

## SPECIFICATIONS

# ROOTS™ DVJ WHISPAIR™ Dry Vacuum Exhauster

Frame 2504 DVJ

### BASIC DRY VACUUM PUMP DESCRIPTION

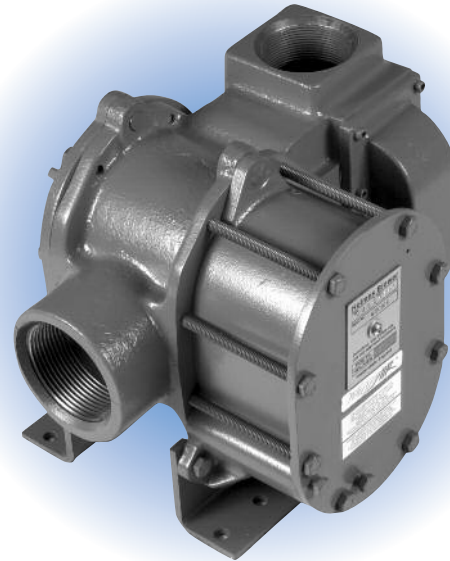
ROOTS™ DVJ WHISPAIR™ dry vacuum exhausters have an exclusive discharge jet plenum design which allows cool, atmospheric air to flow into the cylinder. This unique design permits continuous operation at vacuum levels to 20" HgV with a single stage unit.

Standard dry vacuum 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's cooling design eliminates the problems associated by high discharge temperatures at vacuum levels beyond 16" Hg.

DVJ WHISPAIR™ vacuum pumps are heavy-duty units with integral-shaft ductile iron impellers. The casing, headplates, gear cover are grey iron. Carburized and ground alloy steel spur timing gears are taper mounted on the shafts, secured with a locknut. Ball bearings are splash lubricated at the gear end and grease lubricated at the drive end. Lip-type seals are used to restrict oil leakage into the air stream.

### WARRANTY PERIOD

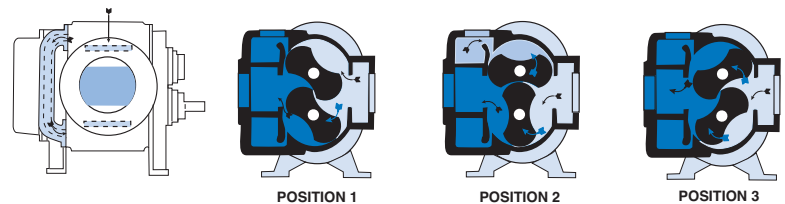
Twelve (12) months from date of original unit start-up or 18 months from date of original shipment, whichever occurs first.



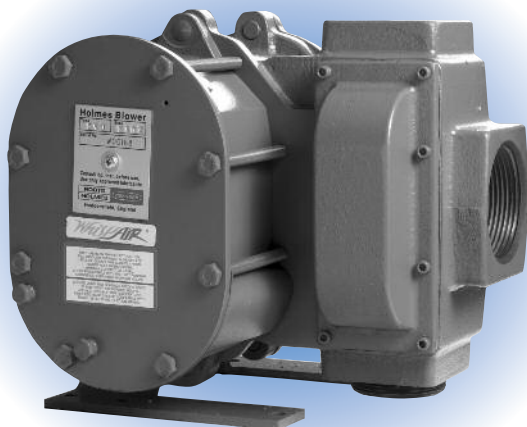
### DESIGN AND CONSTRUCTION FEATURES

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

### OPERATING PRINCIPLE

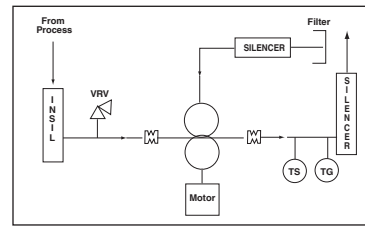


**Position 1:** Incoming air (right) is trapped between the impellers and the case, producing a vacuum in the application system. Simultaneously, air is discharged (left) from the exhauster. **Position 2:** As the upper impeller passes the jet plenum, atmospheric air flows into the space between the 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.



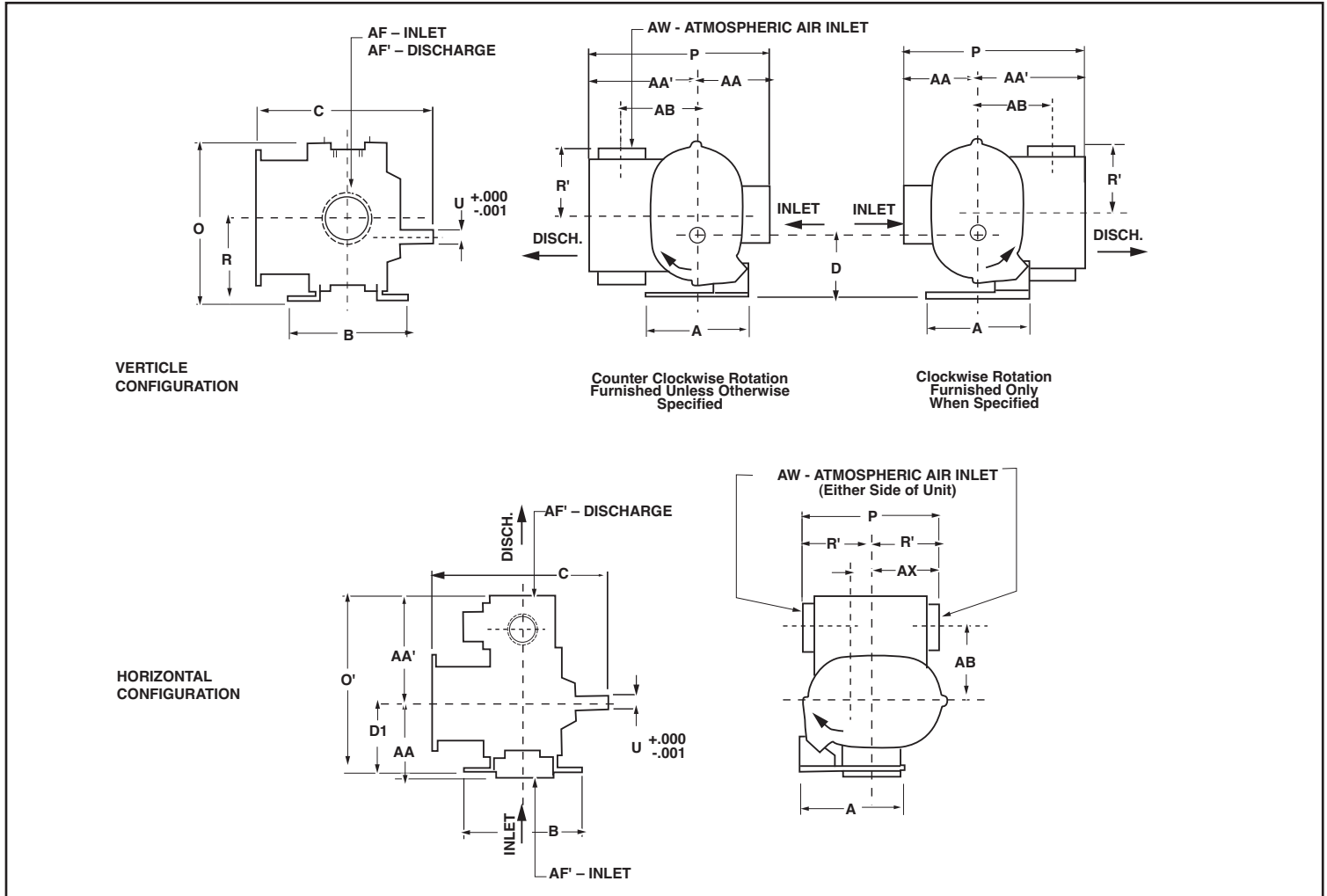
**PERFORMANCE TABLE**

FRAME SIZE	SPEED RPM	Maximum Free Air CFM	12" HgV		16" HgV		20" HgV	
			CFM	BHP	CFM	BHP	CFM	BHP
2504J	2400	170	47	2.1	36	2.8	21	3.5
	2655		56	2.3	44	3.1	30	3.9
	2990		67	2.6	56	3.5	41	4.4
	3540		86	3.1	75	4.2	60	5.2
	3985		101	3.6	90	4.7	75	5.9
	4515		119	4.1	108	5.4	93	6.7
	4970		135	4.6	124	6.0	109	7.4



**NOTE:** 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.

**OUTLINE DRAWING & DIMENSIONAL TABLE**



FRAME SIZE	A	B	C	D	O	O'	P	P'	R	R'	U	Keyway	AA	AA'	AB	AF	AF'	AW	AX	WGT.
2504J	6.50	7.50	11.38	4.00	9.88	11.63	12.38	8.75	5.25	4.38	.7500	.188 x .094	4.75	7.63	4.75	2.5 NPT	2.5 NPT	2 NPT	1.25G	65

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

**Dresser Roots**

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