

# Liquid Feed Systems

## Metering Pump Feed System

The chemical metering pump skid is designed to meet the needs of virtually any industrial or municipal liquid chemical feed application. It is a completely assembled system, offering the features and flexibility required for accurate chemical metering with the benefit of easy installation, start-up, operation, and maintenance.

### Features

#### Small Footprint

The feed system is laid out on an easily accessible and opened frame design. It takes up less than five square feet of floor space.

#### Factory-Tested, Economical to Install

Systems are assembled and 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 and signal leads to a coded terminal strip. This keeps installation and start-up costs to a minimum.

#### Wide Choice of Capacities for Customized Arrangements

Multiple pump sizes provide a unit tailored to meet a wide range of flows and pressures.

#### Less Costly Service and Repair

The open design and the layout of the piping ensure routine maintenance and inspection will be easy and quick. The modular pipe section design makes repair or replacement fast, inexpensive, and easy to do.

#### Add on Capability

The skid inlets and outlets are provided with isolation valves and are specifically located for simple installation in multiple pump applications.

### Key Benefits

Pre-engineered integrated chemical feed system for municipal and industrial applications

Plug and play operation simplifying design, installation, start-up, and maintenance

Easily accessible open frame design

Trouble free start-up and proper operation

Wide choice of capacities for customized arrangements



## Design and Construction

The UGSI Chemical Feed, Inc. pump skid is designed for the severe environments encountered in chemical feed applications. The skid is constructed of a PVC-coated steel frame for chemical resistance. Its freestanding modular design allows for flexible orientation in the chemical room. The unit stands at floor level, thus eliminating foundations or wall-mounted shelves. The central component of the system is either an Encore® 700 or Chemtube® 200 metering pump. A variety of head, valve, and seat materials are available for many chemical feed applications. Different head sizes provide a unit tailored to meet a wide range of capacities. Multiple skids can also be ganged together to suit site-specific applications. Control options include manual or automatic variable speed motors, with VFD or SCR controllers, as well as manual or automatic stroke length operation.

The system is provided complete with pre-assembled piping. It is assembled in a modular arrangement around the pump and accessories in an easy-to-follow design. Unions are provided for quick and easy removal of individual components. Inlet and outlet accessories are provided for accurate and consistent chemical feed. A plugged tee at the inlet facilitates easy headering multipump systems. The chemical feed system is equipped with a calibration column, a pressure relief valve, a back pressure valve, a bladder-type pulsation dampener, a pressure gauge, and an isolation valve.

### Controls

A variety of pump controls are available:

- Manual or remote control
- Start stop control
- Flow proportional control
- Residual compound loop control
- 4-20 mA input and outputs

Manual control is achieved by means of a 10-turn micrometer-type stroke length adjuster.

For automatic feed rate control via stroke length, an optional NEMA 4X actuator is used in conjunction with either of two process variable controllers, a signal conditioning unit (SFC-SC) or a process control unit (SFC-PC). The SFC-SC provides automatic feed rate control in response to single process variable, typically flow rate. The SFC-PC is utilized for automatic process control in response to two process variables, flow and residual.

For feed rate control via stroking speed, and optional SCR or VFD drive can be provided to vary the speed of the motor. Stroke frequency can be regulated manually by a panel mounted potentiometer, or automatically via a 4-20 mA process variable input signal.

## Control Panel

A standard NEMA 4X control panel is provided for variable speed control of the metering pump. The standard panel includes the following features:

- Lights and switched for main disconnect power on, pump running, and pump failure lights
- Hand-Off-Auto switch for local (via potentiometer) or remote remote control of the metering pump from a 4-20 mA input signal
- Remote stop function provision for customer supplied contact or stop button
- Digital pump speed indicator
- 4-20 mA output indication of motor speed
- 120 V, 1 PH, 60 Hz power
- Optional - UL panel, SFC-SC, or SFC-PC available

## Technical Data

### Materials of Construction

- Skid:** PVC-coated steel frame
- Pump:** Mechanical or Hydraulic Pumps
- Gear Box:** epoxy-painted cast aluminum
- Actuator Housing:** clear PVC, gray PVC, or PVDF
- Pump Head:** PVC, PVDF, or 316 SS
- Valve Housing:** clear PVC, gray PVC, or PVDF
- Valve Balls:** 316 SS, TFE, ceramic, glass, or polyurethane
- Valve Seals:** Hypalon or Viton
- Diaphragm:** TFE-faced, fabricate-reinforced, elastomerbacked
- Dimensions:** 6' (H) x 2' (d) x 2.5 (W)

### Electric Requirements

Standard induction, SCR, and VFD motor arrangements are 1725 rpm, 115 V, 60 Hz, Single phase. Motors with other electrical characteristics are available as an option.

### Shipping Weights

Manual controlled simplex pump skid: 400 lbs.\*  
\* For automatic control add 16 lbs.

### Accessories

Choose from main connections strainers, solution tanks, mixers, liquid level switches, and a diaphragm leak detector for metering pump.

### PM Kits® Parts

Preventive Maintenance kits contain original Siemens replacements for those parts most susceptible to wear. For information on Encore® and/ or Chemtube® metering pumps write for CF.440.400.000, CF.440.050.000, or CF.430.550.000.

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Literature No. CF.410.440.000.PS.0714

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