3/2023/0318

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE 06/4303

T-T

MADE IN BRITAIN

Planet range

# Package Pumping Stations with Extension Turret

## Installation - Product Manual

[redacted]

## Contents

## Introduction and Contact Information

This manual is intended to give an outline to the correct method of civil installation of your pumping station and you are advised to read the manual prior to attempting the installation of your pumping station.

When installed and maintained correctly, your pumping station should provide reliable operation over a long period. It is essential that regular maintenance and if necessary prompt repairs are carried out to ensure satisfactory and reliable operation. Therefore we urge you to use the T-T PUMPS Service Agreement system, for continued attention to your pumping station by T-T PUMPS Service Engineers.

Our products are manufactured to high standards at economic prices and are complemented by our warranty which covers all items for 12 months from date of delivery or the date of commissioning when T-T PUMPS is employed to commission the pumping station. We offer full after sales support for your pumping station for spares, repairs and servicing. For warranty claims please contact our Service Department who will always give you a prompt response.

Any enquiry made to T-T PUMPS in connection with the equipment should include these details:-

| | |
|---|---|
| T-T Pumps Contact No.: | K11618 |
| Original Purchaser Name: | COMPLETE PROPERTY MANAGEMENT |
| Customer Order Number: | CPM13/09 |
| Pump Chamber | DUAL VENUS 50MM |
| Pump Type | DGO 100/2/G50H 230V |

[redacted]

[redacted]

## Site Design

Initial planning can save a lot of time and effort in the later stages, and we suggest that you carefully consider the following points:-

1) Location of pumping station, usually at the lowest ground level on site. Will it be accessible for future service work?

2) Will the incoming pipework have sufficient gradient?

3) At what level will the lowest inlet invert level be in relation to the base level of the chamber and will this allow a sufficient storage volume?

For standard installations we recommend a minimum of 1000mm below the lowest incoming inlet invert level to the base of the pump chamber to allow the pumping station to operate efficiently. For non standard installations this may have to be reduced owing to site restrictions. If in doubt please contact our Internal Sales Department.

4) Will the inlet and rising main pipe work be sufficiently buried underground, inline with the pipe work manufacturer's recommendations?

5) Will the power supply be adequate and will the size of supply cable be sufficiently sized to allow for any voltage drop?

All necessary health and safety measures must be observed during the installation process of the pumping station chamber and cover slab.

## Driveways and Roads

If the pumping station is located in a driveway, it is essential that the concrete cover slab and the access cover are sufficiently rated to accept the required loading. On a Venus or Mercury pumping station, a pedestrian-loading cover is supplied as standard. This may be upgraded to suit the relevant loading requirements and a selection of covers to suit the drive way finish, i.e. block paving are available on request.

It is important that a structural engineer is employed at an early stage prior to excavation, to ensure that sufficient strength is obtained from the cover slab and access cover. A ground condition survey is also strongly recommended to ensure the correct selection of backfill concrete.

The chamber itself will not be taking any load as it acts purely as a former; the concrete around the chamber takes the loading which is directed from the access cover and cover slab so correct structural preparation is essential.

## Receipt Check

Prior to your receipt of the package pumping station, the equipment has been subject to an in-house pre-delivery inspection. This is to ensure that all of the components and parts are packed correctly and reach site safely.

On receipt of delivery, please ensure that the Polythene chamber is intact and has not been damaged in anyway. Please also check that the items you have received are in accordance with your order as any claims for missing or lost items must be made within 24 hours of receipt.

A major items check-list makes up part of the delivery note for the goods; this lists the key items so that they may be thoroughly checked on delivery. Please note that any items included within the delivery notes that are not signed for will be deemed delivered and correct.

## Preparation

All internal pipe work and valves will be pre-fitted inside the chamber prior to delivery. On some occasions, owing to the nature of the delivery method that we use, items such as the submersible pumps and control gear may also be packed within the chamber. Please remove all such items prior to the installation commencing.

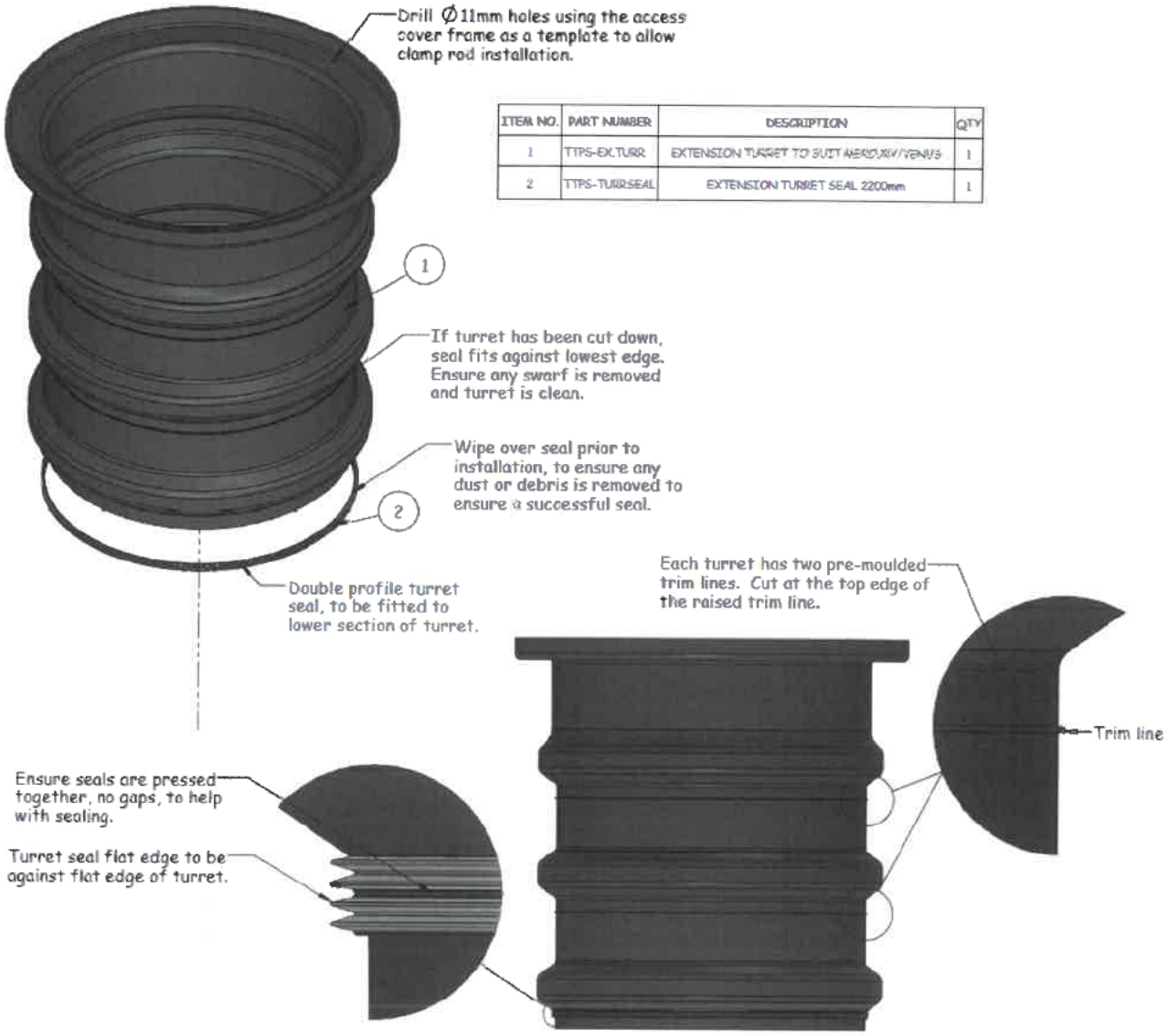
## Handling

The pumping station chamber is moulded from polyethylene with a high strength and durability, however it is of vital importance that great care is taken to prevent accidental damage arising from blows from tools or concentrated pressure on the shell from levering etc.

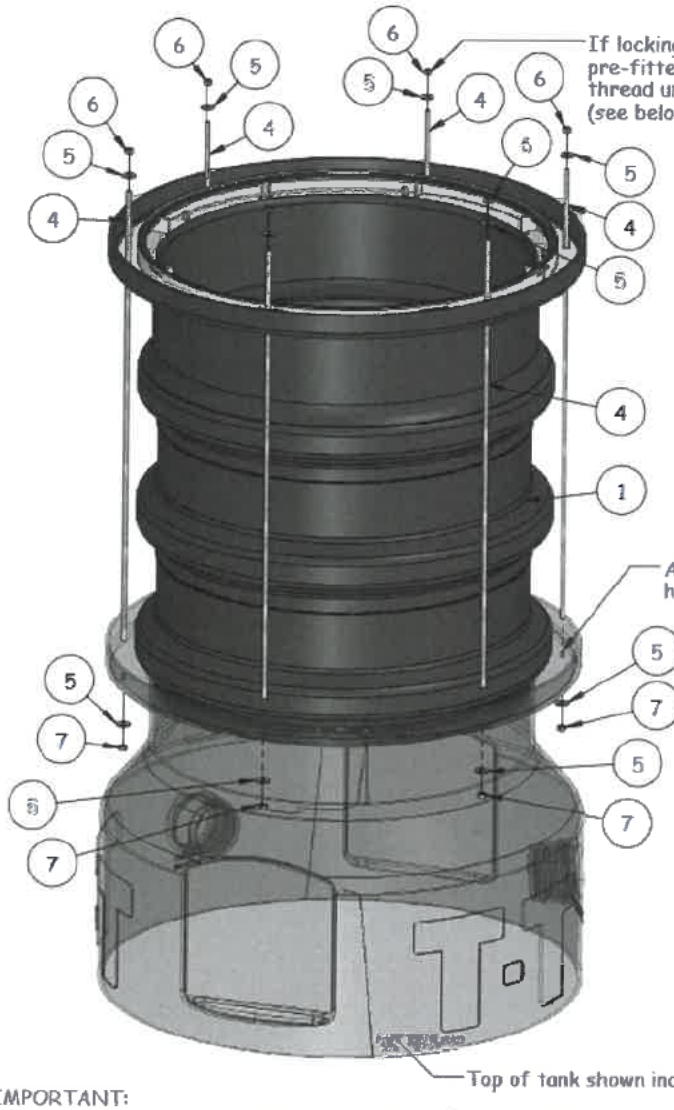
Similarly, sharp corners or edges of bricks and stones must be kept clear of the shell at all times. Impact from a sharp object during the handling and installation of the product could fracture the shell. The chamber must only be lifted using certified lifting slings, and under no circumstances should the pipe connections or fittings be used whilst lifting. Structural damage to the station resulting from the above will render the warranty void.

## Extension Turret Methodology

1. Ensure all parts have been checked against the parts list and are all present.
2. Build up lower clamp frame - Refer to Appendix 1 - TTPS/TURRCLAMPBOT

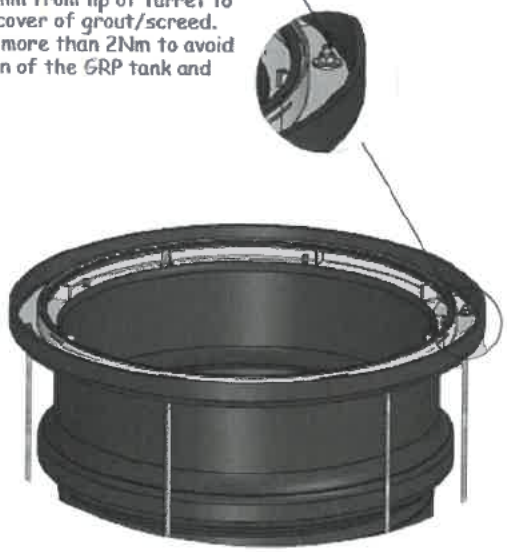


IMPORTANT:
Ensure turret seal is installed prior to clamping.
Ensure turret is installed vertically to level seal in tank opening.




| Clamp Kit: Rod Lengths | |
|---|---|
| Turret Cut height | Rod Length |
| Full Height | 1000mm |
| 2/3 turret | 700mm |
| 1/3 turret | 400mm |

Nyloc nuts to top of threaded rod, to be max. 15mm from lip of turret to allow final cover of grout/screed. Tighten no more than 2Nm to avoid deformation of the GRP tank and turret lips.

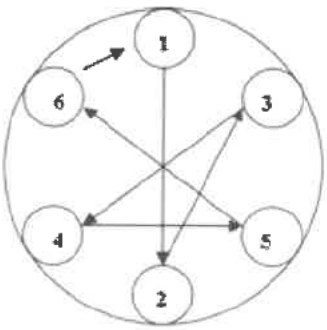


IMPORTANT:
Once the above has been completed, the turret show stand rigid within the tank.

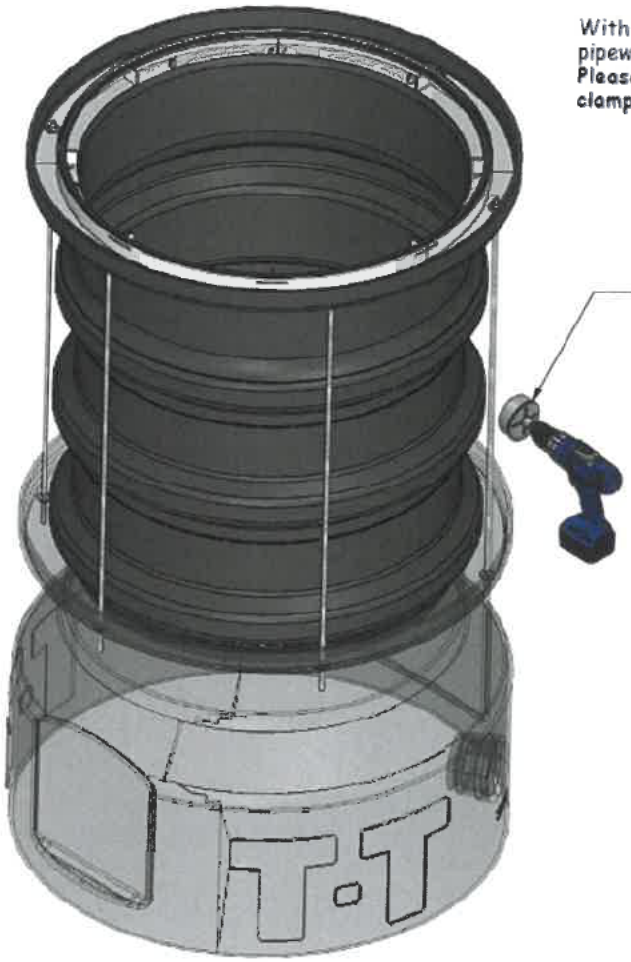
If at this point the tank is to be located in its final position DO NOT use the turret as a lifting point, fit lifting straps securly around the tank.

| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|---|---|---|---|
| 1 | TTPS-EX.TURR | EXTENSION TURRET TO SUIT MERCURY/VENUS | 1 |
| 2 | TTPS-TURRSEAL | EXTENSION TURRET SEAL 2200mm | 1 |
| 3 | SOT0004414 REV 5 | 800mm DIA CLEAR OPENING ACCESS FRAME & COVER | 1 |
| 4 | TTPS-M10CLAMPROD | MERCURY/VENUS EX.TURRET M10 CLAMP ROD | 6 |
| 5 | CONSUMABLE | M10 PEE WASHER | 12 |
| 6 | CONSUMABLE | M10 A2-70 STAINLESS STEEL NYLOC NUT | 6 |
| 7 | CONSUMABLE | M10 HEX NUT ST/ST | 6 |

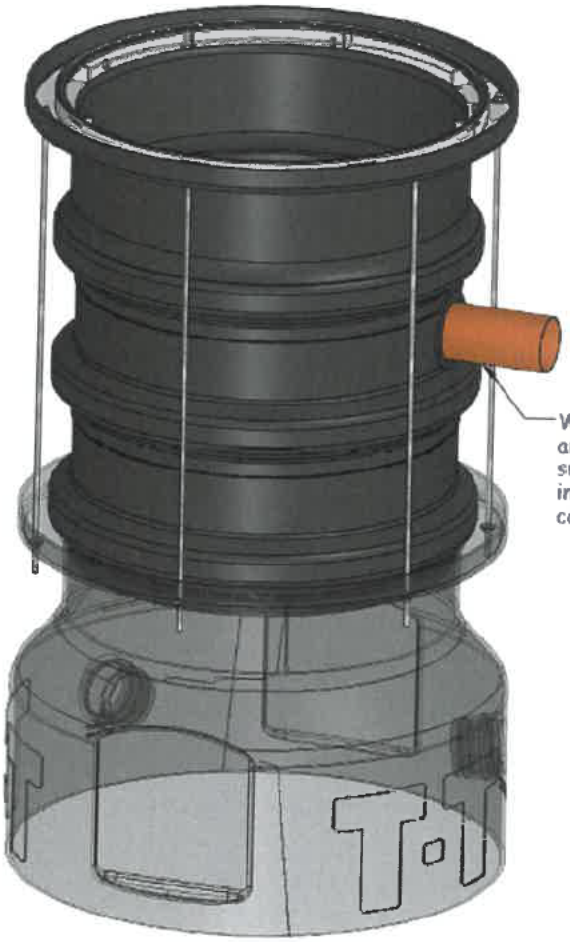
## Rod tightening sequence



With the tank orientated to suit the location of the incomming pipework, mark the loction of the cable duct on the turret. **Please consider the location of the duct, in relation to the clamping rods.**



To install a cable duct in the turret, use a Ø138mm hole saw, and cut into turret on the narrow section.



With hole cut and cleaned of any swarf or debris, push the supplied Ø110mm duct seal into the opening, then install cable duct.

**IMPORTANT**

If guiderails are supplied loose, ensure that the orientation of the turret complete with prefitted internal guiderail bracket is correct prior to fitment.

## Installation

Please refer to the schematic installation diagram on page 6 of this manual for the installation process. We recommend that you engage the services of:-

- A competent civil engineer/ building contractor for the installation of your pump chamber in the ground and pipework connections.

- A competent electrical contractor is required for all electrical items and services including the provision of the power supply and the installation and connection of the pump and control cabling.

## Excavation

Please refer to page 6 diagram.

Excavate sufficiently to permit easy placing and backfilling of the pump chamber and to allow for timbering and sheeting as required. Check the incoming drain invert depth and the depth of the excavation (as recommended on page 3 of this manual), allowing for a minimum of a 250mm thick concrete foundation to subsoil, and for the minimum depth required from lowest invert to sump base.

Check alignment of the required inlet socket with inlet pipework and cut out a hole behind the required socket. This can be done with a holesaw or similar.

Please do not attempt to use a hacksaw or similar to remove the back end of the selected inlet socket as this may damage the socket design resulting in leakages.

## Positioning

Place a sufficient mound of concrete (250mm deep) to act as a cradle in the centre of the excavation base and lower the pumping station into position, "puddling" it into the concrete.

Check that the chamber is vertical and that the inlet and outlet pipes are in their correct position. After the concrete base has reached its initial set (24 hours minimum), fill the chamber with water whilst backfilling. We recommend that the water should reach no more than 50mm below the outlet connection. A maximum fill rate of concrete after the base has set of 500mm is required, allowing an initial set before the next pour. Always maintain the water level above the concrete fill level until 50mm below the outlet connection is reached, thus equalizing the pressure on the wall of the chamber to prevent flotation.

Connect the inlet pipe to the selected inlet socket(s) using a minimum of a 300mm length of pipe so that the remaining inlet pipe work assembly can be connected outside the concrete surround. Use shuttering around the concrete backfill to protect the pipe work socket connection external to the concrete.

The backfill of concrete of a minimum thickness of 200-250mm should be placed carefully and consolidated frequently, to ensure that voids are not left under and around the sides of the pump well and that there are no localised stress concentrations.

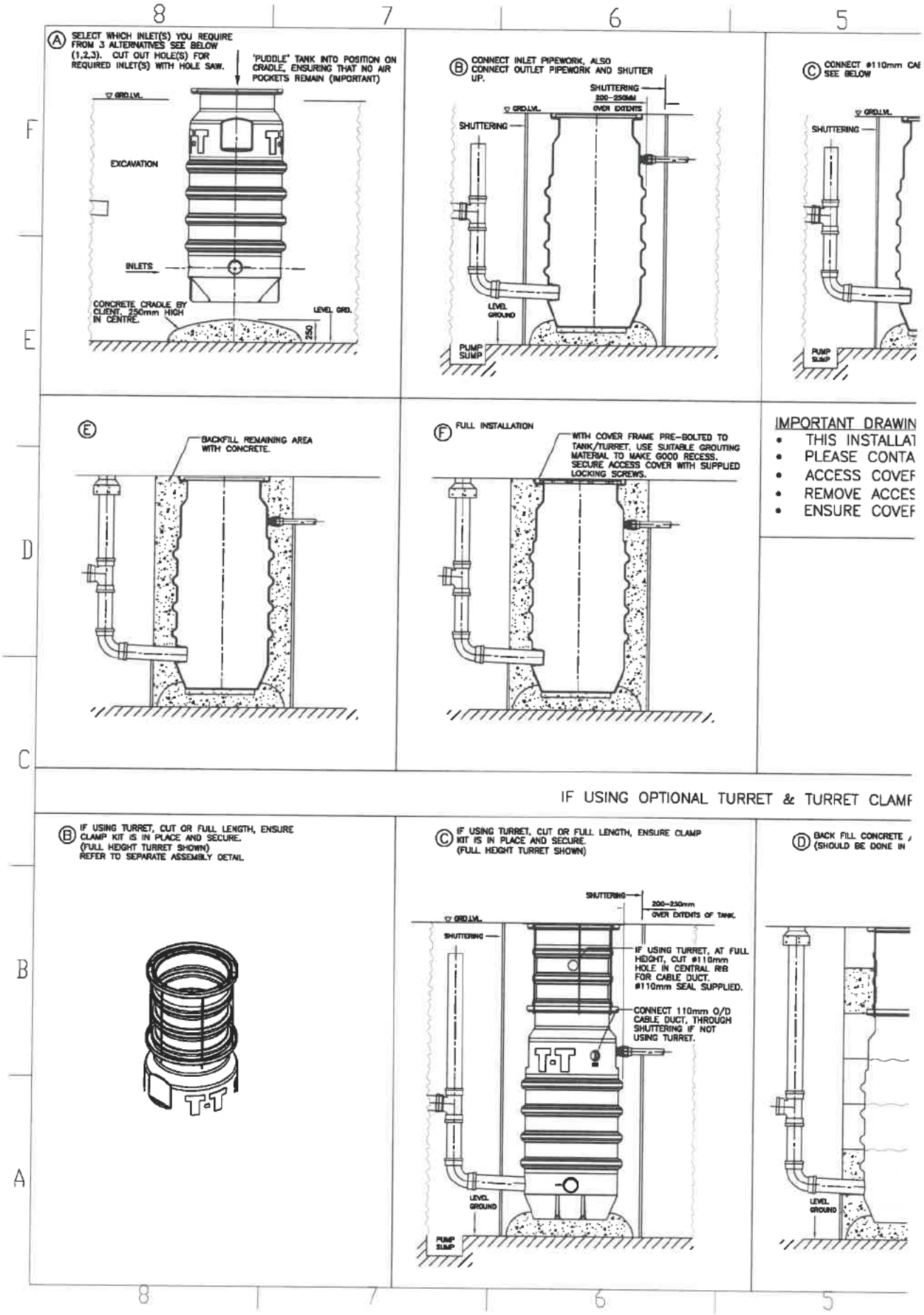
It is important to ensure that the excavation is kept dry throughout the installation and until the concrete surround has cured correctly, (normally seven days, please contact your concrete supplier for information).

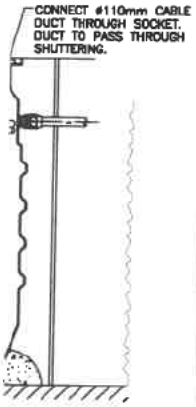
Two cable duct sockets are also provided on the chamber wall at a higher level for the connection of the pump and float switch cable ducting. **The cable duct sockets are to suit 110mm pipe; this is the size of ducting that must be used owing to the amount and diameter of cables that will exit the system via this duct.**

If the positioning of the cable duct sockets is not suitable for your site, alternative ducts can be made by cutting a hole into the neck of the chamber by yourselves on site.

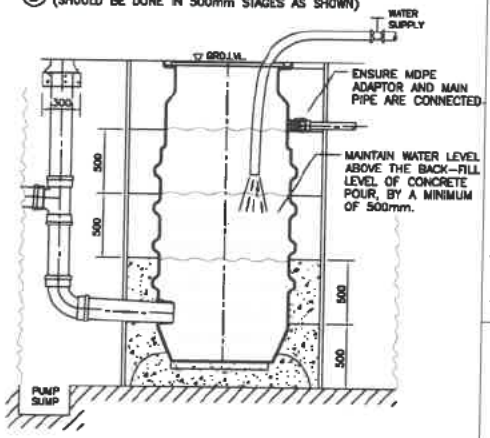
Alternative ducts must be sealed correctly on the connection to the chamber to avoid ingress and egress of liquid.

## Civil Installation Diagram






Ⓓ BACK FILL CONCRETE / AND FILL WATER TANK. (SHOULD BE DONE IN 500mm STAGES AS SHOWN)




**General Notes:**

All dimensions are to be checked on site with allowances for variations due to normal construction tolerance.

All dimensions in mm unless otherwise stated.

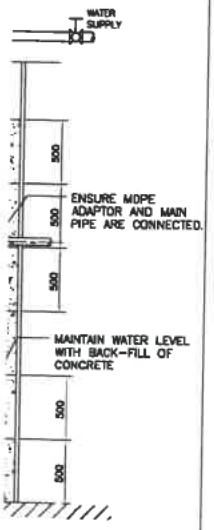
Drawing errors or omissions are to be reported and checked with the Design Office.



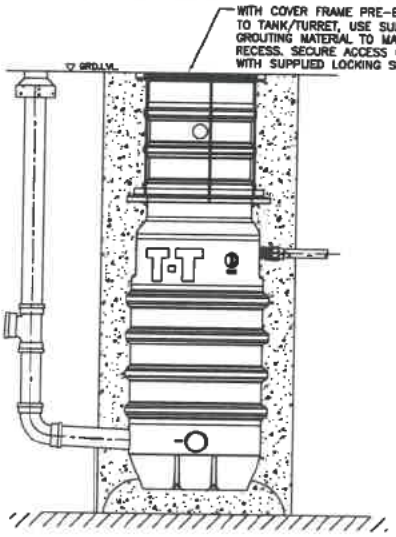
:
WING IS SUITABLE FOR PEDESTRIAN LOADING AREAS ONLY.
SHOULD THE INSTALLATION FALL OUTSIDE THIS AREA.
ME ARE SUPPLIED PRE-FIXED TO THE TANK/TURRET.
R FROM FRAME FOR TANK/TURRET INSTALLATION.
IG SCREWS ARE KEPT SAFE WITH COVER AT ALL TIMES.

| Rev. | Created | App | Date | Details |
|---|---|---|---|---|
| A | SJH | JPW | 19.06.19 | FIRST ISSUE |
| B | SJH | JPW | 24.09.19 | UPDATED TO SHOW AMENDED CLAMPING KIT DESIGN |

'ER TANK.
AS SHOWN)




Ⓒ IF USING TURRET, CUT OR FULL LENGTH. ENSURE CLAMP KIT IS IN PLACE AND SECURE. (FULL HEIGHT TURRET SHOWN)




Drawing Status: APPROVED

Design & Head Office, Onneley Works,
Newcastle Road, Woore, Cheshire, CW3 9RU
Tel: +44 (0) 1630 647200 Fax: +44 (0) 1630 642100

Client :

Scheme: T-T STANDARD INSTALL DETAILS

Drawing Title : MERCURY/VENUS TANK CIVIL INSTALLATION DIAGRAM.

Drawn: SJH | Approved By: JPW

Date : 19.06.2019 | Scale : 1:50 @ A3

Drawing No : PP/0029 | Revision: B | Sheet: 1/1

Project No : NP5040 | TT339-4

## Concrete Specification

**Please refer to EN206-1 and BS8500. The two documents must be read in conjunction.**

As mentioned previously within this manual, we strongly suggest that you employ the services of a ground condition surveyor to establish the quality of the ground that the system is to be installed into, and also to provide you with a recommendation as to the type of concrete pre-mix you should use. Below is a list of information that you may find beneficial:

RC25 pre-mixed concrete is the minimum specification of concrete with a slump class of S2 for type DC1 ground conditions. For ground conditions other than DC1, it is the responsibility of the site designer or appointed ground surveyor to recommend otherwise.

The concrete must be compacted thoroughly throughout the backfilling process to eliminate the chance of voids. **Please avoid prolonged contact between the chamber wall and the concrete pokers used to avoid poker burns and damage to the chamber.**

The site designer must also take into consideration the strength and condition of the ground for this type of installation, i.e. peaty ground etc. The base of the excavation may require strengthening, also bearing in the mind the loading requirement from the cover level.

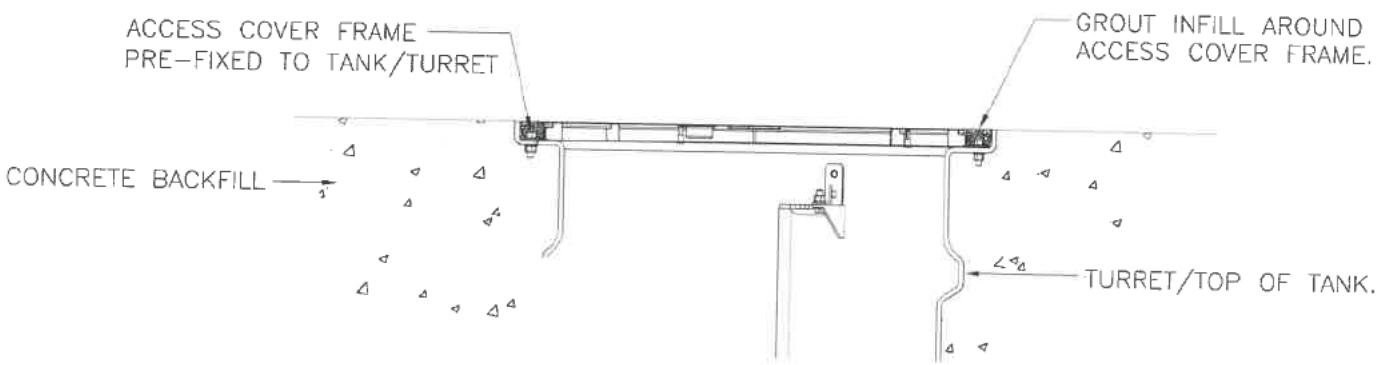
It is of vital importance that the excavation is kept dry throughout the installation process. For high ground water conditions, the use of drainage pumps will be required to keep the excavation dry. This is imperative, as the strength of the concrete backfill can be affected, resulting in irreparable damage to the chamber.

T-T PUMPS Ltd will not accept any liability for a damaged chamber which is the direct result of a poor concrete selection or installation. No claims will be considered unless a concrete certificate is provided by a certified pre-mix supplier.

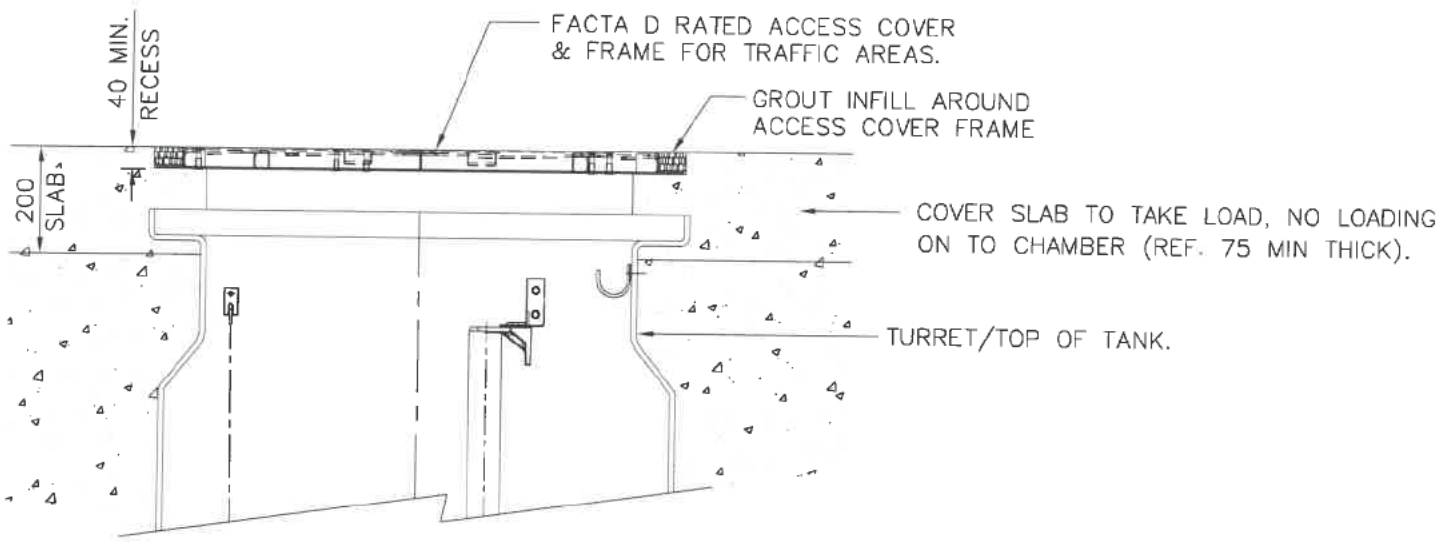
## Fabricated steel access covers and frames - Fitting instructions

**General**

1. Covers and frames are manufactured as a unit – ensure that corresponding covers and frames match and fit correctly before commencing installation.
2. The frame of an access cover must be fully supported. Any load placed onto the access cover is transferred to the structural opening via the frame. If the frame is only partially supported, the unit will not carry the load it is designed for and will ultimately fail. Please see diagrams below.
3. Recessed covers (excluding paving infill) must be fully infilled with grade C25 concrete, by volume, 1 cement, 2 sand, 3 coarse aggregate (9.5 to 3mm), to achieve their stated loading capacity.




INSTALLATION IN PEDESTRIAN AREA




INSTALLATION IN TRAFFIC AREAS

**Single Unit Covers**

For other cover designs, refer to cover specific instructions.

**Duct Run Systems**

1) Before installation check all parts (lids and frames) against the layout diagrams where issued. Where possible, installation should start at a junction or a restricted end, thus reducing the effect of creep during installation. Locking units should be offered up to the duct with the lids locked in place. On non-locking units it is acceptable to fit the framing first using the required size lid as a spacer panel.
2) Place the frame (and cover on locking units) around the duct structural opening. Pack up the frame to the required level with suitable hard packing material, such as tile. Care must be taken to ensure the frame does not overhang the opening. The frame is provided with fixing pads; these must be used to bolt the frame to the sub-floor.
3) Check that the lids do not rock in the frame. Re-pack if necessary.
4) Fill the unsupported areas of the frame with suitable grouting material. The underside of the frame must be fully supported.
5) Allow grout to harden.

**Notes**

1. Full fitting instructions supplied with a particular product range will supersede these instructions.
2. Covers and frames are not designed to take traffic when not fully fitted.

## Control System and Explanation

The pumping station is controlled via a control panel that will be supplied as standard with the system. The basic features of this system are to control the pumps and to alert the user(s) of the system in the event of a failure which will give an audible and visual alarm locally, or remotely via a telemetry system, dependent upon the system specification.

Float switches are the standard method of level control used in conjunction with the control panel (ultrasonic level control can also be used, again dependent upon the site specifications).

## Float switch set up and adjustment

For single pump stations two float switches are supplied. The duty float switch will be marked with one band of white tape and the high level will be marked with two bands. For dual systems a similar labelling method is used but in this case with the addition of a standby float which is marked with two white bands; the high level float is then marked with three bands.

The float switch assembly inclusive of lifting chain and counter weight will be pre-set at our works to provide an estimated start, stop and high level setting to suit the site and the depth of the chamber involved. If required, the settings may be changed by altering the float cable securing positions on the lifting chain. If you are not sure, please contact our Internal Sales Department for further instruction.

It is our recommendation that the high level float switch is positioned just below the lowest inlet invert position of the incoming pipe on site. This will alert you of any problem with the system prior to any surcharging of the incoming pipe work.

It is also important that on dual stations, when the standby float switch is in a raised (start) position, it is above the duty float switch raised position. The standby float switch when it is in a lowered (stop) position, must also be lower than the lowered position of the duty float.

On some system designs, the type of float switch used may be different so please always refer to the control panel drawing supplied with the system.

## Electrical Connections

Please employ the services of a competent electrical engineer / contractor.

Our T-T Engineers may attend site to complete this task for you if required. Please contact our Sales Department to discuss this if you have not already received our quotation.

Before attempting to make any electrical connections, please ensure that the pump(s) is lowered into the chamber and the cable from the pump(s) is not trapped and is free. The pump and the float switch cables need to be pulled through the cable ducting on site and you must refer to the electrical wiring diagram supplied with the control system for the electrical installation.

## Part P Compliance

For domestic installations, we always request that the power to our control panel equipment is provided by others and connected to our control panel so that it is live but isolated. We only make the final connections of the pump and float switch to the control panel ourselves.

It is therefore the responsibility of the person making the alterations to the electrical circuit in order to provide power to our equipment, to certify that the installation complies with Part P (by being a competent person registered with an electrical self-certification scheme authorised by the Department for Communities and Local Government). Alternatively, notification of proposals to carry out the electrical installation must be given to a Building Control body before work begins.

## Commissioning of your pumping station

Having satisfied yourself that all the connections are correct, a brief test run of the system is required as follows:

Raise the pump(s) to the surface and rest on the ground so that the impeller can be seen at the base of the pump unit(s).

To test the pump on a single pump station, lift the duty float into its start position and you should see the impeller turn and the pump operate. Carry out this procedure for a few seconds only and then return the float switch back to its stop position to turn the pump off.

For dual pumping stations this procedure should be carried out twice. The first time you should see one pump running, and the second time, the other pump should operate, proving that the stepping relay within the panel is operating correctly.

The standby float on a duty standby system is purely a backup in case the initial duty float fails. To test the standby float switch on a duty-assist pumping station, carry out the procedure as above but keep the duty float in its start position and then lift the standby float into the same position. You will see that the second pump unit will also operate at the same time. Once this has been completed, return both float switches to the stop position and the pumps will turn off.

To test the high level alarm float switch, simply lift this float into its start position and it will operate the alarm features of the control panel.

## Impeller Rotation

On a three-phase submersible pump, it is important to test the rotation of the impellers to ensure that the pump is wired correctly to the control panel. Carry out the duty float switch test as above and then look at the pump through the pump base so that you can see the impeller. If wired correctly, the impeller should be spinning anti-clockwise. If the impeller runs clockwise, this means that two of the phases have been wired incorrectly and need to be corrected.

Please note that care and attention must be taken at all times when carrying out the about as electrical circuits will be live and the pumps contain rotational and sometimes very sharp parts to their design.

**Never use the pump cables to lift the pump, as the cable gland may be damaged allowing water into the pumps motor, damaging the motor beyond repair. Always use the lifting chains and lifting equipment provided.**

## Operation, maintenance and Safety Procedures

Package pumping stations can be very hazardous, and appropriate working practices must be followed at all times. The instructions and information given in this manual are as explicit as reasonably practicable and both competence and expertise are necessary in the maintenance of the system.

To ensure reliable and trouble free operation of the system, we strongly recommend that the servicing of the system is only undertaken by experienced and authorised personnel. The operation and maintenance of this system must be carried out in compliance with all current health, safety and welfare legislation.

Sewage pumping stations are safe in operation, however because of the media being pumped, gases such as methane and hydrogen sulphide can build up. It is therefore important that sensible precautions are taken.

Package Stations have been designed to be maintained from the outside of the chamber as the pump(s) and float switches are all fully removable from the chamber.

The following check list should help:-

- Never work or maintain a sewage pumping station on your own.
- Isolate the electrical supply before working on a pumping station.
- Never enter the pump chamber under any circumstances unless fully qualified to do so, i.e. confined space trained, using appropriate safety equipment.
- Keep naked flames away from pumping stations.
- Never leave the pump chamber open or unattended.
- Always secure the access cover lid when leaving the pumping station.
- Never use a wander light in or around the pump chamber unless the light is intrinsically safe.
- The Plant/Equipment must not be used for work for which it is not design intended.

## Fault Finding Guide

| Symptom | Possible cause | Corrective action |
|---|---|---|
| Pump does not start | Power supply failure or low voltage at motor | Check and rectify power supply, including check for excessive cable length or incorrect cable size causing voltage drop |
| | Power not switched on at all points, or connections not secure | Check all switches and cable connections |
| | Fuse failed or circuit breaker operated | Check fuses / circuit breaker |
| | Control panel overload tripped | Check setting / condition of overload unit - reset / replace. If satisfactory, investigate cause; do not reset continuously |
| | Control panel fault | Investigate and rectify |
| | Motor fault | Investigate and rectify |
| | Cable damaged | Replace |
| | Pump impeller obstructed | Clear |
| | Level switches obstructed or at incorrect level | Check manual switching satisfactory (except on pumps with integral level switches). Ensure level switches are correctly set to operate. |
| Pump does not stop | Level switches obstructed | Ensure switches are free to operate |
| | Control panel fault | Investigate and rectify |
| Pump starts and stops repeatedly | Level switches obstructed or at incorrect level | Clear or reset |
| | Power supply fault | Investigate and rectify, including check for voltage drop on starting |
| | Pump impeller obstructed | Clear |
| | Non-return valve(s) obstructed or faulty, allowing back flow when pump stops | Clear or repair/replace |
| Pump starts but overload protection trips | Overload setting incorrect | Check setting / condition - reset / replace. If satisfactory, investigate cause - do not reset continually |
| | Power supply fault | Investigate and rectify, including check for availability of 3 phases (for 3-phase motor) |
| | Connections faulty | Investigate and rectify |
| | Pump impeller obstructed | Clear |

| Symptom | Possible cause | Corrective action |
|---|---|---|
| Pump runs but gives no output or reduced output | Discharge obstructed | Clear pipework |
| | Valve(s) partly or fully closed or obstructed | Open or clear valves |
| | Discharge leak in pumping chamber | Secure discharge connections |
| | Pump impeller obstructed | Clear |
| | Pump impeller worn | Replace |
| | Pump air locked | Release air |
| | Pump wrong rotation | Rectify electrical connections (3 phase motor only) |
| | Have site parameters changed from information provided at quotation stage | Contact T-T to check design (Tel: +44 (0) 1630 647200, Email: response@ttpumps.com) |
| | Pump impeller obstructed | Clear |
| Pump runs, but noisy or vibrates | Pump / impeller air locked | Release air |
| | Pump impeller worn or damaged, or pump shaft damaged | Investigate and replace as necessary |

## Hygiene

When working on a live sewage pumping station take sensible precautions with regard to hygiene. Always wear protective overalls, gloves and footwear. When work is completed remove soiled clothing for laundering or disposal and always wash thoroughly.

Much of the equipment installed on this plant is designed to operate automatically and may start without warning. Before working on any item of the plant or equipment, ensure it is correctly, electrically and mechanically isolated.

## Removal / Installation of pumping equipment

For safe removal of pumping equipment we recommend the use of a lifting davit.

Lifting davits and sockets are optional extras and are designed for lifting equipment safely from pump stations. If using a davit the following procedure should be adhered to.

- Isolate electrically and hydraulically before commencing the removal of any pump.
- Install the lifting davit in the davit socket, then locate the lifting chain in one of the holes at the top of the davit using 'D' shackle provided.
- Remove the access cover over the pump that is to be removed (do not remove more covers than necessary). Lower the chain block hook and secure in the lowest accessible large ring of the pump lifting chain.
- Begin to lift the pump and this will break the seal between the pump delivery port and the duckfoot bend and enable the pump to slide up the guide rails.
- The pump is lifted until the staging chain safety hook can be secured into the large ring on the pump lifting chain. When this has been achieved, the chain block hook can then be removed and lowered to the lowest accessible ring on the pump lifting chain and the above process repeated until the pump reaches a point above ground level. The access cover should then be closed, to aid safe working around the pump.
- The pump can then be swung round to a desired position away from the access opening.

To re-install the pump in the wet well, reverse the above procedures.

ny defects in, or damage to, plant or equipment must be reported immediately.

## General Maintenance

It is important that the pumping station is checked frequently, to ensure that it is in full working order and that there is not an excessive build up of fats and materials.

If there is a build up of fatty materials, pour a reasonable quantity of household detergent onto the affected area, leave for a little while and then hose down, repeat if necessary. This will ensure that the float switches and pumps operate freely without a build up of fatty matter. In areas where large amounts of grease are expected, the fitting of a grease trap prior to the pumping station is recommended.

## Disposal and Recycling

This symbol displayed here and on the product is classed as an electrical or electronic equipment and should not be disposed of with other household or commercial waste at the end of it's working life. Instead, it is your responsibility to dispose of your waste equipment by arranging to return it to a designated collection point for the recycling of waste electrical and electronic equipment.

Recycling


This symbol displayed here and on the product indicates that the tank is moulded using virgin High-density Polyethylene, meaning that it can be recycled.

## After sales service

Your Package Pumping Station should have a long and reliable life if it is cared for and maintained correctly. We would strongly recommend that the pumping system is serviced thoroughly at least every six months. This should be undertaken by competent electrical/mechanical engineers.

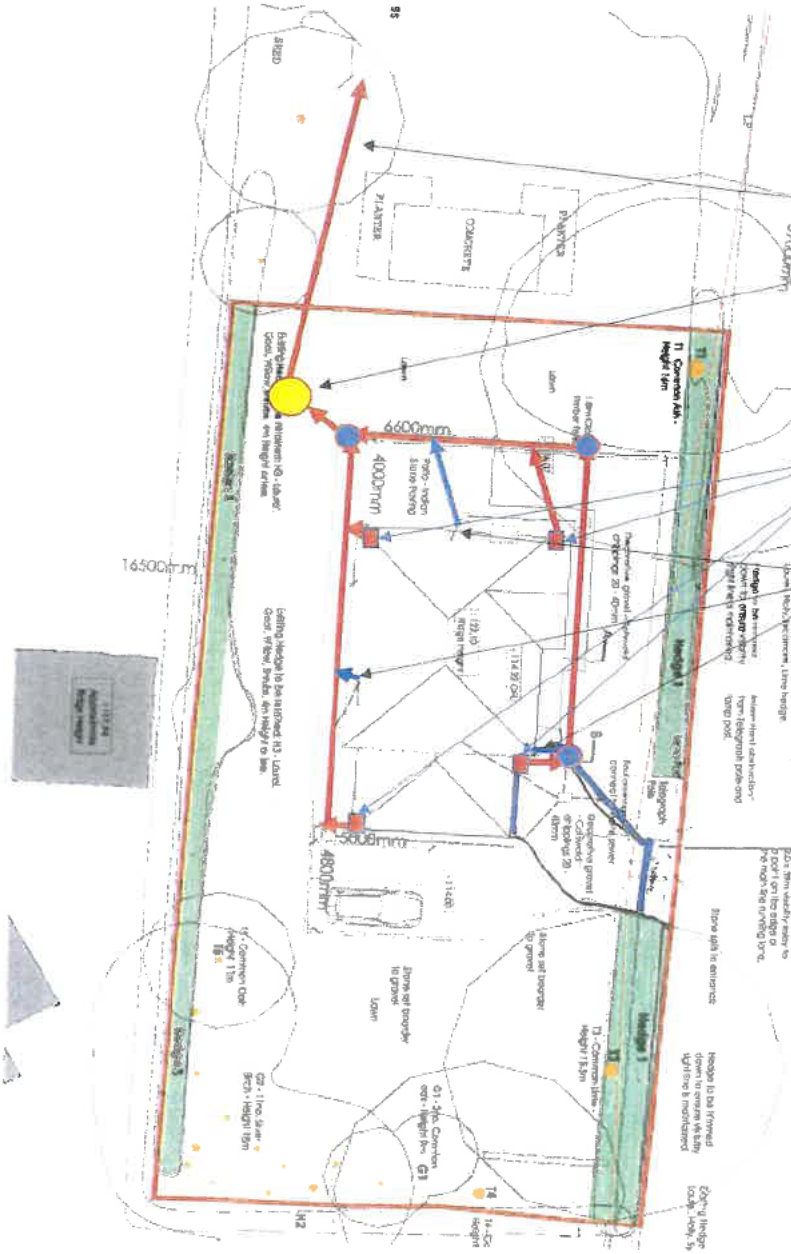
T-T PUMPS offer a full After Sales Service, including our Service Agreement Scheme. This can give you peace of mind, allowing you to achieve maximum reliability and efficiency from your Package Pumping Station.

For full details of our Service Agreement Scheme please contact our Service Department who will be pleased to give you a quotation: call +44 (0) 1630 647200.

## Notes

## Notes

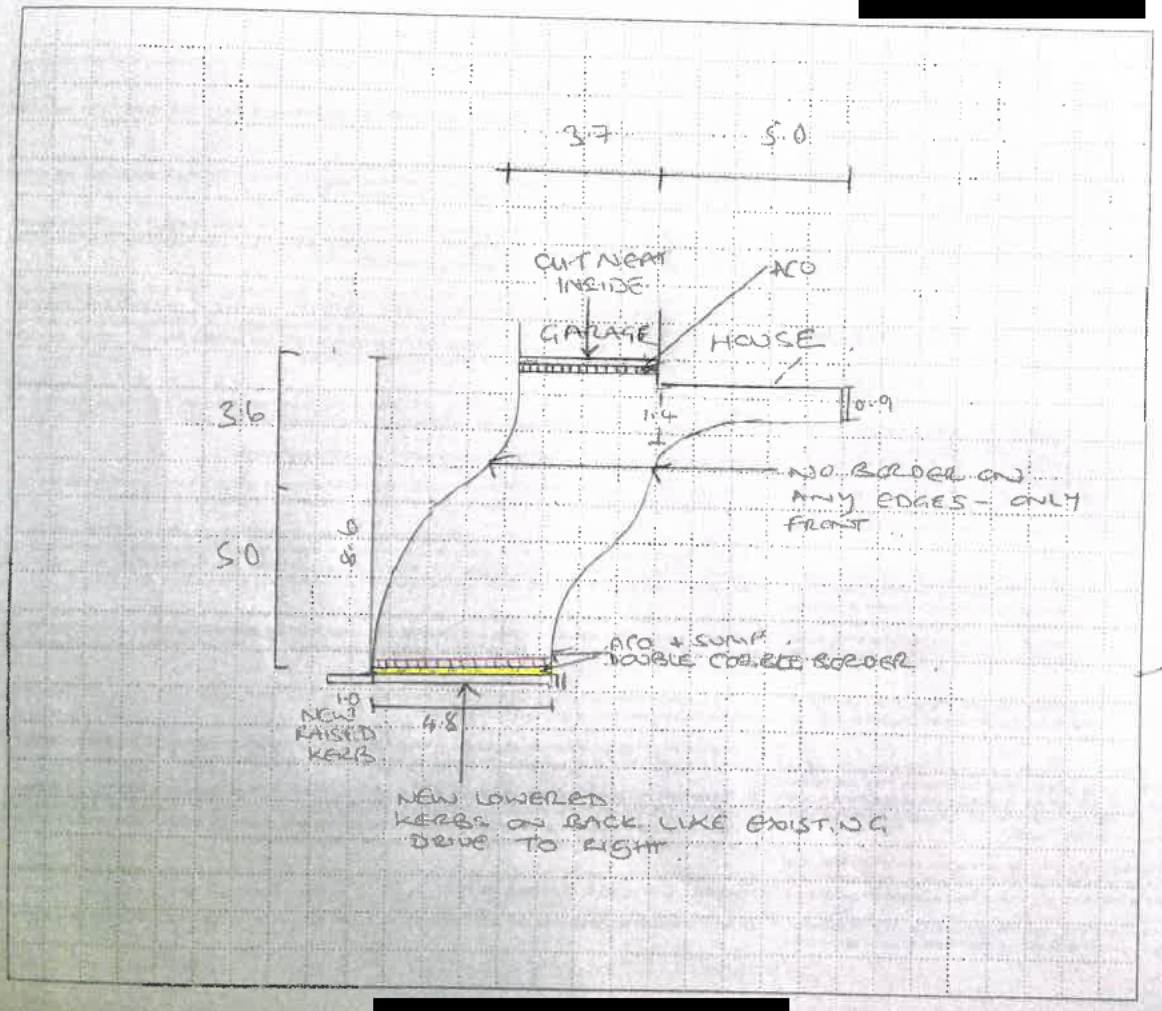
## Notes


rising main to main sewer within No41
treatment plant
rainwater red
soil blue
Aco drain

Complete driveway designs

# Final Survey Report

[redacted]




[redacted]

[redacted]

Manholes:
Aco: 3.5 + 4.5
Deco:
Gulleys:
Steps:
Square Top Edges:
Others: 4.5 LOWERED KERBS 1.0 RAISED KERB (3.5 ON SITE)

**Additional Works Required?** ☐ Yes ☐ No

Area 1: Drive Size (m²): 43m²
Pattern: Old English Cobble
Colour: Bideford Buff
Release: Mahogany

Area 2: Size (m²):
Pattern:
Colour:
Release:

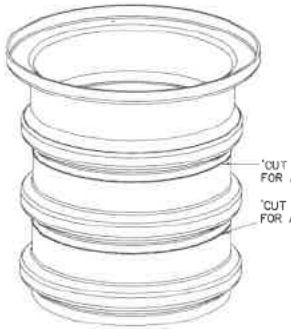
**Payment Schedule**

| | |
|---|---|
| Booking Fee: £ | 300-00 |
| Preparation: £ | 2,609.20 |
| Concrete: £ | 2,809.20 |
| Completion: £ | 300-00 |
| Total: £ | 6,218.40 |

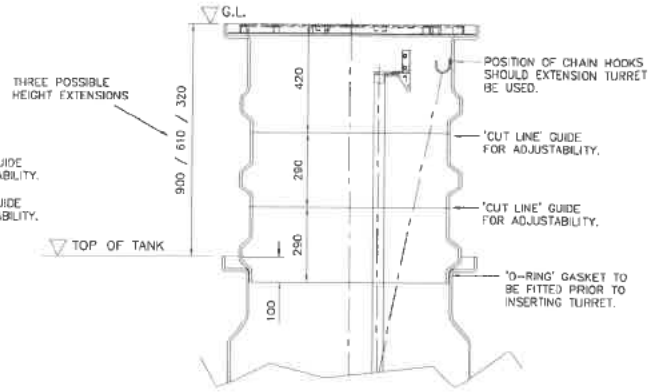
Approx. fit date: ASAP

I/We accept this survey and the conditions of the contract incorporated therein, and authorise us

[redacted]

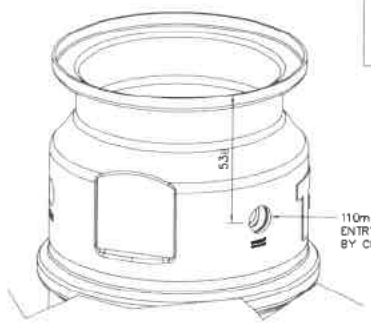



EXTENSION TURRET – OPTIONAL EXTRA

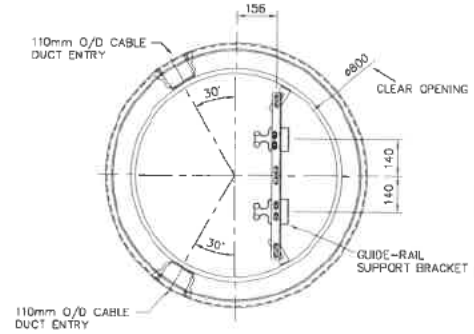



TYPICAL SECTION THROUGH EXTENSION TURRET

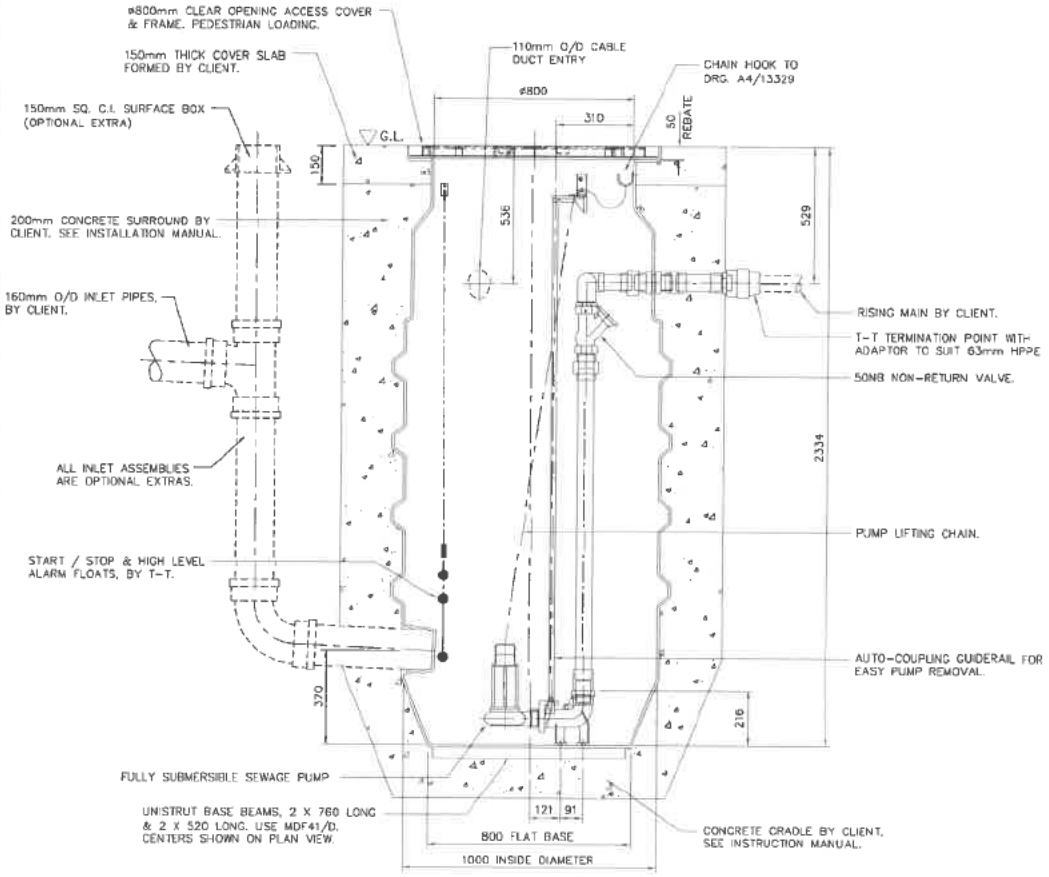
IF OPTIONAL TURRET IS PURCHASED, PLEASE REFER TO DRAWING 'TTPS/TCK' FOR CLAMP KIT INSTALLATION PROCEDURE.



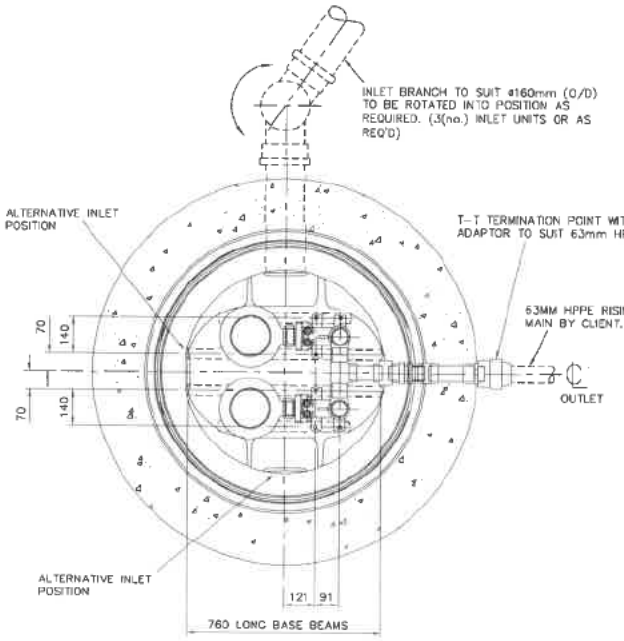

CABLE DUCT ENTRIES




GUIDERAIL BEAM & DUCT ENTRIES




SECTIONAL ELEVATION ON OUTLET CENTRE LINE




PLAN VIEW

| REV | DRAWN | APP | DATE | DETAILS |
|---|---|---|---|---|
| F | SJH | JPW | 05.12.19 | RISING MAIN ADAPTOR SIZE CORRECTED |
| E | NJW | JPW | 17.09.19 | DIMENSION ADDED FOR INLET & OUTLET |
| C | NJW | JPW | 08.01.19 | DIMENSION ADDED FOR CABLE DUCT |
| D | DCC | JPW | 04.10.21 | EXTRA DIMENSIONS ADDED |

Drawing Status: APPROVED

T-T

Client :

Scheme:

Drawing Title : GENERAL ARRANGEMENT OF VENUS TANK WITH TWIN 50NB PUMP AND PIPEWORK.

Drawn: SJH | Approved By: JPW

Date: 13/05/2019 | Scale: 1:10 @ A1

Drawing No: TTPS/DLVEN50 | Rev. D

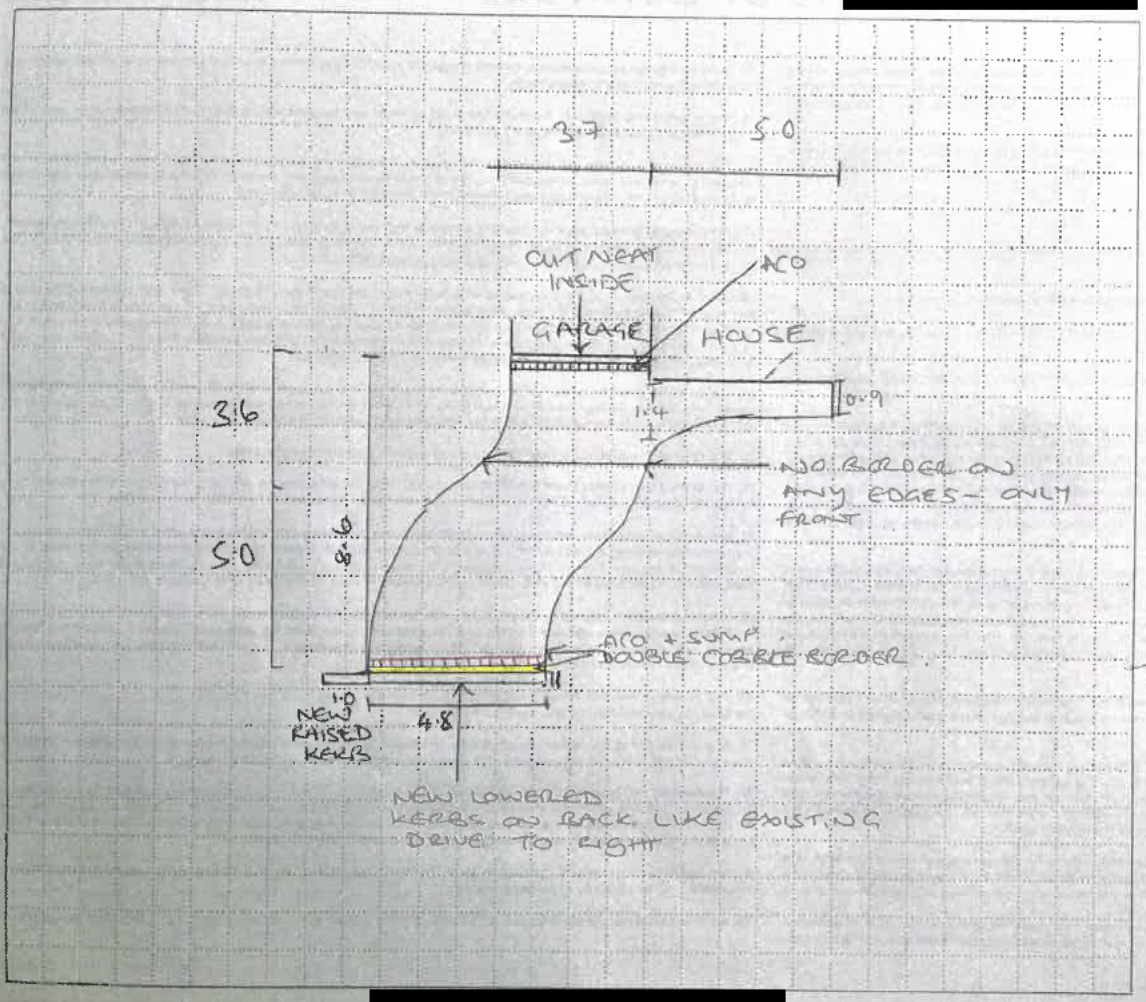
Project No: STANDARD PRODUCT

TT339-2

Complete driveway designs

# Final Survey Report

[redacted]




[redacted]

[redacted]

Aco: 3.5 + 4.5

Deco:

Gulleys:

Steps:

Square Top Edges:

Others: 4 @ LOWERED KERBS 1 @ RAISED KERB (3.5 ON SITE)

**Additional Works Required?** ☐ Yes ☐ No

Area 1: Drive Size (m²): 43M2

Pattern: Old English Cobble

Colour: Bideford Buff.

Release: Mahogany.

Area 2: Size (m²):

Pattern:

Colour:

Release

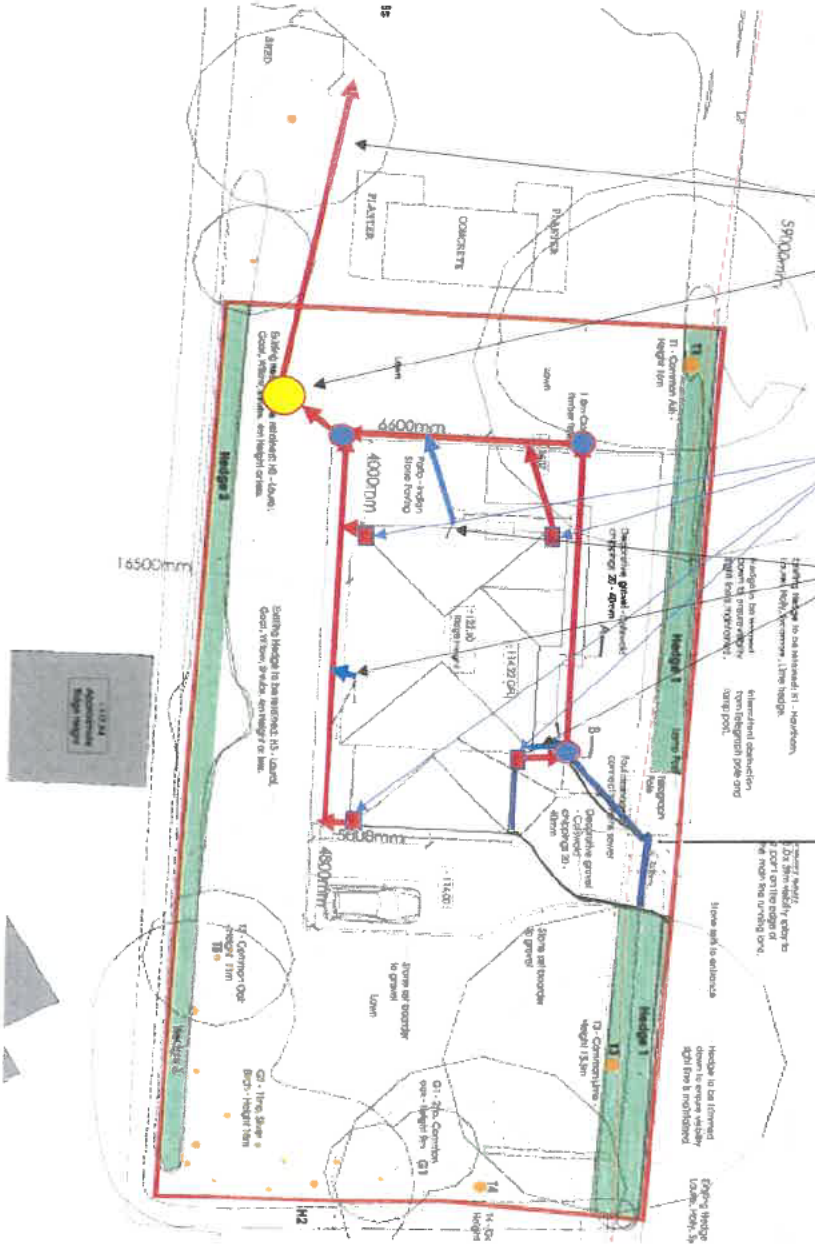
**Payment Schedule**

| | |
|---|---|
| Booking Fee: £ | 300-00 |
| Preparation: £ | 2,809 20 |
| Concrete: £ | 2,809 20 |
| Completion: £ | 300-00 |
| Total: £ | 6,218 40 |

Approx. fit date: ASAP

I/We accept this survey and the conditions of the contract incorporated therein, and authorise

[redacted]


rising main to main sewer within No41
treatment plant
rainwater red
soil blue
Aco drain
6600mm
4000mm
16500mm
5000mm
4800mm
SP900mm
Hedge 1
Hedge 2
Hedge 3

www.ttpumps.com
Tel: +44(0)1630 647200

# T-T Projects Engineer's Report

3202303 18P

2022-11-30 K11618 Complete Property Management / Complete Property Management / Commissioning / Planned / OTHER / TeamA

Complete

| | | | | | |
|---|---|---|---|---|---|
| Score | 100% | Flagged items | 0 | Actions | 0 |

| | |
|---|---|
| **Project Ref** | 2022-11-30 K11618 Complete Property Management |
| **Client** | Complete Property Management |
| **Site Contact** | [redacted] |
| **Telephone** | [redacted] |
| **Site Attended By** | OTHER |
| **Please State** | TeamA |
| **Visit Type** | Commissioning |
| **Planned or Unexpected Return Visit?** | Planned |
| **Location** | [redacted] |
| **What3Words (app) Exact location Details** | |

**Report** 100%

## Site Health and Safety

| | |
|---|---|
| **Induction Completed** | N/A |
| **Permits Recieved** | N/A |
| **Report Type** | K Job Installation and Commissioning |

## Project Details

| | |
|---|---|
| **Liquid** | Foul Water |
| **Temporary Lifting for Install Purposes** | T-T Equipment |
| **Style** | Venus |
| **Pump Connection** | Duckfoot Autocoupling |
| **Condition of Construction** | No Issues |
| **Is Site Ready in Accordance with Received Checklist?** | Yes |

## Test Meters Used

100%

### Test Meters Used 1

100%

| | |
|---|---|
| **Test Meter Description** | T-257 INSULATION AND CONTINUITY TESTER MEGGER MIT320 |

T239

## Visual Inspection

| | |
|---|---|
| **Harness** | Pass |
| **Tripod** | Pass |
| **PPE ( Hard Hat / Steel Toe Cap Boots Etc)** | Pass |

## Key Components

100%

| | |
|---|---|
| **1. Power Connected to the Panel**<br>**• Check correct voltage (230V / 400V)** | Yes |
| **2. Drilled Panel and Installed Glands** | Yes |

| | |
|---|---|
| **3. Guide Rail System Installed** | Yes |
| **4. Lifting Chains Put Onto Pumps** | Yes |
| **5. Pump Rotation Check** | Pass |
| **6. Lowered Pumps into Chamber** | Yes |
| **7. Float Switch Assembly Made**<br>• **Chain Cut to Correct Length**<br>• **Floats Installed in Chamber** | Yes |
| **8. Junction Boxes Installed** | N/A |
| **9. Cables Pulled Through Duct into Junction Boxes/Control Panel** | Yes |
| **10. Terminated Cables in Junction Box(es)/Control Panel** | Yes |
| **11. Valve Opened** | Yes |
| **12. Pumps Run Check** | Pass |
| **13. Check Running Current With Both Pumps in Auto** | Pass |
| **14. Float Sequence Checked** | Pass |
| **15. Overloads Set Up** | Yes |
| **16. Stop Level Checked** | Pass |
| **17. Ducts Foamed** | Yes |

**Photo**

Photo 1

| | |
|---|---|
| **18. Check Telemetry for Signal and Function** | N/A |
| **19. Station Left** | Switched On in Auto |

| | | |
|---|---|---|
| **Pumps / Motors / Other Equipment** | | 100% |
| **Pumps / Motors** | | 100% |
| **No of Pumps / Motors Checked** | 2 | |
| **Pump / Motor** | | 100% |
| **Pump / Motor** | 1 | |
| **Starting Method** | DOL | |
| **Serial No** | | 003789015 / 003789018 |
| **Pump / Motor Type** | | DGO100/2/80 |
| **Full Load Current (A)** | | 6.5 |
| **Winding Resistance (Ω)** | | 3-7-10 |
| **Insulation Resistance (MΩ)**<br>**Please Note: Insulation Resistance MUST be greater than 1 MΩ to meet electrical safety standards** | | 1000 |
| **Capacitors (µf)** | | 25 |
| **Starting Amps (A)** | | N/A |
| **Running Amps (A)** | | 6.7 |
| **Hours Run** | | N/A |
| **Impeller Rotation/Direction Physically checked** | Yes | |

Photo 2

| | |
|---|---|
| **Pump / Motor Removed?** | No |

## Equipment Status

| | |
|---|---|
| **Equipment Present?** | Yes |
| **Supply Type** | 230V 1 Ph 50Hz |

| | | |
|---|---|---|
| **Pump Power Rating (kW)** | | 0.88 |
| **Control Voltage** | 24V AC | |

## Other Relevant Equipment

100%

| | |
|---|---|
| **Ultrasonic Present and settings not changed from TT Test Parameters - these are as per US parameter sheet TT-214 issued by TTC Design** | N/A |
| **Parameter Amended (please state parameter & value)** | N/A |
| **Parameter Amended (please state)** | N/A |
| **Parameter Amended (please state)** | N/A |
| **Parameter Amended (please state)** | N/A |
| **Other Relevant Equipment?** | N/A |

**End of Report** 100%

## Engineers Report and Details of Additional Work 100%

### Engineer's Notes and Recommendations

Attended site to install and commission pump station.
All equipment located and brought round to chamber , mains power connected and tested all ok.
Pump chains fitted to pump and cables dressed in chamber before pulling through duct and terminated into control panel.
Floats fitted to chamber , cables dressed before pulling through duct and terminated into control panel.
16mm earth fitted to chamber and bonded to pump chain hooks , earth pulled through duct and terminated into control panel, Duct sealed with rise once finished.
Station turn on and pumps lifted to carry out directional check all ok.
Floats checked for correct operation and all ok
Earth bonding checked end to end all ok
Station proven to pump and stop level witnessed. Overloads set to correct current.

Station left switched on and in auto


Photo 3


Photo 4


Photo 5

Photo 6


Photo 7

Photo 8

Photo 9


Photo 10

Photo 11


Photo 12

### Parts Required to Complete

None

### Parts Missing from Parts List

None

### Parts Left on Site N/A

### Kiosk Keys Handed to (State Name) N/A

## T-T Site Supervisor 100%

### Name and Signature

[redacted]

[redacted]

| | |
|---|---|
| **Accompanying Engineer** | 100% |
| **Accompanying Engineer 1** | 100% |
| **Name** | Other |
| [redacted] | |
| **Report Signed Off as** | Commissioning Complete |
| **Customer Present?** | Yes |

**Customer Name and Signature**

[redacted]

Customer not available when leaving due to overnight travel and gone bed on site electrician signed report

**Exiting Site - HouseKeeping** 100%

**All TT Packaging/Rubbish/Waste removed from site** N/A

**All surrounding area's left free of obstacles, clean & Tidy (Unless Stated on previous issues within report)** ☑

Customer needs to secure lid

Photo 13

**Product removed from site to be returned / disposed of at TT works for appropriate repair/ disposed of in applicable waste stream** N/A

# Site Attendance Record

## Day

### Day 1

| | |
|---|---|
| **Date and Time On-Site** | 30.11.2022 08:46 GMT |
| **Date and Time Off-Site** | 30.11.2022 12:46 GMT |

**Gas Readings**

| | |
|---|---|
| **Confined Space Entry Required?** | No |

**Appendix**

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7

Photo 8

Photo 9


Photo 10

Photo 11

Photo 12

Photo 13

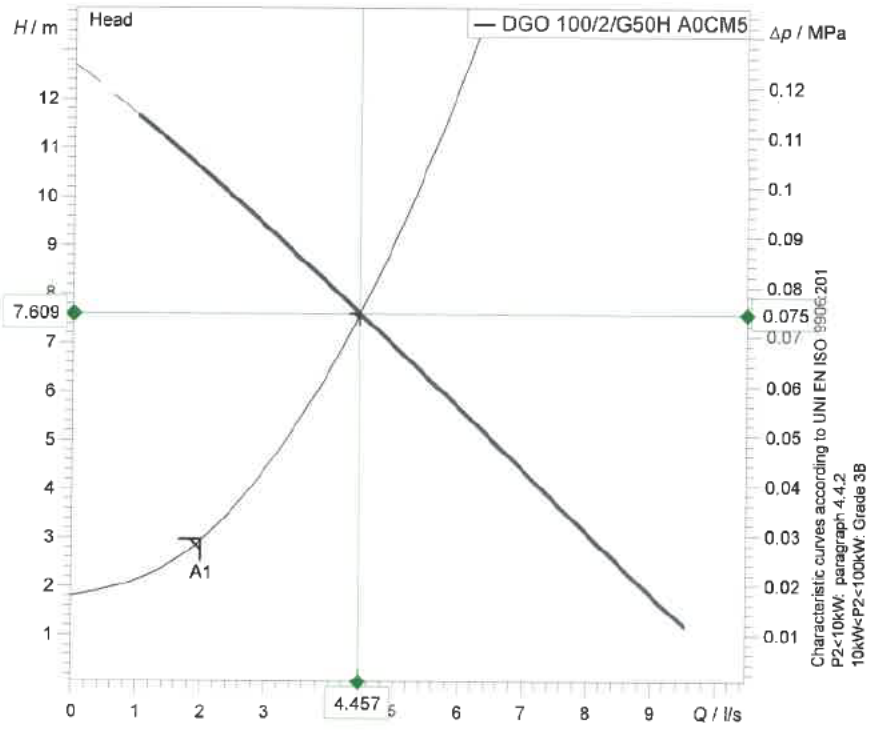
ZENIT
better together

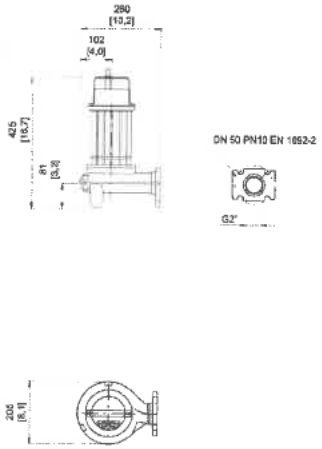
Data sheet

# DGO 100/2/G50H A0CM5

## Technical specification

**1~ 50 Hz**




[ mm [inch] ]

### Pump

| | |
|---|---|
| Series | O series |
| Type | DGO 100/2/G50H A0CM5 |
| Version | T 05NN 230D NN NN |
| Standard | EN 809:2009 |

### Operating limits (standard pumps)

| | |
|---|---|
| Max. ambient temperature | 40 °C |
| Max. density treated liquid | 1100 kg/m³ |
| pH treated liquid | 6 ÷ 14 |
| Max. start per hour (equally distributed) | 30 |
| Wet/dry use | WET |
| Max. acoustic pressure level | 70 dB |
| Operating mode | S1 - Continuous use |

### Motor data

| | |
|---|---|
| Rated voltage | 230 V |
| Frequency | 50 Hz |
| Motor phases | 1~ |
| Number of poles | 2 |
| Rated power P2 | 0.88 kW |
| Incoming power P1 | 1.40 kW |
| Rated current | 6.5 A |
| rpm | 2900 1/min |
| cos φ | 0.94 |
| Rated torque | 2.9 Nm |
| Start | |
| Degree of protection | IP 68 |
| Insulation class | F |

### Construction materials

| | |
|---|---|
| Case | Cast iron EN-GJL 250 |
| Shaft | Stainless steel AISI 431 |
| Hydraulic | Cast iron EN-GJL 250 |
| Impeller | Cast iron - EN-GJL 250 |
| Painting/Coating | Bi-epoxy 120 µm |
| Screws | Stainless steel - Class A2-70 |
| Gaskets | NBR |
| Foot base (if present) | |

### Hydraulic

| | |
|---|---|
| Type | DG (Set-back Vortex) |
| Free passage | 50 mm |
| Impeller type | Set-back Vortex impeller |
| Max. hydraulic efficiency | |
| Suction | - |
| Discharge | DN 50 - G2" EN 1092-2 |
| Curve tolerance | UNI EN ISO 9906:2012 |

### Construction features

| | |
|---|---|
| Main cable | 4G1 |
| Control cable | - |
| Cable length | 5 mt |
| Mechanical seals | 1 in silicon carbide (SiC) and 1 in alumina graphite (AL) |
| Additional drilling | - |
| Weight* | 19.5 kg |
| Electrical variant | Thermal protection |

*** cable and fixing system excluded**

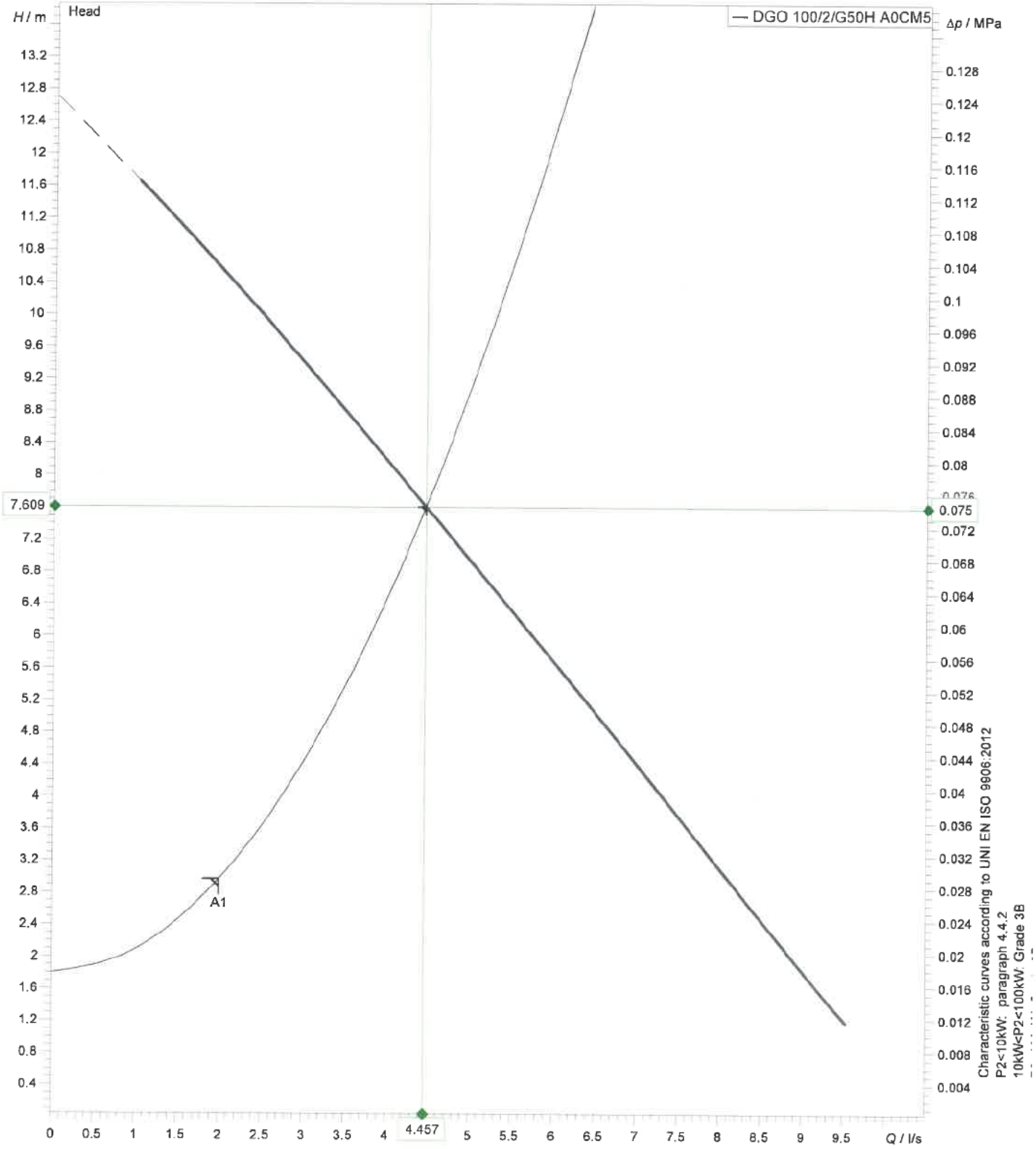
## Pump performance curves

**1~ 50 Hz**

| Hydraulic type | Impeller type | Free passage | Discharge | Suction |
|---|---|---|---|---|
| DG (Set-back Vortex) | Set-back Vortex impeller | 50 mm | DN 50 - G2" | - |

**DUTY POINT**

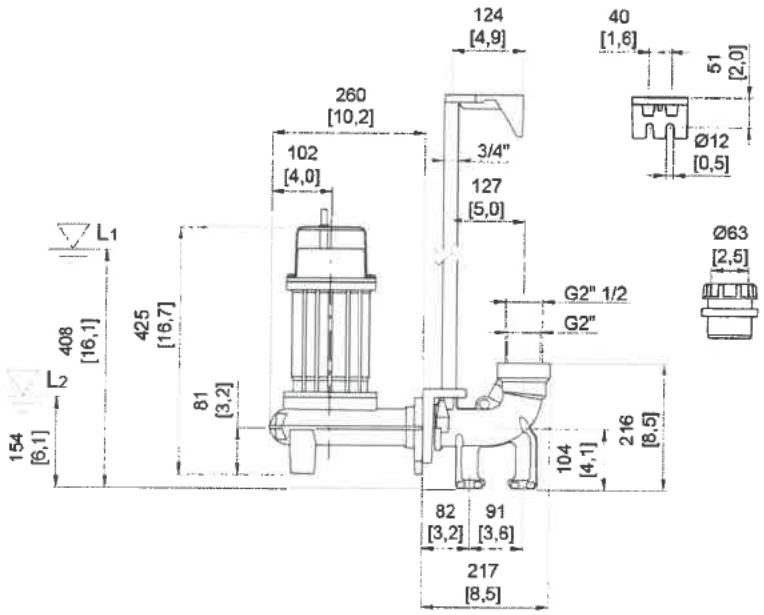
| Flow | Head | Shaft power P2 | Hydraulic efficiency | Density | Viscosity |
|---|---|---|---|---|---|
| 4.5 l/s | 7.6 m | | | 998.3 kg/m³ | 1.005 mm²/s |

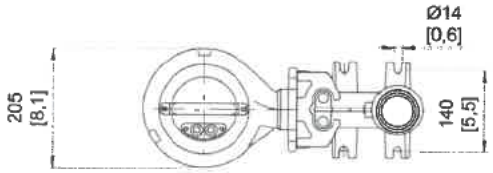


## Dimensional drawing

**1~ 50 Hz**

| | | |
|---|---|---|
| **Installation type**<br>Installation with bottom coupling device - Vertical outlet + GTP | | |
| **Wet/dry use**<br>WET | **Drilling variant**<br>N | **Flushing valve - drilling**<br>- |
| **Discharge**<br>DN 50 - G2" EN 1092-2 | **Suction:**<br>- | **Pressure rating (suction/discharge):**<br>PN 10 |
| **Accessory**<br>DAC 32-50/G50V-G65V 3/4" EN+GTP (P) | | **Accessory code**<br>9028.002 |
| **Note: Accessory must be ordered separately** | | |




L1: Minimum operating level for continuous use

L2: Minimum operating level for discontinuous use