SRV THEORY OF OPERATION

The Ibis Sealed Rotary Valve (SRV) is based on the simple concept of a metal CAM, or rotating disc that diverts the nozzle purge air. This unit is used in place of the Ibis Pneumatic Manifold, and is typically connected to the Nozzle Stripper Fan. The SRV is meant to be connected to a drum filter or similar device needing a method of changing ducts while maintaining a steady vacuum and air flow.

Operation:
As the disc rotates on a variable speed DC drive motor, it provides each drum filter nozzle with the required suction to clean the filter media. The SRV is set at the factory to index the cam from one position to the next, on a timed basis. After one drum filter revolution, the cam indexes until the sensor 'sees' the next position and the cam stops for one drum revolution. The SRV also employs a sealing mechanism that prevents constant leaking associated with other valves on the market. This sealing device and a new cam design allows for a 'non-spiking' switch from nozzle to nozzle and therefore makes for much smoother operation.

This manual includes installation information, operation information, and typical maintenance information. Pertinent safety information is also included in this manual.

Thank you for your purchase of the Ibis Sealed Rotary Valve for Drum Filtration.
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INSTALLATION

Mechanical
The SRV is designed to regulate the purge air from the vacuum nozzles that clean the filter media. The SRV eliminates the need for compressed air that traditional manifolds require.

Figure 1. Ibis Sealed Rotary Valve (SRV).
The drum filter should be installed prior to installation of the RV. All components including the enclosure, lighting, and fire protection should be completely installed. Mount the tubing for connection to purge nozzles before mounting RV as shown in Figure 2.

Place the RV on the roof of the enclosure, in proximity to the bulkhead fittings. DO NOT fasten the RV to the roof panels at this time. Connect the RV inlet pipes to their respective bulkhead fitting. Ibis will provide tubing, or flex hose assembly drawing for your specific unit. After all tubing is in place and connection to the RV has been made, drill holes, and mount the RV using hardware provided in your shipment. Drill 7/16” holes and use 3/8” whiz nuts and bolts to attach (see Figure 3).
Finally, mount the flex hose connections from the bulkhead fittings to each nozzle. Use wormgear clamps (Provided by Ibis) for these connections. Verify that all hardware is securely fastened before moving on.

Electrical

VERIFY THAT ALL POWER SOURCES ARE DISCONNECTED BEFORE WIRING THE RV, OR ANY OTHER PIECE OF EQUIPMENT.

All Ibis Rotary Diverters are equipped with a rotation sensor as shown in Figure 4. Verify that the rotation sensor has remained in place during shipment by loosening the set nut, turning the sensor clockwise until it touches the cam, and then turning the sensor counter clockwise ½ turn. Lock the set nut back in place, and continue install.

NOTE: BE CERTAIN THAT THE ROTATION SENSOR IS NOT PROTRUDING THROUGH THE HOLE IN THE CAM. IF THIS OCCURS, THE CAM WILL SHEAR THE ROTATION SENSOR OR COULD CAUSE POSSIBLE REDUCER FAILURE. NEVER OPERATE THIS UNIT WITHOUT EXAMINING THE CAM CLEARANCE AND PATH OF TRAVEL FOR OBSTRUCTIONS.
The motor may or may not be wired to the electrical control panel supplied with the equipment. Connect the motor in accordance with the wiring diagrams provided with the RV. Please see the typical wiring diagram contained in this manual for timer controls. The direction of rotation of the motor should be clockwise, when viewing the output shaft. To reverse the motor rotation, simply reverse the white and black wire leads at the motor. For wire sizes and electrical connections refer to the National Electric Code (NEC) – Article 430 – “Motors, Motor Circuits, and Controllers” and/or applicable local area codes. Long or inadequately sized cords can cause motor failure, particularly with hard starting loads when current draw tends to be at its highest.

Initial Checks and Run In Procedure.
The RV should be started in an unloaded state, without the presence of a vacuum in the ducting from the nozzle stripper fan. If the unit does not start properly, disconnect the power immediately, and review the previous setup procedures. Monitor the rotation of the CAM and the operation of the timers in the control panel. The CAM should rotate, then stop for a preset amount of time, then rotate to the next position. If this motion does not occur, check the settings of the timers located in the electrical control panel. Refer to the operation section of this manual for the correct settings. If problems persist, contact Ibis International Inc. at: 1-800-682-2062
Electrical Settings

The RV is operated by the main system control panel of your Drum Filter System. Two lights in the front of the panel informs the operator of the CAM position. The red warning light indicates that there has been a loss of power and that the CAM has stopped rotating. The 2nd light on the panel indicates that power is connected to the RV.

Please note that actual position of the control components may vary. You should look at the control panel layout for specific details regarding your unit. All settings are adjusted inside the control panel. The adjustable components include three timing relays, and one motor speed controller.

NOTE: ALL WORK PERFORMED IN THE CONTROL PANEL SHOULD BE DONE BY AUTHORIZED PERSONEL ONLY. FOLLOW ALL LOCK OUT, TAG OUT PROCEDURES CAREFULLY.

- ELECTRICAL COMPONENTS MAY NOT BE PROVIDED BY IBIS -

RV Diagram

Step 1. Cam rotates until it sees sensor hole.
Step 2. Sensor signal engages motor brake and turns off motor.
Step 3. Timer 1 starts and sensor circuit resets.
Step 4. After Timer 1 set time elapses (60 seconds +/-) Timer 2 starts and cam rotates until Step 2. Timer 2 is engaged (30 seconds) and if the sensor does not see the cam hole before time out, an alarm will occur.
The values for the components listed above are determined by the size and rotation speed of the drum filter used.

Verify the rotational speed of the drum. Turn the drum filter on and note how many rotations it makes in one minute. This will indicate the rotational speed of the drum in Revolutions Per Minute (RPM). For reference standard drum filters rotate at 1 or 2 RPM. This factor will depend on the drive package used and the voltage used.

TABLE 1

<table>
<thead>
<tr>
<th>Drum Filter Rotational Speed</th>
<th>TR1</th>
<th>TR2</th>
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</thead>
<tbody>
<tr>
<td>1 RPM</td>
<td>60</td>
<td>90</td>
</tr>
<tr>
<td>2 RPM</td>
<td>30</td>
<td>50</td>
</tr>
<tr>
<td>3 RPM</td>
<td>20</td>
<td>50</td>
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</table>

Find the nearest value to your drum filter system rotational speed in the left hand column of Table 1. The values for the control panel settings are found in the left column.

In the event of a rotational sensor failure the unit can still be operated in order to avoid system down time. This is accomplished by removing Timing Relay 1 from its mounting base and allowing the CAM to turn without dwell time on each inlet port. Speed of the CAM is then adjusted utilizing the motor speed control to achieve continued operation.

Fan Installation

For Fan Installation instructions see the Ibis manual for your Drum Filter Unit. Connect all tubing to the RV and the RV to the Nozzle Purge Fan using the fewest bends and shortest distances possible.

Maintenance

In the event that routine maintenance is required for the RV, follow all lock out tag out procedures carefully.

A daily inspection of the RV interior should be made to insure proper operation. DO NOT OPERATE THE RV WITH MATERIAL BUILT UP INSIDE THE CONICAL CHAMBER. The inspection port is located on the side of the unit and should only be removed to remove accumulated material that would cause the CAM to stop rotating. If there is material buildup, this indicates a fan problem that needs to be corrected prior to restarting the RV.

Gearing

The gearhead section is grease lubricated and is supplied with sufficient grease for the “design life” of the reducer.
Rotation Sensor

To replace the rotation sensor, lock out all power to the RV and any fan connected to the unit. Loosen the sensor bracket and remove the bracket. Loosen the set nut and unscrew the faulty rotation sensor counter-clockwise to remove it from the sensor bracket. Screw the replacement sensor in the bracket hole, and set in place by using a depth gage to (1/8") 3mm from the cam and then tighten the set nut to hold the sensor in place. AT THIS TIME, MAKE CERTAIN THE CAM WILL NOT INTERFERE WITH THE SENSOR OR INLET PORTS AND CHECK THE CAM SETSCREW FOR TIGHTNESS.

Wire the sensor to the electrical control panel according to the electrical drawings supplied with the equipment. See Figure 4.
Spare Parts

Spare parts for the RV can be ordered from Ibis International’s Parts and Service Department by phone, fax, or e-mail. Please have the following information available when ordering:

- RV SERIAL NUMBER
- Complete Description
- Quantity needed
- Shipping address and method

<table>
<thead>
<tr>
<th>PART#</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>0783</td>
<td>INTERNAL SPEED CONTROL 110VAC</td>
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</tr>
<tr>
<td>N4575</td>
<td>GEARMOTOR 1/8 HP, 130 VDC</td>
<td>1</td>
</tr>
<tr>
<td>0997</td>
<td>BRAKE / CLUTCH KIT</td>
<td>1</td>
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<tr>
<td>18000</td>
<td>Sensor Cable for 4-pin sensors</td>
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</tr>
<tr>
<td>5539</td>
<td>Cam Position Sensor</td>
<td>1</td>
</tr>
</tbody>
</table>

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