

ROOTS® VJ WHISPAIR™ Frames 817J thru 832J

Water sealed vacuum exhauster



Design and construction features frames 817J thru 832J

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

ROOTS® 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

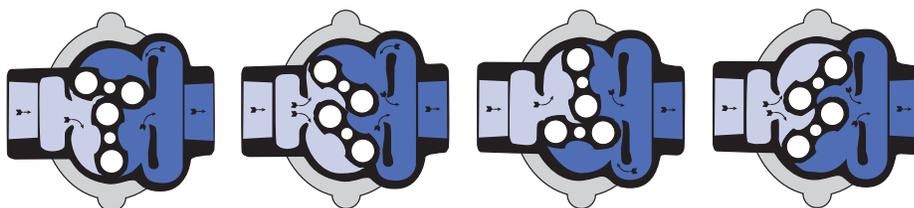
The headplates, one-piece casing and end covers are grey iron. Carburized and ground alloy steel spur timing gears are taper mounted on the shafts, secured with a bolt. Cylindrical roller bearings are used in all four locations.

Piston rings reduce air leakage through the shaft openings in the headplates, and hydrodynamic oil seals prevent lubricant from entering the air chamber. WHISPAIR vacuum exhausters incorporate splash oil lubrication at both ends of the units.

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 exhausters. 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.



POSITION 1

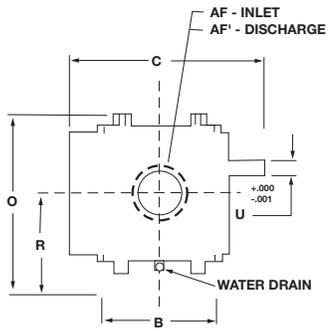
POSITION 2

POSITION 3

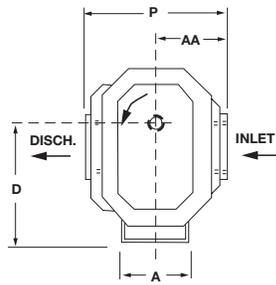
POSITION 4

Operating principle

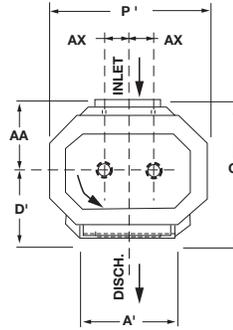
Incoming air is trapped by the impellers. Simultaneously, pressurized air (right) is being discharged. As the lower impeller passes wrap-around flange, Whispair jet equalizes pressure between trapped air and discharge area, aiding impeller movement and reducing power. Impellers move air into the discharge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



Vertical configuration
(Horizontal air flow)



Horizontal configuration
(Vertical air flow)



Outline drawing of ROOTS VJ WHISPAIR water sealed exhauster.

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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'												
817J	13.75	22.00	24.25	38.63	21.00	13.00	30.00	25.75	25.50	25.00	17.00	2.75	.625 x .313	10.0 FLG	10.0 FLG	12.75	4.00	1620
821J	13.75	22.00	27.88	42.25	21.00	13.00	30.00	25.75	25.50	25.00	17.00	2.75	.625 x .313	12.0 FLG	10.0 FLG	12.75	4.00	1800
826J	13.75	22.00	33.13	47.5	21.00	13.00	30.00	25.75	25.50	25.00	17.00	2.75	.625 x .313	12.0 FLG	12.0 FLG	12.75	4.00	2075
832J	13.75	22.00	38.5	52.88	21.00	13.00	30.00	15.75	25.50	25.00	17.00	2.75	.625 x .313	14.0 FLG	12.0 FLG	12.75	4.00	2325

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
817J	850	948	47.8	840	59	737	64.5	564	70
	1170	1385	66.9	1258	82	1138	89.5	937	97.1
	1800	2265	105.9	2110	128	1962	139.2	1715	150.3
821J	850	1138	56.8	1008	70.2	885	76.8	677	83.5
	1170	1662	79.3	1510	97.5	1366	106.5	1124	115.6
	1800	2719	125.2	2532	151.9	2355	165.3	2058	178.6
826J	850	1423	70.4	1260	87.1	1107	95.4	847	103.8
	1170	2078	98.2	1888	120.8	1709	132.2	1406	143.5
	1800	3400	154.2	3166	187.6	2946	204.3	2574	221.1
832J	850	1707	84	1513	104.0	-	-	-	-
	1170	2493	116.8	2266	144.1	-	-	-	-
	1800	4079	182.9	3800	223.1	-	-	-	-

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.