



Medical air & vacuum systems

Medical gas solutions fully adaptable to your needs

Pneumatech Medical Gas Solutions (PMGS) is a global leader in manufacturing medical gas production, delivery and control equipment. Our medical air plants provide customers ultra-clean medical air, that is required for medical and surgical applications.

Medical applications

Mechanical ventilation, Anaesthesia, Drug delivery via a nebulizer, Testing medical devices and Drying of medical devices.

Surgical applications:

Pneumatic surgical tools (drilling, reaming, sawing, dissecting, tapping and screwing), Pneumatic ceiling pendant operation, Testing of medical devices and High-speed high torque motors.

Medical air systems

The Medical Air Plant from PMGS provides a reliable, centralised medical air supply. Systems are available from simplex up to hexaplex configurations. The Medical Air Plant is supplied as a fully modular assembly ensuring ease of on-site installation.

Systems are tested and verified within our factory and come fully certified for complete peace of mind.

Operation

The PMGS Medical Air Plant is designed to provide a fully automatic system in accordance with the requirements of HTM 02-01, HTM 2022, ISO 7396-1 and C11.

The Medical Air Plants consist of carefully

designed medical compressors with after coolers, air receiver(s), duplex filtration dryer and pressure regulation assembly, all necessary control cabinets, circuitry and interconnecting cabling.

Utilising desiccant media and heatless regeneration, the dryers are a fully automatic duplex (2 x 2 columns) configuration. The dryer media can be emptied and refilled without the need to disassemble, making it easy to service.

The control circuitry and power management system fully monitor the safety of the medical air plant, by signalling into the alarm system, which meets the requirements of HTM 02-01 and HTM 2022.

The central controller protects the system and offers the possibility to repeat alarms through a set of voltage free contacts. It can connect to a hospital facility's Building Management System (BMS).



Purelogic™ Central Controller

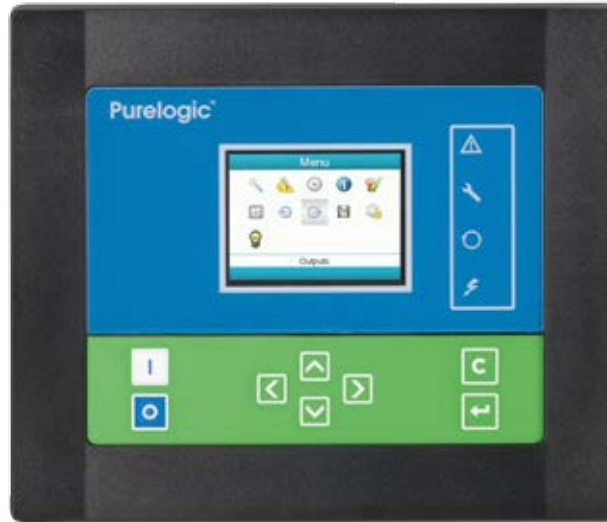
It's vital that your Medical Air Plant is controlled and monitored in the most efficient way possible. This is precisely the goal of the PMGS Purelogic™ Central Controller, a state-of-the-art control solution that provides optimal control and monitoring of your machines, increased reliability and reduced energy consumption.

- **Easy to use** – The Purelogic™ controller incorporates a 3.5" high-definition colour display with a multilingual user interface, clear icon indications and Ethernet connectivity.
- **Control & monitoring** – The Purelogic™ controller displays and controls all parameters to ensure reliable operation of your PureMED dryer.
- **Safeguards production** – Offers a number of alarms that gives the customer the information needed for safe operations.
- **Compliance** – The Purelogic™ controller is in accordance with the HTM02-01 and HTM2022 standards. Its software is compliant to IEC 62304.

System layout

PMGS offers the Medical Air System as a modular configuration for easy on-site installation and maintenance.

Each major component - compressor(s), dryer and receiver(s) are supplied with copper stub pipes. Each component is easy to manoeuvre into place. Once positioned, these components are simply connected together by the installer.



PureMED dryer

The PureMED desiccant dryer uses desiccant material and heatless regeneration to adsorb and remove the humidity from compressed air. With this method a pressure dew point of $-40^{\circ}\text{C}/-40^{\circ}\text{F}$ can be reached as standard.

As a result of the dryer's small footprint and integrated design, it will fit in confined locations. The PureMED gets delivered pre-assembled and ready to use, minimising the installation time and costs. The forklift slots are foreseen at the bottom of the dryer, improving its transportability and simplifying its installation significantly.

To offer ultimate protection to your equipment hence your patients, the PureMED is equipped with Atlas Copco' best-in-class filters. The oil coalescing filter at the inlet prevents oil contamination, increasing desiccant lifetime. The filters at the outlet protect your network against dust, avoiding network contamination.



Compliance

The PureMED dryer is manufactured according to a quality management system compliant to ISO 13485. Moreover, the unit is designed following international regulations, including Pharmacopoeia and Medical Device Directive MDD 93/42/EEC. The PureMED exceeds requirements of demanding standards, such as:

- ISO 14971
- ISO 7396-1
- HTM 02-01
- HTM 2022

Medical air compressors

Compressor technologies

The Purelogic™ Central Controller is designed specifically to support different compressor technologies for your medical air plant, such as:

- Load/unload compressor
- Piston compressor
- Variable Speed Drive (VSD) compressor

The ability to work with these different technologies makes it easier to compile a medical air plant that most closely matches your specific needs.

For each compressor technology, there is a full range of preconfigured medical air plants to make your life easy - call our sales team to find out which one is the best solution for your hospital's need.

Oil-free scroll compressors

SF MED

Working pressure: 4-10 bar

Capacity: 200-1800 l/min

Installed power: 2-22 kW



Oil-free tooth compressors

ZT MED*

Working pressure: 4-10 bar (>22 kW – 8.6 bar)

Capacity: 1800-8330 l/min

Installed power: 15-55 kW

* For HTM: Only ZT with pressures up to 10 bar, a capacity of 1800-2700 l/min and power up to 22kW are available, also as VSD.

Oil-free piston compressors*

LF MED

Working pressure: 4-10 bar

Capacity: 490-930 l/min

Installed power: 4-7.5 kW

* Oil injected compressors with pressures up to 13 bar and up to 20 kW are also available.



Oil injected rotary screw compressors

GA VSD+ MED

Working pressure: 4-13 bar

Capacity: 1300-6900 l/min

Installed power: 7-37 kW

Oil injected rotary screw compressors

GA MED

Working pressure: 4-13 bar

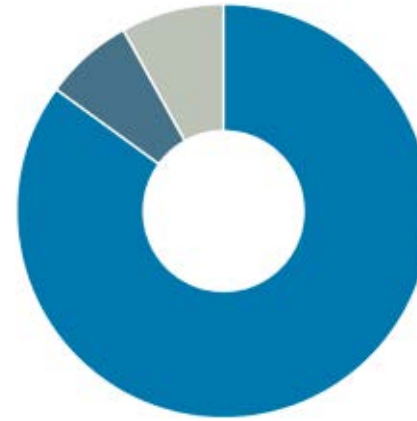
Capacity: 900-4360 l/min

Installed power: 5-26 kW



Environmental solutions

Energy can represent over 70% of a compressor's lifecycle cost, and energy consumption can account for more than 40% of a plant's total electricity bill. The Purelogic™ Central Controller ensures that your compressed air network matches your exact needs, optimising your energy consumption and reducing your costs.



Standard compressors without Purelogic™

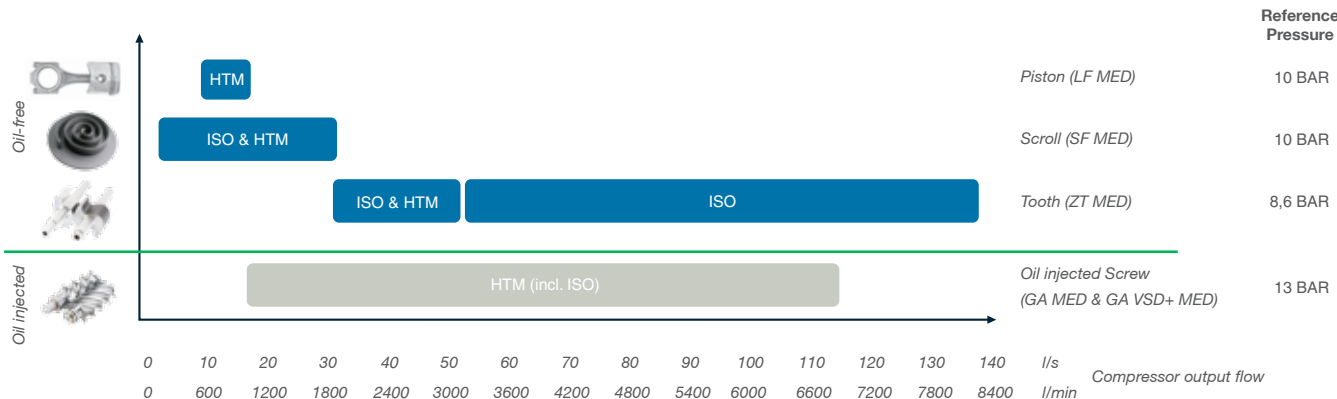


Purelogic™ controlled compressors

What compressor technology is best to use?

All technologies have pro's and con's. Some have limited flow or pressure output. Oil injected compressors have a lower capital cost. Oil-free compressors have a higher capital cost but a lower lifecycle cost, due to less maintenance - as well as lower impact on the environment.

At PMGS we want you to have the choice - our wide range of Atlas Copco medical compressors are specifically designed for use with our Purelogic™ Central Controller. So whichever technology you decide is best suited for you, we have a ready made solution.



Reducing energy consumption

The purge saver, fitted as standard on the PureMED dryer, will ensure a compliant dewpoint while reducing purge losses. Once the correct dewpoint is achieved, the purge of the dryer is stopped and energy is saved. The purge process is resumed when the threshold dewpoint has been reached.

The ZT MED compressors are available in a Variable Speed Drive (VSD) variant. The VSD will ensure that the compressor output flow is instantly adjusted to the demand of the hospital. In this way, waste can be reduced and energy efficiency increases.

The GA VSD+ MED takes energy efficiency even further. Every component has been specifically selected with the aim of reducing energy consumption. In combination with the high-efficiency permanent magnet motor, average energy savings up to 50% become a reality.

Medical vacuum systems

Modular and packaged solutions

Pneumatech MGS Medical Vacuum Systems are intended to provide a continuous supply of medical vacuum to a pipeline system in healthcare facilities. The centralised medical vacuum system is available with two to six vacuum pumps. The vacuum plant can be configured as a packaged or modular system.

The vacuum pumps are air-cooled with no water requirements. Each vacuum pump is an oil flooded, rotary vane type which draws air into the receiver vessel via the filter assemblies. As part of the standards requirements, condensation traps and flexible links are fitted to each exhaust which helps protect the pump.

The control circuitry and power management system completely monitor the safe operation of the vacuum plant, by signalling into the alarm system, which meets the requirements of HTM 02-01, HTM 2022 and ISO 7396-1. The controller helps protect the medical vacuum system and offers the possibility to repeat important alarms through a set of voltage-free contacts. It can connect to a hospital facility's Building Management System (BMS).

The filter assemblies are duplexed to allow the plant to remain in service during filter element replacement. In addition, in-house developed bacterial filter assemblies with a 99.9999% efficiency are included. The assemblies are mounted to a robust steel frame which is easy to install and manoeuvre on site.

Monitoring and controls

The PMGS medical vacuum system is supplied with the Purelogic™ Central Controller which sequences and controls the vacuum pumps. Real-time status can be viewed on any computer connected to the hospital's LAN network as standard.



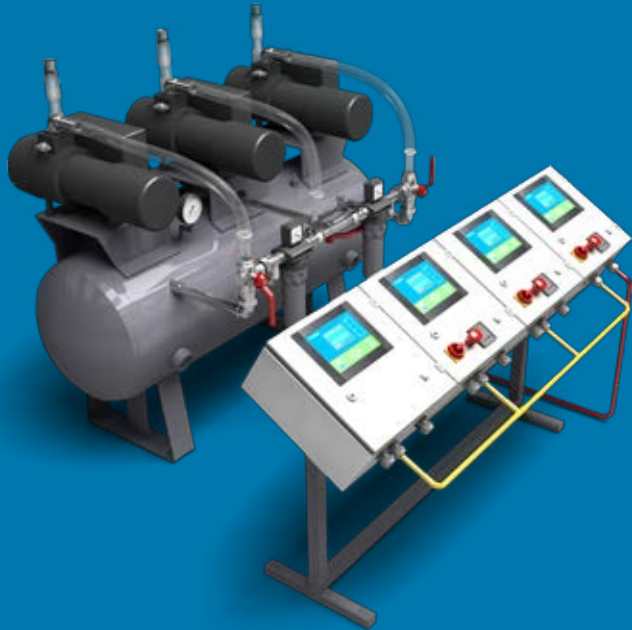
Medical air & vacuum

High efficiency pumps

Oil-lubricated rotary vane vacuum pumps offer high flow performance. Pumps are mounted on anti-vibration mounts to provide quiet operation.

Composite vanes provide long life-time (up to ten years under normal operation) and low noise level.

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.



Tank mounted systems

Vessel-mounted systems are complete stand-alone assemblies with pumps and filters mounted on a single horizontal vacuum vessel. This configuration provides a compact, low-footprint unit specifically designed for ease of installation. Models up to 1000 litres (HTM 2022) and 500 litres (HTM 02-01) are supplied in this format as standard.

Key Points

Factory tested and certified.

Modular design offering flexibility.

Easy to install.

Intelligent control system.

User friendly, colour and graphical display.

Ethernet connectivity as standard.

Fewer service visits.

Compliance

Pharmacopoeia & Medical Device Directive MDD 93/42/EEC

ISO 13485; ISO 14971 & ISO 7396-1

HTM 02-01 & HTM 2022

Easy installation

Plug and Play CAN connections with factory preset software.

Configuration and set-up can be performed on site.

Service and maintenance

Throughout the UK our network of service engineers provides full Service and Maintenance support of the highest quality.

Outside the UK our fully trained distributors provide a similar local service.

Comprehensive one-year warranty and technical support.



www.p-mgs.com

The colour of the actual products may vary from the colour shown in this brochure. Slight differences in detail might appear.