Franklin Electric
ENERGY SYSTEMS

# PUMP SELECTION GUIDE



FE PETRO®

FOR 60 Hz MARKETS

FE PETRO®




# SUBMERSIBLE TURBINE PUMPS

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

- 4 Hp, 2Hp, 1 ½ Hp, and ¾ Hp options
- Biofuel compatibility handles ethanol / biodiesel blends
- Advanced protection prevents corrosion / extends pump life
- Variable speed maximizes profits with high flow rates
- MagShell® increases flow rates for higher throughput
- Variable length adjustment ensures perfect onsite fit
- Active air elimination for smooth fuel delivery
- Safe and simple service disconnects and pressure relief
- Intake filter screen keeps debris out / reduces wear
- Intelligent pump controllers maximize uptime

## VARIABLE SPEED TECHNOLOGY

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 and system wear.

## MAGSHELL® PUMP DESIGN

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%.

## TURBINE PUMP INTERFACE

Network pump controllers with the EVO™ Series for remote enhanced pump monitoring and control features including pump-in-water automation, clogged intake escalation, tank leveling/priority, and more.

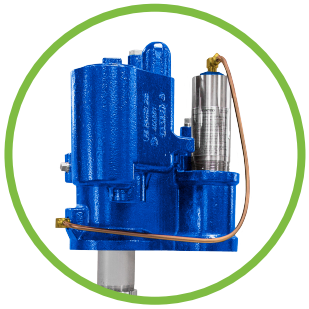
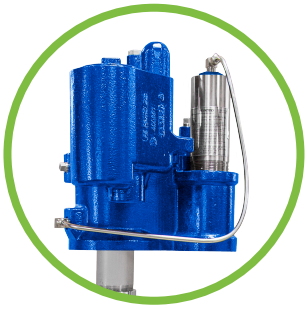
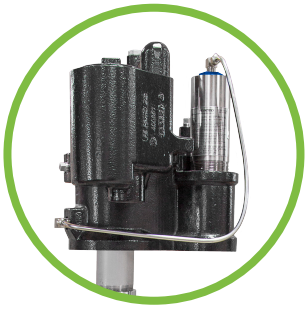
# FEATURE OPTIONS

| | 4 HP | 2 HP | 1½ HP | ¾ HP |
|---|---|---|---|---|
| Variable Speed | ✓ | ✓ | | |
| Fixed Speed | | ✓ | ✓ | ✓ |
| MagShell® | ✓ | ✓ | | |
| Biofuel Compatibility* | ✓ | ✓ | ✓ | ✓ |
| Variable Length | ✓ | ✓ | ✓ | ✓ |
| Fixed 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) and Variable Speed models require VFGC controller to network with EVO™ Series Automatic Tank Gauges.*

# FUEL COMPATIBILITY

| |  |  |  |
|---|---|---|---|
| **Model** | **STP** | **STPAG** | **STPAP** |
| **Description** | Standard Pump | Alcohol-Gas Pump | Advanced Protection Pump |
| **Pump Speed** | Variable Speed / Fixed Speed | Fixed Speed | Fixed Speed |
| **Compatibility** | Up to 10% Ethanol w/ Gas | Up to E85, up to B20, B100 | Up to E85, up to B20, B100 |
| | | | |
| **Model** | | **IST** | **ISTAP** |
| **Description** | | Alcohol-Gas Pump | Advanced Protection Pump |
| **Pump Speed** | | Variable Speed | Variable Speed |
| **Compatibility** | | Up to E85, up to B20, B100 | Up to E85, up to B20, B100 |

## *ADVANCED PROTECTION*

Advanced Protection safeguards pumps from corrosion. It builds on Alcohol-Gas compatible pumps with upgraded materials including powder-coating, E-coating, and stainless steel for enhanced durability. Choose this added level of protection for Ultra Low Sulfur Diesel applications, aboveground tanks, marinas, and aviation applications.

# THE BENEFITS OF VARIABLE SPEED PUMPING

Introduced in 1997, FE PETRO® variable speed submersible turbine pumps (STPs) were the first of their kind for the petroleum equipment industry.

Variable speed systems ramp up the system's horsepower as needed to provide optimal flow rates at fueling points. This results in faster and more consistent flow rates at peak business times compared to fixed speed systems. These benefits are something only Franklin Electric variable speed STPs, the industry's highest performing 4" diameter STPs, can provide.




### *FASTER, SMARTER FUELING*

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 operators to maximize profits while mitigating operating expenses.

### *CONSISTENT CUSTOMER EXPERIENCE*

Variable speed pumps ensure consistent flow rates, even during peak demand, providing customers with faster fueling and a smoother experience at the dispenser, reducing wait times and improving overall satisfaction.

### *PREVENT EQUIPMENT WEAR*

Minimize sudden pressure spikes, known as hydraulic hammer, that occur during sudden stoppages in flow. These spikes can be exaggerated in fixed speed systems and lead to accelerated equipment wear and damage.




## VARIABLE FREQUENCY GUARDIAN CONTROLLER

The Guardian Series™ Variable Frequency Guardian Controller (VFGC) brings advanced precision and efficiency to fueling operations. Designed to optimize performance, this intelligent controller adjusts pump motor speed in real time to maintain consistent fuel flow, even during peak demand.

# BUILDING A PUMP MODEL NUMBER

A typical STP 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 = Standard

STPAG = Alcohol-gas, fixed speed

IST = Alcohol-gas, variable speed

STPAP = Advanced protection, fixed speed

ISTAP = Advanced protection, variable speed

**YYYYY = Factory Installed Options**

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

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

R = Model R check valve (24 psi relief/22 psi reset for PLLD)

**Z = Pump Motor Horsepower Rating**

VS4 = 4 Hp variable speed

MVS2 = 2 Hp variable speed

M200 = 2 Hp fixed speed

150 = 1½ Hp fixed speed

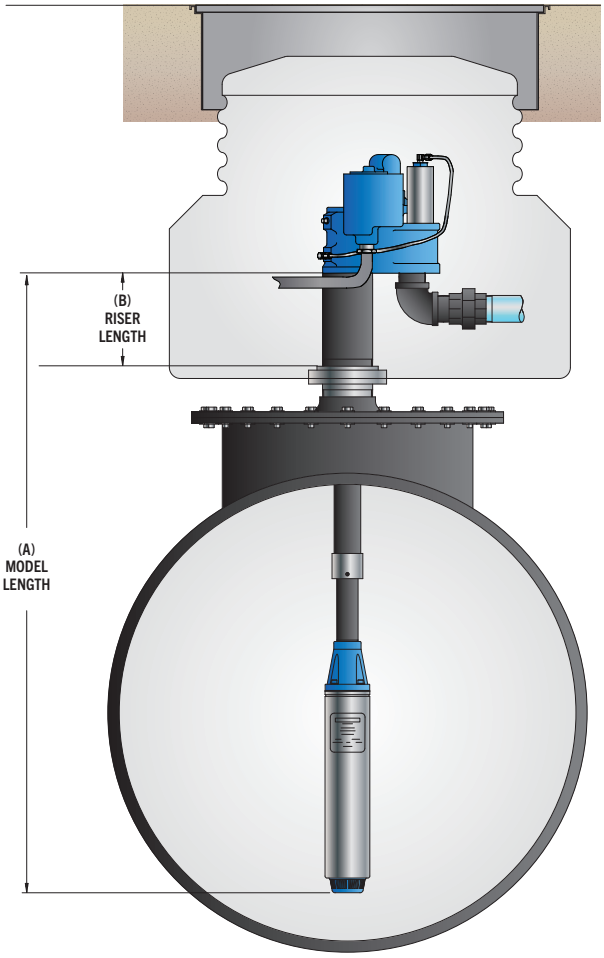
HM200 = 2 Hp Hi-PSI fixed speed

**A = Model Length (see diagram)**

Each model will have a unique variable length range to choose from. See datasheets for specific details.

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

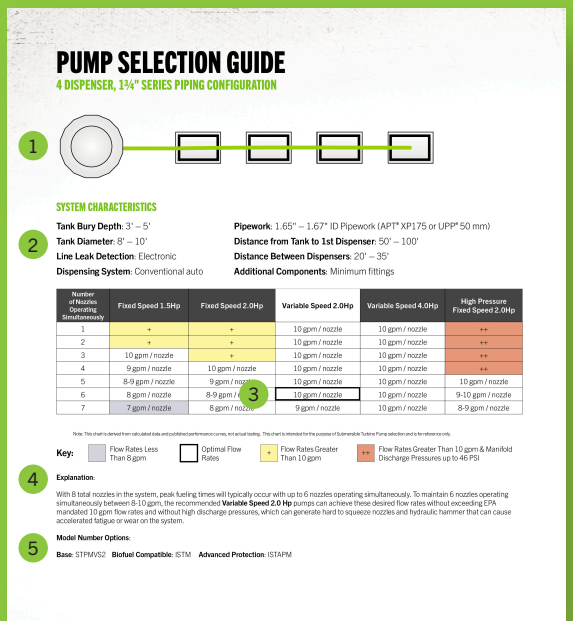
Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 7" to 60" in 1" increments (additional charge for risers 31" or longer).




# HOW TO DETERMINE HORSEPOWER RATING

This guide will help you determine the right Pump Horsepower Rating for your application.

1. Find the system layout that best represents your application using the dispenser count, pipework diameter, and visual pipework layout guide.
2. Review the common system characteristics.
3. Select the appropriate pump to achieve optimal flow rates for the number of nozzles operating simultaneously (recommendation highlighted in black box).
4. Review the pump recommendation explanation.
5. Choose the specific pump model from options included based on the type of fuel for your application.



**PUMP SELECTION GUIDE**

4 DISPENSER, 1¾" SERIES PIPING CONFIGURATION

1

SYSTEM CHARACTERISTICS

2

**Tank Bury Depth**: 3' – 5'
**Tank Diameter**: 8' – 10'
**Line Leak Detection**: Electronic
**Dispensing System**: Conventional auto
**Pipework**: 1.65" – 1.67" ID Pipework (APT® XP175 or UPP® 50 mm)
**Distance from Tank to 1st Dispenser**: 50' – 100'
**Distance Between Dispensers**: 20' – 35'
**Additional Components**: Minimum fittings

| Number of Nozzles Operating Simultaneously | Fixed Speed 1.5Hp | Fixed Speed 2.0Hp | Variable Speed 2.0Hp | Variable Speed 4.0Hp | High Pressure Fixed Speed 2.0Hp |
|---|---|---|---|---|---|
| 1 | + | + | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 2 | + | + | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 3 | 10 gpm / nozzle | + | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 4 | 9 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 5 | 8-9 gpm / nozzle | 9 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle |
| 6 | 8 gpm / nozzle | 8-9 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 9-10 gpm / nozzle |
| 7 | 7 gpm / nozzle | 8 gpm / nozzle | 9 gpm / nozzle | 10 gpm / nozzle | 8-9 gpm / nozzle |

3

Note: This chart is derived from calculated data and published performance curves, not actual testing. This chart is intended for the purpose of Submersible Turbine Pump selection and is for reference only.

Key: Flow Rates Less Than 8 gpm | Optimal Flow Rates | + Flow Rates Greater Than 10 gpm | ++ Flow Rates Greater Than 10 gpm & Manifold Discharge Pressures up to 46 PSI

4

**Explanation:**

With 8 total nozzles in the system, peak fueling times will typically occur with up to 6 nozzles operating simultaneously. To maintain 6 nozzles operating simultaneously between 8-10 gpm, the recommended **Variable Speed 2.0 Hp** pumps can achieve these desired flow rates without exceeding EPA mandated 10 gpm flow rates and without high discharge pressures, which can generate hard to squeeze nozzles and hydraulic hammer that can cause accelerated fatigue or wear on the system.

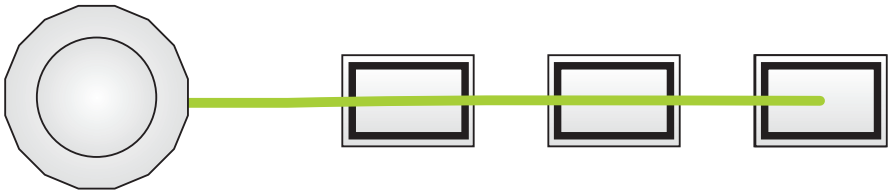
5

**Model Number Options:**

**Base**: STPMVS2 **Biofuel Compatible:** ISTM **Advanced Protection:** ISTAPM

# PUMP SELECTION GUIDE

## 3 DISPENSER, 1½" SERIES PIPING CONFIGURATION



## SYSTEM CHARACTERISTICS

**Tank Bury Depth**: 3' – 5'

**Tank Diameter**: 8' – 10'

**Line Leak Detection**: Electronic

**Dispensing System**: Conventional auto

**Pipework**: 1.39" – 1.41" ID Pipework (APT® XP150)

**Distance from Tank to 1st Dispenser**: 50' – 100'

**Distance Between Dispensers**: 20' – 35'

**Additional Components**: Minimum fittings

| Number of Nozzles Operating Simultaneously | Fixed Speed 1.5Hp | Fixed Speed 2.0Hp | Variable Speed 2.0Hp | Variable Speed 4.0Hp | High Pressure Fixed Speed 2.0Hp |
|---|---|---|---|---|---|
| 1 | + | + | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 2 | + | + | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 3 | 9-10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 4 | 8-9 gpm / nozzle | 9 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 5 | 7-8 gpm / nozzle | 8-9 gpm / nozzle | 9-10 gpm / nozzle | 10 gpm / nozzle | 9 gpm / nozzle |
| 6 | 7 gpm / nozzle | 7-8 gpm / nozzle | 8-9 gpm / nozzle | 9 gpm / nozzle | 8 gpm / nozzle |

Note: This chart is derived from calculated data and published performance curves, not actual testing. This chart is intended for the purpose of Submersible Turbine Pump selection and is for reference only.

**Key:**

- Flow Rates Less Than 8 gpm
- Optimal Flow Rates
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**Explanation**:

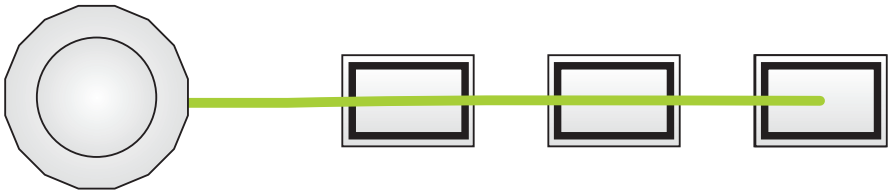
With 6 total nozzles in the system, peak fueling times will typically occur with up to 5 nozzles operating simultaneously. To maintain 5 nozzles operating simultaneously between 8-10 gpm, the recommended **Variable Speed 2.0 Hp** pumps can achieve these desired flow rates without exceeding 10pm and without high discharge pressures that can generate hard to squeeze nozzles and hydraulic hammer on the system.

**Model Number Options**:

**Base**: STPMVS2 **Biofuel Compatible**: ISTM **Advanced Protection**: ISTAPM

# PUMP SELECTION GUIDE

## 3 DISPENSER, 1¾" SERIES PIPING CONFIGURATION



## SYSTEM CHARACTERISTICS

**Tank Bury Depth**: 3' – 5'

**Tank Diameter**: 8' – 10'

**Line Leak Detection**: Electronic

**Dispensing System**: Conventional auto

**Pipework**: 1.65" – 1.67" ID Pipework (APT® XP175)

**Distance from Tank to 1st Dispenser**: 50' – 100'

**Distance Between Dispensers**: 20' – 35'

**Additional Components**: Minimum fittings

| Number of Nozzles Operating Simultaneously | Fixed Speed 1.5Hp | Fixed Speed 2.0Hp | Variable Speed 2.0Hp | Variable Speed 4.0Hp | High Pressure Fixed Speed 2.0Hp |
|---|---|---|---|---|---|
| 1 | + | + | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 2 | + | + | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 3 | 10 gpm / nozzle | + | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 4 | 9-10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 5 | 8-9 gpm / nozzle | 9-10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle |
| 6 | 8 gpm / nozzle | 8-9 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 9-10 gpm / nozzle |

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**Key:**

- Flow Rates Less Than 8 gpm
- Optimal Flow Rates
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**Explanation**:

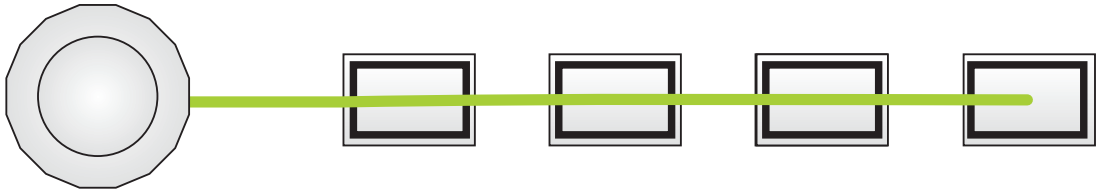
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**Model Number Options**:

**Base**: STPMVS2 **Biofuel Compatible**: ISTM **Advanced Protection**: ISTAPM

# PUMP SELECTION GUIDE

## 4 DISPENSER, 1½" SERIES PIPING CONFIGURATION



## SYSTEM CHARACTERISTICS

**Tank Bury Depth**: 3' – 5'

**Tank Diameter**: 8' – 10'

**Line Leak Detection**: Electronic

**Dispensing System**: Conventional auto

**Pipework**: 1.39" – 1.41" ID Pipework (APT® XP150)

**Distance from Tank to 1st Dispenser**: 50' – 100'

**Distance Between Dispensers**: 20' – 35'

**Additional Components**: Minimum fittings

| Number of Nozzles Operating Simultaneously | Fixed Speed 1.5Hp | Fixed Speed 2.0Hp | Variable Speed 2.0Hp | Variable Speed 4.0Hp | High Pressure Fixed Speed 2.0Hp |
|---|---|---|---|---|---|
| 1 | + | + | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 2 | + | + | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 3 | 9-10 gpm / nozzle | 9-10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 4 | 8-9 gpm / nozzle | 9 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 5 | 7-8 gpm / nozzle | 8-9 gpm / nozzle | 9-10 gpm / nozzle | 10 gpm / nozzle | 9 gpm / nozzle |
| 6 | < 7 gpm / nozzle | 7 gpm / nozzle | 8-9 gpm / nozzle | 9 gpm / nozzle | 8 gpm / nozzle |
| 7 | < 7 gpm / nozzle | < 7 gpm / nozzle | 7-8 gpm / nozzle | 8 gpm / nozzle | 7 gpm / nozzle |
| 8 | < 7 gpm / nozzle | < 7 gpm / nozzle | 7 gpm / nozzle | 7-8 gpm / nozzle | < 7 gpm / nozzle |

Note: This chart is derived from calculated data and published performance curves, not actual testing. This chart is intended for the purpose of Submersible Turbine Pump selection and is for reference only.

**Key:**

- Flow Rates Less Than 8 gpm
- Optimal Flow Rates
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- ++ Flow Rates Greater Than 10 gpm & Manifold Discharge Pressures up to 46 PSI

**Explanation**:

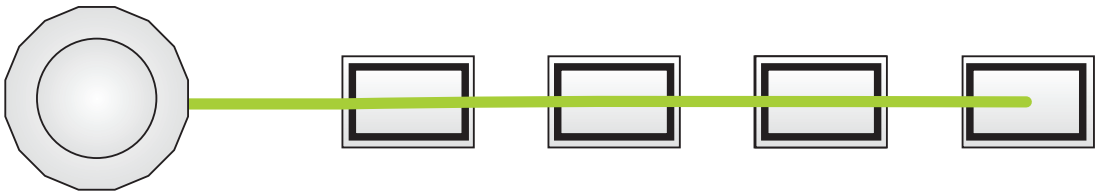
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**Model Number Options**:

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# PUMP SELECTION GUIDE

## 4 DISPENSER, 1¾" SERIES PIPING CONFIGURATION



## SYSTEM CHARACTERISTICS

**Tank Bury Depth**: 3' – 5'

**Tank Diameter**: 8' – 10'

**Line Leak Detection**: Electronic

**Dispensing System**: Conventional auto

**Pipework**: 1.65" – 1.67" ID Pipework (APT® XP175 or UPP® 50 mm)

**Distance from Tank to 1st Dispenser**: 50' – 100'

**Distance Between Dispensers**: 20' – 35'

**Additional Components**: Minimum fittings

| Number of Nozzles Operating Simultaneously | Fixed Speed 1.5Hp | Fixed Speed 2.0Hp | Variable Speed 2.0Hp | Variable Speed 4.0Hp | High Pressure Fixed Speed 2.0Hp |
|---|---|---|---|---|---|
| 1 | + | + | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 2 | + | + | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 3 | 10 gpm / nozzle | + | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 4 | 9 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 5 | 8-9 gpm / nozzle | 9 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle |
| 6 | 8 gpm / nozzle | 8-9 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 9-10 gpm / nozzle |
| 7 | 7 gpm / nozzle | 8 gpm / nozzle | 9 gpm / nozzle | 10 gpm / nozzle | 8-9 gpm / nozzle |
| 8 | < 7 gpm / nozzle | 7-8 gpm / nozzle | 8-9 gpm / nozzle | 9-10 gpm / nozzle | 8 gpm / nozzle |

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**Key:**

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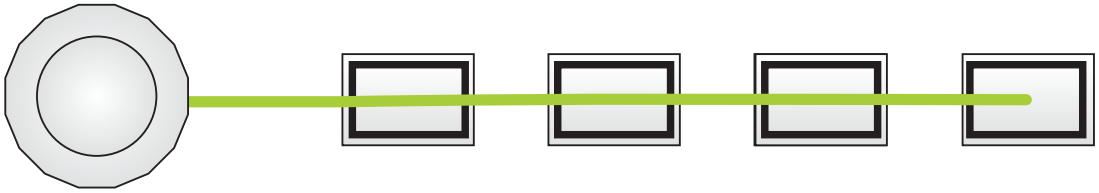
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**Model Number Options**:

**Base**: STPMVS2 **Biofuel Compatible**: ISTM **Advanced Protection**: ISTAPM

# PUMP SELECTION GUIDE

## 4 DISPENSER, 2" SERIES PIPING CONFIGURATION



## SYSTEM CHARACTERISTICS

**Tank Bury Depth**: 3' – 5'

**Tank Diameter**: 8' – 10'

**Line Leak Detection**: Electronic

**Dispensing System**: Conventional auto

**Pipework**: 2.04" – 2.12" ID Pipework (APT® XP200 or UPP® 63 mm)

**Distance from Tank to 1st Dispenser**: 50' – 100'

**Distance Between Dispensers**: 20' – 35'

**Additional Components**: Minimum fittings

| Number of Nozzles Operating Simultaneously | Fixed Speed 1.5Hp | Fixed Speed 2.0Hp | Variable Speed 2.0Hp | Variable Speed 4.0Hp | High Pressure Fixed Speed 2.0Hp |
|---|---|---|---|---|---|
| 1 | + | + | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 2 | + | + | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 3 | + | + | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 4 | 9-10 gpm / nozzle | + | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 5 | 9 gpm / nozzle | 9-10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 6 | 8-9 gpm / nozzle | 9 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle |
| 7 | 7-8 gpm / nozzle | 8-9 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 9 gpm / nozzle |
| 8 | 7-8 gpm / nozzle | 8 gpm / nozzle | 9 gpm / nozzle | 10 gpm / nozzle | 8-9 gpm / nozzle |

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**Key:**

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**Explanation**:

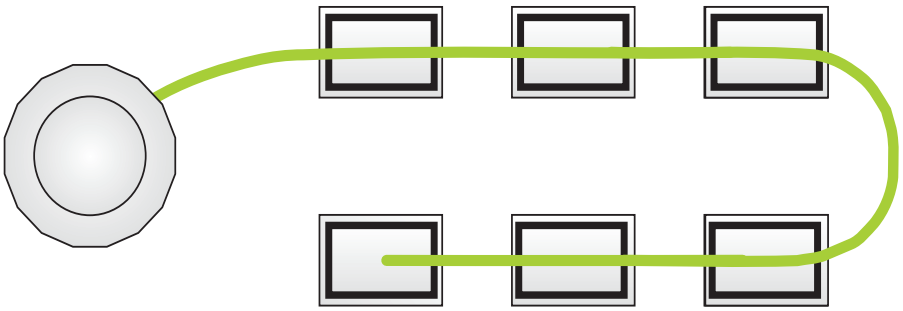
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**Model Number Options**:

**Base**: STPMVS2 **Biofuel Compatible**: ISTM **Advanced Protection**: ISTAPM

# PUMP SELECTION GUIDE

## 6 DISPENSER, 2" SERIES PIPING CONFIGURATION



## SYSTEM CHARACTERISTICS

**Tank Bury Depth**: 3' – 5'

**Tank Diameter**: 8' – 10'

**Line Leak Detection**: Electronic

**Dispensing System**: Conventional auto

**Pipework**: 2.04" – 2.12" ID Pipework (APT® XP200 or UPP® 63 mm)

**Distance from Tank to 1st Dispenser**: 50' – 100'

**Distance Between Dispensers**: 20' – 35'

**Additional Components**: Minimum fittings

| Number of Nozzles Operating Simultaneously | Variable Speed 2.0Hp | Variable Speed 4.0Hp | 2x Manifolded Variable Speed 2.0Hp | 2x Manifolded Fixed Speed 2.0Hp | 2x Manifolded Hi-PSI Fixed Speed 2.0Hp |
|---|---|---|---|---|---|
| 1 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 2 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 3 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 4 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 5 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 6 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 7 | 9-10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 9-10 gpm / nozzle | ++ |
| 8 | 9 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 9-10 gpm / nozzle | ++ |
| 9 | 8-9 gpm / nozzle | 9-10 gpm / nozzle | 10 gpm / nozzle | 9 gpm / nozzle | 9-10 gpm / nozzle |
| 10 | 7-8 gpm / nozzle | 9 gpm / nozzle | 10 gpm / nozzle | 8-9 gpm / nozzle | 9-10 gpm / nozzle |
| 11 | 7-8 gpm / nozzle | 8-9 gpm / nozzle | 9-10 gpm / nozzle | 8-9 gpm / nozzle | 9 gpm / nozzle |
| 12 | < 7 gpm / nozzle | 7-8 gpm / nozzle | 9 gpm / nozzle | 8 gpm / nozzle | 8-9 gpm / nozzle |

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**Key:**

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**Explanation**:

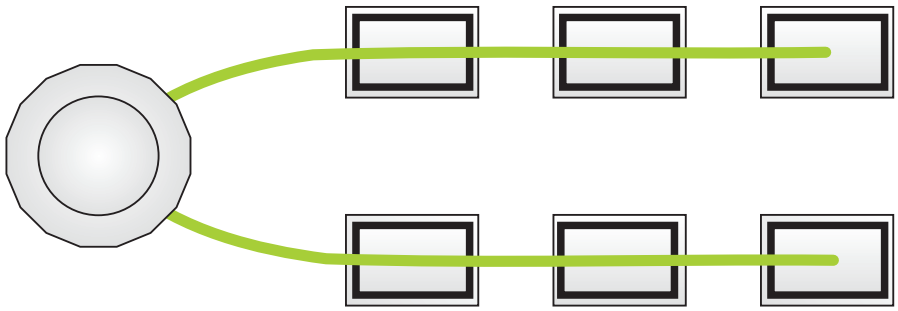
With 12 total nozzles in the system, peak fueling times will typically occur with up to 9 nozzles operating simultaneously. To maintain 8-9 nozzles operating simultaneously between 8-10 gpm, the recommended **STP MVS4 Variable Speed 4.0 Hp** or **Manifolded STP MVS2 Variable Speed 2.0 Hp** pumps can achieve these desired flow rates without exceeding EPA mandated 10 gpm flow rates and without high discharge pressures, which can generate hard to squeeze nozzles and hydraulic hammer that can cause accelerated fatigue or wear on the system.

**Model Number Options**:

**Base**: STPMVS4 / (2x) STPMVS2 **Biofuel Compatible**: ISTMVS4 / (2x) ISTM **Advanced Protection**: ISTAPMVS4 / (2x) ISTAPM

# PUMP SELECTION GUIDE

## 6 DISPENSER, 1½" PARALLEL PIPING CONFIGURATION



## SYSTEM CHARACTERISTICS

**Tank Bury Depth**: 3' – 5'

**Tank Diameter**: 8' – 10'

**Line Leak Detection**: Electronic

**Dispensing System**: Conventional auto

**Pipework**: 1.39" – 1.41" ID Pipework (APT® XP150)

**Distance from Tank to 1st Dispenser**: 50' – 100'

**Distance Between Dispensers**: 20' – 35'

**Additional Components**: Minimum fittings and common pipe

| Number of Nozzles Operating Simultaneously | Variable Speed 2.0Hp | Variable Speed 4.0Hp | 2x Manifolded Variable Speed 2.0Hp | 2x Manifolded Fixed Speed 2.0Hp | 2x Manifolded Hi-PSI Fixed Speed 2.0Hp |
|---|---|---|---|---|---|
| 1 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 2 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 3 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 4 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 5 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 6 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 9-10 gpm / nozzle | ++ |
| 7 | 9-10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 9-10 gpm / nozzle | ++ |
| 8 | 8-9 gpm / nozzle | 9-10 gpm / nozzle | 10 gpm / nozzle | 9 gpm / nozzle | ++ |
| 9 | 8 gpm / nozzle | 9 gpm / nozzle | 10 gpm / nozzle | 8-9 gpm / nozzle | 9-10 gpm / nozzle |
| 10 | 7-8 gpm / nozzle | 8-9 gpm / nozzle | 9-10 gpm / nozzle | 8-9 gpm / nozzle | 9 gpm / nozzle |
| 11 | 7 gpm / nozzle | 8 gpm / nozzle | 9 gpm / nozzle | 7-8 gpm / nozzle | 8-9 gpm / nozzle |
| 12 | > 7 gpm / nozzle | 7-8 gpm / nozzle | 8-9 gpm / nozzle | 7-8 gpm / nozzle | 8 gpm / nozzle |

Note: This chart is derived from calculated data and published performance curves, not actual testing. This chart is intended for the purpose of Submersible Turbine Pump selection and is for reference only.

**Key:**

- Flow Rates Less Than 8 gpm
- Optimal Flow Rates
- \+ Flow Rates Greater Than 10 gpm
- ++ Flow Rates Greater Than 10 gpm & Manifold Discharge Pressures up to 46 PSI

**Explanation**:

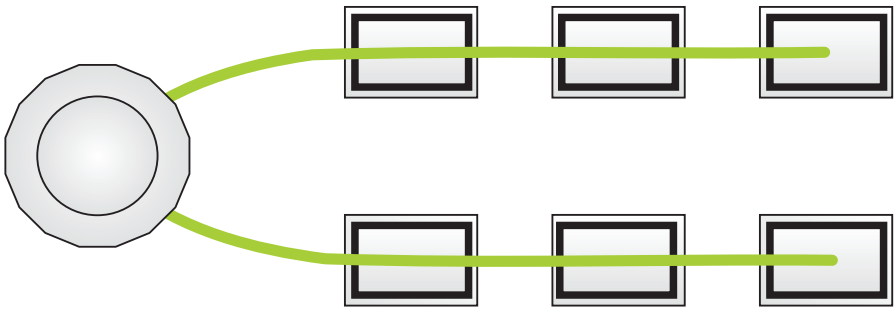
With 12 total nozzles in the system, peak fueling times will typically occur with up to 9 nozzles operating simultaneously. To maintain 8-9 nozzles operating simultaneously between 8-10 gpm, the recommended **Variable Speed 4.0 Hp** or **Manifolded Variable Speed 2.0 Hp** pumps can achieve these desired flow rates without exceeding EPA mandated 10 gpm flow rates and without high discharge pressures, which can generate hard to squeeze nozzles and hydraulic hammer that can cause accelerated fatigue or wear on the system.

**Model Number Options**:

**Base**: STPMVS4 / (2x) STPMVS2 **Biofuel Compatible**: ISTMVS4 / (2x) ISTM **Advanced Protection**: ISTAPMVS4 / (2x) ISTAPM

# PUMP SELECTION GUIDE

## 6 DISPENSER, 1¾" PARALLEL PIPING CONFIGURATION



## SYSTEM CHARACTERISTICS

**Tank Bury Depth**: 3' – 5'

**Tank Diameter**: 8' – 10'

**Line Leak Detection**: Electronic

**Dispensing System**: Conventional auto

**Pipework**: 1.65" – 1.67" ID Pipework (APT® XP175 or UPP® 50 mm)

**Distance from Tank to 1st Dispenser**: 50' – 100'

**Distance Between Dispensers**: 20' – 35'

**Additional Components**: Minimum fittings and common pipe

| Number of Nozzles Operating Simultaneously | Variable Speed 2.0Hp | Variable Speed 4.0Hp | 2x Manifolded Variable Speed 2.0Hp | 2x Manifolded Fixed Speed 2.0Hp | 2x Manifolded Hi-PSI Fixed Speed 2.0Hp |
|---|---|---|---|---|---|
| 1 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 2 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 3 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 4 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 5 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 6 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 7 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 8 | 9 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 9-10 gpm / nozzle | ++ |
| 9 | 8-9 gpm / nozzle | 9-10 gpm / nozzle | 10 gpm / nozzle | 9-10 gpm / nozzle | ++ |
| 10 | 8 gpm / nozzle | 9 gpm / nozzle | 10 gpm / nozzle | 9 gpm / nozzle | 10 gpm / nozzle |
| 11 | 7-8 gpm / nozzle | 8-9 gpm / nozzle | 10 gpm / nozzle | 8-9 gpm / nozzle | 9-10 gpm / nozzle |
| 12 | 7 gpm / nozzle | 8 gpm / nozzle | 9-10 gpm / nozzle | 8-9 gpm / nozzle | 9-10 gpm / nozzle |

Note: This chart is derived from calculated data and published performance curves, not actual testing. This chart is intended for the purpose of Submersible Turbine Pump selection and is for reference only.

**Key:**

- Flow Rates Less Than 8 gpm
- Optimal Flow Rates
- \+ Flow Rates Greater Than 10 gpm
- ++ Flow Rates Greater Than 10 gpm & Manifold Discharge Pressures up to 46 PSI

**Explanation**:

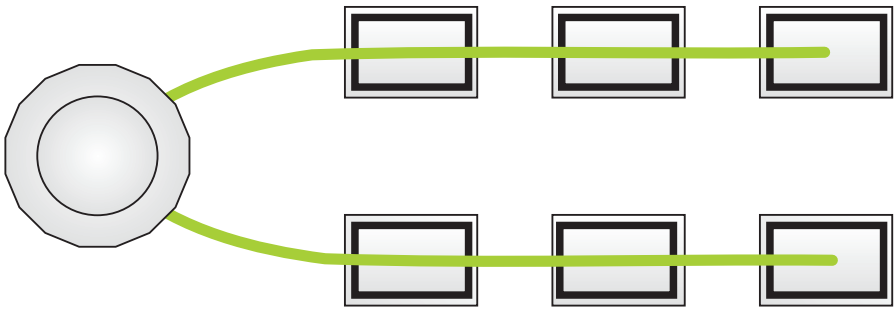
With 12 total nozzles in the system, peak fueling times will typically occur with up to 9 nozzles operating simultaneously. To maintain 8-9 nozzles operating simultaneously between 8-10 gpm, the recommended **Variable Speed 4.0 Hp** or **Manifolded Variable Speed 2.0 Hp** pumps can achieve these desired flow rates without exceeding EPA mandated 10 gpm flow rates and without high discharge pressures, which can generate hard to squeeze nozzles and hydraulic hammer that can cause accelerated fatigue or wear on the system.

**Model Number Options**:

**Base**: STPMVS4 / (2x) STPMVS2 **Biofuel Compatible**: ISTMVS4 / (2x) ISTM **Advanced Protection**: ISTAPMVS4 / (2x) ISTAPM

# PUMP SELECTION GUIDE

## 6 DISPENSER, 2" PARALLEL PIPING CONFIGURATION



## SYSTEM CHARACTERISTICS

**Tank Bury Depth**: 3' – 5'

**Tank Diameter**: 8' – 10'

**Line Leak Detection**: Electronic

**Dispensing System**: Conventional auto

**Pipework**: 2.04" – 2.12" ID Pipework (APT® XP200 or UPP® 63 mm)

**Distance from Tank to 1st Dispenser**: 50' – 100'

**Distance Between Dispensers**: 20' – 35'

**Additional Components**: Minimum fittings and common pipe

| Number of Nozzles Operating Simultaneously | Variable Speed 2.0Hp | Variable Speed 4.0Hp | 2x Manifolded Variable Speed 2.0Hp | 2x Manifolded Fixed Speed 2.0Hp | 2x Manifolded Hi-PSI Fixed Speed 2.0Hp |
|---|---|---|---|---|---|
| 1 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 2 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 3 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 4 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 5 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 6 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 7 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 8 | 9-10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 9 | 8-9 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 10 | 8-9 gpm / nozzle | 9-10 gpm / nozzle | 10 gpm / nozzle | 9-10 gpm / nozzle | ++ |
| 11 | 7-8 gpm / nozzle | 9 gpm / nozzle | 10 gpm / nozzle | 9-10 gpm / nozzle | ++ |
| 12 | 7-8 gpm / nozzle | 8-9 gpm / nozzle | 10 gpm / nozzle | 9 gpm / nozzle | 10 gpm / nozzle |

Note: This chart is derived from calculated data and published performance curves, not actual testing. This chart is intended for the purpose of Submersible Turbine Pump selection and is for reference only.

**Key:**

- Flow Rates Less Than 8 gpm
- Optimal Flow Rates
- \+ Flow Rates Greater Than 10 gpm
- ++ Flow Rates Greater Than 10 gpm & Manifold Discharge Pressures up to 46 PSI

**Explanation**:

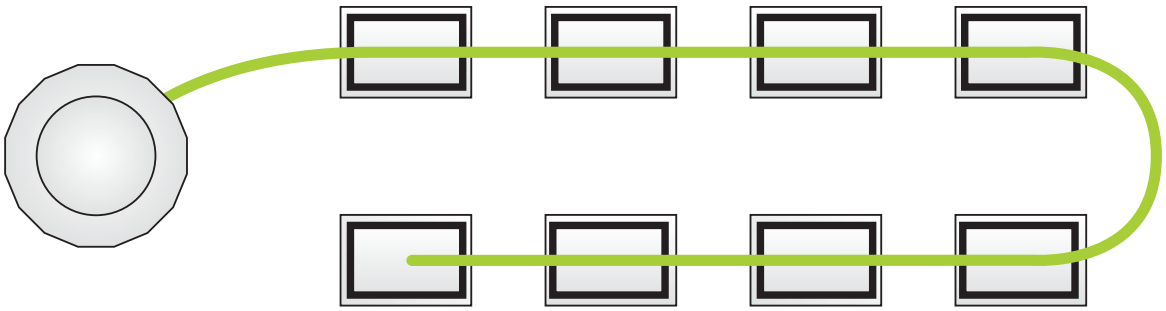
With 12 total nozzles in the system, peak fueling times will typically occur with up to 9 nozzles operating simultaneously. To maintain 8-9 nozzles operating simultaneously between 8-10 gpm, the recommended **Variable Speed 4.0 Hp** or **Manifolded Variable Speed 2.0 Hp** pumps can achieve these desired flow rates without exceeding EPA mandated 10 gpm flow rates and without high discharge pressures, which can generate hard to squeeze nozzles and hydraulic hammer that can cause accelerated fatigue or wear on the system.

**Model Number Options**:

**Base**: STPMVS4 / (2x) STPMVS2 **Biofuel Compatible**: ISTMVS4 / (2x) ISTM **Advanced Protection**: ISTAPMVS4 / (2x) ISTAPM

# PUMP SELECTION GUIDE

## 8 DISPENSER, 2" SERIES PIPING CONFIGURATION



## SYSTEM CHARACTERISTICS

**Tank Bury Depth**: 3' – 5'

**Tank Diameter**: 8' – 10'

**Line Leak Detection**: Electronic

**Dispensing System**: Conventional auto

**Pipework**: 2.04" – 2.12" ID Pipework (APT® XP200 or UPP® 63 mm)

**Distance from Tank to 1st Dispenser**: 50' – 100'

**Distance Between Dispensers**: 20' – 35'

**Additional Components**: Minimum fittings

| Number of Nozzles Operating Simultaneously | Variable Speed 4.0Hp | 2x Manifolded Variable Speed 2.0Hp | 2x Manifolded Variable Speed 4.0Hp | 2x Manifolded Fixed Speed 2.0Hp | 2x Manifolded Hi-PSI Fixed Speed 2.0Hp |
|---|---|---|---|---|---|
| 1 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 2 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 3 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 4 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 5 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 6 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 7 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 8 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 9 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 9-10 gpm / nozzle | ++ |
| 10 | 9-10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 9-10 gpm / nozzle | 10 gpm / nozzle |
| 11 | 8-9 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 8-9 per nozzle | 9-10 gpm / nozzle |
| 12 | 8 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 8-9 gpm / nozzle | 9-10 gpm / nozzle |
| 13 | 7-8 gpm / nozzle | 9-10 gpm / nozzle | 10 gpm / nozzle | 8-9 gpm / nozzle | 8-9 gpm / nozzle |
| 14 | 7-8 gpm / nozzle | 9 gpm / nozzle | 10 gpm / nozzle | 7-8 gpm / nozzle | 8-9 gpm / nozzle |
| 15 | < 7 gpm / nozzle | 8-9 gpm / nozzle | 9-10 gpm / nozzle | 7-8 gpm / nozzle | 8-9 gpm / nozzle |
| 16 | < 7 gpm / nozzle | 8-9 gpm / nozzle | 9-10 gpm / nozzle | 7-8 gpm / nozzle | 7-8 gpm / nozzle |

Note: This chart is derived from calculated data and published performance curves, not actual testing. This chart is intended for the purpose of Submersible Turbine Pump selection and is for reference only.

**Key:**

- Flow Rates Less Than 8 gpm
- Optimal Flow Rates
- \+ Flow Rates Greater Than 10 gpm
- ++ Flow Rates Greater Than 10 gpm & Manifold Discharge Pressures up to 46 PSI

**Explanation**:

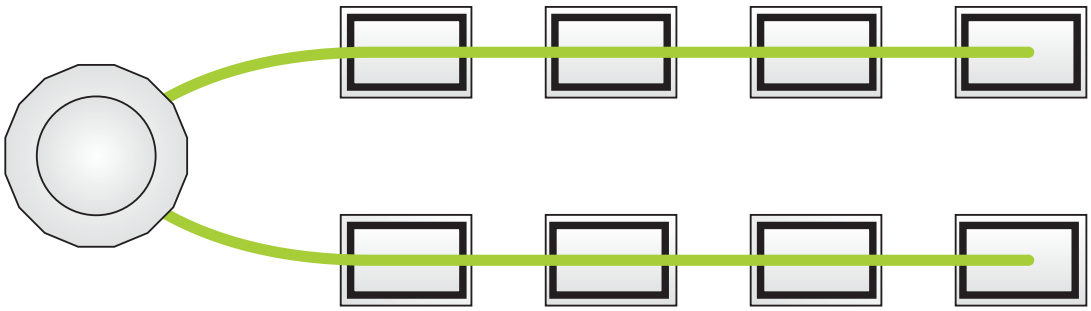
With 16 total nozzles in the system, peak fueling times will typically occur with up to 12 nozzles operating simultaneously. To maintain 10-12 nozzles operating simultaneously between 8-10 gpm, the recommended **Manifolded Variable Speed 2.0 Hp** or **Manifolded Variable Speed 4.0 Hp** pumps can achieve these desired flow rates without exceeding EPA mandated 10 gpm flow rates and without high discharge pressures, which can generate hard to squeeze nozzles and hydraulic hammer that can cause accelerated fatigue or wear on the system.

**Model Number Options**:

**Base**: (2x) STPMVS2 / (2x) STPMVS4 **Biofuel Compatible**: (2x) ISTM / (2x) ISTMVS4 **Advanced Protection**: (2x) ISTAPM / (2x) ISTMVS4

# PUMP SELECTION GUIDE

## 8 DISPENSER, 1½" PARALLEL PIPING CONFIGURATION



## SYSTEM CHARACTERISTICS

**Tank Bury Depth**: 3' – 5'

**Tank Diameter**: 8' – 10'

**Line Leak Detection**: Electronic

**Dispensing System**: Conventional auto

**Pipework**: 1.39" – 1.41" ID Pipework (APT® XP150)

**Distance from Tank to 1st Dispenser**: 50' – 100'

**Distance Between Dispensers**: 20' – 35'

**Additional Components**: Minimum fittings and common pipe

| # Of Nozzles Operating Simultaneously | Variable Speed 4.0Hp | 2x Manifolded Variable Speed 2.0Hp | 2x Manifolded Variable Speed 4.0Hp | 2x Manifolded Fixed Speed 2.0Hp | 2x Manifolded Hi-PSI Fixed Speed 2.0Hp |
|---|---|---|---|---|---|
| 1 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 2 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 3 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 4 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 5 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 6 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 9-10 gpm / nozzle | ++ |
| 7 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 9-10 gpm / nozzle | ++ |
| 8 | 9-10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 9 gpm / nozzle | ++ |
| 9 | 9 gpm / nozzle | 9-10 gpm / nozzle | 10 gpm / nozzle | 8-9 gpm / nozzle | 9-10 gpm / nozzle |
| 10 | 8-9 gpm / nozzle | 9-10 gpm / nozzle | 9-10 gpm / nozzle | 8 gpm / nozzle | 9 gpm / nozzle |
| 11 | 8 gpm / nozzle | 9 gpm / nozzle | 9-10 gpm / nozzle | 7-8 gpm / nozzle | 8-9 gpm / nozzle |
| 12 | 7-8 gpm / nozzle | 8-9 gpm / nozzle | 9 gpm / nozzle | 7-8 gpm / nozzle | 8 gpm / nozzle |
| 13 | 7 gpm / nozzle | 8 gpm / nozzle | 8-9 gpm / nozzle | 7 gpm / nozzle | 7-8 gpm / nozzle |
| 14 | < 7 gpm / nozzle | 7-8 gpm / nozzle | 8 gpm / nozzle | < 7 gpm / nozzle | 7-8 gpm / nozzle |
| 15 | < 7 gpm / nozzle | 7-8 gpm / nozzle | 7-8gpm / nozzle | < 7 gpm / nozzle | 7 gpm / nozzle |
| 16 | < 7 gpm / nozzle | 7 gpm / nozzle | 7-8 gpm / nozzle | < 7 gpm / nozzle | < 7 gpm / nozzle |

Note: This chart is derived from calculated data and published performance curves, not actual testing. This chart is intended for the purpose of Submersible Turbine Pump selection and is for reference only.

**Key:**

- Flow Rates Less Than 8 gpm
- Optimal Flow Rates
- \+ Flow Rates Greater Than 10 gpm
- ++ Flow Rates Greater Than 10 gpm & Manifold Discharge Pressures up to 46 PSI

**Explanation**:

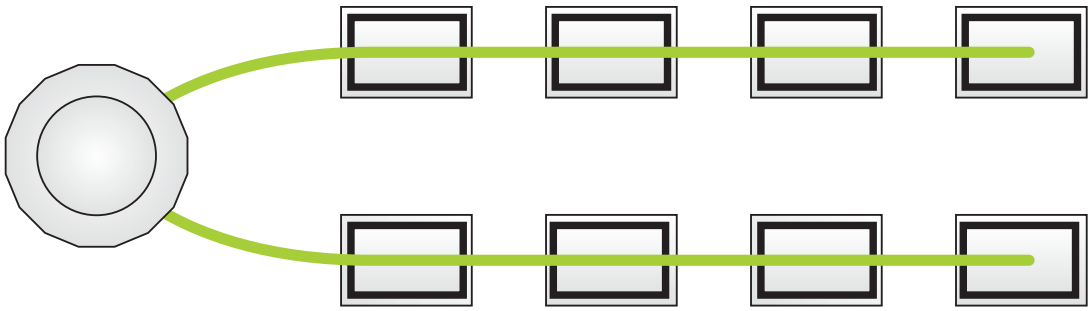
With 16 total nozzles in the system, peak fueling times will typically occur with up to 12 nozzles operating simultaneously. To maintain 10-12 nozzles operating simultaneously between 8-10 gpm, the recommended **Manifolded Variable Speed 2.0 Hp** or **Manifolded Variable Speed 4.0 Hp** pumps can achieve these desired flow rates without exceeding EPA mandated 10 gpm flow rates and without high discharge pressures, which can generate hard to squeeze nozzles and hydraulic hammer that can cause accelerated fatigue or wear on the system.

**Model Number Options**:

**Base**: (2x) STPMVS2 / (2x) STPMVS4 **Biofuel Compatible**: (2x) ISTM / (2x) ISTMVS4 **Advanced Protection**: (2x) ISTAPM / (2x) ISTAPMVS4

# PUMP SELECTION GUIDE

## 8 DISPENSER, 1¾" PARALLEL PIPING CONFIGURATION



## SYSTEM CHARACTERISTICS

**Tank Bury Depth**: 3' – 5'

**Tank Diameter**: 8' – 10'

**Line Leak Detection**: Electronic

**Dispensing System**: Conventional auto

**Pipework**: 1.65" – 1.67" ID Pipework (APT® XP175 or UPP® 50 mm)

**Distance from Tank to 1st Dispenser**: 50' – 100'

**Distance Between Dispensers**: 20' – 35'

**Additional Components**: Minimum fittings and common pipe

| # Of Nozzles Operating Simultaneously | Variable Speed 4.0Hp | 2x Manifolded Variable Speed 2.0Hp | 2x Manifolded Variable Speed 4.0Hp | 2x Manifolded Fixed Speed 2.0Hp | 2x Manifolded Hi-PSI Fixed Speed 2.0Hp |
|---|---|---|---|---|---|
| 1 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 2 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 3 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 4 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 5 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 6 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 7 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 8 | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 9-10 gpm / nozzle | ++ |
| 9 | 9-10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 9-10 gpm / nozzle | ++ |
| 10 | 9 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 9 gpm / nozzle | 9-10 gpm / nozzle |
| 11 | 8-9 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 8-9 gpm / nozzle | 9-10 gpm / nozzle |
| 12 | 8 gpm / nozzle | 9-10 gpm / nozzle | 10 gpm / nozzle | 8-9 gpm / nozzle | 9 gpm / nozzle |
| 13 | 7-8 gpm / nozzle | 9-10 gpm / nozzle | 10 gpm / nozzle | 8 gpm / nozzle | 8-9 gpm / nozzle |
| 14 | 7-8 gpm / nozzle | 8-9 gpm / nozzle | 9-10 gpm / nozzle | 7-8 gpm / nozzle | 8-9 gpm / nozzle |
| 15 | < 7 gpm / nozzle | 8-9 gpm / nozzle | 9-10 gpm / nozzle | 7-8 gpm / nozzle | 8 gpm / nozzle |
| 16 | < 7 gpm / nozzle | 8 gpm / nozzle | 9 gpm / nozzle | 7 gpm / nozzle | 7-8 gpm / nozzle |

Note: This chart is derived from calculated data and published performance curves, not actual testing. This chart is intended for the purpose of Submersible Turbine Pump selection and is for reference only.

**Key:**

- Flow Rates Less Than 8 gpm
- Optimal Flow Rates
- \+ Flow Rates Greater Than 10 gpm
- ++ Flow Rates Greater Than 10 gpm & Manifold Discharge Pressures up to 46 PSI

**Explanation**:

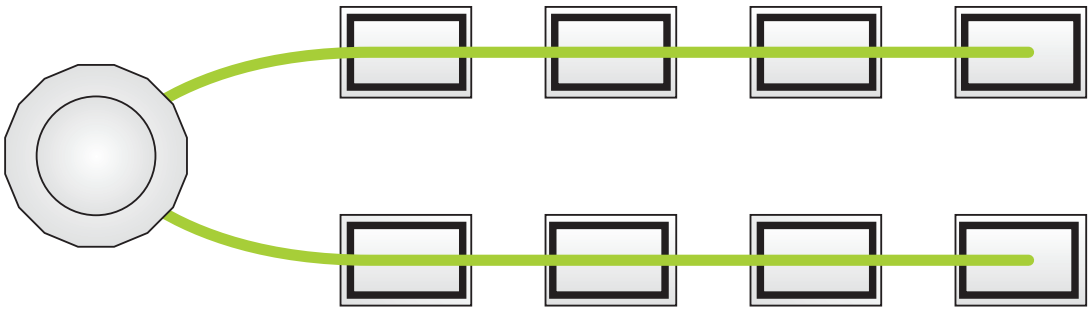
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**Model Number Options**:

**Base**: (2x) STPMVS2 / (2x) STPMVS4 **Biofuel Compatible**: (2x) ISTM / (2x) ISTMVS4 **Advanced Protection**: (2x) ISTAPM / (2x) ISTAPMVS4

# PUMP SELECTION GUIDE

## 8 DISPENSER, 2" PARALLEL PIPING CONFIGURATION



## SYSTEM CHARACTERISTICS

**Tank Bury Depth**: 3' – 5'

**Tank Diameter**: 8' – 10'

**Line Leak Detection**: Electronic

**Dispensing System**: Conventional auto

**Pipework**: 2.04" – 2.12" ID Pipework (APT® XP200 or UPP® 63 mm)

**Distance from Tank to 1st Dispenser**: 50' – 100'

**Distance Between Dispensers**: 20' – 35'

**Additional Components**: Minimum fittings and common pipe

| # Of Nozzles Operating Simultaneously | Variable Speed 4.0Hp | 2x Manifolded Variable Speed 2.0Hp | 2x Manifolded Variable Speed 4.0Hp | 2x Manifolded Fixed Speed 2.0Hp | 2x Manifolded Hi-PSI Fixed Speed 2.0Hp |
|---|---|---|---|---|---|
| 1 | 10 gpm per nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 2 | 10 gpm per nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 3 | 10 gpm per nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 4 | 10 gpm per nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 5 | 10 gpm per nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 6 | 10 gpm per nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 7 | 10 gpm per nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 8 | 10 gpm per nozzle | 10 gpm / nozzle | 10 gpm / nozzle | + | ++ |
| 9 | 10 gpm per nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | ++ |
| 10 | 9-10 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 9-10 gpm / nozzle | ++ |
| 11 | 9 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 9-10 gpm / nozzle | ++ |
| 12 | 8-9 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 9-10 gpm / nozzle | 9-10 gpm / nozzle |
| 13 | 8 gpm / nozzle | 10 gpm / nozzle | 10 gpm / nozzle | 8-9 gpm / nozzle | 9-10 gpm / nozzle |
| 14 | 7-8 gpm / nozzle | 9-10 gpm / nozzle | 10 gpm / nozzle | 8-9 gpm / nozzle | 9-10 gpm / nozzle |
| 15 | 7 gpm / nozzle | 9-10 gpm / nozzle | 10 gpm / nozzle | 8-9 gpm / nozzle | 8-9 gpm / nozzle |
| 16 | < 7 gpm / nozzle | 9 per nozzle | 10 gpm / nozzle | 8 gpm / nozzle | 8-9 gpm / nozzle |

Note: This chart is derived from calculated data and published performance curves, not actual testing. This chart is intended for the purpose of Submersible Turbine Pump selection and is for reference only.

**Key:**

- Flow Rates Less Than 8 gpm
- Optimal Flow Rates
- \+ Flow Rates Greater Than 10 gpm
- ++ Flow Rates Greater Than 10 gpm & Manifold Discharge Pressures up to 46 PSI

**Explanation**:

With 16 total nozzles in the system, peak fueling times will typically occur with up to 12 nozzles operating simultaneously. To maintain 10-12 nozzles operating simultaneously between 8-10 gpm, the recommended **Manifolded Variable Speed 2.0 Hp** or **Manifolded Variable Speed 4.0 Hp** pumps can achieve these desired flow rates without exceeding EPA mandated 10 gpm flow rates and without high discharge pressures, which can generate hard to squeeze nozzles and hydraulic hammer that can cause accelerated fatigue or wear on the system.

**Model Number Options**:

**Base**: (2x) STPMVS2 / (2x) STPMVS4 **Biofuel Compatible**: (2x) ISTM / (2x) ISTMVS4 **Advanced Protection**: (2x) ISTAPM / (2x) ISTMVS4

# SUBMERSIBLE TURBINE PUMP SPECIFICATIONS

## GENERAL

- The entire pumping assembly shall have UL listing and shall meet all requirements of UL Standard UL 79 as a minimum. Other international safety approvals to be available as applicable.
- The pump discharge head and manifold assembly shall be manufactured from ASTM A48 Class 25 gray iron.
- The pump shall be available in various horsepower sizes of fixed and variable speed designs capable of operating with common single and three-phase incoming power supplies.
- The pump will be manufactured to a proper length as determined by the tank diameter, type and bury depth. An optional variable length (VL) telescopic column pipe feature shall be provided such that the length of the pump is field adjusted at the job site to fit the specific application without impact to safety approvals.
- The pump motor shall have a thermal over-current overload protector with automatic reset.
- The pump motor assembly shall be clearly marked with pertinent information including Model, Horsepower, Voltage, Phase, and other pertinent information as applicable.
- Fixed speed single-phase pump motors shall be a permanent split phase capacitor with internal shunt resistor design, and shall incorporate a 15 µF capacitor for up to 1½ horsepower motors and incorporate a 40 µF capacitor for 2 horsepower motors.
- The pump shall be UL listed for blend concentrations of:

| **Standard Models** | |
|---|---|
| 0% – 10% Ethanol with gasoline | 20% MTBE with 80% gasoline |
| 20% ETBE with 80% gasoline | 17% TAME with 83% gasoline |
| **AG (Alcohol/Gasoline) Models (including STPAG/IST/STPAP/ISTAP Models)** | |
| Diesel with up to 20% biodiesel, or 100% biodiesel | 20% MTBE with 80% gasoline |
| 0% - 85% ethanol and gasoline | 17% TAME with 83% gasoline |
| 20% ETBE with 80% gasoline | |

- The pumping unit shall not incorporate any flexible diaphragms and all sealing shall be accomplished with O-rings or UL recognized gaskets.
- The pump shall be rated to operate between -40° F (-40° C) and 104° F (40° C) with non-gelled product.
- Franklin Electric shall manufacture the pump with FE PETRO® branding.

# SUBMERSIBLE TURBINE PUMP SPECIFICATIONS

## INSTALLATION AND MAINTENANCE

- The pump shall have a two or three-wire field connection depending on single or three-phase models and an easy access ground wire terminal, and shall incorporate a wire retainer which will accommodate these wires.
- The pump shall incorporate a port for line pressure testing that shall be sealed with a ¼" NPT pipe plug.
- The pump head shall be equipped with a manual pressure relief screw to manually drop line pressure to zero by venting line pressure into storage tank. Purpose of this function is to avoid fuel spraying into dispenser and pump containment sumps during any routine service requiring piping to be opened to atmosphere such as filter replacement or leak detector maintenance.
- The pump unit shall have a fully extractable head in order to permit removal of the pump motor assembly without disturbing the discharge piping, product in the pipelines downstream of the check valve, siphoning system with siphon check valve installed, or the electrical wiring.
- During the removal of the extractable portion of the pump, product contained in the discharge manifold of the pump shall drain automatically into the storage tank.
- The pump will be equipped as standard with a 2¾" line check valve that incorporates a line relief mechanism with various settings to meet different line leak detection methodologies.
- The line check valve shall be independent of the removable head and shall be easily accessible.

## OPERATION

- The pump shall have an air/vapor elimination system that returns air or vapors to the underground storage tank through a tube.
- The pump unit shall contain a built-in expansion relief valve that relieves pressure at or above pumping pressure but below 50 psi as standard. Other pressure relief settings required by electronic line leak detection shall be available.
- The pump motor shall utilize the product being pumped for lubrication of the motor bearings and for cooling the stator, and this fluid shall discharge into the underground storage tank at the top of the motor.
- The pump shall have siphon capability built into the pump as standard.

# TOTAL SYSTEM SOLUTIONS™



FE PETRO®

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