



Medical Gas Pipeline Systems

Turnkey solutions you can trust





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World class medical gas pipeline solutions

BeaconMedaes is the global leader in end-to-end medical gas pipeline solutions (MGPS). Our expertise encompasses design, site surveys, installation, commissioning, preventative maintenance contracts and equipment servicing.

We have a successful track record of delivering projects of every scope and scale, from major acute facilities to small extensions and refurbishments. Whether you need medical gas systems for a public or private hospital, veterinary surgery or dental practice, with BeaconMedaes, you're in safe and experienced hands.



Centrally sited facility

Our 42,000 sq. ft facility is located at Markham Vale, in the heart of the UK. From here we provide consolidated logistics, with extensive export stock holding and in-house export picking and packing. The site is also home to our global Competence Centre for HTM medical installation and offers a demonstration area and state of the art training facilities.

Medical gas system design expertise



Whether your project is a new build or refurbishment, our Sales Support team offers professional medical gas design services to help architects, engineers and specifiers ensure the medical gas pipeline system is included at the appropriate point in the design and planning stage. As well as advising on the design of new systems, we can conduct field surveys to determine the integrity of existing ones.

- Pipelines are drawn using 3D Revit modelling software, producing a suite of drawings from various perspectives. By drawing directly onto the 2D general arrangement drawings we're able to compile highly accurate costings.
- We model our products in BIM format, allowing us to produce accurate plant or manifold room layout drawings that visualise how the equipment can be maintained and inspected, or how cylinders can be exchanged and moved around the space.
- If the design of the piped medical gas system needs to be altered during the installation process, we can adjust the drawings to provide highly accurate 'as-fitted' representation. This helps ensure they remain current and relevant for future developments or upgrades.

All drawings and designs can be uploaded to our cloud-based asset management portal [MyMedGas](#).

Find out more about MyMedGas on page 14.

Professional installation

Our nationwide installation team cover acute and private hospitals, veterinary surgeries, and dental practices. With many years' experience in the field and all installation work designed to HTM 02-01 guidance by our in-house experts, you can be confident it meets all current standards.

Project management

An Installation Manager is assigned to each project. They will produce the necessary Scope of Works and Risk Assessments for approval by the client and monitor progress at all times.

Site surveys

When asked to quote on an MGPS project, we usually visit the site to check that any existing drawings are accurate and comply with current standards. On-site surveys are essential where new pipe work is required, and our engineers will take measurements to include existing and proposed usage to determine the correct pipe sizes.

When it's time to upgrade or replace old equipment, we will audit the existing arrangements and, using our MyMedGas platform, produce a report with accompanying photos. This will be shared with our Sales Support team to inform them of any site restrictions. Quotations and 3D proposals for replacement equipment can be uploaded against the old asset, enabling a clear understanding of why new equipment is required and the scope of works.



Competence and product knowledge

Our Installation Engineers, Sales Engineers and Sales Support staff undergo continuous training to attain Authorised Person standard (MGPS). This formal training is combined with in-house product training, practical demonstrations and regular refresher courses to ensure up-to-date technical knowledge and unrivalled expertise.



Professional installation cont.

Testing & commissioning

We test all our medical gas pipeline systems installations before the hospital pharmacist or other appointed quality control authority implements a final check and purity test. Tests are undertaken using our MyMedGas platform, ensuring nothing is missed and everything is date/time stamped for clear audit trails. Each completed test report is emailed to the facility and automatically uploaded to the MyMedGas document library for future reference.

Our procedures follow strict guidelines to ensure that the system is “patient ready”, after which the facility Authorised Person takes responsibility for the management of the system, confident in the knowledge that they have best-in-class products backed by a quality assured guarantee.

See [page 14](#) to find out more information on our MyMedGas platform.

Unmatched service & support



BeaconMedaes offer the industry's most comprehensive technical support. Whether you have a question, a medical gas equipment repair emergency, or need a preventative maintenance program, BeaconMedaes is here for you 24/7 days.

Field service

Our large, rapid response field service force aims to be on-site at mainland facility within four hours of your call (travel times to remote locations may vary). With extensive industry knowledge, our service specialists can work on all other manufacturer's equipment. Trained to complete work on the spot, all technicians are certified Competent Persons (MGPS) and hold critical spares inventory in their boot stock, with the aim of completing repairs on the first visit to minimise equipment downtime.

Fast inventory supply

BeaconMedaes maintain the UK's largest available inventory of medical gas parts and our 42,000 sq. ft facility in Markham Vale holds more than £5m worth of products and parts. Our products are CE marked to the Medical Devices Directive including medical air plant, medical vacuum plant, AGS plant, gas manifolds, terminal units, medical gas alarms and valves, as well as architectural products such as area zone service units, pendants and bedhead trunking.

Medical gas equipment maintenance

The failure of any medical gas system component can cause the shut down of key areas of a facility. Properly maintained equipment is more reliable, reduces downtime, and saves expense in the long run. Our service and maintenance options help you to eliminate the risk of a fault developing.

Planned Preventative Maintenance

Our thorough Planned Preventative Maintenance (PPM) schedules ensure that equipment is regularly inspected and maintained. The PPM, based on best practices and manufacturers' recommendations, may identify necessary repairs which could prevent an unscheduled shutdown of the system.

Every asset on your MGPS is inspected using our MyMedGas platform and a pass or fail recorded in the history log. Problematic equipment is easily identified from the desktop dashboard, and emergency call outs or repairs are also logged.

We offer this service at a flat rate, invoiced per visit, or on a monthly or annual basis.

Corrective maintenance

Corrective maintenance is a repair of a piece of equipment to restore it to its proper operating condition. This is typically unscheduled work, requested by the customer or person performing planned maintenance. These types of repairs are not usually included in the PPM contract (although the PPM service may be instrumental in identifying the need for repair). BeaconMedaes offers competitive labour rates and OEM parts pricing, with a 90-day warranty.



Contract options & extra works

Plant equipment requires annual, bi-annual or fixed interval overhauls to ensure it continues to operate correctly (recommended service intervals are set out in the OM manual). In addition to standard PPM contracts, BeaconMedaes provides optional maintenance contracts for medical air and vacuum plant maintenance.

Equipment	Service intervals
Vacuum bacterial filter change	Bacterial filters require annual replacement to prevent harmful bacteria reaching the pump unit and outgoing external exhaust system.
Air purity testing	Medical air is a classified drug and must meet the air quality standards set out in the European Pharmacopoeia monograph. We can arrange quarterly QC testing by a 3 rd party specialist.
Pressure Relief Valve replacement	HTM02-01 part B states that PRV's must be replaced every five years under a planned replacement procedure.
Pressure Regulator replacement	Industrial standards state regulators connected to portable devices should be replaced every five years. Fixed regulator replacement should be changed at the same time as the PRV to limit gas disruption to the facility.
Manifold overhauls	BeaconMedaes manifold systems should be overhauled every five years. We recommend the overhaul is done at the same time as the mandatory replacement of relief valves to minimise gas disruption to the facility. We also recommend that regulators are replaced at the same time. Pre 2010 systems are not pressure rated for high pressure 230 bar E and EW cylinders. For those systems we recommend replacement with a new Lifeline MCS manifold system including headers, tailpipes and vent valves.
Tailpipes & NRV's	These should be regularly inspected by a hospital porter, and we recommend replacement every five years. Note, as copper tailpipes harden, they can split, therefore we recommend cupro nickel tailpipes.
Medical gas hose replacement	Due to the movement of pendant systems, medical gas hoses can deteriorate over time. Equipment manufacturers typically advise replacement every five years.
Outlet upgrades and retrofits	BeaconMedaes Gem Shield antimicrobial terminals can be used to replace older Gem 10 terminal units, including MK2, MK3 and MK4's.
Alarm upgrades and retrofits	The digital Medipoint alarm panel can replace older Medipoint 26 and 125 systems utilising the existing cables and back box. These new alarms use transducers so pipeline pressure can be monitored. An event log enables the facilities team to see a history of changes or alarms.
Dewpoint Sensor re-calibration	On-site calibration check and validation of dewpoint sensor accuracy.
Pressure Switch Testing	Bi-annual testing of pipeline pressure switches to ensure operating parameters haven't drifted.

Maintaining a safe working environment

Anaesthetic Gas Scavenging annual re-commissioning

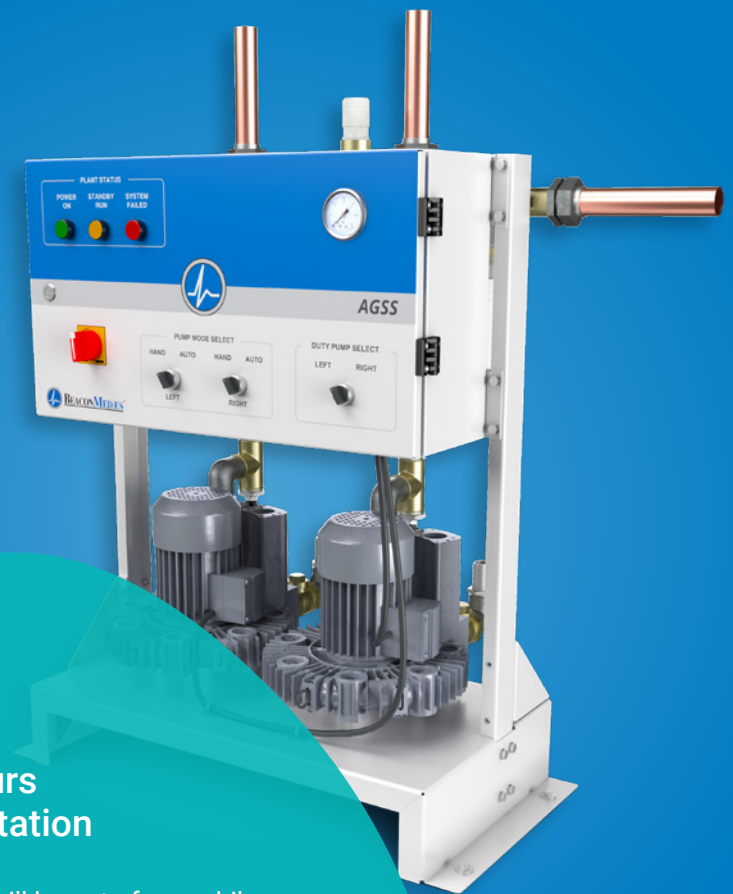
Active anaesthetic gas scavenge (AGS) systems are used in large general hospitals and other facilities – such as cosmetic surgery clinics, veterinary and dental practices – where Nitrous Oxide gas is administered for anaesthetic purposes. In all cases, any expelled gas must be safely taken away and vented to atmosphere using an AGS system.

Active AGS disposal systems are classified as a local exhaust ventilation (LEV) and under COSHH regulations require regular re-commissioning to ensure that staff are operating in a safe environment.

Compliant with HSE guidelines

BeaconMedaes' AGS re-commissioning satisfies HSE guidelines and comes with a robust audit trail. All outlets and plant units are performance tested to COSHH standards, and a comprehensive test report is produced and uploaded to MyMedGas (see page 14).

AGS flow regulating valves are prone to collecting dust which affects system performance. Some AGS systems include a filter over this regulating valve to help protect against dirt ingress to the pump. These filters require annual replacement which ideally should be conducted at the same time as the AGS recommissioning.



Out of hours implementation

Each system will be out of use while the testing (including total flow) takes place, so work tends to be out of hours or at weekends (and separate to a conventional PPM contract).

Maintaining a safe working environment cont.

Energy efficient Nitrous Oxide destruction for maternity units

Designed for use with an active anaesthetic gas scavenge system (AGS), MedClair's pure Nitrous Oxide Central Destruction Unit (CDU) can serve up to 12 rooms. The CDU uses a smart catalytic purification system to decompose the environmentally hazardous nitrous oxide (in the exhaled air) into nitrogen and oxygen.

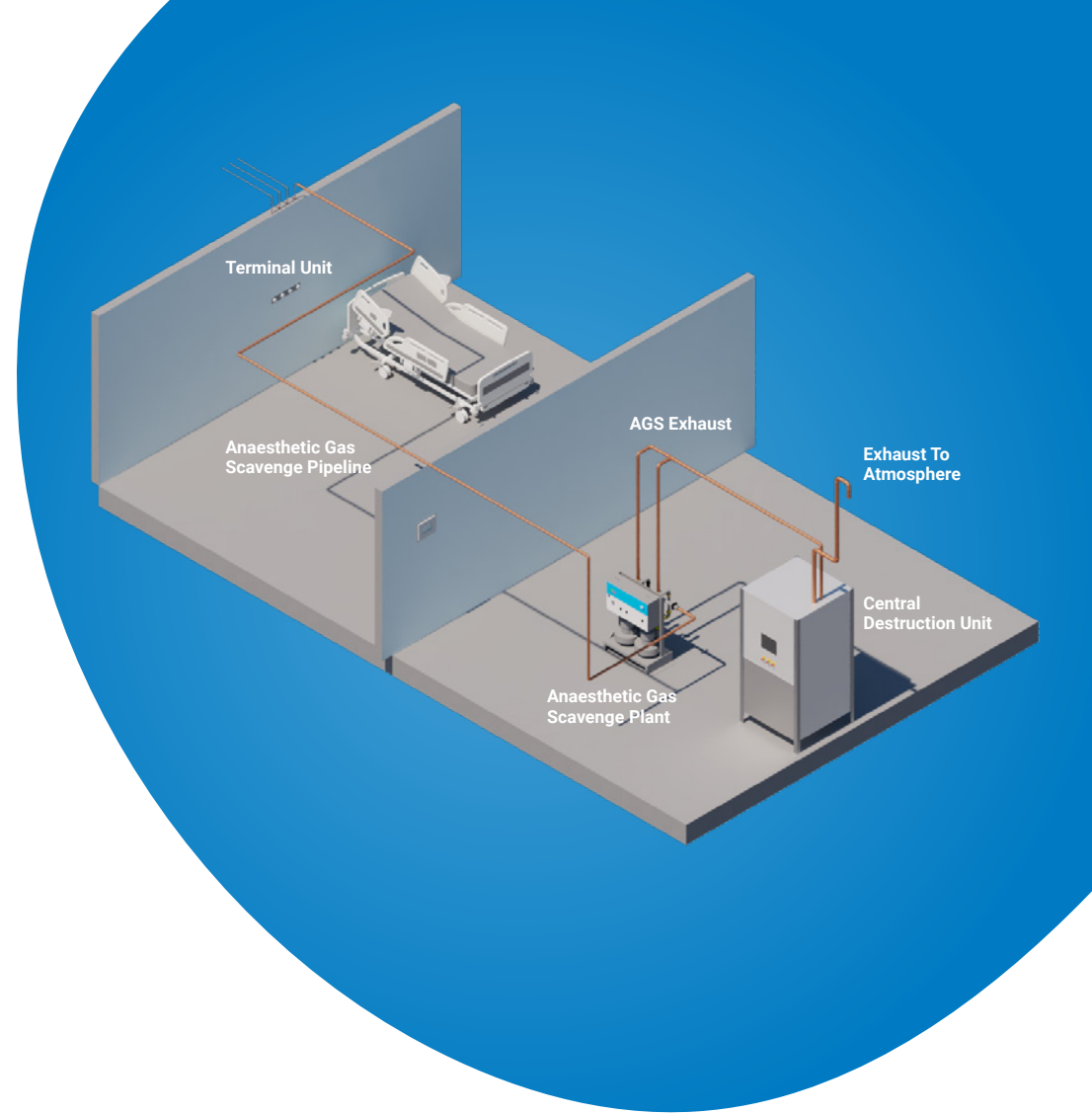
The decomposition process requires a high temperature and the unique, energy efficient gas cleaning technique uses a heat exchanger and isolation to achieve a high degree of energy recycling, significantly reducing operational energy consumption.

BeaconMedaes is the sole UK distributor of MedClair's Nitrous Oxide CDU. We can help advise on how an installation can be adapted to the specific needs of existing systems to provide optimal safe nitrous oxide usage.



Control and monitoring

The operation is continuously monitored and processing data – such as nitrous oxide concentration, gas flow and energy consumption – is logged. Saved data is available via a built-in display and through a standardised web interface, and data is presented per hour, day and month. The unit can also be connected to the facility's operational centre.



A comprehensive report highlighting the number of leaks on the distribution system is produced and uploaded to MyMedGas.



Maintaining a safe working environment cont.

Potential scale of emission reduction in the labour and delivery environment

The NHS is responsible for around 4% of the UK's annual carbon emissions and has set itself the goal of reaching net zero by 2040. Our mission is to support the NHS in this ambition by helping collect, remove and destroy around 157,000 tonnes of CO₂ per year.

In the UK, nitrous oxide is used by 50-75% of women whilst in labour. Just 1kg of nitrous oxide (the typical amount used during an average labour period) has the equivalent environmental impact of the release of 298kg of carbon dioxide, which in turn equates to driving 2000km in a car. The MedClair CDU neutralizes 99% of the nitrous oxide exhaled, creating a healthier indoor environment for staff and patients and reducing the healthcare facility's emissions.

According to the 2020 report *Delivering a 'Net Zero' National Health Service*, the capture and destruction of nitrous oxide gas could reduce NHS anaesthetic emissions by over a third and **save an estimated 90 kilotonnes CO₂ equivalent (ktCO₂e) per year, if implemented by 132 Hospital Trusts.**

Maintaining a safe working environment cont.

MedGas Scan for leak detection

Oxygen leaks pose a serious fire hazard and escape of Entonox® and Nitrous Oxide gases contribute to a facility's emissions and carbon footprint. MedGas Scan from BeaconMedaes is an on-site inspection audit that helps your facility reduce risk and cost by identifying and measuring leaks on your Medical Gas Pipeline System.

Leaks may occur on worn out terminal units, hoses and flow meters connected to the patient equipment, and on joints within source equipment equipment (such as manifold control systems and air plant or control valves) which may be "blanked" off and hidden in ceiling voids.



Identifying and tagging of leaks

The loss of gases such as oxygen, nitrous oxide and medical air, produces ultrasonic signals not always detectable by the human ear. Our acoustic camera uses 124 microphones to form an accurate acoustic image, which is then transposed in real-time and tagged to a digital image.

The intensity of the leak is also digitally tagged. The flow of each leak is determined in litres per minute and accumulated losses, which can then be used to calculate an estimated yearly cost, see example below:

Site Test - Oxygen			
Total No. Identified Leaks	Total Wasted Flow	Total Yearly Cost of Leaks*	
29	202.5 l/min	£12,757.50	
Leakages by Size	Small	Medium	Large
No.	24	5	0
% Of Total	82%	18%	0%
Wasted Flow	36.1 l/min	166.4 l/min	0 l/min
% Of Total	82%	18%	0%
Wasted Flow Cost	£10,461	£2,296.50	£0

A comprehensive report highlighting the number of leaks on the distribution system is produced and uploaded to MyMedGas.

MyMedGas platform puts everything in place

MyMedGas is a flexible, reliable digital platform through which to manage your entire Medical Gas Pipeline System. A user-friendly information management dashboard visually tracks, analyses and displays key performance indicators, monitors the health and status of your assets, and provides intelligible reporting and insight. Key features include:

Asset management

Complete asset management function includes a detailed history log for each asset's lifetime – from initial installation all the way through to its replacement.

Document library

Keep all critical compliance reports in one place, manage your own reports categories and get easy access to:

- Inspection Reports
- Deficiency Reports for management
- Preventative Maintenance Reports
- Drawings
- Certification

Equipment history

See all historical information related to your equipment – when it was last checked, maintained, repaired, and what was done and by whom.

Service requests

You can put in a request for services or quotes via MyMedGas 24/7.

