System Sump and Pump

NEWTON TROJAN PUMPING SYSTEM

Multi-Use Pumping System

Rev 3.1 - 10 July 2017

PRODUCT CODE - TR13 - TR49

INTRODUCTION

The Newton Trojan is a specialist pumping system suitable for a variety of pumping tasks ranging from lifting sewage from basements to the higher level sewage system, to the removal of ground water and surface drainage. The pumping system is available in depths of 1 m and 1.5 m. Please see page 5 for dimensions.

When used for sewage, the system does not provide 24 hour storage capabilities and so is not capable of receiving all of the house sewage. Therefore, one of four larger 'whole house' pumping systems should be specified instead.

PUMP OPTIONS

CLEAN WATER

Newton CP400 - P32 - The Newton CP400 is a medium head and medium performance clean water pump.

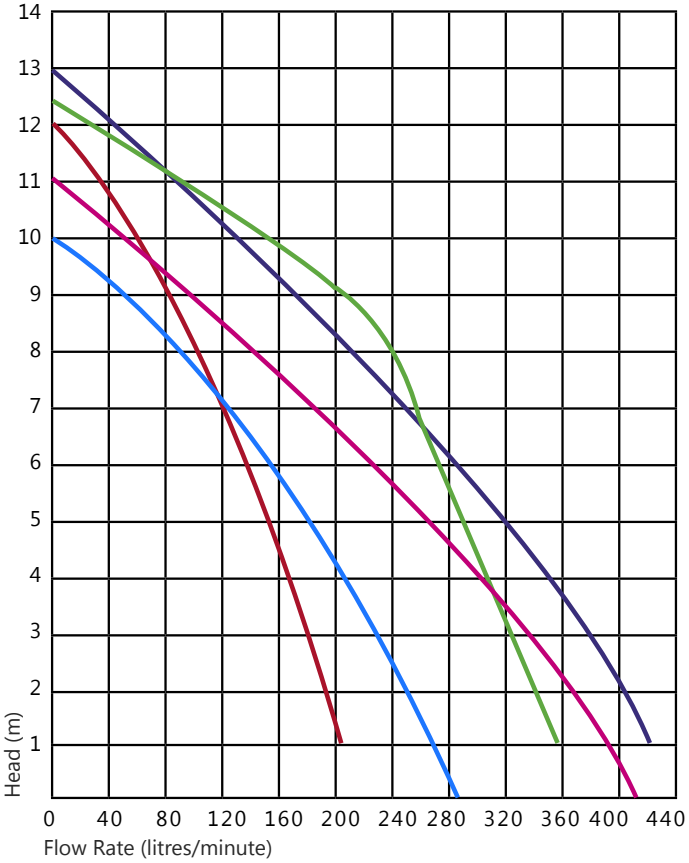
Newton NP400 - P2 & P3 - The Newton NP400 is a high head and medium performance clean water pump.

Newton CP750 - P33 - The Newton CP750 is a medium head and high performance clean water pump.

Newton NP750 - P5 & P6 - The Newton NP750 high head and high performance clean water pump.

SEWAGE

Newton SP750 Cutter - P35 & P36 - The Newton SP750 Cutter is a high quality sewage pump incorporating a tungsten carbide tipped cutting impellor which rotates against a serrated suction cover to cut solid waste before pumping, resulting in a much lower risk of blockage than similar sized vortex impellor sewage pumps.



Pump Model	Pump Type	Water Type	No. of Pumps	Discharge Lines	Chamber Depth 1.0m Code	Chamber Depth 1.5m Code
CP400 P32	Auto 50mm Vortex	Clean	One	One	TR17	TR19
			Two	One	TR18	TR20
NP400 P2	Auto 50mm Vortex	Clean	One	One	TR21	TR23
			Two	One	TR22	TR24
NP400 P3	Manual 50mm Vortex	Clean	One	One	TR30	TR32
			Two	One	TR31	TR33
CP750 P33	Auto 80mm Vortex	Clean	One	One	TR34	TR36
			Two	One	TR35	TR37
NP750 P5	Auto 50mm Vortex	Clean	One	One	TR38	TR40
			Two	One	TR39	TR41
NP750 P6	Manual 50mm Vortex	Clean	One	One	TR42	TR44
			Two	One	TR43	TR45
SP750 Cutter P35	Auto 50mm Cutter	Sewage	One	One	TR13	TR15
			Two	One	TR14	TR16
SP650 Cutter P36	Manual 50mm Cutter	Sewage	One	One	TR46	TR48
			Two	One	TR47	TR49

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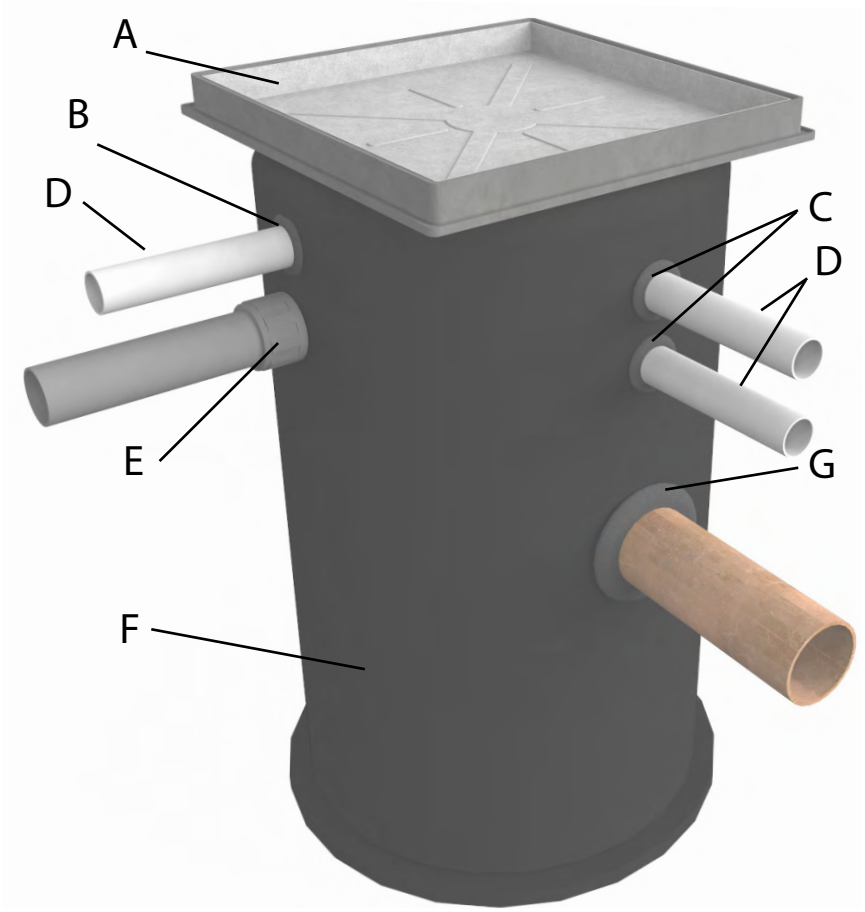


SUMP PARTS

Included within the sump packaging is:

A. 1 x Locked and Sealed Lid and Frame

B. 50 mm wall flange for vent pipe (when required). Hole cutter required to form hole in preferred location

C. 2 x 50 mm wall flange for conduit. One for low voltage cables, the other for high voltage cables. Hole cutter required to form hole in preferred location

D. DN 50 mm waste pipe as vent and conduit. **Not supplied**

E. 1 x 63 mm uPVC female socket bulkhead connection ready for 63 mm or 50 mm uPVC solvent weld pipe. Reduction to 50 mm is by a 63 mm to 50 mm reducer

F. 1 x Trojan sump at either 1 m or 1.5 m depth

G. 1 x 110 mm rubber wall flange to receive 110 mm invert pipe. Supplied loose. A hole cutter is supplied to form hole in preferred location. Further 110 mm wall flanges can be purchased at the time of order

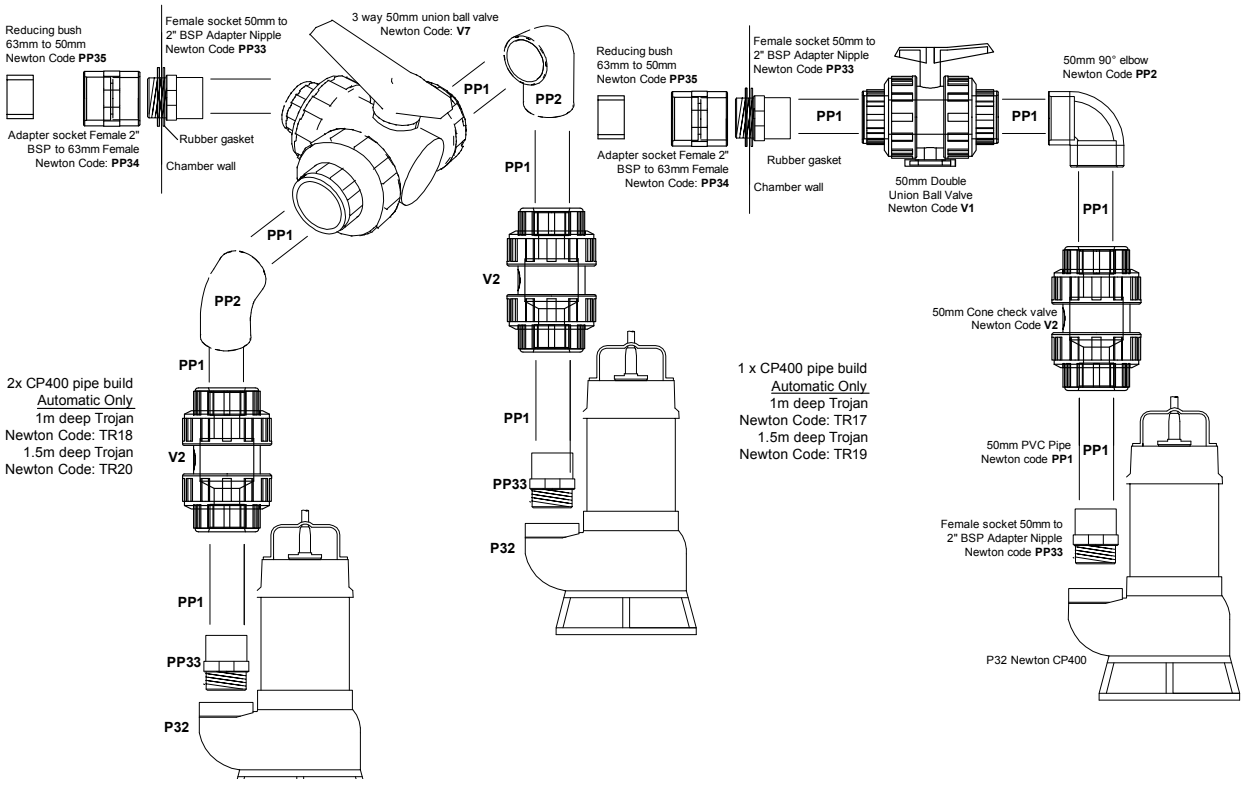
H. Pipe glue 240 ml - not shown

I. Lifting chains - not shown - 1.5 m deep chamber only

DIAGRAMS

The following diagrams confirm the internal pipework with each pump. Most deliveries in London will see the system fully built, but where we use external couriers, the chamber, pump(s) and pipework will be delivered as individual items.

CP400 INTERNAL PIPEWORK



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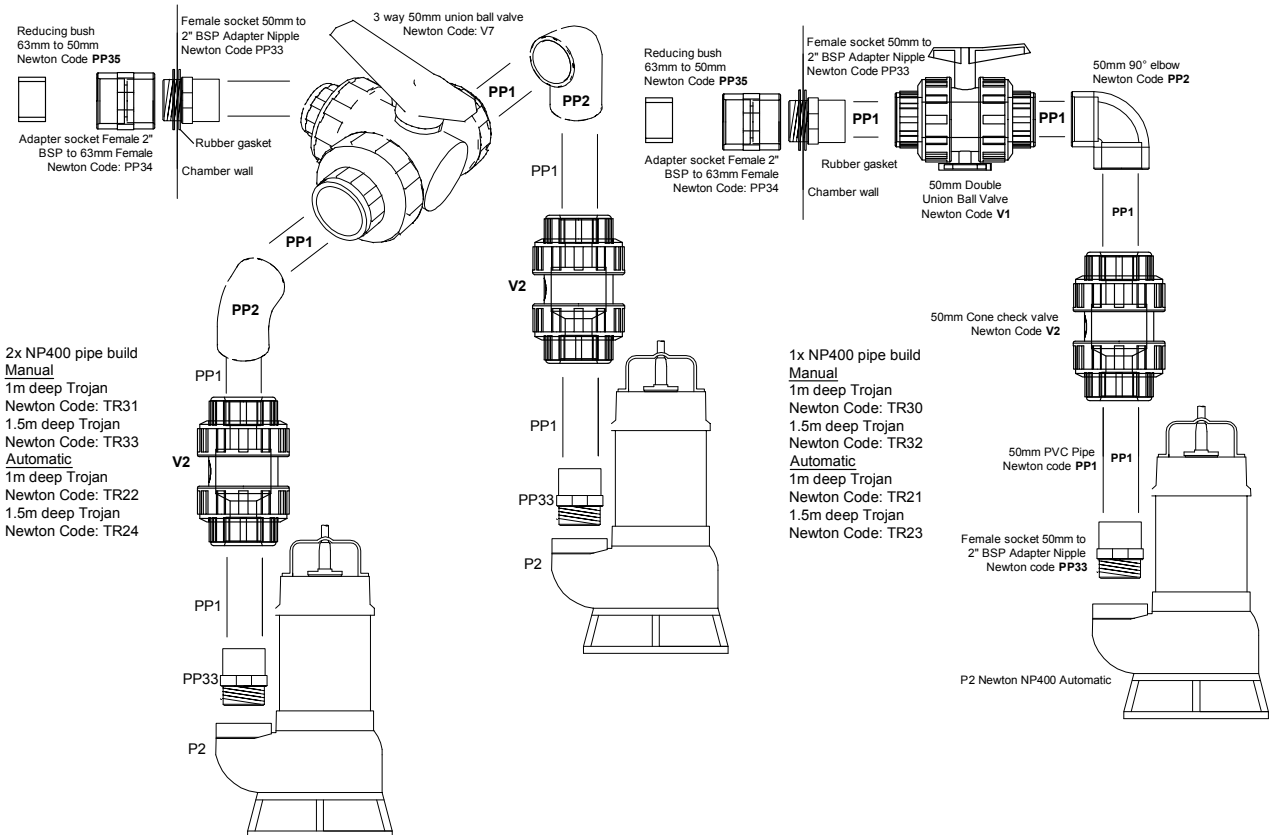
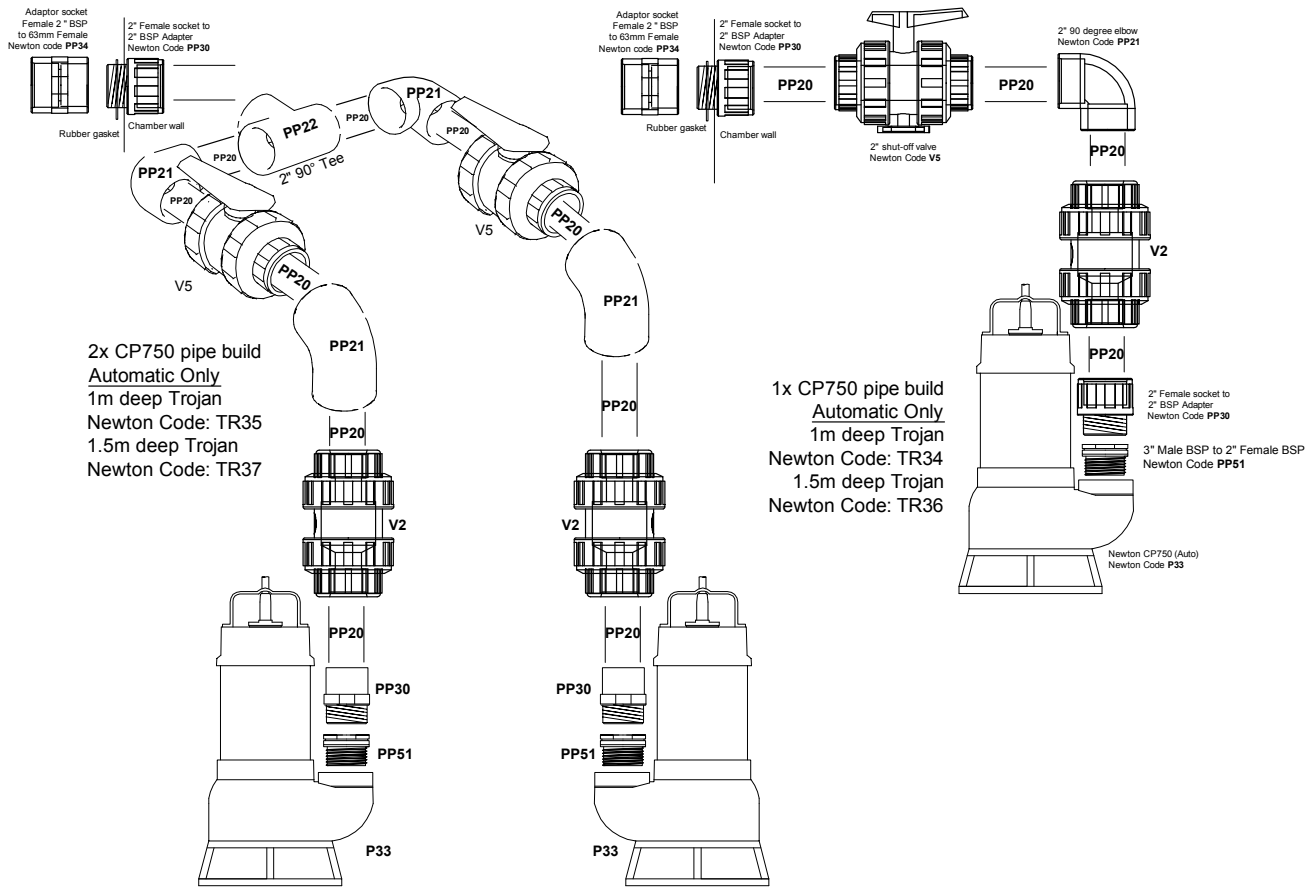
NP400 INTERNAL PIPEWORK



CP750 INTERNAL PIPEWORK



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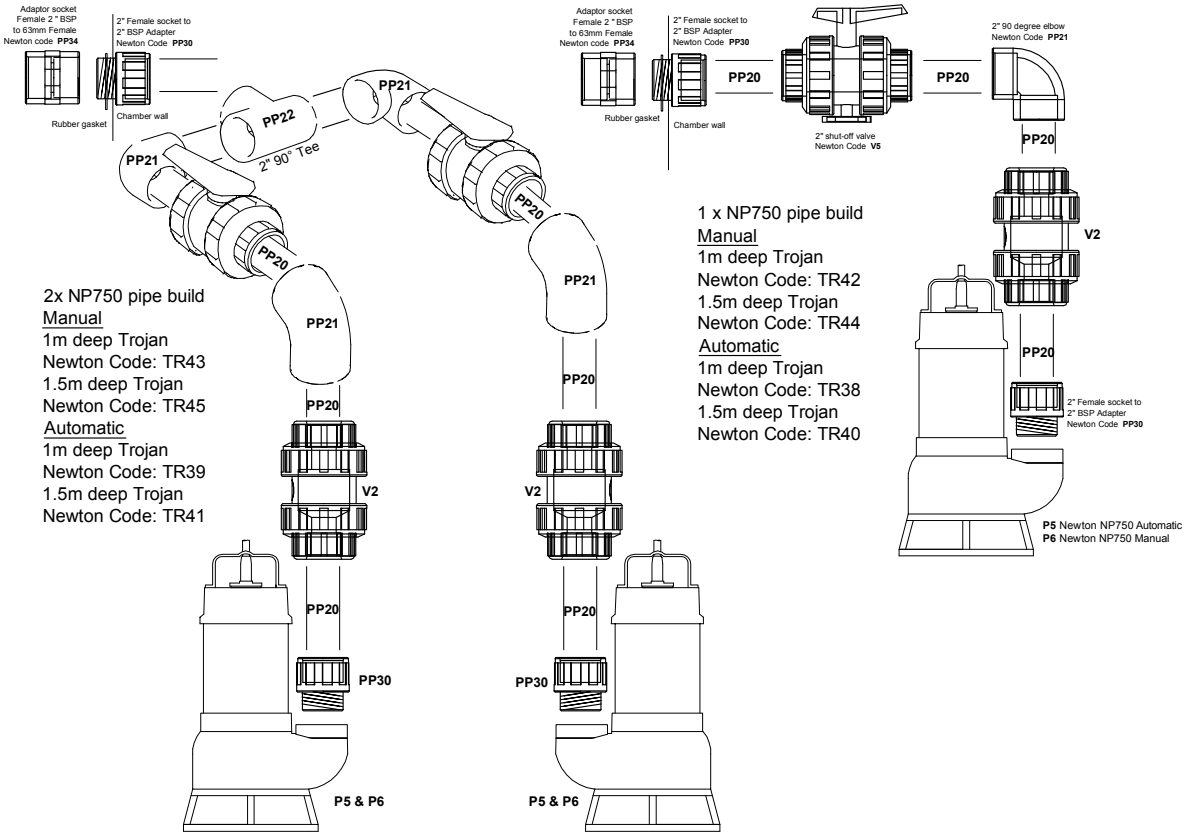
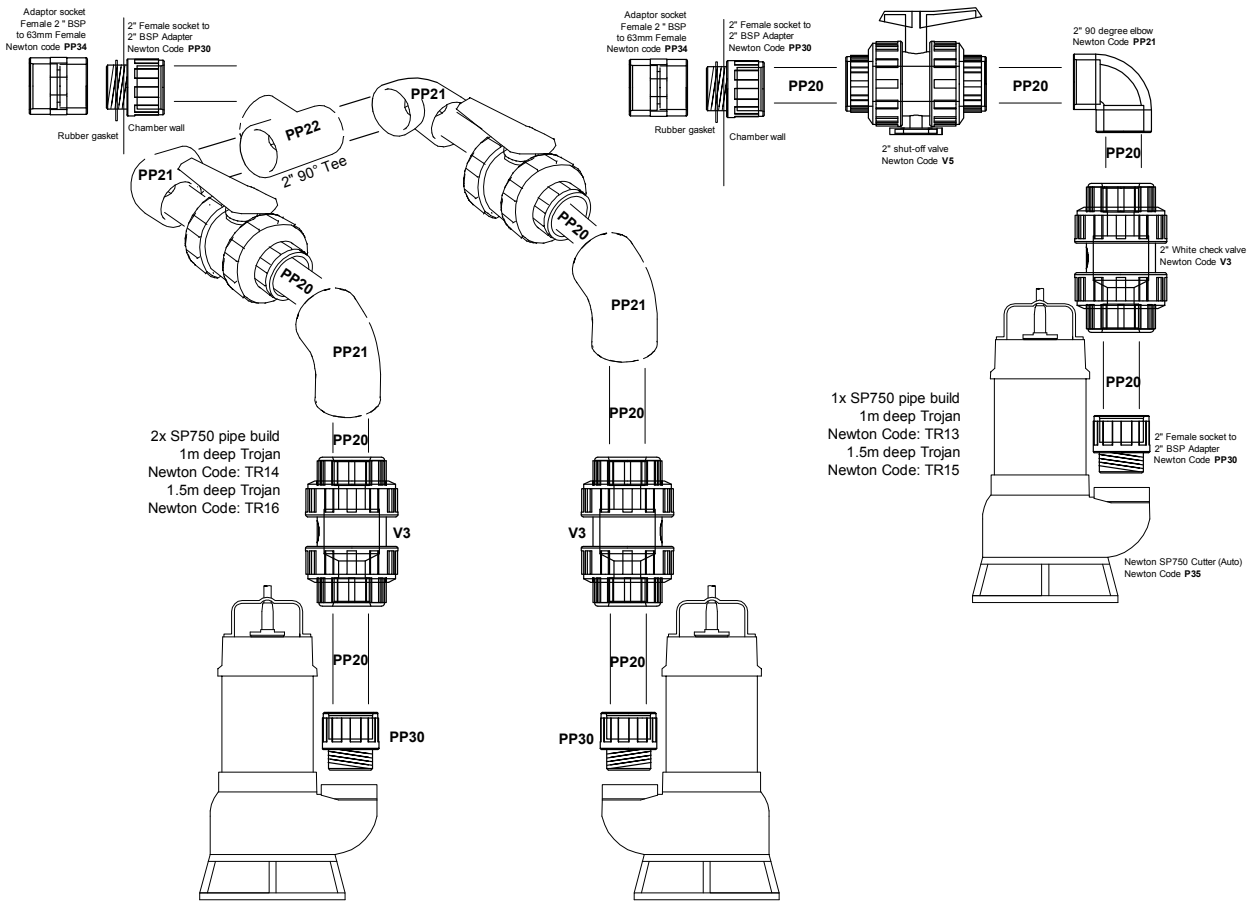
NP750 INTERNAL PIPEWORK



SP750 CUTTER INTERNAL PIPEWORK



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TECHNICAL DATA

Features	CP400	NP400	CP750	NP750	SP750 Cutter	Units
Pump Design	Vortex	Semi-Vortex	Vortex	Vortex	Cutter	
Discharge Bore	50	50	80	50	50	mm
Max. Soft Solids Handling	10	7	15	35	20	mm
Recommended Discharge Pipe	50/63	50/63	63	63	63	mm
Pumping Head (Max.)	10.0	12.2	11.0	12.5	13.0	m
Flow Rate (Max.)	290	220	410	360	430	litres/min
Flow Rate at 4m Head	220	160	295	320	360	litres/min
Pump Switching	Auto	Auto or Panel	Auto	Auto or Panel	Auto or Panel	
Float Switch	Vertical	Vertical	Vertical	Vertical	Sewage Paddle	
Pump Start Level (auto)	Adjustable	Adjustable	Adjustable	Adjustable	675 mm	
Min. Stop Water Level (auto)	80	90	127	115	145	mm
Length	215	241	260	236	255	mm
Width	155	185	160	173	190	mm
Height	395	328	434	380	445	mm
Weight	12.0	11.3	15.0	8.5	19.9	kg
Clean Water Pumping	Yes	Yes	Yes	Yes	No	
Effluent Pumping	No	No	No	Yes *	Yes	
Sewage Pumping	No	No	No	No	Yes	
Fluid Temperature Range	0 to 40	0 to 35	0 to 35	0 to 35	0 to 35	˚C
Motor Output	400	400	750	750	750	W
Power Supply	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	
Starter	Capacitor Type	Capacitor Type	Capacitor Type	Capacitor Type	Capacitor Type	
Body Material	Stainless Steel	Cast Aluminium	Stainless Steel	Stainless Steel	Stainless Steel	
Shaft Material	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	
Shaft Seals	Carbon Ceramic	Silicon Carbide	Carbon Ceramic	Silicon Carbide	Carbon Ceramic	

* Only with manual pumps with control panel and sewage type paddle floats.

PUMP(S) PIPEWORK INSTALLATION

Identify which pump you have and check that the supplied pipework is correct using the pipe builds shown above.

Fit the pump(s) into the chamber before inserting the chamber into the ground to ensure that the pipework and fittings fit correctly - adjust if necessary. Remove the pumps using the release union at the top of the vertical pipe after the pipework fit and replace after the sump is concreted in - see stage F on page 7.

Glue the pipe parts as per the applicable pipe build drawing for your pump(s), ensuring that the pipe ends are chamfered with a dedicated tool and that the pipe ends and sockets are fully abraded and cleaned, or primed with uPVC Pipe Primer, before gluing. Apply the Newton Wet 'R Dry uPVC solvent to both the pipe and the sockets.

ALARM

The Trojan is not supplied with an alarm as standard. If an alarm is required, please ensure one is ordered to be supplied with the main system. If a control panel is to be used, a separate alarm is not required. Please see the alarm choices under Ancillaries & Options on page 8.

INLET CONNECTIONS

The Trojan is supplied with 1 x 110 mm wall flange and 1 x hole cutter of the correct size for the wall flange. Cut the hole to correspond with the invert due to enter the chamber. 63 mm or further 110 mm wall flanges can be purchased for extra connections into the sump. Please see page 8.

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VENT PIPE

The system is not supplied with a vent pipe.

It is a requirement of pumping systems to ensure that air replaces the volume of water removed by the pumps. The vent pipe must be of at least DN 50 mm. Where the pumping system is receiving water from Newton Basedrain/ Floordrain, a vent pipe is not required as the 63 mm connections provide the required venting. In all other cases a vent pipe of at least DN 50 mm is required.

A 50 mm diameter rubber wall flange is supplied ready for the vent pipe to be fitted.

CONDUIT

The system is not supplied with conduit.

It is a requirement that the pump, alarm and float cables that lead from the sump to the electrical supply, control panels and alarm systems are within conduit. It is also a requirement that low-voltage cables and high voltage cables are not run within the same conduit.

2 x 50 mm diameter rubber wall flange is supplied ready for the vent pipe to be fitted.

Newton recommend that 50mm waste pipe is used for the conduit and vent pipe, as it is easy to source from local builders merchants. A 50 mm hole cutter is required and this is not supplied by Newton.

LID & FRAME

The system is supplied with a basic locked and sealed lid and frame. Where a deeper lid and frame are required, or where a higher standard of finish is required, please order one of the lids confirmed on page 8.

HEALTH AND SAFETY AT 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 as to any of the following, please contact us directly.

The pumps should be installed by a competent person in accordance with Part P of the building regulations.

SUMP INSTALLATION - GENERAL

VERY IMPORTANT NOTE: THIS HDPE CHAMBER IS A LINER AND MUST ALWAYS BE SUPPORTED BY A CONCRETE BASE AND CONCRETE SURROUND OF ADEQUATE THICKNESS FOR THE GROUND CONDITIONS. INSTALLATION MUST BE AS PER THE FOLLOWING INSTRUCTIONS. THE CHAMBER REQUIRES A MINIMUM OF 150 mm OF WELL COMPACTED GOOD GRADE CONCRETE SURROUNDING IT TO PREVENT BUOYANCY. DECISIONS AS TO THE VOLUME AND MASS OF THE SURROUNDING CONCRETE MUST BE TAKEN BY A STRUCTURAL ENGINEER IF THE CHAMBER IS PLACED WITHIN A STRUCTURAL SLAB OR RAFT.

WHERE THE CHAMBER IS TO BE SITED AT MORE THAN 3 METRES BELOW EXTERNAL GROUND LEVEL, A FULLY WATERTIGHT REINFORCED CONCRETE BOX MUST BE PROVIDED FOR THE SUMP TO BE PLACED INTO IN ORDER TO PROTECT THE SUMP FROM EXTREME GROUND WATER PRESSURE.

1. Select a suitable location for the chamber. Ensure that the sump lid is accessible once all the finishing works are complete. Pay particular attention to the proposed line of stud and block walls that may be built after the sump installation
2. Check that no underground cables, pipes or service ducts lie beneath
3. Ensure that sufficient space is available to receive the chamber, pipework and surrounding concrete
4. If water pressure exists during the installation, a method of dewatering will be required and a Wet Install Kit - TPK9 is available. Please contact Newton Waterproofing Systems for further information

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SUMP INSTALLATION

NOTE: It is vitally important that builders debris is not introduced to the sump during installation. Clean the sump out completely prior to final fitting and commissioning of the pumps if debris does enter the sump.

STEP 1.

A. Excavate a hole ready for the sump chamber. The hole should be at least 300 mm larger in diameter than the sump chamber to allow for sufficient concrete to surround the chamber to prevent flotation. Where the sump is to be installed within a structural slab, an engineer should advise on the volume and mass of concrete surrounding the chamber. The depth of the excavation or concrete box will depend on your finished floor height

B. Create a concrete supporting base with a minimum of 150 mm of concrete which is of a consistency that will support the chamber during the levelling process

STEP 2.

C. Place the sump chamber into the excavation with the base directly on to the freshly laid concrete base. Rotate the chamber so that the outlet is in line with your preferred discharge line route. Use a long builders level and adjust the chamber so it is level. Pour and then compact about 200 mm of concrete to the sides of the chamber and the excavation. With each 100 mm of concrete poured, place an equivalent depth of water into the sump chamber. Keep checking the level and height periodically and adjust if necessary. Let the concrete go off sufficiently so that the sump is locked in place and then go to Step 3

STEP 3.

D. Fit the connecting parts to the sump ready for final concreting in of the sump chamber:

- Fit inlet(s) into the sump chamber through the 110 mm wall flange(s). 1 x 110 mm wall flange is supplied. The hole cutter is also supplied
- Fit two conduit 50 mm pipes through the supplied 50 mm wall flanges. One for high voltage pump cables, and one for low voltage float cables. Leave a pull string ready for the cable installation
- If required, fit a 50 mm vent pipe through the supplied 50 mm wall flange. Run the pipe to a suitable connection such as a stack pipe. **NOT REQUIRED WHERE THE SUMP IS RECEIVING CONNECTIONS FROM DRAINAGE CHANNELS AS PART OF A NEWTON SYSTEM 500 WATERPROOFING SYSTEM**
- Connect 63 mm pressure pipe to the outlet socket (Part D) or 50 mm pressure pipe to the reducer for CP250, NP400 and CP400 pumps, after gluing the reducer into the socket. 50 mm pipe can be used for the CP750 and NP750 pumps but 63 mm pipe is recommended. The SP750 Cutter must use 63 mm pipe and fittings. Use a 90 degree elbow at the wall if the pipe is to rise vertically at this point. Continue with pipe fitting to final connection if possible, but at a minimum the vertical pipe should extend higher than the finished floor level by about 100 mm. Once all pipework is cut to the correct size, glue the pipe parts with the uPVC solvent weld glue. **NOTE:** To prevent water from the mains sewer backing up into the property during sewer surcharge, as advised within BS EN 12056-4 a backflow loop, sited above external ground level, must be included within the rising main

E. Place the pump(s) into the chamber and connect the pipework using the screw union(s). Open the shut off valve.

F. Run the pump power cables and control panel floats or alarm cables through the two 50 mm conduits. Low voltage and high voltage cables should not be run through the same conduit. Pump cables are high voltage and alarm cables are low voltage. If the cables are to run through the conduits at a later time, run a pull string through the two conduits ready for pulling through the cables when they are ready to be fitted. Once the power, alarm and control cables are pulled through the conduits, seal the conduits with mastic sealant so that smells from the sump do not escape from the conduits

G. Place lid and frame onto the sump chamber ready for final concreting

H. Fill the sump with water and then concrete around the sump to match slab

I. Make final connection of discharge pipework, make electrical connections, then test and commission the pump(s)

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ANCILLARIES & OPTIONS

uPVC Pressure Rated Discharge Pipe

50 mm Pipe - 2.5 m lengths	PP1
50 mm 90 degree elbows	PP2
50 mm 45 degree elbows	PP3
50 mm female-female sockets	PP4
50 mm Tee	PP5
50 mm wall mount clips	PP6
50 mm diameter vent pipe - 10 m	TPK2
1 ½" BSP to 50 mm Hosetail	PP28
1 ½" BSP male to 50 mm socket	PP43
63 mm Pipe - 2.5 m lengths	PP10
63 mm 90 degree elbows	PP11
63 mm 45 degree elbows	PP12
63 mm female-female sockets	PP13
63 mm Tee	PP14
63 mm wall mount clips	PP15
uPVC Solvent - Wet 'R Dry - 240ml	G2
uPVC Pipe Primer 473ml	G3

Alternative Frame and Lid

Galvanised steel frame recessed lid with 450 x 450 mm opening	TPSL2
Stainless steel edged recessed lid with 450 x 450 mm opening	TPSL3
Brass edged recessed recessed lid with 450 x 450 mm opening	TPSL4
Alulite triple-sealed recessed lid with 450 x 450 mm	TPSL7

Sump Options

Wet Install Kit - Included three shut-off valves, Tremie Pipe and Water plug	TPK9
Wall flange for 63 mm inlet - supply only	TP01
Wall flange for 110 mm inlet - supply only	TP02
Wall flange for 50 mm diameter vent and conduit pipe	TP03

Power backup

800W Victron MultiPlus Battery Backup System for pumps up to 250W	BB1
1200W Victron MultiPlus Battery Backup System for pumps up to 400W	BB2
3000W Victron MultiPlus Battery Backup System for pumps up to 750W	BB3
3000W Victron Quattro Generator Battery Backup System for pumps up to 750W	BB4

Alarm Options

9V battery alarm - Clean water alarm	PA50
Sewage Alarm - Alarm with sewage float	CP5
Sewage Alarm with Beacon - Alarm with sewage float	CP6
Newton Control Panel-Pro - Sophisticated twin pump control with alarm	CP2 & CP7
Sewage Control Panel - Twin pump panel with alarm for sewage systems	CP8
Newton Pump Controller - Twin pump panel with weekly start cycle and alarm	CP9

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