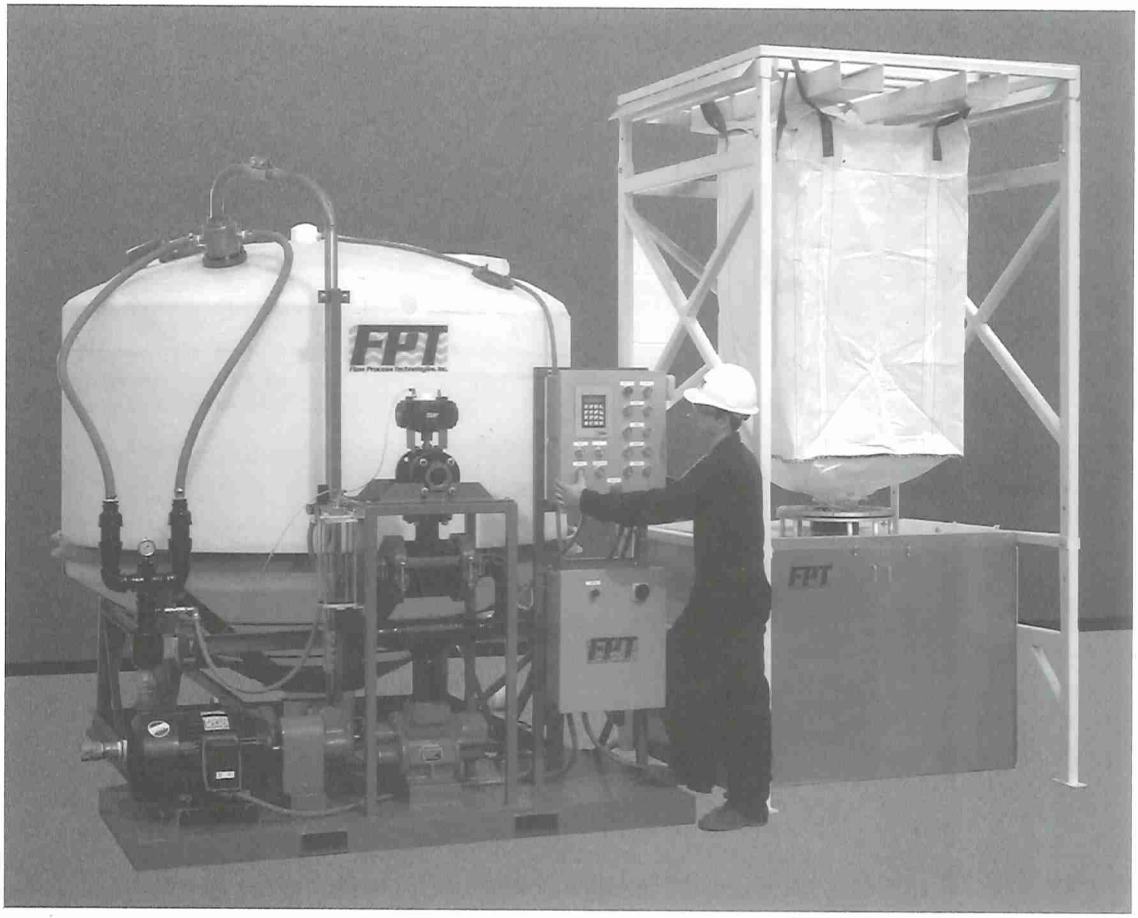
Flow Process Technologies, Inc.

TECHSPEC

D-1600 Dry Polymer Make Up System



The Flow Process Technologies D-1600 Dry Polymer Make Up System provides the most efficient polymer mixing and hydration available. The D-1600 is capable of delivering up to 40 gpm of solution and is designed for applications where polymer usage is under 350 lb. (155 kg.) per 8 hours.

The units are pre-engineered and skid mounted, allowing ease of installation and fast start-up. And the modular design allows FPT to configure a system that is specifically designed for your application.

Use of the patented AQUA SHEAR® technology assures maximum yield per pound of polymer. The AQUA SHEAR® system utilizes low pressure hydraulic forces to effectively mix and hydrate dry materials into liquids and blend, emulsify, and stabilize liquid/liquid phases. With the AQUA SHEAR® System, dry polymers are efficiently mixed and hydrated to achieve maximum polymer blending in the least possible amount of time.

1-800-830-2089

FPT
Flow Process Technologies, Inc.

Features and Benefits

Features

- AQUA SHEAR® - the most efficient mixing and hydrating device on the market today
- Dependable dry feeder and wetting head
- Maximum yield per pound of polymer
- Limited number of moving parts
- Modular packaged unit
- Precise adjustable controls
- Smallest system footprint

Benefits

- Mixes polymers thoroughly without "fisheyes" or "angel hair", in less time
- Accurate solution concentrations
- Maximum cost savings, minimum waste
- Minimum maintenance
- Quick and easy installation
- Enhances startup and operation
- Less space for shipping and operation

Standard Components

- **AQUA SHEAR® MIXING DEVICE:** Patented inline device to thoroughly mix polymers eliminating "fisheyes", "angel hair", or other agglomerates. This is the heart of the "D" Series Mixing Units.
- **WETTING HEAD:** FPT specially designed and built to completely wet (hydrate) dry polymers providing optimum dispersion and eliminate "clumping".
- **MIX TANK:** High Density Polyethylene tank with cone bottom to collect the hydrated polymers for transport through the AQUA SHEAR® mixer.
- **DRY FEEDER:** FPT specially designed and built to accurately deliver a measured amount of polymer to the disperser (or wetting head). This unit consists of a covered hopper, rotary feeder, bin level indicator, and transfer chamber.
- **BOOSTER PUMP:** Assures a constant water supply pressure to the disperser or wetting head. This eliminates any fluctuations in water supply pressure which can result in inefficient batch preparation.
- **SOLUTION PUMP:** Low speed positive displacement pump used to recirculate (turn over) the polymer solution (as part of the mix cycle) to complete the activation of the polymer. This pump is also used to transfer the finished solution to storage.
- **CONTROL PANEL:** PLC based control panel programmed to automatically (or manually) make up a batch of polymer solution. The touch pad allows quick access to all functions of the unit and also simplifies startup and operation. Cycle times and solution concentrations are adjustable for different polymers.
- **POLYMER CONVEYANCE SYSTEM:** Consists of carefully sized regenerative blower/ venturi eductor combination with appropriate stainless steel conveyance tubing to transport the dry polymer from the feeder up and into the wetting head for dispersion.

Sequence of Operation

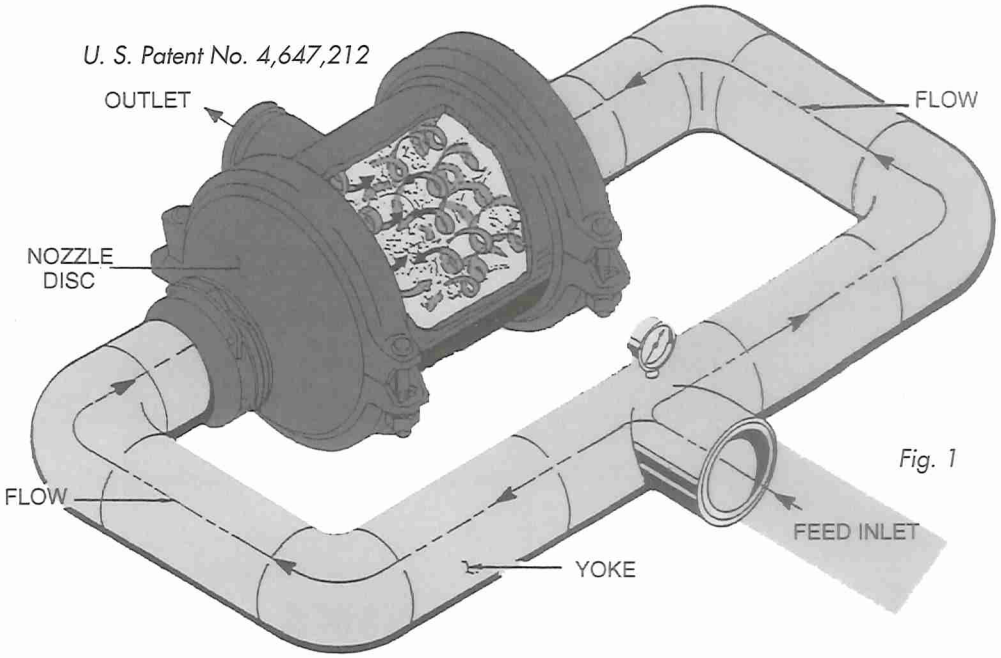


Fig. 1

Polymer and Water:

The selected dry polymer is loaded into the hopper from 50 pound bags (or the optional bulk bag systems). Upon initiation of the start sequence, this dry material is metered into the transfer chamber by the volumetric polymer feeder. The run time for the feeder is adjustable using the PLC control panel. The dry polymer is pneumatically conveyed up and into the wetting head upon the start of the water flow through this unit. A hopper bin level indicator alarms if dry polymer gets low and needs refilling. The dry polymer flow switch also alarms if there is an interruption of this flow to the disperser. Water continues to run at the proper pressure (insured by the booster pump) until the predetermined tank level is reached and the level probe triggers the next operation. Another flow switch is included which shuts down the system if there is a problem with the water supply

Dry Polymer Wetting:

The wetting (hydration) of the polymer material is done in the FPT specially designed and built wetting head. This stage is crucial to the proper operation of the system. This unit thoroughly wets and disperses the polymer using the inlet water as the motive force. Proper wetting and dispersion eliminates the formation of "fisheyes" and agglomerates.

Activation and Recirculation:

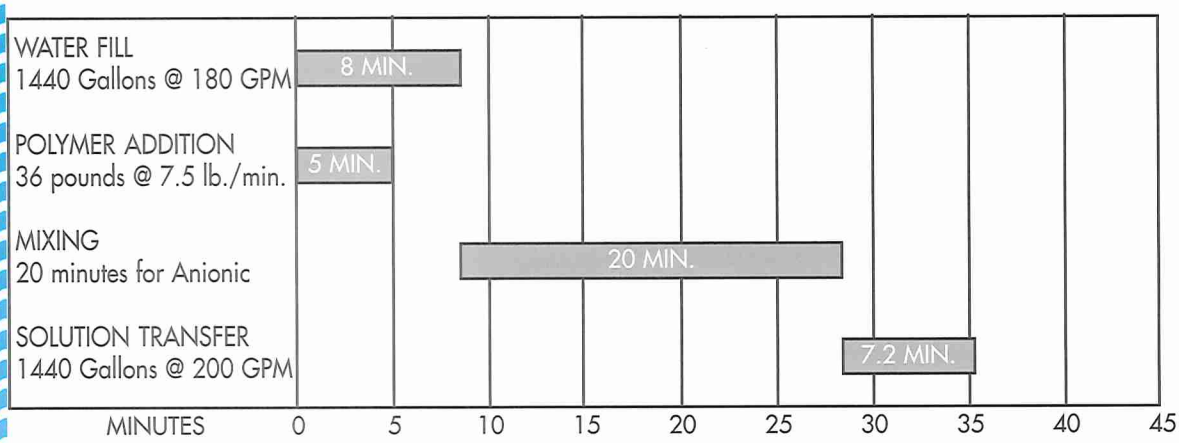
After the Polymer is wetted and dispersed into the mix tank, water supply is stopped, the level probe signal causes the PLC to begin the recirculation sequence wherein the solution is pumped through the AQUA SHEAR® mixing device for a predetermined length of time to fully activate the particular polymer being used. This time is greatly reduced compared to other dry feed systems because of the high efficiency of the AQUA SHEAR® mixing device.

Transfer:

After the solution has recirculated for the proper amount of time, the PLC operates the three way valve so that the recirculation pump will now transfer the fully activated solution to storage. As the solution is pumped down, the low level probe stops the sequence when the solution tank is emptied. Another batch can now be started automatically.

Cycle Times:

Typical cycle times are shown in the following chart.



NOTE: Consult factory for Cycle Time requirements for other polymers

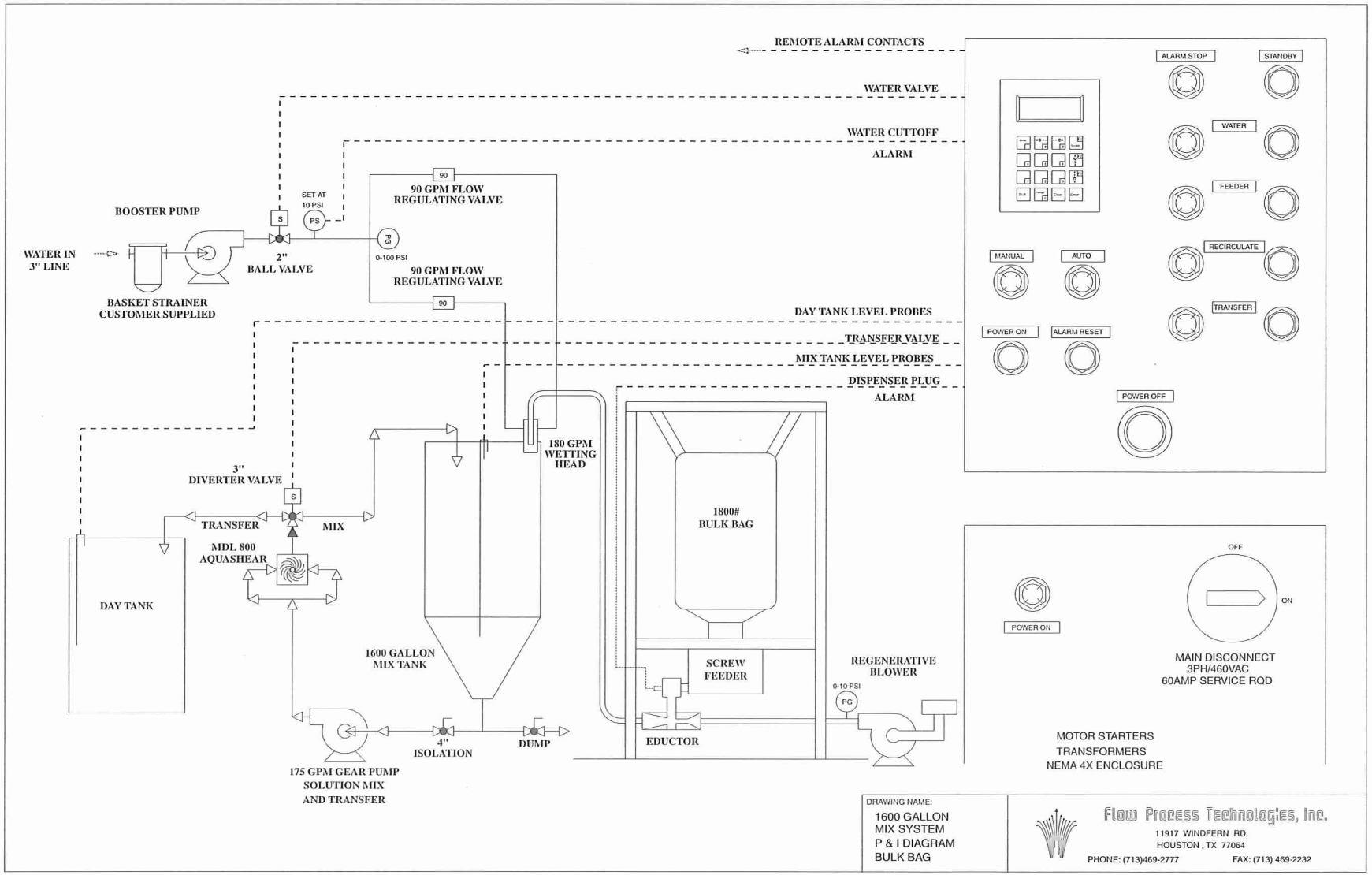
Product Specifications

D-1600 DRY POLYMER MAKE UP SYSTEM

ELECTRICAL REQUIRED		POLYMER CAPACITY PER 8/HR				WATER REQUIRED		SOLUTION CAPACITY		TANK SIZES (SEE NOTES)			
		Rated		Max.						Mix		Solution	
V/Ph/Hz	Amp	lb	kg	lb	kg	gpm	lpm	gpm	lpm	gal	ltrs	gal	ltrs
480/3/60	60	350	155	475	215	180	680	40	152	1600	6000	3000	11400

NOTES:

1. *The system comes complete with the 1600 gallon MIX tank. The Solution (storage) tank is optional.*
2. *The system can be supplied with an optional bulk bag handling system.*
3. *Above specifications are based on a 0.3% solution strength, with the unit operating 75% of total available time (25% on standby), using anionic flocculants. Non-anionic flocculants generally require longer mix times.*
4. *The unit requires a nominal air supply of 2-3 CFM @ 80 psig: (5.5 bar) to power the pneumatic valves. An air line filter/regulator is standard.*
5. *Water must be supplied to the unit at the required minimums. The booster pump is included to maintain minimum operating pressures. Water should be filtered (40-mesh screen) and at a maximum temperature of 80 degree F. Water supply tank is an optional accessory. Call FPT for assistance.*
6. *For options mentioned above, other unique requirements, larger solution tanks or different input power requirements, contact your FPT representative.*
7. *Custom designed systems, specifications, and configurations can be accommodated.*



DRAWING NAME:
1600 GALLON
MIX SYSTEM
P & I DIAGRAM
BULK BAG

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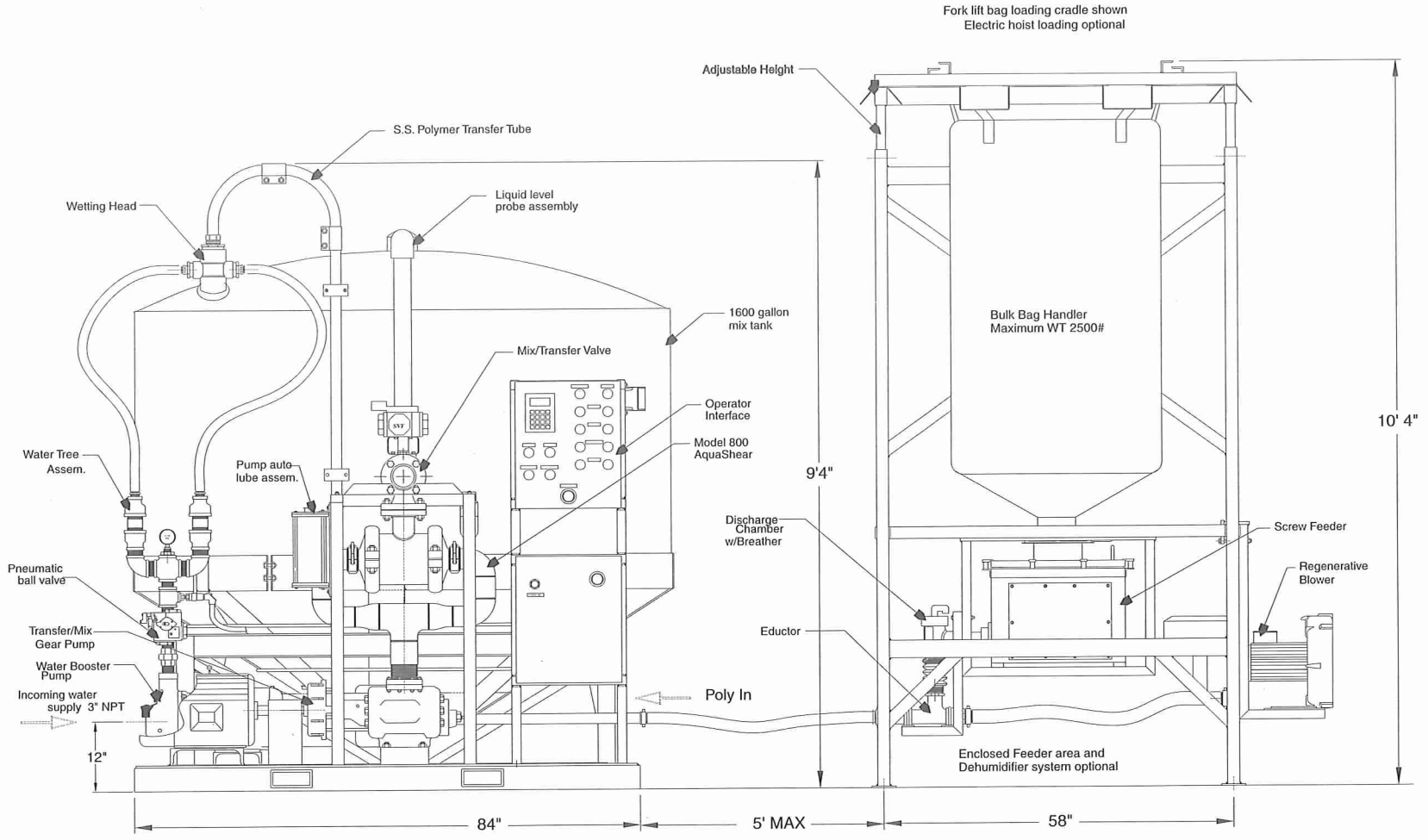

FRONT ELEVATION

DRAWING NAME:
1600 GALLON
MIXING SYSTEM
FRONT ELEVATION

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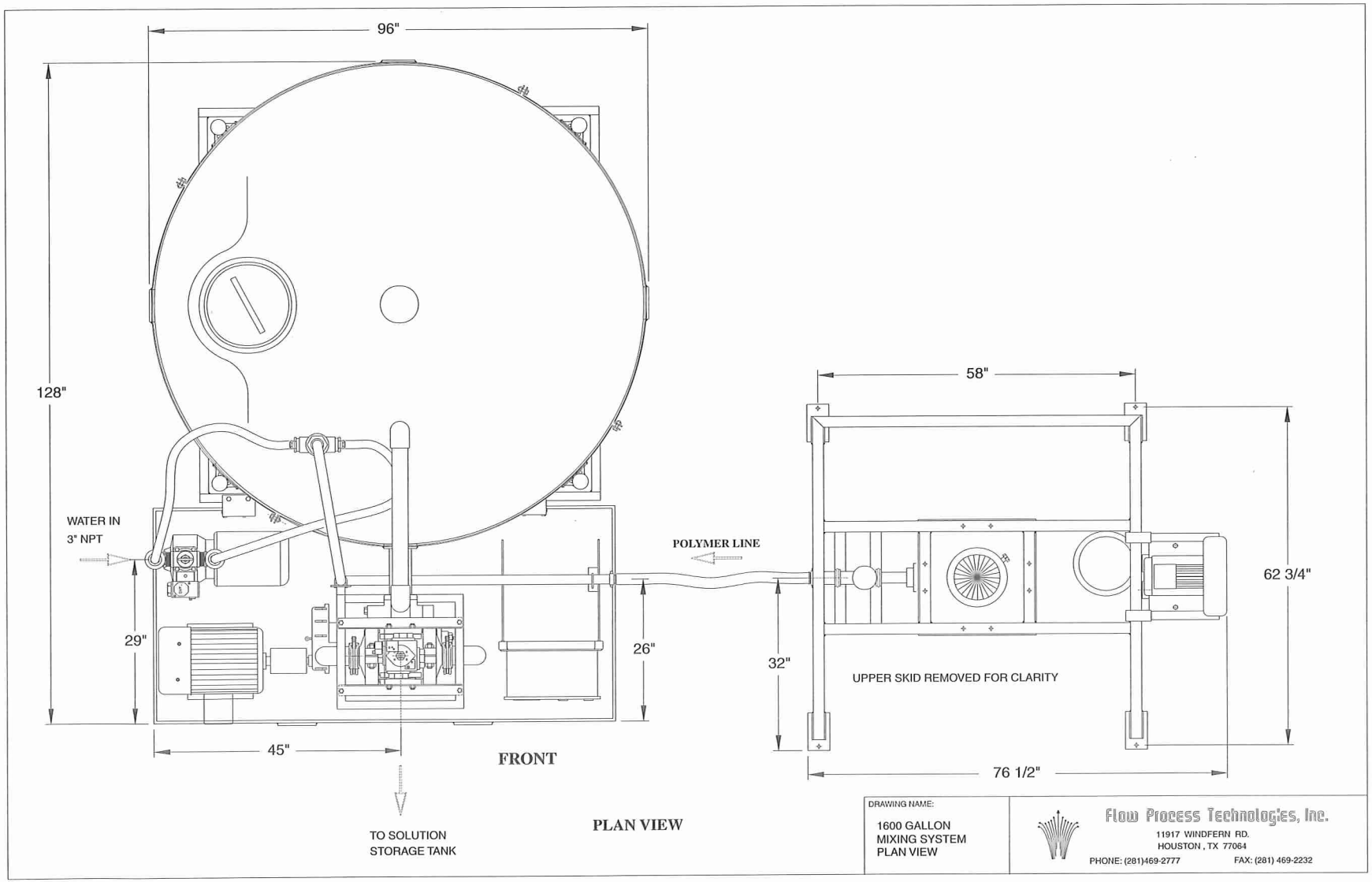
96"
128"
WATER IN
3" NPT
29"
26"
45"
FRONT
TO SOLUTION
STORAGE TANK
PLAN VIEW
POLYMER LINE
58"
62 3/4"
32"
UPPER SKID REMOVED FOR CLARITY
76 1/2"
DRAWING NAME:
1600 GALLON
MIXING SYSTEM
PLAN VIEW
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D-1600 OPTIONAL ACCESSORIES

- **FORKLIFT LOADING BULK BAG HANDLING SYSTEM:**

  Forklift loading frame to hold a "supersack". This option option provides for a heavy duty, fully adjustable, super bag support framework with 'IRIS' type maintenance valve. Also includes support assemblies for the volumetric polymer feeder and regenerative blower.

- **BBU ENCLOSURE W/ DEHUMIDIFIER FOR AUGER FEED:**

  Stainless steel enclosure for the base of the bulk bag unit to house a dehumidifier for moisture control.

- **WATER SUPPLY TANK:**

  Supply tank to insure a constant supply of feed water to the unit.

- **SOLUTION HOLDING TANK:**

  Holding tank to receive and hold completed polymer solution for injection into the process.

- **POLYMER INJECTION SYSTEM:**

  Metering pump package to inject the completed polymer solution into the process.

- **LIQUID POLYMER BACK-UP**

  Manual/Automatic Liquid Polymer Solution Back-Up Systems. Option provides emergency solution make up of liquid polymers in the event of a disruption in the supply of dry polymers or for scheduled maintenance of Dry Polymer System.

COMPANY PROFILE

FLOW PROCESS TECHNOLOGIES, headquartered in Houston, Texas, designs and builds specialty mixing products to meet our customers' specific process requirements. The sales and engineering staff is committed to helping customers select and apply the proper mixing equipment for the job. Since 1990, FPT has produced high-quality fluid, slurry, and solids mixing process equipment packages to many segments of industry including mining, water treatment, utilities, food, OEM manufacturers, offshore oil & gas, etc.

REPRESENTED BY:

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