

Variable Speed Rotary Screw Air Compressors 7 & 11 kW





Experience Proven Results[™]

Apex VS

Driving the market

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Since entering the variable speed market, Gardner Denver has helped a multitude of organizations realize the efficiencies that are produced by a variable speed compressor. During that time, Gardner Denver has proven to be at the forefront of the variable speed market. Our latest offering, the Apex VS, offers the efficiency and reliability that you demand delivered by a proven industrial design. The Apex VS is an investment in your organization's future that will pay off for years to come.

Effíciency

We designed the Apex VS keeping the dynamics of variable speed technology in mind. By taking this route, we have produced a package that maximizes the efficiencies of variable speed and produces market-leading energy savings. When it comes to small horsepower efficiencies, the Apex VS is at the top of the market.

Low Sound

With dba levels as low as 70, the Apex VS can be installed next to the point-of-use. In addition to lower overall installation costs, the low sound level results in a safer work environment—NO HEARING PROTECTION REQUIRED!



Hexibility

GARDNER DENVER

Apex

Variable speed technology gives you the flexibility to match air output to your operation's compressed air demands. The Apex VS brings even more flexibility thanks to receivermounting and mounted dryer options. Maximum flexibility allows you to customize a system that meets your compressed air needs while achieving minimal installation costs.

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Why variable speed?

Shop for air compressors and you'll quickly realize that variable speed units are more expensive than their fixed speed counterparts. Is the variable speed technology worth the extra investment for your organization? Unlike some compressor manufacturers, we aren't going to automatically tell you "yes." The answer depends on how your organization uses its compressed air system. Our goal is to build the right compressed air solution for your organization.

COST OF COMPRESSED AIR OVER 5 YEARS



Compressed Air Expense

Over time, the energy cost of compressed air greatly outweighs the initial purchase and service costs. The wrong air system is costly in the form of excess energy costs, maintenance costs, downtime, poor compressed air quality and an insufficient amount of air volume. Evaluating your needs and choosing the correct compressor is vital to both the initial financial impact at time of purchase and the long term efficiency of your organization.

PLANT AIR DEMAND OFTEN VARIES WIDELY OVER TIME



Plant Demand

Typically the compressed air demands of a plant fluctuate. A variable speed compressor will instantaneously react, resulting in stable plant pressure. By matching demand, the Apex VS ensures efficiency is maximized at all times.

Variable Speed

By matching output to demand, a variable speed compressor does not produce waste **ultimately saving money for your organization.** The right variable speed compressor in the right application delivers significant energy savings and a stable air supply. In fact, in the correct situation, the energy savings versus a fixed speed compressor can pay for the compressor in as little as 1–2 years.

Air Demand

Time

Efficiency

Delivering the lowest possible electrical cost



Full Load, Part Load, No Load

Upper Range -

PART LOAD EFFICIENCY GAINS IMPORTANCE

At full load in the upper flow range (green area in graph at above), top performing base load-modulating compressors are typically better performers (curve 3). As air-flow decreases, the other compressor types become more energy efficient (curves 1 and 2.)



Middle Range -

VS TAKES CHARGE

In the middle range (blue area), the VS compressor shows significant energy savings compared to the other compressor types. At about 75% of a compressor's full load flow, the VS compressor is 5–15% more efficient, and the advantage increases as flow decreases.

Lower Range -

VS IS FAR SUPERIOR

In the lower range (yellow area), the VS compressor savings become even greater. A variable speed compressor handling a second shift that uses only 40% of the air requirements of the first shift is just one of many ideal applications for a VS compressor.

Turndown

What is Turndown?

Turndown is the flexibility of a variable speed machine to decrease airflow and power consumption as demand decreases.

Why is Turndown Important?

A smaller turndown range decreases energy savings potential, increases the size and number of pressure swings, and in some cases results in compressor short cycling.

Benefit

With the largest turndown range in the industry, the Apex VS assures optimal energy savings and consistent pressure delivery.

Communication maximizes efficiency



Communication is Key

Just like in a world-class business, communication is key when it comes to world-class variable speed air compressors. There are four main components of the compressor that have to work in perfect balance with each other to maximize efficiency—the controller, the variable frequency drive, the main drive motor and the airend.

MICROPROCESSOR CONTROLLER

The AirSmart controller was designed to make the operator interface with the VFD transparent. Thanks to the operator-friendly interface, communicating with the AirSmart couldn't be easier. Although simple to use, the AirSmart is capable of receiving, interpreting and reacting to hundreds of signals at once—best maximizing the efficiency of the package.

VARIABLE FREQUENCY DRIVE

The variable frequency drive (VFD) is what distinguishes a variable speed machine from a fixed speed machine. Working in harmony with the AirSmart, the VFD adjusts the power frequency which, in return, produces intelligent motor control—efficiently matching package output to real time plant demand.

MAIN DRIVE MOTOR

Based on the direction of the VFD, the performance of the motor is enhanced as the motor quickly adjusts to the correct speed needed to match demand. The VFD and drive motor are in constant communication with the AirSmart, providing real-time diagnostics. This constant communication ensures that the Apex VS will always be providing the precise amount of compressed air needed to match the application.

AIREND

Wrapping up this communication chain is the airend. Driven by the motor, the airend efficiently meets the compressed air demands of the application thanks to the optimized profiles of the Enduro E3+ rotors.



Quality Components

Leading the industry

The Apex VS comes packed with all the features. From the easy-to-use AirSmart controller to the stainless steel braided hoses, the Apex VS is the leader when it comes to features in the small horsepower range.

INDUSTRIAL ENCLOSURE

Thick 16 gauge steel sheet metal and sound dampening foam ensures a sturdy, quiet enclosure. This allows the Apex VS to be installed near the point of use, meaning lower installation costs. Cooling air is discharged from the top of the enclosure, providing flexible installation options.

AIRSMART[™] CONTROLLER

The AirSmart[™] microprocessor controller is built on the foundation of being easy-to-use. Maintenance downtime is minimized due to the diagnostic feedback given to the user by the controller. The NEMA 4 design of the control panel means the AirSmart is impervious to outside contaminants making it the most durable controller in the industry.

- Automatic start/stop operation
- Communication & sequencing available

OIL RESERVOIR

The cyclonic action within the oil reservoir effectively separates the air/oil mixture and ensures minimal oil carryover. An integrated oil level sight gauge and an easy-to-use ball valve drain make it easy to maintain your compressor lubricant.

OIL/AIR COOLER

With this design, more heat is dissipated from the oil and air. The direct result is longer lubricant life and higher quality compressed air.

TEFC HIGH EFFICIENCY MOTOR

The Apex VS comes equipped with a TEFC motor which features a cast iron enclosure rated IP55 to handle dirty environments. Each motor includes a standard five-year warranty.

ENDURO AIREND

Durable – The industrial-grade Enduro E3+ includes a cast iron housing and radial/axial load bearings that result in a long lifespan.

Efficient – The optimized rotor profile and lobe combination results in minimal air leakage. More air is compressed using less power.

STAINLESS STEEL HOSES

Unlike most competitive units that feature lower-grade hoses in an effort to cut costs, the oil and air lines on the Apex VS have stainless steel over braiding that ensures a long life without fractures or leaks.

VARIABLE FREQUENCY DRIVE

Allen-Bradley designed and manufactured, the VFD featured on the Apex VS includes an integrated EMC filter and internal DC choke. Instead of having these features as add-ons, the Apex VS offers them as standard features to provide additional protection from power fluctuations. This VFD allows the Apex VS to have the largest turndown range in the industry—resulting in optimal energy savings and consistent pressure delivery.

The Apex VS— the Peak of Quality!

















EASE OF MAINTENANCE

Realizing that an organization is disrupted when a compressor goes off-line for maintenance, the Apex VS has been designed so all routine maintenance can be accomplished in as little as 15 minutes, with no specialized tools needed.

- AirSmart controller informs user when service is due and constantly displays all the vital compressor information
- Enclosure panels can be removed with a half turn of a few twist locks
- Layout of the internal package results in easy access to all major components
- Oil sampling port and oil sight gauge allow the user to quickly monitor level and quality of lubricant in the system
- Ball valves on the reservoir and cooler mean easy oil drainage
- Easy spin-on/spin-off oil filter and separator
- Easily accessible, 99.9% at five micron two-stage cyclonic inlet air filter
- Adjustable belt-tensioning ensures maximum belt life

Apex VS Total System

Complete & Compact

Apex VS Total System will save you both time and space. By utilizing the air receiver as a base for the compressor and dryer, the Apex Total System provides a compressed air system in a space-saving design. The Apex VS Total System is a plug-and-play system which ensures your operation is up and running with minimal installation time and cost.



AIR RECEIVER

Available in 80, 120 and 240 gallon sizes, the optional air receivers help ensure that the proper volume of air is available when you need it.

FORK LIFT SLOTS

Installation and relocations of the unit are made easy by the integrated fork lift slots.

ZERO LOSS AIR DRAIN

Included **standard** on each Apex Total System, the float-type zero air loss drain ensures that no amount of compressed air is wasted as moisture is removed from the system.

THREE-WAY BYPASS

Allows for the compressor to continue operating while the dryer is being maintained. This bypass comes standard on all Apex Total Systems.

STAINLESS STEEL PIPING

Corrosion-resistant stainless steel air supply piping minimizes the chance of costly leaks.



RNC REFRIGERATED DRYER

Quality of the dryer has not been sacrificed in order to fit into a smaller footprint!

The flexibility engineered into each GD dryer allows you to achieve the air quality level that you require.

- Dryer sized for pressure dew point of 38° F at 100 psig
- Easy-to-monitor control scheme with on/off control switch and dew point indicator
- Quality heat exchangers that ensure value and efficiency (RNC 10 & 15 models static condenser technology which eliminates the need for a cooling fan)
- Extended eight-foot power cord offers flexibility during installation
- Easy access to service points translates into reduced maintenance costs
- Operates using environmentally friendly refrigerant
- Optional cold coalescing oil removal filter. Oil droplets and aerosols are extracted from the air stream, improving the quality to 0.008 ppm w/w and solids are diminished to 0.01 micron
- Integrated grade-B filter for additional moisture removal comes standard with the unit



Designing The Right System

Let Gardner Denver take control

Gardner Denver's extensive distributor network is highly trained in the best practices associated with developing a reliable and efficient compressed air system. One-stop shopping with your Gardner Denver distributor assures that all components of your system are compatible and backed by on-going customer support.



COMPRESSORS

The heart of the compressed air system is the air compressor. The type, size and number of compressors depend on the needs of the application. However, all compressors have the same general function: use energy to compress atmospheric air that can then be used to power processes and equipment.

PIPING

Properly sized, designed and installed piping is critical to system performance. Piping should be designed for minimum pressure drop at maximum flow conditions. Gardner Denver features the Quick-Lock and Big-Lock lines of compressed air tubing. In addition to corrosion-resistant aluminum piping, these lines also feature nickel-plated brass fittings that come with a 10 year leak-free guarantee.

STORAGE

Compressed air system storage is important to the overall performance of the compressed air system. Storage should take into account normal operating conditions and any large demand events. Air audits are a critical tool for the proper sizing of your system storage.

FILTRATION AND SEPARATION

Filters are used to improve the quality of compressed air in your system. Filters are used to remove solid particulate, liquid (both water and oil), aerosols and vapors. Sizing and design of filters are important to system performance and longevity of downstream equipment and processes.

AIR DRYERS

Air dryers are used to improve the quality of air in the system. The quality of air required is typically dependent on the down-stream processes and equipment.

Refrigerated air dryers remove moisture from the system by cooling the compressed air. Condensate forms as the air is cooled and the moisture is removed from the system.

Desiccant air dryers remove moisture from the air via the absorption process. Typically, a media is used to absorb moisture in compressed air.

CONDENSATE MANAGEMENT

One by-product of the air compression process is condensation. Often the water from a compressed air system will contain oil and other contaminates. The condensate management system will aid in separating the water from the other contaminates so water may be discharged down the drain while the contaminates are dealt with appropriately.

FLOW CONTROL

Flow control valves provide physical separation of the supply and demand portions of the system. Distribution pressure is held tightly at target, regardless of compressor control band, thus eliminating excess waste in leakage and artificial demand. The flow control also manages the release of potential energy in receivers to enhance system stability. For more information on these compressed air system components, contact your local distributor or visit: http://www.gardnerdenverproducts.com/compressors/



DRAINS

Drains are used to remove liquids from filters, dryers, receivers, piping and compressors. Liquid removal is important to system performance as well as downstream equipment and processes.

POINT-OF-USE EQUIPMENT

Point-of-use solutions are available for special processes and downstream equipment that have unique requirements. These include compressors, dryers, filters, drains, regulators and lubricators.

SYSTEM CONTROLLERS AND SEQUENCERS

For more complex, multi-compressor systems, system controllers and sequencers may be desirable. In addition to giving the user the ability to link multiple machines, system controllers may also add data logging capabilities, remote monitoring and logic to optimize the compressed air system. Sequencers bring machines on and off line to most efficiently match compressed air supply to the demand of the process.

REMOTE MONITORING

Remote monitoring systems allow a machine to be observed from a remote location by the air compressor owner, the distributor or even the factory. By providing system performance data to the observer, a remote monitoring system ensures that the efficiency and lifespan of the compressed air system is maximized.

Keeping the System Healthy

Just as vital as setting up the correct compressed air system is keeping that investment well maintained. By using Gardner Denver approved lubricants, filters and accessories, you can make sure the health of your system is maximized.

AEON Compressor Lubricants

It is a well known fact that a compressor's lubricant is its lifeblood. So why jeopardize the efficiencies and longevity of your compressor to just any "oil"? AEON lubricants are specifically formulated to combat the harsh elements of compression while maximizing efficiencies and equipment longevity.





www.GardnerDenverProducts.com

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