



**HOSPITAL CENTRAL GAS  
SUPPLY SYSTEM**

## HOSPITAL CENTRAL GAS SUPPLY SYSTEM

### GAS MANIFOLD MM90 AUTOMATIC



The MM90 automatic medical manifold is intended for use in hospital pipeline system as medical gas source. Together with MM90, there shall always be used an alarm providing all alarms according to standard (like gas alarm C44). As 2nd stage is recommended to use a stabilizer.

The manifolds covered by this description are designed to allow equal numbers of cylinders to be manifold together to give an operating bank and a reserve bank. The manifold will deliver gas from the operating bank to the manifold pressure regulator until the cylinders are exhausted. At that point the supply will switch to the reserve bank and the exhausted bank can be replenished. The object is to give uninterrupted gas supply.

Gas Alarm C44 is standard accessory. The gas alarm C44 gives visual and audible indication. It surveilles and sounds the alarm when the following happens:

1. Change operation side / Leaking on reserve side
2. High operation pressure
3. Low operation pressure

The gas alarm C44 is able to communicate with other equipment through relays. The alarm has a battery back-up for 30 minutes of operation.

Art. Nr.	Denomination	Gas	Inlet connection	Outlet connection
0727301	MM90 AUTO Manifold	O <sub>2</sub>	W 21,8×1/14"M	G3/4"F+pipe OD 22 mm
0727302	MM90 AUTO Manifold	Air	W 21,8×1/14"M	G3/4"F+pipe OD 22 mm
0727303	MM90 AUTO Manifold	N <sub>2</sub> O	W 21,8×1/14"M	G3/4"F+pipe OD 22 mm

#### SPECIFICATION

##### MM90 INCLUDES THE FOLLOWING COMPONENTS:

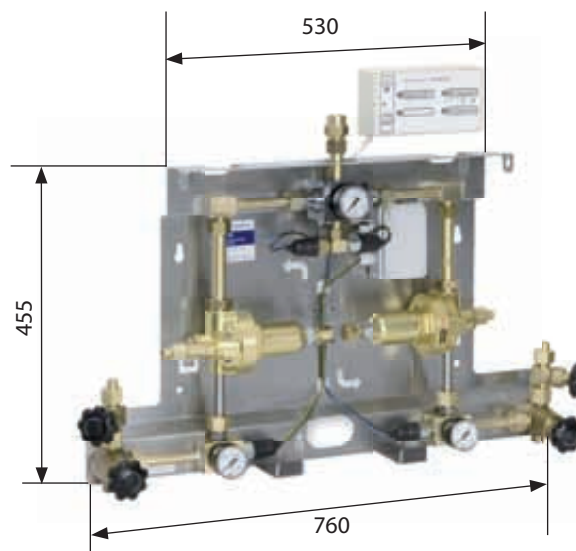
- MM90 AUTO Manifold
- Gas alarm C44
- Purge valves
- Plug for close collecting pipeline
- HP filters

##### FOR A COMPLETE MM90 AUTO MANIFOLD ADD:

- Collecting pipe set (high pressure valves, and non-return valves /high pressure components/)
- Cylinder retaining brackets
- High pressure hoses with safety wire
- Gas name sign

#### TECHNICAL DATA

Capacity at 900 kPa (9 bar) outlet pressure	
	O <sub>2</sub> , Air: 90 m <sup>3</sup> /h
	N <sub>2</sub> O, CO <sub>2</sub> : 50 m <sup>3</sup> /h
Max. inlet pressure (settled)	200 bar (20 000 kPa)
Max. outlet pressure	12 bar (1200 kPa)
Safety + purge valves pipe dimension	OD = 10 mm
Regulatory status	Complies with Medical Devices Directive 93/42/EEC.
	Complies with EN ISO 7396-1 (Central Gas Supply System)



**GAS MANIFOLD MM90 SEMIAUTOMATIC**



The MM90 semiautomatic medical manifold is intended for use in hospital pipeline system as medical gas source. Together with MM90, there shall always be used an alarm providing all alarms according to standard (like gas alarm C44). As 2nd stage is recommended to use a stabilizer.

The manifolds covered by this description are designed to allow equal numbers of cylinders to be manifold together to give an operating bank and a reserve bank. The manifold will deliver gas from the operating bank to the manifold pressure regulator until the cylinders are exhausted. At that point the supply will switch to the reserve bank and the exhausted bank can be replenished. The object is to give uninterrupted gas supply.

Gas Alarm C44 is standard accessory. The gas alarm C44 gives visual and audible indication. It surveilles and sounds the alarm when the following happens:

1. Change operation side
2. Leakage on reserve side
3. High operation pressure
4. Low operation pressure.

The gas alarm C44 is able to communicate with other equipment through relays. The alarm has a battery back-up for 30 minutes of operation.

Art. Nr.	Denomination	Gas	Inlet connection	Outlet connection
0727304	MM90 SEMIAUTO Manifold	O <sub>2</sub>	W 21,8x1/14"M	G3/4"F+pipe OD 22 mm
0727305	MM90 SEMIAUTO Manifold	Air	W 21,8x1/14"M	G3/4"F+pipe OD 22 mm
0727306	MM90 SEMIAUTO Manifold	N <sub>2</sub> O	W 21,8x1/14"M	G3/4"F+pipe OD 22 mm
0727313*	MM90 SEMIAUTO Manifold	O <sub>2</sub> /Air	W 21,8x1/14"M	G3/4"F+pipe OD 22 mm
0727314*	MM90 SEMIAUTO Manifold	N <sub>2</sub> O/CO <sub>2</sub>	W 21,8x1/14"M	G3/4"F+pipe OD 22 mm

\*with Gas alarm MC7701, safety valve according to SISHB370

**SPECIFICATION**

**MM90 INCLUDES THE FOLLOWING COMPONENTS:**

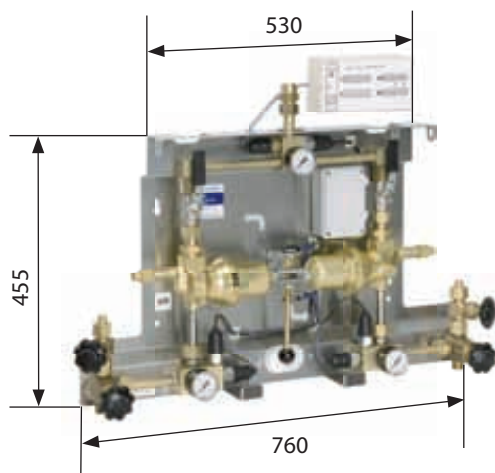
- MM90 SEMIAUTO Manifold
- Gas alarm C44
- Purge valves
- Plug for close collecting pipeline
- HP filters

**FOR A COMPLETE MM90 SEMIAUTO MANIFOLD ADD:**

- Collecting pipe set (high pressure valves, and non-return valves /high pressure components/)
- Cylinder retaining brackets
- High pressure hoses with safety wire
- Gas name sign

**TECHNICAL DATA**

Capacity at 900 kPa (9 bar) outlet pressure	
	O <sub>2</sub> , Air: 90 m <sup>3</sup> /h
	N <sub>2</sub> O, CO <sub>2</sub> : 50 m <sup>3</sup> /h
Max. inlet pressure (settled)	200 bar (20 000 kPa)
Max. outlet pressure	12 bar (1200 kPa)
Safety + purge valves pipe dimension	OD = 10 mm
Regulatory status	Complies with Medical Devices Directive 93/42/EEC.
	Complies with EN ISO 7396-1 (Central Gas Supply System)



**GAS MANIFOLD MM90 STANBY (BACKUP MANIFOLD)**



The manifold MM90 STANDBY covered by this description is designed to be used as a third source of supply in medical central gas systems. The manifold will deliver gas when the nominal supply system pressure falls below a set level (7 bar). This is a back up source.

Together with MM90 STANDBY, there shall always be used the MM90 AUTO or SEMIAUTO, alarm providing all alarms according to standard (like gas alarm C44). As 2nd stage is recommended to use a stabilizer.

Standard Accessory Gas Alarm C44

The gas alarm C44 gives visual and audible indication.

It surveilles and sounds the alarm when the following happens:

1. Too high outlet pressure,
2. Too low outlet pressure,
3. Empty cylinder

The gas alarm C44 is able to communicate with other equipment through relays. The alarm has a battery back-up for 30 minutes of operation.

Art. Nr.	Denomination	Gas	Inlet connection	Outlet connection
0727307	MM90 STANDBY	O <sub>2</sub> , Air	W 21,8x1/14"M	G3/4"F+pipe OD 22 mm
0727312	MM90 STANDBY	N <sub>2</sub> O, CO <sub>2</sub>	W 21,8x1/14"M	G3/4"F+pipe OD 22 mm

**SPECIFICATION**

**MM90 INCLUDES THE FOLLOWING COMPONENTS:**

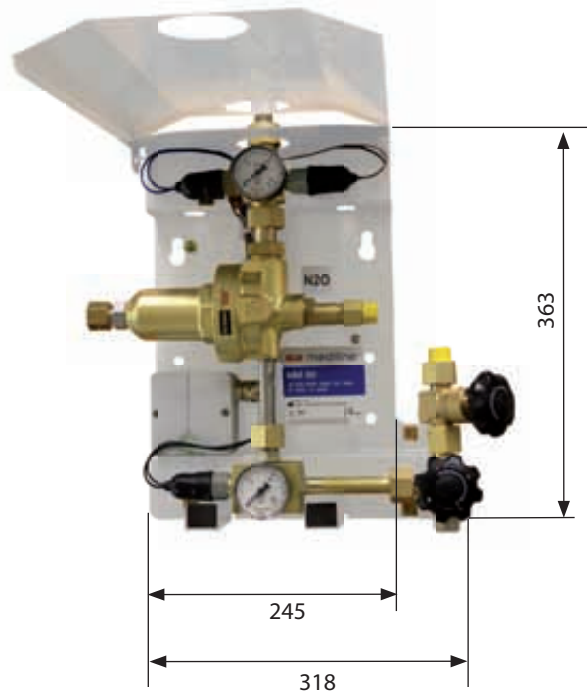
- MM90 STANDBY Manifold with pressure switch
- Purge valves
- Plug for close collecting pipeline
- HP filters

**FOR A COMPLETE MM90 STANDBY MANIFOLD ADD:**

- Gas alarm C44
- Collecting pipe set (high pressure valves, and non-return valves /high pressure components/)
- Cylinder retaining brackets
- High pressure hoses with safety wire
- Gas name sign

**TECHNICAL DATA**

Capacity at 700 kPa (7 bar) outlet pressure	
	O <sub>2</sub> , Air: 90 m <sup>3</sup> /h
	N <sub>2</sub> O, CO <sub>2</sub> : 50 m <sup>3</sup> /h
Max. inlet pressure (settled)	200 bar (20 000 kPa)
Max. outlet pressure	12 bar (1200 kPa)
Safety + purge valves pipe dimension	OD = 10 mm
Regulatory status	Complies with Medical Devices Directive 93/42/EEC.
	Complies with EN ISO 7396-1 (Central Gas Supply System)



**GAS MANIFOLD MC80 (DUPLEX)**



This gas manifold is suitable for the medium to the large sized hospital. The MC 80 has a flow capacity of up to 80 m<sup>3</sup>/h and is conveniently designed in modules. The MC 80 reduces the gas pressure in two steps to a constant operating pressure. Service and tests are to be carried out with no disturbance in the supply of gas to the gas distribution system.

**THE MC 80 (DUPLEX) CONSISTS OF THE THREE FOLLOWING UNITS:**

**1. MC 80 - HIGH PRESSURE UNIT**

This module contains two regulators with safety valves and it is connected to two various cylinder banks with high pressure hoses. When the cylinder bank which has been connected for operation, has been emptied, the other duty side is automatically connected.

**2. MC 80 - STABILIZER**

The stabilizer makes the operating pressure in the distribution system remain constant. The module contains two regulators with safety valves. Since the gas pressure is reduced in two steps the drop in pressure, when changing from the operating cylinder to the other bank of cylinders, is kept to a minimum. The unit is prepared for connection to a liquid supply tank.

**3. MC 7701 - DIGITAL PRESSURE MONITOR**

This monitor gives visual and audible indication as well as a message in plain language. It electronically surveilles and sounds the alarm when the following happens:

1. Too high or too low distributing pressure,
2. Too high intermediate pressure,
3. Leakage on the reserve gas cylinder bank,
4. When change of operating side has been effected.

When connected to a liquid tank the following disturbances will be reported:

1. Too high or too low operating pressure,
2. Too high or too low intermediate pressure,
3. Leakage from the reserves,
4. When change of operating side has been effected.

The MC7701 is able to communication with another equipment through a serial link and / or relays. The alarm has a battery back-up for 30 minutes of operation.

**SPECIFICATION**

**MC 80 (DUPLEX) INCLUDES THE FOLLOWING COMPONENTS:**

- MC 80, High Pressure Unit
- MC 80, Stabilizer
- MC 7701, Digital Pressure Monitor
- Evacuating kits for collecting pipe
- Shut-off valve for the distribution line
- HP filters

**FOR A COMPLETE MC 80 (DUPLEX) STANDBY MANIFOLD ADD:**

- Collecting pipe set (high pressure valves, and non-return valves /high pressure components/)
- Cylinder retaining brackets
- High pressure hoses with safety wire
- Gas name sign

Art. Nr.	Denomination	Gas	Inlet connection	Outlet connection
0727318	DUPLEX 2x1	O <sub>2</sub>	W 21,8x1/14"M	2x G3/4"F+pipe OD 22 mm
0727319	DUPLEX 2x1	Air	W 21,8x1/14"M	2x G3/4"F+pipe OD 22 mm
0727320	DUPLEX 2x1	N <sub>2</sub> O/CO <sub>2</sub>	W 21,8x1/14"M	2x G3/4"F+pipe OD 22 mm
0727321	MC80 HP 2x1	O <sub>2</sub>	W 21,8x1/14"M	G3/4"F+pipe OD 22 mm
0727322	MC80 HP 2x1	Air	W 21,8x1/14"M	G3/4"F+pipe OD 22 mm
0727323	MC80HP 2x1	N <sub>2</sub> O/CO <sub>2</sub>	W 21,8x1/14"M	G3/4"F+pipe OD 22 mm
0727324	MC80 STAB	O <sub>2</sub>	3x G3/4"F+pipe OD 22 mm	2x G3/4"F+pipe OD 22 mm
0727325	MC80 STAB	Air	3x G3/4"F+pipe OD 22 mm	2x G3/4"F+pipe OD 22 mm
0727326	MC80 STAB	N <sub>2</sub> O/CO <sub>2</sub>	3x G3/4"F+pipe OD 22 mm	2x G3/4"F+pipe OD 22 mm

**GAS MANIFOLD MC25**



The gas cylinder manifold MC 25 is delivered as standard for the gases medical breathing oxygen, nitrous oxide, medical breathing air, medical carbon dioxide, and nitrogen. This manifold has a capacity of 25 m<sup>3</sup>/h and is primarily intended for small and medium-sized hospitals. The gas cylinder pressure is regulated in two steps. The change-over between operating side and reserve side is made automatically without any differences in the operating pressure. Alarm signal comes from the pressure switches to the alarm unit C44. The alarm signals from the alarm unit C44 can be forwarded directly to a monitoring desk. Function control and service can be carried out without interruption in the gas supply.

**SPECIFICATION**

**MC 25 INCLUDES THE FOLLOWING COMPONENTS:**

- Gas manifold MC 25
- Gas alarm C44 (exposed mounting) including power supply
- Evacuating kits for collecting pipe
- Shut-off valve for distribution line
- HP filters

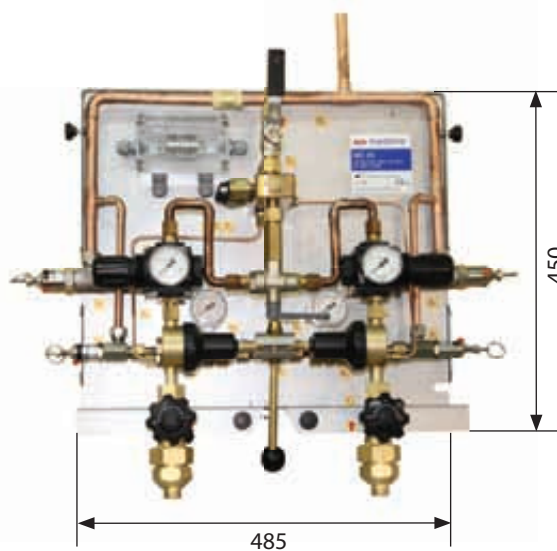
**FOR A COMPLETE MC 80 (DUPLEX) STANDBY MANIFOLD ADD:**

- High pressure collecting pipes, high pressure valves, filters and non-return valves
- High pressure hoses with safety wire
- Cylinder retaining brackets
- Gas name sign

Art. Nr.	Denomination	Gas	Inlet connection	Outlet connection
0727315	MC 25	O <sub>2</sub>	W 21,8x1/14"M	G1/2"F + pipe OD10mm+OD15mm
0727316	MC 25	Air	W 21,8x1/14"M	G1/2"F + pipe OD10mm+OD15mm
0727317	MC 25	N <sub>2</sub> O, CO <sub>2</sub>	W 21,8x1/14"M	G1/2"F + pipe OD10mm+OD15mm

**TECHNICAL DATA**

Capacity at 5 bar (500 kPa) operation pressure and pressure drop 0.5 bar (50 kPa)	O <sub>2</sub> , Air, N <sub>2</sub> :	25 m <sup>3</sup> /h
	N <sub>2</sub> O, CO <sub>2</sub> :	17 m <sup>3</sup> /h
Maximum inlet pressure		200 bar (20 000 kPa)
Maximum operation pressure		10 bar (1000 kPa)
Safety + purge valves pipe dimension		OD = 15 mm
Regulatory status		Complies with Medical Devices Directive 93/42/EEC.
		Complies with EN ISO 7396-1 (Central Gas Supply System)



## HIGH PRESSURE MANIFOLD ACCESSORIES

GCE can supply a complete range of high pressure accessories making it possible to install a medical gas supply system. All accessories are designed and manufactured according to the relevant standard for high pressure systems. The high pressure pipe components are manufactured in the following materials: stainless steel AISI 316 L and brass CuZn39Pb3, and they are tested at 360 bar. Cylinder holders for cylinders and connecting pipes are manufactured in AISI 316.

### COLLECTION PIPE LINE



Collecting pipe set in prepare for GCE HP manifold units. These sets are increasing inlets points for HP cylinders or bundles. Collecting sets are possible connecting serially therefore select ideal combination.

#### SET CONTAINS:

- High Pressure Valve
- Non Return Valve
- Collection Pipe

Art. Nr.	Denomination
0733003	1 cylinder collection pipe set
0733004	2 cylinders collection pipe set
0733005	4 cylinders collection pipe set
0733000	2x1 cylinder collection pipe set
0733001	2x2 cylinders collection pipe set
0733002	2x4 cylinders collection pipe set
0733006	2x1 cylinder collection pipe set+cylinder holders
0733007	2x2 cylinders collection pipe set+cylinder holders
0733008	2x4 cylinders collection pipe set+cylinder holders

### HIGH PRESSURE HOSES



Medical high pressure hoses are used to connect cylinders or cylinder bundles to gas supply systems. The high pressure hose is intended to be used with a pressure up to maximum 230 bar. Pressure tested at 345 bar. The hose is equipped with a safety wire.

#### HANDLING

The high pressure hose shall be transported, stored, installed and maintained according to Instruction of Use. Maximum life time from installation 5 years.



Art. Nr.	Gas	Lenght (mm)	Inlet connection	Outlet connection
325197641	O <sub>2</sub>	1250	W21,8x1/14" RH	W21,8x1/14" RH
325197651	O <sub>2</sub>	2000	W21,8x1/14" RH	W21,8x1/14" RH
325197642	N <sub>2</sub> O	1250	R3/8"RH	W21,8x1/14" RH
325197652	N <sub>2</sub> O	2000	R3/8"RH	W21,8x1/14" RH
325197643	Air	1250	R5/8"RH	W21,8x1/14" RH
325197653	Air	2000	R5/8"RH	W21,8x1/14" RH
325197644	N <sub>2</sub> /Ar	1250	W24,32x1/14" RH	W21,8x1/14" RH
325197654	N <sub>2</sub> /Ar	2000	W24,32x1/14" RH	W21,8x1/14" RH
325197645	CO <sub>2</sub>	1250	W27x2 RH	W21,8x1/14" RH
325197655	CO <sub>2</sub>	2000	W27x2 RH	W21,8x1/14" RH

#### TECHNICAL DATA - MATERIAL

Tube	Acid-proof Stainless Steel (AISI 316)
Plait	Stainless Steel (AISI 304)
Wire	Stainless Steel (AISI 304)
Nut and tightening material	Acid-proof Stainless Steel (AISI 316)
Case and Oetiker	Stainless Steel (AISI 304)
Regulatory status	Complies with Medical Devices Directive 93/42/EEC.
	Complies with EN ISO 7396-1 (Central Gas Supply System)
	Complies with EN ISO 21969 (High Pressure Flexible Connection)

**STABILIZER MM7762 FOR O<sub>2</sub>, N<sub>2</sub>O, AIR**



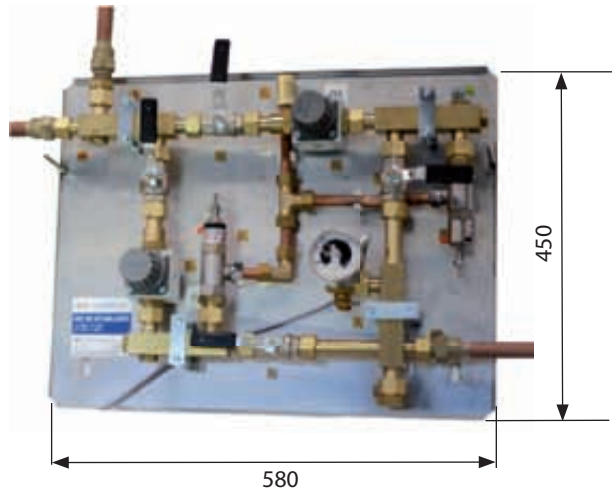
A stabilizer is a pressure reduction unit with the task to equalize the eventual pressure variation in the hospital pipeline system to ensure a correct pressure from the terminal units. In case of signal for pressure deviation in relation to the alarm settings, the alarm can easily be displayed on a Gas alarm unit. It is also possible to send information to the central operation control. The stabilizer can be delivered with either pressure transmitter 4-20 mA, pressure transmitter 0-50 mV or with contact gauge.

The stabilizer makes it possible to distribute gas with different pressure to department and buildings in the hospital area. In some cases it is needed to deliver a higher pressure from the main gas manifold to compensate for small pipe dimensions. In those cases the Stabilizer shall be mounted as close as possible before the first terminal unit, to ensure a correct pressure to the patient.

Art. Nr.	Denomination	Inlet connection	Outlet connection
325397762	MM7762 Stabilizer contact gauge	2x G3/4"F+pipe OD 22 mm	2x G3/4"F+pipe OD 22 mm
325397772	MM7762 Stabilizer 4-20 mA	2x G3/4"F+pipe OD 22 mm	2x G3/4"F+pipe OD 22 mm

**TECHNICAL DATA**

Max inlet pressure	16 bar (1600 kPa)
Max operating pressure	10 bar (1000 kPa)
Capacity of 500 kPa (5 bar) operating pressure	80 m <sup>3</sup> /h
Safety valves pipe dimension	OD=15 mm
Regulatory status	Complies with Medical Devices Directive 93/42/EEC.
	Complies with EN ISO 7396-1 (Central Gas Supply System)





**STABILIZER MC150 FOR O<sub>2</sub>, N<sub>2</sub>O, AIR**



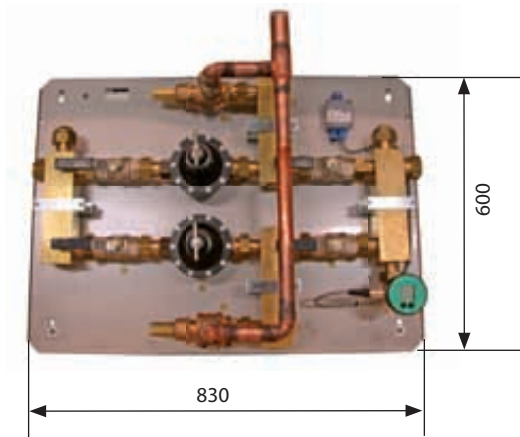
A stabilizer is a pressure reduction unit with the task to equalize the eventual pressure variation in the hospital pipeline system to ensure a correct pressure from the terminal units. In case of signal for pressure deviation in relation to the alarm settings, the alarm can easily be displayed on a Gas alarm unit. It is also possible to send information to the central operation control. The stabilizer can be delivered with either pressure transmitter 4-20 mA, pressure transmitter 0-50 mV or with contact gauge.

The stabilizer makes it possible to distribute gas with different pressure to department and buildings in the hospital area. In some cases it is needed to deliver a higher pressure from the main gas manifold to compensate for small pipe dimensions. In those cases the Stabilizer shall be mounted as close as possible before the first terminal unit, to ensure a correct pressure to the patient.

Art. Nr.	Denomination	Inlet connection	Outlet connection
325397706	MC 150 Stabilizer contact gauge	2x G1 1/2"F+pipe OD 35 mm	2x G1 1/2"F+pipe OD 35 mm
325397707	MC 150 Stabilizer 4-20 mA	2x G1 1/2"F+pipe OD 35 mm	2x G1 1/2"F+pipe OD 35 mm

**TECHNICAL DATA**

Max inlet pressure	16 bar (1600 kPa)
Max operating pressure	10 bar (1000 kPa)
Capacity of 500 kPa (5 bar) operating pressure	150 m <sup>3</sup> /h
Safety valves pipe dimension	OD=35 mm
Regulatory status	Complies with Medical Devices Directive 93/42/EEC.
	Complies with EN ISO 7396-1 (Central Gas Supply System)



**GAS MANIFOLD SIMPLEX MMR**



The Simplex MMR gas manifold is suitable for such health care where the capacity requirement is limited, such as laboratories and small health care clinics Veterinary etc. This gas manifold consists of only one group of cylinders.

The regulator is mounted in the collection unit. Each inlet connection has a filter, a non-return valve and a shut-off valve. This arrangement makes it possible to use one cylinder at a time.

In order to obtain a stable outlet pressure this gas manifold is equipped with a preset two-stage regulator. On the high pressure side of the regulator there is a contact gauge the signal of which can be carried further to an alarm unit. Simplex MMR is delivered mounted and test-pressurized.

**SPECIFICATION**

**SIMPLEX MMR INCLUDES THE FOLLOWING COMPONENTS:**

- Gas cylinder manifold Simplex MMR
- Collecting pipe Manyflow block for three hoses
- Gas evacuation kits for collecting pipe

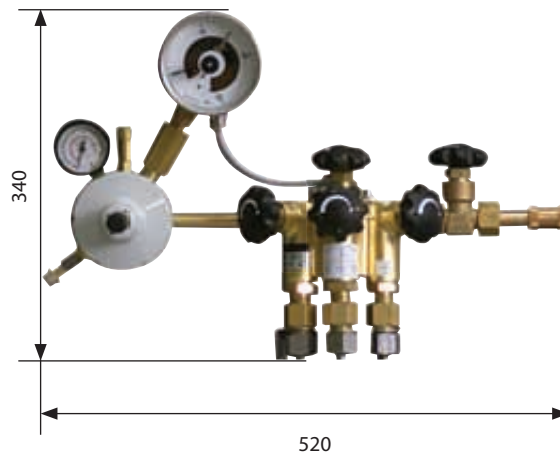
**FOR A COMPLETE SIMPLEX MMR ADD:**

- Gas alarm C44
- High pressure hoses with safety wire
- Cylinder retaining brackets
- Gas name signs

Art. Nr.	Denomination	Gas	Inlet connection	Outlet connection
325397702	Simplex MMR	O <sub>2</sub> , Air, N <sub>2</sub> , Ar	W 21,8x1/14"M	G3/8"M
325397703	Simplex MMR	N <sub>2</sub> O, CO <sub>2</sub>	W 21,8x1/14"M	G3/8"M

**TECHNICAL DATA**

Capacity at working pressure 5 bar	
	O <sub>2</sub> , Air: 30 m <sup>3</sup> /h
	N <sub>2</sub> O, CO <sub>2</sub> : 25 m <sup>3</sup> /h
Max. inlet pressure	200 bar (20000 kPa)
Max. outlet pressure	5 bar (500 kPa)
Regulatory status	Complies with Medical Devices Directive 93/42/EEC.
	Complies with EN ISO 7396-1 (Central Gas Supply System)



**SAFETY VALVES:** See accessories central gas