

**adixen**  
by Alcatel Vacuum Technology

## VAPOR PUMPING WITH ACPs



An Alcatel-Lucent Company

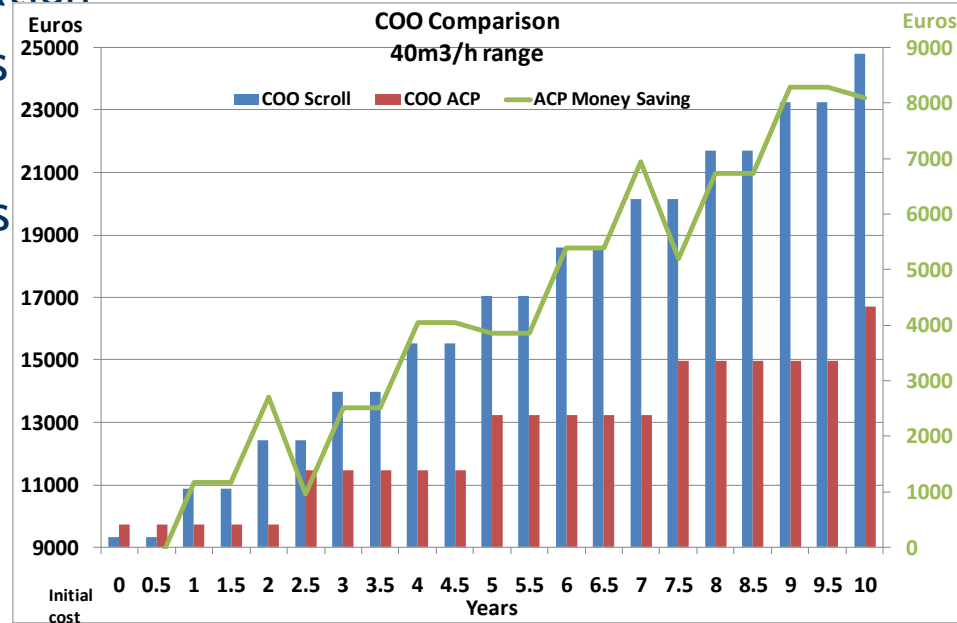
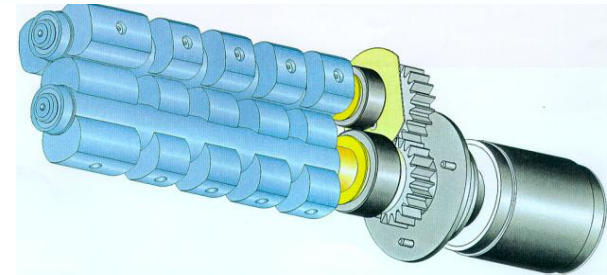
- > Product range
- > Markets
- > Vapour pumping principles
- > ACPs according to the applications
- > Water vapour pumping measurements
- > Technical characteristics
- > Vapour pumping performances
- > Gas ballast monitoring
- > Usual cautions in vapor pumping
- > Competitors
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- > Ordering

**ACPs have found numerous applications in vacuum technology  
Reliability - Cleanliness - Performances**



## > Key features :

- Multi-stage Roots technology
- Frequency converter
- No hydrocarbon vapor backstreaming
- No particles contamination
- Constant performances
- High reliability
- Low maintenance costs



## Market

- Some applications have not yet a wide installed base of small dry pumps due to their requirement in pumping of condensable liquids.

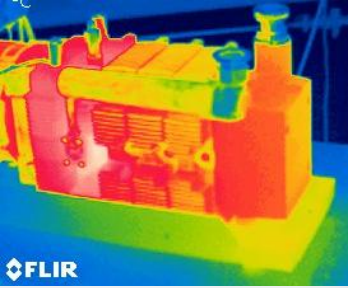
## Applications

- Freeze drying, vacuum drying, Liquid filling stations, organic layer coating, cryo's regenerations,...

## Product

- Now ACP Series 2 pumps can deal with needs for high tolerance against water or solvent pumping without condensers.

# Water vapour pumping principles



**Pump hot**

$T^{\circ}\text{gases} > 100^{\circ}\text{C}$   
Optimized air cooling

**Dilution flow**

gas ballast



**Precaution of use**



**High vapour pumping capacity**

**Condensed vapor removal at exhaust**



Drainable silencers

Standard Applications with moisture

- **ACP15/28/40**  
with gas ballast open

Degassing of pumped vessel or substrates, cryo's regeneration

- **ACP15/28/40**  
with gas ballast open

Drying, distillation, outgassing

- **ACP28CV/40CV**  
High flow gas ballast and external and drainable silencer



## > 6602 Pneuop Specifications



«Vacuum pumps, Acceptance Specifications»

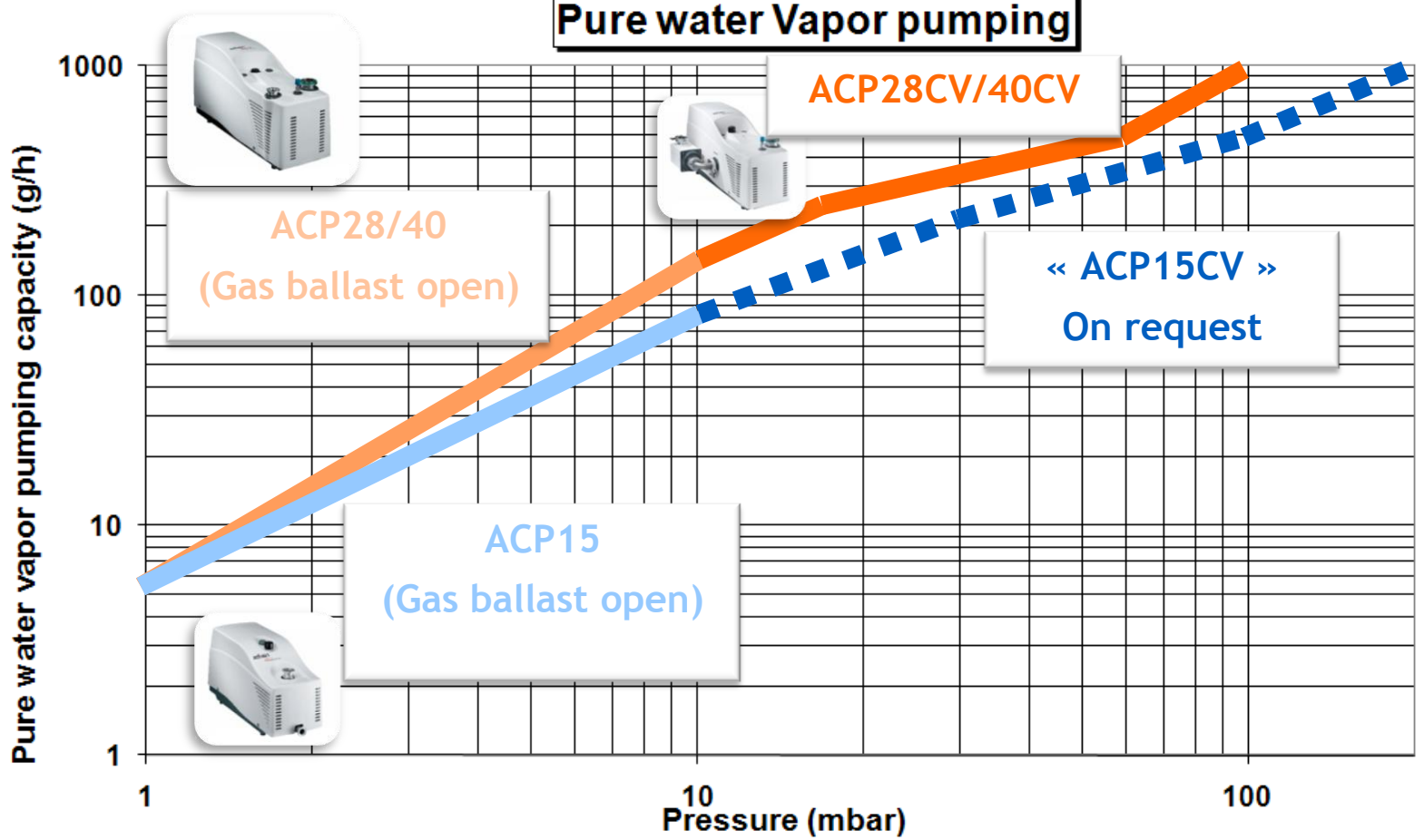
- Maximum Vapour Tolerance **PW0** [in mbar]
- Maximum Vapour Pumping Capacity **CW0** [in g/h]
- Comparative method dedicated to **Oil lubricated vacuum pumps** with gas ballast

- **Not adapted** to accurately predict real vapour pumping capacity **for dry pumps**
  - → Real vapour pumping measurements are required for each type.

ACP	Typical ultimate pressure	Typical purge or gas ballast flow	Max. pure water vapor tolerance ( <b>measured</b> )	
ACP15 (gas ballast close)	0.03mbar	0slm	0	0
ACP15 (gas ballast open)	0.1mbar	8slm	10mbar	80g/h
ACP28/40 (gas ballast close)	0.03mbar	0slm	0	0
ACP28/40 (gas ballast open)	0.1mbar	20slm	10mbar	120g/h
ACP28CV/40CV (at 20 °C*)	0.2mbar	40slm	70mbar	700g/h
ACP28CV/40CV (at 30 °C*)	0.2mbar	40slm	100mbar	1000g/h

(\*): ambient temperature

**Pure water Vapor pumping**



ACP28/40  
(Gas ballast open)



ACP28CV/40CV

« ACP15CV »  
On request



ACP15  
(Gas ballast open)

1

10  
Pressure (mbar)

100





- > The gas ballast port of ACPs can be controlled thanks to AGB automatic gas ballast valves.





> In order to improve the use of ACPs, following recommandations must be implemented:

- The inlet foreline must be designed to avoid liquid pumping (with an inlet catch pot for example)
- Let the pump run for minimum ½ hour in order to warm up the pumping module before to start pumping
- Let the pump run continuously whenever possible
- In case the pump must be stopped, flush it with permanent gases (such as dry air or N<sub>2</sub> through gas ballast or purge) before stopping the pump.

Supplier	technology	model	Max water vapour capacity	Max water vapour pressure	
Edwards		XDS5	200 g/h	50 mbar	Published
		XDS10	200 g/h	35 mbar	
		XDS35i	240 g/h	50 mbar	
Varian		SH100	10 g/h	na	
		TS300/600	10 g/h	na	
Leybold Iwata		ISP90/SC5D	1 g/h	9 mbar	
		ISP250B/SC15D	1 g/h	7 mbar	
		ISP500B/SC30D	1 g/h	8 mbar	
Adixen		<b>ACP15/28/40</b>	<b>80-120g/h</b>	<b>10mbar</b>	Measured
		<b>ACP28CV/40CV</b>	<b>1000 g/h at 30°C</b>	<b>100 mbar at 30°C</b>	
			<b>700 g/h at 20°C</b>	<b>70 mbar at 20°C</b>	

**With CV versions, ACPs Series 2 pumps are much more efficient than any pump from the Scroll competition**

- > Load Lock
- > Instrumentation
- > Water generation tools
- > Degreasing equipment
- > CVD coating with liquid organic precursors
- > Dry etch with Xenon plasma based
- > Liquid Filling station for automotive industry
- > Cryo's pump regeneration
- > Heat exchanger drying
- > Electrodes drying in Li-ions batteries
- > ...

## > ACP15

Type	Series	Inlet port	Exhaust port	Gas Ballast	Power supply	Power cord	Ground Interface	
V5 : ACP15	SA: standard GA: purged	T : DN25 S: DN16	S : Standard	M :Manual On/off B :Blanked R**: 1/4G (for GA serie) F: permanent filter W: Reduced flow with filter	F : 1 phased T : 3 phased	K: cable UK A: cable US S: cable Switz. J: cable Japan E: cable Europe Z : w/o cable R* : 3phased (without plug)	F : Rubber feet	
<b>P/N</b>	<b>V5</b>	<b>SA</b>	<b>T</b>	<b>S</b>	<b>M</b>	<b>T</b>	<b>R</b>	<b>F</b>



(\*) : R is the only choice for three phased pump (power supply digit)  
(\*\*): R is the only choice for GA version

For « ACP15CV », please contact us

## > ACP28/40

	Type	Series	Inlet/ Exhaust Ports	Motor	Frequency converter	Power cord	Gas Ballast	Ground Interface
	V6 : ACP28 V8 : ACP40	SA: standard GA: purged GV: Condensable vapors	T : ACP28 DN25/DN25  C : ACP40 DN40/DN25	S : Standard	F : 1 phased T : 3 phased	K: cable UK A: cable US LV S: cable Switz. J: cable Japan E: cable Europe Z : without cable H: cable US HV R* : 3phased (without plug)	M :Manual On/off B** :Blanked F: Permanent filter W: reduced flow with filter  V: Manual on/off for GV version H: Permanent filter for GV version	F : Rubber feet R : With wheels
P/N	V6	SA	T	S	T	R	M	F



(\*): R is the only choice for three phased pump

(\*\*): B is the only choice for GA version

- > Thanks to their wide and various performances in water/moisture pumping capacity,  
  
→ the ACP series 2 pumps can meet a large range of applications and processes



- > For all questions, please, feel free to contact us

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