

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 m³/hr) to 2115 cfm (3590 m³/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

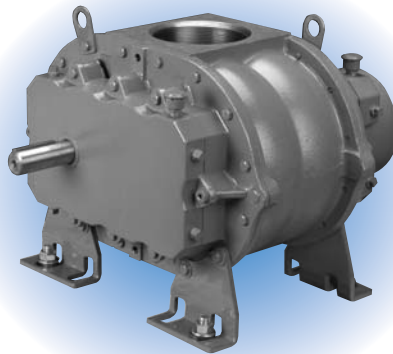
BASIC BLOWER DESCRIPTION

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.

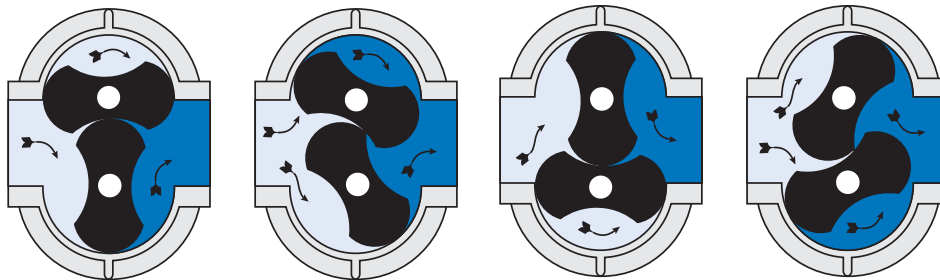


PERFORMANCE TABLE: ROOTS™ EasyAir®8000 Universal RAI® DSL Blower

| 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

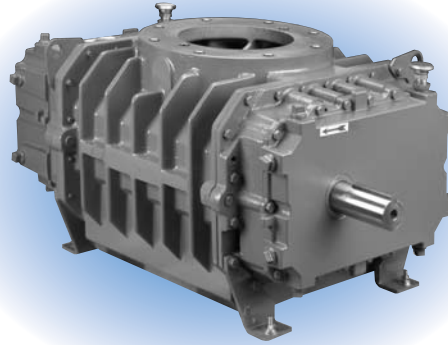
BASIC BLOWER DESCRIPTION

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.

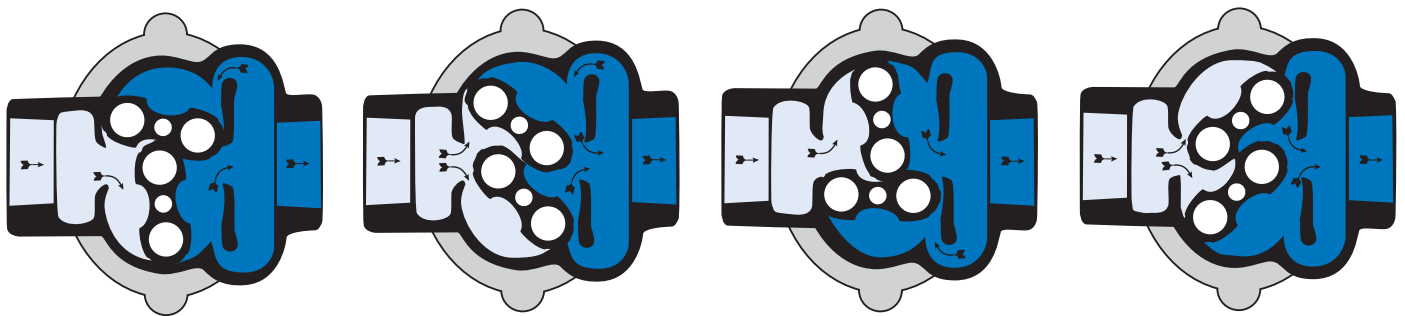


PERFORMANCE TABLE: ROOTS™ EasyAir®8000 RAM™-J Blower

| 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

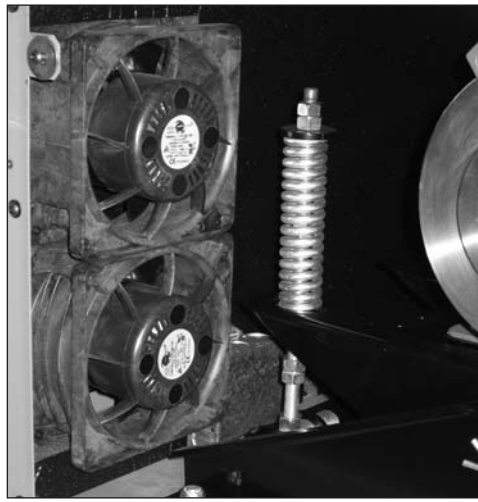


Incoming air is trapped by the impellers. Simultaneously, pressurized air (right) is being discharged. As the lower impeller passes wrap-around flange, Whispair jet equalizes pressure between trapped air and discharge

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.

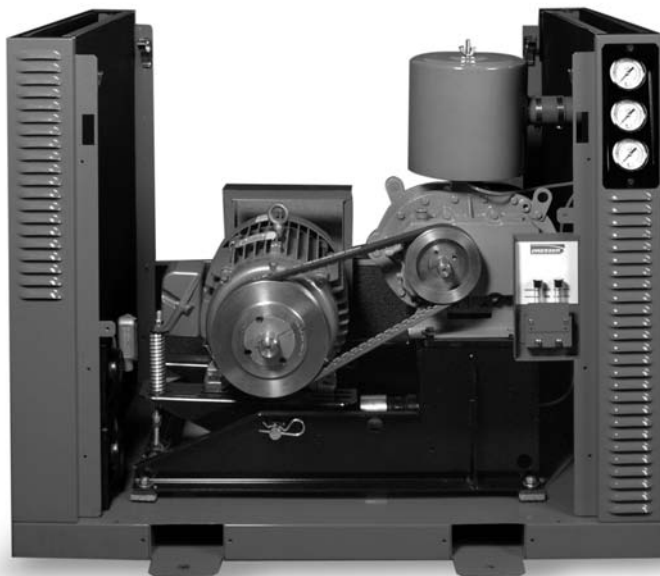
SERVICE CENTER LOCATIONS

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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