

SAV SERIES

Variable Displacement
Rotary Screw Compressors



ELECTRA-SAVER
Variable Displacement Technology

Gardner
Denver



The Gardner Denver Way ——DELIVER

Differentiate
Evolve
Listen
Innovate
Velocity
Execute
Results

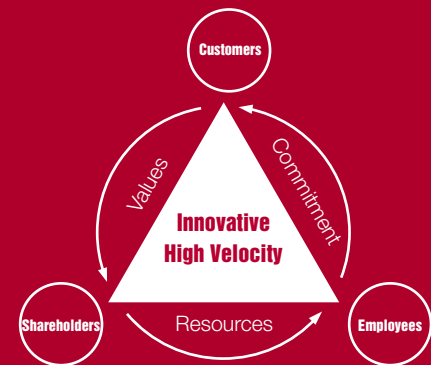
Gardner Founded in 1859 and headquartered in Milwaukee, Wisconsin, Gardner Denver is a leading global supplier of fluid transferring equipment. It produces industrial air compressors, liquid ring pumps, blowers as well as reciprocating pumps, water injection systems, loading arm, etc. for the production of petroleum and natural gas, oil well maintenance and drilling.

Adhering to the principle of providing high-quality products, we have supplied products for many end markets and our products have been applied widely. We have become one of the first choices of high-end customers and governments. Our business as well as offices, branches and subsidiaries are located across the world. We have 40 manufacturing plants in the world and the sales of all markets, excluding the US, account for 67% of the turnover. Our key products rank the top among the global industry.

Gardner Denver had been listed in American Stock Exchange. It is one of the world's top 1000 Enterprises. The FORTUNE ranked it at 69th place among the top 100 enterprises with fastest growth.

Our mission is to satisfy our customers, shareholders and staff with continuous improvement of business processes, innovation and speed, provide services in line with the highest ethical standards and become the leader of every market segment in the industry.

Gardner Denver insists on providing good services and innovative products and pursues sustainable development on the basis of lean operation and selective acquisition.



Gardner Denver's Mission Statement

We provide a safe and clean working environment for our partners, encourage individuals and teams to achieve outstanding performance, and promote respect and integrity.

For our customers, we deliver high-quality products and services on time and at competitive prices

For our suppliers, we keep long-term mutual benefit and cooperation to ensure mutual sustainable development.

For the service communities, we ensure a clean environment and better life quality.

We always follow the highest ethical standards.

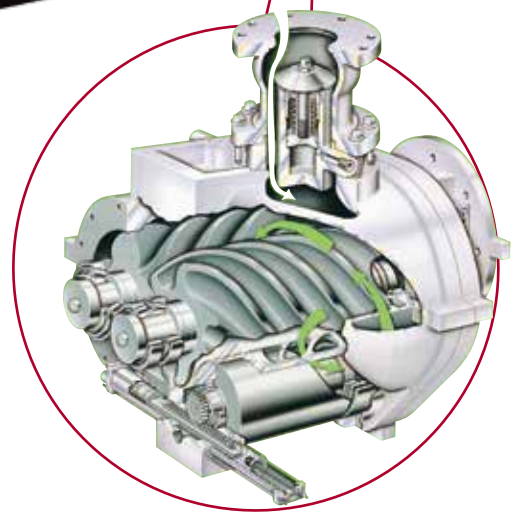


- One of world's Top 1000 Enterprises
- Ranked 69th place among the top 100 enterprises with fastest growth by FORTUNE
- Ranked 26th place among the best 100 medium-sized enterprises by FORBES



SAV SERIES

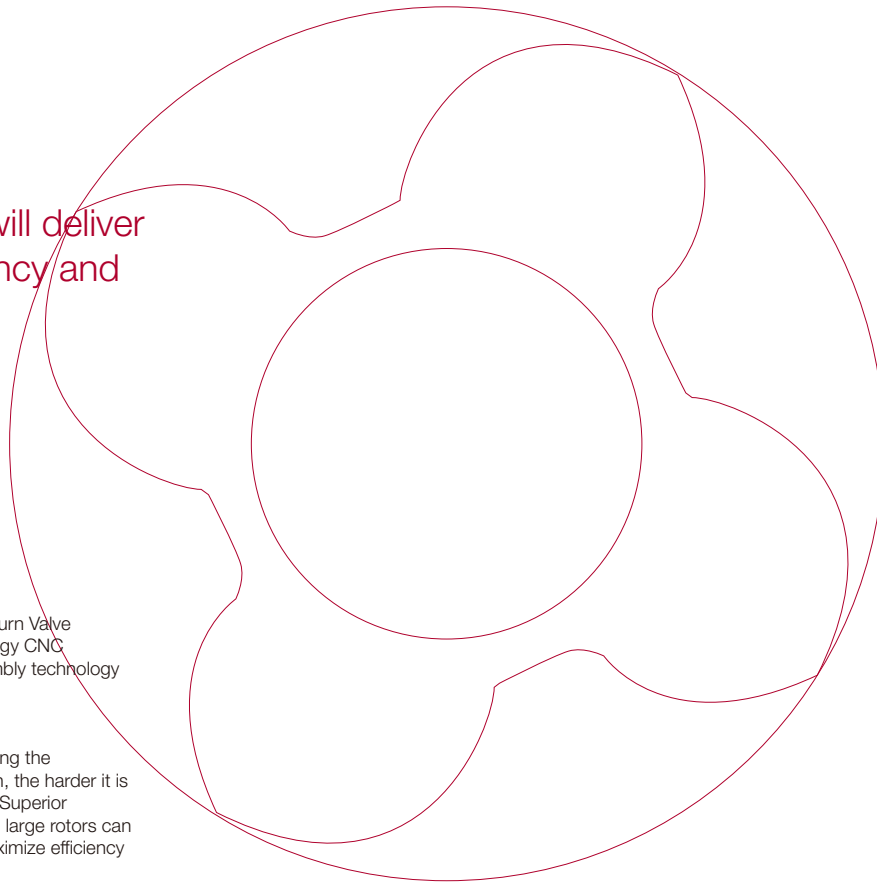
SAV series is directly driven with big diameter and low speed rotor and combination with the world's leading patented turn valve energy-saving technologies. Make sure of incomparable high operation efficiency and high stability.



ELECTRA-SAVER
Variable Displacement Technology

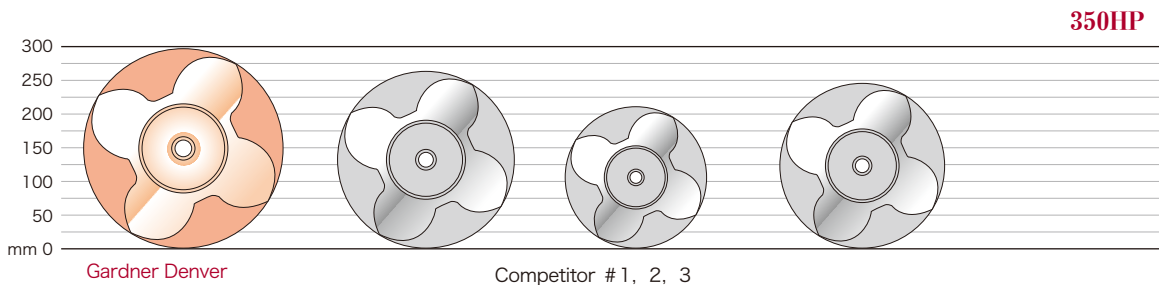
Bigger size. Low speed Airend

A large, slow rotating air end will deliver much greater operation efficiency and Longer service life



- Patented Kypho™ profile rotors, coupled with patented turn Valve technology are precision machined on advanced technology CNC machining centers and with combination advanced assembly technology for unrivaled performance
- Reduced Air flow Back
At high speeds, more air leaks back across the rotors during the compression process, Simply put the faster the rotors turn, the harder it is for the rotors to trap and hold the air as it is compressed. Superior machining of the rotors cannot offset this advantage since large rotors can be machined to the same tolerances as small ones to maximize efficiency minimize speed!
- Reduced Lubricant Drag
In an air end, the rotors have to “cut through” heat reducing lubricant , And the fact is, less drag on the rotors occurs at slower speeds. In addition, lubricant is injected into the compression chamber at precise location to minimize viscous drag and maximize the cooling effect, Every area of the compressor is designed to maximize energy efficiency.
- Smaller leakage Areas
Through this sounds technical, it is quite simple. The areas between the rotors and the rotor housing are leakage areas where air can escape and reduce efficiency. As rotor size increase, these leakage area become a smaller percentage of air output.
- Large ,Durable,Super-Sized Bearing
Of course, a large rotor weighs more than a small rotor, so you would expect it to have a large bearing. The key is that large rotors provide more than ample area to “super size” the bearing if desired. That’s why for years. Gardner Denver has been one of the few manufacturers to put bearing life numbers in our literature. When you super-size this critical component, you’re proud to say you design for minimum L10 life of 100,000 hours

Rotor Size Comparison



Advanced design Stability, High efficiency and reliable performance

1

Airend and motor shaft are coupled through a permanently aligned, resilient cushion-type flexible coupling

- Reduced maintenance costs & greater reliability.
- Lower noise levels.

2

Larger flow and heavy duty inlet air filter

Removes 99.9% of airborne particles five microns and larger. Extending lubricant life.

3

High Efficient Two-stageair/oilseparator

New generation of the Two-Stage AIR / OILSEPARATOR has twice the separation area compared with the traditional separators. The Lowest oil carry-over in the industry-less than 1ppm, measured BEFORE the after-cooler, at 100 PSIG (6.9 bar), full load operation.

Lower pressure loss by comparison with traditional separation designs. Unique pre-separating reservoir design

4

Stainless steel control lines

Oil cycle pipe with Flange connection and O ring seal, SS control tube, No corrosion and leakage, More Reliable

5

Moisture separator and trap

Standard equip with moisture separator that can auto drain the water, Reducing the purification load for downstream facilities. then improving the air system efficiency

6

NEMA Standard Motor

D-flange mounted to Wye-Delta EPAAct "energy efficient" drive motor-380 or 415 volt, 3 phase, 50Hz, 1500RPM, Option 6kv/10kv

7

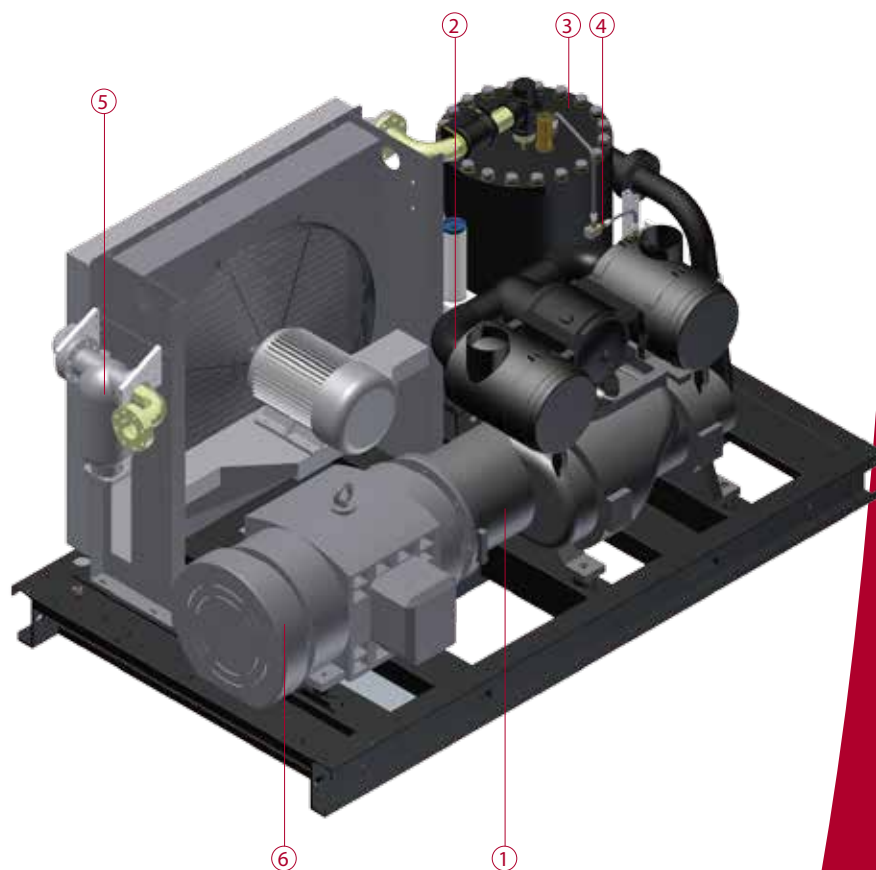
Pre-filled advanced synthetic lubricant

The service life is 4 times as large as the mineral oil. Long oil change period

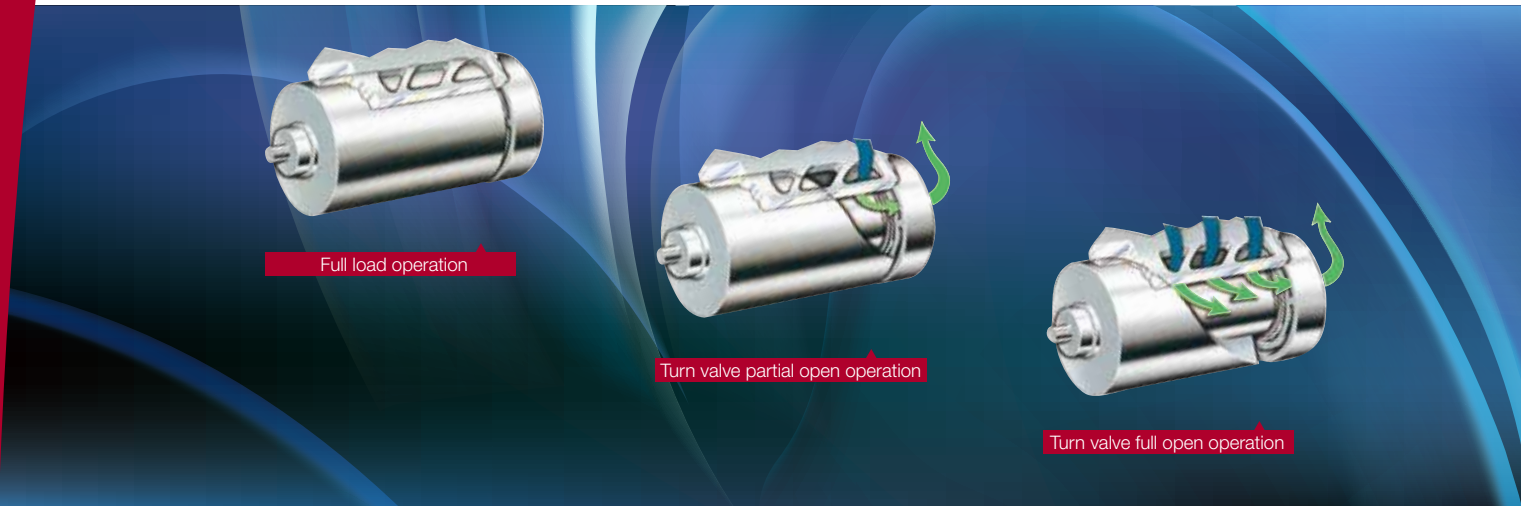
The oil sample valve design make it easy to regularly analysis and inspect the oil, then acquire the best running costs.

Unitized airend/motor assembly mounted to the compressor base with all angle elastomer vibration isolators

High quality lubricating oil can run for a long time in high temperature

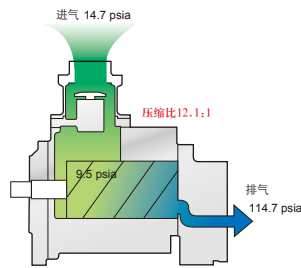


The world's leading patented turn valve energy saving technology



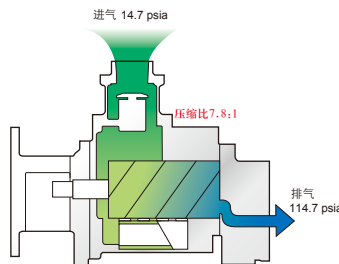
Patented turn valve technology is the most efficient flow control system in industry when system is in partial load

The TurnValve compare with inlet valve
(65%Volume , 100psia output)



The Truth About Throttled Inlets

The partially closed inlet valve does reduce the flow of air to the compressor, but the restriction creates a vacuum at the inlet that also reduce the inlet pressure .At 65% capacity ,the compressor now operates at a compressing ratio of 12.1:1 (114.7psig/9.5psig) to maintain a constant 100 psig discharge pressure. Power reduction gained through the decreased flow is largely cancelled by the increase in power requirement due to the 55% increase in compression ratio. As a result this compressor required approximately 91% of full load capacity horsepower to produce 65% of full load capacity.



The Truth

Unlike the throttled inlet system, the TurnValve controls does not restrict the inlet of the compressor, The volume of air compressed is reduced as the TurnValve progressively opens a succession of windows in the compression chamber to maintain a constant discharge pressure .Unneeded air is recirculated to the inlet before compression begins , As a result ,the pressure at the inlet remains constant at 14.7psig resulting in a constant compression ratio 7.8:1. The TurnValve rotary screw compressor only required 75% of full load power to meet a demand of 65% full load capacity. Turn valve load efficiency defined.

Working Principle

When full capacity is required, the TurnValve is positioned such that the windows are "closed", resulting in maximum volume output of the air end.

When load is between 40%-100%, upon detection of decreasing system air demand (rising pressure), the TurnValve is rotated into a position where windows until system air pressure has stabilized. Trapped volumes of air are allowed to circulate back to the inlet without being compressed, resulting in only the required amount of air being compressed to meet system demands. The effective length of the rotor is shortened resulting in variable displacement operating allowing power use to drop, thus saving energy.

When load is between 0 and 40%, the turn valve is fully open, meanwhile it is combination with the blow down technology, also inlet valve is on the modulation status that will keep the machine running low energy consumption.

in a machine rated power 300Hp for example, Assuming that the customer has the 3 class operation model.

Class 1: Operating 9 Hrs per day, Average air flow 42 m³/min

Class 2: Operating 9 Hrs per day, Average air flow 36 m³/min

Class 3: Operating 6 Hrs per day, Average air flow 28 m³/min

According to the partial load volume and power curve, Can calculate the air demand for energy consumption. considering of work hours, electric cost, motor efficiency and work days. then can conclude the total cost per year:

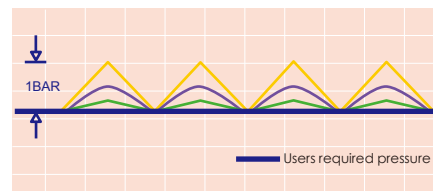
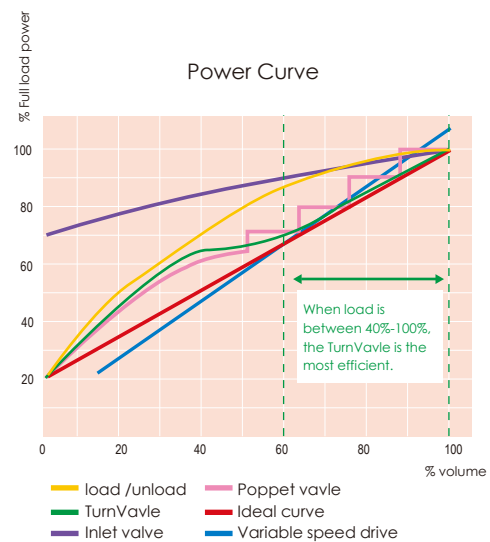
Inlet valve modulation	RMB 1,047,450
With poppet vavle	RMB 984,666
With load /unload valve and air receiver	RMB 1,017,384
With TurnVavle	RMB 950,953

Strong pressure steady function

Automatic accurate adjust compressed air flow to maintain the system pressure steady. Improve product quality and achieve energy saving

Flexible application

SAV Series with AirSmart™ control system will provide more options to customer. According to the actual demand to use the turn valve or load/Unload model.



- Standard load / unload control 1 bar
- Intake air control 0.5 bar
- TurnVavle 0.1 bar

AirSmart™ Controller Features

The AirSmart™ Controller was designed specifically for use in the Gardner Denver Global Line of variable speed, rotary screw air compressors. The AirSmart™ Controller is also capable of controlling fixed speed air compressors which use traditional motor starters. The microprocessor-based unit can control up to three Variable Frequency motor Drives (VFDs) while monitoring all necessary temperature and pressure points within the compressor in order to safely operate the machine and satisfy user air demand. The Control Panel displays a comprehensive overview of the compressor status and allows easy access to operational parameters such as pressure set points, alarm set points and language selection.

- Microprocessor controlled
- Low voltage 24 VDC operation
- Supports up to three VFDs via Modbus link
- Compressor air regulation via PID control
- Can control variable speed or fixed speed compressors.
- Intelligent limiting for operation in extreme environmental conditions
- Feature rich error handling for safe machine operation
- Expandable to meet the I/O needs of large compressor packages
- Up to five pressure transducer inputs
- Up to five temperature transducer inputs
- Up to three discrete inputs for user control
- Up to two discrete outputs for user status
- Sequence capability for control of up to eight compressors (w/ opt. Communications Module)

- RS-232 Serial communications for local monitoring (w/ opt. Communication Module)
- Ethernet communications for remote monitoring (w/ opt. Communications Module)

- 4 x 20 Character LCD display with LED back lighting is easy to read in all lighting conditions.
- 9 Buttons for easy compressor control and menu navigation
- 4 status LEDs for “at-a-glance” compressor status
- Password protection of setup parameter menus
- Multiple language support



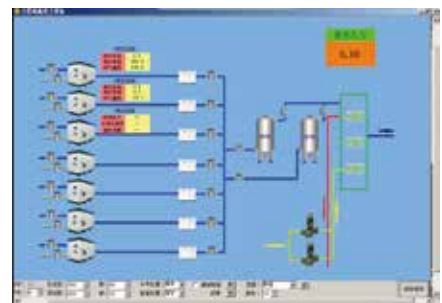
CMS2000 Quality monitoring system

Data acquisition terminal takes use of the wireless public network GPRS/CDMA to keep communication, data acquisition, remote control. then achieve to keep remote monitoring of air compressor control module data



Compressor station local monitoring and managing

- Provide standard executable software that can be achieved on the PC monitor.
Without any network, the software interface reference industrial control software, satisfies the customer the use habit
- Terminal built-in 4.3" LCD touch screen, Timely display system state and the operation parameter of the compressor. Also can achieve System module configuration, like as sequences function etc.



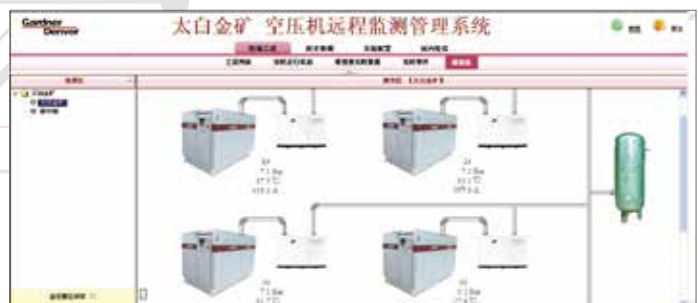
Based on the man-machine interface of the network

- To monitor multiple clients at the same time many sets of compressor
- Simulation field operation plate of real-time rendering
- No need to buy expensive configuration software
Multiple password protection to ensure data security



Real-time information transmission

- E-mail, Mobile phone messages, audible and visual alarm at the scene
- The user can set alarm value field additional auxiliary equipment
- Alarm function upgrade



Focus On Customers, Better Service

➔ Excellent product quality

- The design and production of all products are strictly implement the international ISO9001 quality standards and high standards set by the GD group
- All products are fully tested to ensure that the products in the harsh operation environment always maintain the best performance
- Compressor internal system reasonable layout and convenient maintenance can let service personnel easy access to maintenance components, then reduce the maintenance cost

➔ Reliable service guarantee

GD has a professional after-sales service team and also established a strict perfect service execution system

- All of the service technicians have been strict accepted GD system training
- Commitment to provide timely localization of professional technical consulting and quick service
- Aired with lifelong service, ensure the supply of spare parts
- Create the service kits and draft maintenance schedule thus can save customer maintenance costs
- Regularly visit customers, provide customers with a full range of system diagnosis and prevention of failure, Through Data collection and analysis then provide professional advice of the the whole air system to customer .

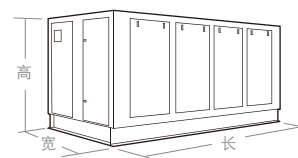


If you want to know more, pls. call us:

400-820-2995

Technical data

Model	Power		Work Pressure bar	Biggest Pressure bar	F.A.D m ³ /min	Size mm			Weight kg	Connect Size
	HP	kW				L	W	H		
SAV-250	250	187	7.0	7.5	35.9	3150	1829	1880	3884	DN80
			8.0	8.5	30.1					
			10.0	10.5	29.1					
SAV-300	300	224	7.0	7.5	43.3	3150	1829	1880	3931	DN80
			8.0	8.5	37.3					
			10.0	10.5	35.1					
SAV-350	350	262	7.0	7.5	46.0	3150	1829	1880	4875	DN80
			8.0	8.5	43.0					
			10.0	10.5	37.0					
SAV-400	400	298	7.0	7.5	59.5	3750	2180	2050	7600	DN100
			8.0	8.5	54.6					
			10.0	10.5	40.7					
SAV-450	450	335	7.0	7.5	64.1	3750	2180	2050	7800	DN100
			8.0	8.5	61.0					
			10.0	10.5	50.2					
SAV-500	500	372	7.0	7.5	70.8	3750	2180	2050	8000	DN100
			8.0	8.5	65.3					
			10.0	10.5	57.7					
SAV-550	550	410	8.0	8.5	70.6	3750	2180	2050	8200	DN100
			10.0	10.5	64.5					
SAV-600	550	400	7.0	7.5	80.0	3950	2280	2150	8400	DN100
	600	450	* 8.0	8.5	80.0					



the Air Compression

Master

The Air Compression Master

GardnerDenver specializes in compressed air

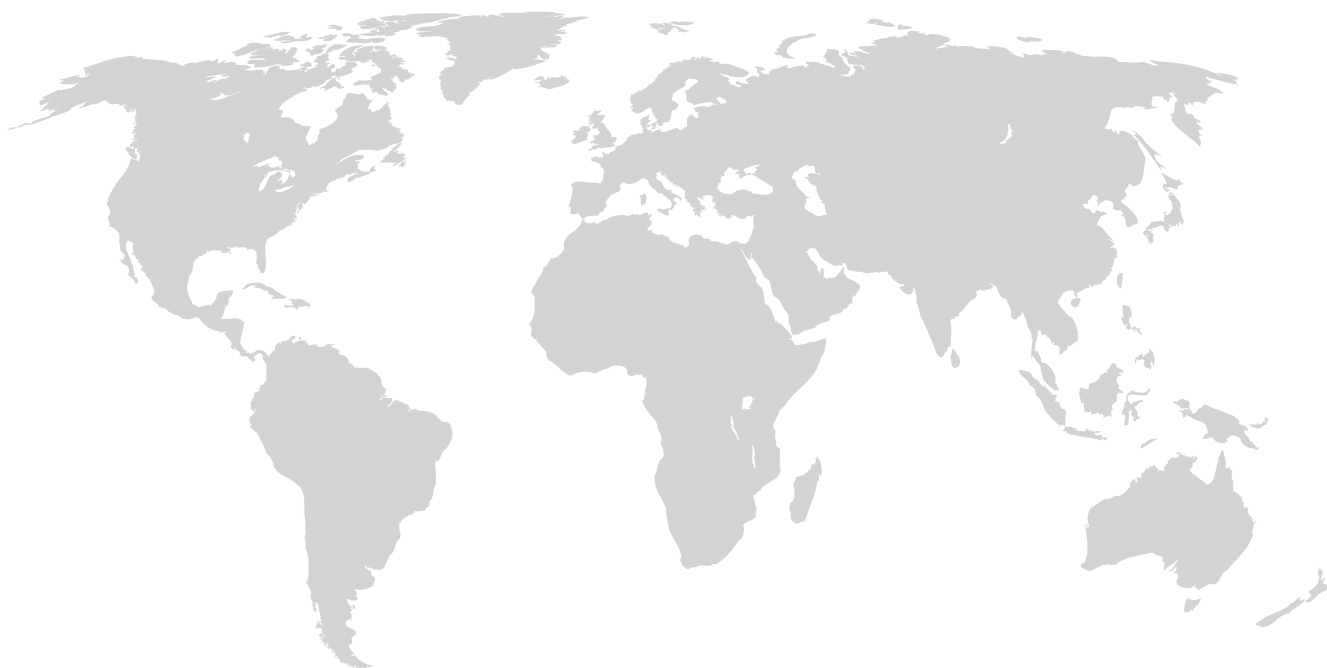
We provide not only just compressed air

GD helps manage your compressed air system

Jointly create value

Jointly contribute to environmental protection

www.gardnerdenver.com



Gardner
Denver

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