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 all pumps for acceptable performance with automated test fixtures with computer output of test results.

D. Qualified suppliers shall have a minimum of 20 years experience at manufacturing mechanically actuated diaphragm metering pumps.

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, SPO. Metering pumps shall be Blackline, Model MD.

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 disc diaphragm type.
2. The capacity must be adjustable while operating or stopped over a 10:1 turndown range. Adjustment shall be accomplished with a manual micrometer style actuator which limits the return movement of the diaphragm.
3. Metering pumps with a lost motion design are acceptable for all services.
4. The pump housing shall be made from anodized aluminum to provide both a light weight and resistant to harsh environment.
5. Pump liquid end shall be designed to meet ATEX standards, including testing to 5 times the pressure rating of the standard product.
6. The suction and discharge check valves shall be configured with union style connections which allow for removal of the pump from the piping system without disruption of the system piping.
7. The pump's moving parts shall be totally enclosed with no opportunity for moving parts to be exposed during operation. All moving parts shall be submerged in lubricating oil during operation.
8. The diaphragm in contact with the process fluid shall be multilayered for robustness and support. The diaphragm shall be completely faced with PTFE on both sides, for chemical resistance on the liquid facing side. The diaphragm shall include Nylon net with a rubber element core and include a PVC support ring on the drive side. Diaphragms which do not have a drive side support ring are not acceptable.
9. When specified, the metering pump shall be capable of changing capacity in response to a process 4-20 ma signal via a variable frequency drive.
10. The liquid end of the metering pump shall be attached to the drive by 8 or more head bolts to provide exceptional support and eliminate potential leak points. Liquid ends with fewer than 8 liquid end bolts shall not be acceptable.

11. If the static discharge pressure is less than 35 psi, the metering pump manufacturer shall supply a back pressure valve for installation in the discharge line when specified.
12. An external safety valve shall be provided by the metering pump manufacturer when specified. Safety valve shall be set at 25 psi above static back pressure.
13. An external pulsation dampener shall be provided by the metering pump manufacturer if specified for the discharge line.