

2018

PRODUCT CATALOGUE

SUBMERSIBLE PUMPING SYSTEMS

 Franklin Fueling Systems



CREATE EFFICIENCIES SPEED INSTALLATIONS REDUCE COSTS



Our product systems are designed to create efficiencies and user benefits beyond those of standalone products. Check out these examples of how our system solutions can help your business.

TOTAL SYSTEM
SOLUTIONS

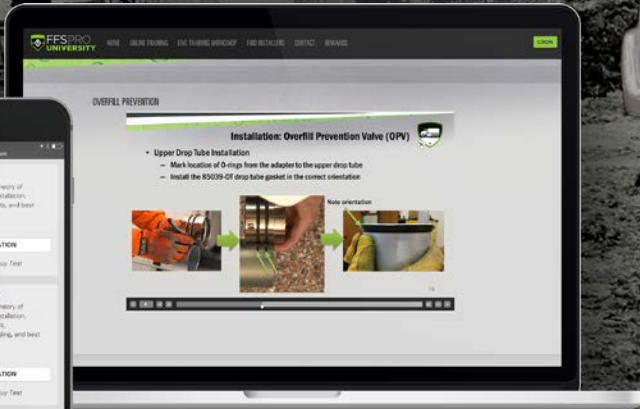


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Franklin Fueling Systems

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 **Franklin Fueling Systems**

QUOTE LIKE A PRO



 **FFS PRO**
SITE BUILDER

The industry's most powerful quoting tool. Our new FFS PRO: Site Builder will have you quoting a complete site like a pro in no time. The intuitive user interface guides you through the process of quoting a site including a full bill of materials, pricing, and a site drawing.

FUEL MANAGEMENT SYSTEMS

Franklin Fueling Systems offers a complete line of inventory monitoring systems, providing users the capability to take complete control of fuel management. The complete range is ideal for monitoring inventory, environmental control and fuel management. Next generation technology from INCON® allows users to monitor tanks from any web browser.

SUBMERSIBLE PUMPING SYSTEMS

Franklin Fueling Systems submersible pumping systems provide faster fuel dispensing, improved efficiency and unmatched reliability. The FE Petro® brand industry-leading product design offers the highest performing submersible pumping systems available.

PIPING AND CONTAINMENT

Franklin Fueling Systems offers the most comprehensive line of piping and containment products in the industry. The UPP® brand features innovative technology and outstanding quality. With 30 years' worth of installations and a 100% leak-free performance record, Franklin Fueling Systems is the leading provider of fuel pipe.

DISPENSING SYSTEMS

Franklin Fueling Systems manufactures and markets a complete line of Stage II vapour recovery systems globally under the Healy™ product brand. Healy™ vapour recovery products suit any application and customise to any site, ensuring proper connection.

SERVICE STATION HARDWARE

Franklin Fueling Systems fuel station hardware products comprise a comprehensive and environmentally friendly system, including a complete biofuel approved system for E85 and biodiesel sold under the brands EBW® and Phil-Tite.

TRANSPORT SYSTEMS

Franklin Fueling Systems road tanker systems products make it easy to connect to loading terminals and underground storage tanks with our broad line of adapters, elbows and valves. Sold under the brand EBW®, these products cover both loading and off-loading applications. Our road tanker hardware products provide a wide range of connection options.

DEF/ADBLUE®

Franklin Fueling Systems offers a complete system of Diesel Exhaust Fluid (DEF) or AdBlue® compatible products all from a single manufacturer. Our system is designed together – to work together, resulting in unmatched system performance and an energy efficient means of keeping DEF from freezing at low temperatures.

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ABOUT US



WELCOME TO FRANKLIN FUELLING SYSTEMS, THE WORLD'S LEADING PROVIDER OF COMPLETE FUELLING SYSTEMS.

We are comprised of the industry's most extensive lines of fuelling product solutions. With us, you can get the most comprehensive product offering from the industry's leader in total system solutions.

Franklin Fueling Systems provides unparalleled simplicity in placing one order, having one point of contact, relying on one service team and receiving one consolidated shipment.

A wide variety of products, a world class customer service experience and extensive technical background create a complete system solution where our services, features and products set us apart as the industry leader.

Whether you want to automate your station or network, build or re-build your station according to the latest environmental laws, update a station to fulfill new regulations or intend to realize a more cost efficient site construction and operation, you can rely on Franklin Fueling Systems. Our submersible pumping systems, service station hardware, fuel management systems and complete pipework solutions can increase your efficiency and improve your business.

In addition to the industry's most comprehensive product offering, Franklin Fueling Systems also provides:

- One order for all equipment
- Factory tested leak-tight equipment
- Reduced site downtimes
- 100% Bio-fuel compatible options
- Effective control of your fuel stocks
- Ensured environmental protection
- Solutions to keep fuel in and water out
- Lowest total cost of ownership
- Time and money savings

Franklin Fueling Systems can deliver a complete package of pipework, manhole chambers, under dispenser containment, submersible pumps and intelligent fuel stock & environmental monitoring systems all designed around your exact needs and delivered in one shipment, ready for installation.

SUBMERSIBLE PUMPING SYSTEMS

- 1 Submersible turbine pumps
 - a. Variable speed submersible pumps
 - b. Fixed speed submersible pumps (1½ hp, ¾ hp)
 - c. Variable length
 - d. High capacity submersible pumps and controllers (3 hp and 5 hp)
- 2 Mechanical leak detectors
- 3 EcoVFC™ variable frequency controller







SUBMERSIBLE PUMPING SYSTEMS

WE SET THE STANDARD AND NEVER LOOKED BACK

Since hitting the market in 1988, FE Petro™ brand submersible pumping systems have developed a reputation for setting the standard for quality, availability, service, and innovation. Building on these key factors, we continue to set the bar even higher with technology and innovations available only from Franklin Fueling Systems.

ONLY FE PETRO™

FE Petro™ brand submersible pumping systems set the standard for performance, efficiency, and safety. Check out its unique set of system features.



VARIABLE SPEED

With faster fill times during peak hours and power savings during non-peak hours, FE Petro™ 2 hp and 4 hp variable speed submersible pumping systems allow you to maximize profits while mitigating operating expenses.

HIGHLIGHTS

- 2 hp variable speed systems provide faster flow rates compared to fixed speed systems for virtually the same total cost of ownership.
- Variable speed systems ramp pressure up and down for a consistent user experience and prevent system wear from line shock.



THE MAGSHELL™

It's always been about filling cars faster. The patented MagShell™ is designed to do just that. By expanding the pump motor shell, the MagShell™ increases the area for product flow by 45%.

HIGHLIGHTS

- The additional flow capability is equivalent to having one more nozzle operating during peak hours.
- Faster throughput during peak hours equates to greater fuel sales potential.
- Customers know which stations provide faster refueling.



FUEL COMPATIBILITY

Market demands for alternative fuel compatibility continue to change. As standards change, FE Petro™ systems are at the forefront, gaining the new approvals our customers need.

HIGHLIGHTS

- FE Petro™ systems are UL listed with both UL79A (up to 85% ethanol) and UL79B (up to 20% or 100% Biodiesel).
- Compatibility upgrades for FE Petro™ systems are built within the framework of the standard design, meaning no need to stock duplicate items for common service parts.



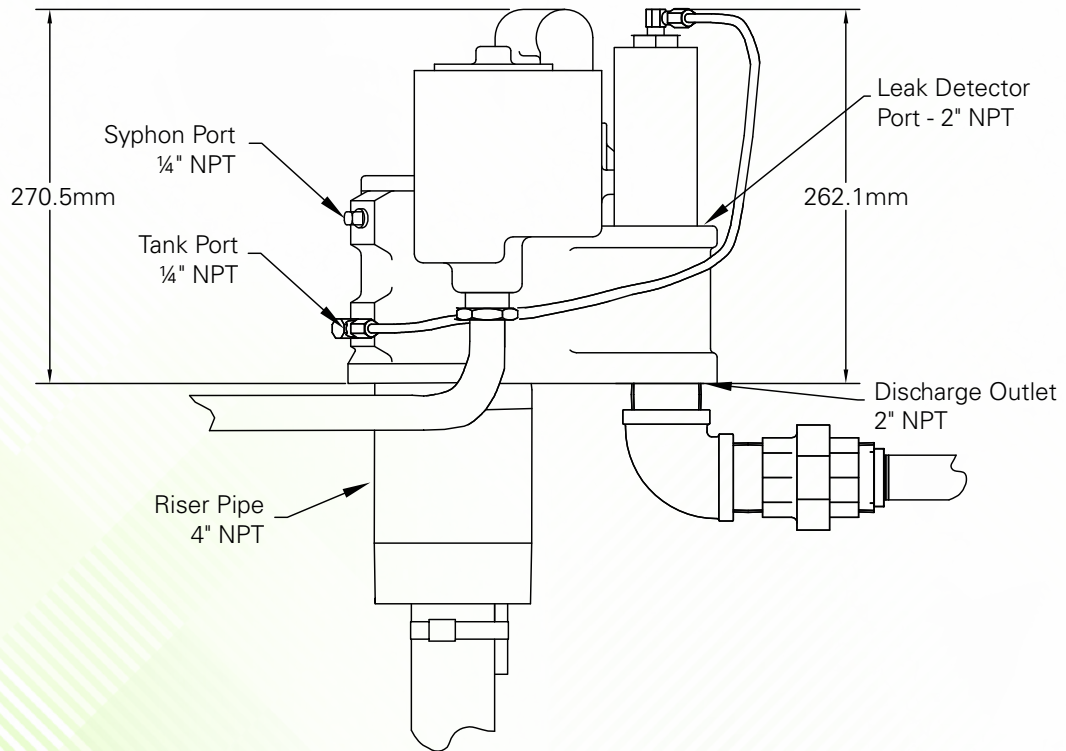
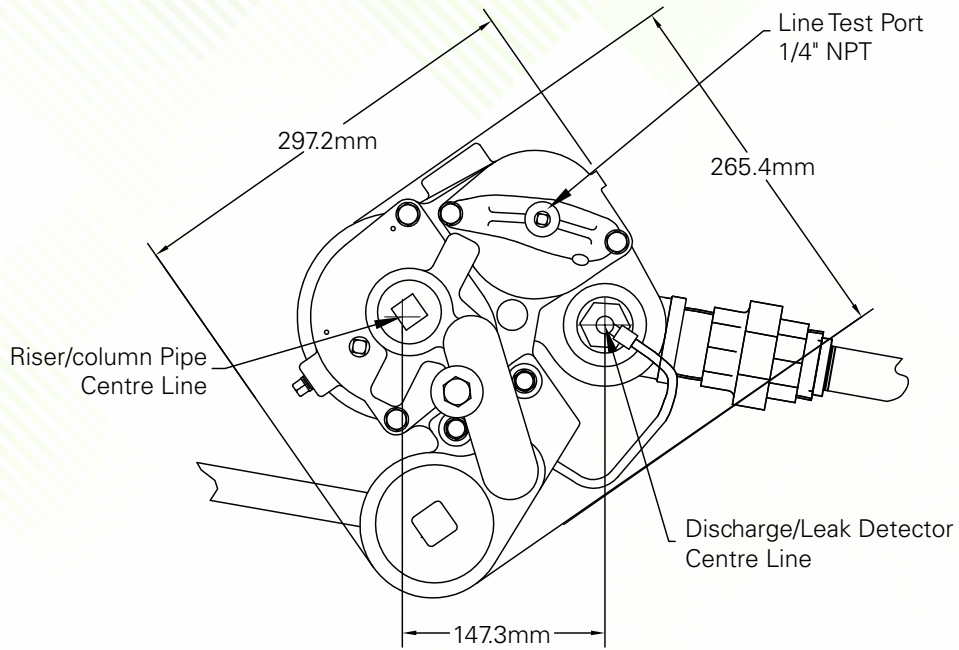
EASY REPLACEMENT

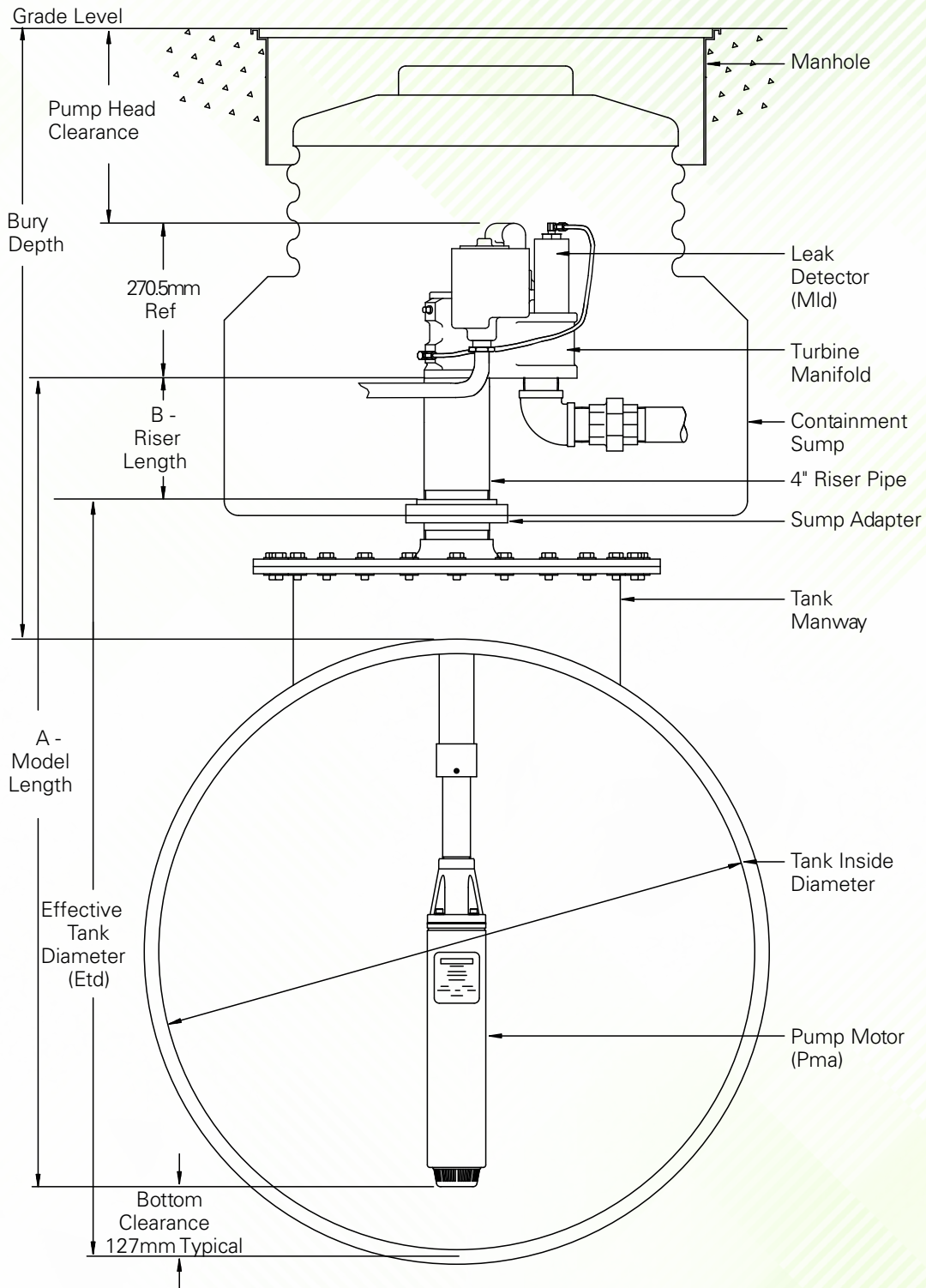
The rock solid design of FE Petro™ pumps has remained virtually unchanged since day one, meaning we can, and still do, service our pumps installed since 1988 with backward compatibility.

HIGHLIGHTS

- Upgrade from fixed speed to variable speed with complete and cost-effective Mag-Shell™ equipped variable speed conversion kits.
- 2 hp fixed speed pump motor assemblies available with Mag-Shell™ in both standard and high pressure models to easily upgrade your existing STP.

4" SUBMERSIBLE PUMPS





- Notes:
1. Effective tank diameter (ETD) = Inside tank diameter (to top of 4" bung), including tank manway and/or sump adapter.
 2. Model length (A) = ETD plus riser length minus bottom clearance minus 25.4mm thread engagement.
 3. Riser length (B) = Bury depth (to top of tank) minus pump head clearance minus tank manway and/or minus sump adapter.



SUBMERSIBLE PUMPING SYSTEMS

VARIABLE SPEED

MAXIMIZE PROFITS, MINIMIZE EXPENSES

Introduced in 1995, FE Petro™ brand variable speed submersible turbine pumps (STPs) were the first of their kind for the petroleum industry. With faster fill times during peak hours and power savings during non-peak hours, FE Petro™ brand variable speed STPs allow you to maximize profits while minimizing operating expenses.

VARIABLE SPEED

Check out these benefits only FE Petro™ brand variable speed submersible turbine pumps (STPs), the industry's highest performing 4" diameter STPs, can provide.



HIGHER FLOW RATES

The MagVFC™ variable speed controller ramps the STP up and down as needed to provide optimal flow rates at fueling points. The result is a more consistent customer experience.

HIGHLIGHTS

- Faster, more consistent flow rates than fixed speed systems for higher throughput at virtually the same total cost of ownership.
- Ramping up and down of pressure makes nozzles easier to squeeze and helps reduce overall system wear.



EFFICIENT ENERGY CONSUMPTION

Because a variable speed system is constantly providing only the necessary power to achieve desired flow rates, the system only consumes as much energy as is needed.

HIGHLIGHTS

- Energy savings during non-peak business hours and increased flow during peak hours.
- Potential for reduced energy costs without sacrificing a faster customer fueling experience and without a transducer or special wiring.



MEET YOUR FLOW RATE NEEDS

A variable speed STP can be adjusted at installation to perform at a maximum per-nozzle flow rate of 10 gpm (38 lpm) based on your piping and dispensing system.

HIGHLIGHTS

- Depending on peak business requirements, choose from either 2 hp or 4 hp models to meet your needs.
- 2 hp STPs provide constant 10 gpm (38 lpm) for up to eight fueling positions operating simultaneously.
- 4 hp STPs provide constant 10 gpm (38 lpm) for up to 12 fueling positions operating simultaneously.



MINIMIZE HYDRAULIC HAMMER

Hydraulic hammer is a sudden pressure spike resulting from a stoppage in flow in a pressurized piping system. This can be exaggerated in fixed speed systems.

HIGHLIGHTS

- A variable speed STP will ramp up and down to provide only the pressure needed to meet demand and significantly minimize the effects of hydraulic hammer.
- Hydraulic hammer may result in system fatigue and intensified wear to system components.



VARIABLE SPEED SUBMERSIBLE TURBINE PUMPS

MAXIMISE PROFITS, MINIMISE EXPENSES. Introduced in 1995, FE Petro® brand variable speed submersible turbine pumps (STPs) were the first of their kind for the petroleum industry. With faster fill times during peak hours and power savings during non-peak hours, FE Petro® brand variable speed STPs allow you to maximise profits while minimising operating expenses. Check out these benefits only FE Petro® brand variable speed STPs, the industry's highest performing 4" diameter STPs, can provide.

HIGHLIGHTS

Higher Flow Rates

The MagVFCTM or EcoVFCTM variable speed controller ramps the STP up and down as needed to provide optimal flow rates at fuelling points. The result is a more consistent customer experience.

- Faster, more consistent flow rates than fixed speed systems for higher throughput at virtually the same total cost of ownership.
- Ramping up and down of pressure makes nozzles easier to squeeze and helps reduce overall system wear.

Efficient Energy Consumption

Because a variable speed system is constantly providing only the necessary power to achieve desired flow rates, the system only consumes as much energy as is needed.

- Energy savings during non-peak business hours and increased flow during peak hours.
- Potential for reduced energy costs without sacrificing a faster customer fuelling experience and without a transducer or special wiring.

Meet Your Flow Rate Needs

A variable speed STP can be adjusted at installation to perform at a maximum per-nozzle flow rate of 10 gpm (38 lpm) based on your piping and dispensing system.

- Depending on peak business requirements, choose from either 2 Hp or 4 Hp models to meet your needs.
- 2 Hp STPs provide constant 10 gpm (38 lpm) for up to eight fuelling positions operating simultaneously.
- 4 Hp STPs provide constant 10 gpm (38 lpm) for up to 12 fuelling positions operating simultaneously.

Minimise Hydraulic Hammer

Hydraulic hammer is a sudden pressure spike resulting from a stoppage in flow in a pressurised piping system. This can be exaggerated in fixed speed systems.

- A variable speed STP will ramp up and down to provide only the pressure needed to meet demand and significantly minimise the effects of hydraulic hammer.
- Hydraulic hammer may result in system fatigue and intensified wear to system components.

Variable Frequency Controllers

Variable speed pumps are controlled by the MagVFCTM or EcoVFCTM variable frequency controller which provides control for both 2 Hp and 4 Hp variable speed STPs.

- Faster fill times during peak hours and power savings during non-peak hours.
- Control is determined through the PMA power consumption, eliminating the need for a transducer or special wiring.
- Setup selections include 2 Hp or 4 Hp, MLD or PLLD, gas or diesel, and Master-Slave, alternating circuit manifolded pump control options.
- Capable of networking with INCON® fuel management systems for enhanced pump control capabilities.

SPECIFICATIONS

- Variable speed models are available in variable lengths only.
- Check valve: 70 mm diameter fluorocarbon seal constructed with cast aluminium body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 2.76 bar and resets above 2.41 bar.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes a tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

Pump Motor

- 2 Hp or 4 Hp, variable speed, two-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Max. pressure: selectable operating pressure on MagVFC™ or EcoVFC™ between 1.65 bar and 2.9 bar deadhead.
- Available with MagShell® which results in 45% increased flow area around motor.

Approvals

- Consult factory for applicable approvals.

Power Requirements

- Variable speed pumps can only be controlled by a MagVFC™ or EcoVFC™ variable frequency controller:
- VS2 models can operate with single-phase incoming power supply to the MagVFC™.
- VS2 and VS4 models can operate with three-phase incoming power supply to the EcoVFC™.
- Incoming power supply is 200-250 VAC, 50 Hz for the MagVFC™ and 360-440 VAC, 50 Hz for the EcoVFC™.
- MagVFC™ and EcoVFC™ output a three-phase, variable frequency signal, valid for FE Petro® variable speed pumps only.
- VS2 max. motor draw: 9 Amps.
- VS4 max. motor draw: 15 Amps.
- MagVFC™ or EcoVFC™ max. line draw: 20 Amps.

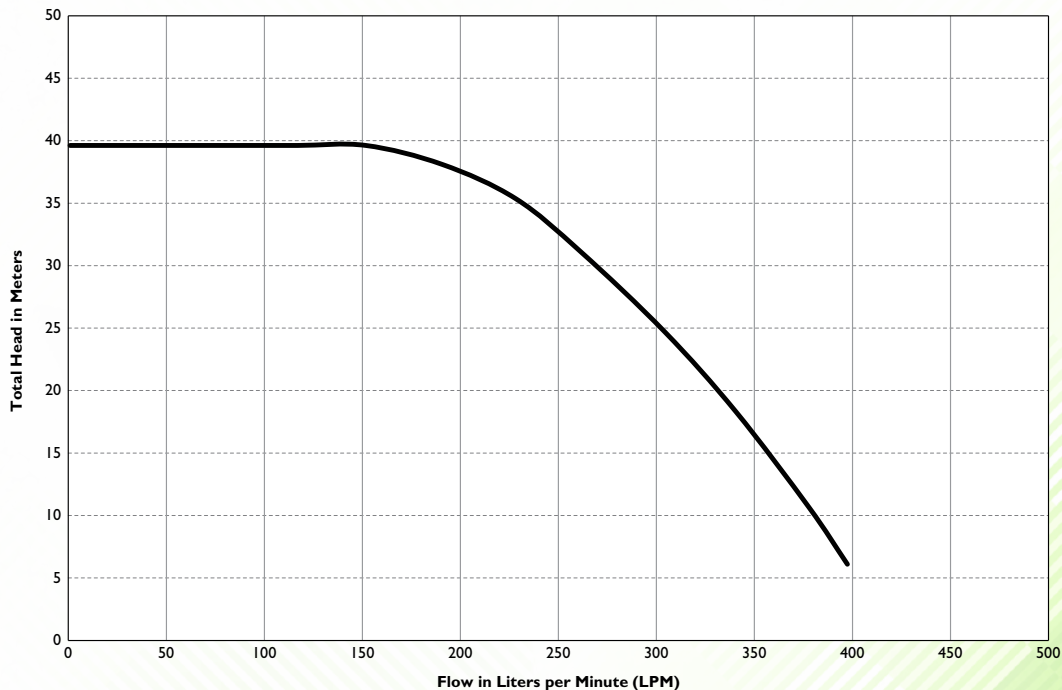
Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- STP variable speed models are listed for fuel mixtures containing up to 10% ethanol, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- IST® variable speed models are listed for fuel mixtures containing diesel fuel with up to 20% biodiesel, 100% biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- All variable speed (non-AG) models can also be used for fuel mixtures containing up to 5% biodiesel with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

Quality Certification

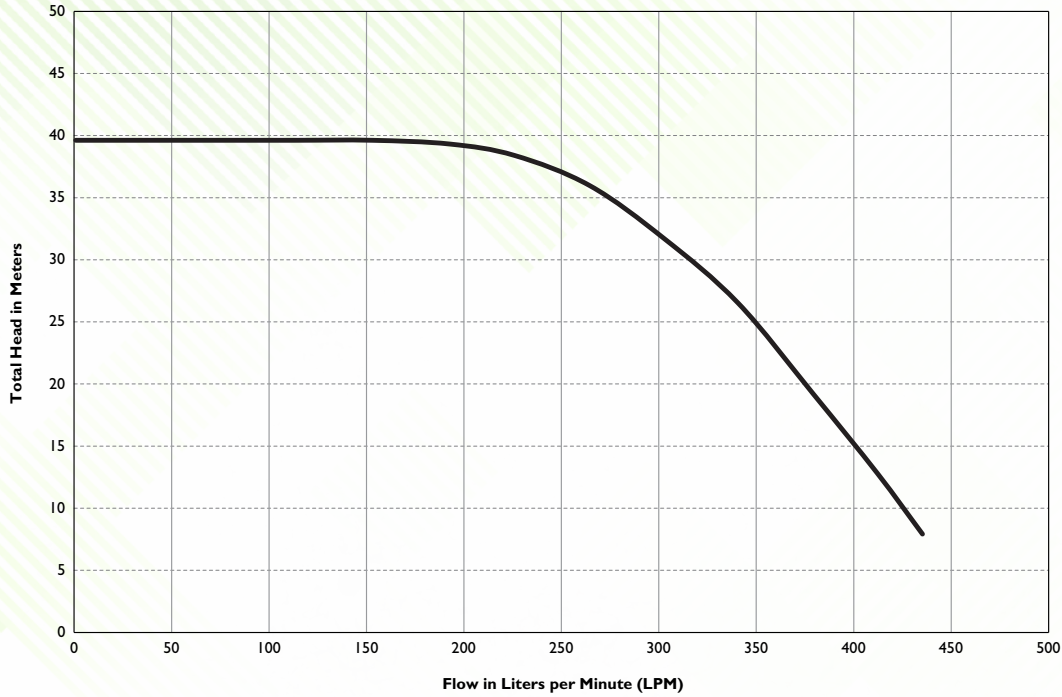
- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

2 hp Variable Speed Turbine Performance Chart (STPMVS2)



Note: Performance based on pumping gasoline (0.76 specific gravity). Pressure is taken at the manifold discharge outlet. MagShell® Variable Speed 2 hp was powered by MagVFC™ with Single-Phase, 50 Hz, 220 Volt incoming supply or Eco VFC™ with Three-Phase, 50 Hz, 410 Volt incoming power supply.

4 hp Variable Speed Turbine Performance Chart (STPMVS4)



Note: Performance based on pumping gasoline (0.76 specific gravity). Pressure is taken at the manifold discharge outlet. MagShell® Variable Speed 4 hp was powered by Eco VFC with Three-Phase, 50 Hz, 410 Volt incoming supply.

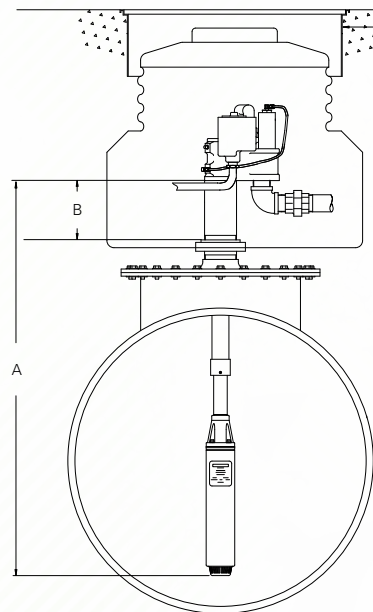
ORDERING INFORMATION

Ordering Guide

A typical turbine model designation has up to five components to define the pump being supplied as follows:

STP XXXXX Y - A - B

- XXX = Basic Model Designation
 - STP = These standard variable speed and variable length models are capable of up to 10% ethanol with gasoline
 - IST[®]** = These variable speed and variable length models include alcohol-gasoline compatibility (up to 85% ethanol, up to 20% biodiesel, or 100% biodiesel).
- YYYYY = Factory Installed Options
 - Model designations may include one or more of the following characters in alphabetical order:
 - F = Floating suction adapter (1 1/2" NPT female adapter)
 - K = Intake filter screen (IFS, factory installed to PMA)
 - M = MagShell[®] (flow enhancing, expanded PMA shell)
 - R* = Model R check valve (1.65 bar relief/1.52 bar reset for PLLD)
 - W* = Model W check valve (1.10 bar relief/0.89 bar reset for PPM4000)
- Z = Pump Motor Horsepower Rating
 - VS2** = 2 Hp variable speed
 - VS4 = 4 Hp variable speed
- A = Model Length (see table)
 - VL1 = STP variable length range #1
 - VL2 = STP variable length range #2
 - VL3 = STP variable length range #3
- B = Riser Pipe Length (diagram above)
 - Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 178 mm to 1524 mm in 25.4 mm increments (additional charge for risers 787 mm or longer).



Part	Model Length* Range	Model Length Range Number
2 Hp	1486 mm - 2228 mm	VL1
	2274 mm - 3835 mm	VL2
	3087 mm - 5429 mm	VL3
4 Hp	1613 mm - 2355 mm	VL1
	2401 mm - 3962 mm	VL2
	3214 mm - 5556 mm	VL3

*If not otherwise specified, all models are supplied with standard model check valve (2.76 bar relief/2.41 bar reset for MLD, TS-LS300, and TS-LS500).

**If not otherwise specified, 2 Hp variable speed pump motor horsepower rating is implied for IST[®] models.

ORDERING INFORMATION CONTINUED

Variable Speed Submersible Turbine Pumps

Variable speed, variable length.

Model	Description	Model Length Range Number	Model Length Range*
STPVS2-VL1	2 hp variable speed	VL1	1486 mm - 2228 mm
STPVS2-VL2	2 hp variable speed	VL2	2274 mm - 3835 mm
STPVS2-VL3	2 hp variable speed	VL3	3087 mm - 5429 mm
STPVS4-VL1	4 hp variable speed	VL1	1613 mm - 2355 mm
STPVS4-VL2	4 hp variable speed	VL2	2401 mm - 3962 mm
STPVS4-VL3	4 hp variable speed	VL3	3214 mm - 5556 mm

Variable Speed Intelligent Submersible Turbine Pumps

Variable speed, variable length, and AG compatible.

Model	Description	Model Length Range Number	Model Length Range*
IST®-1	2 hp AG variable speed	VL1	1486 mm - 2228 mm
IST®-2	2 hp AG variable speed	VL2	2274 mm - 3835 mm
IST®-3	2 hp AG variable speed	VL3	3087 mm - 5429 mm
ISTVS4-VL1	4 hp AG variable speed	VL1	1613 mm - 2355 mm
ISTVS4-VL2	4 hp AG variable speed	VL2	2401 mm - 3962 mm
ISTVS4-VL3	4 hp AG variable speed	VL3	3214 mm - 5556 mm

1. All STP models are listed for compatibility with fuel mixtures containing up to 10% ethanol with gasoline, up to 5% biodiesel with diesel fuels, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
2. All IST® models are compatible with fuel mixtures containing diesel fuel with up to 20% biodiesel, 100% biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
3. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
4. 4 hp models require EcoVFC™ with three-phase incoming power supply, 2 hp models can be powered by MagVFC™ or EcoVFC™.
5. 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.
6. For riser pipe length 787 mm to 1524 mm additional charge applies (call customer service for lead times).

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

Factory Installed Approvals

Specify one in model number at time of STP order.

Designation	Description
(ATXF)	Submersible turbine pumps with ATEX flameproof approval for EN markets
(RT)	Submersible turbine pumps with ROSTEST approval for Eastern European markets

Note: If not otherwise specified, all models are supplied to UL approval as standard. Consult Factory for other local approvals.

Factory Installed Options

Specified in model number at time of STP order.

Model	Description
F	Floating suction adapter, 1½" NPT female, must be factory installed
K	IFS (intake filter screen) factory assembled to pump motor assembly
M	Magshell™ (flow enhancing, expanded PMA shell)
R	Model R check valve, factory installed, for Veeder Root™ PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket™ PPM4000 Line Leak

Field Installed Options

Intelligent submersible turbine pump specific accessories.

Part	Description
5874202800	MagVFC™, 200-250 VAC, 50-60 Hz, one required per STP or IST®
5874202900	EcoVFC™, 360-440 VAC, 50-60 Hz, one required per STP or IST®
400137937	Syphon check valve, alcohol-gasoline compatible
402459931	Model 65 psi (4.5bar) relief check valve (AG compatible for slave of manifolded STPs or ISTs® with Veeder-Root™ PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one STP or IST®)
5800300200	STP-DHIB dispenser hook isolation for 240 volt dispenser handle switches, up to eight each



INTELLIGENT SUBMERSIBLE TURBINE PUMPS

FE Petro introduced the first variable speed submersible pump for the petroleum industry in 1995. Since that time, high volume marketers around the world have realized the benefits of filling cars faster during peak business periods that only variable speed submersibles can deliver. Station size and volumes have continued to grow. To meet the needs of these high volume retailers, FE Petro offers the intelligent submersible turbine pump, the industry's highest performing 4" diameter submersible pump.

HIGHLIGHTS

Constant Flow

Depending on peak business requirements, marketers now have a choice of either 2 hp or 4 hp variable speed models. 2 hp provides constant 10 gpm (38 lpm) for up to eight fuelling positions operating simultaneously, 4 hp for up to 12 positions.

MagVFC™ / EcoVFC™ Design Highlights

The MagVFC™ and EcoVFC™ feature a dual seven segment display to show diagnostic faults. A serial interface is standard to connect to INCON System Sentinel™ software for remote reporting of pump alarms and sharing other pump/ATG intelligence. The MagVFC™ and EcoVFC™ detect and display these system conditions:

- Dry tank (initiates an immediate pump shut-down).
- Continuous pump run.
- Low incoming voltage.
- Pump motor failure.
- Short circuit detection.
- Controller faults.
- Open circuit detection.

For reduced installation cost, a shielded power cable is not required. Pump protection extends pump life and extended run fault alerts a condition that may render line leak detection ineffective. Remote reporting of pump alarms and sharing of IST® and ATG intelligence further reduce station operating costs.

Meets EPA Spitback Control

The IST® can be adjusted at installation to perform at maximum per nozzle flow rate of 10 gpm (38 lpm) based on the specifications of your piping and dispensing system. This eliminates overpressuring the system, which results in an unnecessarily high hydraulic hammer and need for other control devices.

SPECIFICATIONS

Power Requirements

IST® models can only be powered by a MagVFC™ or EcoVFC™ controller:

- 2 hp models can operate with single phase incoming power supply to the MagVFC™.
- 2 hp and 4 hp models operate with three-phase incoming power supply to the EcoVFC™.
- Incoming power supply to the MagVFC™ can be 200-250 VAC, 50 Hz and 360-440 VAC, 50 Hz for the EcoVFC™.
- MagVFC™ outputs a three-phase, variable frequency signal, valid for FE Petro variable speed pumps only.
- 2 hp max. motor draw: 9 Amps.
- 4 hp max. motor draw: 15 Amps.
- MagVFC™ or EcoVFC™ max. line draw: 20 Amps.

Pump Motor

- 2 hp or 4 hp, variable speed, two-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Max. flow: 2 hp = 110 gpm, 4 hp = 140 gpm.
- Max. pressure: selectable operating pressure on MagVFC™ or EcoVFC™ between 1.65 bar and 2.9 bar deadhead.
- Available with MagShell®, which results in 45% increased flow area around motor.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- IST® models imply alcohol-gasoline compatibility for fuel mixtures containing diesel fuel with up to 20% biodiesel, 100% biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- IST® models can also be used for fuel mixtures containing up to 5% biodiesel with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

SPECIFICATIONS CONTINUED

Standard Features

- All IST® models include variable speed, variable length options and alcohol-gasoline compatibility.
- Check valve: 70mm diameter fluorocarbon seal constructed on cast aluminium body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 2.76 bar and resets above 2.41 bar
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

ORDERING INFORMATION

Intelligent Submersible Turbine Pump Model Designation System

A typical turbine model designation has up to five components to define the pump being supplied as follows:

IST® XXXXX Y - A - B

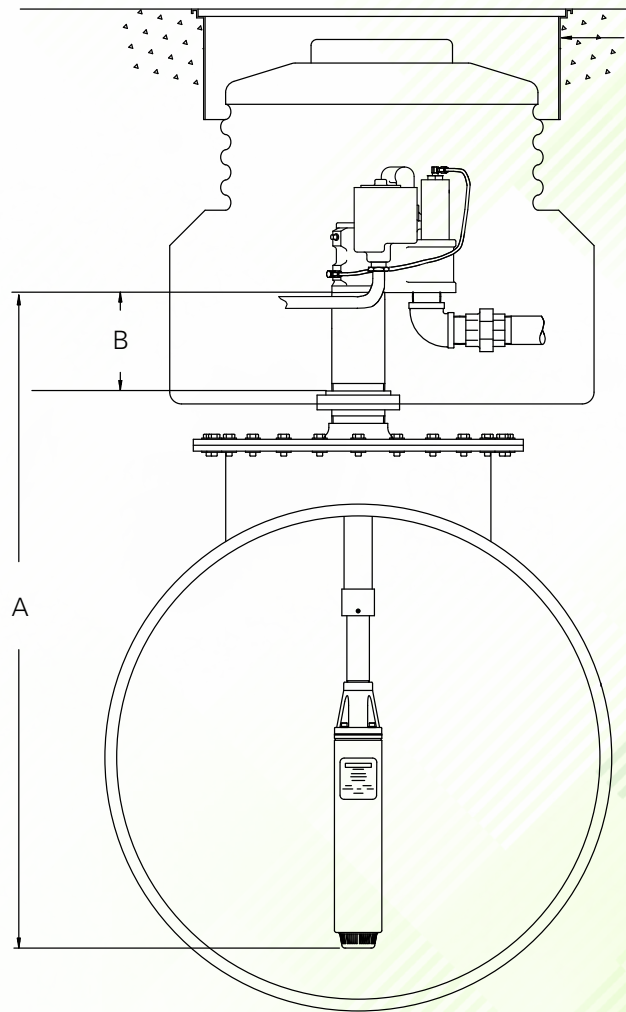
- IST® = Basic Model Designation
 - Note: All IST® models include the options of alcohol-gasoline compatibility, variable speed and variable length as part of the base model.
- XXXXX = Factory Installed Options
 - IST® model designations may include one or more of the following characters in alphabetical order:
 - F = Floating suction adapter (1 ½" NPT female adapter)
 - K = Intake filter screen (IFS, factory installed to PMA)
 - M = MagShell® (flow enhancing, expanded PMA shell)
 - R* = Model R check valve (1.65 bar relief/1.52 bar reset for PLLD)
 - W* = Model W check valve (1.10 bar relief/0.89 bar reset for PPM4000)
 - *Note: If not otherwise specified, all IST® models are supplied with standard model check valve (2.76 bar relief/2.41 bar reset for MLD, TS-LS300, and TS-LS500)
- Y = Pump Motor Horsepower Rating**
 - VS4 = 4 hp variable speed
 - **Note: If not otherwise specified, 2 hp variable speed is implied.
- A = Model Length (see table)
 - VL1 = STP variable length range #1
 - VL2 = STP variable length range #2
 - VL3 = STP variable length range #3
- B = Riser Pipe Length (diagram above)
 - Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 178 mm to 1524 mm in 25.4 mm increments (additional charge for risers 787 mm or longer).

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.



Part	Model Length* Range	Model Length Range Number
2 Hp	1486 mm - 2228 mm	VL1
	2274 mm - 3835 mm	VL2
	3087 mm - 5429 mm	VL3
4 Hp	1613 mm - 2355 mm	VL1
	2401 mm - 3962 mm	VL2
	3214 mm - 5556 mm	VL3

*If not otherwise specified, all models are supplied with standard model check valve (2.76 bar relief/2.41 bar reset for MLD, TS-LS300, and TS-LS500).

**If not otherwise specified, 2 Hp variable speed pump motor horsepower rating is implied for IST® models.

ORDERING INFORMATION CONTINUED

Intelligent Submersible Turbine Pumps

Variable speed, variable length, AG compatible.

Model	Description	Model Length Range Number	Model Length* Range
IST®-1	2 hp AG variable speed	VL1	1486mm - 2228mm
IST®-2	2 hp AG variable speed	VL2	2274mm - 3835mm
IST®-3	2 hp AG variable speed	VL3	3087mm - 5429mm
ISTVS4-VL1	4 hp AG variable speed	VL1	1613mm - 2355mm
ISTVS4-VL2	4 hp AG variable speed	VL2	2401mm - 3962mm
ISTVS4-VL3	4 hp AG variable speed	VL3	3214mm - 5556mm

Notes:

1. All above models are compatible with fuel mixtures containing up to 85% ethanol with gasoline, diesel fuels with up to 20% biodiesel, 100% biodiesel, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
2. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
3. 4 hp models require EcoVFC™ with three-phase incoming power supply, 2 hp models can be powered by MagVFC™ or EcoVFC™.
4. 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.
5. For riser pipe lengths 787mm to 1524mm, additional charge applies (call customer service for lead times).

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

**4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.

Factory Installed Approvals

May specify one in model number at time of STP order.

Designation	Description
(ATXF)	Submersible Turbine Pumps with ATEX Flameproof approval for EN markets
(RT)	Submersible Turbine Pumps with ROSTEST approval for Eastern European markets

Note: If not otherwise specified, all models are supplied to UL approval as standard.

Consult Factory for other local approvals.

Factory Installed Options

Specified in model number at time of IST® order.

Designation	Description
F	Floating suction adapter, 1½" NPT female, must be factory installed
K	IFS (intake filter screen) factory assembled to pump motor assembly
M	Magshell™ (flow enhancing, expanded PMA shell)
R	Model R check valve, factory installed, for Veeder Root (*) PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket (*) PPM4000 Line Leak

Field Installed Options

Intelligent submersible turbine pump specific accessories.

Part	Description
5874202800	MagVFC™, 200-250 VAC, 50-60 HZ one required per IST®
5874202900	EcoVFC™, 360-440Hz 50-60 Hz one required per IST®
400137937	Syphon check valve, alcohol-gasoline compatible
402459931	Model 4.48 bar check valve (AG compatible for slave of manifolded ISTs® with Veeder Root (*) PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one IST®)
5800300200	STP-DHIB, dispenser hook isolation for 240 volt dispenser handle switches, up to 8 each



SUBMERSIBLE PUMPING SYSTEMS

IT'S ALWAYS BEEN ABOUT FILLING CARS FASTER

As a product of our relentless pursuit of filling cars faster, the MagShell™ has provided quicker refueling times for millions of motorists around the world for over 10 years. Why should you care about faster fill times? It's simple - faster fuel times can significantly improve profitability and drive customer loyalty. Isn't it about time you started filling cars faster?



THE MAGSHELL™

Maximize your flow rate capabilities and your potential throughput and profits. Check out these benefits only available from an FE Petro™ MagShell™.



FASTER BY DESIGN

Available on FE Petro™ brand 2 hp and 4 hp models, a MagShell™ expands the pump motor shell to increase the flow area around the motor by 45%.

HIGHLIGHTS

- The expanded flow area creates significantly higher flow rates compared to a traditional pump motor shell.
- This additional flow capability is equivalent to having one more nozzle open during peak operating times.



HIGH FLOW RATES - FAST FILL TIMES

A 4 hp variable speed STP with MagShell™ provides the highest flow rates of any single 4" submersible turbine pump available on the market today.

HIGHLIGHTS

- Faster throughput during peak operating times equates to greater fuel sales potential.
- In our fast-paced world, customers know which stations provide faster refueling during peak hours.



OUTLAST, OUT-PERFORM

With an all stainless steel shell construction powered by the legendary Franklin Electric motor, MagShell™ equipped STPs are built for long term performance.

HIGHLIGHTS

- Franklin Electric-powered submersible pumps provide maximum uptime and a proven track record in the fueling industry that spans more than four decades.
- Best-in-class flow rates and a long history of dependability.



TIME TO MAKE THE UPGRADE

Both FE Petro™ and competitive models of submersible pumps can easily be upgraded with a MagShell™ to achieve higher flow rates and faster fill times at existing sites.

HIGHLIGHTS

- Upgrade from fixed speed to variable speed with complete and cost-effective Mag-Shell™ equipped variable speed conversion kits.
- 2 hp fixed speed pump motor assemblies available with Mag-Shell™ in both standard and high pressure models to easily upgrade your existing STP.



2 HP FIXED SPEED SUBMERSIBLE TURBINE PUMPS

Marketers concerned about fuelling times, efficiency, serviceability, reliability and overall quality find it an easy choice to specify FE Petro® brand submersible turbine pumps (STPs). An STP has to be reliable, it has to be safe, and it has to perform. That's why thousands of station owners around the world have trusted FE Petro® STPs and the Franklin Electric motors that drive them to keep their business flowing for over 25 years. With best-in-class flow rates and backed by a long history of dependability FE Petro® STPs simply do their job without fail, delivering fuel to customers day after day without a hitch.

HIGHLIGHTS

Faster Fuelling Times

Available on FE Petro® brand 2 Hp models, a MagShell® expands the pump motor shell to increase the flow area around the motor by 45%. The expanded flow area creates significantly higher flow rates compared to a traditional pump motor shell. This additional flow capability is equivalent to having one more nozzle open during peak operating times.

Active Air Eliminator

FE Petro® brand STPs come standard with active air elimination, which eliminates air through the highest point in the pump head at all times when the pump is running, assuring air does not pass into discharge piping.

Manual Pressure Relief

As a standard FE Petro® feature a vent screw is provided to bleed line pressure to zero when necessary. By turning this screw, product is diverted back to the tank, dropping line pressure to zero. This reduces fuel discharged into the sump manhole or dispenser pan during servicing, further protecting service technicians and the environment.

Simple Servicing

If ever required, the pump can be easily removed from the tank by unthreading three bolts. There is no need to disconnect the syphon system or to remove the leak detector from the system to service the STP.

Variable Length

The VL2 pump fits 94% of all known tank diameters and tank bury depth combinations. The VL1 and VL3 are available to handle installations shorter or longer than this range. The telescoping connection is a patented FE Petro feature. Pump length can be set by making one simple measurement and setting the pump length without affecting the UL listing.

Reliable Check Valve

The STP uses the proven FE Petro® line check valve. At 70mm in diameter, this valve reduces pressure loss at high flow rates resulting in faster fuelling times. FE Petro® line check valves are offered in multiple configurations to best suit your line leak application.

Outlast, Outperform with Franklin Electric Inside

FE Petro® STPs are powered by the legendary Franklin Electric motor and built for long term performance. Franklin Electric-powered submersible pumps provide maximum uptime and a proven track record in the fuelling industry that spans more than four decades. They feature best-in-class flow rates and a long history of dependability.

SPECIFICATIONS

Specifications

- 2 hp fixed speed models are available in variable length and fixed length options.
- Check valve: 70 mm diameter fluorocarbon seal constructed on cast aluminium body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 2.76 bar and resets above 2.41 bar.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes a tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

Pump Motor

- 2 hp fixed speed, 2875 rpm, multi-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Available with MagShell® for 45% increased flow area around motor.

Power Requirements

- 200B models require single-phase, 200-250 VAC, 50 Hz incoming power.
- 200B models incorporate a starting and running capacitor, with internal bleed resistor, rated 440 Volt, 40 microfarad.
- STP-SCI single-phase smart controllers and STP-CBBS single-phase control boxes are available for 200B control.
- 200C models require three-phase, 380-415 VAC, 50 Hz incoming power.
- STP-CBB three-phase magnetic starter available for 200C control.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60°F (15°C).
- Standard STP models are listed for fuel mixtures containing up to 10% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- STPAG (AG compatible) models are for fuel mixtures containing diesel fuel with up to 20% biodiesel, 100% biodiesel, up to 85% ethanol with gasoline and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- 2 hp fixed speed models can also be used for fuel mixtures containing up to 5% biodiesel with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

Approvals/Certifications

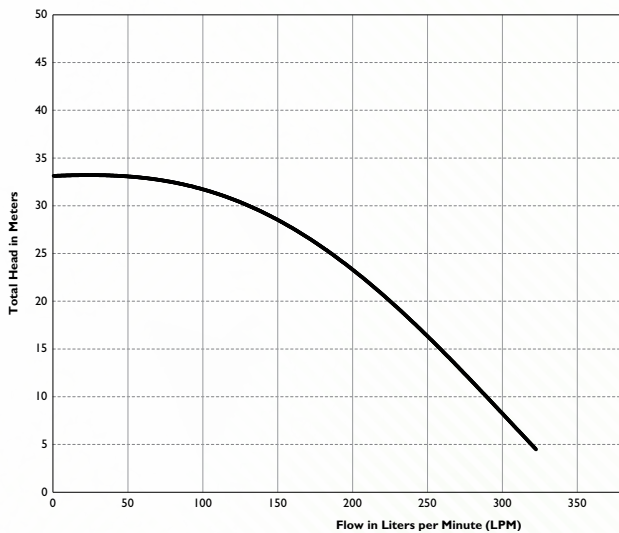
- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

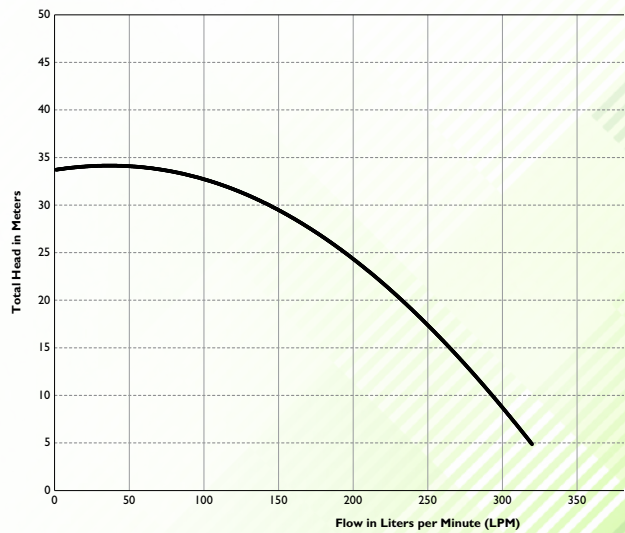
2 hp Fixed Speed Turbine Performance Chart

(STP200B)



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. Fixed Speed 2.00 HP was powered by Single-Phase, 50 Hz, 250 Volt incoming supply.

(STP200C)



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. Fixed Speed 2.00 HP was powered by Three-Phase, 50 Hz, 415 Volt incoming supply.

ORDERING INFORMATION

2 hp Fixed Speed Submersible Turbine Pump Model Designation System

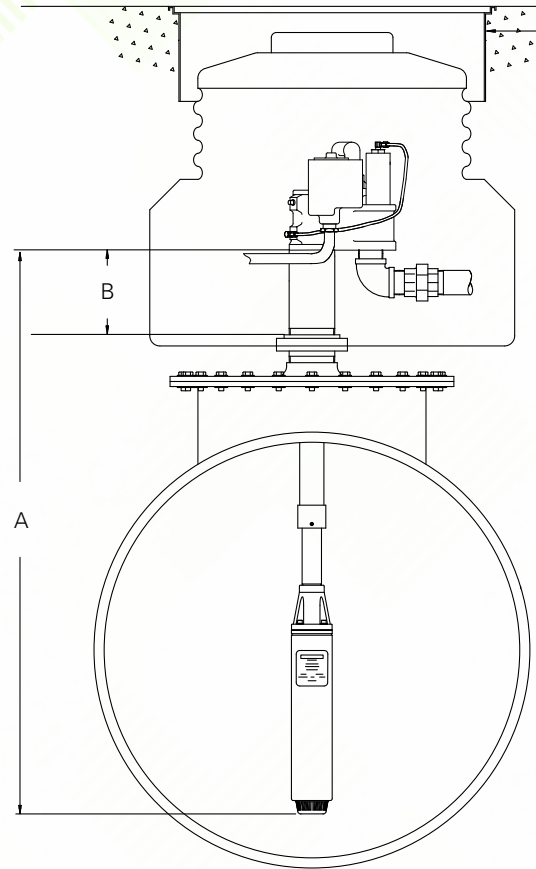
A typical turbine model designation has up to five components to define the pump being supplied as follows:

STP XXXXX Y - A - B

- STP = Basic Model Designation
- XXXXX = Factory Installed Options
 - STP model designations may include one or more of the following characters in alphabetical order:
 - AG = Alcohol-gasoline compatible (up to 85% ethanol, up to 20% biodiesel, or 100% biodiesel). Note: Standard models up to 10% ethanol capable.
 - F = Floating suction adapter (1 1/2" NPT female adapter)
 - H = High pressure (3.1 bar deadhead (no flow) output)
 - K = Intake filter screen (IFS, factory installed to PMA)
 - M = MagShell® (flow enhancing, expanded PMA shell)
 - *R = Model R check valve (1.65 bar relief/1.52 bar reset for PLLD)
 - *W = Model W check valve (1.10 bar relief/ 0.89 bar reset for PPM4000)
- *Note: If not otherwise specified, all STP models supplied with standard model check valve (2.76 bar relief/2.41 bar reset for MLD, TS-LS300 & TS-LS500).
- Y = Pump Motor Horsepower Rating
 - 200B = 2 hp fixed speed, 50 hz, 1-phase
 - 200C = 2 hp fixed speed, 50 hz, 3-phase
- A = Model Length
 - VL1 = Variable length range #1.
 - VL2 = Variable length range #2.
 - VL3 = Variable length range #3.

Note: VL2 models fit 94% of all known installations.

- B = Riser Pipe Length
 - Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 178mm to 1524mm in 25.4mm increments (additional charge for risers 787mm or longer).



Model Length (A)

Part	Model Length* Range	Model Length Range Number
200B	1632mm-2374mm	VL1
	2420mm-3981mm	VL2
	3233mm-5575mm	VL3
200C	1575mm-2317mm	VL1
	2363mm-3924mm	VL2
	3175mm-5518mm	VL3

2 hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length* Range
STP200B-VL1	2 hp fixed speed, single-phase	VL1	1632mm-2374mm
STP200B-VL2	2 hp fixed speed, single-phase	VL2	2420mm-3981mm
STP200B-VL3	2 hp fixed speed, single-phase	VL3	3233mm-5575mm
STP200C-VL1	2 hp fixed speed, three-phase	VL1	1575mm-2317mm
STP200C-VL2	2 hp fixed speed, three-phase	VL2	2363mm-3924mm
STP200C-VL3	2 hp fixed speed, three-phase	VL3	3175mm-5518mm

ORDERING INFORMATION CONTINUED

Alcohol-Gas (AG) 2 Hp Fixed Speed Submersible Turbine Pumps

Alcohol-Gasoline Model	Description	Model Length Range Number	Model Length* Range
STPAG200B-VL1	2 hp AG fixed speed, single-phase	VL1	1632mm-2374mm
STPAG200B-VL2	2 hp AG fixed speed, single-phase	VL2	2420mm-3981mm
STPAG200B-VL3	2 hp AG fixed speed, single-phase	VL3	3233mm-5575mm
STPAG200C-VL1	2 hp AG fixed speed, three-phase	VL1	1575mm-2317mm
STPAG200C-VL2	2 hp AG fixed speed, three-phase	VL2	2363mm-3924mm
STPAG200C-VL3	2 hp AG fixed speed, three-phase	VL3	3175mm-5518mm

Notes:

1. STP models are compatible with fuel mixtures containing up to 10% ethanol with gasoline, up to 5% biodiesel with diesel fuels, and 20% MTBE, 20% ETBE or 17% TAME with gasoline. STPAG models are compatible with fuel mixtures containing diesel fuel with up to 20% biodiesel, 100% biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.

2. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.

3. All 200B models require single-phase, 200-250 VAC, 50 Hz incoming power. All 200C models require three-phase, 380-415 VAC, 50 Hz incoming power

4. 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.

5. For riser pipe lengths 787mm to 1524mm, additional charge applies (call customer service for lead times).

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

Factory Installed Approvals

May specify one in model number at time of STP order.

Designation	Description
(ATXF)	Submersible Turbine Pumps with ATEX Flameproof approval for EN markets
(RT)	Submersible Turbine Pumps with ROSTEST approval for Eastern European markets

Note: If not otherwise specified, all models are supplied to UL approval as standard.

Consult Factory for other local approvals.

Factory Installed Options

Specified in model number at time of STP order.

Designation	Description
F	Floating suction adapter, 1½" NPT female, must be factory installed
H	High Pressure 3.1 bar deadhead output
K	IFS (intake filter screen) factory assembled to pump motor assembly
M	Magshell™ (flow enhancing, expanded PMA shell)
R	Model R check valve, factory installed, for Veeder Root™ PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket™ PPM4000 Line Leak

Field Installed Options

2 hp fixed speed specific accessories.

Part	Description
400137937	Syphon check valve, alcohol-gasoline compatible
5800100215	STP-SCI, single-phase smart controller
400818922	STP-CBBS, single-phase control box with lockout switch, 240 Volt coil
402312922	STP-DHIB-SCI, combo DHIB with factory wired to STP-SCI
402313922	STP-DHIB-CBBS, combo DHIB with factory wired STP-CBBS
402459931	Model 65 PSI (4.5 bar) relief check valve (AG compatible for slave of manifolded STPs with Veeder Root™ PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one STP)
401220965	STP-CBB3C, three phase 380-415 VAC magnetic starter
5800300200	STP-DHIB, dispenser hook isolation for 240 Volt dispenser handle switches, up to eight each

*When purchasing STP-SCI or STP-DHI-SCI in equal quantities of fixed speed 4" STPs, the STP-SCI or STP-DHI-SCI will be invoiced at special discount pricing.



1 1/2 HP FIXED SPEED SUBMERSIBLE TURBINE PUMPS

Marketers concerned about fuelling times, efficiency, serviceability, reliability and overall quality find it an easy choice to specify FE Petro® brand submersible turbine pumps (STPs). An STP has to be reliable, it has to be safe, and it has to perform. That's why thousands of station owners around the world have trusted FE Petro® STPs and the Franklin Electric motors that drive them to keep their business flowing for over 25 years. With best-in-class flow rates and backed by a long history of dependability FE Petro® STPs simply do their job without fail, delivering fuel to customers day after day without a hitch.

HIGHLIGHTS

Active Air Eliminator

FE Petro® brand STPs come standard with active air elimination, which eliminates air through the highest point in the pump head at all times when the pump is running, assuring air does not pass into discharge piping.

Safety and Ease of Maintenance

FE Petro® brand STPs include a contractor electrical disconnect, which requires loosening only one bolt, allowing motor wiring to be disconnected without venting the dangerous tank vapours into the sump when servicing FE Petro® submersible products.

Manual Pressure Relief

As a standard FE Petro® feature a vent screw is provided to bleed line pressure to zero when necessary. By turning this screw, product is diverted back to the tank, dropping line pressure to zero. This reduces fuel discharged into the sump manhole or dispenser pan during servicing, further protecting service technicians and the environment.

Simple Servicing

If ever required, the pump can be easily removed from the tank by unthreading three bolts. There is no need to disconnect the syphon system or to remove the leak detector from the system to service the STP.

Variable Length

The VL2 pump fits 94% of all known tank diameters and tank bury depth combinations. The VL1 and VL3 are available to handle installations shorter or longer than this range. The telescoping connection is a patented FE Petro feature. Pump length can be set by making one simple measurement and setting the pump length without affecting the UL listing.

Reliable Check Valve

The STP uses the proven FE Petro® line check valve. At 70mm in diameter, this valve reduces pressure loss at high flow rates resulting in faster fuelling times. FE Petro® line check valves are offered in multiple configurations to best suit your line leak application.

Outlast, Outperform with Franklin Electric Inside

FE Petro® STPs are powered by the legendary Franklin Electric motor and built for long term performance. Franklin Electric-powered submersible pumps provide maximum uptime and a proven track record in the fuelling industry that spans more than four decades. They feature best-in-class flow rates and a long history of dependability.

SPECIFICATIONS

- 1½ hp fixed speed models are available in variable and fixed length options.
- Check valve: 70 mm diameter fluorocarbon seal constructed on cast aluminium body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 2.76 bar and resets above 2.41 bar.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes a tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

Pump Motor

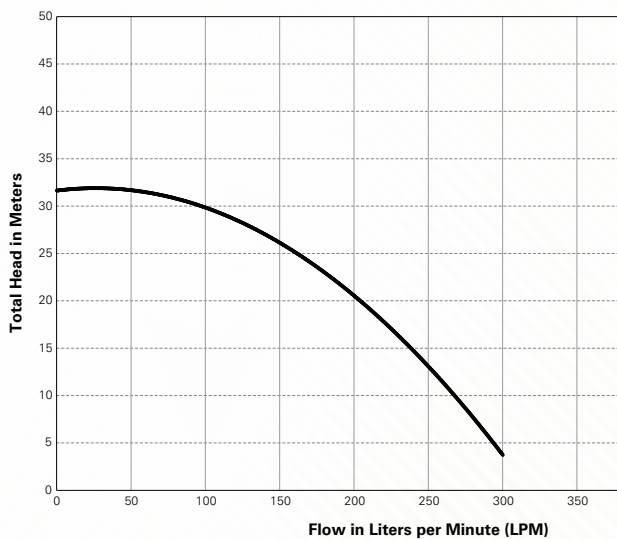
- 1½ hp fixed speed, 2875 rpm, multi-stage centrifugal type pump motor with integral, automatic, thermal overload protection.

Power Requirements

- 150B models require single-phase, 200-250 VAC, 50 Hz incoming power.
- 150B models incorporate a starting and running capacitor, with internal bleed resistor, rated 440 Volt, 15 microfarad.
- STP-SCI single-phase smart controllers and STP-CBBS single-phase control boxes are available for 150B control.
- 150C models require three-phase, 380–415 V, 50 Hz incoming power.
- STP-SCIIIC three-phase smart controllers and STP-CBB three-phase magnetic starters available for 150C control.

1½ HP Fixed Speed Turbine Performance Chart

(STP150B)



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. Fixed Speed 1.5 HP was powered by Single-Phase, 50 Hz, 250 Volt incoming supply.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60°F (15°C).
- Standard models are listed for fuel mixtures containing up to 10% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- STPAG models are compatible for fuel mixtures containing diesel fuel with up to 20% biodiesel, 100% biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- 1½ hp fixed speed models can also be used for fuel mixtures containing up to 5% biodiesel with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

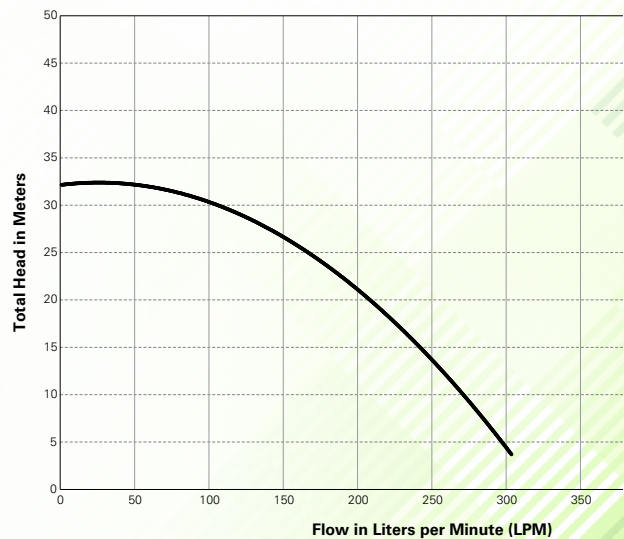
Approvals/Certifications

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

(STP150C)



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. Fixed Speed 1.50 HP was powered by Three-Phase, 50 Hz, 415 Volt incoming supply.

ORDERING INFORMATION

1½ hp Fixed Speed Submersible Turbine Pump Model Designation System

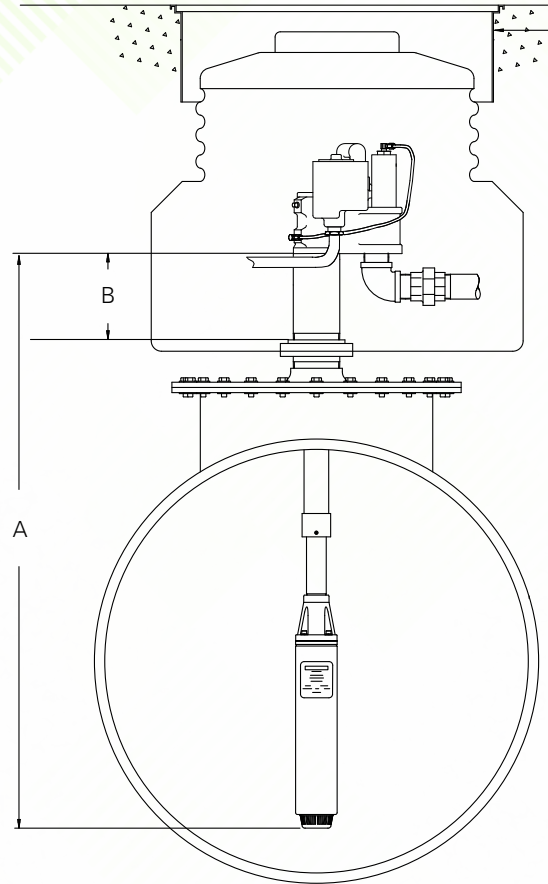
A typical turbine model designation has up to five components to define the pump being supplied as follows:

STP XXXXX Y - A - B

- STP = Basic Model Designation
- XXXXX = Factory Installed Options
 - STP model designations may include one or more of the following characters in alphabetical order:
 - AG = Alcohol-gasoline compatible (up to 85% ethanol, up to 20% biodiesel, or 100% biodiesel).
Note: Standard models up to 10% ethanol or methanol capable.
 - F = Floating suction adapter (1½" NPT female adapter)
 - H = High pressure (3.1 bar deadhead (no flow) output)
 - K = Intake filter screen (IFS, factory installed to PMA)
 - *R = Model R check valve (1.65 bar relief/1.52 bar reset for PLLD)
 - *W = Model W check valve (1.10 bar relief/ 0.89 bar reset for PPM4000)
- *Note: If not otherwise specified, all STP models supplied with standard model check valve (2.76 bar relief/2.41 bar reset for MLD, TS-LS300 and TS-LS500).
- Y = Pump Motor Horsepower Rating
 - 150B = 1½ hp fixed speed, 50 Hz, 1-phase
 - 150C = 1½ hp fixed speed, 50 Hz, 3-phase
- A = Model Length
 - VL1 = Variable length range #1.
 - VL2 = Variable length range #2.
 - VL3 = Variable length range #3.

Note: VL2 models fit 94% of all known installations.

- B = Riser Pipe Length
 - Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 178mm to 1524mm in 25.4mm increments (additional charge for risers 787mm or longer).



Part	Model Length* Range	Model Length Range Number
150B	1556mm-2298mm	VL1
	2344mm-3905mm	VL2
	3156mm-5499mm	VL3
150C	1531mm-2273mm	VL1
	2318mm-3879mm	VL2
	3131mm-5473mm	VL3

1½ HP Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length* Range
STP150B-VL1	1½ hp fixed speed, single-phase	VL1	1556mm-2298mm
STP150B-VL2	1½ hp fixed speed, single-phase	VL2	2344mm-3905mm
STP150B-VL3	1½ hp fixed speed, single-phase	VL3	3156mm-5499mm
STP150C-VL1	1½ hp fixed speed, three-phase	VL1	1531mm-2273mm
STP150C-VL2	1½ hp fixed speed, three-phase	VL2	2318mm-3879mm
STP150C-VL3	1½ hp fixed speed, three-phase	VL3	3131mm-5473mm

ORDERING INFORMATION CONTINUED

Alcohol-Gas (AG) 1½ Hp Fixed Speed Submersible Turbine Pumps

Alcohol-Gasoline Model	Description	Model Length Range Number	Model Length* Range
STPAG150B-VL1	1½ hp AG fixed speed, single-phase	VL1	1556mm-2298mm
STPAG150B-VL2	1½ hp AG fixed speed, single-phase	VL2	2344mm-3905mm
STPAG150B-VL3	1½ hp AG fixed speed, single-phase	VL3	3156mm-5499mm
STPAG150C-VL1	1½ hp AG fixed speed, three-phase	VL1	1531mm-2273mm
STPAG150C-VL2	1½ hp AG fixed speed, three-phase	VL2	2318mm-3879mm
STPAG150C-VL3	1½ hp AG fixed speed, three-phase	VL3	3131mm-5473mm

Notes:

1. STP models are compatible with fuel mixtures containing up to 10% ethanol with gasoline, up to 5% biodiesel with diesel fuels, and 20% MTBE, 20% ETBE or 17% TAME with gasoline. STPAG models are compatible with fuel mixtures containing diesel fuel with up to 20% biodiesel, 100% biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.

2. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.

3. All 150B models require single-phase, 200-250 VAC, 50 Hz incoming power. All 150C models require three-phase, 380-415 VAC, 50 Hz incoming power

4. 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.

5. For riser pipe lengths 787mm to 1524mm, additional charge applies (call customer service for lead times).

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

Factory Installed Approvals

May specify one in model number at time of STP order.

Designation	Description
(ATXF)	Submersible Turbine Pumps with ATEX Flameproof approval for EN markets
(RT)	Submersible Turbine Pumps with ROSTEST approval for Eastern European markets

Note: If not otherwise specified, all models are supplied to UL approval as standard.

Consult Factory for other local approvals..

Factory Installed Options

Specified in model number at time of STP order.

Designation	Description
F	Floating suction adapter, 1½" NPT female, must be factory installed
H	High Pressure 3.1 bar deadhead output
K	IFS (intake filter screen) factory assembled to pump motor assembly
R	Model R check valve, factory installed, for Veeder Root™ PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket™ PPM4000 Line Leak

Field Installed Options

1½ hp fixed speed specific accessories.

Part	Description
400137937	Syphon check valve, alcohol-gasoline compatible
5800100215	STP-SCI, single-phase smart controller
400818922	STP-CBBS, single-phase control box with lockout switch, 240 Volt coil
402312922	STP-DHIB-SCI, combo DHIB with factory wired STP-SCI
402313922	STP-DHIB-CBBS, combo DHIB with factory wired STP-CBBS
402459931	Model 65 PSI (4.5 bar) relief check valve (AG compatible for slave of manifolded STPs with Veeder Root™ PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one STP)
5800103300	STP-SCIIC, three phase 380-415 VAC smart controller
401220965	STP-CBB3C, three-phase 380-415 VAC magnetic starter
5800300200	STP-DHIB, dispenser hook isolation for 240 Volt dispenser handle switches, up to eight each

*When purchasing STP-SCI or STP-DHI-SCI in equal quantities of fixed speed 4" STPs, the STP-SCI or STP-DHI-SCI will be invoiced at special discount pricing.



3/4 HP FIXED SPEED, 50HZ SUBMERSIBLE TURBINE PUMPS

Marketers concerned about fuelling times, efficiency, serviceability, reliability and overall quality find it an easy choice to specify FE Petro® brand submersible turbine pumps (STPs). An STP has to be reliable, it has to be safe, and it has to perform. That's why thousands of station owners around the world have trusted FE Petro® STPs and the Franklin Electric motors that drive them to keep their business flowing for over 25 years. With best-in-class flow rates and backed by a long history of dependability FE Petro® STPs simply do their job without fail, delivering fuel to customers day after day without a hitch.

HIGHLIGHTS

Active Air Eliminator

FE Petro® brand STPs come standard with active air elimination, which eliminates air through the highest point in the pump head at all times when the pump is running, assuring air does not pass into discharge piping.

Safety and Ease of Maintenance

FE Petro® brand STPs include a contractor electrical disconnect, which requires loosening only one bolt, allowing motor wiring to be disconnected without venting the dangerous tank vapours into the sump when servicing FE Petro® submersible products.

Manual Pressure Relief

As a standard FE Petro® feature a vent screw is provided to bleed line pressure to zero when necessary. By turning this screw, product is diverted back to the tank, dropping line pressure to zero. This reduces fuel discharged into the sump manhole or dispenser pan during servicing, further protecting service technicians and the environment.

Simple Servicing

If ever required, the pump can be easily removed from the tank by unthreading three bolts. There is no need to disconnect the syphon system or to remove the leak detector from the system to service the STP.

Variable Length

The VL2 pump fits 94% of all known tank diameters and tank bury depth combinations. The VL1 and VL3 are available to handle installations shorter or longer than this range. The telescoping connection is a patented FE Petro feature. Pump length can be set by making one simple measurement and setting the pump length without affecting the UL listing.

Reliable Check Valve

The STP uses the proven FE Petro® line check valve. At 70mm in diameter, this valve reduces pressure loss at high flow rates resulting in faster fuelling times. FE Petro® line check valves are offered in multiple configurations to best suit your line leak application.

Outlast, Outperform with Franklin Electric Inside

FE Petro® STPs are powered by the legendary Franklin Electric motor and built for long term performance. Franklin Electric-powered submersible pumps provide maximum uptime and a proven track record in the fuelling industry that spans more than four decades. They feature best-in-class flow rates and a long history of dependability.

SPECIFICATIONS

- 3/4 hp fixed speed models are available in variable and fixed length options.
- Check valve: 70 mm diameter fluorocarbon seal constructed on cast aluminium body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 2.76 bar and resets above 2.41 bar.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes a tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

Pump Motor

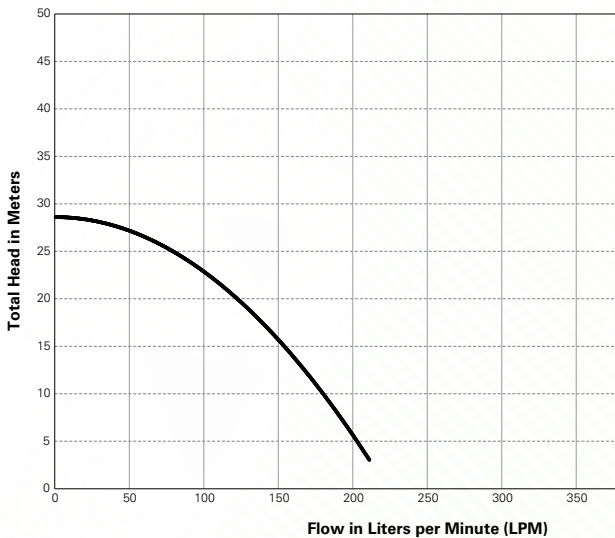
- 3/4 hp fixed speed, 2875 rpm, multi-stage centrifugal type pump motor with integral, automatic, thermal overload protection.

Power Requirements

- 75B models require single-phase, 200-250 VAC, 50 Hz incoming power.
- 75B models incorporate a starting and running capacitor, with internal bleed resistor, rated 440 Volt, 15 microfarad.
- STP-SCI single-phase smart controllers and STP-CBBS single-phase control boxes are available for 75B control.
- 75C models require three-phase, 380-415 VAC, 50 Hz incoming power.
- STP-SCIIIC three-phase smart controllers and STP-CBB three-phase magnetic starters available for 75C control.

3/4 hp Fixed Speed Turbine Performance Chart

(STP75B)



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. Fixed Speed 0.75 HP was powered by Single-Phase, 50 Hz, 250 Volt incoming supply.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60°F (15°C).
- Standard models are listed for fuel mixtures containing up to 10% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- STPAG models are compatible with fuel mixtures containing diesel fuel with up to 20% biodiesel, 100% biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- 3/4 hp fixed speed models can also be used for fuel mixtures containing up to 5% biodiesel with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

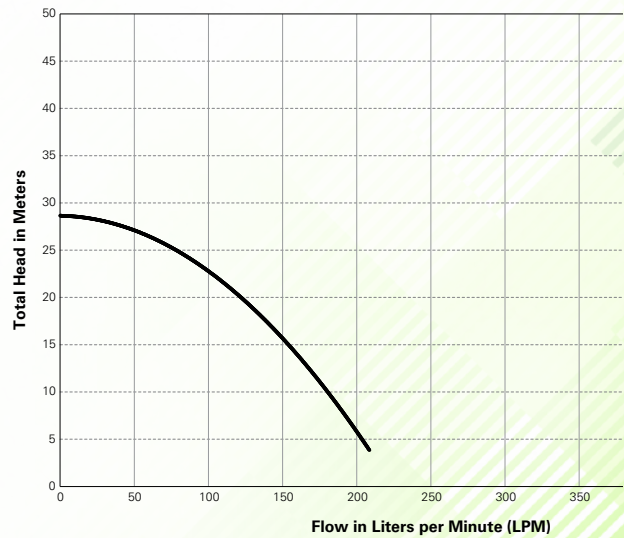
Approvals/Certifications

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

(STP75C)



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. Fixed Speed 0.75 HP was powered by Three-Phase, 50 Hz, 415 Volt incoming supply.

ORDERING INFORMATION

3/4 hp Fixed Speed Submersible Turbine Pump Model Designation System

A typical turbine model designation has up to five components to define the pump being supplied as follows:

STP XXXXX Y - A - B

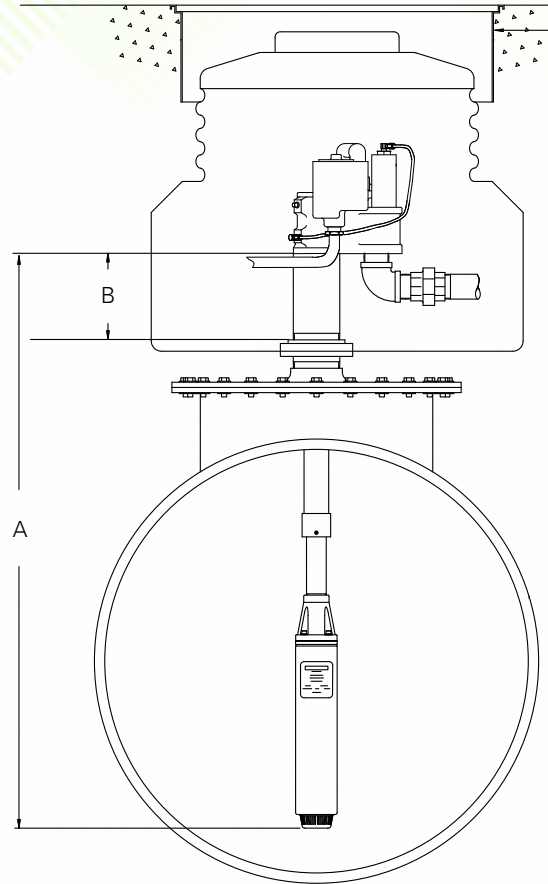
- STP = Basic Model Designation
- XXXXX = Factory Installed Options
- STP model designations may include one or more of the following characters in alphabetical order:
- AG = Alcohol-gasoline compatible (up to 85% ethanol, up to 20% biodiesel, or 100% biodiesel). Note: Standard models up to 10% ethanol capable.
- F = Floating suction adapter (1 1/2" NPT female adapter)
- K = Intake filter screen (IFS, factory installed to PMA)
- *R = Model R check valve (1.65 bar relief/1.52 bar reset for PLLD)
- *W = Model W check valve (1.10 bar relief/ 0.89 bar reset for PPM4000)

*Note: If not otherwise specified, all STP models supplied with standard model check valve (2.76 bar relief/2.41 bar reset for MLD, TS-LS300 and TS-LS500).

- Y = Pump Motor Horsepower Rating
 - 75B = 3/4 hp fixed speed, single-phase
 - 75C = 3/4hp fixed speed, three-phase
- A = Model Length**
 - VL1 = Variable length range #1.
 - VL2 = Variable length range #2.
 - VL3 = Variable length range #3.

Note: VL2 models fit 94% of all known installations.

- B = Riser Pipe Length
- Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 178mm-1524mm in 25.4mm increments (additional charge for risers 787mm or longer).



Part	Model Length* Range	Model Length Range Number
75B	1499mm-2241mm	VL1
	2286mm-3848mm	VL2
	3099mm-5441mm	VL3
75C	1480mm-2222mm	VL1
	2267mm-3829mm	VL2
	3080mm-5422mm	VL3

3/4 hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length* Range
STP75B-VL1	3/4 hp fixed speed, single-phase	VL1	1499mm-2241mm
STP75B-VL2	3/4 hp fixed speed, single-phase	VL2	2286mm-3848mm
STP75B-VL3	3/4 hp fixed speed, single-phase	VL3	3099mm-5441mm
STP75C-VL1	3/4 hp fixed speed, three-phase	VL1	1480mm-2222mm
STP75C-VL2	3/4 hp fixed speed, three-phase	VL2	2267mm-3829mm
STP75C-VL3	3/4 hp fixed speed, three-phase	VL3	3080mm-5422mm

ORDERING INFORMATION CONTINUED

Alcohol-Gas (AG) 3/4 Hp Fixed Speed Submersible Turbine Pumps

Alcohol-Gasoline Model	Description	Model Length Range Number	Model Length* Range
STPAG75B-VL1	3/4 hp AG fixed speed, single-phase	VL1	1499mm-2241mm
STPAG75B-VL2	3/4 hp AG fixed speed, single-phase	VL2	2286mm-3848mm
STPAG75B-VL3	3/4 hp AG fixed speed, single-phase	VL3	3099mm-5441mm
STPAG75C-VL1	3/4 hp AG fixed speed, three-phase	VL1	1480mm-2222mm
STPAG75C-VL2	3/4 hp AG fixed speed, three-phase	VL2	2267mm-3829mm
STPAG75C-VL3	3/4 hp AG fixed speed, three-phase	VL3	3080mm-5422mm

Notes:

1. STP models are compatible with fuel mixtures containing up to 10% ethanol with gasoline, diesel fuel, 20% MTBE, 20% ETBE or 17% TAME with gasoline. STPAG models are compatible with fuel mixtures containing diesel fuel with up to 20% biodiesel, 100% biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
2. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
3. 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.
4. 75B models require single-phase, 200-250 VAC, 50 Hz power. 75C models require three-phase, 380-415 VAC, 50 Hz power.
5. For riser pipe lengths 787mm to 1524mm, additional charge applies (call customer service for lead times).

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

Factory Installed Approvals

May specify one in model number at time of STP order.

Designation	Description
(ATXF)	Submersible Turbine Pumps with ATEX Flameproof approval for EN markets
(RT)	Submersible Turbine Pumps with ROSTEST approval for Eastern European markets

Note: If not otherwise specified, all models are supplied to UL approval as standard.

Consult Factory for other local approvals.

Factory Installed Options

Specified in model number at time of STP order.

Designation	Description
F	Floating suction adapter, 1½" NPT female, must be factory installed
K	IFS (intake filter screen) factory assembled to pump motor assembly
R	Model R check valve, factory installed, for Veeder-Root™ PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket™ PPM4000 Line Leak

Field Installed Options

¾ hp fixed speed specific accessories.

Part	Description
400137937	Syphon check valve, alcohol-gasoline compatible
5800100215	STP-SCI, single-phase smart controller
400818922	STP-CBBS, single-phase control box with lockout switch, 240 Volt coil
402312922	STP-DHIB-SCI, combo DHIB with factory wired STP-SCI
402313922	STP-DHIB-CBBS, combo DHIB with factory wired STP-CBBS
402459931	Model 65 PSI (4.5 bar) relief check valve (AG compatible for slave of manifolded STPs with Veeder Root™ PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one STP)
5800103300	STP-SCIIC, three phase 380-415 VAC smart controller
401220965	STP-CBB3C, three-phase 380-415 VAC magnetic starter
5800300200	STP-DHIB, dispenser hook isolation for 240 Volt dispenser handle switches, up to eight each

ADVANCED PROTECTION SUBMERSIBLE TURBINE PUMPS

Available as a factory installed option on STPAG and IST® biofuel compatible submersible turbine pumps, Advanced Protection defends STPs from accelerated corrosion caused by the acetic byproduct of microbial activity.

HIGHLIGHTS

- Powder-coated and E-coated finishes protect exterior cast surfaces from accelerated corrosion.
- Stainless steel fasteners, riser, variable length column pipe and coupler protect against corrosion and provide long service life.

ORDERING INFORMATION

A typical turbine model designation has up to five components to define the pump being supplied as follows:

STP XXXXX Y-A-B

- STP = Basic Model Designation (IST® for variable speed models)
- XXXXX = Factory Installed Options (Model designations may include one or more of the following characters in alphabetical order.)
- AP = Advanced protection with coated exterior cast surfaces, stainless steel fasteners and piping, alcohol-gasoline compatible)
- F = Floating suction adapter (1 ½" NPT female adapter)
- H = High pressure deadhead output (150 and 200 models only)
- K = Intake filter screen (IFS, factory installed to PMA)
- M = MagShell® (flow enhancing, expanded PMA shell)
- *R = Model R check valve (1.65 bar relief/1.52 bar reset for PLLD)
- *W = Model W check valve (1.10 bar relief/0.89 bar reset for PPM4000)
- Y = Pump Motor Horsepower Rating
 - 75B = 3/4 hp fixed speed, single phase
 - 75C = 3/4 hp fixed speed, three phase
 - 150B = 1 1/2 hp fixed speed, single phase
 - 150C = 1 1/2 hp fixed speed, three phase
 - 200B = 2 hp fixed speed, single phase
 - 200C = 2 hp fixed speed, three phase
 - VS2 = 2 hp variable speed**
 - VS4 = 4 hp variable speed***
- A = Model Length
 - VL1 = Variable length range #1.
 - VL2 = Variable length range #2.
 - VL3 = Variable length range #3.
- B = Riser Pipe Length
 - Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 178mm to 1524mm in 25.4mm increments (additional charge for risers 787mm or longer).

Notes:

*If not otherwise specified, all STP models are supplied with standard model check valve (2.76 bar relief/2.41 bar reset for MLD, TS-LS300, and TS-LS500).

**Implied on IST® models unless VS4 is specified.

*** IST® models only.

(Advanced Protection STP shown with MLD+ and IFS, sold separately)



ORDERING INFORMATION CONTINUED

Advanced Protection Submersible Turbine Pumps

May specify one in model number at time of STP order.

Model	Description	Model Length Range Number	Model Length* Range
ISTAPVS4-VL1	4 hp AP variable speed	VL1	1613mm - 2355mm
ISTAPVS4-VL2	4 hp AP variable speed	VL2	2401mm - 3962mm
ISTAPVS4-VL3	4 hp AP variable speed	VL3	3214mm - 5556mm
ISTAP-1	2 hp AP variable speed	VL1	1486mm - 2228mm
ISTAP-2	2 hp AP variable speed	VL2	2274mm - 3835mm
ISTAP-3	2 hp AP variable speed	VL3	3087mm - 5429mm
STPAP200B-VL1	2 hp AP fixed speed, single phase	VL1	1632mm - 2374mm
STPAP200B-VL2	2 hp AP fixed speed, single phase	VL2	2420mm - 3981mm
STPAP200B-VL3	2 hp AP fixed speed, single phase	VL3	3233mm - 5575mm
STPAP200C-VL1	2 hp AP fixed speed, three phase	VL1	1575mm - 2317mm
STPAP200C-VL2	2 hp AP fixed speed, three phase	VL2	2363mm - 3924mm
STPAP200C-VL3	2 hp AP fixed speed, three phase	VL3	3175mm - 5518mm
STPAP150B-VL1	1-1/2 hp AP fixed speed, single phase	VL1	1556mm - 2298mm
STPAP150B-VL2	1-1/2 hp AP fixed speed, single phase	VL2	2344mm - 3905mm
STPAP150B-VL3	1-1/2 hp AP fixed speed, single phase	VL3	3156mm - 5499mm
STPAP150C-VL1	1-1/2 hp AP fixed speed, three phase	VL1	1531mm - 2273mm
STPAP150C-VL2	1-1/2 hp AP fixed speed, three phase	VL2	2318mm - 3879mm
STPAP150C-VL3	1-1/2 hp AP fixed speed, three phase	VL3	3131mm - 5473mm
STPAP75B-VL1	3/4 hp AP fixed speed, single phase	VL1	1499mm - 2241mm
STPAP75B-VL2	3/4 hp AP fixed speed, single phase	VL2	2286mm - 3848mm
STPAP75B-VL3	3/4 hp AP fixed speed, single phase	VL3	3099mm - 5441mm
STPAP75C-VL1	3/4 hp AP fixed speed, three phase	VL1	1480mm - 2222mm
STPAP75C-VL2	3/4 hp AP fixed speed, three phase	VL2	2267mm - 3829mm
STPAP75C-VL3	3/4 hp AP fixed speed, three phase	VL3	3080mm - 5422mm

Notes:

1. STPAP/ISTAP models are listed for compatibility with fuel mixtures containing diesel fuel with up to 20% biodiesel, 100%biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
2. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
3. All above ISTAPVS4 4 hp models can only be powered by an EcoVFC™ with three-phase incoming power supply. All above ISTAP2 hp models can be powered by a MagVFC™ with single-phase incoming power or an EcoVFC™ with three-phase incoming power.
4. All above STPAP single phase models (75B, 150B, 200B) require single-phase, 200-250 VAC, 50 Hz incoming power. All aboveSTPAP three phase models (75C, 150C, 200C) require three-phase, 380-415 VAC, 50 Hz incoming power.
5. 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.
6. For riser pipe lengths 787mm to 1524mm, adder charge applies (call customer service for lead times).

*Model length (A) defined as the dimension from the turbine manifold bottom to the pump motor inlet.

Factory Installed Approvals

May specify one in model number at time of order.

Designation	Description
(ATXF)	STP with ATEX flameproof approval for EN markets
(RT)	STP with ROSTEST approval for Eastern European markets

Note: If not otherwise specified, all models are supplied to UL approval as standard. Consult factory for other local approvals.

ORDERING INFORMATION CONTINUED

Factory Installed Options

Specified in the model number at time of order.

Part	Description
F	Floating suction adapter, 1½" NPT female, must be factory installed
H	High Pressure (3.1 bar deadhead output - 150 & 200 models only, adds up to 12mm to the Model Length)
K	IFS (intake filter screen) factory assembled to pump motor assembly
M	Magshell® (flow enhancing, expanded PMA shell - 200 & IST® models only)
R	Model R check valve, factory installed, for Veeder-Root™ PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket PPM4000 Line Leak

Field Installed Options

Specified in the model number at time of order.

Part	Description
400137937	Syphon check valve
5874202800	MagVFC™, 200-250 VAC, 50-60 Hz, one required per ISTAP
5874202900	EcoVFC™, 380-415 VAC, 50 Hz, one required per ISTAP or ISTAPVS4
5800100215	STP-SCI, single-phase smart controller (one per 75B, 150B, or 200B models)
400818922	STP-CBBS, single-phase control box with lockout switch, 240 Volt coil (one per 75B, 150B, or 200B models)
402312922	STP-DHIB-SCI, combo DHIB with factory wired STP-SCI
402313922	STP-DHIB-CBBS, combo DHIB with factory wired STP-CBBS
402459931	Model 65 psi check valve (AG compatible for slave of manifolded STPs with Veeder-Root™ PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one STPAP)
5800103300	STP-SCIIC, three-phase 380-415 VAC smart controller (one per 75C or 150C models)
401220965	STP-CBB3C, three-phase 380-415 VAC magnetic starter (one per 75C, 150C, or 200C models)
5800300200	STP-DHIB, dispenser hook isolation for 240 Volt dispenser handle switches, up to eight each



BIOFUEL COMPATIBLE SUBMERSIBLE TURBINE PUMPS

As the demand for biofuels continues to grow, FE Petro® brand Alcohol-Gas (AG) optioned submersible turbine pumps are at the forefront of motor fuel compatibility. Service station customers demand it, make sure you can provide it. Make sure you have the appropriate equipment to meet the biofuel needs of your customers. Check out these benefits available from FE Petro®.

HIGHLIGHTS

The Proper Approvals

FE Petro® brand STPAG and IST® models of submersible turbine pumps (STPs) are currently the only STPs UL listed for use with gasoline up to 85% ethanol (E85) and diesel fuel with up to 20% biodiesel (B20) or 100% biodiesel according to UL79A and UL79B respectively.

Built On Our Standard Pumps

FE Petro® brand Alcohol-Gas optioned submersible turbine pumps feature fuel compatibility built on the framework of our standard models. Replacement items like check valves and pump motor assemblies are directly interchangeable, eliminating the need to stock duplicate items for standard and Alcohol-Gas optioned STPs.

Stop Biofuel Debris

As biofuel use continues to grow, so does the potential for increased debris inside the storage tank. To stop this debris from entering the pumping system, use an FE Petro® brand Intake Filter Screen (IFS). The IFS can be factory installed on STPs and Pump Motor Assemblies (PMAs) or they can be field-retrofitted onto existing FE Petro® or competitive 4" PMAs.

Filtration For The Entire System

When installed, an IFS adds only about 1" to the length of the PMA and provides filtration down to about the size of a grain of sand (0.009" openings). Through the IFS design, the output performance of the STP/PMA is maintained to that of a standard end bell construction while providing the added filtration for the entire pumping system.

ORDERING INFORMATION

UL listed biofuel compatibility is available as the Alcohol-Gasoline (AG) option in the following Submersible Turbine Pump (STP) and Pump Motor Assembly (PMA) models:

- STPAG75 (3/4 Hp Fixed Speed)
- STPAG150 (1 ½ Hp Fixed Speed)
- STPAGH150 (Hi PSI 1 ½ Hp Fixed Speed)
- STPAG200 (2 Hp Fixed Speed)
- STPAGH200 (Hi PSI 2 Hp Fixed Speed)
- IST® (2 Hp Variable Speed)
- ISTVS4 (4 Hp Variable Speed)



MLD+ MECHANICAL LEAK DETECTORS

FE Petro® brand MLD+ mechanical leak detectors provide precise leak detection for standard fuel and biofuel applications on 4" submersible turbine pumps (STPs). This lineup of advanced mechanical leak detectors features reliable line leak detection capabilities and maximum product flow rates. The MLD+ features a compact, yet rugged design to reduce installation height and provide accurate, hassle-free operation.

HIGHLIGHTS

- Two models to meet the needs of your standard fuel applications include the MLD+G (blue cover, copper vent tubing) for gasoline with up to 10% Ethanol and the MLD+D (gold cover, copper vent tubing) for diesel with up to 5% biodiesel.
- Two models to meet the needs of your biofuel applications include the MLD+AG (blue cover, stainless vent tubing) for gasoline with up to 85% ethanol and the MLD+BD (gold cover, stainless vent tubing) for diesel with up to 20% biodiesel or 100% biodiesel.
- Piston style construction with reduced volume allows the MLD+ to react quickly and provide more accurate leak detection capabilities.
- A specialised metering pin unique to only the MLD+ provides precision leak detection for any type of pipework system including flexible, rigid or a combination of the two.
- Burnished piston chamber provides smooth operation and long service life.
- Color coded covers easily identify the model to the application (gold for diesel and blue for gasoline).
- Opens completely to allow maximum product flow during fueling operation and remains open with discharge pressure as low as 1 psi (0.07 bar).
- Compatible with FE Petro® brand STPs, as well as competitive STPs and line leak detector housings.

SPECIFICATIONS

- All models are capable of detecting line leaks equivalent to 3 gph at 10 psi (11.4 lph @ 0.70 bar) when installed properly with the appropriate fuels - all models will signal detection of leaks by restricting product delivery to less than 3 gpm (11.4 lpm) and taking more than 4 seconds to open
- All models will remain in the open position during product delivery to manifold, with discharge pressures as low as 1 psi (0.07 bar) - all models will reset to "tripped" when line pressure delay is below 3 psi (0.21 bar) with pump off
- Detects leaks up to 10 feet (3 meters) above the point of installation
- Max. liquid viscosity of 70 SSU at 60 °F (15 °C)
- Gasoline models (blue cover, MLD+G and MLD+AG) are also listed for fuel mixtures containing 20% MTBE, 20% ETBE or 17% TAME with gasoline as well as diesel fuels, fuel oils, kerosene, Avgas, and jet fuels.
- Diesel models (gold cover, MLD+D and MLD+BD) are also listed for kerosene applications.

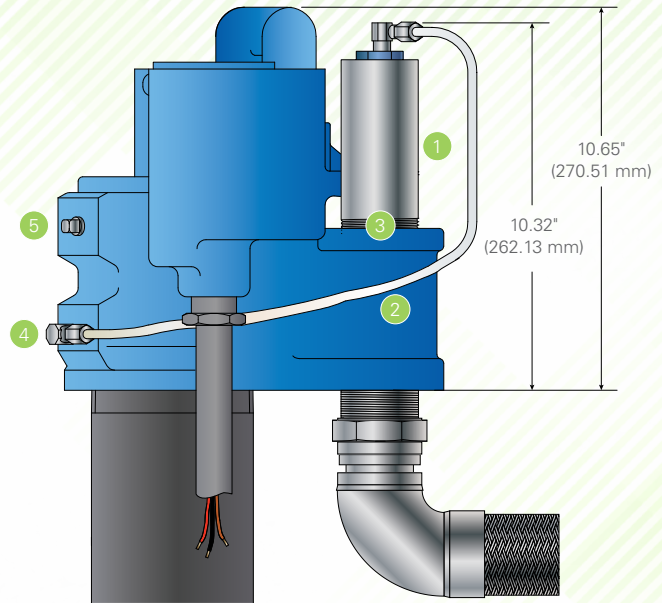
Approvals/Certifications

- cULus listed.
- Third party certified to comply with US EPA requirements 280.41 (B) and 280.44 (A) for continuous monitoring of pressurized piping.
- Consult factory for other applicable approvals.

SPECIFICATIONS CONTINUED

Installation

- 1 MLD+
- 2 MLD+ vent tube
- 3 Line Leak Detector Housing (2" NPT)
- 4 Tank port (vent tube must be connected here)
- 5 Syphon port



ORDERING INFORMATION

Standard Fuel MLD+ Mechanical Leak Detectors

Model	Description
403168901	STP-MLD+G for gas, single pack (blue cover, copper vent tube, brass fittings)
403168903	STP-MLD+G for gas, three pack
403170901	STP-MLD+D for diesel, single pack (gold cover, copper vent tube, brass fittings)
403170903	STP-MLD+D for diesel, three pack
403172903	STP-MLD+D combo, three pack (contains two STP-MLD+G and one STP-MLD+D)

Biofuel MLD+ Mechanical Leak Detectors

Model	Description
403169901	STP-MLD+AG for alcohol-gas, single pack (blue cover, stainless steel tube and fittings)
403169903	STP-MLD+AG for alcohol-gas, three pack
403171901	STP-MLD+BD for biodiesel, single pack (gold cover, stainless steel tube and fittings)
403171903	STP-MLD+BD for biodiesel, three pack

Notes:

1. MLD+G are listed for compatibility with fuel mixtures containing up to 10% ethanol with gasoline, up to 5% biodiesel with diesel fuels, and 20% MTBE, 20% ETBE, or 17% TAME with gasoline.
2. MLD+D models are listed for compatibility with diesel fuels with up to 5% biodiesel and kerosene applications only.
3. MLD+AG models are listed for fuel mixtures containing up to 85% ethanol with gasoline and 20% MTBE, 20% ETBE, or 17% TAME with gasoline as well as diesel fuels, fuel oils, kerosene, Avgas and jet fuels.
4. MLD+BD models are listed for diesel with up to 20% biodiesel or 100% biodiesel and kerosene applications only.
5. All above models will only mount in the 2" NPT leak detector port of a 4" submersible turbine, including competitive models, or in a leak detector adapter tee (sold separately below).
6. MLD+ models are listed for use with rigid pipelines up to 625 litre capacity, with flexible pipelines up to 416 litre capacity, and with combination rigid/flexible pipelines up to 1,041 litre capacity

MLD+ Mechanical Leak Detector Repair Parts & Accessories

Model	Description
400440101	Vent tube (for use with MLD+G and MLD+D)
400449903	Hardware pack (fittings and documentation for MLD+G and MLD+D)
403123001	Vent tube, stainless steel (for use with MLD+AG and MLD+BD)
400449904	Hardware pack (fittings and documentation for MLD+AG and MLD+BD)
400518001	Leak detector adapter tee



TURBINE PUMP INTERFACE

PROTECTION & EFFICIENCY. Run your entire business as efficiently as possible by networking an INCON® brand fuel management system together with FE Petro® brand intelligent pump controllers via Turbine Pump Interface. Turbine Pump Interface provides additional protection to your pumping system while also maximizing uptime through fuel management capabilities. Check out these scenarios where TPI can increase efficiency and protect your business.

HIGHLIGHTS

Pump in Water Automation

Scenario: When the water level in a tank approaches the pump intake, the tank gauge will enter alarm mode and automatically shut down the pump, protecting the system and consumers from water being pumped from that tank. How did turbine pump interface save the day?

- By shutting off the affected pump, TPI prevented water from being pumped into the customer's vehicle, avoiding potential damage and lost customer loyalty. Additionally, the fuel management rules engine can automatically notify the proper off-site personnel to ensure a timely and accurate response.

Clogged Intake Escalation

Scenario: When the pump controller reports a dry run, the tank gauge automatically verifies against product levels and determines whether a clogged intake has occurred. If clogged, the tank gauge on its own automatically will attempt to clear the intake. How did Turbine Pump Interface save the day?

- By attempting to clear the intake on its own, TPI can eliminate the need for a service call. Whether the intake is cleared or not, TPI will log the alarm to provide detailed history to expedite service in the event of a future dry run versus clogged intake alarms.

SPECIFICATIONS

Turbine Pump Interface is built into the following FE Petro brand intelligent controllers for service and control integration to Franklin Fueling Systems T5 Series Fuel Management Systems (TS-5, TS-550, TS-5000, TS-550 evo™):

- MagVFC™ (60 Hz)
- STP-SCI (60 Hz)
- STP-SCIII (60 Hz)
- EcoVFC™ (50 Hz)
- STP-SCI (50 Hz)
- STP-SCIIC (50 Hz)

Leveling & Priority Modes

Scenario: When managing two storage tanks of the same product 'Leveling Mode' can keep both tanks at the same percentage full without the use of a syphon bar between the two tanks. Alternately, 'Priority Mode' will pump one tank down to a certain level before turning on the other pump. How did Turbine Pump Interface save the day?

- Leveling Mode mimics a traditional syphon system without the upfront cost of piping between the two storage tanks. You can also avoid the on-going maintenance costs of servicing the syphon bar as well as the additional piping penetrations in the tank sumps.

Remote Pump Interaction

Scenario: A site reports an intermittent problem with the pumping system, but cannot provide any detailed feedback of the alarms being issued by the intelligent controllers and the tank gauge. How did Turbine Pump Interface save the day?

- By networking the intelligent controllers to the fuel management system via TPI, a technician can remotely connect to the site to review the logged event history and view the status of the pump controllers. If necessary, the history provided by TPI can ensure the proper equipment is on the technician's service vehicle before leaving to perform maintenance.



STP-SCI

Designed to replace standard control boxes in both new and existing installations. The STP-SCI provides valuable pump protection and performance features never before offered in one economical controller.

HIGHLIGHTS

Easy Retrofit

The STP-SCI is compatible with single-phase fixed speed STPs from FE Petro or other competitive models. Retrofitting an existing station requires replacing an existing control box with the STP-SCIIC and pressing the reset button to allow the controller to automatically "learn" the electrical characteristics of the pump.

History Storage of Pump Conditions

The STP-SCI automatically logs the last five abnormal conditions seen in the pumping system. This data is retained in non-volatile memory. Service technicians can then quickly view a history of abnormal conditions, particularly useful when troubleshooting intermittent conditions.

SPECIFICATIONS

- Controller size: 8½" x 5" x 3" (215 mm x 127 mm x 76 mm).
- Relay amperage rating: 30 Amps.
- Relay/hook signal voltage: 120/240 Volt.
- Compatible with all FE Petro single-phase submersibles and competitive makes.

Approvals

Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

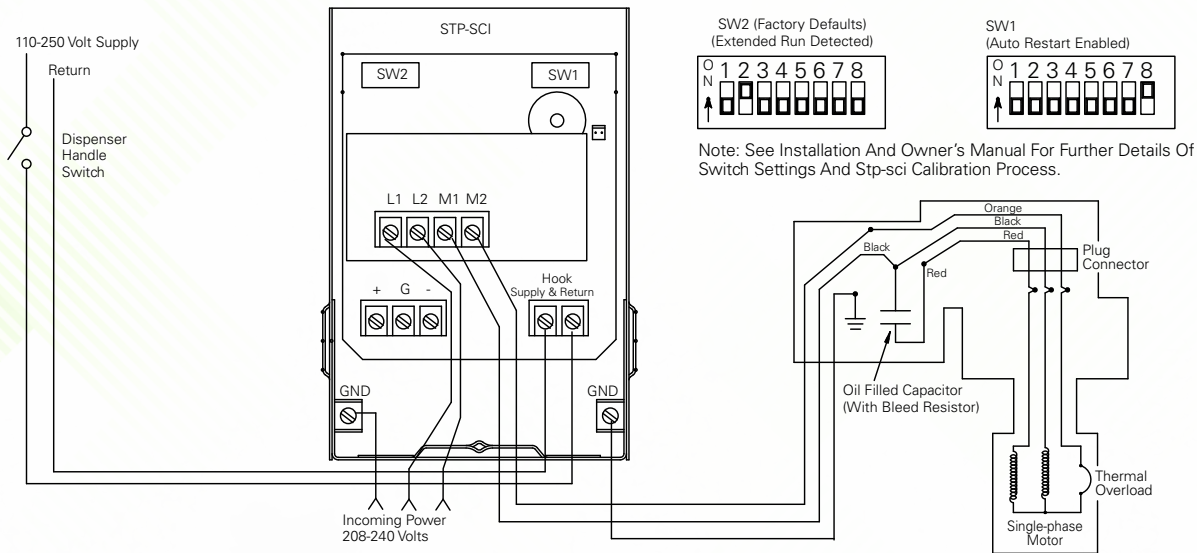
ORDERING INFORMATION

Part	Description
402312922	STP-DHI-SCI, combo DHI (or DHIB) with factory wired STP-SCI
5800100215	STP-SCI, single-phase smart controller

Notes:

1. SCI models are compatible with all single-phase FE Petro submersibles and competitive makes.
2. One SCI required per submersible. Relay rated for 30 Amps (up to 2 hp).
3. SCI models are not compatible for use in master/slave configurations with STP-SC models.

STP-SCI Single-Phase Smart Controller Standalone Wiring Diagram



Note: See product installation instructions for further details. Wiring must conform to all federal, state and local codes. Control panels are for non-hazardous indoor use only.



STP-DHIB

The FE Petro dispenser hook isolation device prevents electrical feedback between dispenser hook circuits as required by most electrical codes.

HIGHLIGHTS

- Optically isolates inputs from up to eight dispensers preventing damage to dispenser relay boards caused by cross-phasing.
- Prevents electrical feedback between dispenser hook circuits during periods of maintenance and service as required by NEC 514-3, 2002 and other international codes.
- Can be supplied factory-wired in tandem with the FE Petro Smart Controller or the FE Petro standard control box.
- Eliminates false STP run due to voltage leakage of multiple dispensers connected in parallel.
- Fuse-protected output to submersible pump controller.
- The STP-DHIB can retrofit to any existing site.

SPECIFICATIONS

- Enclosure size: 8½" x 5" x 3" (215 mm x 127 mm x 76 mm).
- Eight optically isolated inputs from dispenser.
- One STP-DHIB required per product grade for up to eight dispensers.
- STP-DHIB: 240 V 30 V A input from supply, eight 240 V 10mA inputs from dispensers.
- Output fuse rating: 250 V 1A, fast-acting.
- 300 Volt surge protection.
- Maximum ambient temperature rating: 120°F.
- LEDs indicate when source power is applied and dispenser hook signals are present.
- Compatible with any submersible pump controller.

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

ORDERING INFORMATION

Part	Description
402312922	STP-DHIB-SCI combo DHI with factory-wired STP-SCI
402313922	STP-DHIB-CBBS, combo DHI with factory-wired STP-CBBS single-phase control box
5800300200	STP-DHIB, isolates up to eight, 120 Volt dispenser handles

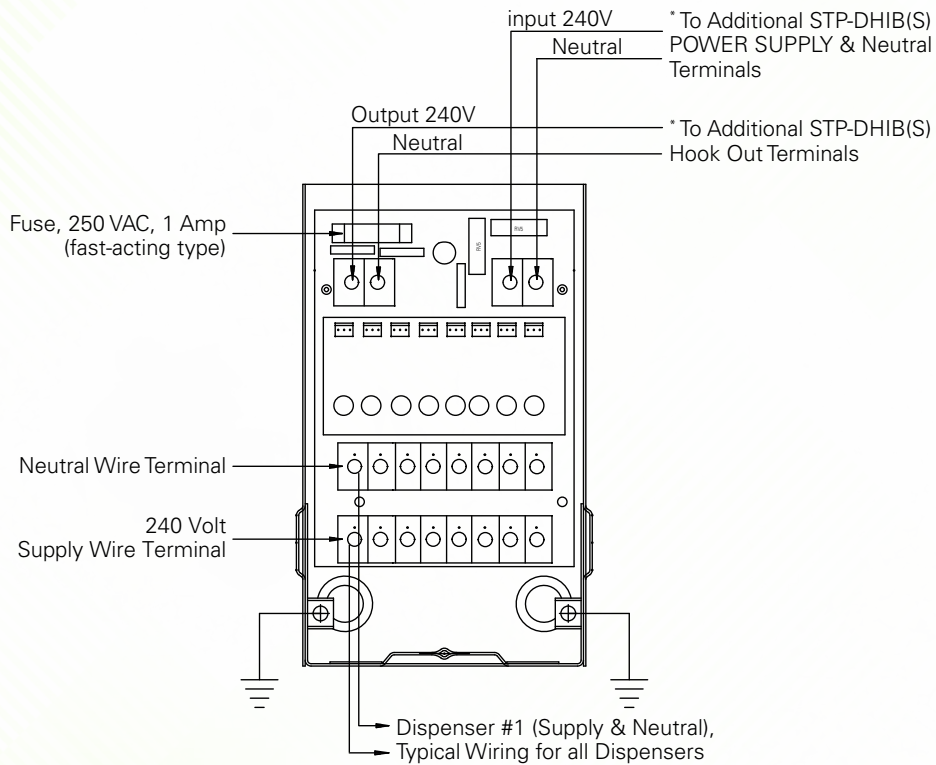
DHIB models are compatible with FE Petro submersible pump controllers and competitive pump controller makes accepting 240 Volt dispenser hook signal.

DHIB models can be connected together for products with more than eight dispenser handle inputs.

DHI Repair Parts and Accessories

Part	Description
223243103	DHI fast-acting fuse, 250 VAC, 1 Amp
223885931	DHIB circuit board, 240 Volt dispenser hook signal

DHIB with 240 VAC Dispenser Hook Signal Wiring Diagram



*Wiring is polarity-sensitive when multiple units are connected together.



STP-CBBS

The FE Petro standard single-phase control box latches line power to the submersible when the relay is energized by a dispenser signal. Compatible with FE Petro and competitive makes of single-phase, fixed speed submersible turbines up to 2 hp.

HIGHLIGHTS

- Incorporates an "ON/OFF" power switch.
- Relay energized with 240 Volt dispenser/hook signal.
- Franklin Fueling Systems is an ISO 9001 certified manufacturer.
- Consult factory for applicable approvals.

ORDERING INFORMATION

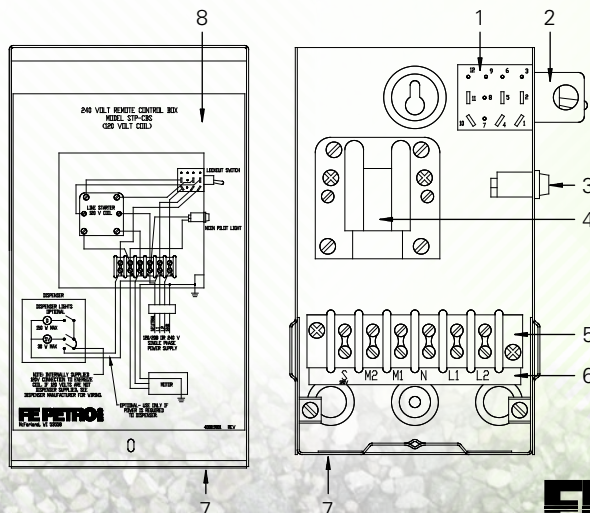
Part	Description
400818922	STP-CBBS, single-phase control box, with switch and lockout, 240 Volt coil
402313921	STP-DHIB-CBBS, combo dispenser hook isolation with factory wired STP-CBBS

Notes:

1. CBBS models are compatible for use on all single-phase FE Petro submersibles and competitive makes.
2. One CBBS required per submersible, relay rated for 30 Amps up to 2 hp.
3. Incorporates pump "ON"
4. Relay rated for 240 Volt pumps up to 2 hp, 30 Amps.

STP-CBBS Repair Parts and Accessories

Part	Description
403274001	Power switch (replaces p/n 400575001)
400574001	Power switch bracket
400158902	Light assembly, 240 Volt
400215933	Relay, 30A, 240 Volt coil
400278006	Six position terminal strip
402410002	CBBS terminal strip label
400817901	Cover and enclosure
400819002	CBBS wiring diagram





CONVERSION KITS VARIABLE SPEED

The advantages you gain from upgrading from fixed speed to variable speed are undeniable. With Franklin Fueling Systems Variable Speed Conversion Kits you can achieve higher, consistent flow rates, in turn boosting your profits, while eliminating the wear and tear hydraulic hammer can cause. Installation is easy with a variable speed pump motor assembly, MagVFC™ variable frequency controller and four-wire contractor's plug. All in one variable speed kits are compatible with both FE Petro brand 4" Submersible Turbine Pumps, as well as other competitive systems. The MagVFC™ works with the existing system to increase flow as more fuelling points go live, delivering the flow you need as you need it. Your customers will know the difference between sites that provide steady flow and faster fuelling during peak business hours and those sites that don't.

HIGHLIGHTS

The MagVFC™ or EcoVFC variable speed controller ramps the STP up and down as needed to provide optimal flow rates at fuelling points. The result is a more consistent customer experience.

- Upgrading to variable speed can increase flow rates, in turn increasing profits as more customers are able to fill faster.
- Affordable upgrade, the conversion requires a minimal investment compared to purchasing complete variable speed submersible turbine pumps as you are reusing the majority of existing system components.
- Easy installation, consisting of swapping out the pump motor and controller, as well as modifying the submersible length and wiring if applicable.
- Increased flow is automatically delivered as more nozzles go live which keeps the product flowing, the forecourt moving and business coming in.

ORDERING INFORMATION

Part	Description
400693911	EcoVFC™ & variable speed conversion kit with 2 hp variable speed with non-MagShell®
400693901	MagVFC™ & variable speed conversion kit with 2 hp variable speed non-MagShell®
402671911	EcoVFC™ & variable speed conversion kit with 4 hp variable speed with non-MagShell®
402671901	MagVFC™ & variable speed conversion kit with 4 hp variable speed non-MagShell®

Note: Kits include variable speed pump motor assembly, MagVFC™ variable frequency controller, four-wire contractor's plug and installation instructions. For upgrade of competitive 4" submersible turbine pumps, additional competitive parts may be required.



INTAKE FILTER SCREEN

An Intake Filter Screen (IFS) provides fuel filtration for the entire system down to about the size of a grain of sand (0.009" openings). It's designed to keep harmful debris, sediment, and tank corrosion from entering the pumping system and creating service events including dispenser filter changes. The output performance of the pump is maintained to that of the standard blue end bell while only adding about 1" to the overall length.

HIGHLIGHTS

- Prevents debris from entering the pumping system and causing system damage or slowdowns.
- The output performance of the pump is maintained to that of the standard blue end bell while only adding about 1" to the overall length.
- An IFS self-cleans itself, so you don't have to worry about pulling the pump to clean it.
- An IFS can be easily retrofit installed on existing FE PETRO® submersible pumps as well as competitive 4" pumps. You can also have it factory-installed on any new submersible pump.

ORDERING INFORMATION

Factor Installed

- Add "K" to factory installed options in model number designations.

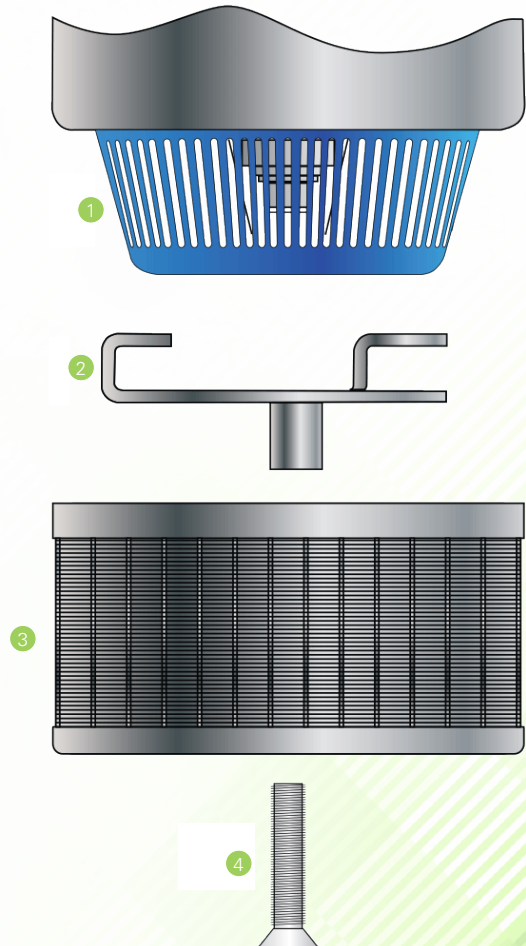
Retrofit

Part	Description
400660901	Intake filter screen single pack
400660912	Intake filter screen 12 pack carton

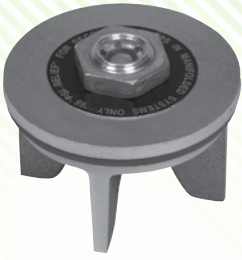
SPECIFICATIONS

Installation

- 1 PMA end bell
- 2 Filter clip
- 3 Filter screen
- 4 Mounting screw

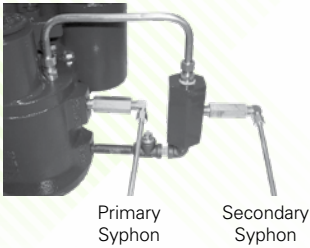


ACCESSORIES



For use in slave(s) 4" STP manifolded pump installations. Not available factory installed.

Part	Description
402459931	Model 65 psi (4.5 bar) relief check valve (AG compatible)



For use when two syphon primers are required for one 4" STP. One to syphon for condensate pod, one for syphoning two or more tanks of like product.

Part	Description
402507930	Secondary syphon kit

Replacement Pump Motor Assemblies

Model	Description
PMA75B	3/4 hp pump motor assembly, single-phase (521 mm)
PMA75C	3/4 hp pump motor assembly, three-phase (502 mm)
PMA150B	1½ hp pump motor assembly, single-phase (578 mm)
PMA150C	1½ hp pump motor assembly, three-phase (553 mm)
PMA200B	2 hp pump motor assembly, single-phase (654 mm)
PMA200C	2 hp pump motor assembly, three-phase (597 mm)

Replacement Variable Speed Pump Motor Assemblies

Model	Description
PMAVS2	2 hp variable speed pump motor assembly (508 mm)
PMAVS4	4 hp variable speed pump motor assembly (635 mm)

Factory Installed Approvals

(may specify one in model number at time of PMA order)

Model	Description
(ATXF)	Submersible Turbine Pumps with ATEX Flameproof approval for EN markets

Note: If not otherwise specified, all models are supplied to UL approval as standard.

Consult Factory for other local approvals.

Factory Installed Options

(specified in model number at time of PMA order)

Model	Description
AG	Alcohol-gasoline compatible
F	Floating suction adapter, 1½" NPT female, must be factory installed
H	High Pressure 3.1 bar deadhead output (150 & 200 models only) - adds up to 12mm to length of PMA
K	IFS (intake filter screen) factory assembled to pump motor assembly - adds 25mm to length of PMA
M	Magshell® (2 & 4 hp models only)

4" STP Extractable Sections (less manifold, riser and PMA)*

Model	Description
STPEXT-VL1	Variable length #1 extractable
STPEXT-VL2	Variable length #2 extractable
STPEXT-VL3	Variable length #3 extractable
STPAGEXT-VL1	AG variable length #1 extractable
STPAGEXT-VL2	AG variable length #2 extractable
STPAGEXT-VL3	AG variable length #3 extractable
STPAPEXT-VL1	AP variable length extractable
STPAPEXT-VL2	AP variable length extractable
STPAPEXT-VL3	AP variable length extractable

* Consult Factory for lead times of extractables

STP-SCI Smart Controller

Model	Description
225000930	SCI lower board control
225005930	SCI upper board relay

MagVFC™ and Eco-VFC™

Model	Description
223919930	MagVFC™ / EcoVFC™ fan assembly
225040930	MagVFC™ / EcoVFC™ user interface board
228289930	MagVFC™ / EcoVFC™ normally open relay

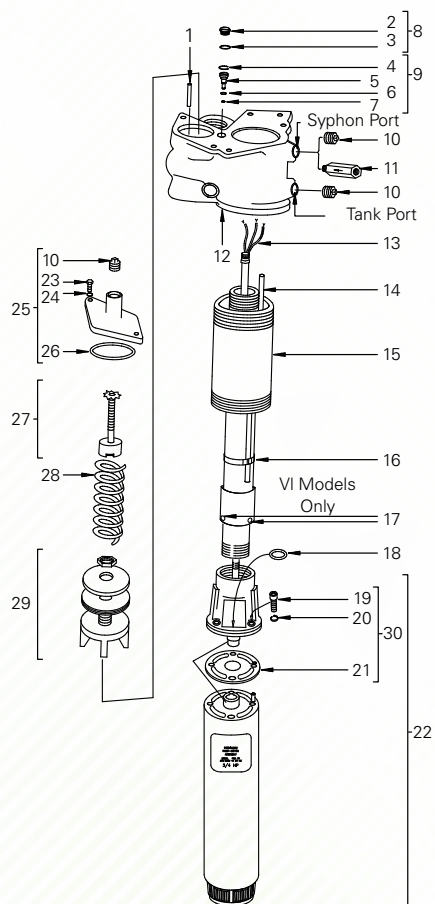
STP-DHIB Dispenser Hook Isolation Box

Model	Description
223243103	250 AC fast-acting fuse
223885931	240 Volt circuit board (includes fuse)

PMA, Riser and Check Valve for Variable Length and Fixed Length Pumps

Item	Model	Description	Qty.
1	400125001	3/16" x 1-5/8" spiral pin	1
2	400615001	Manual relief plug (400615002 AG Complatible)	1
3	400211114	O-ring, plug	1
4	400627001	Retaining ring	1
5	400616001	Manual relief screw (400616002 AG compatible)	1
6	400333012	Relief screw, top O-ring	1
7	400333007	Relief screw, bottom O-ring	1
8	400628901	Manual relief plug assembly, includes items #2 and #3 (400628902 AG compatible)	1
9	400629901	Manual relief screw assembly, includes items #4, #5, #6 and #7 (400629902 AG compatible)	1
10	400259001	1/4" NPT pipe plug, may be purchased locally	3
	403499001	1/4" NPT pipe plug, may be purchased locally (stainless steel, for AP models)	
11	400137937	Syphon check valve	-
12	400221930	Discharge manifold, includes #1, #8, #9 and two #10	1
	400221931	Discharge manifold (includes item #1, #8, #9, & #10) (for AP models)	
13	151213930	156" lead assembly	1
	151213932	240" lead assembly	
14	Purchase locally	Stationary vapour tube, 3/8 OD x 7/20 WT	-
15	4001689XX (XX = length)	Riser, 4-1/2" OD x 3/16" WT steel tubing	1
		7"-19"	
		20"-30"	
		31"-49" (consult factory for lead times) 50"-60" (consult factory for lead times)	
16	4035229XX (XX = length)	Riser, 4-1/2" OD x 4.12" ID (stainless steel, for AP models) consult factory for lead time	1
		7"-19"	
		20"-30"	
		31"-49" 50"-60" (consult factory for lead times)	
17	Purchase locally	1/2" steel banding	-
17	400600002	5/16-24 x 7/16" set screw for variable lengths only	3
	403432002	5/16-24 x 7/16" set screw for VL models only (stainless steel, for AP models)	
18	400333015	Lead assembly O-ring	4
19	400264009	5/16-18 x 1-1/8" socket head cap screw, may be purchased locally	4
	403506001	5/16-18 x 1-1/8" socket head cap screw, may be purchased locally (stainless steel, for AP models)	
20	400263004	5/16" high-collar lock washer, may be purchased locally	1
	403505001	5/16" high-collar lock washer, may be purchased locally (stainless steel, for AP models)	
21	402449001	PMA gasket (402449002 AG Compatible)	1
22	PMA XXX	Pump motor assembly, includes item #34 (XXX indicates options and horsepower)	2
23	400981001	3/8-16 x 1" Hex head screw	2
	403504001	3/8-16 x 1" Hex head screw (stainless steel, for AP models)	

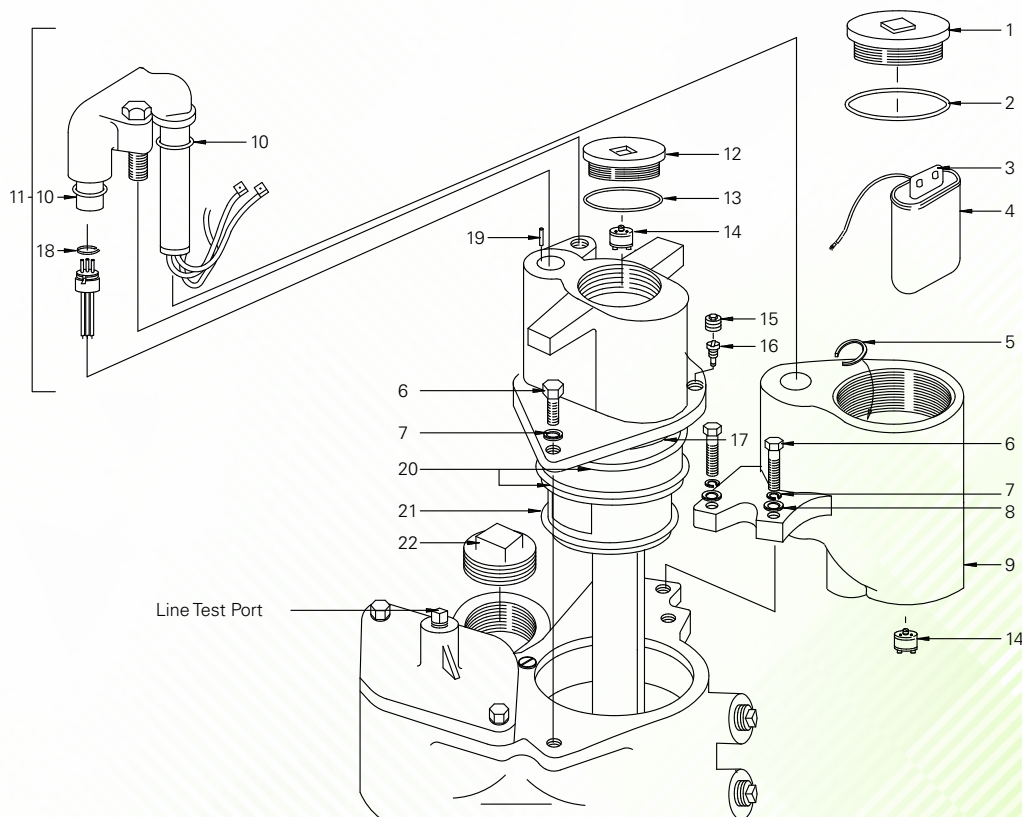
Item	Model	Description	Qty.
24	400285002	3/8" standard lock washer, may be purchased locally	1
	1117703	3/8" standard lock washer (stainless steel, for AP models)	
25	400197930	Manifold assembly cover, includes #10, #26, two #23 and two #24	1
	400197931	Manifold Assembly Cover (includes item #10, #23, #24, & #26 for AP models)	
26	400333238	AG compatible O-ring	1
27	400147930	Clamp valve assembly	1
28	400174930	Check valve spring	1
29	400988931	Standard check valve, includes item #26 (400988934 AG compatible)	1
	400988932	Model R check valve, includes item #26 (400988935 AG compatible)	
	400988933	Model W check valve, includes item #26 (400988936 AG compatible)	
	402459931	Model 65 PSI check valve (AG compatible for slave STPs only)	
30	152350902	PMA hardware pack, includes #21, and four #19 and #20 (152350904 AG compatible)	-
Not shown	400216905	AG compatible O-ring kit, includes items #3, #6, #7 and #26 on this page and items #2, #10, #13, #17, #20 and #21 on page 35	-



Discharge Manifold Assembly

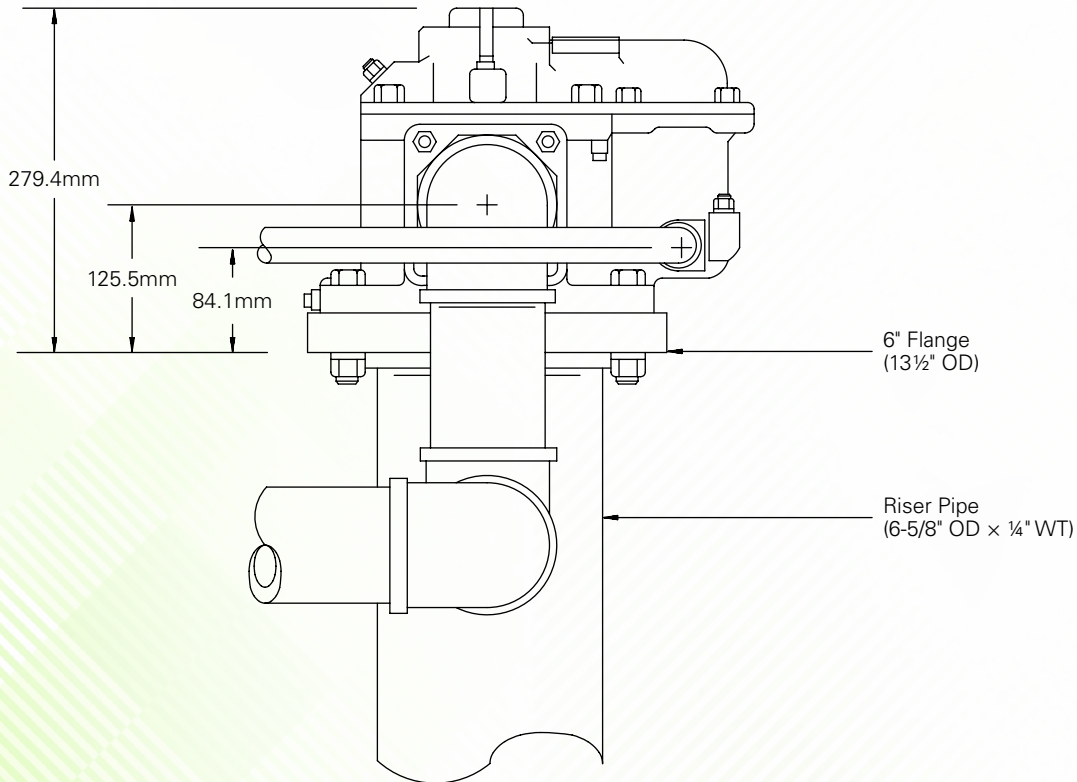
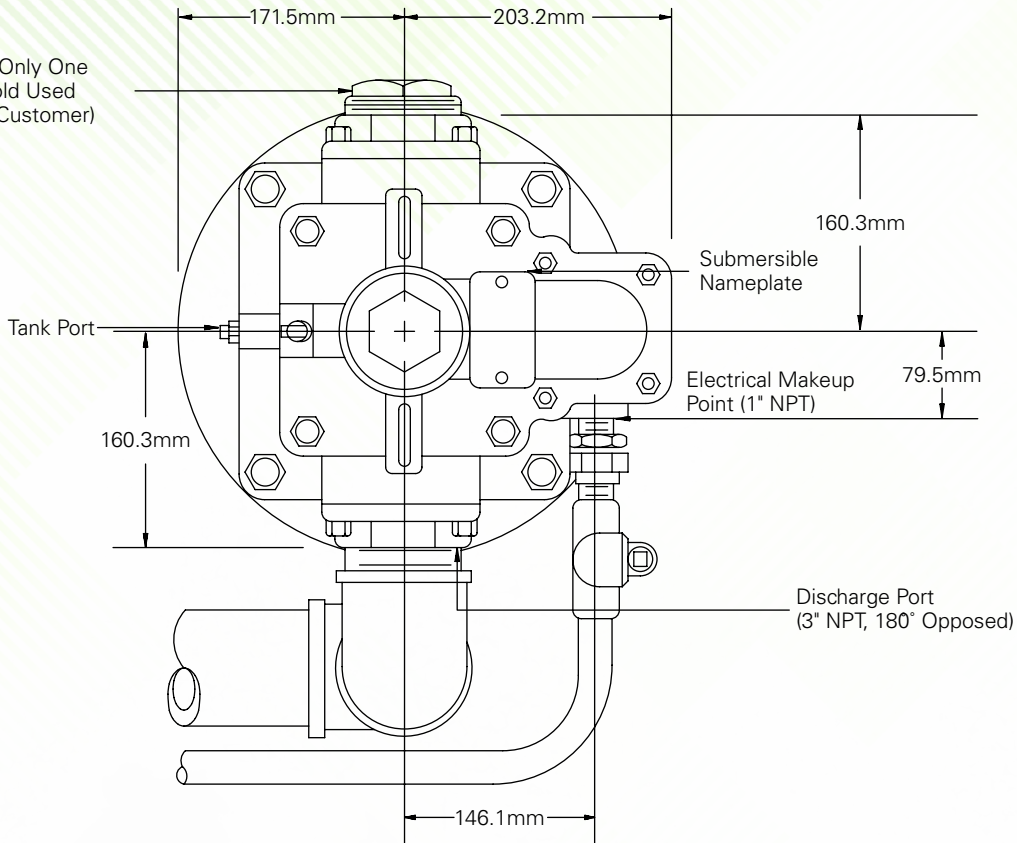
Item	Model	Description	Qty.
1	400192930	Junction box cover, includes item #2 (400192931 for AP models)	1
2	400210233	O-ring	1
3	400655001	Capacitor boot	1
4	400170933	Capacitor assembly for 3/4 to 1½ hp, 50 Hz, 15µfd, 440 Volt single-phase; includes one black lead	1
	400170935	Capacitor assembly for 2 hp, fixed speed, 50 Hz, 40µfd, 440 Volt single-phase; includes one black lead	
5	400257001	Retaining ring	1
6	400258002	3/8-16 × 1-1/4 Hex head bolt, may be purchased locally	4
	602011016	3/8-16 × 1-1/4" Hex head bolt (stainless steel, for AP models)	
7	400285002	3/8 standard lock washer, may be purchased locally	4
	1117703	3/8 standard lock washer (stainless steel, for AP models)	
8	400280001	3/8 standard flat washer, may be purchased locally	2
	403500001	3/8 standard flat washer (stainless steel, for AP models)	
9	400651930	Junction box assembly, includes two #6, #7 and #8	1
	400651931	Junction box assembly (includes item #6, #7, & #8, for AP models)	

Item	Model	Description	Qty.
10	400210212	O-ring	2
11	400200930	Wire connector kit, includes male/female connectors, two #10, one #5, and #18	1
	400200931	Wire connector kit, includes male/female connectors, two #10, one #5, and #18 for AP models	
12	400589930	Cover, includes item #13 (400589931 for AP models)	1
13	400210229	O-ring	1
14	400236903	Contractor's plug	2
15	400259002	3/8" NPT pipe plug, may be purchased locally	1
	403499002	3/8" NPT pipe plug (stainless steel for AP models)	
16	400562901	Syphon jet assembly (400562903 AG Compatible)	1
17	400211046	O-ring	1
18	400249001	Retaining ring	1
19	400250002	1/8" dia. × 1/2" roll pin	1
20	400333343	AG compatible O-ring	2
21	400333340	AG compatible O-ring	1
22	400259005	2" NPT square head plug	1
	403499003	2" NPT square head plug (stainless steel, for AP models)	

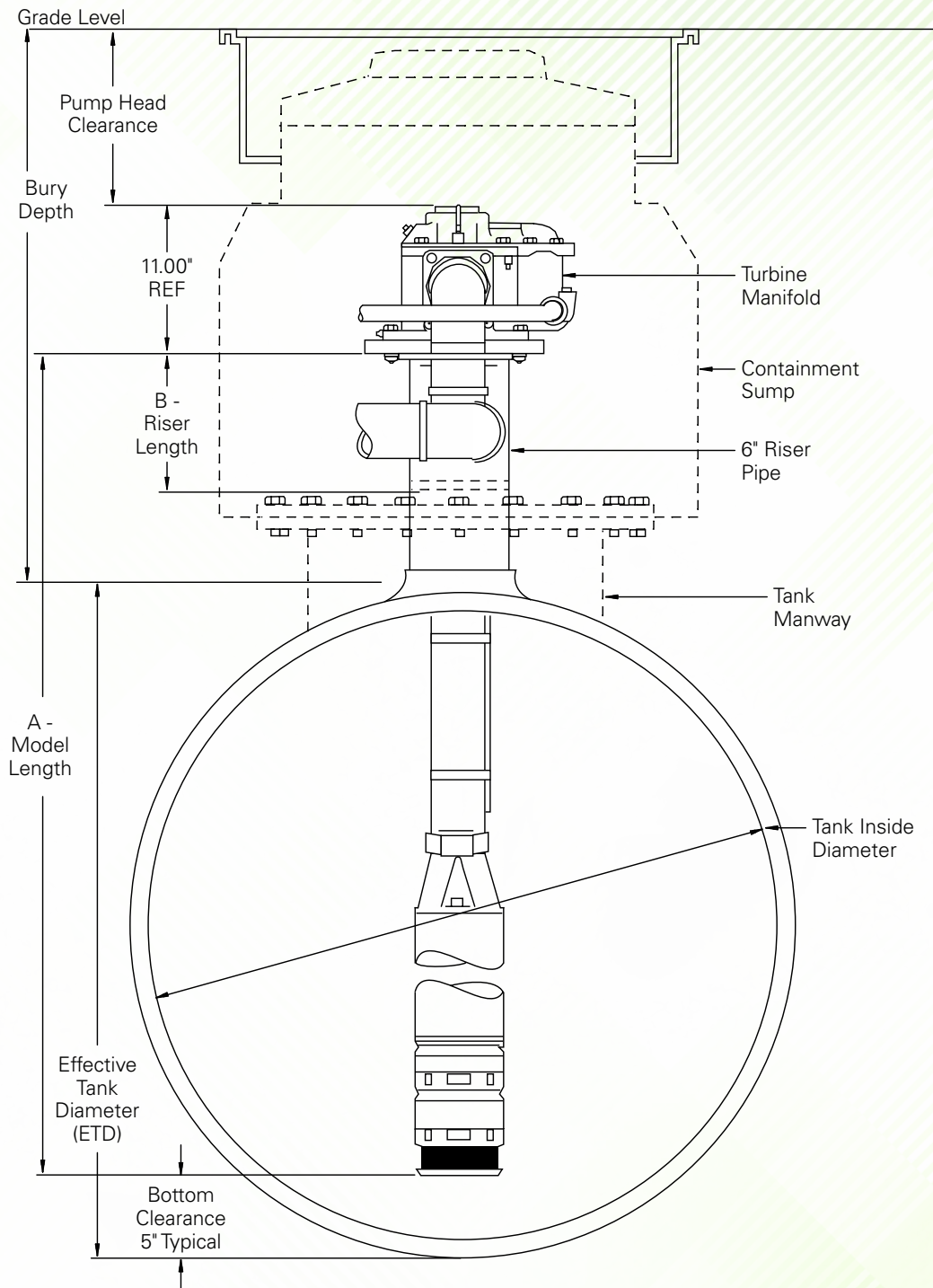


6" HIGH CAPACITY PUMPS

3" Pipe Plug If Only One Side Of Manifold Used
(Furnished By Customer)



6" HIGH CAPACITY PUMPS



- Note: 1. Effective tank diameter (ETD) = Inside tank diameter (to top of 6" bung), including tank manway and/or sump adapter.
 2. Model length (A) = ETD plus riser length minus bottom clearance minus 50.8mm thread engagement.
 3. Riser length (B) = Bury depth (to top of tank) minus pump head clearance minus tank manway and/or minus sump adapter.



3 AND 5 HP 50HZ SUBMERSIBLE TURBINE PUMPS

Available with either 3 or 5 hp, the FE Petro high capacity pump delivers efficient, reliable and quiet performance when high volumes or high speed deliveries of gasoline or diesel fuel are required.

HIGHLIGHTS

High Performance

FE Petro's multi-stage centrifugal pump is coupled with a dependable Franklin Electric motor to provide higher heads, faster fuel delivery and lower cost operation. Motors are all three-phase for smooth operation and are available in various voltages. Units come standard with a 6" diameter riser pipe to mount the pump to the tank.

Ease of Maintenance

If service is required, FE Petro products are designed to put the operator back in business fast. Maintenance on the pump motor assembly can be performed without having an electrician on site. Large diameter pins and sockets provide automatic open circuits and disconnecting of the wiring when the extractable portion of the pump is removed. Properly spaced lifting eyes facilitate the removal of the unit without disturbing the discharge piping. The pump motor assembly is easily removed from the discharge head by removing four bolts and using standard pusher bolts. Replacement pump motor assemblies are available for comparably sized competitive pumps.

Reliability

Quality engineering and simplicity of design work to ensure years of reliable performance from every high capacity unit. The continuous duty, three-phase Franklin Electric motor with carbon bearings and stainless steel journals is FE Petro's standard. The impellers, made of molded acetal, and diffusers of hard coated aluminium, with a stainless steel pump shaft, assure trouble-free operation in motor fuels. Dual (180° opposed) 3" horizontal discharge ports provide easy installation, and two built-in line check valves reduce installation costs. Two line pressure relief valves protect the dispensers, meters and piping from abnormal pressures due to thermal expansion. The mesh screen on the pump inlet prevents large particles from entering the unit and the unit is compatible with existing high capacity leak detector technology. New units are easily connected to field wiring without disassembly.

Satisfaction

Each and every high capacity pump is built to your tank and bury specifications and the complete assembly is performance tested to ensure that your needs are met. All high capacity pumps are UL listed and meet the requirements of UL 79.

SPECIFICATIONS

Standard Features

- Pressure relief valve: cartridge design available in two pressure relief settings, external to check valve. Standard model relieves at 2.76 bar and resets above 2.41 bar.
- Syphon: external venturi-type syphon primer supplied as submersible accessory.
- Air eliminator: every submersible includes tank return path to provide active air elimination.

Power Requirements

- 50 Hz high capacity pump models require three-phase, 380-415 VAC incoming power.
- 50 Hz high capacity pump models are available in 3 hp and 5 hp versions.
- STP-SCIIIIC three-phase smart controllers and STPCBB3C and STP-CBB5C three-phase control boxes are available for high capacity pump control.

Pump Motor

Fixed speed, 2875 rpm, multi-stage centrifugal type pump motor with built-in, automatic, thermal overload protection.

Liquid Compatibility

Max. liquid viscosity: 70 SSU at 60°F (15°C).

- Standard models are listed for fuel mixtures containing up to 10% ethanol or methanol, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- HCP models can also be used for fuel mixtures containing up to 5% biodiesel with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon Viton®* compound.

Approvals

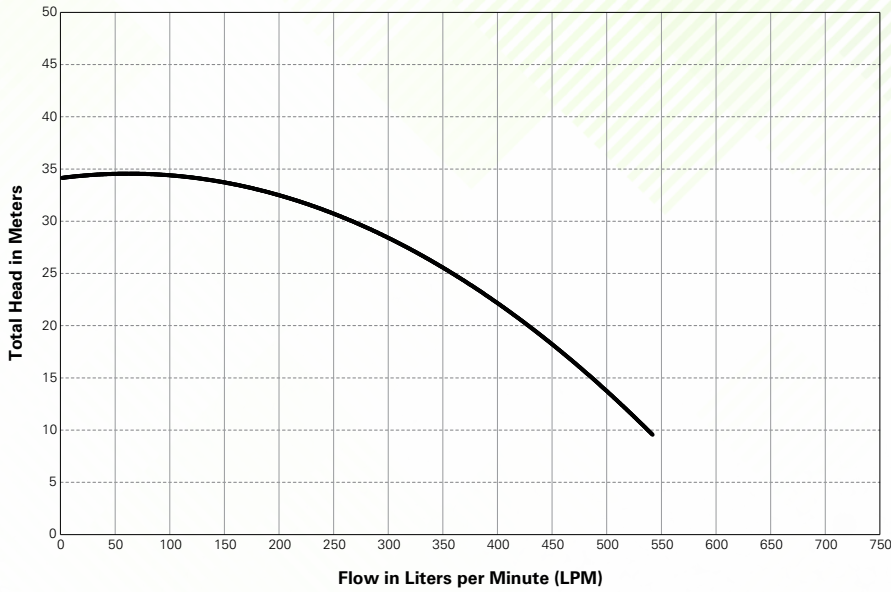
Consult factory for applicable approvals.

Quality Certification

Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

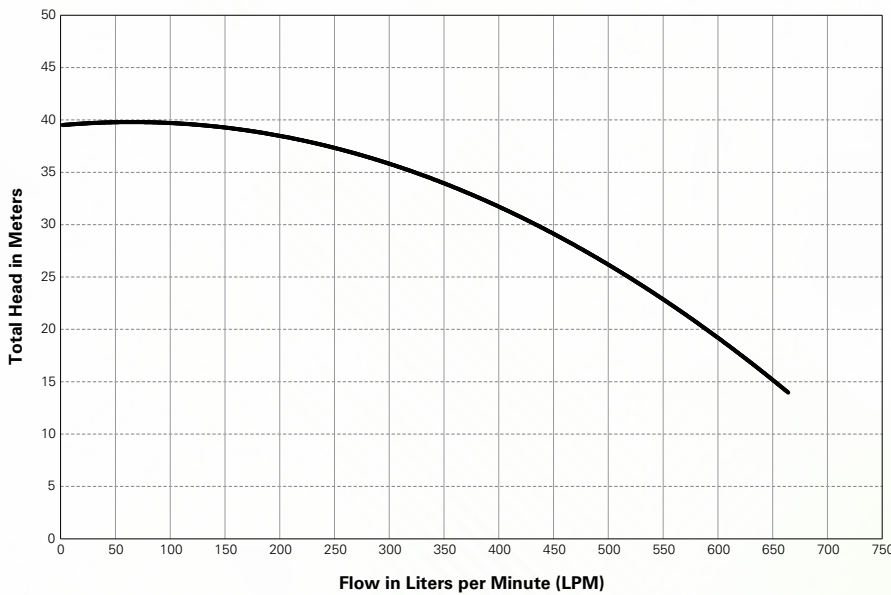
SPECIFICATIONS CONTINUED

3 hp Fixed Speed High Capacity Performance Chart (STP3C)



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. Fixed Speed 3 HP was powered by Three-Phase, 50 Hz, 415 Volt incoming supply.

5 hp Fixed Speed High Capacity Performance Chart (STP5C)



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. Fixed Speed 5 HP was powered by Three-Phase, 50 Hz, 415 Volt incoming supply.

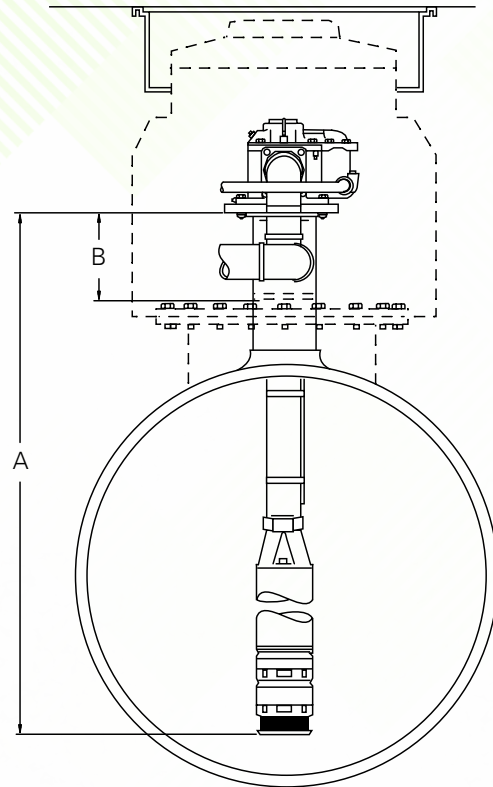
ORDERING INFORMATION

High Capacity Submersible Turbine Pump Model Designation System

A typical turbine model designation has up to five components to define the pump being supplied as follows:

STP XXXXX Y - A - B

- STP = Basic Model Designation
Note: Standard models up to 10% ethanol capable.
- XXXXX = Factory Installed Options
 - HCP model designations may include one or more of the following characters in alphabetical order: AG = Alcohol-gasoline compatible (85% ethanol capable).
Note: Standard models 0% to 10% ethanol capable
 - F = Floating suction adapter (3" NPT male adapter)
 - *R = Model R check valve (1.65 bar relief/1.51 bar reset for PLLD)
- *Note: If not otherwise specified, all HCP models supplied with standard model check valve (2.76 bar relief/2.41 bar reset for MLD, TS-LS300 and TS-LS500).
- Y = Pump Motor Horsepower/Electrical Rating
 - 3C = 3 Hp, 380-415 VAC, 50Hz three phase
 - 5C = 5 Hp, 380-415 VAC, 50Hz three phase
- A = Model Length
 - Model length is expressed as three numeric characters that indicate the length of the HCP from the turbine manifold bottom to the pump motor inlet in inches, available from 1524 mm to 5080 mm (additional charge for models 3353 mm and longer).
- B = Riser Pipe Length
 - Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 152mm to 1524 mm in 76mm increments (additional charge and lead time for risers 686 mm or longer).



For full diagram see previous page.

ORDERING INFORMATION

High Capacity Turbine Pumps (available as fixed length models only)**

Model	Description
STP3C*	6"STP three phase, 380-415 VAC, 50Hz
STP5C*	6"STP three phase, 380-415 VAC, 50Hz

*Please call customer service for lead time on this item.

1. STP models are listed for compatibility with fuel mixtures containing up to 10% ethanol with gasoline, up to 5% biodiesel with diesel fuels, 20% MTBE, 20% ETBE or 17% TAME with gasoline.
2. All models are supplied with a standard check valve unless factory option "R" is specified.
3. All above models require 380-415 VAC, three-phase, 50 Hz incoming power.
4. 6" riser pipe, if supplied locally, must be 6-5/8" OD by 1/4" WT tubing.
5. For riser pipe lengths 686mm to 1524mm, additional charge applies. Call Customer Services for lead times.

** Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet. Model length (A) can be a minimum of 1524mm to a maximum of 5080mm. Adder (p/n 401190911) applies if model length (A) is 3353mm to 4318mm or adder (p/n 401190914) applies if model length (A) is 4319mm to 5080mm (charges are for additional packaging STP). Call Customer Services for lead times.

Factory Installed Options

Designation	Description
401227001	Floating suction adapter, 3" male NPT (must be ordered with STP)
R	Model R relief valve factory installed, for Veeder Root (*) PLLD

Field Installed Options

Model	Description
401165930	Syphon System
STP-CBB3C	3 hp, 380-415 VAC, 50 Hz, three-phase motor starter, 240 VAC coil
STP-CBB5C	5 hp, 380-415 VAC, 50 Hz, three-phase motor starter, 240 VAC coil
STP-SCIIC	Three-phase 380-415 VAC smart controller

* STP-SCIIC is compatible with FE Petro 3 and 5 Hp submersibles and competitive makes, input voltage rated 380-415 VAC three phase

6" STP Extractable

Less manifold, riser and PMA.

Model	Description
HCEXT-XXX	6" fixed length extractable (XXX indicates Model Length, minimum 1524mm and maximum 5080mm)*

* Fixed Length adders apply for extractable model lengths 3353mm to 5080mm. Call Customer Services for lead times.



HIGH CAPACITY LINE LEAK DETECTORS

The High Capacity MLD product line is based on our standard STP-MLD unit design. The High Capacity MLD's compact design allows installation in the same containment sump as the submersible pump, greatly reducing the amount of unprotected leak points between the submersible and the MLD.

HIGHLIGHTS

Low Line Restriction

Piston design offers the maximum flow rate possible by keeping flow restriction through the leak detector at an absolute minimum. Piston has a full 41.3 mm of travel to move the leak detector poppet fully out of the flow path when product is being pumped.

Faster Installation

MLD-HC can be installed after purging air on new installations.

Piston Design

Piston cylinder has 94.2 cubic centimeters of volume to help minimise nuisance tripping due to thermal contraction during cold weather.

MLD-HC Seal

Threads seal using O-rings instead of thread sealant. This seal design makes for simple installation and removal of MLD-HC without large wrenches in the tight working environment of the containment sump.

SPECIFICATIONS

- Detects leaks of 11.4 lph or greater at 0.69 bar.
- Third party evaluated to comply with US EPA requirements 280.41 (B) and 280.44 (A) for continuous monitoring of pressurised piping.
- Size: 7¾" x 15" (197 mm x 381 mm).
- Weight: 28 pounds (12.7 kg).
- The MLD-HC will remain in the open flow position with dynamic line pressure at 0.14 bar at the outlet.
- Maximum static head pressure without affecting operation is 12' (3.7 m) from MLD-HC to dispensing point.
- Minimum height required from 3" (76.2 mm) NPT port centreline for top clearance is 9½" (241 mm). Not position sensitive. Can be installed horizontally to reduce clearance to 3" (76.2 mm).
- Compatible with all blends of motor fuels including alcohol blends from 0 to 10% ethanol, 20% MTBE or ETBE with 80% gasoline, or 17% TAME with 83% gasoline as well as diesel, fuel oil, Avgas, jet fuel or kerosene.
- Two models available: STP-MLD-HC for gasoline, STP-MLD-HCD for diesel.

Approvals

- Consult factory for applicable approvals.

Quality Certification

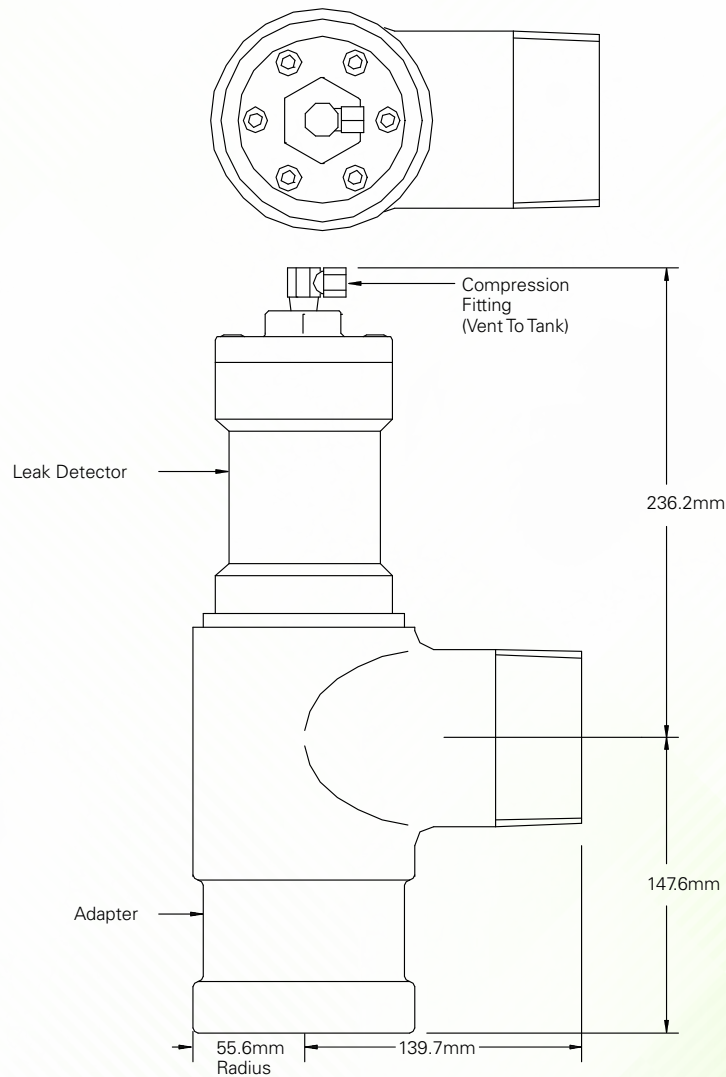
- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

ORDERING INFORMATION

Model	Description
401315902	STP-MLD-HC leak detector complete with Adapter "T" (blue for gasoline)
401320902	STP-MLD-HCD leak detector complete with Adapter "T" (tan for diesel)
401315901	Replacement high capacity leak detector ONLY (blue for gasoline)
401320901	Replacement high capacity leak detector ONLY (tan for diesel)
401316930	Replacement cover assembly
401325901	Replacement Adapter "T" with cover assembly
400449902	MLD-HC hardware pack, includes fittings and documentation

Refer to high capacity MLD installation manual for complete fuel compatibility specifications.

1. MLD-HC models are listed for compatibility with fuel mixtures containing up to 10% ethanol with gasoline, up to 5% biodiesel with diesel fuels, and 20% MTBE, 20% ETBE, or 17% TAME with gasoline.
2. MLD-HCD models are listed for compatibility with diesel fuels and kerosene applications only.
3. All above models will only mount in Adapter "T" (p/n 401325901)





STP-SCIIC

STP-SCIIC is designed to replace three-phase motor starters in both new and existing locations. The STP-SCIIC controller provides valuable pump protection and performance features for an economical price.

HIGHLIGHTS

Easy Retrofit

The STP-SCIIC is compatible with most existing three-phase submersibles from 3 to 5 hp. Retrofitting existing stations is as simple as replacing the existing three-phase motor with the STP-SCIIC. No additional wiring is required.

Continuous Diagnostics

The STP-SCIIC constantly monitors for abnormal conditions that reduce motor life or cause down-time. When any of these conditions exists, the STP-SCIIC will alert the service technician to the source of the problem: dry run, extended run, overvoltage, undervoltage, relay fault, voltage/current unbalance, locked rotor, phase loss or open circuit.

Pump Auto-Start

Provides "on demand" automatic pump start of up to eight submersible pumps manifolded to the same discharge line. Lead pump starts to satisfy initial demand and additional pumps are started as demand increases, reducing power consumption and extending pump life.

SPECIFICATIONS

- Enclosure size: 9-1/16" x 7-6/8" x 5 1/2" (230 mm x 196 mm x 140 mm).
- Compatible with three-phase FE Petro 3 and 5 hp submersibles and most competitive makes.
- Relay rating: 5 hp.
- Pump "RUN" indication is provided by flashing green light.
- Power "ON" indication is provided by steady green light.
- Flashing red light indicates fault condition. Number of flashes indicates specific fault.
- Audible alarm alerts operator of fault.
- Built-in voltage surge protection.
- Flashing yellow light indicates RS 485 is communicating.
- RS 485 com port.

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

ORDERING INFORMATION

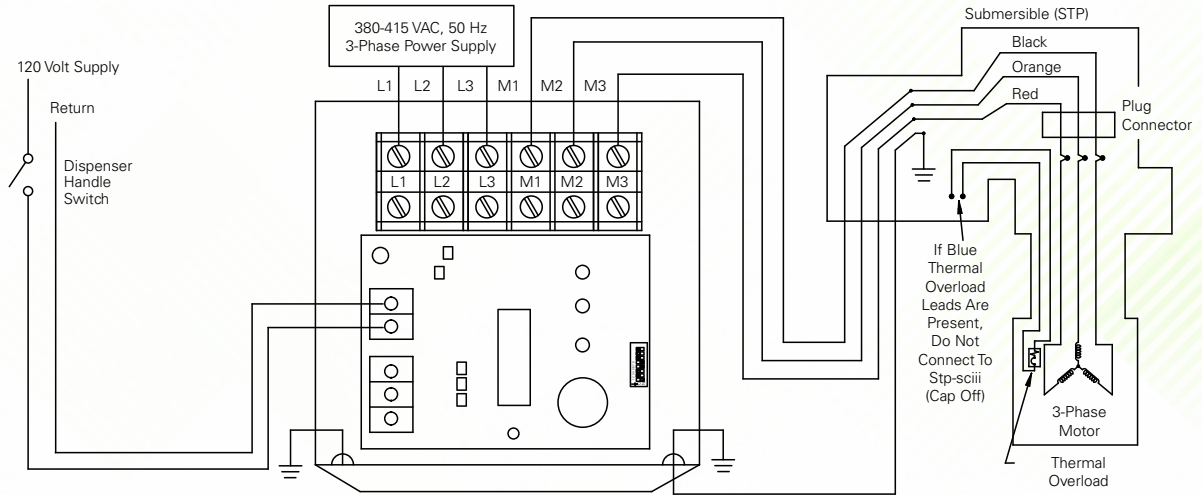
Part	Description
5800103300	STP-SCIIC three-phase smart controller

Notes:

1. One STP-SCIIC required per submersible, relay rated for 30 Amps.
2. STP-SCIIC models do not utilise the pump motor thermal overload wiring (blue leads).

*STP-SCIIC is compatible with FE Petro 3 and 5 hp submersibles and competitive makes input voltage rated 380-415 VAC three phase.

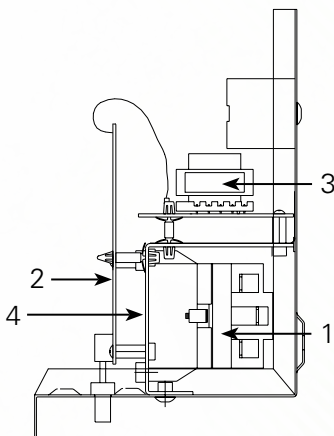
STP-SCIIC Three-Phase Smart Controller Standalone Wiring Diagram

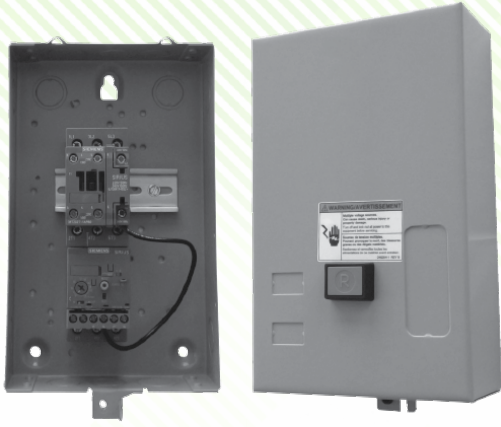


Note: See product installation instructions for further details. Wiring must conform to all federal, state and local electrical codes. Motor control panel is for non-hazardous location use only.

STP-SCIIC Repair Parts

Item	Part	Description
1	228727102	Three-phase relay, 240V coil (requires rev 1.15)
2	223905901	Logic Board assembly (rev 1.15)
3	223910902	380-415V power board assembly
4	223867102	Mouting Bracket (required update for 228727101)





STP-CBB3C AND STP-CBB5C

The FE Petro magnetic starter incorporates ambient compensated relays with quick trip heaters and three leg protection to assure proper pump motor protection.

SPECIFICATIONS

- Compatible with three-phase FE Petro submersibles and most compatible models.
- Relay rating: 5 hp.
- Relay coil hook signal rating: 240 Volts for all versions.
- Incorporates three-leg contactor and adjustable overload relay with reset button.

Approvals

- Consult factory for applicable approvals.

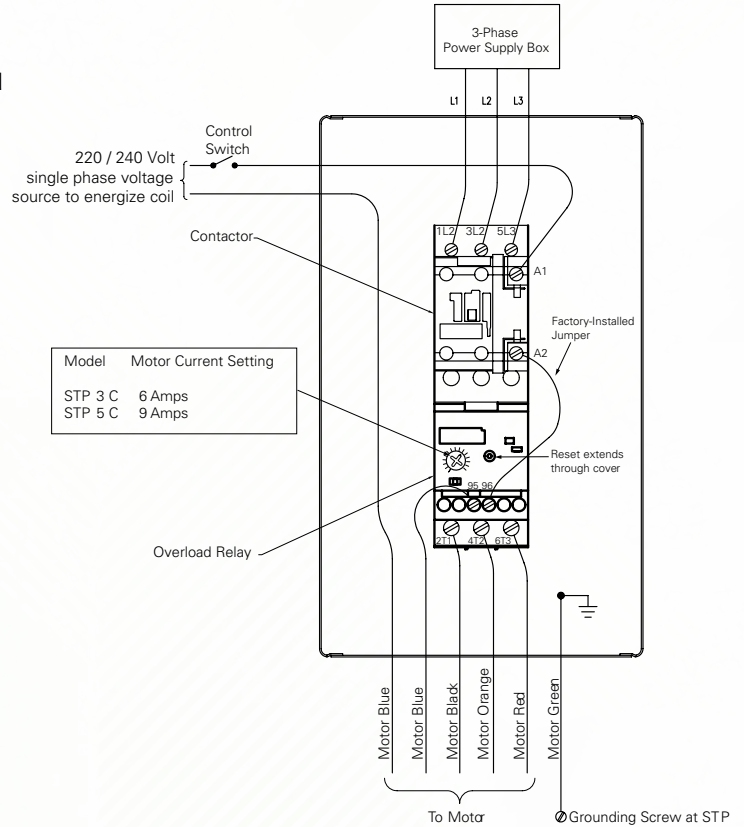
Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

ORDERING INFORMATION

CB 3/5 Repair Parts

Part	Description
401220965	STP-CBB3C three phase control box, 3hp 380-415 Volt pump control
401220966	STP-CBB5C three phase control box, 5hp 380-415 Volt pump control



Replacement Pump Motor Assemblies*

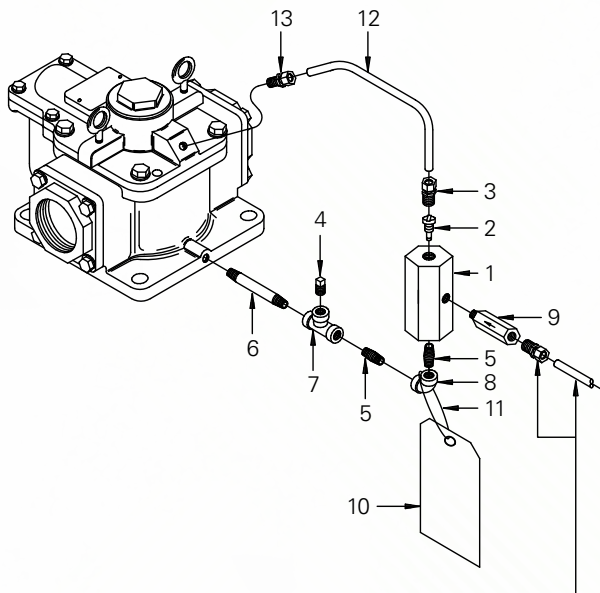
Model	Description
PMA3C *	3 hp 380-415 Volt 6" pump motor assembly
PMA5C *	5 hp 380-415 Volt 6" pump motor assembly

*For pump motor assemblies with floating suction adapters (3" male NPT connections), specify "F" in the model number and adder charge applies (must be ordered with PMA).

* Please call Customer Service for lead time on these items

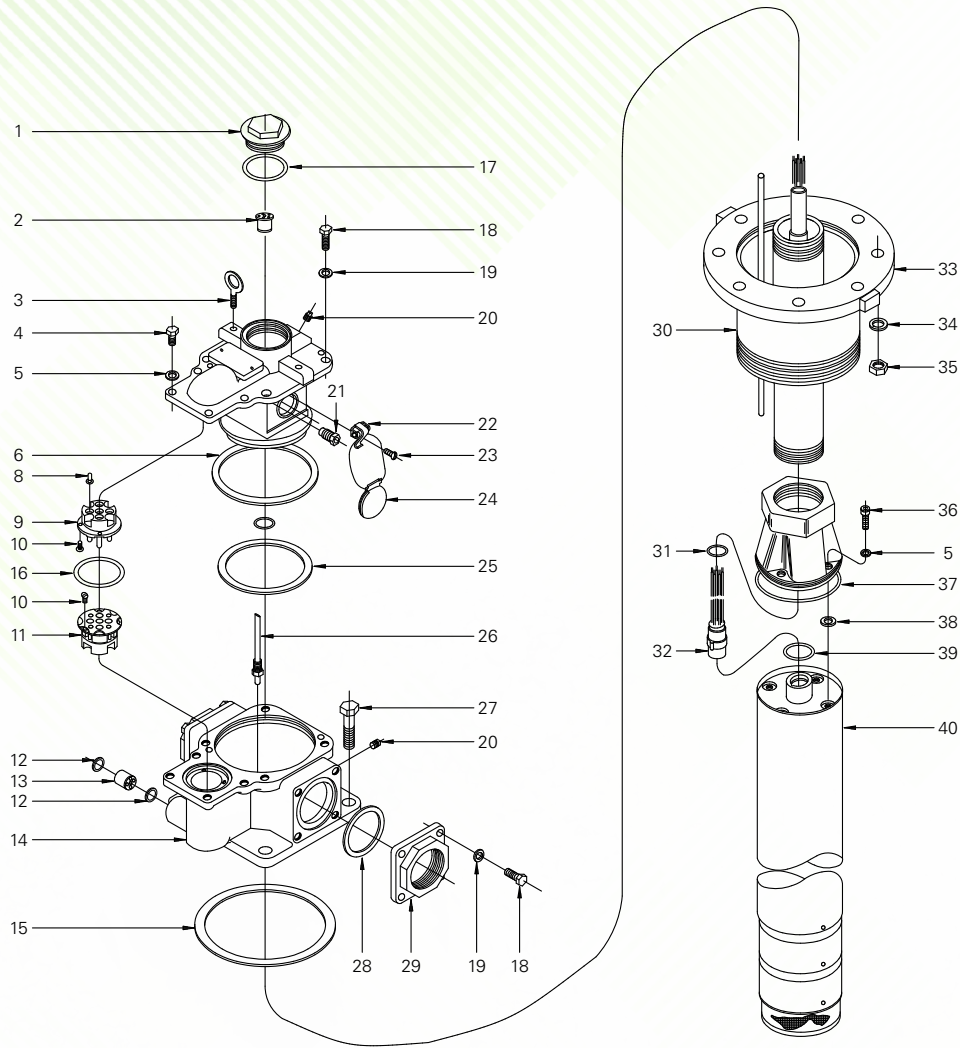
Syphon System

Item	Model	Description
1	402505001	Syphon block
2	400562901	Syphon jet assembly
3	400430004	3/8"P × 3/8"T compression fitting
4	400259001	1/4" pipe plug
5	400114001	1/4" close nipple, two required per system
6	400114003	1/4" nipple × 3" long
7	402510001	1/4" threaded tee
8	402511001	1/4" threaded elbow, 90°
9	400137937	Syphon check valve
10	402544001	Caution tag
11	400982001	Security seal
12	402553902	Copper tube (HC pump)
13	400430003	1/4"P × 3/8"T compression fitting
NS	401165930	Syphon unit complete, includes all items above



Connect 1/4" NPT × 3/8" Tube Fitting To Check Valve And 3/8" Od Copper Tubing To Highest Point In Syphon Line (Furnished By Customer)

High Capacity General Assembly



Item	Model	Qty	Description
1	401148101	1	Connection box cover
2	400236909	1	Seal off plug assembly
3	401149001	2	Eye bolt
4	400258001	4	3/8-16 x 1" large Hex head cap screw
5	400285002	8	3/8" lock washer
6	401236002	1	Upper manifold seal
8	400273004 400273006	6 4	12 gauge wire terminal 14 gauge wire terminal
9	401142901	1	Plug assembly
10	401091001	6	6-32 x 3/8" large round head machine screw, three required per connector
11	401137901	1	Receptacle assembly
12	401238001	2	Bushing ring
13	401239001	1	Seal plug
14	401112101	1	Discharge manifold
15	401163001	1	6" flange gasket
16	400333235	1	O-ring
17	400210234	1	O-ring
18	400258005	12	1/2-13 x 1 1/4" large Hex head cap screw
19	400285005	12	1/2" lock washer
20	400259001	2	1/4" pipe plug
21	401032901	2	Model 550 Relief (old standard pressure, tire valve)
	401330901	1	Standard relief (units built since S/N 0302XXXX)
	401330902	1	Model "R" relief (units built since S/N 0302XXXX)

Item	Model	Qty	Description
22*	401154001	2	Valve spring and bracket
23	400523001	4	10-24 x 3/8" long Sems fastener, two required per bracket
24*	401150101	2	Inset valve assembly (check valve)
25	401236001	1	Lower manifold seal
26	401158903	1	Air eliminator assembly
27	400258006	4	3/4-10 x 3" large Hex head cap screw
28	401162001	2	3" flange gasket
29	401113101	2	3" companion flange
30	4011910XX 6-5/8" OD x 1/4" WT (XX = length)	1	6" riser pipe 9" riser pipe 12" riser pipe 15" riser pipe 18" riser pipe 21" riser pipe 24" riser pipe
31	400333218	1	O-ring
32	151593906	1	192" lead assembly
33	401161101	1	6" flange
34	400285006	4	3/4" lock washer (993517)
35	400274004	4	3/4-10 Hex nut
36	400264011	4	3/8-16 x 1-1/4" large SHCS
37	400333255	1	O-ring
38	402406001	4	Rubber washer
39	400333225	1	O-ring
40	PMA XXX	1	Pump motor assembly, includes #37, #39, and four #5, #36, and #38 (XXX indicates options and horsepower)

*401154001 and 401150101 must be replaced together.



PUMP MOTOR ASSEMBLIES FOR DEF/ADBLUE®

FE Petro® brand diesel exhaust fluid pump motor assemblies (PMAs) feature a stainless steel close-coupled design powered by a field-proven Franklin Electric motor.

HIGHLIGHTS

- Stainless steel, encapsulated motor ensures longevity and impermeability to DEF seepage.
- Heavy-duty shaft provides superior alignment and resistance to stress.
- Double mechanical shaft seals protect the oil-filled bearing chamber from DEF seepage, assuring minimal wear and proper bearing lubrication.
- Stainless steel hydraulics provide superior performance and efficiency.
- Multiple models available to meet global requirements of voltage and frequency.
- All models are suitable for vertical installation where the pump motor is suspended off the bottom of the tank by the discharge piping.

SPECIFICATIONS

- Materials: Stainless steel construction including impellers/diffusers, inlet/outlet, and outer shell
- Pump type: All models are 5.1" (130 mm) outside diameter centrifugal type pump
- Power cable: 23' (7m) black polyethylene jacketed plug-in power cable
- 50 Hz pump motor: Three-stage pump with 2" BSPT female outlet
- Motor rating: Continuous operation with motor cooling provided by product flow and protected from dry running
- Bypass relief valve with cracking pressure of 30-40 psi (2.1-2.8 bar) and 4 gpm (15 lpm) minimum flow required at the discharge of all models.
- Non-return check valve with maximum cracking pressure of 3 psi (0.2 bar) required between product piping and bypass relief valve of all models.
- Liquid compatibility: All models are intended for use with Diesel Exhaust Fluid (DEF). DEF is a non-flammable, non-combustible liquid that has a specific gravity of 1.09 at 68°F, and is made per ISO 22241-1 specifications with 32.5% urea and distilled or deionized water. As defined by ISO 22241-1, DEF is the same as AUS 32 (aqueous urea solution).

ORDERING INFORMATION

DEF - PMA YYY Z

- DEF = Pump Compatible with DEF
- PMA = Pump Motor Assembly
- YYY = Pump Motor Hp Rating
 - 150 = 1½ Hp fixed speed (1.1 kW)
- Z = Motor Electrical Rating
 - B = Single phase, 50 Hz, 210-250 VAC (rated 6.9 Amps, requires 30 microfarad run/start capacitor rated 440 VAC)
 - C = Three phase, 50 Hz, 380-415 VAC (rated 2.6 Amps)

Note: Three phase models require overload protection in motor starter. Single phase models have thermal overload protection built into the motor.

50Hz DEF PMA

Model	Description
403383953	DEF-PMA 150B: Single Phase, 50hz, 200-250 VAC, 1.5 Hp
403383963	DEF-PMA 150C: Three Phase, 50hz, 380-415 VAC, 1.5 Hp



SUBMERSIBLE TURBINE PUMP KITS FOR DEF/ADBLUE®

Our FE Petro® brand diesel exhaust fluid submersible turbine pump (STP) kits come with everything you need for pumping DEF/AdBlue®. DEF STPs are offered in easy-to-order variable length complete packages or as individual kits for fixed length applications. Powered by the legendary Franklin Electric motor, our DEF STPs are built specifically for DEF applications with a host of application-specific features you won't find on anything else out there.

HIGHLIGHTS

Designed Just for DEF

Building on the field-proven DEF PMA, our DEF STPs are designed with innovative technology to suit the specific needs of DEF/AdBlue® applications. Unlike others, our entire offering is designed specifically for use in DEF.

- The PMA offers a stainless steel encapsulated motor with mechanical shaft seals to protect the motor bearings, isolating the motor from product and preventing any contamination of DEF wetstock.
- DEF STP kits feature stainless steel hardware and Viton® or EPDM elastomers for compatibility and longevity.

Performance is Everything

With demand for DEF varying from site to site, we've made it easy for you to select a single STP that is designed to perform at maximum efficiency no matter the demand of your application.

- The DEF STP's output caters for both large and small applications without excessive nozzle pressure that can make the trigger hard to squeeze and cause them to shut off prematurely.
- Stainless steel hydraulic impeller provides superior performance and efficiency through the life of the STP.

We've Made it Simple

The complete variable length DEF STP includes everything you need in a pre-configured package for ease of ordering and ease of installation.

- The full variable length kits make it easy to install in most applications while the fixed length kits provide the flexibility to install or retrofit any application.
- Models for both 50 Hz and 60 Hz markets, as well as single phase and three phase applications.

Pump Motor Assembly

- Field-proven Franklin Electric encapsulated motor ensures longevity and impermeability to DEF seepage.
- Heavy-duty shaft provides superior alignment and resistance to stress.
- Double mechanical shaft seals protect the oil-filled bearing chamber from DEF seepage, assuring minimal wear and proper bearing lubrication.
- Stainless steel hydraulics provide superior performance and efficiency.
- EPDM jacketed power cable provides DEF compatibility and longevity.
- All models are suitable for vertical installation where the pump motor is suspended off the bottom of the tank by the discharge piping.

Submersible Turbine Pump Kit

Submersible turbine pump kits come complete with variable length column pipe kit, check valve kit, bypass kit, EZ FIT pump motor assembly connection kit, and pump motor assembly.

- Submersible turbine pump kits also available for locally supplied fixed length column pipe applications.
- Bypass relief valve creates a continuous bypass of fluid to keep the motor cool.
- Check valve maintains line pressure while the pump is not in operation.
- EZ FIT PMA connection makes disconnection and reconnection of the PMA quick and easy.
- Each EZ FIT connection comes complete with coupler and gasket to ensure tight connection.

SPECIFICATIONS

Pump Motor Assembly

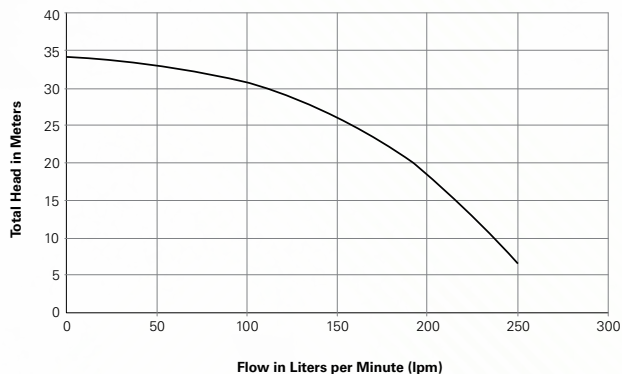
- Materials: Stainless steel construction including impellers/diffusers, inlet/outlet, and outer shell
- Pump type: All models are 5.1" (130 mm) outside diameter centrifugal type pump
- Power cable: 23' (7 m) black polyethylene jacketed power cable
- 50 Hz pump motor: Three-stage pump with 2" BSPT female outlet
- Motor rating: Continuous operation with motor cooling provided by product flow and protected from dry running

Submersible Turbine Pump Kit

- All stainless steel hardware and Viton® or EPDM seals
- Bypass relief valve cracking pressure of 30-40 psi (2.1-2.8 bar) and 4 gpm (15 lpm) minimum flow at the discharge of all models
- Non-return check valve cracking pressure of 3 psi (0.2 bar) between product piping and bypass relief valve of all models
- Liquid compatibility: All models are intended for use with Diesel Exhaust Fluid (DEF). DEF is a non-flammable, non-combustible liquid that has a specific gravity of 1.09 at 68°F (20°C), and is made per ISO 22241-1 specifications with 32.5% urea and distilled or deionized water. As defined by ISO 22241-1, DEF is the same as AUS 32® (aqueous urea solution) and also commonly known as AdBlue®

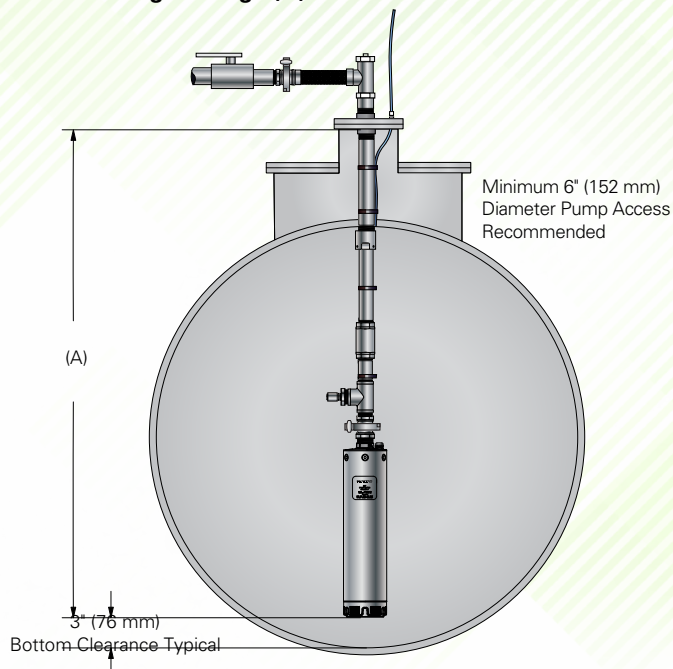
DEF Pump Motor Performance

DEF-PMA150B (Single Phase) and DEF-PMA150C (Three Phase)



Note: Performance is based on pumping water (1.00 specific gravity). Pressure is taken at the discharge outlet of the pump motor.

Variable Length Range (A)



Model Length Range	Model Length Designation
71" - 104" (1,800 mm - 2,640 mm)	VL1
104" - 168" (2,640 mm - 4,265 mm)	VL2

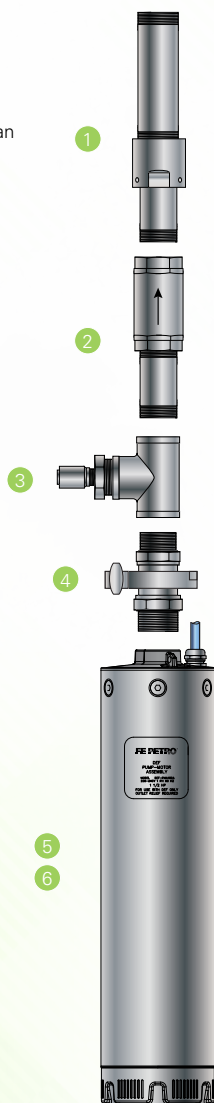
SPECIFICATIONS CONTINUED

Variable Length Components

Each variable length submersible turbine pump kit comes complete with variable length column pipe kit (VL1 or VL2), check valve kit, bypass kit, EZ FIT pump motor assembly connection kit, and pump motor assembly (single or three phase).

- 1 Variable length column pipe kit, 2" to 1½" NPT (not sold separately)
- 2 Check valve kit
- 3 Bypass kit
- 4 Pump motor assembly connection kit
- 5 6 Pump motor assembly (single or three phase)

Variable length column pipe kit reduces from 2" BSP column pipe at the top to an 1½" NPT column pipe at the bottom connection to the check valve kit



ORDERING INFORMATION

Variable Length Diesel Exhaust Fluid Submersible Turbine Pump Kits

Each variable length submersible turbine pump kit comes complete with variable length column pipe kit (VL1 or VL2), check valve kit, bypass kit, EZ FIT pump motor assembly connection kit, and pump motor assembly (single or three phase).

Model	Description
403472901	50 Hz, single phase, VL1 71" - 104" (1,800 mm - 2,640 mm) variable length diesel exhaust fluid submersible turbine pump kits (includes components #1 - #5)
403473901	50 Hz, single phase, VL2 104" - 168" (2,640 mm - 4,265 mm) variable length diesel exhaust fluid submersible turbine pump kits (includes components #1 - #5)
403475901	50 Hz, three phase, VL1 71" - 104" (1,800 mm - 2,640 mm) variable length diesel exhaust fluid submersible turbine pump kits (includes components #1 - #4 and #6)
403476901	50 Hz, three phase, VL2 104" - 168" (2,640 mm - 4,265 mm) variable length diesel exhaust fluid submersible turbine pump kits (includes components #1 - #4 and #6)

Variable Length Diesel Exhaust Fluid Submersible Turbine Pump Replacement Kits

Model	Description
403463901	2 Check valve kit (includes 1½" NPT non-return check valve, 1½" NPT x 4" long nipple on inlet, and 2" NPT female x 2" BSP male adapter on outlet)
403461901	3 Bypass kit (includes ½" NPT bypass relief valve, ½" NPT x 1½" NPT bushing in 1½" NPT tee)
403455901	4 Pump motor assembly connection kit (includes 2" BSP male inlet x 1½" NPT male outlet EZ FIT connection)
403383953	5 50 Hz, single phase pump motor assembly (DEF-PMA150B)
403383963	6 50 Hz, three phase pump motor assembly (DEF-PMA150C)

Variable Length Accessories & Repair Parts

Model	Description
403713922	Single phase electrical kit, includes STP-CBBS (200-250 volt pump control with 240 volt coil, p/n 400818922) & 30uF/440V capacitor (p/n 400170937, for use with DEF-PMA150B)
401220966	Three phase 380-415 volt pump control box with over-load protection and 240 volt coil
403459901	2" NPT female x 2" BSP male thread adapter (part of component #1, adapter only)
403408931	1½" NPT non-return check valve (part of component #2, valve only)
403409931	½" NPT bypass relief valve (part of component #3, valve only)
403468901	DEF-PMA hardware pack (part of components #5 or #6, includes cable grip, cable ties, and documentation)
400170937	Capacitor, 30 uF / 440 V (for use with DEF-PMA150B)

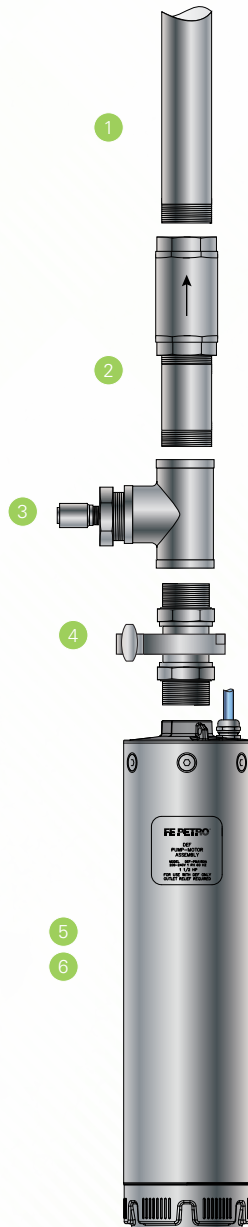
SPECIFICATIONS CONTINUED

Fixed Length Components

Individual assembly kits can be ordered for fixed length submersible turbine pump kit applications.

- 1 Column pipe, 2" NPT (locally supplied)
- 2 Check valve kit
- 3 Bypass kit
- 4 Pump motor assembly connection kit
- 5 6 Pump motor assembly (single or three phase)

2" BSP fixed length column pipe supplied locally (length to suit application).



ORDERING INFORMATION CONTINUED

Fixed Length Diesel Exhaust Fluid Submersible Turbine Pump Kits

Individual assembly kits can be ordered for fixed length submersible turbine pump kit applications.

Model	Description
403465901 2	Check valve kit (includes 2" NPT non-return check valve, 2" NPT x 4" long nipple on inlet, and 2" NPT male x 2" BSP female adapter on outlet)
403462901 3	Bypass kit (includes 1/2" NPT bypass relief valve, 1/2" NPT x 2" NPT bushing in 2" NPT tee)
403457901 4	Pump motor assembly connection kit (includes 2" BSP male inlet x 2" NPT male outlet EZ FIT connection)
403383953 5	50 Hz, single phase pump motor assembly (DEF-PMA150B)
403383963 6	50 Hz, three phase pump motor assembly (DEF-PMA150C)

Fixed Length Accessories & Repair Parts

Model	Description
403713922	Single phase electrical kit, includes STP-CBBS (200-250 volt pump control with 240 volt coil, p/n 400818922) & 30uF/440V capacitor (p/n 400170937, for use with DEF-PMA150B)
401220966	Three Phase 380-415 volt pump control box with overload protection and 240 volt coil
403460901	2" NPT Male x 2" BSP Female Thread Adapter (part of component #2, adapter only)
403458901	2" NPT x 4" long Pipe Nipple (part of component #2, nipple only)
403408932	2" NPT non-return check valve (part of component #2, valve only)
403409931	1/2" NPT bypass relief valve (part of component #3, valve only)
403468901	DEF-PMA Hardware Pak (part of component #5 or #6, includes cable grip, cable ties, and documentation)
400170937	Capacitor, 30 uF / 440 V (for use with DEF-PMA150B)



REPLACEMENT PARTS FOR SUBMERSIBLE TURBINE PUMPS & CONTROLLERS

There are a wide variety of FE Petro® brand repair parts for both 4" and 6" submersible turbine pumps and controllers that can be used as replacement parts on competitive model submersible pumps. There are several replacement pump motor assemblies which are designed specifically to bolt on to existing Red-Jacket™ brand pumps. Special attention should be made when ordering these replacement pump motor assemblies to ensure the specific Red-Jacket™ replacement part is ordered as referenced below.

ORDERING INFORMATION

4" Submersible Turbine Pump Accessories Replacement Parts

Use the cross-reference to assist you with placing orders when replacing competitive models.

FE Petro™ Model	Description	Red-Jacket™ Model
STP-MLD	Mechanical leak detector, gas	FX1V, Gas (116-056-5)
STP-MLD-D	Mechanical leak detector, diesel	FX1DV, Diesel (116-058-5)
151213932	3-wire motor lead assembly (240" long)	410156-001 (240" long)
400170933	¾ Hp (1 Ph) fixed speed capacitor (15 uF, 440V)	410164-001 (17.5 uF)
400170933	1½ Hp (1 Ph) fixed speed capacitor (15 uF, 440V)	410164-002 (25 uF)
400170934	2 Hp (1 Ph) fixed speed capacitor (40 uF, 440V)	410164-003 (40 uF)
400660901	Pump motor intake filter screen (adds 1" to PMA)	144-194-5 (Trapper adds 3.25" to length of the PMA)

Submersible Turbine Pump Controller Replacement Parts

Use the cross-reference to assist you with placing orders when replacing competitive models.

FE Petro™ Model	Description	Red-Jacket™ Model
MagVFC™	Variable frequency controller, 200-250V supply (VS 2 Hp)	Not interchangeable
EcoVFC™	Variable frequency controller, 380-415V supply (VS 2 Hp & VS 4 Hp)	Only available from FE Petro®
STP-SCI	Single phase smart controller, 120-240V coil (200-250V ¾ Hp thru 2 Hp)	IQ Control Box (880-052-1)
STP-DHIB-SCI	Dispenser hook isolation factory wired with single phase smart controller	Only available from FE Petro®
STP-DHIB	Dispenser hook isolation, 240V signal/supply	Isotrol 1-8 w/o relay (880-050-1)
STP-DHIB-CBBS	Dispenser hook isolation factory wired with single phase control box	Isotrol 1-8R w/relay (880-048-1)
STP-CBBS	Single phase control box, 240V coil (200-250V ¾ Hp thru 2 Hp)	880-042-5
STP-SCIIC	Three phase smart controller, 240V coil (380-415V ¾ Hp, 1½ Hp, 3 Hp, & 5 Hp)	Only available from FE Petro®
STP-CBB 3/5	Three phase starter box, 240V coil (adjustable overload, 380-415V ¾ Hp thru 5 Hp)	279-231-5 (requires three overload heaters)

* FE Petro® Single Phase Smart Controllers work with Red Jacket™ Pump Motor Assemblies that were produced with Franklin Electric motors and Faradyne™ motors (no software upgrade required).

ORDERING INFORMATION CONTINUED

4" Submersible Turbine Pump Replacement Parts

Use the cross-reference to assist you with placing orders when replacing competitive models.

FE Petro™ Model	Description	Red-Jacket™ Model
PMA 75B	¾ Hp pump motor assembly (200-250 V, 1 Ph)	UMP75U3-3 (852-204-5) & AGUMP75S3-3 (852-107-5)
PMA AG 75B	¾ Hp pump motor assembly (200-250 V, 1 Ph), AG optioned for biofuels*	Only available from FE Petro®
PMA 150B	1½ Hp pump motor assembly (200-250 V, 1 Ph)	UMP150U3-3 (852-205-5) & AGUMP150S3-3 (852-108-5)
PMA AG 150B	1½ Hp pump motor assembly (200-250 V, 1 Ph), AG optioned for biofuels*	Only available from FE Petro®
PMA H 150B	High PSI 1½ Hp pump motor assembly (200-250 V, 1 Ph)	X4UMP150U3 (852-153-5) & X4AGUMP150S3 (852-215-5)
PMA AG H 150B	High PSI 1½ Hp pump motor assembly (200-250 V, 1 Ph), AG optioned for biofuels*	Only available from FE Petro®
PMA 200B	2 Hp pump motor assembly (200-250 V, 1 Ph)	Only available from FE Petro®
PMA AG 200B	2 Hp pump motor assembly (200-250 V, 1 Ph), AG optioned for biofuels*	Only available from FE Petro®
PMA M 200B	MagShell® 2 Hp pump motor assembly (200-250 V, 1 Ph)	Only available from FE Petro®
PMA AG M 200B	MagShell® 2 Hp pump motor assembly (200-250 V, 1 Ph), AG optioned for biofuels*	Only available from FE Petro®
PMA H 200B	High PSI 2 Hp pump motor assembly (200-250 V, 1 Ph)	UMP200U3-4 (410184-005) & AGUMP200S3-4 (410184-001)
PMA AG H 200B	High PSI 2 Hp pump motor assembly (200-250 V, 1 Ph), AG optioned for biofuels*	Only available from FE Petro®
PMA H M 200B	MagShell® high PSI 2 Hp pump motor assembly (200-250 V, 1 Ph)	Only available from FE Petro®
PMA AG H M 200B	MagShell® high PSI 2 Hp pump motor assembly (200-250 V, 1 Ph), AG optioned for biofuels*	Only available from FE Petro®
PMA 75C	¾ Hp pump motor assembly (380-415 V, 3 Ph)	UMP75U17-3 (852-058-5) & AGUMP75S17-3 (852-145-5)
PMA AG 75C	¾ Hp pump motor assembly (380-415 V, 3 Ph), AG optioned for biofuels*	Only available from FE Petro®
PMA 150C	1½ Hp pump motor assembly (380-415 V, 3 Ph)	UMP150U17-3 (852-059-5) & AGUMP150S17-3 (852-146-5)
PMA AG 150C	1½ Hp pump motor assembly (380-415 V, 3 Ph), AG optioned for biofuels*	Only available from FE Petro®
PMA H 150C	High PSI 1½ Hp pump motor assembly (380-415 V, 3 Ph)	X4UMP150U17 (852-155-5) & X4AGUMP150S17 (852-217-5)
PMA AG H 150C	High PSI 1½ Hp pump motor assembly (380-415 V, 3 Ph), AG optioned for biofuels*	Only available from FE Petro®
PMA 200C	2 Hp pump motor assembly (380-415 V, 3 Ph)	Only available from FE Petro®
PMA AG 200C	2 Hp pump motor assembly (380-415 V, 3 Ph), AG optioned for biofuels*	Only available from FE Petro®
PMA M 200C	MagShell® 2 Hp Pump Motor Assy (380-415 V, 3 Ph)	Only available from FE Petro®
PMA AG M 200C	MagShell® 2 Hp Pump Motor Assy (380-415 V, 3 Ph), AG optioned for biofuels*	Only available from FE Petro®
PMA H 200C	High PSI 2 Hp Pump Motor Assy (380-415 V, 3 Ph)	UMP200U17-4 (410184-006) & AGUMP200S17-4 (410184-002)
PMA AG H 200C	High PSI 2 Hp Pump Motor Assy (380-415 V, 3 Ph), AG optioned for biofuels*	Only available from FE Petro®
PMA H M 200C	MagShell® high PSI 2 Hp pump motor assembly (380-415 V, 3 Ph)	Only available from FE Petro®
PMA AG H M 200C	MagShell® high PSI 2 Hp pump motor assembly (380-415 V, 3 Ph), AG optioned for biofuels*	Only available from FE Petro®
PMA VS2	Variable speed 2 Hp pump motor assembly (190V, 3 Ph)	Not interchangeable **
PMA AG VS2	Variable speed 2 Hp pump motor assembly (190V, 3 Ph), AG optioned for biofuels*	Only available from FE Petro®
PMA M VS2	MagShell® variable speed 2 Hp pump motor assembly (190V, 3 Ph)	Only available from FE Petro®
PMA AG M VS2	MagShell® variable speed 2 Hp pump motor assembly (190V, 3 Ph), AG optioned for biofuels*	Only available from FE Petro®
PMA VS4	Variable speed 4 Hp pump motor assembly (190V, 3 Ph)	Only available from FE Petro®
PMA AG VS4	Variable speed 4 Hp pump motor assembly (190V, 3 Ph), AG optioned for biofuels*	Only available from FE Petro®
PMA M VS4	MagShell® variable speed 4 Hp pump motor assembly (190V, 3 Ph)	Only available from FE Petro®
PMA AG M VS4	MagShell® variable speed 4 Hp pump motor assembly (190V, 3 Ph), AG optioned for biofuels*	Only available from FE Petro®

*FE Petro® models optioned with AG are UL listed for gasoline with up to 85% ethanol, diesel fuel with up to 20% biodiesel, and 100% biodiesel. Standard FE Petro® models are UL listed for gasoline with up to 10% ethanol. All models can be used for fuel mixtures containing up to 5% biodiesel with diesel fuels, fuel oils, kerosene, Avgas, jet fuels, and 20% MTBE, 20%ETBE, or 17% ETBE with gasoline.

**Red Jacket™ variable speed pumps can be updated to FE Petro® variable frequency technology with conversion kits (includes variable speed 2 Hp pump motor assembly & MagVFC™). Variable speed conversion kits available with flow increasing MagShell® innovation (expanded Pump Motor shell requires STP Riser = 4.5" OD x 0.188" WT).

ORDERING INFORMATION CONTINUED

6" High Capacity Submersible Turbine Pump Replacement Parts

Use the cross-reference to assist you with placing orders when replacing competitive models.

FE Petro™ Model	Description	Red-Jacket™ Model
RJ PMA 3C	3 Hp pump motor assembly (380-415 V, 3 Ph)	UMP300J17-3HB (883-434-5)
RJ PMA 5C	5 Hp pump motor assembly (380-415 V, 3 Ph)	UMP500J17-3K (886-511-5)
151593906	5-wire motor lead assembly (192" long)	213-069-5 (192" long)

Note: Franklin Fueling Systems produces separate Pump Motor Assembly models for use with Red Jacket™ Maxxum Big Flo submersible turbine pumps from those used for FE Petro® high capacity STPs (remove "RJ" prefix for FE Petro® only models).

If you wish to contact us about any of our products or services please contact the nearest Franklin Fueling Systems office. For a list of local contacts please visit franklinfuelling.com for more information.

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