Pumped Drainage
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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.

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.

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.
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.
**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’

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**Accessories**

- Battery Backup
- High Level Alarm
- Telemetry System
- Pipework

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t: 01992 523 523  f: 01992 523 250  e: pumps@deltamembranes.com  www.deltamembranes.com
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.

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
Pump Model
Voltage
KW rating (P1 / P2)
Full Load Current
Fuse Rating spur
Typical Duty
Chamber Storage Volume
Storage below Volume

612SA
230 V
1.25KW / 0.75KW
6.0A
13A
5.8L/S @ 4m Head
273 litres
137 litres

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

Accessories

High Level Alarm
Telemetry System
Pipework
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)

2300 series (Guide Rail)

50Hz - 1 ~ 230V Discharge 1 1/4" BSP Female

<table>
<thead>
<tr>
<th>Model</th>
<th>P1 kW</th>
<th>P2 kW</th>
<th>In A</th>
<th>Part No.</th>
<th>Weight Kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>V3</td>
<td>0.430</td>
<td>0.180</td>
<td>1.9</td>
<td>DMS - 116</td>
<td>5.64</td>
</tr>
<tr>
<td>V4</td>
<td>0.750</td>
<td>0.356</td>
<td>4.0</td>
<td>DMS - 216</td>
<td>7.17</td>
</tr>
<tr>
<td>V6</td>
<td>1.050</td>
<td>0.500</td>
<td>4.9</td>
<td>DMS - 084</td>
<td>7.40</td>
</tr>
</tbody>
</table>

50Hz - 1 ~ 230V Discharge 1 1/4" BSP Female

<table>
<thead>
<tr>
<th>Model</th>
<th>P1 MAX kW</th>
<th>P2 Nominal kW</th>
<th>In A</th>
<th>Part No.</th>
<th>Weight Kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>2308 SA</td>
<td>355</td>
<td>0.22</td>
<td>1.6</td>
<td>102-016</td>
<td>4.6</td>
</tr>
<tr>
<td>2308 SM</td>
<td>355</td>
<td>0.22</td>
<td>1.6</td>
<td>102-017</td>
<td>4.6</td>
</tr>
<tr>
<td>2309 SA</td>
<td>800</td>
<td>0.55</td>
<td>3.4</td>
<td>102-018</td>
<td>6.7</td>
</tr>
<tr>
<td>2309 SM</td>
<td>800</td>
<td>0.55</td>
<td>3.4</td>
<td>102-019</td>
<td>6.7</td>
</tr>
</tbody>
</table>
**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 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.

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### Standard battery backup

![Diagram of standard battery backup unit]

- **IEC 10A 220-240 V 1P Power Input Plug**
- **6 x IEC 10A Output Socket**
- **445 CLEARANCE**

### Power plus battery backup

![Diagram of power plus battery backup unit]

- **IEC 16A 220-240 V 1P Power Input Plug**
- **IEC 16A Output Socket**
- **450 CLEARANCE**
# 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

<table>
<thead>
<tr>
<th>Question</th>
<th>Unit</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Approx floor area of Basement?</td>
<td>M²</td>
<td></td>
</tr>
<tr>
<td>b) Total perimeter length of Basement floor?</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>c) Approx width of Basement?</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>d) Approx length of Basement?</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>e) What is the structural slab thickness (T)?</td>
<td>mm</td>
<td></td>
</tr>
<tr>
<td>f) What is the furthest drain length (L)?</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>g) Height of discharge anti-flooding loop (H)?</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>h) Height of gravity drain invert above SSL (D)?</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>i) Is the sump located in the lowest SSL area?</td>
<td>Y/N</td>
<td>Void</td>
</tr>
<tr>
<td>j) If above = ‘No’ what is dim ‘S’ slab?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>k) Will this sump serve an external area?</td>
<td>No</td>
<td>Y/N</td>
</tr>
<tr>
<td>l) What is the size of the external area?</td>
<td></td>
<td>Void</td>
</tr>
</tbody>
</table>

## Surface water pump station data collection form

<table>
<thead>
<tr>
<th>Question</th>
<th>Unit</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Total surface area to discharge to sump?</td>
<td>M²</td>
<td></td>
</tr>
<tr>
<td>b) What is the structural slab thickness (T)?</td>
<td>mm</td>
<td></td>
</tr>
<tr>
<td>c) What is the furthest drain length (L)?</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>d) Height of discharge anti-flooding loop (H)?</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>e) Height of gravity drain invert above SSL (D)?</td>
<td>M</td>
<td></td>
</tr>
</tbody>
</table>

## Foul water pump station data collection form

<table>
<thead>
<tr>
<th>Question</th>
<th>Un</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Do you need 24 hour emergency storage?</td>
<td>Y/N</td>
<td>FALSE</td>
</tr>
<tr>
<td>c) Is only the Basement to be pumped?</td>
<td>Y/N</td>
<td>No</td>
</tr>
<tr>
<td>d) Number of sanitary appliances in the building</td>
<td>Number</td>
<td>gravity</td>
</tr>
<tr>
<td>e) What is the structural slab thickness (T)?</td>
<td>mm</td>
<td></td>
</tr>
<tr>
<td>f) What is the furthest drain length (L)?</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>g) Height of discharge anti-flooding loop (H)?</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>h) Height of gravity drain invert above SSL (D)?</td>
<td>M</td>
<td></td>
</tr>
</tbody>
</table>
DRAINAGE CHANNEL & FITTINGS

Channel

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

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.
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).
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

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e: pumps@deltamembranes.com
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Precise
Fully trained in-house service engineers to maintain, enhance and replace equipment.

Passionate
Bespoke design, manufacturing and installation ensuring our equipment is fit for every requirement.

Service
From fitting to scheduled maintenance we ensure your needs come first.

• Fully stocked vans
• Emergency breakdown service
• Out of hours service
• Planned maintenance
• Factory trained engineers
• Contact on 01279 757400 or via www.ppsgroupuk.com

PPS - Precise, Passionate Service