Digital Dosing Disc Additive Feeders
Single, Duo and Trio With A250 Controller

Models: DD, SDD, Colorblend

Part Number: 882..02361.00
Bulletin Number: BLN1-625
Effective: August 1, 2012
Write Down Your Serial Numbers Here For Future Reference:

_________________________  ______________________
_________________________  ______________________
_________________________  ______________________

We are committed to a continuing program of product improvement. Specifications, appearance, and dimensions described in this manual are subject to change without notice.

DCN No. ____________
© Copyright 2013
All rights reserved.
Shipping Info

Unpacking and Inspection
You should inspect your granulator for possible shipping damage.

Thoroughly check the equipment for any damage that might have occurred in transit, such as broken or loose wiring and components, loose hardware and mounting screws, etc.

In the Event of Shipping Damage
According to the contract terms and conditions of the Carrier, the responsibility of the Shipper ends at the time and place of shipment.

Notify the transportation company’s local agent if you discover damage.

Hold the damaged goods and packing material for the examining agent’s inspection. **Do not return any goods before the transportation company’s inspection and authorization.**

File a claim with the transportation company. Substantiate the claim by referring to the agent’s report. A certified copy of our invoice is available upon request. The original Bill of Lading is attached to our original invoice. If the shipment was prepaid, write us for a receipted transportation bill.

Advise customer service regarding your wish for assistance and to obtain an RMA (return material authorization) number.

If the Shipment is Not Complete
Check the packing list as back-ordered items are noted on the packing list. You should have:

- Granulator
- Bill of lading
- Packing list
- Operating and Installation packet
- Electrical schematic and panel layout drawings
- Component instruction manuals

Re-inspect the container and packing material to see if you missed any smaller items during unpacking.

If the Shipment is Not Correct
If the shipment is not what you ordered, **contact the shipping department immediately.** For immediate assistance, please contact the correct facility located in the technical assistance section of this manual. Have the order number and item number available. **Hold the items until you receive shipping instructions.**
Returns
Do not return any damaged or incorrect items until you receive shipping instructions from the shipping department.

Credit Returns
Prior to the return of any material, authorization must be given by the manufacturer. A RMA number will be assigned for the equipment to be returned.
Reason for requesting the return must be given.
ALL returned material purchased from the manufacturer returned is subject to 15% ($75.00 minimum) restocking charge.
ALL returns are to be shipped prepaid.
The invoice number and date or purchase order number and date must be supplied.
No credit will be issued for material that is not within the manufacturer’s warranty period and/or in new and unused condition, suitable for resale.

Warranty Returns
Prior to the return of any material, authorization must be given by the manufacturer. A RMA number will be assigned for the equipment to be returned.
Reason for requesting the return must be given.
All returns are to be shipped prepaid.
The invoice number and date or purchase order number and date must be supplied.
After inspecting the material, a replacement or credit will be given at the manufacturer’s discretion. If the item is found to be defective in materials or workmanship, and it was manufactured by our company, purchased components are covered under their specific warranty terms.
# Table of Contents

## CHAPTER 1: SAFETY

1-1 How to Use This Manual .................................................................................................................. 7

Safety Symbols Used in this Manual ..................................................................................................... 7

1-2 General Safety Regulations .............................................................................................................. 9

1-3 Responsibility ..................................................................................................................................... 9

1-4 Warnings and Precautions ................................................................................................................ 10

## CHAPTER 2: FUNCTIONAL DESCRIPTION

2-1 Introduction ......................................................................................................................................... 11

2-1 A250 Controller ................................................................................................................................. 12

2-2 Quick Start-Up Guide ......................................................................................................................... 13

Unpacking: ............................................................................................................................................... 13

Mounting: ............................................................................................................................................... 13

Feeder Configuration - Injection Molding: .............................................................................................. 14

Recipe Setup - Injection Molding: ......................................................................................................... 17

Feeder Configuration – Simple extrusion: .............................................................................................. 20

Feeder Configuration – Extrusion follower: ........................................................................................... 25

## CHAPTER 3: INSTALLATION AND OPERATION

3-1 Installation .......................................................................................................................................... 34

3-2 Initial Operation ................................................................................................................................. 37

3-3 Recipes .............................................................................................................................................. 38

3-4 Calibration ......................................................................................................................................... 44

3-5 Status screens ..................................................................................................................................... 47

3-6 Optional Features ............................................................................................................................... 66

Level switches (probes) ............................................................................................................................ 66

Communication Protocol Interfaces ....................................................................................................... 67

OPTIONAL Additive Hoppers ................................................................................................................ 67

Virgin Material Supply Hoppers ............................................................................................................ 70

## CHAPTER 4: MAINTENANCE

4-1 Preventative Maintenance Intervals ................................................................................................. 71

4-2 Removing the Shear Plate (“DD dosing Module) .............................................................................. 73

Removing the shear ................................................................................................................................. 73

Installing the shear ................................................................................................................................. 73

4-3 Removing the “DD” Disc and Cleaning the Dosing Module .............................................................. 74

Dismantling the Dosing Module ............................................................................................................ 74

Installing the Dosing Module ................................................................................................................. 75

Installing Different Types of Dosing Discs ............................................................................................ 75

4-4 Removing/Replacing the Wiper in the “DT” Dosing Station ............................................................... 77

4-5 Removing the “DT” Disc and cleaning the dosing station ............................................................... 78

4-6 Removing/Replacing the “DT” Disc & Cleaning the Dosing Station ................................................... 80

4-7 Removing the “DP” Disc and Cleaning the Dosing Station ............................................................... 81

4-8 Exchangeable Dosing Modules .......................................................................................................... 82

4-9 Spare Parts ........................................................................................................................................ 83
Chapter 1: Safety

1-1 How to Use This Manual
Use this manual as a guide and reference for installing, operating, and maintaining your equipment. The purpose is to assist you in applying efficient, proven techniques that enhance equipment productivity.

This manual covers only corrective maintenance. No other maintenance should be undertaken without first contacting a service engineer.

The Functional Description section outlines models covered, standard features, and safety features. Additional sections within the manual provide instructions for installation, pre-operational procedures, operation, preventive maintenance, and corrective maintenance.

The Installation chapter includes required data for receiving, unpacking, inspecting, and setup of the equipment. We can also provide the assistance of a factory-trained technician to help train your operator(s) for a nominal charge. This section includes instructions, checks, and adjustments that should be followed before commencing with operation. These instructions are intended to supplement standard shop procedures performed at shift, daily, and weekly intervals.

The Operation chapter includes a description of electrical and mechanical controls, in addition to information for operating the equipment safely and efficiently.

The Maintenance chapter is intended to serve as a source of detailed assembly and disassembly instructions for those areas of the equipment requiring service. Preventive maintenance sections are included to ensure that your granulator provides excellent, long term service.

The Troubleshooting chapter serves as a guide for identification of most common problems. Potential problems are listed, along with possible causes and related solutions.

The Appendix contains technical specifications, drawings, schematics, parts lists, and available options. A spare parts list with part numbers specific to your machine is provided with your shipping paperwork package. Refer to this section for a listing of spare parts for purchase. Have your serial number and model number ready when ordering.

Safety Symbols Used in this Manual
The following safety alert symbols are used to alert you to potential personal injury hazards. Obey all safety messages that follow these symbols to avoid possible injury or death.

⚠️ DANGER indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

⚠️ WARNING indicates a potentially hazardous situation or practice that, if not avoided, could result in death or serious injury.

⚠️ CAUTION indicates a potentially hazardous situation or practice that, if not avoided, may result in minor or moderate injury or property damage.
Figure 1: Safety Tags and Warning Labels

<table>
<thead>
<tr>
<th>Hazard Alert Symbol</th>
<th>Description/Explanation</th>
<th>Preventative Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pinch point slide gate. Hands can become entangled or cut if they enter the danger zone of gears.</td>
<td>Every month inspect the shears/blades for any type of wear. For further information see the Maintenance Chapter in this manual.</td>
</tr>
<tr>
<td></td>
<td>High voltage inside enclosure. The electrical enclosure is supplied with 3-phase electrical power. Use caution when using or maintaining this product.</td>
<td>Every six months inspect all electrical connections for secure attachment. For further information see the Maintenance Chapter in this manual.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mandatory Symbol</th>
<th>Description/Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Read Operators Manual. This equipment must be operated and maintained by properly trained personnel. The information contained within this manual must be read and understood prior to operating this equipment.</td>
</tr>
<tr>
<td></td>
<td>Lifting point. Heavy load can fall and cause serious injury or possible death. Lift equipment at designated points.</td>
</tr>
<tr>
<td></td>
<td>Disconnect before opening. Before servicing or maintaining the machine be sure to disconnect the power and/or compressed air source to avoid electrical shock and/or serious injury.</td>
</tr>
<tr>
<td></td>
<td>Lock Out. This equipment is operated with 3-phase electrical power. Therefore, when performing any maintenance operations we recommend following the local standards for performing a lock-out/tag-out procedure.</td>
</tr>
</tbody>
</table>
1-2 General Safety Regulations

These regulations should be read, understood and periodically reviewed by all personnel involved in any way with this machine.

Never operate or remove any machine components that are secured by wrench-type fasteners unless the motor is electrically locked out and the disc is motionless.

Never operate the machine unless the dosing module is in place and all guards and covers are in place and secure.

Prior to clearing a jam or performing any maintenance, the motor should be turned off and electrically locked out. Be sure that the disc has stopped. Hands must not be inserted into the machine to clear the jam.

Never extend fingers through safety guards.

Be sure that the v-belts are properly aligned and that tension is at its maximum.

Extreme care should be taken to see that all bolts are properly tightened at all times.

This machine is designed for the feeding of free-flowing granular materials. Do not feed any other materials into the machine without consulting with one of our Application Engineers.

1-3 Responsibility

These machines are constructed for maximum operator safety when used under standard operating conditions and when recommended instructions are followed in the maintenance and operation of the machine.

All personnel engaged in the use of the machine should become familiar with its operation as described in this manual.

Proper operation of the machine promotes safety for the operator and all workers in its vicinity.

Becoming familiar with materials, inspection, speed limitations, screens, and guard maintenance and total user responsibility will assist you in learning potential areas in need of observation for danger.

Each individual must take responsibility for observing the prescribed safety rules as outlined. All caution, warning and danger signs must be observed and obeyed. All actual or potential danger areas must be reported to your immediate supervisor.
1-4  **Warnings and Precautions**

Our equipment is designed to provide safe and reliable operation when installed and operated within design specifications, following national and local safety codes. This may include, but is not limited to OSHA, NEC, CSA, SPI, NEPA or CE and any other local, national and international regulations. To avoid possible personal injury or equipment damage when installing, operating, or maintaining this equipment, use good judgment and follow these safe practices:

- Read and follow these operation and installation instructions when installing, operating, and maintaining this equipment. If these instructions become damaged or unreadable, additional copies are available from the manufacturer.
- Follow all SAFETY CODES.
- Keep fingers away from rotating discs, slide gates, augers, clean-outs, and calibration CAPABLE OF CAUSING BODILY INJURY EXISTS ANY TIME THE POWER IS ON.
- Wear SAFETY GLASSES and WORK GLOVES.
- Work only with approved tools and devices.
- Disconnect and/or lock out power and compressed air before servicing or maintaining the equipment.
- Use care when LOADING, UNLOADING, RIGGING, or MOVING this equipment.
- Operate this equipment within design specifications.
- OPEN, TAG, and LOCK ALL DISCONNECTS before working on equipment. You should remove the fuses and carry them with you.
- NEVER PUT FINGERS OR TOOLS IN HOPPER, AUGER OR SLIDE GATE AREA.
- Make sure the equipment and components are properly GROUNDED before you switch on power.
- Do not restore power until you remove all tools, test equipment, etc., and the equipment and related components are fully reassembled.
- Only PROPERLY TRAINED personnel familiar with the information in this manual should work on this equipment.

We have long recognized the importance of safety and have designed and manufactured our equipment with operator safety as a prime consideration. We expect you, as a user, to abide by the foregoing recommendations in order to make operator safety a reality.
Chapter 2: Functional Description

2-1 Introduction

This manual is to be used with the Digital Dosing Disc additive feeder. The feeder precisely meters and controls the addition of color concentrates, master batches, additives, regrind, and other materials to plastic processing systems. The Digital Dosing feeder can meter pellets, micro pellets, prill, powder and granular material of various sizes, when equipped with the appropriate dosing module. It can be used on extruders, and blow molding and injection molding machines. Single or Dual Station feeders are the most popular, but three and four component models are also available. See Figures 1 and 2. This manual covers the installation and operation of all of these feeders.

Figure 1. Single Station Digital Dosing Feeder and A250 Controller
Figure 2. “Duo” Dual Station Digital Dosing Feeder

2-1 A250 Controller

The Digital Dosing additive feeder consists of a controller(s), dosing motor(s), and dosing module(s).

The controller is used to:

Configure the feeder to the desired process.
Calibrate the feeder.
Run, monitor, and stop the dosing (feeding) process.
Enter, recall, and run recipes.
Troubleshoot problems via touch screen.

A touch screen is used to enter, modify, and display data.
The control system is switched “On” (position “1”) with the “On/Off” switch.
2-2 Quick Start-Up Guide
(See Chapter four for complete description)

This “Quick Start” section is intended to help you start your Digital Dosing feeder quickly and easily. Please refer to the enclosed O & I manual for additional information.

Unpacking:
1. Inspect package for damage and notify carrier immediately – DO NOT ACCEPT EQUIPMENT IF PACKAGING IS DAMAGED!
2. File a claim with the shipping company immediately if damage is evident.
3. Unpack box, making sure all parts indicated on packing list are included.
4. Check all parts and equipment for any damage sustained during shipment.
5. If any damage is noted, contact manufacturer for replacement or service.
6. Make sure the following are present before proceeding:
   - Power: 110 or 220 volt, single phase, 50 or 60 hertz (verify voltage on S/N tag)
   - Proper mounting flange adapter, and mounting hardware, for the feed throat
   - Dry (ZERO VOLTAGE) contact that closes during screw recovery of IMM
   - Gram scale to measure weight of additive material for calibration.

Mounting:
1. Mount the feeder, including the dosing hopper, on the feed throat (may need an adapter). Be sure to use appropriate fasteners to secure the feeder in place.
2. Connect the motor drive connector (“Amp” connector-black) to the motor.
3. Connect the communication cable (DB-9 plug-silver) to the DB-9 connector on the motor junction box.
4. Plug power cord into appropriate outlet.
5. INJECTION MOLDING: Connect the “cycle/run” cable (2-conductor - gray) to a dry (ZERO VOLTAGE) contact that closes during the recovery cycle of the machine. (The connection in the controller should be on terminal block #10 and PLC input X5.)
6. **EXTRUSION – “Simple”:** Connect the input cable (2-conductor cable-gray) to a dry contact (zero voltage) signal that indicates the extruder screw is turning. (The connection in the controller should be on terminal block #10 and PLC input X5. A jumper wire can also be installed on the same terminals (instead of a dry contact) if the feeder is to be started and stopped through the feeder controller, and not with the extruder screw.

7. **EXTRUSION – “Follower”:** Connect the input cable (2-conductor cable-gray) to a 0-10 VDC, 0-20 mA, or 4-20 mA signal from the extruder that indicates the screw speed (rpm) of the extruder. (The connection inside the controller should be on terminals blocks 51 and 54.

**Feeder Configuration - Injection Molding:**
Touch the ACS logo on the main menu screen to access the configuration menu. See section # for details.

![Feeder Type Selection](image)

*Feeder Type Selection.* Select injection molding (default value).
**Maximum Motor speed.** Enter nominal motor speed.

**ENCODER PULSES**

Encode pulses per disk revolution. See table.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Motor Color</th>
<th>RPM</th>
<th>Encoder Pulses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bodine</td>
<td>Black &amp; silver</td>
<td>3</td>
<td>8400</td>
</tr>
<tr>
<td>Bodine</td>
<td>Black &amp; silver</td>
<td>8.4</td>
<td>8400</td>
</tr>
<tr>
<td>Bodine</td>
<td>Black &amp; silver</td>
<td>11.5</td>
<td>5700</td>
</tr>
<tr>
<td>Bodine</td>
<td>Black &amp; silver</td>
<td>38</td>
<td>1800</td>
</tr>
</tbody>
</table>

**Drive tuning.** Perform drive tuning. See section # for details.

**Speed Alarm setup.** Select alarm option – Alarm & stop, alarm only, or no alarm.
GR or OZ. Select the measure commonly used at your facility.

Injection Press (GR/KG/OZ/LB) Select the measure commonly used at your facility.

Additive sensor. Select the no sensor, alarm only, or alarm & stop.

Virgin material sensor. Select the no sensor, alarm only, or alarm & stop.
Recipe Setup - Injection Molding:

Turn power switch to “ON” position.

Injection molding.

In order to calculate the correct motor speed required to feed the desired amount of additive, the following data must be entered:

1) Additive %
2) Shot Size
3) Screw Recovery Time.
4) Calibration weight.

In addition, for the greatest accuracy, samples of the additive should be weighed and entered.

Additive %

The % additive specifies the proportion of additive to virgin material as a percentage of throughput. For example, if the shot size is 200 grams and 8.5 grams of additive are required, the additive percentage would be 4.25. After the additive value has been entered, press the “Next” button to navigate to the Shot Size screen.

Shot Size
The shot size specifies the total capacity of the mold in use on the press. The value can be entered in grams, kilograms, ounces, or pounds. The unit of measure is changed by pressing the units button at the middle right of the screen. Changing the unit of measure will NOT change the value displayed on the screen.
**Screw Recovery Time.**

The screw recovery time is the estimated screw recovery time, and is used as the initial value for validating the recipe. Actual screw recovery times as measured by the presence of the screw recovery signal, are used to fine-tune the feed rate during operation. The estimated time **must** be at least ½ of the actual recovery time. If less than ½, the feeder will interpret the recovery signal as a purge cycle.

**Calibration weight.**

Calibration weight is determined from the following tables, and is dependant on the disc installed in the feeder. This weight is the amount of standard density material dispensed by the feeder during one revolution of the disc. This weight is used as the initial value for recipe validation and feed rate calculation. If samples are not weighed as described in the next section, this value is used during operation. The weight can be entered in ounces or grams. The unit of measure is changed by pressing the units button at the middle right of the screen. Changing the unit of measure will NOT change the value displayed on the screen. The value initially displayed is the weight which would result in a motor speed of 25%. The valid range of values would then be ¼ to 5 times this initial value.

**“DD” Pellet Discs**

<table>
<thead>
<tr>
<th>Disc</th>
<th>Calibration Number</th>
<th>No. of Pockets</th>
<th>Disc Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>DD 30-030672</td>
<td>1.75</td>
<td>72</td>
<td>3 mm</td>
</tr>
<tr>
<td>DD 30-051040</td>
<td>5.00</td>
<td>40</td>
<td>5mm</td>
</tr>
<tr>
<td>DD 30-051725</td>
<td>8.00</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>DD 30-051818</td>
<td>15.00</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>
Additive Sample weighing.

Weighing samples of additive provides for more precise control of feed rate. Up to 5 samples can be weighed. All weights entered are averaged to arrive at a value to be used during operation. The weighing process may be skipped altogether, in which case the calibration weight is used for calculations of feed rate. See the section Weight Calibration at the end of this section.

Feeder Configuration – Simple extrusion:

Touch the ACS logo on the main menu screen to access the configuration menu. See section # for details.
Maximum Motor speed. Enter motor RPM.

Encoder pulses per disk revolution. See table.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Motor Color</th>
<th>RPM</th>
<th>Encoder Pulses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bodine</td>
<td>Black &amp; silver</td>
<td>3</td>
<td>8400</td>
</tr>
<tr>
<td>Bodine</td>
<td>Black &amp; silver</td>
<td>8.4</td>
<td>8400</td>
</tr>
<tr>
<td>Bodine</td>
<td>Black &amp; silver</td>
<td>11.5</td>
<td>5700</td>
</tr>
<tr>
<td>Bodine</td>
<td>Black &amp; silver</td>
<td>38</td>
<td>1800</td>
</tr>
</tbody>
</table>

Motor and alarm utility selection
Drive tuning. Perform drive tuning. See section # for details.

Speed Alarm setup. Select alarm option – Alarm & stop, alarm only, or no alarm.

GR or OZ Select the measure commonly used at your facility.

Extrusion Press (GR/KG/OZ/LB) Select the measure commonly used at your facility.

Default Measure

Additive sensor. Select the no sensor, alarm only, or alarm & stop.
Virgin material sensor. Select the no sensor, alarm only, or alarm & stop.

**Recipe Setup for Simple Extrusion:**

1. Turn power switch to “ON” position.

In order to calculate the correct motor speed required to feed the desired amount of additive, the following data must be entered:

   1) Additive %  
   2) Throughput  
   3) Calibration weight.

In addition, for the greatest accuracy, samples of the additive should be weighed and entered.

**Additive %**

The % additive specifies the proportion of additive to virgin material as a percentage of throughput. For example, if the throughput is 200 grams per minute and 8.5 grams of additive are required, the additive percentage would be 4.25. After the additive value has been entered, press the “Next” button to navigate to the Throughput screen.
Throughput.

Press throughput specifies the total weight of material through the extruder per minute. The value can be entered in grams, kilograms, ounces, or pounds per minute. The unit of measure is changed by pressing the units button at the middle right of the screen. Changing the unit of measure will NOT change the value displayed on the screen. It is important that this value be adjusted whenever the extruder speed changes.

Calibration weight.

Calibration weight is determined from the following tables, and is dependant on the disc installed in the feeder. This weight is the amount of standard density material dispensed by the feeder during one revolution of the disc. This weight is used as the initial value for recipe validation and feed rate calculation. If samples are not weighed as described in the next section, this value is used during operation. The weight can be entered in ounces or grams. The unit of measure is changed by pressing the units button at the middle right of the screen. Changing the unit of measure will NOT change the value displayed on the screen. The value initially displayed is the weight which would result in a motor speed of 25%. The valid range of values would then be \( \frac{1}{4} \) to 2.5 times this initial value.

**“DD” Pellet Discs**

<table>
<thead>
<tr>
<th>Disc</th>
<th>Calibration Number</th>
<th>No. of Pockets</th>
<th>Disc Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>DD 30-030672</td>
<td>1.75</td>
<td>72</td>
<td>3 mm</td>
</tr>
<tr>
<td>DD 30-051040</td>
<td>5.00</td>
<td>40</td>
<td>5mm</td>
</tr>
<tr>
<td>DD 30-051725</td>
<td>8.00</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>DD 30-051818</td>
<td>15.00</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>
**“DT” Pellet & Regrind Discs**

<table>
<thead>
<tr>
<th>Disc Thickness</th>
<th>Disc</th>
<th>Calibration Number</th>
<th>No. of Pockets</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 mm</td>
<td>DT 30-101820</td>
<td>32.00</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>DT 30-102025</td>
<td>38.00</td>
<td>20 Oval</td>
</tr>
<tr>
<td></td>
<td>(“Sure-shot” - 20 oval holes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 mm</td>
<td>DT 30-203012</td>
<td>100.00</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>DT 30-204010</td>
<td>175.00</td>
<td>10</td>
</tr>
</tbody>
</table>

**“DP” Powder Discs**

<table>
<thead>
<tr>
<th>Disc</th>
<th>Calibration Number</th>
<th>Disc Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>DP 30-050940</td>
<td>17.00</td>
<td>5mm</td>
</tr>
<tr>
<td>DP 30-250940</td>
<td>8.00</td>
<td>2.5mm</td>
</tr>
</tbody>
</table>

**Feeder Configuration – Extrusion follower:**

Touch the ACS logo on the main menu screen to access the configuration menu. See section # for details.

Feeder Type Selection. Select extrusion follower.

Select press signal type, 0-10V, 0-20mA, or 4-20mA.
Enter/Read Minimum press signal. See section # for details.

Enter/Read Maximum press signal. See section # for details.

Maximum Motor speed Enter motor speed.

Encoder pulses per disk revolution. See table.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Motor Color</th>
<th>RPM</th>
<th>Encoder Pulses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bodine</td>
<td>Black &amp; silver</td>
<td>3</td>
<td>8400</td>
</tr>
<tr>
<td>Bodine</td>
<td>Black &amp; silver</td>
<td>8.4</td>
<td>8400</td>
</tr>
<tr>
<td>Bodine</td>
<td>Black &amp; silver</td>
<td>11.5</td>
<td>5700</td>
</tr>
<tr>
<td>Bodine</td>
<td>Black &amp; silver</td>
<td>38</td>
<td>1800</td>
</tr>
</tbody>
</table>
Motor and alarm utility selection

Drive tuning. Perform drive tuning. See section # for details.

<table>
<thead>
<tr>
<th>Min</th>
<th>1.2/0.0 RPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max</td>
<td>11.5/0.0 RPM</td>
</tr>
</tbody>
</table>

Speed Alarm setup. Select alarm option – Alarm & stop, alarm only, or no alarm.

**Speed Deviation:** 5%

**Alarm Delay:** 2 Sec

GR or OZ. Select the measure commonly used at your facility.

Extrusion Press (GR/KG/OZ/LB) Select the measure commonly used at your facility.
Recipe Setup for Simple Extrusion:

In order to calculate the correct motor speed required to feed the desired amount of additive, the following data must be entered:

1) Additive %
2) Throughput
3) Throughput RPM
4) Calibration weight.

In addition, for the greatest accuracy, samples of the additive should be weighed and entered.

Additive %

The % additive specifies the proportion of additive to virgin material as a percentage of throughput. For example, if the throughput is 200 grams per minute and 8.5 grams of additive are required, the additive percentage would be 4.25. After the additive value has been entered, press the “Next” button to navigate to the Throughput screen.
Press throughput specifies the total weight of material through the extruder per minute. The value can be entered in grams, kilograms, ounces, or pounds per minute. The unit of measure is changed by pressing the units button at the middle right of the screen. Changing the unit of measure will NOT change the value displayed on the screen. This value is the throughput corresponding to a specific extruder RPM, which will be entered on the following screen. Given these reference values, the correct feed rate can be determined for any extruder speed. Note that the minimum and maximum press speeds and signal levels must be entered correctly in Setup.

The press speed corresponding to the throughput value entered on the previous screen. Given these reference values, the correct feed rate can be determined for any extruder speed. Note that the minimum and maximum press speeds and signal levels must be entered correctly in Setup.

Calibration weight.

Calibration weight is determined from the following tables, and is dependant on the disc installed in the feeder. This weight is the amount of standard density material dispensed by the feeder during one revolution of the disc. This weight is used as the initial value for recipe validation and feed rate calculation. If samples are not weighed as described in the next section, this value is used during operation. The weight can be entered in ounces or grams. The unit of measure is changed by pressing the units button at the middle right of the screen. Changing the unit of measure will NOT change the value displayed on the screen. The value
Initially displayed is the weight which would result in a motor speed of 25%. The valid range of values would then be ¼ to 2.5 times this initial value.

### “DD” Pellet Discs

<table>
<thead>
<tr>
<th>Disc</th>
<th>Calibration Number</th>
<th>No. of Pockets</th>
<th>Disc Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>DD 30-030672</td>
<td>1.75</td>
<td>72</td>
<td>3 mm</td>
</tr>
<tr>
<td>DD 30-051040</td>
<td>5.00</td>
<td>40</td>
<td>5 mm</td>
</tr>
<tr>
<td>DD 30-051725</td>
<td>8.00</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>DD 30-051818</td>
<td>15.00</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>

### “DT” Pellet & Regrind Discs

<table>
<thead>
<tr>
<th>Disc Thickness</th>
<th>Disc</th>
<th>Calibration Number</th>
<th>No. of Pockets</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 mm</td>
<td>DT 30-101820</td>
<td>32.00</td>
<td>20</td>
</tr>
<tr>
<td>DT 30-102025</td>
<td>(“Sure-shot” - 20 oval holes)</td>
<td>38.00</td>
<td>20 Oval</td>
</tr>
<tr>
<td>20 mm</td>
<td>DT 30-203012</td>
<td>100.00</td>
<td>12</td>
</tr>
<tr>
<td>DT 30-204010</td>
<td></td>
<td>175.00</td>
<td>10</td>
</tr>
</tbody>
</table>

### “DP” Powder Discs

<table>
<thead>
<tr>
<th>Disc</th>
<th>Calibration Number</th>
<th>Disc Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>DP 30-050940</td>
<td>17.00</td>
<td>5 mm</td>
</tr>
<tr>
<td>DP 30-250940</td>
<td>8.00</td>
<td>2.5 mm</td>
</tr>
</tbody>
</table>

Additive Sample weighing.

Weighing samples of additive provides for more precise control of feed rate. Up to 5 samples can be weighed. All weights entered are averaged to arrive at a value to be used during operation. The weighing process may be skipped altogether, in which case the calibration weight is used for calculations of feed rate.

Weight Calibration.

The final step of recipe setup is weight calibration. This procedure is common to all types of presses supported. After entering the calibration weight, pressing the “Next” button displays the following screen:
Press the “Menu” button to skip the weighing procedure and use the calibration weight for feed rate calculations. Note that using the calibration weight is not as accurate as weighing samples. Pressing the “Next” button displays screen #1.

**Screen 1.**

TARE SAMPLE TRAY, THEN PLACE IN CALIBRATION BOX. PRESS 'NEXT'.

Initial preparation for weighing samples. The access cover to the calibration chamber should be removed / opened. The container used to catch and hold the samples should be tared (place the container on the scale and zero the scale). The container should then be placed in the calibration chamber. Press “Next” when these steps have been completed. The motor will begin to run as Screen 2 will be displayed.

**Screen 2.**

PRIMING DISK WITH ADDITIVE. PLEASE WAIT. PRESS 'MENU' TO CANCEL.

The disc will make one complete revolution, insuring all pockets are filled with additive material prior to actual weighing. Motor speed is 25%.

**Screen 3.**

DISCARD SAMPLE, REPLACE TRAY IN CALIBRATION BOX. PRESS NEXT

When the motor stops, screen 3 is displayed. Discard sample and replace container in calibration box. Press “Next” starts the motor and displays Screen 4.
Screen 4.

**LOADING NEXT WEIGHT SAMPLE. PLEASE WAIT. PRESS 'MENU' TO CANCEL.**

Menu

The disc will make one complete revolution, dispensing additive into the tray. Motor speed is 25%. When the motor stops, Screen 5 is displayed.

Screen 5.

**WEIGH SAMPLE, EMPTY & REPLACE TRAY IN CALIBRATION BOX. PRESS NEXT**

Prev  Next  Menu

Weigh the sample, making note of the weight for entry on the next screen. Discard sample & replace tray in calibration box. Press “Next” to display Screen 6.

Screen 6.

**ENTER SAMPLE WEIGHT.**

12.34 GR

Prev  Menu

Enter the sample weight obtained from the previous cycle of the feeder. The unit of measure will be the same as used for the calibration weight. Pressing the Enter symbol on the screen keypad displays Screen 7.
Screen 7.
NEXT TO CONTINUE.
AVG. 12.34 [GR]
1 OF 5 SAMPLES

The screen displays the running average of sample weights, as well as the number of samples taken. Pressing “Next” will repeat the process at Screen 4 if less than 5 samples have been taken, otherwise Screen 8 will be displayed.

Screen 8.
REMOVE TRAY, REPLACE SAMPLING COVER.
PRESS ‘NEXT’.

The tray should be removed from the calibration chamber. The access cover should be replaced / closed. Weight Calibration is complete. Note that at any time in the process, the “Menu” button may be pressed to abort the weight calibration process. Any sample weights, if any, are used to calculate the average weight. If no sample weights are entered, the calibration weight is used for calculations. Using less than 5 samples may affect feeder accuracy.
1. The Digital Dosing additive feeder is not affected by machine vibration, so the best performance is achieved by mounting the feeder directly on the feed throat of the molding machine or extruder (see Figure 4). The inlet into the process machine must be greater than 2” diameter, or an adapter may be necessary. If an adapter is required, it must be designed so that there are no edges where material can hang up - it must be smooth to promote consistent material flow.
2. The following applications require a larger feed stand (optional 3” or 4”) to prevent material bridging:
   o Machines with a total throughput over 200 lbs./hr.
   o Machines running regrind larger than 5/16” screen size
   o Processes with a high percentage of regrind (>30%)
   o Non-free flowing virgin material, i.e. powder
   o Consult factory for any special requirements.

3. Optimum mounting of the Digital Dosing feeder is shown in Figure 4, with the additive being dosed in the first few flights of the feed screw.

4. The controller should be remote mounted for operator convenience. The control unit must not be exposed to temperatures above 45° C (115° F), or excessive moisture.

5. Electrical connection to process machine:

   **Injection Molding:** Connect the “cycle/run” cable (thin, gray two-conductor cable) to a set of dry (NO VOLTAGE) contacts that CLOSE for the duration of the screw recovery. (See Figure 5.)

![Figure 5. Electrical Interface Connection Diagram – Injection Molding or Extrusion - Constant](image-url)
**Extrusion - Constant:** Wire the “cycle/run” cable (two-conductor gray cable) to a set of dry (NO VOLTAGE) contacts that CLOSE when the screw rotates. (See Figure 5.) The connection inside the controller should be on terminal block #10 and PLC input X5.

**Extrusion - Proportional:** Wire the “cycle/run” cable to the extruder signal output that is proportional to the extruder speed. The signal can be 0-10 VDC or 0-20 mA or 4-20 mA. *Jumpers J1 and J2 should be installed for 0-20mA or 4-20mA, and removed for 0-10VDC.*

**NOTES:**

1. Signal voltage from the extruder must to be isolated. Consult factory for other signal requirements. External signal converter may be required.

2. “Zero” input corresponds to zero screw speed and no additive dosing. “Maximum” input corresponds to maximum screw speed.

---

**Figure 6. Analog Extruder Input Connection Diagram – Extrusion - Proportional**
3-2 Initial Operation

The control system is factory-programmed. However, specific values need to be verified prior to operation (basic parameter settings). The input values will be saved and still be available if the feeder is switched off, or a power failure occurs. Please refer to Appendix B for these values.

Extrusion operations require a “span factor” to be entered into the basic settings. These are also explained in Appendix B.

Prior to putting your new Digital Dosing feeder on-line:
Configure the feeder control for motor speed, encoder pulses, sensors, and alarm options.

- Tune the drive.
- Enter a recipe.
- Calibrate the additive weight for best accuracy.

NOTE: Recipe parameters are different for Injection Molding, Extrusion – Constant, and Extrusion - Proportional operation. See each individual section for details

Once the feeder is on-line, recipes can be saved for later recall (up to 50 standard).
3-3 Recipes

Recipe Menu

The Recipe menu allows selection, editing, and deletion of recipes. The current recipe is displayed in
the upper left corner. A different recipe can be selected by pressing the recipe value. Selecting a new recipe
will automatically change the screen to the 1st recipe entry/editing screen.

Pressing the Edit Recipe button will display the 1st recipe entry/edit screen. See following section.

Pressing the New Recipe button will display the New Recipe menu.

Pressing the Edit Recipe button will display the 1st recipe entry/edit screen. See following section.
Select a new recipe by pressing the recipe # value. Press the “Next Avail” button to use the next available
empty / unused recipe number.

Pressing the Delete Recipe button will display a confirmation screen as follows:

Press the Delete Recipe button to clear all values from the current recipe. Pressing the Keep Recipe
button will retain the values and return to the Recipe Menu screen.
Enter / Edit Recipes.

Injection molding.

In order to calculate the correct motor speed required to feed the desired amount of additive, the following data must be entered:

5) Additive %
6) Shot Size
7) Screw Recovery Time.
8) Calibration weight.

In addition, for the greatest accuracy, samples of the additive should be weighed and entered.

Additive %

<table>
<thead>
<tr>
<th>Recipe 3</th>
<th>% Additive 5.50%</th>
</tr>
</thead>
</table>

The % additive specifies the proportion of additive to virgin material as a percentage of throughput. For example, if the shot size is 200 grams and 8.5 grams of additive are required, the additive percentage would be 4.25. After the additive value has been entered, press the “Next” button to navigate to the Shot Size screen.

Shot Size

<table>
<thead>
<tr>
<th>Recipe 3</th>
<th>Shot Size 123.4 GR</th>
</tr>
</thead>
</table>

The shot size specifies the total capacity of the mold in use on the press. The value can be entered in grams, kilograms, ounces, or pounds. The unit of measure is changed by pressing the units button at the middle right of the screen. Changing the unit of measure will NOT change the value displayed on the screen.
Screw Recovery Time.

The screw recovery time is the estimated screw recovery time, and is used as the initial value for validating the recipe. Actual screw recovery times as measured by the presence of the screw recovery signal, are used to fine-tune the feed rate during operation. The estimated time must be at least ½ of the actual recovery time. If less than ½, the feeder will interpret the recovery signal as a purge cycle.

Calibration weight.

Calibration weight is determined from chart 5.1, and is dependant on the disc installed in the feeder. This weight is the amount of standard density material dispensed by the feeder during one revolution of the disc. This weight is used as the initial value for recipe validation and feed rate calculation. If samples are not weighed as described in the next section, this value is used during operation. The weight can be entered in ounces or grams. The unit of measure is changed by pressing the units button at the middle right of the screen. Changing the unit of measure will NOT change the value displayed on the screen. The value initially displayed is the weight which would result in a motor speed of 25%. The valid range of values would then be ¼ to 5 times this initial value.

Additive Sample weighing.

Weighing samples of additive provides for more precise control of feed rate. Up to 5 samples can be weighed. All weights entered are averaged to arrive at a value to be used during operation. The weighing process may be skipped altogether, in which case the calibration weight is used for calculations of feed rate. See the section Weight Calibration at the end of this section.
Simple Extrusion Recipe.

In order to calculate the correct motor speed required to feed the desired amount of additive, the following data must be entered:

4) Additive %
5) Throughput
6) Calibration weight.

In addition, for the greatest accuracy, samples of the additive should be weighed and entered.

Additive %

<table>
<thead>
<tr>
<th>Recipe 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Additive 5.50%</td>
</tr>
<tr>
<td>Next</td>
</tr>
</tbody>
</table>

The % additive specifies the proportion of additive to virgin material as a percentage of throughput. For example, if the throughput is 200 grams per minute and 8.5 grams of additive are required, the additive percentage would be 4.25. After the additive value has been entered, press the “Next” button to navigate to the Throughput screen.

Throughput.

<table>
<thead>
<tr>
<th>Recipe 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press 123.0 GR/MN</td>
</tr>
<tr>
<td>Throughput Next Menu</td>
</tr>
</tbody>
</table>

Press throughput specifies the total weight of material through the extruder per minute. The value can be entered in grams, kilograms, ounces, or pounds per minute. The unit of measure is changed by pressing the units button at the middle right of the screen. Changing the unit of measure will NOT change the value displayed on the screen. It is important that this value be adjusted whenever the extruder speed changes.
Calibration weight.

Calibration weight is determined from chart 5.1, and is dependent on the disc installed in the feeder. This weight is the amount of standard density material dispensed by the feeder during one revolution of the disc. This weight is used as the initial value for recipe validation and feed rate calculation. If samples are not weighed as described in the next section, this value is used during operation. The weight can be entered in ounces or grams. The unit of measure is changed by pressing the units button at the middle right of the screen. Changing the unit of measure will NOT change the value displayed on the screen. The value initially displayed is the weight which would result in a motor speed of 25%. The valid range of values would then be $\frac{1}{4}$ to 2.5 times this initial value.

Additive Sample weighing.

Weighing samples of additive provides for more precise control of feed rate. Up to 5 samples can be weighed. All weights entered are averaged to arrive at a value to be used during operation. The weighing process may be skipped altogether, in which case the calibration weight is used for calculations of feed rate. See the section Weight Calibration at the end of this section.

Extrusion Follower Recipe.

In order to calculate the correct motor speed required to feed the desired amount of additive, the following data must be entered:

1) Additive %
5) Throughput
6) Throughput RPM
7) Calibration weight.

In addition, for the greatest accuracy, samples of the additive should be weighed and entered.

Additive %
The % additive specifies the proportion of additive to virgin material as a percentage of throughput. For example, if the throughput is 200 grams per minute and 8.5 grams of additive are required, the additive percentage would be 4.25. After the additive value has been entered, press the “Next” button to navigate to the Throughput screen.

**Throughput.**

Press throughput specifies the total weight of material through the extruder per minute. The value can be entered in grams, kilograms, ounces, or pounds per minute. The unit of measure is changed by pressing the units button at the middle right of the screen. Changing the unit of measure will NOT change the value displayed on the screen. This value is the throughput corresponding to a specific extruder RPM, which will be entered on the following screen. Given these reference values, the correct feed rate can be determined for any extruder speed. Note that the minimum and maximum press speeds and signal levels must be entered correctly in Setup.

**Throughput Speed.**

The press speed corresponding to the throughput value entered on the previous screen. Given these reference values, the correct feed rate can be determined for any extruder speed. Note that the minimum and maximum press speeds and signal levels must be entered correctly in Setup.

**Calibration weight.**
Calibration weight is determined from chart 5.1, and is dependent on the disc installed in the feeder. This weight is the amount of standard density material dispensed by the feeder during one revolution of the disc. This weight is used as the initial value for recipe validation and feed rate calculation. If samples are not weighed as described in the next section, this value is used during operation. The weight can be entered in ounces or grams. The unit of measure is changed by pressing the units button at the middle right of the screen. Changing the unit of measure will NOT change the value displayed on the screen. The value initially displayed is the weight which would result in a motor speed of 25%. The valid range of values would then be \( \frac{1}{4} \) to 2.5 times this initial value.

**Additive Sample weighing.**

Weighing samples of additive provides for more precise control of feed rate. Up to 5 samples can be weighed. All weights entered are averaged to arrive at a value to be used during operation. The weighing process may be skipped altogether, in which case the calibration weight is used for calculations of feed rate.

### 3-4 Calibration

The final step of recipe setup is weight calibration. This procedure is common to all types of presses supported. After entering the calibration weight, pressing the “Next” button displays the following screen:

```
PRESS 'NEXT' TO WEIGH ADDITIVE SAMPLES. PRESS 'MENU' TO SKIP.
```

Pressing the “Next” button displays screen #1.

**Screen 1.**

```
TARE SAMPLE TRAY, THEN PLACE IN CALIBRATION BOX. PRESS 'NEXT.'
```

Initial preparation for weighing samples. The access cover to the calibration chamber should be removed / opened. The container used to catch and hold the samples should be tared (place the container on the scale and zero the scale). The container should then be placed in the calibration chamber. Press “Next” when these steps have been completed. The motor will begin to run as Screen 2 will be displayed.
Screen 2.

PRIMING DISK WITH ADDITIVE. PLEASE WAIT. PRESS 'MENU' TO CANCEL.

The disc will make one complete revolution, insuring all pockets are filled with additive material prior to actual weighing. Motor speed is 25%.

Screen 3.

DISCARD SAMPLE, REPLACE TRAY IN CALIBRATION BOX. PRESS NEXT

When the motor stops, screen 3 is displayed. Discard sample and replace container in calibration box. Press “Next” starts the motor and displays Screen 4.

Screen 4.

LOADING NEXT WEIGHT SAMPLE. PLEASE WAIT. PRESS 'MENU' TO CANCEL.

The disc will make one complete revolution, dispensing additive into the tray. Motor speed is 25%. When the motor stops, Screen 5 is displayed.
Screen 5.

**WEIGH SAMPLE, EMPTY & REPLACE TRAY IN CALIBRATION BOX. PRESS NEXT**

Prev  | Next  | Menu

Weigh the sample, making note of the weight for entry on the next screen. Discard sample & replace tray in calibration box. Press “Next” to display Screen 6.

Screen 6.

**ENTER SAMPLE WEIGHT.**

12.34 GR

Prev  | Menu

Enter the sample weight obtained from the previous cycle of the feeder. The unit of measure will be the same as used for the calibration weight. Pressing the Enter symbol on the screen keypad displays Screen 7.

Screen 7.

**NEXT TO CONTINUE.**

AVG. 12.34 GR

1 OF 5 SAMPLES

Next  | Menu

The screen displays the running average of sample weights, as well as the number of samples taken. Pressing “Next” will repeat the process at Screen 4 if less than 5 samples have been taken, otherwise Screen 8 will be displayed.
Screen 8.

**REMOVE TRAY, REPLACE SAMPLING COVER. PRESS 'NEXT'.**

The tray should be removed from the calibration chamber. The access cover should be replaced / closed. Weight Calibration is complete. Note that at any time in the process, the “Menu” button may be pressed to abort the weight calibration process. Any sample weights, if any, are used to calculate the average weight. If no sample weights are entered, the calibration weight is used for calculations. Using less than 5 samples may affect feeder accuracy.

### 3-5 Status screens

**Status Screens**

The status screens reflect the state of the feeder during operation. The status screens are accessed by pressing the “Status” button on the main menu.

**Prerequisites.**

Before the status screens can be displayed, the current recipe must be valid & complete. If the current recipe is not valid, an advisory screen is displayed:

**Invalid Recipe:**

[INVALID OR INCOMPLETE RECIPE]

[Recipe Menu] [Menu]
Common Elements

<table>
<thead>
<tr>
<th>TOTAL ADDITIVE</th>
<th>123 KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVERSPEED</td>
<td></td>
</tr>
</tbody>
</table>

Buttons

- **Start**
  - Press the Start button to begin feeding operation using the current recipe.

- **Stop**
  - Press the Stop button to end feeding operation.

- **Next**
  - Press the Next button to display the next Status screen. There are 3 status screens available while the A250 is running:
    - Totalizer screen
    - Throughput screen
    - Motor Speed screen

When the A250 is stopped, a 4th screen is available – The Manual Run / Jog screen.

- **Menu**
  - Press the Menu button to display the Main Menu screen.
**Speed Status Indicator**

If the speed alarm only option is selected in the configuration section, the following indicators are enabled.

- **Overspeed** Displays when the feeder speed exceeds the calculated speed by greater than that specified on the speed alarm setup screen. The screen will change to a steady orange color.

- **Underspeed** Displayed when the feeder speed is less than that specified on the speed alarm setup screen. The screen will change to a steady orange color.

- **No Pulses** Displayed when no encoder pulses are detected from the drive motor. The screen will change to a steady orange color.

- **Above Max** Displayed when the calculated motor speed is greater than the rated motor speed. The screen will change to orange and flash in this condition.

- **Below Min** Displayed when the calculated motor speed is less than 5% of the rated motor speed. The screen will change to orange and flash in this condition.

**Disc Motor Indicator**

- ![Disc Motor Indicator](Image)

  Displayed when the drive motor is running.

**Press Signal Indicator**

- ![Press Signal](Image)

  Displayed when press signal is detected:

  - Injection – Screw recovery signal.
  - Simple Extrusion – Press Run signal.
  - Extrusion Follower – Analog speed signal.
Totalizer Screen

Displays total additive dosed since:

A. Recipe change. Modifying the current recipe will not reset the total.
Or
B. Totalizer reset.

The total is displayed in KG if recipe additive is measured in grams or kilograms. The total is displayed in LB if the recipe additive is measured in ounces or pounds.

Pressing the reset button resets the total display to zero.

Throughput Screen

Displays the calculated throughput.

Injection Press. Throughput is based on recipe data and measured average screw recovery time. A running average of the 5 most recent screw recovery times is used.

Simple extrusion. Throughput is based on recipe data.

Extrusion Follower. Throughput is based on recipe data and the current press speed signal.

Motor Speed Screen
Displays the current motor speed when running, and the calculated speed when stopped.

**Screw Recovery Times Screen (Injection only)**

<table>
<thead>
<tr>
<th></th>
<th>12.34</th>
<th>Avg.</th>
<th>12.38</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12.26</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12.39</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12.43</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Displays the 5 most recent screw recovery times (latest on top), as well as the simple average and weighted average.

**Manual Run / Jog Screen**

This screen is only available when the A250 control is stopped. This screen provides the means to purge / clear additive, prime additive, etc.

The speed at which the motor will run, jog, or purge. Adjust using the Accel and Decel buttons.

Pressing and holding either of these buttons will adjust the motor run speed by approximately 1% of max speed every ½ second. The minimum speed is 5%, while the maximum speed is 100%. The default speed is 50%.
Pressing and holding the Jog button will run the motor at the indicated speed for as long as the button is held.

**10 SECS**

The length of time the motor will run when the Run Motor button is pressed. Adjustable from 0 to 999 seconds. The default is 0 seconds.

Pressing the Run Motor button causes the motor to run for the indicated time.

While the motor is running, it can be stopped by pressing the Stop Motor button.

Pressing the Purge button will cause the feeder to run at the indicated rate for the duration of the next screw recovery signal. The purge mode will be cancelled at the end of the screw recovery signal or as noted below.

Pressing the Purge button when purge mode is active will cancel purge mode.

**Configuration.**

**Navigation.**

The top level of System setup navigation is the System Setup Menu:

**System Setup Menu**

The configuration screens are grouped by similar function. Each of the buttons on the System Setup Menu screen will navigate to the 1st screen of each group. From each configuration screen, any of the following screens can be reached:
A) The Main Menu, using the Menu button.
B) The System Setup Menu, using the Done button.
C) The next Configuration screen, using the Next button.
D) The previous Configuration screen, using the Prev button.

**System Setup Navigation Buttons.**

![Prev](image)
Navigates to the previous screen in the setup “chain”. See Table 4.1.

![Next](image)
Navigates to the next screen in the setup “chain”. See Table 4.1.

![Done](image)
Navigates to the Setup Menu screen.

![Menu](image)
Navigates to the Main Menu screen.

![Return](image)
From the Drive Tuning screen, returns to the Max RPM screen.
From the Speed Alarm screen, returns to the Encoder Pulses screen.
Table 4.1
Injection Press

<table>
<thead>
<tr>
<th>Screen</th>
<th>Title/Function</th>
<th>Prev Screen</th>
<th>Next Screen</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>Press Type</td>
<td>N/A</td>
<td>Max Motor Speed</td>
</tr>
<tr>
<td>61</td>
<td>Max Motor Speed</td>
<td>Press Type</td>
<td>Encoder Pulses</td>
</tr>
<tr>
<td>62</td>
<td>Encoder Pulses</td>
<td>Max Motor Speed</td>
<td>Tune &amp; Speed</td>
</tr>
<tr>
<td>63</td>
<td>Measure</td>
<td>Default Add.</td>
<td>Default Shot Measure</td>
</tr>
<tr>
<td>64</td>
<td>Measure</td>
<td>Default Add.</td>
<td>Additive Sensor</td>
</tr>
<tr>
<td>6A</td>
<td>Additive Sensor</td>
<td>Measure</td>
<td>Virgin Sensor</td>
</tr>
<tr>
<td>6B</td>
<td>Virgin Sensor</td>
<td>Additive Sensor</td>
<td>Passwords</td>
</tr>
<tr>
<td>6C</td>
<td>Passwords</td>
<td>Virgin Sensor</td>
<td>Digital I/O Monitor</td>
</tr>
<tr>
<td>6D</td>
<td>Digital I/O Monitor</td>
<td>Passwords</td>
<td>Analog I/O Monitor</td>
</tr>
<tr>
<td>6E</td>
<td>Analog I/O Monitor</td>
<td>Digital I/O Monitor</td>
<td>Setup Menu</td>
</tr>
</tbody>
</table>

Simple Extrusion Press

<table>
<thead>
<tr>
<th>Screen</th>
<th>Title/Function</th>
<th>Prev Screen</th>
<th>Next Screen</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>Press Type</td>
<td>N/A</td>
<td>Max Motor Speed</td>
</tr>
<tr>
<td>61</td>
<td>Max Motor Speed</td>
<td>Press Type</td>
<td>Encoder Pulses</td>
</tr>
<tr>
<td>62</td>
<td>Encoder Pulses</td>
<td>Max Motor Speed</td>
<td>Tune &amp; Speed</td>
</tr>
<tr>
<td>63</td>
<td>Measure</td>
<td>Default Add.</td>
<td>Default Shot Measure</td>
</tr>
<tr>
<td>64</td>
<td>Measure</td>
<td>Default Add.</td>
<td>Additive Sensor</td>
</tr>
<tr>
<td>6A</td>
<td>Additive Sensor</td>
<td>Measure</td>
<td>Virgin Sensor</td>
</tr>
<tr>
<td>6B</td>
<td>Virgin Sensor</td>
<td>Additive Sensor</td>
<td>Passwords</td>
</tr>
<tr>
<td>6C</td>
<td>Passwords</td>
<td>Virgin Sensor</td>
<td>Digital I/O Monitor</td>
</tr>
<tr>
<td>6D</td>
<td>Digital I/O Monitor</td>
<td>Passwords</td>
<td>Analog I/O Monitor</td>
</tr>
<tr>
<td>6E</td>
<td>Analog I/O Monitor</td>
<td>Digital I/O Monitor</td>
<td>Setup Menu</td>
</tr>
</tbody>
</table>

Extrusion Follower Press

<table>
<thead>
<tr>
<th>Screen</th>
<th>Title/Function</th>
<th>Prev Screen</th>
<th>Next Screen</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>Press Type</td>
<td>N/A</td>
<td>Max Motor Speed</td>
</tr>
<tr>
<td>61</td>
<td>Max Motor Speed</td>
<td>Press Type</td>
<td>Encoder Pulses</td>
</tr>
<tr>
<td>----</td>
<td>----------------</td>
<td>------------</td>
<td>----------------</td>
</tr>
<tr>
<td></td>
<td>Encoder Pulses</td>
<td>Max Motor Speed</td>
<td>Tune &amp; Speed</td>
</tr>
<tr>
<td></td>
<td>Tune &amp; Speed alarm</td>
<td>Encoder Pulses</td>
<td>Default Add. Measure</td>
</tr>
<tr>
<td></td>
<td>Default Add.</td>
<td>Tune &amp; Speed</td>
<td>Default Shot Measure</td>
</tr>
<tr>
<td>63</td>
<td>Measure</td>
<td>Default Add.</td>
<td>Measure</td>
</tr>
<tr>
<td>65</td>
<td>Default Thruput Meas.</td>
<td>Default Thruput</td>
<td>Additive Sensor</td>
</tr>
<tr>
<td>6A</td>
<td>Additive Sensor</td>
<td>Meas.</td>
<td>Virgin Sensor</td>
</tr>
<tr>
<td>6B</td>
<td>Virgin Sensor</td>
<td>Additive Sensor</td>
<td>Press Signal Type</td>
</tr>
<tr>
<td>66</td>
<td>Press Signal Type</td>
<td>Virgin Sensor</td>
<td>Min Signal set</td>
</tr>
<tr>
<td>67</td>
<td>Min Signal set</td>
<td>Press Signal Type</td>
<td>Max Signal set</td>
</tr>
<tr>
<td>68</td>
<td>Max Signal set</td>
<td>Min Signal set</td>
<td>Passwords</td>
</tr>
<tr>
<td>6C</td>
<td>Passwords</td>
<td>Max Signal set</td>
<td>Digital I/O Monitor</td>
</tr>
<tr>
<td>6D</td>
<td>Digital I/O Monitor</td>
<td>Passwords</td>
<td>Analog I/O Monitor</td>
</tr>
<tr>
<td>6E</td>
<td>Analog I/O Monitor</td>
<td>Digital I/O Monitor</td>
<td>Setup Menu</td>
</tr>
</tbody>
</table>
Feeder Type.

Feeder type is selected by pressing the button in the upper-right corner. The button text changes with each press of the button in the following order:

- INJECTION MOLDING (Default Mode)
- SIMPLE EXTRUSION
- EXTRUSION FOLLOWER

An injection molding press provides a contact closure during the “Screw Recovery Cycle”, or that period when the press is loading material prior to injection into the mold cavity.

The 2 types of extrusion presses are dependant on the input signal provided to the A250 additive feeder. Simple extrusion provides a contact closure to input 5 of the PLC, and it is assumed that the press is always run at the speed entered for the active recipe. Extrusion follower provides an analog signal to channel 0 of the analog module which changes in relation to the speed (throughput) of the press.
Maximum Motor Speed.

The maximum motor RPM is the maximum rated speed for the motor being used with the A250 control. The default nominal value is 11.5 RPM. This value should be changed to reflect the actual motor RPM based on motor type and tuning results (See Drive Tuning following this section). Initially, this value should be set to the nameplate RPM for the motor/gearbox being used, before proceeding to Drive Tuning.

1) Turn the Accel & Decel pots fully counter-clockwise.
2) Press the “Min” button.
3) Check rotation direction. Disk should turn (counterclockwise).
4) Swap A+ & A- leads With Power Off to change rotation direction.
5) Press “Max” button.
6) Adjust max pot to adjust max speed to match target value.
7) Press “Min” button.
8) Adjust min pot to adjust min speed to match target value.
9) Repeat steps 5-8 until readings stabilize.
10) If maximum speed value cannot be obtained, change max RPM on the Maximum Motor Speed screen to match the closest value obtained on this screen.

Encoder Pulses.

The encoder pulses are determined by the number of encoder steps per motor revolution (usually 30) multiplied by the gearbox ratio. In the case of the standard motor, the ratio is 190:1, so 30 X 190 = 5700. To change the value, press the value on the screen to activate the keyboard. Key in the correct value and press the key.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Motor Color</th>
<th>RPM</th>
<th>Encoder Pulses</th>
</tr>
</thead>
</table>

57 of 96
Motor and alarm utility selection

The Speed Alarm settings screen can be activated by pressing the “Speed Alarm” button. The Drive Tuning screen can be activated by pressing the “Tune Drive” button. See the following sections for these screens.
Drive Tuning.

The drive tuning screen is provided as an aid to tuning the drive to match the motor and load of the A250 feeder. Pressing the “Min” button will send the minimum drive signal to the controller. Pressing the “Max” button will send the maximum drive signal to the controller. Pressing the “Stop” button (or leaving this screen) will terminate any signal sent to the controller. The numbers on the left are the target min/max values. The numbers on the right are the actual speed values. A small screwdriver, preferably non-metallic, is needed to tune the drive. Tune the drive as follows:

Speed Alarm

The reaction to deviations from the commanded speed are controlled via this screen. Speed deviation specifies the window within which the motor speed must be for normal operation. The Alarm Delay specifies the minimum time the speed must be outside this window before generating an alarm. For example, if the default values are used and the commanded speed is 5 RPM, the controller will alarm if the speed is less than 4.75 RPM or more than 5.25 RPM for at least 2 seconds. The specific response to the alarm condition can be selected by pressing the button in the lower left corner as follows:

Take no action. See Status screens for indicator.

Activate alarm screen & alarm output on PLC.
Activate alarm screen & alarm outputs, and stop the feeder.

See Status Screens section for speed alarm screen details.

Default Additive Measure.

This screen sets the default measure for additive weight in recipes. While the measure can be changed in any recipe, this screen allows selection of the most commonly used unit of measure. Press the upper right corner to select:

- **GR**  
  Grams

Or

- **OZ**  
  Ounces
Default Shot Size / Throughput Measure.

This screen sets the default measure for overall weight in recipes. While the measure can be changed in any recipe, this screen allows selection of the most commonly used unit of measure. Press the upper right corner to select:

- **GR**  
  Grams
- **KG**  
  Kilograms
- **OZ**  
  Ounces
- **LB**  
  Pounds
Additive / Virgin Material Sensor.

These screens select whether an additive (or virgin) material sensor is present and if so, what action to take when the sensor detects no material. Press the button in the upper right corner to sequence through the following options:

- **NO SENSOR**
  - No sensor is present. (Default)

- **ALARM ONLY**
  - Sensor is present. Display alarm screen & activate alarm output, but keep feeder running.

- **ALARM AND STOP**
  - Sensor is present. Display alarm screen & activate alarm output, and stop feeder operation.
Press Signal Type. (Extrusion Follower only)

This screen selects the type of analog signal provided by the press to communicate the press speed. Press the button in the upper right corner to select from the following:

- **0-10 VOLTS**
  0 to 10 volts DC. (Default)

- **0-20 mA**
  0 to 20 mA (milliamps) DC.

- **4-20 mA**
  0 to 20 mA (milliamps) DC.

Minimum Press Signal. (Extrusion Follower only)

This screen configures the minimum speed of the press and the analog signal associated with that speed. Press the top number to enter the minimum speed, using the screen keyboard, in RPM for the press. The voltage associated with that speed can either be entered manually by pressing the value and entering the value on the keyboard, or by pressing the number at the lower left to read the voltage level currently being sent by the press. The unit of measure, A or V, is determined by the selection made on the Press Signal Type screen.
Maximum Press Signal. (Extrusion Follower only)

<table>
<thead>
<tr>
<th>MAX SIGNAL</th>
<th>11.5 RPM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9.8 V</td>
</tr>
<tr>
<td></td>
<td>654.3</td>
</tr>
</tbody>
</table>

This screen configures the maximum speed of the press and the analog signal associated with that speed. Press the top number to enter the maximum speed, using the screen keyboard, in RPM for the press. The voltage associated with that speed can either be entered manually by pressing the value and entering the value on the keyboard, or by pressing the number at the lower left to read the voltage level currently being sent by the press. The unit of measure, A or V, is determined by the selection made on the Press Signal Type screen.

Note: The Minimum & maximum press signal values are used to calculate the relationship between input signal and extruder speed. Operation at speeds below the minimum and above the maximum are possible, subject to input signal limits. See appendix # for examples.

Passwords Screen.

The passwords screen allow the entry of Operator & Setup passwords. By default, these are set to 0, which disables the password requirement. Setting the password to a non-zero value activates password protection. To set / change the Operator password, press the value next to “Operator” and enter the new password using the screen keyboard. To change the password duration, press the duration value & enter the new duration using the screen keyboard. The Setup password and duration are entered in the same way. Refer to Table 4.2 for password requirements based on which passwords are enabled.
Table 4.2
Password requirements.

<table>
<thead>
<tr>
<th>Recipe Functions Set</th>
<th>No Passwords</th>
<th>Operator Only Active</th>
<th>Setup Only Active</th>
<th>Operator and Setup Active</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Start/Stop</td>
<td>X</td>
<td>O</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>Manual Jog/Run</td>
<td>X</td>
<td>O</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>System Setup</td>
<td>X</td>
<td>O</td>
<td>S</td>
<td>S</td>
</tr>
</tbody>
</table>

X - None    O - Operator    S - Setup

**Digital I/O Monitor.**

This screen monitors the PLC inputs and outputs. When an input or output is on, the indicator is displayed white on black - 1. When an input or output is off, the indicator is displayed as black on white - 1.

If using the Modbus communications option, the node (station) number is set here. Valid node numbers are 0-32.
Analog / Encoder Monitor.

This screen monitors the analog input & output, as well as the raw encoder value input. Additionally, the encoder can be connected to an alternate PLC input to help troubleshoot encoder problems. To change the encoder input, disconnect power & move the encoder signal wire from input 0 to any of inputs 1, 2, or 3. Restore power, navigate back to this screen, and change the “ENC CH” # to match the PLC input chosen.

When the “Jog Mtr” button is pressed, the motor will run at 25% speed for as long as the button is pressed. The top line will display the raw encoder value. The “MTR OUT” value will be 500 for KB or Bodine drives, or 1000 for Dart drives. The “PRESS” value will be 0-4000, depending on the press signal, if no press signal is connected, the value will be at or near zero.

3-6 Optional Features

Optional equipment for the Digital Dosing Additive Feeder includes:

Loaders
Several versions of automatic loaders are available to keep the additive (or virgin material) supply hoppers full – consult with your sales contact for the unit that best fits your needs.

Hoppers
Several versions of hoppers are available and can be used in different applications - consult with your sales contact for the unit that best fits your needs.

Alarms
Several alarm options are available for the Digital Dosing feeder. Options include both audible horns and flashing lights. An optional no voltage alarm relay can be connected to the user’s central alarm system.

Level switches (probes)
To adjust the level switches:
1. Turn the controller ON.
2. Fill the dosing station until the level sensor is one-third covered.
3. Remove the plastic screw (M3) on the back of the level sensor (see Figure 7)
4. Turn the trim-pot until the yellow control lamp just switches off.

**NOTE:** Turning the trim-pot to the left decreases the switching sensitivity, and turning it to the right increases the sensitivity.

5. Fill the dosing station until the level probe is two-thirds covered. The yellow control lamp should now switch on again. If not, repeat Step 4.

6. Reinstall the plastic screw (M3).

**NOTE:** The sliding switch under the cover must be set on “0”.

**Communication Protocol Interfaces**

The Digital Dosing feeder can be controlled remotely through ODBUS RTU protocol. Contact the Sales Department at 810.720.7300 for more information.

**OPTIONAL Additive Hoppers**

Various styles of additive hoppers and options are also available for the Digital Dosing feeder. Contact the Sales Department at 810.720.7300 for more information.
ALUMINUM SUPPLY HOPPER

STAINLESS STEEL SUPPLY HOPPERS

STAINLESS STEEL Hoppers are nicked open used to instant
A SCREW AUTOMATICALLY KEEPING THE SUPPLY HOPPER IN
OPPOSED TO A MANUAL FILL OPTION.
SIGHTGLASSES ARE THE EASIEST WAY TO CHECK FOR PROPER PERFORMANCE.

69 of 96
Virgin Material Supply Hoppers

Various virgin material supply hopper options are available if your existing hopper will not work properly with the Digital Dosing feeder. Contact the Sales Department at 810.720.7300 for more information.
# Chapter 4: Maintenance

## 4-1 Preventative Maintenance Intervals

<table>
<thead>
<tr>
<th>Interval</th>
<th>Task Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily:</td>
<td>Check warning signs on equipment for good legibility and completeness.</td>
</tr>
<tr>
<td>Weekly:</td>
<td>Check function of the “On/Off” Switch.</td>
</tr>
<tr>
<td></td>
<td>Check shear plate and mounting hardware in “DD” dosing station.</td>
</tr>
<tr>
<td>Every 3 months:</td>
<td>Check wiper and mounting hardware in “DT” dosing station.</td>
</tr>
<tr>
<td>Every 6 months:</td>
<td>Check that all electrical and mechanical connections are tight.</td>
</tr>
<tr>
<td></td>
<td>Check adjustment of the level probes (optional).</td>
</tr>
<tr>
<td>Annually:</td>
<td>Check dosing disc in dosing station DD and DT.</td>
</tr>
<tr>
<td>Each time after</td>
<td>Clean the dosing station.</td>
</tr>
<tr>
<td>material Is changed:</td>
<td>Check shear plate or wiper.</td>
</tr>
<tr>
<td></td>
<td>Check dosing disc.</td>
</tr>
</tbody>
</table>

**CAUTION**

*Always disconnect power and remove the dosing module from the motor assembly before taking the dosing module apart. Injury could result if fingers are pinched between the rotating disc.*
“DD” Dosing Module - Pellets
4-2 Removing the Shear Plate ("DD dosing Module")

Removing the shear

1. Turn “Off” off the “On/Off” switch.
2. Disconnect the power supply.
3. Open the toggle latches on the dosing motor.
4. Remove the dosing unit from the dosing motor.
5. Empty the dosing station.
6. Open the profile clamp (B) on the dosing hopper.
7. Remove the dosing hopper from the dosing feeder.
8. Loosen the two screws (C) on the underside of the dosing unit housing (E).
9. Remove the shear (A).

Installing the shear

1. Place the new shear in the dosing unit housing, and ensure that it is positioned correctly.
2. Bolt the shear in place with the two (2) hexagon M5 x 16 socket screws and lock washers.
3. Turn the dosing disc to verify smooth rotation. Replace shear if it is dragging on disc when disc is rotated.
4. Position the dosing hopper on the dosing module, and install the profile clamp (B).
5. Tighten the M10 hex head screw on the profile clamp.
6. Position the dosing unit on the dosing motor, aligning the guide pins.
7. Close the toggle latches, fastening the dosing module to the motor assembly.
Removing the “DD” Disc and Cleaning the Dosing Module

Dismantling the Dosing Module

1. Switch the control unit “Off” with the “On/Off” switch.
2. Disconnect the power supply.
3. Open the toggle latches on the dosing motor.
4. Remove the dosing unit from the dosing motor.
5. Empty the dosing module.
6. Open the profile clamp on the dosing hopper.
7. Remove the dosing hopper from the dosing module.
8. Dismantle the dosing module and remove the shear (D) as described above in 5.2.
9. Loosen and remove the two M6 x 30 socket screws (C) on top of the dosing disc (A).
10. Remove the center M6 x 12 socket screw (B) and replace with an M6 x 30 or 60 screw.
11. Lift the dosing disc (A) from the dosing unit housing (B) by tightening this screw.
12. Clean the shear plate with a cotton cloth.
13. Clean the dosing hopper and the dosing disc in soapy water.
14. The dosing unit housing may also be cleaned with a soft cloth, keeping liquids out of the bearings.
Installing the Dosing Module

1. Remove the screw (M6 x 30 or 60) from the center hole.
2. Place the dosing disc in the dosing unit housing.
3. Screw the dosing disc in place with two (2) M6 x 30 socket screws, ensuring they are tight.
4. Re-install the center M6 x 12 socket screw to prevent pellets from getting stuck in the hole.
5. Install the shear, verifying that the fasteners are tight.
6. Turn the dosing disc to verify smooth rotation. If the disc drags on the shear, the shear may have to be loosened and re-positioned, or replaced.
7. Position the hopper on the dosing module.
8. Tighten the profile clamp.
9. Position the dosing unit on the dosing motor, aligning the guide pins.
10. Close the toggle latches, fastening the dosing module to the motor assembly.

Installing Different Types of Dosing Discs
Dosing discs of the same type, and thickness (except 72 pocket), may be exchanged for each other. If dosing discs with a different compartment number or thickness are installed, the new calibration number needs to be entered into the controller!

1. Enter the (preliminary) calibration value of the newly installed dosing disc
2. Repeat the “calibration” procedure to determine the final calibration value.

See Appendix D: Spare Parts List on page 61 for disc part numbers.
“DT” Dosing Module - Pellets and Some Regrind
Removing/Replacing the Wiper in the “DT” Dosing Station

1. Switch the control unit “Off” with the “On/Off” switch.
2. Disconnect the power supply.
3. Empty the dosing station.
4. Open the toggle latches on the dosing motor.
5. Remove the dosing unit from the dosing motor.
6. Open the profile clamp (C) of the dosing container.
7. Remove the profile clamp (C).
8. Remove the dosing module (A and B).
9. Loosen the 3 plastic screws on the wiper.
10. Remove the wiper and holding plate.
11. Install the new wiper along with the holding plate.
12. Tighten down the 3 plastic screws. Make sure that the wiper is fitted parallel to the dosing plate (Use only plastic screws to avoid damage to the extruder or molding machine screw should the mounting screws ever come loose.)
13. Install the dosing hopper on the dosing housing, ensuring the guide pin is in place, and locate the “shelf” above the module discharge hole.
14. Install and tighten the profile clamp.
4-5 Removing the “DT” Disc and cleaning the dosing station

1. Switch the control unit “Off” with the “On/Off” switch.

2. Disconnect the power supply.

3. Open the toggle latches.

4. Remove the dosing hopper (D) from the motor.

5. Empty the dosing station.

6. Open the profile clamp (C).

7. Remove the profile clamp (C).

8. Remove the dosing hopper assembly (A and B).

9. Remove the two M6 x 30 socket screws (B) on top of the dosing disc (A).
   Lift the dosing disc (A) from the dosing unit housing.

10. Clean the components with a cotton cloth.

11. Clean the dosing hopper (A and B) in soapy water.

12. Dry all parts thoroughly.

13. Install the dosing hopper on the dosing module (locating the guide pin).

14. Install the profile clamp and tighten the screw.

15. Mount the dosing housing onto the dosing motor.

16. Close the toggle latches, securing the dosing module to the motor assembly.
“DP” Powder Dosing Module
Removing/Replacing the “DT” Disc & Cleaning the Dosing Station

1. Switch the control unit “Off” with the “On/Off” switch.
2. Disconnect the power supply.
3. Empty the dosing station.
4. Open the toggle latches on the dosing motor.
5. Remove the dosing unit from the dosing motor.
6. Open the profile clamp (C) of the dosing container.
7. Remove the profile clamp (C).
8. Remove the dosing module (A and B).
9. Hold disc and rotate the wiper counterclockwise (looking at the disc from the top).
10. Remove the wiper and “traverse” (holding plate).
11. Install the new wiper along with the “traverse” (holding plate).
12. Rotate the wiper clockwise, while the metering disc in place.
13. Install the dosing hopper on the dosing housing, ensuring the guide pin is in place,
14. and locate the “shelf” above the module discharge hole.
15. Install and tighten the profile clamp.
4-7 Removing the “DP” Disc and Cleaning the Dosing Station

1. Turn the control unit “Off”.
2. Disconnect the power supply.
3. Open the toggle latches.
4. Remove the dosing hopper (D).
5. Empty the dosing station.
6. Remove the profile clamp (C).
7. Remove the dosing hopper assembly (A and B).
8. Remove the wiper and traverse as described above.
9. Remove the four screws from the metering disc and lift the disc from the dosing unit housing.
10. Clean the components with a cotton cloth.
11. Clean the dosing hopper (A and B) in soapy water.
12. Dry all parts thoroughly.
13. Install the dosing hopper on the dosing module (locating the guide pin).
14. Install the profile clamp and tighten the screw.
15. Mount the dosing housing onto the dosing motor.
16. Close the toggle latches, securing the dosing module to the motor assembly.
4-8 Exchangeable Dosing Modules

Dosing discs of the same type, i.e. “DD” may be exchanged for each other. (The 72 pocket also requires a different shear plate.) If dosing discs with a different compartment number are installed, the new calibration number needs to be entered into the controller!

2. Enter the \textit{preliminary} calibration value of the new dosing disc or module.

3. Repeat the “Calibration” procedure to determine the final calibration value.

\begin{center}
\begin{tabular}{|c|c|c|}
\hline
Disc & Calibration Number & Number of pockets \\
\hline
DD 30-030672 & 1.75 & 72 \\
DD 30-051040 & 5.00 & 40 \\
DD 30-051725 & 8.00 & 25 \\
DD 30-051818 & 15.00 & 18 \\
\hline
\end{tabular}
\end{center}

\begin{center}
\begin{tabular}{|c|c|c|}
\hline
Disc & Calibration Number & Number of Pockets \\
\hline
DT 30-101820 & 32.00 & 20 \\
DT 30-102025 & 38.00 & 20 “Oval” \\
“Sure-shot” & & \\
DT 30-203012 & 100.00 & 12 \\
DT 30-204010 & 175.00 & 10 \\
\hline
\end{tabular}
\end{center}

\begin{center}
\begin{tabular}{|c|c|c|c|}
\hline
Disc & Calibration Number & Number of Pockets & Disc Thickness \\
\hline
DP 30-050940 & 17.00 & 40 & 0.5 mm \\
DP 30-250940 & 8.00 & 40 & 2.5 mm \\
\hline
\end{tabular}
\end{center}
## Spare Parts

### DD Dosing Units

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NO</th>
<th>QTY</th>
<th>U/M DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CT18431</td>
<td>1 EA</td>
<td>CALIBRATION BOX CDD CB/SB FIN</td>
</tr>
<tr>
<td>2</td>
<td>CT13007</td>
<td>1 EA</td>
<td>DISC HSG DD30 MACH &amp; HARDCOAT</td>
</tr>
<tr>
<td>3</td>
<td>CT13008</td>
<td>1 EA</td>
<td>DRIVE CALIBRATION BOX CDD</td>
</tr>
<tr>
<td>4</td>
<td>CT66113</td>
<td>2 EA</td>
<td>HOOK FOR DESTACO CLAMP</td>
</tr>
<tr>
<td>5</td>
<td>CT18444</td>
<td>2 EA</td>
<td>COVER CALIBRATION BOX CDK/CDD</td>
</tr>
<tr>
<td>6</td>
<td>CT66861</td>
<td>2 EA</td>
<td>GASKET COVER CAL BOX CDK/CDD</td>
</tr>
<tr>
<td>7</td>
<td>CT21392</td>
<td>1 EA</td>
<td>SHEAR CDD 1.0 CBQ/SB</td>
</tr>
<tr>
<td>8</td>
<td>CT92228</td>
<td>1 EA</td>
<td>V-CLAMP DT30 DISC/INTERMEDIATE</td>
</tr>
<tr>
<td>9</td>
<td>CT21710</td>
<td>1 EA</td>
<td>DISC DD30, 40 POCKET</td>
</tr>
<tr>
<td>10</td>
<td>CT100029.116</td>
<td>1 EA</td>
<td>BEARING DOUBLE ROW CDD;D800;B30.2</td>
</tr>
<tr>
<td>11</td>
<td>CT100023.172</td>
<td>4 EA</td>
<td>SCREW PAN PHILLIPS M4X12</td>
</tr>
<tr>
<td>12</td>
<td>CT100023.145</td>
<td>4 EA</td>
<td>SCREW SOCKET M6X16</td>
</tr>
<tr>
<td>13</td>
<td>CT10023.145</td>
<td>4 EA</td>
<td>SCREW SOCKET M4X40</td>
</tr>
<tr>
<td>14</td>
<td>CT100023.177</td>
<td>2 EA</td>
<td>SCREW SOCKET M6X30</td>
</tr>
<tr>
<td>15</td>
<td>CT88057</td>
<td>1 EA</td>
<td>SCREW, M6X10</td>
</tr>
<tr>
<td>16</td>
<td>CT100023.154</td>
<td>2 EA</td>
<td>SCREW SOCKET M5X16</td>
</tr>
<tr>
<td>17</td>
<td>CT100036.105</td>
<td>2 EA</td>
<td>WASHER LOCK M5</td>
</tr>
<tr>
<td>18</td>
<td>CT100562</td>
<td>1 EA</td>
<td>DISC DD30, 72 POCKET</td>
</tr>
<tr>
<td>19</td>
<td>CT21711</td>
<td>1 EA</td>
<td>DISC DD30, 25 POCKET</td>
</tr>
<tr>
<td>20</td>
<td>CT123057</td>
<td>1 EA</td>
<td>DISC DD30, 18 POCKET</td>
</tr>
<tr>
<td>21</td>
<td>CT100875</td>
<td>1 EA</td>
<td>SHEAR DD, 72 POCKET, 3MM</td>
</tr>
<tr>
<td>22</td>
<td>CT66864</td>
<td>1 EA</td>
<td>TRAY CAL BOX</td>
</tr>
<tr>
<td>23</td>
<td>CT21392</td>
<td>1 EA</td>
<td>ALL OTHER DISCS, 5MM</td>
</tr>
</tbody>
</table>
## DT Dosing Units

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NO</th>
<th>QTY</th>
<th>U/M DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CT66122</td>
<td>1 EA</td>
<td>DISC HOUSING DT30 10MM</td>
</tr>
<tr>
<td>2</td>
<td>CT66113</td>
<td>2 EA</td>
<td>HOOK FOR DESTACO CLAMP</td>
</tr>
<tr>
<td>3</td>
<td>CT99113</td>
<td>1 EA</td>
<td>BEARING 6010 2RSR</td>
</tr>
<tr>
<td>4</td>
<td>CT23056</td>
<td>1 EA</td>
<td>DISC DT30, 20 POCKET</td>
</tr>
<tr>
<td>5</td>
<td>CT04294</td>
<td>1 EA</td>
<td>COUPLING DRIVE CBQ/SB</td>
</tr>
<tr>
<td>6</td>
<td>CT92228</td>
<td>1 EA</td>
<td>V-CLAMP DT30 DISC/INTERMEDIATE</td>
</tr>
<tr>
<td>7</td>
<td>CT99144</td>
<td>1 EA</td>
<td>RETAINING RING 80X2.5</td>
</tr>
<tr>
<td>8</td>
<td>CT100029.116</td>
<td>4 EA</td>
<td>SCREW PAN PHILLIPS M4X12</td>
</tr>
<tr>
<td>9</td>
<td>CT11863</td>
<td>1 EA</td>
<td>MOUNT CALIBRATE TUBE CDK/CB/SB</td>
</tr>
<tr>
<td>10</td>
<td>CT100031.147</td>
<td>3 EA</td>
<td>SCREW HEX M6X35</td>
</tr>
<tr>
<td>11</td>
<td>CT100034.147</td>
<td>1 EA</td>
<td>WASHER FLAT M6</td>
</tr>
<tr>
<td>12</td>
<td>CT100023.154</td>
<td>2 EA</td>
<td>SCREW SOCKET M5X16</td>
</tr>
<tr>
<td>13</td>
<td>CT100034.105</td>
<td>2 EA</td>
<td>WASHER FLAT M5</td>
</tr>
<tr>
<td>14</td>
<td>CT11864</td>
<td>1 EA</td>
<td>CALIBRATION TUBE CDK/CB/SB</td>
</tr>
<tr>
<td>15</td>
<td>CT66707</td>
<td>1 EA</td>
<td>DISC DT30, 20 POCKET, SURE SHOT</td>
</tr>
<tr>
<td>16</td>
<td>CT23060</td>
<td>1 EA</td>
<td>DISC DT30 12 POCKET 20MM DEEP</td>
</tr>
<tr>
<td>17</td>
<td>CT18405</td>
<td>1 EA</td>
<td>DISC DT30 10 POCKET, 20MM DEEP</td>
</tr>
<tr>
<td>18</td>
<td>CT100031.149</td>
<td>2 EA</td>
<td>SCREW HEX M6X35</td>
</tr>
<tr>
<td>19</td>
<td>CT66121</td>
<td>1 EA</td>
<td>DISC HOUSING DT30 20MM</td>
</tr>
</tbody>
</table>

![Diagram of DT Dosing Units](image-url)
# DP Dosing Units

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NO</th>
<th>QTY</th>
<th>U/M DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>882.00569.00</td>
<td>1 EA</td>
<td>DISK, HSG, TIGHT TOL, DP30</td>
</tr>
<tr>
<td>2</td>
<td>CT66113</td>
<td>2 EA</td>
<td>HOOK FOR DESTACO CLAMP</td>
</tr>
<tr>
<td>3</td>
<td>CT99113</td>
<td>2 EA</td>
<td>BEARING 6010 2RSR</td>
</tr>
<tr>
<td>4</td>
<td>CT99114</td>
<td>2 EA</td>
<td>RETAINING RING 80X2.5</td>
</tr>
<tr>
<td>5</td>
<td>CT66298</td>
<td>1 EA</td>
<td>DISC METERING DP30-5 NYLON</td>
</tr>
<tr>
<td>6</td>
<td>CT66109</td>
<td>1 EA</td>
<td>HUB KIDP DISK KCT</td>
</tr>
<tr>
<td>7</td>
<td>882.00570.00</td>
<td>1 EA</td>
<td>TRAVERST, TIGHT TOL 5MM, DP30</td>
</tr>
<tr>
<td>8</td>
<td>CT99101</td>
<td>2 EA</td>
<td>BEARING 626 2RS D6X19X6</td>
</tr>
<tr>
<td>9</td>
<td>CT99102</td>
<td>2 EA</td>
<td>BEARING 6000 2RS 10X26X8</td>
</tr>
<tr>
<td>10</td>
<td>882.000571.00</td>
<td>1 EA</td>
<td>DISK, EJECT, TIGHT TOL, DP30, 5MM</td>
</tr>
<tr>
<td>11</td>
<td>CT00879</td>
<td>1 EA</td>
<td>BUSHING DISC EJECTION DP30-5</td>
</tr>
<tr>
<td>12</td>
<td>CT66290</td>
<td>1 EA</td>
<td>WIPER BLADE DP30-5</td>
</tr>
<tr>
<td>13</td>
<td>CT66295</td>
<td>1 EA</td>
<td>AGITATOR DP30 W/SAIL</td>
</tr>
<tr>
<td>14</td>
<td>CT99325</td>
<td>1 EA</td>
<td>SEAL V22A DP30/DP50</td>
</tr>
<tr>
<td>15</td>
<td>CT66460</td>
<td>1 EA</td>
<td>COUPLING DRIVE DP30 (E)</td>
</tr>
<tr>
<td>16</td>
<td>CT1000029.11</td>
<td>4 EA</td>
<td>SCREW PAN PHILLIPS M4X12</td>
</tr>
<tr>
<td>17</td>
<td>CT100023.174</td>
<td>2 EA</td>
<td>SCREW SOCKET M6X20</td>
</tr>
<tr>
<td>18</td>
<td>CT100139.132</td>
<td>4 EA</td>
<td>SCREW SOCKET FLAT M6X16</td>
</tr>
<tr>
<td>19</td>
<td>CT184.30</td>
<td>1 EA</td>
<td>CALIBRATION BOX DT30/DP30 FIN</td>
</tr>
<tr>
<td>20</td>
<td>CT99327</td>
<td>1 EA</td>
<td>RETAINING RING 50X2</td>
</tr>
<tr>
<td>21</td>
<td>CT66861</td>
<td>2 EA</td>
<td>GASKET COVER CAL BOX CDK/CDD</td>
</tr>
<tr>
<td>22</td>
<td>CT18444</td>
<td>2 EA</td>
<td>COVER CALIBRATION BOX CDK/CDD</td>
</tr>
<tr>
<td>23</td>
<td>CT100023.172</td>
<td>4 EA</td>
<td>SCREW SOCKET M6X16</td>
</tr>
<tr>
<td>24</td>
<td>CT100023.145</td>
<td>4 EA</td>
<td>SCREW SOCKET M4X40</td>
</tr>
<tr>
<td>25</td>
<td>CT00641</td>
<td>1 EA</td>
<td>WIPER BLADE DP30-2.5</td>
</tr>
<tr>
<td>26</td>
<td>CT25013</td>
<td>1 EA</td>
<td>DISC METERING DP30-2.5 NYLON</td>
</tr>
<tr>
<td>27</td>
<td>CT25014</td>
<td>1 EA</td>
<td>DISK, EJECT, TIGHT TOL, 5MM DP30</td>
</tr>
<tr>
<td>28</td>
<td>CT25015</td>
<td>1 EA</td>
<td>BUSHING DISC EJECTION DP30-5</td>
</tr>
<tr>
<td>29</td>
<td>882.00593.00</td>
<td>1 EA</td>
<td>TRAVERSE, TIGHT TOL, 5MM, DP30</td>
</tr>
<tr>
<td>30</td>
<td>CT66853</td>
<td>1 EA</td>
<td>DRIVE CALIBRATION BOX CDK</td>
</tr>
<tr>
<td>31</td>
<td>CT66296</td>
<td>1 EA</td>
<td>DP30, STANDARD AGITATOR</td>
</tr>
<tr>
<td>32</td>
<td>CT66864</td>
<td>1 EA</td>
<td>TRAY CAL BOX</td>
</tr>
</tbody>
</table>
DD/DT/DP
Additional Spare Parts

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART NO</th>
<th>QTY</th>
<th>U/M DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>892.01046.00</td>
<td>1 EA</td>
<td>COVER WITH KNOB, SS FOR ACRYLIC HOPPER</td>
</tr>
<tr>
<td>2</td>
<td>832.00040.00</td>
<td>1 EA</td>
<td>ACRYLIC HOPPER, 4.4 LITER, ACRYLIC ONLY</td>
</tr>
<tr>
<td>3</td>
<td>832.00041.00</td>
<td>1 EA</td>
<td>ACRYLIC HOPPER, 8.8 LITER, ACRYLIC ONLY</td>
</tr>
<tr>
<td>4</td>
<td>892.01490.00</td>
<td>1 EA</td>
<td>KIT, HANDLE, DD/DT/DP, SUPPLY HOPPER</td>
</tr>
<tr>
<td>5</td>
<td>CT92228</td>
<td>1 EA</td>
<td>V-CLAMP DD/DT/TP, HOPPER TO DISK HOUSING</td>
</tr>
<tr>
<td>6</td>
<td>CT66113</td>
<td>1 EA</td>
<td>HOOK FOR TOGGLE CLAMP</td>
</tr>
<tr>
<td>7</td>
<td>CT99063</td>
<td>1 EA</td>
<td>TOGGLE LATCH</td>
</tr>
<tr>
<td>8</td>
<td>CT34299</td>
<td>1 EA</td>
<td>DOSING MOTOR ASSEMBLY, 38 RPM</td>
</tr>
<tr>
<td>9</td>
<td>CT102241</td>
<td>1 EA</td>
<td>DOSING MOTOR ASSEMBLY, 11.5 RPM</td>
</tr>
<tr>
<td>10</td>
<td>CT34300</td>
<td>1 EA</td>
<td>DOSING MOTOR ASSEMBLY, 8.4 RPM</td>
</tr>
<tr>
<td>11</td>
<td>892.02095.00</td>
<td>1 EA</td>
<td>DOSING MOTOR ASSEMBLY, 3 RPM</td>
</tr>
</tbody>
</table>

ACRYLIC HOPPER IS SECURED USING ACRYLIC OR POLYURETHANE CAULK/ADHESIVE.
Appendix A  Basic Parameter Settings

A-2  Recipe Formulas

The following formulas can be used to determine if a recipe is appropriate or possible.

Injection Molding

For injection molding applications, compute the dosing disc speed and total number of disc revolutions using the following formulas. Recipe limitations are listed in the table following the equations.

Recipe Limitations for Injection Molding

<table>
<thead>
<tr>
<th>Motor Speed (rpm)</th>
<th>Max Speed (rpm)</th>
<th>Min Speed (rpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3</td>
<td>0.15</td>
</tr>
<tr>
<td>8.4</td>
<td>8.4</td>
<td>0.4</td>
</tr>
<tr>
<td>11.5</td>
<td>11.5</td>
<td>0.6</td>
</tr>
<tr>
<td>38</td>
<td>38</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Extrusion - Simple

For extrusion applications, compute the dosing disc speed using the following formula. Recipe limitations are listed in the table following the recipe.

Disc RPM = \( \frac{(\text{Additive} \times \%) \times (\text{Total Extruder Throughput} \times \text{lb/hr})}{13.22 \times (\text{Disc Calibration Weight} \times \text{g})} \)

Recipe Limitations Extrusion

<table>
<thead>
<tr>
<th>Motor Speed (rpm)</th>
<th>Max Speed (rpm)</th>
<th>Min Speed (rpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3</td>
<td>0.15</td>
</tr>
<tr>
<td>8.4</td>
<td>8.4</td>
<td>0.4</td>
</tr>
<tr>
<td>11.5</td>
<td>11.5</td>
<td>0.6</td>
</tr>
<tr>
<td>38</td>
<td>38</td>
<td>1.9</td>
</tr>
</tbody>
</table>
## Appendix B Disc Sizing Guides

<table>
<thead>
<tr>
<th>Disc Nomenclature</th>
<th>Disc Nomenclature</th>
<th>Min/Max Disc RPM</th>
<th>Amount of Material per Disc Revolution</th>
<th>Minimum Throughput with Continuous Running</th>
<th>Maximum Throughput with Continuous Running</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 mm thick 5.7 mm dia. 72 pockets</td>
<td>P030672</td>
<td>0.6 RPM 3.0 RPM</td>
<td>1.53 g/rev 0.02 g/hole</td>
<td>0.12 lb/hr 0.06 kg/hr</td>
<td>0.61 lb/hr 0.28 kg/hr</td>
</tr>
<tr>
<td>CT100562</td>
<td>1.5 RPM 11.5 RPM 3.0 RPM 38.0 RPM</td>
<td>1.95 g/rev 0.027 g/hole</td>
<td>0.12 lb/hr 0.06 kg/hr</td>
<td>0.61 lb/hr 0.28 kg/hr</td>
<td></td>
</tr>
<tr>
<td>5 mm thick 5.7 mm dia. 60 pockets</td>
<td>P050660</td>
<td>0.6 RPM 3.0 RPM</td>
<td>1.35 g/rev 0.02 g/hole</td>
<td>0.12 lb/hr 0.06 kg/hr</td>
<td>0.42 lb/hr 0.24 kg/hr</td>
</tr>
<tr>
<td>882.00738.00</td>
<td>1.5 RPM 11.5 RPM 3.0 RPM 11.5 RPM</td>
<td>1.70 g/rev 0.028 g/hole</td>
<td>0.12 lb/hr 0.06 kg/hr</td>
<td>0.42 lb/hr 0.24 kg/hr</td>
<td></td>
</tr>
<tr>
<td>5 mm thick 10 mm dia. 40 pockets</td>
<td>051040</td>
<td>0.6 RPM 3.0 RPM</td>
<td>4.24 g/rev 0.11 g/hole</td>
<td>0.33 lb/hr 0.15 kg/hr</td>
<td>1.68 lb/hr 0.76 kg/hr</td>
</tr>
<tr>
<td>CT21710</td>
<td>1.5 RPM 11.5 RPM 3.0 RPM 38.0 RPM</td>
<td>5.39 g/rev 0.13 g/hole</td>
<td>0.33 lb/hr 0.15 kg/hr</td>
<td>1.68 lb/hr 0.76 kg/hr</td>
<td></td>
</tr>
<tr>
<td>5 mm thick 17 mm dia. 25 pockets</td>
<td>051725</td>
<td>0.6 RPM 3.0 RPM</td>
<td>7.37 g/rev 0.30 g/hole</td>
<td>0.60 lb/hr 0.27 kg/hr</td>
<td>2.92 lb/hr 1.32 kg/hr</td>
</tr>
<tr>
<td>CT21711</td>
<td>1.5 RPM 11.5 RPM 3.0 RPM 38.0 RPM</td>
<td>9.38 g/rev 0.38 g/hole</td>
<td>0.60 lb/hr 0.27 kg/hr</td>
<td>2.92 lb/hr 1.32 kg/hr</td>
<td></td>
</tr>
<tr>
<td>5 mm thick 18 mm dia. 18 pockets</td>
<td>051818</td>
<td>1.55 RPM 11.5 RPM</td>
<td>13.42 g/rev 0.75 g/hole</td>
<td>1.05 lb/hr 0.48 kg/hr</td>
<td>5.34 lb/hr 2.42 kg/hr</td>
</tr>
<tr>
<td>CT23057</td>
<td>0.6 RPM 3.0 RPM</td>
<td>17.06 g/rev 0.95 g/hole</td>
<td>1.05 lb/hr 0.48 kg/hr</td>
<td>5.34 lb/hr 2.42 kg/hr</td>
<td></td>
</tr>
<tr>
<td>3 mm thick 7.30 g/rev</td>
<td>0.6 RPM 3.0 RPM</td>
<td>3.80 RPM</td>
<td>2.55 lb/hr 1.17 kg/hr</td>
<td>12.60 lb/hr 5.69 kg/hr</td>
<td></td>
</tr>
<tr>
<td>18.00 lb/hr 3.00 kg/hr</td>
<td>17.06 g/rev 0.95 g/hole</td>
<td>3.80 RPM</td>
<td>2.55 lb/hr 1.17 kg/hr</td>
<td>12.60 lb/hr 5.69 kg/hr</td>
<td></td>
</tr>
<tr>
<td>5.28 lb/hr 2.40 kg/hr</td>
<td>4.50 lb/hr 2.04 kg/hr</td>
<td>2.40 kg/hr</td>
<td>5.28 lb/hr 2.40 kg/hr</td>
<td>25.50 lb/hr 11.62 kg/hr</td>
<td></td>
</tr>
<tr>
<td>2.40 kg/hr</td>
<td>4.50 lb/hr 2.04 kg/hr</td>
<td>2.40 kg/hr</td>
<td>5.28 lb/hr 2.40 kg/hr</td>
<td>25.50 lb/hr 11.62 kg/hr</td>
<td></td>
</tr>
</tbody>
</table>

Note 1: This guide is to be used for general disc selection for Digital Dosing unit applications. All rates shown are based on continuous throughput of free-flowing materials. Consult factory regarding powder and all hard-to-flow materials.

Note 2: Minimum recovery time is one (1) second, and maximum feeder disc revolutions in one screw recovery cycle (injection mode) is 9.5 revolutions. Use proper disc sizing for injection molding applications to ensure proper dispensing of material during the recovery cycle.

Note 3: Feeder should not be sized to run continuously below 15% of maximum speed - use lower RPM motor or disc with smaller pockets.

Note 4: 35.5 and 38 rpm motors can only be used with soft pellets - may not have enough torque to cut hard pellets, i.e. PC, PET, nylon, etc. especially when the shear gets dull.
<table>
<thead>
<tr>
<th>Disc</th>
<th>Disc Nomenclature</th>
<th>Min/Max Disc RPM</th>
<th>Amount of Material per Disc Revolution</th>
<th>Minimum Throughput with Continuous Running</th>
<th>Maximum Throughput with Continuous Running</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>35 lbs./ft³</td>
<td>44 lbs./ft³</td>
</tr>
<tr>
<td>DT30-101820</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>101820</td>
<td>0.6 RPM</td>
<td>28.0 g/rev</td>
<td>35.6 g/rev</td>
<td>1.04 kg/hr</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.0 RPM</td>
<td>1.40 g/hole</td>
<td>1.78 g/hole</td>
<td>1.29 kg/hr</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DT30-102025</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Sure-shot&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>P102025</td>
<td>0.6 RPM</td>
<td>33.6 g/rev</td>
<td>42.7 g/rev</td>
<td>1.20 kg/hr</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.0 RPM</td>
<td>1.3 g/hole</td>
<td>1.71 g/hole</td>
<td>1.26 kg/hr</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DT30-203012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>203012</td>
<td>0.6 RPM</td>
<td>95.0 g/rev</td>
<td>118.7 g/rev</td>
<td>7.53 kg/hr</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.0 RPM</td>
<td>3.42 g/hr</td>
<td>4.26 g/hr</td>
<td>9.05 kg/hr</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DT30-204010F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>204010F</td>
<td>0.6 RPM</td>
<td>151.1 g/rev</td>
<td>188.7 g/rev</td>
<td>12.00 lbs/hr</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.0 RPM</td>
<td>15.12 g/hole</td>
<td>18.87 g/hole</td>
<td>15.00 lbs/hr</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DP30-250940</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>P250940</td>
<td>0.6 RPM</td>
<td>7.8 g/rev</td>
<td>9.7 g/rev</td>
<td>0.60 lbs/hr</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.0 RPM</td>
<td>0.20 g/hole</td>
<td>0.245 g/pocket</td>
<td>0.28 lbs/hr</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DP30-050940</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>P050940</td>
<td>0.6 RPM</td>
<td>15.6 g/rev</td>
<td>19.5 g/rev</td>
<td>1.23 lbs/hr</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.0 RPM</td>
<td>0.39 g/hole</td>
<td>0.49 g/hole</td>
<td>0.56 lbs/hr</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note 1: This guide is to be used for general disc selection for Digital Dosing unit applications. All rates are based on continuous throughput of free-flowing materials. Consult factory for regrind, powder, and all hard-to-flow materials.

Note 2: Maximum Minimum recovery time is one (1) second, and maximum feeder disc revolutions in one screw recovery cycle (injection mode) is 9.5 revolutions.

Use proper sizing for injection molding applications to ensure proper dispensing of material during the recovery cycle.
Appendix C Drawings

Single Station Digital Dosing Feeder

SID VIEW

TOP VIEW
“Duo” Digital Dosing Feeder

SIDE VIEW

TOP VIEW
Electrical Schematics of A250 Controller
# Appendix D Spare Parts List

## Dosing Disc/Shear Order Numbers

<table>
<thead>
<tr>
<th></th>
<th>Dosing disc</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dosing disc</td>
</tr>
<tr>
<td>72 chambers</td>
<td>CT100562</td>
</tr>
<tr>
<td>40 chambers</td>
<td>CT21710</td>
</tr>
<tr>
<td>25 chambers</td>
<td>CT21711</td>
</tr>
<tr>
<td>18 chambers</td>
<td>CT2057</td>
</tr>
<tr>
<td></td>
<td>Dosing disc, wear-resistant</td>
</tr>
<tr>
<td>40 chambers</td>
<td>CT28214</td>
</tr>
<tr>
<td>25 chambers</td>
<td>CT27141</td>
</tr>
<tr>
<td>18 chambers</td>
<td>CT27142</td>
</tr>
<tr>
<td></td>
<td>Shear for DD style feeder</td>
</tr>
<tr>
<td>18, 25 and 40 pocket disc</td>
<td>CT21392</td>
</tr>
<tr>
<td>72 pocket disc</td>
<td>CT100875</td>
</tr>
</tbody>
</table>

## Replacement Motor Assembly Part Numbers

<table>
<thead>
<tr>
<th>Gear Motor Assemblies</th>
<th>Bauer</th>
<th>Bodine</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N/A</td>
<td>3 RPM 892.02095.00</td>
</tr>
<tr>
<td></td>
<td>6.4 RPM</td>
<td>8.4 RPM CT34300</td>
</tr>
<tr>
<td></td>
<td>11.5 RPM</td>
<td>11.5 RPM CT102241</td>
</tr>
<tr>
<td></td>
<td>35.5 RPM</td>
<td>38 RPM CT34299</td>
</tr>
</tbody>
</table>

**NOTE:** Bauer (blue) and Bodine (black & silver) motors are mechanically interchangeable, with changes to controller parameters # 7 and # 8. (See page 20 & 21)
Appendix E Technical Assistance

Technical Assistance

Parts Department
The ACS Customer Service Group will provide your company with genuine OEM quality parts manufactured to engineering design specifications, which will maximize your equipment's performance and efficiency. To assist in expediting your phone or fax order, please have the model and serial number of your unit when you contact us. A customer replacement parts list is included in this manual for your convenience. ACS welcomes inquiries on all your parts needs and is dedicated to providing excellent customer service.

For immediate assistance, please contact:
North, Central and South America, 8am – 5pm CST +1 (800) 483-3919.
North America, emergencies after 5pm CST (847) 439-5855
Europe +48 22 390 9720
India/Middle East  +91 21 35329112
Asia/Australia  +86 512 8717 1919

Sales and Contracting Department
Our products are sold by a worldwide network of independent sales representatives. Contact our Sales Department for the name of the sales representative nearest you.

Let us install your system. The Contract Department offers any or all of these services: project planning; system packages including drawings; equipment, labor, and construction materials; and union or non-union installations.

For assistance with your sales or system contracting needs please Call:
North, Central and South America +1 (262) 641-8600 or +1 (847) 273-7700
Monday–Friday, 8am–5pm CST
Europe +48 22 390 9720
India/Middle East +91 21 35329112
Asia/Australia +86 512 8717 1919

Facilities
ACS offers facilities around the world to service you no matter where you are located. For more information visit us at www.acscorporate.com

United States:

ACS Schaumburg
1100 E. Woodfield Road
Suite 588
Schaumburg, IL 60173
Phone: +1 847 273 7700
Fax: +1 847 273 7804

ACS New Berlin
2900 S. 160th Street
New Berlin, WI 53151
Phone: +1 262 641 8600
Fax: +1 262 641 8653

Asia/Australia:

ACS Suzhou
109 Xingpu Road SIP
Suzhou, China 215126
Phone: +86 8717 1919
Fax: +86 512 8717 1916

Europe:

ACS Warsaw
Ul. Dzialkowa 115
02-234 Warszawa
Phone: +48 22 390 9720
Fax: +48 22 390 9724

India/Middle East

ACS India
Gat No. 191/1, Sandbhor Complex
Mhalunge, Chakan, Tal Khed,
Dist. Pune 410501, India
Phone: +91 21 35329112
Fax: +91 20 40147576