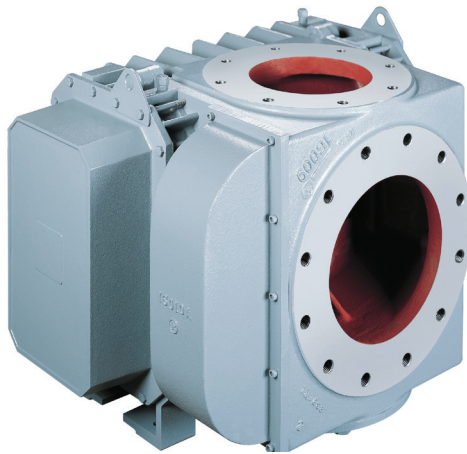


DVJ WHISPAIR, frame 721J

ROOTS™ DVJ WHISPAIR™ Dry Vacuum Exhausters



Design and Construction Features

- Rigid cast iron cylinder and headplates
- Anti-friction cylindrical roller bearings
- Splash lubricated spur timing gears
- Inlet and discharge connections in standard pipe sizes
- Involute profile ductile iron impellers

ROOTS™ DVJ WHISPAIR™ dry exhausters have an exclusive discharge jet plenum design which allows cool, atmospheric air to flow into the cylinder. This unique design permits continuous operation at vacuum levels to blank-off with a single stage unit.

Basic dry vacuum pump description

Standard dry exhausters are limited to approx. 16" Hg vacuum because operation at higher vacuum levels can cause extreme discharge temperatures resulting in casing & impeller distortion and possible seizure. The DVJ vacuum exhauster's integral cooling design eliminates the problems associated with high temperatures at vacuum levels beyond 16" Hg.

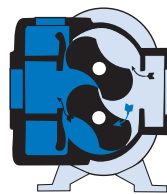
DVJ WHISPAIR™ exhausters are heavy-duty units with integral-shaft ductile iron impellers. The casing, headplates, gear cover and drive end cover are grey iron. Carburized and ground alloy steel spur timing gears are taper mounted on the shafts, secured with a locknut. Cylindrical roller bearings are splash lubricated at both the gear end and drive end. Piston rings reduce air leakage through the headplate bores and lip-type oil seals prevent lubricants from entering the air chamber. Rugged steel mounting feet permit infield adaptability to either vertical or horizontal installation requirements.

ROOTS™ DVJ WHISPAIR™ exhausters can be arranged to operate in two and three stage systems to achieve vacuum levels down to 1 Torr.

Warranty period

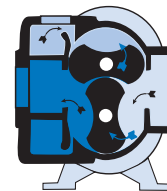
Twelve (12) months from date of original unit start-up or 18 months from date of original shipment, whichever occurs first.

Operating principle



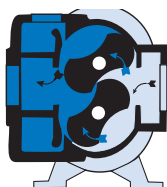
Position 1

Incoming air is trapped between the impellers. Simultaneously, pressurized air is being discharged.



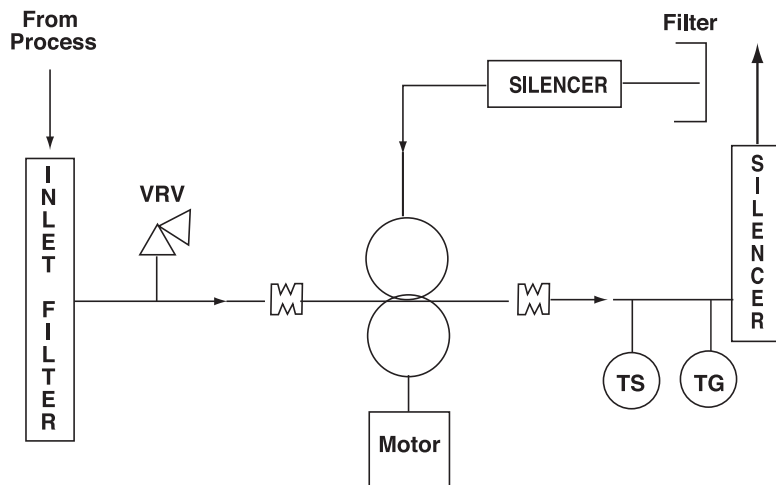
Position 2

As the upper impeller passes the jet plenum, cooled, pressurized air flows into the space between the impeller and cylinder. This cools the trapped air, helps control thermal growth and allows higher discharge pressures.



Position 3

The trapped air is then moved into the discharge flange (left). Backflow is reduced, resulting in lower operating noise level and reduced shock loading on the impellers.



For further information contact

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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	AX	Approx. net Wt (lbs)
					D	D'											
715J	19.00	26.00	21.50	33.38	17.00	10.00	25.13	19.00	18.00	23.25	13.50	2.375	.625 x .313	8.0 FLG	8.0 FLG	3.50	1100
721J	19.00	26.00	27.00	39.38	17.00	10.00	25.13	19.00	18.00	23.25	13.50	2.375	.625 x .313	10.0 FLG	10.0 FLG	3.50	1200
817J	13.75	22.00	24.25	38.63	21.00	13.00	30.00	25.75	25.50	25.00	17.00	2.750	.625 x .313	10.0 FLG	10.0 FLG	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	2.750	.625 x .313	10.0 FLG	10.0 FLG	4.00	1800
826J	13.75	22.00	33.13	47.50	21.00	13.00	30.00	25.75	25.50	25.00	17.00	2.750	.625 x .313	12.0 FLG	12.0 FLG	4.00	2075
832J	13.75	22.00	38.50	52.88	21.00	13.00	30.00	25.75	25.50	25.00	17.00	2.750	.625 x .313	12.0 FLG	12.0 FLG	4.00	2325

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

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
715J	1180	935	23.0	870	33.4	815	44.0	766	54.6	722	65.0	663	81.0	-	-	14.0	705	38.2
	1770	1548	37.3	1483	53.0	1428	68.8	1379	84.5	1335	100.3	1276	123.9	-	-	15.0	1281	61.4
	2600	2410	63.4	2345	86.0	2290	108.5	2241	131.0	2198	153.7	2138	187.5	-	-	15.0	2144	95.4
721J	1180	1266	30.5	1178	44.8	1103	59.0	1037	73.5	978	87.8	892	109.2	-	-	14.0	955	50.0
	1770	2096	49.1	2008	70.4	1933	91.7	1867	113.1	1808	134.4	1727	166.4	-	-	15.0	1735	81.7
	2600	3264	81.4	3176	112.0	3101	142.5	3035	173.1	2976	203.7	2895	249.5	-	-	15.0	2903	124.8
817J	880	982	24.9	895	36.8	821	48.7	756	60.6	-	-	-	-	-	-	-	-	-
	1770	2368	55.0	2280	78.5	2206	102.0	2142	125.4	2083	148.9	2004	184.1	2055	219.4	16.0	1962	95.9
	2250	3116	75.6	3028	105.0	2955	134.0	2890	164.0	2830	193.0	2751	237.0	2680	281.0	16.0	2707	126.0
821J	880	1179	29.6	1074	43.9	985	58.1	9.7	72.4	-	-	-	-	-	-	-	-	-
	1770	2842	65.7	2738	93.9	2648	122.1	2571	150.3	2500	178.4	2405	220.7	-	-	16.0	2354	114.8
	2250	3740	92.3	3635	127.0	3546	163.0	3468	198.0	3398	233.0	3302	286.0	-	-	16.0	3249	153.0
826J	880	1473	37.1	1342	55.0	1231	72.8	1134	90.7	-	-	-	-	-	-	-	-	-
	1770	3554	81.4	3423	116.7	3311	151.9	3214	187.1	3126	222.3	-	-	-	-	16.0	2944	142.8
	2250	4676	105.0	4545	156.0	4434	200.0	4336	247.0	4248	288.0	-	-	-	-	16.0	4062	188.0
832J	880	1768	44.4	1610	65.8	1477	87.2	1360	108.6	-	-	-	-	-	-	-	-	-
	1770	4264	97.5	4107	139.8	3972	182.0	3857	224.3	-	-	-	-	-	-	16.0	3531	168.4
	2250	5610	134.0	5452	186.0	5320	239.0	5202	292.0	-	-	-	-	-	-	16.0	4874	225.0

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.
 3. 800J frame size only - operation above 15psi pressure rise 15" Hg vacuum or 230°F temperature rise requires oil coolers - refer to factory. Oil cooler available on 600J and 700J frame sizes.