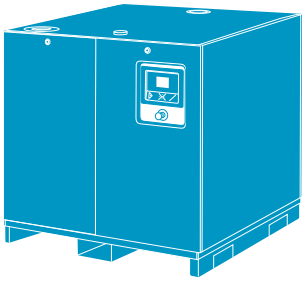
GHS 350-1900 VSD+ series



Oil-sealed rotary screw vacuum pumps
with Variable Speed Drive (VSD) technology

Atlas Copco

Innovative, intelligent vacuum pumps

The GHS VSD+ Series is a range of new-generation, intelligent, oil-sealed rotary screw vacuum pumps with Variable Speed Drive (VSD) technology from Atlas Copco. Based on the well-known and durable plug-and-play design principles of Atlas Copco compressors, these vacuum pumps have been designed by vacuum engineers to deliver peak performance at your operating pressure.
These unique products offer:

- Superior performance against benchmarked oil-sealed and dry vane vacuum pump technologies.
- Increased efficiency – State-of-the-art screw technology, Variable Speed Drive (VSD) and innovative motor design combine to produce a leap forward in efficiency.
- Quiet operation – Noise level is far below that of comparable technologies.
- Sustainable productivity thanks to built-in efficiency.
- Reduced environmental impact due to ultra-high oil retention at all operating pressures.

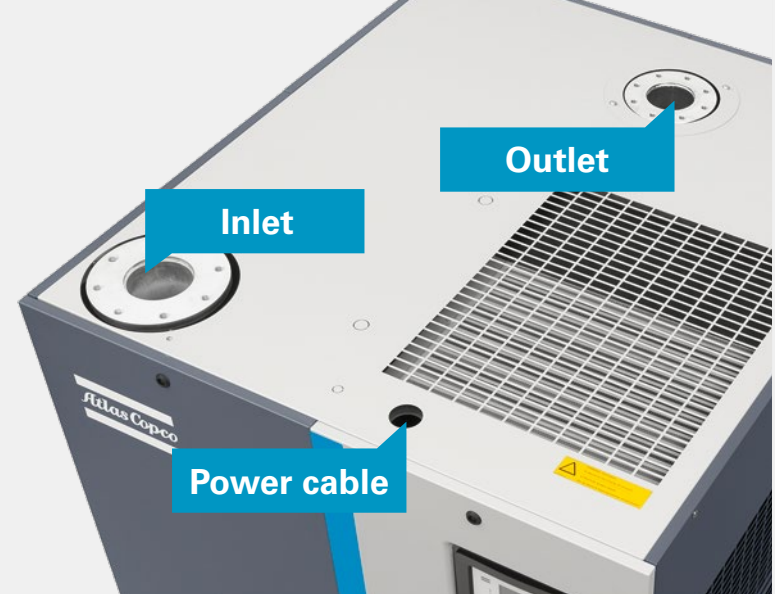
Perfect for diverse markets

The GHS VSD+ Series vacuum pumps are ideal for a range of applications in plastics, glass, bottling, canning, wood, packaging, printing and paper, meat packaging and many more. The GHS 350-900 VSD+ is the ideal solution when a dedicated pump is required in the production area. The GHS 1300-1900 VSD+ can also be set up as a dedicated solution but is normally used in the plant room of central vacuum system applications.

Low lifecycle costs

Here are two examples of the impressively low lifecycle costs of the GHS VSD+ Series:

- **For replacement pumps**, the GHS VSD+ Series offers a very low lifecycle cost (including service activities and energy). Generally the payback time against existing oil-lubricated or multiple dry vane installations will be much less than two years, considering power and maintenance costs alone, without taking into account the ease of installation.



Outstanding, unmatched benefits

With these vacuum pumps you can potentially save 50%* or more in energy costs. They are among the most energy-efficient oil-lubricated vacuum pumps on the market in the capacity range where some other technologies (e.g. oil-sealed vane) start to become mechanically inefficient and expensive in terms of capital expenditure.

As much as 90% of the electrical energy used by a vacuum solution is converted into heat.
With Atlas Copco's integrated energy recovery system, it is feasible to recover up to 75% of that power input as hot water without any influence on the machine's performance. Through efficient usage of the recovered energy, you obtain important energy cost savings and a high return on investment.

**In most applications compared to traditional fixed speed vacuum technologies based on measurement with our Vbox energy audit tool.*

Easy, fast installation saves time

- Space-saving – The GHS VSD+ Series has one of the smallest footprints on the market: ideal for compressor house installations.
- Everything you need is delivered in a single, neat enclosure.
- Plug-and-play installation.
- Multiple pumps can be controlled by the Elektronikon® (via ES6i).

Optimized working surroundings

In addition, the GHS VSD+ Series offers a very low noise level when compared to other vacuum pumps on the market today. Its market-leading oil retention also means that the quality of the exhausted air is optimal and oil spills on the factory floor are avoided. The end result is a significantly cleaner working environment.

Guaranteed uptime and low costs

The GHS VSD+ Series is designed for easy and infrequent maintenance: no vanes, no vane chatter, and no vane wear. Mean Time Between Maintenance (MTBM) rates are extremely long. No water is needed, and **SMART**LINK is available to keep you effortlessly informed of pump performance and maintenance requirements.

Long-lasting components

The oil separator is designed for highly efficient oil coalescing with ultra low back pressure, which means less energy consumption. This contributes to a long oil separator life that is double that of a comparable oil-sealed vane vacuum pump. Another contribution to oil separator life is the patented design which never allows the filtration media to be overloaded, so they last much longer. This is great news for your maintenance budget.

Energy savings

VSD and set-point control – not normally features of vacuum pumps – lead to significant energy savings. Set-point control allows you to optimize the energy you use to maintain your process vacuum level and thereby optimize your process efficiency and performance. The lowest possible flow will be delivered to match your required vacuum level or speed – nothing is wasted!

Optimal flexibility

A unique water handling capability provides you with the versatility and flexibility you need.

The innovative technology that makes it work

1 Element

- Highly efficient oil-sealed rotary screw.
- Outstanding performance in a robust design.
- Element life is significantly longer than screw compressors and vane pumps.

2 Inlet control valve

Modulating vacuum control in conjunction with the VSD drive to minimize energy consumption.

3 Atlas Copco's Neos inverter (GHS 1300-1900 VSD+)

- Atlas Copco's in-house designed inverter for VSD machines.
- A robust, aluminium enclosure for trouble-free operation in the harshest conditions.
- Fewer components: compact, simple and user-friendly.

4 Guaranteed oil retention

- Optimum design for maximum oil retention.
- Longer life due to managed performance: the vacuum pump never overloads the separators.
- Innovative and patented oil separator design retains oil at <3 mg/m^3 even under the greatest load.

8

Easy to use, simple to maintain

- The top cover of the oil separator has a unique hinge mechanism. It slips the cover to the side, allowing the oil separator filter to be changed easily and quickly.
- A cleverly designed exhaust pipe (drip drain leg) enables the condensate to be collected in the discharge pipework at the outlet and can be drained via the outside of the canopy.

7

Canopy with hot-cool zones

The GHS VSD+ Series features a canopy with a hot-cool design. It isolates all heat producing and temperature critical components (oil separator and element) from all other components. As cool running means higher reliability, this feature extends the lifetime of electronic components and leads to a longer Mean Time Between Maintenance (MTBM).

6

Elektronikon® monitoring system

Elektronikon® is a state-of-the-art monitoring system for your vacuum pumps. It is simple and comprehensive, and leads to energy savings. It can also integrate your plant management system thanks to a remote monitoring option.

5

Energy recovery options

- Allowing you to recover up to 75% of the power input.
- Helping you to fulfil your energy management & environmental commitments according to ISO 50001/14001.

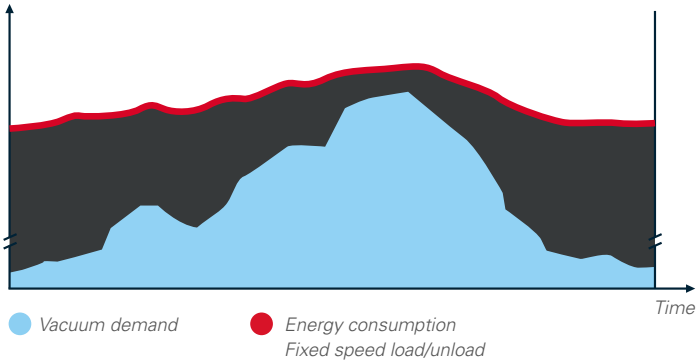
VSD+ for potential energy savings of 50%* or more

In almost every production environment, the need for vacuum fluctuates depending on different factors such as process changes, the time of day, week or even month. Extensive measurements and studies of demand profiles show that there are many substantial variants with regards to vacuum demand.

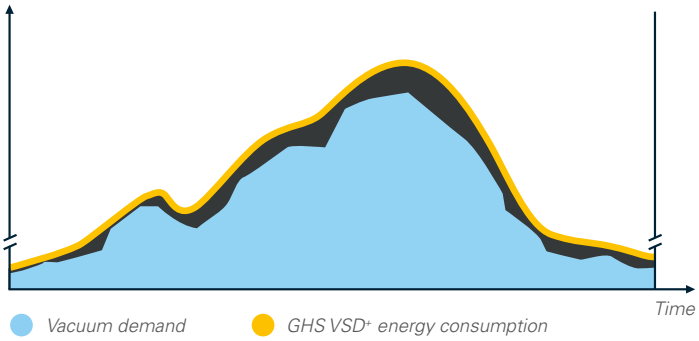
Why Atlas Copco variable speed drive technology?

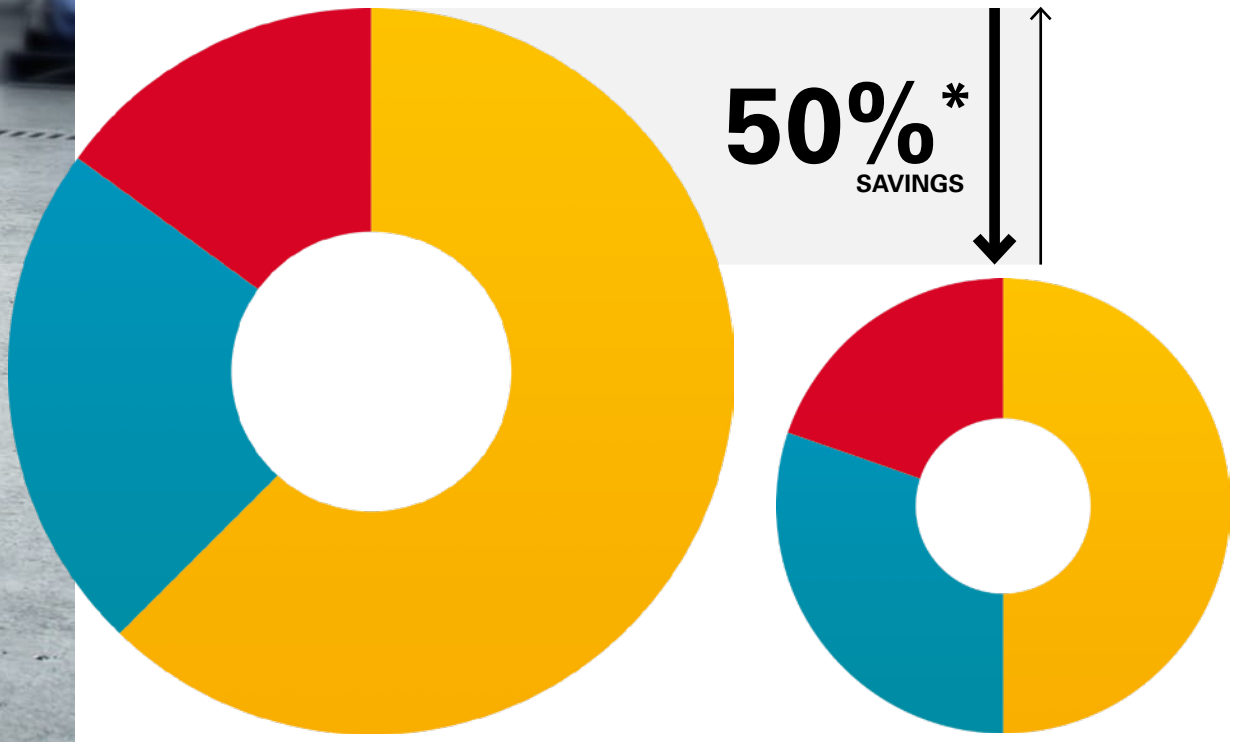
- Potential energy savings of 50%* or more with an extensive flow range (10-100%).
- Reduced electrical installation costs (fuse and cable size).
- Integrated Elektronikon® Graphic controller controls the motor speed and high efficiency frequency inverter.
- Eliminates peak current penalty during start-up experienced with stop-start machines.
- EMC compliance to directives (2004/108/EG).

Fixed Speed



GHS VSD+





Fixed Speed Vacuum Pump

GHS VSD+

Energy
Investment
Maintenance

**In most applications compared to traditional fixed speed vacuum technologies based on measurement with our Vbox energy audit tool.*

Elektronikon® monitoring system

Elektronikon® is a state-of-the-art monitoring system for your vacuum pumps. It is simple and comprehensive, and leads to energy savings. It can also integrate your plant management system thanks to a remote monitoring option.

Easy to use

- 3.5-inch high-definition color display with clear pictograms, 32 language settings.
- Additional LED indicator for service.
- Graphical display of key parameters (day, week, month).
- Fully automated pump with limited manual handling.

Comprehensive

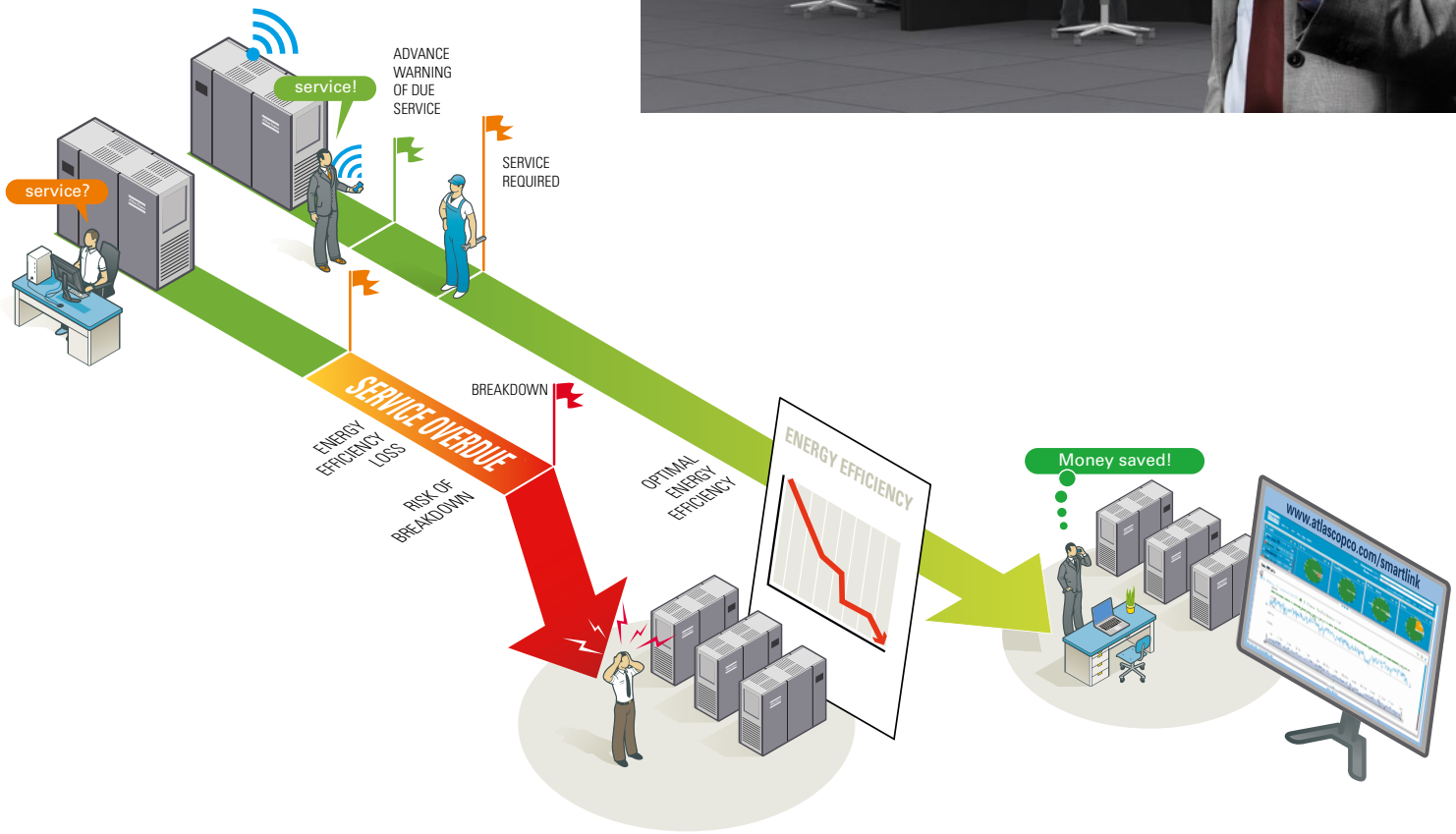
You get all the information for the everyday management of your vacuum pump, as well as the alarms, safety shutdowns and maintenance:

- Monitoring: Vacuum pump operating status, recording of running/stopped hours, programmable timers, temperature/pressure read-outs, set point control and other settings.
- Safety: Warning indications, fault and shutdown indications.
- Service: Service operations, remote control (optional).

Plant management system

The machines can be controlled by a multiple pump controller ESv – integrated or external. Remote monitoring and control can also be installed with a Gateway (Modbus or Profibus).

SMARTLINK



SMARTLINK: **more than just a watchful eye**

SMARTLINK is a flexible solution for data monitoring: easy to install and customize and user-friendly. Central vacuum systems and individual machines are connected to your engineering team by Atlas Copco. **SMART**LINK brings system relevant data to your mobile phone, smartphone and PC. Whenever you have access to the Internet, it is possible to display the information you need; from machine alarms and faults to visualized representations of demand and load for your complete site vacuum installations. This allows you to respond quickly to changing circumstances. Service calls can be efficiently planned and production losses minimized. **SMART**LINK is flexible and delivers as much or as little info as you choose.

Features (Internet connection required)

- Web portal: event overview of the last 30 days, access to service data and monthly status report by email.
- Logging + download service data for the last 30 days (Excel, Word, PDF).
- Requirement of machine-related services (service, spare parts) directly via web portal.
- SMS/email notification (service, failures and warnings).
- Online trend graph: status display.

Hot spot applications

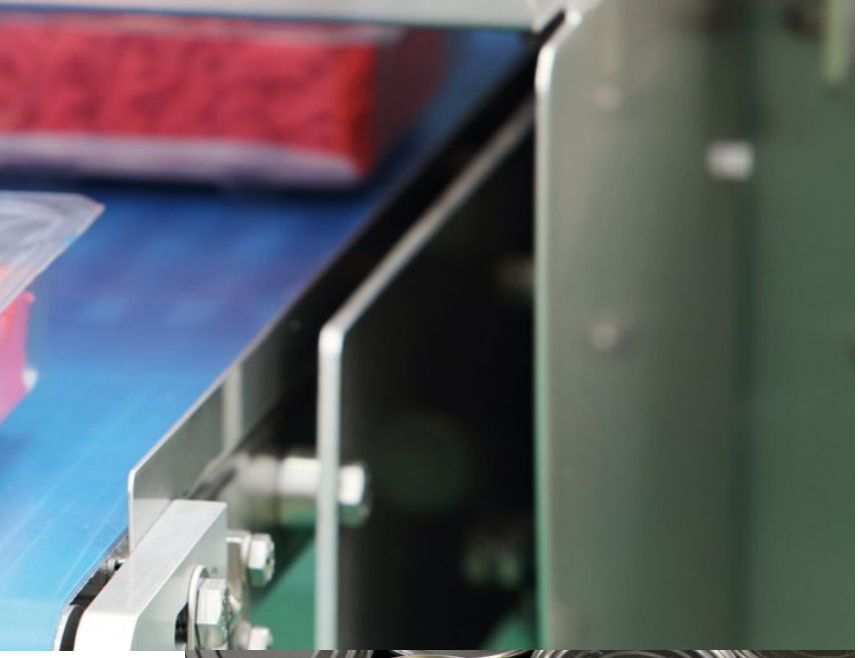
The GHS VSD+ Series is suitable for a range of applications in various industries. The capacity range of these pumps means they are ideal for central systems or larger installations. Here are some of the key ones.

Holding, lifting and moving applications:

- Pick and place – especially electronics.
- Envelope manufacture.
- General packaging.
- Woodworking.

Forming and shaping applications:

- Plastics (e.g. bath tubs, shower trays, white goods internals).
- Packaging materials (e.g. thermoformed parts).
- Glass items such as bottles and windscreens.
- Wood/lamination.



Preserving applications:

- Meat packaging (flat, vacuum packs, controlled atmosphere packaging).
- Poultry packaging.
- Modified atmosphere packaging (gas flushing).
- Canning.

Humid applications:

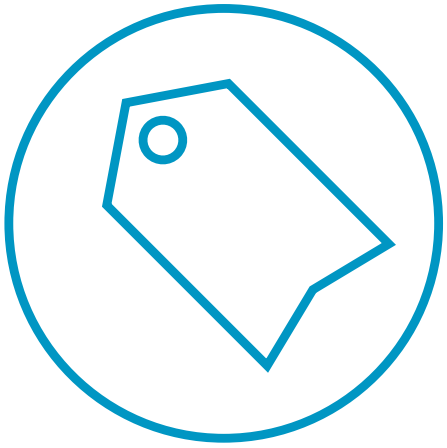
- Roof tile and brick manufacture.
- Pipeline drying.
- Salad cooling.

When a clean environment is essential:

- Heat treatment, nitriding and metallurgy.
- Altitude simulation.
- Drying and general evacuation duties.
- Coating.
- And many more...

Numerous configurations to match your application

Choose the version that matches your specific application requirements:



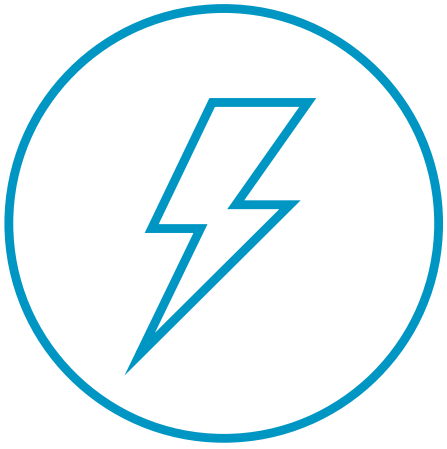
Standard

This machine focuses on delivering the exact performance you demand, at the lowest possible lifecycle cost. Ideal for applications where you need to maintain a set vacuum level (set point).

Humid

Suitable for high water content duties (up to 100%), for applications such as plastics, clay molding, drying pipelines, salad cooling, freeze drying etc.

Configuration for high water vapor tolerance constitutes the humid version.



Turbo

This fast evacuation version enables faster cycle times – meaning more production. It's ideal for meat, cheese and chicken packaging, as well as cooling, freeze drying and general vessel evacuation applications.

Turbo versions for fast cycling machines are available in 350, 585, 730, 1300 and 1600 sizes and come with upgraded motors and logic.

Technical specifications

Type	Nominal displacement		Ultimate pressure		Oil quantity		Noise level range	Permissable ambient temperature range		Inlet connection size	Outlet connection size	Shaft power	
	m^3/hr	cfm	mbar(a)	Torr	litres	gallons	dB(A)	°C	°F			kW	hp
GHS 350 VSD+	400	240	0.35	0.26	16	4.2	51-65	0 to 46	32 to 115	DN80 (PN6)	2 1/2" bsp	5.5	7.5
GHS 585 VSD+	560	330	0.35	0.26	16	4.2	51-68	0 to 46	32 to 115	DN80 (PN6)	2 1/2" bsp	7.5	10
GHS 730 VSD+	730	430	0.35	0.26	16	4.2	51-73	0 to 46	32 to 115	DN80 (PN6)	2 1/2" bsp	11	15
GHS 900 VSD+	900	530	0.35	0.26	16	4.2	51-76	0 to 46	32 to 115	DN80 (PN6)	2 1/2" bsp	15	20
GHS 1300 VSD+	1250	740	0.35	0.26	40	10.5	65-75	0 to 46	32 to 115	PN10 DN150	PN10 DN100	22	30
GHS 1600 VSD+	1590	940	0.35	0.26	40	10.5	65-79	0 to 46	32 to 115	PN10 DN150	PN10 DN100	30	40
GHS 1900 VSD+	1810	1070	0.35	0.26	40	10.5	65-80	0 to 46	32 to 115	PN10 DN150	PN10 DN100	37	50

ISO21360-2:2012
ES4i, ES6i, ES6 controllers, various inlet & outlet connections and other essential vacuum accessories are available as options or accessories.
Electrical specification: 380/460V 50/60Hz IP54 cubicle CSA/UL.
220 V/575 V: available upon request.
Available oils include mineral, synthetic and food grade.

GHS 730 VSD+

Height: 1100 mm, 43″
Width: 1300 mm, 51″
Depth: 900 mm, 35″

GHS 1300 VSD+

Height: 1467 mm, 57.8″
Width: 1420 mm, 55.9″
Depth: 1585 mm, 62.4″

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.

www.atlascopco.com/vacuum

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