LIQUID RING VACUUM PUMP PACKAGES

AWS & AWD SERIES

Atlas Copco

STANDARD LIQUID RING VACUUM PUMP PACKAGES

Atlas Copco liquid ring vacuum pumps are offered as standard packages in a number of configurations, suitable for operation in once through, partial or total recirculation. For partial or total recirculation systems the pump package components are offered with stainless steel wetted parts as standard, irrespective of the materials of construction of the pump. The AW liquid ring vacuum pumps are available for both single (AWS) and two stage pumps (AWD) with capacities from 200-37500 m^3/h and vacuum levels down to 30 mbar(a).

FEATURES AND BENEFITS

- Standard package design: 50 Hz DIN or 60 Hz ANSI available.
- Modular design of 3 package types: once through, partial recirculation and total recirculation.
- Optional materials of construction: cast iron, stainless steel fitted, stainless steel complete.
- Accessories have stainless steel wetted parts as standard.
- Short lead times, minimum life cycle costs and optimized reliability.
- Easy design iteration steps without extensive dead time between phases.
- Certified for hazardous area operation (European ATEX Ex II 2Gc, IIB T3, USA Explosion proof Class 1 Division 1 Group C & D).
- Non-hazardous area versions and full range of skid mounted accessories are also available.

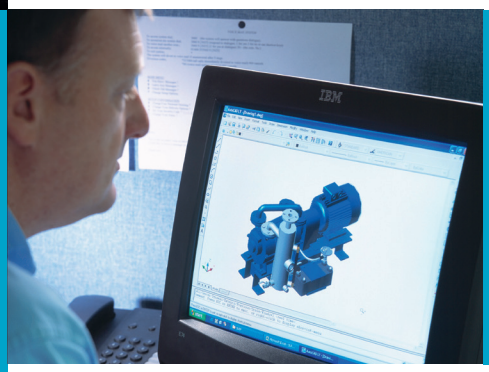
APPLICATIONS

Liquid ring vacuum pumps are ideal for specific, humid, dirty and/or large applications in heavy industries, a selection of which can be found below. The AWS and AWD series are the workhorses of the local economy: strong, reliable, proven and simple machines that deliver utility or process vacuum. As part of the Atlas Copco Group, Hick Hargreaves brings more than 50 years of expertise in liquid ring pumps; delivering sustainable productivity in the harshest environments.

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

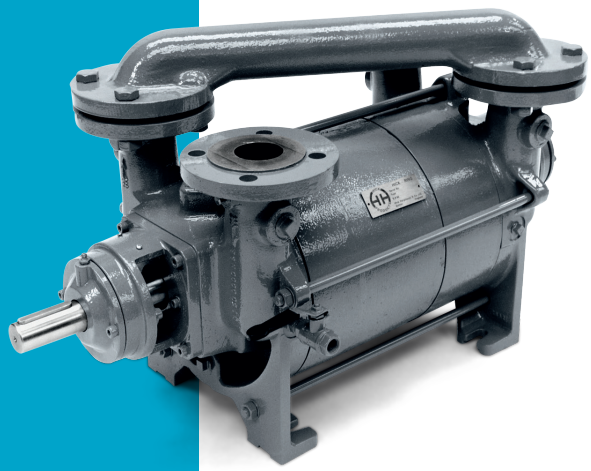
AW LIQUID RING VACUUM PUMP CONFIGURATOR

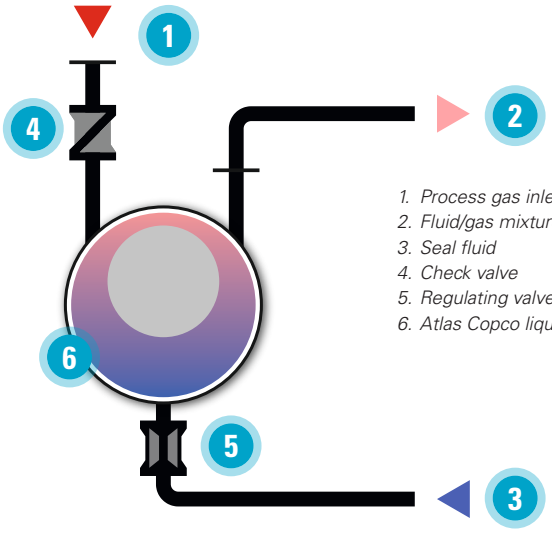
The AW liquid ring vacuum pump configurator utilizes 3D AutoCAD design software to produce a tailored liquid ring vacuum pump package constructed from pre-engineered modules. The main benefits being the rapid availability of a customized quotation and package general arrangement drawing as well as reduced lead times for what is essentially bespoke engineered systems. Atlas Copco offers a selection of pump material options along with a choice from three standard operating configurations to suit most process conditions.



Once through

This is the most basic configuration available, it comprises of 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.

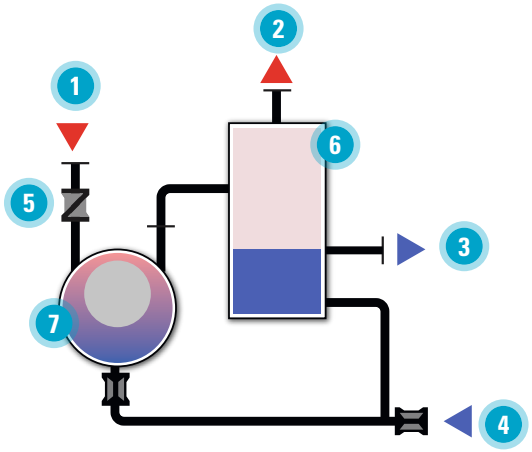


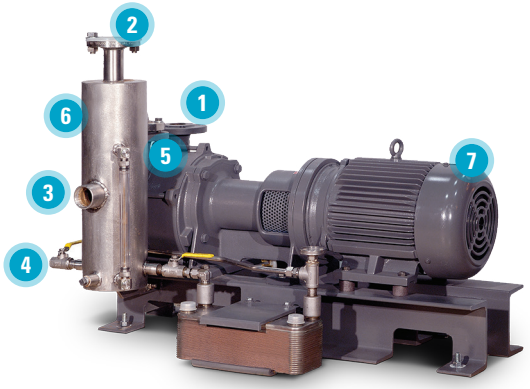


1. *Process gas inlet*
2. *Fluid/gas mixture to drain*
3. *Seal fluid*
4. *Check valve*
5. *Regulating valve*
6. *Atlas Copco liquid ring vacuum pump*

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.

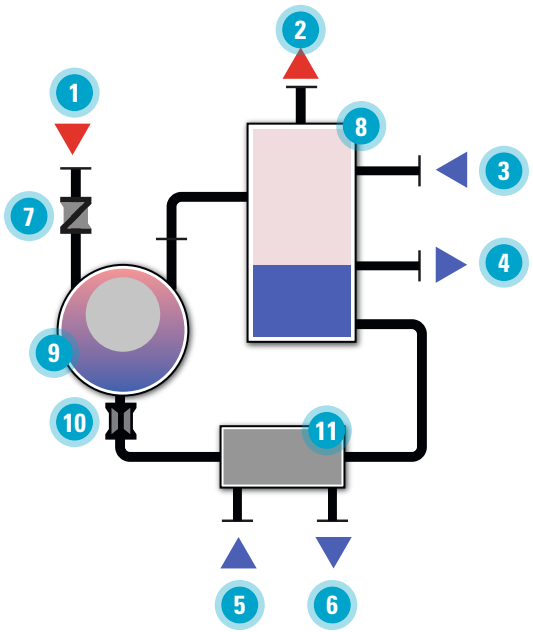


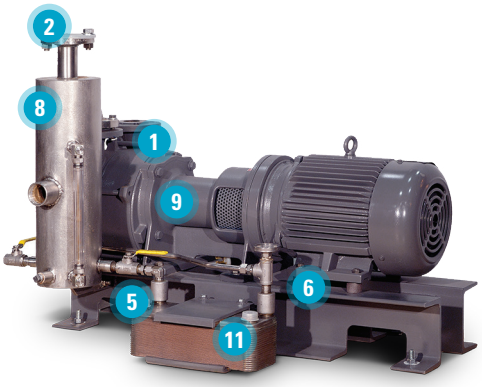


1. *Inlet connection*
2. *Outlet connection*
3. *Overflow*
4. *Seal fluid make-up valve*
5. *Check valve*
6. *Discharge separator*
7. *Atlas Copco liquid ring vacuum pump*

TOTAL RECIRCULATION

Total recirculation is used where a closed loop system is preferable 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.





1. *Process gas inlet*
2. *Gas vent*
3. *Make-up fluid*
4. *Fluid overflow to drain*
5. *Cooling liquid IN*
6. *Cooling liquid OUT*
7. *Check valve*
8. *Discharge separator*
9. *Atlas Copco liquid ring vacuum pump*
10. *Manual control valve*
11. *Heat exchanger*

TECHNICAL SPECIFICATIONS

AWD 200-4510 (Direct driven)

TYPE	Peak pumping speed		Motor power		Ultimate pressure		Motor speed	Seal fluid recirculation options
			50 Hz	60 Hz			50 Hz	
	m³/h (@50 Hz)	cfm (@60 Hz)	kW		mbar(a)	"Hg (vac)	rpm	O/P/T*
AWD 200	200	141	7,5	11	30	29	1450	O/P/T
AWD 400	400	283	15	22	30	29	1450	O/P/T
AWD 610	610	432	22	30	30	29	1450	O/P/T
AWD 1230	1230	869	45	55	30	29	980	O/P/T
AWD 1680	1680	1188	55	75	30	29	980	O/P/T
AWD 1960	1960	1386	75	90	30	29	735	O/P/T
AWD 3280	3280	2316	110	132	30	29	735	O/P/T
AWD 4510	4510	3186	132	150	30	29	735	O/P/T

AWS 3300-37500 (Belt driven)**

TYPE	Peak pumping speed		Motor power	Ultimate pressure		Motor speed		Seal fluid recirculation options
	50/60 Hz		50/60 Hz			50 Hz	60 Hz	
	m³/h	cfm	kW	mbar(a)	"Hg (vac)	rpm		O/P/T*
AWS 3300	3300	1940	75	160	25.2	1450	980	P/T
AWS 4500	4500	2650	110	160	25.2	1450	980	P/T
AWS 6000	6000	3530	132	160	25.2	1450	980	P/T
AWS 8500	8500	5000	220	180	24.6	1450	980	P/T
AWS 10500	10500	6180	220	160	25.2	1450	980	P/T
AWS 13800**	12800	8130	300	180	24.6	1450	980	P/T
AWS 17100**	17100	10100	400	180	24.6	1450	980	P/T
AWS 22500**	22500	13250	550	180	24.6	1450	980	P/T
AWS 30000**	30000	17700	560	180	24.6	1450	980	P/T
AWS 37500**	37500	22100	775	180	24.6	1450	980	P/T

** O/P/T: Once through, Partial recirculation, Total recirculation*
*** Gear box drive option available.*

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

MATERIALS OF CONSTRUCTION

		Standard	Stainless steel fitted	Stainless steel
Pump	Casing	Cast iron	Cast iron	CF8M
	Impeller	Bronze	CF8M	CF8M
	Port plates	Cast iron	Cast iron	CF8M
	Body	Cast iron	Cast iron	CF8M
	Shaft	420S27	420S39	420S38
	Mechanical seal	Carbon/Silicon Carbide/Viton	Carbon/Silicon Carbide/Viton	Carbon/Silicon Carbide/Viton
Components	Discharge separator	Stainless steel	Stainless steel	Stainless steel
	Piping	Stainless steel	Stainless steel	Stainless steel
	Fittings & valves	Stainless steel	Stainless steel	Stainless steel
	Heat exchanger	Stainless steel	Stainless steel	Stainless steel

** O/P/T: Once through / Partial recirculation / Total recirculation.*
*** Gear box drive option available.*

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