

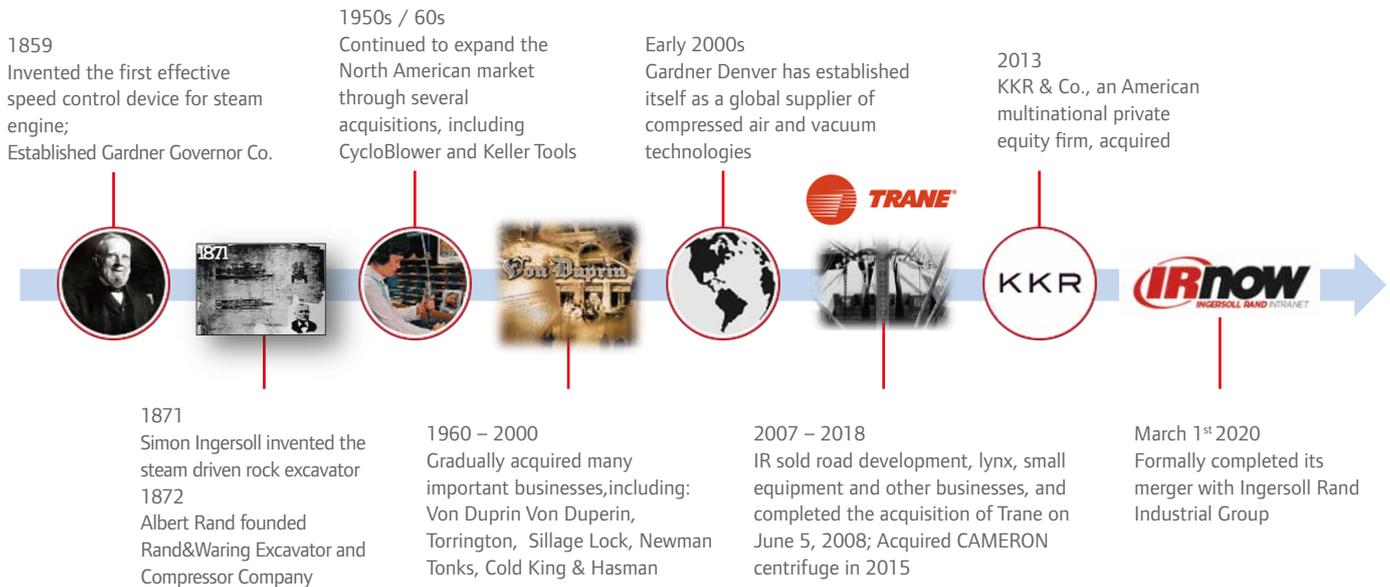
VS Series Dry Screw Vacuum Pump



Ingersoll Rand

Ingersoll Rand Inc. (NYSE:IR), driven by an entrepreneurial spirit and ownership mindset, is dedicated to helping make life better for our employees, customers and communities. Customers lean on us for our technology-driven excellence in mission-critical flow creation and industrial solutions across 50+ respected brands where our products and services excel in the most complex and harsh conditions. Our portfolio of products consists of air compressors, pumps, blowers, and systems for fluid management, loading and material handling as well as power tools. With over 18,000 employees globally, our team develops customers for life through their daily commitment to expertise, productivity and efficiency. For more information, visit www.IRCO.com.

The brands under the umbrella of Ingersoll Rand include dozens of well-known enterprises in air compressor, blower and vacuum pump sectors, such as Ingersoll Rand, Gardner Denver, Elmo Rietschle and Robuschi, etc.



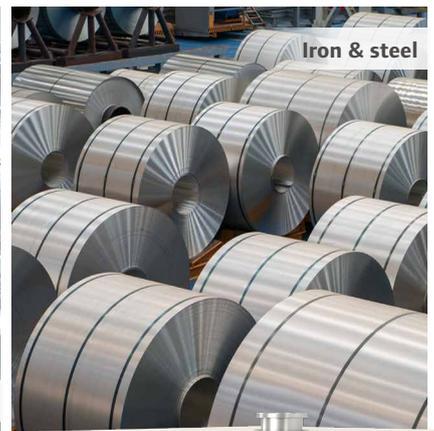
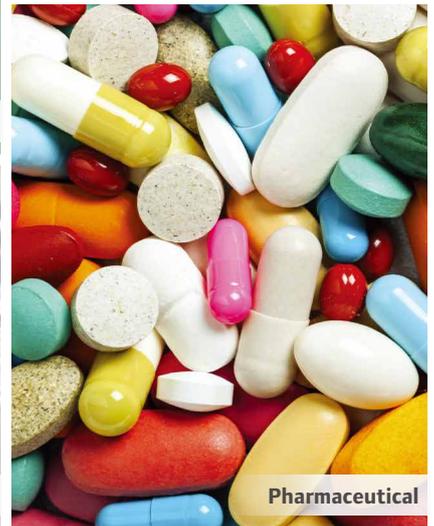
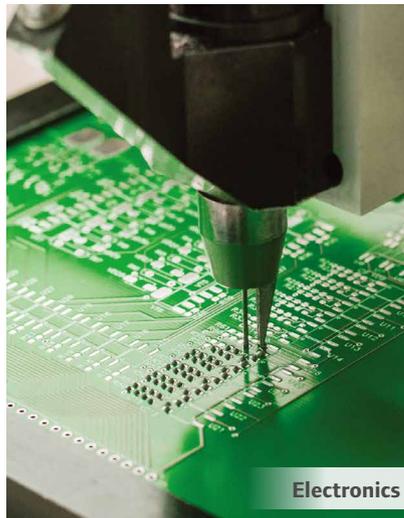
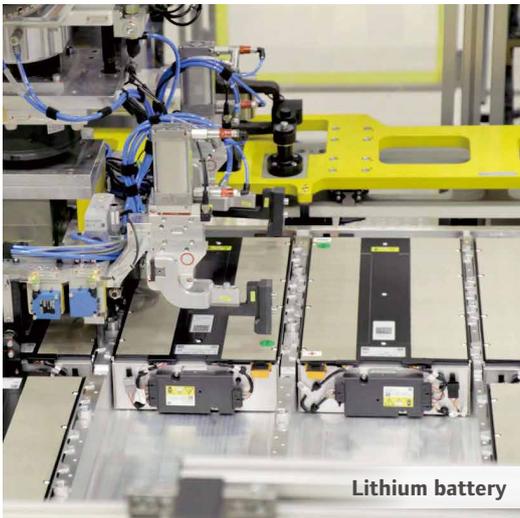
Ingersoll Rand Production Line

The Research and Development Center located in Shanghai, and is the only technology R&D center of Ingersoll Rand in Asia-Pacific region. This not only demonstrates Ingersoll Rand’s advantages in focusing on technological innovation, product R&D and industrial upgrading, but also highlights the company’s confidence and determination to develop and further invest in Chinese market, as well as the high recognition of the business environment in China.

Ingersoll Rand locates its largest plant worldwide in Suzhou Wujiang Industrial District, which covers an area of 230,000 square meters and has a building area of 91,000 square meters and nearly 700 employees. The production, quality inspection and control of all the products will be completed here; and which enables the suppliers’ on-site evaluation, production part approval process, incoming quality control, warehouse & inventory management, manufacturing process, testing & inspection, finished product quality control, and outgoing quality control and warranty strictly follows Ingersoll Rand’s global quality procedures.



Applications



VS Series Dry Screw Vacuum Pump

- Ingersoll Rand launches the new VS series dry screw vacuum pump unit by utilizing its own powerful dry screw technology and combining VW series roots pump. This enables improved ultimate vacuum, higher pumping speed and shorter pump-down time, and reduces energy consumption for a more ideal use effect.
- Ingersoll Rand launches multiple configurations available for users from different industries with different working conditions in a variety of applications.

Intelligent Control System

- More suitable for application conditions and save up to 50% energy on average Eliminating peak
- Eliminate peak current surges, with up to 97.5% efficiency
- All parameters are clear at a glance on the operator interface
 - Motor speed
 - Pump casing temperature
 - Outlet temperature
 - Cooling chamber flow alarm, etc.

VS-H Vacuum Pump

- AI: Pre-programmed controller with integrated local and remote communication capability
- Excellent performance: intelligent variable speed drive (VSD), with the instantaneous response for shorter pump-down time
- Energy conservation & environment protection: high-efficiency water cooling for no heat wave & blowing dust around
- Mute & safety: customized exhaust noise attenuating enclosure, for low noise on site and safe communication
- Rigorousness & reliability: professional design, manufacturing & inspection process, for quality assurance and cost control optimization
- Extended combinations: roots screw pump unit, matching solvent cleaning, inlet pressure monitoring, inter-stage differential pressure monitoring, temperature management, etc.

VS-H Vacuum Pump

- Smaller footprint
- High-efficiency cooling
- Integrated water-cooled motor
- No blowing dust
- Less impact on the ambient temperature

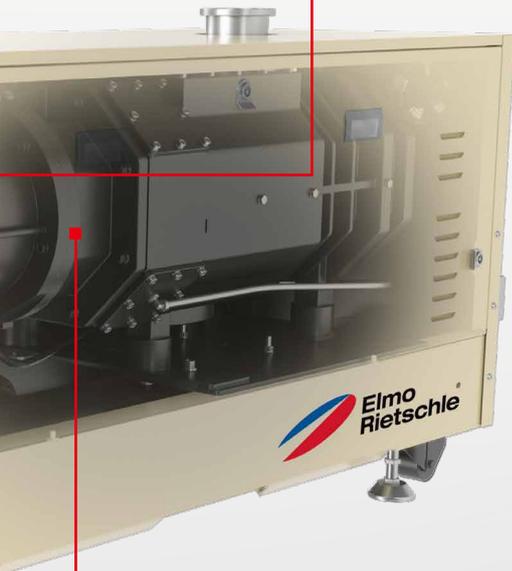


Base

- Shock-proof base: the drive mechanism is installed on the base placed over absorbing pad, further reducing energy transferred to other parts of the unit and customers' equipment
- Supporting legs of the base: fixed legs are provided by default, and movable legs are also made available for customers

VSD PM Synchronous Motor

- Up to IE5 efficiency
- Compact structure & simple design
- Machine base and frame is specially designed to provide maximum strength and rigidity for bearing seat
- Class F insulation
- Higher stability, longer service life, and improved durability under adverse conditions



Direct Drive (VSD)

- Special design for zero-loss operation
- Excellent driving performance
- Newly developed drive mode for highly efficient & steady energy transfer

VS-P Vacuum Pump

- Convenient design for ease of installation
- A controller equipped for simple operation
- Noise attenuating enclosure & management system
- Smooth operation & little vibration
- Multiple configurations available



VS-G Vacuum Pump

- Non-sheet metal enclosure
- No controller
- Smaller dimensions
- Lighter weight
- Same performance



VS Series Unit – VS Dry Screw Vacuum Pump

Vacuum is **in our DNA!**

VS Dry Screw Vacuum Pump

Our VS dry screw vacuum pumps are remarkably simple, yet sophisticated, reliable, and highly efficient. The dry and contact-free operation requires no lubrication in the pumping chamber. This translates into major advantages: no process contamination and no pollution caused by the pump operation.

Wide Performance Range

VS dry screw vacuum pump can reach and even exceed ultimate vacuum of 0.01mBarA. It can be operated under the pressure between atmospheric pressure and ultimate vacuum. With a wide performance range, it perfectly adapts to VSD operation. Its combination with VW series roots pump significantly increases pumping speed and improves ultimate vacuum.

Advanced Screw Design

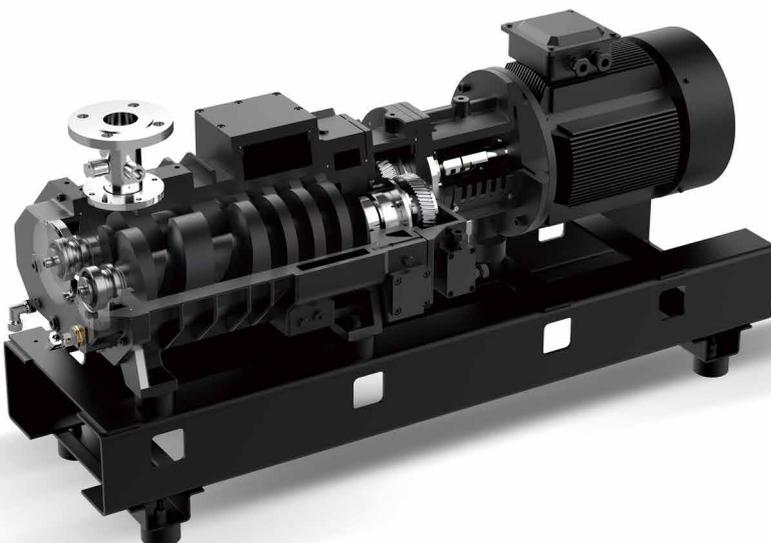
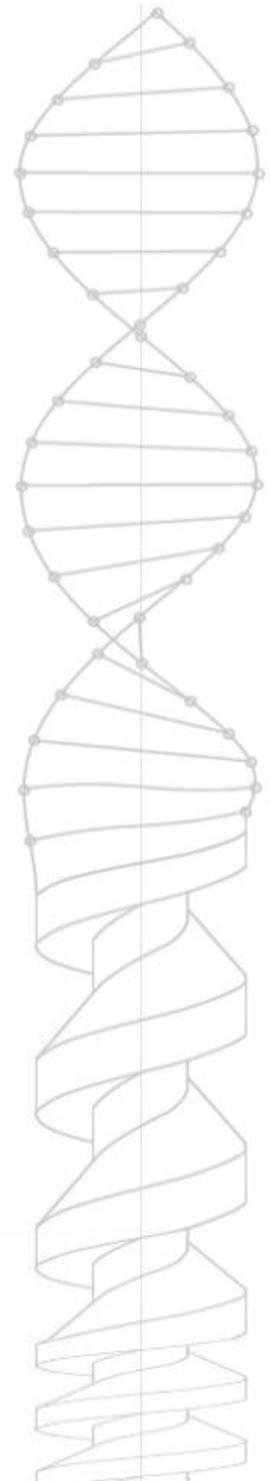
Advanced variable pitch screw is designed to ensure that the air is continuously compressed axially along the rotor. The design reduces temperature and power, and also guarantees an ideal ultimate vacuum. The exhaust port at the bottom is designed to ensure that any liquid can be emptied.

Dual-end Support

Non-cantilever design provides more reliable rigid rotor support with smaller vibration. VS is especially suitable for demanding processes for its excellent liquid and dust handling capacity.

Advanced and Reliable Shaft Sealing Technology

VS series vacuum pump has multiple sealing designs and can be used in severe and demanding environment. It can guarantee long service life and reliable performance even in corrosive, liquid and dusty applications.



VS Series Performance Parameters

Product parameters*		VS160	VS200	VS300	VS450	VS580	VS680
Max. pumping speed	m ³ /h	180	240	360	520	580	780
Ultimate vacuum	mbar	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Max. exhaust pressure	mbarg	200	200	200	200	200	200
Installed power	kW	5.5	5.5	7.5	15	18.5	22
Cooling water flow (adjustable)	lpm	7	7	7	10	10	15
Cooling water temperature	°C	15~35					
Cooling water pressure	barg	1~3					
Shaft seal purge flow, drive end	lt/min	5	5	5	10	10	15
Shaft seal purge supply pressure	barg	2~5					
Shaft seal purge pump-in pressure (after depressurization)	barg	0.2~0.5					
Noise	dB(A)	≤71	≤72	≤75	≤78	≤79	≤81
Weight	kg	490	510	520	950	980	1,250
Lubricant	litres	2	2	2	3	3	3

* The parameters in this table are based on VS-H, and the parameters of VS-G, VS-P may be slightly different. Please consult the salesperson for details.



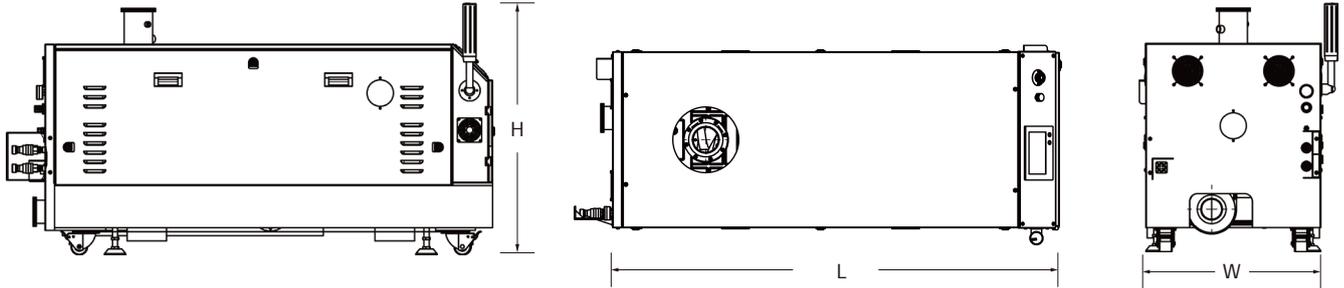
VS Series Performance Parameters

Product parameters*		VS160/650	VS160/1600	VS200/650	VS200/1600	VS300/650	VS300/1600	VS300/2600
Pumping speed	m ³ /h	625	1,560	625	1,560	625	1,560	2,520
Ultimate vacuum	mbar	≤3x10 ⁻³						
Max. exhaust pressure	mbarg	200	200	200	200	200	200	200
Installed power	kW	7.5	9	7.5	9	7.5	9	12
Cooling water flow (adjustable)	lt/min	10	10	10	10	10	10	12
Cooling water temperature	°C	15~35						
Cooling water pressure	barg	1~3						
Shaft seal purge flow, drive end	lt/min	5	5	5	5	5	5	5
Shaft seal purge supply pressure	barg	2~5						
Shaft seal purge pump-in pressure	barg	0.2~0.5						
Noise	dB(A)	≤71	≤71	≤72	≤72	≤75	≤75	≤75
Weight	kg	680	780	700	800	710	810	940
Lubricant	litres	2	2	2	2	2	2	3

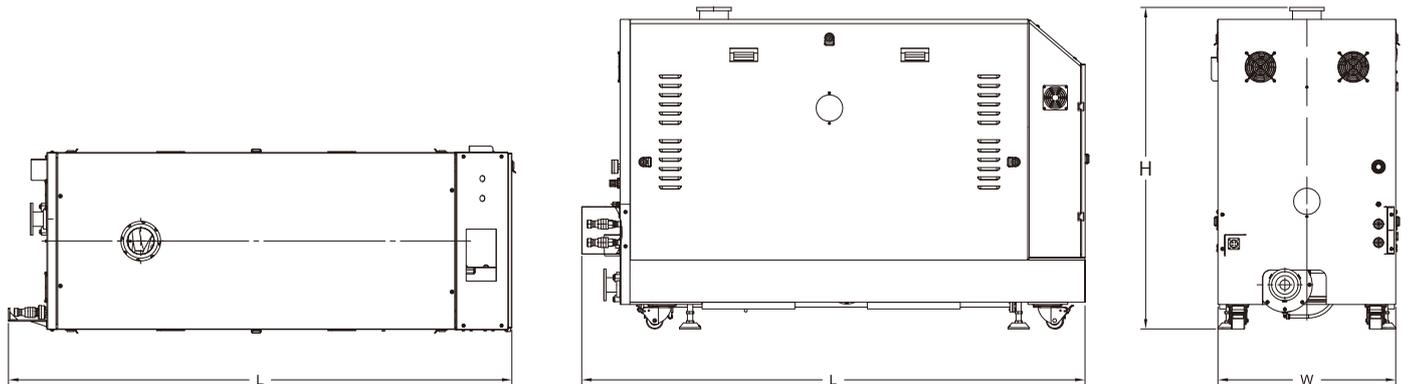
Product parameters*		VS450/1600	VS450/2600	VS450/4500	VS580/2600	VS580/4500	VS680/2600	VS680/4500
Pumping speed	m ³ /h	1,560	2,520	4,460	2,520	4,460	2,520	4,460
Ultimate vacuum	mbar	≤3x10 ⁻³						
Max. exhaust pressure	mbarg	200	200	200	200	200	200	200
Installed power	kW	19.5	22.5	26	22.5	26	26	29.5
Cooling water flow (adjustable)	lt/min	15	15	15	15	15	20	20
Cooling water temperature	°C	15~35						
Cooling water pressure	barg	1~3						
Shaft seal purge flow, drive end	lt/min	10	10	10	10	10	15	15
Shaft seal purge supply pressure	barg	2~5						
Shaft seal purge pump-in pressure	barg	0.2~0.5						
Noise	dB(A)	≤78	≤78	≤78	≤79	≤79	≤81	≤81
Weight	kg	1,260	1,390	1,650	1,420	1,680	1,710	1,970
Lubricant	litres	4	4	5	4	5	5	6

* The parameters in this table are based on VS-H, and the parameters of VS-G, VS-P may be slightly different. Please consult the salesperson for details.

VS-H Dimensions



Dimensions	VS160H	VS200H	VS300H	VS450H	VS580H	VS680H
L x W x H mm	1250 x 475 x 710	1410 x 495 x 740	1410 x 495 x 740	1710 x 715 x 940	1710 x 715 x 940	1910 x 715 x 980

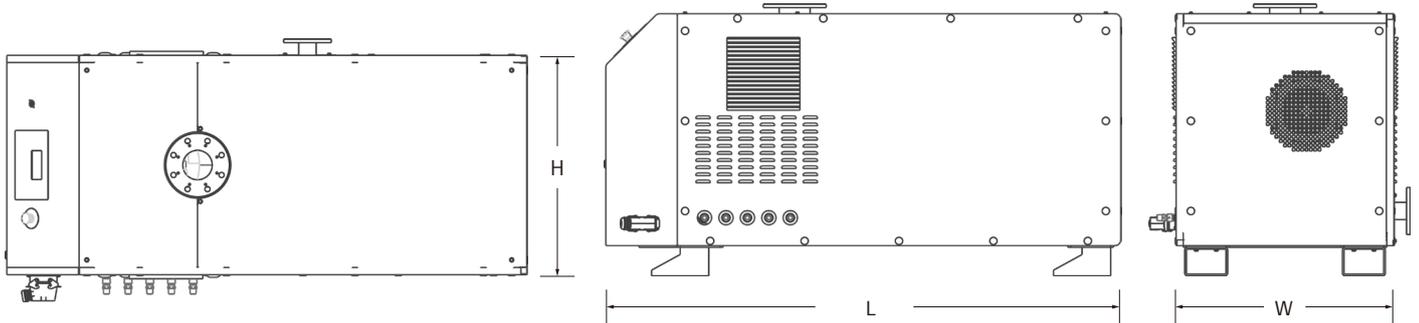


Dimensions	VS160/650H	VS160/1600H	VS200/650H	VS200/1600H
L x W x H mm	1250 x 475 x 990	1250 x 475 x 1050	1410 x 495 x 990	1410 x 495 x 1050

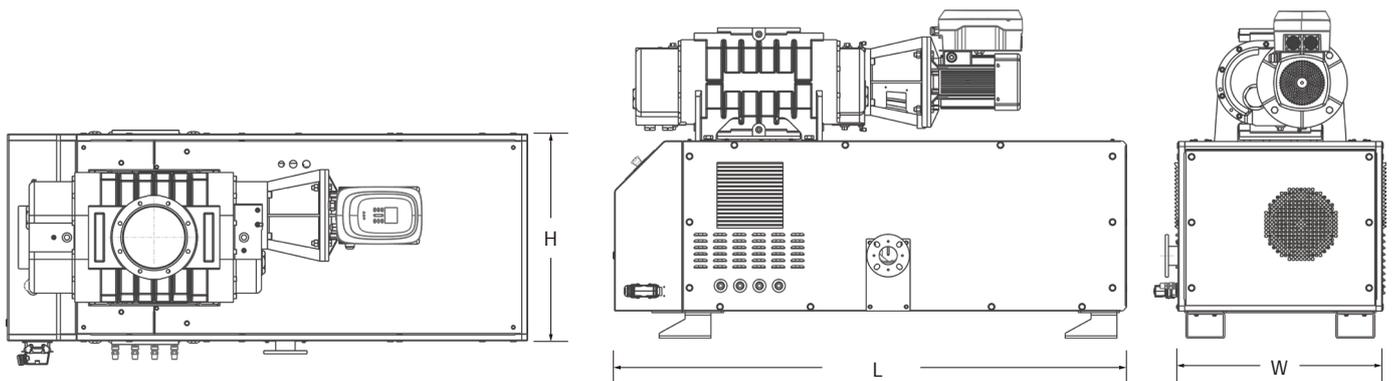
Dimensions	VS300/1600H	VS300/2600H	VS450/1600H	VS450/2600H
L x W x H mm	1410 x 495 x 1050	1410 x 495 x 1090	1710 x 715 x 1270	1710 x 715 x 1310

Dimensions	VS580/2600H	VS580/4500H	VS680/2600H	VS680/4500H
L x W x H mm	1710 x 715 x 1310	1710 x 715 x 1375	1910 x 715 x 1360	1910 x 715 x 1425

VS-P Dimensions



Dimensions	VS160P	VS200P	VS300P	VS450P	VS580P	VS680P
L x W x H mm	1623 x 843 x 692	1623 x 843 x 692	1623 x 843 x 692	1857 x 908 x 955	1857 x 908 x 955	1985 x 890 x 811

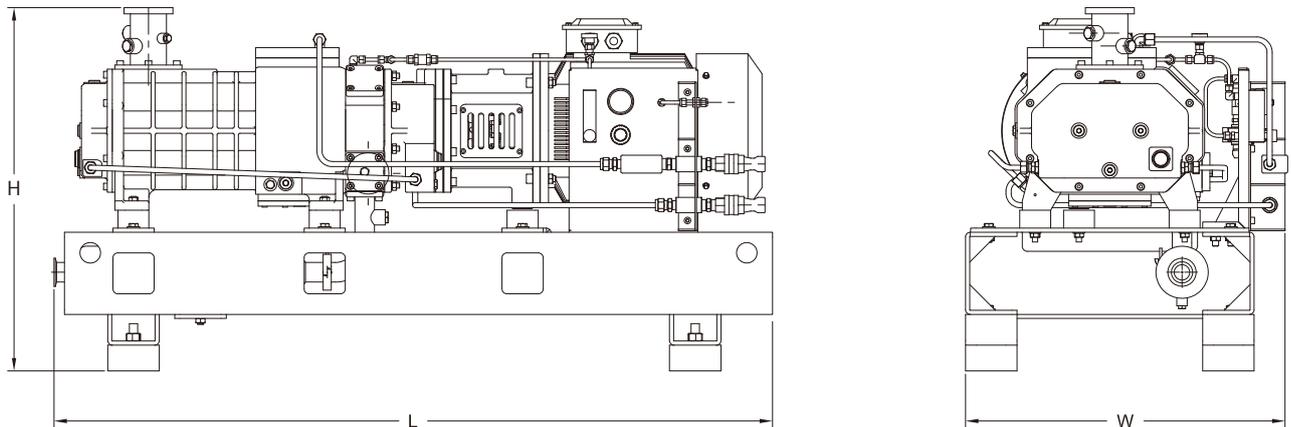


Dimensions	VS160/650P	VS160/1600P	VS200/650P	VS200/1600P	VS300/650P
L x W x H mm	1623 x 843 x 906	1623 x 843 x 992	1623 x 843 x 906	1623 x 843 x 992	1623 x 843 x 906

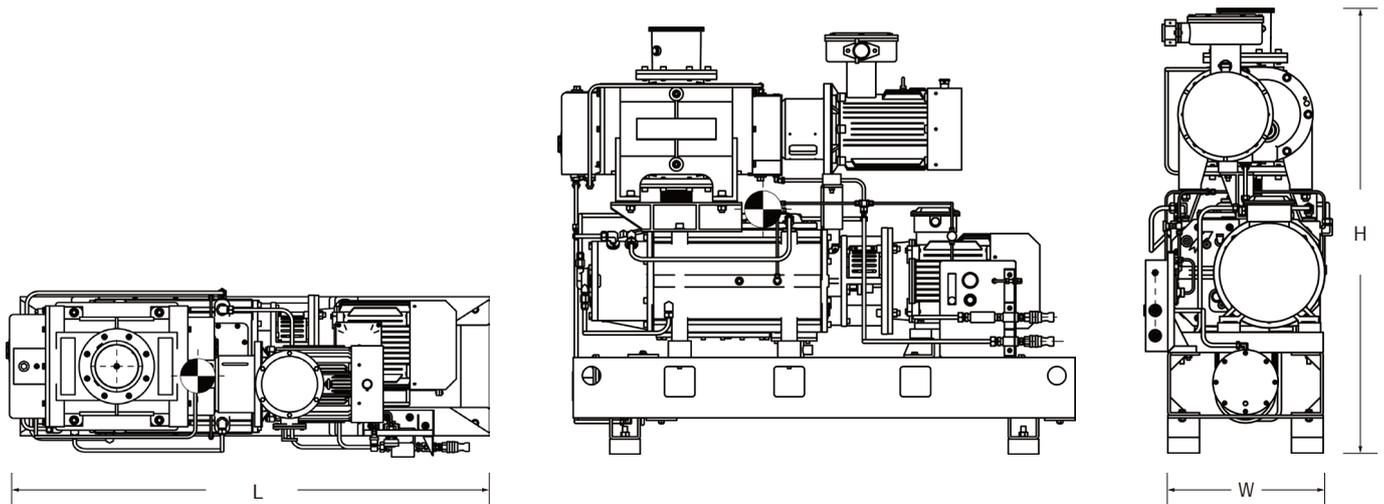
Dimensions	VS300/1600P	VS300/2600P	VS450/1600P	VS450/2600P	VS450/4500P
L x W x H mm	1623 x 843 x 992	1623 x 843 x 1057	1857 x 908 x 1255	1857 x 908 x 1320	1857 x 908 x 1375

Dimensions	VS580/2600P	VS580/4500P	VS680/2600P	VS680/4500P
L x W x H mm	1857 x 908 x 1320	1857 x 908 x 1375	1985 x 890 x 1187	1985 x 890 x 1272

VS-G Dimensions



Dimensions	VS160G	VS200G	VS300G	VS450G	VS580G	VS680G
L x W x H mm	1509 x 613 x 711	1409 x 613 x 748	1499 x 613 x 748	1705 x 582 x 947	1705 x 582 x 947	1952 x 730 x 984



Dimensions	VS160/650G	VS160/1600G	VS200/650G	VS200/1600G	VS300/650G
L x W x H mm	1510 x 625 x 1112	1510 x 625 x 1172	1500 x 625 x 1072	1540 x 625 x 1142	1500 x 625 x 1072

Dimensions	VS300/1600G	VS300/2600G	VS450/1600G	VS450/2600G	VS450/4500G
L x W x H mm	1540 x 625 x 1142	1630 x 625 x 1262	1652 x 594 x 1322	1700 x 594 x 1412	1790 x 594 x 1467

Dimensions	VS580/2600G	VS580/4500G	VS680/2600G	VS680/4500G
L x W x H mm	1700 x 594 x 1412	1790 x 594 x 1467	1905 x 815 x 1497	1995 x 815 x 1526

Ingersoll Rand Vacuum Product Line

<p>Dry Rotary Vane Pump</p>  <p>Vacuum</p> <ul style="list-style-type: none"> • Max. flow rate: 154m³ /h • Ultimate vacuum: 150mbar(abs) <p>Pressure</p> <ul style="list-style-type: none"> • Max. flow rate: 154m³ /h • Max. pressure: 2.2bar(g) 	<p>Claw Pump</p>  <p>Vacuum</p> <ul style="list-style-type: none"> • Max. flow rate: 1,200m³ /h • Ultimate vacuum: 150mbar(abs) <p>Pressure</p> <ul style="list-style-type: none"> • Max. flow rate: 600m³ /h • Max. pressure: 2.2bar(g) 	<p>Side Channel</p>  <p>Vacuum</p> <ul style="list-style-type: none"> • Max. flow rate: 3,000m³ /h • Pressure difference: -800mbar(abs) <p>Pressure</p> <ul style="list-style-type: none"> • Max. flow rate: 3,000m³ /h • Pressure difference: +1,000bar(g) 	
<p>Oil Rotary Vane Pump</p> <ul style="list-style-type: none"> • Max. flow rate: 1,353m³ /h • Ultimate vacuum: 0.1mbar(abs) 	<p>Roots Pump</p> <ul style="list-style-type: none"> • Max. flow rate: 30,000m³ /h • Pressure difference: Up to 80 mbar 	<p>Dry Screw Pump</p> <ul style="list-style-type: none"> • Max. flow rate: 2,700m³ /h • Ultimate vacuum: 0.05mbar(abs) 	
<p>Vacuum System Solutions</p> 			



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