

**hibon**

# *Multistage Centrifugal Blowers*



**IR** **Ingersoll Rand**  
Industrial Technologies

# Multistage Centrifugal Blowers

In order to meet all the requirements for air and gas applications, Ingersoll Rand provides a new generation of Hibon Multistage Centrifugal Blowers: a complementary solution to rotary lobe blowers and turbo compressors for users of vacuum and low pressure systems.

With the addition of this new state-of-the-art technology, is a wide range of efficient solutions, all complying with the various operation requirements of each particular application. Multistage blowers are ideally suited for all operations where a variable flow at constant pressure is a definite requirement. The performance characteristics of these blowers generate a variable flow and power at a constant speed.

## **Operating Principle**

Blowers are dynamic radial compressors. They build up a pressure by accelerating the fluid in a set of impellers and then decelerating the fluid by means of long-radius and high-efficiency diffusers.

By activating a valve located on the suction side, Hibon blowers' special design allows for modulation of airflow while maintaining a constant pressure. The power consumption is thus in direct proportion to the required mass flow rate.

## **Benefits**

Ingersoll Rand offers the benefits of the proper equipment solution that is economical and quiet.

Hibon's flow versus pressure characteristic curve allows for a wide operating range down to 50% of flow rate, without surging.

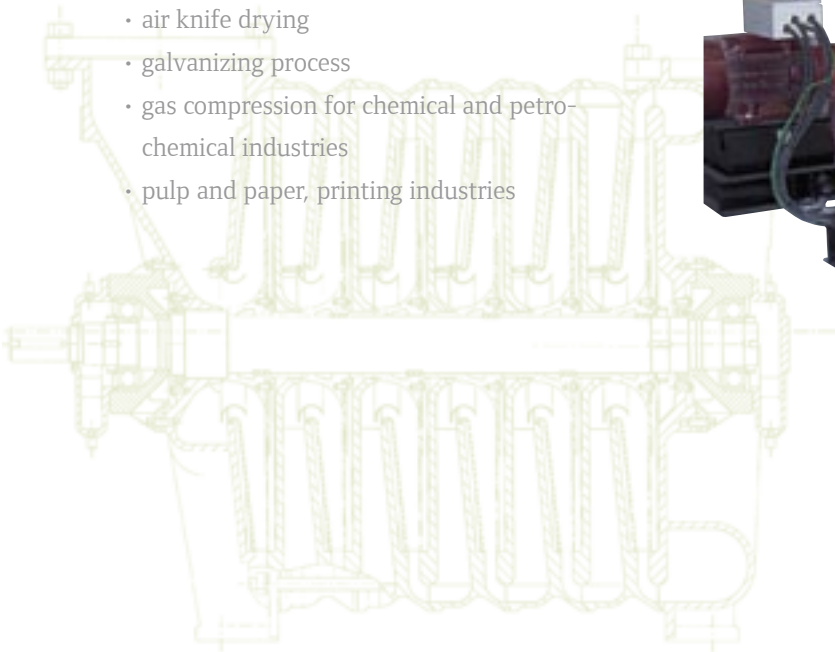
Ingersoll Rand's knowledgeable staff and our local manufacturers representatives are a valuable asset to every project.



# Applications

Designed to handle air or gas, Hibon blowers are used in the following applications:

- water treatment
- waste water treatment
- combustion air
- central vacuum cleaning
- fluidization and homogenization of silos
- liquids or baths aeration and agitation
- air knife drying
- galvanizing process
- gas compression for chemical and petro-chemical industries
- pulp and paper, printing industries





# Construction and benefits

Hibon blowers are fabricated using the most advanced processes, with digital control machining for the highest precision level. Each unit is tested and a report is issued showing vibration data.

## **Specific design features:**

- Blower inlet/outlet heads and intermediate sections are fabricated of cast iron ASTM A 48-30B (FGL 200) for an outstanding strength.
- Impellers are of cast or riveted aluminium alloy, depending on the flow characteristics required. They are statically and dynamically balanced for efficient operation without vibration.
- There are ample internal clearances, with no interference fitting surfaces, offering spark-free operation.
- Shaft is SAE 10-45 (XC 38) steel.
- Type C3 ball bearings are designed for 100,000 hours, AFBMA-B10 (NF ISO 281 LH10) service life. They are oil bath lubricated, by means of an advanced design factory preset lubricator, which assures a constant oil level for long service life.
- Bearing housings are fabricated of ASTM A 48-38B (FGL 200) cast iron, temperature-stabilized and precision-machined to ensure parallel alignment to the casing. Additionally, the housing is designed to prevent pressurization from the process air, thus eliminating any potential oil leaks.
- Carbon ring seals within the bearing housing reduce air leaks while improving compression efficiency.
- Compressed air/gas is guaranteed 100% oil free.

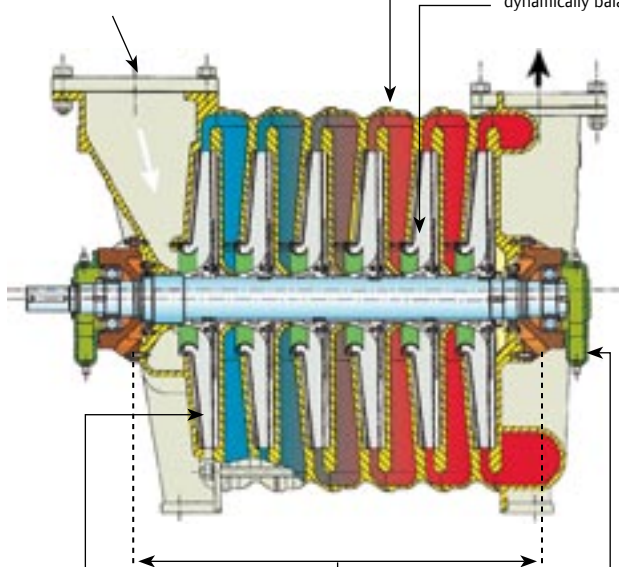
# Construction

High Efficiency  
Cast iron ASTM A 48-30B  
Large inlet guide vane on series 450 and above

High Efficiency  
Large turning radius of interstage channel

Low Vibration  
Cast aluminum or fabricated impellers statically and dynamically balanced

Long Life  
Constant level oiler



High Efficiency  
Optimized ratios of impellers vs. diffuser diameter

Low Vibration  
Minimum bearing span

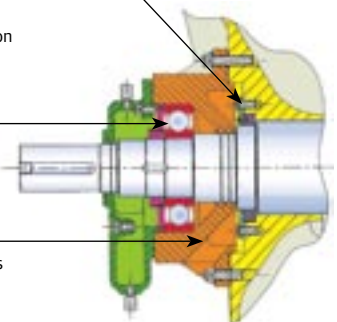
Long Life  
Non-pressurized outboard bearing housing (no oil leakage)



High Efficiency  
Carbon ring seals (double carbon ring with purge upon request)

Heavy Duty  
Ball-type bearings rated at 100,000 hours

Easy Maintenance  
Outboard housing bearings



# Multistage centrifugal blowers with variable speed V-CENTRIF

Eco Designs equals energy savings!

7 good reasons to choose a **V-CENTRIF** multistage blower

## 1. QUANTIFIABLE ENERGY SAVINGS

The new Ingersoll Rand HIBON V-CENTRIF model combined with the synchronous motor technology and variable speed drive will have significantly better efficiencies throughout the speed range

## 2. COMPACT INNOVATIVE DESIGN

## 3. REDUCED NOISE LEVELS WITHOUT ACCOUSTIC ENCLOSURE

## 4. INSTALLATION COSTS ARE REDUCED

Average weight is 30% less than a standard blower package

## 5. INCREASED RELIABILITY

- Direct driven without gearbox required
- No lateral tension on drive shaft
- Lower vibrations
- Less dissipated heat
- No radial load on the bearings
- Shorter, more compact package

## 6. LOW MAINTENANCE COSTS

- Proper alignment easier to achieve with just one flexible coupling
- Constant oil level
- No special maintenance required before 10 years of operation

## 7. FEWER ACCESSORIES REQUIRED

- Gearbox or sheaves/belts not required
- Inlet & Bypass valves not required



# Packaging Options

## Available Equipment Options:

- Corrosion-resistant coatings for casing and impeller.
- Variable Frequency Drive packages complete with Controls.

## Unit Assembly

Blower assembly is specifically designed to provide a compact and complete unit, with special attention to alignment of the motor/blower base assembly, for a vibration-free solution.

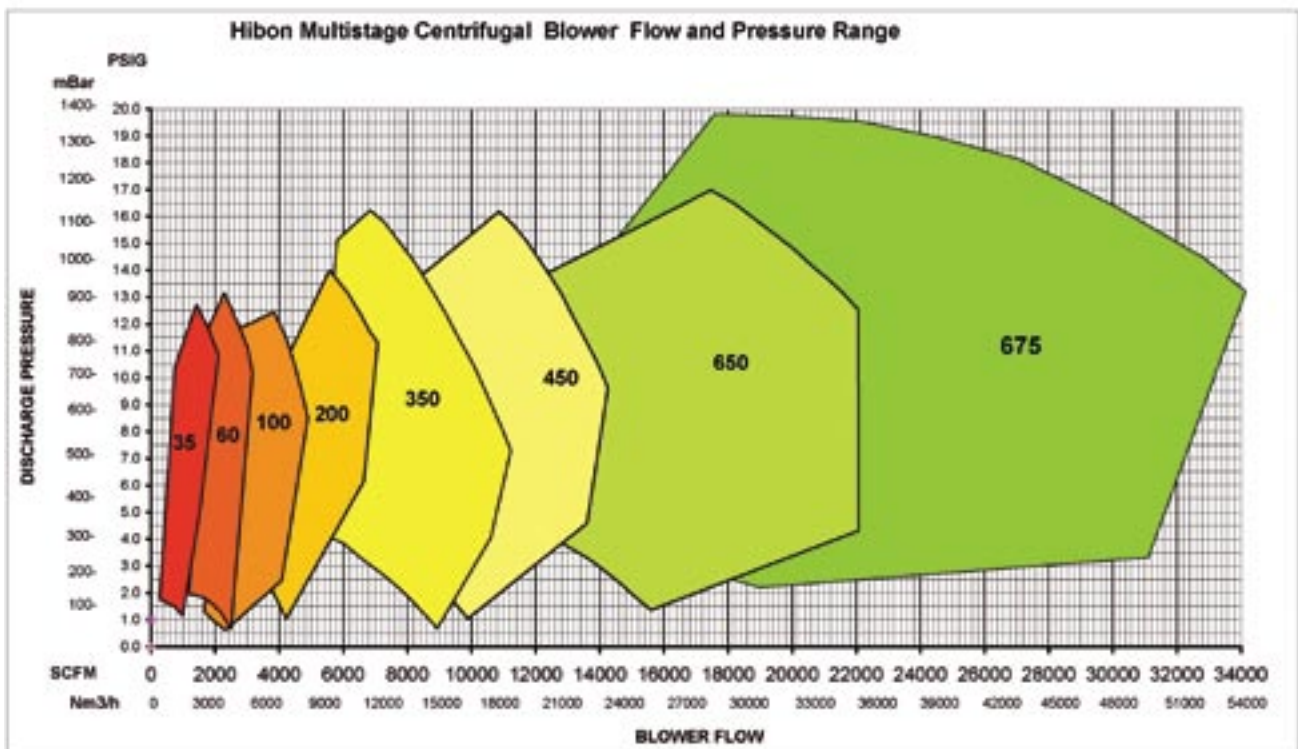
Many accessories are available to suit environmental and operating requirements, such as an inlet filter/silencer, a modulating inlet/discharge valve, flexible couplings, and check valves.

No special foundation or anchors are required for the unit, allowing it to advantageously replace any existing installation with a minimum of modifications.

## Range

Hibon blowers meet the most demanding industrial/municipal requirements for vibration, noise and efficiency. Hibon blowers can deliver 500 CFM to 25,000 CFM of dry/clean air without fluctuations, at pressures up to 20 psig (1.3 bar) and a vacuum up to 15 inches of mercury (500 mbar absolute).

## Multistage Centrifugal Blower Flow and Pressure Range





Ingersoll Rand Industrial Technologies provides products, services and solutions that enhance our customers' energy efficiency, productivity and operations. Our diverse and innovative products range from complete compressed air systems, tools and pumps to material and fluid handling systems and environmentally friendly microturbines. We also enhance productivity through solutions created by Club Car®, the global leader in golf and utility vehicles for businesses and individuals.

