



Atlas Copco



**Oil-injected rotary  
screw compressors**

GA 180 - 315 (VSD<sup>+</sup>)  
GA 200-250 VSD<sup>Δ</sup>



## ***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<sup>®</sup> 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.



# Air quality

Atlas Copco is unique in being able to provide a complete range of in house designed products perfectly matched to provide clean dry air, optimum performance and Low Life Cycle costs.



## Clean air reduces operating costs.

It's important to have high quality air, because contaminated air creates extra costs. It is better to avoid system contamination rather than deal with the consequences such as product spoilage, maintenance costs, replacing pipe work or leakages. Atlas Copco offers a range of quality air solutions.

## Integrated air quality

The GA 180-315 VSD+ is designed to deliver quality air.

- Multiple smaller cartridges simplify and reduce service times and minimize oil carry over.
- The GA full feature comes with an integrated dryer for greater air quality.
- Guaranteed dewpoint of 3°C/37°F
- Continuously monitored dew point.
- New oil separator vessel with filter cartridges.



## Air dryers

Our range of air dryers protect your systems and processes in a reliable, energy-efficient and cost-effective way.

### Protecting your systems and processes

Treated air helps prevent pipework corrosion, product spoilage and premature failure of pneumatic equipment.

### Maintaining the quality of your end product

A complete range of products with dew points from +3 to -70 °C to ensure the correct air quality for your application.

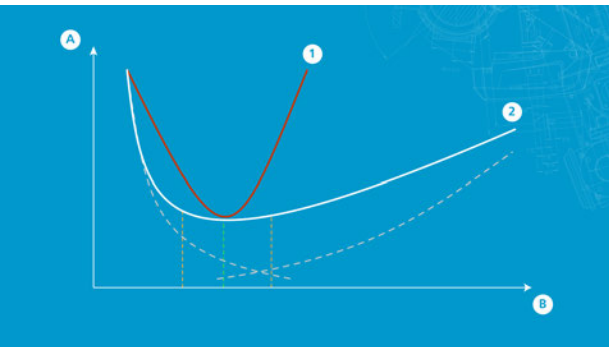
### Energy-efficient air dryers

All our air dryers are designed to perform in the most energy-efficient and environmentally friendly way.



# Efficiency

Combining the best of both worlds



## Variable Speed Drive (VSD)

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.

### Legend

**A** = Losses

**B** = Speed

**1** = Total losses traditional element

**2** = Total losses AC element

## VSD savings

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.

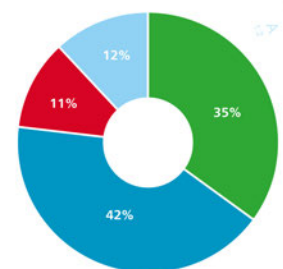
### Legend

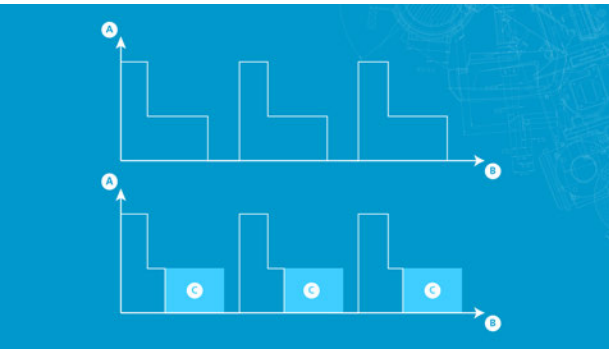
**42%** = Energy

**35%** = Energy savings with VSD

**12%** = Investment

**11%** = Maintenance





## 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<sup>®</sup> 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.

### Legend

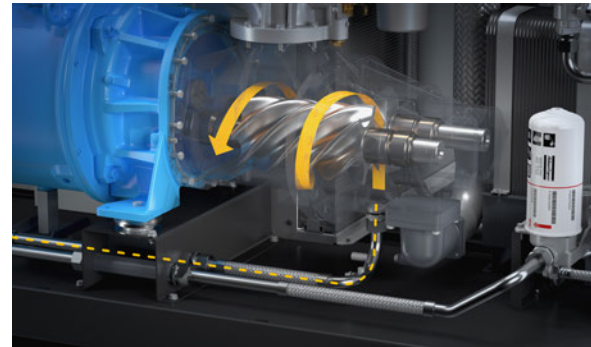
**A** = Power consumption

**B** = Time

**C** = Energy Saving

## Components designed for efficiency

- SmartInjection provides exact amount of oil required to element ensuring it always works at peak efficiency.
- High efficiency IE4 (Fixed Speed) and IE5 (VSD+) motor.
- Integrated energy recovery system recovers up to 78% of energy from integrated motor and element oil circuit.
- Dual speed or VSD fan for energy efficiency in lower temperatures.



## Elektronikon Mk5 touch

The Elektronikon<sup>®</sup> 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.

## 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.



## Optimizer 4.0

### 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.

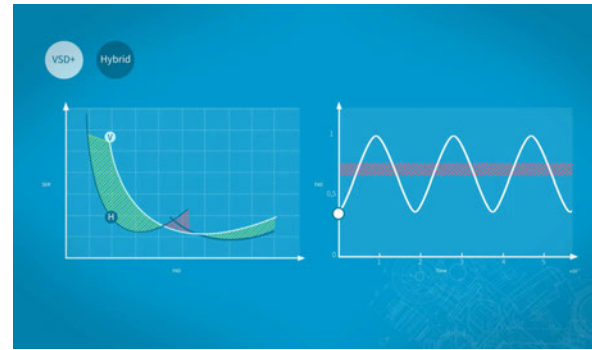
This means Optimizer 4.0 will automatically adjust the system pressure to compensate for pressure drops due to filters, piping and dryers for example.

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.



## The Hybrid Concept

Our new VSD $\Delta$  combines the best of two technologies, namely the VSD and fixed speed drives. To match the customer's compressed air demand our smart control system will regulate the combination to minimize the losses and enhance the efficiency even further than a VSD for certain load profiles. Profiles such as day/night or week/weekend are the ideal profiles to benefit from this innovation.



## Hybrid Benefits

Our hybrid compressor includes two drive trains. One variable speed and a fixed speed drive. This brings many benefits such as:

- Smaller footprint compared to having two smaller units
- Higher turndown compared to a VSD compressor
- Lower energy consumption
- Independent Single Core Operation

## Higher Flexibility

By having two cores and controllers, the customer can chose to run a single core if required, or if one core is not operational. This also means the back up compressor can be sized smaller.



# Service

Properly caring for your air compressor helps you lower your operating costs and minimizes 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.

## Designed for serviceability

### Ease of maintenance

- Service parts grouped together for ease of access.
- Reduced service time for greater uptime.
- Portable design enables full access to all components.
- All components designed for serviceability.
- Oil cooled motors require no service interventions.



## 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.



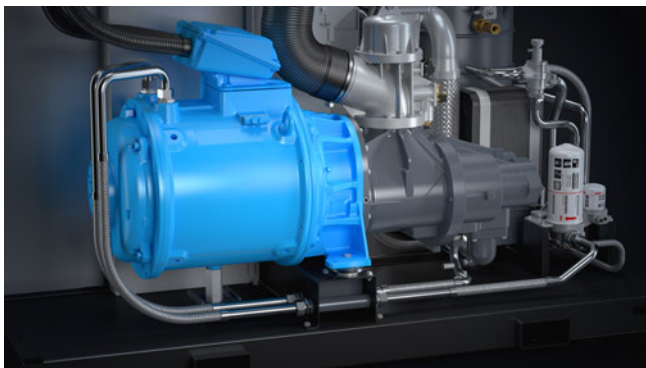
# Customized to your needs

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<sup>®</sup> 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

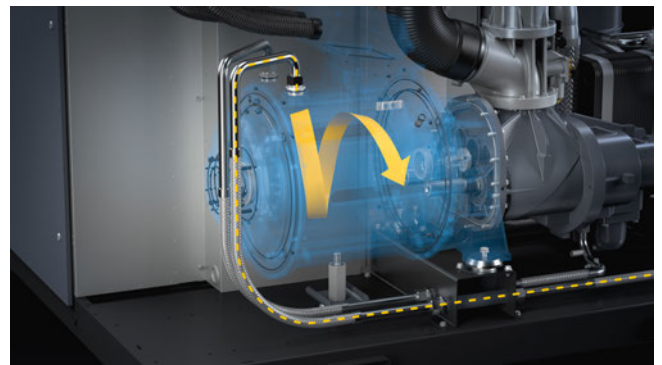
In a GA Full Feature compressor the refrigeration dryer is fully integrated in the compressor unit. This “all-in-one” feature not only reduces the space requirement for installing the compressor but also provides savings on piping installation cost.

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.

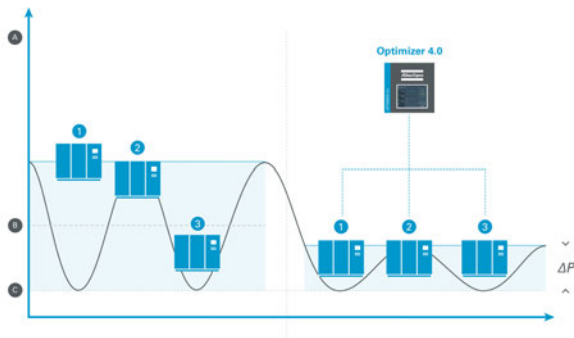
The relevant temperatures are shown on the Elektronikon<sup>®</sup> display and alarms and shutdowns are programmed to protect the compressor motor.



# *smart AIR solution*

Only a complete compressed air system is an energy efficient and reliable solution that delivers the correct compressed air quality. That is why we call our solutions smart AIR solutions.





## 1. Central controllers

Having a central controller reduces the average pressure band.

It also reduces the operating pressure of your machines.

- By reducing the pressure by 1 bar (or 14.5 psi), your energy usage lowers by 7%.
- By reducing the pressure by 1 bar (or 14.5 psi) decreases air leakages by 13%.

Multiple embedded functions in the Optimizer 4.0 in which pressure, capacity and speed can be regulated.

### Legend

**A** = Net pressure

**B** = Average pressure

**C** = Min. system pressure

## 2. Energy efficient and reliable compressors

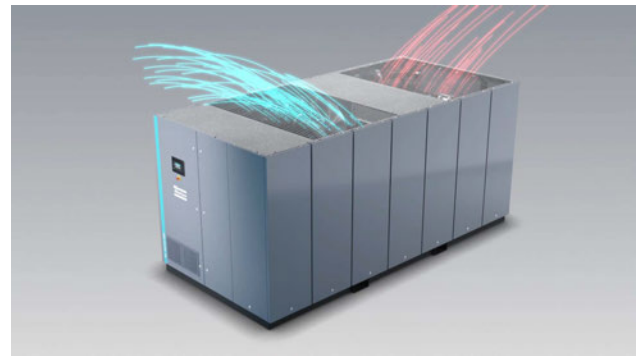
All smart AIR solutions start with picking the correct components in the correct combination. Choosing energy efficient compressors, paying special attention to the mix of compressors will be a major contributor to a smart AIR solution.

Our sound proof design contributes to a better working environment around the compressors.

Our compressors have been designed with maintenance in mind, reducing the downtime of machines and improving availability of compressed air.

## 3. Variable Speed Drive (VSD) compressors

Compressed air demand of most applications varies widely. Adding one or multiple VSD compressors to the installation will greatly help to improve energy efficiency of the total installation, stability of compressed air pressure and reliability, thanks to more stable regime of each machine.



## 4. Ventilation

Compressors generate heat. Adequate evacuation of this heat will ensure favorable working conditions for compressors and dryers alike.

## 5. Air receiver

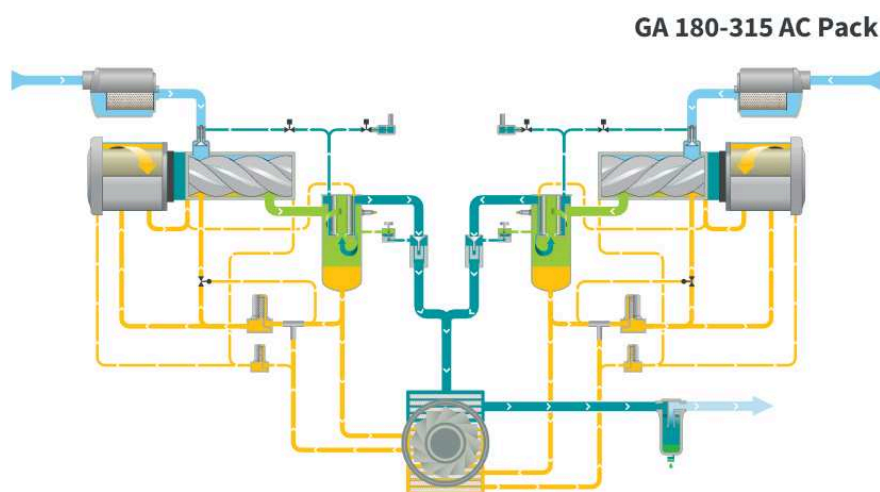
Even with a Variable Speed Drive compressor, having an appropriately sized buffer tank for compressed air will help smoothing the variation in demand and allow compressors to work in more stable operating conditions, thus helping both energy efficiency and reliability.

## 6. Air treatment portfolio

Atlas copco has a wide air treatment portfolio that matches your needs. Our portfolio ranges from removing water, oil and dust from your compressed air to generating Oxygen and Nitrogen on site.

# Flowchart

The oil & air flow, step by step



## 1. Filtration & compression

The air is drawn into the compressor through the inlet filter and is compressed in the oil injected rotary screw compression element via the air intake (load-unload) valve. Lubrication fluid is injected during the compression phase into the air. This not only reduces the wear of the elements but also cools them.

## 2. Air & oil separation

The compressed air/oil mixture passes through a non-return valve to the oil separator element to separate the oil from the air.

The wet compressed air, represented by the dark blue/gree then passes through a minimum pressure valve and is cooled by an air-cooled aftercooler.

## 3. Cooling

Low noise axial cooling fans provide cooling air to the oil cooler and after cooler, ensuring satisfactory running temperatures as well as ventilating the compressor enclosure.



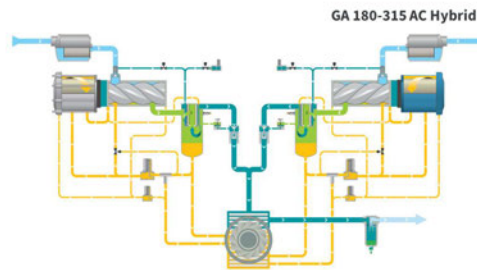
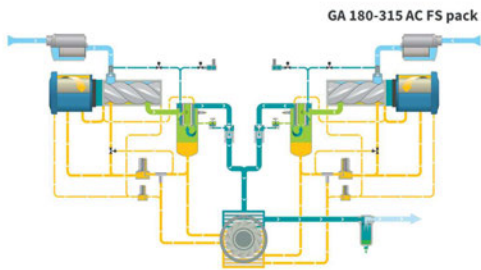
#### 4. Moisture separator

The condensed moisture is removed by a low pressure drop moisture separator and electronic condensate drain. This results in dry compressed air is that can be used in your application.

#### 5. Oil flow

Lubrication fluid contained in the oil receiver flows under differential pressure to a thermostatic bypass valve, air cooled oil cooler, high efficiency oil filter and oil stop valve before being injected into the compression element where it cools, seals and lubricates the compression process.

The high efficiency oil filter provides superior filtration compared to conventional filters resulting in cleaner lubricant. The thermostatic bypass valve ensures that the compressor quickly reaches optimum operating temperature on start-up and maintains temperature during periods of low load by allowing cold lubricant to bypass the oil cooler.



# Technical specifications

Technical datasheet of the GA 180-315 (VSD) (FF) series

## GA 180 - 315 (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 180 - 5.5 bar	5.5	80	5.3	77	690	41.4	1462	180	70	5700	12566	6400	14110
GA 180 - 7.5 bar	7.5	109	7.3	106	585	35.1	1240		70				
GA 180 - 8.5 bar	8.5	123	8.3	120	558	33.5	1182		67				
GA 180 - 10 bar	10	145	9.8	142	510	30.6	1081		68				
GA 200 - 5.5 bar	5.5	80	5.3	77	833.2	50.0	1765	220	71	5900	13007	6500	14330
GA 200 - 7.5 bar	7.5	109	7.3	106	729	43.7	1545		74				
GA 200 - 8.5 bar	8.5	123	8.3	120	686	41.2	1454		70				
GA 200 - 10 bar	10	145	9.8	142	624	37.4	1322		70				
GA 250 - 5.5 bar	5.5	80	5.3	77	985	59.1	2087	264	76	6000	13228	6700	14771
GA 250 - 7.5 bar	7.5	109	7.3	106	868	52.1	1839		75				
GA 250 - 8.5 bar	8.5	123	8.3	120	817	49.0	1731		71				
GA 250 - 10 bar	10	145	9.8	142	754	45.2	1598		71				
GA 315 - 7.5 bar	7.5	109	7.3	106	1036	62.2	2072	320	73	6200	13669	6800	14991
GA 315 - 8.5 bar	8.5	123	8.3	120	978	58.7	2072		73				
GA 315 - 10 bar	10	145	9.8	142	911	54.7	1930		70				
GA 200 VSD+ 8.5 bar	8.5	123	8.3	120	195-725	12-43.5	413-1536	220	73	5000	11023	5700	12566
GA 200 VSD+ 10 bar	10	145	9.8	142	193-665	11.5-40	409-1409		67				
GA 250 VSD+ 8.5 bar	8.5	123	8.3	120	195-865	12-51.9	413-1833	264	71	5200	11464	5800	12787
GA 250 VSD+ 10 bar	10	145	9.8	142	193-782	11.5-47	409-1657		75				
GA 315 VSD+ 8.5 bar	8.5	123	8.3	120	195-1032	12-61.9	413-2187	320	77	5200	11464	5900	13007
GA 315 VSD+ 10 bar	10	145	9.8	142	193-955	11.5-57.3	409-2023		77				
GA200 VSDΔ - 7.5 bar	7.5	109	7.3	106	100-750	6-45	212-1590	222	73	5500	12125	6100	13448
GA200 VSDΔ - 8.5 bar	8.5	123	8.3	120	100-715	6-43	212-1515	222	73	5500	12125	6100	13448
GA200 VSDΔ - 10 bar	10	145	9.8	142	100-642	6-38.5	212-1360	222	73	5500	12125	6100	13448
GA250 VSDΔ - 7.5 bar	7.5	109	7.3	106	100-912	6-54.7	212-1932	270	77	5600	12346	6200	13669
GA250 VSDΔ - 8.5 bar	8.5	123	8.3	120	100-860	6-51.6	212-1822	270	77	5600	12346	6200	13669
GA250 VSDΔ - 10 bar	10	145	9.8	142	100-785	6-47	212-1663	270	77	5600	12346	6200	13669

**FAD(1) is measured at the following working pressures:**

	Standard
5.5 bar (75 psi) version at	5 bar (73 psi)
7.5 bar (100 psi) version at	7 bar (100 psi)
8.5 bar (125 psi) version at	8 bar (125 psi)
10 bar (150 psi) version at	9.5 bar (150 psi)

**Technical specifications GA 180 - 315 (VSD+) (60 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 180 - 75 psi	5.5	80	5.3	77	622	37.3	1318	240	74	6000	13228	6800	14991
GA 180 - 100 psi	7.4	107	7.2	104	596	35.8	1263		76				
GA 180 - 125 psi	9.1	132	8.9	129	536	32.2	1136		73	6200	13669		
GA 180 - 150 psi	10.9	158	10.7	155	479	28.7	1015		75				
GA 200 - 75 psi	5.5	80	5.3	77	836	50.2	1771	295	77	5700	12566	6400	14110
GA 200 - 100 psi	7.4	107	7.2	104	735	44.1	1557		76				
GA 200 - 125 psi	9.1	132	8.9	129	660	39.6	1398		76				
GA 200 - 150 psi	10.9	158	10.7	155	591	35.5	1252		75				
GA 250 - 75 psi	5.5	80	5.3	77	991	59.5	2100	355	78	5900	13007	6500	14330
GA 250 - 100 psi	7.4	107	7.2	104	879	52.7	1862		77				
GA 250 - 125 psi	9.1	132	8.9	129	791	47.5	1676		74				
GA 250 - 150 psi	10.9	158	10.7	155	701	42.1	1485		75				
GA 315 - 100 psi	7.4	107	7.2	104	1043	62.6	2210	430	76	6000	13228	6700	14771
GA 315 - 125 ps	9.1	132	8.9	129	950	57.0	2013		76				
GA 315 - 150 psi	10.9	158	10.7	155	873	52.4	1850		76				
GA 200 VSD+ 125 psi	9.1	132	8.9	129	194-706	11.6-42.3	411-1496	295	72	5000	11023	5700	12566
GA 200 VSD+ 150 psi	10.9	158	10.7	155	190-630	11.4-37.8	403-1335		69				
GA 250 VSD+ 125 psi	9.1	132	8.9	129	194-840	11.6-50.4	411-1780	355	70	5200	11464	5800	12787
GA 250 VSD+ 150 psi	10.9	158	10.7	155	190-755	11.4-45.3	403-1600		73				
GA 315 VSD+ 125 psi	9.1	132	8.9	129	194-1004	11.6-60.2	411-2127	430	76	5300	11684	5900	13007
GA 315 VSD+ 150 psi	10.9	158	10.7	155	190-910	11.4-54.6	403-1928		76				
GA200 VSDΔ - 100 psi	7.4	107	7.2	104	212-1614	100-762	6-45.7	297	72	5700	12566.33	6300	13889
GA200 VSDΔ - 125 psi	9.1	132	8.9	129	208-1455	98-687	5.8-41		72				
GA200 VSDΔ - 150 psi	10.9	158	10.7	155	200-1299	94-613	5.6-36.7		72				
GA250 VSDΔ - 100 psi	7.4	107	7.2	104	212-1945	100-918	6-55	362	76	5700	12566.33	6300	13889
GA250 VSDΔ - 125 psi	8.9	132	8.9	129	208-1758	98-830	5.8-50		76				
GA250 VSDΔ - 150 psi	10.9	158	10.7	155	200-1580	94-746	5.6-44.7		76				

**FAD(1) is measured at the following working pressures:**

	Standard	FF
75 psi version at	73 psi	73 psi
100 psi version at	100 psi	100 psi
125 psi version at	125 ps	125 psi
150 psi version at	150 psi	150 psi

## Dimensions

	L		W		H	
	mm	inch	mm	inch	mm	inch
GA 180 - 315 (VSD+) Pack (Air cooled)	4390	173	2090	82	2020	79
GA 180 - 315 (VSD+) Full Feature (Air cooled)	5020	198	2090	82	2020	79
GA 180 - 315 (VSD+) Pack (Water cooled)	3760	148	2090	82	2020	79
GA 180 - 315 (VSD+) Full Feature (Water cooled)	4390	173	2090	82	2020	79

# Notes

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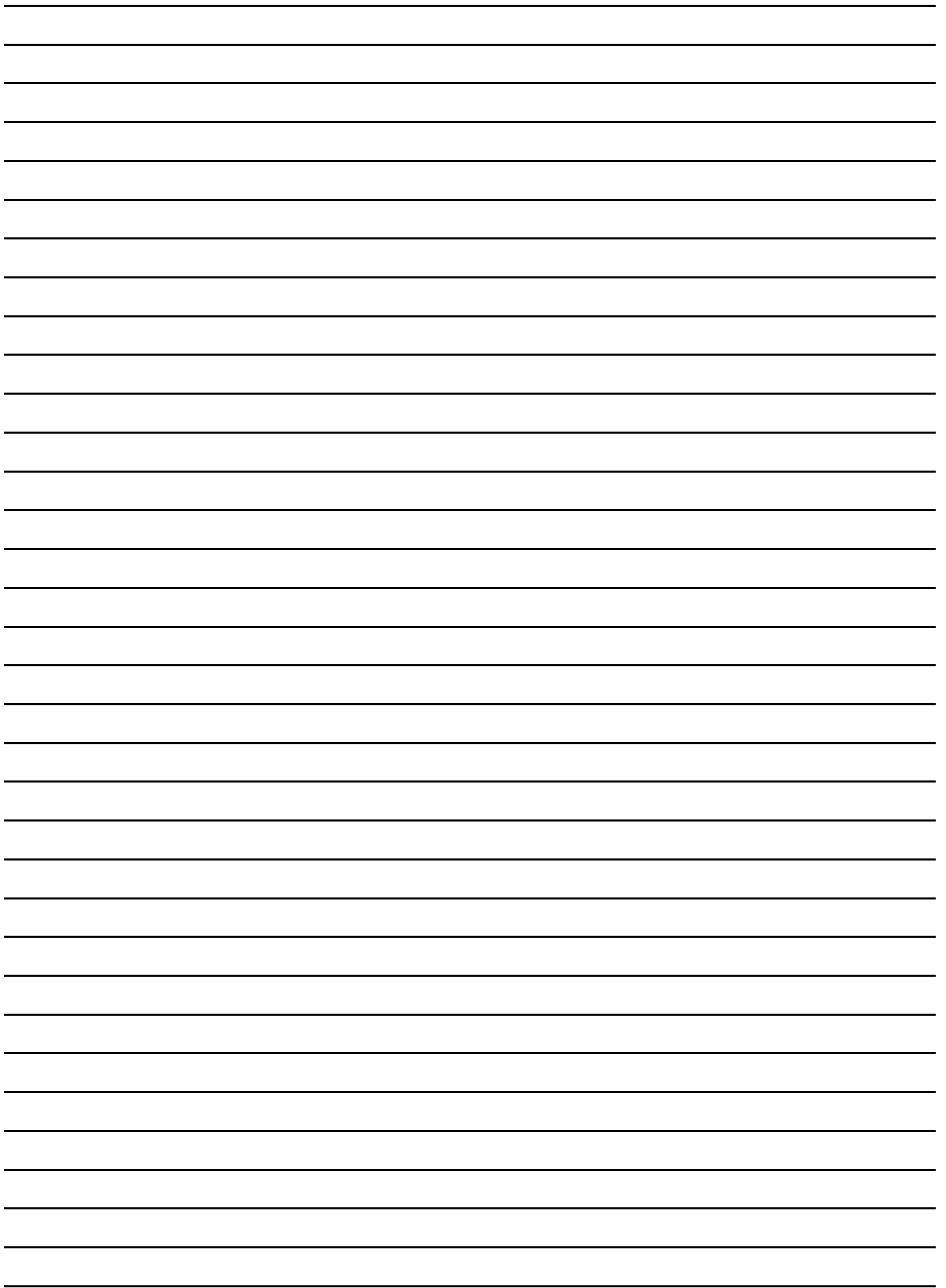
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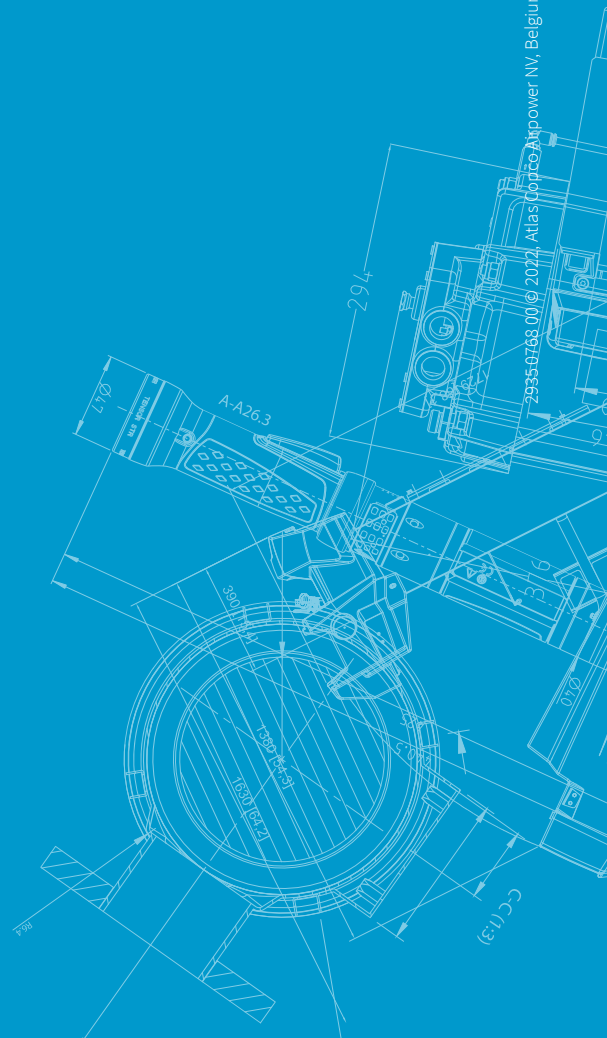
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