

Appendix C

Pumping station supplier information

Technical specification

Submersible pump M 3068.175, 50 Hz





M 3068

Product

Submersible pump for pumping waste water containing solids that needs to be grinded. The impeller is equipped with a grinder device.

Denomination

Product code 3068.175
 Installation F
 Impeller characteristic HT

Process data

Liquid temperature max +40 °C
 Depth of immersion max 20 m
 pH of liquid pH 6-11
 Liquid density max. 1100 kg/m³

Motor data

Frequency 50 Hz
 Insulation class F (+155 °C)
 Voltage variation
 - continuously running max ± 5%
 - intermittent running max ± 10%
 Voltage imbalance between phases max 2%
 No. of starts/hour max 15

Cable

Direct-on-line start

SUBCAB® 4G1,5 mm²
 4G1,5+2x1,5 mm²
 4G2,5 mm²
 4G2,5+2x1,5 mm²

Y/D start

SUBCAB® 7G2,5 mm²

Monitoring equipment

Thermal contacts opening temperature 125 °C

Material

Spiral rotor Stainless steel
 Rubber stator Nitrile rubber
 Pump housing Cast iron
 Stator housing Cast iron
 Shaft Stainless steel
 O-rings Nitrile rubber

Mechanical face seals

Alternative	Inner seal	Outer seal
1	Aluminium oxide/ Aluminium oxide	Cemented carbide/ Aluminium oxide Cemented carbide/ Cemented carbide

Surface Treatment

All cast parts are coated with a primer. The finish coat is a synthetic varnish.

Weight

See dimensional drawing.

Option

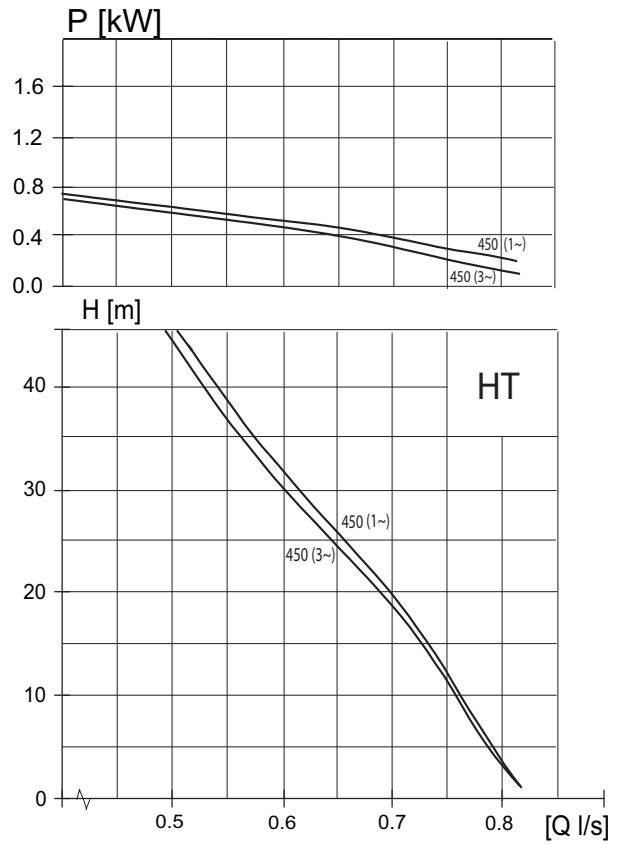
Leakage sensor in stator housing FLS
 Other cables
 Surface treatment Epoxy treatment
 Zinc anodes

Accessories

Stand
 Electrical accessories such as pump controller, control panels, starters, monitoring relays.
 See separate booklet or www.flygt.com, for further information.

HT - Motor rating and performance curve

Curve/Impeller No	Rated power, kW	Rated current, A	Starting current, A	Power factor cos ϕ	Ex proof version available	Installation
230 V, 50 Hz, 1 ~, 1455 r/min						
450	0.75	5.4	28	1.0		F
400 V, 50 Hz, 3 ~, 1445 r/min						
450	0.75	3.0	15	0.55		F

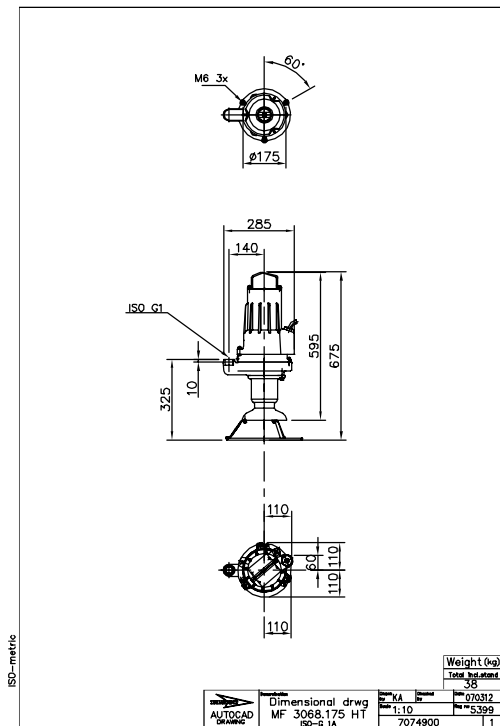


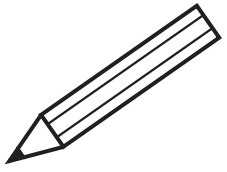
Dimensional drawing

All drawings are available as Acrobat documents (.pdf) and AutoCad drawings (.dwg). Download the drawings from www.flygt.com or contact your ITT Flygt representative for more information.

All dimensions are in mm.

HT, F-installation





A series of horizontal dashed lines for writing practice, starting below the pencil illustration and extending across the width of the page.



www.flygt.com



Fibreglass Reinforced Plastic Packaged Pump Station



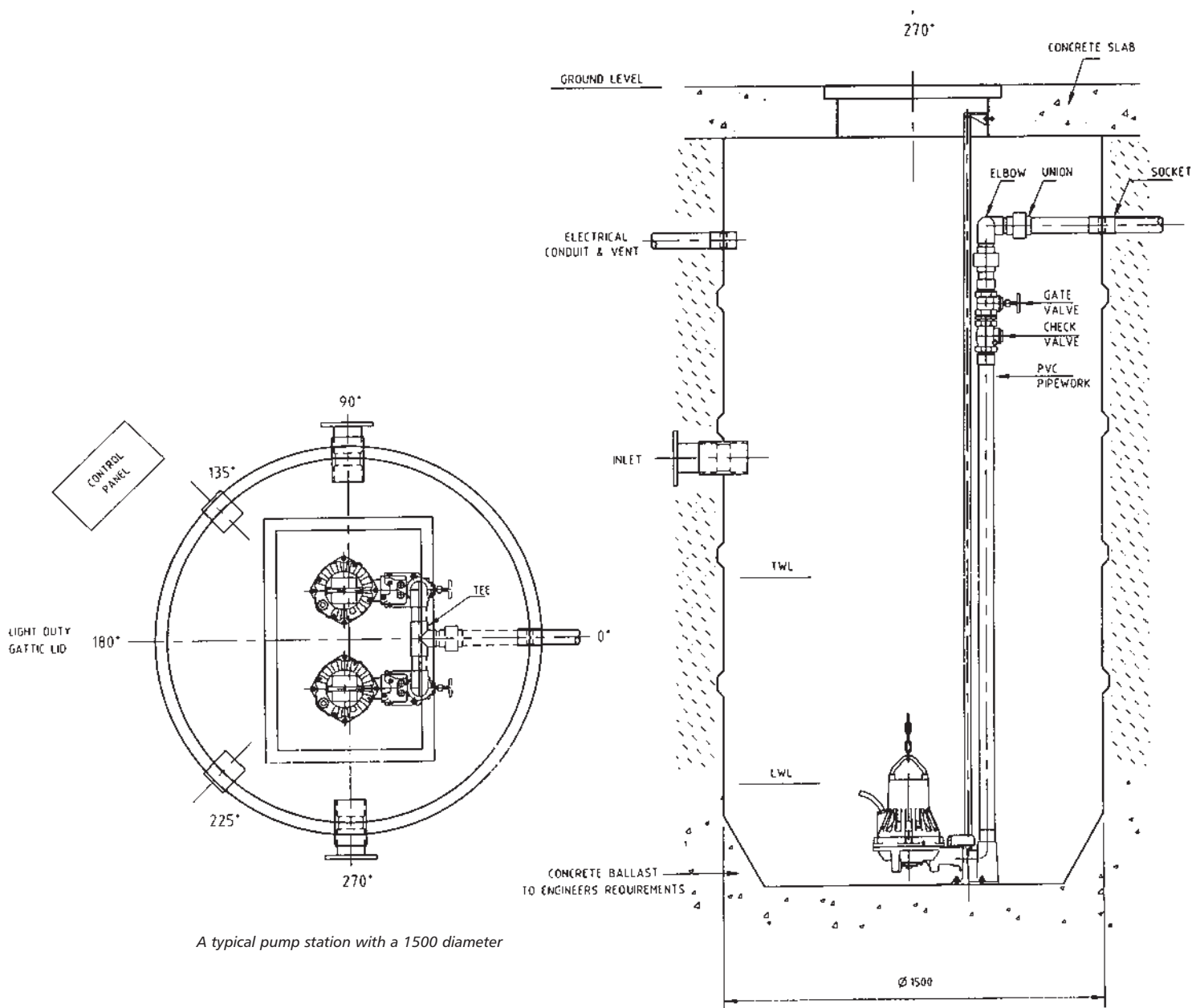
Flygt



ITT Industries
Engineered for life

Specification

PUMPS	PUMP CONTROLS	VALVES AND PIPEWORK
Flygt submersible pumps to handle sewerage, storm water, industrial and mining effluent etc. Special mountings for Muffin Monster in line grinders and macerators are also available.	Various pump control systems available including Flygt ENM10 float level switches, hydrostatic level devices, MGC multiple pump controller, through to full SCADA and Telemetry systems.	Single or multiple systems fitted all internal pipework in PVC, HDPE, ABS, Cast Iron or DI/CL. Valving available in bronze, cast iron, stainless steel or plastic. Flygt HDL ball check valves are fitted as standard.



The Concept

ITT Flygt's Fibreglass Reinforced Plastic (FRP) Pump stations are ideally suited for situations where civil work and installation time must be kept to a minimum. They are fully assembled with all the necessary equipment including pipe work, valves, pump discharges and guide rails to allow ease and speed of installation. FRP pump wells are relatively light weight, but surprisingly strong.

General Applications

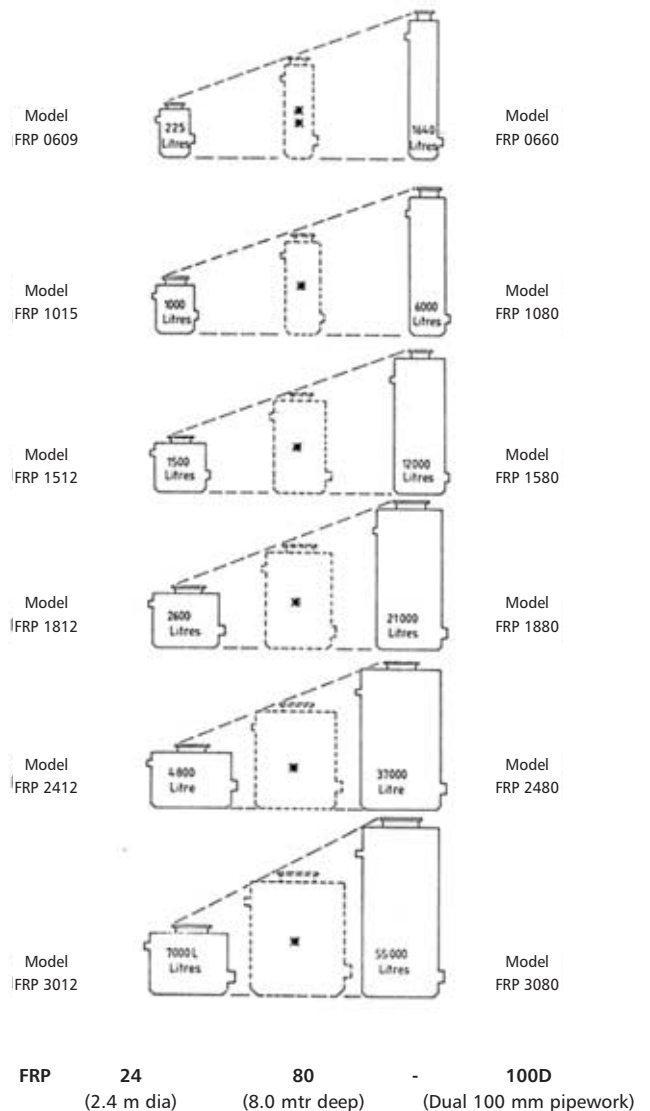
- Subdivisions
- Domestic Dwellings
- Commercial and Industrial Complexes
- Hospitals
- Mining & Construction Sites
- Camping Parks
- Motels/Hotels
- Shopping Centres
- Sporting Facilities
- Schools

Any Situation where sewerage or surface water needs pumping to a mains connection.

Technical Specifications

The pump station body complies with State Plumbing Codes and Water Board requirements, constructed in filament wound glass reinforced polyester resin as follows:

- Corrosion resistant Isophthalic resin – Dion 61386 or equivalent.
- 'E' glass reinforcement in chopped and continuous strands for increased strength. Minimum glass content 50%.
- High performance internal Isophthalic C veil reinforced resin applied to the internal mould surface giving a smooth surface inhibiting sludge and scum build up on the wall and eliminating chemical attack.
- High performance Isophthalic NPG Flowcoat for external finish.



Comparative Material Properties

	CONTINUOUS FILAMENT WOUND FRP	MOULDED FIBREGLASS
Tensile Strength	410 – 1180 MPa	63 – 140 MPa
Tensile Modulus	21000 – 41000 MPa	6000 – 12000 MPa
Flexural Strength	690 – 1240 MPa	140 – 250 MPa
Flexural Modulus	27000 – 41000 MPa	5000 – 8000 MPa
Compressive Strength	210 – 480 MPa	130 – 170 MPa

Design Features

- Fully transportable and quick to manufacture
- Simple and speedy installation - minimum on-site and civil costs.
- Highly adaptable - available in virtually any size combination. Available in standard diameters from 0.6 mtr to 3.0 mtr and any depth to 8 mtr. Special builds to 5 mtr diameter and 10 mtr depth are available. The pump stations can also be installed horizontally if required. Size is restricted only by transport limitations.

Accessories

Manhole Covers: Gas tight cast iron in all duties, or optional aluminium, galvanised steel or storm water grates.

Valve Pits: Stations are supplied with the valves accessible in the station, in a separate integral valve chamber or a separate valve pit.

Ladders: Stainless steel or galvanised steel ladders available. Flygt's patented pump auto setter device eliminates the need to enter the well to remove the pump.

Accessories for Trouble Free Efficient Pumping

In addition to the package design, Flygt also offers a number of complementary technological advances such as pump control and monitoring equipment, APF cleaning control and the automatic Flush Valve to ensure that the pumping station operates at maximum efficiency at all times.

Pump Controllers

Flygt Pump Controllers control every aspect of your pump station to help minimize downtime, and ensure against pump station flooding, expensive clean up costs, and unnecessary pump repairs.

Pre programmed pump controllers from Flygt allow you to monitor and control every aspect of your pump station. The controllers generate alarms in case of power failure or pump faults, records data for reports, trends and events. This means your staff can view the data from the site or via a SCADA system.



Flygt LS 100 Level Sensor

Used to measure the liquid level in a pump station or sump, the LS 100 is specially developed to withstand the same harsh media as our Flygt pumps.

With excellent term stability and in-built atmospheric compensation LS 100 provides reliable and consistent level monitoring and control.

Robust stainless steel body is suitable for use in sewage, slurry, and viscous liquids. Ceramic Pressure Sensor - highly accurate 4-20mA signal.

Simply lowered into the liquid, the LS 100 is not affected by foam, sludge and sediment that is commonly found in pits and pump stations.



APF Automatic Pump Sump Cleaning System

The APF Cleaner system can be used for all pump stations equipped with Flygt 3085-3300 series pumps. The APF controller fits easily on to your main system controller and programs the pumps to run down to the absolute minimum water level in the sump the point at which air is just beginning to be drawn into the impeller. The pump is then able to draw off the dirt and grease which normally settles on the surface of the water.

By operating down to this minimum water level, the pump also creates turbulence in the water as the air is sucked into the pump, and this turbulence agitates any sludge layer which has formed on the sump floor, allowing this, too, to be drawn off.

Both of these methods of cleaning ensure that the sump operates efficiently with less need for manual cleaning such as flushing or sludge removal.



Flygt Flush Valve

The Flygt flush valve is a fully automatic valve that stirs up the sump water at the start of each pumping cycle, resuspending solids so that they can simply be pumped away.

The result is less sedimentation, fewer unpleasant odours and less labour intensive maintenance.



Why install a Flush Valve?

- To reduce risk of septicity, fat build-up, grit deposition and ragging
- To prevent breakdown and blockages
- To increase pump life
- To ensure proper level control and telemetry
- To maintain pump station efficiency
- Gases in the station and unpleasant odours in the surroundings are completely eliminated
- Frequent cleaning and traditional desludging become unnecessary
- Significant saving in operation and maintenance costs (many documented examples of stations that have saved over 50% of their annual cleaning costs)

As pumping starts, the Flush Valve is open and the pump runs for approximately 30 seconds stirring the water in the sump and resuspending any settled solids.

