

**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**

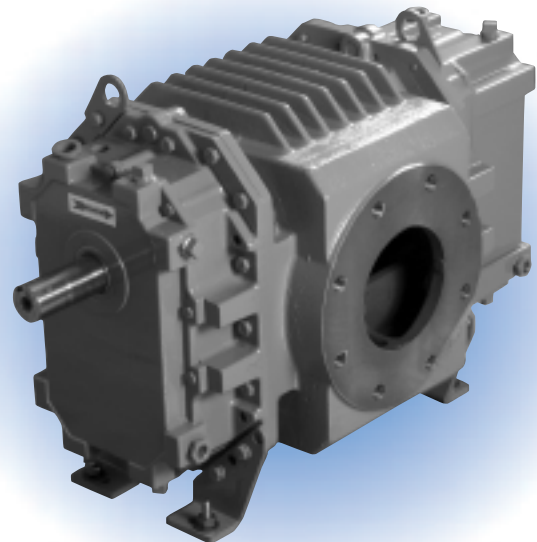
ROOTS™ RAM™ WHISPAIR™ water-sealed vacuum exhausters are heavy-duty units designed with integral-shaft ductile iron impellers. Whispair vacuum exhausters reduce noise and power loss by utilizing an exclusive wrap-around plenum and proprietary WHISPAIR™ jet to control pressure equalization – feeding backflow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

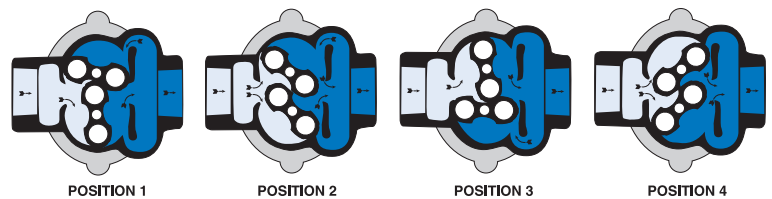
The top shaft is extended for drive on side outlet vacuum exhausters, and the left or right shaft can be extended for drive on bottom outlet vacuum pumps. An inlet spray nozzle and seal water flow meter are supplied for water injection.



**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

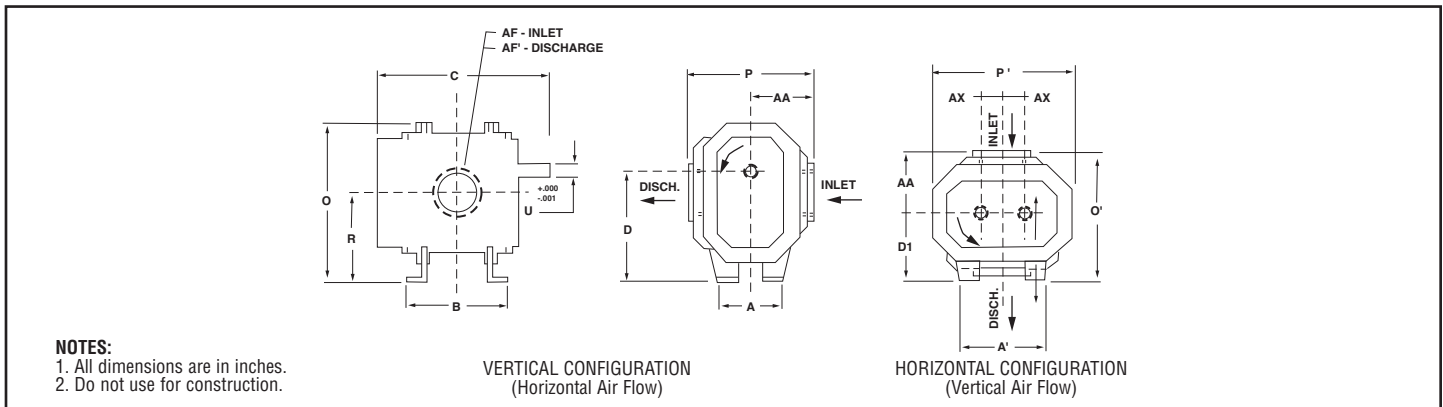
**OPERATING PRINCIPLE**



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.

	Hg VAC BHP		22" Hg VAC CFM BHP		24" Hg VAC CFM BHP	
	11.4	86	12.5	31	13.6	126
	18.2	190	19.8	126	21.4	238
	26.7	310	28.8	238	30.9	
<b>409J</b>	1530	248	13.6	201	16.8	159
	2325	412	21.6	353	26.4	300
	3200	600	31.4	528	37.8	465
<b>412J</b>	1530	331	17.9	268	22.2	212
	2325	549	28.1	470	34.6	400
	3200	797	40.4	703	49.0	619
<b>418J</b>	1530	497	26.6			
	2325	825	41.4			
	3200	1197	58.5			
<b>616J</b>	1160	695	32.2	614	39.8	538
	1750	1105	49.9	1003	61.2	908
	1160	1566	70.9	1445	85.9	1332
<b>624J</b>	2400	1044	47.8			
	1750	1658	73.8			
	2400	2350	104.2			

**OUTLINE DRAWING & DIMENSIONAL TABLE**



**NOTES:**  
 1. All dimensions are in inches.  
 2. Do not use for construction.

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												
<b>406J</b>	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
<b>409J</b>	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
<b>412J</b>	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
<b>418J</b>	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
<b>616J</b>	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
<b>624J</b>	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 Roots**

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