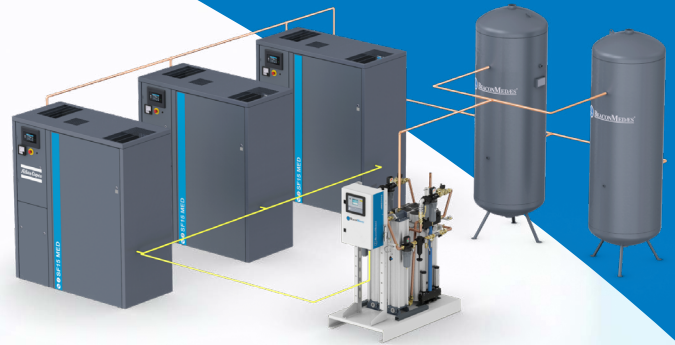
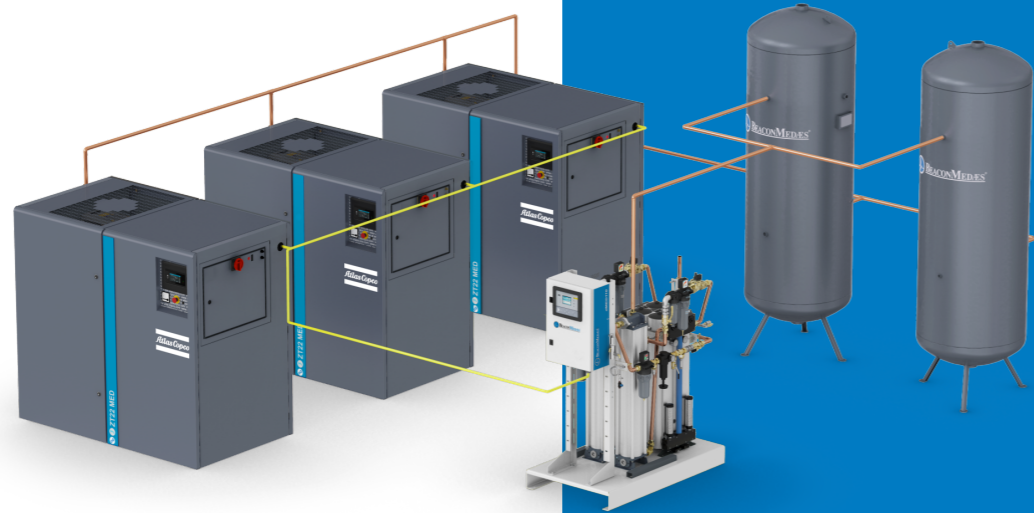


Medical Air Systems mAIR, cAIR and sAIR



Medical Air Systems



The BeaconMedæx Medical Air Systems are designed in accordance with HTM 02-01, ISO 7396-1 and European Pharmacopoeia standards.

- *mAIR Medical air system - source of compressed air at 4 bar*
- *sAIR Surgical air system - source of compressed air at 7 bar*
- *cAIR Combined air system - source of compressed air for both surgical and medical air applications*

The system design is modular providing maximum flexibility for easy on-site installation. Medical air systems are designed and manufactured according to the ISO 13485 quality management system and are CE certified in accordance with MDD 93/42/EEC.

Medical Air Applications

- Mechanical ventilation
- Anaesthesia
- Drug delivery via a nebuliser
- Testing medical devices
- Drying of medical devices

Surgical Air Applications

- Pneumatic surgical tools (drilling, sawing, etc)
- Pneumatic ceiling pendant operation
- Testing of medical devices
- High-speed high torque motors



Purity and Precision

The critical field of patient care requires ultra clean medical air delivered to operating theatres and hospital beds with absolute reliability. A hospital's medical air supply is a vital life support service, maintaining respiration of the critically ill during mechanical ventilation.

As such, within Europe, 'medicinal air' is classified as a drug, and the concentration of impurities therein must be carefully controlled to ensure compliance with the European Pharmacopoeia monograph. Built to exceed standards, medical air systems are designed to provide certified breathing air, even in situations where the air intake may contain high concentrations of ambient pollution, to ensure patient safety at all times.

Pharmacopoeia Compliant

Test	European Pharmacopoeia
CO ₂	< 500 ppm
CO	< 5 ppm
SO ₂	< 1 ppm
NO _x	< 2 ppm
Water Vapour	< 67 ppm
O ₂	20,4 < X < 21,4 %
Taste and Odour	Taste and Odour free

Tailor Made

BeaconMedæx Medical Air Systems are composed of modular blocks, enabling you to select up to six compressors and match the volumetric medical air flow with the purification package of your choice.

Medical Air Plant Design Flows (DF):



Oil-free Scroll - SF MED

DF: 1,200-7,400 l/min



Oil-free Tooth - ZT (VSD) MED

DF: 1,500-8,900 l/min



Oil-injected Screw - GA (VSD+) MED

DF: 566-12,000 l/min

Downstream pressures range from 4 to 10 bar as standard, with options including additional sensors for monitoring of contaminants in the medical air supply and the intelligent 'zero loss' EWD condensate drain for coalescing filters.

Optimizing Your System

Some applications may need or may benefit from additional options and more refined control and air treatment systems. To meet these needs, BeaconMedæx has developed options and easily integrated compatible equipment.

Unparalleled Efficiency

Medical air systems are packed with features to lower your cost of ownership (life cycle cost) and save energy. Microprocessor controlled off-load running of compressors reduces the number of starts that compressors must make, reducing wear, increasing reliability and lowering power consumption.

The 'zero loss' EWD condensate drains fitted to all air receivers further enhances the efficiency of the overall system.

dMED Medical Air Purifier

The dMED (dual MED) is a duplexed purification package for converting a compressed air source into breathing quality air. The dMED has 6 stages of active purification:

1. Water separator - liquid water removal
2. Combined coalescing filter - oil and water aerosols removal
3. Desiccant dryer - water removal
4. Activated carbon towers - gaseous impurities removal
5. Catalyst - CO oxidation
6. Bacteria filter - bacteria/fine particles removal



PSA Desiccant Dryers

Generously sized desiccant towers are filled with a high efficiency adsorption media to ensure the required dew point is maintained at the highest periods of demand.

Changeover of the towers is carefully controlled with separate de-pressurisation and pressurisation cycles, maximising desiccant life and minimising dusting. Furthermore the intelligent controller will only run one dryer at the same time and keep the second dryer as a back-up, thereby saving on purge losses and reducing maintenance costs.

Carbon Monoxide Removal

Carbon monoxide concentrations in urban areas are closely related to motor traffic density and weather, varying greatly with time and distance from the source(s). The European Pharmacopoeia monograph for medicinal air specifies a maximum concentration of 5 ppm for carbon monoxide.

The QDT HOP filter, downstream of the desiccant dryer contains a catalyst which oxidises carbon monoxide to give carbon dioxide. If you cannot be certain that background levels of carbon monoxide in the environment will never exceed 5 ppm, the dMED's QDT HOP component is the ultimate safety device, ensuring patient safety and consistent compliance with the European Pharmacopoeia.

Energy Efficient

At BeaconMedæS, we strive to provide the most energy-efficient solutions. Energy consumption is mainly linked to the purge of air during the regeneration of the desiccant. By providing the most efficient regeneration process and the standard Purge saver function, the purge of air is reduced to a minimum.

Purge Saver

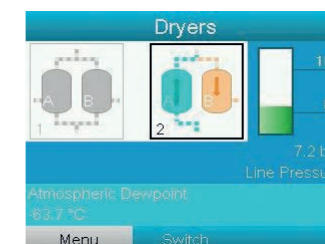
Maintaining a consistently low dew point is critical to patient safety, and to the operation of air driven surgical tools. The dMED incorporates state-of-the-art energy management control with built-in purge control as standard. This purge control makes the dryers more efficient, leading to energy savings on purge losses of up to 90%, depending on installation and usage.

The principle is simple. Although the time for a saturated tower to regenerate remains constant, the switching from one tower to the other is delayed if the PDP level in the active tower is adequate. This is controlled via the PDP sensor. As soon as the minimum level PDP in the active tower is reached, the dryer cycle that was on hold will resume by switching to the dry tower.

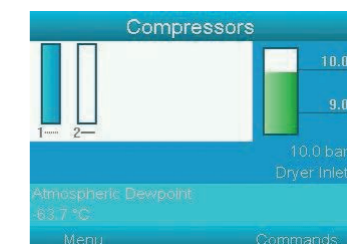
Intelligent Central Controller

A proper managed air plant will save energy, reduce maintenance, decrease downtime, increase reliability and improve product quality. The ES-MED central controller is the most efficient way to monitor and control multiple compressors and air purifiers simultaneously.

- User-friendly 5.7" high-definition color display with clear pictograms and LED indicators
- Access to real time status from any computer connected to the hospital's LAN
- Most critical alarms are available as voltage-free contacts for connection to the Building Management System (BMS)
- Automatic restart after voltage failure
- Easy readout of the CO and CO2 sensors (if fitted)
- Service warning indications for desiccant, catalyst filters and water drains



Dryer Status



Compressor Status

Compressor Solution

BeaconMedæx along with Atlas Copco continues to innovate and provide increased product solutions for the Healthcare sector. By making use of the wide range of compressor technologies available from Atlas Copco we can provide a bespoke modular system to suit your specific needs.

Our medical range of compressors are provided with the Mk5 Elektronikon® controllers and CAN connections. All models are simple and easy to install and are pre-configured in our factory to communicate with the ES-MED central controller, which is included on our dMED dryer system. Meaning we can offer a medical air system at the pressure or flow you require with a technology of your choice.



Oil-injected Screw - GA VSD+ MED

Working pressure: 7-13 bar
Capacity FAD: 1,300-6,900 lpm
Installed power: 7-37 kW

Key Benefits

- Advanced microprocessor based controller for optimised operation
- Wide range of models including oil-free solutions and variable speed drive
- Access to real time status from any computer connected to the hospital's LAN
- Easy to install, easy to maintain
- Modular design simplifies manoeuvrability on site



Oil-injected Screw - GA MED

Working pressure: 7-13 bar
Capacity FAD: 900-4,360 lpm
Installed power: 5-26 kW

Eliminating Any Risk

As the industry leader committed to meeting the needs of the most demanding customers, Atlas Copco requested the renowned TÜV institute to type-test its range of oil-free compressors. Using the most rigorous testing methodologies available, all possible oil forms were measured across a range of temperatures and pressures. The TÜV found no traces of oil at all in the output air stream. Thus Atlas Copco is not only the first compressor manufacturer to receive CLASS 0 certification, but also exceeds ISO 8573-1 CLASS 0 specifications.

CLASS	Concentration Total Oil (aerosol, liquid, vapor) mg/m3
0	As specified by the equipment user or supplier and more stringent than class 1
1	< 0.01
2	< 0.1
3	< 1
4	< 5

Current ISO 8573-1:2010 classes (the main five classes and the associated maximum concentration)

Class 0 Means

- ✓ Zero risk of contamination
- ✓ Zero risk of damaged or unsafe equipment
- ✓ Zero risk of losses from operation downtime



Oil-free Scroll - SF MED

Working pressure: 8-10 bar
Capacity FAD: 680-2,440 lpm
Installed power: 8-22 kW

Oil-free Tooth - ZT (VSD) MED

Working pressure: 8.6-10 bar
Capacity FAD: 1,800-8,330 lpm
Installed power: 15-55 kW



