfunctions.
- If persons are likely to come into physical contact with the pump or pumped media, the earthed (grounded) socket must have an additional connection to an earth (ground) fault protection device (GFI).
- Use the pumps only in accordance to the data stated on the pumps plate respectively.

Special rules apply to installations in explosive atmosphere. Intrinsically safe circuits (Exi) are normally required for the automatic level control system by level regulators.

- Connection only to a mains supply installed in accordance to the local regulations. For fusing of d.o.l. starting pumps use only slow fuses or automatic circuit breakers with D characteristics. This is because the motor's nominal voltage is measured at the terminal board of the pump; please consider the voltage drop of long supply cables.
- The motors of the three-phase AC pumps must be protected by a suitable overcurrent release. Adjustment as follows;
Direct start +10% of normal current
Star-delta start (nominal current x 0.58) + 10%
If the protective arrangement has triggered, eliminate the trouble.
- Replace the cable if the cable jacket is damaged. Do not pinch the cable or pull it around sharp bends.
- Always install the control unit in a dry and well-ventilated room above the backpressure level. Never install the control unit within the sump.

Earthing

For safety reasons, the earth conductor should be approximately 50mm (2") longer than the phase conductors. If the motor cable is jerked loose by mistake, the earth conductor should be the last conductor to come loose from the first terminal. This applies to both ends of the cable. Ensure the correct earthing of the pump and control unit.

13.0 Guarantee

12 month component Guarantee

If within the guarantee period of a product any defect is discovered in respect of workmanship, construction or material, we will make good the defect or replace the defective part at our expense inside normal working hours at the company's premises providing, written notice is given immediately the defect is discovered and that, if required by us, the part or complete unit is returned to the company's premises carriage paid. Spares or repaired parts are delivered ex works exclusive of fitting. The guarantee does not apply to defects caused by incorrect installation, abnormal conditions of working, accidents, misuse or neglect. Our responsibility is in all cases limited to the cost of making good the defect or replacing the defective part at the company's premises inside normal working hours. We exclude all liability for any consequential or other damage or losses which may occur. We will not be liable if the pumping system fails due to it having been incorrectly specified.

14.0 Service Agreement

All Edincare units are manufactured to the highest standard and we have every confidence the product will serve you well. However as with most appliances of this nature, regular maintenance is essential in ensuring your system operates at its optimum level and fulfils the expected life span.

Our Service Agreement scheme is available at competitive prices, and we will undertake to service equipment at regular intervals. We will supply you with a full report on the work done and the condition of the pumps and all related equipment each time our engineers attend site.

You can see significant benefits through:

- Reduced running costs including energy and maintenance
- Greater life expectancy for equipment
- Reduced risk of breakdown with its resultant problems and inconvenience
- Better plant utilisation
- Improved environmental conditions

Our Service Agreements consist of the following:

- Scheduled service visits per year
- Reduced hourly charges for un-scheduled call outs
- Fully trained service engineers

Should you require any further information please contact us on 0845 4006666.

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