

Trojan-Pro

Foul & Surface Water Pumping System

INTRODUCTION

The [Newton Trojan-Pro](#) is a medium sized sump chamber that thanks to a clever modular manufacturing process, is available in four sizes, ranging from 1.2m to 2.1m high, in increments of 300mm. Depending on the pumps used within the pumping system build, the Trojan-Pro chamber is suitable for a variety of pumping tasks, ranging from lifting sewage from basements as well as the removal of ground water and surface drainage.

NOTE: The Trojan-Pro data sheet should be used in conjunction with this Operating Manual. Pump Operating Manuals should also be consulted before commencing the installation of the pumping system. Details of the pumping systems built with the Newton Titan-Pro chamber are confirmed in the pages below. Operating Manuals are included within the pump packaging.

SELF-BUILD SYSTEMS

Bare Trojan-Pro chambers can be purchased ready to be built by the user.

Pumps, together with the correctly sized non-return valves, shut-off valves, uPVC pipe and pipe fittings, tank connector, control systems and alarms, as well as the preferred lid & frame, will need to be purchased to create a full pumping system. Please refer to the Trojan-Pro TDS for more information.

FULLY BUILT SYSTEMS - FOUL

2 x DAB FEKA VS 1000 - Manual Pumps		
DAB e.box Control Panel, Floats & Alarm		
Chamber Size	Rails or Free-Standing	Purchase Code
1.2 m	Free Standing	F1
1.2 m	Rails	F2
1.5 m	Free Standing	F3
1.5 m	Rails	F4
1.8 m	Rails	F5
2.1 m	Rails	F6

FULLY BUILT SYSTEMS - SURFACE & GROUND

Chamber Size	Pumps x 2	Auto or Manual	Rails or Free-Standing	Purchase Code
1.2 m	CP400	Auto	Free Standing	S1
1.2 m	CP400	Manual	Free Standing	S2
1.5 m	CP400	Auto	Free Standing	S3
1.5 m	CP400	Manual	Free Standing	S4
1.5 m	NP750	Manual	Rails	S6
1.8 m	NP750	Manual	Rails	S7
2.1 m	NP750	Manual	Rails	S8

AUTOMATIC VS MANUAL PUMPS

Automatic pumps are supplied with Vertical Float Switches that allow for very flexible pump switching, allowing for adjustment of the ON & OFF positions of each pump, as well as the overall height of the pump switching.

Manual pumps must be matched to the [DAB E.Box](#) control panel, [Newton Pump Controller](#) or [Newton Control Panel-Pro](#).

Please see pump and pump controller data sheets for further information.

MATCHED BATTERY BACK-UP SYSTEMS

The following battery back-up systems are available for to ensure continued pumping during power outage:

Matched Battery Back-up Systems			
Pumping System	Inverter	Battery	Purchase Code
S1 to S4	12/800/35	60 Ah	BBS3
S1 to S4	12/800/35	100 Ah	BBS4
S1 to S4	12/800/35	200 Ah	BBS5
S6 to S8	12/1600/70	100 Ah	BBS6
S6 to S8	12/1600/70	200 Ah	BBS7

BATTERY BACK-UP SYSTEMS - INVERTERS

Newton Battery Back-Up systems can also be sized and purchased separately for systems that require enhanced protection provided by larger batteries or banks of batteries. Please see below or refer to the [Victron MultiPlus TDS](#).

Inverters

- For 400W pumps: [12/800/35](#) - Code BB1
- For 750W pumps: [12/1600/70](#) - Code BB11

Batteries

- 60 Ah battery - Code BB20
- 100 Ah battery - Code BB21
- 200 Ah battery - Code BB22

INSTALLATION INSTRUCTIONS

Please read the data sheet and installation instructions for the pumps, control systems and alarms used within the Pumping System. Online versions can be found on the [product pages](#) on the Newton website.

PUMP INSTALLATION

Pumping systems S1 to S4 are supplied with CP400 pumps already in place, connected to internal pipe work.

All rail-mounted systems, F1 to F6 and S6 to S8 are supplied with the pumps still in boxes, ready to be lowered into place, to lock on the pump stools, via guide rails. Do not lower the guide-rail mounted pumps into place until Step 16 of this guide.

CHAMBER INSTALLATION

VERY IMPORTANT NOTE: The Newton Trojan-Pro chamber is a sump liner and must always be supported by a concrete base and concrete surround of adequate thickness that is suitable for the ground and ground water conditions.

A minimum of 150mm of well compacted surrounding concrete is required to prevent flotation of the sump chamber, but depending on the depth of installation, water table and ground conditions, more surrounding concrete may be required and this should be discussed with your structural engineer.

Where the chamber is to be installed within basements and other below ground structures, the sump should be installed within a reinforced concrete box designed by the structural engineer that is large enough to for at minimum of 150mm of surrounding concrete to be placed between the concrete box and the chamber.

Newton will not accept responsibility or accept warranty claims or any associated costs for fracture, distortion or damage to the chamber as a result of stresses imposed by the ground or ground water.

1. Select a suitable location for the chamber that is able to receive the connections into the chamber with the correct and required falls, checking that the lid will always be able to be full removed for maintenance and that no underground cables, pipes or service ducts will be damaged or affected by the excavation
2. Excavate the minimum opening in the ground to receive the chamber, ensuring that there is sufficient room to make all connections of pipes entering the leaving the chamber. Ensure that sufficient room is available for the cutting of the chamber wall to install the wall flanges and that there is space to fit the pipes through the wall flanges
3. The excavation should be deep enough to accommodate the concrete base, including hardcore and blinding
4. A de-watering pump may be required to control any ground water present

5. Place and consolidate clean hardcore in the base of excavation. Usually, this will need to be to a depth of about 200mm, but in good ground as little as 50mm
6. Place and compact concrete (minimum grade 25) to a minimum thickness of 150mm on top of hardcore.
7. Lower the chamber onto the damp concrete base, allowing the base to settle into the concrete. Ensure correct orientation of the inlet/outlet manifold and other connections
8. Fill the chamber with approximately 700mm water
9. Place concrete to a height of 600mm from concrete base using minimum C25 concrete. The concrete must be evenly placed around the tank periphery, and must not exceed the depth of water in the tank and should be vibrated and compacted so as to leave no voids.
10. Ensure that the tank is vertical (with 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 CHAMBER**

CONNECTIONS IN & OUT OF THE CHAMBER

Please note: Conduit, vent, rising main pipe, fittings and solvent weld glue is not supplied but is required.

RISING MAIN PIPE & FITTINGS

The systems are supplied with a 63mm socket ready for connection of a 63mm rising main. If a 50mm rising main is preferred, part number PP35 is required. Please see Page 4 for pipe and fittings for the rising main.

CONDUIT

Pumps power cables are high voltage. Alarm and float cables are low voltage. **NOTE:** Low voltage and high voltage cables should not use the same conduit.

Conduit should be large enough to ensure that all cables can easily be pulled through, both at installation and commissioning of the pumps and for when the pumps and or float cables require replacement. If unsure, use 110mm for the conduit.

VENT

Where the chamber is receiving water from S1 to S8 surface and groundwater systems, the incoming drainage connection acts as a vent and so additional vents are not required.

If the system is sealed, as with F1 to F6 foul systems, air cannot enter the chamber and so a dedicated vent pipe will be needed. A convenient way to do this is to use the same 63mm pipe and fittings as used by the rising main, passing through the wall of the chamber via a wall flange.

Vent pipes must be a minimum of 50mm O/D and to ensure that sufficient air passes into the chamber to replace the water volume being replaced by the pumps, it is recommend that the vent is of similar diameter and not smaller than the size of the rising main.

INLETS

Inlets connections will need to be cut on site. Where the pumping system is receiving water from a Newton CDM, Type C, [cavity drain waterproofing system](#), a BaseDrain Connection Kit will be required - Purchase Code D21.

WALL FLANGES & HOLE CUTTERS

Wall flanges and holes cutters are available for 50mm, 63mm and 110mm O/D pipe. Please see page 4 for further details.

CONNECT THE RISING MAIN

Pipe and fittings for the rising main are not included with the Trojan-Pro and should be ordered with the chamber. Please see page 4 for further details.

Where a 50mm rising main is to be used, a 63mm to 50mm reducer, Part Code PP35 must first be clued into the 63mm socket at the start of the rising main.

Glue together the pipe and pipe fittings to create the rising main. Terminate at a suitable termination point.

In all cases, with all glued pipe connections, correct priming, preparation and gluing practices should be followed:

- Pipe glaze is removed by abrasion or primer
- Pipe ends are fully chamfered to 45°
- Both the pipe and the socket are fully coated by the glue
- Slowly twist the pipe as it enters the socket

Once all of the connections into and out of the chamber are made, the sump installation can be completed:

11. Uniformly place minimum grade 25 concrete and at the same time gradually raise the water level within the sump chamber so that at no time does the concrete level exceed the water level
12. Leave the water within the chamber until the concrete has set. This should be for a minimum of three days
13. If required, construct a concrete cover slab (with access opening) of maximum 200mm thickness, ensuring that the slab is supported by consolidated backfill. Or utilise engineering-brick courses to the sides of the opening, again these must be supported by consolidated concrete
14. Set frame into the concrete cover slab or on to the support area of the chamber and bed in with concrete/screed so that the top of the lid is level with final floor finishes
15. Remove the water from the chamber, ensuring that any debris is removed at the same time. Partly refill the tank with clean water for testing the system upon commissioning, and to facilitate a flush-through of the discharge pipe prior to pumping.
NOTE: Allow at least 3 hours between gluing the pipe joints before pumping.

16. Install the pumps and float switches (and interconnecting cables – where extensions are required), drawing these electrical cables through the cable duct to the proposed position of the control panel or spurs if automatic pumps
17. Make the final electrical connections in accordance with the pump or panel instruction manual
18. Commission the packaged pumping station

PACKAGING & HANDLING

The pumping System is delivered on a pallet and will require either a forklift or a multi-person lift to move from the delivery vehicle to installation position. Check the delivery weight before multi-person lift.

STORAGE

The pumping system should not be exposed to direct sunlight for more than a few days. Cover if stored outside.

LIMITATIONS

- Order the correct pump for the water type and duty
- The chamber is designed to be a liner to act as framework for the placement of the concrete surrounding it. It is not a structural element and is reliant of the surrounding concrete to resist ground and ground water pressure

HEALTH & SAFETY

Use appropriate PPE for the environment the system is installed within.

As with all site work, the dangers of working with water and electricity pose severe threats to health if obvious and fundamental precautions are not taken. Therefore if you are in any doubt to any of the following, please do not hesitate to contact us.

All work should be undertaken by qualified personnel only.

ANCILLARIES

ITEM	Product Code
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SUMP OPTIONS

CDM

BaseDrain Connection Kit - BaseDrain Adaptor, 63mm flexi-pipe and 63mm wall flange	D21
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Wall Flanges

Wall flange for 50mm diameter vent and conduit pipe	WF50
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Wall flange for 63mm inlet	WF63
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Wall flange for 110mm inlet	WF110
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Hole Cutters

82mm Hole Cutter for 50mm wall flange	HC82
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95mm Hole Cutter for 63mm wall flange	HC95
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140mm Hole Cutter for 110mm wall flange	HC140
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Arbor for hole cutter	PA33
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uPVC PRESSURE RATED PIPE & FITTINGS

50mm rising main

63mm to 50mm female reducer/adaptor	PP35
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50mm Pipe - 2.5m lengths	PP1
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50mm Flexible pipe - 25m coil	PP9
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50mm Wall mount clips - Pack of 10	PP6
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50mm 90-degree elbow - female to female socket	PP2
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50mm 45-degree elbow - female to female socket	PP3
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50mm Female to female socket	PP4
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50mm Tee - female to female socket	PP5
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50mm Union - female to female socket	PP46
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63mm rising main

63mm Pipe - 2.5m lengths	PP10
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63mm Flexible pipe - 25m coil	PP19
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63mm Wall mount clips - Pack of 10	PP15
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63mm 90-degree elbows - female to female socket	PP11
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63mm 45-degree elbows - female to female socket	PP12
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63mm Female to female socket	PP13
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63mm Tee -female to female socket	PP14
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63mm Union - female to female socket	PP17
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63mm wall mount clips	PP15
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uPVC Solvent-on Wet 'R Dry - 240ml	G2
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uPVC Pipe Primer - 473ml	G3
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uPVC Solvent 0.5 litre	G1
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