

Medical Gas Services

HTM02-01 Medical Gas Pipeline Systems



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Mission Statement

Medical Engineering Systems Limited provides a range of medical gas pipeline system (MGPS) services to the NHS and Private Healthcare industry. Our aim is to work closely with your management team and staff, assessing and assisting in maintaining system compliance to ensure patient and staff safety.

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MGPS Management Documentation System Development

To provide a tailor-made MGPS management system, development and implementation programme for the hospital. To ensure the MGPS service is brought up to standard and compliant with the requirements of HTM02-01, the CQC and other relevant guidance.

The stages which will be tailored to your hospital needs are as follows:

- Investigate the status of documentation available for the management of MGPS at your site. Identify missing elements of the management system
- Develop a full MGPS management system structure and populate with existing documentation where available, briefing managers.
- Identify potential staff members, who may be supervisors currently or new in a supervisory role – to evaluate their potential to become Authorised Persons and provide a plan to develop their management skills.
- Implement the MGPS management documentation system across the trust. Develop the additional documentation to complete the MGPS management system
- Provide coaching to internal staff to ensure they are familiar with the requirements of the MGPS documentation and that activities are scheduled and completed competently
- Measure the impact of the implementation. Preparation of assessment documentation



Compliance Audit & Risk Assessment (CA/RA)

Before upgrading, adding to, modifying your MGPS, or if you have inherited an existing system, our compliance audit and risk assessment services will detail all aspects of your MGPS that requires attention. The benefit of our full compliance audit allows a holistic approach to plan and schedule upgrades that will optimize your current system and reduce unnecessary spend.



CA/RAs can be tailored to your requirements; full, partial, source equipment only or specific areas.

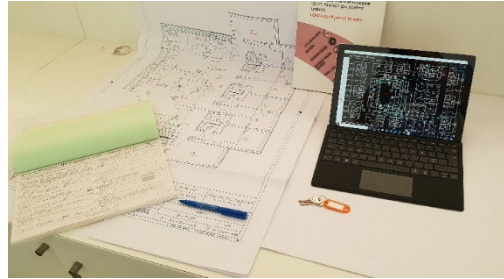
Executive management and boards are under increased scrutiny from a range of stakeholders, who are looking for assurance that internal controls are in place, to ensure adherence with laws and regulations, reducing the risks associated with non-compliance.

To address this, some organisations are implementing a regulatory compliance framework. This involves developing and establishing a compliance methodology, policies, procedures and a training programme. The benefits to this include:

- Reduce corporate oversight and guidance for compliance activities
- Improve efficiencies and effectiveness
- Increase employee awareness of regulatory compliance requirements and issues
- Minimise mitigation of legal, reputational, or financial risks
- Whilst the compliance function plays a second line of defence role within corporate governance, it also has a place in the first line of defence for its own activities with ownership, responsibility and accountability for directly assessing, controlling and mitigating risks

Project Management

To support your capital and projects, or operational estates team where you require specific MGPS project management, MES Ltd can provide a bespoke PM Consultancy Services for the following:



- Review current flow calculations
- Obtain and review current ACD Oxygen usage from gas supplier
- Discuss with your Trust all potential future upgrades
- Add future usage to current demand to provide supply system requirements
- Provide specification to your subcontractor to enable exact costs to be quoted
- Provide details for ground and building general detail for enabling works
- Re-design/add to your pipeline system to add the required compliant components, ring mains and future use requirements
- Complete or add to Isometric drawings, calculate new design flows and pressure drops
- Update existing general schematic to give final layout with phased installation
- Check and sign off final install proposal drawings and details
- Organise and oversee shutdowns and backfeeding activities
- Site visits during works at all stages
- Site project meetings visits as required

Note: this is an example only, we will work with you to create a tailored Project Management Service that fits your requirements.

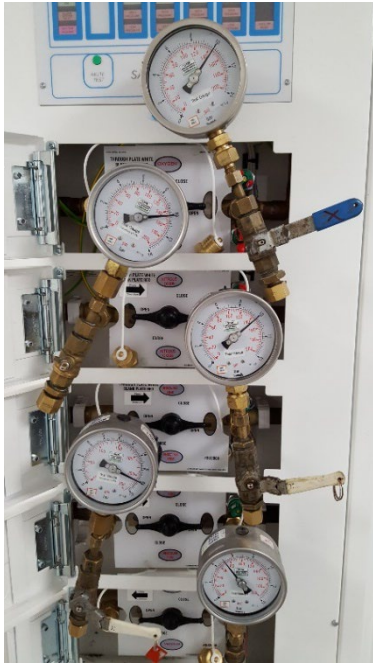
Policies and Procedures

It is essential that every site has a functional operational policy for medical gas pipeline systems as detailed in HTM02-01. The sample operational policy in the HTM forms a good basis but lacks the specific detail of YOUR systems and individual operational considerations. Our service is to prepare your operational policy to meet your needs and the needs of your stakeholders. Where required, we can also assist in the implementation of the policy. We will:

- Visit site to gather your local system details
- Meet with stakeholders to determine site responsibilities
- Review other documentation you have to ensure the policy fits
- Draft a policy and procedural document that incorporates emergency actions etc for you to review and have signed off
- Optional assistance presenting the policy to the stakeholders to assist implementation

Note: If you have a policy in place we can review and give recommendations or review and modify as required.

MGPS Consultancy



Additional consultancy for MGPS can be provided as required on an ad hoc basis. This can cover a variety of requirements and situations. Additional support during busy times, support of new APs (MGPS), additional resource for the continuation of project deadlines, items may include, but is not limited to the following:

- Additional on-site visits
- AP (MGPS) for new construction or additions
- Witnessing MGPS commissioning tests
- Additional AP (MGPS) assistance on site for large projects or shutdowns
- Systems and design verification
- Project management
- Project meeting attendance
- Medical gas committee meeting attendance
- Other medical gas consultancy as required

Permit To Work Books – Low and High Hazard

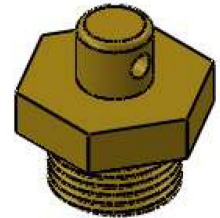
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N2O Manifold Decommissioning Rundown Adaptors

To prepare for the process of decommissioning Nitrous Oxide manifolds and pipelines and reduce the need to send full cylinders back to the supplier. It is cost effective to have a staggered reduction of the number of cylinders on site while maintaining the functionality of the manifold system in the run up to isolation and removal. Follow these steps to utilise the remaining N2O on site, the adaptor kit will allow a staggered reduction and return of N2O empty cylinders back to the supplier without replenishing stock levels and also allow for a quick and easy reversal if required.



- Assess the size of your existing manifold(s). Is it a 2 x 6 or 2 x 8?
- How often does one bank of cylinders on the manifold get changed?
- The next time one bank goes empty, remove the empty cylinders and fit the tailpipe blanking adaptors to some of the tailpipes and fit the rest with cylinders from the spare stock on site.
- Issue a notice to your gas supplier to collect Empty “G” or “J” Nitrous Oxide cylinders but “DO NOT REPLACE” with full cylinders.
- Repeat this step when the second bank runs empty.
- Thus, converting the manifold from a 2 x 6 to a 2 x 3, 2 x 2 or 2 x 1 as deemed appropriate.
- Continue to run down stock and then maintain minimum stock on “full for Empty” or manual ordering until decommission is completed.
- In the countdown to decommissioning your N2O manifold notify your gas supplier with any changes to stock levels of smaller “F” or “E” N2O cylinders you may require.

NOTE: The removal of the piped N2O and manifold is in conjunction with ceasing to use N2O apart from by exception and occasional use, therefore there should not be an automatic or significant increase of smaller cylinder numbers.

Benefits of using rundown adaptor

- Use existing gas and reduce stock levels safely.
- Keeps tailpipes system clean and sealed.
- Easy to complete and reversable if an increase to cylinder number is required through miscalculation.
- Maintains auto changeover and continuity of supply.
- Stepped reduction and use rented cylinder and gas.

Cylinder Storage, Optimisation and Racking

Having the correct level of cylinders is a fine balance between day to day use, emergency stock, cylinder safety and rental costs. Our cylinder optimisation service looks at all these aspects and gives recommendations to have the correct stock, stored safely in the correct place and have the correct procedure in place to be able to react to emergency situations. We will look at the following elements

- The level of cylinder usage
- The storage areas
- Ordering, administration and delivery
- Cylinder type, quantity and use on wards
- Cylinder safety, security and compliance of accommodation
- Cylinder storage and segregation
- Racking and supports



Before



If your cylinder store needs attention!!

Simply count the number of cylinders you need to hold in your full stock holdings and how many spaces you need for your empties and let us know.

- 6-cylinder spaces per shelf
- Deep-set shelf design reduces cylinder overhang.
- Manufactured to take "C", "D", "CD", "E" or similar sized cylinders
- Individual metal frame stack into each other to create a vertical rack set.
- Each shelf is fitted with a sturdy ABS buffer to prevent damage to cylinders, ensures a secure fit without rolling and rear profile moulded back stop.
- Set of 10: 2040 x 860 x 1000 (HxWxD mm)

After



Wall Cylinder Brackets

Creating a safe environment is as important as your Nursing staff completing their medical gas safety training course.

Assess ward cylinder storage of:

1. Are the cylinders stored safely?
2. Is the racking of suitable design?
3. Do you have enough racking?



Before

If your ward cylinder storage needs attention!!

Simply list the locations and count the number of cylinders you need to hold in each area and let us know

- Medical Gas cylinder Wall Brackets suitable for storing small cylinders “CD” up to “E” size 100mm diameter.
- Robust Rubber ring to protect cylinders from damage.
- Ribbed rubber lining in the base for extra cylinder protection.
- Precut for securing to a wall. Fixings not included.
- Light Grey BS00A05
- 1 Cylinder Parking Area sign to be installed above each area.



After

Authorising Engineer Services

Our qualified Authorising Engineer in accordance with chapter 7 of HTM02-01, Medical Gas Pipeline Systems (MGPS), has specialist knowledge of MGPS, for which your Authorised Persons (MGPS) will assume responsibility on appointment. As an independent AE appointed by your management team, our service will be to perform assessments of your Authorised Persons (MGPS), recommend to your Executive Manager that the AP is able to be appointed in writing. Our AE will work with your team providing ongoing technical support. Elements provided for this service include:

Authorising Engineer Initial Site Assessment

Initial site assessment is one day on site at the start of the contract to assess the following:

- Current site systems overview assessment
- Documentation overview
- Staff level and MGPS Contractor information review
- Initial assessment report
- Ongoing annual technical phone and email support (office hours)



This provision consolidates the relationship and information required to provide support to the APs and will be required at the start of any contract where AP assessments are not immediately due.

Authorising Engineer AP Assessments

Your Authorising Engineer will visit your site and spend some time with the Senior/Lead AP reviewing site documentation and the site systems. Time will then be spent with each of the remaining APs (MGPS) to conduct their assessments. A formal report and letters will be drafted off site and sent to the senior/lead AP for each AP. If required, APs can be assessed on additional sites for familiarisation to be signed off for those sites.

The programme would involve:

- Completion of a scenario and personal profile prior to meeting and discussion
- MGPS Documentation review (Permits, As-fitted Drawings, Specifications etc.)
- Assessment of the individuals' training certificates
- Tour of site to assess AP site knowledge with verbal assessment "what if, what next" situations
- Review and debrief
- Forward letter of recommendation and certificate of appointment to Chief Exec for counter-signature/ final approval

AE Annual Site Audit

The annual system review will verify procedures and ensure documentation and system controls are in place. An annual one-day site audit together with a brief report will be completed to include:

- Site systems overview assessment
- Documentation overview
- Staff level and MGPS Contractor information review
- Annual audit report
- Ongoing annual technical phone and email support (office hours)



Additional Consultancy Days

Additional consultation is a provision that may be required from time to time, a provision for several days can be added to the AE service for such occasions. Typical items included:

- Medical gas committee meeting attendance
- Additional on-site visits
- Systems and design verification
- Project meeting attendance
- Stakeholder meetings Operational Policy implementation
- Other medical gas consultancy as required

Remote Authorised Person (MGPS) Services

Our Authorised Person Service is designed to empower you to be able to manage your own site and be as self-sufficient as possible keeping your overheads down. It is aimed at smaller non-acute sites, community hospitals and hospices. Short term cover for larger sites is available for holiday cover or during periods of training up new engineers into the role of AP.

Items covered in AP services include:

- A Remote AP responsible for your Hospital/Hospice
- Hold duplicate site documentation relating to the Medical Gas pipeline System
- Train up some of your staff to act as deputised AP (MGPS) able to manage and issue “Low Hazard” permits to your medical gas maintenance contractor
- Be available to contact regarding specific system issues via telephone or e-mail during normal office hours
- Planned site attendance for project supervision and high hazard works



Initial Site Audit

A site visit at the start of the contract to provide a health-check of your existing system, systems of work and report any remedial actions.

Responsible Person training

Up to four members of your staff, will be trained as Responsible Persons for the Hospital/Hospice. The training will be face to face on site for one day. This training will enable the Responsible Person to implement, use and monitor the Permit to Work System, oversee the routine operation and maintenance of the Medical Gas Systems including minor repair works to the system.

Annual audit

A one day annual site audit to review and report remedial actions, to cover a sample of wards and other areas, procedures and policies for medical gases.

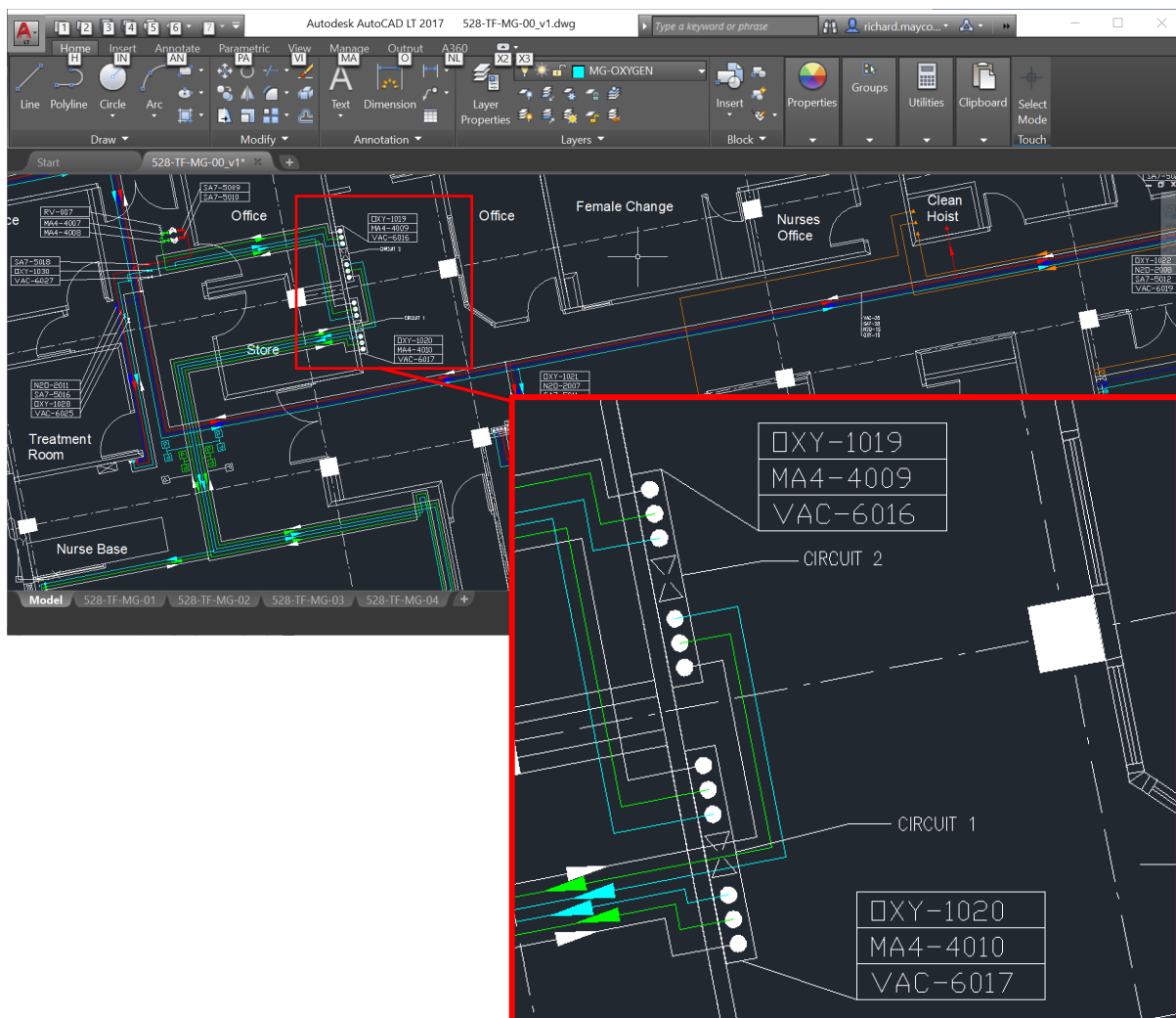
Drawings, Design & Specifications

Drawing Services

A vital requirement for your APs is to be able to manage your MGPS safely and efficiently, especially during shutdowns and emergencies. As a requirement of HTM02-01 and the Pressure System Safety Regulations, up-to-date drawings and records are required. We can provide some, or all, of the following to enhance and complete your drawings, or start completely from scratch:

- Systems survey, mark-up and update existing drawings
- Full site survey and production of **As-Fitted Drawings**
- Produce **Schematic Drawings**
- Produce **Isometric Drawings**, Flow and Pressure drops
- Apply "Traffolyte" engraved labelling to each AVSU and accessible line valve and compile a valve log

MGPS Drawings will be completed using industry standard blocks and symbols, contain the required details, be suitably layered and where required valves will be renumbered into one style and a complete valve log produced. Traffolyte style engraved labelling can be fixed to every AVSU if required.



Design & Specifications

We can provide design or validation of design services to ensure your system meets the current HTM02-01 and clinical needs. This can include some or all, but is not limited to the following:

- Site survey for siting of VIE or new Plant
- Compound, Plant and Manifold room requirements
- MGPS flow calculations and pipe sizing
- Source equipment sizing and specification
- Main, Ready to use and Local cylinder storage
- Installations and maintenance requirements

MGPS Drawing Management

We can provide a managed or job by job updating service to ensure your medical gas drawings and flow calculations are kept up to date, as you update or build new areas with MGPS, to ensure you are compliant with the requirements of HTM02-01 and the Pressure System Safety Regulations. This can include some or all, but is not limited to the following:

- Site survey, drawings update and re-issue master MGPS drawings
- Using your project marked up drawings, update the master MGPS drawings and re-issue
- Update your Schematic drawings and re-issue Schematic drawings
- Update your Isometric Drawings, re-calculate the flow and pressure drop, identify any new pinch points and re-issue master Isometrics
- Provide additional AVSU signs and key tags in line with your valve log and key press nomenclature

Received Markups



Returned As-Fitted



Equipment Supplies

Along with the services offered, Medical Engineering Systems can also supply the following equipment on request. It may just be a one-off purchase, where you don't wish to set up a new supplier, or the ongoing supply of goods without expanding your supplier base to several others.

- Cylinder trolleys
- Emergency Backfeed Kits and Manifolds
- Cylinder racking
- Cylinder Cages and Stores
- SOT
 - Flowmeters
 - Regulators
 - Suction controllers
 - Hoses
 - Demand Valves
- MGPS Test Equipment
 - Medical Gas Test & Commissioning Kit (Analogue or Digital)
 - Flow Rate Pressure Drop
 - AGSS Test Kits
 - Anti-Confusion Probes & NIST
 - Particulate and Purging Test Kit
 - Pressure Drop Test Kit
- Exposure to Waste Anaesthetic Gas Personal Monitoring
 - Nitrous Oxide Personal Monitor
 - Gas Anaesthetic Agent Personal Monitor

Emergency Backfeed Manifold: Oxygen EBM

The Emergency Backfeed Manifold (EBM) is designed to provide a means of feeding medical gas into the MGPS for planned shutdowns or to supply an area in an emergency.

Features:

- Low pressure, quick gas specific connections, NIST & Probe
- Easy changeover from one bank to the other with pipeline pressure gauge
- Light weight design, less than 2 large cylinders with more available gas (when used with ZX cylinders)
- Stable design, no need to secure with chains
- 4 locking wheels for improved stability
- Protective cover for storage
- In-Line regulator# optional for reducing to 3.5bar as an extra standby
- Use your cylinder stock**



Technical Specification

Maximum input pressure	:10 bar (1000 KPa)
Normal working pressure	:4-5 bar (400 – 500 KPa)
Maximum flow rate	:180 l/min*
Min – Max working temp	:-10°C to +40°C
Capacity with 6 “ZX” Cyl**	:18,000 litres Approx.
Environment	:Indoor use only
Connections	:O2 Direct BS Probe BS5682 O2 NIST Probe with ‘O’ Ring + Nut

*For high flow areas 2 units are recommended.

**Cylinders not included you will need compatible integral cylinders from your cylinder stock. Regulators for other cylinder valve types are available and can be purchased separately.

In-line adjustable regulators are available separately; max flowrates will be reduced dependent on desired output pressure.



Nitrous Oxide Portable Supply Manifold (PSM)

The Portable Supply Manifold (PSM) is designed to provide a means of supplying Nitrous Oxide Gas as an alternative to the MGPS for areas requiring occasional N₂O whilst maintaining “HTM02-01 Continuity of Supply”, with an automatic changeover from one cylinder to another and providing warning of cylinder contents and changeover.

Features:

- Continuity of Supply.
- No need to modify Anaesthetic Machine the PSM replicates a medical pipeline type supply.
- Automatic changeover from one bank to the other with cylinder and pipeline pressure indication.
- Power Failsafe gas continues to supply.
- Pin Index Regulator with quick gas specific connections, with gas terminal unit outlet.
- For use with E size Nitrous Oxide cylinders:
 - 2 x 1 manifold
 - 1 spare cylinder space.
- Stable design, no need to secure with chains.
- 5 locking wheels for improved stability.
- Stainless Steel material frame.



**Portable Supply Manifold
Nitrous Oxide PSM
Part No: PSM-N20-101**

Technical Specification

Maximum input pressure	:230 bar Regulators
Normal working pressure	:45bar into regulator
Regulator output pressure	:4 bar (400 KPa) nominal
Flow rate	:10 l/min
Min – Max working temp	:10°C to +40°C
Environment	:Indoor use only
Connections	:N ₂ O Terminal Unit Outlet
Electrical Supply	:12v (2mt cable with 240v adaptor plug)

*Cylinders not included.

Authorised Person Comprehensive (MGPS) Training

The Authorised Person Comprehensive courses are ideal for estates officers and engineers, looking to progress their knowledge and understanding of Medical Piped Gas Systems. As required to HTM02-01 standards, Authorised Persons (MGPS) should receive training every three years, further to their initial AP training.

The Authorised Person (MGPS) courses cover all aspects of MGPS as required to HTM02-01 standards. Subjects covered during the course includes:

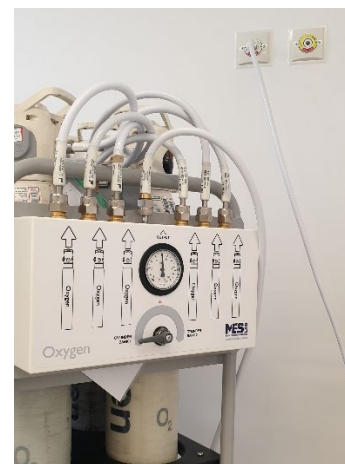
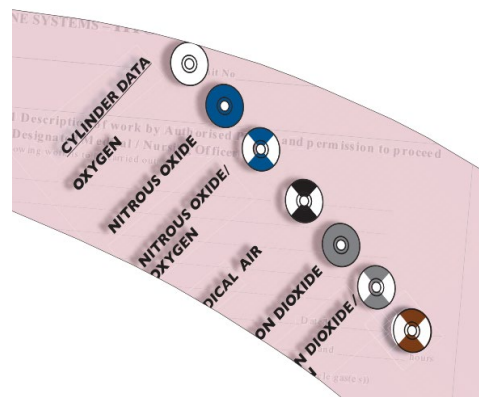
- Duration: 4.5 days
- Bespoke on site for 6 to 12 delegates per session (or join one of our courses)
- Theory, Demonstration, Group Workshop
*Practical hands-on and Test
- Content:
 - MGPS basic principles
 - Statutory obligations and safe systems operations
 - MGPS design and installation requirements
 - Structure and management of the permit-to-work system
 - Supervision of the Competent Person's (MGPS) work and management of MGPS contracts
 - MGPS equipment performance requirements (plant and pipeline)
 - Technical reporting including system capacities/limitations, upgrading requirements/equipment replacement, system compliance
 - MGPS documentation
 - Emergency procedures
 - MGPS operational policy preparation, implementation and monitoring
 - MGPS testing and quality control requirements
- Course workshop and exercises will consolidate the course learning
- There will be a multi-choice test to conclude the training
- Successful delegates will receive certification

*Practical hands-on available at MES dedicated training centre or where spare equipment is available on site.



Medical gases Health Technical Memorandum 02-01: Medical gas pipeline systems

Part B: Operational management



Authorised Person Refresher (MGPS) Training

The Authorised Person Refresher course is for estates officers and engineers, looking to refresh their knowledge and understanding of Medical Piped Gas Systems. As required to HTM02-01 standards, Authorised Persons (MGPS) should receive training every three years, further to their initial AP training.

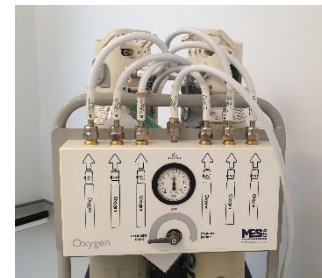
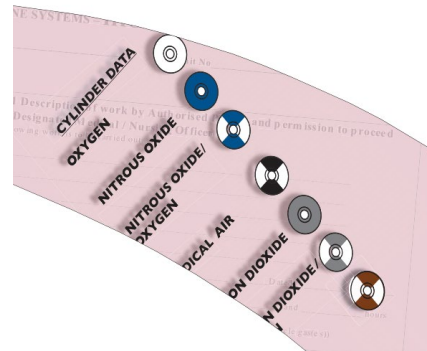


Medical gases
Health Technical Memorandum
02-01: Medical gas pipeline
systems

Part B: Operational management

The Authorised Person (MGPS) Refresher course cover all aspects of MGPS as required to HTM02-01 standards. Course content covered includes:

- Duration: 2.5 days
- Bespoke on site for 6 to 12 delegates per session (or join one of our courses)
- Theory, Demonstration, Group Workshop *Practical hands-on and Test
- Content:
 - MGPS basic principles
 - Statutory obligations and safe systems operations
 - MGPS design and installation requirements
 - Structure and management of the permit-to-work system
 - Supervision of the Competent Person's (MGPS) work and management of MGPS contracts
 - MGPS equipment performance requirements (plant and pipeline)
 - Technical reporting including system capacities/limitations, upgrading requirements/equipment replacement, system compliance
 - MGPS documentation
 - Emergency procedures
 - MGPS operational policy preparation, implementation and monitoring
 - MGPS testing and quality control requirements
- Course workshop and exercises will consolidate the course learning
- There will be a multi-choice test to conclude the training
- Successful delegates will receive certification



*Practical hands-on available at MES dedicated training centre or where spare equipment is available on site.

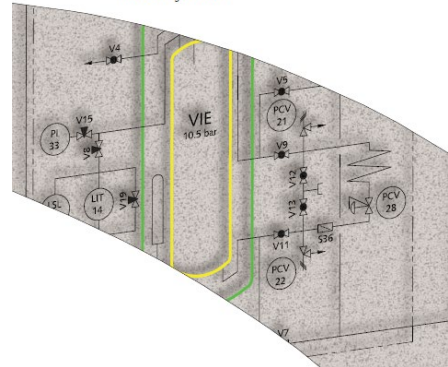
Competent Person Maintenance (MGPS) Training

This training course is ideal for estates engineers and sub-contractor engineers, who require the knowledge and understanding of Medical Piped Gas Systems, to carry out PPM, servicing and repairs to the MGPS. As required to HTM02-01 standards, Competent Persons (MGPS) should receive repeat training every three years.



Medical gases
Health Technical Memorandum
02-01: Medical gas pipeline
systems

Part A: Design, installation, validation
and verification



The Competent Person (MGPS) Maintenance course covers all aspects of MGPS, as required by HTM02-01 and the HSWA 1974, to ensure the continued safe operation and use of medical gas pipeline systems.

- Duration: 2.5 days
- Bespoke on site for 6 to 12 delegates per session (or join one of our local courses)
- Theory, Demonstration, Group Workshop *Practical hands-on and Test
- Content:
 - Introduction to HTM-02
 - Medical Gas Pipeline Systems Overview
 - Gas & Cylinder Safety
 - Manifold Systems
 - Air & Vacuum Systems
 - AGSS Systems
 - Terminal Units, Hoses, Pendants & Valves
 - Medical Gas Alarms
 - Testing of Medical Gas Pipeline Systems
 - Permit-to-Work
 - Medical Gas Pipeline Systems Maintenance
- Course workshop and exercises will consolidate the course learning
- There will be a multi-choice test to conclude the training
- Successful delegates will receive certification

*Practical hands-on available at MES dedicated training centre or where spare equipment is available on site.

Competent Person Installation (MGPS) Training

The CP Installation course is ideal for technicians and engineers, who require training on the Installation of Medical Gas Pipeline Systems. As required to HTM02-01 standards, Competent Persons (MGPS) should receive training every three years.

The Competent Person (MGPS) courses cover aspects of installation techniques (required to HTM02-01 standards) including supply equipment, terminal units and an overview of Medical Gas Systems. Subjects covered during the course includes:

- Duration 2 full days
- Bespoke on site for 6 to 12 delegates per session (or join one of our courses)
- Theory, Demonstration, Group Workshop *Practical hands-on and Test
- Content:
 - Introduction to HTM-02
 - Medical Gas Pipeline Systems Overview
 - Gas & Cylinder Safety
 - Manifold Systems
 - Air & Vacuum Systems
 - AGSS Systems
 - Terminal Units, Hoses, Pendants & Valves
 - Medical Gas Alarms
 - Testing of Medical Gas Pipeline Systems
 - Permit-to-Work
 - Fluxless Brazing Technique
 - Pipeline Inspection Process

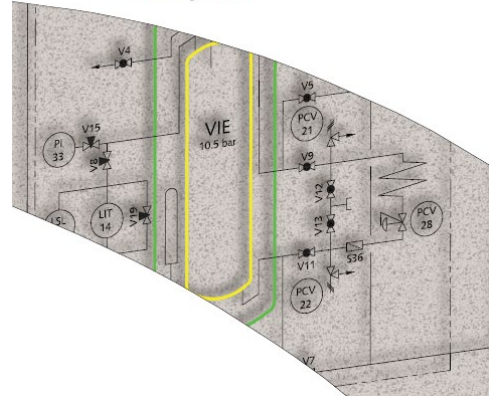
- Course workshop and exercises will consolidate the course learning
- There will be a multi-choice test to conclude the training
- Successful delegates will receive certification

*Practical hands-on available at MES dedicated training centre or where spare equipment is available on site.



Medical gases
Health Technical Memorandum
02-01: Medical gas pipeline
systems

*Part A: Design, installation, validation
and verification*



Competent Person First Line Defence (MGPS) Training

The CP FLD (MGPS) course is ideal for on-site technicians and engineers, who require training on the Medical Gas Pipeline Systems, to enable them to safely react to alarms, investigate the issue and take appropriate action, complete daily and weekly planned preventative maintenance (PPM) checks, repair or replace 2nd fix terminal units whilst working under the Permit To Work (PTW) system. As required to HTM02-01 standards, Competent Persons (MGPS) should receive training every three years.



- Duration: 1 full day training
- Up to 10 delegates per session
- Theory, Demonstration, Group Workshop
Practical hands-on and Test
- Content:
 - Introduction to HTM-02
 - Medical Gas Pipeline Systems Overview
 - Identification of Medical Gases & Safety Aspects
 - Permit-to-Work
 - MGPS daily and weekly checks
 - Repair / replace terminal units 2nd fix units
 - Testing of terminal units
- Course workshop and exercises will consolidate the course learning
- There will be a multi-choice test to conclude the training
- Successful delegates will receive certification of completion

Competent Person Training for Ambulance MGPS Systems



We provide the essential training for a CP Piped Medical Gas in Ambulance Vehicles (PMGAV) to repair, replace and test medical gas hoses and equipment in Ambulances.

The requirement of HTM2022 Sup.2 is for work to be completed by suitably trained and certified personnel i.e. a Competent Person to be assessed and appointed in writing by the Responsible Person or general manager after recommendation by a suitably qualified Engineer (MGPS) who has specialist knowledge of PMGAV.

- Duration: 1 full day training session
- Up to 8 delegates per session
- Group and individual exercises with a practical assessment
 - Introduction to HTM 2022 supplement 2 and general standards
 - Review of Medical Gas Pipeline System
 - The role of the Competent Person
 - Maintenance and repair of terminal units
 - Inspection, Testing and replacement of “Low pressure hoses”
 - Engineering testing of system and terminal units
 - The PMGAV Permit to Work System
 - Materials compatibility
 - CP Assessment – Practical test and written scenario assignment
- Course workshop and exercises will consolidate the course learning
- There will be a multi-choice test to conclude the training
- Successful delegates will receive certification of completion



MGPS Familiarisation Training & Workshops

This provides essential training for staff requiring additional knowledge of MGPS systems, to enable them to assume the role of CP or AP as required by HTM02-01. To enhance or refresh their knowledge of particular areas of MGPS, to ensure the safe operation and use of medical gas systems and carry out emergency actions.

This is a bespoke training session. The options below can be tailored to suit your needs:

- 1-day training session
- Up to 10 delegates (room and plant room size permitting)
- Theory, Demonstration, Group Workshop
- Certificate of attendance issued



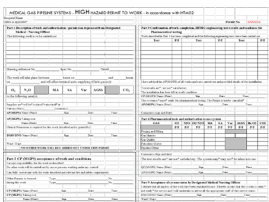
Option 1 Contents:

- VIE Familiarisation
- VIE emergency actions
- VIE daily and weekly site checks
- VIE exercise



Option 2 Contents:

- Medical Air and Vacuum Plant Familiarisation
- Emergency actions
- Daily and weekly site checks
- Plant exercise



Option 3 Contents:

- The Permit to Work (PTW) system
- Completing Low and High Permits correctly
- Use of appropriate engineering tests
- PTW exercise



Option 4 Contents:

- Medical Gas Hose Manufacture
- Statutory requirements for manufacture
- Practical methods of making hoses and test equipment
- Use of appropriate engineering and batch tests



Option 5 Contents:

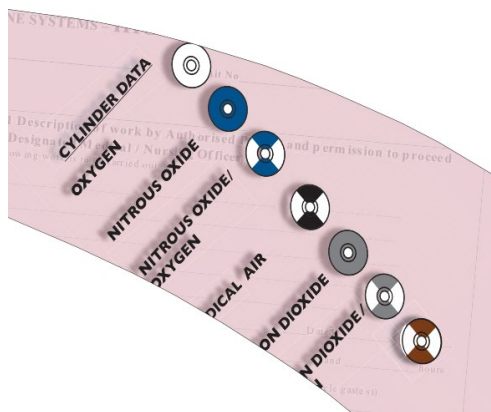
- MGPS Testing & Commissioning
- What the test requirements are for new or additional systems
- Which tests are appropriate and how to do and witness them
- Practical application of the tests

Responsible Person (MGPS) Training



Medical gases
Health Technical Memorandum
02-01: Medical gas pipeline
systems

Part B: Operational management



This training course is aimed at small healthcare sites with piped medical gas systems, but no on-site Authorised Person (MGPS). Or, as a stepping stone for on-site competent persons looking to become Authorised Persons (AP MGPS).

It provides the essential training for site managers and senior staff responsible for the day to day operation of their MGPS on healthcare sites, where they employ a remote Authorised Person (MGPS), or to support the AP (MGPS) for low hazard work out of hours.

Required by HTM02-01 and the HSWA 1974, to ensure the safe operation and use of medical gas pipeline systems and emergency actions.

- 1 full day training session
- Up to 10 delegates per session (room size permitting)
- Theory, Demonstration, Group Workshop and Test
- Contents:
 - MGPS basic principles
 - Roles and responsibilities
 - Oversee the routine operation and maintenance of the Medical Gas Systems
 - Minor repair work to the system
 - Reporting faults, cylinders, alarms, piped system
 - Equipment requirements and proper use
 - Implementation of the Permit to work (PTW) system, isolations and contingency planning
 - Emergency situations and operational policy
- Course workshop and exercises will consolidate the course learning
- There will be a multi-choice test to conclude the training
- Successful delegates will receive certification of completion

Designated Nursing / Medical Officer (DNO/DMO) Training



The DNO could be the hospital Senior Nurse Manager, a Senior Nurse Manager or the Senior (night) Nurse in charge of a ward, Medical officer or anaesthetist with whom the AP-MGPS liaises on any matters affecting the MGPS.

For the purposes of MGPS work at ward or department level, the Senior Nurse Manager, will have jurisdiction over most MGPS work. This will include all planned and emergency local work in normal working hours.

In the event of a planned interruption involving more than one ward, e.g. for a major shutdown, the senior DNO or DMO will be consulted. The person assuming this responsibility will liaise with other clinical staff as necessary.

This training provides the essential training for department managers and nurses in charge of a ward or department, as required by HTM02-01 and the HSWA 1974, to ensure the safe operation and use of their medical gas systems and emergency actions.

- Duration: Either 1 x 0.5 day session or 2 x 0.5 day sessions in the same day
- Up to 20 delegates per session (room size permitting)
- Theory, Demonstration, Group Workshop and Test
- Contents:
 - MGPS basic principles
 - Roles and responsibilities
 - Reporting faults, cylinders, alarms, piped system
 - Equipment requirements and proper use
 - Permit to work (PTW) system, isolations and contingency planning
 - Emergency situations and operational policy
 - Anaesthetic gas scavenging systems
- Course workshop and exercises will consolidate the course learning
- There will be a multi-choice test to conclude the training
- Successful delegates will receive certification of completion

Medical Gas Safety Training – Nurses



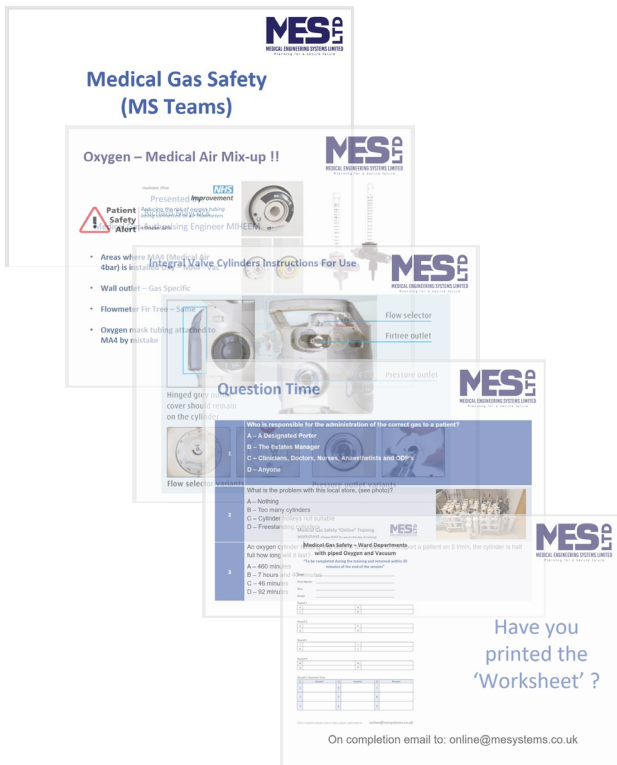
Providing essential training for nurses and healthcare staff who use gas cylinders, in handling, storing and using medical gas cylinders, as required by HTM02-01 and the HSWA 1974.

To ensure the safe operation and use of medical gas cylinders, their hazards and emergency actions.



- Duration: Either 1 x 0.5 day session or 2 x 0.5 day sessions in the same day
- Up to 20 delegates per session (room size permitting)
- Theory, Demonstration and Test
- Contents:
 - MGPS, cylinder safety and hazards
 - Colour and labelling identification of Gases
 - Operation of cylinders
 - Safe Storage and handling
 - Practical Session (preparation of cylinders for use)
 - Fault reporting
 - Medical gas pipeline systems basic principles
 - Why a permit to work system is in place
 - Warning alarm actions and isolation valves
 - Gas conservation
 - The safe use of pipeline connected equipment
- Course workshop and exercises will consolidate the course learning
- There will be a multi-choice test to conclude the training
- Successful delegates will receive certification of completion

Medical Gas Safety Training – Nurses : Online via MS Teams



Online live sessions with delegate worksheet ensures interaction with session content providing a blended learning experience, these short sessions allow access of this essential training to many staff members spread across multiple sites or where gathering in a room is difficult.

Providing essential theory training for nurses and healthcare staff who use gas cylinders, in handling, storing and using medical gas cylinders, as required by HTM02-01 and the HSWA 1974.

To ensure the safe operation and use of medical gas cylinders, their hazards and emergency actions.



- Duration: 60 to 75minute session
- Up to 250 delegates per session
- Theory, Worksheet and Test
- Contents:
 - MGPS, cylinder safety and hazards
 - Colour and labelling identification of Gases
 - Operation of cylinders
 - Safe Storage and handling
 - Preparation of cylinders for use
 - Fault reporting
 - Medical gas pipeline systems basic ward/department
 - Warning alarm actions and isolation valves
 - Gas conservation and Safety Alerts
 - The safe use of pipeline connected equipment.
- MS-Teams live session worksheet exercises will consolidate the course learning.
- There will be a multi-choice test to conclude the training
- Delegates will email in their completed worksheet for marking and where successfully completed will receive certification of completion.

Medical Gas Safety Training – Porters and Maintenance Technicians



This training course is aimed at all healthcare sites with piped medical gas systems and/or medical gas cylinder holdings.

It provides the essential training for porters and maintenance technicians, in handling, storing or using medical gas cylinders, as required by HTM02-01 and the HSWA 1974.

To ensure the safe operation, handling and use of medical gas cylinders; their hazards, emergency actions and uses for temporary supplies.

- Duration: Either 1 x 0.5 day session or 2 x 0.5 day sessions in the same day
- Up to 20 delegates per session (room size permitting)
- Theory, Demonstration and Test
- Contents:
 - Hazards of compressed and cryogenic gases
 - Colour and labelling identification of gases
 - Operation of cylinders
 - Safe Storage and handling
 - Practical Session (preparation of cylinders for use)
 - Introduction to piped medical gas systems
 - Warning alarm actions and isolation valves
 - Operation of emergency supplies
 - Practical changing cylinders on manifolds (if required)
 - Why a permit to work system is in place
 - Overview of pipeline connected equipment
- Course workshop and exercises will consolidate the course learning
- There will be a multi-choice test to conclude the training
- Successful delegates will receive certification of completion



Medical Gas Safety Instructor Training (MGPS) Course

The Medical Safety Gas Instructor Training (MGPS) course is ideal for senior Porters, Senior Nurses and In-house Trainers who require training on the Medical Gas Cylinder and Pipeline Systems Safety to enable them to deliver the required material, to ensure staff can safely work with medical gases, use and handle cylinders and take appropriate action in the event of an emergency. As required by HTM02-01. Staff should receive training and refresher training every year.

Duration: 2 days

Delegates: 6 min – 10 max

Modules:

- Introduction to HTM-02
- Medical Gas Theory
 - Cylinder Identification and labelling
 - Properties and their hazards
- Cylinder Use, Handling and Transportation and storage areas
 - Main store
 - Local ready to use stores
 - Ward storage areas
 - Safe cylinder moving and use of PPE
 - Faulty Cylinder Reporting
 - Fitting equipment to cylinders safely & cylinder operation
- Manifolds, Manifold Room & Alarm operation **(Portering/Engineering Staff)**
 - Manifold overview & operation
 - Manifold Location Identification and Alarm Conditions
 - Theory of changing cylinders & Identifying faults
- Practical Session in the Manifold Room **(Portering/Engineering Staff)**
 - Changing Cylinders
 - Logbook requirements
 - Safe manifold room practices
- Use of cylinders and associated equipment **(Nursing Staff)**
 - Flowmeters
 - Regulators
 - Demand valves
 - Cylinder replacement content levels
- Course Test – multi-choice questions
- Course content, presentations and supporting information



Medical Gas Safety Instructor Training (MGPS) Refresher Course

The MG Instructor Training (MGPS) refresher course is the annual refresher of the above course as required by HTM02-01. This course is for Instructors that have previously completed the above full 2day Instructor training course.

Duration: 1 day

Delegates: 6 min – 10 max

Liquid Nitrogen Training

The course consists of a presentation followed by a practical session and a short multiple-choice test. The course complies fully with the requirements of BCGA CoP 30. Records of those trained are kept on our database should you need confirmation of training later. H&SAWA, COSHH, BCGA CP30* state that to enable you carry out your duties safely and effectively, you must be trained in the safe use and dangers involved in all aspects of your job.

- Duration: Either 1 x 0.5 day session or 2 x 0.5 day sessions in the same day
- Up to 10 delegates per session (room size permitting)
- Theory, Demonstration, Group Workshop and Test.

Each training session includes: -

- 2 ½ hours training, theory, practical demonstration and test
- Course content
 - Introduction: what is cryogenic liquid
 - Reasons for training
 - Properties and hazards
 - Tanks, Dewars and flasks
 - Signs and labelling
 - Personal Protective Equipment (PPE)
 - Transportation and handling
 - Filling and decanting
 - Accommodation and storage
 - Applications
 - Actions in the event of an emergency
 - Practical session (decanting)
 - Written test (multiple-choice)
- Learner certificate of attendance (sent after)



Pathology Laboratory Gas Safety Training



This training course is aimed at Pathology and Laboratory departments sites with piped medical gas systems and/or medical gas cylinder holdings.

This provides the essential training for Lab Technicians and Maintenance Technicians in handling, storing or using Lab Gas Cylinders, as required by HTM08-06 and the HSWA 1974, to ensure the safe operation and use of medical gas cylinders, their hazards and emergency actions.

- Duration: Either 1 x 0.5 day session or 2 x 0.5 day sessions in the same day
- Up to 15 delegates per session (room size permitting)
- Theory, Demonstration and Test
- Contents:
 - Hazards of compressed and cryogenic gases
 - Colour and labelling identification of Gases
 - Operation of cylinders
 - Safe storage and handling
 - Practical session (preparation of cylinders for use)
 - Introduction to piped gas systems
 - Warning alarm actions and isolation valves
 - Operation of emergency supplies
 - Practical changing cylinders on manifolds (if required)
 - Overview of the PLGS permit to work system
- Course workshop and exercises will consolidate the course learning
- There will be a multi-choice test to conclude the training
- Successful delegates will receive certification of completion

Notes / Actions

[illegible]

Notes / Actions

[illegible]

MES Ltd Contact sheet

Authorising Engineer, Design Flowrates, Record Drawings, Cylinder Storage Solutions
MGPS Training: Authorised Person, Competent Person, DNO, Gas Safety & More...

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