# Atlas Copco

Oil-injected Rotary Screw Compressors GA 160+-315/GA 315 VSD (160-315 kW/200-350 hp)









# Highest reliability, lowest operating costs

The shortest route to maximize your profitability is to minimize your operational cost. As energy consumption is the major factor (up to 70%) of a compressor's lifecycle cost, the Atlas Copco GA 160+-315/GA 315 VSD compressors are designed to help you achieve significant savings. The compressors provide high-quality compressed air to meet your requirements even in the most demanding applications.



## MINING INDUSTRY

- · Years of experience with thousands of compressors running around the world.
- High product reliability with maximum uptime even in harsh conditions.
- Strong global support network to provide 24/7 assistance even in remote locations.



# **ENERGY INDUSTRY**

- Protect downstream equipment and increase component lifetime.
- Integrated water separator with electronic drain as standard.
- GA Full Feature decreases energy and installation costs.



## **METAL MANUFACTURING**

- Easy and quick installation, with flexible ducting possibilities.
- A complete, ready-to-use solution including all components and options.
- Low service cost thanks to high accessibility of components and long service intervals.



### **GENERAL INDUSTRY**

- GA compressors are designed for ultimate efficiency in all your industrial applications.
- · Ideal for machinery operation, plant maintenance, cleaning, pneumatic tools and controls, sand- and shot-blasting.

# REDUCING YOUR OPERATING COSTS

The GA 160\*-315/GA 315 VSD provide maximum output at the lowest energy consumption. They will reduce your energy bill and your CO<sub>2</sub> emissions. The right core technologies with our experience in design and manufacture combine to produce a solution to match your needs. Generous cooling capacity, low pressure drop and a highly efficient drive train ensure optimum operation over a long lifetime.



# **ENSURING YOUR PEACE OF MIND**

The GA 160\*-315/GA 315 VSD optimize uptime by keeping your production running, 24/7. The highly advanced controller ensures optimum operation by controlling all compressor inputs/outputs.



### **EASY INSTALLATION AND SERVICE**

Easy to install, the 'all-in-one' package includes all necessary equipment. There are no hidden costs, nor any extra devices to install. Ducting is easy for increased flexibility. Service cost is reduced to a minimum: all parts are easily accessible via large opening doors, consumables are long-lasting, and service operations are easy and safe to perform.

### PROTECTING YOUR PRODUCTION

With its integrated dryer, the GA FF (Full Feature) provides dry compressed air (pressure dewpoint of \*3°C/37°F), while ensuring the lowest pressure drop and minimal installation costs. This compact package offers fully integrated functionalities such as saver cycle control that regulates the dryer at optimum capacity. Moreover, each compressor has an integrated Water Separator Drain as standard to remove 100% of condensate.



As there is no "one size fits all" concept, we have developed a comprehensive range of features, options and solutions to help you optimize the use of your compressor: from running the machine at high temperatures, to extra safety devices. Our highly skilled engineering team can help you develop a customized compressor based on your specific needs.



# The GA 160+-315 sets a new standard in the industry



# **High-efficiency motor**

- TEFC IP55 motor (Class F insulation B rise) protects against dust and chemicals.
- Continuous operation in ambient temperatures up to 55°C/131°F (standard up to 46°C/115°F).





## State-of-the-art screw element

- Patented asymmetric rotor profile and meticulous selection of bearings.
- · Low wear and tear leads to increased reliability.
- Proven reliability with thousands of installations throughout the world.



# **Cooling module**

- · Separated oil and aftercoolers for highest efficiency.
- Axial cooling fans driven by separate TEFC electric motors (IP55 protection).
- Low noise level.





## Performant gear-driven transmission

- Maintenance-free; totally enclosed and protected against dirt and dust.
- · Optimal working range of the screw element.
- Rotex coupling to absorb the trust load and increase the reliability.



# Service-friendly

- · Selection of long lifetime consumables.
- Easy and safe access to all service parts.
- Unique sliding system to access the oil coolers.





# Optimized loading/unloading valve

- Ensures constant optimized pressure in the system, resulting in significant energy savings.
- Simple, maintenance-free set-up with few moving parts for highest reliability.
- Accurate control through solenoid valve.





# Easy to install

- · Oil-containing frame as standard.
- All-in-one package, no hidden costs.
- · Flexible ducting possibilities.



## Superior air intake filter

- Protects the compressor components by removing 99.9% of dirt particles > 3  $\mu m$ .
- Reduces the dust load in the fine filter, doubling the filter element lifetime without reducing filter efficiency.



# Elektronikon® for advanced monitoring

- Integrated smart algorithms reduce system pressure and energy consumption.
- Monitoring features include warning indications, maintenance scheduling and online visualization of machine's condition.



# Superior air quality

- Integrated water separator with electronic drain removes 100% of condensate.
- Full Feature with integrated dryer (up to 315 kW).



# VSD: Driving down your energy costs

Over 70% 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, several decades ago Atlas Copco pioneered Variable Speed Drive (VSD) technology. VSD leads to major energy savings, while protecting the environment for future generations. Thanks to continual investments in this technology, Atlas Copco offers the most advanced VSD compressors on the market.

# WHAT IS VSD TECHNOLOGY?

In almost every production environment, air demand fluctuates depending on different factors (time of the day, week or even month).

Extensive measurements and studies of compressed air demand profiles show that many compressors have substantial variations in air demand. Only 8% of all installations have a more stable air demand. Tests prove that, even in this case, VSD compressors save energy.

## **Profile 1**



- 64% of all installations
- Factory working 24 hrs/day: low demand at night & high demand during the day

# Profile 2

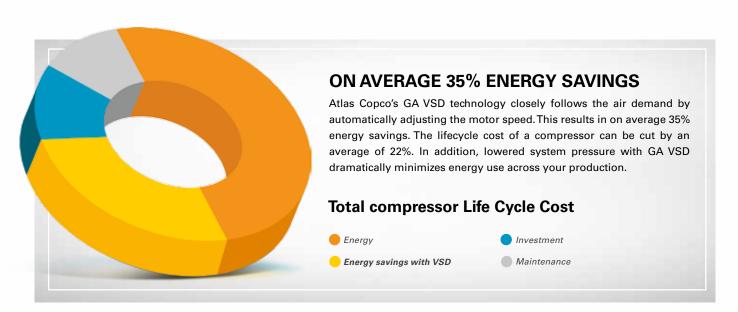


- 28% of all installations
- Factory working 2 shifts/day, no weekend work: erratically varying air demand

### **Profile 3**



- $\cdot$  8% of all installations
- Factory working 2 shifts/day, no weekend work: typical 'fixed' speed application



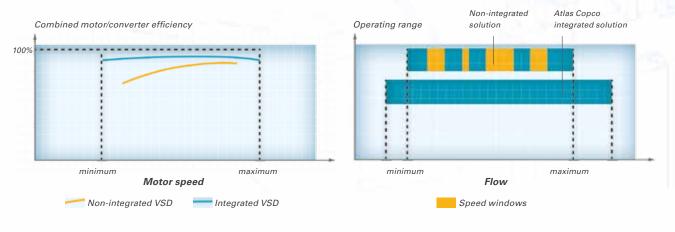
### FIND OUT HOW MUCH YOU CAN SAVE

Atlas Copco can help you map the air demand profile of your current compressor and blower installation and indicate potential energy savings with VSD compressors and blowers. For more information, please contact your local Atlas Copco representative.



GA 315 VSD-FF Air-cooled Full Feature model

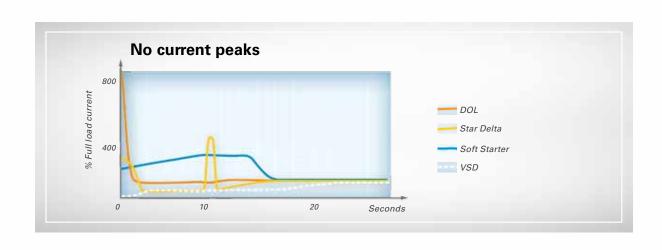
# HIGHLY PERFORMANT VSD TECHNOLOGY



# WHAT IS UNIQUE ABOUT THE INTEGRATED ATLAS COPCO GA VSD?

- 1 The Elektronikon® controls both the compressor and the integrated converter, ensuring maximum machine safety within parameters.
- **2** Flexible pressure selection from 4 to 13 bar with electronic gearing 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.
- All Atlas Copco GA 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.
- A highly efficient frequency converter in a cool overpressure cubicle ensures stable operation in high ambient temperatures up to 50°C/122°F\*.
  - \* Standard up to 46°C/114.8°F.
- **8** No 'speed windows' that can jeopardize the energy savings and the stable net pressure. Turndown capability of the compressor is maximized to 80-85%.
- **9** The cubicle cooling booster **increases the lifetime** of electrical components due to a cool cubicle in overpressure and reduced dust ingress.
- **10** Net pressure band is maintained within 0.10 bar, 1.5 psi.



# Increase your savings with energy recovery

The Kyoto directives and the continuing depletion of traditional energy sources mean that businesses throughout the world are making commitments to significantly reduce overall energy consumption. Through innovative products and solutions, Atlas Copco helps you achieve your goals in this area. When it comes to compressed air production – where energy costs can constitute 70% of total lifecycle costs – saving energy can also lead to substantial cost savings.

### INTEGRATED HEAT EXCHANGER

Air compression creates heat that is normally wasted in the coolers. Energy recovery systems designed by Atlas Copco enable the recovery of most of this heat. Recovery of energy from the shaft input of the compressor can be up to 94% of the compressor shaft power. The heat is directly usable as a source of energy in the form of hot water (85-90°C/185-194°F). The main module of the recovery system is built into the compressor. Energy is saved wherever the recovered energy is used as an auxiliary source, when it reduces your operating costs. The investment needed to link the hot oil circuit from the compressor to the existing water circuit is relatively modest and the time needed before seeing payback from your investment is generally very short.



### WARM AIR HEAT RECOVERY

The ducting on your GA compressors also constitutes a simple and smart solution to generate space heating. Ducting simply directs the warmed cooling air to where it is needed – such as workshops, storage warehouses or other facilities. To cope with seasonal changes, louver flaps can be used to vent the warm air to the outside. An installation with motorized and thermostatically controlled louvers is the ideal solution to accurately monitor the temperature with a full control of the flow of heating air.

### Applications:

- · Heating of facilities, warehouses or workshops.
- Drying air for painting and washing applications.

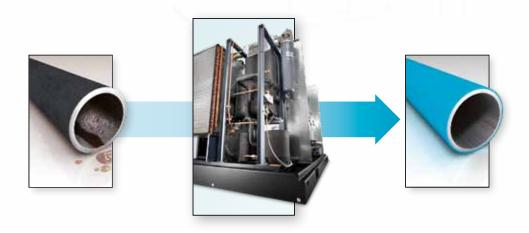
# Protect your production with the GA FF

Untreated compressed air contains moisture, aerosols and dirt particles that can damage your air system and contaminate your end product, resulting in risk of corrosion and compressed air system leaks. Maintenance costs can far exceed air treatment costs. Our compressors provide the clean, dry air that improves your system's reliability, avoids costly downtime and production delays, and safeguards the quality of your products.

## ALL-IN-ONE QUALITY AIR PRODUCTION

The GA FF (Full Feature) is a ready-to-use, compact package that guarantees a pressure dewpoint of 3°C/37°F (100% relative humidity at 20°C/68°F). All the wires and pipes are assembled in the factory, so there is no need for

additional installation work. The dryers can perform at ambient conditions up to 46°C/115°F. A high ambient temperature version is available for temperatures up to 50°C/122°F as an option.



# SAVE MONEY AND THE ENVIRONMENT

The unique and patented Saver Cycle Control stops the dryer when the compressor is stopped or in unload mode, drastically reducing power consumption. The dewpoint is continuously monitored and the dryer is re-started when

the dewpoint begins to increase. Use of the energy-efficient refrigerant R410A reduces operating costs and global warming potential.

### **OPTIMIZED AIR PURITY**

The optional DD/PD filters and integrated refrigerant air dryer (IFD) efficiently remove moisture, aerosols and dirt particles to protect your investment. This air quality prolongs the life of downstream equipment, increasing efficiency and ensuring quality of your final product.

Configure your GA for the air quality you need	ISO Quality Class	Dirt Particle Size	Water Pressure Dew Point	Oil Concentration
GA	34	3 microns	-	3 ppm
GA FF with ID	3.4.4	3 microns	+3°C, 37°F	3 ppm
GA FF with ID & general purpose coalescing filter	2.4.2	1 micron	+3°C, 37°F	0.1 ppm

# A step ahead in monitoring and controls

The next-generation Elektronikon® operating system offers a wide variety of control and monitoring features that allow you to increase your compressor's efficiency and reliability. To maximize energy efficiency, the Elektronikon® controls the main drive motor and regulates system pressure within a predefined and narrow pressure band.



### **BUILT-IN INTELLIGENCE**

- Improved user-friendliness: 5.7" color display with clear pictograms for easy readout.
- Monitoring of running conditions and graphical indication of the service plan.
- Regulates system pressure within a predefined narrow pressure band.
- Integrated energy savings functions like dual pressure set point, four different programmable week schedules.
- · Comprehensive icon indications and intuitive navigation.
- 31 different languages including character-based languages.
- Durable keyboard to resist tough treatment in demanding environments.
- Internet-based compressor visualization using a simple Ethernet connection.
- Remote control and advanced connectivity functions.



# ONLINE AND MOBILE MONITORING

Monitor your compressors over the Ethernet with the new Elektronikon® controller. Monitoring features include warning indications, compressor shut-down and maintenance scheduling. An Atlas Copco App is available for iPhone/Android phones as well as iPad and Android tablets. It allows fingertip monitoring of your compressed air system through your own secured network.



# **ES – FULLY OPTIMIZED SYSTEM**

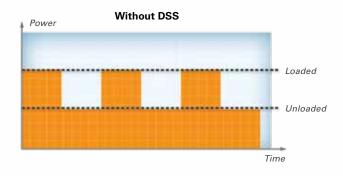
A properly managed compressed air network will save energy, reduce maintenance, decrease downtime, increase production and improve product quality. Atlas Copco's ES central controllers are the most efficient way to monitor and control multiple compressors simultaneously as well as dryers and filters. An ES

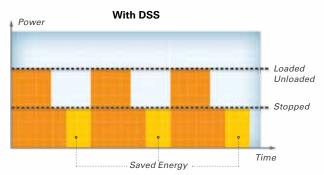
controller offers one central point of control for your whole compressed air network, ensuring all compressors provide optimum performance for your process. The result is a completely dependable and energy-efficient network, giving you peace of mind and keeping your costs to a minimum.

### **DUAL PRESSURE SET-POINT AND DELAYED SECOND STOP**

Most production processes create fluctuating levels of demand which, in turn, can create energy waste in low use periods. Using either the standard or graphic Elektronikon® controller, you can manually or automatically create two different system pressure bands to optimize energy use and reduce costs at low

use times. In addition, the sophisticated Delayed Second Stop (DSS) runs the drive motor only when needed. As the desired system pressure is maintained while the drive motor's run time is minimized, energy consumption is kept to a minimum.







# **SMART**Link\*: **DATA MONITORING PROGRAM**

- A remote monitoring system that helps you optimize your compressed air system and save you energy and cost.
- It offers you a complete insight in your compressed air network and anticipates on potential problems by warning you up-front.
- \*Please contact your local sales representative for more information

# Optimize your system

# **SCOPE OF SUPPLY**

	Superior air inlet filters and flexibles						
	Air intake valve (not on VSD units)						
Air circuit	Full load/no load regulation system (not for VSD)						
	Heavy-duty oil filters						
	Complete oil circuit						
Oil circuit	Air/oil separator						
	Compressed air aftercooler and oil cooler						
	Stainless steel tube and Shell coolers for water-cooled versions						
	Axial cooling fans for air-cooled versions.						
	Integrated water separator						
	Electronic water drains with no loss of compressed air						
Cooling circuit	Complete air, oil, water circuit						
	TEFC IP55 Class F electric motor						
	Starters (Star-Delta)						
	Pre-mounted electrical VSD cubicles (only for VSD units)						
Electrical components	Elektronikon® control system						
	Fig. 2d 2 and a decrease						
	Flexible vibration dampers						
	Silenced canopy						
Envisor	Structural skid with no need for foundations						
Framework	Suppression of emissions/harmonic distortions						

# **ADDITIONAL FEATURES & OPTIONS**

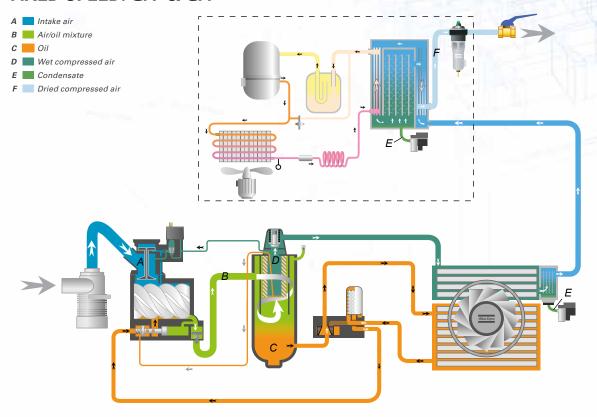
		GA 160⁺ -315	GA 315 VSD
	Full Feature: integrated ID refrigerant dryer	0	0
Air treatment	DD pre-filter	0	0
	Winterization protection	0	
	High ambient version (up to 55°C/131°F)*	0	-
Weather protection	Rain protection kit	0	
	Phase sequence relay	0	
	PT1000 thermal protection (windings and bearings)	0	
	Oversized main motor	0	-
	Anti-condensation heater in the main motor	0	0
	VSD cabinet heavy-duty filtration (applicable for VSDs)	0	0
	NEMA 4 cubicle	0	
	SPM vibration monitoring system	0	0
	IT/NT network system	-	0
Electrical protection	Cubicle switchbox	0	-
	Roto-Xtend duty fluid 8000h	<b>√</b> **	0
	NPT or ANSI connections	0	0
	Anchor pads	0	0
	Performance test certificate	0	0
	Witnessed performance test	0	0
	Material certificates	0	0
	Seaworthy packaging	0	0
	Heavy-duty filter	0	0
	Integrated Energy Recovery system	0	0
	Separate air intake	0	•
	Modulation control	0	-
General options	Automatic water shut-off valve for water cooler units	0	✓

<sup>\*</sup> GA VSD 50°C/122°F; GA fix speed Pack 55°C/131°F \*\* Except for GA 315

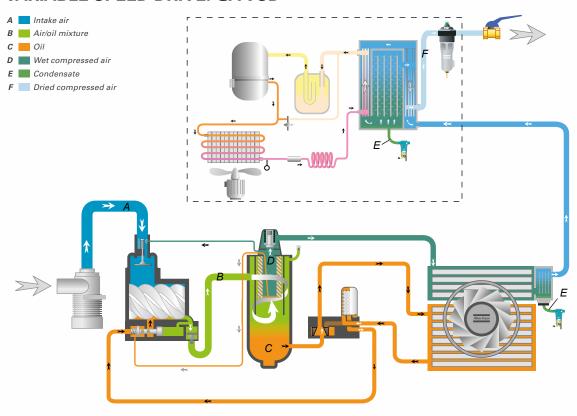
\(\sigma: \text{Standard}\) O: Optional -: Not available

# Flow charts

# FIXED SPEED: GA+ & GA



# **VARIABLE SPEED DRIVE: GA VSD**



# Technical Specifications GA 160+ - 315/ GA 315 VSD (50 Hz)

	Maximum working pressure			Capacity FAD (1)			Installed motor	Noise	Weight (shipping mass)				
TYPE	Stan	dard	Full Fea	ture (3)	Pac	k / Full Fea	ture	power level (	level (2)	Standard		Full Feature	
	bar(e)	psig	bar(e)	psig	l/s	m³/min	cfm	kW	dB(A)	kg	lb	kg	lb
GA 160+ - 5.5 bar	5.5	80	5.3	77	621	37.2	1316	160	77	4213	9269	4670	10274
GA 160+ - 7.5 bar	7.5	109	7.3	106	538	32.2	1140	160	77	4213	9269	4670	10274
GA 160+ - 8.5 bar	8.5	123	8.3	120	498	29.8	1055	160	77	4213	9269	4670	10274
GA 160+ - 10 bar	10	145	9.8	142	448	26.9	949	160	77	4213	9269	4670	10274
GA 200 - 5.5 bar	5.5	80	5.3	77	748	44.8	1585	200	78	4662	10256	5255	11561
GA 200 - 7.5 bar	7.5	109	7.3	106	674	40.4	1428	200	77	4478	9852	4935	10857
GA 200 - 8.5 bar	8.5	123	8.3	120	632	37.9	1339	200	77	4500	9900	4958	10908
GA 200 - 10 bar	10	145	9.8	142	572	34.3	1212	200	77	4465	9823	4922	10828
GA 200 - 14 bar	14	203	13.8	200	440	26.4	932	200	77	4450	9790	4907	10795
GA 250 - 7.5 bar	7.5	109	7.3	106	833	49.9	1765	250	78	5145	11319	5737	12621
GA 250 - 8.5 bar	8.5	123	8.3	120	773	46.3	1638	250	78	5145	11319	5601	12322
GA 250 - 10 bar	10	145	9.8	142	709	42.5	1503	250	78	4682	10300	5139	11306
GA 250 - 14 bar	14	203	13.8	200	575	34.5	1219	250	77	4667	10267	5124	11273
GA 315 - 7.5 bar	7.5	109	7.3	106	1000	59.9	2119	315	78	5560	12232	6152	13534
GA 315 - 8.5 bar	8.5	123	8.3	120	955	57.2	2024	315	78	5560	12232	6152	13534
GA 315 - 10 bar	10	145	9.8	142	891	53.4	1888	315	78	5133	11293	5726	12597
GA 315 - 14 bar	14	203	13.8	200	745	44.7	1579	315	78	5133	11293	5590	12298
GA 315 VSD	4	58	4	58	854	51.2	1810	290	75	6165	13563	6615	14553
GA 315 VSD	7	102	7	102	847	50.8	1795	290	75	6165	13563	6616	14555
GA 315 VSD	10	145	9.9	143	710	42.6	1505	290	75	6165	13563	6617	14557

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

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, Lp 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. Pressure dew point of integrated refrigerant dryer at reference conditions: 2°C to 3°C, 36°F to 37°F.

(3) Integrated dryer: Compressed air pressure dewpoint at dryer reference conditions 3°C.

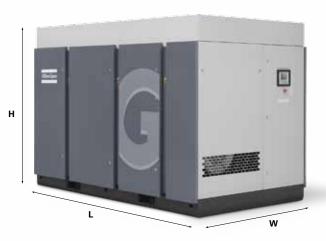
FAD is measured at the following working pressures:

5.5 bar versions at 5 bar 7.5 bar versions at 7 bar 8.5 bar versions at 8 bar 10 bar versions at 9.5 bar

14 bar versions at 13.5 bar

Dimensions								
	L	Н						
	mm	mm	mm					
GA 160-315 - A	3400	2000	2300					
GA 160-315 FF - A	4300	2000	2300					
GA 160-315 - W	3400	2000	2300					
GA 160-315 FF - W	3400	2000	2300					
GA 315 VSD (FF)	4000	2120	2400					

A = Air-cooled W = Water-cooled FF = Full Feature



# **Technical Specifications** GA 160+ - 315/ GA 315 VSD (60 Hz)

	Maximum working pressure			Capacity FAD (1)			Installed	Noise	Weight (shipping mass)				
TYPE	Stan	dard	Full Fea	ture (3)	Pac	k / Full Fea	ture	motor power	level (2)	Stan	dard	Full Fe	eature
	bar(e)	psig	bar(e)	psig	l/s	m³/min	cfm	hp	dB(A)	kg	lb	kg	lb
GA 160+ - 75 psi	5.5	80	5.3	77	580	34.8	1229	200	77	4263	9379	4720	10384
GA 160+ - 100 psi	7.4	107	7.2	104	511	30.6	1083	200	77	4263	9379	4720	10384
GA 160+ - 125 psi	9.1	132	8.9	129	446	26.7	945	200	77	4250	9350	4707	10355
GA 160+ - 150 psi	10.9	158	10.7	155	397	23.8	841	200	75	4250	9350	4707	10355
GA 200 - 75 psi	5.5	80	5.3	77	711	42.6	1507	250	77	4712	10366	5305	11671
GA 200 - 100 psi	7.4	107	7.2	104	633	37.9	1341	250	77	4443	9775	4900	10780
GA 200 - 125 psi	9.1	132	8.9	129	576	34.5	1221	250	77	4430	9746	4887	10751
GA 200 - 150 psi	10.9	158	10.7	155	505	30.3	1070	250	77	4430	9746	4887	10751
GA 200 - 200 psi	14	203	13.8	200	405	24.3	858	250	75	4415	9713	4872	10718
GA 250 - 100 psi	7.4	107	7.2	104	759	45.5	1608	300	78	5014	11031	5607	12335
GA 250 - 125 psi	9.1	132	8.9	129	694	41.6	1471	300	77	5014	11031	5471	12036
GA 250 - 150 psi	10.9	158	10.7	155	627	37.6	1329	300	77	4552	10014	5009	11020
GA 250 - 200 psi	14	203	13.8	200	526	31.5	1115	300	77	4537	9981	4994	10987
GA 315 - 100 psi	7.4	107	7.2	104	925	55.4	1960	350	78	5655	12441	6247	13743
GA 315 - 125 psi	9.1	132	8.9	129	855	51.2	1812	350	78	5655	12441	6247	13743
GA 315 - 150 psi	10.9	158	10.7	155	784	47.0	1661	350	78	5228	11502	5821	12806
GA 315 - 200 psi	14	203	13.8	200	667	40.0	1414	350	77	5228	11502	5685	12507
GA 315 VSD	4	58	4.0	58	854	51.2	1810	390	75	6165	13563	6615	14553
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(3) Integrated dryer: Compressed air pressure dewpoint at dryer reference conditions 3°C.

FAD is measured at the following working pressures:

75 psi variants at 73 psi

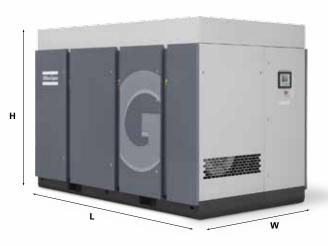
100 psi variants at 100 psi

125 psi variants at 125 psi

150 psi variants at 150 psi 200 psi variants at 200 psi

Dimensions								
	L	Н						
	inch	inch	inch					
GA 160-315 - A	134	79	91					
GA 160-315 FF - A	169	79	91					
GA 160-315 - W	134	79	91					
GA 160-315 FF - W	134	79	91					
GA 315 VSD (FF)	157	83	94					

A = Air-cooled W = Water-cooled FF = Full Feature





#### **Driven by innovation**

With more than 135 years of innovation and experience, Atlas Copco will deliver the products and services to help maximize your company's efficiency and productivity. As an industry leader, we are dedicated to offering high air quality at the lowest possible cost of ownership. Through continuous innovation, we strive to safeguard your bottom line and bring you peace of mind.



### **Building on interaction**

As part of our long-term relationship with our customers, we have accumulated extensive knowledge of a wide diversity of processes, needs and objectives. This gives us the flexibility to adapt and efficiently produce customized compressed air solutions that meet and exceed your expectations.



#### A committed business partner

With a presence in over 170 countries, we will deliver high-quality customer service anywhere, anytime. Our highly skilled technicians are available 24/7 and are supported by an efficient logistics organization, ensuring fast delivery of genuine spare parts when you need them. We are committed to providing the best possible know-how and technology to help your company produce, grow, and succeed. With Atlas Copco you can rest assured that your superior productivity is our first concern!











