

Emergency Reserve Manifold

Description

The Pneumatech MGS HTM 02-01 Emergency Reserve Manifold (ERM) is a safe means of providing a continuous supply of medical gas from high pressure cylinders to a pipeline system at the required distribution pressure of 400 kPa, 700kPa or 1,100 kPa. The HTM 02-01 ERM comprises two separate stages of pressure regulation enabling high peak flow rates without significant pressure reduction downstream. The controlling regulator assemblies are mounted on a control panel, which alternately directs gas from two banks of high pressure cylinders (duty and standby). Changeover is achieved manually when one bank of cylinders is empty.

The HTM 02-01 ERM is typically used as a reserve or backup gas supply, usually to a high demand system i.e. an automatic changeover manifold, intended to supply oxygen, nitrous oxide, O₂/N₂O (50%/50%), medical air, surgical air, carbon dioxide and nitrogen installations complying with UK Department of Health (DoH) Health Technical Memorandum (HTM) No. 02-01, BS EN ISO 7396-1 or similar guidelines or standards.

The HTM 02-01 ERM consists of two main components:

- The control/regulator assembly regulates and controls the flow of gas from the cylinder header manifold.
- Integrated cylinder header manifolds support high pressure cylinders in racks and provide a gas specific connection, by means of manifold headers and tailpipes to either side of the control/regulator assembly.

Classification

- Emergency Reserve Manifolds are designed to conform with the following standards: HTM 02-01, BS EN ISO 7396-1, BS EN ISO 15001 and BS EN ISO 10524-2
- CE marked under the Medical Device Directive 93/42/EEC with approval from notified body no. 0088 (Lloyd's Register Quality Assurance)
- Class IIb Medical device

Construction

- Mild steel powder coated back plate
- All components degreased for oxygen use

Features

- Central regulator panel with 2x1 cylinder headers each side as standard
- Modular header manifolds
- Headers are complete with gas specific cylinder connections for flexible cupronickel tailpipes
- Non-return valves are fitted to each tailpipe connection
- Pin indexed tailpipes in compliance with BS EN ISO 407
- Duty bank manually selected by opening the isolation diaphragm valve on the central panel
- Pre-wired terminal block for alarm output to the automatic changeover manifold
- East terminal unit test point fitted
- Integrated non-return valve and lockable line isolation valve for connection to the distribution system



Services for Use

- Oxygen
- Nitrous Oxide
- O₂/N₂O (50%/50%)
- Medical & Surgical Air
- Carbon Dioxide
- Nitrogen

Mounting

The complete manifold shall be fitted to a wall mounting plate attached to the wall with four screws.

Pressure Gauges and Switches

ERM: Two pressure gauges with contact switches installed on each isolation valves monitor both banks of cylinders factory set to 68 bar (14 bar for Nitrous Oxide) to allow remote indication of 50% plus capacity: 'Reserve Low' or 'Reserve Fault' alarm conditions.

ERM Lite: Two pressure gauges installed on each isolation valves. One pressure gauge with contact switch installed to monitor duty bank of cylinders and factory set to 68 bar (14 bar for Nitrous Oxide) to allow remote indication of 50% plus capacity: 'Reserve Low' or 'Reserve Fault' alarm conditions.

Pressure Regulation

- Maximum inlet pressure: 23,000 kPa (230 bar)
- Outlet pressure reduced to: 400 kPa, 700 kPa or 1,100 kPa

Flow Rate

The manifold control system shall be capable of supplying a flow of:

- 1,200 l/min to a nominal 400 kPa distribution system
- 2,000 l/min to a nominal 700 kPa distribution system
- 2,000 l/min to a nominal 1,100 kPa distribution system

(Note! Based on a 10% reduction in flowing pressure from a static pressure set point).

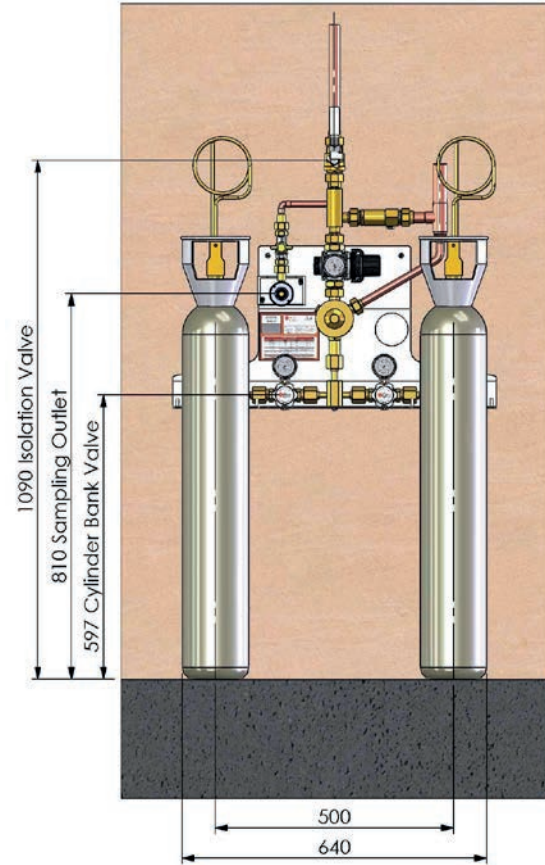
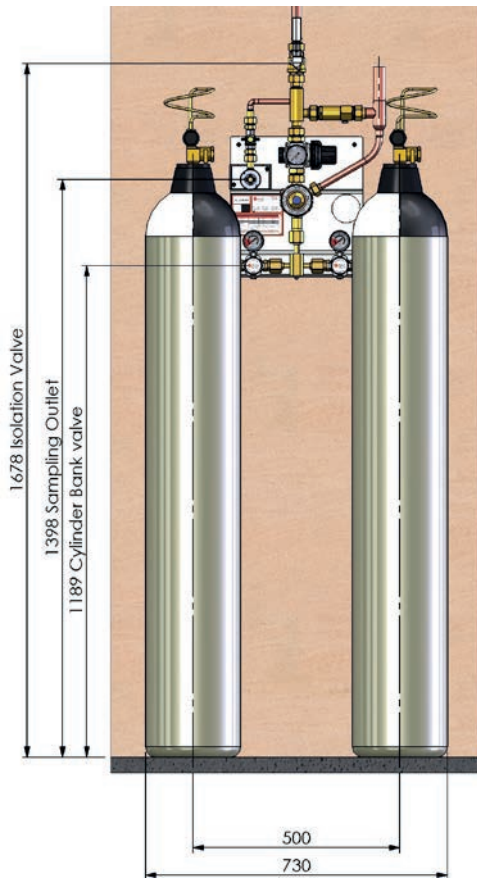
For small installations (required flow less than 200 l/min) it is allowed to use, simplified version of Emergency Reserve Manifold Lite with multistage regulator (ERM Lite).

Header Rack Services

- Gas specific thread types:
- Nitrous Oxide M18 x 2
- Oxygen M20 x 2
- Air M24 x 2
- O₂/N₂O M22 x 2
- CO₂ 3/8 inch BSP
- Nitrogen M14 x 2



Emergency Reserve Manifold 2x1 Installation with J or G Cylinders and VF Cylinders



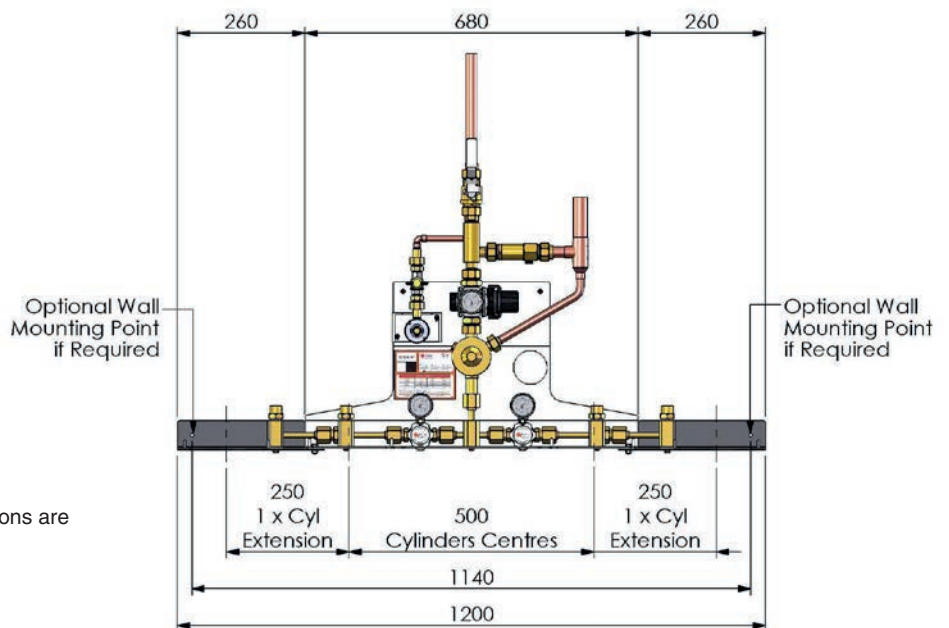
Weight & Dimensions

| Typical Weight |
|----------------|
| 16 kgs |

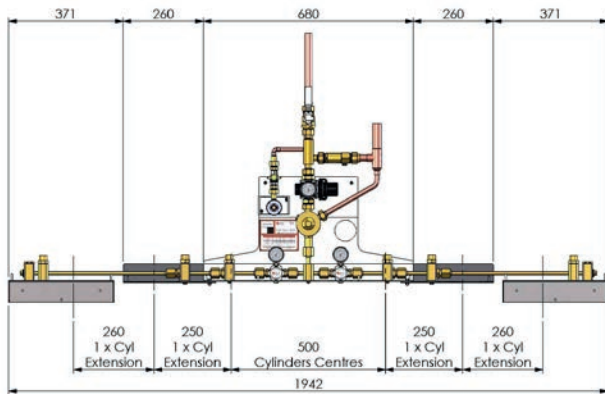
| Manifold Size (No. of Cylinders) | Total Width (mm) |
|----------------------------------|------------------|
| 2 x 1 | 730 |
| 2 x 2 | 1200 |
| 2 x 3 | 1942 |
| 2 x 4 | 2269 |
| 2 x 5 | 2952 |
| 2 x 6 | 3279 |

Note: Dimensions for ERM and ERM Lite versions are identical.

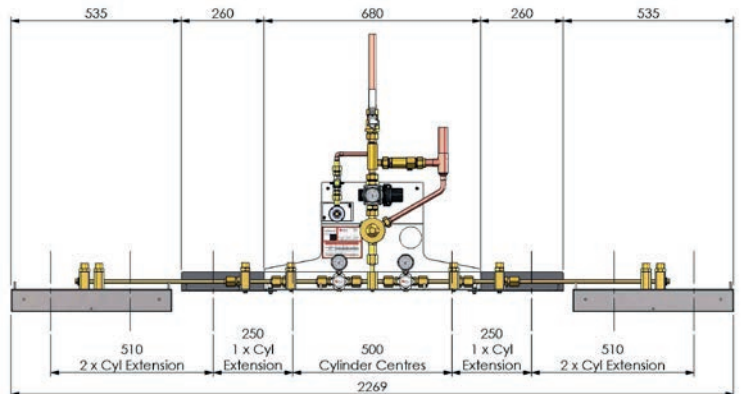
Emergency Reserve Manifold Installation with 2x2 extension



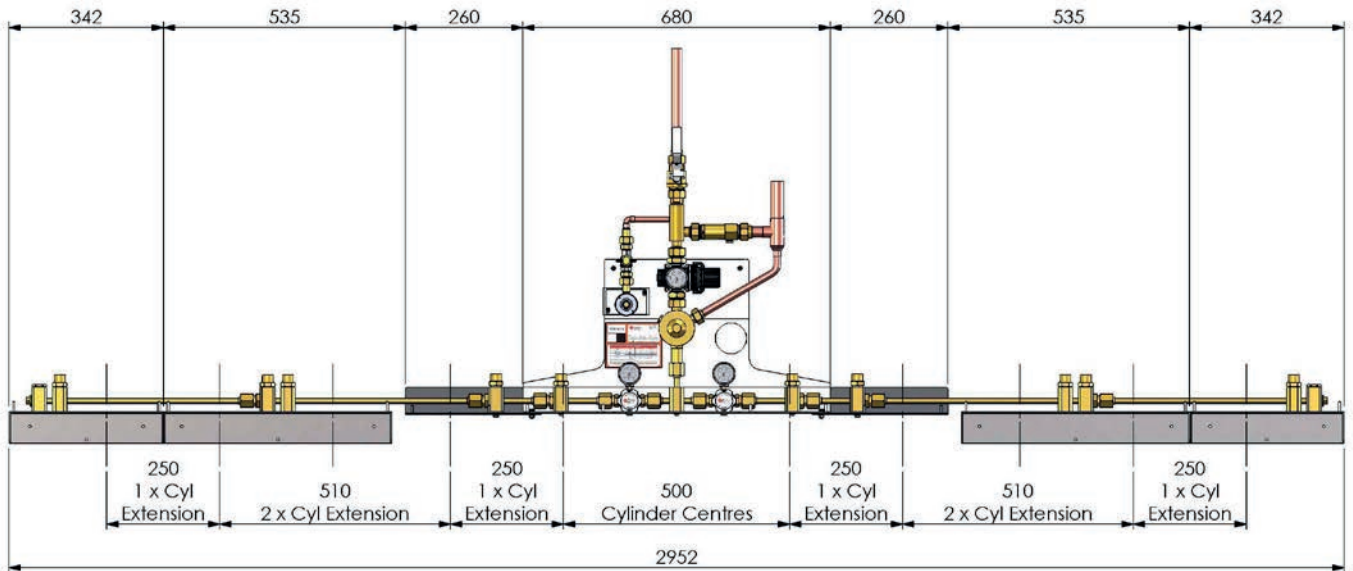
Emergency Reserve Manifold Installation with 2x3 extension



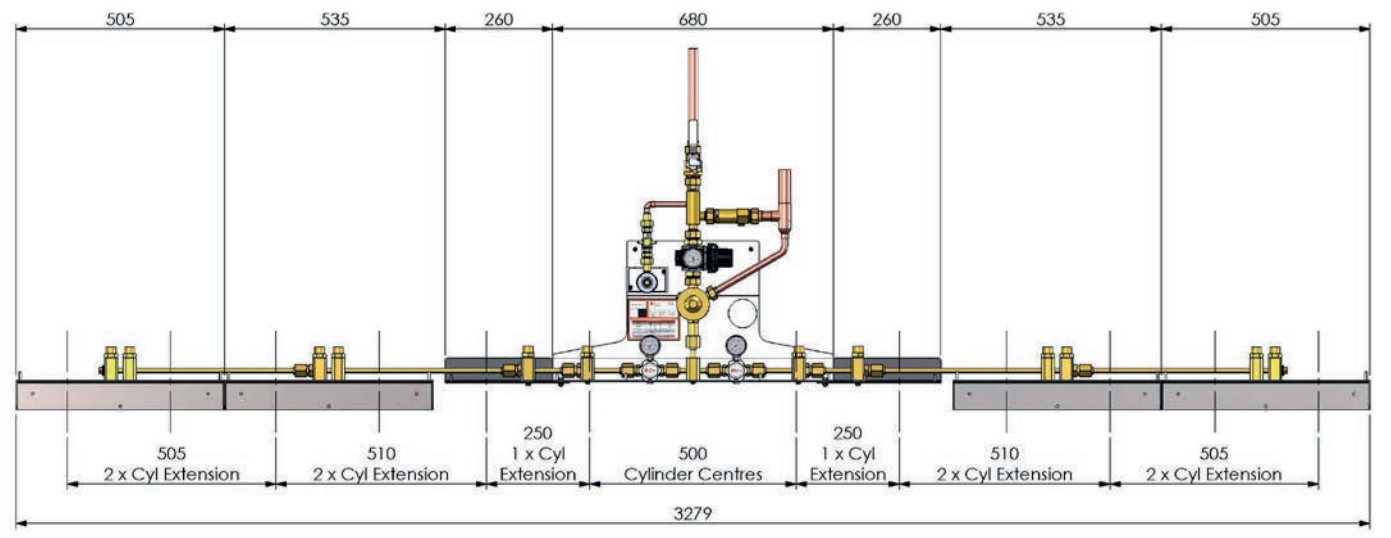
Emergency Reserve Manifold Installation with 2x4 extension



Emergency Reserve Manifold Installation with 2x5 extension



Emergency Reserve Manifold Installation with 2x6 extension



Relief Valve Settings

- Nominal 400 kPa ERM 530 kPa
- Nominal 700 kPa ERM 1,100 kPa
- Nominal 1,100 kPa ERM 1,300 kPa

Ordering

| Gas ID | Control Panel 2x1 | | Extension Kit 2x1, Part No | 1 Cyl. Extension - one side, Part No | 2 Cyl. Extension - one side Part No |
|------------------------|-------------------|------------|-------------------------------|--|---|
| | ERM | ERM Lite | | | |
| Oxygen | 6000530HP | 8102341727 | 2005826 | 2000232 | 2000204 |
| Nitrous Oxide | 6000531HP | 8102341728 | 2005827 | 2000233 | 2000205 |
| Oxygen / Nitrous Oxide | 6000532HP | 8102341729 | 2005828 | 2000234 | 2000206 |
| Medical Air | 6000533HP | 8102341730 | 2005829 | 2000235 | 2000207 |
| Surgical Air, 7 bar | 6000534HP | 8102341731 | | | |
| Surgical Air, 11 bar | 6000535HP | n/a | | | |
| Nitrogen, 7 bar | 6000536HP | 8102341733 | 2005830 | 2005110 | 2005108 |
| Nitrogen, 11 bar | 6000537HP | n/a | | | |
| Carbon Dioxide | 6000538HP | 8102341732 | 2005831 | 2000242 | 2000243 |

Tailpipes

| Tailpipe | O ₂ | N ₂ O | N ₂ O / O ₂ | Air | CO ₂ | N ₂ |
|---|----------------|------------------|-----------------------------------|------------|-----------------|----------------|
| Pin-Indexed (ISO 407) ² | 8102340110 | 8102340123 | 8102340130 | 8102340140 | 8102340151 | |
| Pin-Indexed (ISO 407) Extended | 8102340116 | | 8102340131 | 8102340146 | | |
| Bull nose (ISO5145) ^{2,3} , Side entry | 8102369663 | | 8102369664 | | | |
| Bull nose (BS341) ¹ Top entry | 8102340111 | | | 8102340141 | | 8102340161 |
| Bull nose (BS341) ¹ Side entry | 8102340112 | 8102340120 | | 8102340142 | 8102340150 | |
| Bull nose (BS341) ¹ Extended | 8102340117 | 8102340125 | | 8102340147 | 8102340154 | |
| US Std (CGA) | 8102340114 | 8102340122 | | 8102340144 | | |
| Chinese Bullnose | 8102340115 | 8102340124 | | 8102340145 | 8102340152 | 8102340162 |

Notes:

- Bullnose tailpipes (except Chinese type) are to the following BS standards: Oxygen, Air, Nitrogen: BS: 341-1 No. 3; Carbon dioxide: BS: 341-1 No.8; Nitrous oxide: BS: 341-1 No. 13.
- Mixture N₂O - O₂, (registered trade name Entonox BOC) low pressure cylinder "G" type has Pin-indexed connector according to standard BS EN ISO 407 and 230 bar cylinder "EW" type has Bull nose connector according to ISO 5145 No. 13.
- Oxygen cylinder "J" type has Pin-Indexed connector according to ISO 407, where "W" type (230 bar) has Bull nose according to ISO 5145 No. 5.

Accessories

| Description | Part No |
|---|---------|
| Manifold Header Corner Connector - one side | 2000227 |

