Distribuidor Autorizado

Howden

Roots™ Blowers, Compressors & Controls

Revolving Around You™

At the heart of your operations

Howden has become an acknowledged leader in air and gas handling equipment by producing high quality, highly reliable products that meet, and go on meeting, the process-critical demands placed upon them. By preventing unplanned downtime and providing outstanding lifetime value, Howden products offer customers' peace of mind.

Although technology has changed dramatically Howden's philosophy has not. Our job is to respond to customers' requirements with leading-edge technology, application expertise and outstanding personal service to deliver the long-term value they have come to expect from us.

Universal RAI* Blower

Heavy-duty, bi-lobe rotary blowers in a compact, sturdy design engineered for continuous use with exceptional reliability.

- Cost effective design
- Pressures to 15 psig (1034 mbar)
- Vacuums to 16” Hg (539 mbar)
- Flows to 2370 cfm (4026 m^3/hr)
- Available with metric drive shaft and pipe connections

Universal RAI* DSL Blower

This model features Dual Splash Lubrication (DSL) on both the gear end and drive end. Dual splash lube provides:

- More oil capacity
- Cooler operation
- Greater reliability
- Available with metric drive shaft and pipe connections

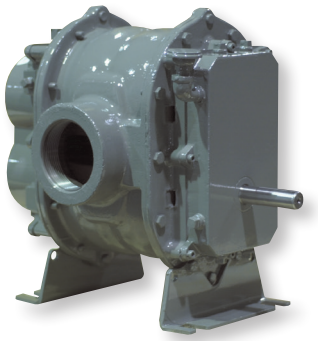
Universal RAI-J* Blower

Incorporates Roots WHISPAIR* technology to reduce noise levels 3-5 dBA.

Universal RAI-G* Blower

This model features mechanical seals that virtually eliminate leakage.

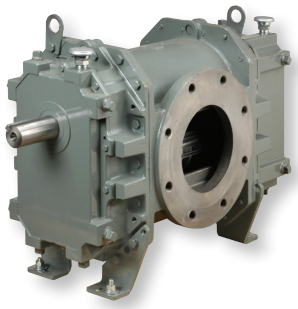
- 1/8” (0.3137 cm) NPT purge port for buffer gas applications



Universal RAI-J* DSL Blower

DSL features are incorporated into the Universal RAI-J model for long life and quiet performance.

- All of the Universal RAI family of blowers feature detachable feet, allowing you to mount the blower into your custom system



RAM-J Blower

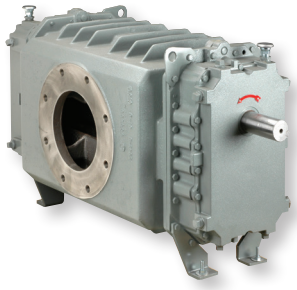
Incorporates Roots WHISPAIR technology to reduce noise levels.

- Pressure to 18 psig (1240 mbar)
- Vacuum to 16” Hg (539 mbar)
- Flows to 3550 cfm (6030 m^3/hr)

RAM-GJ Blower

Standard gas blowers suitable for both vacuum and pressure service. Features a piston ring system between the compression and vent cavities

- Long life mechanical seals offer superior protection and containment



RAM-VJ Blower

RAM WHISPAIR units are available with an inlet spray nozzle and seal water flow meter for water injection. This feature cools the vacuum unit to enable it to reach deeper vacuum.

- Vacuum to 24” Hg (813 mbar)
- Flows to 2500 cfm (4250 m^3/hr)

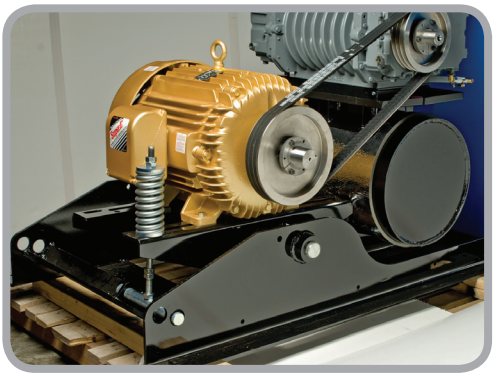
EASYAIR* X2 Factory Blower Package System

The EASYAIR X2 Factory Blower Package System is an improved design based upon the popular EASYAIR 8000 package. The EASYAIR X2 system provides performance engineering in a standard package. It is produced for vacuum or pressure applications, enabling simple, on-site installation.

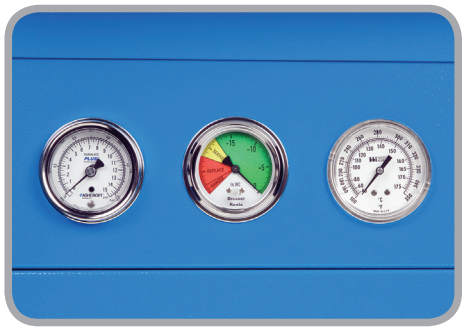
- Overall size is smaller than the EASYAIR 8000 package and the side-to-side size accommodates more packages in a given area
- No electric fan hookup required as the fan is mounted on the blower shaft and driven mechanically resulting in superior cooling
- Patented automatic belt tension system optimizes performance and extends belt life
- Panel-mounted gauges (inlet filter differential, blower
  exhaust temperature and pressure) and external oil level view for easy monitoring
- Up to 22dBA free field noise attenuation with enclosure

View with rear panels removed

Easy access for filter changes



Automatic belt tensioning system is counter-balanced to extend V-belt life



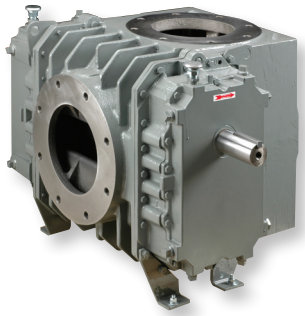
Discharge pressure, filter vacuum and discharge temperature gauges are standard

Oil fill level site glass is visible without opening panels

RAM-DPJ Blower

This RAM WHISPAIR, dry, high-pressure blower features a discharge jet plenum designed to allow externally cooled gas to flow into the casing and the Whispair™ jets control pressure equalization.

- Pressure to 30 psig (2068 mbar)
- Flows to 520 cfm (885 m^3/hr)



RAM-DVJ Exhauster

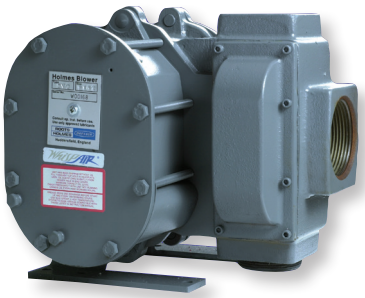
This dry exhauster features a jet plenum designed to allow cool, atmospheric air to flow into the casing This design allows continuous operation at levels to blank-off with a single stage unit.

- Vacuum to 27” Hg (910 mbar)
- Flows to 2400 cfm (4077 m^3/hr)

ROOTS-FLO* Blower

This heavy duty rotary unit is a compact design engineered for reliable pneumatic conveying of grain and similar products.

- Vacuums to 16” Hg (539 mbar)
- Pressure to 15 psig (1034 mbar)
- This unit is your drop in replacement solution



2504 DVJ WHISPAIR Exhauster

This WHISPAIR dry vacuum exhauster has a discharge jet plenum design which allows cool, atmospheric air to flow into the cylinder.

- Design permits continuous operation at vacuum levels to 20” Hg (675 mbar) with a single stage unit.

RCS 800 Blower

Piston rings reduce air leakage while lip-type oil seals prevent lubricant from entering the air chamber.

- Pressures to 18 psig (1241 mbar)
- Vacuums to 16” Hg (539 mbar)
- Flows to 6300 cfm (10710 m^3/hr)

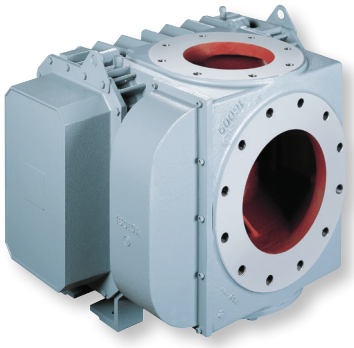
RCS-VJ Exhauster

RCS WHISPAIR units are available with an inlet spray nozzle and seal water flow meter for water injection. This feature cools the vacuum unit to enable it to reach deeper vacuum.

- Vacuums to 24” Hg (810 mbar)
- Flows to 4080 cfm (6930 m^3/hr)

RCS-J Blower

Incorporates Roots WHISPAIR technology to reduce noise levels.



DVJ WHISPAIR Exhauster

These blowers have a WHISPAIR discharge jet plenum design which allows cool, atmospheric air to flow into the cylinder. This design permits continuous operation at vacuum levels to blank-off with a single stage unit, without water injection. The DVJ's cooling design handles the problems caused by high discharge temperatures at vacuum levels beyond 16" Hg.

- Flows to 16870 cfm (28662 m^3/hr)
- Vacuums to 27" Hg (910 mbar)

TRI-NADO™ Exhauster

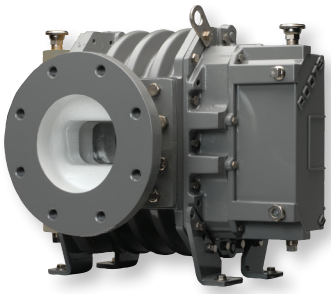
This unit's tri-lobe design results in high efficiency and reduces in-pipe pulsation and noise levels. Incorporates Roots WHISPAIR technology to further reduce noise levels.

- Flows to 5760 cfm (9790 m^3/hr)
- Single-stage vacuums to 28" Hg (945 mbar)

RB™ Blower

A rotary positive blower designed for use in truck-mounted applications, though it can be used in stationary applications with an electric motor. Available in three sizes offering a wide range of capabilities.

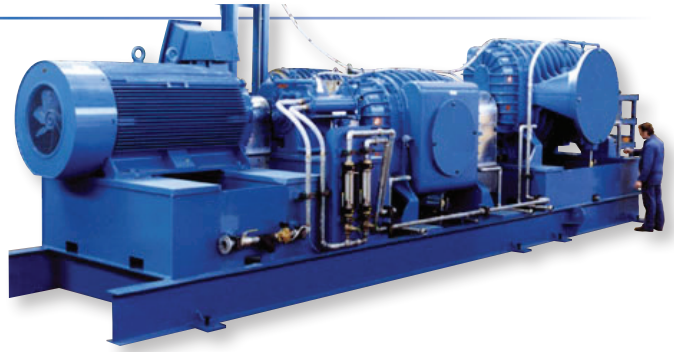
- Flows to 1535 cfm (2611 m^3/hr)
- Pressure to 18 psig (1241 mbar)
- Vacuums to 14" Hg (472 mbar)



RAM X* Tri-Lobe Blower

The blowers feature Roots WHISPAIR discharge design which, when combined with our tri-lobe impellers, delivers quieter operation than conventional tri-lobe blowers.

- Flows to 5900 cfm (10030 m^3/hr)
- Vacuum to 16" Hg (539 mbar)
- Pressures to 15 psig (1034 mbar)



VJ/VJ2 Blower

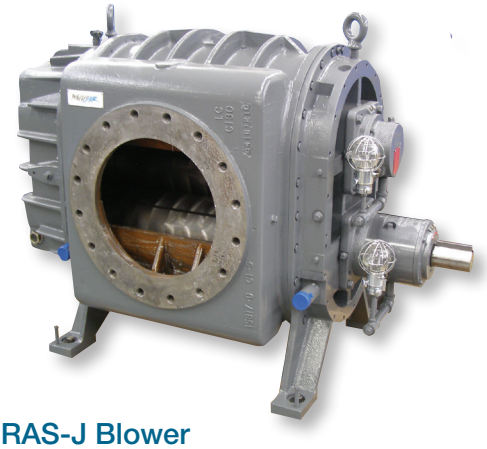
Water injected, air or gas blower features Roots WHISPAIR plenum with 3-5 dBA quieter operation.

Single stage

- Vacuum to 24" Hg (810 mbar)

Two stage

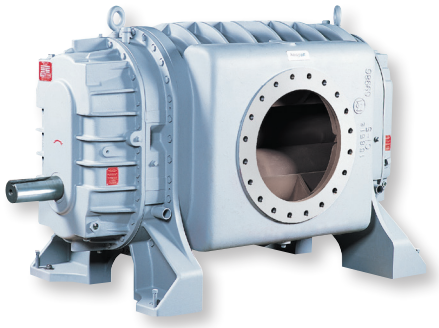
- Vacuum to 27" Hg (910 mbar)
- Flows to 43200 cfm (72440 m^3/hr)
- Two stage reduces power 25%



RAS-J Blower

Air blower that is available with splash lubrication or true pressure lubrication. Features a WHISPAIR plenum with 3-5 dBA quieter operation.

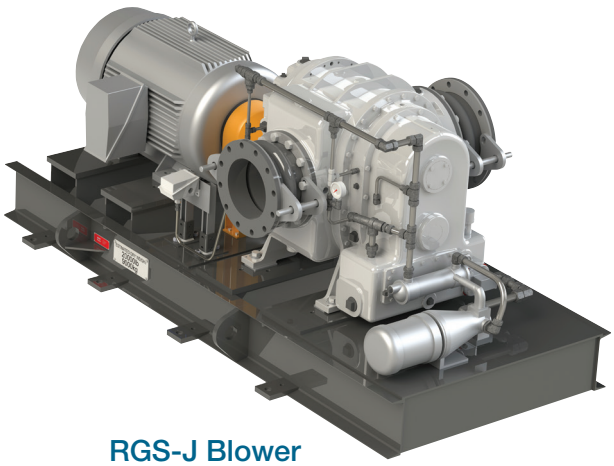
- Pressure to 35 psig (2413 mbar)
- Vacuum to 16” Hg (539 mbar)
- Flows to 43200 cfm (73440 m^3/hr)



RAS-J/RGS-J Forty PSL Blower

Extended flow range and efficiency with the advantage of the WHISPAIR plenum

- Up to 82% increase in pressure rise capacity
- Direct connect to 50Hz and 60Hz motors provides the largest flow range possible without gear-reducers
- Available with true pressure lubrication
- Mechanical seals are also available for your unique gas



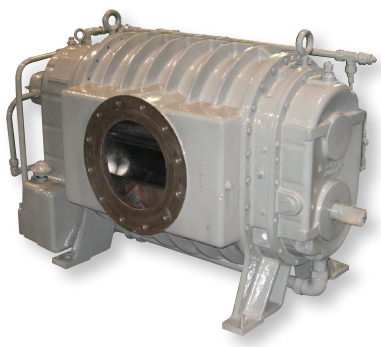
RGS-J Blower

This is a Rotary Positive Displacement Gas Compressor with Integral lubrication to supply oil to the bearings, timing gears, and mechanical face seals. The Compressor is direct driven by an electric motor. The oil system includes a motor driven auxiliary oil pump in the forefront.

RGS-J Blower

Heavy-duty gas blowers designed for continuous service. The wrap-around plenum and WHISPAIR jet handles rapid backflow of gas into the blower from the discharge area.

- Pressure to 35 psig (2413 mbar)
- Vacuum to 16” Hg (542 mbar)
- Flows to 43200 cfm (73440 m^3/hr)



RGS-HVB Blower

Designed for applications to the single digit micron range when used in series with a backing pump.

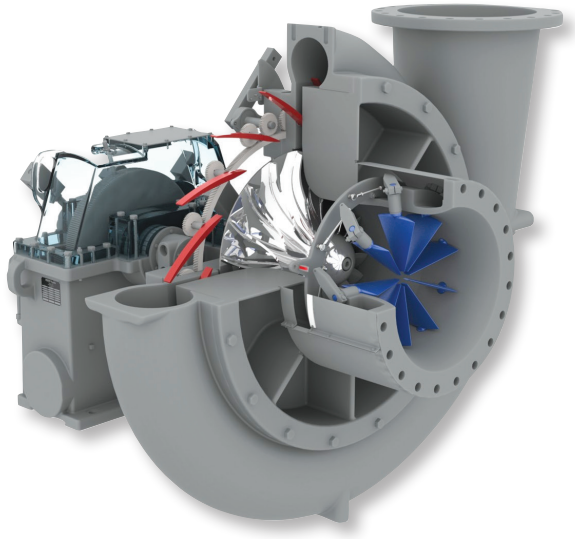
- Steel Degassing
- Laser Booster
- Altitude Chamber

Type OIB, D and DH Centrifugal Compressors

Can be used in a variety of different process gas applications. Advanced sealing technologies are available for use with hazardous gases.

These compressors can be designed for low to high polytropic head applications as well as high casing temperature and pressure conditions.

- Polytropic heads to 40,000 ft.
- Flows to 300,000 cfm (510,000 m^3/hr)
- Compliance with API Specification 617

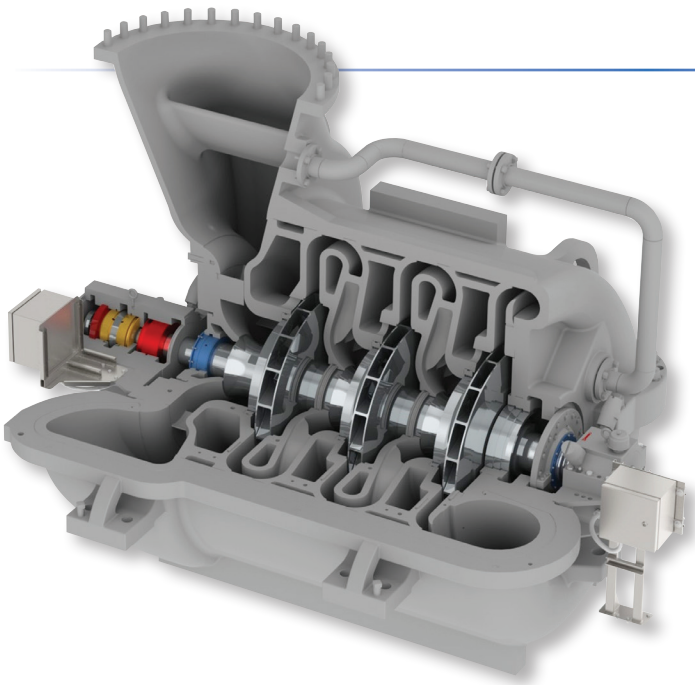


Type IGC Centrifugal Compressor

Suitable for use with a variety of constant speed or variable speed drivers. Local energy costs and your requirements will determine the most economical method of drive for your application.

Independently modulated Inlet Guide Vanes (IGV) and Diffuser Vanes (DV) are controlled to enhance the performance of the compressor as the application conditions vary.

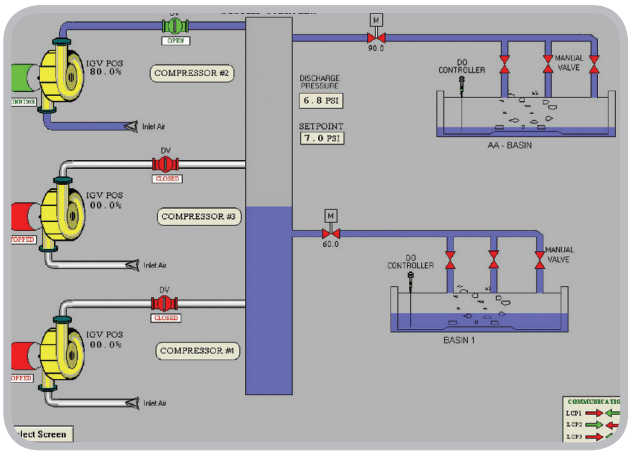
- Polytropic heads to 50,000 ft.
- Flows to 60,000 cfm (101,900 m^3/hr)
- Compliance with API Specifications 617 and 672

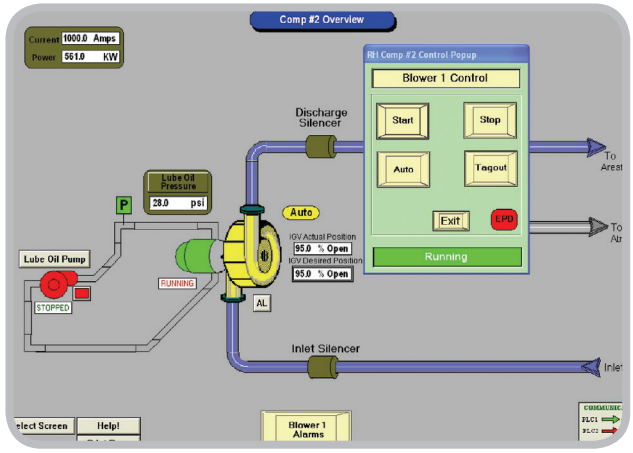


Type H - Multi-Stage Centrifugal Compressor

A choice of impeller materials provides efficient, reliable operation with a variety of process gases at varying temperatures, humidity levels and pressures. Horizontally-split casing compressors feature bearing housings that are flange mounted to the case. This design permits easy access for maintenance or bearing inspection.

- Polytropic heads to 90,000 ft.
- Flows to 125,000 cfm (212,400 m^3/hr)
- Compliance with API Specification 617





Roots control solutions for your aeration process are state-of-the-art assuring your plant optimum Dissolved Oxygen (DO) with minimal energy consumption.

Aeration Controls and Services

Energy Savings

- Save 25% to 40% compared to manual control
- Reduce consumption and demand charges
- Assistance in obtaining utility rebates
- Most open valve control
- Reduce system pressure
- Coordinate aeration demand and blower supply air flows

Direct Flow Control

- Virtually eliminate pressure control loops
- Simplified tuning
- Increased stability
- Reduce energy consumption 5% to 10%

Variable Speed Control

- Positive displacement blowers
- Multistage centrifugal blowers
- Single stage centrifugal blowers
- Combine with variable diffuser vanes for optimum efficiency

Direct Valve Position Control

- Eliminate 4-20 mA positioners
- Reduce equipment and wiring costs
- Reduce calibration and maintenance

Application Engineering

- Design assistance
- Analysis of existing operations
- Savings calculations
- Simple and complex processes
- Single basin, multiple basin, and individual grid control

Service Contracts

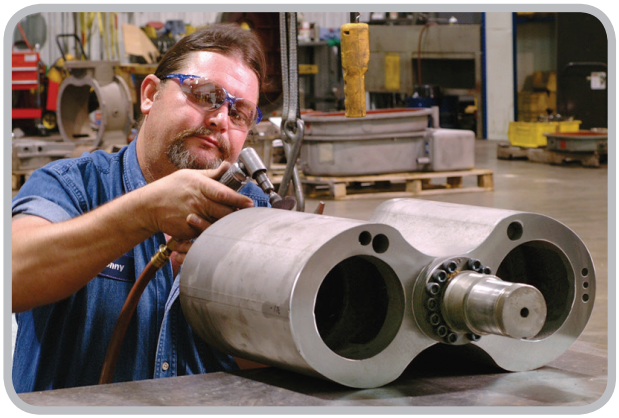
- Preventive maintenance
- System monitoring and tuning
- On site field service

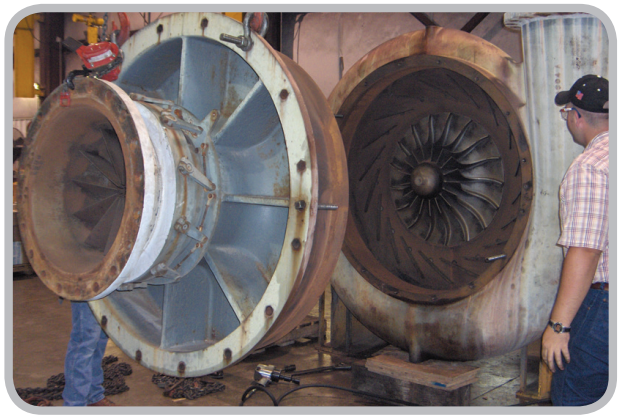
Energy Reduction Opportunities

- Integrated aeration systems
- Aeration process and blower control
- Blower control and protection
- Communications with SCADA Systems
- Revamp
- Blower optimization and rebuilds
- Use existing controllers and field devices
- Upgrade existing control logic wastewater OEM's
- Blower and control packages
- Integrate with OEM processes

Technology Options

- IntelliView® process controller
- PLCs (various)
- Direct flow control
- Dissolved oxygen (DO)
- Most open valve (MOV)
- Pressure control
- Direct valve control
- Application specific control algorithms





Reduce Power Costs

Your current aeration blower system may be the biggest single opportunity to reduce your power overhead.

When installed, your aeration blowers were matched for best efficiency at the original performance conditions. Times change, conditions change. Howden looks at today's and projected future conditions to analyze and establish updated best performance requirements for the blowers and complete aeration control – for example a 10 psig blower running at 8 psig uses 6% more power than a blower designed for 8 psig.

Global Aftermarket Coverage

Howden maintenance and repair services incorporate professional methods and procedures that restore proper functionality and performance to each repaired unit. Access to Howden factory repair and service is available around the world. Service for small rotary blowers is available through our network of authorized distributor repair centers. All authorized repair centers use authentic Roots parts to assure warranty compliance.

Unmatched Experience

We have extensive experience in the repair and maintenance of all major brands of vacuum blowers and exhausters, blowers, and centrifugal compressors.
Our capabilities allow us to repair or remanufacture all of your equipment to original or higher specifications. Howden provides full service and repair on all major brands.

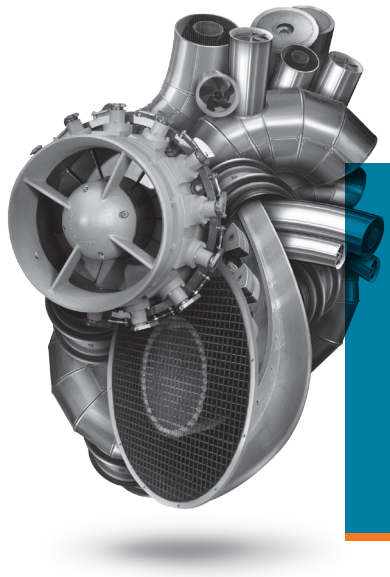
Superior Field Services

- Full job-site troubleshooting services and capabilities
- Leading technology diagnostic tools delivered and utilized on-site for thorough diagnosis prior to removal
- 24-hour delivery for most parts and repair kits

Strong Service and Repair Warranties

Howden backs all maintenance and repair work performed at its facilities or in the field.

- One year parts and workmanship including competitor's parts
- Competitive pricing
- ISO-9001 Certified-Houston, TX, & Connersville, IN



At the heart of your operations

Howden people live to improve our products and services and for over 160 years our world has revolved around our customers. This dedication means our air and gas handling equipment adds maximum value to your operations. We have innovation in our hearts and every day we focus on providing you with the best solutions for your vital operations.

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Howden

Revolving Around You™