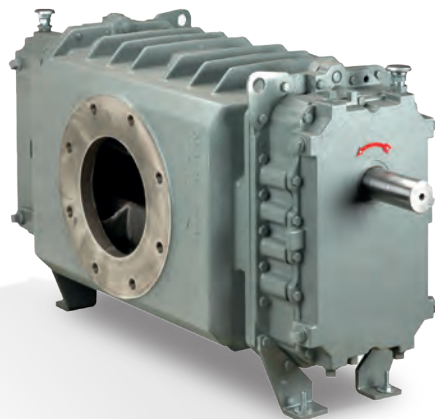


ROOTS® RAM™ VJ WHISPAIR™

Water sealed vacuum blowers, frames 406J through 624J



Design and construction features frames 406J through 624J

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

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.

Basic dry vacuum pump description

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. ROOTS® 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.

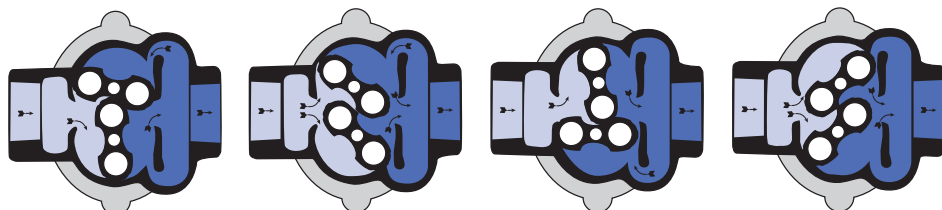
An inlet spray nozzle and seal water flow meter are supplied for water injection.

Warranty period

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

Operating principle

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

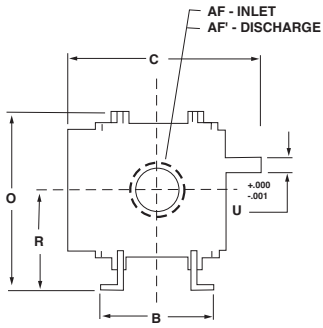


POSITION 1

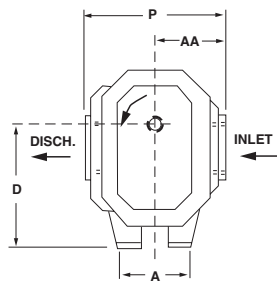
POSITION 2

POSITION 3

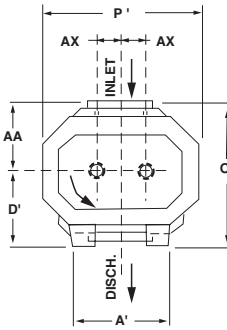
POSITION 4



Vertical configuration
(Horizontal air flow)



Horizontal configuration
(Vertical air flow)



Outline drawing of ROOTS RAM WHISPAIR water-sealed vacuum blower.

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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 Wgt (lbs.)
					D	D'												
406J	8	11	10.75	20.5	11.25	7.5	16.63	14.75	14.5	15.25	9.00	1.500	.375 x.188	4.0 NPT	4.0 NPT	7.25	2.25	300
409J	8	11	13.75	23.5	11.25	7.5	16.63	14.75	14.5	15.25	9.00	1.500	.375 x.188	5.0 NPT	5.0 NPT	7.25	2.25	350
412J	8	11	16.75	26.5	11.25	7.5	16.63	13.5	13	15.25	9.00	1.500	.375 x.188	6.0 FLG	5.0 FLG	6.00	2.25	400
418J	8	11	22.75	32.5	11.25	7.5	16.63	14.5	14	15.25	9.00	1.500	.375 x.188	8.0 FLG	6.0 FLG	7.00	2.25	500
616J	10	16	21.44	32.44	15	9	22	16.5	16.25	20	12.00	2.000	.500 x .250	8.0 FLG	6.0 FLG	7.50	3.00	800
624J	10	16	29.44	40.44	15	9	22	17.75	17.5	20	12.00	2.000	.500 x.250	10.0 FLG	8.0 FLG	8.75	3.00	1000

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

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	402	33.3	-	-	-	-
	2325	825	41.4	706	51.8	-	-	-	-
	3200	1197	58.5	1056	73.6	-	-	-	-
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
	2400	1566	70.9	1445	85.9	1332	93.4	1156	101.0
624J	1160	1044	47.8	922	59.4	-	-	-	-
	1750	1658	73.8	1506	91.3	-	-	-	-
	2400	2350	104.2	2168	128.2	-	-	-	-

Notes: 1. Vacuum ratings based on inlet air at standard temperature of 68°F, discharge pressure of 30" Hg and specific gravity of 1.0.