

White Paper

**Gardner
Denver[®]**

How to Select a Blower: A Comprehensive Selection Guide from Gardner Denver



Purpose of this Guide

This guide is your one-stop shop when it comes to determining which Gardner Denver blower is correct for you. After reading this guide, you will have a better understanding of the types of blowers that Gardner Denver offers, what the differences are between these blowers, and which one fits your company's needs.

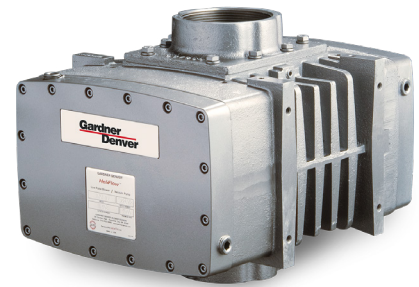


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What is a Blower?

A blower is a mechanical device designed to move air or gases with a moderate increase in pressure. Utilized across a myriad of applications, Gardner Denver blowers operate on the principle of positive displacement (PD) to efficiently transfer air or gases for various industrial processes. Unlike fans which deliver a high volume of air at a low pressure, blowers are capable of delivering similar volumes of air or gas at higher pressures, making them ideal for tasks requiring more forceful air movement, such as pneumatic conveying, wastewater treatment, and chemical processing.

Some of the most common industries that utilize positive displacement blowers include:

- [Oil & Gas](#)
- [Wastewater Treatment](#)
- [Chemical](#)
- [Conveying](#)
- [Cement](#)
- [Aquaculture](#)
- [Dairy](#)
- [Pulp & Paper](#)
- [Power Generation](#)
- [Dry Bulk](#)
- [Milling](#)
- [Plastics](#)

Environmental Impact

Gardner Denver's efficient blower designs contribute to reduced energy consumption while lowering the carbon footprint associated with their operation. Additionally, blowers used in wastewater treatment and biogas remediation applications play a crucial role in mitigating environmental pollutants, creating a positive effect on air and water quality. Selecting the right blower technology and maintaining it properly is essential to maximize environmental benefits for your organization.

Understanding Blower Technology

When selecting and working with blowers, it is crucial to understand the key terms used to describe their performance characteristics. Below is an explanation of some essential blower terminology:



Flow Rate: This refers to the volume of air or gas that a blower can move within a certain period. It is typically measured in cubic feet per minute (CFM) or cubic meters per hour (m³/h). Within the context of flow rates, it is important to distinguish between different measurement standards:

- **Actual Cubic Feet per Minute (ACFM):** This is the actual volume of air or gas drawn into the blower, measured at the inlet conditions of temperature and pressure.
- **Standard Cubic Feet per Minute (SCFM):** This denotes the volume of air or gas at standard conditions (usually 68°F and 1 atm pressure), which allows for better comparison between different systems or conditions.
- **Inlet Cubic Feet per Minute (ICFM):** This measures the volume of air or gas at the inlet conditions of the blower. Focusing on ICFM is useful because it accounts for the real-world conditions under which the blower operates, providing a more accurate representation of its capacity.

Pressure: The discharge pressure of a blower is a critical performance indicator, reflecting the increase in air or gas pressure it produces. It is often measured in pounds per square inch (PSI) but can also be expressed in other units such as bar, Pascal (Pa), or inches of water column (in H₂O). Gardner Denver blowers are typically used for low to medium pressure applications.

Efficiency: The efficiency of a blower is a measure of how effectively it converts input energy (usually electrical power) into air movement. Efficiency can be represented by:

- **Mechanical Efficiency:** The ratio of mechanical power output to mechanical power input.
- **Volumetric Efficiency:** The ratio of the actual capacity of the blower to its theoretical capacity, based on its dimensions and speed.
- **Energy Efficiency:** Often expressed as a percentage, this indicates how much of the electrical energy is converted into the desired output without wasteful heat generation or other losses.

Noise Levels: Blowers generate noise during operation, which is measured in decibels (dB). The noise level can be an important consideration in work environments when blowers are used in close proximity to areas with people present.



Types of Gardner Denver Blowers

Gardner Denver blowers are all positive displacement style blowers.

Positive displacement blowers discharge air out into a pipe or hose to move materials. Rotors spin and air is pulled into the inlet port, air is forced into areas between the rotors and casing which then is driven out the discharge port. The term “positive displacement” comes from the concept that the volume of air does not change within the blower but is displaced from inlet to discharge during operation.

Within the realm of PD blowers, Gardner Denver offers five varying technologies that all come with unique benefits.

Straight Bi-Lobe

- Employs two figure-eight rotors (or lobes) that rotate
- Gardner Denver straight bi-lobe blowers include the Sutorbilt Legend Blowers, Sutorbilt 4500/4800 Series, Sutorbilt 8000, and the Duroflow Series



Straight Tri-Lobe

- Utilizes straight rotors with three lobe design
- Lower sound volumes and lower pulsation compared to bi-lobe
- Gardner Denver straight tri-lobe blowers include the RBS Series, Triflow Series, and GD-DV blowers



Twisted Tri-Lobe

- Helical tri-lobe rotors provide smoother pulse operation to extend the life of the bearings
- Twisted tri-lobe technology is all about reducing pulsation and lowering noise for quieter, and more efficient operation when compared to straight lobe technology.
- Gardner Denver twisted tri-lobe blowers include the Heliflow Series



Helical Screw

- Helical rotors with unique screw design allow for superior energy savings
- Gardner Denver helical screw blowers include the Cycloblower Industrial Series, Cycloblower H.E. Series, and the Cycloblower VHX Series



Blower Packages

- Plug-and-play blower packages simplify installation and enclosures cut down on noise levels
- Gardner Denver takes the blowers featured in the previous four options and puts it in an easy-to-install package that can be customized and catered to your industrial needs.
- The Gardner Denver family of IQ Blower Packages at include Straight Bi-Lobe, Twisted Tri-Lobe, Straight Tri-Lobe, and Helical Screw options



How to choose the right blower for you

Before diving into the vast selection of blowers, it is important to thoroughly understand your application requirements. This involves a detailed analysis of the volume and type of material to be moved, the specific role of the blower within the process, and the desired outcome.

- **Determining Application Requirements:** Evaluate the primary function of the blower, whether it is for conveying materials, aeration, or a different process. Consider the properties of the medium being moved, such as its density and particulate size, which can significantly affect blower selection.
- **Evaluating Performance Metrics:** Quantify the necessary performance metrics, including minimum and maximum flow rates (CFM or m³/h), pressure requirements (PSI or other relevant units), and any cyclical variations in demand that the blower must accommodate.



Factors to Consider

When selecting a blower, several factors should influence your decision, ensuring that the equipment meets both the technical and practical needs of your application.

Performance Requirements: The blower must meet the specific flow rate and pressure requirements of your process. It is crucial to consider both peak and average demands to select a blower with adequate capacity.

Environmental Conditions: Temperature, humidity, and elevation can all impact blower performance. High-temperature environments or high-altitude locations may require blowers with specialized designs or a sizing adjustment to maintain performance levels.

Chemical Exposure: If the blower will be exposed to gases or harsh chemicals, the blower must be constructed from materials compatible with these substances to prevent corrosion and ensure longevity.

Space Constraints: The physical size of the blower and the available installation space be a factor for your available options. It can be especially important to select a compact yet efficient model if space is at a premium.




Energy Efficiency: Consider the operational costs associated with running the blower. Energy-efficient models can significantly reduce expenses over time and help in minimizing environmental impact.

Noise Levels: Blowers are a source of noise in the workplace. Select blowers with low-noise designs or consider additional noise control measures to maintain a safe and comfortable work environment.

Maintenance and Reliability: A blower's maintenance schedule and reliability are pivotal for continuous operation. Opt for blowers with proven durability and those that offer ease of maintenance to minimize downtime.

By carefully considering these aspects, you can ensure that the blower you select not only fits your immediate needs but also serves reliably and efficiently in the long run, providing a sustainable solution for your application.

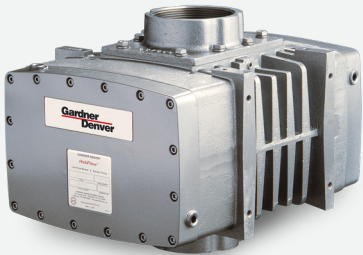
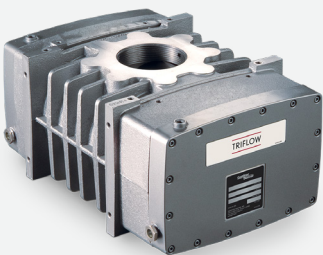


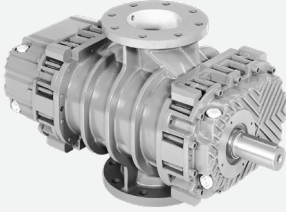
Gardner Denver Blower Packages Comparison

Package	Airflow	Pressure	Vacuum	Features
 <p>IQ Package</p>	Up to 1,500 cfm	Up to 15 psig	Up to 17 inHg	<p>Intelligent package engineered with innovation and quality</p> <p>Quiet design (as low as 60 dBA)</p> <p>AirSmart Controller</p>
 <p>IQ-RB Package</p>	Up to 5,500 cfm	Up to 15 psig	Up to 15 inHg	<p>Low pressure blower package</p> <p>Integrated RBS 15-165 tri-lobe blowers</p> <p>Low energy consuming electric motor</p> <p>Fixed speed operation</p>
 <p>GD IQ-HE</p>	Up to 5,625 cfm	Up to 36 psig	N/A	<p>Offers extended high-pressure range</p> <p>High efficiency package</p> <p>Reduce energy costs</p> <p>AirSmart G2 Controller</p>

Gardner Denver CycloBlower® Comparison

Name	Technology	Airflow	Pressure	Vacuum	Features
 <p>GD CycloBlower®</p>	Rotary Screw	Up to 6,700 cfm	Up to 20 psig	Up to 17 inHg; Wet up to 24 inHg	<p>Efficiency leader at high pressure</p> <p>Quiet, shock-free compression</p> <p>Clean air & gas delivery</p> <p>Higher pressure & vacuum performance</p>
 <p>GD CycloBlower® VHX Series</p>	Variable Helix Screw	Up to 775 cfm	Up to 20 psig	Up to 18 inHg	<p>Unique helix rotor design</p> <p>Up to 35% energy savings</p> <p>Market-leading turndown efficiency</p>
 <p>GD CycloBlower® H.E. Series</p>	Rotary Screw	Up to 6,200 cfm	Up to 36 psig	Up to 22 inHg	<p>Best-in-class energy efficiency</p> <p>Flexible options & installation</p>

Gardner Denver Industrial Blower Comparison

Name	Technology	Airflow	Pressure	Vacuum	Features
 <p>GD HeliFlow®</p>	Helical Tri-Lobe	Up to 4,500 cfm	Up to 18 psig	Up to 17 inHg	<p>Revolutionary PD blower design</p> <p>Reduced noise by 4-7 dBA</p> <p>Superior overhung load capacity</p>
 <p>GD TriFlow®</p>	Straight Tri-Lobe	Up to 700 cfm	N/A	Up to 16 inHg	<p>Designed for reduced noise and pulsation</p> <p>Advanced oil/air seals for reliable air delivery</p> <p>Heavy-duty design, reduced downtime</p>
 <p>GD DuroFlow®</p>	Straight Lobe	Up to 4,300 cfm	Up to 15 psig	Up to 16 inHg	<p>Designed for dusty, abrasive environments</p> <p>Advanced oil/air seals for reliable air delivery</p> <p>One piece roto/shaft allows increased durability</p>
 <p>GD-DV</p>	Straight Tri-Lobe	Up to 6,200 cfm	N/A	Up to 27 inHg	<p>Designed for dusty, abrasive environments</p> <p>Advanced oil/air seals for reliable air delivery</p> <p>One piece roto/shaft allows increased durability</p>
 <p>GD RBS</p>	Straight Tri-Lobe	Up to 14,570 cfm	Up to 15 psig	Up to 15 inHg	<p>Quiet, efficient operation</p> <p>Robust design boasts reliability</p> <p>Optional flange mount for unsurpassed versatility</p>

Gardner Denver Sutorbilt Comparison

Name	Technology	Airflow	Pressure	Vacuum
 <p>GD Sutorbilt Legend®</p>	Straight Bi-Lobe	Up to 3,000 cfm	Up to 15 psig	Up to 16 inHg
 <p>GD Sutorbilt 4500/4800 Series</p>	Straight Bi-Lobe	Up to 3,900 cfm	Up to 15 psig	Up to 16 inHg
 <p>GD Sutorbilt 8000 Series</p>	Straight Bi-Lobe	Up to 26,000 cfm	Up to 18 psig	Up to 16 inHg; Up to 26 inHg wet vac

Additional Resources

If you need any more additional information about Gardner Denver's PD blower and blower package options, the Gardner Denver website has a wealth of information for you. Whether it is data sheets, industry applications, or a wider array of information, click on any of these links find out more on each respective page of the Gardner Denver website.

Click the following link to access all of Gardner Denver's blowers:

[Gardner Denver Blowers](#)

Compare Blower Technologies using GD's Quickpik tool:

[QuickPik Web Tool](#)

Customer Support

We understand that picking the right blower for your business is a huge decision. Gardner Denver is committed to finding you a local distributor who can assist you to match you with the blower that you need.

Find a distributor in your area by using our [Distributor Search tool](#).

You can also [fill out a form here](#) to get in contact with one of Gardner Denver's knowledgeable customer service staff.

If you have an idea of what sort of Gardner Denver product is right for you, you can [Request a Quote](#) by clicking here.

About Gardner Denver

For more than a century and a half, Gardner Denver has been a trusted partner for the world's most demanding and ever-changing compressed air, pressure, and vacuum needs.

Equipped with the industry's widest product breadth, Gardner Denver is an expert in diverse applications. By choosing Gardner Denver, you are becoming a part of a legendary brand that has more products to address a wider range of applications than our competitors.

Gardner Denver is a leading provider of mission-critical flow control and compression equipment with associated aftermarket repair parts, maintenance consumables, and services, which it offers across multiple attractive end-markets within the industrial, energy and medical industries. Its broad and complete range of compressor, vacuum and blower products and services, along with its application

expertise and over 160 years of engineering heritage, allows Gardner Denver to provide differentiated product and service offerings for its customers' specific uses. Gardner Denver supports its customers with sales, service, and technical support through an extensive network of factory-trained and authorized local distributors.

The Gardner Denver brand grew from a small business located in Quincy, Illinois, USA, nestled on the banks of the Mississippi River, to a diversified corporation operating around the world. What has not changed, however, is how we do business. Gardner Denver has stood the test of time by having a clear vision and set of values that define our culture. Our vision is to be the industry's first choice for innovative and application critical flow control products, services, and solutions through an intense customer focus and disciplined performance culture.

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