

# *AW LIQUID RING VACUUM PUMPS*

Plug & play modules and engineered systems

*Atlas Copco*



# **LIQUID RING VACUUM PUMPS FOR EASY USE IN MULTIPLE APPLICATIONS**

## **Why Atlas Copco Liquid Ring Pumps?**

Liquid ring vacuum has always been and will always be one of the best technologies for extreme vapor loads. Atlas Copco liquid ring pumps are ideal for pumping wet or dry gasses with a high tolerance for liquid carryover, especially on condensable processes such as distillation, drying and evaporator duties. Available in material options to suit demanding processes, and available in either single or dual stage design – we have a solution for all applications.

## **1. The right design to meet your needs**

Atlas Copco AWS single stage liquid pumps are optimized for operation above 200 mbar(a), making them perfect for applications such as filtration or wet conveying, with an ultimate pressure of 30 mbar(a), they are the best in class solution for cyclical pump down applications such as evacuation, impregnation or sterilisation. AWD dual stage pumps are finely tuned machines dedicated to providing consistent high performance at operation pressures below 200 mbar(a). The two synchronized pumping chambers work in series to enable best in class performance on continuous critical process applications such as bottling, degassing, & solvent recovery.

## **2. Plug and play modules**

Atlas Copco takes the hassle out of selecting your vacuum system. All AW liquid ring pumps are offered as pre-engineered plug and play modules, suitable for operation in once through, partial recirculation or total recovery mode. With 50 years of experience in LRVP technology and customers spanning the globe, we know how to put together a liquid ring module that works for you. All the benefits of liquid ring technology whilst saving water and saving energy. Add easy to install accessories from our standard range to complete your installation.

## **3. Engineered systems**

For more complex requirements, our project team is here to develop a unique engineered system tailored to your needs. Atlas Copco liquid ring pumps form the backbone of multistage systems in materials of your choice to the specifications you need. With the help of Atlas Copco vacuum engineers, the possibilities are endless.





## ***SUITABLE FOR A WIDE RANGE OF APPLICATIONS***

Liquid ring vacuum pumps are ideal for specific, humid, dirty and/or high capacity applications in heavy industries, a selection of which can be found below. The AWS and AWD series are the workhorses: proven, strong and reliable machines that deliver utility or process vacuum.

- General manufacturing
- Mining
- Metalwork industries
- Textile industry
- Food processing
- Brick extrusion
- Petroleum industries
- Power and utilities
- Chemical industries
- Automotive industry
- Oil and gas
- Paper and allied products
- Cement and allied products
- Plastics

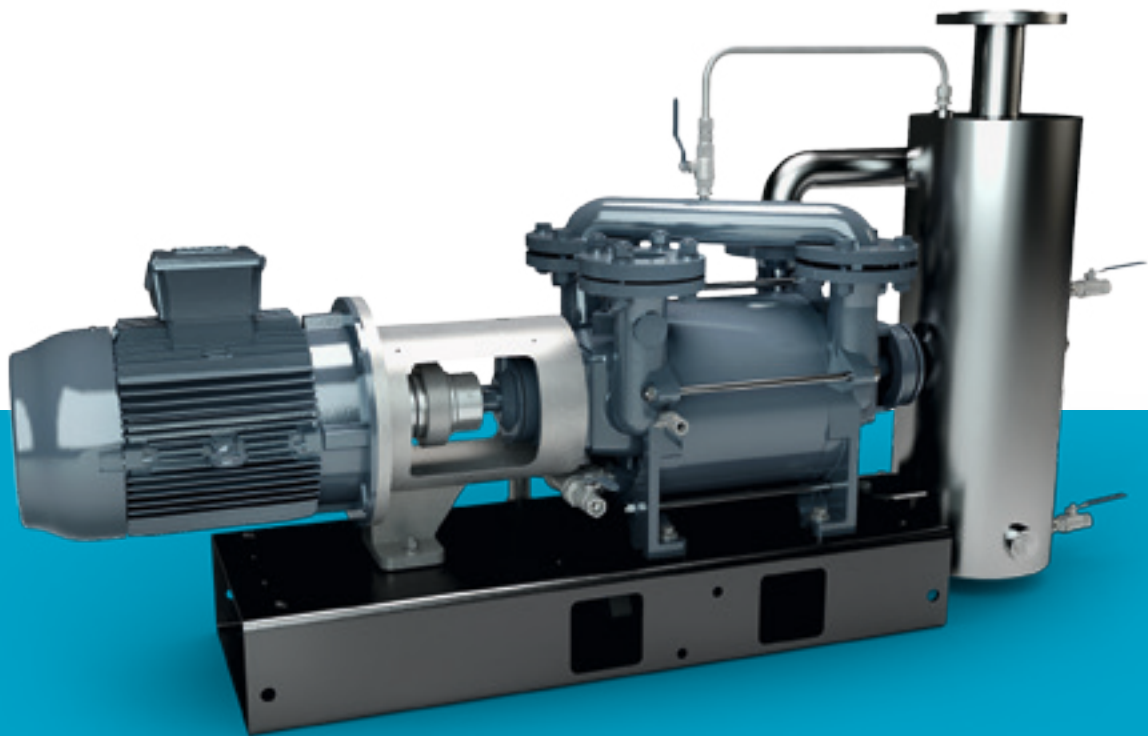


### **Summary of key features**

- Highly effective pumping capability on saturated air loads.
- Well suited to operation across the vacuum range.
- Capable of handling wet corrosive process streams.
- Tolerant of small particulates in the gas stream.
- Robust, reliable, low maintenance construction.
- Low noise level.
- Standard package design: 50 Hz DIN or 60 Hz ANSI available.
- Modular design of 3 package types: once-through, partial recirculation and total recovery.
- Optional materials of construction: cast iron, stainless steel fitted, stainless steel complete.
- Atlas Copco quality approved accessories.
- Short lead times, minimum life cycle costs and optimized reliability.
- Flange mounted motor to ensure alignment (on capacities below 1000 m<sup>3</sup>/h / 589 cfm).

# ***PLUG & PLAY MODULES: ROBUST AND RELIABLE***

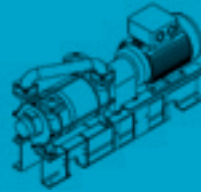
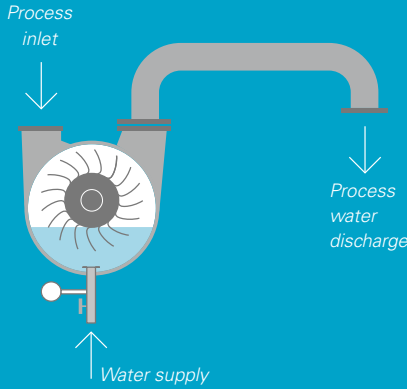
For most liquid ring vacuum pump applications, Atlas Copco has designed plug & play modules suitable for operation in once-through, partial recirculation or total recovery. These modules are offered in material combinations to suit most industrial vacuum applications.



## **Atlas Copco's plug & play modules offer the following key benefits:**

- Application flexibility through modularity.
- High reliability for a long lifetime.
- Time savings through easy installation.
- Cost savings through quick and easy maintenance.
- Up to 95% reduction of water consumption with total recovery.
- Low noise for a comfortable working environment.

# PLUG & PLAY MODULES: THREE MODES OF OPERATION

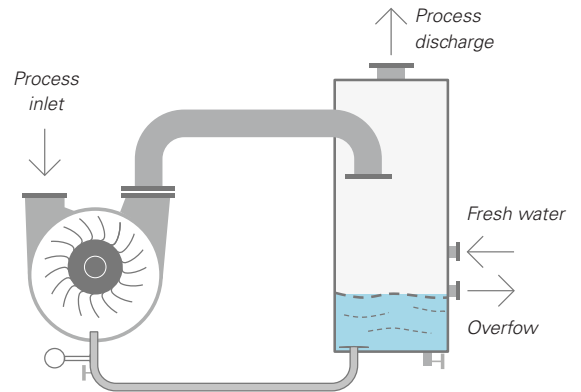
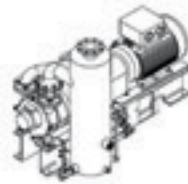


## ONCE-THROUGH POWER PACK

This is the simplest module. It comprises a pump complete with electric motor, drive and base frame. These systems are ideal where an ample supply of seal liquid is available, which can be subsequently discharged to drain. The liquid/gas mixture is discharged to drain through the discharge line.

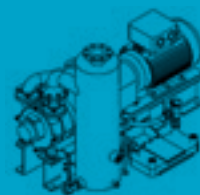
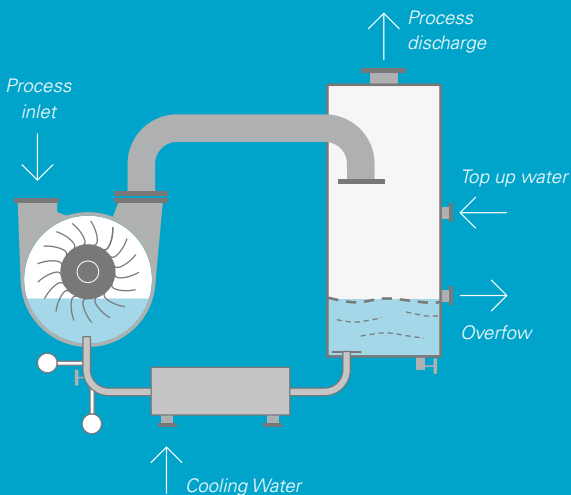
## PARTIAL RECIRCULATION

In this case, the liquid/gas mixture is separated in the discharge separator. The recovered service liquid is then mixed with fresh seal fluid to maintain a constant temperature to the pump. The excess liquid, equivalent to the make-up supply, goes to drain. The minimum amount of fresh make-up fluid is used to ensure cavitation-free operation at the required suction pressure. It offers typical water savings of 50% compared to once-through operation.



## TOTAL RECOVERY

Total recovery a closed loop system that is used when the seal fluid is in short supply or when contamination may be a problem. To enable total recirculation of the seal liquid, the recovered liquid must be cooled prior to re-use. In this case a heat exchanger is utilized between the discharge separator and the pump. It offers typical water savings of up to 95% compared to once-through operation.



# TECHNICAL SPECIFICATIONS AWS 180-5500

	AWS 180	AWS 280	AWS 360	AWS 450	AWS 600	AWS 800	AWS 1100	AWS 1300	AWS 1600	AWS 2500	AWS 3300	AWS 5500
<b>50 Hz</b>												
Nominal capacity (m <sup>3</sup> /h)	170	250	325	440	600	725	1100	1200	1500	2460	3000	5400
Ultimate pressure (mbar(a))	30	30	30	30	30	30	30	30	30	30	30	30
Nominal installed motor (kW)	5.5	7.5	11	15	18.5	22	37	37	45	75	75	132
Approximate block dimensions (W x D x H) (mm)	638 x 275 x 645	741 x 275 x 645	795 x 275 x 645	807 x 330 x 745	885 x 330 x 745	975 x 430 x 985	1095 x 430 x 985	1131 x 430 x 985	1237 x 570 x 1245	1387 x 570 x 1245	1585 x 870 x 1360	1745 x 1000 x 1570
Dry weight (kg)	141	199	208	299	311	580	650	682	1166	1324	2120	2285
<b>60 Hz</b>												
Nominal capacity (cfm)	118	182	224	309	406	515	736	824	1059	1735	2060	3461
Ultimate pressure (torr)	25	25	25	25	25	25	25	25	25	25	25	25
Nominal installed motor (hp)	10	15	20	25	30	40	60	60	75	125	125	250
Approximate block dimensions (W x D x H) (inch)	25 x 11 x 25	29 x 11 x 25	31 x 11 x 25	32 x 13 x 29	35 x 13 x 29	38 x 17 x 39	43 x 17 x 39	45 x 17 x 39	49 x 22 x 49	55 x 22 x 49	62 x 34 x 54	69 x 39 x 62
Dry weight (lbs)	311	439	456	659	686	1279	1433	682	1504	2919	4674	5038

# TECHNICAL SPECIFICATIONS AWD 200-4510

	AWD 200	AWD 400	AWD 610	AWD 1230	AWD 1680	AWD 1960	AWD 3280	AWD 4510
<b>50 Hz</b>								
Nominal capacity (m <sup>3</sup> /h)	195	400	610	1250	1685	2000	3300	4500
Ultimate pressure (mbar(a))	30	30	30	30	30	30	30	30
Nominal installed motor (kW)	5.5	11	22	45	55	75	110	132
Approximate block dimensions (W x D x H) (mm)	722 x 280 x 457	873 x 280 x 457	987 x 340 x 568	1279 x 480 x 774	1379 x 480 x 774	1710 x 650 x 1034	2004 x 650 x 1034	2216 x 800 x 1301
Dry weight (kg)	90	160	222	584	760	1180	1680	2635
<b>60 Hz</b>								
Nominal capacity (cfm)	126	283	412	853	1130	1324	2207	2884
Ultimate pressure (torr)	25	25	25	25	25	25	25	25
Nominal installed motor (hp)	10	20	40	75	100	125	175	200
Approximate block dimensions (W x D x H) (inch)	28 x 11 x 18	34 x 11 x 18	39 x 13 x 22	50 x 19 x 30	54 x 19 x 30	67 x 26 x 41	79 x 26 x 41	87 x 31 x 51
Dry weight (lbs)	198	353	485	1287	1676	2601	3704	5809

# MATERIALS OF CONSTRUCTION

	Cast iron	Stainless steel	Stainless steel fitted
Casing	Cast iron	316 stainless steel	Cast iron
Body	Cast iron	316 stainless steel	Cast iron
Impeller	SG iron	316 stainless steel	316 stainless steel
Shaft	420 stainless steel	316 stainless steel	316 stainless steel
Mechanical seals	SiC/CMiton	SiC/CMiton	SiC/CMiton

# ACCESSORIES

- Inlet non-return valve
- Inlet isolating valve
- Inlet vacuum gauge
- Vacuum relief valve
- Automatic seal water make up kit
- Custom built and hybrid vacuum pump systems available



## ***LIQUID RING ENGINEERED SYSTEMS: IDEAL FOR COMPLEX DUTY APPLICATIONS***

Engineered systems are designed bespoke with your objectives in mind; our sales team will be happy to discuss your requirements. They are built for complex duty applications such as vapor recovery, degassing, distillation, CPI, multiple vapor loads and high capacities. Our liquid ring vacuum pumps are available for both single (AWS) and two-stage (AWD) pumps with capacities from 170-37500 m<sup>3</sup>/h (100-22072 cfm) and vacuum levels down to 30 mbar(a) (25 torr).

Furthermore, we can design and engineer these systems for specific ATEX explosive and hazardous environments, with material certification, project approved vendors, enhanced quality assurance and testing all handled by our in-house contract management team. Our electrical engineers have experience designing and fitting control systems for intelligent pump management.



## ***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](http://www.atlascopco.com)

The Atlas Copco logo, consisting of the brand name 'Atlas Copco' in a stylized font, flanked by two horizontal bars above and below it.