BICO INCORPORATED VIBRATORY PULVERIZER

WARNING!!!!! IT IS IMPORTANT THAT YOU REMOVE RED PLATES BEFORE OPERATING THIS MACHINE

THE VIBRATORY BODY OF THE MACHINE HAS BEEN SECURED RIGIDLY UNDERNEATH TO PREVENT DAMAGE DURING SHIPPING USING FOUR RED METAL PLATES LOCATED BEHIND THE SERVICE DOOR ON THE FRONT OF THE UNIT.

THESE PLATES ARE ACCESSIBLE THROUGH THE SERVICE DOOR AND ARE SECURED WITH TWO 3/8" AND TWO 1/2" CAP SCREWS ON EACH PLATE.

• BE SURE TO REMOVE THESE PLATES BEFORE OPERATING THIS MACHINE

• FAILURE TO REMOVE THEM WILL RESULT IN SEVERE DAMAGE TO THE MACHINE
INSTRUCTIONS FOR BICO VIBRATORY PULVERIZER

THIS MANUAL INCLUDES THE FOLLOWING:

1. DESCRIPTION
2. INSTALLATION
3. ELECTRICAL CONNECTIONS
4. OPERATIONS INSTRUCTIONS
5. SPARE PARTS LIST

THIS MANUAL IS THE ONLY INSTRUCTION NECESSARY FOR KEEPING AND MAINTAINING THE BICO VIBRATORY PULVERIZER. PLEASE READ IT CAREFULLY BEFORE OPERATING THIS MACHINE. PLEASE FEEL FREE TO CONTACT OUR CUSTOMER SERVICE DEPARTMENT SHOULD YOU REQUIRE INFORMATION OTHER THAN THAT WHICH HAS BEEN PROVIDED IN THIS MANUAL.

1. DESCRIPTION

THE VIBRATORY PULVERIZER CONSISTS OF THE FOLLOWING:

1. SOUND DAMPENING ENCLOSURE WITH HINGED COVER
2. VIBRATORY BODY WITH CLAMPING SYSTEM
3. BOWL, LID AND SET OF GRINDING COMPONENTS
4. DIGITAL TIMER AND STARTING SWITCH

THE GRINDING BOWL IS MOUNTED TO THE VIBRATORY BODY WITH THE CLAMPING DEVICE AND THE HINGED COVER SHOULD BE CLOSED DURING OPERATION.

THE STARTING SWITCH CONSISTS OF A PUSH-ON BUTTON, A PUSH-OFF BUTTON, AND A DIGITAL TIMER.

THE PULVERIZER SHOULD NEVER BE STARTED OR OPERATED WITHOUT THE GRINDING BOWL PROPERLY SECURED ONTO THE VIBRATORY BODY, OR WITHOUT BEING INSTALLED IN ACCORDANCE WITH THE INSTRUCTIONS.
2. INSTALLATION

THE PULVERIZER MUST BE INSTALLED ON A FLAT SURFACE. SINCE THE PULVERIZER IS
SHIPPED WITHOUT BALLAST IN THE BASE, NO LESS THAN 500 POUNDS OF BALLAST
MUST BE ADDED IN THE FORM OF LEAD SLABS, GRINDING BALLS, SCRAP STEEL, ROCKS
OR SIMILAR MATERIAL. SOME USERS PREFER TO BOLT THE PULVERIZER ONTO A
CONCRETE FLOOR. DO NOT OPERATE THE PULVERIZER WITHOUT BALLAST IN THE
BASE, OR WITHOUT BEING ANCHORED TO THE FLOOR TO AVOID SEVERE ROCKING OF
THE PULVERIZER, ESPECIALLY DURING START UP AND SLOWING DOWN OF
THE ELECTRIC MOTOR.

THE GRINDING BOWL AND IT'S SEAT ON THE PULVERIZER ARE PRECISION
ENGINEERED. DURING TRANSPORTATION THE COMBINED EFFECT OF THE PRESSURE
OF THE CLAMPING SYSTEM, THE PRESENCE OF THE NEOPRENE GASKET AND
CHANGES IN TEMPERATURE MAY CAUSE THE GRINDING BOWL TO STICK TO IT'S SEAT.
USE A BAR OR SIMILAR TOOL AS A WEDGE BETWEEN THE BOWL AND THE VIBRATORY
BODY TO REMOVE IT.

3. ELECTRICAL CONNECTIONS

THE 3 PHASE ELECTRICAL MOTOR HAS BEEN PRE-WIRED PER CUSTOMER'S REQUEST.
HAVE A QUALIFIED ELECTRICIAN CHECK THE POWER AVAILABLE ON THE SITE TO
ENSURE THE PULVERIZER IS CONNECTED TO THE RIGHT VOLTAGE. SHOULD IT
BECOME NECESSARY TO CHANGE THE VOLTAGE, A WIRING DIAGRAM HAS BEEN
INCLUDED IN THESE INSTRUCTIONS FOR HIGH VOLTAGE (440 VOLT), AND FOR LOW
VOLTAGE (220 VOLT). THE CABINET HAS BEEN DESIGNED WITH REMOVABLE KNOCK-
OUT PLUGS ON EACH SIDE FOR WIRING PURPOSES.

4. OPERATING INSTRUCTIONS

DO NOT OPERATE THE PULVERIZER WITHOUT THE GRINDING BOWL SECURELY LOCKED
INTO IT'S SEAT ON THE PULVERIZER
THE 250 ML. CAPACITY GRINDING BOWL CONTAINS THREE GRINDING COMPONENTS:
THE SOIL CENTER PUCK, AND THE TWO CONCENTRIC RINGS. THE MATERIAL TO BE
PULVERIZED IS POURED BETWEEN THE GRINDING COMPONENTS, ALL PARTICLES ON
TOP OF THE COMPONENTS ARE BRUSHED BETWEEN THE RINGS AND THEN THE LID IS
CLOSED. ONCE THE GRINDING BOWL IS SECURELY ON IT'S SEAT, THE CLAMP IS
LOCKED INTO POSITION IN THE FOLLOWING WAY:
BRING DOWN THE HANDLE ON THE LEFT, THEN THE HANDLE ON THE RIGHT. WHILE
BRINGING DOWN THE HANDLE ON THE RIGHT, PULL THE RING TO ENGAGE THE PIN TO
LOCK THE HANDLES. BE CERTAIN THE PIN IS FULLY ENGAGED BEFORE CLOSING THE
CABINET TOP AND STARTING THE MACHINE.

THE CYCLE IS STARTED BY PUSHING THE START BUTTON, AND IS STOPPED BY THE
STOP BUTTON. IF YOUR MACHINE IS EQUIPPED WITH A DIGITAL TIMER, THE REQUIRED
GRINDING TIME SHOULD BE SET PRIOR TO PUSHING THE START BUTTON-THEN THE
TIMER WILL STOP THE MACHINE AFTER THE CLOCK HAS REACHED THE PROGRAMMED
TIME.

TO RELEASE THE CLAMPING SYSTEM SIMPLY PULL THE RING TO DISENGAGE THE PIN.
BE SURE TO APPLY PRESSURE TO THE HANDLE AS IT WILL SPRING UP. LIFT THE
HANDLES AND REMOVE THE BOWL. IF THE LID IS STUCK TO THE BOWL, A HAMMER OR
SIMILAR TOOL SHOULD BE USED TO TAP THE PROTRUDING RIM GENTLY. IT MAY BE
NECESSARY TO WEAR GLOVES AS THE COMPONENTS DO GET WARM DURING
OPERATION. BRUSH THE PARTICLES FROM THE TOP OF THE GRINDING COMPONENTS
AND REMOVE ONE COMPONENTS AFTER ANOTHER WHILE CLEANING, STARTING WITH
THE CENTER PUCK. THEN REMOVE THE CONTENTS OF THE BOWL.

GRINDING TIME DEPENDS ON A NUMBER OF FACTORS:
1. MASS OF MATERIAL
2. HARDNESS
3. PARTICLE SIZE
4. LUBRICATING PROPERTIES

SINCE THE CAPACITY OF THE GRINDING BOWL IS RATED IN ML. RATHER THAN IN
GRAMS, THE MASS OF THE SAMPLE WILL DEPEND ON ITS BULK DENSITY.

FOR SOFT MATERIALS SUCH AS COAL, DOLOMITE, ETC. THE MAXIMUM SIZE OF THE
FEED CAN BE AS LARGE AS 15MM. FOR HARD MATERIALS SUCH AS PRE-REDUCED
IRON ORE, FERRO ALLOYS, ETC. THE TOP PARTICLE SIZE SHOULD NOT EXCEED 5MM.

SOME MATERIALS SUCH AS TALCUM TEND TO LUBRicate THE GRINDING
COMPONENTS. OTHERS MAY FORM CONGLOMERATES OF PARTICLES ON THE
PERIPHERY OF THE BOWL (CAKING) IN A SHORT TIME. PULVERIZE SUCH MATERIALS IN
INCREMENTS OF .1 MIN. AND CHECK THE FINENESS AFTER EACH INTERVAL. IF THE
REQUIRED FINENESS CANNOT BE OBTAINED WITHOUT CAKING, ADD 2-5 ML. OF
ETHANOL FREON SOLVENT AND PULVERIZE FOR THE TIME PERIOD THAT CAUSED
CAKING IN DRY CONDITIONS PLUS .5 MIN. SAMPLES CONTAINING EXCESSIVE MOISTURE
MAY ALSO CAKE AND SHOULD BE DRIED BEFORE GRINDING,
# BICO INC. VIBRATORY PULVERIZER SPARE PARTS

<table>
<thead>
<tr>
<th>CATALOG #</th>
<th>DESCRIPTION</th>
<th>LBS/KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>VP-21</td>
<td>Large Ring Only, 250 ml</td>
<td>7/3</td>
</tr>
<tr>
<td>VP-22</td>
<td>Small Ring Only, 250 ml</td>
<td>5/2</td>
</tr>
<tr>
<td>VP-23</td>
<td>Puck Only, 250 ml</td>
<td>5/2</td>
</tr>
<tr>
<td>VP-45</td>
<td>250 ml. Grinding Components Only</td>
<td>35/16</td>
</tr>
<tr>
<td></td>
<td>Includes: Large Ring, Small Ring, and Puck</td>
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</tr>
<tr>
<td>VP-50</td>
<td>250 ml. Bowl and Lid Only</td>
<td>18/8</td>
</tr>
<tr>
<td>VP-24(A)</td>
<td>O-Ring for Lid (A = for 100 ml. bowl)</td>
<td>1/4</td>
</tr>
<tr>
<td>VP-16</td>
<td>Rubber Bowl Seat</td>
<td>1/4</td>
</tr>
<tr>
<td>VP-9R</td>
<td>Release Pin Assembly - Includes: Release Pin, Ring, Spring and Washer</td>
<td>2/1</td>
</tr>
<tr>
<td>VP-9</td>
<td>Release Pin Only</td>
<td>1/4</td>
</tr>
<tr>
<td>VP-36</td>
<td>Spring Only, for release pin assembly</td>
<td>1/4</td>
</tr>
<tr>
<td>VP-10</td>
<td>Washer Only for release pin assembly</td>
<td>1/4</td>
</tr>
<tr>
<td>VP-35</td>
<td>Handle Grip</td>
<td>1/4</td>
</tr>
<tr>
<td>VP-34</td>
<td>Knob for Handle</td>
<td>1/4</td>
</tr>
<tr>
<td>VP-11R</td>
<td>Right Hand Clamping Block with Handle</td>
<td>4/2</td>
</tr>
<tr>
<td>VP-5R</td>
<td>Left Hand Clamping Block Assembly</td>
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<tr>
<td></td>
<td>Includes: Block, Pin &amp; VP-9R</td>
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<tr>
<td>VP-18</td>
<td>Spring (6 Required for operation)</td>
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</tr>
<tr>
<td>VP-8R</td>
<td>Strap Clamp Assembly</td>
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<tr>
<td></td>
<td>Includes Strap Bar &amp; VP-12</td>
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</tr>
<tr>
<td>VP-12</td>
<td>&quot;Hold Down&quot; for Strap Clamp</td>
<td>2/1</td>
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## NET-NO DEALER DISCOUNT APPLY

<table>
<thead>
<tr>
<th>CATALOG #</th>
<th>DESCRIPTION</th>
<th>LBS/KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>VP-17</td>
<td>Motor</td>
<td>60/27</td>
</tr>
<tr>
<td>VP-37</td>
<td>Automatic Timer</td>
<td>10/5</td>
</tr>
</tbody>
</table>
| VP-45/50TC| 100 gm Tungsten Carbide Grinding Set  
Includes 1 bowl, 1 lid, 1 ring, 1 puck  
**Requires VP-11A** | 30/14  |
| VP-45/50CA| 100 gm Chrome Allow Grinding Set  
Includes 1 bowl, 1 lid, 1 ring, 1 puck  
**Requires VP-11A** | 30/14  |
| VP-11A    | 100 Gram Bowl Adaptor | 2/1    |