Patented Universal RAI-J Whispair blowers are heavy duty rotary units in a compact, sturdy design engineered for continuous service when operated within speed and vacuum/pressure ratings. The basic model features a cast iron casing with a computer-designed cast relief for noise and shock suppression, carburized and ground alloy steel spur timing gears secured to steel shafts with a taper mounting and locknut, and cast iron involute impellers. Oversized anti-friction bearings are used, with a cylindrical roller bearing at the drive shaft to withstand V-belt pull. Detachable rugged steel mounting feet permit easy in-field adaptability to either vertical or horizontal installation requirements.

The Universal RAI-J incorporates thrust control, and has grease lube on the drive end and splash oil lube on the gear end. Roots exclusive “Figure 8” gearbox design improves oil distribution and lengthens bearing and gear life.

**PRESSURE PULSES**

**CONVENTIONAL BLOWER**

- 140% 100% DISCHARGE PRESSURE
- 60%

**WHISPAIR BLOWER**

- 120% 100% DISCHARGE PRESSURE
- 80%

**LOWER AIR PULSATION**

Patented Whispair blowers operate with up to 50% less pressure pulsation than conventional blowers due to the pressure equalizing effect of the Whispair 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 blower case. The resulting shock wave strikes the advancing surface of the impeller at sonic velocity. Four pressure pulses occur each revolution, transmitting shock loads to the gears and bearings.

**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 design controls the backflow of air into the blower, reducing noise by approximately 5dB vacuum, 3 dB pressure.

**BASIC BLOWER DESCRIPTION**

Patented Universal RAI-J Whispair blowers are heavy duty rotary units in a compact, sturdy design engineered for continuous service when operated within speed and vacuum/pressure ratings.
### PERFORMANCE TABLE

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<th>FRAME SIZE</th>
<th>SPEED RPM</th>
<th>4&quot; Hg VACUUM CFM</th>
<th>6&quot; Hg VACUUM CFM</th>
<th>8&quot; Hg VACUUM CFM</th>
<th>10&quot; Hg VACUUM CFM</th>
<th>12&quot; Hg VACUUM CFM</th>
<th>14&quot; Hg VACUUM CFM</th>
<th>16&quot; Hg VACUUM CFM</th>
<th>MAX. PRESSURE</th>
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Notes:
1. Vacuum ratings based on inlet air at standard temperature of 68°F, discharge pressure of 30" Hg and specific gravity of 1.0.
2. Pressure ratings based on inlet air at standard pressure of 14.7 psia, standard temperature of 68°F, and specific gravity of 1.0.

### DESIGN & CONSTRUCTION FEATURES
1. Detachable steel mounting feet
2. Rigid one-piece cast iron casing
3. Anti-friction bearings
4. Thrust control
5. Splash-lubricated spur timing gears
6. Connections in standard pipe sizes
7. Straight, precision machined two-lobe impellers
8. Ground steel shafts

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Uncontested Warranty

Roots is the leader in blower warranties – the first to introduce an uncontested warranty that guarantees repair or replacement of any Universal RAI-J™ that malfunctions for any reason. We’ll protect you or your customer for a full 18 months from date of original start-up or 24 months from date of shipment, whichever occurs first.

ISO 9001 CERTIFIED
ROOTS QUALITY SYSTEM

The original ROOTS blower™

S-33A93 (Was S-5333) Revised July, 1997

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All specifications subject to change without notice
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