CBE 600 SERIES GRAVITY PACKER

Safety - Installation - Operation - Maintenance
FOREWORD

This manual has been prepared to assist you with your Choice Bagging Equipment, Ltd. bag packaging equipment.

The text contains instructions for installation and operation of your packing equipment, as well as directions for adjustment and maintenance.

Following the text is the reference section which contains drawings; bills of materials, recommended spare parts, manufacturers' bulletins and any other information necessary to the successful operation of your equipment.

If further information or assistance is needed, please contact us at:

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email: kem@valvebagfiller.com
www.findtherightbagger.com

IMPORTANT NOTICE

READ THIS MANUAL COMPLETELY before installing, starting-up, or operating this equipment. Be certain all personnel concerned with this machinery are fully alerted to the possible HAZARDS of the equipment and its utilities (electrical and pneumatic) before any operation is allowed.

Choice Bagging Equipment, Ltd. cannot emphasize enough the importance of good safety practices in the use of this equipment.

Sound engineering and design practices have been applied to minimize the possibility of accidents. However, while using equipment of this type, good judgment and extreme caution are necessary on the part of all personnel.

The purpose of this section is to alert operating and maintenance personnel to the possible dangers of this type of equipment. Serious injury and/or equipment damage could result from not heeding these safety precautions.

If any clarification is required -- ASK US!
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BEFORE OPERATING EQUIPMENT

Any personnel working directly with or on this equipment should read this material before proceeding with equipment use. Electricians should familiarize themselves with the electrical drawings before initial start-up of equipment.

Other appropriate operating and maintenance personnel should familiarize themselves with mechanical layout and general arrangement drawings before start-up of equipment. These tips are important for safe operation:

1. As you uncrate the shipped machine, check carefully for any damage, loose connections, wires that are loose, etc. Be careful to note any discrepancies you find and BEFORE you start the machine call Choice Bagging Equipment to make sure the situation you see is or is not critical in nature. If severe damage has occurred, verify the damage with written reports AND pictures, call Choice Bagging Equipment and call the trucking company or transportation provide.

2. Determine location of all emergency switches.

3. Be sure all guards are in place and observe all warning signs.

4. Check oil levels in all motors.

5. Be sure all electrical equipment is free of any accumulation of water.

6. Be sure all personnel are clear of operating mechanisms before connection air.

7. Never start equipment without first checking for loose objects, trash, dropped nuts and bolts, or other foreign items. All persons in the immediate area of the equipment should be alert to danger prior to starting

CAUTION DURING OPERATION

1. Observe extreme caution when switches are turned on. Operation may in automatically after a time delay.

2. DO NOT open junction boxes or control panels unless you are a qualified technician. Be sure POWER IF OFF. Except when electricians are performing maintenance, electrical enclosures and junction boxes should REMAIN SECURELY CLOSED.

3. STOP machine and disconnect power supply before servicing or repairing. Maintenance and adjustments must be performed with all power supply disconnected unless otherwise specified in this manual.

3. READ COMPLETELY any additional manuals (if included) that pertain to 5297 or 4693 Controller units.

4. DO NOT attempt to defeat any safety switches. Serious injury could result.

5. While machine control power is ON, do not activate limit switches manually. Serious injury and/or machine damage could result. Disable machine before attempting any maintenance or manual testing of components.
6. Gear motors will get warm to the touch and should not cause concern for equipment reliability and operation. A temperature rise is normal per new NEMA specifications.

7. If additional wire runs are added to any junction box or control panel, wiring practice should be such as to maintain prevailing electrical hazard classification.

8. High-pressure air systems are dangerous. DO NOT service or trouble-shoot systems with air supply on. Be sure to bleed off any trapped air before working on components since it is possible to have high pressures trapped in airlines and cylinders, etc.

9. Keep fingers, hands, feet, clothing, etc., out of the path of pneumatically operated components.

10. Safety glasses should be worn in equipment area.

11. Follow the safety regulations for your plant. ALWAYS USE GOOD JUDGEMENT.

Within the context of this manual, the following apply:

* "WARNING" indicates possible injury to personnel;
* "CAUTION" indicates possible damage to equipment;
* "NOTE" is an informational comment

Before you begin production AND as you continue working daily with the machine, these points should be observed for continuous service. Service parts such as belts, stuffing box material, bearings, gears, fill spouts, etc. are available for replacement and stock supplies through Choice Bagging Equipment.
Your CBE Gravity Valve Packer is designed to weigh within plus or minus 8 ounce accuracy (200 grams). On all free flowing materials such as corn, soybeans, salt, plastic pellets, sand, fertilizers, sugar, etc. The 600 Series Gravity Valve Packer scales are non dust-tight and designed for handling 20 lb. (10 kg) through 110 lb (50 kg) weighments at a rate of 2-4 per minute.

### CBE 600 Series Gravity Valve Bag Filler Specifications

<table>
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<th>Specification</th>
<th>Specification Details</th>
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<tr>
<td>Actual Weight</td>
<td>450 lbs. (205 kg)</td>
</tr>
<tr>
<td>Overall Height</td>
<td>74.5&quot; (189.25 cm)</td>
</tr>
<tr>
<td>Inlet</td>
<td>6&quot; ID Ring Inlet</td>
</tr>
<tr>
<td>Spout Circumference (Valve Size)</td>
<td>600-2.00&quot; (for valve sizes between 3.75&quot; &amp; below)</td>
</tr>
<tr>
<td></td>
<td>600-2.25&quot; (for valve sizes between 3.75&quot;-4.0&quot;)</td>
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<tr>
<td></td>
<td>600-2.50&quot; (for valve sizes between 4.25&quot;-4.50&quot;)</td>
</tr>
<tr>
<td></td>
<td>600-2.75&quot; (for valve sizes between 4.75&quot;-5.00&quot;)</td>
</tr>
<tr>
<td></td>
<td>600-3.00&quot; (for valve sizes of 5.25&quot;)</td>
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<tr>
<td></td>
<td>600-3.25&quot; (for valve sizes between 5.50&quot;-5.75&quot;)</td>
</tr>
<tr>
<td></td>
<td>600-3.50&quot; (for valve sizes between 6.00&quot; and up)</td>
</tr>
<tr>
<td>Electrical Requirements</td>
<td>220/440 Volt 3 Phase / 6 Cycle</td>
</tr>
<tr>
<td>Air/Pneumatic Requirements</td>
<td>80 PSIG @ 1 CFM per Bag Fill Cycle</td>
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### 1. PRINCIPAL OF OPERATION

First, the operator will push bag clamp handle toward the packer, thereby firmly locking bag in position. The operator will then place an empty bag on the filling tube. When the cutoff gate handle is pushed toward the packer, a microswitch activates electrical circuit and filling screw starts to turn. Pulling starting handle down opens the cutoff gate allowing material to flow. Cutoff gate is held open by engagement of the gate control lever in a notch on the trip hook. When predetermined weight is reached, movement of the scale beam slip out of the trip hook, which releases the gate control lever. The cutoff gate closes and flow of material stops. The microswitch simultaneously signals an adjustable timer which permits the filling screw to continue in operation for a preset time, ensuring complete evacuation of material from the auger feeder.

#### A. Sequence of Operation

1. Adjust scale beam for desired packing weight.
2. Place empty bag on filling tube.
3. Push bag clamp handle toward packer, thereby firmly locking bag in position.
4. Pull down starting handle which opens cutoff gate.
5. When filling screw stops/gravity fill funnel empties, pull bag clamp handle toward operator, releasing filled bag.

### 2. PLAN YOUR HOPPER BEFORE INSTALLATION

If your machine has been supplied with our 601-001 Self Standing Mounting Frame, your hopper will need to be made to mate with the 6" ID Diameter Inlet Ring at the top of the machine. We recommend leaving a minimum 1" gap between the top of the inlet of the bagging machine and the discharge of your material supply hopper. This gap is required for proper machine leveling and can be sealed by a flexible rubber collar.
If your machine is equipped with the standard bin mounted design, install the bagging scale on the flanges. Once on the flanges, tighten down the three bolts (6 total) on each side so the scale is securely connected to the flange.

Most free flowing products will flow down a 60 degree slope. When designing hoppers, it is best to have no less than 60 degree slopes although some products flow better with one straight wall and three sloped walls. Other products will flow best with four 60 degree sloped walls in the hopper. When constructing the hopper, remember that vibration can affect accuracy and the hopper should be isolated from as much plant vibration as possible. The top of the scale is 74” (185 cm) from the floor level. The discharge of the fill spout is 48” (111.76 cm) from the floor.

3. INSTALLING YOUR 600 SERIES VALVE BAG PACKER

Position the 600 Series Bagging Scale under your material supply bin and center the 6” ID Inlet under the discharge of your material supply bin. Seal the gap between the packer and the bin with a rubber collar and be sure to lag the machine to the floor. Make sure that the scale is hanging plumb and level inside the supplied mounting frame.

NOTE: Loosen the two bolts on the spout that hold the shipping clip in place on both sides of the scale. Two bolts on the right hand side of the spout should be loosened; the shipping clip should be pushed to its lowest position and the bolts re-tightened. At this point, the spout and the scale should be free. Hang the weight rod on the main beam clevis hook at the back of the scale, making sure the open part of the hook faces away from the scale.

Add dash pot oil to your dash pot located on the right rear of the scale. Oil is entered into the dash pot through the oiler on the side of the dash pot. Two (2) ounces of oil has been provided with the scale and the dash pot will take approximately 90% of this amount. Additional dash pot oil can be ordered through the manufacturer or utilize a non-temperature sensitive 200 weight silicone oil. If incorrect dash pot oil is used, it can effect the operation of the scale.

A. Air Assist Port (optional feature)

If the air assist port is used, connect incoming airline to filter regulator system on the scale. Adjust the air pressure on the regulator to 40 PSI to hold the bag firmly in place when filling. This should be sufficient to help clean the tube at the end of the fill cycle.

B. Mechanical Weighing Scale Setup

Make sure that the scale is hanging plumb and level. Hang the weight rod on the main beam clevis hook at the back of the scale making sure that the open part of the hook faces away from the scale. On the scale, connect the flex connection to the spout using the brackets and bolts provided. Then connect the incoming airline to filter regulator lubricator system on right front of scale. Regulate air pressure to hold the bag firmly in place when filling. Normally 60 – 90 PSI air pressure is sufficient. Add a medium- weight hydraulic oil to the regulating bowl. The regulator should produce 1 drop of oil every 2 or 3 bags. The adjustment for this is on the top of the regulator.
4. ADJUSTMENTS

Your CBE 600 Series Gravity Valve Bagging Scale has been calibrated at the factory before shipment. Only the following adjustments should be made in your shop or by your personnel. If you experience any problems not covered by these adjustments, please notify us before making adjustments.

A. Bag Balance Weight (right front of scale)

When your scale is in place and has the weight rod and heavy counterweight attached (without marked weights), the weight indicator should point to ZERO. If not, adjust the indicator to ZERO by rotating the bag balance weight. The bag balance weight is also used to compensate for the weight of the bag. Attach an empty bag. Now rotate the bag balance weight so that the weight indicator again points to ZERO.

B. Regulating Slide (left front of scale)

Some materials are heavier and some flow more freely than others. When weighing a heavy, fast flowing material, the opening should be smaller so that materials flow slower. Excessive flow causes inaccurate weighing. When shipped, the regulating slide has a small opening. To increase it simply loosen the wing nut, pull the handle down and re-tighten the wing nut.

NOTE: A change in the adjustment of the regulating slide will require re-adjustment of the trigger trip screw.

C. Trigger Trip Screw (right rear of scale)

This is your adjustment for light or heavy material weight in the bag. It accounts for the materials in suspension between the shut-off gate and the bag (similar to the water in the hose between the valve and the end of the hose). If your bags are consistently weighing light, the trigger trip is too sensitive and trips early. Adjust the screw UPWARD. This will allow additional weight in the next bag. DO NOT attempt to adjust the trigger trip screw during the filling of a bag.
D. Dash Pot (right side of scale)

The dash pot is the buffer between the scale and the pointer. Without a dampening device the pointer would never settle down. The dampening effect is accomplished by a metal plate about the size of a quarter riding up and down in an oil bath. The oil is non-temperature sensitive 200 weight silicone oil. The dampening effect is changed by turning the dash pot lid. The oil should completely fill the oiler to the top. Two (2) ounces of oil is provided with your machine. The oil should only be ¾ full. Change the oil when dirty or approximately every 6 months.

E. Main Beams, Pivots & Bearings (both sides of scale)

The bearings and pivots on both sides of the scale have bolts approximately 1/8" (3 cm) from them to prevent them from jumping during operation. Please be sure that these bolts do not touch the bearings or pivots and that the gap spacing is correct.

F. Compensation Spring

The compensation spring is used to help place the beam in motion. The beam should contact the spring before it reaches the beam stop bracket on the downward or empty position. The beam should be free and clear of the spring before the final cutoff. The compensation spring can easily be bent upward or downward to adjust.

G. Screw Timer

Adjust the timer, situated in the control box, so that the filling screw continues to turn long enough to ensure cleanout of the filling screw housing. This time can be determined only by trial and error. If the time is too brief, material will remain in the filling screw housing and the bag will not be up to the desired weight. If the time is longer than necessary, the packing rate of the machine will be reduced. To increase the time delay, turn the adjusting screw on the timer clockwise; to reduce the delay, turn the adjusting screw counterclockwise. The required time delay may be affected by the adjustment of the flow control gate. Therefore, the timing must be rechecked after the gate has been set.

5. TROUBLE SHOOT FOR BINDS IN SCALE

Place an empty bag on the spout and clamp it into position. Spin bag balance weight (right front side of scale) until the pointer on the left side of the scale returns to ZERO. Pull down on empty bag several times watching pointer each time to ensure that it returns to zero. If it does not, then check for possible binds in the scale.

Possible Bind Causes

| 1. Dash pot is not lined up squarely and is rubbing |
| 2. Check sway control link to make sure it is not pushing or pulling on a spout |
| 3. Check to see that the weight rod has been installed correctly with the open part of the hook facing away from the scale |
| 4. Make sure airlines are not tight (when using Air Assist) |
| 5. Check compensation spring to make sure it is not rubbing against beam |
6. On scale, make sure airlines are not tight.

7. On scale, make sure flex connection is not tight.

8. Comp spring should contact beam.

The scale is a 5 to 1 calibrated beam scale. The weights have been marked according to the amount of product in the bag they will counter balance. A 25 lb weight actually weighs 5 lbs, but will counter balance 25 lbs. of weight in the bag. Place the desired amount of weights on the weight rod to counter balance target weight of the bag. For example, a 50 lb bag would require two (2) 25 lb weights. A 40 kg bag would require four (4) 10 kg weights.

6. ADJUSTING BAG CHAIR

Place an empty bag on the scale and clamp it to the fill spout. Stretch the empty bag out as open as you can and make it adjust bag chair up or down so the empty bag just touches it. Pull the feed gate handle locking trigger assembly on the roller bearing. This should be a gentle, soft motion. The internal gate of the scale will be opened thus allowing product to fall through the scale into the bag. When the beam comes toward balance, it will trip trigger trip screw allowing the gate to close. At this point, balance indicator (front left of the scale) will display actual weight in the bag as an over or under from target weight. If the weight is over target weight, the trigger trip screw will need to be lowered. If the weight is short of target weight, then trigger trip screw will need to be raised. The flow control lever on the front of the scale is used to control the speed at which product falls into the bag. Speed should not be faster than 10 lb (5 kg) per second in order to maintain a repeatable weight. If the speed is too fast, then raise the regulating slide handle. Subsequently if the speed is too low, lower the regulating slide handle.

7. TIPS TO REMEMBER

- Your CBE 600 Series Scale is extremely simple to operate; adjustments are simple and easily understood. It is best to adjust the scale for accuracy then adjust the scale for speed. Never adjust for speed and accuracy at the same time. The trigger trip screw is your main adjustment for speed. Spare parts are available from your distributor.

- Your CBE 600 Series Scale Bagger is designed for handling free flowing products. Accuracy is normal at plus or minus 8 ounces (200 grams). Normal speed is 2 to 4 bags per minute. The bag fill rate averages 6 lbs (3 kg) per second. The feed gate handle is gently pulled and positioned, locking the trigger on the roller bearing.

NOTE: Be sure that no personnel or operator adjusts the bolt behind the roller bearing which allows the trigger to set into the bearing. This adjustment has been set at the factory and does not require readjustment.

8. CHANGING SPOUTS

Should you need to change one spout for another, the process is simple. Remove the first spout by unbolting it from the mounting tabs of the bag hanger assembly which also supports the bag rest located at the bottom of the scale. Once it is unbolted and free, remove front pins from the turnbuckles and allow the legs to swing freely backward. Holding the spout, bring it forward and remove it in a DOWNWARD motion. The new spout is ready for installation.
NOTE: Check the distance between the “H” brackets on the old spout and the “H” brackets on the new spout. The distance must be duplicated exactly. If the distance between the brackets is not exactly the same, then side movement will occur and cause inaccuracies. Be extremely careful to check this spacing prior to installing the new spout.

Once the new spout is installed, remember the spout has been calibrated against the weight in the weight cup on the weight rod at the back of the scale. The scale is a 5 to 1 beam meaning the spout weighs 5 times as much as the weight rod. The weight rod was counter balanced for the spout that was removed. The new spout may not weigh the same as the old spout. We will need to adjust the weight of the weight rod. The beam, when in the level position, should have the pointer set at zero. Check this position and correct by using the turnbuckle (left rear of scale).

Add or subtract weight from the weight cup until the beam is level and the pointer is at ZERO with the new spout installed. Once the correct weight is reached, then re-tape the weight cup. Any weights such as BBs or pellet shot, nuts, washers, etc., can be used inside the weight cup for this purpose.

On CBE 650 Models Only:

If you need to change spout sizes on the Gravity Auger, you will also have to change the auger sizes, if you are going to a smaller spout size. If you are increasing the spout size, there is no need to change out the auger.

To remove the spout, remove four bolts that hold the old spout on the main hopper. Slide off and install the new spout. If the spout is smaller, you will need to remove the auger as well.

To remove the auger, first remove belt guard cover then the auger sheave and belts. Loosen set screws on the bearings and slide the old auger out from the front of the machine. BEFORE you install the auger, remove the inner bearing and replace the housing seal if worn. Put lubricant on the new seal before installing onto the new auger shaft. Then reinstall the inner bearing and finish installing the auger, reversing the procedure. If you don’t move the rear bearing you auger should remain aligned.

9. DUST PICKUP ON 600 SERIES SCALES

A dust port has been provided (left rear of scale) to pickup displaced air from the bag during filling operation. It is extremely important to remember that too much vacuum or negative air can cause weight inaccuracies on the scale, therefore take a filled bag with product on the scale, check the position of the balance indicator (left front of scale). Now apply negative air pressure to the port (left rear of scale), watch balance indicator. If balance indicator moves when negative air is applied, then too much air pressure has been utilized and back off the amount of air pressure until the balance indicator returns to its starting position. It is extremely important to remember that this must be tested while a bag is on the spout.
CHAPTER 2

CALIBRATION
The scale has been pre-calibrated at the factory. The following calibration steps are used only in the event of new bearings and pivots being installed.

**Packer Calibration Information**

1. Torque torsion rod both ends and make sure it does not rub
2. Level beam with housing which should be level on floor
3. With beam level, set turnbuckle until indicator reads ZERO
4. Check compensation spring and make sure it is free of beam at -1
5. Set main beam stop bolt at +2, lock nut down
6. Check dash pot oil and make sure it is plumb and center and does not rub
7. Check that shipping clips are down and not touching housing

**1. CALIBRATION PROCEDURES**

- Set bag balance weight flush with end of rod
- Add shot to weight cup until indicator reads zero
- Clamp empty bag on fill spout and use bag balance weight to make indicator to read zero.
- Add weights to weight rod. This is a 5 to 1 beam and weights supplied are 5 times their weight. Example: (10 lb. Is marked 50 lb.)
- With equal ratio weight, preferably 100 lb or 50 kg, indicator should read zero. If the indicator is not at zero, perform steps "f" through "i" until it reads zero.
- Move the left pivot to zero and move the right pivot to the other side of zero than was reading. If it reads +1, move the left pivot to zero, then move the right pivot to -1.
- Remove all weight and re-hang the bag.
- Check, zero, add or remove shot or weight objects in cup.
- Re-hang the weight and check weight read. If it is not indicating zero, repeat steps “f” through “i”.

NOTE: IF after several tries of doing this procedure you cannot bring the bag filler into calibration, please contact us for assistance at: