



**Roots**  
**409 RAM-VJ**

Part Number – call 816-741-0282



Patented WHISPAIR™ Water Sealed Vacuum Exhausters have an inlet spray nozzle and seal water flow meter for water injection. It is designed to handle a limited quantity of liquid without damage. This permits introduction of sealing water at the blower inlet to improve operating efficiency and reduce internal temperature rise.

WHISPAIR blowers reduce noise and power loss by utilizing an exclusive wrap-around plenum and proprietary WHISPAIR jet to control pressure equalization-feeding backflow in the direction of impeller movement, thereby aiding rotation. This design results in longer bearing life, lower vibration, and reduces noise up to 5 dBA pressure or vacuum.

- Heavy-duty unit with integral-shaft ductile iron impellers with an involute profile
- Rigid one-piece casing and headplates are grey iron
- Drive end cover and end cover are aluminum
- Carburized and ground alloy steel spur timing gears
- Cylindrical roller bearings
- Piston rings reduce air leakage
- Lip type oil seals prevent lubrication from entering the air chamber.
- Splash oil lubricated gears on drive and gear ends
- Detachable steel mounting feet
- Horizontal and vertical configurations available



816-741-0282



**Quick Specs**

|   |                 |
|---|-----------------|
| Maximum Recommended Sealing Water Flow Rate – Includes injected and process water (single or two stage operation) | 4.5 Gallons/Min |
| Flow Range  | to 600 CFM      |
| Max ΔVacuum   | 24" Hg          |
| Maximum RPM   | 3200            |
| Minimum RPM   | 1530            |
| Max ΔT  | 200°F           |
| Connection Size   | 5" FPT          |
| Shaft Dia.  | 1.5"            |
| Min Sheave Dia.   | 7.1"            |
| Drive End Lubrication   | Oil             |
| Gear End Lubrication  | Oil             |
| Oil Sump Horiz Config   | N/A             |
| Oil Sump Vert Config  | ~48 oz          |
| Bare Unit Weight  | 350 lbs         |
| Container   | Wood Skid       |
| Skid Size (L x W x H)   | 42" x 29" x 36" |
| Shipping Weight on Skid   | ~390 lbs        |
| Recommended to Ship Via   | Truck           |



816-741-0282

**RAM series parts list 4" & 6" gear diameter  
for Gas, DVJ, DPJ & JV  
(Refer to drawing #81881023)**

| Item # | Part Name                           | Qty. |
|--------|-------------------------------------|------|
| 1      | Headplate                           | 2    |
| 2      | Spray nozzle assembly               | 1    |
| 3      | Gearbox                             | 1    |
| 4      | Timing Gears                        | 2    |
| 5      | End Cover                           | 1    |
| 7      | Gasket – Gearbox/Cover              | 2    |
| 10     | Shims                               | Lot  |
| 11     | Cylinder                            | 1    |
| 12     | Impeller & Shaft Drive              | 1    |
| 13     | Impeller & Shaft Driven             | 1    |
| 14     | Bearing Roller                      | 4    |
| 16     | Pin, Dowel (Pull Out)               | 4    |
| 17     | Pin, Dowel                          | 2    |
| 19     | Key Square                          | 1    |
| 21     | Plug - Vent                         | 2    |
| 22     | Plug, Pipe                          | 12   |
| 23     | Screw, Cap Hex Hd.                  | *    |
| 27     | Seal, Lip Headplate<br>DVJ, DPJ, VJ | 4    |
| 27     | Seal-Mech-Viton Gas                 | 4    |
| 28     | Piston, Ring-Seal                   | 4    |
| 29     | Washer, Wavy Spring                 | 2    |
| 31     | Gear Nut                            | 2    |
| 32     | Scr, Cap Hex Hd.                    | 16   |
| 33     | Seal, Lip Drive                     | 1    |
| 34     | Brg. Clamp Plate - D. E.            | 2    |
| 35     | Lock Washer - Spring                | 16   |
| 37     | Oil Level Gauge                     | 2    |
| 38     | Sleeve, Shaft DVJ, DPJ, JV          | 4    |
| 38     | Sleeve - Gas                        | 4    |
| 40     | Slinger - D.E. (Top Drive)          | 1    |
| 46     | Slinger - G.E.                      | 1    |
| 49     | Oil Leader L/S                      | 1    |
| 50     | Oil, Leader-R/S                     | 1    |
| 54     | Brg Clamp Plate - G. E.             | 2    |
| 60     | Screw, Cap Butt. HD.                | 1    |
| 64     | Pin, Spring                         | 1    |
| 66     | Screw, Cap Hex HD.                  | *    |
| 66.1   | Whispair, Spring Lock 3/8M          | *    |
| 70     | Shims D.E. Brg.                     | 1    |
| 75     | Screw, Cap - Hex HD.                | *    |
| 76     | Blower Foot - RH                    | 2    |
| 77     | Blower Foot - LH                    | 2    |
| 85     | Elb, Pipe-Black                     | 2    |
| 85.1   | Plug, Pipe                          | 2    |
| 87     | Scr, Cap BH                         | 2    |
| 88     | Anti Rotation Ball                  | 4    |
| 90     | BSHG-RDCG                           | 2    |
| 91     | Washer, Plain Flat                  | 2    |
| 92     | Washer, Plain Flat                  | 2    |
| 93     | Washer                              | 2    |
| 94     | Oil Leader                          | 2    |
| 95     | Cap Screw                           | 4    |

**Repair Kit  
Call 816-741-0282**

**Specified Lubricants**

**ROOTS Synthetic Oil:  
ISO-VG-320 Grade**

|               | Part Number |
|---------------|-------------|
| Quart         | 13106004    |
| Gallon        | 13106005    |
| Case (12 qts) | 13106007    |

**ROOTS Synthetic Oil:  
ISO-VG-220 Grade**

|               | Part Number |
|---------------|-------------|
| Quart         | 13106001    |
| Gallon        | 13106002    |
| Case (12 qts) | 13106008    |

**ROOTS Synthetic Oil:  
ISO-VG-150 Grade**

|                | Part Number |
|----------------|-------------|
| Quart          | 13106020    |
| Gallon         | 13106021    |
| Case (12 qts)  | 13106023    |
| 5 Gallon Pail  | 13106022    |
| 55 Gallon Drum | 13106025    |

**ROOTS Synthetic Oil:  
ISO-VG-100 Grade**

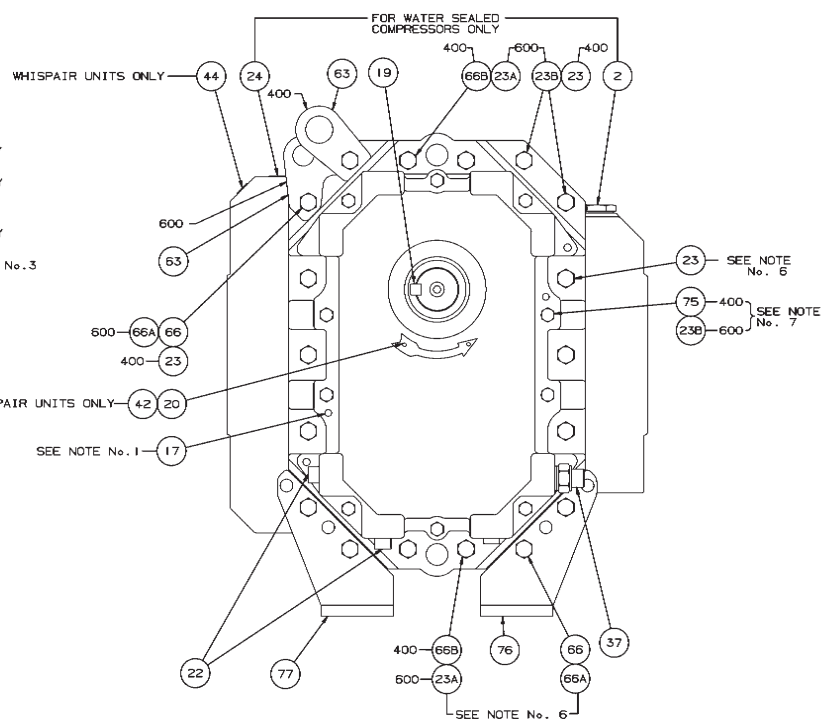
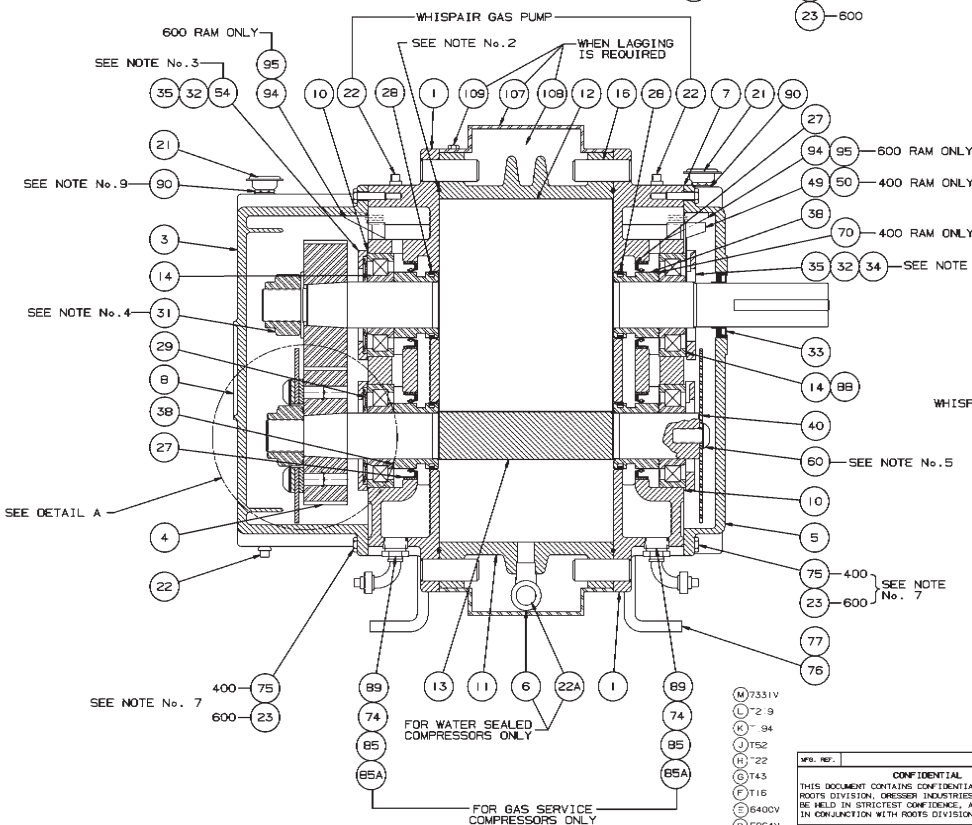
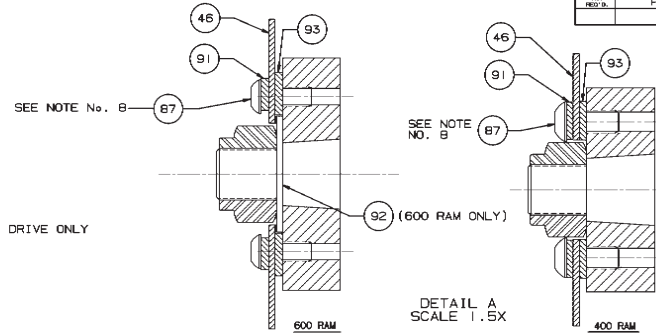
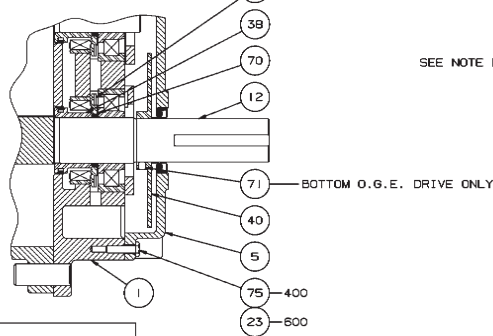
|                | Part Number |
|----------------|-------------|
| Quart          | 13106011    |
| Gallon         | 13106012    |
| Case (12 qts)  | 13106014    |
| 5 Gallon Pail  | 13106013    |
| 55 Gallon Drum | 13106016    |

NOTES:

1. DRIVE END COVER TO BE PINNED TO HEADPLATE AFTER ALIGNING SEAL BORE WITH SHAFT WITHIN .001
2. USE TEFLON SEALANT ON ALL PIPE THREADS & CYLINDER TO HEADPLATE FLANGE FOR WHISPAIR GAS PUMP UNITS ONLY.
3. ITEMS 34 & 54 MUST BE INSTALLED WITH OIL GROOVE AT TOP.
4. TORQUE TO 400 FT.LBS. -400  
TORQUE TO 630 FT.LBS. -600
5. TORQUE TO 75 FT.LBS. -400  
TORQUE TO 140 FT.LBS. -600  
APPLY LOCKTITE TO SCREW THREADS & BOTH FACES OF WASHER & SLINGER.
6. TORQUE TO 35 FT.LBS. (HEADPLATE)
7. TORQUE TO 10 FT.LBS. (GEARBOX/END COVER)
8. LOCKTIGHT AND TORQUE TO FT.LBS. -75
9. TWO 1/2 X 3/4 BUSHINGS FOR BREATHERS ON 600 RAM SERIES ONLY

BOTTOM DRIVE OPTION

ALSO SHOWN AS GAS SERVICE



- (M) 7331V
- (L) 2-9
- (K) 94
- (J) T52
- (H) 22
- (G) T43
- (F) T16
- (E) 6400V
- (D) 5964V
- (C) 5767V
- (B) 5950V
- (A) 5C45V

|  |                                    |      |         |                  |      |          |         |
|--|------------------------------------|------|---------|------------------|------|----------|---------|
| MFG. REF.  |                                    | DATE |         | DRESSER PART No. |      | MATERIAL |         |
| <p style="text-align: center;"><b>CONFIDENTIAL</b></p> <p>THIS DOCUMENT CONTAINS CONFIDENTIAL INFORMATION OF ROOTS DIVISION, DRESSER INDUSTRIES, INC. IT SHALL BE HELD IN STRICTEST CONFIDENCE, AND BE USED ONLY IN CONNECTION WITH ROOTS DIVISION BUSINESS.</p> |                                    |      |         |                  |      |          |         |
| S  | BOTT. DRIVE OPTION SLINGER REVERSE | DAB  | 7/15/57 | 8203V            |      | DR. NEP  | 1/26/58 |
| R  | REVISED GEAR END SLINGERS          | ANP  | 1-2-58  | 7054V            |      | DRD. DMS | 1/26/58 |
| 3  | ADDED NOTE TO ITEM 50 & 70         | ANP  | 12-2-58 | 7591V            | RDG  | DR. NEP  | 1/26/58 |
| 13   | MOVED LIFTING LUG                  | ANP  | 4-5-59  | 7450V            | RDG  | DR. NEP  | 1/26/58 |
| 3  | ADDED 66B                          | RDR  | 3-8-59  | 7412V            | RDG  | DR. NEP  | 1/26/58 |
| V  | ADDED LAGGING                      | TC   | 2/2/59  | 7331V            | RDG  | DR. NEP  | 1/26/58 |
| REVISIONS  |                                    | BY   | DATE    | CHECKED          | DRD. | APP.     | XASR    |
| <p style="text-align: right;">SECTIONAL ASSEMBLY<br/>430/630 RAM</p> <p style="text-align: right;">81881023</p>  |                                    |      |         |                  |      |          |         |

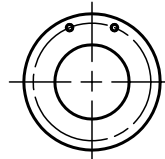
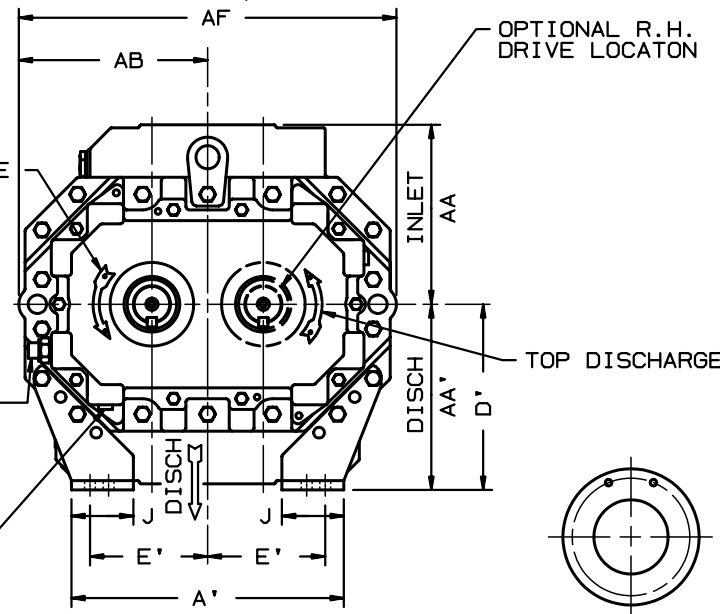
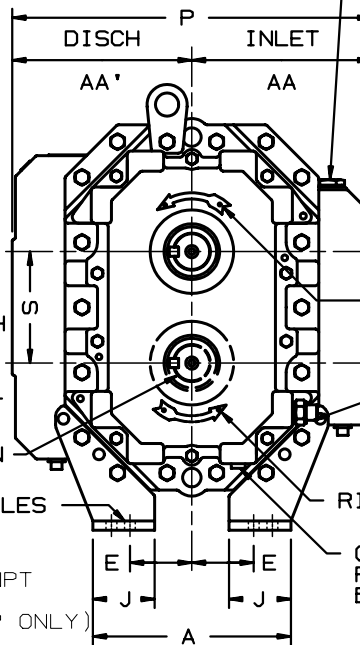
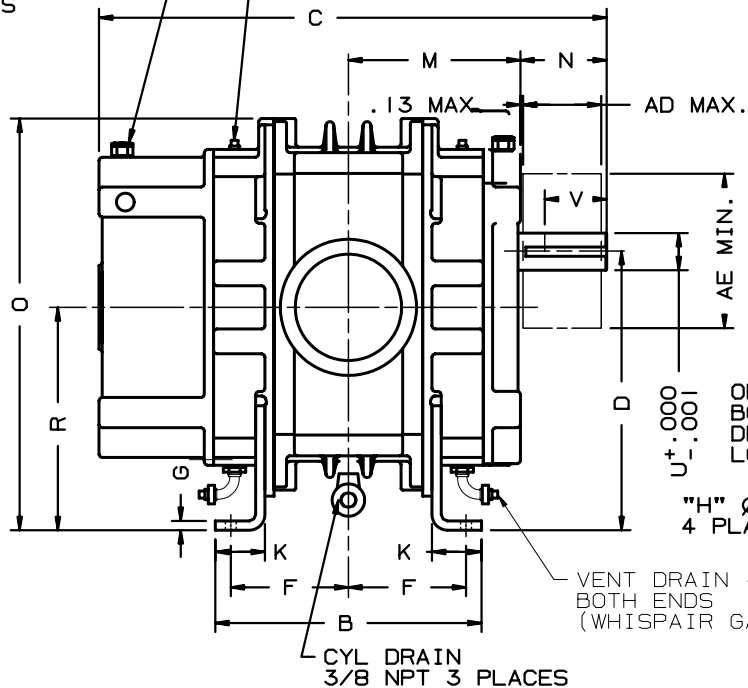
Assembly of RAM Series - Air & Gas Blowers

OIL FILL/ BREATHER  
1/2 NPT  
BOTH ENDS

VENT PURGE CONN. - 1/2 NPT  
BOTH ENDS  
(WHISPAIR GAS PUMP ONLY)

1/2 NPT CONNECTION  
SEAL WATER  
4.5 G.P.M. MAX  
(WHISPAIR WATER SEALED  
VAC. PUMP ONLY)

|            |           |                    |        |
|------------|-----------|--------------------|--------|
| No. REQ'D. | PART NAME | PATT. No. PART No. | MAT'L. |
|------------|-----------|--------------------|--------|



OPTIONAL  
BOTTOM  
DRIVE  
LOCATION

W - INLET  
W' - DISCHARGE  
AD - MAXIMUM SHEAVE WIDTH  
(SEE OVERHUNG LOAD LIMIT K-24102)  
AE - MINIMUM SHEAVE DIAMETER  
(SEE OVERHUNG LOAD LIMIT K-24102)  
ALL DIMENSIONS IN INCHES

INLET & DISCHARGE FLANGES TO  
MATE FLUSH & SQUARE WITH  
FLAT FACE FLANGE ONLY.  
USE FULL FACE GASKETS.  
V-BELT DRIVEN UNITS: MOTOR  
TO BE LOCATED ON INLET SIDE  
OF BLOWER.

A 5048V C 5420V D 5560V E 5767V  
F 5986V

| FLG             | 5"     | 6"     | 8"     | 10"   |
|-----------------|--------|--------|--------|-------|
| OPENING         | 5"     | 6"     | 8"     | 10"   |
| BOLT CIRCLE     | 8.50   | 9.50   | 11.75  | 14.25 |
| FLANGE O.D.     | 10.00  | 11.00  | 13.50  | 16.00 |
| No TAPPED HOLES | 8      | 8      | 8      | 12    |
| SIZE HOLES      | 3/4-10 | 3/4-10 | 3/4-10 | 7/8-9 |
| TAP DEPTH       | 1.13   | 1.13   | 1.13   | 1.13  |

| FRAME SIZE | A    | A'    | B     | C     | D     | D'   | E    | E'   | F     | G   | H   | J    | K    | M     | N    | O     | P     | R     | S    | U    | V    | KEYWAY    | W      | W'    | INLET AAA | DISCH AAA' | AB    | AD   | AE   | AF    | APPROX WEIGHT |
|------------|------|-------|-------|-------|-------|------|------|------|-------|-----|-----|------|------|-------|------|-------|-------|-------|------|------|------|-----------|--------|-------|-----------|------------|-------|------|------|-------|---------------|
| 404        | 8.00 | 11.00 | 8.75  | 18.50 | 11.25 | 7.50 | 2.50 | 4.75 | 3.75  | .38 | .44 | 2.50 | 2.00 | 5.95  | 3.48 | 16.63 | 14.50 | 9.00  | 4.50 | 1.50 | 2.75 | .375x.188 | 3"NPT  | 3"NPT | 7.25      | 7.25       | 7.63  | 3.06 | 7.10 | 15.25 | 260           |
| 406        | "    | "     | 10.75 | 20.50 | "     | "    | "    | "    | 4.75  | "   | "   | "    | "    | 6.95  | "    | "     | "     | "     | "    | "    | "    | "         | 4"NPT  | 4"NPT | "         | "          | "     | "    | "    | "     | 300           |
| 409        | "    | "     | 13.75 | 23.50 | "     | "    | "    | "    | 6.25  | "   | "   | "    | "    | 8.45  | "    | "     | "     | "     | "    | "    | "    | "         | 5"NPT  | 5"NPT | "         | "          | "     | "    | "    | "     | 350           |
| 412        | "    | "     | 16.75 | 26.50 | "     | "    | "    | "    | 7.75  | "   | "   | "    | "    | 9.95  | "    | 13.00 | "     | "     | "    | "    | "    | "         | 6"FLG  | 5"FLG | 6.00      | 7.00       | "     | "    | "    | "     | 400           |
| 418        | "    | "     | 22.75 | 32.50 | "     | "    | "    | "    | 10.75 | "   | "   | "    | "    | 12.95 | "    | 14.00 | "     | "     | "    | "    | "    | "         | 8"FLG  | 6"FLG | 7.00      | "          | "     | "    | "    | "     | 500           |
| 616        | 9.00 | 15.00 | 20.75 | 32.19 | 15.00 | 9.00 | 3.50 | 6.50 | 9.75  | .38 | .56 | 2.50 | 2.00 | 12.41 | 4.30 | 22.00 | 16.25 | 12.00 | 6.00 | 2.00 | 3.63 | .500x.250 | 8"FLG  | 6"FLG | 7.50      | 8.75       | 10.00 | 4.44 | 8.50 | 20.00 | 700           |
| 624        | "    | "     | 28.75 | 40.19 | "     | "    | "    | "    | 13.75 | "   | "   | "    | "    | 16.41 | "    | 17.50 | "     | "     | "    | "    | "    | "         | 10"FLG | 8"FLG | 8.75      | "          | "     | "    | "    | "     | 910           |

|   |                         |      |               |       |     |          |                                    |  |  |  |  |  |  |  |  |      |  |           |   |      |               |       |     |  |  |  |           |  |  |  |  |  |  |          |          |
|---|-------------------------|------|---------------|-------|-----|----------|------------------------------------|--|--|--|--|--|--|--|--|------|--|-----------|---|------|---------------|-------|-----|--|--|--|-----------|--|--|--|--|--|--|----------|----------|
| MFG. REF.   |                         |      |               |       |     |          |                                    |  |  |  |  |  |  |  |  | DATE | <b>DO NOT SCALE FOR DIMENSIONS</b><br>ALL DIMENSIONS SHOWN IN BRACKETS [ ] ARE MILLIMETERS |           |   |      |               |       |     |  |  |  | ORDER No. |  |  |  |  |  |  |          |          |
| <b>CONFIDENTIAL</b><br>THIS DOCUMENT CONTAINS CONFIDENTIAL INFORMATION OF ROOTS DIVISION, DRESSER INDUSTRIES, INC. IT SHALL BE HELD IN STRICTEST CONFIDENCE, AND BE USED ONLY IN CONJUNCTION WITH ROOTS DIVISION BUSINESS.  |                         |      |               |       |     |          |                                    |  |  |  |  |  |  |  |  |      |  | DR. RDR   | <h2 style="text-align: center;">400/600 SERIES RAM</h2> <p style="text-align: center;">(WHISPAIR) RAM-J/RAM-GJ &amp; RAM-VJ</p> <p style="text-align: center;">ROOTS DIVISION<br/>DRESSER, INC.<br/>HOUSTON, TX USA</p> |      |               |       |     |  |  |  |           |  |  |  |  |  |  |          |          |
| L   | ADDED NIPPLE & ELBOW    | VC   | 11/17/00      | T16   | RK  | APP. RDA | DBV                                |  |  |  |  |  |  |  |  |      |  |           |   |      |               |       |     |  |  |  |           |  |  |  |  |  |  |          |          |
| K   | ADDED "INLET" & "DISCH" | RDR  |               | 6484V |     |          |                                    |  |  |  |  |  |  |  |  |      |  |           |   |      |               |       |     |  |  |  |           |  |  |  |  |  |  |          |          |
| J   | REV DIM "H" ON 600      | RDR  |               | 6294V | BMS | AGP      | SCALE                              |  |  |  |  |  |  |  |  |      |  |           |   |      |               |       |     |  |  |  |           |  |  |  |  |  |  |          |          |
| H   | REV DIM "AF" ON 600     | RDR  |               | 6260V | BMS | AGP      | 78389A21 XXAD CAD FILE / DIRECTORY |  |  |  |  |  |  |  |  |      |  |           |   |      |               |       |     |  |  |  |           |  |  |  |  |  |  |          |          |
| G   | REV DIM "M" ON 624      | RDR  |               | 6186V | BMS | DB       |                                    |  |  |  |  |  |  |  |  |      |  |           |   |      |               |       |     |  |  |  |           |  |  |  |  |  |  |          |          |
| <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; text-align: center;">REVISIONS</td> <td style="width: 10%; text-align: center;">BY</td> <td style="width: 10%; text-align: center;">DATE</td> <td style="width: 10%; text-align: center;">CHANGE NOTICE</td> <td style="width: 10%; text-align: center;">CHKD.</td> <td style="width: 10%; text-align: center;">APP</td> </tr> </table> |                         |      |               |       |     |          |                                    |  |  |  |  |  |  |  |  |      |  | REVISIONS | BY  | DATE | CHANGE NOTICE | CHKD. | APP | <p style="font-size: small;">DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED<br/>FINISHED DIMENSIONS<br/>TWO PLACE DECIMALS (.XX)---+0.015 FRACTIONAL---+1/64<br/>THREE PLACE DECIMALS (.XXX)---+0.005</p> |  |  |           |  |  |  |  |  |  | 78389021 | REV<br>L |
| REVISIONS   | BY                      | DATE | CHANGE NOTICE | CHKD. | APP |          |                                    |  |  |  |  |  |  |  |  |      |  |           |   |      |               |       |     |  |  |  |           |  |  |  |  |  |  |          |          |

**ROOTS™ RAM™ -VJ WHISPAIR™**  
**Water-sealed Vacuum Exhausters**

Frames 406J, thru 624J

**RAM™** stands for Reliability, Availability and Maintainability. Today, more than ever, ROOTS is committed to supplying our customers with reliable products manufactured with state-of-the-art CNC machine tools. Production and inventory are being scheduled and controlled to ensure these units will be available when you need them. Design improvements such as repositionable rugged steel mounting feet and die-cast aluminum drive end covers and gear covers help to reduce installation costs and make normal maintenance easier.

**BASIC BLOWER DESCRIPTION**

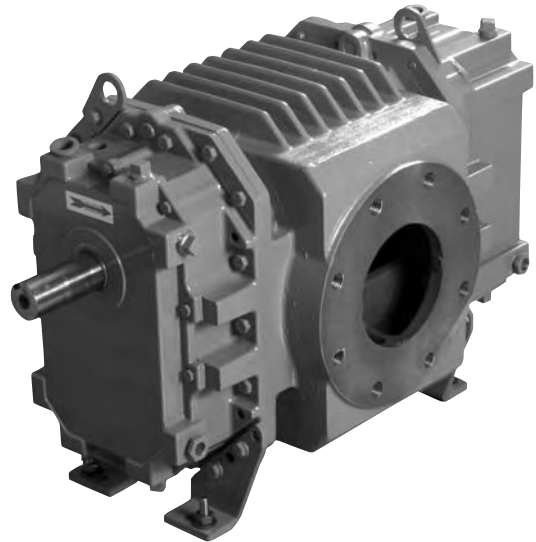
ROOTS™ RAM™ WHISPAIR™ water-sealed vacuum exhausters are heavy-duty units designed with integral-shaft ductile iron impellers. Whispair vacuum exhausters reduce noise and power loss by utilizing an exclusive wrap-around plenum and proprietary WHISPAIR™ jet to control pressure equalization – feeding backflow in the direction of impeller movement, thereby aiding rotation.

The headplates and rigid, one-piece casing are grey iron, while the drive end cover and gear cover are aluminum. Carburized and ground alloy steel spur timing gears are taper mounted on the shafts, secured with a locknut. Cylindrical roller bearings are used.

Piston rings reduce air leakage through the shaft openings in the headplates, and lip-type oil seals prevent lubricant from entering the air chamber. RAM™ WHISPAIR™ vacuum exhausters incorporate splash oil lubrication at both ends of the units. A lip seal on the drive shaft prevents shaft seal oil leaks.

All frame sizes are designed with detachable rugged steel mounting feet which permit in-field adaptability to either vertical or horizontal installation requirements.

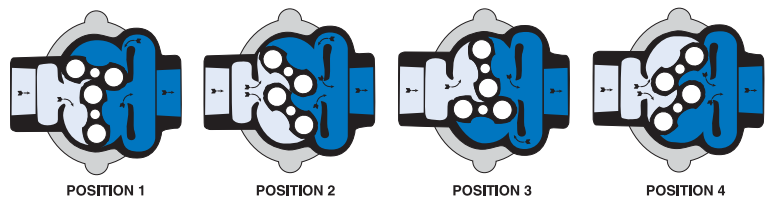
The top shaft is extended for drive on side outlet vacuum exhausters, and the left or right shaft can be extended for drive on bottom outlet vacuum pumps. An inlet spray nozzle and seal water flow meter are supplied for water injection.



**DESIGN AND CONSTRUCTION FEATURES**

1. Low noise level, less operating power required
2. Improved volumetric efficiency & reduced operating temperatures
3. Alloy steel timing gears
4. Cylindrical roller bearings
5. Piston ring air seals
6. Lip-type oil and shaft seals
7. Splash oil lubrication
8. Horizontal and vertical configurations available

**OPERATING PRINCIPLE**



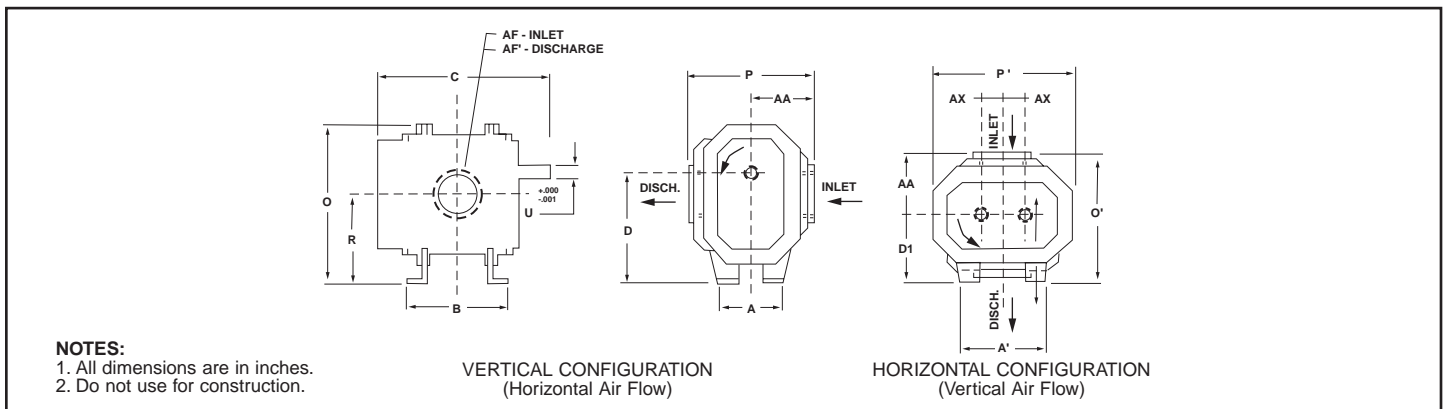
Incoming air is trapped by the impellers. Simultaneously, pressurized air (right) is being discharged. As the lower impeller passes wrap-around flange, Whispair jet equalizes pressure between trapped air and discharge area, aiding impeller movement and reducing power. Impellers move air into the discharge area (right). Backflow is controlled, resulting in reduction of noise relative to conventional blowers.



## PERFORMANCE TABLE

| FRAME SIZE | SPEED RPM | 16" Hg VAC |       | 20" Hg VAC |      | 22" Hg VAC |      | 24" Hg VAC |       |
|------------|-----------|------------|-------|------------|------|------------|------|------------|-------|
|            |           | CFM        | BHP   | CFM        | BHP  | CFM        | BHP  | CFM        | BHP   |
| 406J       | 1530      | 154        | 9.3   | 118        | 11.4 | 86         | 12.5 | 31         | 13.6  |
|            | 2325      | 269        | 15.0  | 227        | 18.2 | 190        | 19.8 | 126        | 21.4  |
|            | 3200      | 400        | 22.4  | 352        | 26.7 | 310        | 28.8 | 238        | 30.9  |
| 409J       | 1530      | 248        | 13.6  | 201        | 16.8 | 159        | 18.4 | 87         | 20.0  |
|            | 2325      | 412        | 21.6  | 353        | 26.4 | 300        | 28.8 | 209        | 31.2  |
|            | 3200      | 600        | 31.4  | 528        | 37.8 | 465        | 46.0 | 356        | 44.3  |
| 412J       | 1530      | 331        | 17.9  | 268        | 22.2 | 212        | 24.4 | 115        | 26.5  |
|            | 2325      | 549        | 28.1  | 470        | 34.6 | 400        | 37.8 | 278        | 41.0  |
|            | 3200      | 797        | 40.4  | 703        | 49.0 | 619        | 53.3 | 474        | 57.6  |
| 418J       | 1530      | 497        | 26.6  |            |      |            |      |            |       |
|            | 2325      | 825        | 41.4  |            |      |            |      |            |       |
|            | 3200      | 1197       | 58.5  |            |      |            |      |            |       |
| 616J       | 1160      | 695        | 32.2  | 614        | 39.8 | 538        | 43.6 | 420        | 47.5  |
|            | 1750      | 1105       | 49.9  | 1003       | 61.2 | 908        | 66.9 | 760        | 72.6  |
|            | 1160      | 1566       | 70.9  | 1445       | 85.9 | 1332       | 93.4 | 1156       | 101.0 |
| 624J       | 2400      | 1044       | 47.8  |            |      |            |      |            |       |
|            | 1750      | 1658       | 73.8  |            |      |            |      |            |       |
|            | 2400      | 2350       | 104.2 |            |      |            |      |            |       |

## OUTLINE DRAWING & DIMENSIONAL TABLE



| FRAME SIZE | A     | A'    | B     | C     | Drive Shaft Location |      | O     | O'    | P     | P'    | R     | U     | Keyway      | AF Inlet Diameter | AF' Discharge Diameter | AA   | AX   | Approx. Net Wt (lbs) |
|------------|-------|-------|-------|-------|----------------------|------|-------|-------|-------|-------|-------|-------|-------------|-------------------|------------------------|------|------|----------------------|
|            |       |       |       |       | D                    | D1   |       |       |       |       |       |       |             |                   |                        |      |      |                      |
| 406J       | 8.00  | 11.00 | 10.75 | 20.50 | 11.25                | 7.50 | 16.63 | 14.75 | 14.50 | 15.25 | 9.00  | 1.500 | .375 x .188 | 4.0 NPT           | 4.0 NPT                | 7.25 | 2.25 | 300                  |
| 409J       | 8.00  | 11.00 | 13.75 | 23.50 | 11.25                | 7.50 | 16.63 | 14.75 | 14.50 | 15.25 | 9.00  | 1.500 | .375 x .188 | 5.0 NPT           | 5.0 NPT                | 7.25 | 2.25 | 350                  |
| 412J       | 8.00  | 11.00 | 16.75 | 26.50 | 11.25                | 7.50 | 16.63 | 13.50 | 13.00 | 15.25 | 9.00  | 1.500 | .375 x .188 | 6.0 FLG           | 5.0 FLG                | 6.00 | 2.25 | 400                  |
| 418J       | 8.00  | 11.00 | 22.75 | 32.50 | 11.25                | 7.50 | 16.63 | 14.50 | 14.00 | 15.25 | 9.00  | 1.500 | .375 x .188 | 8.0 FLG           | 6.0 FLG                | 7.00 | 2.25 | 500                  |
| 616J       | 10.00 | 16.00 | 21.44 | 32.44 | 15.00                | 9.00 | 22.00 | 16.50 | 16.25 | 20.00 | 12.00 | 2.000 | .500 x .250 | 8.0 FLG           | 6.0 FLG                | 7.50 | 3.00 | 800                  |
| 624J       | 10.00 | 16.00 | 29.44 | 40.44 | 15.00                | 9.00 | 22.00 | 17.75 | 17.50 | 20.00 | 12.00 | 2.000 | .500 x .250 | 10.0 FLG          | 8.0 FLG                | 8.75 | 3.00 | 1000                 |

## WARRANTY PERIOD

Twelve (12) months from date of original unit start-up or 18 months from date of original shipment, whichever occurs first.

**Dresser, Inc.**



**Roots**

Dresser ROOTS  
 2135 Hwy 6 South  
 Houston, TX 77077  
 PH: 281-966-4700  
 FX: 281-966-4309  
 Toll Free: 1-877-363-ROOT(S)

Dresser ROOTS - Connersville  
 900 West Mount Street  
 Connersville, IN 47331  
 PH: 765-827-9200  
 FX: 765-827-9266

Dresser ROOTS - Holmes Operation  
 PO Box B7  
 Off St. Andrews Rd  
 Turnbridge, Huddersfield  
 England HD1 6RB  
 PH: +44-1484-422222  
 FX: +44-1484-422668

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website: [www.rootsblower.com](http://www.rootsblower.com) • email: [ROOTS@dresser.com](mailto:ROOTS@dresser.com)