

# Omni Metering Pump Specification

## PART 1: GENERAL

### 1.1 DESCRIPTION

- A. This section of the specification describes the chemical metering pumps, associated motors and controllers, and related accessories.
- B. The equipment shall be installed as indicated on the plans, as recommended by the supplier, and in compliance with all OSHA, state, local, and federal codes and regulations.

### 1.2 QUALITY ASSURANCE

- A. Qualified suppliers shall have a certified ISO 9000 quality assurance program. Supplier shall provide a copy of current certification by an accredited audit agency.
- B. Qualified suppliers shall assemble product using “touch-quality” methods and procedures.
- C. Qualified suppliers shall test each pump for acceptable performance with fully automated test fixtures with computer output of test results. A copy of test results shall be supplied with each metering pump upon request.
- D. Qualified suppliers shall have a minimum of 20 years experience at manufacturing reciprocating plunger metering pumps and a minimum of 20 installations in similar applications. Suppliers shall provide a list of installations subject to verification by the engineer or owner’s representative.

### 1.3 MAINTENANCE

- A. The manufacturer shall provide a minimum 2 year warranty from the time of shipment against defects in materials and workmanship on all mechanical components of the pump.

- B. Pumps shall be as similar as practical with respect to spare parts to minimize spare parts inventory.

## **PART 2: PRODUCTS**

### **2.1 MANUFACTURERS – CHEMICAL METERING PUMPS**

- A. Metering Pumps and motors, and capacity controls shall be supplied by Pulsafeeder. Metering pumps shall be Omni Series Metering pumps.
- B. No substitutes allowed

### **2.2 IDENTIFICATION**

Each unit of equipment shall be identified with a securely affixed corrosion resistant nameplate. Nameplate shall include model number, option selection code, serial number, maximum capacity in GPH, and rated pressure.

### **2.3 METERING PUMPS**

#### **A. GENERAL**

1. Metering pumps shall be positive displacement mechanically actuated diaphragm type. A separate oil seal is required to provide a chamber between the gear drive and the process diaphragm to provide isolation of the process from hydrocarbons.
2. The capacity must be adjustable while operating or stopped over a 10:1 turndown range.
3. Metering pumps with a variable eccentric gear mechanism are acceptable for all services. The variable eccentric mechanism shall enable accuracy of +/- 2%.
4. Solenoid Diaphragm pumps and hydraulically actuated metering pumps are not acceptable. The piston must end each stroke cycle in the full forward position regardless of capacity setting to ensure maximum purge of the liquid end.
5. Mechanical lost motion metering pumps must utilize a scotch yoke mechanism with a stop plate design that minimizes mechanical stress by assuring all stress is on the piston centerline . Designs with a single stop rod and an off-center stop plate are not acceptable because of increased mechanical stress.

6. The pump's moving parts shall be totally enclosed with no opportunity for moving parts to be exposed during operation.
7. No oil or hydraulic fluid will be utilized in the pump for lubrication purposes as this could inevitably contaminate the process fluid. Pump will be provided with greased for life. No standard maintenance on the drive component of the pump will be recommended.
8. The diaphragm in contact with the process fluid shall be constructed of Gylon. PTFE – elastomer composite diaphragms are not permitted.
9. When specified, the metering pump shall be capable of changing capacity in response to a process 4-20 ma signal. Electronic capacity controls shall be capable of a 1000:1 turndown utilizing an MPC controller.
10. When specified, the MPC controller shall be Nema 4 rated with UL, CE and CSA approvals.
11. When specified the MPC controller shall be removable from the pump with 4.5 feet of cord.
12. When specified, the MPC controller shall display flow rate of pump in either GPH or LPH.
13. When specified, the MPC controller shall accept a 4-20 mA input signal and shall provide a 4-20 mA output.
14. The metering pump manufacturer shall supply a back pressure valve for installation in the discharge line.
15. An external safety valve shall be provided by the metering pump manufacturer. Safety valve shall be set at 25 psi above static back pressure.