

# ROOTS

Blowers Compressors Exhausters

## ROOTS™ EasyAir® 8000 Factory Blower Package System

### BASIC BLOWER PACKAGE DESCRIPTION

The Dresser ROOTS™ EasyAir® 8000 Factory Blower Package System is a skid-mounted noise abatement enclosure containing a blower, all piping, valves, and instrumentation. It is produced for vacuum or pressure applications, enabling simple, on-site installation.

Roots offers conventional factory blower package systems with optional equipment detailed below. Roots also provides fully-engineered, packaged blower units specifically designed to meet exacting customer requirements.

### DESIGN FEATURES

- Dresser Roots-engineered noise abatement enclosure with power ventilation to optimize equipment life and extend reliability
- Patented automatic belt tension system
- Minimized footprint for easy installation
- Panel-mounted gauges for easy viewing
- Up to 22dBA free field noise attenuation with enclosure
- Integrated forklift access

### THE ROOTS ADVANTAGES

- Dual-splash lubrication on units up to 6" (15.24cm) gear diameter
- Removable locking panels for easy access
- Integrated safety guard for maintenance inspection without dismantling
- Intake volumes from 18 cfm (30 m<sup>3</sup>/hr) to 2115 cfm (3590 m<sup>3</sup>/hr)
- Pressures to 15 psig (1.034 Bargs)
- Motor horsepower to 500 hp (372 kw)
- Short installation cycle time
- Low installation and operation cost



### STANDARD EQUIPMENT

- ROOTS Dual Splash Lubricated Universal RAI® or RAM™-J rotary positive displacement blowers
- TEFC EPACT motor
- Inlet filter silencer with paper element
- Discharge pressure gauge (dual scale), filter restriction gauge, and temperature gauge
- Discharge base frame/discharge silencer
- Spring relief valve
- Discharge check valve
- Vibration pads
- Manufacturer's standard paint on internal components
- Powder-coated finish on noise enclosure



Roots

# ROOTS™ Universal RAI® DSL Dual Splash Lubricated Rotary Positive Displacement Blowers

Frames 33, 42, 45, 47, 53, 56, 65, 68, 615

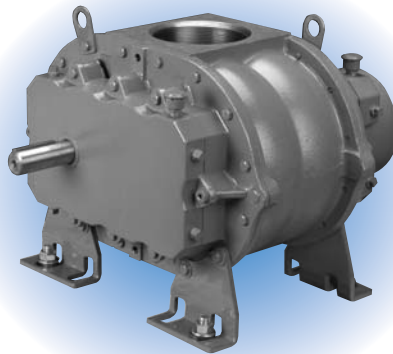
## BASIC BLOWER DESCRIPTION

URAI DSL (Dual Splash Lubricated) blowers are heavy-duty rotary blowers designed with detachable, rugged steel mounting feet. The compact, sturdy design is engineered for continuous service when operated in accordance with speed and pressure ratings.

This model consists of a cast iron casing, carburized and ground alloy steel spur timing gears secured to steel shafts with a taper mounting and locknut, and

cast iron involute impellers. Oversized antifriction bearings are used, with a cylindrical roller bearing at the drive shaft to withstand V-belt pull.

The URAI DSL blower features splash oil lubrication on both the gear end AND drive end. Roots' exclusive "figure-eight" gearbox design improves oil distribution to maximize gear and bearing life. Sight glasses (3/8") are provided for accurate oil level confirmation. After testing, the unit is sprayed with a protective paint, and boxed or skid mounted for delivery.

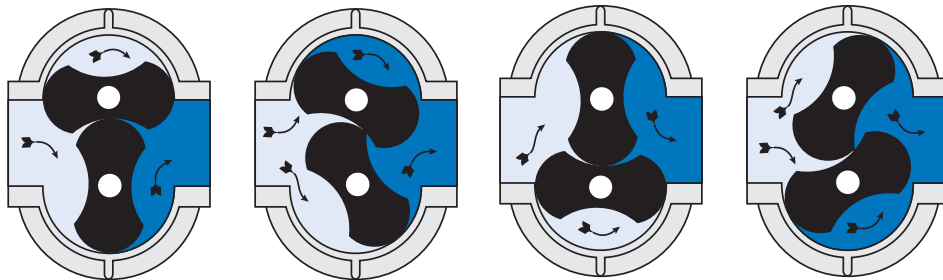


## PERFORMANCE TABLE: ROOTS™ EasyAir®8000 Universal RAI® DSL Blower

Frame Size	Speed	4 PSI		5 PSI		6 PSI		7 PSI		8 PSI		9 PSI		10 PSI		12 PSI		VACUUM DATA		
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	HP	INHGV	CFM	BHP
33	1750	75	1.9	71	2.4	67	2.9	64	3.3	61	3.8	58	4.3	56	4.7	51	5.7	13	53	3.0
	2950	149	3.3	145	4.1	141	4.9	138	5.7	135	6.5	132	7.3	130	8.1	125	9.7	15	119	5.9
42	1750	78	1.9	74	2.4	71	2.8	69	3.3	66	3.7	64	4.2	61	4.7	57	5.6	14	55	3.2
	2950	150	3.3	147	4.1	144	4.9	141	5.7	139	6.5	136	7.2	134	8.0	130	9.6	16	121	6.2
45	1750	161	3.8	155	4.7	150	5.6	145	6.6	140	7.5	136	8.4	132	9.3			14	121	6.4
	2950	306	6.7	300	8.2	295	9.8	290	11.3	285	12.9	281	14.4	277	16.0			16	253	12.5
47	1750	215	5.0	208	6.2	201	7.4	195	8.6									14	165	8.4
	2950	407	8.8	399	10.8	392	12.9	386	14.9									15	348	15.4
53	1170	113	2.7	108	3.4	103	4.1	99	4.8	96	5.4	92	6.1	89	6.8	82	8.1	13	85	4.3
	1750	189	4.2	184	5.2	180	6.2	176	7.2	172	8.2	168	9.2	165	10.3	159	12.3	15	151	7.5
56	1170	196	4.6	188	5.7	182	6.9	175	8.0	170	9.1	164	10.2	159	11.4	150	13.6	14	146	7.8
	1750	324	7.0	316	8.7	310	10.4	304	12.1	298	13.8	292	15.5	287	17.2	278	20.5	15	266	12.6
65	1170	223	5.2	215	6.4	208	7.7	202	8.9	196	10.2	190	11.5	185	12.7	175	15.2	14	171	8.7
	1750	365	8.0	358	9.9	351	11.8	344	13.7	339	15.6	333	17.4	328	19.3	318	23.1	16	297	15.1
68	1170	358	8.3	345	10.3	334	12.3	324	14.3	314	16.3	305	18.3	297	20.3	281	24.4	14	275	13.9
	1750	587	12.7	574	15.7	563	18.7	553	21.8	544	24.8	535	27.8	526	30.8	510	36.8	16	478	24.0
	2350	824	17.8	811	21.8	800	25.9	790	29.9	781	34.0	772	38.0	763	42.1	747	50.2	16	715	32.8
615	1170	670	15.4	647	19.1	626	22.9	607	26.7									11	581	20.5
	1750	1099	23.4	1076	29.1	1055	34.7	1036	40.4									12	989	33.7

NOTES: 1. Performance 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.

## ROTARY POSITIVE DISPLACEMENT OPERATING PRINCIPLE



Two figure-eight lobe impellers mounted on parallel shafts rotate in opposite directions. As each impeller passes the blower inlet, it traps a definite volume of air and carries it around the case to the blower outlet, where the air is discharged. With constant speed operation, the displaced volume is essentially the same regardless of pressure or

temperature.

Timing gears control the impellers relative positions and maintain small but definite clearances. This allows operation without lubrication requirements inside the unit casing.

# ROOTS™ RAM™ WHISPAIR™ Rotary Positive Displacement Blowers

Frames 409J, 412J, 418J, 616J

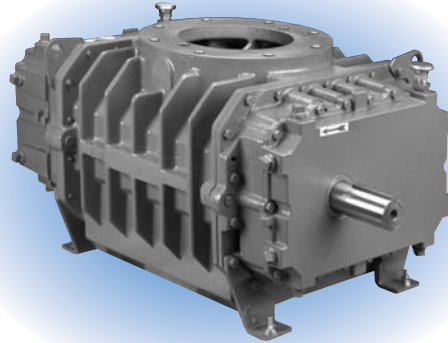
## BASIC BLOWER DESCRIPTION

RAM™ WHISPAIR™ rotary blowers are heavy-duty units designed with integral-shaft ductile iron impellers having an involute profile for maximum efficiency. WHISPAIR blowers reduce noise and power loss by utilizing an exclusive wrap-around plenum and proprietary WHISPAIR jet to control pressure equalization-feeding backflow in the direction of impeller movement, thereby aiding rotation.

The headplates and rigid, one-

piece cylinder are grey iron, while the drive end cover and gear cover are aluminum. Carburized and ground alloy steel spur timing gears are taper mounted on the shafts, secured with a locknut. Cylindrical roller bearings are used.

Piston rings reduce air leakage through the shaft openings in the headplates, and lip-type oil seals prevent lubricant from entering the air chamber. RAM rotary blowers incorporate thrust control, with splash oil lubrication at both ends of the blower. A hydrodynamic seal on the drive shaft prevents shaft seal oil leaks.

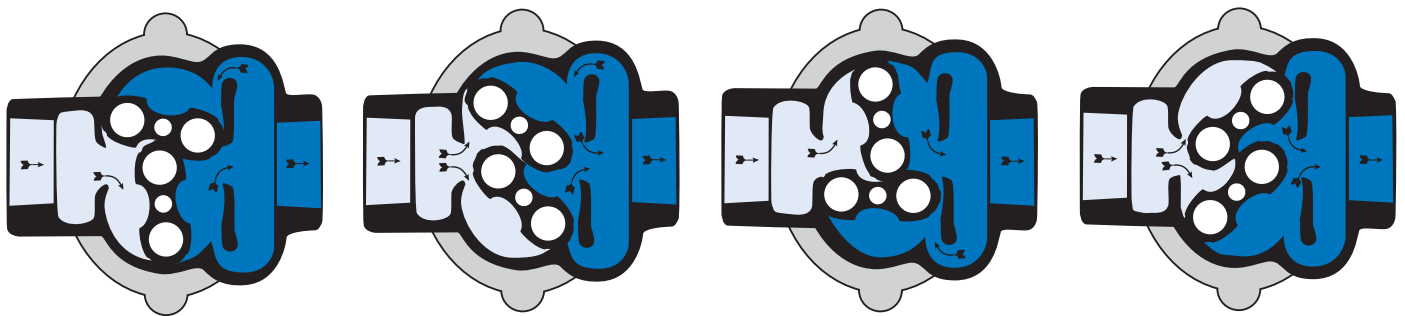


## PERFORMANCE TABLE: ROOTS™ EasyAir®8000 RAM™-J Blower

Frame Size	Speed RPM	4 PSI		6 PSI		8 PSI		9 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	CFM	BHP	*HgV	CFM	BHP
409	1750	338	8.2	315	11.8	296	15.6	296	15.6	279	19.4	264	23.2					14.0	259	13.2
	2950	638	15.0	615	21.1	586	27.5	586	27.5	579	33.9	564	40.2	544	49.8			15.0	546	24.2
	4000	900	23.3	878	30.8	859	39.4	859	39.4	842	48.0	827	56.5	806	69.3	788	82.1	16.0	796	35.2
412	1750	450	10.8	420	15.7	394	20.8	394	20.8	372	25.8	352	30.9					14.0	344	17.6
	2950	849	19.9	819	28.0	794	36.5	794	36.5	772	44.9	752	53.4	724	66.1			15.0	728	32.1
	4000	1199	30.6	1169	40.6	1144	52.0	1144	52.0	1121	63.4	1101	74.9	1074	91.8			16.0	1060	46.6
418	1750	675	16.2	630	23.6	592	31.2	592	31.2	559	38.8							14.0	517	26.4
	2950	1275	29.7	1230	41.8	1192	54.6	1192	54.6	1159	67.3							15.0	1092	48.1
	4000	1800	45.6	1755	60.6	1717	77.7	1717	77.7	1684	94.8							16.0	1591	69.8
616	1170	671	16.6	614	24.6	566	32.6	566	32.6	524	40.6	486	48.6					13.0	501	25.7
	1750	1128	25.6	1072	37.5	1024	49.4	1024	49.4	982	61.3	943	73.2					14.0	929	41.7
	3000	2115	49.0	2058	68.8	2010	88.6	2010	88.6	1968	108.4	1930	128.2	1878	157.9			16.0	1851	81.8

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.

## WHISPAIR™ OPERATING PRINCIPLE

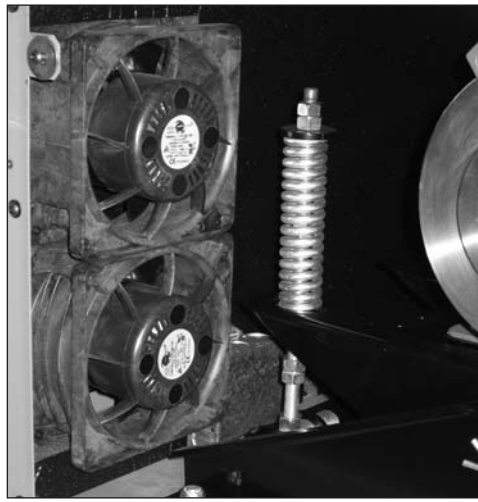


Incoming air is trapped by the impellers. Simultaneously, pressurized air (right) is being discharged. As the lower impeller passes wrap-around flange, Whispair jet equalizes pressure between trapped air and discharge

area, aiding impeller movement and reducing power. Impellers move air into the discharge area (right). Backflow is controlled, resulting in reduction of noise relative to conventional blowers.



Discharge pressure, filter restriction, and temperature gauges.



Roots patented automatic V-belt drive tensioning system and power ventilation system.



Oil fill level site glass

## SUPERIOR FIELD SERVICES

Roots provides superior field services, control systems, and fastest repair turnaround. We provide full job-site troubleshooting services and capabilities and state-of-the-art diagnostic tools delivered and utilized on-site for thorough diagnosis prior to removal. Because we maintain the world's largest network of service representatives, we provide a 24-hour delivery for most parts and repair kits and enable the right response for your level of urgency.

ROOTS Control Systems services include Revamp, Upgrade, Replacement and Conversions (analog to touch-screen and gauges to transmitters).

We offer an exchange program covering a wide range of ROOTS rotary equipment to keep your repair downtime

to an absolute minimum. Our Service Centers maintain a complete inventory of genuine ROOTS parts for fastest turnaround.

All competitor parts are also available for any repair need.

## TESTING

All serviced units are mechanically tested to assure compliance to rated specifications. Only Roots provides the quality assurance of unit testing on each blower or compressor rebuilt or repaired.

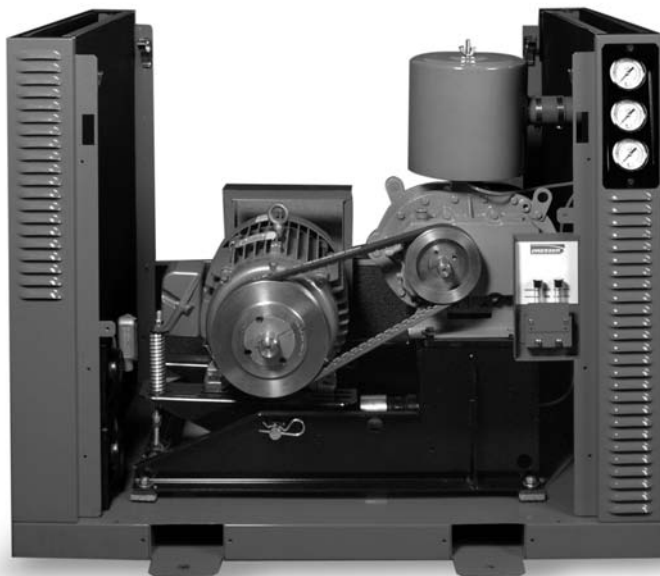
## SERVICE CENTER LOCATIONS

Roots operates strategically located blower repair facilities: Connersville, Indiana, Houston, Texas, Huddersfield, UK, Mexico City, Mexico, and Shanghai, China. Roots has additional authorized service centers throughout the world. Each facility is staffed with factory-trained service personnel. All Roots service centers are equipped to handle maintenance and repair service for almost every brand of small and large rotary blowers, gas pumps and vacuum pumps.

## WARRANTY

Universal RAI® and RAM™-J blowers come with twenty-four (24) month warranties on all parts and workmanship. Warranty begins from the date of original unit start-up or 30 months from date of original shipment, whichever occurs first.

Roots backs all maintenance and repair work performed at Roots facilities or in the field with one year parts and workmanship, including competitor's parts, competitive pricing and SC ISO-9001 Certified.



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