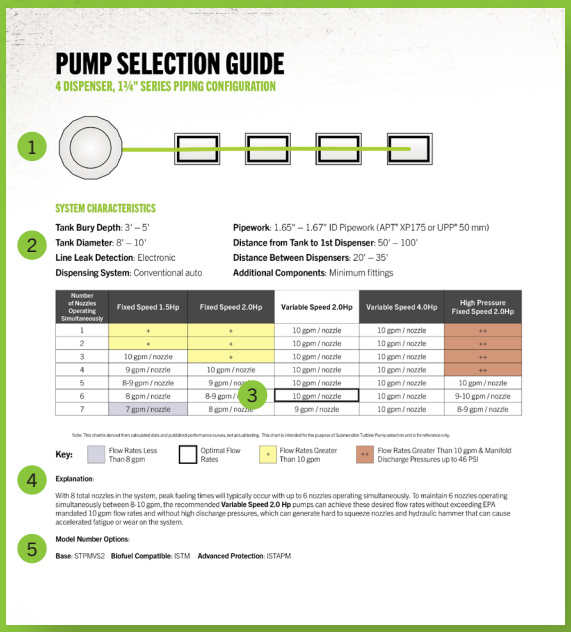
Franklin Fueling Systems

60 Hz SUBMERSIBLE PUMPS
SELECTION GUIDE

HOW IT WORKS

Use these key system factors to help you determine the right pump 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 green).
4. Review the pump recommendation explanation.
5. Choose the specific pump model from options including base, biofuel compatibility, and advanced protection models.



PUMP SELECTION GUIDE

4 DISPENSER, 1¼" 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, and 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

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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

CHOOSING VARIABLE SPEED

When you fully understand your sites flow rates needs you are able to make a sound submersible turbine pump (STP) selection. Choosing variable speed STPs will help you meet your flow rate needs with faster fill times during peak hours and power savings during non-peak hours. FE PETRO® brand variable speed STPs allow you to maximize profits while minimizing operating expenses and protecting your site from accelerated wear.

HIGHER FLOW RATES

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

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

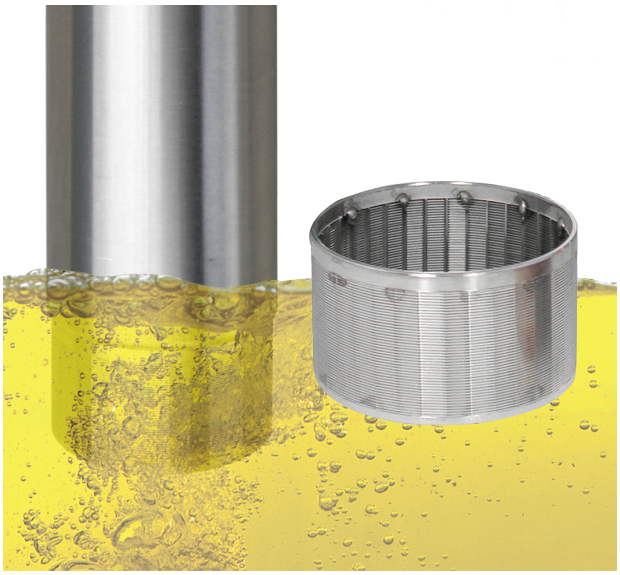
MINIMIZE HYDRAULIC HAMMER

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

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

BIOFUEL COMPATIBILITY

As the demand for biofuels continues to grow, FE PETRO® brand Alcohol-Gas (AG) optioned submersible turbine pumps are at the forefront of motor fuel compatibility. Service station customers demand it, make sure you can provide it.



BIOFUEL APPROVED

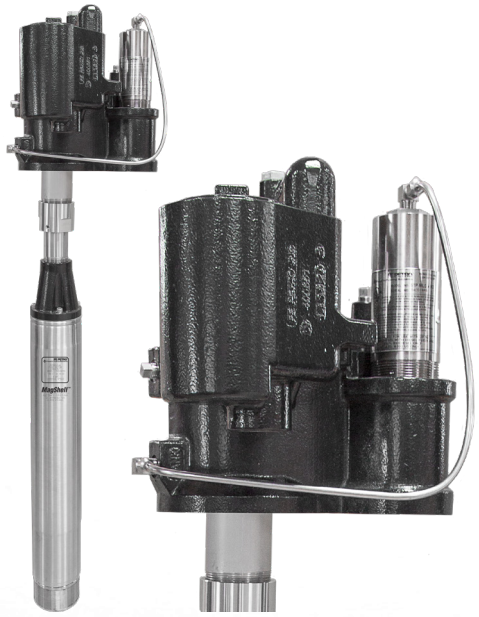
FE PETRO® brand STPAG and IST models of STPs are currently the only STPs UL listed for use with gasoline up to 85% ethanol (E85) and diesel fuel with up to 20% biodiesel (B20) or 100% biodiesel according to UL79A and UL79B respectively.

INTAKE FILTER SCREENS

As biofuel use continues to grow, so does the potential for increased debris inside the storage tank. To stop this debris from entering the pumping system, use an FE PETRO® brand Intake Filter Screen (IFS). When installed, an IFS adds only about 1" to the length of the PMA and provides filtration down to about the size of a grain of sand (0.009" openings).

ADVANCED PROTECTION

Available as an option on Alcohol-Gasoline (AG) compatible STPs, Advanced Protection defends pumps from accelerated corrosion caused by the acetic byproduct of microbial activity. Building on the AG construction for biofuel compatibility, the Advanced Protection option includes additional upgraded materials for a greater level of protection. Choose this added level of protection for installations where additional corrosion protection is needed including Ultra Low Sulfur Diesel applications, aboveground storage tanks, marinas, and aviation applications.



FACTORY INSTALLED

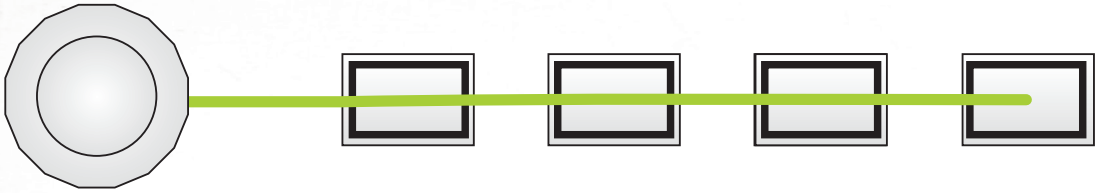
Advanced Protection is a factory installed option on STPAG and IST biofuel compatible models.

PROTECTIVE MATERIALS

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

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

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:

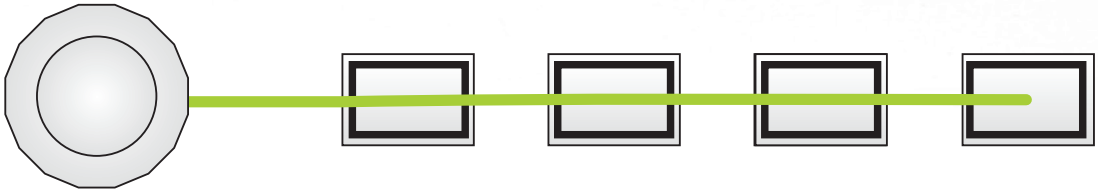
With 8 total nozzles in the system, peak fueling times will typically occur with up to 6 nozzles operating simultaneously. To maintain 6 nozzles operating simultaneously between 8-10 gpm, the recommended **Variable Speed 2.0 Hp** pumps can achieve these desired flow rates without exceeding EPA mandated 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.

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

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:

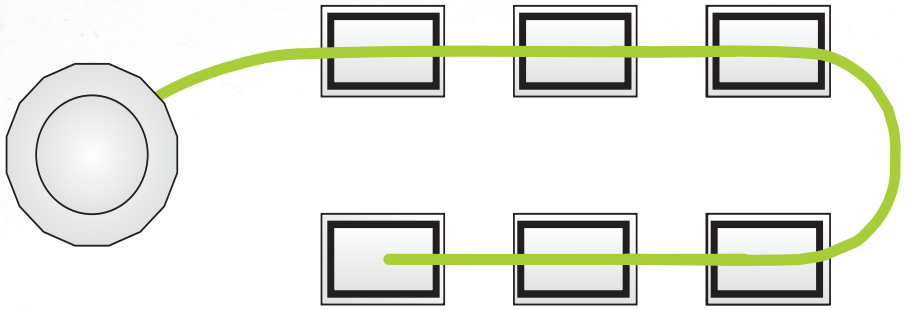
With 8 total nozzles in the system, peak fueling times will typically occur with up to 6 nozzles operating simultaneously. To maintain 6 nozzles operating simultaneously between 8-10 gpm, the recommended **Variable Speed 2.0 Hp** pumps can achieve these desired flow rates without exceeding EPA mandated 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.

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

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:

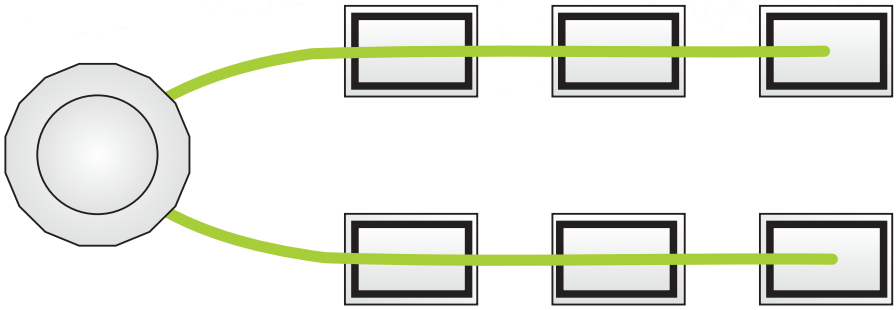
With 12 total nozzles in the system, peak fueling times will typically occur with up to 9 nozzles operating simultaneously. To maintain 8-9 nozzles operating simultaneously between 8-10 gpm, the recommended **STP MVS4 Variable Speed 4.0 Hp** or **Manifolded STP MVS2 Variable Speed 2.0 Hp** pumps can 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, 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:

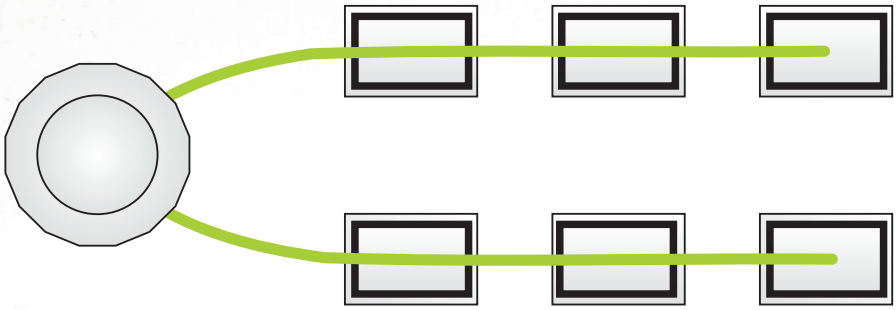
With 12 total nozzles in the system, peak fueling times will typically occur with up to 9 nozzles operating simultaneously. To maintain 8-9 nozzles operating simultaneously between 8-10 gpm, the recommended **Variable Speed 4.0 Hp** or **Manifolded Variable Speed 2.0 Hp** pumps can achieve these desired 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:

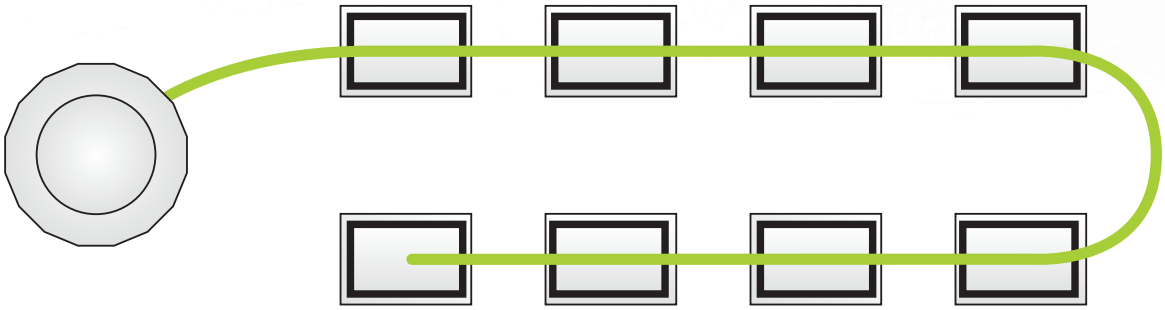
With 12 total nozzles in the system, peak fueling times will typically occur with up to 9 nozzles operating simultaneously. To maintain 8-9 nozzles operating simultaneously between 8-10 gpm, the recommended **Variable Speed 4.0 Hp** or **Manifolded Variable Speed 2.0 Hp** pumps can achieve these desired 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:

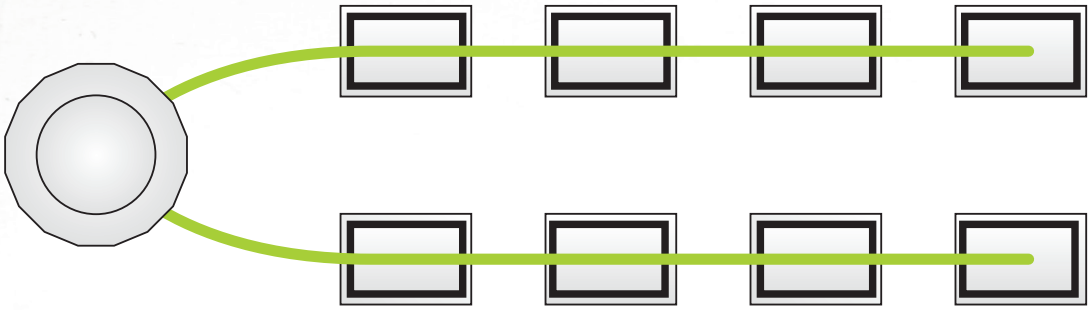
With 16 total nozzles in the system, peak fueling times will typically occur with up to 12 nozzles operating simultaneously. To maintain 10-12 nozzles operating simultaneously between 8-10 gpm, the recommended **Manifolded Variable Speed 2.0 Hp** or **Manifolded Variable Speed 4.0 Hp** pumps can achieve 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, 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:

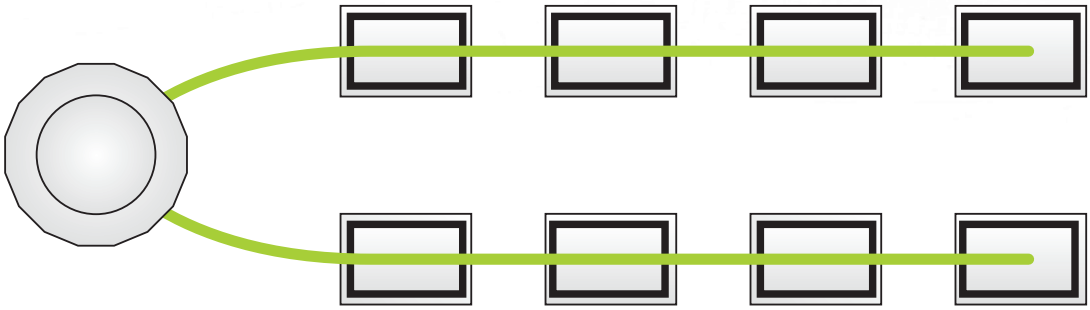
With 16 total nozzles in the system, peak fueling times will typically occur with up to 12 nozzles operating simultaneously. To maintain 10-12 nozzles operating simultaneously between 8-10 gpm, the recommended **Manifolded Variable Speed 2.0 Hp** or **Manifolded Variable Speed 4.0 Hp** pumps can achieve 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, 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

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Model Number Options:

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