

## SPECIFICATIONS

**ROOTS™ RAM™ WHISPAIR™ Rotary Positive Displacement Blowers**

Frames 404J 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**

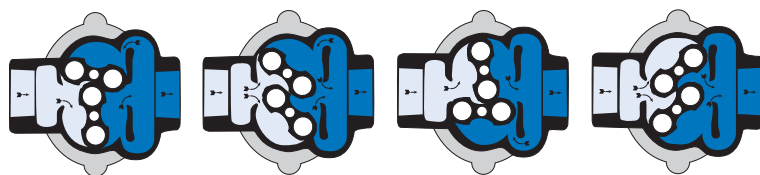
RAM™ WHISPAIR™ rotary blowers are heavy-duty units designed with integral-shaft ductile iron impellers having an involute profile. WHISPAIR blowers reduce noise and power loss by utilizing an exclusive wrap-around plenum and proprietary WHISPAIR jet to control pressure equalization-feeding backflow in the direction of impeller movement, thereby aiding rotation.

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.

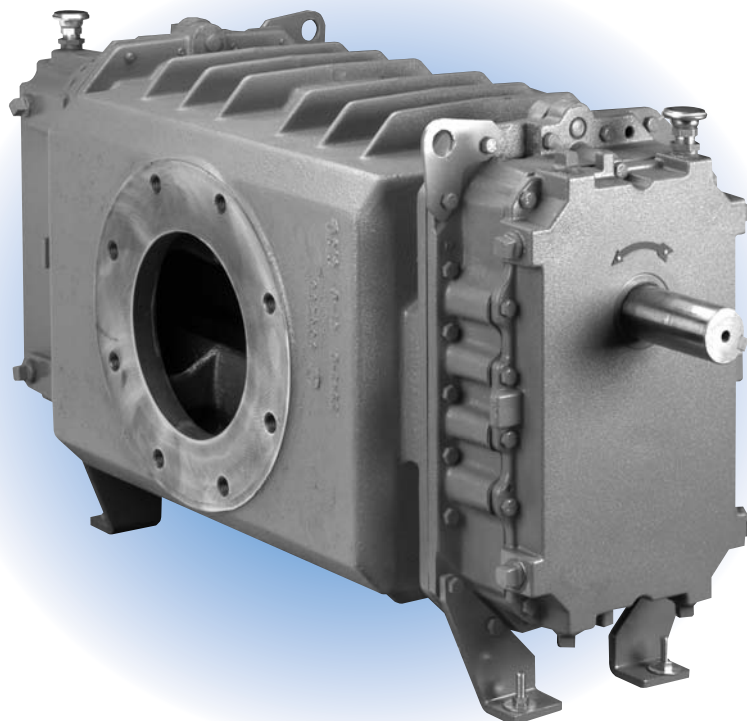
Piston rings reduce air leakage through the shaft openings in the headplates, and lip-type oil seals prevent lubricant from entering the air chamber. RAM rotary blowers incorporate thrust control, with splash oil lubrication at both ends of the blower. A hydrodynamic seal on the drive shaft prevents 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 blowers, and either shaft can be extended for drive on top or bottom outlet blowers.

**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.

**WARRANTY PERIOD**

Twenty-Four (24) months from date of original unit start-up or 30 months from date of original shipment, whichever occurs first.

**DESIGN AND CONSTRUCTION FEATURES**

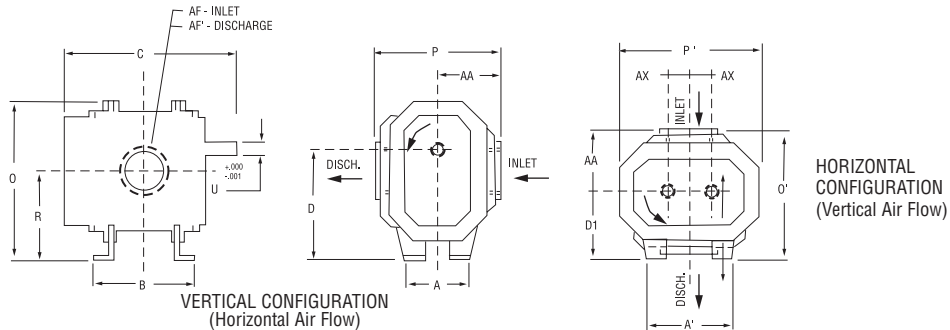
1. Low noise level, less operating power required
2. Improved volumetric efficiency and reduced operating temperatures
3. Alloy steel timing gears
4. Cylindrical roller bearings
5. Piston ring air seals
6. Lip-type, hydrodynamic drive shaft seal
7. Splash oil lubrication
8. Horizontal and vertical configurations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

## PERFORMANCE TABLE

Frame Size	Speed RPM	4 PSI		6 PSI		8 PSI		10 PSI		12 PSI		15 PSI		18 PSI		Max. Vacuum		
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	"HG	CFM	BHP
404J	1750	148	3.6	139	5.3	130	6.9	123	8.6	116	10.3					14.0	114	5.8
	2950	280	6.9	271	9.6	262	12.4	255	15.2	248	18.0	239	22.2			15.0	240	10.8
	4000	396	11.1	386	14.4	378	18.1	370	21.9	364	25.7	355	31.3	347	36.9	16.0	350	15.8
406J	1750	225	5.5	210	7.9	198	10.5	187	13.0	177	15.6					14.0	173	8.8
	2950	426	10.2	411	14.3	398	18.6	387	22.9	377	27.1	363	33.4			15.0	365	16.2
	4000	601	16.1	586	21.1	574	26.8	562	32.5	552	38.3	539	46.8	526	55.4	16.0	531	23.7
409J	1750	338	8.2	315	11.8	296	15.6	279	19.4	264	23.2					14.0	259	13.2
	2950	638	15.0	615	21.1	586	27.5	579	33.9	564	40.2	544	49.8			15.0	546	24.2
	4000	900	23.3	878	30.8	859	39.4	842	48.0	827	56.5	806	69.3	788	82.1	16.0	796	35.2
412J	1750	450	10.8	420	15.7	394	20.8	372	25.8	352	30.9					14.0	344	17.6
	2950	849	19.9	819	28.0	794	36.5	772	44.9	752	53.4	724	66.1			15.0	728	32.1
	4000	1199	30.6	1169	40.6	1144	52.0	1121	63.4	1101	74.9	1074	91.8			16.0	1060	46.6
418J	1750	675	16.2	630	23.6	592	31.2	559	38.8							14.0	517	26.4
	2950	1275	29.7	1230	41.8	1192	54.6	1159	67.3							15.0	1092	48.1
	4000	1800	45.6	1755	60.6	1717	77.7	1684	94.8							16.0	1591	69.8
616J	1170	671	16.6	614	24.6	566	32.6	524	40.6	486	48.6					13.0	501	25.7
	1750	1128	25.6	1072	37.5	1024	49.4	982	61.3	943	73.2					14.0	929	41.7
	3000	2115	49.0	2058	68.8	2010	88.6	1968	108.4	1930	128.2	1878	157.9			16.0	1851	81.8
624J	1170	1006	25.1	921	37.1	849	49.1	786	61.1							13.0	751	38.8
	1750	1693	39.3	1608	57.2	1536	75.0	1473	92.8							14.0	1394	63.0
	3000	3173	77.6	3088	107.3	3016	137.1	2953	166.8							16.0	2777	124.8

- NOTES: 1. Pressure ratings based on inlet air at standard pressure of 14.7 psia, standard temperature of 68° F, and specific gravity of 1.0.  
2. Vacuum ratings based on inlet air at standard temperature of 68°F, discharge pressure of 30" Hg and specific gravity of 1.0.

## 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. NetWt (lbs)
					D	D1												
404J	8.00	11.00	8.75	18.50	11.25	7.50	16.63	14.75	14.50	15.25	9.00	1.500	.375 x .188	3.0 NPT	3.0 NPT	7.25	2.25	270
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	9.00	15.00	20.75	32.19	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	700
624J	9.00	15.00	28.75	40.19	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	910

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

### Dresser Roots

Houston, Texas Headquarters • U.S. Toll Free Phone: 1-877-363-ROOT(S) (7668) • Direct Phone: +01 832-590-2600  
 Connersville, Indiana Operations • U.S. Toll Free Phone: 1-877-442-7910 • Direct Phone: +01 765-827-9285  
 United Kingdom Operations • Phone: +44 (0) 1484 422 222  
 USA/Canada Sales • Phone: +01 773-444-3360  
 Houston, Texas Factory Service • Phone: +01 713-896-4810  
 Mexico City Sales and Factory Service • Phone: +52 55 5889 5811  
 Dubai Sales and Factory Service • Phone: +971 4-8830831  
 Malaysia Sales • Phone: +60 3 2163 0480  
 China Sales • Phone: +86 10 8486 2440  
 Shanghai Factory Service • Phone: +86 21 5858 7638



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