

Pumped Drainage



DELTA MEMBRANE SYSTEMS LTD



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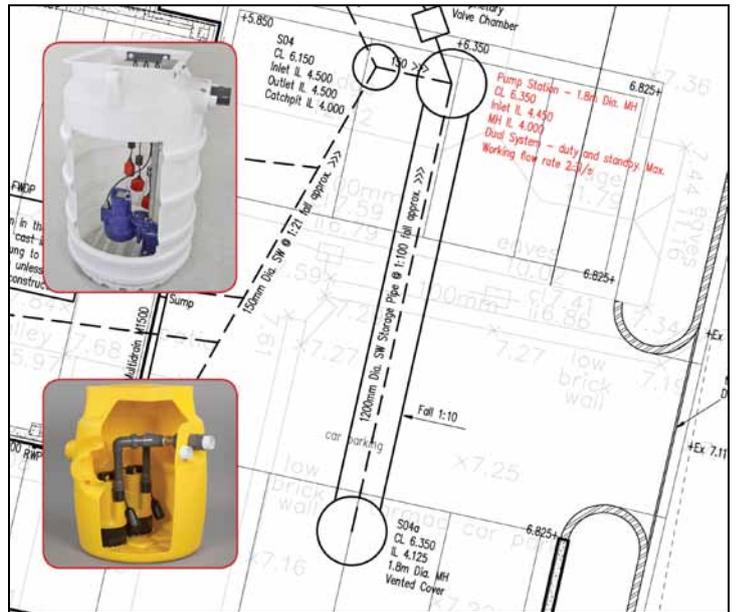


ABOUT US...

Most clients know us as leading manufacturers of cavity membrane systems and associated water proofing products, most do not realise we are the largest manufacturer of basement pumps in the UK. These two elements provides Architects, Engineers & Waterproofing Contractors one point of contact for design and no split responsibilities.

The Delta service

We have a team of application engineers who can assist with selection of ground, surface & foul water pump stations. This can be carried out against drawings, meetings on site & your offices or 'via net' viewer sessions.



Design team

A waterproofing specialist should be included as part of the design team so that an integrated waterproofing solution is created. The waterproofing specialist should also be responsible for the pumped drainage system. (extract from BS8102)

Delta can provide this service.

Why use Delta for pump stations?

All our pump stations are designed for their specific applications. The design process involves finite element analysis to model all possible scenarios i.e. high hydrostatic pressures for basement applications as well as feedback for our clients. The majority of pump stations are manufactured from tank grade virgin HDPE and moulded from our own tooling giving complete control over quality management.

To back this we maintain large stocks of pump chambers & accessories in stock for next day delivery throughout the UK, backed up by a team of service, commissioning and installation engineers.

DUAL V3 SUMP (DMS 164)

Overview

A packaged pump station designed to collect ground water via perimeter channel or 110mm pipes (129 detail) and / or clear opening to the top of the chamber. This chamber can also collect grey water from showers and wash hand basins, but not foul from a WC. (See Delta Foul V3 sump DMS 165). A typical application would be collecting ground water from a 150m² basement and surface water from a 12m² lightwell.

The Dual V3 pump station has been specifically designed for below ground applications. The chamber is manufactured from HDPE and able to withstand hydrostatic forces encountered in applications with high water tables.

The pump station is delivered as a complete package including chamber all internal pipe work and two powerful V3 pumps. A high level alarm is offered as a recommended option. It is designed to be installed by contractors with competent building, plumbing and electrical skills. We also recommend a battery backup (DMS 070) in case of power outage.



Installation

The Dual V3 sump sits on a concrete base. Standard 110mm inlet pipes (if applicable) are connected using a 110mm coupler.

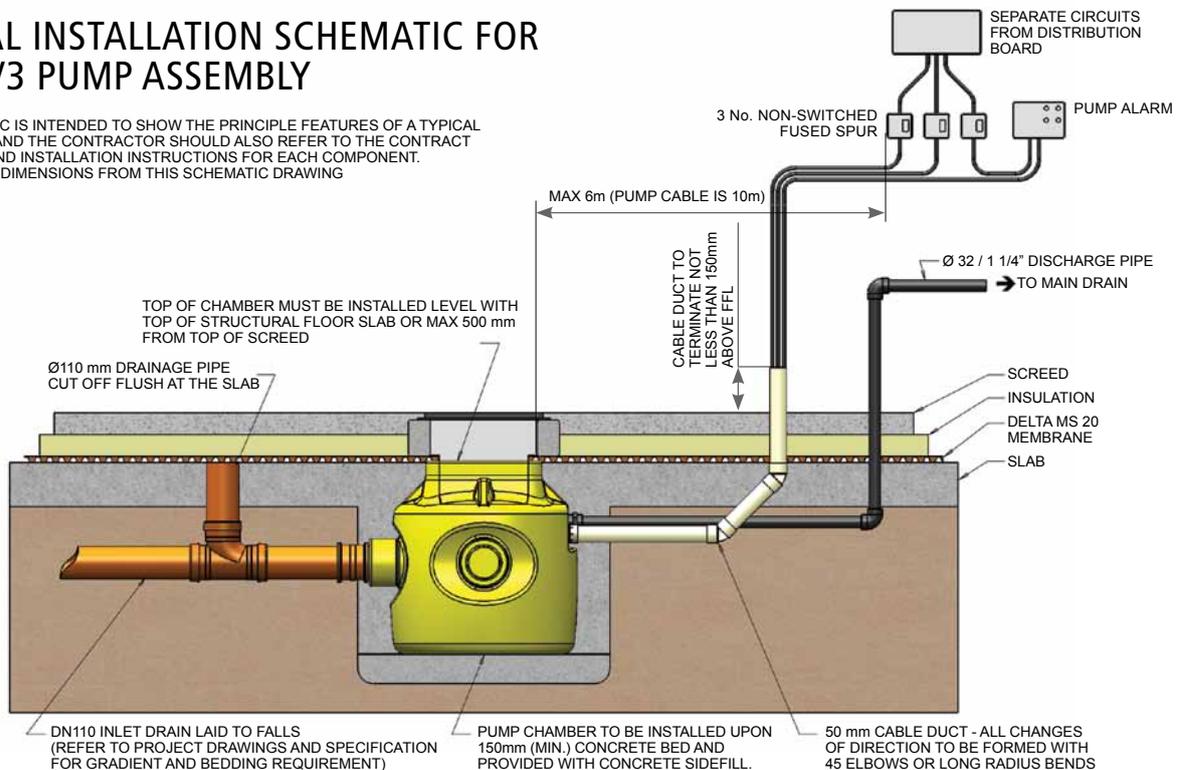
A 1 ¼" / 32mm discharge pipe is run from the chamber to a drain and 50mm cable duct installed with draw cord. The chamber is filled with water to prevent floatation and back filled with concrete to lock into structure.'

For full installation instructions see 'Dual V3 sump - Installation instructions & Technical Details', on our website.

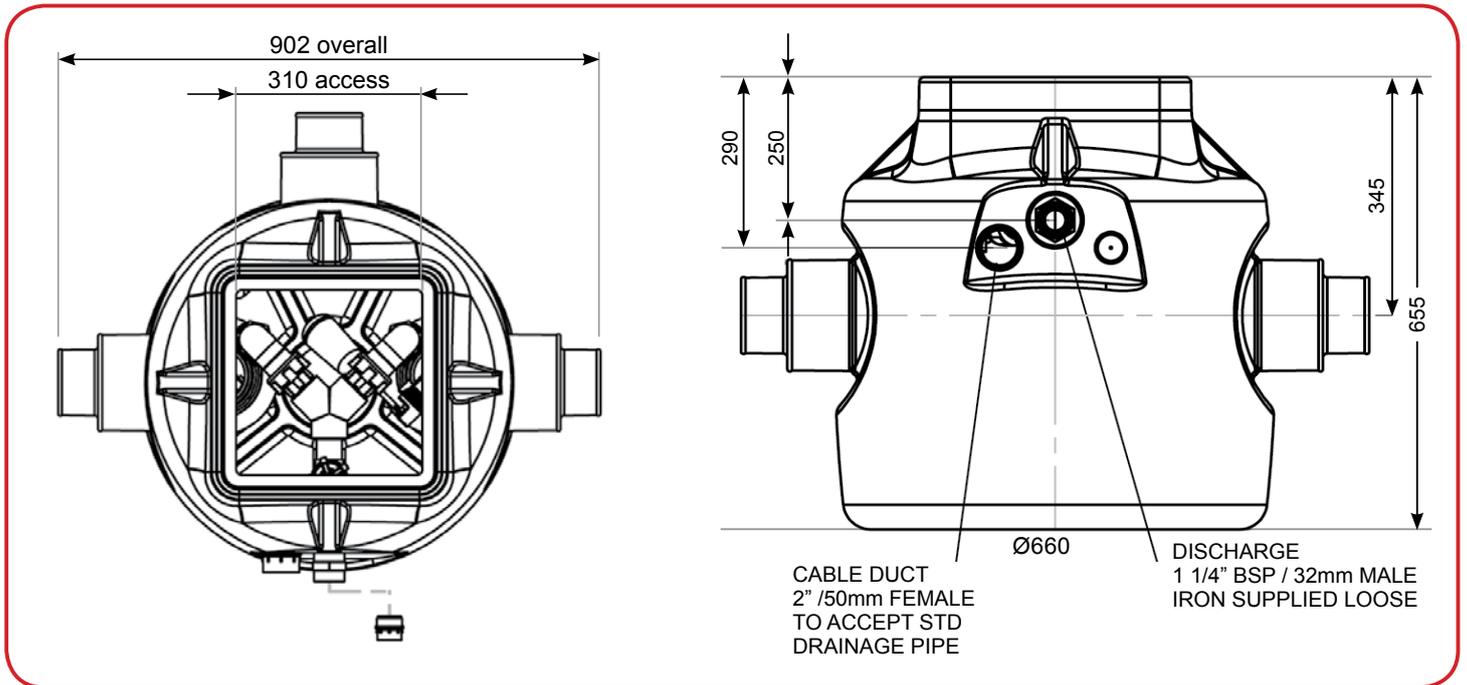
Typically a double sealed man hole cover is fitted in the final screed, this can be a tray type cover to accept the final floor finish, ie tiles or wood.

TYPICAL INSTALLATION SCHEMATIC FOR DUAL V3 PUMP ASSEMBLY

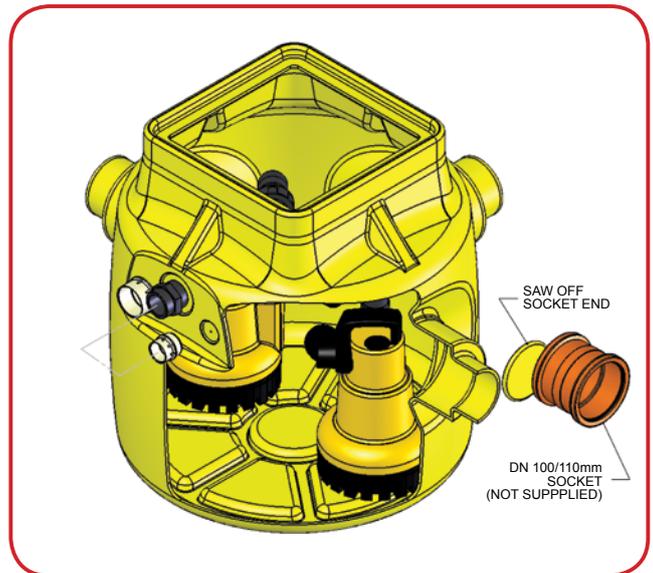
NOTE: THIS SCHEMATIC IS INTENDED TO SHOW THE PRINCIPLE FEATURES OF A TYPICAL INSTALLATION AND THE CONTRACTOR SHOULD ALSO REFER TO THE CONTRACT DOCUMENTS AND INSTALLATION INSTRUCTIONS FOR EACH COMPONENT. DO NOT SCALE DIMENSIONS FROM THIS SCHEMATIC DRAWING



DELTA MEMBRANE SYSTEMS LTD.



Pump Model	V3P
Voltage	230 V
KW rating (P1 / P2)	0.43/0.18KW
Full Load Current	1.9 A
Fuse Rating spur	13 A
Typical Duty	2.2 L/S 3m Head
Chamber Storage Volume	217 litres
Storage below Volume	87 litres



For full technical & performance information please refer to 'Drainage & Sewage Pumps - Technical Overview'

Accessories

Battery Backup



High Level Alarm



Telemetry System



Pipework



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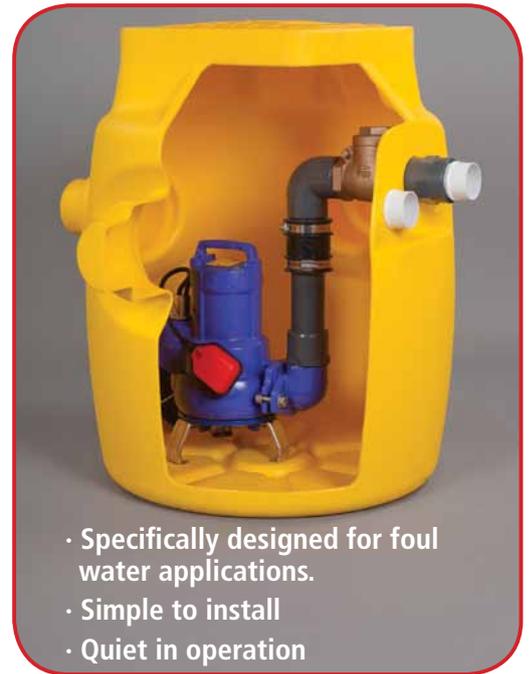
FOUL V3 PUMP STATION (DMS 165)

Overview

A packaged pump station designed to collect foul water from basements and ground floor extensions where other facilities in the property discharge via gravity. A typical application would be the collection and discharge of foul water from a basement fitted with a bathroom and utility room. This pump station is not designed to collect ground water from a cavity membrane system (see Dual V3 sump, DMS 164). For kitchen applications we recommend fitting a grease trap prior to the pump station.

The Foul V3 pump station has been specifically designed for below ground applications. The chamber is manufactured from virgin tank grade HDPE and is able to withstand hydrostatic forces encountered in applications with high water tables.

The pump station is delivered as a complete package including all internal pipe work and 612SA foul vortex pump. A high level alarm is a recommended option. It is designed to be installed by contractors with competent building, plumbing & electrical skills.



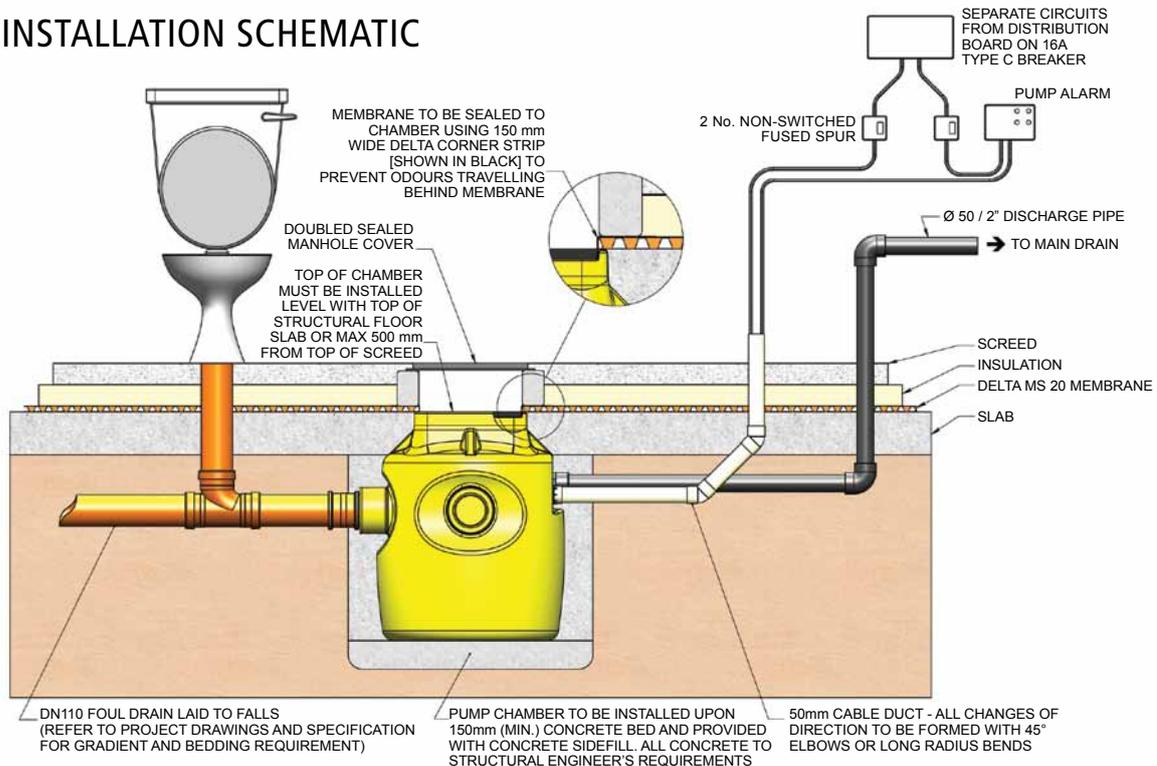
- Specifically designed for foul water applications.
- Simple to install
- Quiet in operation

Installation

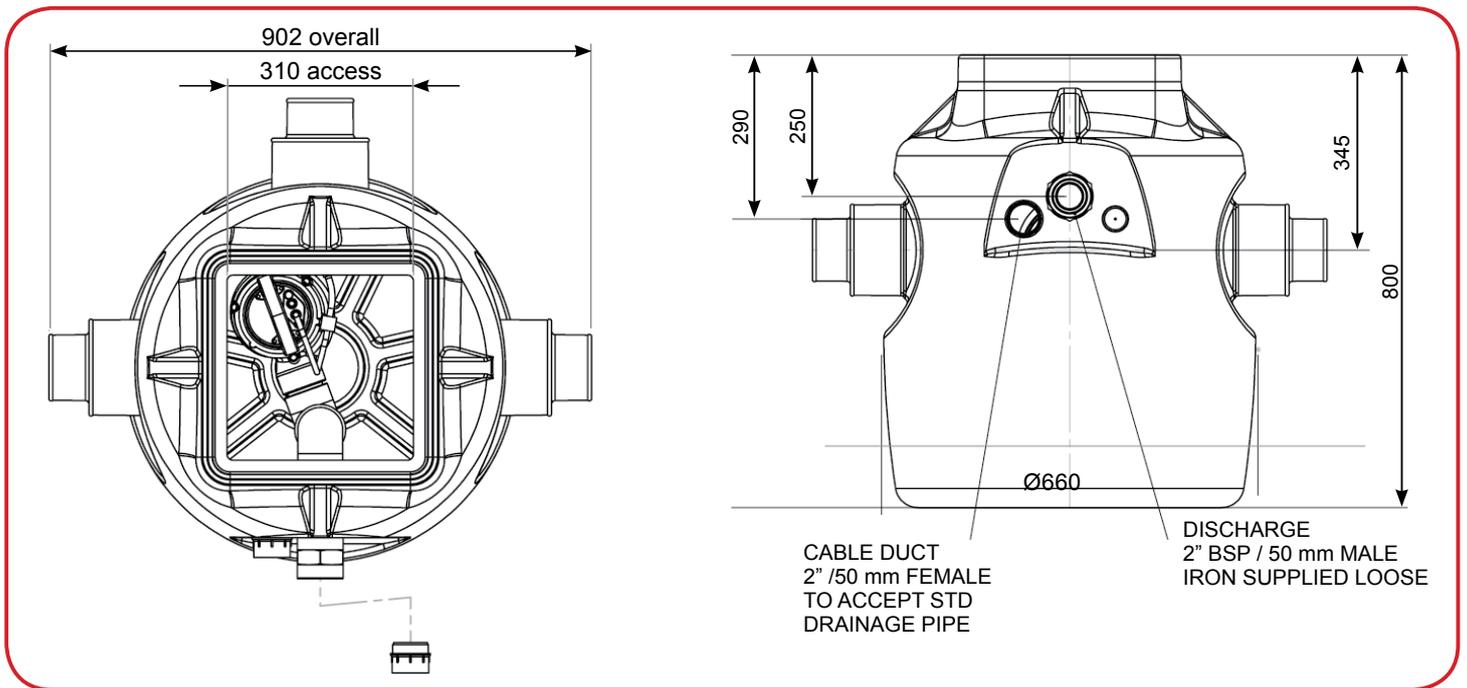
The Foul V3 sump sits on a concrete base. Standard 110mm inlet pipes are connected using a 110mm coupler. A 2" / 50mm discharge pipe is run from the chamber to a drain, 50mm cable duct installed with draw cord and 50mm vent to high level or SVP. The chamber is filled with water to prevent floatation and back filled with concrete to lock into structure.'

Typically a double sealed man hole cover is fitted in the final screed, this can be a tray type cover to accept the final floor finish, ie tiles or wood. For full installation instructions see 'Foul V3 sump - Installation instructions & Technical Details'

TYPICAL INSTALLATION SCHEMATIC

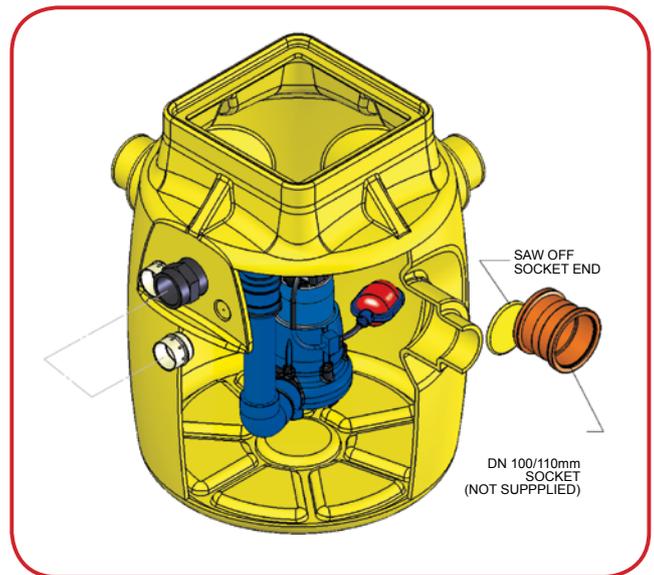


DELTA MEMBRANE SYSTEMS LTD.



Pump Model	612SA
Voltage	230 V
KW rating (P1 / P2)	1.25KW / 0.75KW
Full Load Current	6.0A
Fuse Rating spur	13A
Typical Duty	5.8L/S @ 4m Head
Chamber Storage Volume	273 litres
Storage below Volume	137 litres

For full technical & performance information please refer to 'Delta Drainage & Sewage Pumps - Technical Overview'



Accessories

High Level Alarm



Telemetry System



Pipework



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DELTA SINGLE V3 PUMP STATION (DMS 047 & DMS 107)

Overview

The standard standard Single V3 (DMS 047) packaged pump station designed to collect ground water from a Delta cavity membrane system through the clear opening to the top of the chamber (DMS 047). This pump station would be selected where no running water is present or expected and therefore is for protection only, i.e. for non perishable areas.

The Single V3 sump with inlets (DMS 107) allows for one or two 110mm pipes to be connected into the side of the chamber, we recommend advice from one of our technical support engineers before selecting this product.

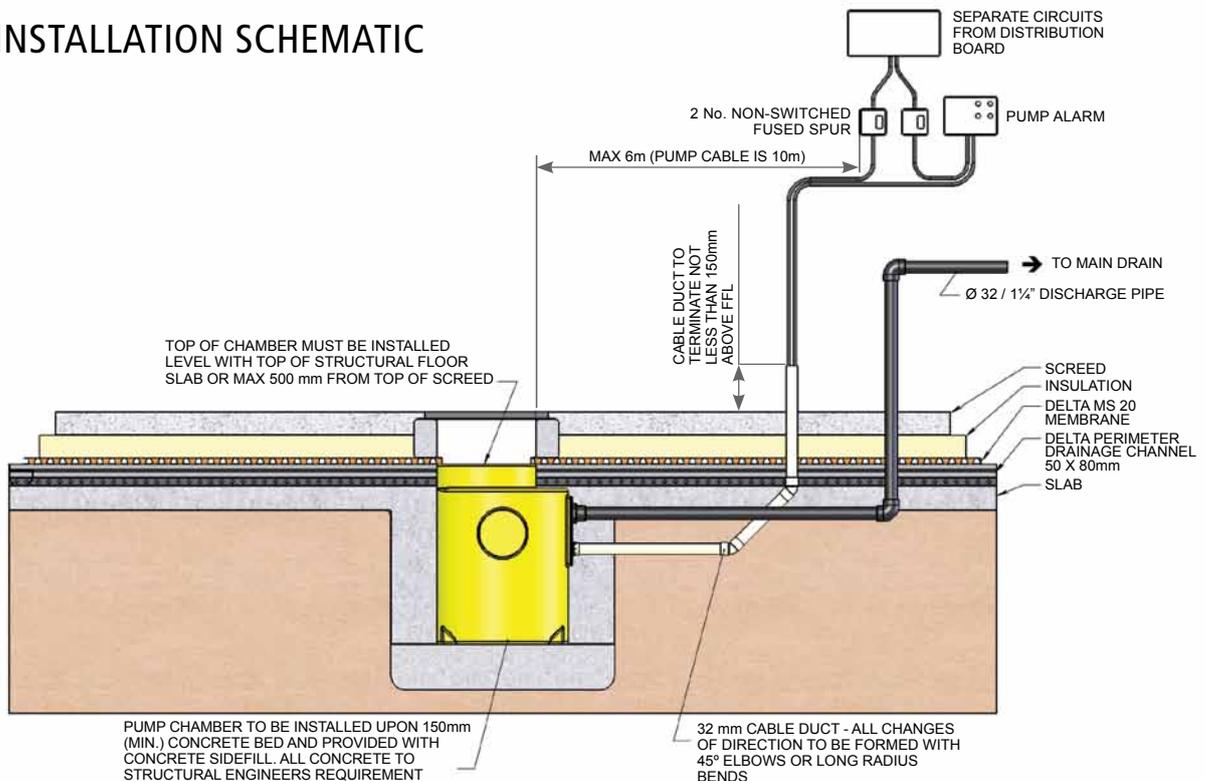
The Delta Single V3 pump station has been specifically designed for below ground applications. The chamber is manufactured from HDPE and able to withstand hydrostatic forces encountered in applications with high water tables.

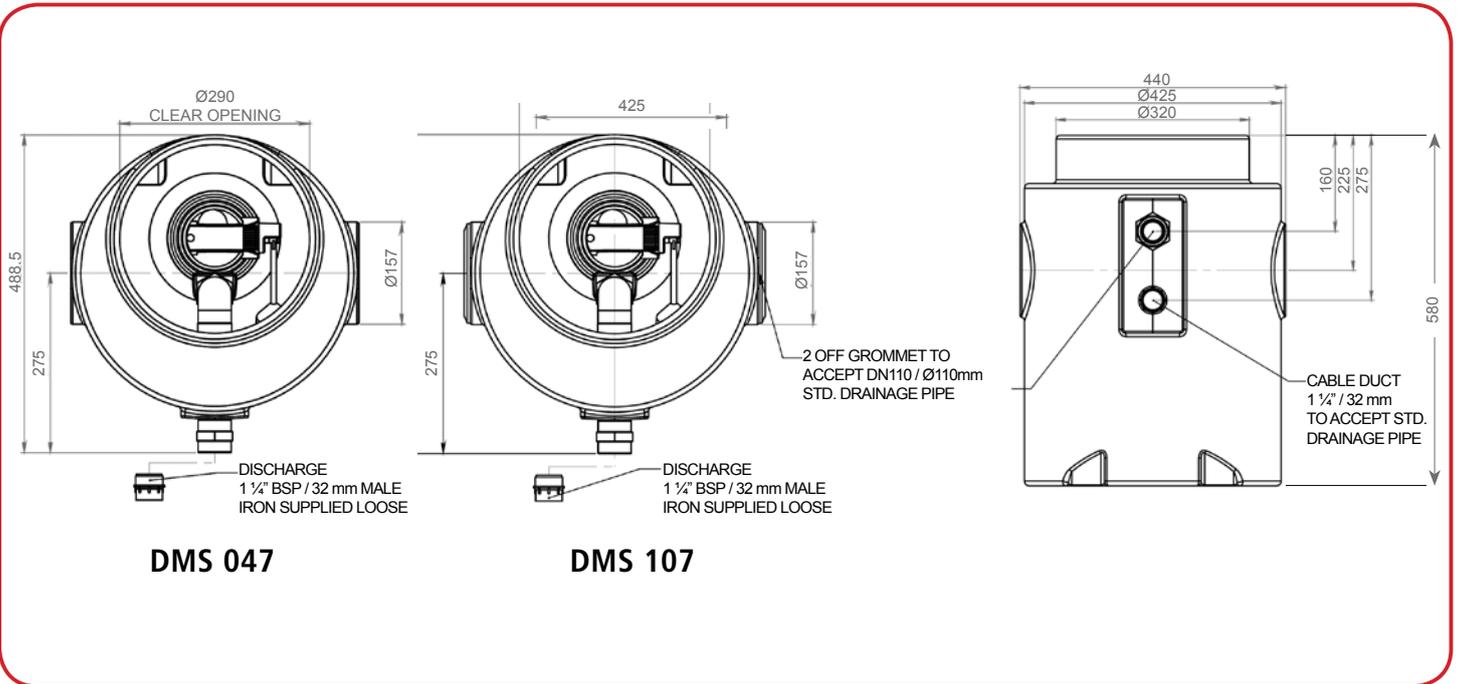
The pump station is delivered as a complete package including chamber all internal pipe work and one powerful Delta V3 pump. A high level alarm is offered as a recommended option. It is designed to be installed by contractors with competent building, plumbing and electrical skills.



Installation

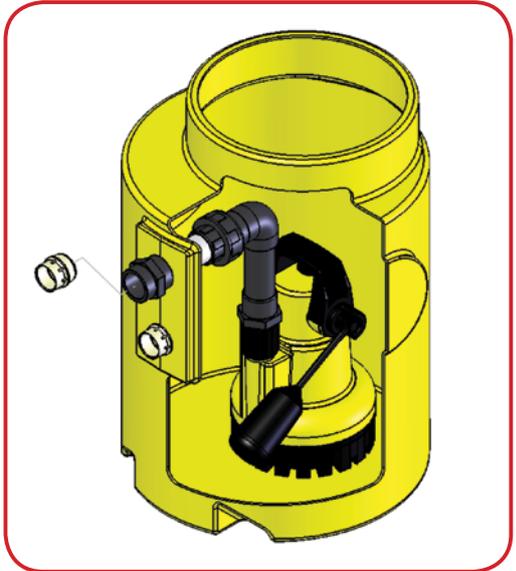
TYPICAL INSTALLATION SCHEMATIC





Pump Model	V3P
Voltage	230 V
KW rating (P1 / P2)	0.43/0.18KW
Full Load Current	1.9 A
Fuse Rating spur	13 A
Typical Duty	2.2 L/S 3m Head
Chamber Storage Volume	80 litres

For full technical & performance information please refer to 'Delta Drainage & Sewage Pumps - Technical Overview'



Accessories

Battery Backup



High Level Alarm



Telemetry System



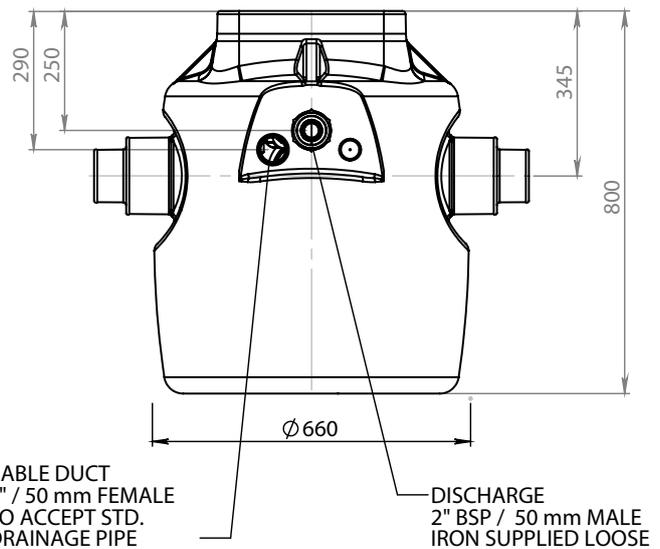
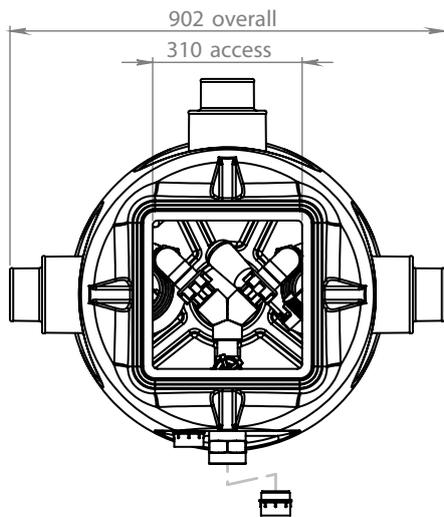
Pipework



DUAL V4 & V6

Overview

The Dual V4 & V6 are upgrades to the standard Dual V3 where higher discharge heads are required. Typically for double and triple depth basements or where long discharge runs are required resulting in higher than normal pipe work losses. The Dual V4 and V6 are suitable for picking up ground water from a cavity membrane systems and light wells, totalling up to 12m².



Pump Model	V4P	V6P
Voltage	230	230
KW Rating P1/P2	0.75 / 0.356	1.050 / 0.50
Full Load Current	4.0A	4.9A
Fuse Spur Rating	13A	13A
Typical Duty	2.0 l/s @ 7m	2.0 l/s @ 9m
Total Storage Volume	273 Litres	273 Litres
Storage Below Invert	137 Litres	137 Litres
UPS	Power Plus	Power Plus



Accessories

Battery Backup
Power Plus



High Level Alarm



Telemetry System



Pipework



800 x 1300 Ground, Foul & Surface Water chambers

Overview

The 800mm x 1300mm deep range of chambers are typically used where inverts are required to be deeper than the standard Delta Dual V3, V4 & V6 & foul V3 (345mm from cover level). For example in buildings where drainage runs are long or drainage is running below floor slabs 250mm or thicker. Inverts can be up to 775mm from top of structural slab.



These chambers can collect ground, foul or surface water, dependent on the pump used, but not in the same chamber.

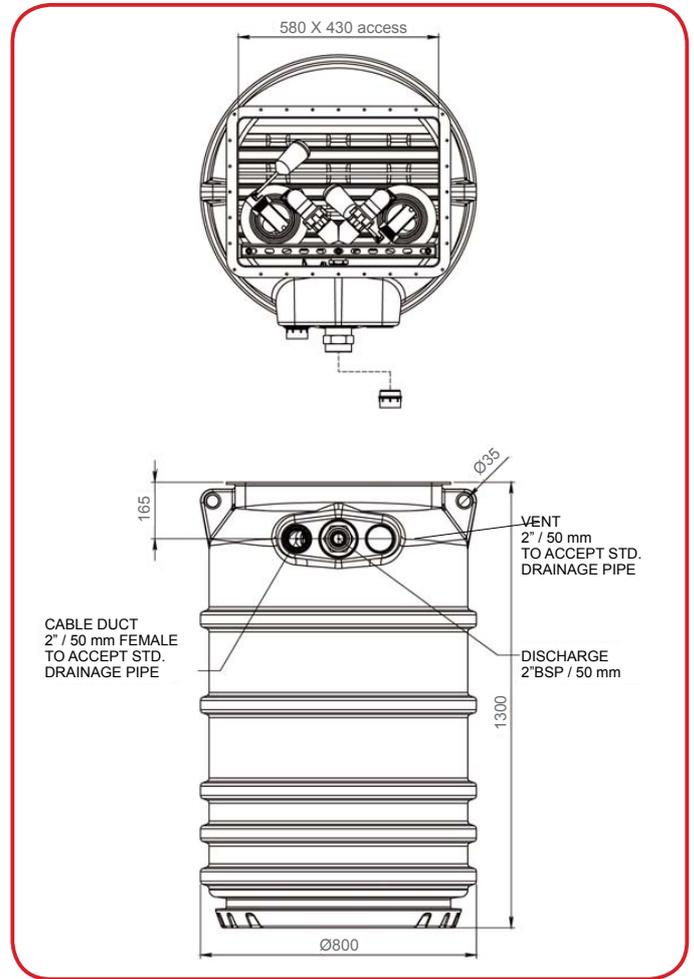


Table 2	Typical Duty	Ground / Surface Water	Foul Water	Solids Passage	Pump Installation	Pump Type	UPS
2-800-1300-U-V3	2l/s @ 4m head	YES	NO	10mm	Free Standing	V3	Battery Backup
2-800-1300-U-V4	2l/s @ 7m head	YES	NO	10mm	Free Standing	V4	Power Plus
2-800-1300-U-V6	2l/s @ 9m head	YES	NO	10mm	Free Standing	V6	Power Plus
1-800-1300-612SA-GR	4l/s @ 7m head	NO	YES	50mm	Guide Rail	612SA	Not Available
1-800-1300-2601SA-GR	4l/s @ 5m head	NO	YES	65mm	Guide Rail	2601SA	Not Available

Accessories

Battery Backup
Power Plus



High Level Alarm



Telemetry System



Pipework

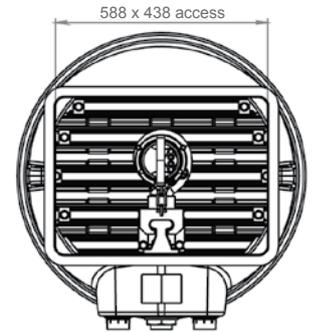


800 SERIES PUMP CHAMBERS

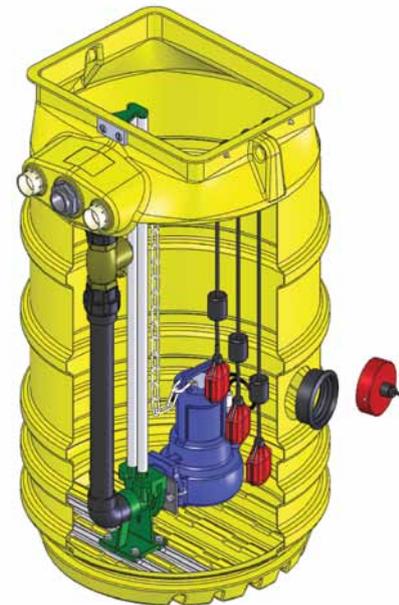
Overview

- Available in depths 800mm, 1000mm, 1300mm, 1500mm, 1800mm & 2000mm from stock
- Applications including ground, surface and foul water
- Accepts single & dual, guide rail or free standing 32mm, 50mm & 65mm pumps
- Inlets can be cut to suit with kit provided
- Designed for applications where high hydrostatic pressures are present
- Dedicated position for cable duct & vent
- Manufactured from tank grade ICO 1314 virgin polyethelene
- Accepts standard 450mm x 600mm covers or larger

800 diameter chamber
Single Guiderail

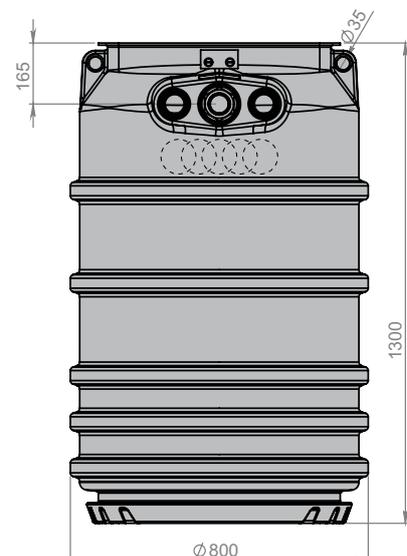
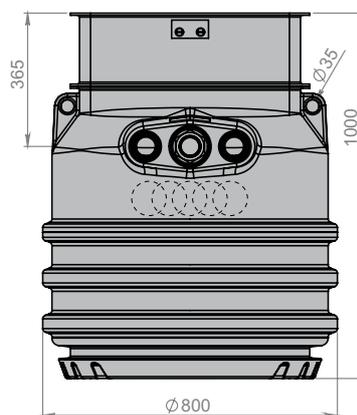
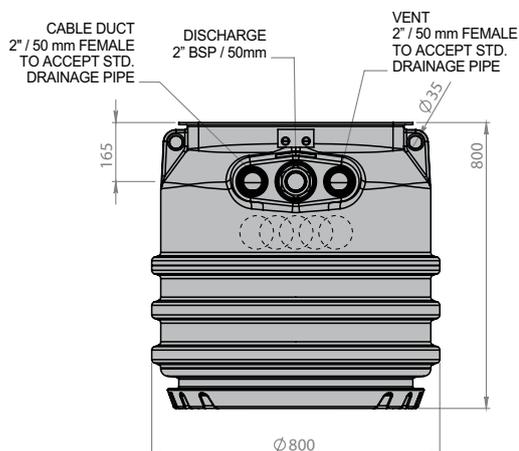


Cutaway view
800mm dia x 1300 deep
Single Guiderail
mounted pumps



Dual and Single Freestanding Pumps Ground / Surface Water 1 1/4" Internal pipe work	V3	V4	V6		
Dual and Single Guiderail Pumps Ground / Surface / Foul Water 2" Internal pipe work	2500	612	2502	2503	2545 macerator pump
Single Guiderail Pumps Ground or Foul Water 2 1/2" Internal pipe work	2601	2602	2603		
Dual and Single Guiderail Pumps Ground / Surface Water 2" Internal pipe work	2308	2309			

The full range of 800 series chambers



Accessories

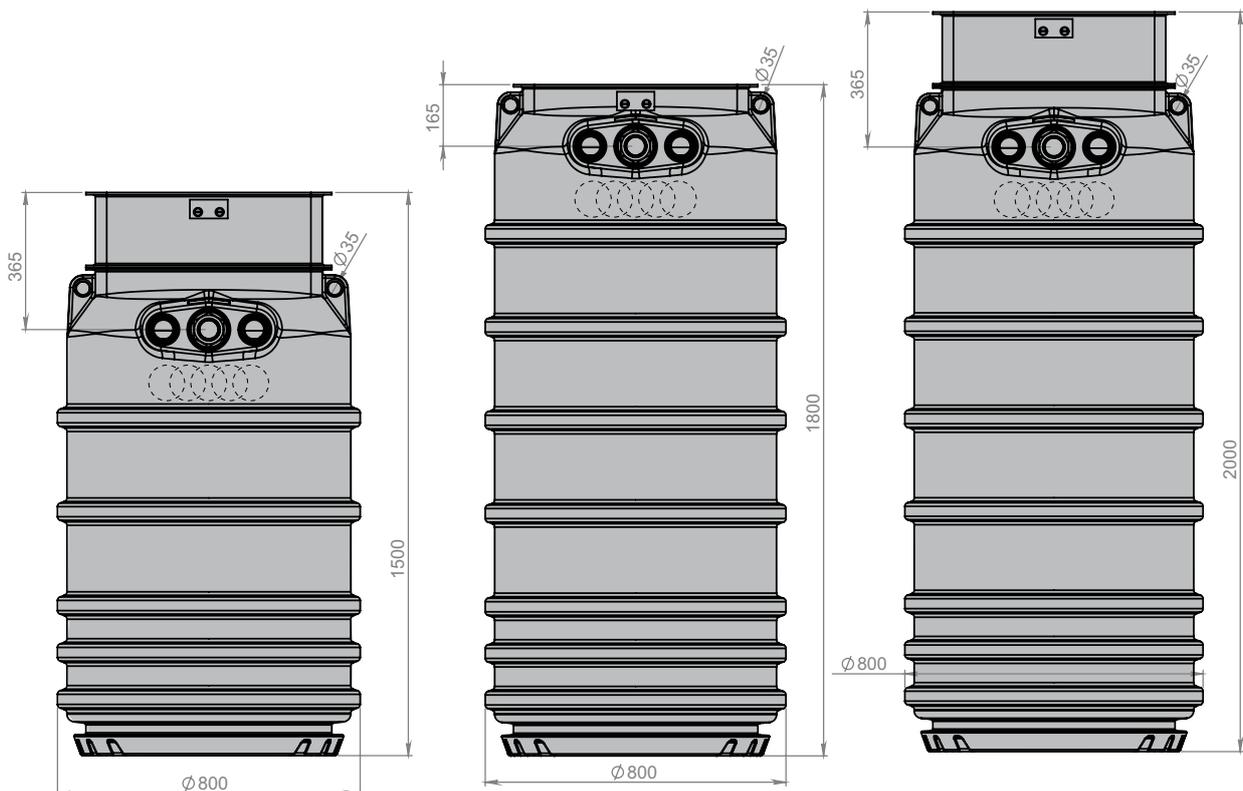
Pipework



Landline or sim based telemetry providing remote monitoring

Battery backup

Standard and bespoke control panels

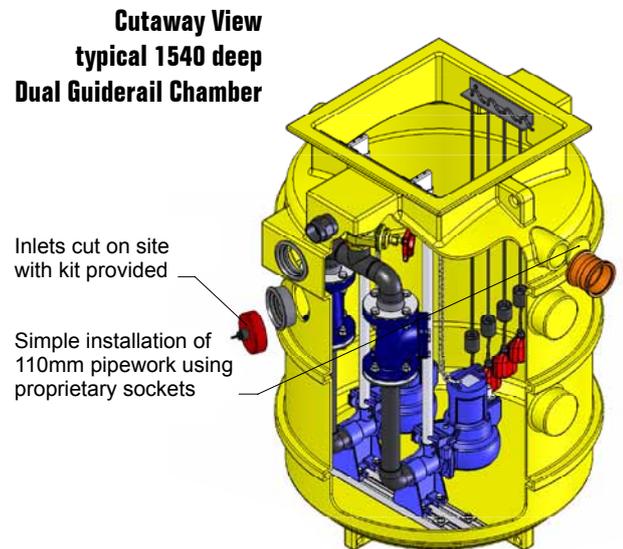
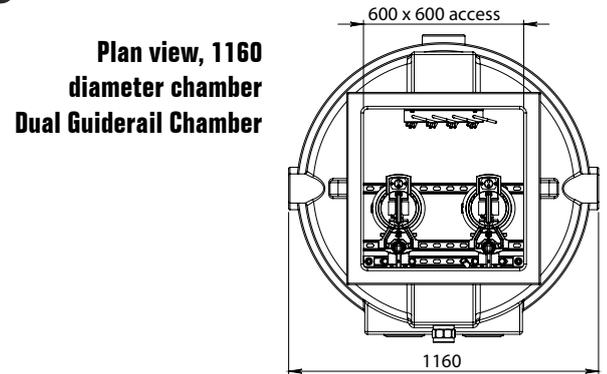


1160 SERIES PUMP CHAMBERS

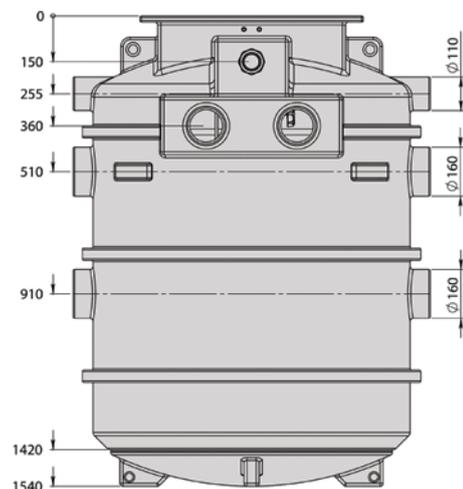
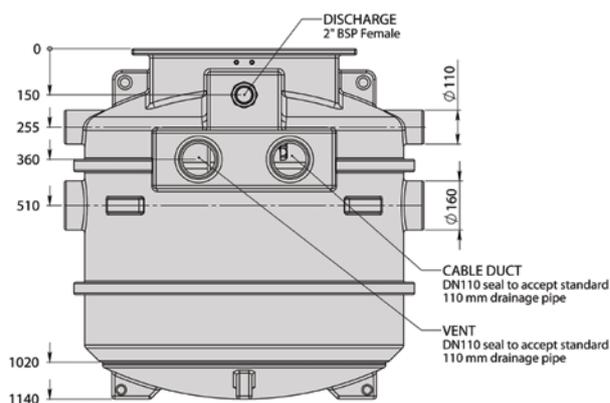
Overview

- Available in depths 1140mm, 1540mm, 1940mm & 2630mm from stock (3000-5000mm to special order)
- Applications including ground, surface and foul water
- Accepts single & dual, guide rail or free standing 32mm, 50mm & 65mm pumps
- Pre installed 110mm & 160mm bosses for inlets
- Additional inlets can be cut to suit with kit provided
- Designed for applications where high hydrostatic pressures are present
- 110mm bosses for cable duct & vent
- Manufactured from tank grade ICO 1314 virgin polyethelene
- Accepts standard 600mm x 600mm covers

Dual and Single Guiderail Pumps Ground / Surface / Foul Water 2" Internal pipe work	2500	612	2502	2503	TC 656 macerator pump
Single Guiderail Pumps Ground / Surface / Foul Water 2 1/2" Internal pipe work	2601	2602	2603		
Dual and Single Guiderail Pumps Ground / Surface Water 2" Internal pipe work	2308	2309			



The full range of 1160 series chambers



Accessories



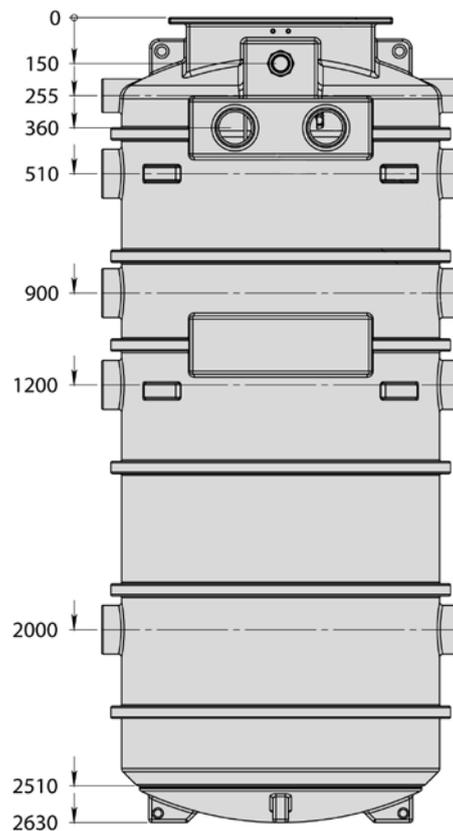
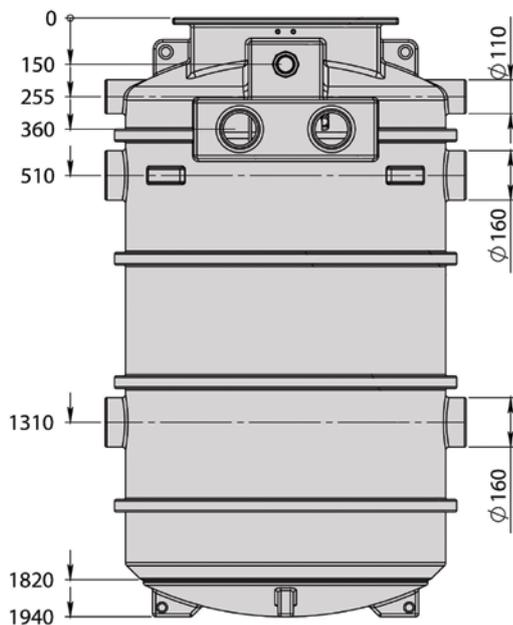
Pipework



Landline or sim based telemetry providing remote monitoring



Standard and bespoke control panels



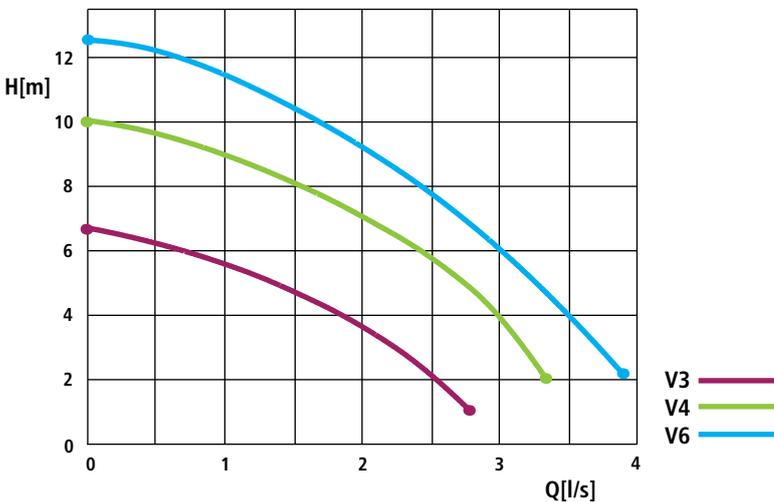
DELTA DRAINAGE AND SEWAGE PUMPS

Performance and electrical information

Overview

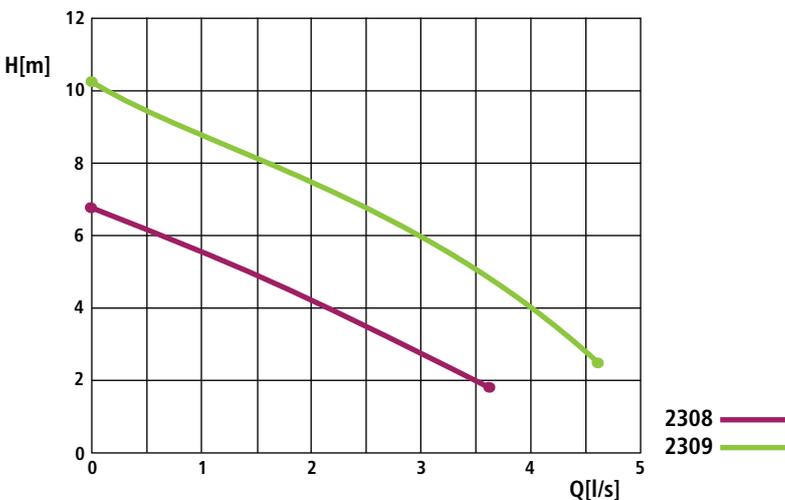
A range of drainage and sewage pumps fitted to our standard V3 products as well as larger 800 & 1160 series bespoke chambers. Featuring a range of single and three phase pumps with vortex impellers and macerator cutting systems. Pumps are generally available in automatic for control via an integral float switch or manual to be controlled via an external control panel. Applications covered include ground, surface and foul water, with the emphasis on high quality and low whole life costs. Pumps fitted to standard products are removed using quick release couplings, larger pump stations have pumps on 'guide rail' system with simple removal via lifting chains. We offer a range of accessories fitted as standard to our pump stations as stand alone products when fitting pumps inside pre cast chambers or concrete rings, including pipe work, gate and non return valves.

V3, V4 & V6 [Free Standing]



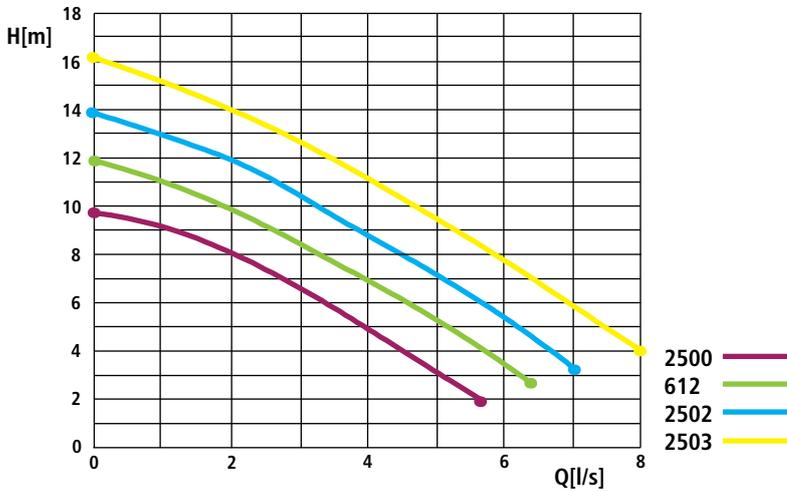
50Hz - 1 ~ 230V Discharge 1 1/4" BSP Female					
Model	P1 kW	P2 kW	In A	Part No.	Weight Kg
V3	0.430	0.180	1.9	DMS - 116	5.64
V4	0.750	0.356	4.0	DMS - 216	7.17
V6	1.050	0.500	4.9	DMS - 084	7.40

2300 series [Guide Rail]



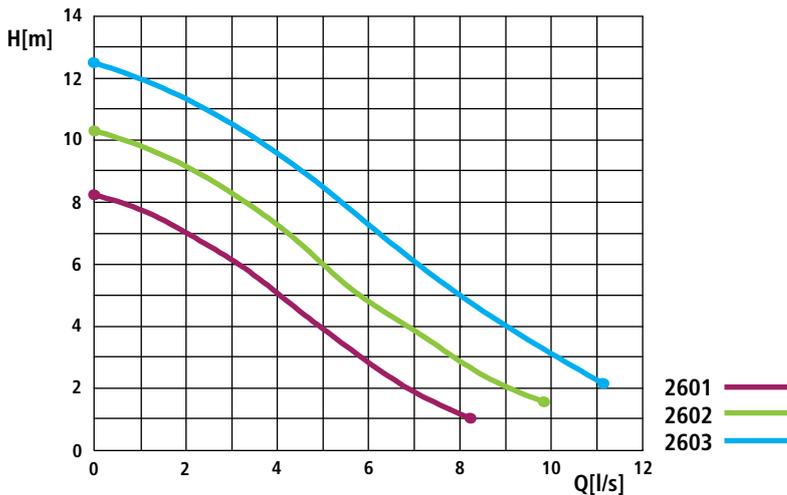
50Hz - 1 ~ 230V Discharge 1 1/4" BSP Female					
Model	P1 MAX W	P2 Nominal kW	In A	Part No.	Weight Kg
2308 SA	355	0.22	1.6	102-016	4.6
2308 SM	355	0.22	1.6	102-017	4.6
2309 SA	800	0.55	3.4	102-018	6.7
2309 SM	800	0.55	3.4	102-019	6.7

2500 Series (Free Standing & Guide Rail Mounted)



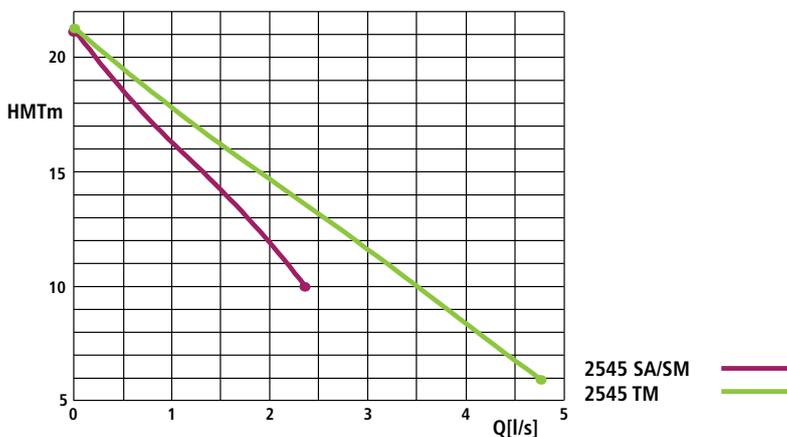
50 Hz - 1~ 230V Discharge 2" BSP Female						
Model	P1 kW	P2 kW	IN (A)	ID (A)	Part No.	Weight Kg
2500 SA	1.0	0.55	5.0	18.2	102-031	22
612 SA	1.25	0.75	6.0	18.2	DMS - 114	22
2502 SA	1.8	1.1	8.2	18.2	102-006	22
2503 SA	1.9	1.1	8.2	18.2	102-008	22
2500 SM	1.0	0.55	5.0	18.2	102-032	22
612 SM	1.25	0.75	6.0	18.2	102-005	22
2502 SM	1.8	1.1	8.2	18.2	102-007	22
2503 SM	1.8	1.1	8.2	18.2	102-009	22
50 Hz - 3~ 400V Discharge 2" BSP Female						
2500 TM	0.9	0.55	2.3	18.3	102-033	22
612 TM	1.1	0.75	2.8	18.3	102-034	22
2502 TM	1.5	1.1	3.0	18.3	102-035	22
2503 TM	2.05	1.5	3.5	18.3	102-036	22

2600 Series (Guide Rail Mounted)



50 Hz - 1~ 230V Discharge 2 1/2" BSP Female						
Model	P1 kW	P2 kW	IN (A)	ID (A)	Part No.	Weight Kg
2601 SA	1.25	0.75	6.0	18.2	102-010	25
2602 SA	1.8	1.1	8.2	18.2	102-012	25
2603 SA	1.8	1.1	8.2	18.2	102-014	25
2601 SM	1.25	0.75	6.0	18.2	102-011	25
2602 SM	1.8	1.1	8.2	18.2	102-013	25
2603 SM	1.8	1.1	8.2	18.2	102-015	25
50 Hz - 3~ 400V Discharge 2 1/2" BSP Female						
2601 TM	1.1	0.75	2.8	18.3	102-037	25
2602 TM	1.5	1.1	3.0	18.3	102-038	25
2603 TM	2.05	1.5	3.5	18.3	102-039	25

2545 (Guide Rail Mounted)



50 Hz - 1~ 230V Discharge 2" BSP Female						
Model	P1 kW	P2 kW	IN (A)	ID (A)	Part No.	Weight Kg
2545 SA	1.8	1.1	8.2	18.2	102-040	26
2545 SM	1.8	1.1	8.2	18.2	102-041	26
50 Hz - 3~ 400V Discharge 2" BSP Female						
2545 TM	2.05	1.5	3.5	18.3	102-042	24

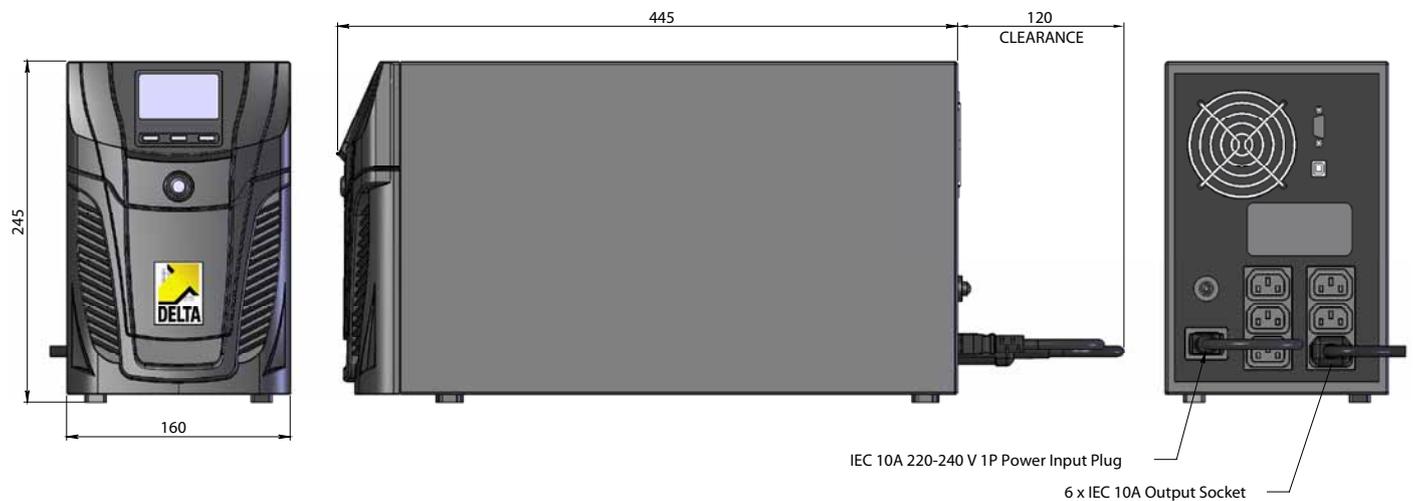
BATTERY BACKUP UNITS

Designed to run our range of ground or surface water pumps in the event of mains power loss, for example during power outages or nuisance tripping. The units will continue to run the installed 240v pump without compromising the ground water evacuation rate from the pump station. When power is reinstated the unit will automatically recharge and return to standby mode.

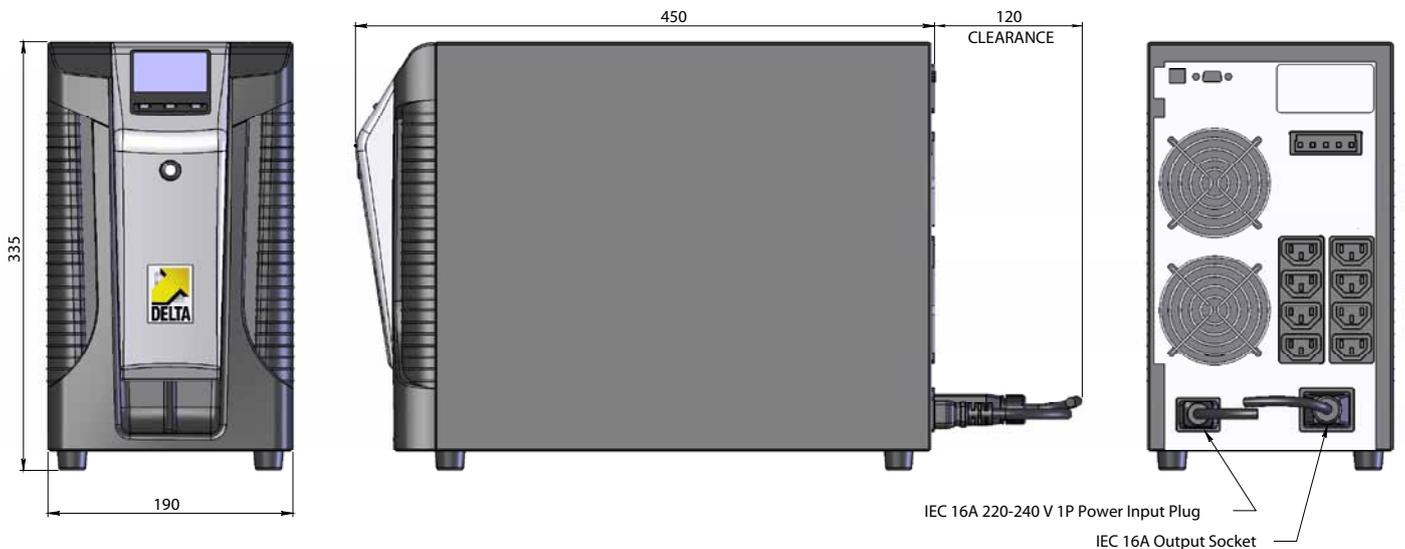
The unit is continually trickled charged when on main power therefore is always ready to operate. Installation is very simple and does not require an additional electrical supply. It is designed to be installed in a dry well vented environment (20-25°C) and is maintenance free.

The range is designed to run our range of ground water pumps (V3, V4, V6, 308 & 309) for running times contact our office.

Standard battery backup



Power plus battery backup



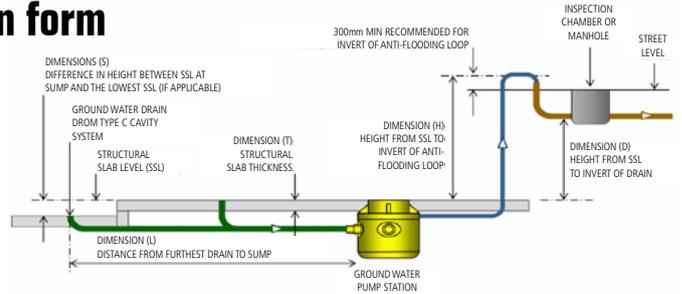
SELECTION GUIDANCE FORMS

A range of forms designed to request typical information required to select a pump station. Complete as much information as you have and we will do the rest.

Why not call us on 01992 523523 and we will assist with your selection. If drawings are available, send a copy with your inquiry to pumps@deltamembranes.com

Ground water pump station data collection form

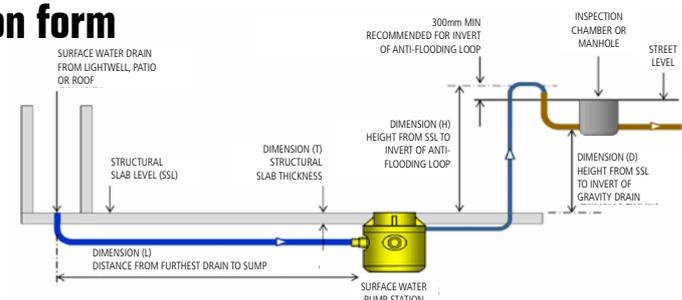
a) Approx floor area of Basement?		M ²
b) Total perimeter length of Basement floor?		M
c) Approx width of Basement?		M
d) Approx length of Basement?		M
e) What is the structural slab thickness (T)?		mm
f) What is the furthest drain length (L)?		M
g) Height of discharge anti-flooding loop (H)?		M
h) Height of gravity drain invert above SSL (D)?		M
i) Is the sump located in the lowest SSL area?		Y/N
j) If above = 'No' what is dim 'S' slab?		M



k) Will this sump serve an external area?	No	Y/N
l) What is the size is the external area?		
Void		Void

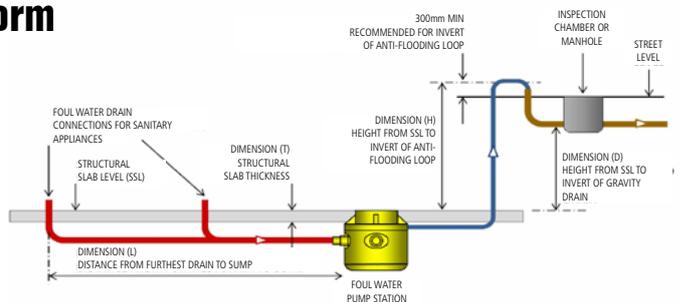
Surface water pump station data collection form

a) Total surface area to discharge to sump?		M ²
b) What is the structural slab thickness (T)?		mm
c) What is the furthest drain length (L)?		M
d) Height of discharge anti-flooding loop (H)?		M
e) Height of gravity drain invert above SSL (D)?		M



Foul water pump station data collection form

a) Do you need 24 hour emergency storage?		Y/N
FALSE		No
c) Is only the Basement to be pumped?		Y/N
d) Number of sanitary appliances in the building		Number
please leave zero in each box if none apply:		gravity
How many WC pans?		
How many wash basins?		
How many baths?		
How many showers?		
How many kitchen or utility sinks?		
How many dishwashers?		
How many (laundry) washing machines?		



How many urinals?		
e) What is the structural slab thickness (T)?		mm
f) What is the furthest drain length (L)?		M
g) Height of discharge anti-flooding loop (H)?		M
h) Height of gravity drain invert above SSL (D)?		M

PIPEWORK - PIPE, FITTINGS, VALVES

Material: PVC-U Class C	Pressure Rating @ 20°C	In accordance with:
Pipe (Solvent Weld)	9 Bar (130 PSI)	BS EN 1452
Fittings (Solvent Weld)	15 Bar (217 PSI)	BS 4316 part 1
Fittings (Threaded)	12 Bar (173 PSI)	BS21 ISO7. DIN 2119

All of our Packaged Pump Systems internal pipe work is constructed using grey PVC-U

90° Bend

1 ¼"	2"	2 ½"
DMS - 0145	DMS - 0155	DMS - 315



Pipe

1 ¼" x 3m	2" x 3m	2 ½" x 2.5m
DMS - 0144	DMS - 0154	DMS - 313



Plain Socket

1 ¼"	2"	2 ½"
DMS - 0147	DMS - 0157	DMS - 317



45° Bend

1 ¼"	2"	2 ½"
DMS - 0146	DMS - 0156	DMS - 316



Threaded / Threaded Socket

1 ¼"	2"	2 ½"
DMS - 331	MA2 - 200	MA2 - 250



Plain / Threaded Socket

1 ¼"	2"	2 ½"
F - MA6 - 125	MA6 - 200	MA6 - 250



"T" Piece

1 ¼"	2"	2 ½"
DMS - 318	T34 - 200	T - 14 - 250



Union

1 ¼"	2"	2 ½"
BO4 - 125	BO4 - 200	BO4 - 250



Saddle Clamps

110mm (4")-1 ¼" bsp (female)	DMS - 0141
110mm (4")-2" bsp (female)	DMS - 0151
160mm (6")-1 ¼" bsp (female)	DMS - 0142
160mm (6")-1 ¼" bsp (female)	DMS - 0152



Adapters from 110mm to...

1 ¼"	2"	2 ½"
DMS - 340	DMS - 341	DMS - 342



Non-Return Swing Check Valves (Brass)

1 ¼"	2"	2 ½"
109 - 009	DMS - 327	109 - 004



Non-Return Ball Valves

1 ¼" Threaded	2" Threaded	2 ½" Threaded
DMS - 328	109 - 003	109 - 005



Male Iron

1 ¼"	2"	2 ½"
DMS - 0143	DMS - 0153	DMS - 314



Gate Valves Brass

1 ¼"	2"	2 ½"
DMS - 329	109 - 007	109 - 008



White Male Iron (Low Pressure)

1 ¼"	2"
DMS - 332	DMS - 335



High Pressure Glue

DMS - 0158



Hose Tail & Clips

1 ¼" HOSE TAIL	DMS - 062
1 ¼" CLIP	DMS - 063



Semi Rigid Hose - 1 ¼"

DMS - 065



CONTROL PANELS AND ALARMS



High level alarms

A range of stand alone audible high level alarms. Powered via a 240v switch fused spur with backup on mains power failure via a trickle charged battery.
Supplied with 10m float switch.
For further information see data sheet...

DMS-097

Standard audible high level alarm

DMS-127

High level audible alarm with N/O & N/C volt free contacts



Telemetry - SIM based

A high level alarm with the facility to send a text message on high water level via a SMS message to 5 mobile/landline phones. Powered via 240v switch fused spur with backup on mains power failure via a trickle charged battery.

Supplied with 10m float switch.

For further information see data sheet...

DMS-134

SIM based high level alarm



Telemetry - Land line based

A high level alarm with the facility to send a voice message on high water level via a voice message to 5 mobile/landline phones. Powered via 240v switch fused spur with backup on mains power failure via a trickle charged battery.

Supplied with 10m float switch.

For further information see data sheet...

CP-001

Land line based high level alarm



Standard 4 float control panel

A range of panels to control duplex pumps via 4 floats (start, stop, assist and high level alarms). Options include volt free contacts for high level alarm & pump trip, land and SIM based telemetry and facility to connect UPS battery backup.

For further information see data sheet...

CP-002

Control panel with VF contacts for HL alarm

CP-003

Control panel with VF contacts for HL alarm and pump trips

CP-004

Control panel with VF contacts for HL alarm and pump trips, SIM telemetry

CP-005

Control panel with VF contacts for HL alarm and pump trips, land line telemetry



Bespoke control panels

Single panels to control multiple pump stations

Pump hour and run counters

Compartmental panels

Waterproof panels

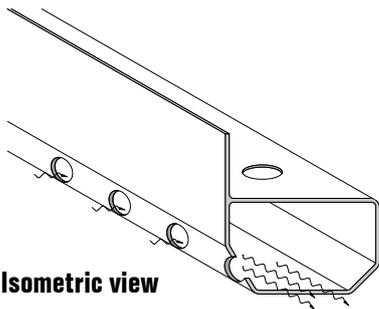
Landline SIM based telemetry

DRAINAGE CHANNEL & FITTINGS

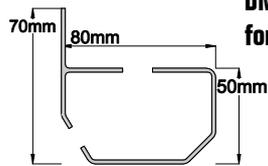
Channel



DMS208 (No upstand)
for off-wall or across floor applications



Isometric view



Section through channel



DMS207 (With upstand)
for perimeter walls

Fittings

The system also comes with four different connectors, which compliment the system and make it quick and easy to install. These are push-fit but can be solvent welded if required

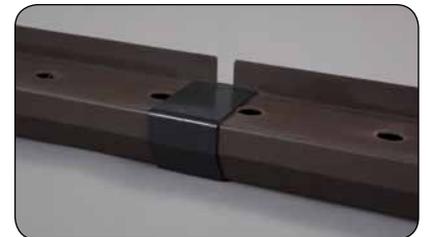
DMS182 - Corner Connector

This fits internal and external corners to channel lengths and has a push-out eye for a jetting port APU (DMS094).

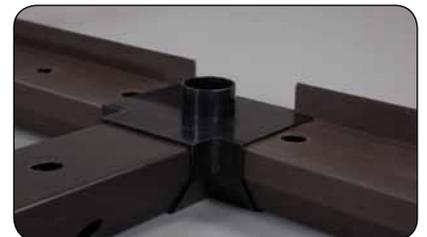


DMS310 - Straight Connector

This connector fits channel lengths together.



DMS183 - 'T' Piece Connector



DMS184 - End Cap

These are used to blank off ends of channel runs. They are also used to reduce the discharge to 40mm diameter before entering the sump.

This is done with standard Plumbing pipe, which is solvent welded onto the adaptor.



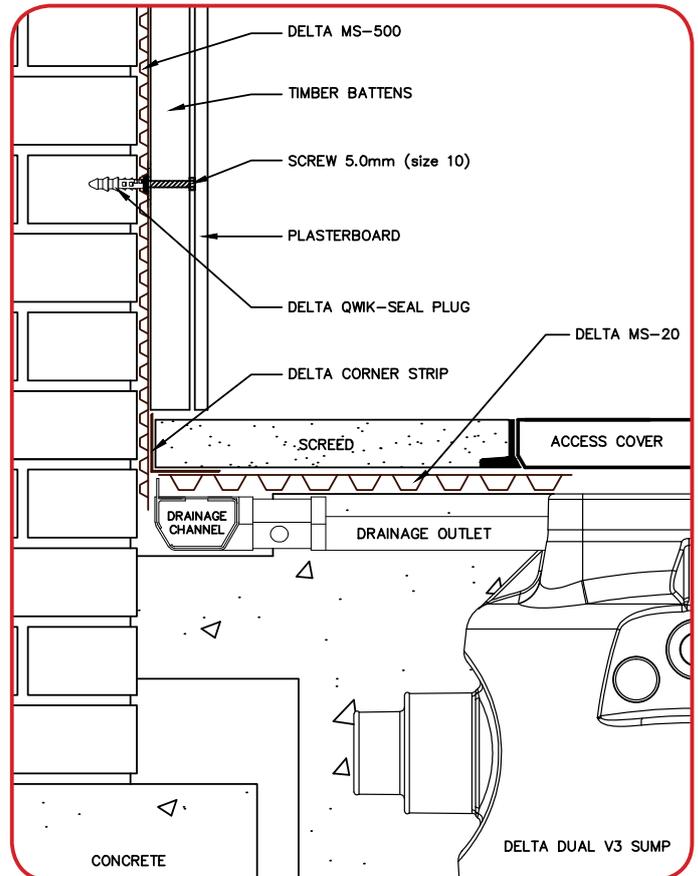
DMS094 - Jetting Eyes

Jetting Eyes can be installed onto the easy push out connectors using solvent weld.

These are used for easy access maintenance of the channels by water jetting any blockages.



Typical 'Perimeter Channel' installation



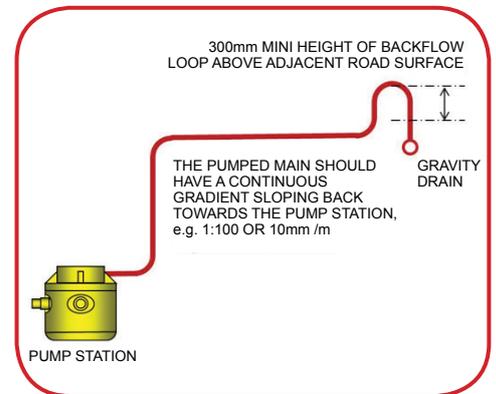
Typical installation showing interface between pump chamber and drainage channel

TYPICAL FAQs FOR PUMP STATION APPLICATIONS

1. If it's feasible for a Basement or Lower Ground Floor area to discharge by gravity drain to the sewer, is this acceptable?

If the floor level is below street level and contains habitable rooms then it is usually considered sensible to incorporate a sump station. The pumped main should be arranged to form a back flow loop so that it is higher than the flood level. If the flood level is unknown, we normally recommend the invert of the loop is at least 300mm above the surface of the adjacent road. This will provide the best flood protection in the event that the sewer becomes surcharged (full and pressurised).

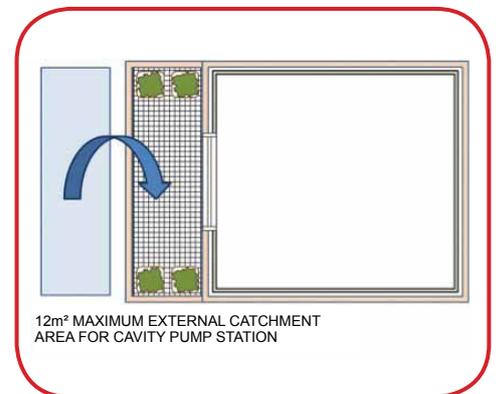
Please note that anti-flooding valves should only be used for flood protection when the rooms are of minimal importance and the occupants have access to other sanitary appliances above street level that do not discharge via the anti-flooding valve.



2. As a pump station is an essential part of a cavity drainage system designed to prevent ground water from damaging a Basement, what emergency provisions are recommended?

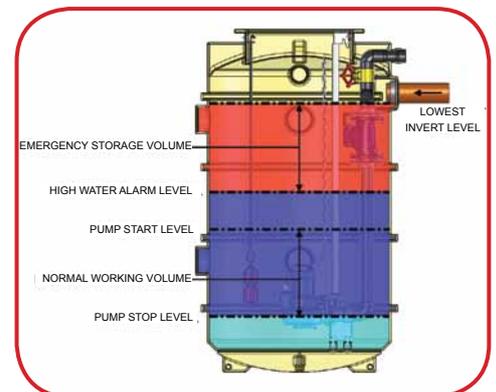
The sump must be provided with duplicate pumps together with UPS (uninterruptible power supply), usually consisting of an automatically trickle charged battery system. A high water level alarm is also essential, and if the property is frequently left unattended for long periods, then it would be wise to include a Telemax SMS messaging system for remote warning.

Please note that remote warning should also be considered for rainwater and surface water applications.



3. Can pump stations be used for rainwater applications?

Small sheltered catchment areas up to 12m² (such as Lightwells or Stairwells) can normally be served by the same pump station that serves the cavity drainage system. For larger or more exposed catchment areas separate pump stations are advisable, and it is also important to ensure that adequate provision has been included to prevent internal flooding of the building in the event of a 24hr disruption, e.g. power failure. We will be pleased to provide further guidance if required.



4. When planning a foul water pump station for a dwelling, should emergency storage be included?

If all the sanitary appliances in a dwelling are reliant on the pump station, then Building Regulations ADH advises that 150L/person emergency storage should be provided. This is designed to ensure that the sanitary appliances remain functional for a 24hr period in the event of a disruption. If the anticipated water consumption is less than 150L/person because the sanitary appliances have been selected to comply with Building Regulation 17K or the Code of Sustainable Homes, then (subject to Building Control agreement) the emergency storage could be reduced as appropriate.

If only part of the dwelling is located below street level, and there are a sufficient number of appliances (based on BS 6465) on upper floors that discharge to the sewer by gravity, then (subject to Building Control agreement) it may be reasonable to consider that emergency storage is NOT essential for the pump station, because the users have sufficient alternative sanitary appliances.

Please note that for 'high end' projects, the client's Project Administrator may wish to consider that emergency storage should be provided to minimise any inconvenience during a disruption (e.g. power failure).

Minimum sanitary provisions for a single dwelling based on BS 6465

Appliance	Provision
WC	1 for up to 4 people 2 for 5 people or more
Wash basin	Not less than 1, but 1 adjacent to every WC
Bath or shower	1 per 4 people

COMMISSIONING AND INSTALLATION

We offer installation & commissioning services to ensure all pump stations are handed over to the client in full working order. We work with contractors to ensure the process is as smooth as possible and will always survey the site to make sure when our engineers attend everything is ready.

All our staff are fully trained and carry CSCS cards & are confined space trained. We work in accordance with the latest Health & Safety regulations and have CHAS accreditation. We are able to produce risk assessment & method statements for review prior to attendance.

Commissioning

Essentially final checks to pump equipment installed by others, typically the main contractor. We make a full range of mechanical & electrical checks to ensure all settings are within the tolerance set by the manufacturer. On completion, a commissioning certificate will be issued which also re-starts the one year manufacturer's warranty.



Installation

Our engineers visit site, install pumps into pump chambers, pull cables through ducts, mount electrical control panels, energise the system, test & commission. We are able to offer additional services which can be discussed at the pre order meeting.

Most site contractors see our engineers as an extension to their own operatives and we are keen to be flexible to ensure the work is completed within the schedule.

NOTES

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NOTES

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e: pumps@deltamembranes.com

www.deltamembranes.com

Testimonials

"Dear Sir, I thought I'd drop you a quick note to say that Steve, the engineer who serviced our pump, was a delight to have in our home. He explained what was required, was smart, polite and even had a new part, which saved arranging another appointment. Thank you."

Mr P, Hertfordshire

