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# Medical Gas Manifold

## Medical Gas Plants

Medical Gas Manifold is a modular gas distribution system designed to provide a continuous gas supply in healthcare facilities. It combines control, pressure regulation, monitoring, and distribution functions within a single system.
Compatible with all medical and mixed gases, it delivers stable performance under varying demand conditions.

In addition to new installations, the system is also suitable for projects involving the expansion or modernization of existing medical gas infrastructures.

Standard capacities are available in **40 $m^3$/h and 150 $m^3$/h** configurations.
Custom-designed systems with capacities **up to 300 $m^3$/h** can be manufactured to meet specific project requirements.



# Medical Gas Manifold

Gas supply automatically switches to the secondary cylinder bank when the active bank pressure drops.

All gas-contacting components are compatible with all medical gases, including oxygen.

The two-stage regulation system reduces high-pressure gas to the required outlet pressure.

The by-pass system maintains continuous gas supply by routing the flow through an alternative line during maintenance and service operations.

**Automatic Change-Over**
Continuous gas supply

**High Flow Capacity**
40-300 $m^3$/h range

**Modular Configuration**
Project-specific design

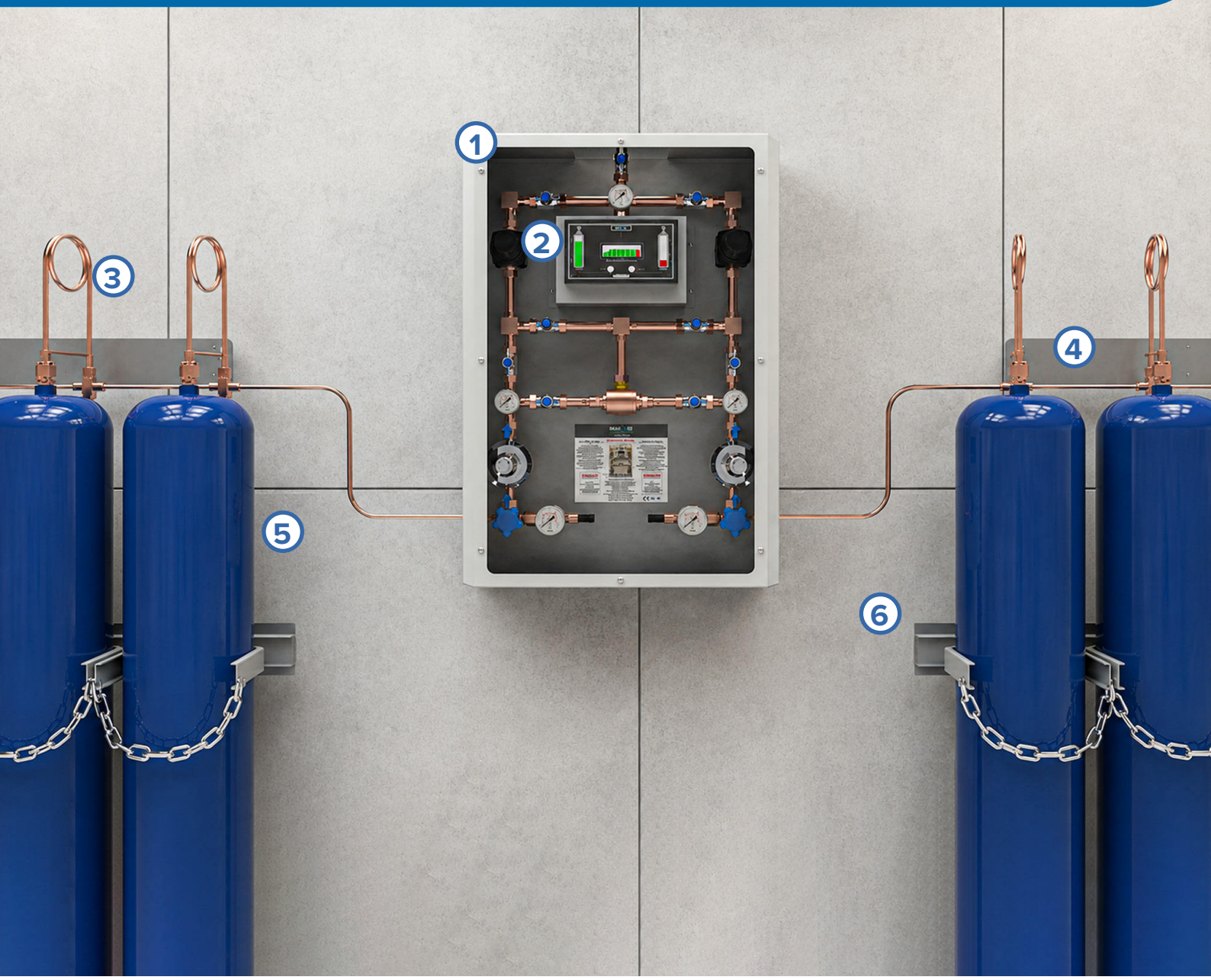
**By-Pass System**
Uninterrupted maintenance

**Two-Stage Regulation**
Stable outlet pressure

**Alarm Options**
Digital or Touchscreen

# System Layout

- The manifold system consists of two cylinder banks located on either side of the control panel. Gas from the cylinders is routed through the header bars for regulation and distribution.
- Featuring a modular design, the system allows flexible configurations, simplified maintenance, project and project -specific arrangements. Components can also be supplied separately.




### 1 · Control & Distribution Unit

The main unit responsible for control, regulation monitoring, and gas distribution.

### 2 · Alarm Unit

Monitors system pressure, provides alarms, and communicates with the master alarm system.

### 3 · Connection Components

Provide gas flow between the cylinders and the header system.

### 4 · Cylinder Ramp

Collects gas from the cylinders and transfers it to the control panel.

### 5 · Gas Cylinders

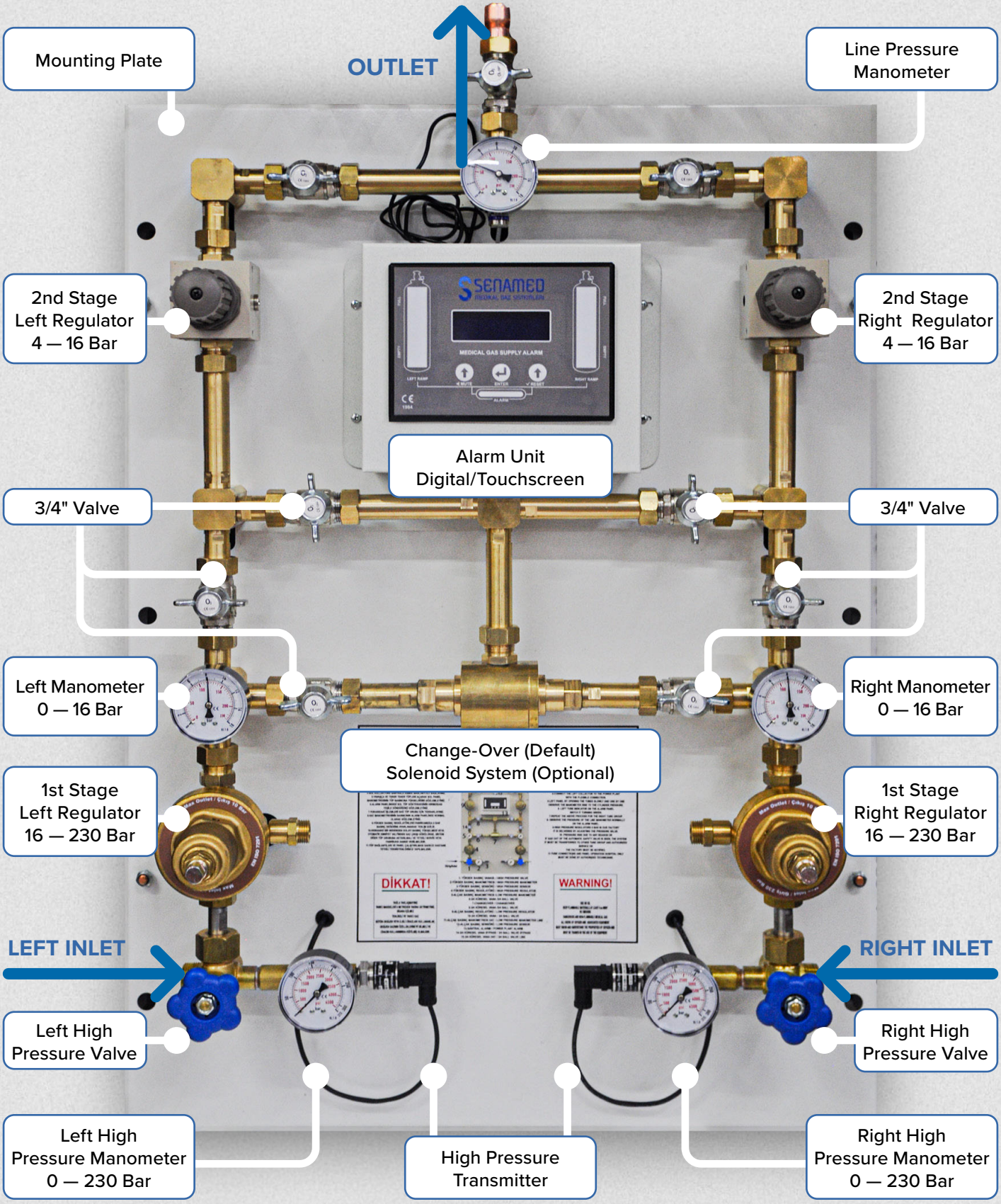
Medical and mixed gas cylinders used as the system supply source

### 6 · Cylinder Securing Chain

Safety components used to secure cylinders in position.

# Control & Distribution System

- Gas supplied from the cylinders at approximately 230 bar is reduced to 16 bar by the first-stage regulators and to a final line pressure of 4–7 bar by the second-stage regulators.
- In the event of a pressure drop, the system automatically switches to the reserve cylinder bank. It can be configured with either a mechanical change-over or a solenoid-controlled electronic system.



# Alarm Unit

- Continuously monitors inlet, outlet, and cylinder pressures, generates audible and visual alarms in case of deviations, and provides real-time data transmission to the master alarm panel.
- Offers two version options: digital display and 7" touchscreen display.




*Digital Alarm Unit* *7" Touchscreen Alarm Unit*

- Right and left cylinder group pressures are continuously monitored and fill levels are displayed.
- Line pressure is displayed in real time, allowing constant system monitoring.
- Alarm data is transmitted to the master alarm system for central monitoring, while audible and visual alerts notify the user.
- Alarm thresholds can be adjusted by authorized users, enabling secure management of system parameters.
- Green, yellow, and red indicators visually indicate normal, warning, and alarm status.

| | |
|---|---|
| Dimensions (H×W×D) | 128 × 178 × 68 mm |
| Control Interface | Digital / 7" Touchscreen |
| Parameters | Right/Left Bank Fill Level, Line Pressure |
| Alarm Limits | Adjustable |
| Communication | Modbus |

**Audible & Visual Alarm**
Real-time status indication

**Master Alarm Connection**
Central monitoring support

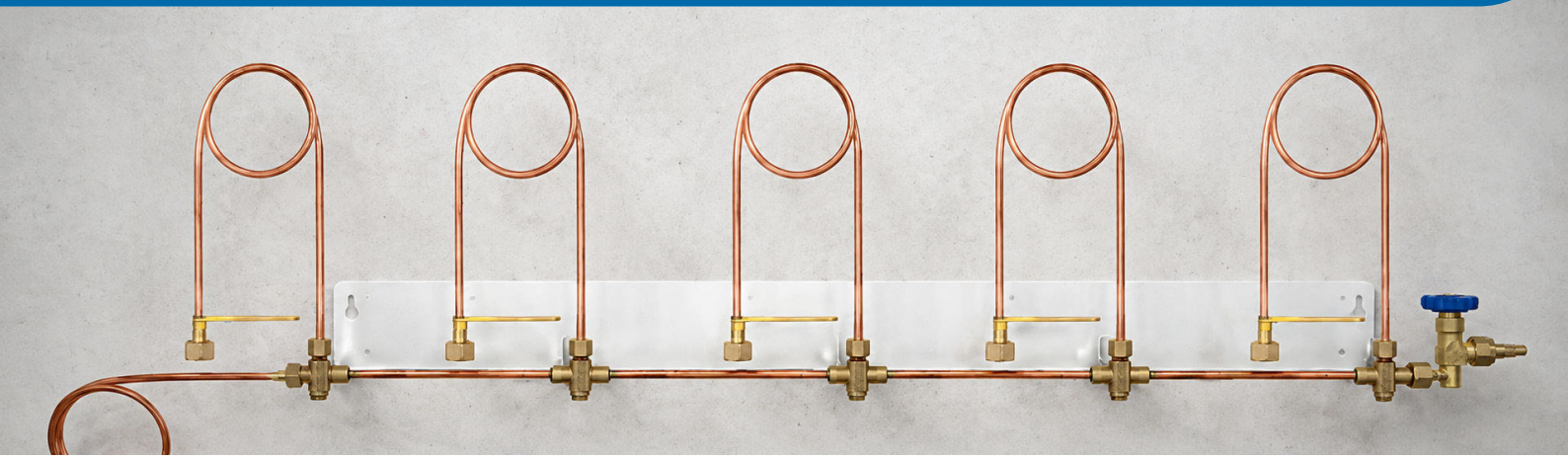
**Display Options**
Digital or Touchscreen

**Cylinder Bank Monitoring**
Right and left bank control

**Adjustable Limits**
Customizable thresholds

# High-Pressure Gas Cylinder Ramps

Cylinder ramps are system components that provide safe distribution in high-pressure gas lines and can be modularly configured according to project requirements. Materials and seals are selected for gas purity.

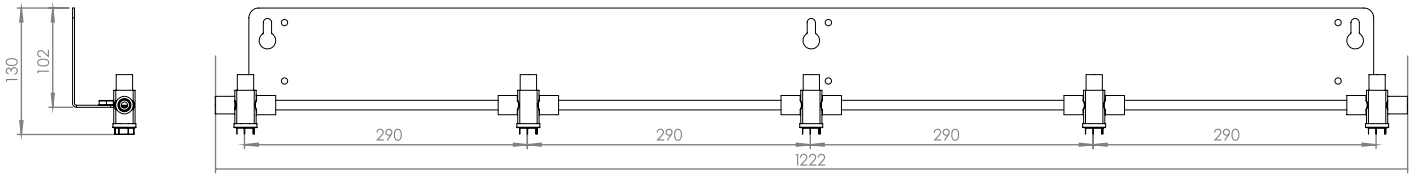


## General Features

| | |
|---|---|
| Material | Electrostatic powder-coated over mild steel |
| Control Type | Check-Valve (automatic) / Valve (manual) (independent for each cylinder) |
| Safety | Emergency vent valves on right and left sides |
| Mounting | Suitable for wall or frame mounting |
| Connection | Ramp–Cylinder<br>Ramp–Ramp |
| Maximum Cylinder Capacity | 5 cylinders per ramp |
| System Scalability | Expandable via Ramp–Ramp connection |

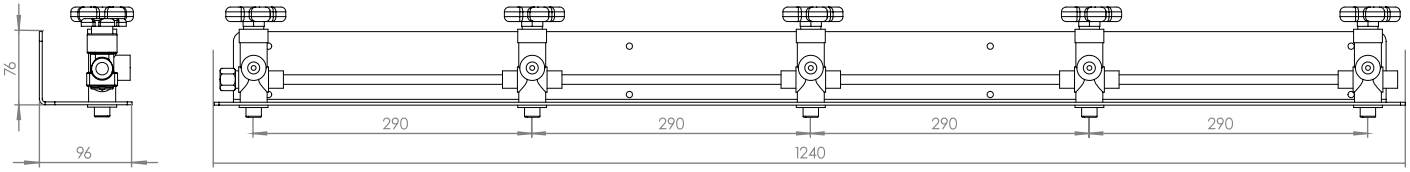
## Check-Valve Ramp

Automatically prevents backflow and ensures leak-tight, continuous and simultaneous operation of all lines.




## Valve Ramp

Cylinders are individually isolated via manual control, enabling leak-tight line management and backup gas usage.




**Dimensions**

| Configuration | Cylinder Capacity | Check-Valve Ramp | Valve Ramp |
|---|---|---|---|
| Single | 1 Cylinder | 80 mm | 62 mm |
| Double | 2 Cylinders | 370 mm | 352 mm |
| Triple | 3 Cylinders | 660 mm | 642 mm |
| Quadruple | 4 Cylinders | 950 mm | 932 mm |
| Quintuple | 5 Cylinders | 1240 mm | 1222 mm |

** Clamps are not included and are selected according to gas type.*
*** For higher capacity requirements, ramps can be modularly interconnected.*

# Connection and Supporting Components

Components used in medical gas systems to ensure safe connection, flow control, and mechanical stability, and can be modularly configured according to project requirements.

## Copper Pigtail (Ramp — Cylinder)

| | |
|---|---|
| Material | High-Purity Flexible Copper |
| Operating Pressure | 250–260 bar (max.) |
| Length | 80 cm *(adjustable length)* |
| Inlet Dimensions | 3/4" |
| Outlet Dimensions | 3/8", 1/2", 5/8", 3/4", Bullnose |
| Pipe Diameter | Ø8 mm |
| Pipe Wall Thickness | 2.50 mm |



## Flexible Stainless Braided Pigtails (Ramp — Cylinder)

| | |
|---|---|
| Material | Stainless Steel |
| Operating Pressure | 300 bar (max.) |
| Length | 80 cm (project-dependent) |
| Inlet Dimensions | 3/4" |
| Outlet Dimensions | 3/8", 1/2", 5/8", 3/4", Bullnose |
| Pipe Diameter | Ø12 mm |
| Pipe Wall Thickness | 2 mm |



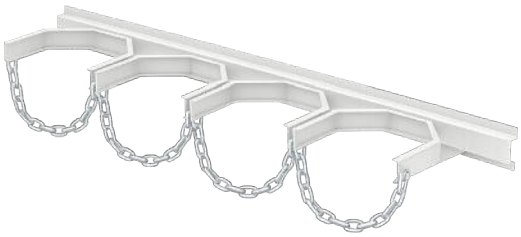
## Evacuation Valve

| | |
|---|---|
| Material | Brass |
| Function | Manifold Line Pressure Relief |
| Outlet Type | Single Gas Outlet |
| Operation Type | Manual |
| Mounting Position | Separate on Right and Left Lines |

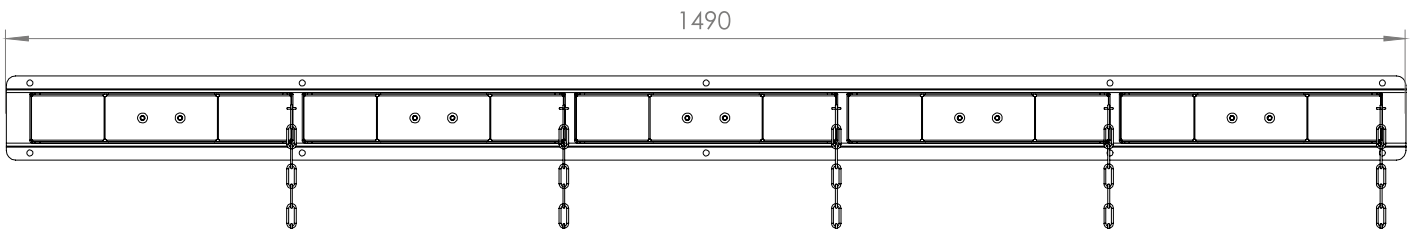


## Cylinder Securing Chain

| | |
|---|---|
| Body Material | 2.5 mm Galvanized Steel |
| Surface Coating | Electrostatic Powder Coating (RAL Options) |
| Mounting Type | Wall Mounting |
| Fixing | Chain-Supported Compartmental Structure |
| Cylinder Capacity | Max. 5 Cylinders per Module |
| Modular Structure | Expandable with Multiple Modules |
| Access | Independent Access to Each Cylinder |



| Dimensions | | | | |
|---|---|---|---|---|
| Single | Double | Triple | Quadruple | Quintuple |
| 330 mm | 620 mm | 910 mm | 1200 mm | 1490 mm |




Technical specifications are subject to change without prior notice. Images are for illustrative purposes only and may vary by model.

## General Features

| | |
|---|---|
| Supply Voltage | 220 V, 50 Hz |
| Operating Temperature | (+10) – (+45) °C |
| Relative Humidity | 10–95% |
| Capacity | 40 $m^3$/h and 150 $m^3$/h<br>(up to 300 $m^3$/h *according to project requirements*) |
| Inlet Pressure | Max. 230 bar |
| Outlet Pressure | 4–12 bar *(adjustable)* |
| Regulation | Two-Stage Pressure Regulation |
| Automatic Change-Over | Mechanical Change-over / Electronic Solenoid Valve |
| Medical Gases | Oxygen ($O_2$) – Nitrous Oxide ($N_2O$)<br>Medical Air (MA4) – Surgical Air (SA7)<br>Carbon Dioxide ($CO_2$) – Nitrogen ($N_2$)<br>Argon (Ar) – Helium (He) – MIX (Mixed Gases) |

** *Each manifold system is designed for a single gas type and configured accordingly.*

## Technical Features

| | |
|---|---|
| Inlet Lines | Right and Left Cylinder Banks |
| Outlet Line | Single Outlet Line |
| Ramp Options | Valve / Check-Valve |
| Evacuation System | Separate on Right and Left Lines |
| Maintenance / Continuous Operation | By-Pass Line |
| 1st Stage Regulator | Inlet/Outlet: 230–16 bar |
| 2nd Stage Regulator | Inlet/Outlet: 16–4 bar |
| High Pressure Gauge | 0–230 bar (2 pcs) |
| Intermediate Pressure Gauge | 0–16 bar (2 pcs) |
| Line Pressure Gauge | 0–16 bar (1 pc) |

## Mechanical Features

| | |
|---|---|
| Control Unit Dimensions (H×W×D) | 900 × 640 × 232 mm |
| Control Unit Housing | Electrostatic Powder-Coated Mild Steel |
| Protective Cover | Removable Mild Steel Construction with Viewing Window |
| Access | Full Access to All Components Through the Front Cover |
| Mounting Type | Wall or Frame Mounting |

## System Configurations

| | |
|---|---|
| Cylinder Arrangement | From 1+1 to 30+30 *(Project-Specific Configurations Available)* |
| Module Options | Single, Double, Triple, Quad, and Quintuple Ramp and Cylinder Holder Modules |
| System Structure | Modular and Expandable |

## Standards

| | |
|---|---|
| Quality | EN ISO 9001:2015 — EN ISO 13485:2016 |
| Technical and Safety | EN ISO 7396-1 — EN ISO 7396-2 — EN ISO 9170-1<br>EN ISO 11197 — EN ISO 15001 — EN 837-1 |
| Electrical Safety | EN 60601-1-2 |
| Labeling | EN ISO 15223-1 — EN 1041 |
| Risk Management | EN ISO 14971 |

## ** Ordering Information

Gas type, alarm option, connection equipment, and system configuration preferences must be specified at the time of ordering.

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