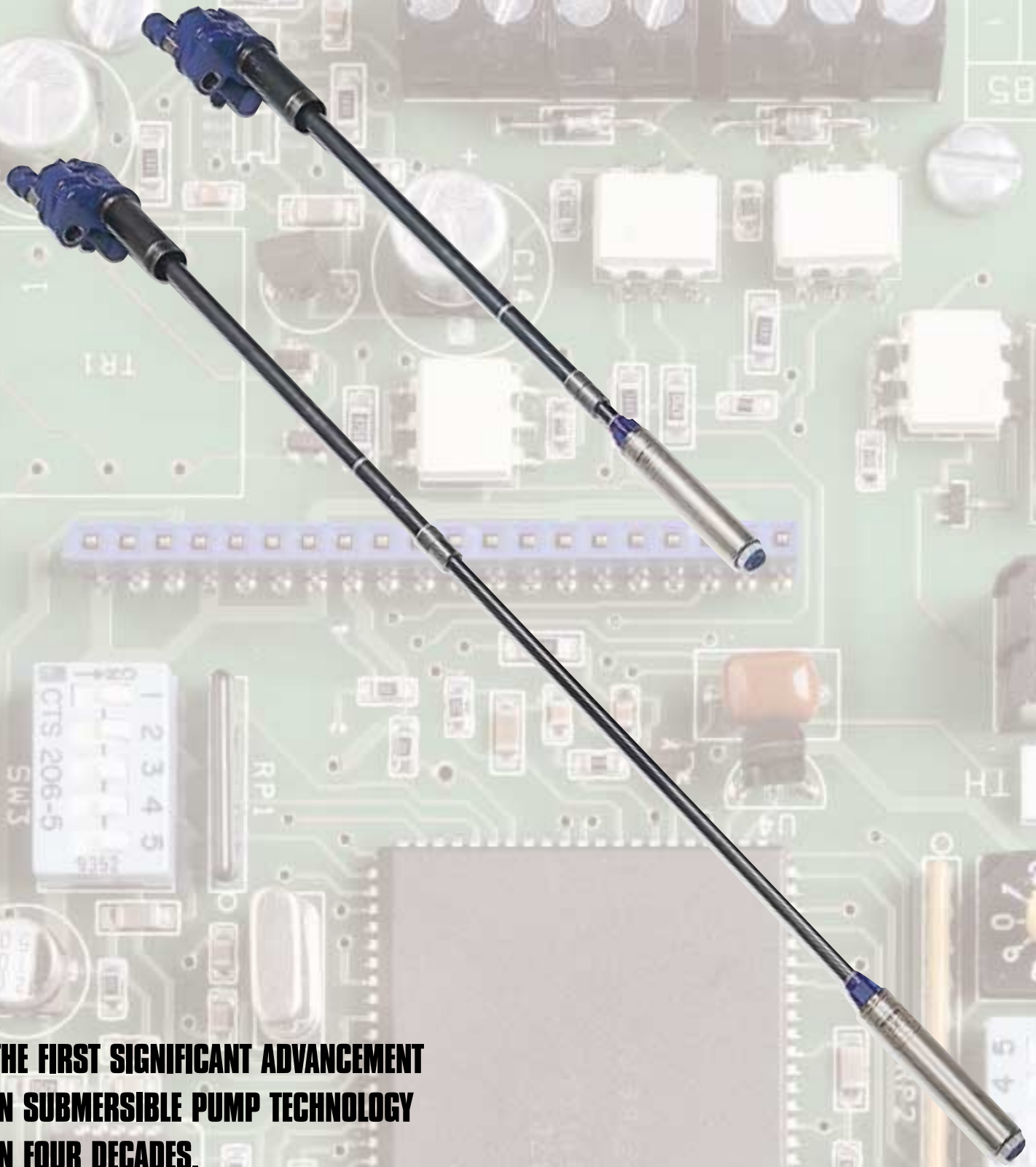


INTELLIGENT SUBMERSIBLE TURBINE

IST



**THE FIRST SIGNIFICANT ADVANCEMENT
IN SUBMERSIBLE PUMP TECHNOLOGY
IN FOUR DECADES.**



FE PETRO INC[®]

INTELLIGENT SUBMERSIBLE TURBINE

FE Petro is pleased to introduce the first significant advancement in submersible pump technology since Franklin Electric, FE Petro's corporate parent, engineered the first submersible motor for use in underground storage tanks back in the mid 1950's. Essentially, this original motor design is still in use today.

The FE Petro Intelligent Submersible Turbine (IST) utilizes a Variable Frequency Controller to monitor the

pumping demand at the station forecourt. By varying the RPM of the motor, the pumping rate is controlled to maintain a constant flow rate at the dispenser nozzle. This, combined with additional "Intelligence" provides advantages not previously available from any submersible pumping unit.

Consider these specific features of the IST for your retail operations:

FE PETRO FEATURE CONSTANT FLOW

Provides constant flow for up to 8 nozzles at a predetermined flow rate set at installation.



BENEFIT TO YOU

Constant flow means faster fueling times during those daily peak business periods.

FE PETRO FEATURE DRY RUNNING PROTECTION

Since the IST monitors the power consumption of the motor, the Variable Frequency Controller turns the pump off upon the tank being pumped empty. The controller signals the dry running condition as well as other pump condition diagnostics.



BENEFIT TO YOU

Dry running is eliminated with the IST. The result is less bearing wear, and longer motor life.

FE PETRO FEATURE MEETS EPA "SPITBACK" CONTROL

From January 1, 1996, the EPA requires a maximum flow rate per nozzle of 10 GPM. The IST meets this requirement with a one time investment. To comply, the maximum flow rate for one nozzle is adjusted to a maximum of 10 GPM. The IST will provide a constant flow rate for up to 8 nozzles operating simultaneously.



BENEFIT TO YOU

EPA mandated "Spitback" control is met by the IST with a simple adjustment during installation. Invest in "Spitback" control one time with the IST.

FE PETRO FEATURE VARIABLE LENGTH

Finally, one pump that fits 94% of all known tank diameters and tank bury depth combinations. Two other model lengths are available to handle installations shorter or longer than this range. The telescoping connection is patented by FE Petro.



BENEFIT TO YOU

Pump length is set at the job site by making one simple measurement and setting the pump length. All in about 20 minutes and without affecting the UL listing of the pump.

FE PETRO FEATURE**MANUAL PRESSURE RELIEF**

Another unique FE Petro feature. When necessary during maintenance to bleed line pressure to zero, a vent screw is provided. By turning this screw, line pressure is diverted back to the tank.

**BENEFIT TO YOU**

Reduces fuel discharge into the sump manhole or dispenser pan during servicing, further protecting service technicians and the environment.

FE PETRO FEATURE**ISO 9001 CERTIFIED****BENEFIT TO YOU**

FE Petro's quality commitment to supply you with a world class product in accordance with internationally recognized quality standards.

FE PETRO FEATURE**A RELIABLE CHECK VALVE**

The IST uses FE Petro's proven line check valve. At 2 3/4" (70mm) in diameter, this valve reduces pressure loss at high flow rates, resulting in faster fueling times and lower power consumption.

**BENEFIT TO YOU**

The FE Petro check valve is proven to seal. You can avoid purchasing additional check valves when the IST is used with some electronic line leak detectors because of this proven reliability.

FE PETRO FEATURE**AIR ELIMINATOR**

The IST uses the standard FE Petro air eliminator, which has a double function as the syphon primer for tank syphon systems.

**BENEFIT TO YOU**

The air eliminator is a one way valve, allowing air to return to the tank, but not re-enter the piping system.

FE PETRO FEATURE**SUPERIOR BEARING COOLING**

The IST uses the exclusive FE Petro cooling system. This unique system continually passes over 1 GPM through a fine bronze filter and directly through motor bearings whenever pump is operating.

**BENEFIT TO YOU**

This system has been designed to extend critical bearing and motor life.

FE PETRO FEATURE**VERTICAL DISCHARGE**

Another unique feature of FE Petro. Provides for a simple connection to underground piping.

**BENEFIT TO YOU**

This unique FE Petro feature allows for fewer fittings to connect the pump to the discharge line, and requires less space in the sump.

FE PETRO FEATURE

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 remove the leak detector from the system to service the IST.



BENEFIT TO YOU

This feature reduces the risk of correcting one problem and causing another.

FE PETRO FEATURE

VARIABLE SPEED

The Variable Frequency Controller has continuous running diagnostics and displays system conditions on the controller:

- Dry Run Protection
- Low Incoming Voltage Detection
- Pump Motor Failure Detection
- Open Circuit Detection
- Short Circuit Detection
- Thermal Overload In Controller
- Controller Capacitors Failing



BENEFIT TO YOU

Immediate, easily understood, display of system conditions.

FE PETRO FEATURE

SERIAL COMMUNICATION

Incorporates a RS 485 serial communications system for easy integration for remote monitoring.



BENEFIT TO YOU

System integration with other electronic monitoring equipment.

ACCESSORIES

IFS: Our intake filter screen option utilizes 316 stainless steel to filter particles .009" (.23mm) and larger. It can significantly reduce dispenser filter changes, reducing maintenance costs by 100's of dollars per year.



IST SPECIFICATIONS

Power Requirements:

- Variable Frequency Controller Input Power
200-250 Volt, 1 or 3 phase, 50 or 60 Hz
- Motor
Three phase, power provided by variable frequency controller.

Pump Motor:

- 2 HP, 2 stage centrifugal pump
- Maximum liquid viscosity: 70 SSU at 60° F. (15.5° C).
- Maximum flow rate - 100 GPM at full flow
- Maximum Pressure - 126 feet of head
(42 PSI in gasoline)
- Maximum Amperage - 9 amps at full load

Check Valve:

- 2 3/4" (70mm) diameter constructed of aluminum and steel with fluorocarbon seal. Alcohol gas compatible.

Pressure Relief Valve:

- Standard valve is set to relieve static line pressure at 35-50 PSI (2.38 to 3.4 bar), reseals above 30 PSI (2.0 bar). Other settings available.

Seal Elastomers:

- All wetted seals are Fluorocarbon.

Syphon:

- Syphon Primer is venturi type, capable of 26" (66cm) Hg vacuum.
- Syphon Check Valve is machined aluminum, field repairable.

Variable Frequency Controller:

- Alternating lead pump and master/slave capability. Provides alternating start of the lead pump and "auto start" of additional pumps in manifolded pump applications.
- Enclosure size is 5 1/8" wide by 10" high by 8 1/4" deep (130mm x 254mm x 210mm).

Alcohol/gasoline compatible:

- A standard feature. The IST will handle any mixture of alcohol in gasoline, up to 100% methanol or ethanol, and up to 20% MTBE, 20% ETBE, or 17% TAME.

Approvals:

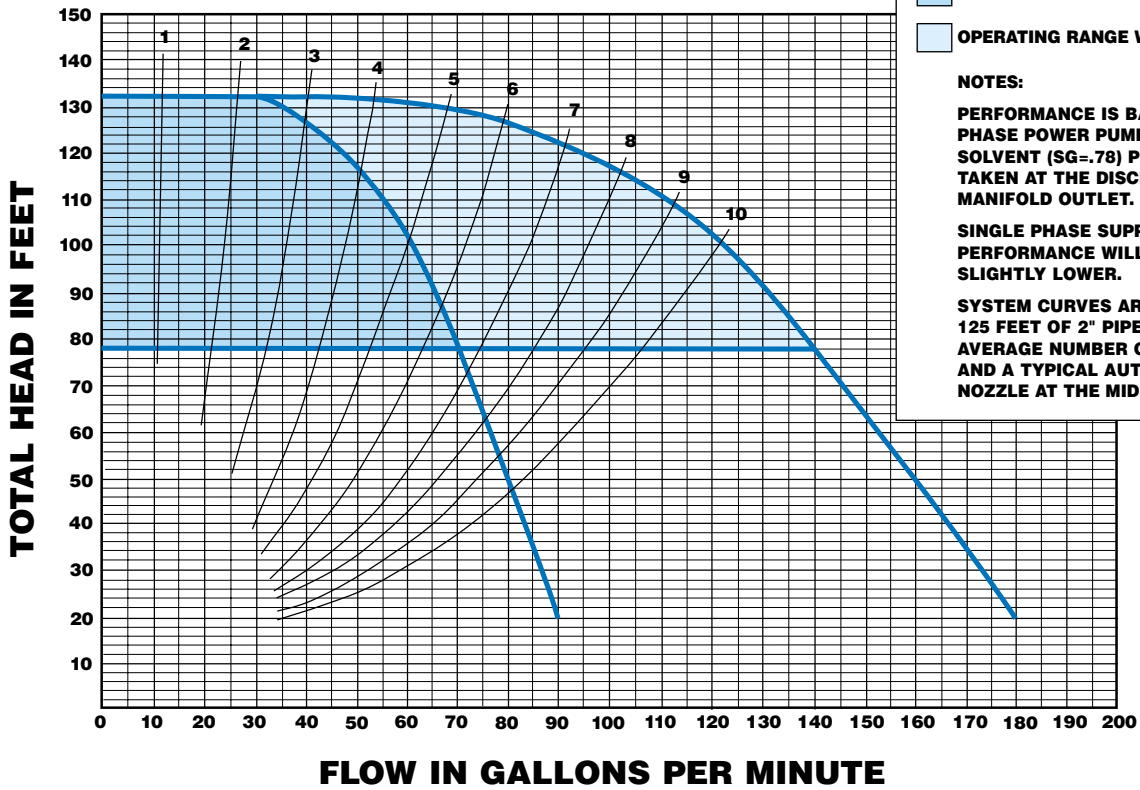
- UL, BASEEFA, PTB, SAA, others pending.

Quality Certification:

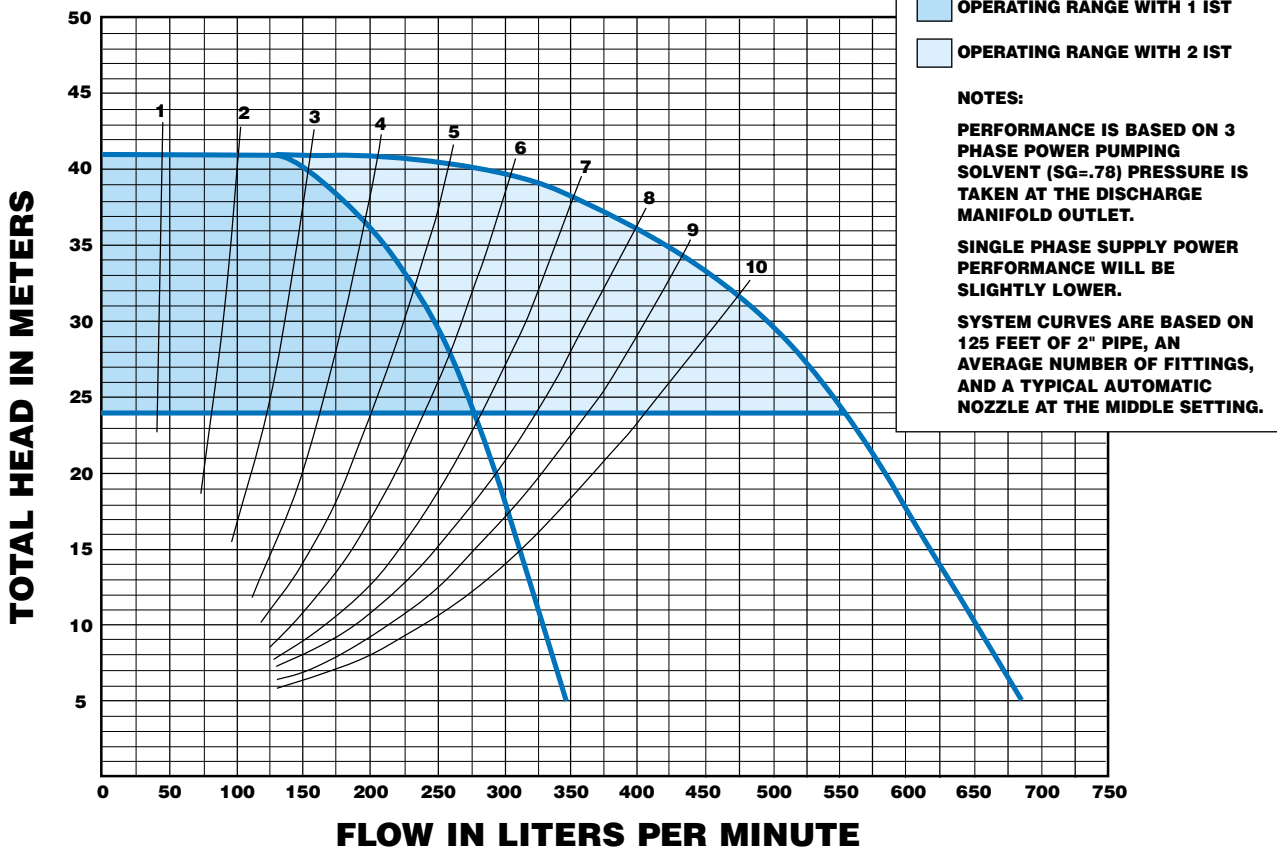
- FE Petro is an ISO 9001 Certified manufacturer.

THE INTELLIGENT SUBMERSIBLE PUMP FROM FE PETRO

Pump Performance in 50 or 60Hz



Pump Performance in 50 or 60Hz



HOW TO ORDER

MODEL LENGTH = ETD + riser - bottom clearance

DETERMINING MODEL LENGTH

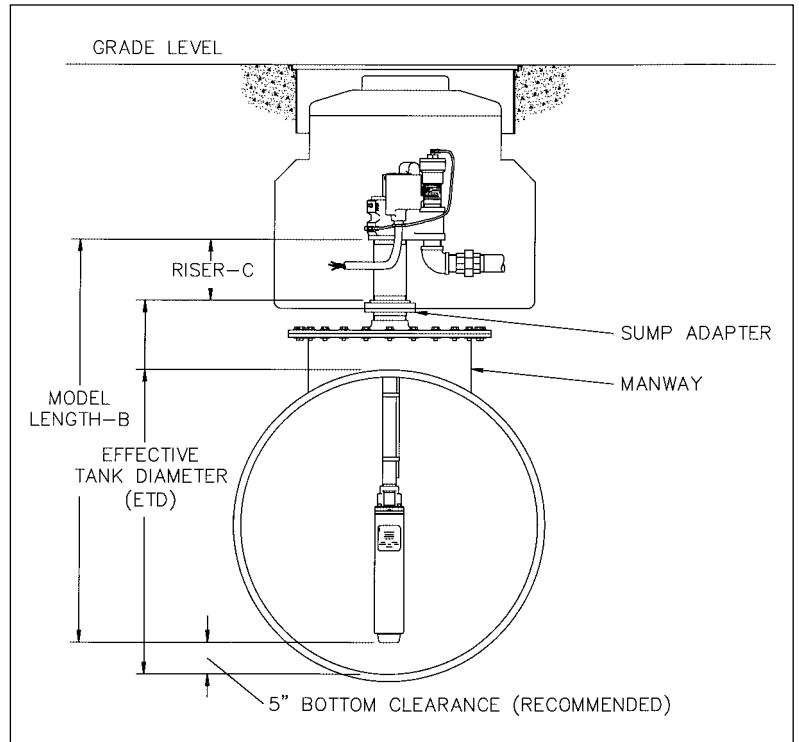
Effective Tank Diameter (ETD) is the combination of any or all of the following:

Tank Diameter (to top of 4" bung)
+ Manway
+ Sump Adapter

Riser to be determined by bury depth

BURY DEPTH	RISER LENGTH	
	MIN.	MAX.
2'	7"	7"
2.5'	7"	11"
3'	7"	17"
4'	7"	29"
5'	7"	41"
6'	7"	53"
7'	7"	65"

Note: Above ground tanks have a minimum riser length of 7".



Note: **IST2** can be used in **94%** of all known installations. The following information indicates certain installations where an IST1 or IST3 is required:

USE IST2 IF MODEL LENGTH IS 88-150".

Use IST1 if model length is shorter than 88 down to 56".

Use IST3 if model length is longer than 150 up to 212".

THE INTELLIGENT SUBMERSIBLE TURBINE, NOW THE CLEAR CHOICE IN SUBMERSIBLE PUMPS.

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