

# *Oil-injected rotary screw compressors*

GA 110<sup>+</sup> - 160 (VSD<sup>+</sup>)

*Atlas Copco*





## ***Highest reliability, lowest operating costs***

The shortest route to maximize your profitability is to minimize your operational costs. With up to 80% of a compressor lifecycle cost coming from the energy it consumes, this should be a clear focus. Atlas Copco's GA compressors with SmartInjection enabled compression elements and IE4 or better class motors are designed to achieve significant energy savings while providing long and trouble-free life even in the harshest environmental conditions.



## Efficiency

At the heart of the GA compressors are state-of-the-art compression elements with SmartInjection technology and high efficiency oil cooled IE4 or better class motors. This highly efficient drive train coupled with generous cooling capacity, low internal pressure drops and precise control from the Elektronikon® Touch ensures optimum efficiency.

## Reliability

The GA compressor's drive train is IP66 rated protecting it completely from environmental dust and moisture ensuring it can operate reliably in the toughest conditions and at ambient temperatures up to 55°C/131°F.

## Serviceability

Service time is reduced to a minimum with all service parts grouped together for ease of access and, if greater access is required, the patented portal design enables full access to all components. Each component has also been designed for serviceability, halving the time required to service compared to traditional designs.



# Installations around the world

Thousands of GA compressors are running around the world in a vast range of applications delivering reliable and efficient compressed air.



## General industry

### Lowest life cycle cost

For industrial companies compressed air is essential in their daily operations that include pneumatic tools for cutting, drilling, hammering and grinding; pneumatic actuators and valves; ventilation systems; packing and palletizing machinery and many more. GA compressors are designed for lowest lifecycle cost.

## Mining

### Operating in the toughest conditions

Compressed air is vital for the mining industry. Uses include dust bag filtration, service air, ventilation air and powering pneumatic tools. The reliability and robustness of GA compressors will accomplish the job even in the harshest conditions.





## — Power plants

### Reliable and dependable

Power plants run round-the-clock to supply vital energy with a continuous supply of compressed air, critical for trouble-free operation. GA compressors provide a reliable source of compressed air for applications such as soot blowing and fly ash handling.

## — Metal plants

### Ultimate efficiency

Metal plants use compressed air for instrumentation, plant air and pneumatic conveying of raw materials or ash. Metal plants are in need of an efficient solution to reduce their operating costs and to meet environmental targets. Our GA air compressors are designed to meet this demand.



## — Cement industry

### Easy to maintain and service

Cement works are one of the biggest consumers for compressed air with the vast majority of air used for transporting raw materials within the factory. If moisture, dust, or other contaminants are present in the environment it can impair compressor performance, resulting in excess energy consumption and maintenance costs. GA compressor not only have an IP66 rated drive train that prevents contaminants from entering the compressor, they are also easy to maintain and service with a grouped service area and slide out coolers.

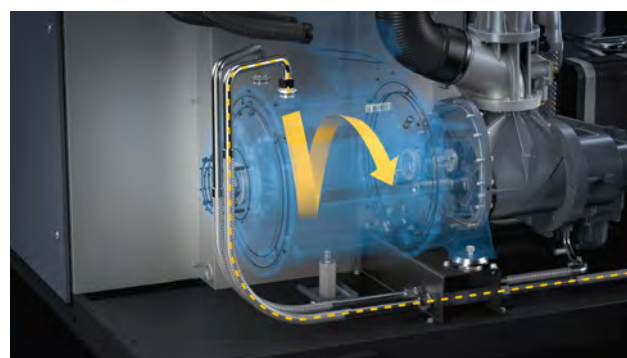


# GA air-cooled fixed speed pack



## Always operates reliably and at peak efficiency

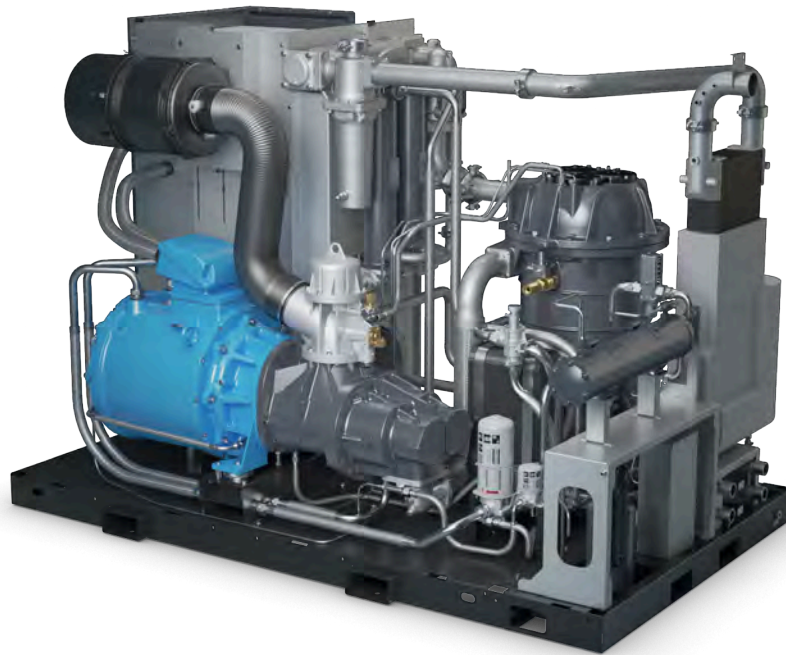
- SmartInjection provides exact amount of oil required to element ensuring it always works at peak efficiency in different conditions.
- Separate oil flow to bearings for longer life and greater uptime.



## High efficiency IE4 motor

- Oil cooled motors require no service interventions.
- IP66 rated for increased reliability even in tough environments.

# GA water-cooled fixed speed FF



## Reduced service time for greater uptime

- Multiple smaller cartridges simplify and reduce service times and minimize oil carry over.



## Ready-to-use compact package

- The GA Full Feature comes with an integrated dryer.
- Guaranteed dew point of 3°C/37°F.
- No additional installation work of wires and pipes.
- Reduced power consumption due to unique and patented Save Cycle Control stops the dryer when the compressor is stopped or in unload mode.
- Continuously monitored dew point.

# GA water-cooled VSD pack



## Ease of maintenance

- Minimal service times with service parts grouped together for ease of access.
- Portal design enables full access to all components.
- All components are designed for serviceability.

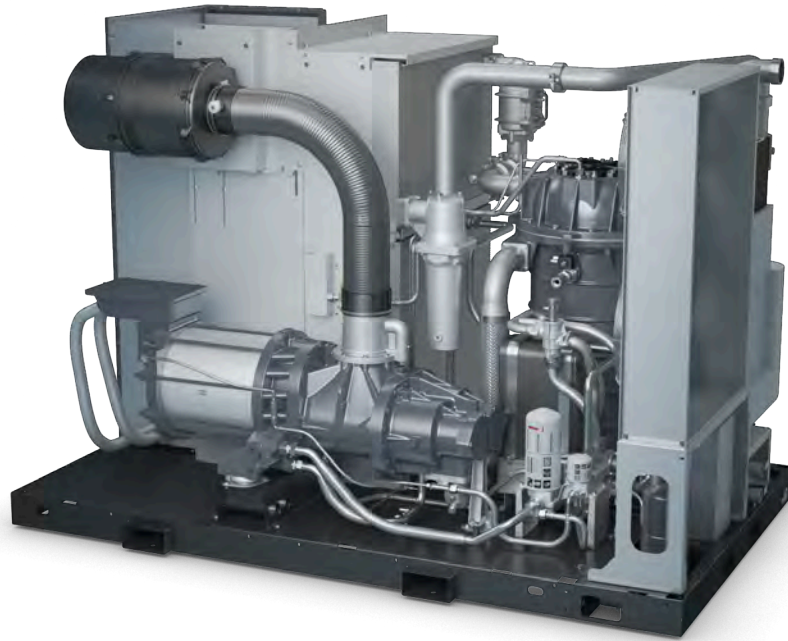


## Up to 78% of energy recovered as hot water

- Optional integrated energy recovery system.
- Up to 78% energy recovered from integrated motor and element oil circuit.



# GA air-cooled VSD FF



## Operate at temperatures up to 46°C (115°F) as standard

- VSD fan delivers energy efficiency in lower temperatures.



## High efficiency IE5 Permanent Magnet motor

- No need for external cooling because of oil cooled motors.
- Increased reliability and fewer service interventions.
- IP66 rated motor.

# VSD: driving down energy costs

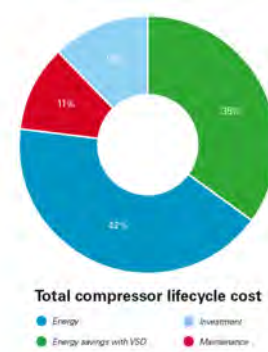
Variable Speed Drive

## Driving down energy costs

Over 80% of a compressor's lifecycle cost is taken up by the energy it consumes. Moreover, the generation of compressed air can account for more than 40% of a plant's total electricity bill. To cut your energy costs, Atlas Copco pioneered Variable Speed Drive (VSD) technology in the compressed air industry. VSD leads to major energy savings, while protecting the environment for future generations. Thanks to continual investments in this technology, Atlas Copco offers the widest range of integrated VSD compressors on the market.

## Energy savings up to 35%

Atlas Copco's VSD technology closely follows the air demand by automatically adjusting the motor speed. This results in large energy savings of up to 35%. The Life Cycle Cost of a compressor can be cut by an average of 22%. In addition, lowered system pressure with VSD minimizes energy use across your production dramatically.



## What is unique about the integrated Atlas Copco VSD?

1. The Elektronikon® controls both the compressor and the integrated converter, ensuring maximum machine safety within parameters.
2. Flexible pressure selection with VSD reduces electricity costs.
3. Specific converter and motor design (with protected bearings) for the highest efficiency across the speed range.
4. Electric motor specifically designed for low operating speeds with clear attention to motor cooling and compressor cooling requirements.
5. All Atlas Copco VSD compressors are EMC tested and certified. Compressor operation does not influence external sources and vice versa.
6. Mechanical enhancements ensure that all components operate below critical vibration levels throughout the entire compressor speed range.
7. A highly efficient frequency converter in a cubicle ensures stable operation in high ambient temperatures up to 50°C/122°F
8. No 'speed windows' that can jeopardize the energy savings and the stable net pressure. Turndown capability of the compressor is maximized to 70-75%.
9. Net pressure band is maintained within 0.10 bar, 1.5 psi.

# Monitoring and control

How to get the most from the least

## Elektronikon® MK5 Touch

The Elektronikon® unit controller is specially designed to maximize the performance of your compressors and air treatment equipment under a variety of conditions. Our solutions provide you with key benefits such as increased energy efficiency, lower energy consumption, reduced maintenance times and less stress... less stress for both you and your entire air system.



## Intelligence is part of the package

The full color touch display gives you an easy to understand readout of the equipment's running conditions.

- Clear icons and intuitive navigation provides you fast access to all of the important settings and data.
- Monitoring of the equipment running conditions and maintenance status; bringing this information to your attention when needed.
- Operation of the equipment to deliver specifically and reliably to your compressed air needs.
- Built in remote control and notifications functions provided as standard, including simple to use integrated webpage.
- Integrated **SMARTLINK**
- Support for 31 different languages, including character based languages.

## Online & mobile monitoring

Monitor your machines over the ethernet with the Elektronikon® unit controller and the **SMARTLINK** service. Monitoring features include warning indications, compressor shut-down, sensor trending and maintenance scheduling.





## Dual set-point and automatic stop

Most production processes create fluctuating levels of demand which, in turn, can create energy waste in low use periods. Using the Elektronikon® unit controller, you can manually or automatically switch between two different setpoints to optimize energy use and reduce costs at low use times. In addition, the sophisticated algorithm runs the drive motor only when needed. As the desired setpoint is maintained while the drive motor's run time is minimized, energy consumption is kept to a minimum.

## SMARTLINK

### Monitor your compressed air installation with SMARTLINK

Knowing the status of your compressed air equipment at all times is the surest way to achieve optimal efficiency and maximum availability.

### Go for energy efficiency

Customized reports on the energy efficiency of your compressor room.

### Increase uptime

All components are replaced on time, ensuring maximum uptime.

### Save money

Early warnings avoid breakdowns and production loss.



# Optimize your compressed air system

## Minimizing Excess Pressure

Optimizer 4.0 minimizes the generation of excess compressed air by starting and stopping compressors. Its user friendly interface enables you to set multiple pressure bands, allowing you to optimize your compressor installation for varying circumstances, such as non-productive hours.

## Full VSD Benefits

With Optimizer 4.0 you can realize the full energy saving potential of VSD (Variable Speed Drive). It regulates the VSD to ensure that the compressed air output is proportional to the demand, preventing higher pressures than required, excess unloaded running, and spiraling energy costs.

## Improving Uptime

Optimizer 4.0 effectively eliminates production downtime caused by unexpected system pressure drops, because it regulates the system pressure instead of the compressor output pressure.

This means Optimizer 4.0 will automatically adjust the system pressure to compensate for pressure drops due to filters, piping and dryers for example.

We also provide additional functionality and services on Optimizer 4.0 to ensure that your energy savings will stand the test of time. Even when your installation needs adaptations or your demand changes.



# Services

Properly caring for your air compressor helps you lower your operating costs and minimises the risk for unplanned breakdowns or production stops. Atlas Copco offers energy efficiency checks, service, repairs, spare parts and maintenance plans for all air compressors. Entrust your servicing to our expert professionals and ensure your business continues to run efficiently. Our plans cover repairs, preventative maintenance, spare parts, and more.

## Compressor oils, lubricants and fluids

Every type of compressor and vacuum pump needs a specific oil to achieve maximum uptime, performance and lifetime. Our compressed air fluids and lubricants cover all your needs.

### Unique mix of additives

Tailored to the specific needs of your equipment.

### Anti-oxidation

The high-quality oil ensures maximum protection.

### Prevent foaming

Anti-foaming improves your air quality.





## Maximize your resources with a Service Plan

Reduce your total cost of ownership and benefit from optimal performance

### Save costs

Optimal maintenance will reduce the operational cost of your compressed air and vacuum system.

### Increase operational efficiency

Our maintenance expertise makes life easier when it comes to resource management.

### High uptime and performance

Specialist service keeps your equipment running as it should, protecting your investment.



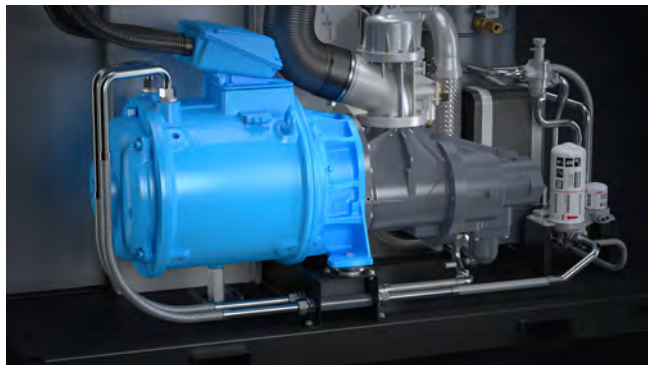
# Customized to your needs

A range of optional features are available to ensure the GA compressor is customized to the applications requirements

## High ambient temperature variant

Reliable and continuous operation of the compressor in hot and humid environments up to :

- max. 55°C ( 131°F ) for fixed speed pack
- max. 50°C ( 121°F ) for VSD pack



## Shock pulse monitoring

Continuous SPM “Shock Pulse Measurement” monitoring system of the compressor element & motor bearings. The sensors are connected to the Elektronikon® which is showing the individual vibration levels.

Alarm and/or shutdown levels can be programmed during commissioning of the compressor. With this monitoring system, the compressor can run longer, since overhaul can be done when needed and preventive maintenance can be organized.

## Energy recovery

The energy recovery system consists of a build-in stainless steel heat exchanger and thermostatic controlled system to recover the heat from the compressor in the form of warm water or hot water without any adverse influence on the compressor performance.





## Witness and performance test

Factory visit and witnessing of the standard performance test of the compressor. The compressor is tested following the Atlas Copco standard test procedure in accordance to the ISO 1217: 2009, annex "C" and "E" (4th edition) for full transparency and peace of mind.

## Food grade oil

The option "Roto-Foodgrade oil" allows you to operate the compressor in industries like packaging, pharmaceutical and food and beverage industry, where occasional contact is allowed in and around food processing areas.



## Integrated dryer

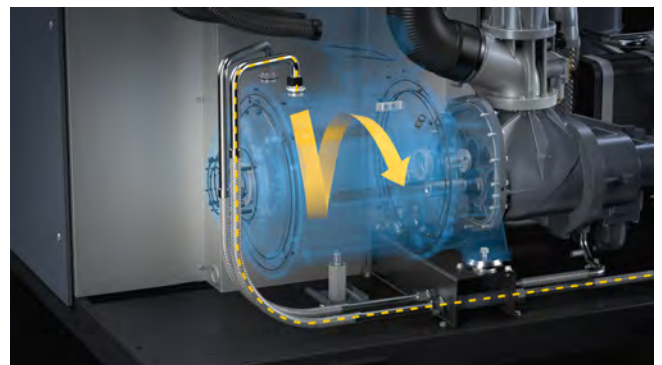
In a GA Full Feature compressor the refrigeration dryer is fully integrated in the compressor unit. This "all-in-one" feature not only reduces the space requirement for installing the compressor but also provides savings on piping installation cost.

Typical dew point of a refrigerant dryer is +3°C (37.4°F) at reference conditions.

## Motor thermal protection

Five (PT-1000) temperature sensors are installed in the main motor of which 2 sensors are monitoring the bearings and 3 sensors are monitoring the windings.

The relevant temperatures are shown on the Elektronikon® display and alarms and shutdowns are programmed to protect the compressor motor.

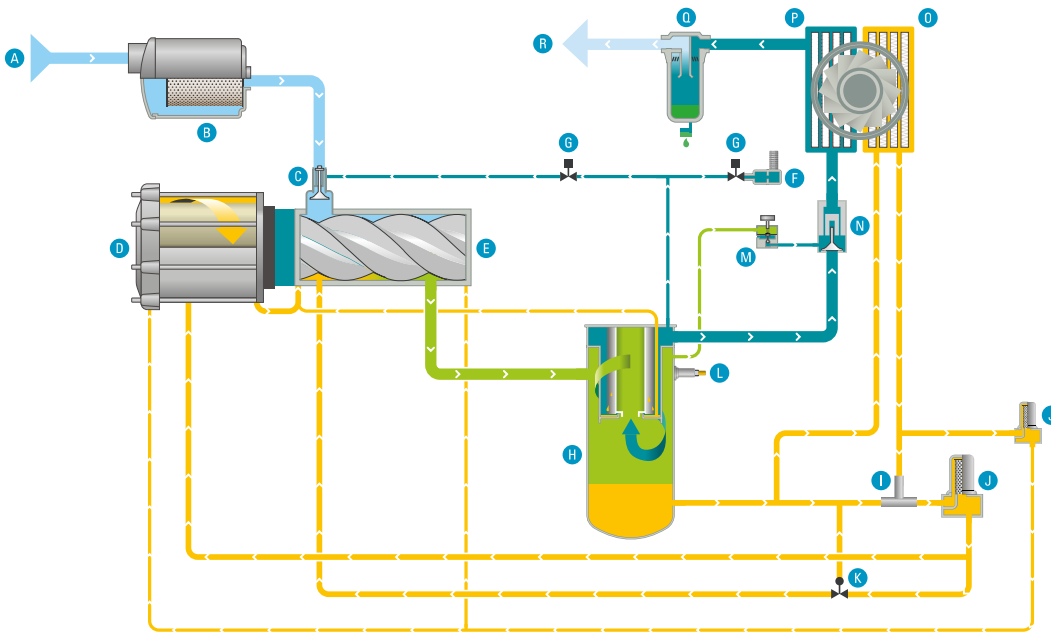




# Flow diagrams GA

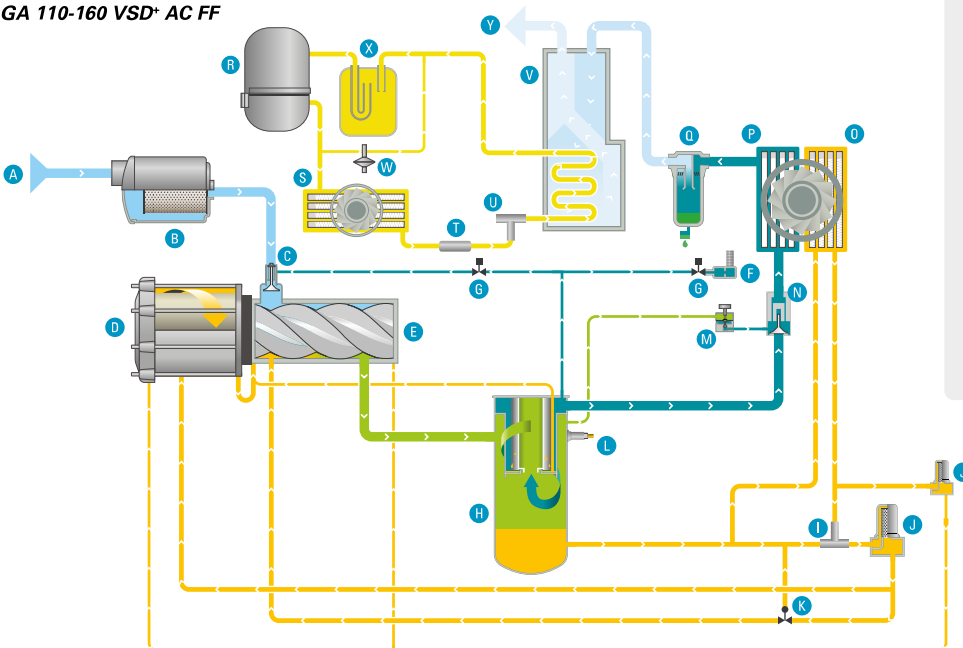
Process flow, oil flow and cooling flow - step by step

GA 110-160 VSD+ AC PACK



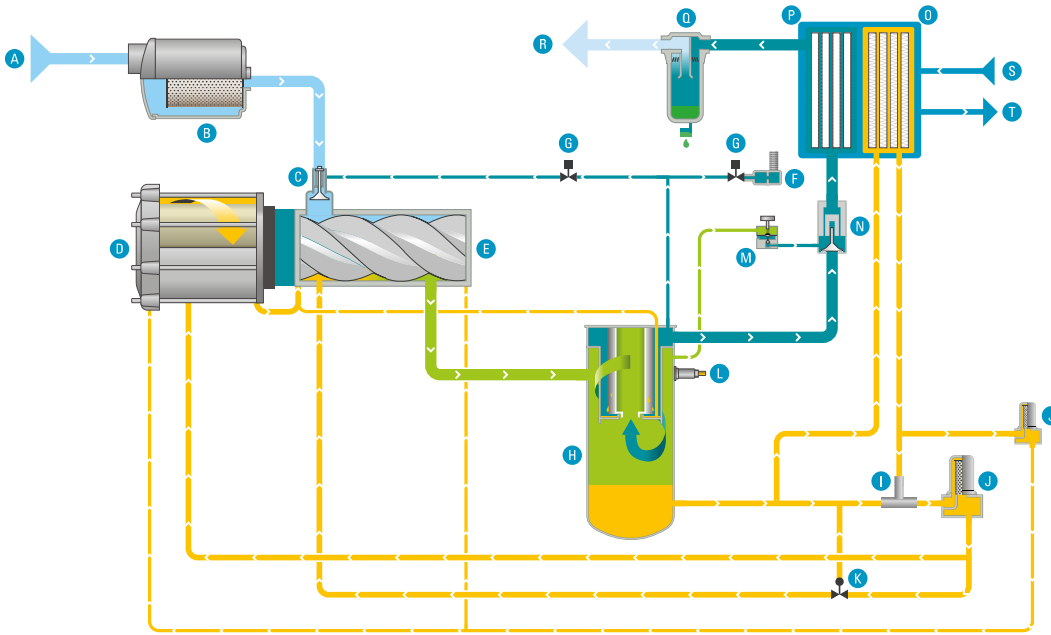
- A Air inlet
- B Intake filter
- C Air intake valve
- D Motor
- E Compression element
- F Blow-off silencer
- G Solenoid valve
- H Air/oil separator vessel
- I Thermostatic bypass valve
- J Oil filter
- K Thermostatic valve
- L Safety valve
- M Pressure regulator
- N Minimum pressure valve
- O Oil cooler
- P After cooler
- Q Water separator
- R Air out
- Dry compressed air
- Air
- Oil
- Oil/air mixture
- Wet compressed air
- Condensate

GA 110-160 VSD+ AC FF



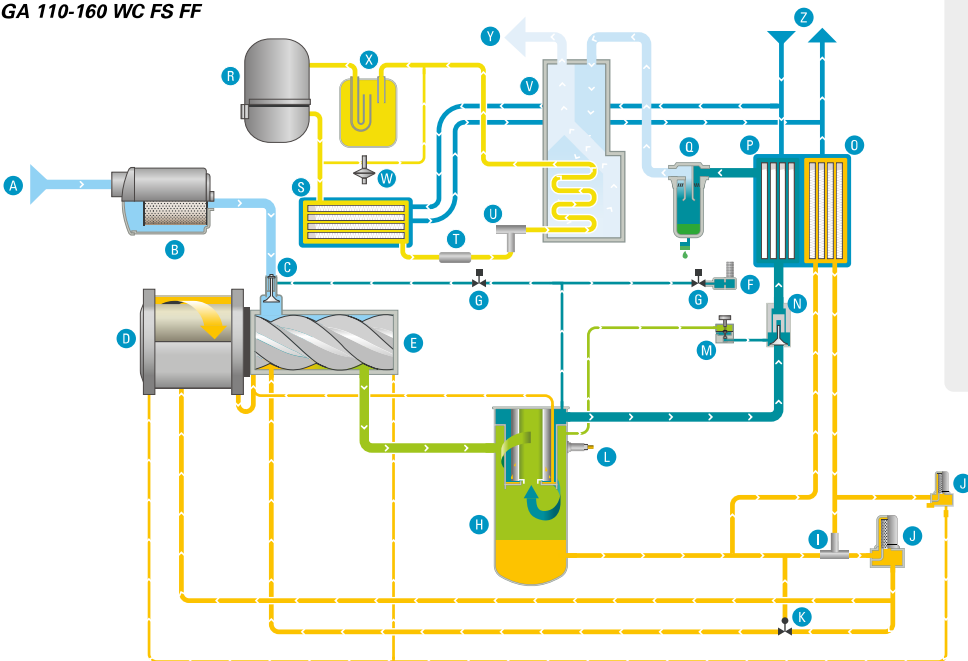
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- I Thermostatic bypass valve
- J Oil filter
- K Thermostatic valve
- L Safety valve
- M Pressure regulator
- N Minimum pressure valve
- O Oil cooler
- P After cooler
- Q Water separator
- R Refrigerant compressor
- S Condenser
- T Liquid refrigerant dryer/filter
- U Thermostatic expansion valve
- V Dryer heat exchanger
- W Hot gas bypass valve
- X Accumulator
- Y Air out
- Dry compressed air
- Air
- Oil
- Oil/air mixture
- Wet compressed air
- Refrigerant
- Condensate

**GA 110-160 VSD\* WC PACK**



- A Air inlet
- B Intake filter
- C Air intake valve
- D Motor
- E Compression element
- F Blow-off silencer
- G Solenoid valve
- H Air/oil separator vessel
- I Thermostatic bypass valve
- J Oil filter
- K Thermostatic valve
- L Safety valve
- M Pressure regulator
- N Minimum pressure valve
- O Oil cooler
- P After cooler
- Q Water separator
- R Air out
- S Cooling water inlet
- T Cooling water outlet
- Dry compressed air
- Air
- Oil
- Oil/air mixture
- Wet compressed air
- Condensate
- Cooling water

**GA 110-160 WC FS FF**



- A Air inlet
- B Intake filter
- C Air intake valve
- D Motor
- E Compression element
- F Blow-off silencer
- G Solenoid valve
- H Air/oil separator vessel
- I Thermostatic bypass valve
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- K Thermostatic valve
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- O Oil cooler
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- Q Water separator
- R Refrigerant compressor
- S Condenser
- T Liquid refrigerant dryer/filter
- U Thermostatic expansion valve
- V Dryer heat exchanger
- W Hot gas bypass valve
- X Accumulator
- Y Air out
- Z Cooling water in-/outlet
- Dry compressed air
- Air
- Oil
- Oil/air mixture
- Wet compressed air
- Refrigerant
- Condensate
- Cooling water

# Technical specifications

## GA 110<sup>+</sup> - 160 (50 Hz)

TYPE	Maximum working pressure				Capacity FAD (1)			Installed motor power	Noise level (2)	Weight			
	Standard		Full Feature (3)		Standard / Full Feature (3)					Standard		Full Feature (3)	
	bar(e)	psig	bar(e)	psig	l/s	m <sup>3</sup> /min	cfm	hp	dB(A)	kg	lb	kg	lb
GA 110 - 7.5 bar	7.5	109	7.3	106	370	22.2	784	110	77	2700	5952	3100	6834
GA 110 - 8.5 bar	8.5	123	8.3	120	347	20.8	735			2700	5952	3100	6834
GA 110 - 10 bar	10	145	9.8	142	316	19.0	670			2700	5952	3100	6834
GA 132 - 7.5 bar	7.5	109	7.3	106	440	26.4	932	132	78	2800	6173	3200	7055
GA 132 - 8.5 bar	8.5	123	8.3	120	414	24.8	877			2800	6173	3200	7055
GA 132 - 10 bar	10	145	9.8	142	382	22.9	809			2800	6173	3200	7055
GA 160 - 7.5 bar	7.5	109	7.3	106	525	31.5	1112	160	78	2900	6393	3300	7275
GA 160 - 8.5 bar	8.5	123	8.3	120	495	29.7	1049			2900	6393	3300	7275
GA 160 - 10 bar	10	145	9.8	142	460	27.6	975			2900	6393	3300	7275

(1) Unit performance measured according to ISO 1217, Annex C, Edition 4 (2009)

**Reference conditions:**

- Absolute inlet pressure 1 bar (14.5 psi).
- Intake air temperature 20°C (68°F).

(2) A-weighted emission sound pressure level at the work station, L<sub>p</sub> WSA (re 20 µPa) dB (with uncertainty 3 dB). Values determined according to noise level test code ISO 2151 and noise measurement standard ISO 9614.

(3) Integrated dryer (FF) : compressed air pressure dewpoint at dryer reference conditions 3°C (37°F).

### FAD<sup>(1)</sup> is measured at the following working pressures:

	Standard	FF
7.5 bar version at	7 bar	7 bar
8.5 bar version at	8 bar	8 bar
10 bar version at	9.5 bar	9.5 bar

### Dimensions

	L	W	H
	mm	mm	mm
GA 110 <sup>+</sup> - 160	2500	1785	2020
GA 110 <sup>+</sup> - 160 (FF)	2900	1785	2020



# Technical specifications

## GA 110-160 VSD+ (50 Hz)

TYPE		Maximum working pressure				Capacity FAD (1)			Installed motor power	Noise level (2)	Weight			
		Standard		Full Feature (3)		Standard / Full Feature (3)					Standard		Full Feature (3)	
		bar(e)	psig	bar(e)	psig	l/s	m <sup>3</sup> /min	cfm			kg	lb	kg	lb
GA 110 VSD+ - 8.5 bar	Minimum	5	72	5	72	104 - 407	6.2 - 24.4	220 - 862	110	77	2400	5291	2800	6173
	Nominal	7	101	7	101	101 - 390	6.1 - 23.4	214 - 826						
	Maximum	8.5	123	8.3	120	100 - 356	6.0 - 21.4	212 - 754						
GA 110 VSD+ - 10 bar	Minimum	6	87	6	87	102 - 405	6.1 - 24.3	216 - 858	110	77	2400	5291	2800	6173
	Nominal	9.5	138	9.5	138	97 - 332	5.8 - 19.9	206 - 703						
	Maximum	10	145	9.8	142	96 - 325	5.8 - 19.5	203 - 689						
GA 132 VSD+ - 8.5 bar	Minimum	5	72	5	72	104 - 485	6.2 - 29.1	220 - 1028	132	77	2500	5512	2950	6504
	Nominal	7	101	7	101	101 - 463	6.1 - 27.8	214 - 981						
	Maximum	8.5	123	8.3	120	100 - 427	6.0 - 25.6	212 - 905						
GA 132 VSD+ - 10 bar	Minimum	6	87	6	87	102 - 402	6.1 - 24.1	216 - 852	132	77	2500	5512	2950	6504
	Nominal	9.5	138	9.5	138	97 - 396	5.8 - 23.8	206 - 839						
	Maximum	10	145	9.8	142	96 - 391	5.8 - 23.5	203 - 828						
GA 160 VSD+ - 8.5 bar	Minimum	5	72	5	72	104 - 590	6.2 - 35.4	220 - 1250	160	78	2550	5622	3000	6614
	Nominal	7	101	7	101	101 - 551	6.1 - 33.1	214 - 1168						
	Maximum	8.5	123	8.3	120	100 - 511	6.0 - 30.7	212 - 1083						
GA 160 VSD+ - 10 bar	Minimum	6	87	6	87	102 - 492	6.1 - 29.5	216 - 1042	160	78	2550	5622	3000	6614
	Nominal	9.5	138	9.5	138	97 - 480	5.8 - 28.8	206 - 1017						
	Maximum	10	145	9.8	142	96 - 471	5.8 - 28.3	203 - 998						

(1) Unit performance measured according to ISO 1217, Annex C and E, Edition 4 (2009)

Reference conditions:

- Absolute inlet pressure 1 bar (14.5 psi)
- Intake air temperature 20°C (68°F)

(2) A-weighted emission sound pressure level at the work station, L<sub>p</sub> WSA (re 20 µPa) dB (with uncertainty 3 dB).

Values determined according to noise level test code ISO 2151 and noise measurement standard ISO 9614.

(3) Integrated dryer (FF): compressed air pressure dewpoint at dryer reference conditions 3°C (37°F).

**FAD<sup>(1)</sup> is measured at the following working pressures:**

	Standard	FF
8.5 bar version at	7 bar	7 bar
10 bar version at	9.5 bar	9.5 bar

## Dimensions

	L	W	H
	mm	mm	mm
GA 110-160 VSD+	2500	1785	2020
GA 110-160 VSD+ (FF)	2900	1785	2020

## ***COMMITTED TO SUSTAINABLE PRODUCTIVITY***

We stand by our responsibilities towards our customers, towards the environment and the people around us. We make performance stand the test of time. This is what we call – Sustainable Productivity.



ISO 9001 • ISO 14001  
OHSAS 18001  
ISO 22000

[www.atlascopco.com](http://www.atlascopco.com)

