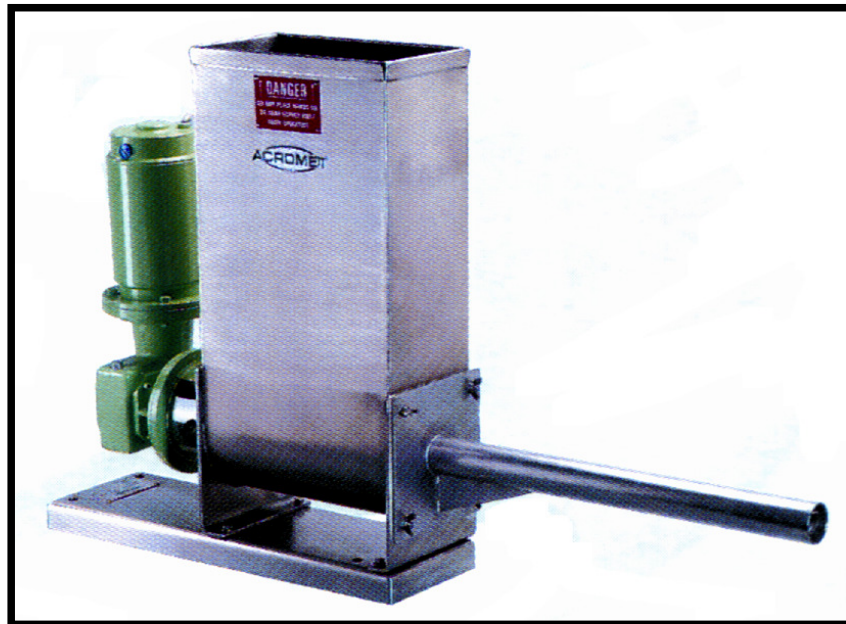




# MODEL 1300

## MODEL 1300 DRY MATERIALS FEEDER



## OPERATION AND MAINTENANCE MANUAL



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## **1. INTRODUCTION**

Your Acromet Model 1300 Volumetric Feeder is a Dry Material Feeder employing the new and unique principles of material control to provide exceptional metering accuracy and performance.

Versatility of design makes provision for the application of a variety of auger systems and other features, the selection of which is dependent on the characteristic of the product to be handled and the ease or otherwise with which an acceptable degree of feed rate accuracy is achieved.

There are over thirteen (13) Metering Auger sizes available in the range for the Model 1300 Feeder. Metering Augers, Discharge Cylinders devices are not interchangeable on the Model 1300.

The Model 1300 Volumetric Feeder is both rugged and reliable, featuring a simple clean self-supporting design that will give long service life with the minimum of maintenance.

## 2. **SAFETY PRECAUTIONS**

Please read and familiarise yourself with all Sections of this and other Equipment Manuals before proceeding with installation.

### 2.1. **General**

- Observe all standard precautions that apply to moving machinery.
- Observe all standard precautions that apply to electrical equipment, drive and controls.
- Pay particular attention to special safety "cautions" and "notes" in all Manuals.

### 2.2 **Mechanical Precautions:**

Prior to undertaking any mechanical maintenance, repairs, installation etc:

- **SWITCH OFF**, and disconnect power before proceeding.
  - Remove and/or lock switch in the "**OFF**" position.
  - Ensure Feeder infeeds and discharges are closed off to prevent feed material from contaminating personnel and equipment.
  - Take precautions to protect openings to moving components and prevent the ingress of loose tools or parts.
  - Personnel must wear the appropriate protective safety attire and remove loose clothing, jewellery, etc.

### 2.3 **Electrical Precautions:**

Before undertaking work on the electrical controls or drives;

- **DISCONNECT POWER** and place a notice to advise others of the type of work in progress.
- Ensure all necessary grounds are in place and solid.
- **DO NOT** disconnect or disable ground connections.
- Follow all electrical regulations as required by electrical engineering trades.

### **3. INSTALLATION**

3.1 Install the Feeder on a level surface for optimum performance. Use masonry anchors or suitable bolts that remain below and flush with foundation surface or support. This will allow the Feeder to slide out for maintenance if Conditioning Chamber is to be bolted under a large permanent hopper.

**NOTE: Operations 3.2 and 3.3 must be carried out by a Qualified Electrician.**

3.2 Connect the drive motor/s to the electrical supply. The type of drive used is often decided by customer preference and may be either:

- 3.2.1 Fixed speed motor operated by a timer.
- 3.2.2 Fixed speed A.C. Motor controlled manually or automatically by variable frequency inverter to vary the speed.
- 3.2.3 D.C. Variable Speed Motor controlled manually or automatically by SCR Controller.
- 3.2.4 Fixed speed motor for the conditioning device.

**WARNING: DO NOT OPERATE THE FEEDER WITH THE FEED TUBE REMOVED OR PLACE HANDS OR ANY OTHER OBJECT WITHIN HOPPER AREA WHILST FEEDER IS IN OPERATION. THERE IS A HIGH RISK OF INJURY TO PERSONNEL AND/OR DAMAGE TO THE EQUIPMENT.**

3.3 Before filling the hopper with material check the Feeder rotation by a short run. The rotation **MUST BE CLOCKWISE** when facing the tube plate or damage to the Feeder will occur. Change the power leads in the motor terminal box to reverse the direction of rotation. Product discharge from the Feeder must fall freely and not be restricted in any way.

## **4. CALIBRATION AND OPERATION**

### **4.1 Calibration**

Fill the Conditioning Chamber and Hopper with material and run the Feeder for about one minute to ensure that the Metering Auger is operating with a complete supply of material. The material level must always be, at least, 100mm above the Feed Auger.

When the Feeder is fully operational, calibrate the output with the settings on the Variable Speed Drive. At each setting, collect several samples, each for a pre-determined time interval. Weigh the samples and record the weight against each selected speed setting. Repeat the procedure until the full range has been calibrated.

#### **CAUTION:**

Always use fresh material in Feeder for calibration purposes, in exactly the same condition that the material will be supplied to the hopper when the process is running continuously. Due to the "conditioning" effect on the material through the feeder, incorrect calibration values will result if materials collected as samples are returned to the hopper.

Some materials, particularly those supplied normally to the hopper in the "aerated" condition, become progressively denser each time they pass through the Feeder, resulting in "heavier" samples for the same volume output.

### **4.2 Operational Adjustments**

If, during future operations or Plant changes, it becomes necessary to vary the flow rate beyond the nominal limits, then the following is applicable:

- For a small variation to the minimum or maximum speed setting on the Controller, please consult your Controller Manual.

**NOTE:** The minimum speed on a DC Controller is normally Factory set to approximately 5% of full speed. This ensures the Motor is protected against infrequent pulsing when the speed potentiometer is adjusted to zero and power remains on.

- For large variations to the Flow Rate then different sizes and types of Feed Augers and Conditioning Devices are available from Acromet. If your operational requirements change, necessitating a different feed rate, or your material characteristics change necessitating a different conditioning device or style of Auger, please contact Acromet for advice and parts.

## **5. MAINTENANCE**

### **5.1 General Care**

Periodic cleaning of the entire Feeder is recommended, especially when metering adhesive, cohesive or hygroscopic products. When cleaning **DO NOT** hose with water unless your Feeder is specially built for such cleaning methods.

Humidity can have a pronounced effect on some dry materials, so ensure that adequate ventilation or air drying/heating is available to prevent the material from clogging or caking due to moisture absorption.

### **5.2 Drive Motor (1)**

Refer to Manufacturer's Instructions.

### **5.3 Controller (A.C. or D.C.)**

Refer to Manufacturer's instructions.

### **5.4 Gear Reduction Box (4)**

The worm gear reduction box is supplied with long term lubrication and is charged with synthetic oil at time of manufacture. After approximately 7,500 hours of operation, or a period of three (3) years, (whichever is the sooner) it is recommended to drain and clean the gear unit thoroughly and recharge it with a branded synthetic lubricant. In arduous conditions it is recommended to review the replenishment on a more regular basis.

Mobil	SHC 634 or equivalent is recommended.
Volume	BS50 Worm Box = 0.35 litres
	BS63 Worm Box = 0.35 litres

### **5.5 Shaft Seal Assembly (Fig. 2)**

The seal has been designed to eliminate any necessity for lubrication and will often last several years dependent upon the abrasive properties of the product being metered. However, if abrasive particles are present, it is advisable to replace the Seal Assembly (Fig. 2) at least once every twelve (12) months. Should the seal start to fail and material manage to penetrate the inner Teflon Packing and Outer Seal Cap, this will be evidenced by a leakage deposit through the Adaptor Bracket which is located between the rear wall of the Conditioning Chamber (5) and the Reduction Gearbox (4).

(Refer to "Dismantling Procedures" for instructions on replacing seals).



## 6. **DISMANTLING PROCEDURES**

### 6.1 **Feeder Removal**

6.1.1 Run the Feeder until the hopper is empty. If a slide gate is fitted, close off the material feed from the hopper to the Conditioning Chamber (5).

6.1.2 Disconnect Motor (1) from power supply and isolate.

**THIS MUST BE DONE BY A QUALIFIED ELECTRICIAN.**

6.1.3 If the Feeder is provided with a circular inlet cover and a flexible connector between the cover and the bottom of the hopper, isolate the hopper from the Conditioning Chamber.

6.1.4 Where the Conditioning Chamber (5) is bolted directly to the bottom of a hopper, remove the bolts between the Conditioning Chamber (5) and the hopper.

6.1.5 Remove the bolts securing the Base Plate (12) to the foundation / support and slide the complete feeder out for maintenance access.

### 6.2 **Tube Plate Removal**

6.2.1 The Tube Plate is easily removed by unbolting the nuts and washers fastening the flange of the Tube Plate (6) to the face of the Conditioning Chamber (5).

6.2.2 Slide the Tube Plate (6) along the length of the Metering Auger (7) until clear. Care should be taken not to bend the Auger (if Auger has not already been removed), or allow spillage of material still retained in the Conditioning Chamber. Carefully remove the Tube Plate Gasket (11).

**NOTE:** Model 1300 Feeders require the removal of the Metering Auger before the Tube Plate can be removed. This is necessary because the Metering Auger cannot support itself from the drive end only.

### 6.3 **Metering Auger Removal**

6.3.1 The Metering Auger (7) incorporates a left hand internally threaded hub and is fastened to the Auger Drive Shaft (19) at its extension within the Feed Chamber.

6.3.2 To remove the Metering Auger, rotate **CLOCKWISE** (when facing the discharge end of the Auger) until Auger is disengaged.

#### 6.4 **Conditioning Auger / Blade Removal**

- 6.4.1 The Conditioning Auger (42) / Blade (43) can be removed after removal of the Metering Auger.
- 6.4.2 Slacken off cap head retaining screws and carefully remove them clear of the Chamber. Remove the Conditioning Unit clear of the Chamber.

#### 6.5 **Seal Assembly Removal**

The Seal Assembly (21) is located in the end of the Housing Plate (8A).

Unscrew, **anti-clockwise**, the Seal Cap (22). Using a corkscrew type packing removal tool, remove the Braided Teflon Seal Rings (24). Remove the Follower (23) and the Spring (25).

**NOTE:** For ease of assembly, the Auger Seal is supplied as a service replacement kit (21) complete with pre-cut Braided Teflon Packing.

#### 6.6 **Seal Assembly Removal : Conditioning Drive Shaft**

This Seal Assembly (112) is located in the Adaptor Plate (8) and behind the Conditioner Drive Shaft Flange. Remove the circlip at the rear of the gearbox and withdraw the Conditioning Drive Shaft into the Chamber.

Unscrew, **anti-clockwise**, the Seal Cap (104) using a corkscrew type packing removal tool, remove the Braided Teflon Seal Rings (108). Remove the Follower (107) and the Spring (110).

**Note:** For ease of assembly the auger seal is supplied as a service replacement kit (21) complete with pre-cut Braided Teflon Packing.

#### 6.7 **Re-Assembly**

Re-assemble in reverse order to the dismantling sequence.

## MODEL 1300 DRY MATERIAL FEEDER

### PARTS LIST - GENERAL ASSEMBLY

ITEM	PART NO	DESCRIPTION	QTY REQD	NOTES
1	001- AS SPEC	DRIVE MOTOR	1	
2	002- AS SPEC	PLATE MOTOR ADAPTOR	1	#
3	AFCK-1300	COUPLING, MOTOR	1	
4	004-35933	WORM DRIVE REDUCTION GEARBOX	1	
5	005- AS SPEC	CONDITIONING CHAMBER, +30 LTR HOPPER	1	#
5X	005X-35335	CONDITIONING CHAMBER ONLY	1	#
6	006- AS SPEC	DISCHARGE TUBE PLATE	1	
7	007- AS SPEC	METERING AUGER	1	
8	008- 35966	SEAL HOUSING PLATE	1	
10	010- AS SPEC	GASKET, ADAPTOR BRACKET	1	
11	011- AS SPEC	GASKET, DISCHARGE TUBE PLATE	1	
12	012- 35035	BASE PLATE	1	
13	013- AS SPEC	GASKET, HOPPER – CIRCULAR INLET	1	#
14	014- AS SPEC	EXTENSION HOPPER	1	#
15	015- AS SPEC	CIRCULAR INLET	1	#
19	019- 35967	DRIVE SHAFT	1	
<b>21</b>	<b>AFSK- 130</b>	<b>SEAL KIT</b>	<b>1</b>	⊗
22	022- AS SPEC	SEAL CAP (AUGER)	1	⊗
23	023- AS SPEC	FOLLOWER WASHER (AUGER)	1	⊗
24	024- AS SPEC	PACKING BRAIDED TEFLON (AUGER)	4	⊗
25	025- AS SPEC	SPRING (AUGER)	1	⊗
27	027-08/11/31	WASHER, FLAT, Ø 8mm	14	
28	028-08/02/91	SCREW, HEX, M10 (MOTOR)	4	

**MODEL 1100 GENERAL ASSEMBLY CONT.**

ITEM	PART NO	DESCRIPTION	QTY REQD	NOTES
29	029-09/01/25	WASHER, FLAT, Ø 10mm	4	
32	032-08/11/26	NUT, M8	10	
35	035-08/02/110	SCREW, HEX, M8x16, (BASE / CHAMBER)	4	
35	035-08/02/110	SCREW, HEX, M8x16, (CIRCULAR INLET)	10	#
37	037-08/02/111	SCREW, HEX, M8x16, (C-C / HOPPER)	10	#
38	038-09/01/31	WASHER, FLAT, Ø 8mm	10	#
44	044-08/11/27	NUT, M10 (MOTOR)	4	
95	095-11/01/10	CIRCLIP, EXTERNAL (DRIVE SHAFT)	2	

**Notes:**

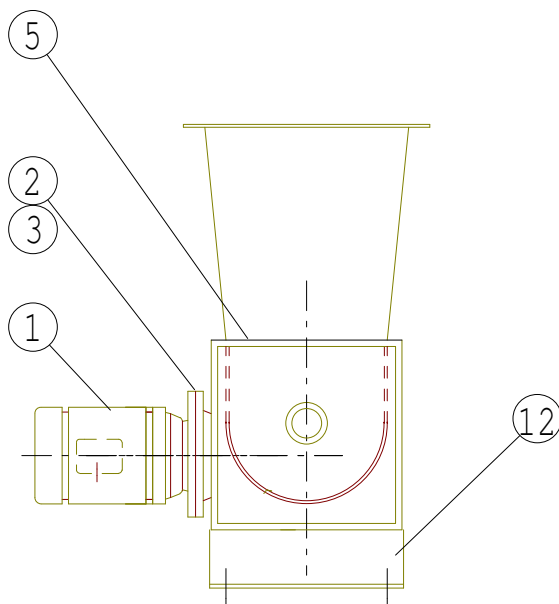
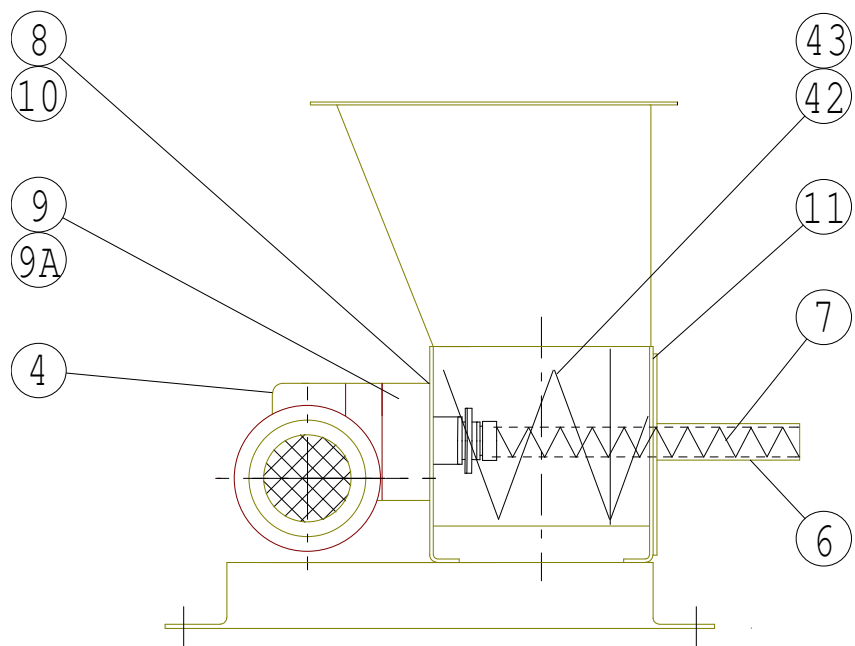
⊗ Available in kit form only

# When fitted

**WHEN ORDERING SPARE PARTS PLEASE STATE:**

- The Feeder Serial Number
- The Feeder Model Number
- The Spare Part Item Number and full description

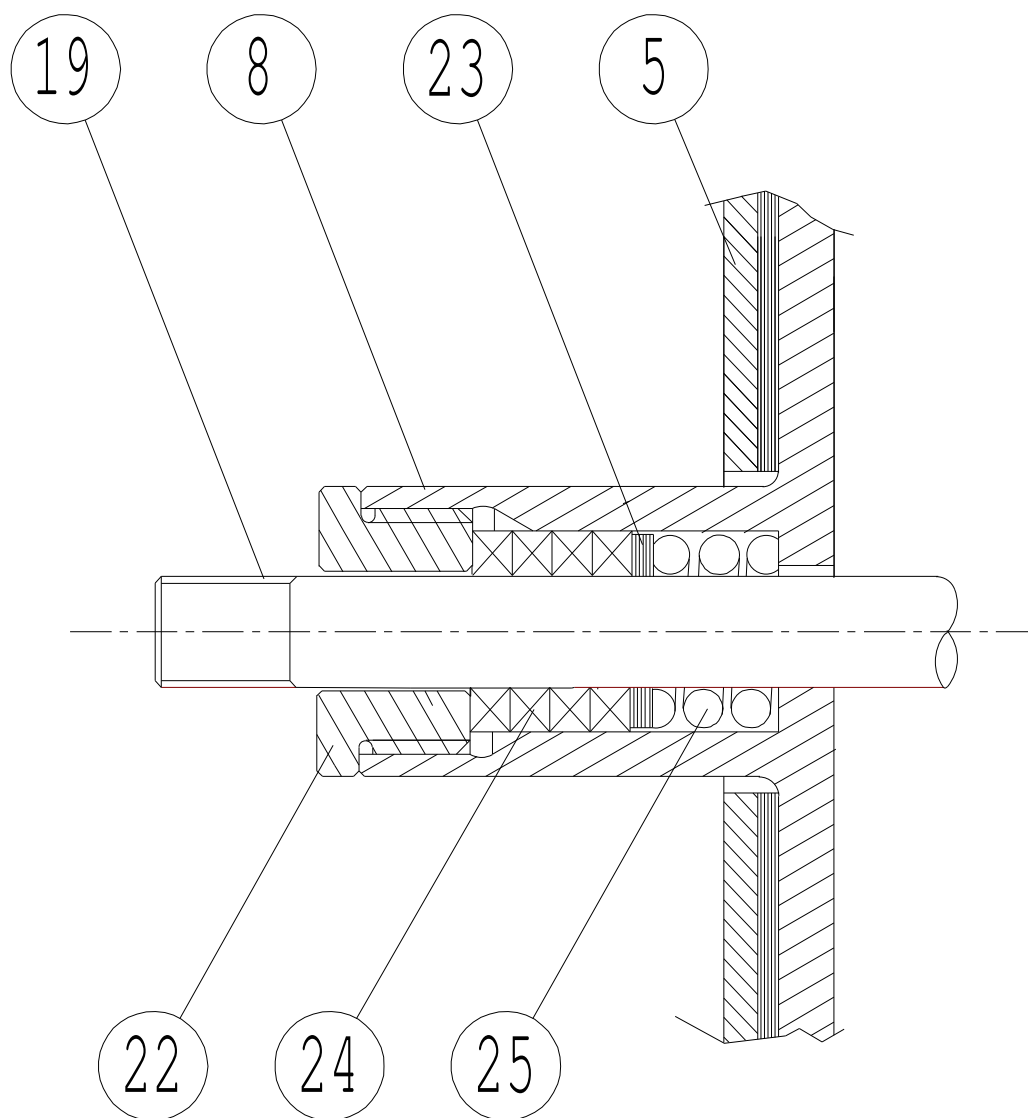
MODEL 1300 DRY MATERIAL FEEDER



**FIG. 1**

## AUGER SHAFT SEAL ASSEMBLY

AVAILABLE IN KIT FORM ONLY, ITEM No. 21



**FIG. 2**