



BEACONMEDÆS[®]

Part of the Atlas Copco Group

*Life
is in the
details.*



mVAC
Medical Vacuum
Systems



mVAC Medical Vacuum Systems

mVAC - Med

Vacuum Pump

Oil-lubricated rotary vane vacuum pumps offer high flow capacities.

They are simple and economical to install and operate, and are quiet and vibration free. They provide smooth, pulse-free vacuum and have low starting and running torque.

The vanes are constructed from composite material for a long lifetime of use (up to ten years under normal operating conditions) and low noise levels.

Motor

Optimally sized to suit the demands of frequent starts found in medical applications, each motor is air-cooled by an integral fan and protected by an overload fitted within its pump control panel.



Tank-mounted variant

Tank-mounted mVAC are complete stand-alone assemblies with all components and filters mounted on a single horizontal vacuum vessel.

This configuration provides a compact, low-footprint unit specifically designed for ease of installation.

Oil Separation Filter

An efficient oil separation system automatically recirculates entrained oil droplets to prevent oil loss. The system is easily accessible for maintenance, while the separator elements are also easy to maintain via special access ports.

Vacuum Vessel

The vacuum vessel is a mandatory back-up in the rare occurrence that all vacuum pumps are down. It also acts as a buffer for peaks in the flow demand.

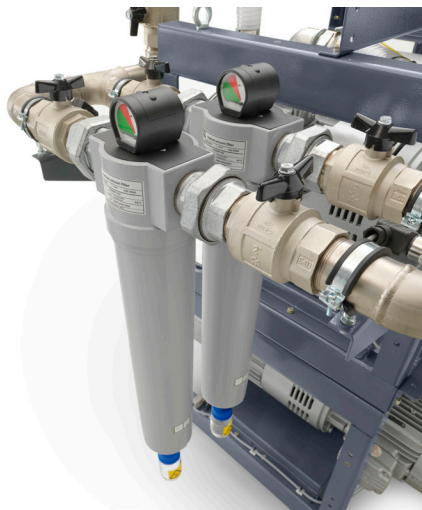
The compulsory hot-dipped galvanised finish extends vacuum vessel life by 300% over conventional untreated steel pressure vessels. Painted options are available as well as independent third party certification.



Bacterial Filter

The high-efficiency bacterial filter elements have a penetration of less than 0.0001% when measured to BS 3928 to minimise the likelihood of microbial contamination of the oil.

Duplex filters are provided for redundancy. The pressure drop over the bacterial filters is continuously monitored by the central ES-VAC controller.



Medical Vacuum

ES-VAC Central Controller

Developed specifically for medical vacuum applications, the ES-VAC central controller is an intelligent microprocessor-based control system dedicated to controlling up to six vacuum pumps in an mVAC system. It is equipped with the 5.7-inch high-definition colour display Elektronikon Graphic+ module.



ES-VAC Controller

Pump Controller

Each individual pump is equipped with a standard Elektronikon® controller that is linked to the advanced ES-VAC central controller.



Pump Controller



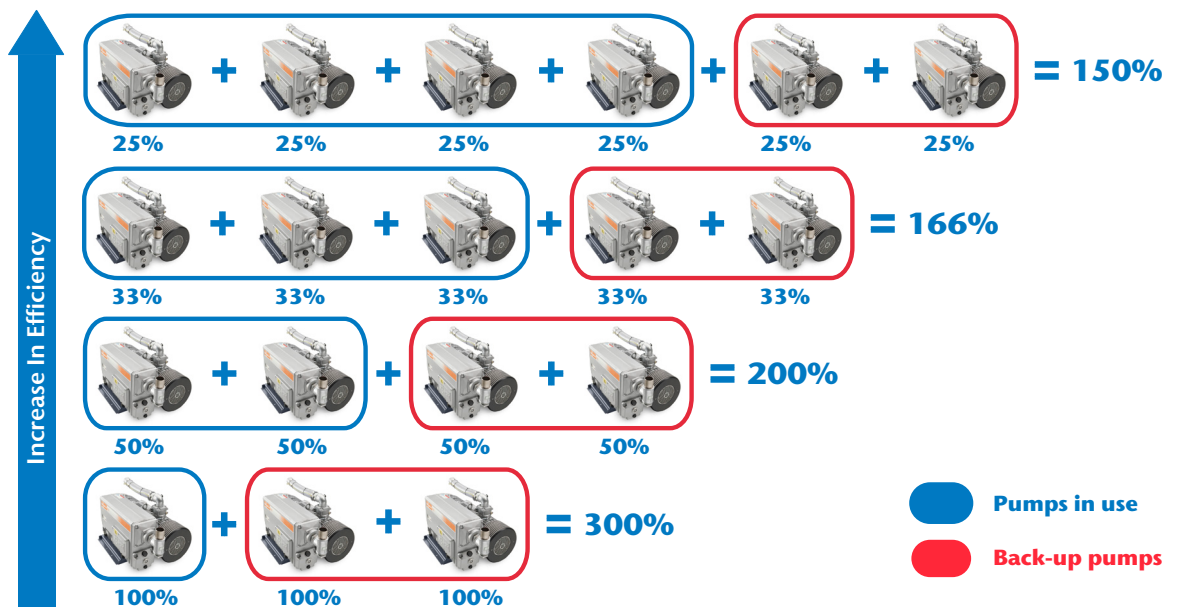
Pump Redundancy Scheme

mVAC systems complying with HTM 02-01 and ISO 7396-1 are provided with at least two standby pumps (e.g. the design flow of a system with three pumps is provided by a single pump).

mVAC systems complying with HTM 2022 are provided with at least one standby pump (e.g. the design flow of a system with two pumps is provided by a single pump).

It can be shown that as more pumps are provided, the energy consumed decreases. By using a larger number of small pumps an energy saving can be achieved.

We have pre-determined our plant package using the optimum arrangement of pumps, between 3 and 6, so you don't need to worry about anything other than the flow capacity and footprint.



mVAC - Increase

Monitoring And Controls

Get the most out of your mVAC system with our next-generation Elektronikon® control and monitoring system and AirConnect™ Visualisation.

Elektronikon® controls every single pump and regulates system pressure to push energy efficiency to new levels.

AirConnect™ gives you immediate access to valuable information such as system status, alarms, trends and historical data.

Controlling and monitoring your system has never been easier.



Increased Clarity

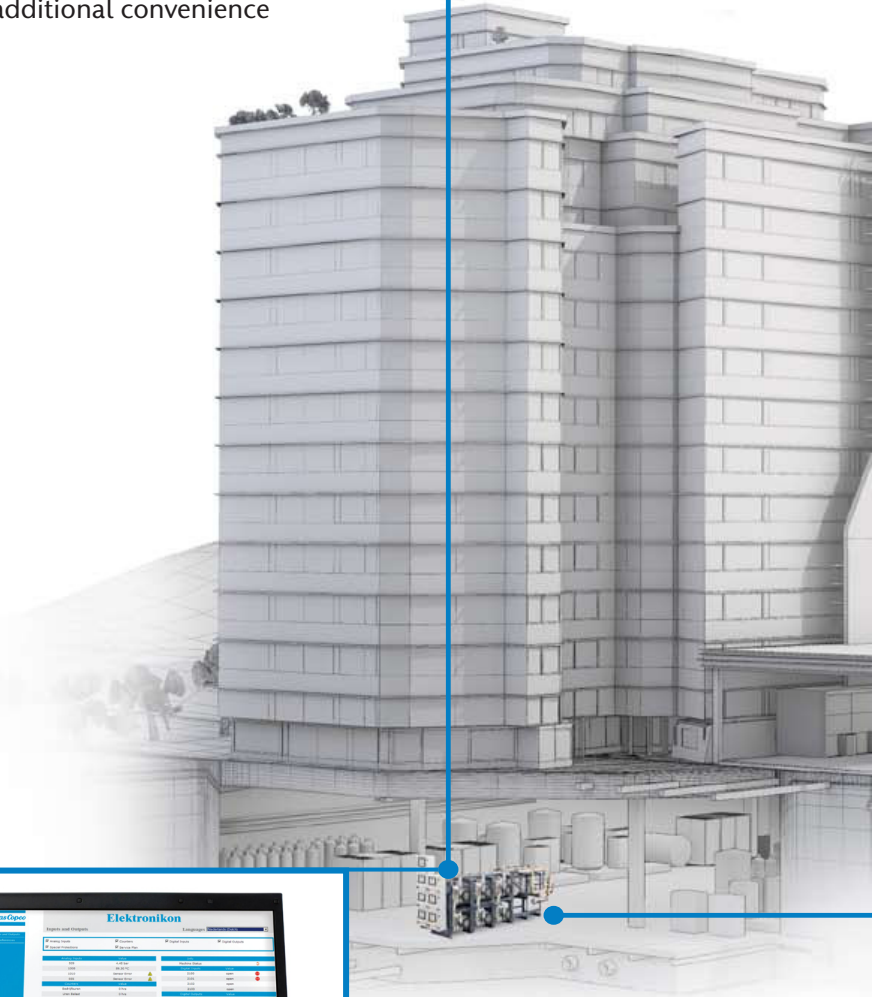
AirConnect™ Visualisation provides a host of optional functions to increase system transparency:

- Logging and trending for an accurate performance status of your system
- Desktop event notification to avoid constant status checking
- E-mail event notification for additional convenience



Real-time Monitoring On Your Desktop

Simple and easy to install, the AirConnect™ Visualisation monitoring device collects data from all the pumps in the mVAC system. Through a website integrated within the Elektronikon module, all data is visualized in real time, offering you immediate clarification. As these real-time visualisation pages are accessed through the hospital's LAN, total data security is assured.



ed Connectivity



ES-VAC Central Controller

for control of the overall mVAC system

- User-friendly: 5.7-inch high-definition colour display with clear pictograms and LED indicators
- Internet-based pump visualisation using a simple Ethernet connection
- New, user-friendly, multilingual user interface and durable keyboard for increased reliability
- Automatic restart after voltage failure
- Graphical indication Service Plan
- Remote monitoring and connectivity functions

The advanced ES-VAC controller protects the mVAC system and offers the possibility to repeat the most important alarms (e.g. plant emergency, pressure fault, plant fault) through voltage-free contacts. It can connect to a hospital's Building Management System (BMS).

Pump Controller

for control of individual vacuum pumps

- Easy to use intuitive navigation system with clear pictograms and LED indicators
- Visualisation through web browser using a simple Ethernet connection
- Easily upgradeable
- Ultra-reliable and highly durable keyboard
- Automatic restart after voltage failure
- If the central controller should fail, every single pump has its own pump controller



mVAC - Ult

A Reliable Source Of Medical Vacuum

The BeaconMedæ's mVAC Medical Vacuum Systems consist of between two and six air-cooled, oil-lubricated rotary vane type vacuum pumps and a central controller with an intelligent graphical user interface. The pumps can work independently to satisfy the required vacuum flow.

mVAC systems are suitable for both continuous and frequent start/stop operation. They keep the vacuum level at the point of connection as low as or lower than -600 mbar(e) (-450 mm Hg) at all times. The mVAC system offers (multiple) backup supply in case of failure of individual functional components. It is installed, piped and wired as modular stacked components or as a tank-mounted unit.

mVAC systems provide a highly reliable medical vacuum (suction) for a variety of applications, mainly in operating theatres and intensive care, emergency and respiratory units. Specific applications include:

- Wound drainage
- Assisted wound closure
- Chest and lung drainage
- Collection of other bodily fluids
- Gastric emptying
- Cleaning endotracheal tubes
- Liposuction (lipoplasty)
- Removal of excess blood during surgery

Ultra-reliable

A reliable source of medical vacuum is critical to patient safety. The carbon composite material of mVAC pumps will not break down or wear out like laminated blades. Specially designed channels on the surface of the rotor blade significantly improve oil circulation to further enhance reliability. And if the central controller should fail, every pump still has its own controller. Every mVAC system is subject to comprehensive QA controls and is fully tested prior to dispatch.

In the unlikely event of the central controller failing, pumps will run independently activated by means of a mechanical back up pressure sensor mounted on each vacuum pump. Ensuring the mVAC plant will continue to maintain the required level of vacuum.

Easy To Install

All interconnection piping and copper connections are supplied as an integral part of the mVAC system.

Highly Connective

Up to six vacuum pumps can be connected in one mVAC system to ensure that even a large hospital always has a reliable vacuum to meet all its needs. Furthermore, via AirConnect™ Visualisation you can connect to extensive monitoring and status information to get the most out of your mVAC system.

Energy-efficient

BeaconMedæ's always strives to provide solutions that are the most energy-efficient. In a multi-pump arrangement, the advanced Elektronikon® Graphic controller maximises energy efficiency by controlling the individual vacuum pumps and regulating the overall vacuum.

Cost-effective

Atlas Copco's unique Elektronikon® control system gives you the means to effectively manage and optimise your mVAC system. Device status is monitored in real time, required services are delivered rapidly, break-downs can be prevented and downtime shortened. In short, it provides all you need to keep operational costs to a minimum.

Medically Certified

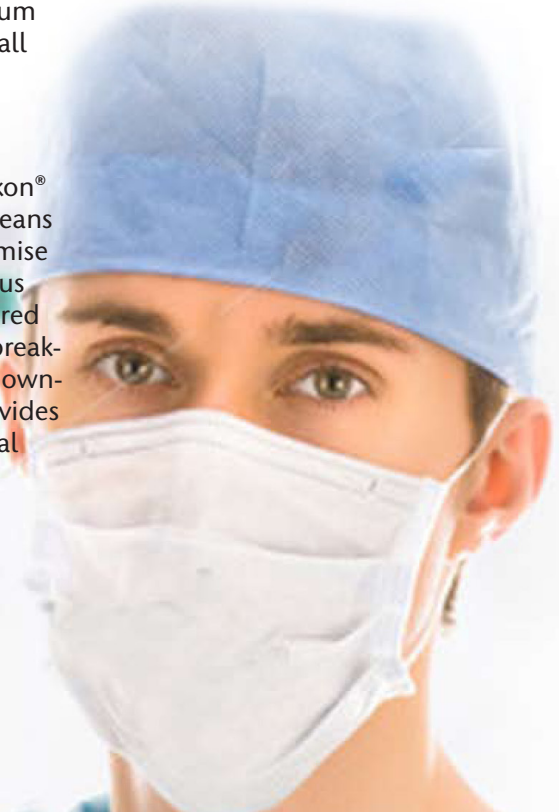
The medical sector is more tightly regulated than ever before. mVAC Medical Vacuum Systems are pre-certified to simplify your certification process on installation. They surpass the requirements of the most demanding standards and regulations such as:

- Medical Device Directive MDD 93/42/EEC
- EN ISO 7396-1
- ISO 14971
- Health Technical Memorandums HTM 02-01 and HTM 2022

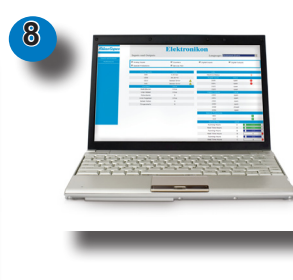
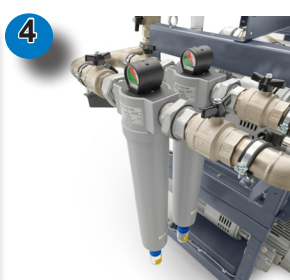


Certified Quality

Furthermore, they are designed and manufactured according to ISO 9001, ISO 14001 and the ISO 13485:2003 quality management system.



Ultra Reliable



Key Features

1. Motor control panels
2. Fixing points
3. High performance vacuum pumps
4. Bacterial filters
5. ES-VAC central controller
6. Galvanised vessels
7. Copper inlet connection and test point
8. AirConnect monitoring system (option)
9. Modular pump and filter frames
10. Building management system (BMS) ready

Benefits

- Allows for more user friendly access. Separate control panels allow you to run one unit while the other unit is being maintained
- Pre-drilled mounting holes for safe and quick installation
- High endurance factory pre-piped, wired and tested for assured reliability
- High performance filters with differential pressure gauges for indicating saturation
- Automatically sequences the pumps and rotates the lead pump to ensure even wear. Capable of connecting to hospitals LAN for remote live status
- Extends vacuum vessel life by 300% over conventional untreated steel pressure vessels (can be painted as an option)
- Installation ready
- Provides advanced monitoring including SMS, email and desktop alerts. Stores historical data for trending and measuring
- Offers reduced footprint and increased flexibility on site. Easily accessible components for maintenance
- Allows for interface with additional monitoring system



mVAC Vacuum Specifications

HTM02-01/ISO7396-1 Oil Flooded Rotary Vane

Model	V	Ph	Hz	Power		System Capacity		
				Kw	Hp	SCFM	l/s	l/m
TRIPLEX								
MVAC-250-TH	400	3	50	1.1	1.5	9	4.2	250
MVAC-330-TH	400	3	50	1.5	2	12	5.5	330
MVAC-500-TH	400	3	50	2.2	3	18	8.3	500
MVAC-1280-T	400	3	50	5.5	7.5	45	21.3	1280
MVAC-300-TH	380	3	60	1.5	5	11	5	300
MVAC-400-TH	380	3	60	2.2	3	14	6.7	400
MVAC-620-T	380	3	60	3	4	22	10.3	620
MVAC-1500-T	380	3	60	7.5	10	53	25	1500
QUADRUPLEX								
MVAC-660-Q	400	3	50	1.5	2	23	11	660
MVAC-1000-Q	400	3	50	2.2	3	35	16.7	1000
MVAC-2560-Q	400	3	50	5.5	7.5	90	42.7	2560
MVAC-3300-Q	400	3	50	7.5	10	117	55	3300
MVAC-800-Q	380	3	60	2.2	3	28	13.3	800
MVAC-1200-Q	380	3	60	3	4	42	20	1200
MVAC-3000-Q	380	3	60	7.5	10	106	50	3000
MVAC-3900-Q	380	3	60	9.2	12	138	65	3900
PENTAPLEX								
MVAC-3840-P	400	3	50	5.5	7.5	136	64	3840
MVAC-4950-P	400	3	50	7.5	10	175	82.5	4950
MVAC-4500-P	380	3	60	7.5	10	159	75	4500
MVAC-5850-P	380	3	60	9.2	12	207	97.5	5850
HEXAPLEX								
MVAC-6000-H	400	3	50	7.5	10	212	100	6000
MVAC-6600-H	400	3	50	7.5	10	233	110	6600
MVAC-7800-H	380	3	60	9.2	12	275	130	7800
HTM2022 Oil Flooded Rotary Vane								
DUPLEX								
MVAC-250-DH	400	3	50	1.1	1.5	9	4.2	250
MVAC-300-DH	380	3	60	1.5	2	11	5	300
TRIPLEX								
MVAC-500-TH	400	3	50	1.1	1.5	18	8.3	500
MVAC-660-TH	400	3	50	1.5	2	23	11	660
MVAC-1000-TH	400	3	50	2.2	3	35	16.7	1000
MVAC-2560-T	400	3	50	5.5	7.5	90	42.7	2560
MVAC-500-TH	380	3	60	1.5	2	18	8.3	500
MVAC-800-TH	380	3	60	2.2	3	28	13.3	800
MVAC-1200-T	380	3	60	3	4	42	20	1200
MVAC-3000-T	380	3	60	7.5	10	105	50	3000
QUADRUPLEX								
MVAC-1500-Q	400	3	50	2.2	3	53	25	1500
MVAC-3840-Q	400	3	50	5.5	7.5	136	64	3840
MVAC-4950-Q	400	3	50	7.5	10	175	82.5	4950
MVAC-1860-Q	380	3	60	3	4	66	31	1860
MVAC-4500-Q	380	3	60	7.5	10	159	75	4500
MVAC-5850-Q	380	3	60	9.2	12	207	97.5	5850
PENTAPLEX								
MVAC-6000-P	400	3	50	7.5	10	212	100	6000
MVAC-6600-P	400	3	50	7.5	10	233	110	6600
MVAC-7800-P	380	3	60	9.2	12	275	130	7800
HEXAPLEX								
MVAC-8000-H	400	3	50	7.5	10	283	133.3	8000
MVAC-9200-H	380	3	60	9.2	12	325	152	9200

Additional Options

- AirConnect™
Visualisation and Notification package
- Customised software setting for different norms (HTM / ISO / AS)
- Oil level switch - providing alarm warnings when oil level is low
- Synthetic oil
- Galvanised and painted vessels

BeaconMedaes

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