

# HYDRO-GAZ-MED

POLISH MANUFACTURER OF MEDICAL EQUIPMENT

Established in 1971



## Product catalog

Sygnalizator gazów medycznych  
Section alarm unit

-OK-	1/0550	bar	
O2	4.3	O2	4.0
N2O	4.3	N2	4.0
AIR5	4.3	VAC	0.000

Sygnalizator  
stanow gazow  
medycznych

CE

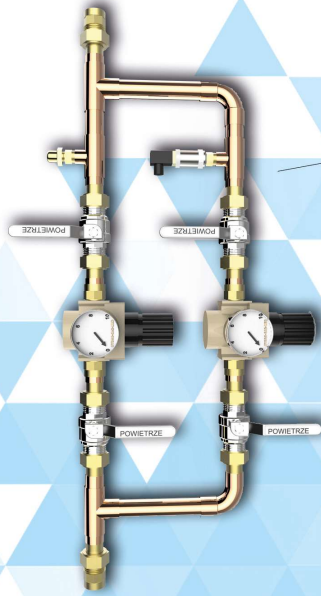
HYDRO - GAZ - MED

WYCISZENIE

TEST



OUR PRODUCTS IN HOSPITAL...



Reduction set  
p. 9



Dew point and carbon monoxide monitor  
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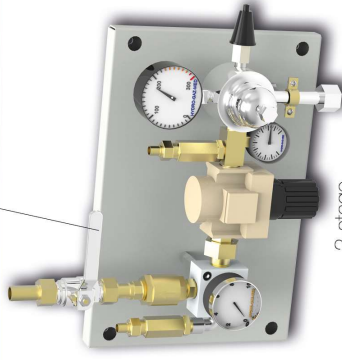
Remote alarm units  
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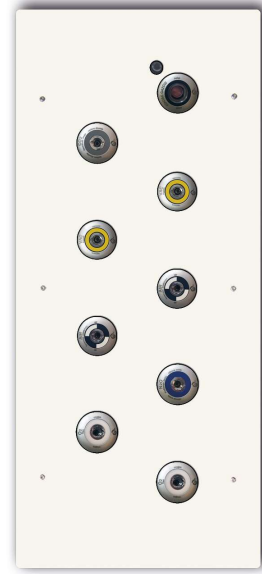
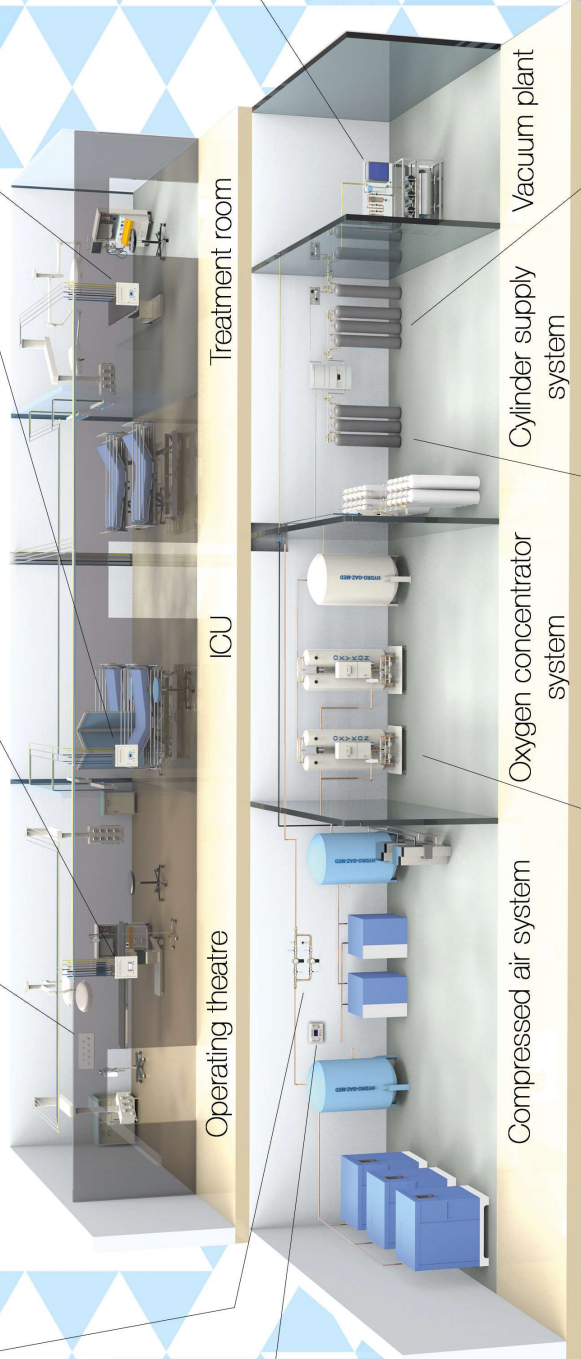
Central alarm unit  
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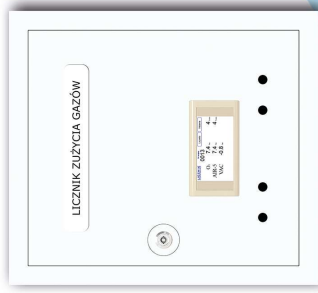
OXYKON®  
oxygen concentrator  
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2-stage  
reserve panel  
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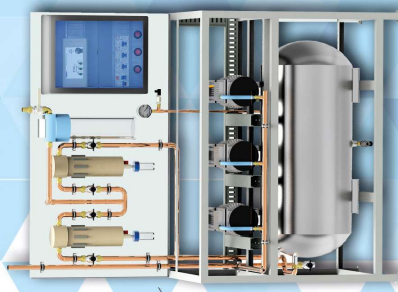
Gas outlets  
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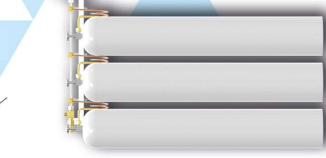
Flow monitor  
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Area valve box "SZI"  
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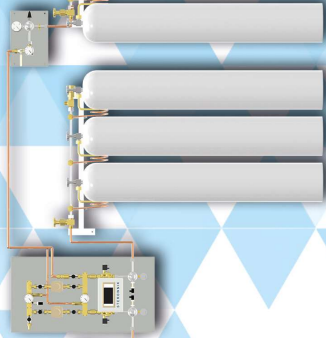
Vacuum plant "HGM VAC"  
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Cylinder supply  
system

Oxygen concentrator  
system

Compressed air system



Switchover system for cylinder supply "PNEUMAT"  
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# About us

Our company is dealing with medical gas pipeline systems for over 45 years, for over 12 years we are producer of medical gas pipeline systems components. For many years we have been consumer of products of other producers. This allowed us to gain lot of experiences either good and bad. At the moment as a producer we have done our best to improve and remove all the problems we have encountered. During all these years we wanted to offer you the best possible, so we ALWAYS use the highest quality materials, that is why we cooperate with well known producers like FRITZ STEPHAN Medizintechnik GmbH, GREGGERSEN Gasetechnik GmbH, OXYMAT A/S.

In the field of medical gas pipeline systems we modernize existing systems or we can design, build, test and commission a new one.

Here is a short history of our company:

- ▶ since 2003 we are installing oxygen concentrator systems in hospitals in Poland (we were first to do this)
- ▶ since 2006 we are producing our own valve boxes, to this day we sold over 600 units;
- ▶ since 2008 we are producing our own oxygen concentrator system, to this day almost 30 systems installed;
- ▶ since 2011 we are producing our own PNEUMAT switchover system for high pressure cylinder supply systems, to this day almost 100 systems sold;
- ▶ since 2013 we started to offer gas consumption measurement in our valve boxes;
- ▶ since 2014 we offer our own high-end central monitoring system for medical gas system;
- ▶ since 2015 we are producing small vacuum plant for small hospitals & clinics;
- ▶ along with above we are also producing under plaster and on wall panels with sets of gas outlets.

In this catalog we want to present you the best we have to offer. Our products have been checked and tested in many ways by our demanding clients and meet the strict requirements of TÜV Nord Notified Body. We execute medical gas pipeline systems according to the newest european medical standards and MD-D/93/42



## CERTIFICATE

Management system as per  
**EN ISO 13485:2012**  
**Medical devices - Quality management systems - Requirements for regulatory purposes**

In accordance with TÜV NORD Polska Sp. z o.o. procedures, it is hereby certified that

**Hydro-Gaz-Med Sp. j.**  
**Zbigniew Szymczak Marcin Susdorf**  
**ul. Wilłowa 40, PL / 05-205 Dobczyn**

applies a management system in line with the above standard for the following scope

**Design, manufacturing, distribution, installation, commissioning and service of medical gas and vacuum pipeline systems, incl. supply sources, control and monitoring equipment.**

Regardless of the text that TÜV NORD Polska Sp. z o.o. is a notified body No. 2274 in the area of medical devices, this Certificate is not a Certificate of Conformity within the meaning of Directive 93/42/EEC and is not a basis for CE marking.

Certificate Registration No. **AC090 MD1130142112015** Valid from **14-10-2015**  
 Audit Report No. **PL4211/2015** Valid until **13-10-2018**

Katowice, 14-10-2015

This certification was conducted in accordance with the TÜV NORD Polska Sp. z o.o. auditing and certification procedures and is subject to regular surveillance audits.

TÜV NORD Polska Sp. z o.o. ul. Mickiewicza 29 40-085 Katowice www.tuv-nord.pl





## ZAŁĄCZNIK / ANNEX

do certyfikatu numer rejestracyjny /  
 Certificate Registration No.:  
**TNP/MD/015942112015** Ważny do / Valid from **14-10-2015**  
 Report nr / Report No.: **PL4211/2015-09** Ważny do / Valid until **13-10-2018**

Typ / Type	Wyroby / Products	Klasa / Class	UMDNs
System rurociągowy gazów medycznych i próżni / Pipeline system for medical gases and vacuum	System rurociągowy gazów medycznych i próżni z wyposażeniem: Reduktory ciśnienia Zawory zwrotnicowe Zawory zwrotnicze Monitoring stanu gazów Sygnalizator zdalny Sygnalizator centralny	Pressure regulators Shut-off valves Non-return valves Alarm units Remote alarm units Central alarm units	1b 18046
Koncentrator tlenu do zasilania centralnej instalacji gazów medycznych / Oxygen concentrator for use with central pipeline system	OXYKON	1b	12883
Panel centralnego zasilania / Central supply panel	PNEUMAT	1b	18046
Systemy zapewnienia informacji o gazach medycznych i próżni / Medical valve box for medical gases and vacuum	SZ-1 SZ-2 SZ-3 SZ-4 SZ-5 SZ-6	1b	18044
Agregat próżni centralnej / Central vacuum unit	Agregat próżni centralnej HG-M-VAC Central vacuum unit HG-M-VAC	1b	15615

Katowice, 24-02-2016

Jednostka Certyfikująca Wyroby Medyczne /  
 Certification body for medical devices

Jednostka notyfikowana Numer Identyfikacyjny 2274  
 Notified Body ID. No. 2274

TÜV NORD Polska Sp. z o.o. ul. Mickiewicza 29 40-085 Katowice ☎ +48 32 786 46 46. Fax: +48 32 786 46 01 www.tuv-nord.pl, biuro@tuv-nord.pl

Dołączona się kopiącena certyfikatu tylko w niezmienionej postaci. / Copies of this certificate only without changes.



## CERTYFIKAT WE / EC CERTIFICATE

zgodny z 93/42/EWG Załącznik II (p. 4) / acc. 93/42/EEC Annex II (p. 4)

Niepełnym załącznika się, że firma / This certifies, that the company

**Hydro-Gaz-Med Sp. j.**  
**Zbigniew Szymczak Marcin Susdorf**  
**ul. Wilłowa 40, PL / 05-205 Dobczyn**

dla kategorii wyrobów klasy 1b / for the product category class 1b  
 (Lista wyrobów patrz załącznik 1 / List of products see annex 1)

**System rurociągowy gazów medycznych i próżni z wyposażeniem.**  
**Pipeline system for medical gases and vacuum with equipment.**

Stosując system zapewnienia jakości w projektowaniu, produkcji i kontroli końcowej wymienników wyrobów zgodnie z wymaganiami Załącznika II (z wyłączeniem sekcji 4) dyrektywy 93/42/EWG. Dodatkowo, przy znaku CE musi zostać naniesiony numer identyfikacyjny jednostki notyfikowanej. Wzrostki tego certyfikatu załącznik jest od urządzenia systemu zapewnienia jakości zgodnie z wymaganiem dyrektywy i jego nadawcą przez jednostkę notyfikowaną zgodnie z Załącznikiem II, rozdział 5. Certyfikat nie może być przenoszony pod żadnymi warunkami.

Has established a quality system for design, production and final testing acc. to the requirements of Annex II (excluding section 4) of the directive 93/42/EEC. Additionally to the CE-marking the notification number of the notified Body has to be affixed. The validity of this certificate is based on the maintenance of the quality system in accordance with the requirements of the directive and its surveillance by the notified Body according Annex II section 5. The certificate may not be transferred under any circumstances.

Nr rej. / Reg.-No. **TNP/MD/015942112015** Ważny od / Valid from **14-10-2015**  
 Report nr / Report No. **PL4211/2015-09** Ważny do / Valid until **13-10-2018**

Katowice, 24-02-2016

Jednostka Certyfikująca Wyroby Medyczne /  
 Certification body for medical devices

Jednostka notyfikowana Numer Identyfikacyjny 2274  
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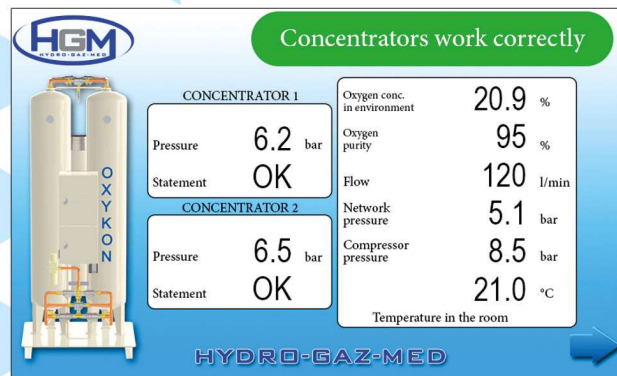
# Oxygen concentrators for medical gas pipeline system

OXYKON® oxygen concentrator delivers "medical oxygen 93" by filtering compressed air and separating oxygen from other air components (including chemical weapons) to achieve up to 96% oxygen concentration. Because oxygen concentrator needs compressed air to deliver oxygen it allows to use the surplus compressed air as a medical air. This allows to eliminate extra costs of installing separate compressed air system. To minimize installation costs even more it can use compressed air from an existing compressed air system in hospital to deliver oxygen. Taking such solution at the planning stage of investment it allows to save extra costs. At the end it can save up to 80% of oxygen therapy costs.

We are the first in Poland who have developed and implemented this system in Health Care Facilities. This economic system guarantees self-sufficiency and optimally uses available area.



OXYKON® DUO concentrator



Oxygen supply system controller

- ▶ concentrators pressure monitoring
- ▶ oxygen purity monitoring by means of paramagnetic sensor
- ▶ oxygen concentration in environment monitoring
- ▶ room temperature monitoring
- ▶ compressor pressure monitoring
- ▶ the status of concentrators
- ▶ flow monitoring
- ▶ oxygen outlet pressure monitoring
- ▶ integration with SMS otigation system

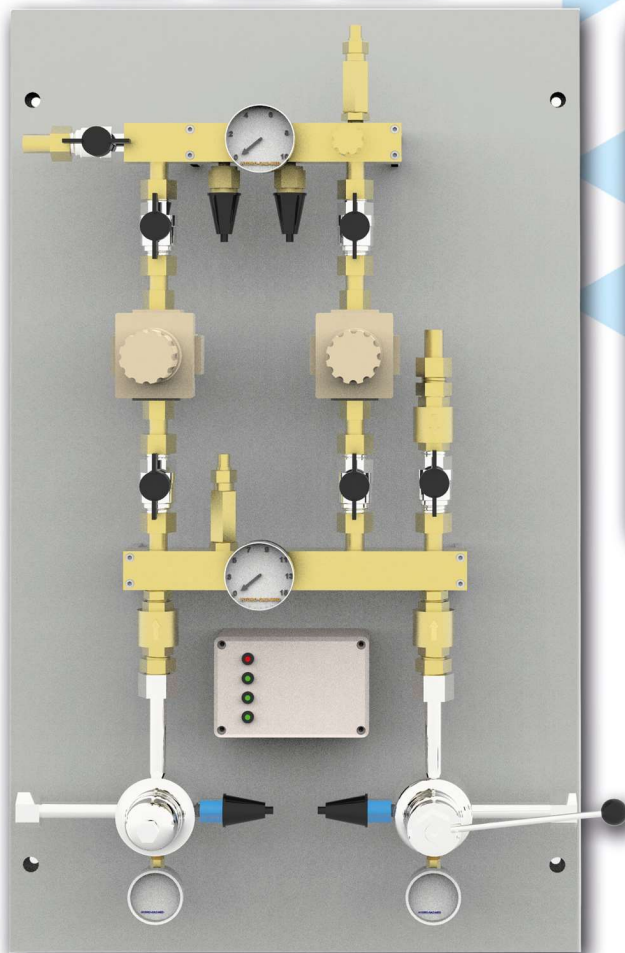
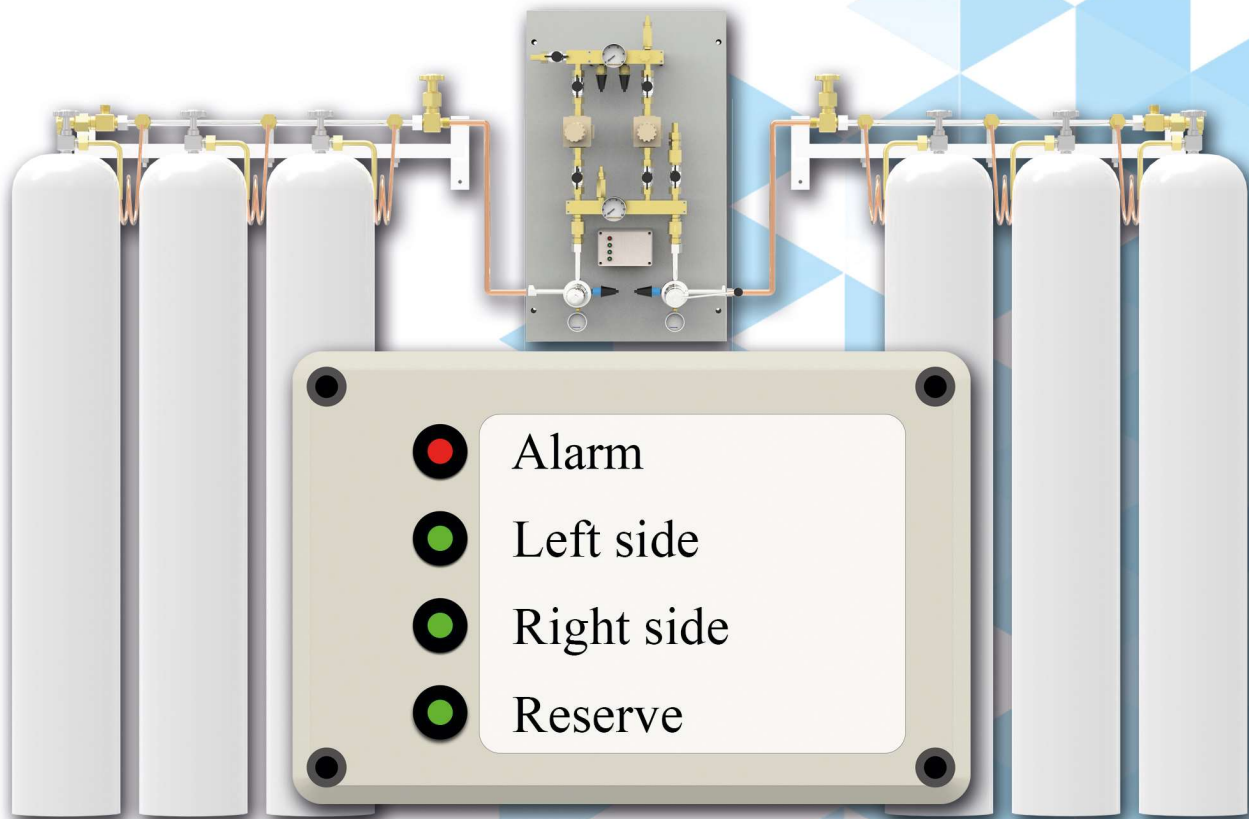


OXYKON® modular concentrator

Oxygen concentrator modules work selectively – producing oxygen to meet actual demand, thereby power consumption is reduced to minimum. Also usage of compressed air is optimized according to oxygen demand. Thanks to modular construction it is not possible that there will be no oxygen in hospital. In case of failure the amount of delivered oxygen will decrease but concentration level will remain unchanged.

# Switchover system for cylinder supply "PNEUMAT I"

PNEUMAT I as 2 cylinder banks supply system



Dimensions  
400x700x150  
(WxHxD)

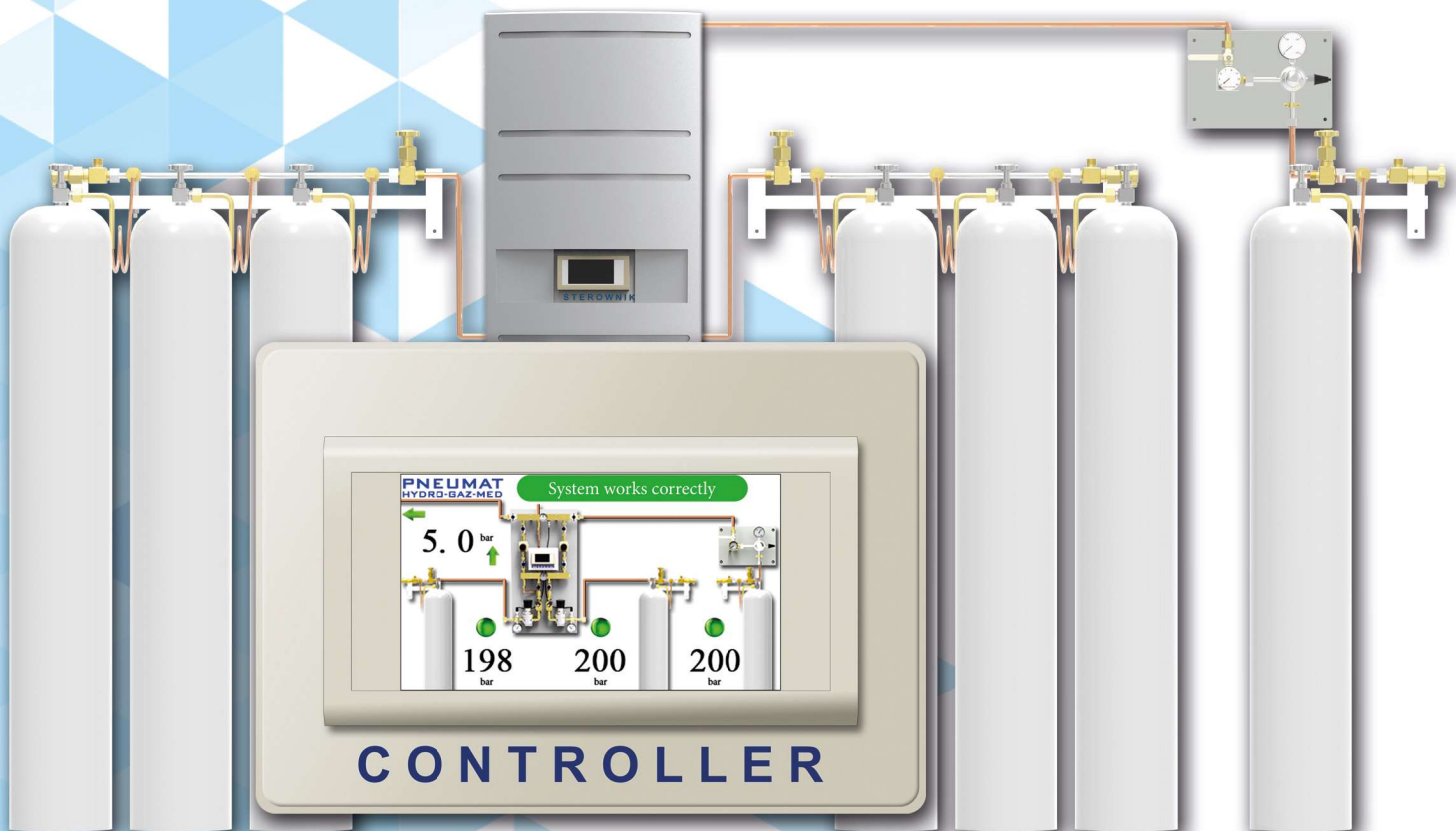


Remote alarm unit

- Capacity: max. 30 m<sup>3</sup>/h  
 Inlet pressure: 200 bar (2900 psi)  
 Outlet pressure: 4-6 bar (58-87 psi)  
 Automatic change-over (pneumatically)  
 Connection to BMS and MODBUS RTU  
 Working modes:
- ▶ 2 cylinder banks
  - ▶ 2 cylinder banks + 1 reserve bank
  - ▶ Concentrator + 2 cylinder banks
  - ▶ Tank with liquid gas + 2 cylinder banks
  - ▶ Air compressor + 2 cylinder banks
- Class IIb medical device.

# Switchover system for cylinder supply "PNEUMAT II"

PNEUMAT II as 2 cylinder banks + reserve bank supply system



Dimensions  
450x800x200  
(WxHxD)

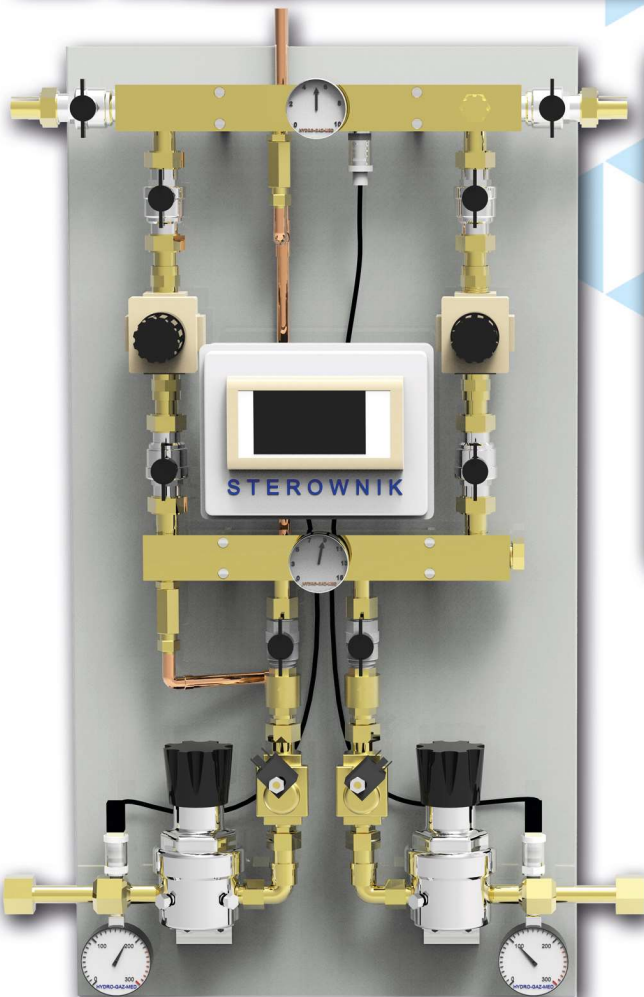


Remote alarm unit

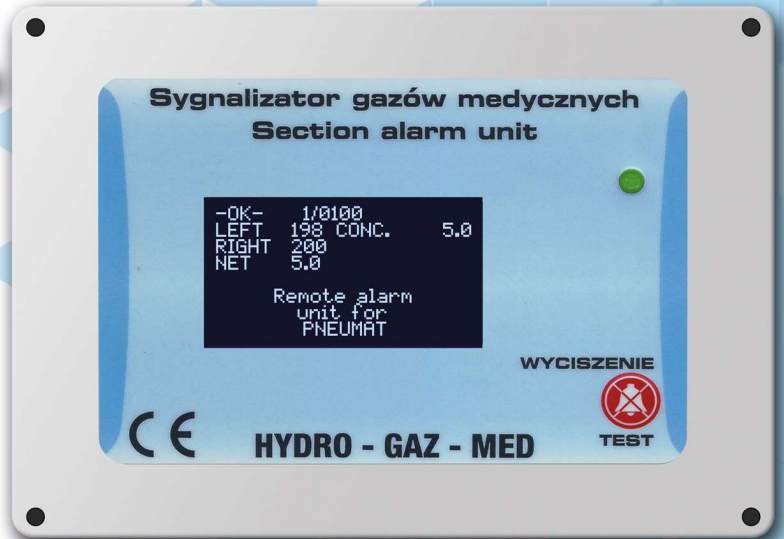
- Capacity: max. 50 m<sup>3</sup>/h  
 Inlet pressure: 200 bar (2900 psi)  
 Outlet pressure: 4-6 bar (58-87 psi)  
 Automatic change-over (electronically)  
 Connection to BMS and MODBUS RTU  
 Working modes:
- ▶ 2 cylinder banks
  - ▶ 2 cylinder banks + 1 reserve bank
  - ▶ Concentrator + 2 cylinder banks
  - ▶ Tank with liquid gas + 2 cylinder banks
  - ▶ Air compressor + 2 cylinder banks
- Class IIb medical device.

# Switchover system for cylinder supply "PNEUMAT III"

PNEUMAT III as tank with liquid oxygen + 2 cylinder banks supply system



Dimensions  
400x850x150  
(WxHxD)

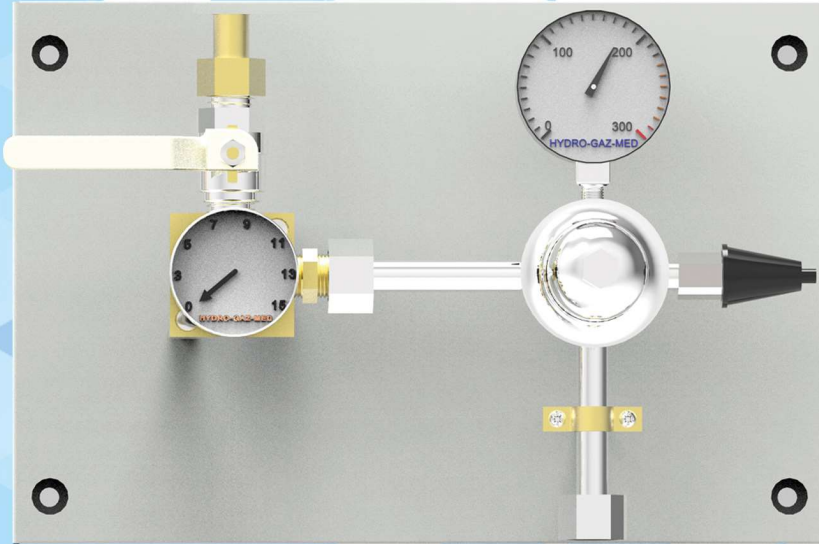


Remote alarm unit

- Capacity: 200 m<sup>3</sup>/h  
 Inlet pressure: 200 bar (2900 psi)  
 Outlet pressure: 4-6 bar (58-87 psi)  
 Automatic change-over (electronically)  
 Connection to BMS and MODBUS RTU  
 Working modes:
- ▶ 2 cylinder banks
  - ▶ 2 cylinder banks + 1 reserve bank
  - ▶ Concentrator + 2 cylinder banks
  - ▶ Tank with liquid gas + 2 cylinder banks
  - ▶ Air compressor + 2 cylinder banks
- Class IIb medical device.

# 1-stage reserve supply panel "PNEUMAT"

## Reserve supply panel PNEUMAT 50

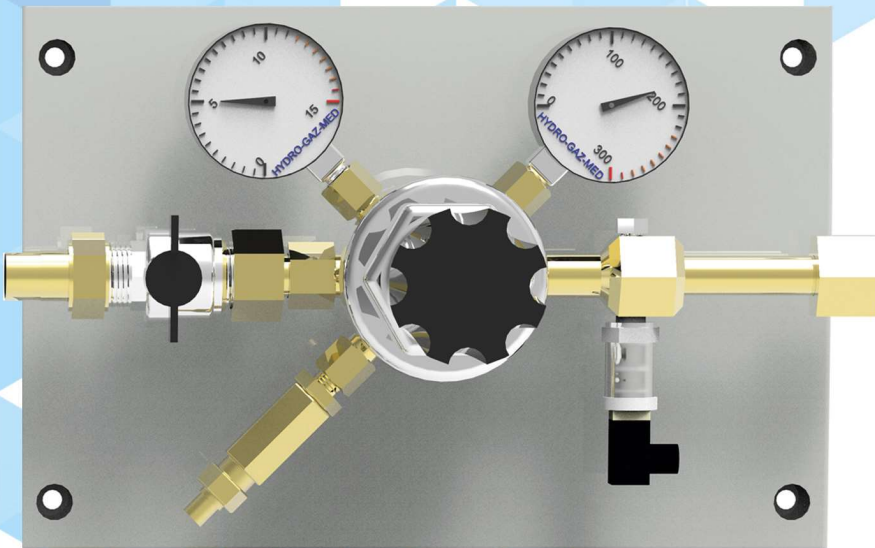


Reserve supply for switchover system

Capacity: 50 m<sup>3</sup>/h  
Inlet pressure: 200 bar (2900 psi)  
Outlet pressure: 7 bar (101 psi)

Dimensions  
350x280x150  
(WxHxD)

## Reserve supply panel PNEUMAT 200



Reserve supply for switchover system

Capacity: 200 m<sup>3</sup>/h  
Inlet pressure: 200 bar (2900 psi)  
Outlet pressure: 7 bar (101 psi)

Dimensions  
350x280x150  
(WxHxD)



## 2-stage reducer panel for high pressure cylinder supply



### Function

To reduce high pressure from cylinders to the level required by user in medical pipeline system. Main purpose is to work as a reserve source for medical gases.

### Technical data:

2-stage pressure reduction, high pressure analog sensor or contact switch, shut-off valve, safety valve.

### Efficiency:

Flow:	50 m <sup>3</sup> /h
Inlet pressure:	max. 200 bar (2900 psi)
Outlet pressure:	5 bar (72 psi)

### Connections:

inlet:	G ½"
outlet:	copper pipe 15 mm

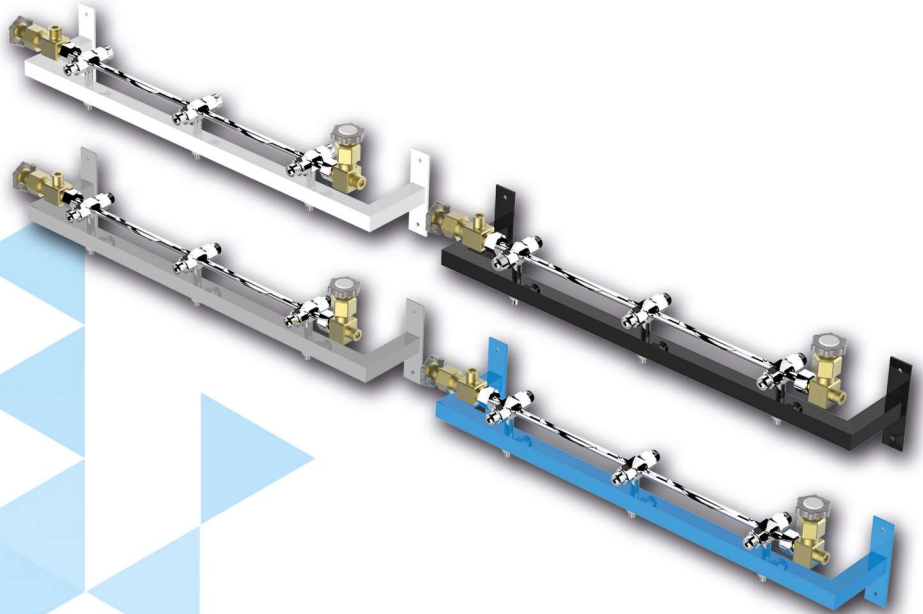
### Medium:

oxygen, nitrous oxide, carbon dioxide, air, nitrogen, argon

# High pressure manifold system

## Technical data:

- ▶ up to 10 cylinders in single manifold
- ▶ shut off valve
- ▶ exhaust valve
- ▶ non-return valves for each cylinder
- ▶ gas specific connections



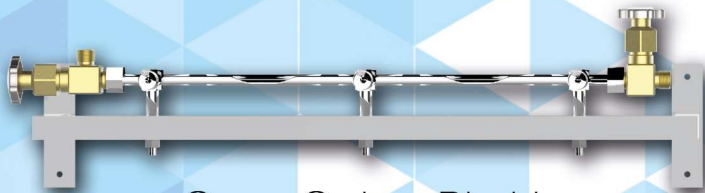
## Gas coding colours:



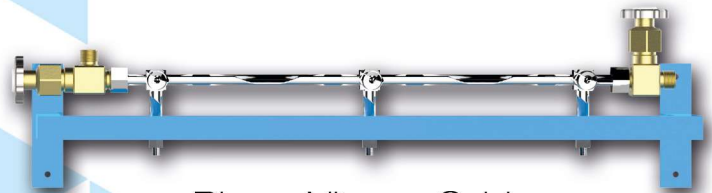
White - Oxygen



Black - Compressed air



Grey - Carbon Dioxide



Blue - Nitrous Oxide

Manifolds delivered along with headers.



2 cylinder header



Single cylinder header

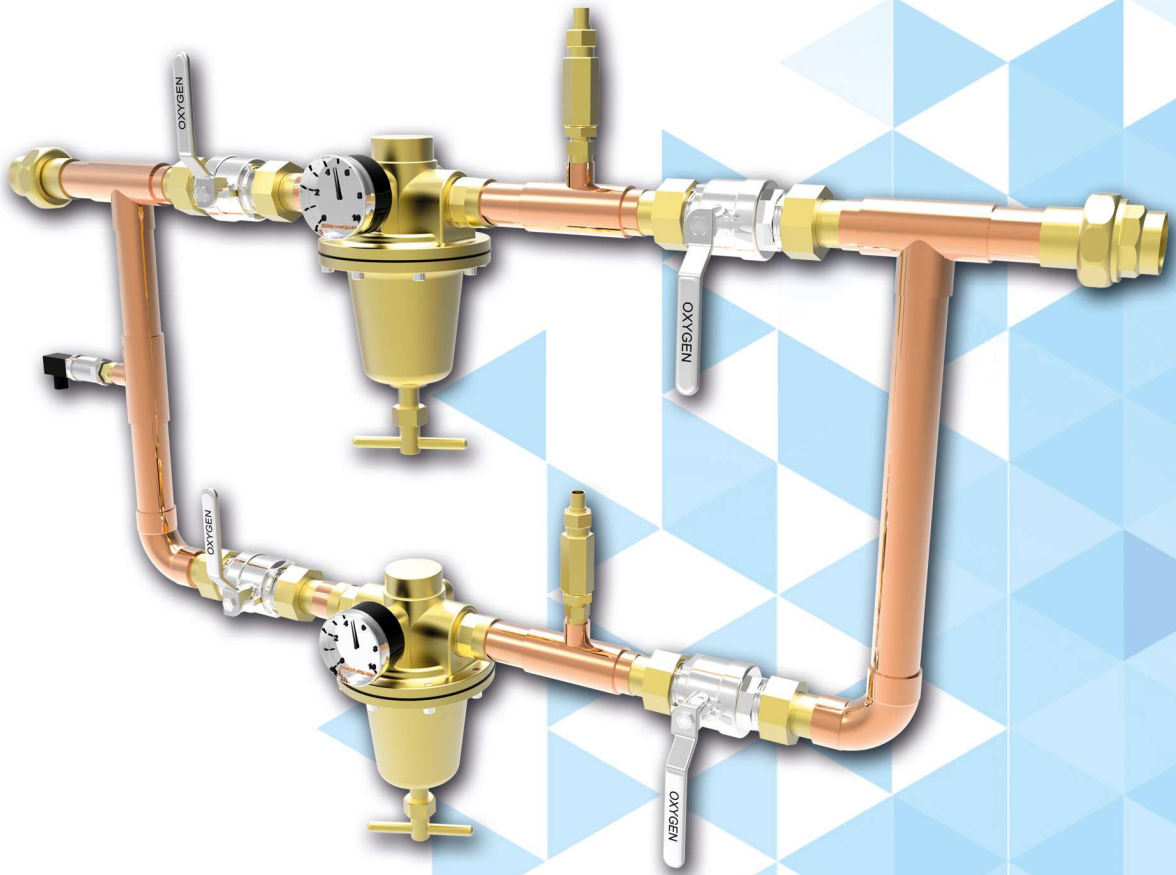
## Technical data:

- ▶ maximum inlet pressure 200 bar (2900 psi)
- ▶ easily adjustable pigtail shape
- ▶ inlet/outlet connections according to gas coding standards

## Technical data:

- ▶ maximum inlet pressure 200 bar (2900 psi)
- ▶ length ~80cm
- ▶ inlet/outlet connections according to gas coding standards

# Reducing sets for liquid oxygen tank



## Function

To reduce pressure of liquid oxygen from tank to a level required by user.

## Technical data:

- ▶ 2 parallel pressure reducers;
- ▶ brass ball valves with chrome body and stainless steel ball;
- ▶ 2 safety valves;
- ▶ pressure analog sensor;

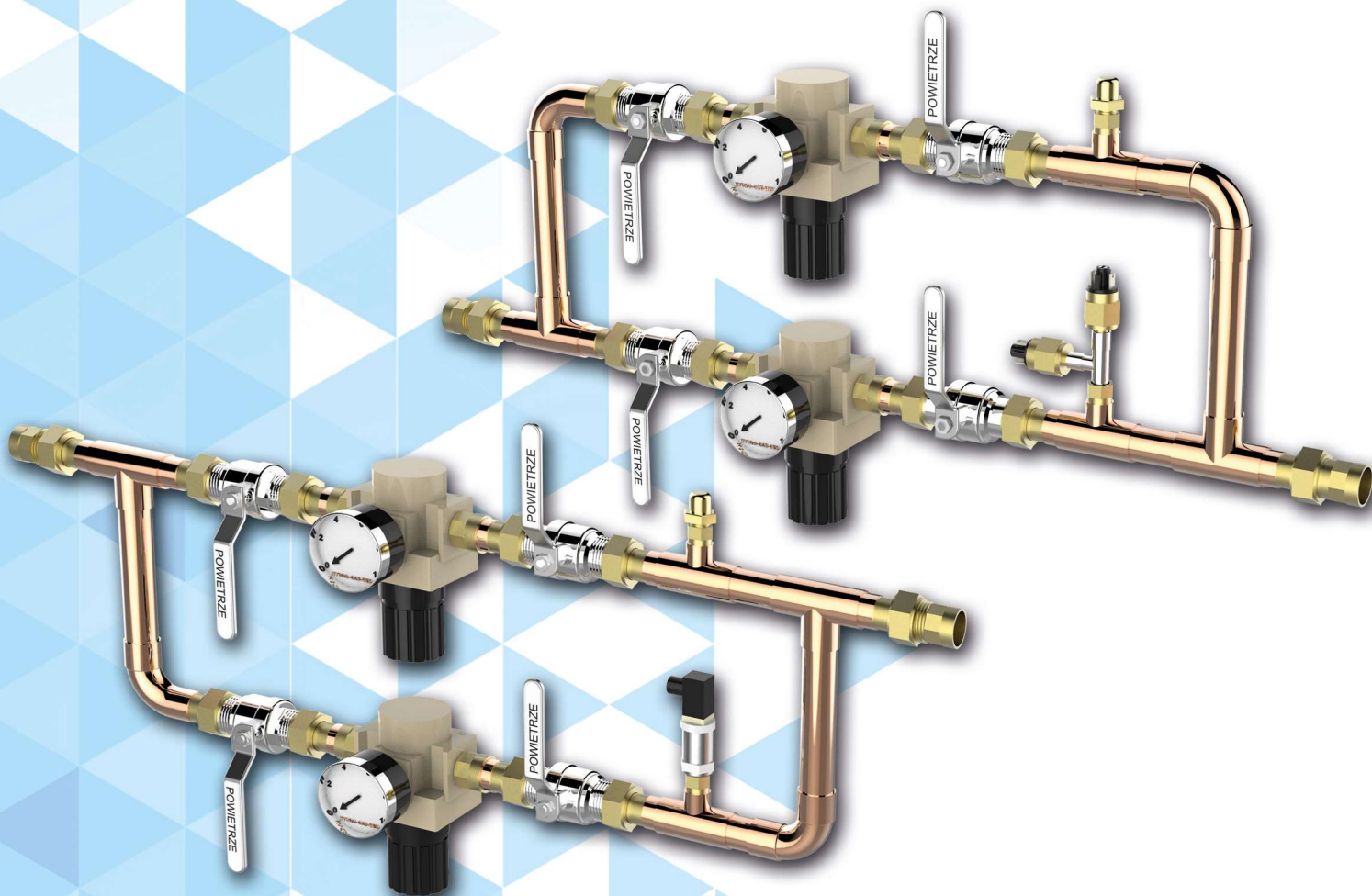
## Capacity:

- ▶ max inlet pressure 25 bar (362 psi);
- ▶ outlet pressure 1-6,5 bar (14-94 psi);
- ▶ max flow (28mm pipe) 200m<sup>3</sup>;
- ▶ ambient temperature -20°C do +40°C;
- ▶ safety valve to 7 bar (108 psi).

## Connections:

- ▶ copper pipe size 28 mm;

# Reducing sets for compressed medical gases



## Function

To reduce pressure of compressed medical gases to a level required by user.

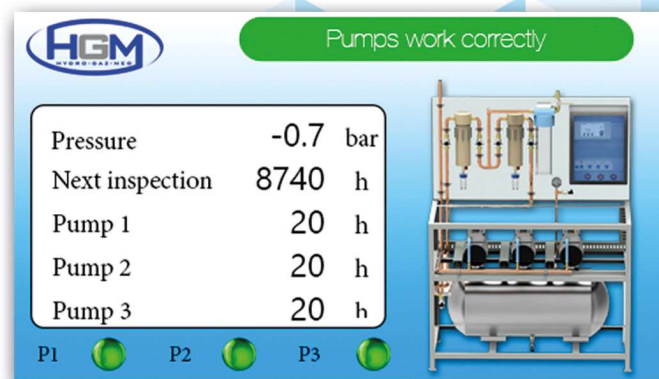
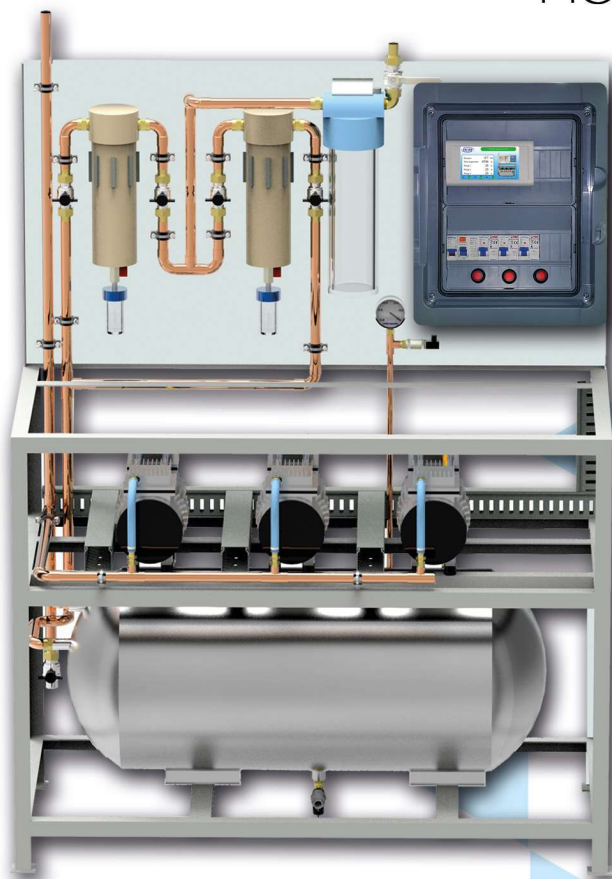
## Technical data:

- ▶ 2 parallel pressure reducers;
- ▶ brass ball valves with chrome body and stainless steel ball;
- ▶ pressure sensor or 2 pressure switches;
- ▶ max inlet pressure 16 bar (232 psi);
- ▶ outlet pressure 1-10 bar (14-145 psi);
- ▶ max flow 50m<sup>3</sup> or 200m<sup>3</sup>
- ▶ ambient temperature -20°C do +40°C;
- ▶ safety valve to 7 bar (101 psi) or 11 bar (159 psi);
- ▶ standard outlet pressure 5 (72 psi) and 8 bar (116 psi), others on demand.

## Connections:

- ▶ copper pipe size 15 or 22 mm;

# Compact vacuum plant "HGM VAC"



## EQUIPMENT

- ▶ Vacuum pump 3 pcs
- ▶ Bacteria filter 2 pcs
- ▶ Secretion collecting unit 1 piece
- ▶ Electronic control 1 piece
- ▶ Vacuum tank 110 L
- ▶ Connection to BMS and MODBUS RTU

## WORKING CONDITIONS

- ▶ ambient temperature: 5-35 °C
- ▶ atmospheric pressure : 900-1050 hPa
- ▶ relative humidity : 20-90 %

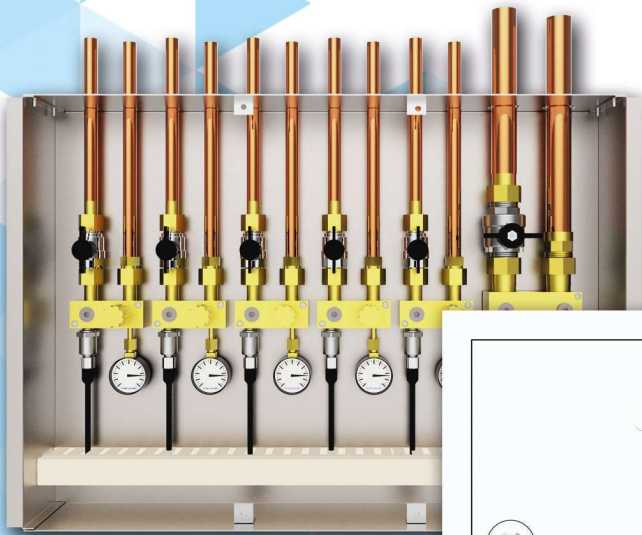
## PURPOSE

- ▶ Supports up to 10 vacuum outlets
- ▶ Operating room
- ▶ Postoperative room
- ▶ 2 beds ICU

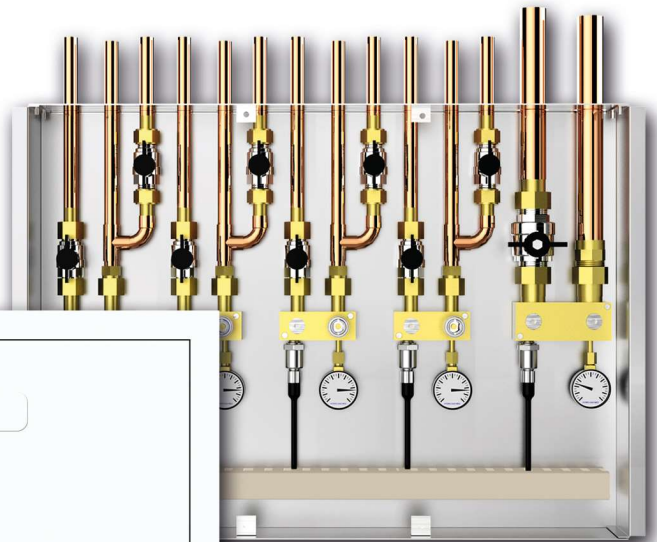
## TECHNICAL DATA:

Parameter	Value
Capacity at atmospheric pressure 1024 hPa (m³/h)	18 m³/h
Capacity at -0,5 bar (m³/h)	6 m³/h
Tank volume (L)	110
Pump type	3x HMGV-1
Motor power (kW)	0,75
Noise level (dB)	62
Inlet port, copper pipe (mm)	22
Exhaust, copper pipe (mm)	22
Weight (kg)	~130
Max vacuum (relative pressure)	-0,7 bar (-10 psi)
Power supply	3x2,5 mm², 230V, 12A
Dimension (mm)	1500x1300x500

# Area valve boxes "SZI"

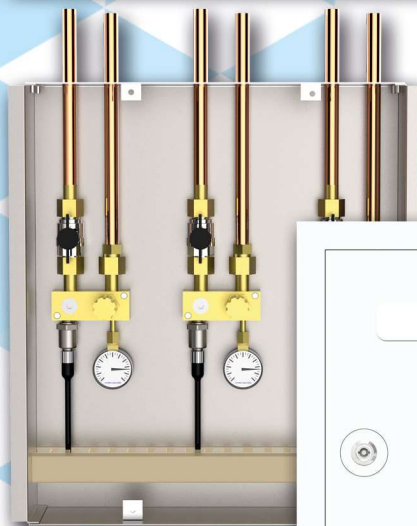
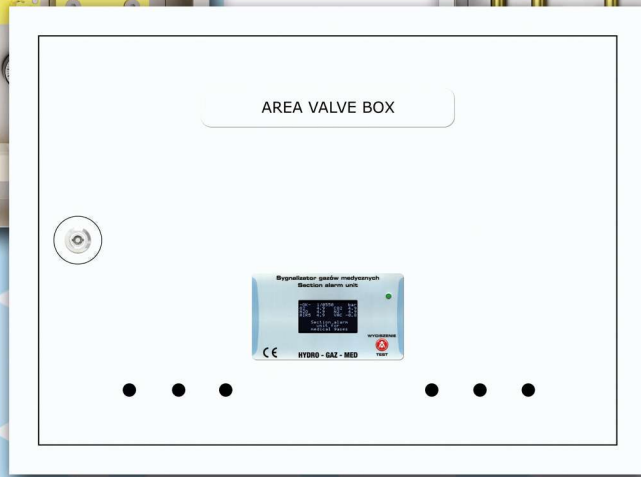


SZI-6

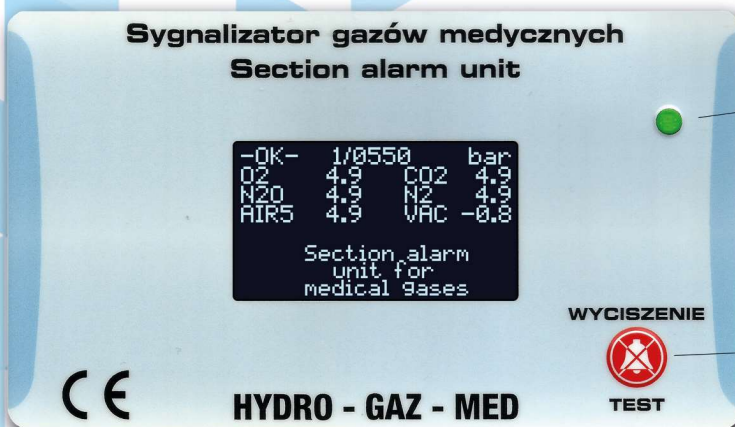


SZI-5-OP

for Operating theatres



SZI-3



Section alarm unit

LED indicator:  
● OK state  
● alarm

Test / mute button

# Area valve boxes "SZI"

Main function of valve box is to shut-off and to monitor pressure of medical gases and vacuum in wards, operating theatres, intensive care units.

Basic parameters :

- ▶ from 1 up to 6 gases in one box
- ▶ shut-off valves for each gas and vacuum
- ▶ shut-off valves for ceiling pendants (SZI-OP version)
- ▶ pressure sensors for each medium
- ▶ gauge for each gas
- ▶ physical separation
- ▶ drainage
- ▶ emergency supply point type NIST/DIN/AGA
- ▶ alarm unit with LCD display
- ▶ max pipe diameter for vacuum is 28 mm
- ▶ connection to BMS and MODBUS RTU

Technical data:

Housing made from zinc plated steel, standard color for cover is RAL 9010, equipped in emergency opening, emergency supply point, sensors, ball valves, inlet / outlet from top, from 1 up to 6 gases in single housing.

**Pressure:** compressed gases 0 - 10 bar (145 psi)  
vacuum 0 - -0.9 bar (-13 psi)

**Alarms:** compressed gases 5 bar ▶ low pressure 4 bar (58 psi)  
▶ high pressure 6 bar (87 psi)  
compressed gases 8 bar ▶ low pressure 6,5 bar (94 psi)  
▶ high pressure 9,5 bar (137 psi)  
vacuum ▶ pressure -0,4 bar (-5.8 psi)

Class IIb medical device.

Available valve boxes:

TYPE	Weight	Dimensions (LxWxH)
SZI-1	5,5kg	350x90x460
SZI-2	6,1kg	350x90x460
SZI-3	7,3kg	350x90x460
SZI-4	10,5kg	350x90x460
SZI-5	14,2kg	560x90x480
SZI-6	15,4kg	560x90x480

# Area valve service unit

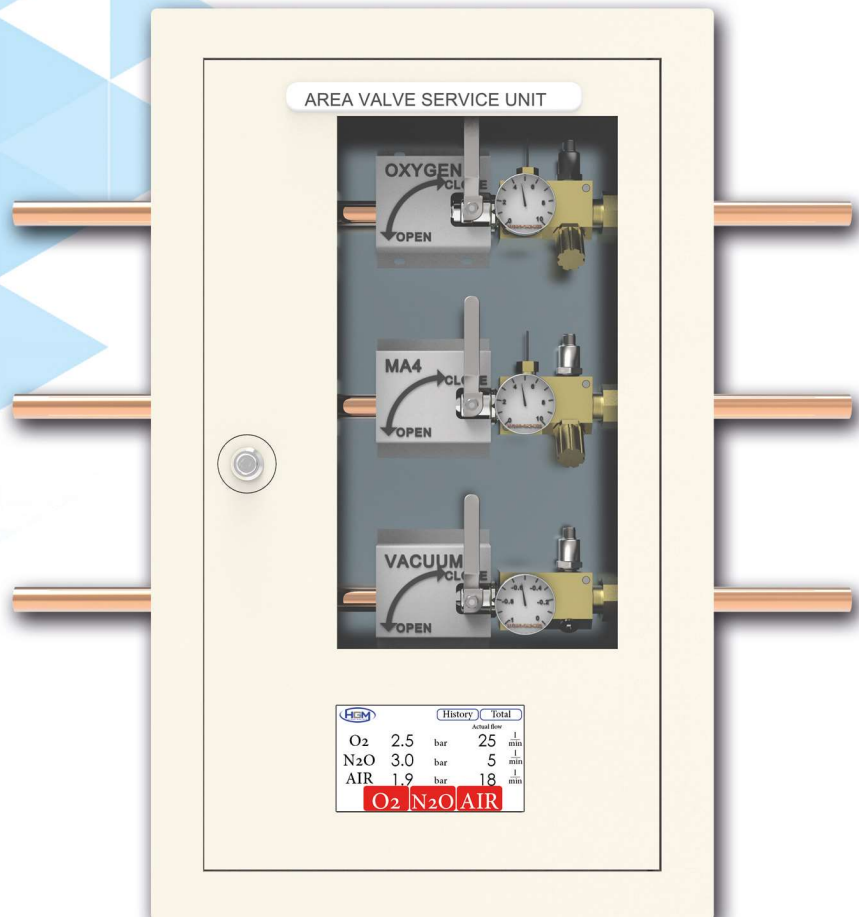


## Technical data:

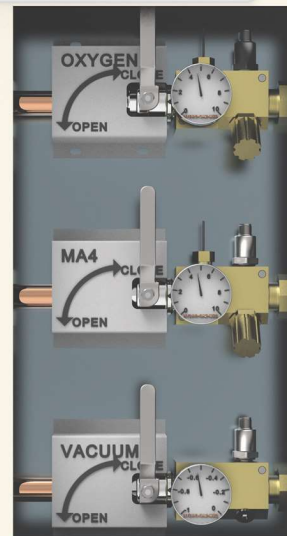
- ▶ HTM 02-01 compliant
- ▶ pressure sensors for each medium
- ▶ shut-off valve with lock for each medium
- ▶ emergency NIST connectors either side of the valve
- ▶ gauge for each medium
- ▶ physical separation
- ▶ front panel open/close detection
- ▶ alarm unit with 7" LCD touch screen
- ▶ connection to BMS and MODBUS RTU

## Working pressure:

- ▶ medical gases: 0-10 bar (0-145 psi)
- ▶ vacuum: 0- -0.9 bar (0- -13 psi)



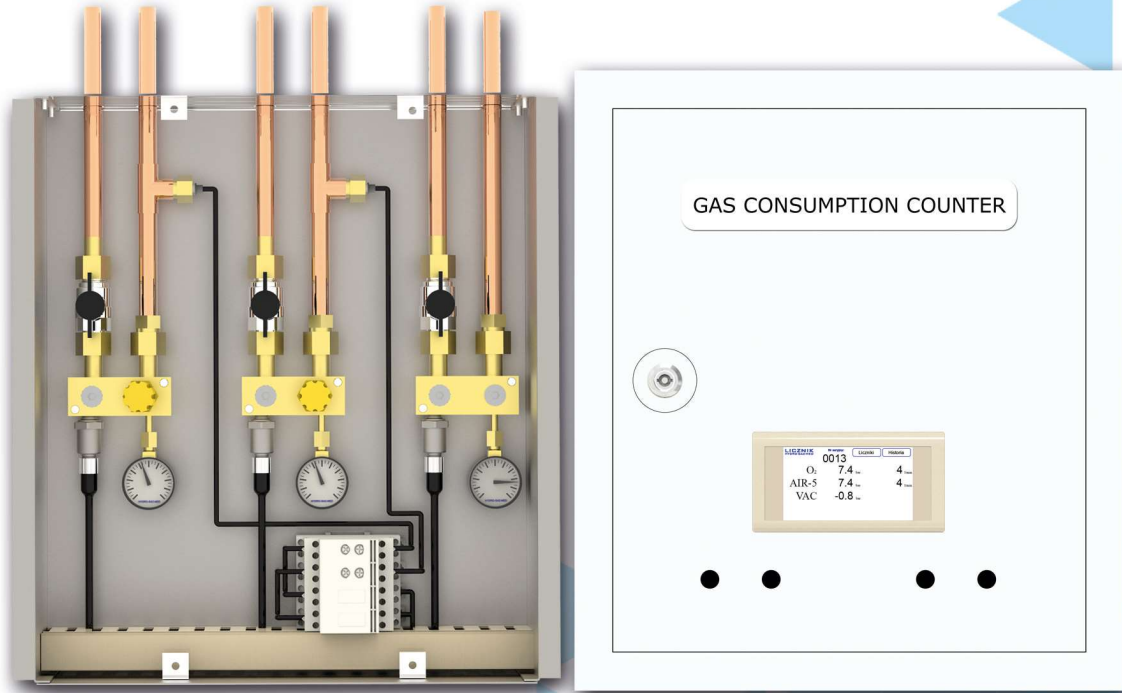
AREA VALVE SERVICE UNIT



		History	Total
		Actual flow	
O <sub>2</sub>	2.5 bar	25	1 min
N <sub>2</sub> O	3.0 bar	5	1 min
AIR	1.9 bar	18	1 min
		O <sub>2</sub> N <sub>2</sub> O AIR	



# Area valve box with flow meter "SZI-P"



		History		Total	
		Actual flow			
O <sub>2</sub>	2.5	bar	25	$\frac{1}{\text{min}}$	
N <sub>2</sub> O	3.0	bar	5	$\frac{1}{\text{min}}$	
AIR	1.9	bar	18	$\frac{1}{\text{min}}$	

**O<sub>2</sub> N<sub>2</sub>O AIR**

		Monthly consumption			ESC
Months	O <sub>2</sub> m <sup>3</sup>	N <sub>2</sub> O m <sup>3</sup>	AIR m <sup>3</sup>		
Present	10	6	54		
1 back	489	216	498		
2 back	854	155	687		
3 back	649	300	896		
4 back	749	269	926		
5 back	677	198	987		

## Function

Designed to monitor pressure and flow rate of medical gases. It can sum total usage of gas from the first start up, also has history for last 6 months and every month is displayed separately.

## Technical data:

Type: SZI-P  
 Working pressure: compressed gases 0 - 8 bar (0-116 psi)  
 Dimensions: 350x460x90 (WxHxD)  
 Power supply: 12V DC, 0.5A  
 Connection to BMS and MODBUS RTU

## Standard measuring ranges:

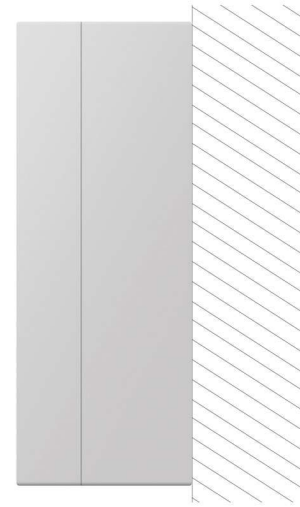
1. 0-100 l/min
2. 0-200 l/min
3. 0-500 l/min
4. Other upon request

Class IIb medical device.

# Remote alarm units for medical gases compatible with HGM devices



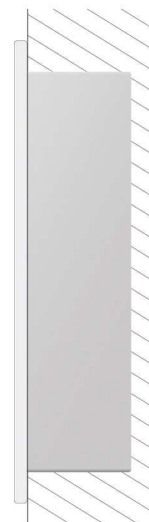
On-plaster alarm unit



Dimensions (WxHxD)  
171x121x55 (mm)



Under-plaster alarm unit



Dimensions (WxHxD)  
174x137x5 (mm)

## Function:

Reads from the master alarm unit all shared informations about medical gases. It shows exact copy of screen of master unit which is connected to. It has visual and audio alarm as same as alarm unit mounted in valve box. ALL devices are connected with use of FTP cables and RJ-45 plugs.

## SYSTEM ADVANTAGES:

- limitless possibilities of expansion
- safe electrical supply - 12V DC
- power supply can be delivered to only one device and the whole network will be supplied
- one commonly available plug system RJ-45
- means to connect whole monitoring system to multiple central alarm units and/or PC and/or laptop
- compatible with 3<sup>rd</sup> party valve boxes with pressure switches or pressure sensors

# Central alarm unit "S9"



Central alarm unit allows to remote monitoring multiple devices at the same time. It shows conditions, alarm states from every device within the "HGM network" connected via BMS, via MODBUS RTU or via LAN/WIFI module. Records gas consumption or pressure values as graph.

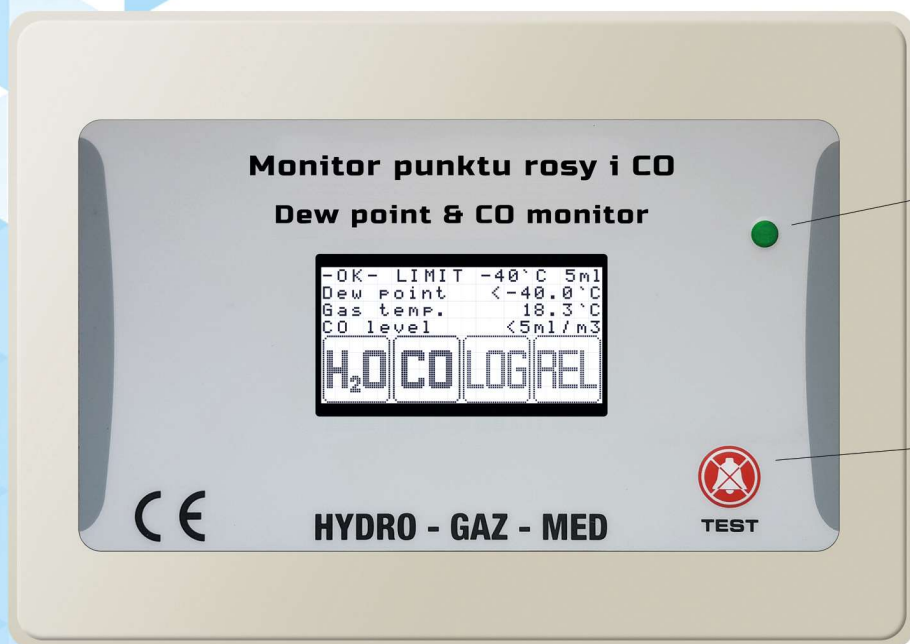
Each central alarm unit is programmed individually for our clients, depending on their needs and the network configuration.

UI is very user-friendly and intuitive to use on 7" LCD HQ touch display.

ALL devices are connected with use of FTP cables and RJ-45 plugs.

Each alarm system can be equipped with SMS module, which allows to receive text message with alerts directly on mobile phone right after alarm appears. Our SMS module can send messages up to 3 different numbers at the same time.

# Dew point and carbon monoxide monitor for compressed air systems



LED indicator  
● OK state  
● alarm

Mute / test button

## Function

To continuously monitor dew point, temperature and carbon monoxide level in compressed air. Built-in potential free relay and LOG module, that records events up to 10 days back.

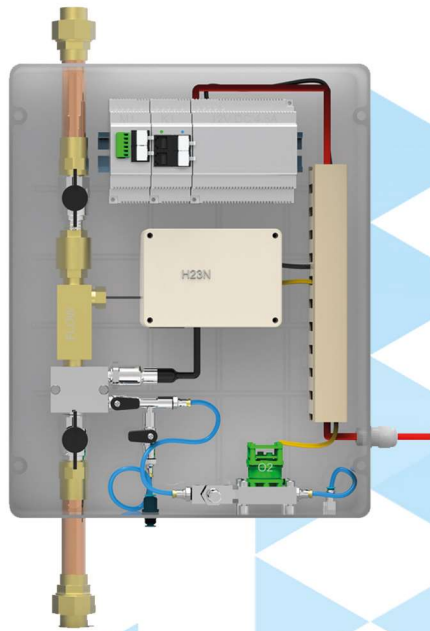
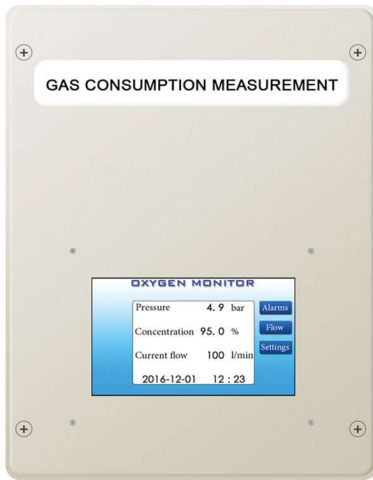
Connection to BMS and MODBUS RTU.

## TECHNICAL DATA:

Standard	HGM	
Input	Measurement of dew point temperature in compressed air and content of CO	SHT75, IT8, IQ5
Output	Digital	Relay(HF49F) max 30V 3A DC / 48V 3A AC
	MODBUS (optional)	9600 BAUD, 8 bits, 2 stop bits without parity control
	LOG module (optional)	Last 250 entries, recording every 1 hour all alarms and confirmations
Measuring range	Ambient temperature	5°C - 50°C
	Dew point temperature	<-40°C - info. OK
	Content of CO	< 5 ml/m <sup>3</sup> - info. OK
AIR inlet pressure	Max 16 bar	
AIR inlet	6 mm (selflocking)	
Connections	Transmission	RJ-45 or STL-1550/4-3.5
	I/O	STL-1550/4-3.5 / MC-1.5/2-5.08
Power supply	230V AC	
Current	~25 mA	max 200mA
Housing	PET	
Working temperature	5-50°C	
Storing temperature	-20-60°C	
Dimensions	Width	200 mm
	Height	150 mm
	Depth	80 mm
Weight	~1.2 kg	

# Miscellaneous

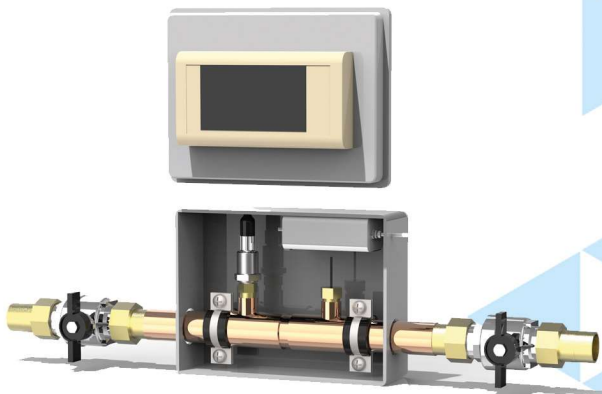
## Flow and oxygen content monitor



### Features:

- ▶ flow rate: 0-500 l/min
- ▶ accuracy: +/- 5%
- ▶ pressure: 0-16 bar
- ▶ oxygen content: 0-100% with means of paramagnetic oxygen sensor
- ▶ accuracy 0.1%
- ▶ 2 potential free contacts
- ▶ MODBUS RTU
- ▶ SMS notification system
- ▶ power supply: 230V, 50Hz
- ▶ medium: compressed medical gases

## Flow and pressure monitor



### Features:

- ▶ flow rate: 0-500 l/min
- ▶ accuracy: +/- 5%
- ▶ pressure: 0-16 bar
- ▶ MODBUS RTU
- ▶ power supply: 230V, 50Hz
- ▶ medium: compressed medical gases

## Oxygen content in the environment monitor



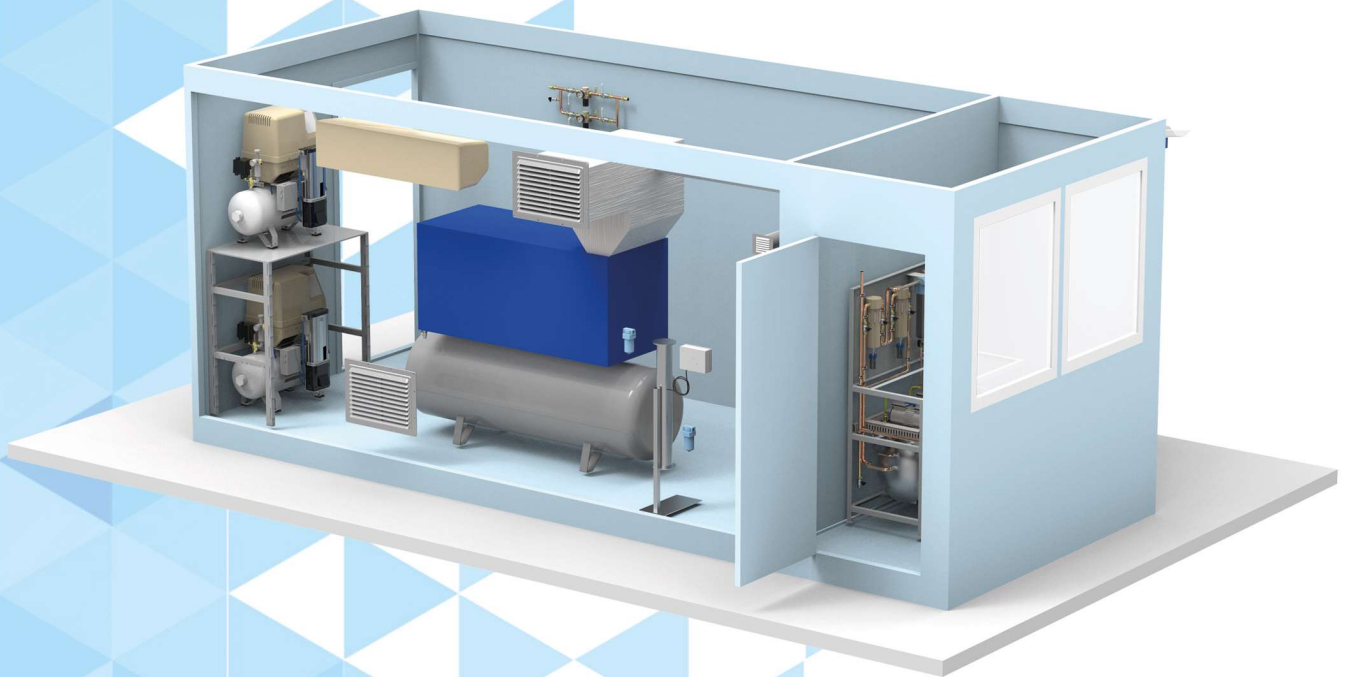
### Features:

- To detect leaks in cylinder supply rooms
- ▶ oxygen content
- ▶ electrochemical oxygen sensor
- ▶ measuring range: <18% - >23%
- ▶ MODBUS RTU
- ▶ power supply: 230V, 50Hz

# Medical containers

In our rich offer, we have also turnkey solutions for stationary and mobile medical containers. We provide comprehensive services in the field of medical gas supply equipment for containers.

Every container is made to individual order and meets requirements of ISO 13485 and HTM 02 01.



# Medical gas outlet



System  
AGA  
SS 875 24 30



System  
DIN 13260-2



System  
NF S 90-116



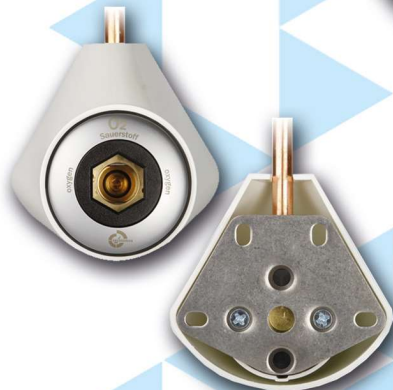
System  
BS 5682



Gas outlet for bed-head units



Under-plaster



On-plaster



For ceiling pendants  
with hose connection



For compressed air driven surgical tools  
AIRMOTOR



For AGSS, Venturi type



# Gas outlet panel "SPG"



Gas outlet panel "SPG-5"



Gas outlet panel "SPG-6"



Gas outlet panel "SPG-7"



Gas outlet panel "SPG-9"

Gas outlet panels  
(under plaster version)



Gas outlet panel (on-plaster version)

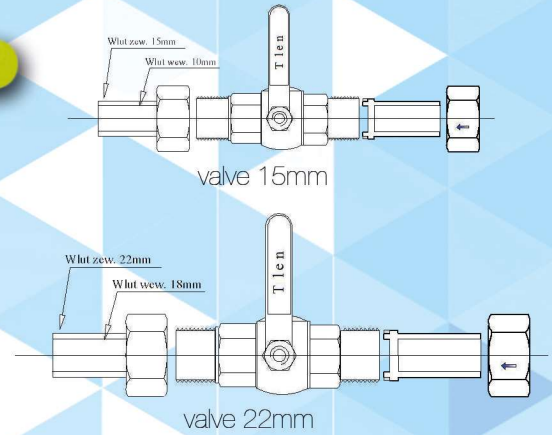
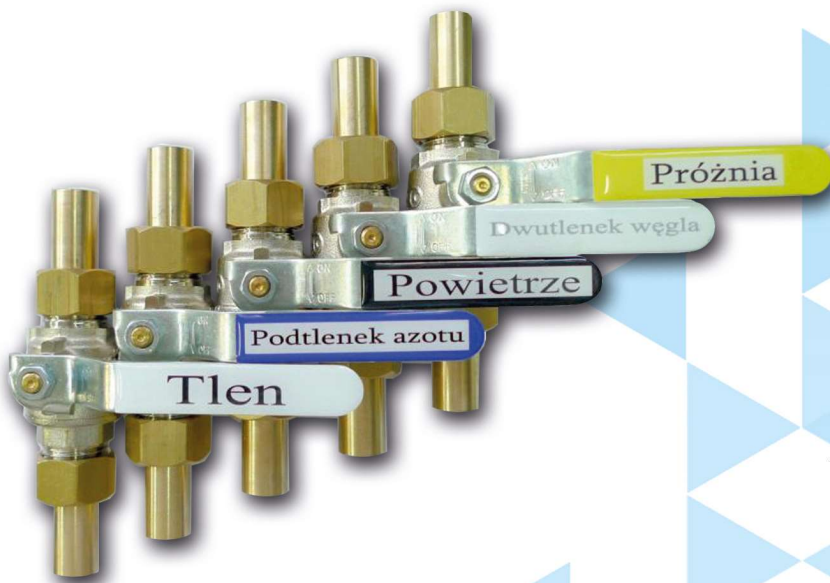
Medical gas outlets mounted in panel for under plaster installation are used to acquire medical gases and vacuum. Panel can be equipped with any number of gas outlets either with or without anesthetic gas scavenging system or AIRMOTOR.

Gas outlets can be in AGA SS 875 24 30, DIN 13260-2, NF S 90-116 and BS 5682 connection standard.

In our products we use gas outlets produced by renowned company GREGGERSEN GASETECHNIK.



# Ball valves for medical compressed gases



## Function

Ball valves are used to shut-off parts of medical pipeline gas system. They allow to divide it to smaller parts, which simplifies, e.g.: maintenance works, repairs, extensions and periodic tests.

## Ball valves types:

- ▶ Source shut-off valve;
- ▶ Raiser valve;
- ▶ Section shut-off valve;
- ▶ Maintenance valve;
- ▶ Service valve;
- ▶ Drainage valve.

## Construction

Valve is made of brass housing, inside is a stainless steel ball which opens and closes by rotating the valve handle by 90-degrees. Valves have 2 external threads, equipped in soldering union connection with teflon seals.

Ball valves are maintenance free.

Each valve is labeled with gas name.

Max working pressure is 20 bar.

## Available sizes for pipes:

15 mm, 18 mm, 22 mm, 28 mm, 35 mm, 42 mm, 54 mm.

# Sample projects



Maintenance and emergency node



Oxygen concentrator system in container



Compressed air treatment



Oxygen concentrator system

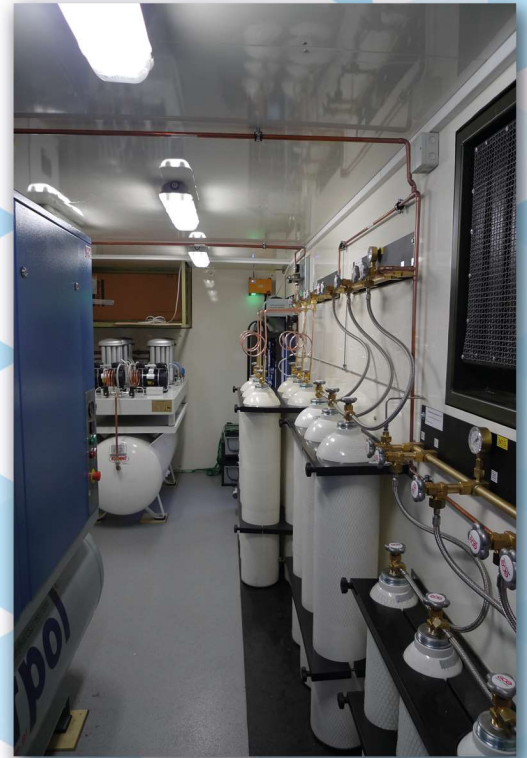


Medical air plant

# Sample projects



Container with self-lifting system



Oxygen concentrator and cylinder filling system in container



Oxygen concentrator system

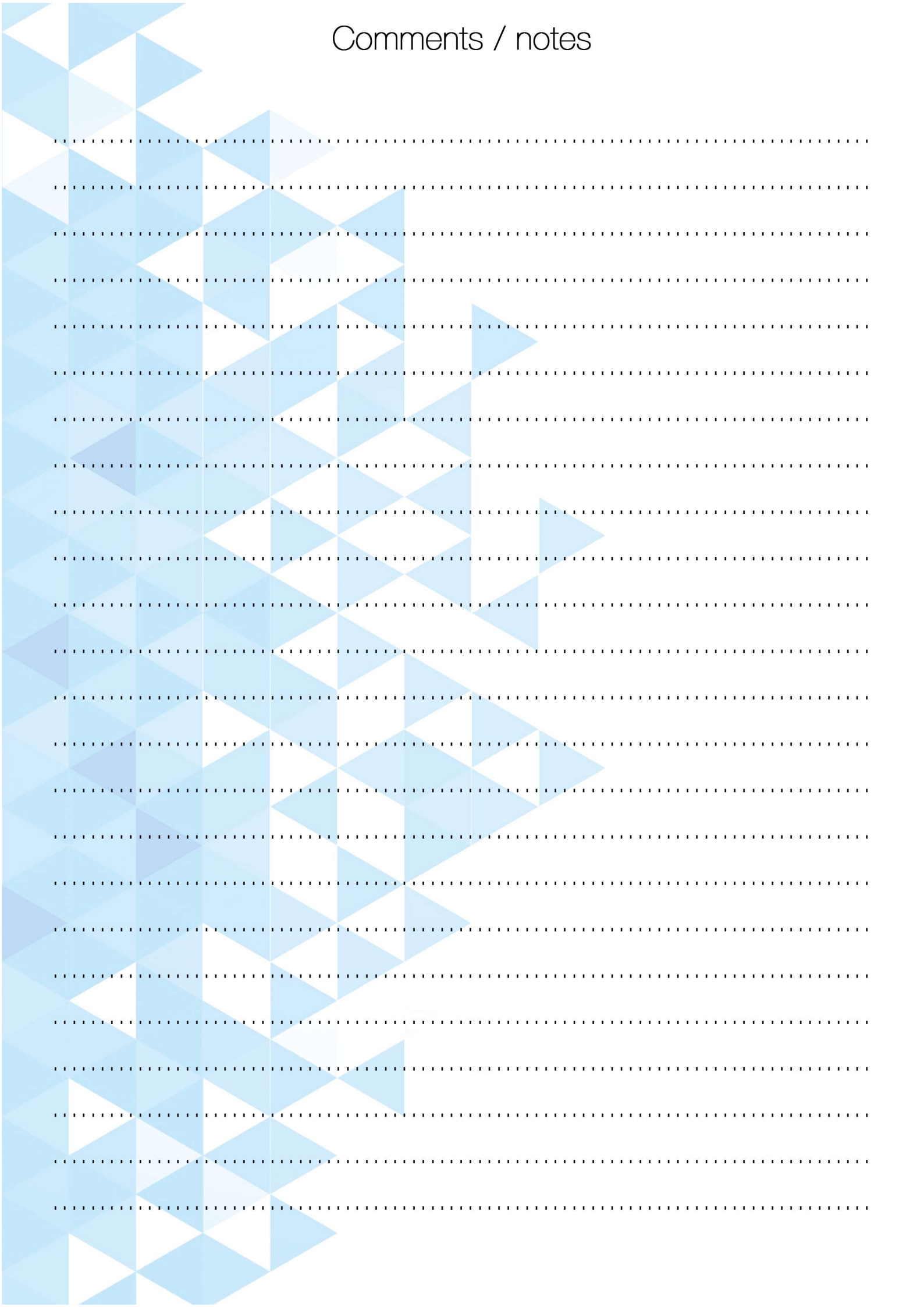


Medical air system in container



Oxygen modular concentrators system

# Comments / notes





Quality Management System EN ISO 13485

All our products comply with EN-ISO 7396-1

HTM 02 01



Second edition



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