

# 4" SUBMERSIBLE TURBINE PUMPS

Since hitting the market in 1988, FE PETRO® brand submersible pumps have developed a reputation as the standard in performance, quality and dependability with innovative features only available from Franklin Fueling Systems. It is, and always will be about filling cars faster. With best-in-class flow rates and backed by a long history of dependability, FE PETRO® pumps are responsible for delivering fuel to thousands of customers around the globe, day in and day out.



## TECHNICAL ADVANTAGES

### Variable Speed

With faster fill times during peak hours and power savings during non-peak hours, variable speed submersible pumping systems allow you to maximize profits with consistent flow rates while mitigating operating expenses.

### MagShell®

The patented stainless steel MagShell®, available on 2 Hp and 4 Hp pumps, is designed to maximize flow rate capabilities, potential throughput, and profits. By expanding the pump motor shell, the MagShell® increases the area for product flow by 45%.

### Biofuel Compatibility

FE PETRO® Alcohol-Gas (AG) and Advanced Protection (AP) pumps are UL listed with both UL79A (up to 85% Ethanol) and UL79B (up to 20% or 100% Biodiesel).

### Variable Length

The patented telescoping pump shaft lets installers adjust the length of the pump onsite for the perfect fit.

### Advanced Protection

Stop corrosion in its tracks. Special powder-coated, e-coated, and stainless steel components defend your pump in the tank and in the sump from accelerated corrosion.

### Turbine Pump Interface

Remote enhanced pump monitoring and control including pump-in-water automation, clogged intake escalation, tank leveling, and tank priority.

### Intake Filter Screen

Avoid system damage, pumping slowdowns, and reduce filter changes by keeping harmful tank debris, sediment, and corrosion from entering the pumping system with this factory-installed option.

## FEATURE SELECTION

	4 HP	2 HP	1 1/2 HP	3/4 HP
Variable Speed	✓	✓		
Fixed Speed		✓	✓	✓
MagShell®	✓	✓		
Biofuel Compatibility*	✓	✓	✓	✓
Variable Length	✓	✓	✓	✓
Advanced Protection	✓	✓	✓	✓
Turbine Pump Interface**	✓	✓	✓	✓
Intake Filter Screen	✓	✓	✓	✓

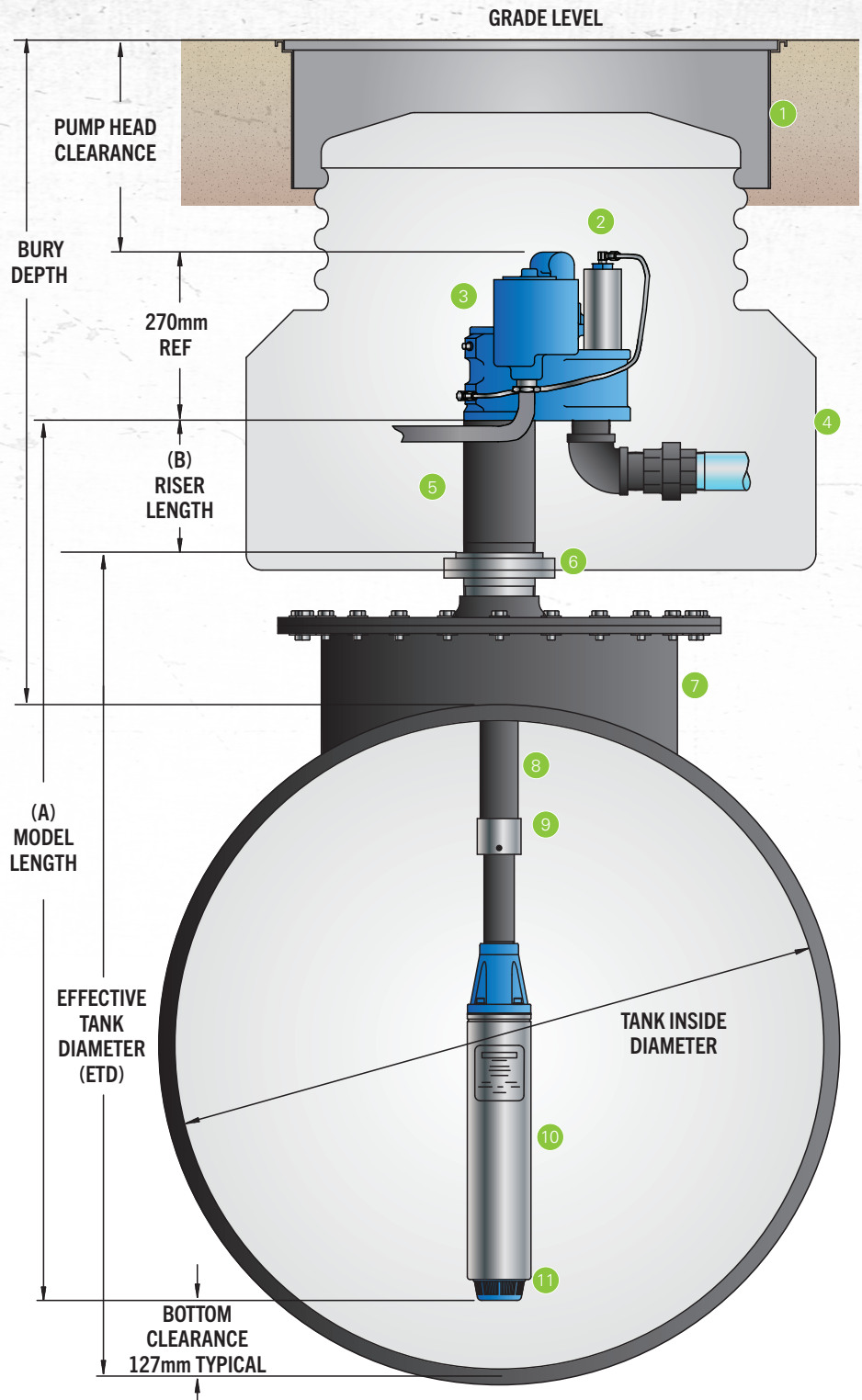
\*Up to 85% Ethanol and up to 20% or 100% Biodiesel.

\*\*Fixed speed models require a Guardian Series™ Single Phase Smart Controller (SPGC-220) to network with EVO™ Series Automatic Tank Gauges.

# SPECIFICATIONS

## 4" Submersible Pump Components & Key Dimensions

- 1 Manhole
- 2 Leak Detector
- 3 Manifold
- 4 Containment Sump
- 5 4" Riser
- 6 Tank Adapter
- 7 Tank Manway
- 8 Column Pipe
- 9 Variable Length Coupler
- 10 Pump Motor Assembly (PMA)
- 11 End bell



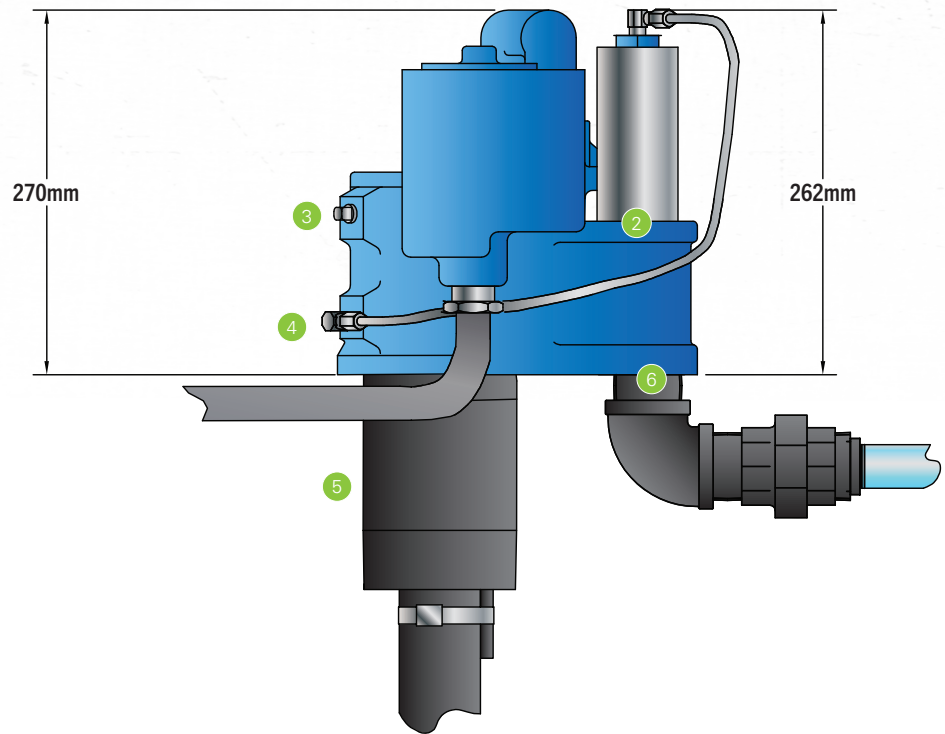
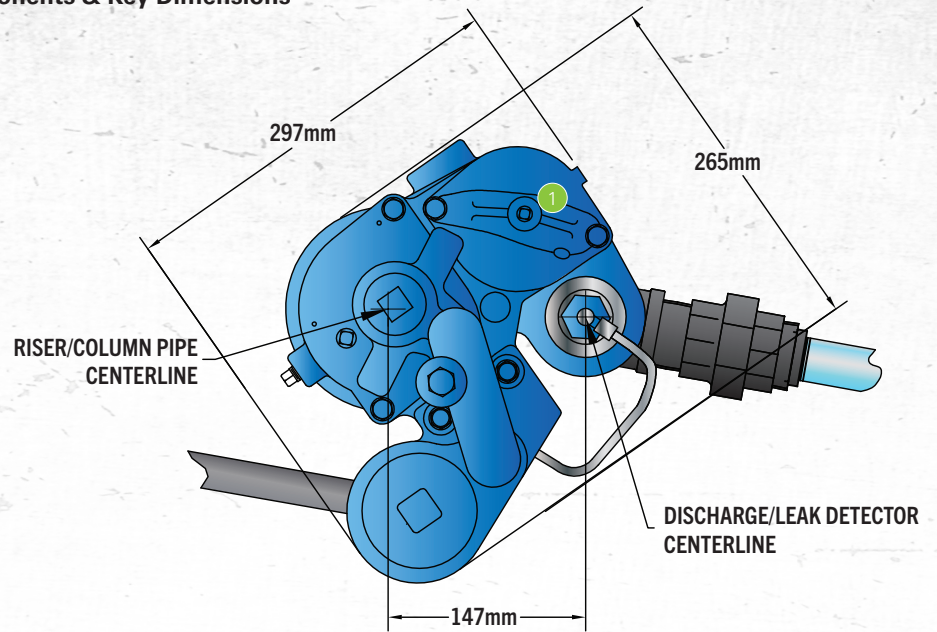
Notes:

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 25mm thread engagement.
3. Riser length (B) = Bury depth (to top of tank) minus pump head clearance minus tank manway and/or minus sump adapter.

## SPECIFICATIONS

### 4" Submersible Pump Manifold Components & Key Dimensions

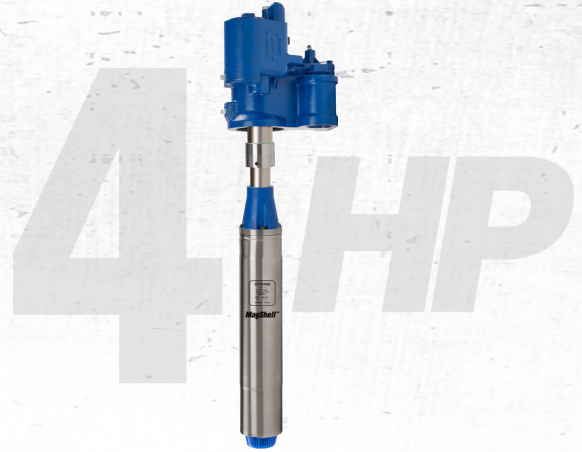
- 1 Line Test Port, 1/4" NPT
- 2 Leak Detector Port, 2" NPT
- 3 Syphon Port, 1/4" NPT
- 4 Tank Port, 1/4" NPT
- 5 Riser Pipe, 4" NPT
- 6 Discharge Outlet, 2" NPT





# 4 HP SUBMERSIBLE TURBINE PUMPS

With faster fill times during peak hours and power savings during non-peak hours, FE PETRO® 4 Hp variable speed submersible pumps deliver maximized profits while mitigating operating expenses.



## TECHNICAL ADVANTAGES

### OPTIONAL FEATURES

#### Biofuel Compatibility

FE PETRO® pumps are UL listed with both UL79A (up to 85% Ethanol) and UL79B (up to 20% or 100% Biodiesel).

#### Advanced Protection

Stop corrosion in its tracks. Special powder-coated, e-coated, and stainless steel components defend your pump in the tank and in the sump from accelerated corrosion.

### STANDARD FEATURES

#### Variable Speed

With faster fill times during peak hours and power savings during non-peak hours, variable speed submersible pumping systems allow you to maximize profits with consistent flow rates while mitigating operating expenses.

#### MagShell®

The patented stainless steel MagShell® is designed to maximize flow rate capabilities, potential throughput, and profits. By expanding the pump motor shell, the MagShell® increases the area for product flow by 45%.

#### Variable Length

The patented telescoping pump shaft lets installers adjust the length of the pump onsite for the perfect fit.

#### Active Air Eliminator

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

#### Turbine Pump Interface

Remote enhanced pump monitoring and control including pump-in-water automation, clogged intake escalation, tank leveling, and tank priority.

#### Intake Filter Screen

Avoid system damage, pumping slowdowns, and reduce filter changes by keeping harmful tank debris, sediment, and corrosion from entering the pumping system with this factory-installed option.

#### 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.

#### 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.

#### 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 fueling industry that spans more than four decades. They feature best-in-class flow rates and a long history of dependability.

#### Quality Certification

Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

## SPECIFICATIONS

### General

- Variable speed models are available in variable lengths only.
- Check valve: 70mm diameter fluorocarbon seal constructed with cast aluminum body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 2.8 bar and resets above 2.4 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

- 4 Hp, variable speed, two-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Max. pressure: selectable operating pressure on EcoVFC™ between 1.65 bar and 2.90 bar deadhead.
- Available with MagShell® which results in 45% increased flow area around motor.

### Approvals

- cULus listed.
- Consult factory for applicable approvals.

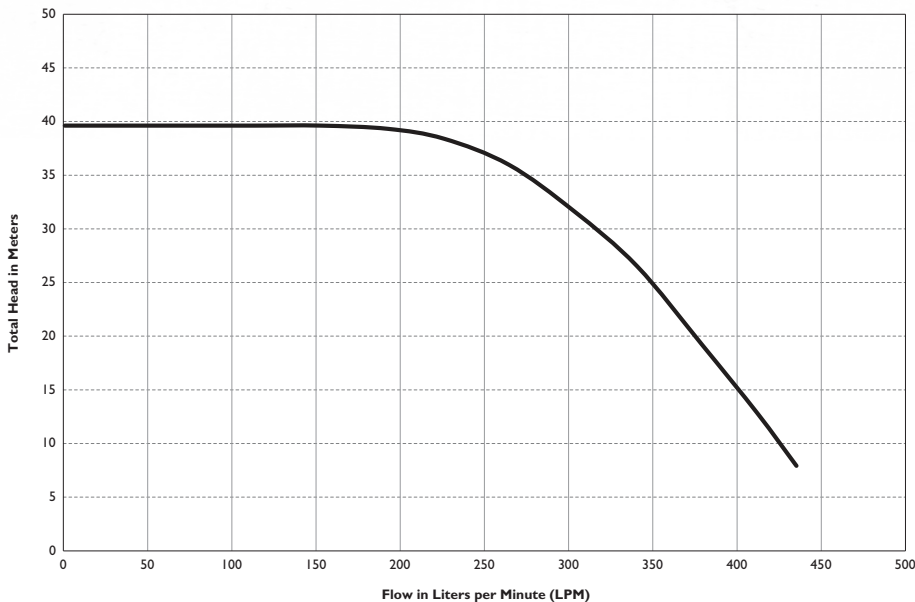
### Power Requirements

- Variable speed pumps can only be controlled by a MagVFC™ or EcoVFC™ variable frequency controller.
- VS4 models require three-phase incoming power supply to the EcoVFC™ for proper operation.
- Incoming power supply to the EcoVFC™ must be 360-440 VAC, 50 Hz.
- EcoVFC™ outputs a three-phase, variable frequency signal, valid for FE PETRO® variable speed pumps only.
- EcoVFC™ max. line draw: 20 Amps.
- Max motor draw: 15 Amps.

### Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- STP variable speed models are UL listed for fuel mixtures containing up to 10% ethanol, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- IST/ISTAP variable speed models are UL and cUL 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 models can also be used 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.

### 4 Hp Variable Speed Pump Performance Chart



Note: Performance based on pumping gasoline (0.76 specific gravity). Pressure is taken at the manifold discharge outlet. ISTMVS4 and STPMVS4 turbines can only be powered by a MagVFC with three phase incoming power



# ORDERING INFORMATION

## 4 Hp Submersible Pump Ordering Guide

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

### XXX YYYYY Z - 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).

ISTAP = These variable speed and variable length models include alcohol-gasoline compatibility (up to 85% ethanol, up to 20% Biodiesel, or 100% Biodiesel) and Advanced Protection with powder-coated, e-coated, and stainless steel components.

#### YYYYY = Factory Installed Options

Model designations may include one or more of the following characters in alphabetical order:

F = Floating suction adapter (1½" NPT female adapter)

K = Intake filter screen (IFS, factory installed to PMA)

M = MagShell® (flow enhancing, expanded PMA shell)

R\* = Model R check valve (1.7 bar relief / 1.5 bar reset for PLLD)

W\* = Model W check valve (1.1 bar relief / 0.9 bar reset for PPM4000)

#### Z = Pump Motor Horsepower Rating

VS4 = 4 Hp variable speed

#### A = Model Length (see table)

VL1 = STP variable length range #1

VL2 = STP variable length range #2

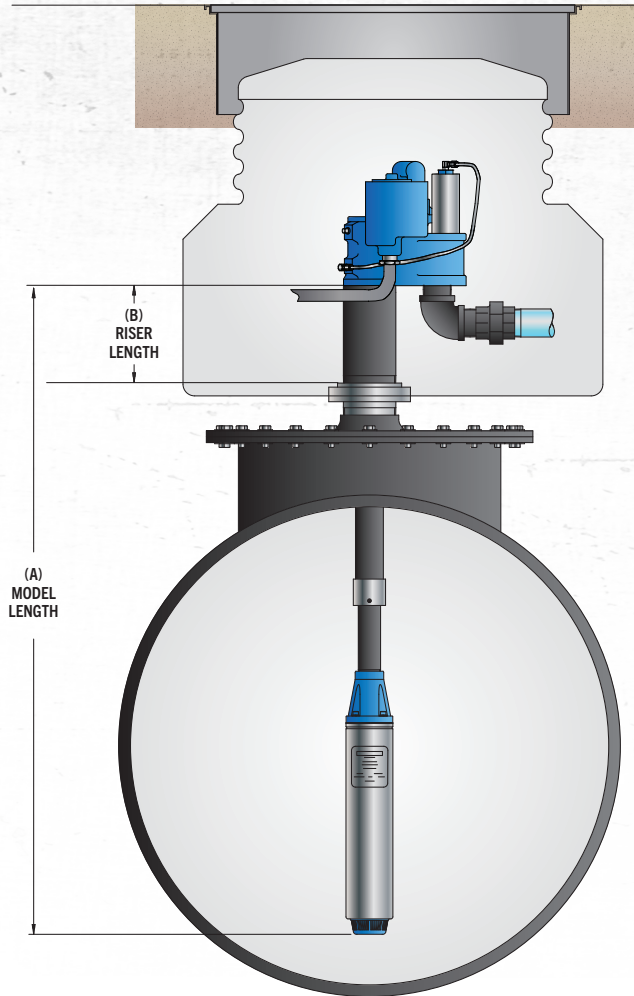
VL3 = STP variable length range #3

#### B = Riser Pipe Length (see diagram)

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 25mm increments (additional charge for risers 787mm or longer).

#### Notes:

\*If not otherwise specified, all models are supplied with standard model check valve (2.8 bar relief / 2.4 bar reset for MLD, TS-LS300, and TS-LS500).



#### Model Length (A)

STP Horsepower	Model Length Range	Model Length Designation
4 Hp	1613mm – 2355mm	VL1
	2401mm – 3962mm	VL2
	3214mm – 5556mm	VL3

## ORDERING INFORMATION

### 4 Hp Variable Speed Submersible Turbine Pumps

Variable speed, variable length.

Model	Description	Model Length Range Number	Model Length Range*
STPMVS4-VL1	4 Hp variable speed with MagShell®	VL1	1613mm – 2355mm
STPMVS4-VL2	4 Hp variable speed with MagShell®	VL2	2401mm – 3962mm
STPMVS4-VL3	4 Hp variable speed with MagShell®	VL3	3214mm – 5556mm

### 4 Hp Variable Speed Intelligent Submersible Turbine Pumps

Variable speed, variable length, and AG compatible.

Model	Description	Model Length Range Number	Model Length Range*
ISTMVS4-VL1	4 Hp AG variable speed with MagShell®	VL1	1613mm – 2355mm
ISTMVS4-VL2	4 Hp AG variable speed with MagShell®	VL2	2401mm – 3962mm
ISTMVS4-VL3	4 Hp AG variable speed with MagShell®	VL3	3214mm – 5556mm
ISTAPMVS4-VL1	4 Hp AG variable speed with Advanced Protection, and MagShell®	VL1	1613mm – 2355mm
ISTAPMVS4-VL2	4 Hp AG variable speed with Advanced Protection, and MagShell®	VL2	2401mm – 3962mm
ISTAPMVS4-VL3	4 Hp AG variable speed with Advanced Protection, and MagShell®	VL3	3214mm – 5556mm

#### Notes:

1. Remove "M" from model number for non-MagShell® pump motor assembly.
2. All STP models are UL and cUL 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.
3. All IST/ISTAP 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.
4. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
5. All above models can only be powered by a MagVFC™. 4 hp models require three-phase incoming power supply, 2 hp models can be supplied with single- or three-phase incoming power.
6. 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.
7. For riser pipe length 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

Specified in model number at time of STP order.

Model	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 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
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.

Model	Description
5874202900	EcoVFC™, 4 Hp variable frequency controller, one required per STP or IST
400137937	Syphon check valve, alcohol-gasoline compatible
402459931	Model 65 psi (4.5 bar) check valve AG compatible, (for slave of manifolded STP or IST with Veeder-Root® PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one STPM or VS4)
5800300200	STP-DHIB dispenser hook isolation for 240 Volt dispenser handle switches, up to eight each



# 2 HP SUBMERSIBLE TURBINE PUMPS

With faster fill times during peak hours and power savings during non-peak hours, FE PETRO® 2 Hp variable speed submersible pumps deliver maximized profits while mitigating operating expenses. 2 Hp submersible pumps are also available in fixed speed models.



## TECHNICAL ADVANTAGES

### OPTIONAL FEATURES

#### Variable Speed

With faster fill times during peak hours and power savings during non-peak hours, variable speed submersible pumping systems allow you to maximize profits with consistent flow rates while mitigating operating expenses.

#### Biofuel Compatibility

FE PETRO® pumps are UL listed with both UL79A (up to 85% Ethanol) and UL79B (up to 20% or 100% Biodiesel).

#### Advanced Protection

Stop corrosion in its tracks. Special powder-coated, e-coated, and stainless steel components defend your pump in the tank and in the sump from accelerated corrosion.

### STANDARD FEATURES

#### MagShell®

The patented stainless steel MagShell® is designed to maximize flow rate capabilities, potential throughput, and profits. By expanding the pump motor shell, the MagShell® increases the area for product flow by 45%.

#### Variable Length

The patented telescoping pump shaft lets installers adjust the length of the pump onsite for the perfect fit.

#### Active Air Eliminator

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

#### Turbine Pump Interface

Remote enhanced pump monitoring and control including pump-in-water automation, clogged intake escalation, tank leveling, and tank priority.

#### Intake Filter Screen

Avoid system damage, pumping slowdowns, and reduce filter changes by keeping harmful tank debris, sediment, and corrosion from entering the pumping system with this factory-installed option.

#### 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.

#### 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.

#### 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 fueling industry that spans more than four decades. They feature best-in-class flow rates and a long history of dependability.

#### Quality Certification

Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.



## SPECIFICATIONS

### General

- Variable speed models are available in variable lengths only.
- Fixed speed models are available in variable length and fixed length options.
- Check valve: 70mm diameter fluorocarbon seal constructed with cast aluminum body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 2.8 bar and resets above 2.4 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.

### Variable Speed Pump Motor

- 2 Hp, variable speed, two-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Max. pressure: selectable operating pressure on MagVFC™ between 1.65 bar and 2.90 bar deadhead.
- Available with MagShell® which results in 45% increased flow area around motor.

### Fixed Speed Pump Motor

- 2 Hp fixed speed, 2875 rpm, multi-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Standard pressure (three-stage) model, max. pressure = 2.55 bar.
- High pressure (four-stage) model, max. pressure = 3.03 bar.
- Available with MagShell™ for 45% increased flow area around motor.

### Approvals

- cULus listed.
- Consult factory for applicable approvals.

### Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- STP variable speed models are UL and cUL listed for fuel mixtures containing up to 10% ethanol, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- STPAG (AG compatible) models are UL 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 with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- 2 Hp fixed speed models can also be used 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.

### Variable Speed Power Requirements

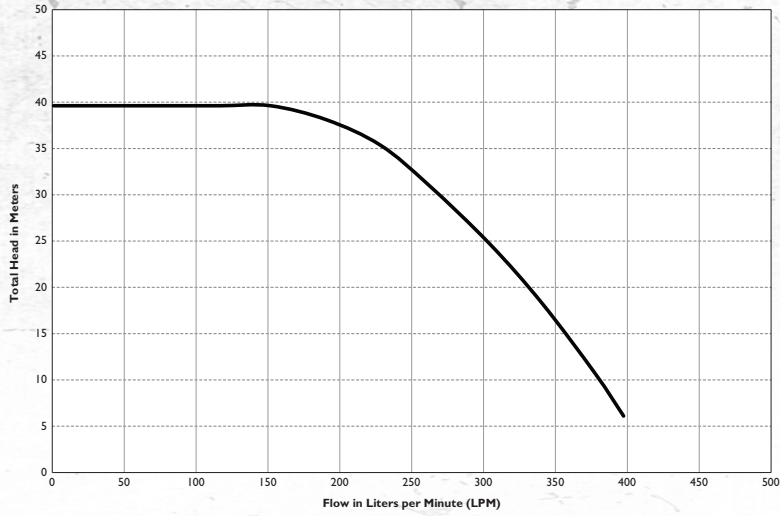
- Variable speed pumps can only be controlled by a MagVFC™ or EcoVFC™ variable frequency controller.
- VS2 models can operate with single-phase incoming power supply to the MagVFC™ or three-phase to EcoVFC™.
- Incoming power supply to the MagVFC™ is 200-250 VAC, 50 Hz and 360-440 VAC, 50 Hz to the EcoVFC™.
- MagVFC™ or EcoVFC™ outputs a three-phase, variable frequency signal, valid for FE PETRO® variable speed pumps only.
- MagVFC™ or EcoVFC™ max. line draw: 20 Amps.
- Max motor draw: VS2 7 Amps.

### Fixed Speed Power Requirements

- 200B models require single-phase, 200-250 VAC, 50 Hz incoming power and 200C models require three-phase 380-415 VAC 50 Hz incoming power.
- 200B models incorporate a starting and running capacitor, with internal bleed resistor, rated 440 Volt, 40 microfarad.
- SPGC-220 single-phase Guardian™ Series controllers and STP-CBBS single-phase control boxes are available for 200B pump control.
- STP-SCIIIC three phase smart controller and STP-CBB3C three-phase magnetic starter are available for 200C control.
- Max. motor draw: 200B 10 Amps, 200C 5 Amps.

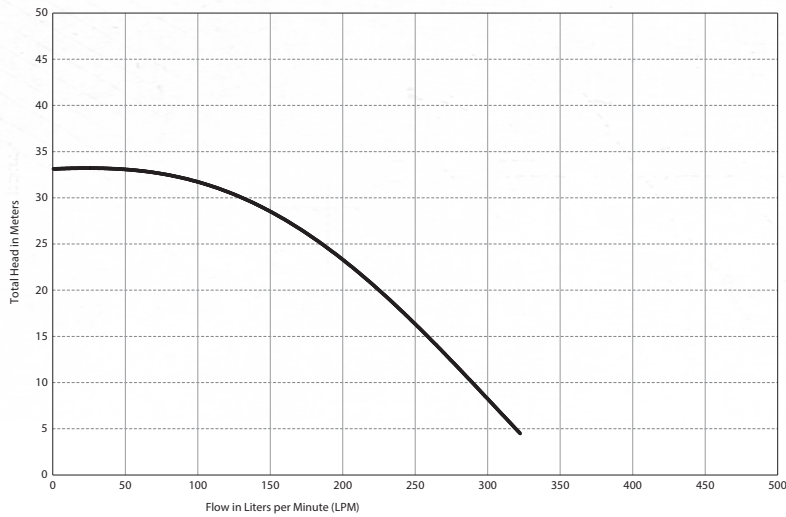
# SPECIFICATIONS

## 2 Hp Variable Speed Pump Performance Charts (STPMVS2)



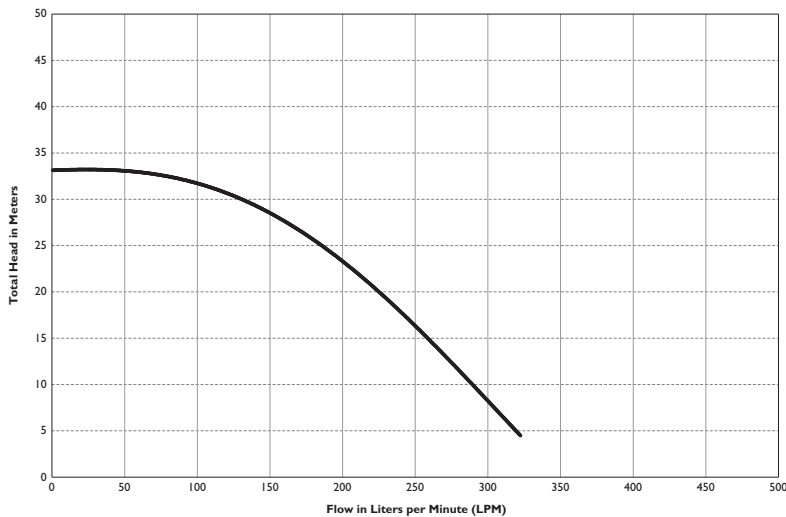
Performance based on pumping gasoline (0.76 specific gravity). Pressure is taken at the manifold discharge outlet. MagShell® Variable Speed 2 hp was powered by MagVFC™ with Single-Phase, 50 Hz, 220 Volt incoming supply or Eco VFC™ with Three-Phase, 50 Hz, 410 Volt incoming power supply.

## 2 Hp Single-Phase Fixed Speed Pump Performance Chart (STP200B)



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.

## 2 Hp Three-Phase Fixed Speed Pump Performance Chart (STP200C)



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 Variable Speed Submersible Pump Ordering Guide

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

### XXX YYYYY Z - 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).

ISTAP\*\* = These variable speed and variable length models include alcohol-gasoline compatibility (up to 85% ethanol, up to 20% Biodiesel, or 100% Biodiesel) and Advanced Protection with powder-coated, e-coated, and stainless steel components.

#### YYYYY = Factory Installed Options

Model designations may include one or more of the following characters in alphabetical order:

F = Floating suction adapter (1½" NPT female adapter)

K = Intake filter screen (IFS, factory installed to PMA)

M = MagShell® (flow enhancing, expanded PMA shell)

R\* = Model R check valve (1.7 bar relief / 1.5 bar reset for PLLD)

W\* = Model W check valve (1.1 bar relief / 0.9 bar reset for PPM4000)

#### Z = Pump Motor Horsepower Rating

VS2 = 2 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 (see diagram)

Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 7" to 60" in 1" increments (additional charge for risers 31" or longer).

#### Notes:

\*If not otherwise specified, all models are supplied with standard model check valve (2.8 bar relief / 2.4 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.

## 2 Hp Fixed Speed Submersible Pump Ordering Guide

A typical 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 (Model designations may include one or more of the following characters in alphabetical order.)

AP = Advanced Protection with powder-coated, e-coated, and stainless steel components, alcohol-gasoline compatible (up to E85, up to B20, and B100) (Note standard models up to 10% ethanol capable)

AG = Alcohol-gasoline compatible (up to E85, up to B20, and B100) (Note standard models up to 10% ethanol capable)

F = Floating suction adapter (1½" NPT female adapter)

K = Intake filter screen (IFS, factory installed to PMA)

M = MagShell® (flow enhancing, expanded PMA shell)

\*R = Model R check valve (1.7 bar relief / 1.5 bar reset for PLLD)

\*W = Model W check valve (1.1 bar relief / 0.9 bar reset for PPM4000)

#### Y = Pump Motor Horsepower Rating

200B = 2 Hp fixed speed, 50 Hz, single-phase

200C = 2 Hp fixed speed, 50 Hz, three-phase

#### A = Model Length (see table)

VL1 = Variable length range #1

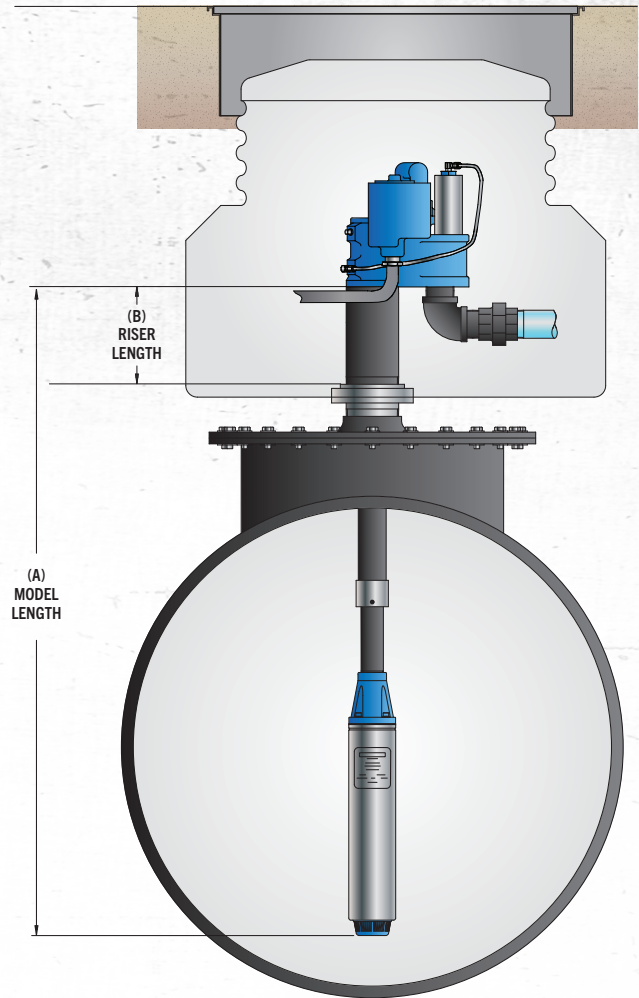
VL2 = Variable length range #2

VL3 = Variable length range #3

(Note VL2 models fit 94% of all known installations)

#### B = Riser Pipe Length (see diagram)

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 25mm increments (additional charge for risers 787mm or longer).



### Model Length (A)

STP Horsepower	Model Length Range	Model Length Designation
2 Hp Variable Speed	1486mm – 2228mm	VL1
	2274mm – 3835mm	VL2
	3087mm – 5429mm	VL3
200B 2 Hp Fixed Speed	1632mm – 2374mm	VL1
	2420mm – 3981mm	VL2
	3233mm – 5575mm	VL3
200C 2 Hp Fixed Speed	1575mm – 2317mm	VL1
	2363mm – 3924mm	VL2
	3175mm – 5518mm	VL3

Note: High pressure option adds about 15mm to PMA and model length.

Notes: \*If not otherwise specified, all STP models are supplied with standard model check valve (2.8 bar relief / 2.4 bar reset for MLD, TS-LS300, and TS-LS500).

## ORDERING INFORMATION

### 2 Hp Variable Speed Submersible Turbine Pumps

Variable speed, variable length.

Model	Description	Model Length Range Number	Model Length Range*
STPMVS2-VL1	2 Hp variable speed with MagShell®	VL1	1486mm – 2228mm
STPMVS2-VL2	2 Hp variable speed with MagShell®	VL2	2274mm – 3835mm
STPMVS2-VL3	2 Hp variable speed with MagShell®	VL3	3087mm – 5429mm

### 2 Hp Variable Speed Intelligent Submersible Turbine Pumps

Variable speed, variable length, and AG compatible.

Model	Description	Model Length Range Number	Model Length Range*
ISTM-1	2 Hp AG variable speed with MagShell®	VL1	1486mm – 2228mm
ISTM-2	2 Hp AG variable speed with MagShell®	VL2	2274mm – 3835mm
ISTM-3	2 Hp AG variable speed with MagShell®	VL3	3087mm – 5429mm
ISTAPM-1	2 Hp AG variable speed with Advanced Protection, and MagShell®	VL1	1486mm – 2228mm
ISTAPM-2	2 Hp AG variable speed with Advanced Protection, and MagShell®	VL2	2274mm – 3835mm
ISTAPM-3	2 Hp AG variable speed with Advanced Protection, and MagShell®	VL3	3087mm – 5429mm

### Single-Phase 2 Hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range*
STPM200B-VL1	2 Hp fixed speed with MagShell®	VL1	1632mm – 2374mm
STPM200B-VL2	2 Hp fixed speed with MagShell®	VL2	2420mm – 3981mm
STPM200B-VL3	2 Hp fixed speed with MagShell®	VL3	3233mm – 5575mm
STPHM200B-VL1	2 Hp high pressure fixed speed with MagShell®	VL1	1647mm – 2389mm
STPHM200B-VL2	2 Hp high pressure fixed speed with MagShell®	VL2	2435mm – 3996mm
STPHM200B-VL3	2 Hp high pressure fixed speed with MagShell®	VL3	3248mm – 5590mm

### Three-Phase 2 Hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range*
STPM200C-VL1	2 Hp fixed speed with MagShell®	VL1	1575mm – 2317mm
STPM200C-VL2	2 Hp fixed speed with MagShell®	VL2	2363mm – 3924mm
STPM200C-VL3	2 Hp fixed speed with MagShell®	VL3	3175mm – 5518mm
STPHM200C-VL1	2 Hp high pressure fixed speed with MagShell®	VL1	1590mm – 2332mm
STPHM200C-VL2	2 Hp high pressure fixed speed with MagShell®	VL2	2378mm – 3939mm
STPHM200C-VL3	2 Hp high pressure fixed speed with MagShell®	VL3	3190mm – 5533mm

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

Model	Description	Model Length Range Number	Model Length Range*
STPAGM200B-VL1	2 Hp AG fixed speed with MagShell®	VL1	1632mm – 2374mm
STPAGM200B-VL2	2 Hp AG fixed speed with MagShell®	VL2	2420mm – 3981mm
STPAGM200B-VL3	2 Hp AG fixed speed with MagShell®	VL3	3233mm – 5575mm
STPAGHM200B-VL1	2 Hp AG high pressure fixed speed with MagShell®	VL1	1647mm – 2389mm
STPAGHM200B-VL2	2 Hp AG high pressure fixed speed with MagShell®	VL2	2435mm – 3996mm
STPAGHM200B-VL3	2 Hp AG high pressure fixed speed with MagShell®	VL3	3248mm – 5590mm
STPAPM200B-VL1	2 Hp fixed speed with Advanced Protection, and MagShell®	VL1	1632mm – 2374mm
STPAPM200B-VL2	2 Hp fixed speed with Advanced Protection, and MagShell®	VL2	2420mm – 3981mm
STPAPM200B-VL3	2 Hp fixed speed with Advanced Protection, and MagShell®	VL3	3233mm – 5575mm
STPAPHM200B-VL1	2 Hp high pressure fixed speed with Advanced Protection, and MagShell®	VL1	1647mm – 2389mm
STPAPHM200B-VL2	2 Hp high pressure fixed speed with Advanced Protection, and MagShell®	VL2	2435mm – 3996mm
STPAPHM200B-VL3	2 Hp high pressure fixed speed with Advanced Protection, and MagShell®	VL3	3248mm – 5590mm

#### Notes:

- Remove "M" from model number for non-MagShell® pump motor assembly.
- 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/ STPAP 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.
- All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
- All above 200B models require single-phase, 200-250 VAC, 50 Hz incoming power. All above 200C models require three-phase, 380-415 VAC, 50 Hz incoming power.
- 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.
- For riser pipe lengths 787mm to 1524mm, additional charges apply (call Customer Service for lead times).

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



# ORDERING INFORMATION

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

Model	Description	Model Length Range Number	Model Length Range*
STPAGM200C-VL1	2 Hp AG fixed speed with MagShell®	VL1	1575mm – 2317mm
STPAGM200C-VL2	2 Hp AG fixed speed with MagShell®	VL2	2363mm – 3924mm
STPAGM200C-VL3	2 Hp AG fixed speed with MagShell®	VL3	3175mm – 5518mm
STPAGHM200C-VL1	2 Hp AG high pressure fixed speed with MagShell®	VL1	1590mm – 2332mm
STPAGHM200C-VL2	2 Hp AG high pressure fixed speed with MagShell®	VL2	2378mm – 3939mm
STPAGHM200C-VL3	2 Hp AG high pressure fixed speed with MagShell®	VL3	3190mm – 5533mm
STPAPM200C-VL1	2 Hp fixed speed with Advanced Protection, and MagShell®	VL1	1575mm – 2317mm
STPAPM200C-VL2	2 Hp fixed speed with Advanced Protection, and MagShell®	VL2	2363mm – 3924mm
STPAPM200C-VL3	2 Hp fixed speed with Advanced Protection, and MagShell®	VL3	3175mm – 5518mm
STPAPHM200C-VL1	2 Hp high pressure fixed speed with Advanced Protection, and MagShell®	VL1	1590mm – 2332mm
STPAPHM200C-VL2	2 Hp high pressure fixed speed with Advanced Protection, and MagShell®	VL2	2378mm – 3939mm
STPAPHM200C-VL3	2 Hp high pressure fixed speed with Advanced Protection, and MagShell®	VL3	3190mm – 5533mm

**Notes:**

- Remove "M" from model number for non-MagShell® pump motor assembly.
  - 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/STPAP 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.
  - All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
  - All above 200B models require single-phase, 200-250 VAC, 50 Hz incoming power. All above 200C models require three-phase, 380-415 VAC, 50 Hz incoming power.
  - 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.
  - For riser pipe lengths 787mm to 1524mm, additional charges apply (call Customer Service for lead times).
- \*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

### Factory Installed Approvals

Specified in model number at time of STP order.

Model	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 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
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

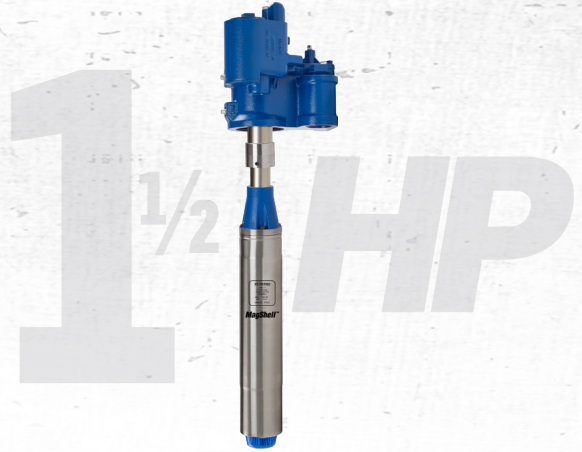
### Field Installed Options

2 Hp submersible pump specific accessories.

Model	Description
400137937	Syphon check valve, alcohol-gasoline compatible
5874202800	MagVFC™, 2 hp or 4 hp variable frequency controller, one required per VS2 or IST
5874202900	EcoVFC™, 2 hp variable frequency controller, one required per VS2 or IST
400818922	STP-CBBS, single-phase control box with lockout switch, 240 Volt coil
402312932	STP-DHIB + SPGC-220 Guardian Series™ Single Phase Smart Controller bundle
402313922	STP-DHIB-CBBS, combo DHI with factory-wired STP-CBBS single-phase control box
402459931	Model 65 psi (4.5 bar) 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)
5800100220	SPGC-220 Guardian Series™ Single Phase Smart Controller
401220965	STP-CBB3C three-phase, 380-415 VAC magnetic starter
5800103300	STP-SCIIC three-phase, 380-415 VAC smart controller
5800300200	STP-DHIB, dispenser hook isolation for 240 Volt dispenser handle switches, up to eight each

# 1½ HP SUBMERSIBLE TURBINE PUMPS

FE PETRO® 1½ Hp fixed speed submersible pumps deliver consistent flow rates for medium throughput fuels.



## TECHNICAL ADVANTAGES

### OPTIONAL FEATURES

#### Biofuel Compatibility

FE PETRO® pumps are UL listed with both UL79A (up to 85% Ethanol) and UL79B (up to 20% or 100% Biodiesel).

#### Variable Length

The patented telescoping pump shaft lets installers adjust the length of the pump onsite for the perfect fit.

#### Advanced Protection

Stop corrosion in its tracks. Special powder-coated, e-coated, and stainless steel components defend your pump in the tank and in the sump from accelerated corrosion.

### STANDARD FEATURES

#### Active Air Eliminator

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

#### 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.

#### Turbine Pump Interface

Remote enhanced pump monitoring and control including pump-in-water automation, clogged intake escalation, tank leveling, and tank priority.

#### Intake Filter Screen

Avoid system damage, pumping slowdowns, and reduce filter changes by keeping harmful tank debris, sediment, and corrosion from entering the pumping system with this factory-installed option.

#### 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.

#### 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 fueling industry that spans more than four decades. They feature best-in-class flow rates and a long history of dependability.

#### Quality Certification

Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.



# SPECIFICATIONS

## General

- 1½ Hp fixed speed models are available in variable length and fixed length options.
- Check valve: 70mm diameter fluorocarbon seal constructed with cast aluminum body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 2.8 bar and resets above 2.4 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.

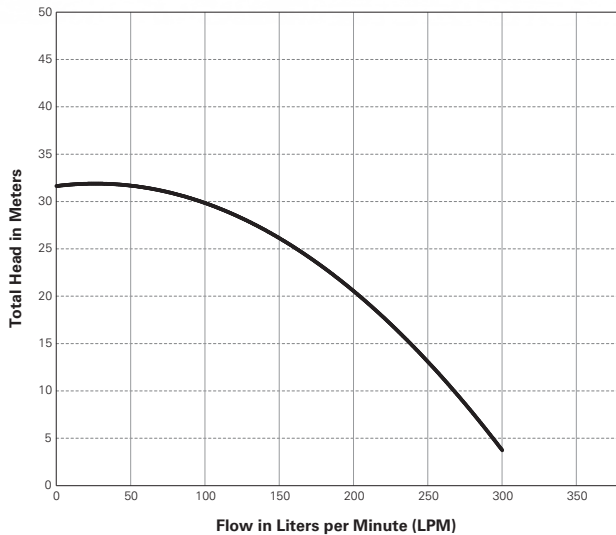
## Pump Motor

- 1½ Hp fixed speed, 2875 rpm, multi-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Standard pressure (three-stage) model, max. pressure = 2.62 bar.
- High pressure (four-stage) model, max. pressure = 3.31 bar.

## Approvals

- cULus listed.
- Consult factory for applicable approvals.

### 1½ Hp Single-Phase Fixed Speed Pump Performance Chart (STP150B)



Note: Performance based on pumping gasoline (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. 150B models are powered by a 250 Volt power supply.

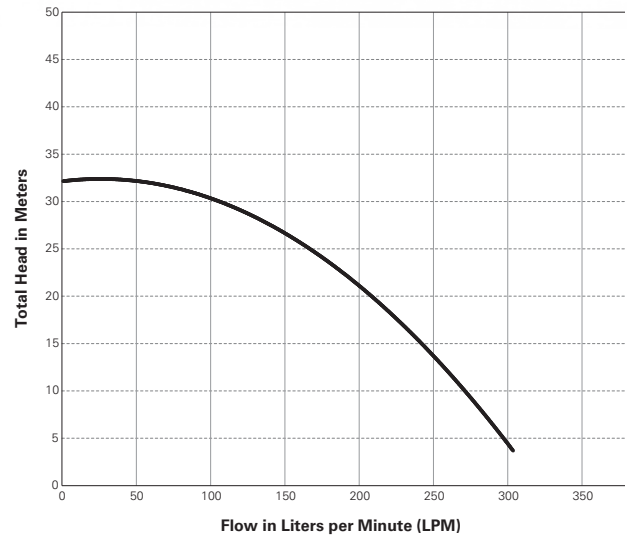
## Power Requirements

- 150B fixed speed models require single-phase, 200-250 VAC, 50 Hz incoming power. 150C fixed speed models require three-phase 380-415 VAV, 50 Hz incoming power.
- 150B fixed speed models incorporate a starting and running capacitor, with internal bleed resistor, rated 440 Volt, 15 microfarad.
- SPGC single-phase Guardian™ Series Controllers and STP-CBBS single-phase control boxes are available for 150B pump control.
- STP-SCIIC three phase controllers and STP-CBB3C three-phase magnetic starters are available for 150C control.
- Max. motor draw: 150B 9 Amps, 150C 3 Amps.

## Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- Standard STP models are UL and cUL listed for fuel mixtures containing up to 10% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- STPAP/STPAG (AG compatible) models are UL 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.
- 1½ Hp fixed speed models can also be used 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.

### 1½ Hp Three-Phase Fixed Speed Pump Performance Chart (STP150C)



Note: Performance based on pumping gasoline (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. 150C models are powered by a 415 Volt power supply.

# ORDERING INFORMATION

## 1½ Hp Fixed Speed Submersible Pump 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

#### STP = Basic Model Designation

**XXXXX = Factory Installed Options** (Model designations may include one or more of the following characters in alphabetical order.)

AP = Advanced Protection with powder-coated, e-coated, and stainless steel components, alcohol-gasoline compatible (up to E85, up to B20, and B100) (Note standard models up to 10% ethanol capable)

AG = Alcohol-gasoline compatible (up to E85, up to B20, and B100) (Note standard models up to 10% ethanol capable)

F = Floating suction adapter (1½" NPT female adapter)

K = Intake filter screen (IFS, factory installed to PMA)

\*R = Model R check valve (1.7 bar relief / 1.5 bar reset for PLLD)

\*W = Model W check valve (1.1 bar relief / 0.9 bar reset for PPM4000)

#### Y = Pump Motor Horsepower Rating

150B = 1½ hp fixed speed, 50 Hz, single-phase

150C = 1½ hp fixed speed, 50 Hz, three-phase

#### A = Model Length (see table)

VL1 = Variable length range #1.

VL2 = Variable length range #2.

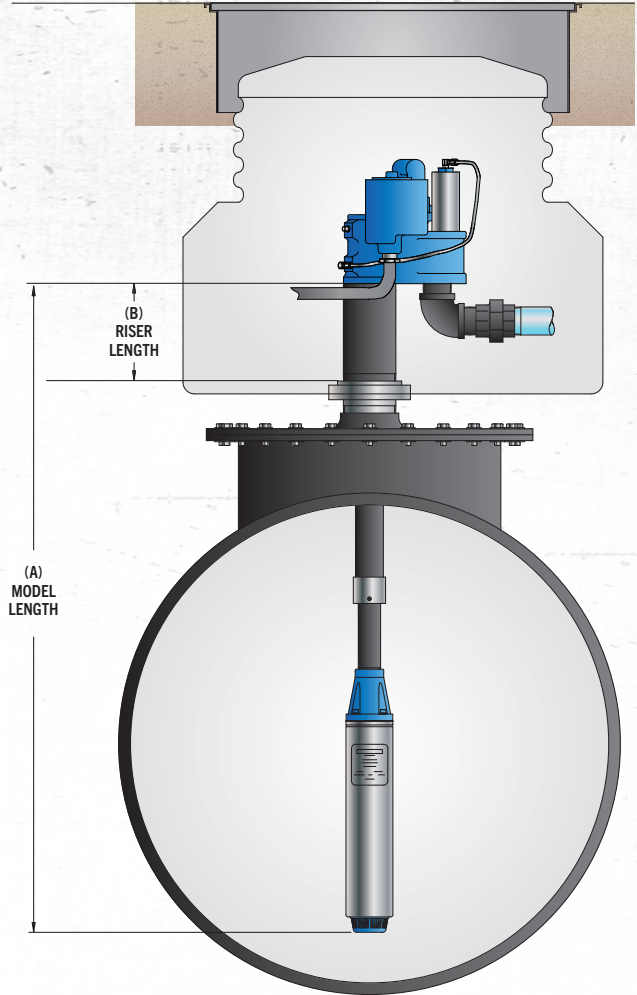
VL3 = Variable length range #3.

(Note VL2 models fit 94% of all known installations)

#### B = Riser Pipe Length (see diagram)

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 25mm increments (additional charge for risers 787mm or longer).

Notes: \*If not otherwise specified, all STP models are supplied with standard model check valve (2.8 bar relief / 2.4 bar reset for MLD, TS-LS300, and TS-LS500).



### Model Length (A)

STP Horsepower	Model Length Range	Model Length Designation
150B 1½ Hp Fixed Speed	1556mm – 2298mm	VL1
	2344mm – 3905mm	VL2
	3156mm – 5499mm	VL3
150C 1½ Hp Fixed Speed	1531mm – 2273mm	VL1
	2318mm – 3879mm	VL2
	3131mm – 5473mm	VL3

Note: High pressure option adds about 13mm to PMA and model length.



## ORDERING INFORMATION

### Single-Phase 1½ Hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range*
STP150B-VL1	1½ Hp fixed speed	VL1	1556mm – 2298mm
STP150B-VL2	1½ Hp fixed speed	VL2	2344mm – 3905mm
STP150B-VL3	1½ Hp fixed speed	VL3	3156mm – 5499mm
STPH150B-VL1	1½ Hp high pressure fixed speed	VL1	1569mm – 2311mm
STPH150B-VL2	1½ Hp high pressure fixed speed	VL2	2357mm – 3918mm
STPH150B-VL3	1½ Hp high pressure fixed speed	VL3	3169mm – 5512mm

### Three-Phase 1½ Hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range*
STP150C-VL1	1½ Hp fixed speed	VL1	1531mm – 2273mm
STP150C-VL2	1½ Hp fixed speed	VL2	2318mm – 3879mm
STP150C-VL3	1½ Hp fixed speed	VL3	3131mm – 5473mm
STPH150C-VL1	1½ Hp high pressure fixed speed	VL1	1544mm – 2286mm
STPH150C-VL2	1½ Hp high pressure fixed speed	VL2	2331mm – 3892mm
STPH150C-VL3	1½ Hp high pressure fixed speed	VL3	3144mm – 5486mm

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

Model	Description	Model Length Range Number	Model Length Range*
STPAG150B-VL1	1½ Hp AG fixed speed	VL1	1556mm – 2298mm
STPAG150B-VL2	1½ Hp AG fixed speed	VL2	2344mm – 3905mm
STPAG150B-VL3	1½ Hp AG fixed speed	VL3	3156mm – 5499mm
STPAGH150B-VL1	1½ Hp AG high pressure fixed speed	VL1	1569mm – 2311mm
STPAGH150B-VL2	1½ Hp AG high pressure fixed speed	VL2	2357mm – 3918mm
STPAGH150B-VL3	1½ Hp AG high pressure fixed speed	VL3	3169mm – 5512mm
STPAP150B-VL1	1½ Hp fixed speed with Advanced Protection	VL1	1556mm – 2298mm
STPAP150B-VL2	1½ Hp fixed speed with Advanced Protection	VL2	2344mm – 3905mm
STPAP150B-VL3	1½ Hp fixed speed with Advanced Protection	VL3	3156mm – 5499mm
STPAPH150B-VL1	1½ Hp high pressure fixed speed with Advanced Protection	VL1	1569mm – 2311mm
STPAPH150B-VL2	1½ Hp high pressure fixed speed with Advanced Protection	VL2	2357mm – 3918mm
STPAPH150B-VL3	1½ Hp high pressure fixed speed with Advanced Protection	VL3	3169mm – 5512mm

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

Model	Description	Model Length Range Number	Model Length Range*
STPAG150C-VL1	1½ Hp AG fixed speed	VL1	1531mm – 2273mm
STPAG150C-VL2	1½ Hp AG fixed speed	VL2	2318mm – 3879mm
STPAG150C-VL3	1½ Hp AG fixed speed	VL3	3131mm – 5473mm
STPAGH150C-VL1	1½ Hp AG high pressure fixed speed	VL1	1544mm – 2286mm
STPAGH150C-VL2	1½ Hp AG high pressure fixed speed	VL2	2331mm – 3892mm
STPAGH150C-VL3	1½ Hp AG high pressure fixed speed	VL3	3144mm – 5486mm
STPAP150C-VL1	1½ Hp fixed speed with Advanced Protection	VL1	1531mm – 2273mm
STPAP150C-VL2	1½ Hp fixed speed with Advanced Protection	VL2	2318mm – 3879mm
STPAP150C-VL3	1½ Hp fixed speed with Advanced Protection	VL3	3131mm – 5473mm
STPAPH150C-VL1	1½ Hp high pressure fixed speed with Advanced Protection	VL1	1544mm – 2286mm
STPAPH150C-VL2	1½ Hp high pressure fixed speed with Advanced Protection	VL2	2331mm – 3892mm
STPAPH150C-VL3	1½ Hp high pressure fixed speed with Advanced Protection	VL3	3144mm – 5486mm

**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/STPAP 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 above 150B models require single-phase, 200-250 VAC, 50 Hz incoming power. All above 150C models require single-phase, 380-450 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 charges apply (call Customer Service for lead times).

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

### Factory Installed Approvals

Specified in model number at time of STP order.

Model	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 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
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

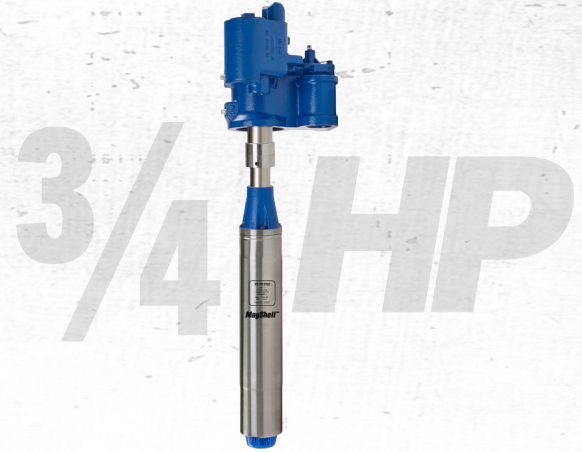
1½ Hp fixed speed specific accessories.

Model	Description
400137937	Syphon check valve, alcohol-gasoline compatible
400818922	STP-CBBS, single-phase control box with lockout switch, 240 Volt coil
402312932	STP-DHIB + SPGC-220 Guardian Series™ Single Phase Smart Controller bundle
402313922	STP-DHIB-CBBS, combo DHIB with factory-wired STP-CBBS single-phase control box
402459931	Model 65 psi (4.5 bar) 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)
5800100220	SPGC-220 Guardian Series™ Single Phase Smart Controller
401220965	STP-CBB3C three-phase, 380-415 VAC magnetic starter
5800103300	STP-SCIIC three-phase, 380-415 VAC smart controller
5800300200	STP-DHIB, dispenser hook isolation for 240 Volt dispenser handle switches, up to eight each



# 3/4 HP SUBMERSIBLE TURBINE PUMPS

FE PETRO® 1½ Hp fixed speed submersible pumps deliver consistent flow rates for low throughput fuels.



## TECHNICAL ADVANTAGES

### OPTIONAL FEATURES

#### Biofuel Compatibility

FE PETRO® pumps are UL listed with both UL79A (up to 85% Ethanol) and UL79B (up to 20% or 100% Biodiesel).

#### Variable Length

The patented telescoping pump shaft lets installers adjust the length of the pump onsite for the perfect fit.

#### Advanced Protection

Stop corrosion in its tracks. Special powder-coated, e-coated, and stainless steel components defend your pump in the tank and in the sump from accelerated corrosion.

### STANDARD FEATURES

#### Active Air Eliminator

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

#### 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.

#### Turbine Pump Interface

Remote enhanced pump monitoring and control including pump-in-water automation, clogged intake escalation, tank leveling, and tank priority.

#### Intake Filter Screen

Avoid system damage, pumping slowdowns, and reduce filter changes by keeping harmful tank debris, sediment, and corrosion from entering the pumping system with this factory-installed option.

#### 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.

#### 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 fueling industry that spans more than four decades. They feature best-in-class flow rates and a long history of dependability.

#### Quality Certification

Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

# SPECIFICATIONS

## General

- ¾ Hp fixed speed models are available in variable length and fixed length options.
- Check valve: 70mm diameter fluorocarbon seal constructed with cast aluminum body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 2.8 bar and resets above 2.4 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

- ¾ Hp fixed speed, 2875 rpm, two-stage centrifugal type pump motor with integral, automatic thermal overload protection.
- ¾ Hp models have a max. pressure of 2.55 bar.

## Approvals

- cULus listed.
- Consult factory for applicable approvals.

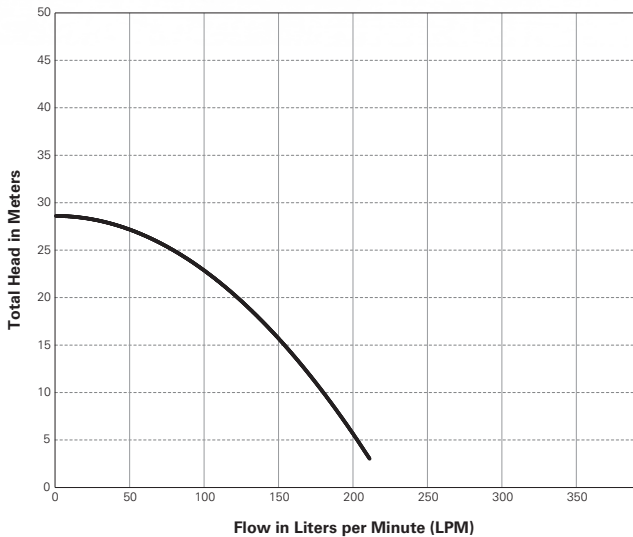
## Power Requirements

- 75B fixed speed models require single-phase, 200-250 VAC, 50 Hz incoming power. 75C fixed speed models require three-phase, 380-415 VAC, 50 Hz incoming power
- 75B fixed speed models incorporate a starting and running capacitor, with internal bleed resistor, rated 440 Volt, 15 microfarad.
- SPGC-220 single-phase Guardian™ Series Controllers and STP-CBBS single-phase control boxes are available for 75B pump control.
- STP-SCIIIC three-phase smart controller and STP-CBB3C three-phase magnetic starter are available for 75C control
- ¾ Hp max. motor draw: 75B 6 Amps, 75C 3 Amps.

## Liquid Compatibility

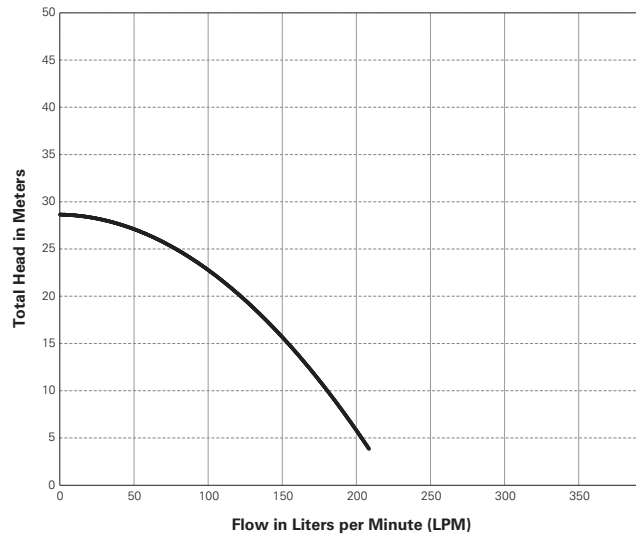
- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- Standard STP models are UL and cUL listed for fuel mixtures containing up to 10% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- STPAG/STPAP (AG compatible) models are UL listed for fuel mixtures containing diesel fuel with up to 20% Biodiesel, 100% Biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- ¾ Hp fixed speed models can also be used 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.

**¾ Hp Single-Phase Fixed Speed Pump Performance Chart (STP75B)**



Note: Performance based on pumping gasoline (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. 75B models are powered by a single-phase, 250 Volt power supply.

**¾ Hp Three-Phase Fixed Speed Pump Performance Chart (STP75C)**



Note: Performance based on pumping gasoline (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. 75C models are powered by a single-phase, 415 Volt power supply.



# ORDERING INFORMATION

## ¾ Hp Fixed Speed Submersible Pump 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

#### STP = Basic Model Designation

**XXXXX = Factory Installed Options** (Model designations may include one or more of the following characters in alphabetical order.)

AP = Advanced Protection with powder-coated, e-coated, and stainless steel components, alcohol-gasoline compatible (up to E85, up to B20, and B100) (Note standard models up to 10% ethanol capable)

AG = Alcohol-gasoline compatible (up to E85, up to B20, and B100) (Note standard models up to 10% ethanol capable)

F = Floating suction adapter (1½" NPT female adapter)

K = Intake filter screen (IFS, factory installed to PMA)

\*R = Model R check valve (1.7 bar relief / 1.5 bar reset for PLLD)

\*W = Model W check valve (1.1 bar relief / 0.9 bar reset for PPM4000)

#### Y = Pump Motor Horsepower Rating

75B = ¾ Hp fixed speed, 50 Hz, single-phase

75C = ¾ Hp fixed speed, 50 Hz, three-phase

#### A = Model Length (see table)

VL1 = Variable length range #1.

VL2 = Variable length range #2.

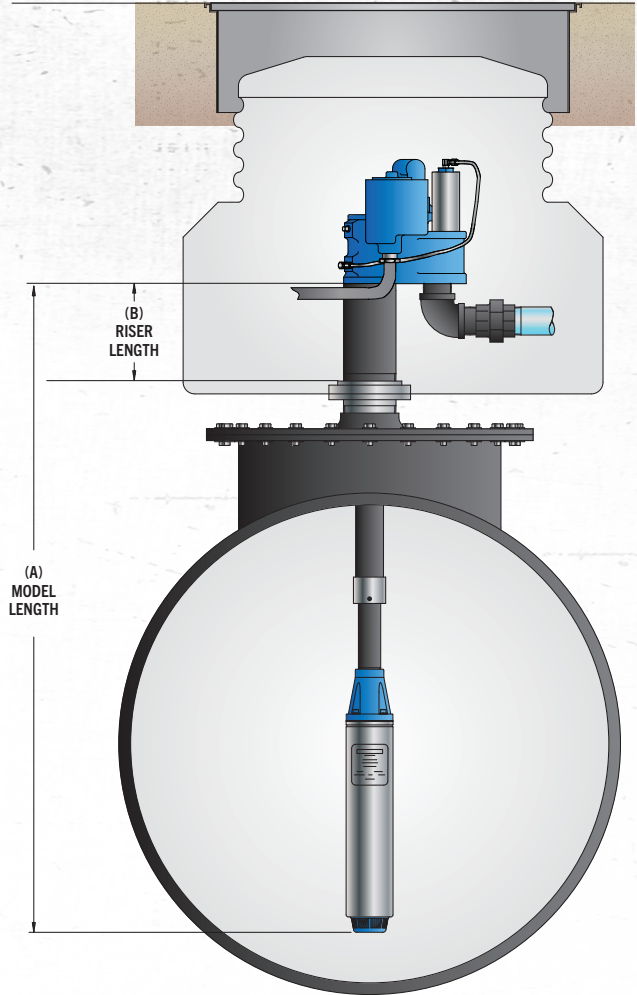
VL3 = Variable length range #3.

(Note VL2 models fit 94% of all known installations)

#### B = Riser Pipe Length (see diagram)

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 25mm increments (additional charge for risers 787mm or longer).

Notes: \*If not otherwise specified, all STP models are supplied with standard model check valve (2.8 bar relief / 2,4 bar reset for MLD, TS-LS300, and TS-LS500).



### Model Length (A)

STP Horsepower	Model Length Range	Model Length Designation
75B ¾ Hp Fixed Speed	1499mm – 2241mm	VL1
	2286mm – 3848mm	VL2
	3099mm – 5441mm	VL3
75C ¾ Hp Fixed Speed	1480mm – 2222mm	VL1
	2267mm – 3829mm	VL2
	3080mm – 5422mm	VL3

## ORDERING INFORMATION

### Single-Phase ¾ Hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range*
STP75B-VL1	¾ Hp fixed speed	VL1	1499mm – 2241mm
STP75B-VL2	¾ Hp fixed speed	VL2	2286mm – 3848mm
STP75B-VL3	¾ Hp fixed speed	VL3	3099mm – 5441mm

### Three-Phase ¾ Hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range*
STP75C-VL1	¾ Hp fixed speed	VL1	1480mm – 2222mm
STP75C-VL2	¾ Hp fixed speed	VL2	2267mm – 3829mm
STP75C-VL3	¾ Hp fixed speed	VL3	3080mm – 5422mm

### Single-Phase Alcohol-Gas (AG) ½ and ¾ Hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range*
STPAG75B-VL1	¾ Hp AG fixed speed	VL1	1499mm – 2241mm
STPAG75B-VL2	¾ Hp AG fixed speed	VL2	2286mm – 3848mm
STPAG75B-VL3	¾ Hp AG fixed speed	VL3	3099mm – 5441mm
STPAP75B-VL1	¾ Hp fixed speed with Advanced Protection	VL1	1499mm – 2241mm
STPAP75B-VL2	¾ Hp fixed speed with Advanced Protection	VL2	2286mm – 3848mm
STPAP75B-VL3	¾ Hp fixed speed with Advanced Protection	VL3	3099mm – 5441mm

### Three-Phase Alcohol-Gas (AG) ½ and ¾ Hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range*
STPAG75C-VL1	¾ Hp AG fixed speed	VL1	1480mm – 2222mm
STPAG75C-VL2	¾ Hp AG fixed speed	VL2	2267mm – 3829mm
STPAG75C-VL3	¾ Hp AG fixed speed	VL3	3080mm – 5422mm
STPAP75C-VL1	¾ Hp fixed speed with Advanced Protection	VL1	1480mm – 2222mm
STPAP75C-VL2	¾ Hp fixed speed with Advanced Protection	VL2	2267mm – 3829mm
STPAP75C-VL3	¾ Hp fixed speed with Advanced Protection	VL3	3080mm – 5422mm

**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/STPAP 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 above 75B models require single-phase, 200-250 VAC, 50 Hz incoming power. All above 75C 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 charges apply. (Call Customer Service for lead times.)

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



## Factory Installed Approvals

Specified in model number at time of STP order.

Model	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 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
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.

Model	Description
400137937	Syphon check valve, alcohol-gasoline compatible
400818922	STP-CBBS, single-phase control box with lockout switch, 240 Volt coil
402312932	STP-DHIB + SPGC-220 Guardian Series™ Single Phase Smart Controller bundle
402313922	STP-DHIB-CBBS, combo DHIB with factory-wired STP-CBBS single-phase control box
402459931	Model 65 psi (4.5 bar) 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)
5800100220	SPGC-220 Guardian Series™ Single Phase Smart Controller
401220965	STP-CBB3C three-phase, 380-415 VAC magnetic starter
5800103300	STP-SCIIC three-phase, 380-415 VAC smart controller
5800300200	STP-DHIB, dispenser hook isolation for 240 Volt dispenser handle switches, up to eight each