

Dry Feed Systems

Series 35-150 Solution Tank Feed System

The Series 35-150 chemical feeder solution tank system is designed for water and waste treatment applications. It gives excellent results preparing large or small volumes of solution from dry chemicals. It is a pre-engineered, packaged system, built with standard components to keep costs low. Because of the variety of these components and the optional accessories, a system can be tailored to almost any installation requirement. There is no need to pay for functions that will never be used, to settle for too little or too much capacity or control.

Features

More Economical, Gives Better Results than Do-It- Yourself System

The Series 35-150 system is standardized on a proven master design using stock components. It is a more economical system than one purchased and assembled component by component. It is a more efficient system and gives satisfactory performance.

Pre-Engineered for Efficient Operation

Proven, pre-tested design helps assure proper mixing, proper tank layout and structural support, and good flow through the tank. Such designs help eliminate short circuits and dead spots which steal from tank capacity. System design helps prevent wasting chemicals, produces properly mixed solutions.

Wide Choice of Arrangements

Standard tanks are 35-gallon stainless steel or painted or stainless steel. Standard control panels are wired for as few or many monitoring and control functions as required. The volumetric feeder is standard in one of the three control modes described below. Options include modification of any system for use in hazardous locations, a mechanical mixer- wetter baffle arrangement for carbon and other difficult- to-wet materials; tank pump out panel; transition hoppers; vibrators and controls for the transition hoppers; contacts for remote alarms. **Custom Systems From Stock Components**

Because the components and options offered are all standard, units, a custom system can be selected at reasonable cost.

Rugged Feeder

The Series 32-055 variable speed control volumetric feeder features design simplicity and chemical-resistant materials. Control is a proven SCR variable speed drive. The rugged drive train has few moving parts.

Factory Pre-Tested, Economical to Install

Systems are assembled and pre-tested at the factory to help give trouble-free start-up and proper operation. Installation requires only placing the system on location, making plumbing connections, and bringing power signal leads to a coded terminal strip. This cuts installation costs to a minimum.

“Add-On” Capability

Series 35-150 feeder solution tank systems are designed so that components can be changed, or new components added at any time. Many useful accessories can be added to the field.

Key Benefits

- *Custom System from Stock Components*
- *Trouble free start-up and proper operation*
- *Wide choice of arrangements*
- *Pre-tested, Economical to install*



Design and Operation

Dry chemical flows by gravity from the transition hopper to the feed screw via the feeder hopper. Both these hoppers can have agitation. The feed screw meters the chemical into the tank through a stainless-steel discharge spout. For both top- mounted and side-mounted feeders, the chemical is delivered into the tank through a downspout.

In the tank, thorough mixing is accomplished by a submerged, triple-jet mixer and one or two mechanical mixers, depending on tank size. Each tank also has a dust- and-vapor remover.

The solution tanks can have standard gravity or optional pump-out discharge. Connections are arranged for continuous dilution-water inlet; a baffle at the discharge helps give a steady and continuous flow. For optional pump-out operation, a float valve controls make-up water and piping replaces the baffle at the discharge. The feeder, mixers, and hopper agitators are started, stopped, controlled, and monitored from the control panel.

System Components

Solution Tanks

A rectangular, 35-gallon tank is available in fiberglass or 316 stainless steel. The feeder and control panel for these systems are mounted on a stand beside the tank. Rectangular 75, 150, 250, 350, or 500 gallon tanks are available in 316 stainless or painted steel. Standard systems for these tanks have the feeder and control panel mounted on the tank. All tanks have a submerged triple-jet mixer with brass anti-syphon valve, mechanical mixers, cover or inspection cover, and a water spray system that removes dust and fumes from the tank. Any tank (except 350 and 500 gallon sizes) can be supplied with an optional mechanical mixer-wetter baffle arrangement for hard-to-wet materials. (See carbon wetting arrangement under options).

Control Panel

Standard systems have panels mounted on the tank or on the feeder stand. Panels consist of a NEMA 12 enclosure (dust-tight and drip-tight for indoor industrial use) with a gasketed door. The only wiring required to install the standard panel is to connect an external power supply. This standard panel has a feeder stop-run switch; manual-automatic selector switches as required; feeder motor running light; feed rate control knob; and mixer motor on-off switch and running light. If options are selected, the panel can have electric or pneumatic hopper vibrator on-off switch; alarm light; contacts for remote alarm. A speed (feed rate) readout meter is standard with the automatic mA control feeder, optional with other feeder arrangements. Also optional is a transformer to accept a 230/460 volt, 3 phase supply. The optional remote panel requires minimum wiring. There is a coded terminal strip in a NEMA 12 junction box on the tank and a similar strip in the panel.

Volumetric Feeders

Manual Control Arrangement

This arrangement gives manual variable speed control of feed rate. A variable speed drive permits continuously adjustable feed rate settings over a 20:1 range. This 20:1 range is extendable to 60:1 with the use of the stepped feeder drive pulley. An SCR control unit varies the speed of the motor according to potentiometer position. This feed rate potentiometer is calibrated 0-100% of maximum capacity.

Start-Stop Arrangement

This arrangement gives start-stop control of feeder delivery. It responds to such inputs as a pulse-duration signal from a flow-proportional source or high-low switch closure from a level sensor. Feed rate, however, is varied by manually set variable speed control, as in the manual control arrangement above.

Automatic (mA) Arrangement

This arrangement offers four separate control modes in one feeder. They are automatic feed rate control from a 1-5, 4-20, or 10-50 mA dc signal; manual dosage control when the feeder is in this automatic mode; manual variable speed control of feed rate; and automatic start-stop control of feeder delivery. The manual-feed-rate control knob, calibrated 0-100% of capacity, is on the system control panel.

Hazardous-Location* Arrangement

Any Series 35-150 Feeder Solution Tank System can be supplied with explosion proof mixer and feeder motors. The feeder is Factory Mutual approved for Class II, Division 1, Groups E, F, and G hazardous locations. The control panel is for remote wall mounting in a

nonhazardous area.

* As defined in Article 500, National Electrical Code

Carbon-Wetting Arrangement

Any 35-150 System (except those with 350- and 500-gallon tanks) can be supplied in an arrangement for carbon or other hard-to-wet materials. Such a system is essentially identical to the hazardous-location arrangement above. The tank, however, is fitted with a special mechanical mixer and a wetter baffle for thorough mixing. It wets activated carbon at rates to 2.5 lbs. per minute. Thus the rate of carbon feed is independent of water flow. (Available with gravity-discharge tanks only.)

Options

- Transition Hoppers – These are available to convert overhead hoppers 2, 3, or 4 feet in diameter.

- Floor Support Structures – Two metal-frame stands available to support feeder-and-hopper loads to 1000 lbs and 3000 lbs. (35-gallon system only.)

- Hopper Vibrators – Vibrators for the transition hoppers are available in an electrically operated type and a pneumatic type for use in hazardous locations.

- Feeder Hopper Agitators – Any Series 32-055 Volumetric Feeder can be supplied in an arrangement with continuous hopper agitation.

- Dust-and-Fume Arrestor – All solution tanks are fitted with a water spray operated system for removing dust and vapor from the area above the solution.

- Pump-Out Piping – All of the solution tank systems can be supplied with pump-out rather than gravity discharge. A brass or plastic float valve, 6 or 30 gpm capacity, controls make-up water.

- Remote Alarms – The control panel can be fitted with contacts for a user supplied remote alarm.

- Transformer – Step-down transformer for 230 or 460 volt, 3-phase, 60 Hz operation.

- Remote Control Panel – Any system control panel can be supplied for remote wall mounting.

Technical Data

Tanks

35-gallon fiberglass or stainless-steel tank or 75, 150, 250, 350, or 500 gallon 316 stainless steel or painted steel tanks. Tanks for all systems have a submerged, triple-jet mixer and anti-siphon valve as well as mechanical mixing and dust fume arrestor. Inlet and discharge connections are threaded PVC fittings.

Feeder

Series 32-055 Variable-speed control Volumetric Feeder with manual feed rate control; manual feed rate and automatic start-stop control; or automatic control from an mA signal with manual dosage control and automatic start stop.

Control Panels

The standard control panel is in a NEMA 12 (dust-tight and drip-tight) painted steel enclosure for indoor use. Standard configuration is panel is mounted on the system. An optional remote panel configuration is available.

Mechanical Mixers

Two supplied 350- and 500-gallon tanks; all others have one.

Electrical Requirements

115 volt, single phase; 60 Hz, 15 amperes, standard; 230/460 3pH. 60 Hz, optional

Shipping Weight (lbs.)

| Shipping Weights (lbs.) | 35 gal | 75 gal | 150 gal | 350 gal | 350 gal | 500 gal |
|-------------------------|--------|--------|---------|---------|---------|---------|
| | 430 | – | – | – | – | – |
| Painted Steel | – | 750 | 1400 | 1500 | 1750 | 1900 |
| 316 Stainless | 450 | 650 | 1300 | 1400 | 1500 | 1600 |

Overall Dimensions

| Tank Capacity | Width | Length | Height |
|------------------|---------|-----------|------------|
| 35 gal | 2'11" | 5' 5-1/2" | 5' 1/2" |
| with 1000# scale | 3' 1/8" | 5' 5-1/2" | 5' 6-1/2" |
| 75 gal | 2' 9" | 4' 8-3/4" | 3' 11-1/8" |
| 100 gal | 3' 7" | 4' 8-3/8" | 4' 3-1/8" |
| 250 gal | 3' 7" | 4' 8-3/8" | 5' 3-1/8" |
| 350 gal | 5' | 6' 1-3/8" | 4' 9" |
| 500 gal | 5' | 6' 1-3/8" | 5' 6" |

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