

## **SECTION 11620**

### **DRY FEEDER**

#### **PART 1 GENERAL**

##### **1.01 DESCRIPTION**

A. This specification covers the supply and testing of completely functional, pre-assembled dry chemical feed system. The chemical feed system shall include dry chemical feeder, solution tank, tank mixer, extension hopper and all necessary piping, valves, fittings, supports, electrical controls as specified herein. The dry feeder manufacturer must design, assemble and test the feed system in their ISO 9001 certified facility.

B. The dry chemical feed system shall contain the following:

1. Prominent TGD XX Volumetric Feeder with Arch Breaker
2. 35 Gallon Solution Tank
3. Solution Tank Mixer
4. Extension Hopper
5. Liquid Level Controls
6. Ball valves and unions
7. Control Panel shall be designed, fabricated and tested by a UL508 certified shop.

##### **1.02 RELATED WORK**

A. Section 01300- Submittals

B. Section 11290 - Plant process piping

##### **1.03 QUALITY ASSURANCE**

A. For the purpose of establishing quality assurance, experience, and system reliability, the products described herein shall be pre-assembled onto the skid-mounted system by the manufacturer and shop-tested for capacity and pressure prior to shipment with documented results provided.

B. The chemical feed equipment shall be the product of a pump manufacturer who has designed and manufactured similar skid mounted feed systems and equipment.

##### **1.04 SUPPLIER'S QUALIFICATIONS**

A. Within 7 days after the Bids are opened, the Contractor shall submit proof of the following qualifications for the intended supplier if requested by the Engineer. The supplier must have completed substantially similar project for the past five years and maintains a physical plant and fabricating personnel dedicated to system manufacture.

##### **1.05 WARRANTY**

A. The chemical equipment manufacturer shall provide a one-year warranty on the dry chemical feed system and accessories.

##### **1.06 SUBMITTALS**

A. Manufacturers literature, illustration, specifications and engineering data including: dimensions, materials, size, weight, performance data, flow rate, motor horsepower (or current draw) and speed.

## B. Operations and Maintenance Manuals

## PART 2. PRODUCTS

### 2.01 GENERAL

#### A. Manufacturers:

1. ProMinent Fluid Controls, Inc.

#### B. See section 01630 Substitutions for any other manufacturers

### 2.02 SKID-MOUNTED FEED SYSTEM

#### A. Dry Chemical Feeder:

1. Solid Screw Feeder Shaft direct coupled to Drive Motor/Gear Box (No Pigtails allowed). The 90VDC 1/4hp motor drives the screw feeder. The screw feeder then rotates an arch breaker to prevent bridging of the dry chemical inside the hopper assembly. Dry chemical output is discharged through a feeder discharge pipe into a clear housing mounted on the solution tank.
2. Dry Chemical Level Sensor mounted inside the feeder hopper assembly. The level sensor provides an early alarm for a low level of dry chemical within the hopper assembly. The level sensor shall provide a signal indication to refill the dry feed hopper.
3. Metering Output: 0-2.87 cuft/hr
4. Feeder must have arch breaker assembly to prevent chemical bridging.
5. Materials of Construction:
  - a. Screw Feeder & Arch Break Assembly: 304 Stainless Steel
  - b. Feeder Housing: Polypropylene

#### B. Extension Hopper:

1. Manual filling of hopper required.
2. One cubic foot of dry chemical or
3. 2.5 cubic foot bag loading hopper
4. Material of Construction shall be Polypropylene.
5. Hopper shall include integral vibrator to prevent chemical bridging.

#### C. Solution Tank:

1. The feeder shall be mounted over and supported by a 35 gallon solution tank. Tank shall be constructed of FRP and shall support the feeder and extension hopper. The tank shall be provided with a clear housing to enclose the feeder discharge to contain dust. The tank shall include a dilution water inlet float valve to control inlet water flow rate. The tank shall be supplied with a mechanical mixer and inspection cover. Tank connections shall include:
  - a. 1" FNPT Water Inlet Connection

- b. 1.5" FNPT Solution Discharge Connection.
  - c. 1.5" FNPT Overflow Connection.
  - d. 1.5" FNPT Drain Connection
  - e. Feeder Downspout Connection
2. The tank shall have mechanical mixer(s) with stainless steel impellers and propellers and 3/4 HP, 115 VAC, 1 Phase, 60 Hz TENV motor.
  3. Tank Level Controls: float type switches
  4. Overall Dimensions: "L x "W x "H
  5. Material of Construction shall be FRP.

#### D. Control Panel:

1. The system control panel shall contain controls for the dilution water flow meter, tank mixer, volumetric feeder and hopper level switch (optional). The system panel shall be pre-wired to all system components.
2. The system panel enclosure shall be NEMA 4X, polycarbonate construction. All door mounted components shall be moisture tight.
3. System controls shall include:
  - a. System On/Off/Remote control
  - b. On/Off/Auto Mixer control
  - c. On/Off/Auto Feeder control
  - d. On/Off/Auto Water solenoid control
  - e. Feed Timer
  - f. Feed rate potentiometer
  - g. Mixer control timer
  - h. Dilution water flow meter
  - i. Water rate control valve
3. Panel indication shall include: Power indicator, On indicator, Alarm indicator, feed time, post mix time, and hopper low level indicator.
4. Panel shall include remote START/STOP input, ENABLED output dry contact, ALARM output dry contact, and accept remote 4-20mA to control feeder speed.
5. Power Supply: 120/230 VAC, 1 Phase, 60 Hz

### 2.03 APPLICATION

- A. Quantity: 1
- B. Chemical Service:
- C. Capacity (US GPH):
- D. Backpressure (PSIG):

## PART 3. EXECUTION

### 3.01 SHIPPING, HANDLING, DELIVERY AND STORAGE

- A. Packaging: The Manufacturer is to assume responsibility for packaging to prevent damage

B. Storage: The Contractor is to assume responsibility for the equipment to prevent damage during site storage.

### 3.02 INSTALLATION

A. The dry feed system shall be pre-assembled, pre-wired and tested by the equipment manufacturer prior to shipment. Installation at the jobsite shall be in strict accordance with the manufacturer's instructions and recommendations. Installation shall include the re-assembly of any items separately packaged for protection during shipment. Dry feed system to be installed in conjunction with solution feed system and supplied by the same chemical equipment manufacturer.

B. The Contractor shall arrange for the services of a factory trained representative familiar with the equipment to review the installation prior to system start-up.

C. All materials and equipment shall be clean and free of oil, grease and/or chemical contaminations prior to installation.

D. Interconnecting piping shall be free of debris utilizing proper and current installation guidelines. It is the Contractor's responsibility to provide:

1. Piping for water, drain and solution lines to/from solution tank.
2. Wiring to/from system control panel for power, control and alarm interfaces.
3. Anchor bolts, suitable mounted pad and other incidentals as necessary to complete the installation.

### 3.03 START UP AND TRAINING

A. Start up and training by chemical feed equipment factory representative shall be arranged and provided by the Contractor. The Manufacturer's representative shall provide the service for successful equipment start up and plant personnel training.