

# ROOTS™ DVJ WHISPAIR™ Dry Vacuum Exhausters

Frame 721J

## BASIC DRY VACUUM PUMP DESCRIPTION

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.

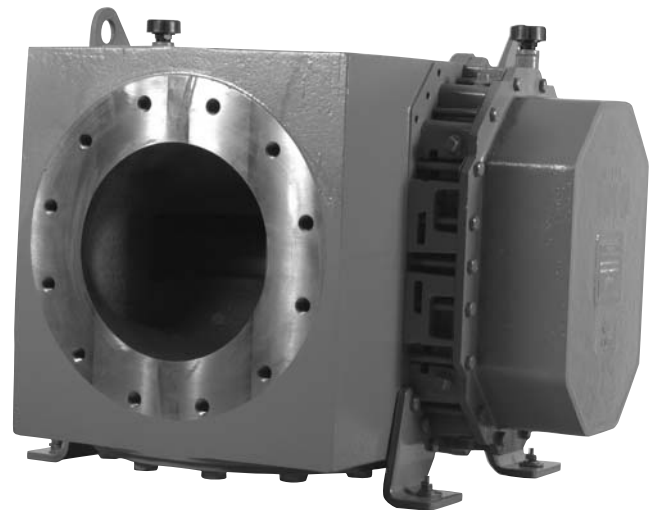
Standard dry exhausters are limited to approximately 16" Hg vacuum because operation at higher vacuum levels can cause extreme discharge temperatures resulting in casing & impeller distortion and possible seizure. The DVJ vacuum exhauster's integral cooling design eliminates the problems associated with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

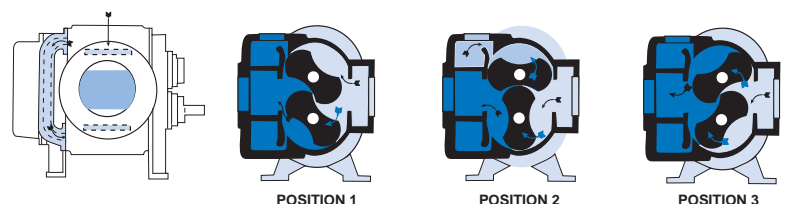
Twelve (12) months from date of original unit start-up or 18 months from date of original shipment, whichever occurs first.



## DESIGN AND CONSTRUCTION FEATURES

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

## OPERATING PRINCIPLE



**Position 1:** Incoming air (right) is trapped between the impellers and the case, producing a vacuum in the application system. Simultaneously, air is discharged (left) from the exhauster. **Position 2:** As the upper impeller passes the jet plenum, atmospheric air flows into the space between the impeller and the case. This cools the trapped air, aids impeller movement, and reduces discharge shock and power loss. **Position 3:** The trapped air is moved into the discharge flange (left). Backflow is reduced resulting in lower discharge noise relative to conventional rotary exhausters.

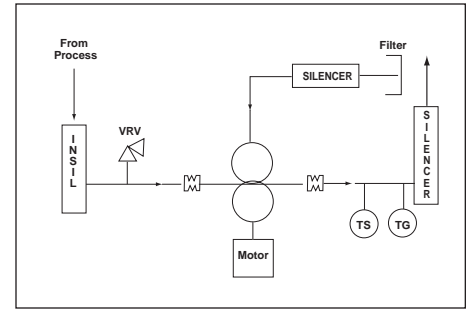


## PERFORMANCE TABLE

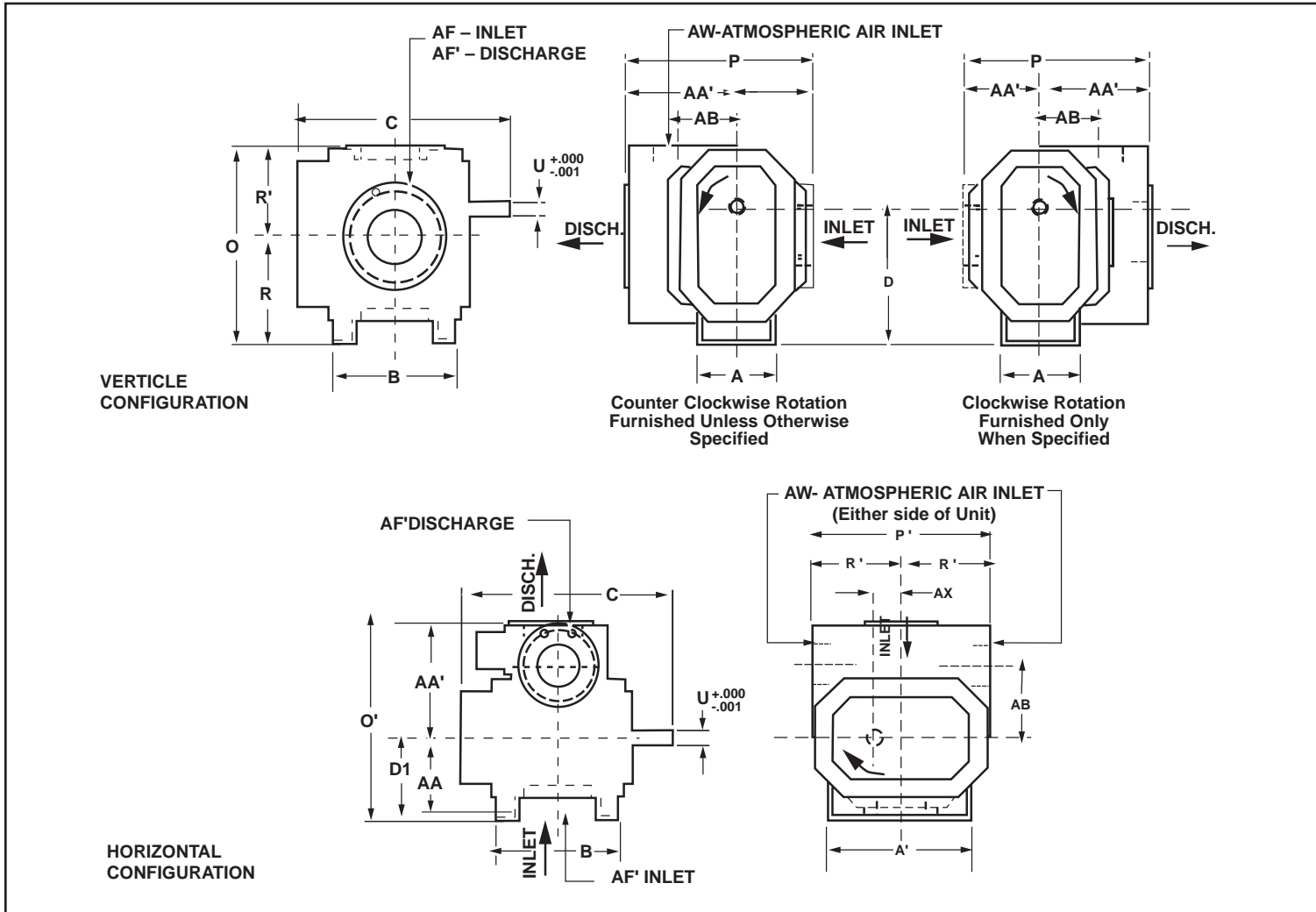
FRAME SIZE	SPEED RPM	Maximum Free Air CFM	16" HgV		20" HgV		24" HgV		27" HgV	
			CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
721J	1180		973	57	751	71	322	85	*	96
	1770		1803	87	1581	108	1152	128	85	144
	2200		2408	110	2186	135	1757	160	690	179
	2600	3658	2971	131	2749	161	2320	190	1252	212

\* Denotes blank-off.

Ratings based on inlet and jet air at standard temperature of 68°F, discharge and jet pressure of 30" Hg and specific gravity of 1.0. Refer to factory for performance guarantee above 24" Hg.



## OUTLINE DRAWING & DIMENSIONAL TABLE



FRAME SIZE	A	A'	B	C	Drive Shaft Location		O	O'	P	P'	R	U	Keyway	AA	AA'	AB	AF	AF'	AW	AX	WGT.
					D	D1															
721J	19.00	26.00	27.00	39.38	17.00	10.00	24.88	25.25	24.25	22.75	13.50	2.375	.625 x .313	9.00	15.25	5.50	12 FLG	12 FLG	12 FLG	3.50	1750

### NOTES:

1. All dimensions are in inches. 2. Weights are in pounds, and are approximate. 3. Do not use for construction.

**Dresser, Inc.**



**Roots**

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