

ROOTS™ RAS-J Whispair™ ROTARY POSITIVE BLOWERS PRESSURE & SPLASH LUBRICATED

Frames 1000J thru 2000J

BASIC BLOWER DESCRIPTION

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

DESIGN FEATURES

CASING - The 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.

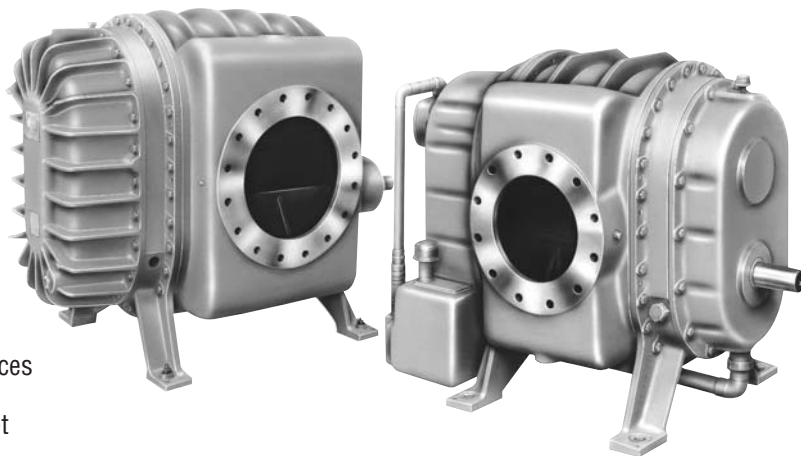
IMPELLERS - The impellers are made from ductile iron with a tensile strength of 60,000 PSI. They are statically and dynamically balanced by removing metal from the impeller body, and operate without liquid seals or lubrication.

SHAFTS - The blower shafts are alloy steel forgings flange connected to the impeller body with high-tensile socket head capscrews. Labyrinth seals are machined into the shafts to minimize air 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 blowers to minimize drive shaft stresses.

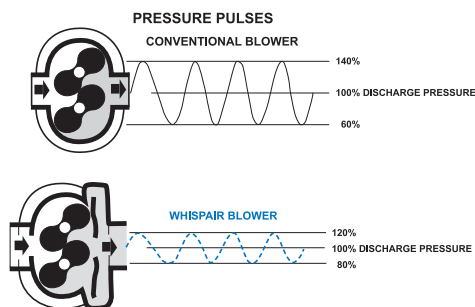
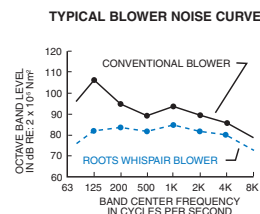
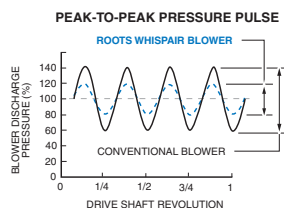
PRESSURE LUBRICATION - The bearings and gears are lubricated by a positive pressure lubrication system completely mounted and piped on the blower unit. The lube system consists of an integral direct-driven oil pump, distribution piping, oil sump in the bottom of the gear housing, suction strainer, relief 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.



SPLASH LUBRICATION - The bearings and gears are splash oil lubricated. Gear end oil is metered through an orifice into a secondary sump under the gear, and is fed into the bearings through specially designed leaders. On the thrust end, bearings are splash lubricated with an oil slinger inside a single splash-lube cover. All oil reservoirs have visible oil level gauges.

TESTING - Each ROOTS rotary 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 air blower must meet suitable vibration levels in three different planes before being certified as acceptable.

PRESSURE PULSES



Roots

PERFORMANCE TABLES

FRAME SIZE	SPEED	4 PSI		6 PSI		8 PSI		10 PSI		12 PSI		15 PSI		18 PSI		MAX. PRES Hg	MAX. VAC BHP
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP		
1006J	1800	1320	34	1285	46	1256	59	1230	71	1206	83	1174	102	1093	120	20.0	16
1009J	1800	2007	47	1961	66	1922	84	1887	103	1856	121	1814	149	1687	177	20.0	16
1012J	1800	2676	62	2615	86	2562	111	2516	136	2475	160	2418	197	2249	234	18.0	16
1016J	1800	3752	82	3680	116	3621	150	3568	184	3543	201					13.3	16
1018J	1800	4266	93	4185	131	4117	170	4057	208	3519	218					11.7	16
1021J	1800	4781	104	4690	147	4614	190	4546	234							10.4	16
1024J	1800	5461	118	5358	167	5271	216									9.2	16
1030J	1800	6822	143	6692	205											7.3	15
1212J	1500	3238	76	3174	106	3120	135	3072	165	3028	194	2970	238	2796	283	20.0	16
1216J	1500	4354	100	4268	139	4195	179	4130	218	4072	258	3993	317			16.5	16
1220J	1500	5508	121	5418	170	5342	220	5275	269	5214	319					13.2	16
1222J	1500	6193	134	6092	190	6006	245	5931	301							11.7	16
1225J	1500	6892	147	6779	209	6684	270	6600	332							10.5	16
1228J	1500	7857	165	7728	236	7619	306									9.2	16
1236J	1500	9912	203	9749	292											7.3	15
1414J	1300	4680	113	4592	155	4518	197	4453	240	4394	262	4315	346	4243	411	20.0	16
1418J	1300	5976	141	5864	195	5770	249	5687	304	5611	358	5510	439			16.6	16
1422J	1300	7357	165	7243	230	7146	296	7061	362	6985	427					13.7	16
1425J	1300	8184	180	8057	253	7950	326	7855	400	7770	472					12.2	16
1428J	1300	9156	199	9014	280	8894	362	8789	444							11.0	16
1431J	1300	10300	220	10140	312	10005	404									9.8	16
1435J	1300	11455	244	11277	346	11127	450									8.8	16
1442J	1300	13741	292	13527	414											7.3	15
1616J	1130	5879	144	5772	197	5683	250	5604	303	5533	356	5436	436	5349	515	20.0	16
1620J	1130	7343	178	7210	244	7099	310	7000	377	6911	422	6791	542			17.6	16
1625J	1130	9184	210	9018	293	8878	376	8755	461	8644	542					14.0	16
1627J	1130	10049	224	9900	314	9774	403	9663	493	9563	582					13.0	16
1630J	1130	11162	245	10996	344	10856	444	10733	543							11.7	16
1633J	1130	12275	266	12093	375	11939	485	11804	594							10.6	16
1639J	1130	14511	310	14296	439	14114	568									9.0	16
1643J	1130	15995	339	15758	482	15558	624									8.2	16
1648J	1130	17861	378	17596	538											7.3	15
1821J	1000	8658	206	8507	284	8380	362	8268	440	8166	518	8029	635	7905	752	18.8	16
1824J	1000	9902	233	9729	322	9584	411	9455	500	9339	589	9182	723			16.5	16
1827J	1000	11127	260	10933	360	10769	460	10625	560	10495	661					14.6	16
1830J	1000	12521	286	12341	397	12190	509	12056	620	11936	731					13.2	16
1833J	1000	13978	313	13777	437	13608	562	13455	686							11.7	16
1838J	1000	15858	347	15630	488	15439	630	15270	771							10.4	16
1841J	1000	17108	370	16863	522	16656	674									9.5	16
1845J	1000	18781	400	18512	567	18285	734									8.8	16
1849J	1000	20454	433	20161	615	19914	797									8.0	16
1854J	1000	22541	474	22218	675											7.3	15
2022J	900	10357	244	10191	337	10051	429	9927	522	9816	615	9664	754	9528	893	19.6	16
2026J	900	12197	283	12001	392	11836	501	11691	611	11559	720	11381	884			16.6	16
2033J	900	15606	342	15400	480	15226	618	15073	756	14934	894					13.0	16
2037J	900	17468	376	17237	530	17042	685	16870	839							11.7	16
2040J	900	18632	397	18386	562	18178	727	17995	892							11.0	16
2044J	900	20494	431	20223	613	19994	794	19793	975							10.0	16
2047J	900	21894	456	21604	650	21360	844	19793	975							9.4	16
2050J	900	23290	482	22982	688	22723	894									8.8	16
2055J	900	25619	529	25280	756											7.9	16
2057J	900	26552	548	26200	783											7.7	15
2060J	900	27948	574	27579	822											7.3	15
2062J	900	28880	593	28498	849											7.0	14
2064J	900	29807	612	29412	876											6.9	14

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

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 blower and driver, V-belt or coupling drive with guard, bypass regulator, bypass cooler, inlet and discharge silencers, check valve, lube oil heater, auxiliary lube oil pump and expansion joints.

PRODUCT FEATURES

LOWER PULSATION

Whispair™ blowers operate with up to 40% less pressure pulsation than conventional blowers due to the pressure equalizing effect of the Whispair jet design.

In conventional blowers, as the impeller opens up to the outlet port, the higher pressure air 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 blower noise. The rapid backflow of air into the blower from the discharge line, four times per revolution, results in high noise levels in the conventional blower. The Whispair™ jet controls the backflow of air into the blower reducing noise by approximately 5 dBA.

HORSEPOWER

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

Dresser, Inc.



Roots

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ROOTS™ RGS-J Whispair™ ROTARY POSITIVE GAS BLOWERS

Frames 1000J thru 2000J

BASIC BLOWER 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 blowers. An exclusive wrap-around plenum and Whispair jet eliminate rapid backflow of gas into the 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.

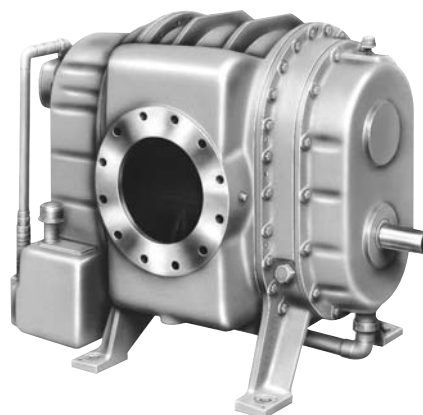
IMPELLERS - The impellers are made from ductile iron with a tensile strength of 60,000 PSI. They are statically and dynamically balanced by removing metal from the impeller body, and operate without liquid seals or lubrication.

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 blowers to minimize drive shaft stresses.

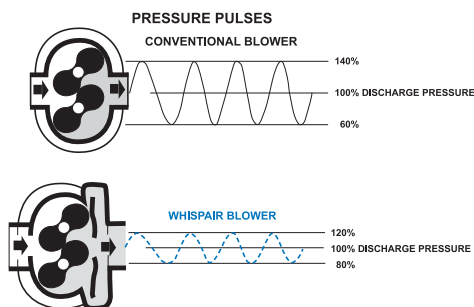
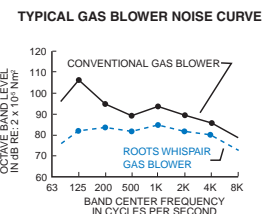
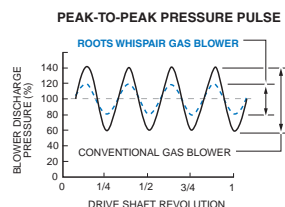
LUBRICATION - The bearings and gears are lubricated by a positive pressure lubrication system completely mounted and piped on the gas blower unit.



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.

PRESSURE PULSES



Roots

PERFORMANCE TABLES

FRAME SIZE	SPEED	4 PSI		6 PSI		8 PSI		10 PSI		12 PSI		15 PSI		18 PSI		MAX. PRES. Hg	MAX. VAC BHP
		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	3519	218					13.0	16
1018J	1800	4266	98	4185	137	4117	175	4057	214							11.0	16
1021J	1800	4781	109	4690	152	4614	196	4546	239							10.0	16
1024J	1800	5461	124	5358	173	5271	222									9.2	16
1030J	1800	6822	148	6692	210											7.3	15
1212J	1500	3238	82	3174	111	3120	141	3072	170	3028	200	2970	244	2796	289	20.0	16
1216J	1500	4354	105	4268	145	4195	185	4130	224	4072	264	3993	323			16.0	16
1220J	1500	5508	127	5418	176	5342	226	5275	275	5214	325					13.0	16
1222J	1500	6193	140	6092	196	6006	251	5931	307							11.0	16
1225J	1500	6892	153	6779	214	6684	276	6600	338							10.0	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			16.0	16
1422J	1300	7357	173	7243	238	7146	304	7061	370	6985	435					13.0	16
1425J	1300	8184	188	8057	262	7950	335	7855	406	7770	481					12.0	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			17.0	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							11.0	16
1633J	1130	12275	276	12093	386	11939	495	11804	604							10.0	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			16.0	16
1827J	1000	11127	270	10933	370	10769	470	10625	570	10495	671					14.0	16
1830J	1000	12521	296	12341	407	12190	519	12056	630	11936	741					13.0	16
1833J	1000	13978	323	13777	447	13608	571	13455	696							11.0	16
1838J	1000	15858	357	15630	498	15439	639	15270	780							10.0	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	1155	731	11381	895			16.0	16
2033J	900	15606	353	15400	491	15226	629	15073	767	1493	905					13.0	16
2037J	900	17468	387	17237	541	17042	696	16870	851							11.0	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
2047J	900	21894	467	21604	661	21360	855									9.4	16
2050J	900	23290	493	22982	699	22723	905									8.8	16
2055J	900	25619	540	25280	767											7.9	16
2057J	900	26552	558	26200	793											7.7	15
2060J	900	27948	585	27579	833											7.3	15
2062J	900	28880	603	28498	859											7.0	14
2064J	900	29807	622	29412	886											6.9	14

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

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, auxiliary lube oil pump and expansion joints.

PRODUCT FEATURES

LOWER GAS PULSATION

Whispair™ gas blowers operate with up to 40% 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 air 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.

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ROOTS™ DVJ Whispair™ DRY EXHAUSTERS

Frames 1016J, 1021J, 1220J, 1428J, 1431J,
1833J & 1838J

BASIC BLOWER DESCRIPTION

ROOTS model DVJ Whispair™ Dry Exhausters have an exclusive Whispair™ 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, without water injection.

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

DVJ Whispair™ exhausters are heavy-duty units with forged steel stub shafts bolted to ductile iron impellers. The casing, headplates, gear cover and drive end covers are grey iron.



Carburized and ground alloy steel spur timing gears are mounted on the shafts of 1000 frame size units by a taper fit, while large sizes use a double taper ring locking assembly. Double-row spherical roller bearings are splash lubricated at both the gear end and drive end. Piston ring shaft seals and lip-type seals are used to restrict oil leakage into the air stream. The DVJ can be equipped with mechanical seals for gas applications.

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

VACUUM PERFORMANCE TABLE

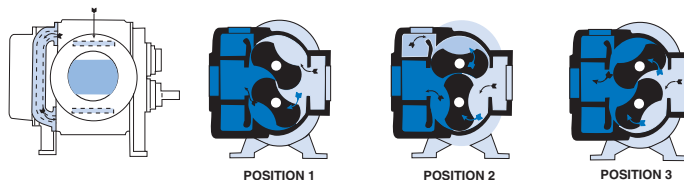
Frame	Speed	Max. Free Air	16" HgV		20" HgV		24" HgV		27" HgV	
Size	RPM	CFM	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
1016J	980		1557	77	1345	95	933	114	*	128
	1450		2619	115	2407	142	1996	169	970	189
	1800	4068	3410	144	3198	177	2787	211	1761	235
1021J	980		1984	97	1714	121	1189	145	*	163
	1450		3338	145	3067	180	2543	215	1236	241
	1800	5184	4346	183	4075	225	3551	268	2244	300
1220J	880		2627	120	2356	149	1831	178	523	200
	1170		3770	161	3500	199	2974	237	1664	266
	1500	5910	5070	208	4800	257	4274	305	2964	342
1222J	880		2886	131	2588	163	2011	196	Max. vacuum limited to 24" Hg	
	1170		4142	176	3843	218	3267	261		
	1500	6645	5571	228	5272	282	4696	335		
1428J	880		5207	230	4748	285	Maximum vacuum limited to 22.5" Hg			
	1170		7390	310	6932	382				
	1300	9789	8369	347	7911	427				
1431J	880		5857	258	5341	321	Maximum vacuum limited to 22" Hg			
	1170		8313	348	7797	429				
	1300	11011	9414	389	8898	479				
1833J	705		8472	365	7832	453	6554	540	Max. vacuum limited to 24" Hg	
	880		11074	461	10425	569	9167	676		
	1000	14870	12859	529	12209	650	10951	770		
1838J	705		9612	414	8875	513	Maximum vacuum limited to 21.5" Hg			
	880		12564	522	11827	644				
	1000	16870	14588	588	13851	736				

Notes: Ratings based on inlet and jet air 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.
Refer to the Factory for units and performances not listed.

DESIGN & CONSTRUCTION FEATURES

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

OPERATING PRINCIPLE



Shaded blue areas indicate air pressure variations from intake to atmospheric discharge.

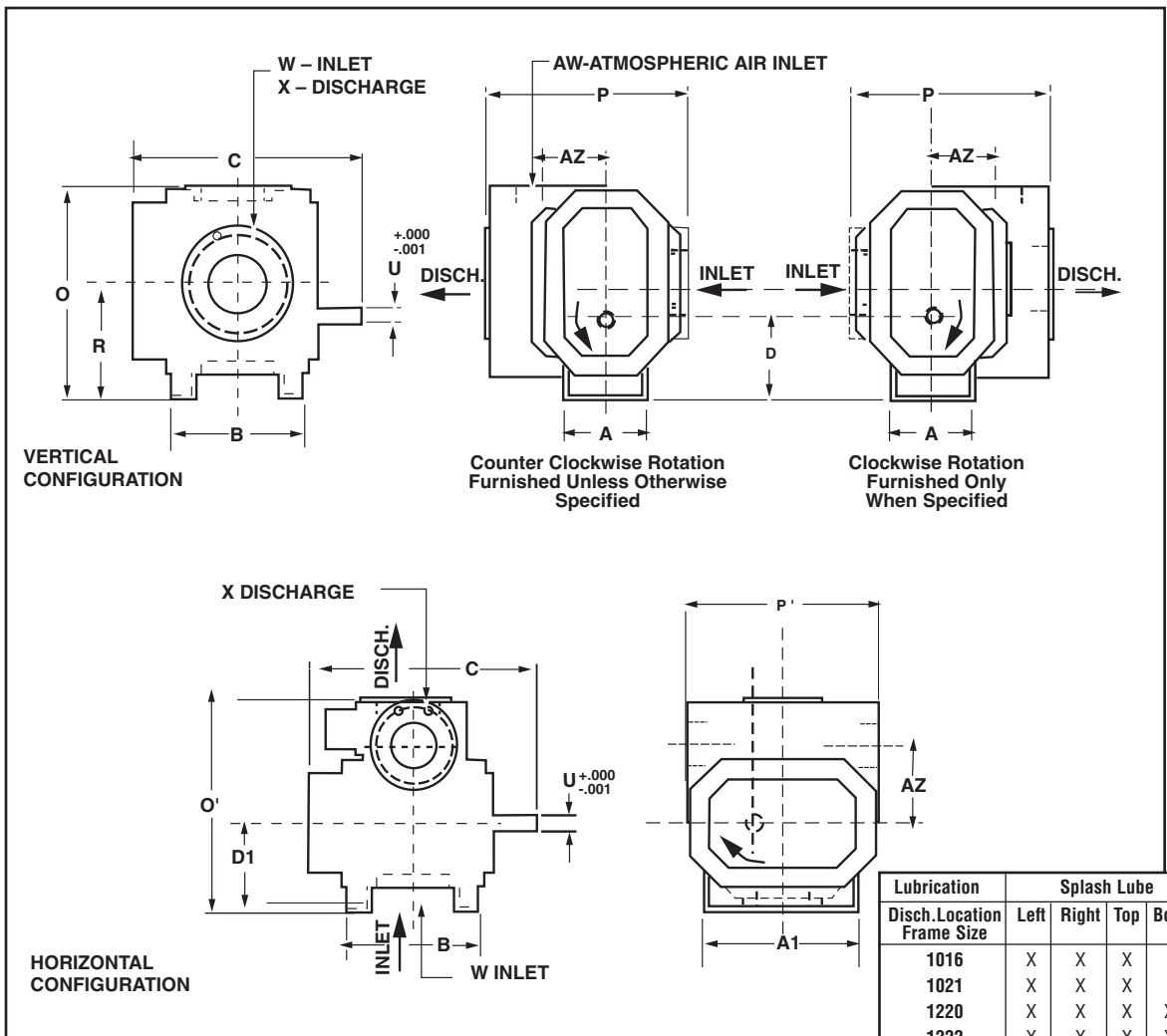
Position 1 - Incoming air is trapped between the impellers and the case, producing a vacuum in the application system. Simultaneously, air is discharged (right) from the exhauster.

Position 2 - As the impeller passes the Whispair™ jet plenum, atmospheric air flows into the space between the impeller and the case. This cools the trapped air, aids impeller movement and reduces shock and power loss.

Position 3 - The trapped air is then moved to the discharge flange (right). Backflow is reduced, resulting in lower discharge noise relative to conventional rotary exhausters.



Roots



Consult Factory: 1. Manifold spacer required.
2. Special headplates required.
3. Modifications to cylinder required.

Lubrication Disch. Location Frame Size	Splash Lube				Pressure Lube			
	Left	Right	Top	Bottom	Left	Right	Top	Bottom
1016	X	X	X		X	X	X	
1021	X	X	X				X	
1220	X	X	X	X(2)	X	X	X	X
1222	X	X	X	X(2)	X	X	X	X(1)(2)
1428	X	X	X		X	X(3)	X	
1431	X	X	X		X	X(3)	X	
1833	X	X	X		X	X	X	
1836	X	X	X		X	X	X	

FRAME SIZE	A	A'	B	C	D	D'	O	O'	P	P'	R	U	Keyway	AZ	W	X	AW	WGT.
1016J	27.00	27.00	23.25	49.88	14.500	14.500	34.88	31.88	31.63	30.75	19.50	2.250	.500 x .250	8.50	12 FLG	12 FLG	10 FLG	2400
1021J	27.00	27.75	27.75	45.50	14.500	14.500	38.00	28.75	31.25	36.00	19.50	2.250	.500 x .250	7.50	14 FLG	14 FLG	12 FLG	2525
1220J	30.50	30.50	27.50	52.38	16.625	16.625	40.63	35.88	35.75	36.00	22.63	2.625	.625 x .313	8.50	16 FLG	14 FLG	12 FLG	3650
1222J	30.50	30.50	30.00	54.88	16.625	16.625	40.63	35.88	35.75	36.00	22.63	2.625	.625 x .313	8.50	16 FLG	14 FLG	12 FLG	4000
1428J	34.00	34.00	36.25	57.88	18.750	18.750	47.56	46.60	46.75	42.19	25.75	3.000	.750 x .375	14.75	20 FLG	18 FLG	16 FLG	5900
1431J	34.00	34.99	39.25	61.38	18.750	18.750	47.56	46.60	46.75	42.19	25.75	3.000	.750 x .375	14.75	20 FLG	18 FLG	16 FLG	6100
1833J	41.00	41.00	43.50	69.81	23.250	23.250	59.25	56.60	56.75	52.80	32.25	4.188	1.000 x .500	15.00	24 FLG	24 FLG	20 FLG	10500
1838J	41.00	41.00	48.00	74.31	23.250	23.250	59.25	56.60	56.75	52.80	32.25	4.188	1.000 x .500	15.00	24 FLG	24 FLG	20 FLG	10800

NOTES:
• All dimensions are in inches. • Weights are in pounds, and are approximate. • Do not use for construction.

Dresser, Inc.



Roots

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