OPERATION, INSTALLATION, & MAINTENANCE MANUAL

for

Aircon BRS Below-Roof Separator

and

BRV Below-Roof Valve

Aircon Corporation
P.O. Box 80446
2873 Chelsea Avenue
Memphis, TN 38108-0446
Telephone: (901) 452-0230
FAX: (901) 452-0264

TABLE OF CONTENTS

OPERATING PRINCIPLE FOR AIRCON BRS SCRAP SEPARATORS

A. Air enters horizontally into the separator through a rectangular inlet, and is deflected downward about thirty degrees between a wire mesh screen on top and a throat valve on the bottom. (See Figure 1.)

B. Some of the air continues to flow parallel to the screen. However, much of the air turns perpendicular to the main air stream to flow through up and through the screen. The static pressure drop that occurs as air moves through the screen creates a thin boundary layer in front of the screen. This boundary layer serves as a cushion to steer material away from the screen and back into the main air stream. The downward tilt of the screen away from horizontal is not so much that material does not easily remain on the base of the screen. Nevertheless, it is sufficient enough to allow a sizeable percentage of the air to move though the screen into an adjacent baghouse or filtering device.

C. The optimum percentage of air that must pass through the screen depends on the weights and sizes of the pieces of material trapped in the air stream. Since the angle and size of the mesh screen are fixed, the adjustment of the operation of the device lies with the position of the throat valve.

D. As the clean air (or air that contains material small enough to filter through the screen mesh) moves into the baghouse, the unfiltered air and the scrap material fall through the rectangular discharge in the bottom of the separator into a rotary valve.

E. Turning at approximately 10 rpm, the rotary valve allows material to fall vertically through the device while maintaining a pressure seal between inlet and outlet.

OPERATING INSTRUCTIONS

RECEIVING

Since the separator may be shipped separate from the rotary valve, a quick inspection should be performed on each section for damage that may have occurred in transit. Also, both the quantity and quality of any parts that may have been shipped loosely should be checked. Boxes containing these parts should be inspected for signs of improper handling that may have caused damage. Any missing or damaged parts should be noted with the shipper before accepting the shipment. Aircon is not responsible for any damage that occurs during shipping. **The purchaser should bring all damage claims against the carrier.**

INSTALLATION

The following procedures are recommended to facilitate installation.

Erection: Assemble the support structure (if required). The footpads below and on the same side of the rectangular inlet should rest on a post or special projection from the support steel. A baghouse or other secondary air-cleaning device usually supports the clean-air outlet. Finally, install any additional access platform (usually part of the support steel) including any necessary ladders.

Bolting: Apply gasket sealant to all three flanges (inlet, outlet, and discharge). Set, do not slide, one section onto the other, taking care not to loosen the sealant caulking. If necessary use four (4) drift pins on the corners of each flange, and install the bolts on either side of the pins. Finger tighten these bolts. After all bolts have been set, the bolts should be properly tightened.

Throat Valve: This device should be adjusted to either closed or almost closed upon initial startup, and then slowly opened after the system fan is turned on.

Electrical: The gearbox and the 1 ½ horsepower motor (two (2) 1 ½ HP drives on the larger units) on the rotary valve should be wired with 230/460 VAC, 3 phase, 60 Hz.

Before Start-up: Prior to starting the system fan, use the inspection window to visually determine if any scrap is affixed to the base of the screen.

ELECTRICAL REQUIREMENTS

The following electrical requirements are essential for a maintenance-free cleaning operation.

* Rotary Valve Motor: 230/460 V, 3 phase, 60 Hz

CHECKLIST FOR INITIAL START-UP

A. Inlet, outlet, and discharge flanges and steel supports secured with all bolts adequately tightened.

B. Observation window on separator secured.

C. Motor, gearbox, chain drive, and guard on rotary valve properly secured with oil level in gearbox checked.

D. After wiring the electrical components of the rotary valve, proper directional rotation to be checked to correspond correctly with directional arrows affixed to the equipment.

E. The throat valve should be adjusted to an either closed or an almost-closed position upon initial startup. (The lever arm in the highest position is closed.) It then should be slowly opened after the system fan is turned on. To prevent bridging in the spacer chute below the separator, observe the amount of material falling into the discharge through the inspection windows in both the separator and the chute.

F. Continue to open the throat valve until the scrap begins to stick to the underside of the screen. At this point, fine tune the valve adjustment setting by moving the arm slightly back toward the closed position, turn off the system fan just long enough to allow the material to drop from the screen, and then lock the adjustment arm in place.

G. Observe the separator in its new throat valve position. If material continues to attach itself to the underside of the screen, repeat the steps outlined above in item “F”.

CHECKLIST FOR SUBSEQUENT START-UPS

A. Check guards on rotary valve.

B. Check oil levels on rotary valve gearbox.

C. After adjusting the throat valve position upon initial start-up, only a slight re-adjustment may be needed thereafter, provided that no change in air capacity has been made.

TROUBLESHOOTING

A. **Observation**: Material stuck on underside of valve screen

Problem: * Air velocity too high (adjust throat valve)

B. **Observation**: Material build-up and bridging in separator

Problems: * Insufficient supply air (adjust throat valve or increase system fan performance)

* Air leakage through rotary valve (replace wipers)

ROUTINE MAINTENANCE

Daily

Look through separator window to observe any material build-up.

Monthly

Lubricate bearings on both separator and rotary valve.

Inspect rubber wipers on rotary valve.

Inspect screen for wear and damage.

SAFETY

Before operating either the separator or the rotary valve, please note and observe the following safety precautions:

1. Turn off the system main blower and lock out electrical disconnects for the rotary valve motor before attempting any maintenance on either the separator or the rotary valve.

2. To prevent burns, do not touch the motor on the rotary valve until at least after 10 minutes after disconnecting power.

3. Do not attempt operation of the rotary valve without the chain drive hand guard.

4. Do not attempt to remove an obstruction in either the separator or the rotary valve until power is locked out from both units.

5. Do not attempt to lift both the separator and the rotary valve as a complete assembled unit. Use any lifting lugs provided on a piece of equipment for handling only that unit.

6. The separator and rotary valve are designed for “below-roof” NEMA 12 (non-hazardous) operation as defined by the National Electric Code. Unless otherwise marked or specified, this equipment is not designed for operation in a chemically corrosive or an explosive-hazardous environment.

STANDARD FEATURES

1. Mild steel bolted construction.
2. Removable and replaceable 304 stainless steel wire mesh screen.
3. Split screen on Model BRS-25 and above.
4. TEFC motor and guards on chain/sprocket drive assembly on rotary valve.
5. Polycarbonate inspection windows and access ports.
6. Spacer chute with access ports below separator discharge.
7. Rotary valve with flex-tip blades.
8. Adjustable air separator throat valve.

OPTIONAL FEATURES

1. Inlet boxes with backdraft dampers and multiple ducts.
2. Stainless steel construction.
3. Support structure with access platform, handrail and ladder.
4. Aircon model BRF (below roof filter) baghouse or other air-cleaning device on the air outlet of the separator.
5. Baler chute, scrap conveyor, and outlet and discharge fittings.

SPARE PARTS LIST

Label #	Part #	Description	Cost each
1	BRV-01	Rotary valve motor	$ 300.00
2	BRV-02	Rotary valve gearbox	$ 1200.00
3	BRV-03	Rotary valve rivet chain section	$ 74.00
4	BRV-04	Rotary valve gear reducer sprocket	$ 25.00
5	BRV-05	Rotary valve flange bearing	$ 100.00
6	BRV-06	Rotary valve shaft sprocket	$ 90.00
7	BRV-07	Rotary valve shaft bushing	$ 30.00
8	BRS-01	Air separator screen	*per length*
8	BRS-02	Air separator blade	*per length*

Prices are subject to change without notice.

Freight: by customer, F.O.B. - P.O.M. (Memphis, TN)
Taxes: by customer
Delivery: Four (4) weeks A.R.O. for items not currently in stock
Terms: net 10 days after shipment

To place an order or check stock please call Aircon at (901) 452-0230 or fax (901) 452-0264.