



## **METALFAB, INC.**

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### **INSTRUCTIONS FOR OPERATION & MAINTENANCE**

### **MODEL DB1M (MINI) VOLUMETRIC SCREW FEEDER**

#### **General Description**

The DB1M Feeder is a simple, rugged and accurate Volumetric Feeder used for the dependable metering of dry solids into process. It consists of a 1 ft.\_ hopper as standard, a trough with an agitator/conditioner screw, a metering screw and a variable speed drive.

The function of this screw is to keep the material in motion and also "condition" the material to a constant density while insuring complete filling of the metering screw flights. Hence, accuracy is maintained while rates are varied by screw speed changes.

#### **Installation**

The DB1M Feeder is shipped complete and ready for operation. There is no need for bolting the unit into place, therefore, the four (4) levelers positioned under the base plate are equipped with rubber pads. Room should be provided at the discharge end to allow for screw removal. Normally, 20" clearance is sufficient.

#### **Electrical Requirements**

Standard units are provided with DC drives which have their own SCR controllers capable of converting alternating current to direct current. They are single phase units, 115 volt up to 3/4 HP. The controller may be mounted at the Feeder location or remotely. See separate manual for controller instructions.

Note: Units with shunt wound motors have the field energized at all times with the switch in the off position. If feeder is not to be used for an extended period of time, it is recommended that an AC line switch be installed prior to the control to power down the control.

## **Caution**

1. Do not change speed of an AC drive unless the motor is running.
2. Screw rotation must be clockwise when facing the discharge end of the Feeder.

## **Operation**

After the Feeder is in place and wired, it is ready for operation. Units equipped with DC drives can have their speed adjusted at anytime, i.e., with the unit stopped or in motion. The dial provides for setting screw speeds to 1 part in 1000. Speed is increased by dialing in the proper speed required.

The hopper should be filled with the feed material and the potentiometer should be set to #500. The unit should be allowed to run for 5 minutes before a 1 minute sample is collected and weighed. It is suggested that 5 or more samples be taken to assure the Feeder is operating properly. Once the feed rate is known at setting #500, the required rate may then be obtained by proper speed change. The drive and, therefore, the feed rates are linear, hence, at setting #500 the Feeder will be operating at approximately half capacity. As an example, if at a #500 setting a 20#/minute rate is achieved and a 10#/minute rate is desired, change the setting to 250# and a 10#/minute rate will be delivered. Take samples at 3 or 4 settings and plot a graph, setting versus rate. From this graph, any feed rate may be selected.

**Warning:** *Keep hands clear of all moving parts. Serious injury can occur.*

## **Disassembly**

**Warning:** **Motor must be electrically Locked-out before any work is performed.**

The DB1M Feeder is easily disassembled for cleaning, changing of screws, or maintenance purposes. To remove the discharge tube, loosen the hand nuts (Part #10, Dwg. S-1902) and pull the tube forward until it disengages the screw. To remove the screw (Part #1), the tube must be removed as indicated above then:

1. Loosen the set collar on the reducer (Part #7).
2. Loosen set screw on shaft collar (Part #8) so it will fall from the screw shaft when the screw is pulled forward.

The hopper (Part #12) may be removed by undoing the bolts (Part #11) and lifting vertically off the trough assembly (Part #4).

Re-assemble by reversing the above procedures.

**When inquiring about any feeder, always refer to the Serial Number stamped on the Metalfab nameplate.**

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