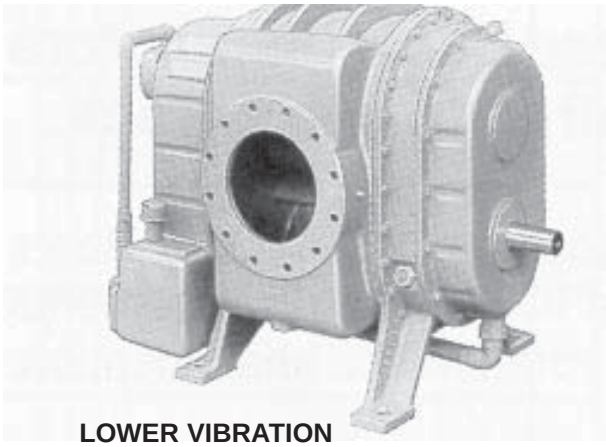
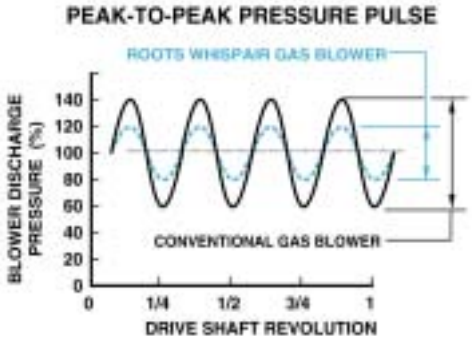
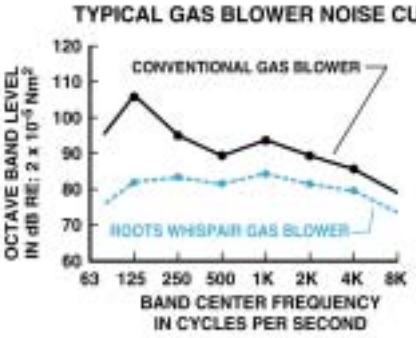
ROOTS™ RGS-J WHISPAIR ROTARY POSITIVE GAS BLOWERS

Frames 1000J thru 2000J



PRODUCT FEATURES





LOWER GAS PULSATION

Whispair gas blowers operate with up to 50% less pressure pulsation than conventional gas blowers due to the pressure equalizing effect of the Whispair jet design. In conventional gas blowers, as the impeller opens up to the outlet port, the higher pressure gas in the discharge line rapidly expands into the lower pressure pocket formed by the impeller and the case. The resulting shock wave strikes the advancing surface of the impeller at sonic velocity. Four pressure pulses occur during each revolution transmitting shock loads to the gear and bearings.

LONGER BEARING LIFE

The pre-pressurization of the low pressure pocket through the Whispair jet smoothes the pulsations and results in less shock being transmitted through the impellers to the bearings, resulting in approximately 20% longer bearing life.

LOWER VIBRATION

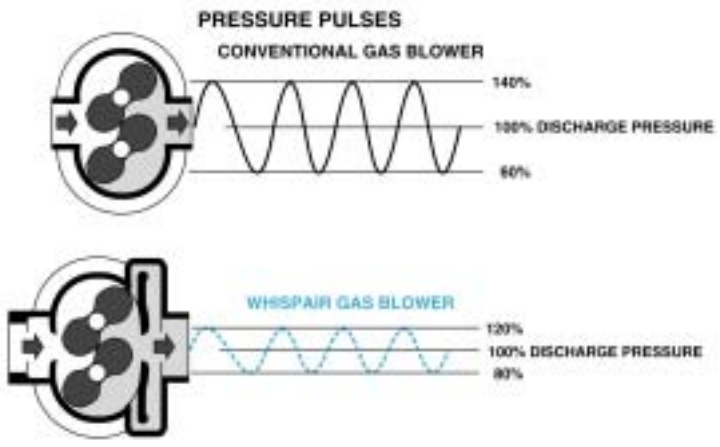
The reduction in the magnitude of the pressure pulsation results in smoother operation.

LOWER NOISE

The pressure pulses inherent in the rotary-lobe design are also the major source of gas blower noise. The rapid backflow of gas into the gas blower from the discharge line, four times per revolution, results in high noise levels in the conventional gas blower. The Whispair jet controls the backflow of gas into the gas blower reducing noise by approximately 5 dBA.

HORSEPOWER

As the impeller passes the Whispair jet port, pressurized gas channeled in the direction of rotation strikes the backside of the impeller. The gas jet imparts energy to the impeller, aiding rotation and reducing the power required to drive the gas blower.



Vertical or horizontal flow models are available. On horizontal flow units, the bottom shaft is extended for driving, and either right or left side discharge may be ordered. Vertical flow units have the right shaft extended for driving, and either top or bottom discharge may be ordered.

Available accessories include a baseplate for the gas pump and driver, V-belt or coupling drive with guard, bypass regulator, bypass cooler, inlet and discharge silencers, check valve, lube oil heater, auxillary lube oil pump and expansion joints.

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BASIC MODEL DESCRIPTION

RGS-J series Whispair gas blowers are heavy duty units for continuous service featuring a proprietary design that reduces noise, pulsation, and horsepower levels over conventional gas blowers. An exclusive wrap-around plenum and Whispair jet eliminate rapid backflow of gas into the gas blower from the discharge area - a major problem with conventional gas blowers.

DESIGN FEATURES

Casing - The gas blower casing is of one piece close-grained cast iron construction with separate headplates. The casing is suitably ribbed to prevent distortion under the most severe operating conditions and incorporates the ROOTS Whispair feature for reduced pulsation, noise and horsepower levels.

IMPELLERS - The impellers are made from ductile iron with a tensile strength of 60,000 PSI. They are statically and dynamically balanced by removing metal from the impeller body, and operate without liquid seals or lubrication.

SHAFTS - The gas blower shafts are alloy steel forgings flange connected to the impeller body with high-tensile socket head capscrews. Self adjusting face type mechanical seals are used at each bearing to control gas leakage.

TIMING GEARS - The impellers are timed by a pair of accurately machined forged steel gears that operate in an oil bath. The wide-faced spur gears are manufactured to AGMA standards, and are carburized and ground with a hardness of 58-60 Rc. On 1000J frame size units, the gears are secured to the shafts by a taper fit. Larger sizes use a taper locking device providing an easily adjustable and releasable mechanical shrink fit. No shaft-weakening keyways or locking pins are required.

BEARINGS - The impeller/shaft assemblies are supported at each end by double row spherical roller bearings designed for long life. The thrust end bearings are fixed to control the axial location of the impeller assembly in the unit. An inboard bearing is used on 1000J thru 1400J frame size V-belt driven gas blowers to minimize drive shaft stresses.

LUBRICATION - The bearings and gears are lubricated by a positive pressure lubrication system completely mounted and piped on the gas blower unit. The lube system consists of an integral direct-driven oil pump, distribution piping, oil sump in the bottom of the gear housing, suction strainer, relief valve, oil pressure gauge, low oil pressure safety switch and oil cooler. Bearing life is extended by up to 50% through the use of cooled, pressurized lubrication.

TESTING - Each ROOTS rotary gas blower is given a complete mechanical run and one-point flow test at full speed and pressure to ensure mechanical integrity and verify performance. The units are operated at elevated pressure rise for a minimum of one hour after temperatures have stabilized. Flow, pressure and temperature readings are logged during the test, and each gas blower must meet suitable vibration levels in three different planes before being certified as acceptable.

PERFORMANCE TABLE

Frame Size	Speed RPM	4 PSI		6 PSI		8 PSI		10 PSI		12 PSI		15 PSI		18 PSI		MAX PRESS. RISE	MAX VAC. IN. HG.
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP		
1006J	1800	1320	39	1285	52	1256	64	1230	76	1206	89	1174	107	1093	126	20.0	16
1009J	1800	2007	52	1961	71	1922	90	1887	108	1856	127	1814	154	1687	182	20.0	16
1012J	1800	2676	67	2615	92	2562	117	2516	141	2475	166	2418	203	2249	240	18.0	16
1016J	1800	3752	88	3680	122	3621	156	3568	190	3543	224					13.3	16
1018J	1800	4266	98	4185	137	4117	175	4057	214							11.7	16
1021J	1800	4781	109	4690	152	4614	196	4546	239							10.4	16
1024J	1800	5461	124	5358	173	5271	222									9.2	16
1030J	1800	6708	148	6552	210											7.3	15
1212J	1500	3238	82	3174	111	3120	141	3072	170	3028	200	2970	244	2797	289	20.0	16
1216J	1500	4354	105	4268	145	4195	185	4130	224	4072	264	3993	323			16.5	16
1220J	1500	5508	127	5418	176	5342	226	5275	275	5214	325					13.2	16
1222J	1500	6193	140	6092	196	6006	251	5931	307							11.7	16
1225J	1500	6892	153	6779	214	6684	276	6600	338							10.5	16
1228J	1500	7857	171	7728	241	7619	312									9.2	16
1236J	1500	9912	209	9749	298											7.3	15
1414J	1300	4680	121	4592	163	4518	206	4453	248	4394	290	4315	354	4243	417	20.0	16
1418J	1300	5976	149	5864	204	5770	258	5687	312	5611	366	5510	447			16.6	16
1422J	1300	7357	173	7243	238	7146	304	7061	370	6985	435					13.7	16
1425J	1300	8184	188	8057	262	7950	335	7855	408	7770	481					12.2	16
1428J	1300	9156	207	9014	289	8894	370	8789	452							11.0	16
1431J	1300	10300	228	10140	320	10005	412									9.8	16
1435J	1300	11455	252	11277	354	11127	457									8.8	16
1442J	1300	13741	300	13527	422											7.3	15
1616J	1130	5879	155	5772	208	5683	261	5604	314	5533	367	5436	447	5349	526	20.0	16
1620J	1130	7343	187	7210	253	7099	320	7000	386	6911	452	6791	552			17.6	16
1625J	1130	9184	220	9018	303	8878	386	8755	469	8644	552					14.0	16
1627J	1130	10049	235	9900	324	9774	414	9663	503	9563	593					13.0	16
1630J	1130	11162	255	10996	355	10856	454	10733	554							11.7	16
1633J	1130	12275	276	12093	386	11939	495	11804	604							10.6	16
1639J	1130	14511	320	14296	449	14114	579									9.0	16
1643J	1130	15995	350	15758	492	15558	635									8.2	16
1648J	1130	17861	389	17596	548											7.3	15
1821J	1000	8658	216	8507	294	8380	372	8268	450	8166	528	8029	645	7905	762	18.8	16
1824J	1000	9902	242	9729	332	9584	421	9455	510	9339	599	9182	733			16.5	16
1827J	1000	11127	270	10933	370	10769	470	10625	570	10495	671					14.6	16
1830J	1000	12521	296	12341	407	12190	519	12056	630	11936	741					13.2	16
1833J	1000	13978	323	13777	447	13608	571	13455	696							11.7	16
1838J	1000	15858	357	15630	498	15439	639	15270	780							10.4	16
1841J	1000	17108	379	16863	532	16656	684									9.6	16
1845J	1000	18781	410	18512	577	18285	744									8.8	16
1849J	1000	20454	441	20161	623	19914	805									8.0	16
1854J	1000	22541	484	22218	685											7.3	15
2022J	900	10357	255	10191	348	10051	441	9927	533	9816	626	9664	765	9528	904	19.6	16
2026J	900	12197	294	12001	403	11836	512	11691	622	11559	731	11381	895			16.6	16
2033J	900	15606	353	15400	491	15226	629	15073	767	14934	905					13.0	16
2037J	900	17468	387	17237	541	17042	696	16870	851							11.7	16
2040J	900	18632	408	18386	573	18178	738	17995	903							11.0	16
2044J	900	20494	442	20223	624	19994	805	19793	987							10.0	16
2050J	900	23290	493	22982	699	22723	905									8.8	16
2055J	900	25619	540	25280	767											7.9	16
2060J	900	27948	585	27579	833											7.3	15

Ratings based on inlet gas at standard temperature of 68° F, ambient pressure of 14.7 psia and specific gravity of 1.0.

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