GE Energy

Roots* Turbo Blower

Innovation that will blow you away

imagination at work

New generation technology from a company with a proven history

GE Energy provides innovative technology for air and gas handling solutions for industry. Since 1929, we have manufactured Roots centrifugal compressors; this deep experience enables us to offer technology-with low total cost of ownership and high performance integrity.

Today we are proud to apply that heritage to a turbo blower, with innovative air-foil bearing design and efficient high speed motor technology. Our new technology is proven in a power range of 600 kW (800HP) down to 22.5kW (30HP).

We performance test every package to ensure years of operational savings, low maintenance and total cost of ownership.

A Reputation for Dependable Performance

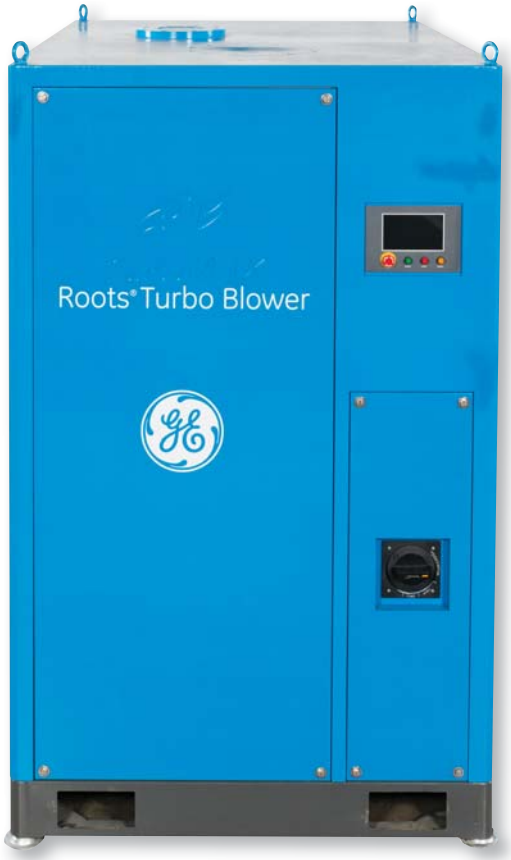
In 1854, the Roots brothers discovered the positive displacement blower technology. Since then, customers have depended on Roots technology for blower and compressor innovation and performance.

Efficiency and Reliable Operation

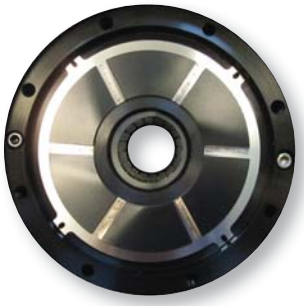
The Roots Turbo Blower is a fully integrated blower package that features three key technologies: a high speed, Permanent Magnet Synchronous Motor (PMSM), field-proven bump-type air foil bearing design and an integral air-end. The PMSM allows for high efficiency characteristics at design speeds and turndown speeds as compared to a traditional induction motor. The bump-type air foil bearing delivers added stability over the other leaf-type air foil bearings, and the aerodynamically designed air-end has been optimized for efficiency over a wide turndown.

GE Energy Delivers Reliability

- Fully integrated system air cooled up to 112.5kW (150HP) and closed loop liquid cooled from 600kW (800HP) to 150kW (200HP)
- Extensive factory cycle testing for proven reliability
- Rated for duty at 55°C (130°F) ambient air conditions
- Package noise containment to 75 dBA (free field) with virtually no package vibration
- Self contained package design allows easy installation
- Replacement air filter elements are the only regular maintenance items



Roots Turbo Blower - Innovation that



Field proven, bump type Air Foil Bearing

Featuring a next generation, bump-type air foil bearing design, the Roots Turbo blower delivers greater stability and load bearing capacity compared to leaf-type air foil bearings.

- Simple and proven design requires no lubrication or oil
- Non-contacting elements during normal operation
- Extensive factory cycle testing for proven reliability

Permanent Magnet Synchronous Motor

The Roots Turbo Blower features a PMSM that delivers greater efficiency through a wider turndown range.

- All packages are coupled with an integral Variable Frequency Drive (VFD) for controllability and system optimization
- Increased efficiency at off-design points compared to traditional equipment
- PMSM supplied with full product family, from 600kW (800HP) down to 22.5kW (30HP)

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Integral Drive Train

The turbo blower features an integral air-end to eliminate losses in the transfer of power from the PMSM to the air-end.

- Turndown capabilities from 100% to 40%, while holding constant pressure
- Backward-leaning blades increase efficiency and turndown capabilities of the package
- High surge margin and wide flow range allow for greater surge stability
- 5-Axis CNC-milled impeller originating from a single aluminum forging

Package Cooling

The Roots Turbo Blower features integral cooling systems: both air and liquid, to allow for greater heat dissipation and a more compact design.

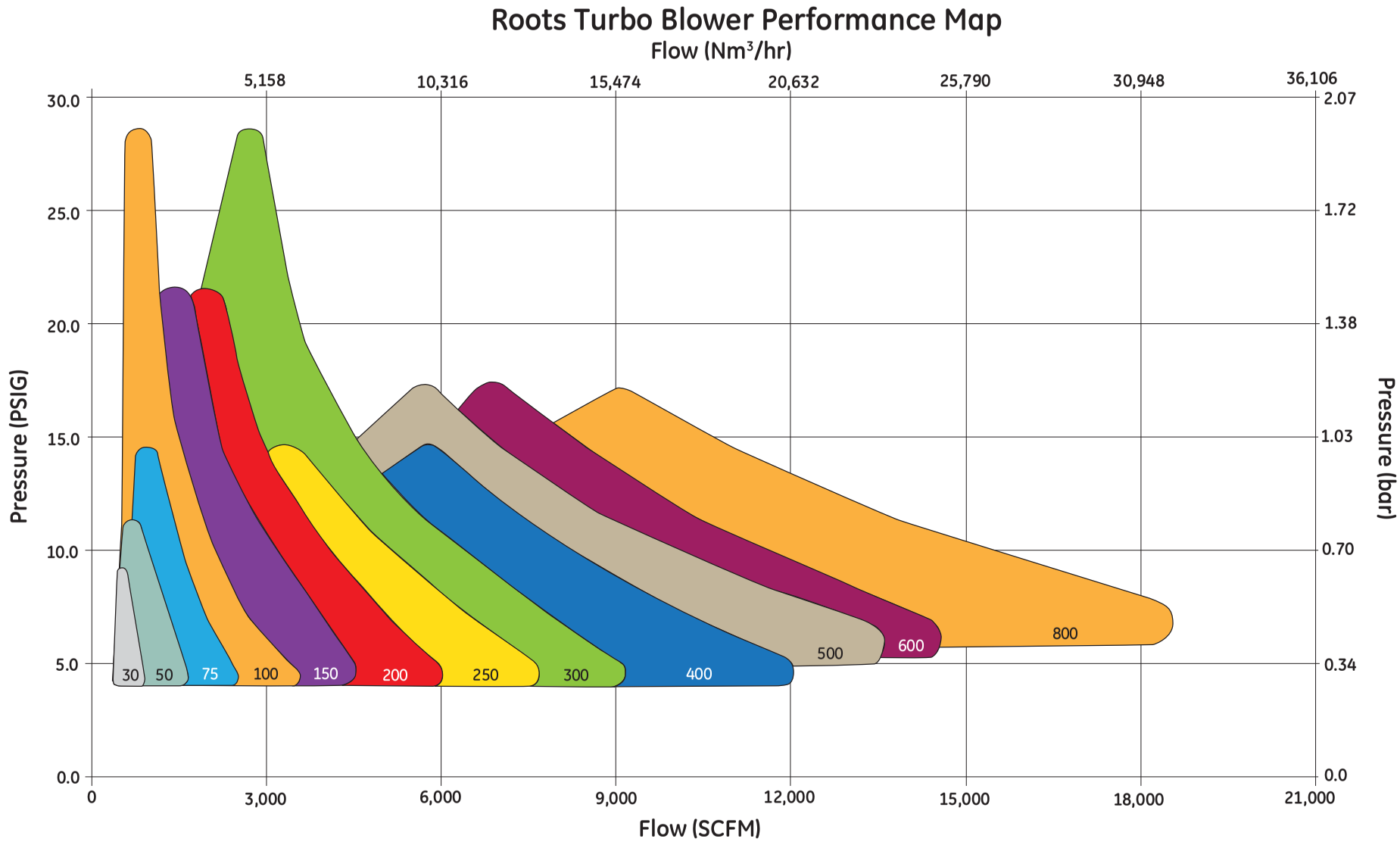
- Air cooling: 112.5kW (150HP) or lower
- Patented motor cooling fan, integral to the motor rotor, directs air over the motor stator and rotor cooling the unit
- Air and liquid cooling: 600kW (800HP) to 150kW (200HP)
- Patented motor cooling fan and self-circulating closed loop system that directs air and liquid through the motor stator and rotor cooling the unit

User Interface and Local Package Controller for Health Monitoring

The turbo blower package features a proprietary Human Machine Interface (HMI), containing package health monitoring and protection previsions.

- Supports MODBUS communications protocol and hard wiring for remote control and monitoring through a DCS or SCADA system
- Controls to protect against a surge event
- 16-bit micro-processor with select built in logging for data collection
- Built-in control modes of constant flow, power, speed and pressure or proportional mode

Performance Map



Dimensions

Frame Sizes	Weight lbs (kg)	BOV Flange in (mm)	Disch. Flange in (mm)	Width in (mm)	Length in (mm)	Height in (mm)
RH-030	551 (250)	4 (100)	6 (150)	29.5 (750)	41.3 (1050)	41.3 (1050)
RH-050	551 (250)	4 (100)	6 (150)	29.5 (750)	41.3 (1050)	41.3 (1050)
RH-075	915 (415)	5 (125)	8 (200)	33.5 (850)	47.2 (1200)	53.1 (1350)
RH-100	1213 (550)	5 (125)	8 (200)	33.5 (850)	51.2 (1300)	63.0 (1600)
RH-150	1653 (750)	5 (125)	10 (250)	33.5 (850)	70.9 (1800)	63.0 (1600)
RH-200	1984 (900)	5 (125)	12 (300)	35.4 (900)	72.8 (1850)	66.9 (1700)
RH-250	2425 (1100)	6 (150)	16 (400)	35.4 (900)	70.9 (1800)	80.7 (2050)
RH-300	2645 (1200)	6 (150)	16 (400)	49.2 (1250)	72.8 (1850)	78.7 (2000)
RH-400	2976 (1350)	6 (150)	16 (400)	49.2 (1250)	72.8 (1850)	78.7 (2000)
RH-500	6450 (2930)	(2) 6 (150)	(2) 16 (400)	47.2 (1200)	78.7 (2000)	78.7 (2000)
RH-600	7040 (3200)	(2) 6 (150)	(2) 16 (400)	72.8 (1850)	98.4 (2500)	86.6 (2200)
RH-800	7920 (3600)	(2) 6 (150)	(2) 16 (400)	75.6 (1920)	98.4 (2500)	86.6 (2200)

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