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EUROPEAN UNION  
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INVESTMENT IN YOUR FUTURE

**mz Liberec, a.s.**

U Nisy 362/6, 460 01 Liberec 3, Czech Republic  
Tel.: +420 488 040 375, Fax: +420 488 040 326,  
E-mail: [export@mzliberec.cz](mailto:export@mzliberec.cz), [www.mzliberec.cz](http://www.mzliberec.cz)

**Manufacturer of terminal units  
for distribution networks of medical gases, project planning,  
development, installation and service.**



MZ Liberec a.s. is private company limited by shares. As a private enterprise was founded in 1992 but its history dates back to 1957. The company benefits from the long-time experience in the field of development of medical and technical gas networks. The Company's products are designated for all size of operating theatres, ICU, ARD and high-standard wards. MZ Liberec, a.s. focuses on providing complete services (project, design, realization, warranty and after sale service). Besides design service and project installation of medical gas pipelines and pipeline terminal units, MZ Liberec a.s. also provides installations of all types of source units (i.e. air compressors, vacuum pumps, vacuum reservoirs, pressure regulators, evaporators etc.).

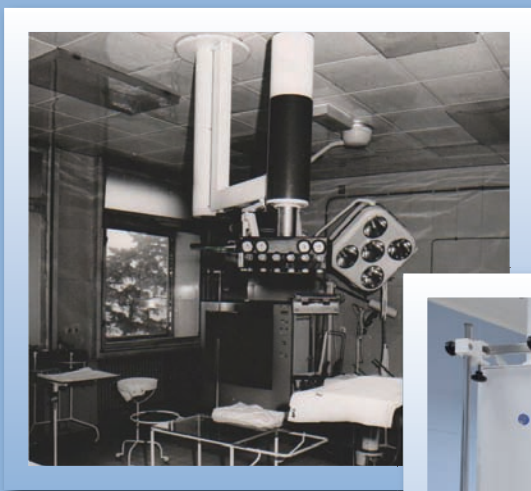
MZ Liberec, a.s. is fully certified for quality management ISO 9001 (2008) and ISO 13485 (2003). Products manufactured in MZ Liberec, a.s. are in conformity with European standard EN 737 medical devices class IIa and IIb and complies with provisions of Annex II section 3 of the EU Council Directive 93/ 42/ EEC including amendments.

Nowadays, MZ Liberec, a.s. maintains the primacy in the Czech Republic in terms of annual turnover in this field.

MZ Liberec a. s. currently employs 190 people on two sites of Northern Bohemia – company headquarters with showroom in Liberec and manufacture premises in Rudnik.

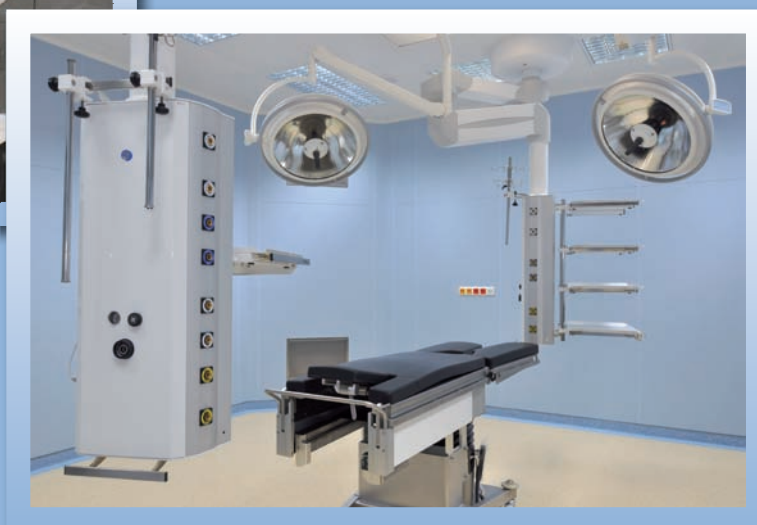
Large manufacturing area meets all requirements for year-after-year expanding company.

Apart from deliveries in the Czech Republic, the company has successfully placed its products in more than 28 foreign countries.

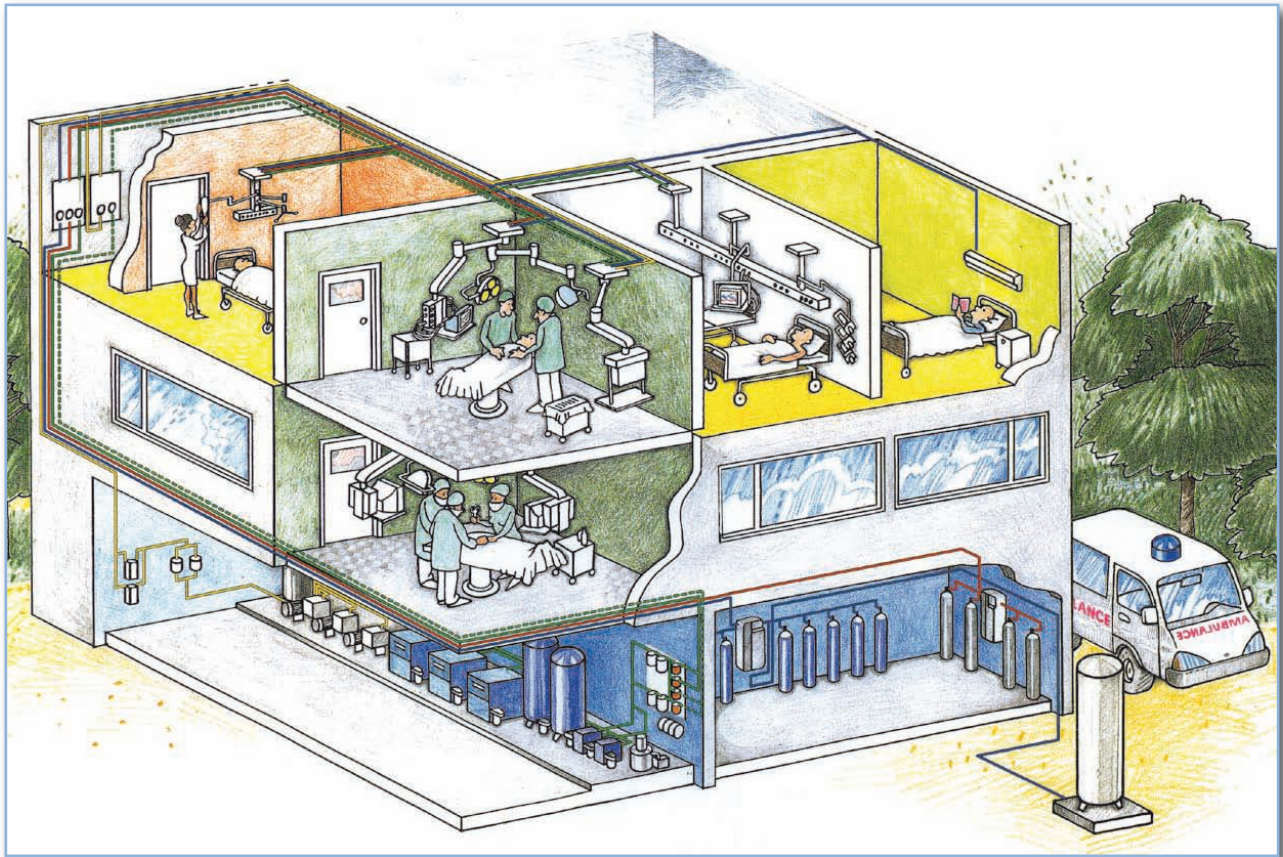


that  
we **started**  
with ...

... and  
this is our **latest**  
design



## THE MAIN DISTRIBUTION SYSTEMS FOR MEDICINAL GASES



### PROJECT ENGINEERING

MZ Liberec, a.s. is certified not only for development and manufacturing of all types of elements for distribution of medical gases, but also for Design and Projecting. MZ Liberec, a.s. disposes of sufficient capacity for projection of application of medical gas distributions, from small projects for local extension of gas distribution to important projects for solving the distribution of medical gases in central hospitals.

### GENERAL SUPPLIES OF MEDICAL TECHNOLOGIES

MZ Liberec, a.s. is with regard to its extensive production program predestined for being able to solve general deliveries of medical equipment of different applications, complete building supplies and reconstruction not only for operating theatres and Anaesthesiology Resuscitation Departments, Intensive Care Units, but also for patient bed areas and other necessary rooms (laboratories, etc.) of health centres.

# CERTIFICATES

**MZ LIBEREC, A.S. IS CERTIFICATION HOLDER OF ISO 9001(2008), ISO 13 485 (2003) AND CE CERTIFICATE FOR MEDICAL DEVICES OF CATEGORIES IIA) AND IIB)**

**CQS - Czech Association for Quality Certification**  
Pod Lisem 129, 171 02 Praha 8 - Troja  
Czech Republic

CQS is the Certification Body accredited according to Standard EN ISO/IEC 17021:2006 by the Czech Institute for Accreditation under the registration No 3029 for the Certification of Quality Systems




## CERTIFICATE

No.: CQS 2242/2010

CQS - Czech Association for Quality Certification - certifies that the Quality Management System of

**MZ Liberec, a.s.**  
U Nisy 362/6, 460 01 Liberec 3, Czech Republic  
Premise Rudník

has been assessed and found to be in conformity with the requirements of

**EN ISO 9001 : 2008**

with respect to the following processes:

- Projecting, purchasing, developing, sale, mounting and service, incl. training of operating personnel and management;
- medical and laboratory technique;
- medical gases distribution nets and AGSS systems, in accordance with ČSN EN-737, and their components and subsystems, incl. sources and medical source units in accordance with ČSN EN ISO 11197;
- technical gases distribution nets and their components and subsystems;
- distribution nets of other gases, which are operated analogous to medical gases and their components and subsystems;
- distribution nets components, determined for their gripping (anchoring sets, consoles, etc.);
- items, attachable to outputs of gas distribution systems (gas outlets counterparts, gas dispensers, humidifiers of oxygen, ejector suction bottles, pressure and vacuum regulators, etc.);
- additional accessories to the medical source units and medical and technical gases distribution nets (infusion pumps and sets holders, hangers, consoles, suspension arms, rods, medical rails, shelves);
- reducing valves, attachable to cylinders and their accessories

\*\*\*\*\*

The certificate is valid until: 24. 08. 2013  
Certification decision: 24. 08. 2010  
Date of issue: 24. 08. 2010  
Date of granting the first certificate: 10. 06. 2004






CQS Members\*  
Elektrotechnický zkušební ústav, s.p., Fyzikální technický zkušební ústav, s.p., Institut pro testování a certifikaci, a.s., Strojní zkušební ústav, s.p., Technický zkušební ústav stavební Praha, s.p., Technický zkušební ústav stavební Praha, s.p., - oddělení závod - ZÚP, Testovní zkušební ústav, s.p.

\* A CQS member list valid at the time of issue of the certificate Current list is available at [www.cqs.cz](http://www.cqs.cz).

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Czech Republic

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## CERTIFICATE

No.: CQS 174/2010

CQS - Czech Association for Quality Certification - certifies that the Quality Management System of

**MZ Liberec, a.s.**  
U Nisy 362/6, 460 01 Liberec 3, Czech Republic  
Premise Rudník

has been assessed and found to be in conformity with the requirements of

**EN ISO 13 485 : 2003**

with respect to the following scope:

- Projecting, purchasing, developing, sale, mounting and service, incl. training of operating personnel and management;
- medical and laboratory technique;
- medical gases distribution nets and AGSS systems, in accordance with ČSN EN-737, and their components and subsystems, incl. sources and medical source units in accordance with ČSN EN ISO 11197;
- technical gases distribution nets and their components and subsystems;
- distribution nets of other gases, which are operated analogous to medical gases and their components and subsystems;
- distribution nets components, determined for their gripping (anchoring sets, consoles, etc.);
- items, attachable to outputs of gas distribution systems (gas outlets counterparts, gas dispensers, humidifiers of oxygen, ejector suction bottles, pressure and vacuum regulators, etc.);
- additional accessories to the medical source units and medical and technical gases distribution nets (infusion pumps and sets holders, hangers, consoles, suspension arms, rods, medical rails, shelves);
- reducing valves, attachable to cylinders and their accessories

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**ELEKTROTECHNICKÝ ZKUŠEBNÍ ÚSTAV**

ELECTROTECHNICAL TESTING INSTITUTE - CZECH REPUBLIC  
ELEKTROTECHNICKÝ PRŮVĚRNÝ ÚSTAV - TECHNICKÝ ZKUŠEBNÍ ÚSTAV  
INSTITUT ELEKTROTECHNICKÝCH ZKUSĚB - AEROPROJEKTOVÝ ÚSTAV  
VÝROBNĚ ZKUSĚBNÍ ÚSTAV PRO TRŽNÍ PRŮMYSL A NEPRŮMYSL - MEDICÁLNÍ PRŮMYSL

Pod Lisem 129, 171 02 Praha 8 - Troja

## CE - CERTIFICATE

of full quality assurance system

No.: MED 09049

The Electrotechnical Testing Institute, Notified Body No. 1014, has decided that Quality System applied by

manufacturer

**MZ Liberec, a.s.**  
U Nisy 362/6, 460 01 Liberec 3, Czech Republic

for design, manufacture and final inspection of medical devices

**Medical devices (of categories IIA IIB):**

- medical source units in accordance with ČSN EN ISO 11197 and their components (gas outlets, ejectors, gas seals);
- items, attachable to outputs of gas distribution and AGSS systems (gas outlets counterparts, gas dispensers, humidifiers, ejector suction bottles, pressure and vacuum regulators);
- reducing valves, attachable to cylinders, determined for medical gases applications and their accessories.

complies with provisions of Annex 2 section 3 of Governmental Order No. 336/2004 Coll. (Annex II section 3 of the Council Directive 93/42/EEC) incl. amendments.

This decision is based on the results presented in report No. 901161-01 of: 19.05.2009

In accordance with Art. 5 of Governmental Order No. 336/2004 (Art. 17 of Directive 93/42/EEC), incl. amendments the above specified medical device must be labelled CE 1014.

The certified manufacturer is subject to a surveillance audit by the notified body in accordance with section 5 of Annex 2 of Governmental Order No. 336/2004 Coll. (Annex II section 5 of Directive 93/42/EEC) incl. amendments, and validity of the Certificate is subject to regular supervision. The manufacturer must inform the notified body about any intention resulting in significant modification of quality system or scope of included medical products. In the event that the conditions under which the Certificate has been issued are violated, the notified body may suspend the Certificate's validity or cancel the Certificate.

The validity of Certificate is limited to: 28.5.2014

28.5.2009




Právní zástupce: Marie Šebestová  
Certification and Inspection Manager

Stamp



901161-01

# OUR REFERENCES

## Foreign Countries

- Policlinico Portuense Roma, Italy
- European Hospital Roma, Italy
- Hospital Lisboa, Portugal
- Helsinki University Hospital, Finland
- Ministry of National Security of the Republic of Azerbaijan
- Russian finish Clinic Scandinavia, St. Petersburg, Russia
- Maternity hospital Omsk, Russia
- Regional hospital Stavropol, Russia
- City hospital Nojabrsk, Russia
- Medical center Ulan Ude, Russia
- Regional clinic hospital Ekaterinburg, Russia
- Sachkere medical center, Georgia
- Hospital Kamienna Gora, Poland
- Hospital – OIOM – Pultusk, Poland
- Prenatal centrum Almaty, Kazakhstan
- Dr. Shami Hospital, Damascus, Syria
- Hospital Trakaj city, Lithuania
- Hospital Madani, Sudan
- Regional clinic Klajpeda, Lithuania
- Jamil Hospital, Libya
- Mukalla Hospital, Yemen
- Hospital Sw. Rafala Krakow, Poland
- Hospital Dr. Sokolowskiego Walbrzych, Poland
- Hospital Miejski Bydgoszcz, Poland

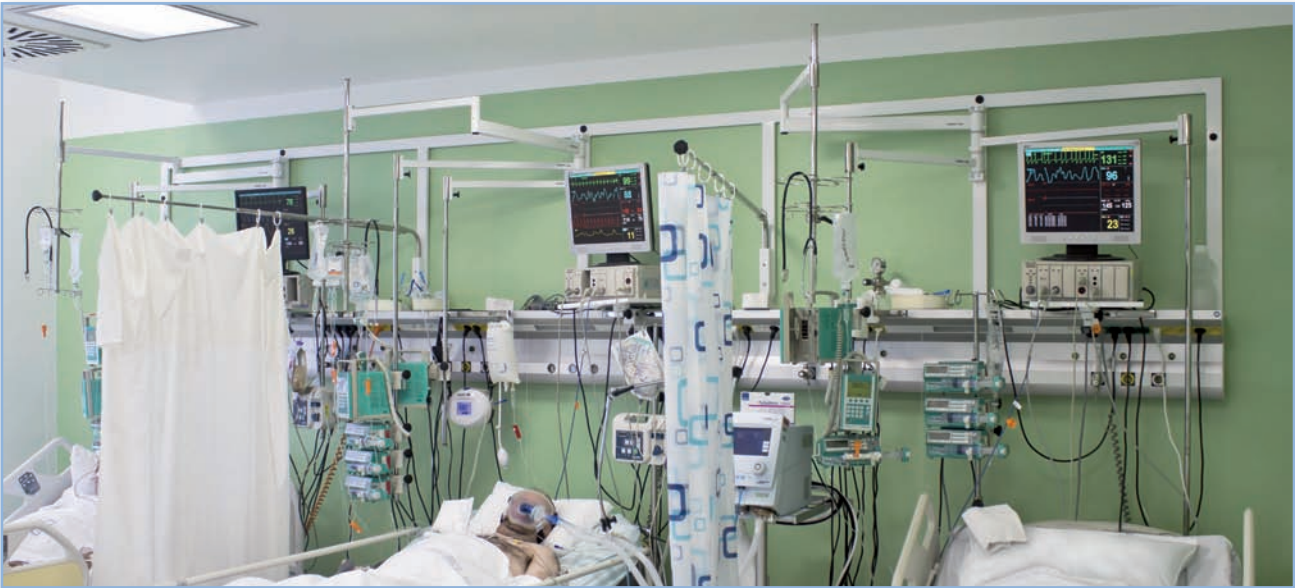
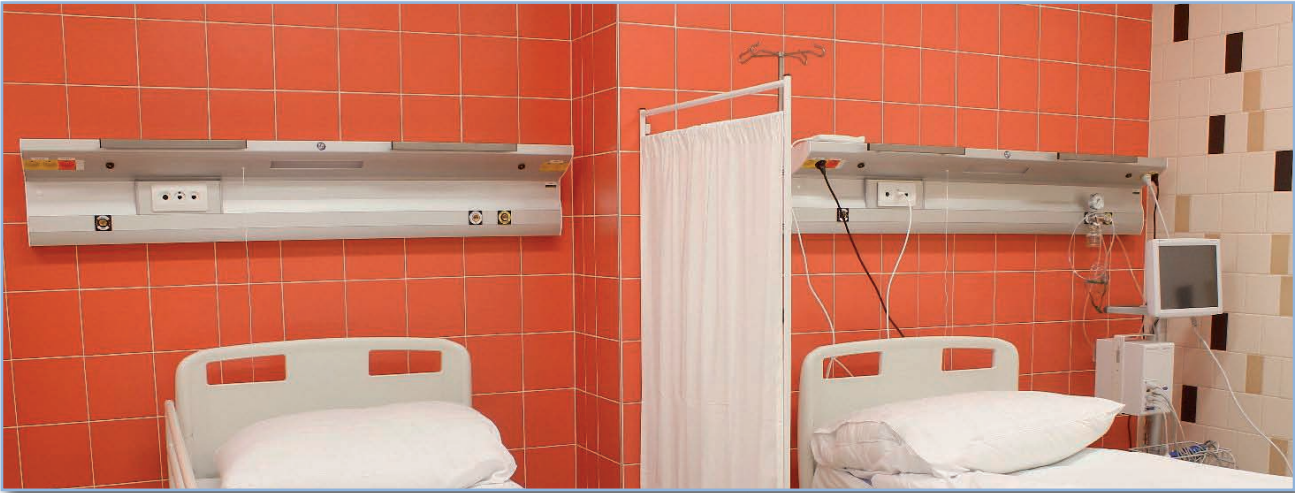
## Czech Republic

- Hospital FN Motol, Prague
- Hospital IKEM, Prague
- Hospital FN Brno
- Hospital Na Františku, Prague
- Hospital Na Homolce, Prague
- Hospital FNKV, Prague
- Hospital FTN, Prague
- Hospital Liberec
- Hospital Příbram
- Hospital Karlsbad
- Hospital Ústí nad Labem
- Hospital Jindřichův Hradec
- Hospital Cheb
- Hospital Bruntál
- Hospital Plzeň

For updated references please visit our web site [www.mzliberec.cz](http://www.mzliberec.cz)



# PHOTOS FROM REALIZED HOSPITALS



# PHOTOS FROM REALIZED HOSPITALS



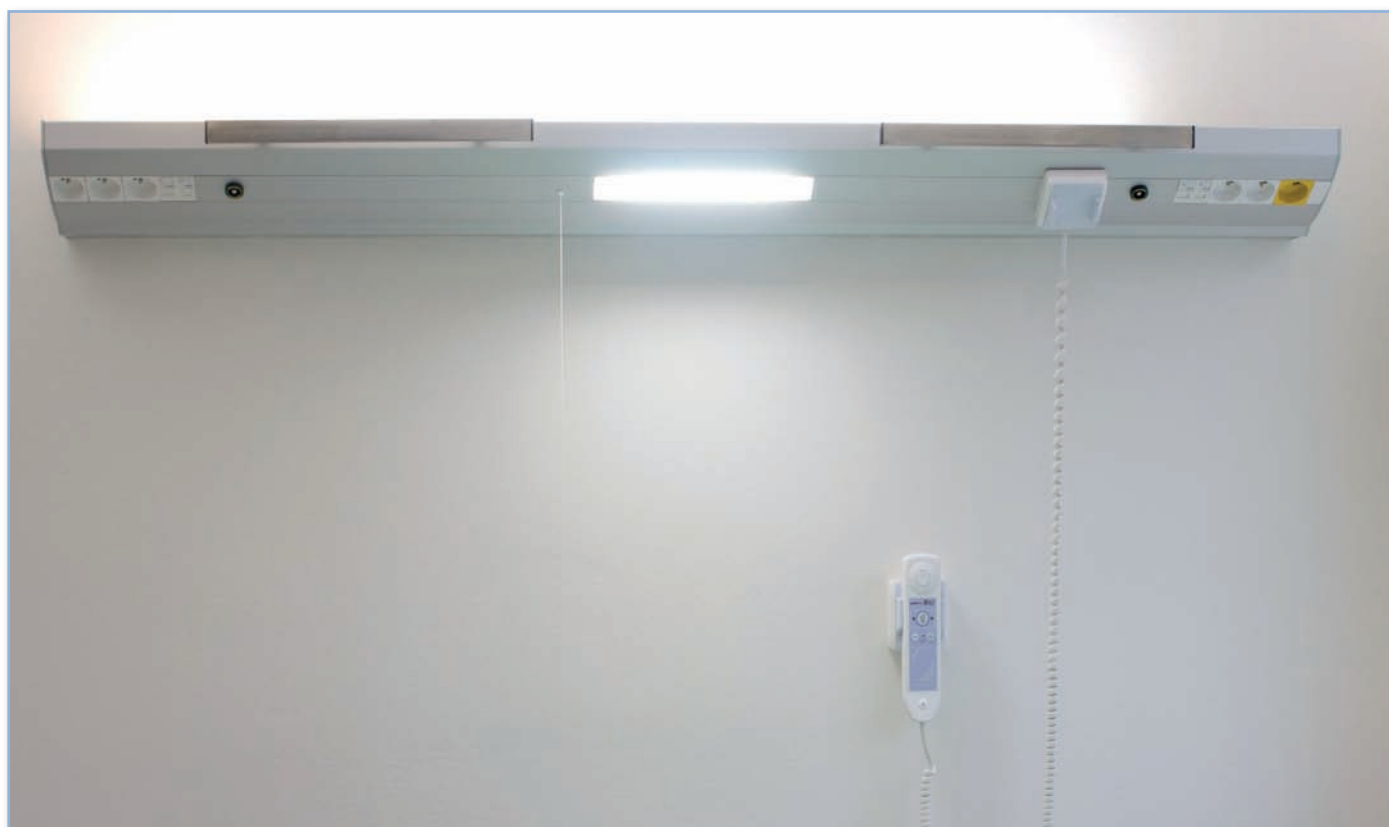
# HEAD BED UNIT RN07-DN0



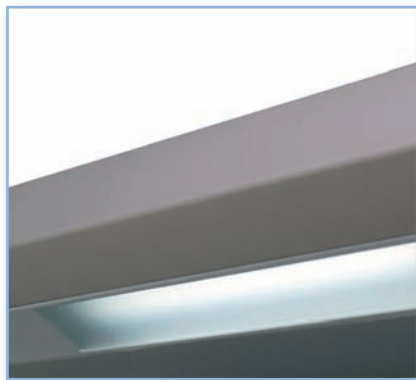
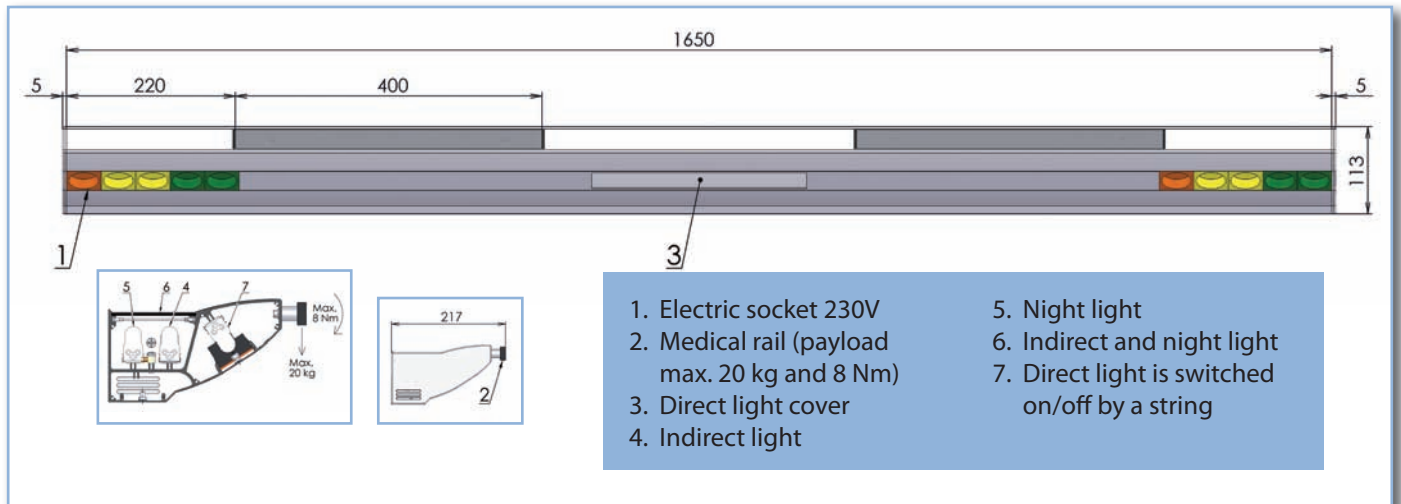
Wall mounted bed head units made of extruded aluminium profiles provide variety of combinations. The access to the interior of the profiles is performed through a clipped front cover which allows an easy access and the possibility to expand or reduce the unit equipment easily. Recommended for hospital areas such as standard rooms, high-standard rooms or intermediate care rooms.

Units could be adapted to specific needs of the customer. Direct light is switched on/off by a string or by a combined switch placed next to hand of a patient and attachable by connector RJ 45 (data socket). Nurse-call connection could be also operated by the combined switch. Night and Indirect light switches could be placed either on Module or on the room wall.

Module could be delivered uninterrupted for 3 beds – max. length is 4950mm.







	Electric sockets	Medical gas quick outlet	Indirect light	Direct light	Night light
RN07-DN0	20x	-	1x	1x	1x



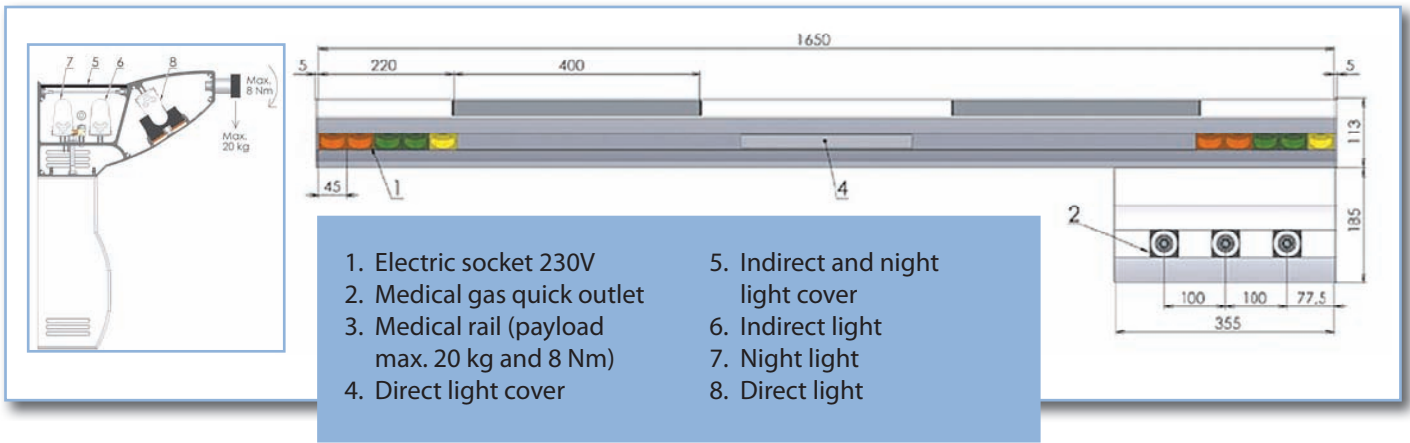
# HEAD BED UNIT RN07-DN1



Wall mounted bed head units made of extruded aluminium profiles provide variety of combinations. The access to the interior of the profiles is performed through a clipped front cover which allows an easy access and the possibility to expand or reduce the unit equipment easily. Recommended for hospital areas such as standard rooms, high-standard rooms or intermediate care rooms. Units could be adapted to specific needs of the customer.

Direct light is switched on/off by a string or by a combined switch placed next to hand of a patient and attachable by connector RJ 45 (data socket). Nurse-call connection could be also operated by the combined switch. Night and Indirect light switches could be placed either on Module or on the room wall. Module could be delivered uninterrupted for 3 beds – max. length is 4950mm.





Medical gas quick outlets could be placed either on the right side or on the left side of the module.



	Electric sockets	Medical gas quick outlet	Indirect light	Direct light	Night light
RN07-DN1ad	20x	3x	1x	1x	1x



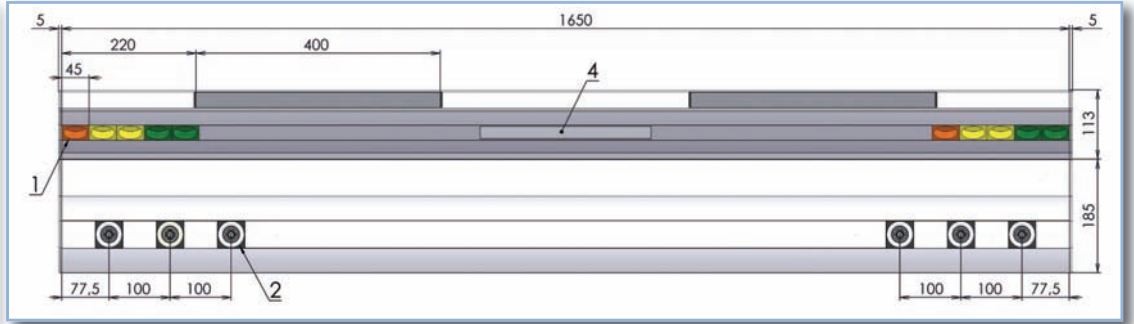
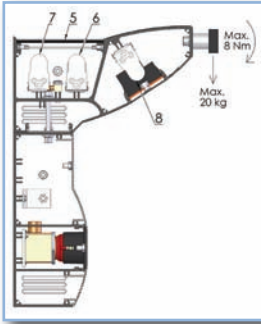
# HEAD BED UNIT RN07-DN2



Wall mounted bed head units made of extruded aluminium profiles provide variety of combinations. The access to the interior of the profiles is performed through a clipped front cover which allows an easy access and the possibility to expand or reduce the unit equipment easily. Recommended for hospital areas such as standard rooms, high-standard rooms or intermediate care rooms.

Units could be adapted to specific needs of the customer. Direct light is switched on/off by a string or by a combined switch placed next to hand of a patient and attachable by connector RJ 45 (data socket). Nurse-call connection could be also operated by the combined switch. Night and Indirect light switches could be placed either on Module or on the room wall. Module could be delivered uninterrupted for 3 beds – max. length is 4950mm.

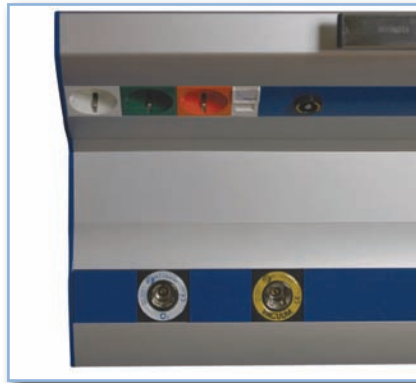




- 1. Electric socket 230 V
- 2. Medical gas quick outlet
- 3. Medical rail (payload max. 20 kg a 8 Nm)

- 4. Direct light cover
- 5. Indirect and night light cover
- 6. Indirect light

- 7. Night light
- 8. Direct light



	Electric sockets	Medical gas quick outlet	Indirect light	Direct light	Night light
RN07-DN2	20x	10x	1x	1x	1x



# HEAD BED UNIT RN07-DN3

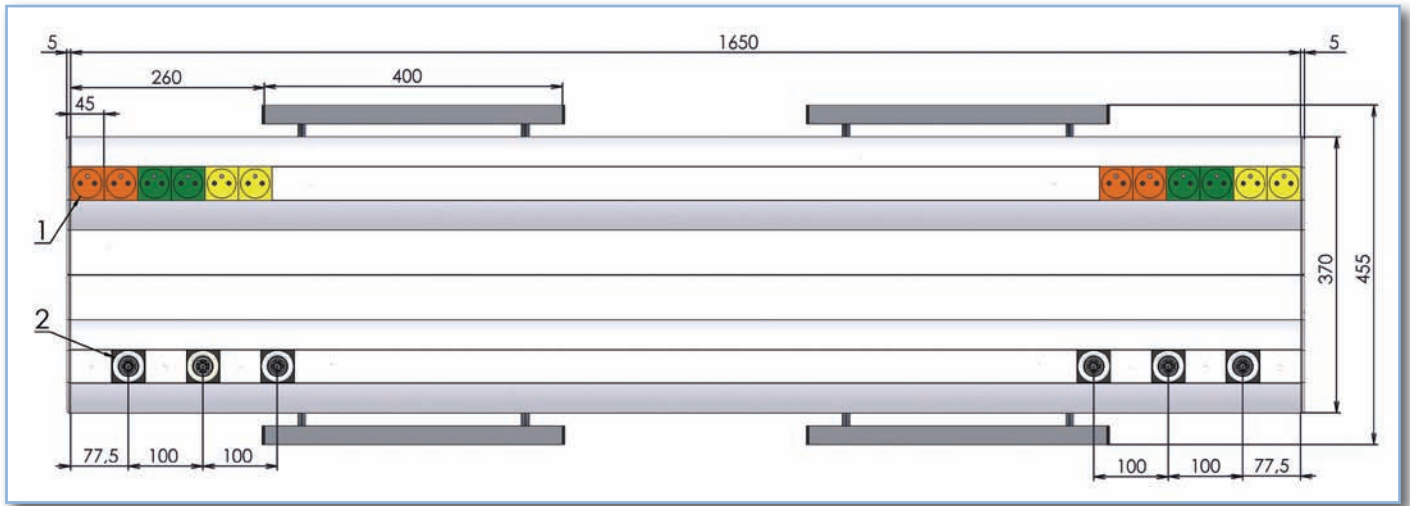


Wall mounted bed head units made of extruded aluminium profiles provide variety of combinations. The access to the interior of the profiles is performed through a clipped front cover which allows an easy access and the possibility to expand or reduce the unit equipment easily. Recommended for hospital areas such as standard rooms, high-standard rooms or intermediate care rooms.

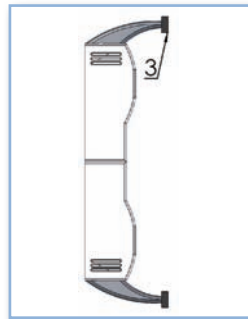
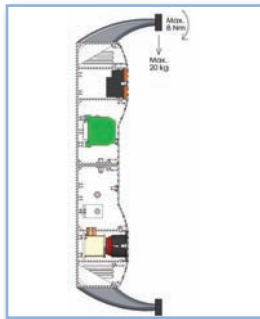
Units could be adapted to specific needs of the customer. Direct light is switched on/off by a string or by a combined switch placed next to hand of a patient and attachable by connector RJ 45 (data socket). Nurse-call connection could be also operated by the combined switch. Night and Indirect light switches could be placed either on Module or on the room wall.

Module could be delivered uninterrupted for 3 beds – max. length is 4950mm.





- 1. Electric socket 230V
- 2. Medical gas quick outlet
- 3. Medical rail (payload max. 20 kg and 8 Nm)



This system has been designed to assist the requirements of the critical areas which do not require the incorporation of lighting modules in the head units.

	Electric sockets	Medical gas quick outlet	Indirect light	Direct light	Night light
RN07-DN3	20x	8x	-	-	-



# SOURCE BRIDGE

## ZMP07



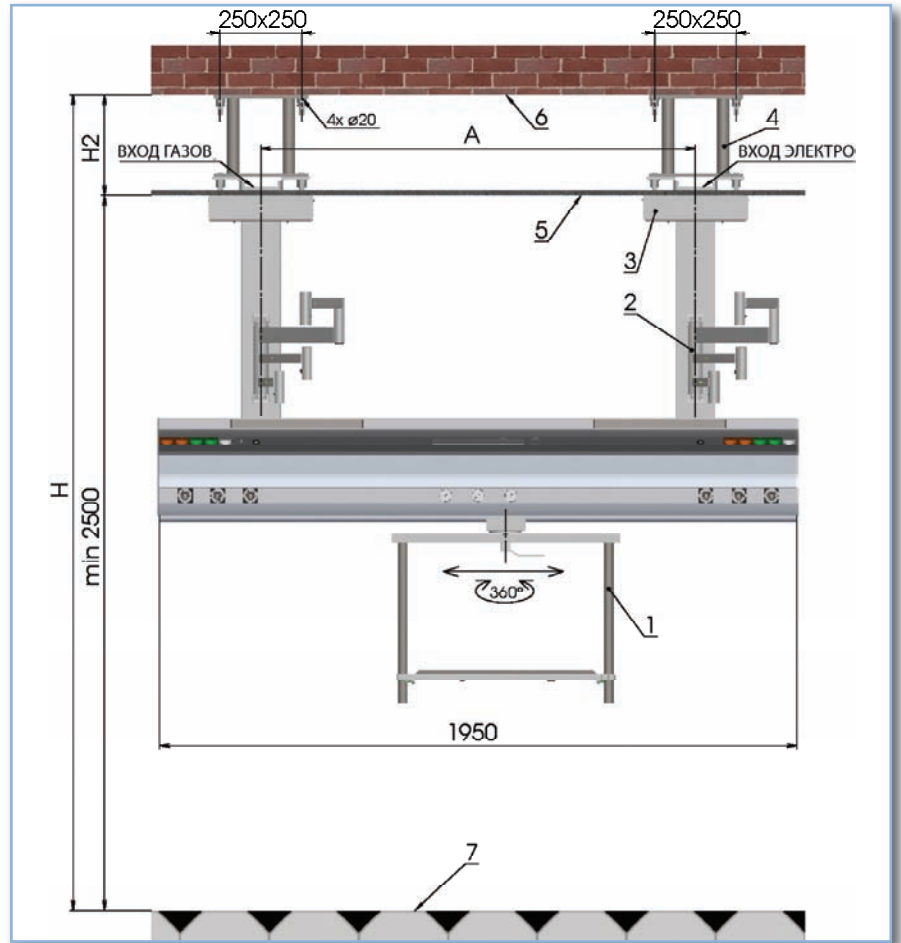
Source Bridge is intended for medical gas and electricity supply closer to patient bed in specialized ARD and ICU, it ensures location of the necessary devices around patient bed. Source bridge is made of extruded aluminium profile. Supply Bridge can also serve to illuminate the surrounding of the bed and for storage of medical tools and devices.

In optional configuration it can be accommodated with spot-inspection lamp, bracket with arms, telescopic curtain holder, medical rail, night light, and other accessories according to customer's eventual specific request.





1. Rotary trolley with shelf
  2. Brackets with arms (equipment)
  3. False ceiling cover (320x340x80)
  4. Spacer
  5. False ceiling
  6. Ceiling
  7. Floor
- H = Ceiling height  
H2= False ceiling height  
A = Span length between anchor legs  
Amax=1950 – 120 mm



	Electric sockets	Medical gas quick outlet	Indirect light	Direct light	Night light	Width of module in standard version
ZMP07	20x	10x	1x	1x	1x	1950 mm/1 bed



# SUPPLY COLUMN

## ZS07

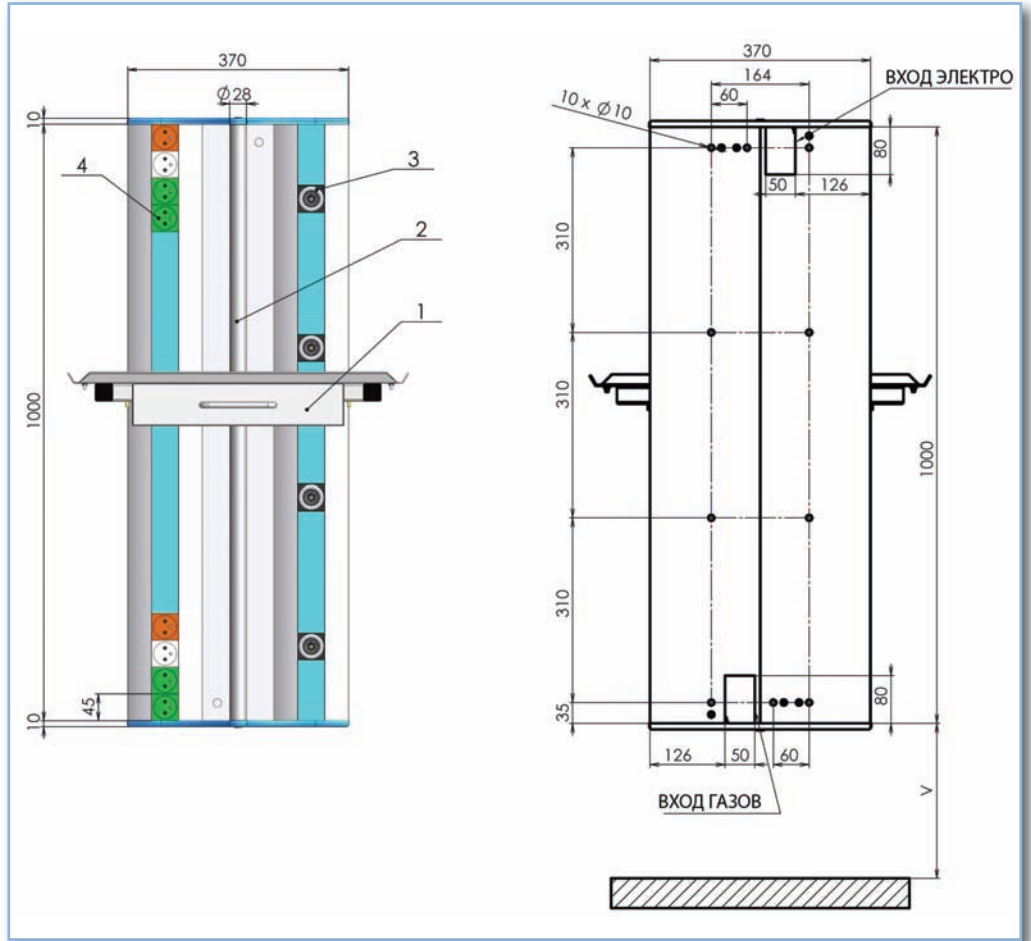


Wall mounted supply column made of extruded aluminium profiles. The terminal unit is intended for wards and Intensive Care Units. It is usually installed vertically between windows on the head of the bed. It could be equipped with electric sockets 220 V, outlets for monitoring, phone socket and communication device positioned on the front side.

On the other side there are medical gas quick outlets according to customer's requirements. Shelf rod on the front section of the unit can be used for fixing of adjustable shelves with medical rails. Supply Columns are used especially in rooms with window oriented beds.



- 1. Shelf
- 2. Shelf rod
- 3. Medical gas quick outlet
- 4. El. socket 230 V



	Electric sockets	Medical gas quick outlet	Number of shelves	Height	Shelf payload
ZS07	15x	4x	2	1000mm	20 kg



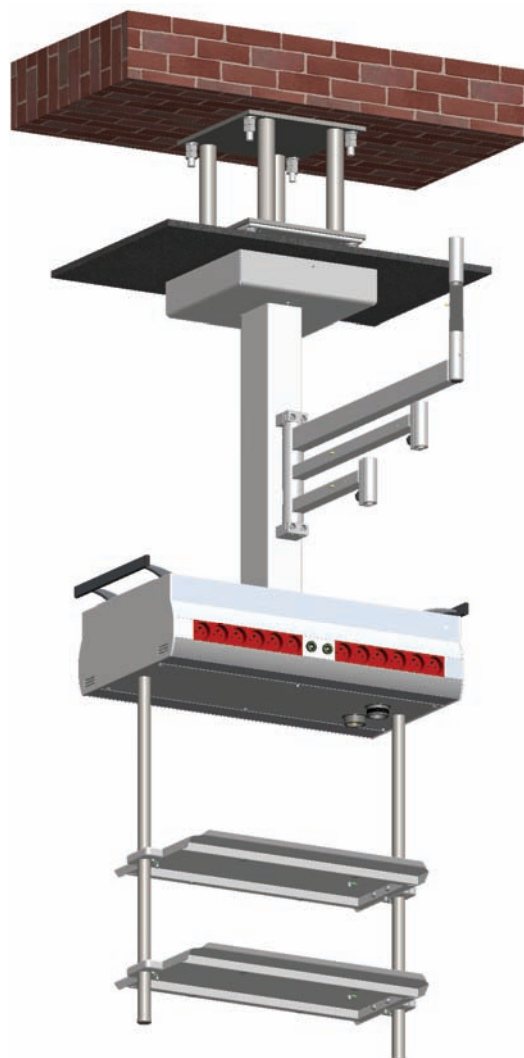
# CEILING PENDANTS

## OK07-05, PS07



OK07-05

Column with axial rotation  
only /rotating head/.



PS07

Stationary pendant for specialized medical  
workplaces, mainly for acute emergency  
rooms and smaller operating theatres.



This type of gas and energy supply terminal unit is specially designated for operating theatres, ICU and ARD. It facilitates supplies of medical gases, electric current and weak current to workplace of medical specialists. The pendant with rotary source column and a detachable shelf can serve also as a medical device holder.

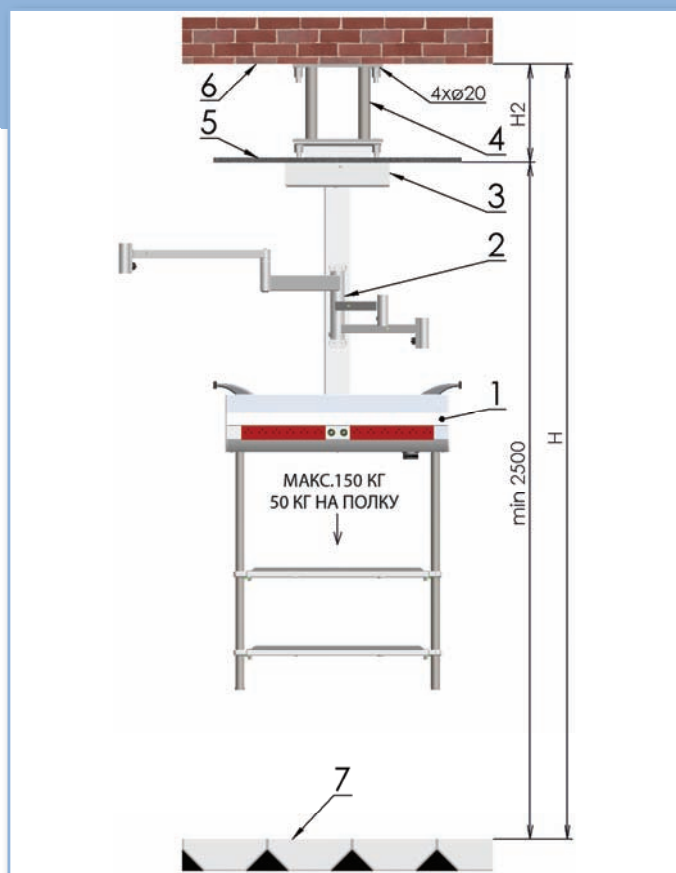
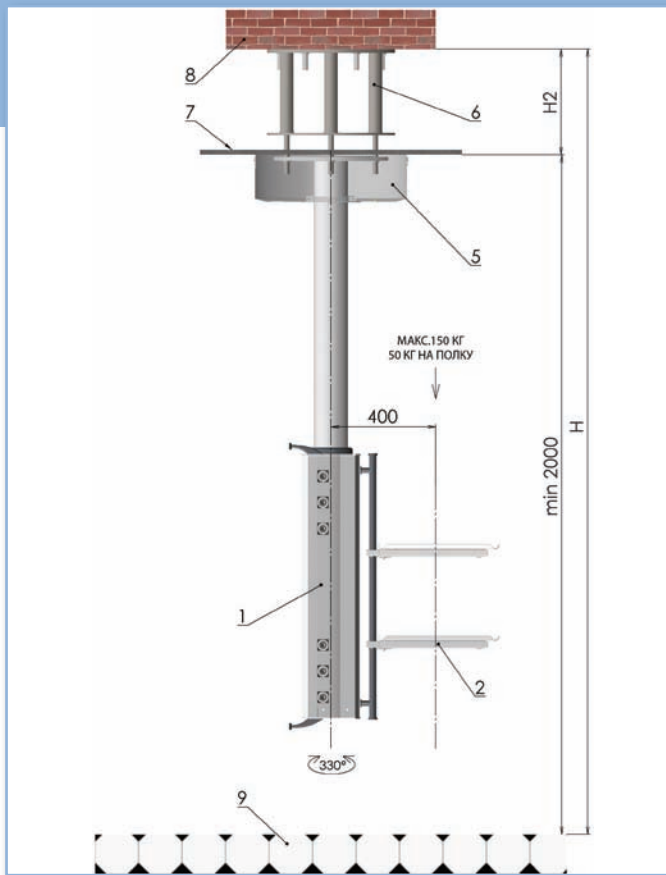


# OK07-05

Legend:

- 1. Head of the Source Column (L)
- 2. Shelf
- 3. False Ceiling Cover (Ø 580, height 180)
- 4. Spacer
- 5. False Ceiling
- 6. Ceiling
- 7. Floor

H = Ceiling Height  
H2 = False Ceiling Height



# PS07

Legend:

- 1. Source Column (A)
- 2. Set of arms ( max 3 arms )
- 3. False ceiling cover (Ø 580, height 180)
- 4. Spacer
- 5. False Ceiling
- 6. Ceiling
- 7. Floor

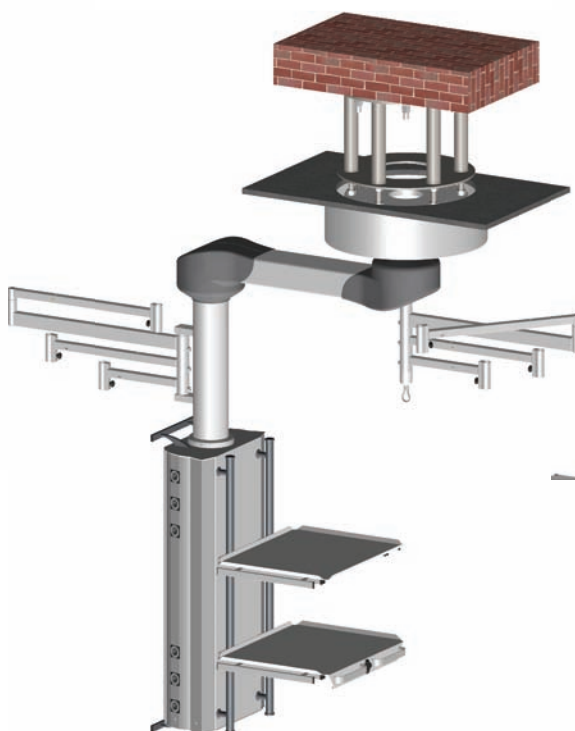
H = Ceiling Height  
H2 = False Ceiling Height

# CEILING ROTARY PENDANT OK07-16, OK07-17, OK07-28



OK07-16

Column with the arm in the length of 800 mm, rotatable around the vertical axis, swiveling head.



OK07-17

Column with arm in the length of 800 mm, rotatable around the vertical axis, set of arms, swiveling head.



OK07-28

Column with two arms in the length of 800 mm, both rotatable around the vertical axis, swiveling head.

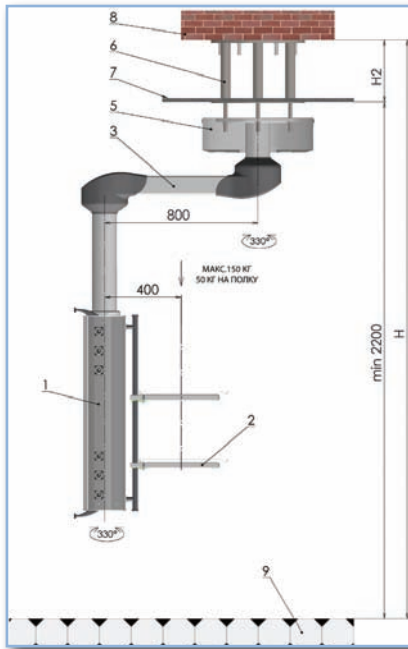


This type of gas and energy supply terminal unit is specially designated for operating theatres, ICU and ARD. It facilitates supplies of medical gases, electric current and weak current to workplace of medical specialists. The rotary pendant with rotary source column and a detachable shelf can serve also as a medical device holder. Pivot joints combined with horizontal and motor-operated pendulum arm enable space random positioning of source column. All pivot joints are equipped with a hand-operated lock, which is controlled by brakes button - built in shelf.





# OK07-16



Legend:

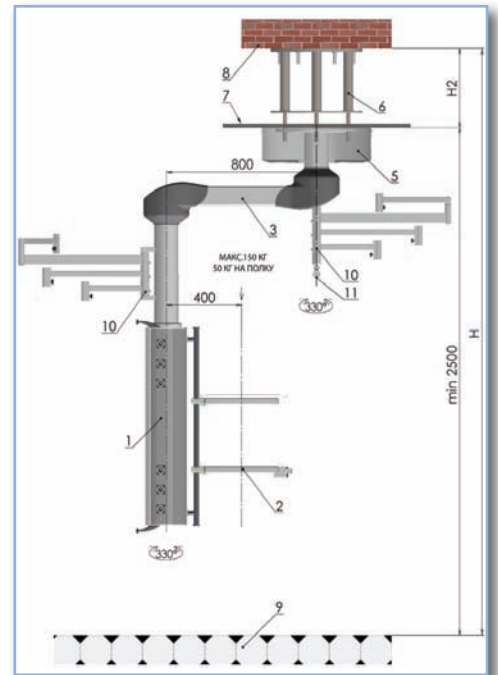
- 1. Source Column (L)
- 2. Shelf
- 3. Rotary arm
- 5. False Ceiling Cover (Ø 580, height 180)

- 6. Spacer
- 7. False Ceiling
- 8. Ceiling
- 9. Floor
- H = Ceiling Height
- H2 = False Ceiling Height

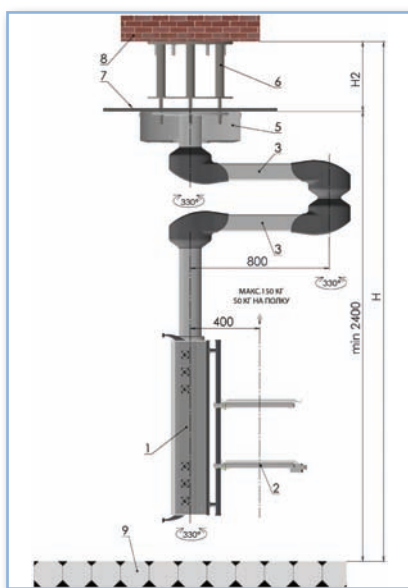
# OK07-17

Legend:

- 1. Source Column (L)
- 2. Shelf
- 3. Rotary arm
- 5. False Ceiling Cover (Ø 580, height 180)
- 6. Spacer
- 7. False Ceiling
- 8. Ceiling
- 9. Floor
- 10. Hinge with set of arms
- 11. Carabine
- H = Ceiling Height
- H2 = False Ceiling Height



# OK07-28



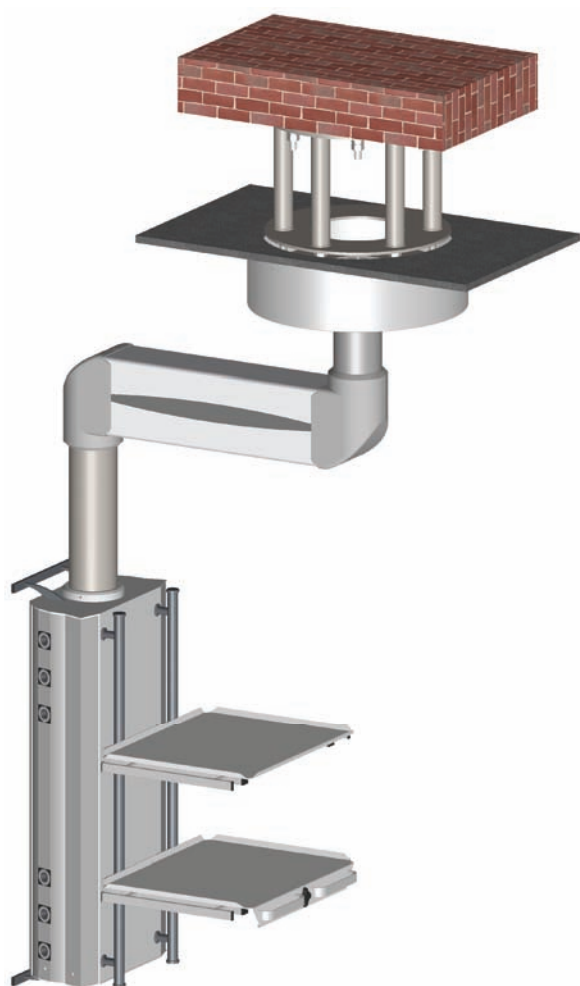
Legend:

- 1. Source Column (L)
- 2. Shelf
- 3. Rotary arm
- 5. False Ceiling Cover (Ø 580, height 180)
- 6. Spacer
- 7. False Ceiling

- 8. Ceiling
- 9. Floor
- H = Ceiling Height
- H2 = False Ceiling Height

# CEILING ROTARY PENDANT

## OK07-55, OK07-57



OK07-55

The column with 800 mm long arm, tilting and vertically adjustable (500mm), rotary head.



OK07-57

The pendant with one swiveling arm in the length of 800 mm and the second arm in the length of 800 mm – tilting and vertically adjustable (500 mm), rotary head.



This type of gas and energy supply terminal unit is specially designated for operating theatres, ICU and ARD. It facilitates supplies of medical gases, electric current and weak current to workplace of medical specialists. The rotary pendant with rotary source column and a detachable shelf can serve also as a medical device holder. Pivot joints combined with horizontal and motor-operated pendulum arm enable space random positioning of source column. All pivot joints are equipped with a hand-operated lock, which is controlled by brakes button - built in shelf.

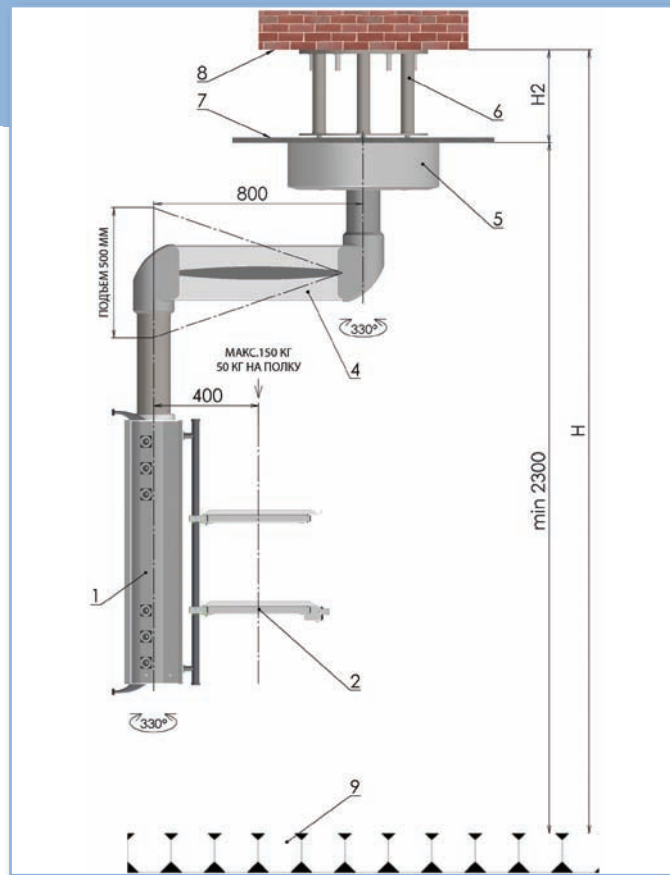


# OK07-55

## Legend:

1. Source Column (L)
2. Shelf
4. Swiveling arm
5. False Ceiling Cover (Ø 580, height 180)
6. Spacer
7. False Ceiling
8. Ceiling
9. Floor

H = Ceiling Height  
H2 = False Ceiling Height

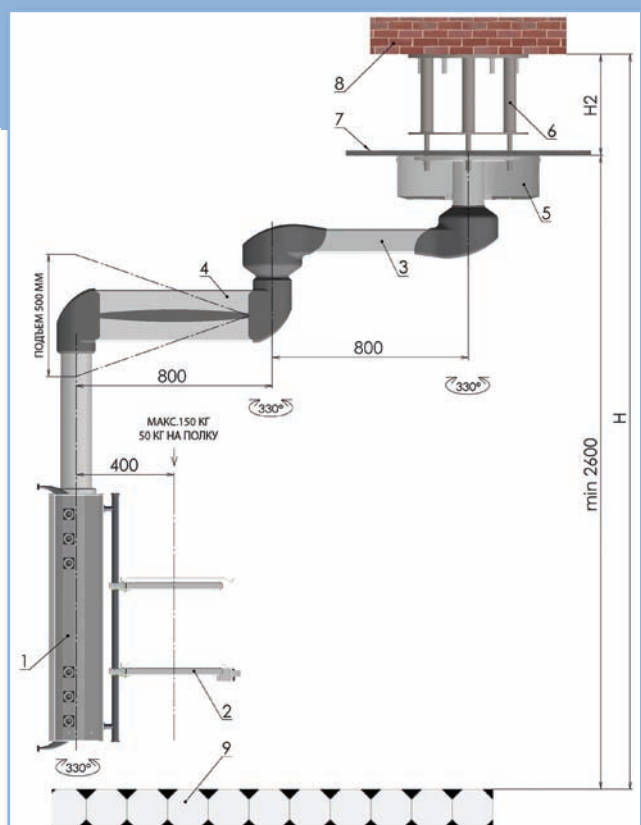


# OK07-57

## Legend:

1. Source Column (L)
2. Shelf
3. Rotary arm
4. Swiveling arm
5. False Ceiling Cover (Ø 580, height 180)
6. Spacer
7. False Ceiling
8. Ceiling
9. Floor

H = Ceiling Height  
H2 = False Ceiling Height



# SOURCE COLUMN FOR CEILING PENDANTS A, L, Z

## SOURCE COLUMN FOR CEILING PENDANTS

These types of source column are intended for specialized medical workplaces and operating theatres. It facilitates supplies of medical gas, electric current and weak current to workplace of medical specialists. The fitting of source head is depends on customer's requirement. Source column is fitted with two stainless shelf rods- two stainless rods, that are intended for mounting of height adjustable shelves, infusion pumps holders and other equipment. This type of source column is especially intended for all types series of Ceiling Pendants OK 07.

Equipment	Source column Type A	Source column L06	Source column L10	Source column L15	Source column Z
Electric sockets	13	12	20	30	25
Medical gas quick outlet	7	5	8	12	10
Length of source column (mm)	710	600	1000	1500	1300
Number of shelves	5	3	5	8	6

## SOURCE COLUMN (ANAESTHETIC) - "A"



**SOURCE COLUMN (SURGICAL) – LONG “L”**



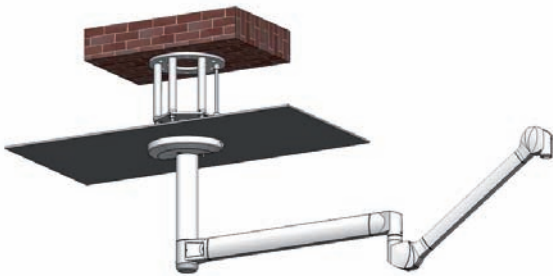
**SOURCE COLUMN (ANAESTHETIC) WITH VERTICAL LIFT - “Z”**



# CEILING PENDANTS

WITH COMPACT SPRING BALANCED ARMS

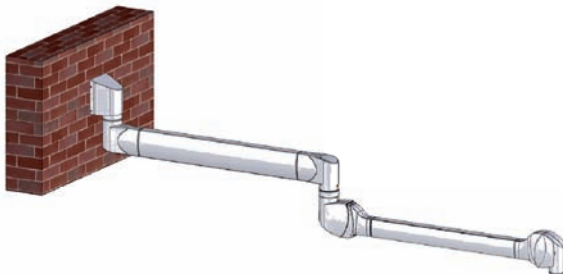
SPR10-1, SPR10-2, SPR10-3, SPR10-1W



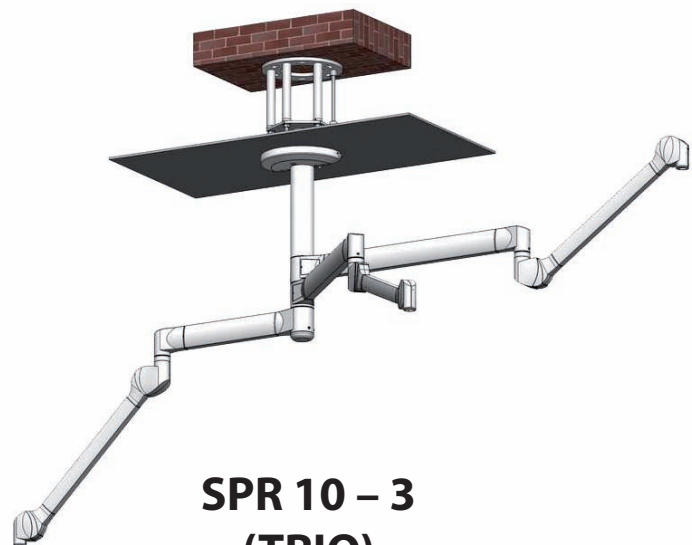
**SPR 10 - 1  
(SINGLE)**



**SPR 10 - 2  
(DUO)**



**SPR 10 - 1W  
(SINGLE - W)**



**SPR 10 - 3  
(TRIO)**

CEILING PENDANTS with COMPACT SPRING BALANCED ARMS (medical device of Class I) (hereinafter called as SPR10) are designated for carrying the medical devices (operating lights, cameras, monitors or X-Ray safety screens) containing the electrical installation. They are intended for the medical facilities equipment to be used in the ways and configurations specified by the respectively trained health service employees.

The user must adhere to the safety code for using the electric devices, as well as the conditions stated in the Installation and User's Guides provided by the supplier. SPR10 are manufactured in three versions (Single, Duo, Trio). Both rotary and spring balanced arms are made from aluminium extruded profiles.

Each pendant version consists of one (two, three) rotary arm connected with the swing compact spring balanced arm. The spring arm mechanism allows adjustment of the arm's loading capacity 4 - 26 kg.

Rotary joints are equipped with the slip rings allowing the rotation of the arms for 360°. From these poles 3 ones are always designated for transmission of electricity, the remaining ones are for data transmission.

When the uninterrupted (optic) cables are used, or the unlimited rotation is not needed, the rotary angle is limited by stops.

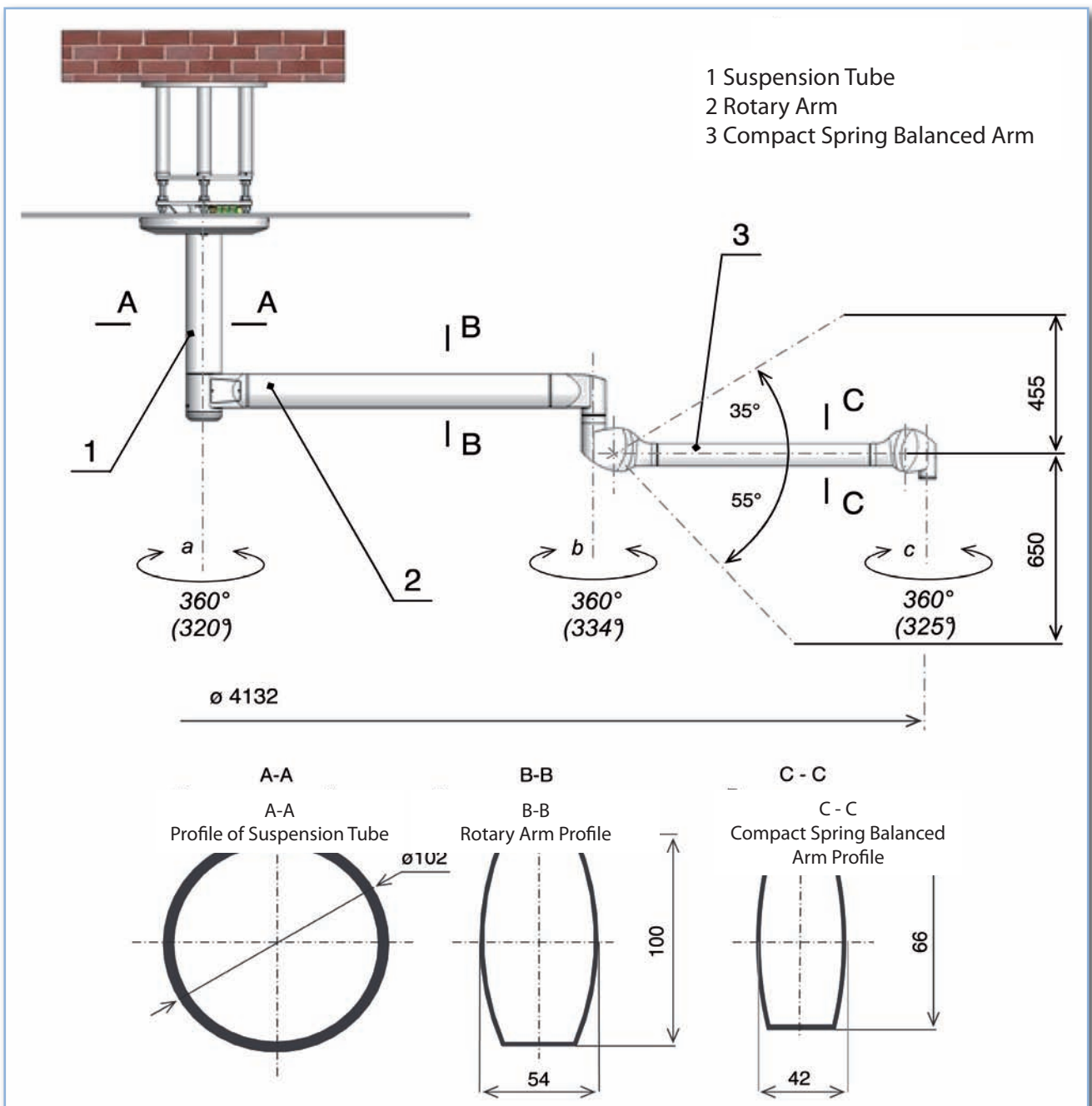
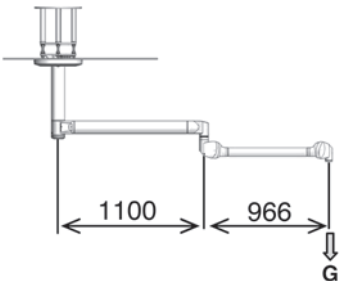
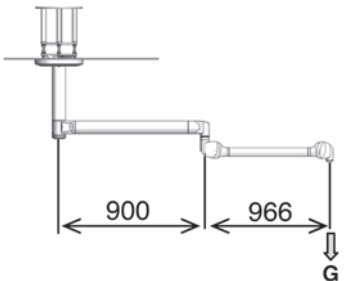
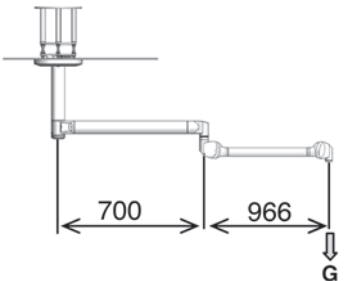
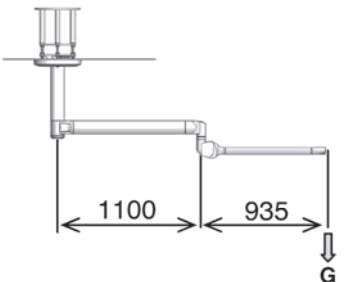
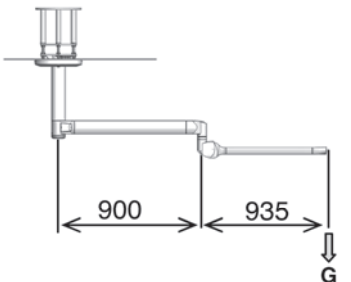
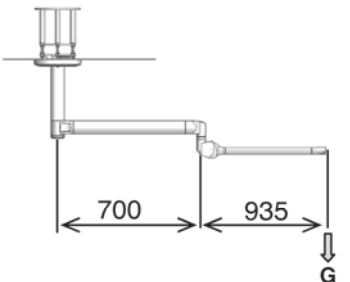


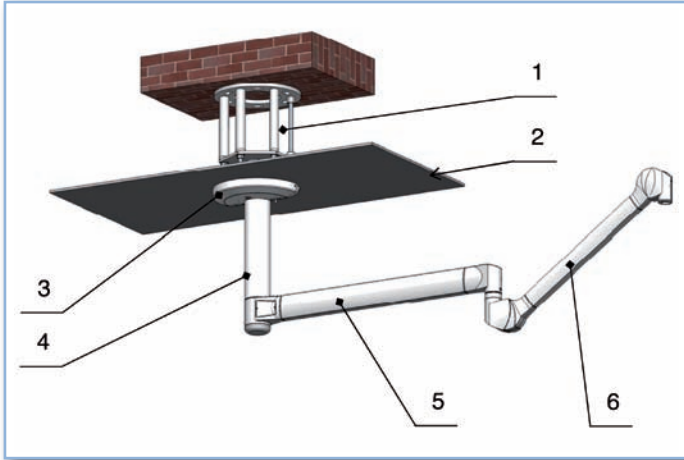




Table 1) Maximum load capacity of spring arms

Spring Arm with Stabilizer			
Spring Arm without Stabilizer			
Spring Arm Load Capacity Range	<b>4 - 20 kg</b>	<b>6 - 26 kg</b>	<b>6 - 26 kg</b>

# SPR10 – 1 (SINGLE)



Legend:

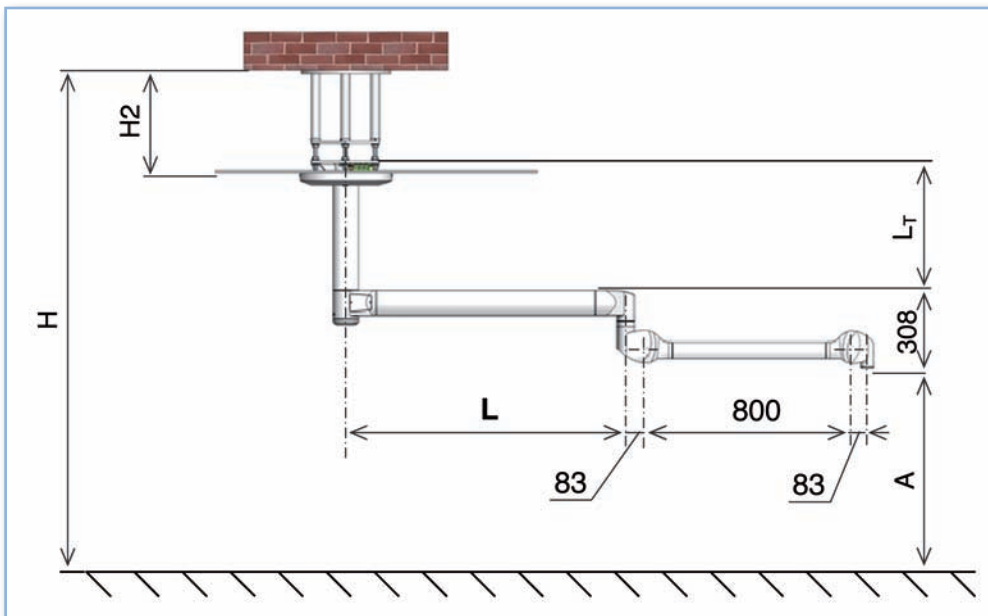
- 1 Spacer
- 2 Lower Ceiling
- 3 Ceiling Cover
- 4 Suspension Tube
- 5 Rotary Arm
- 6 Spring Arm

Loading Capacity See Table 1  
 Weight (without Spacer) 30 kg  
 Spring Arm + 35°, - 55°  
 Height adjustment 360°  
 Rotating in horizontal plane (320, 334, 325°\*)

\* in case the uninterrupted (optic) cables are used the rotary angle of rotary arms is limited by stops

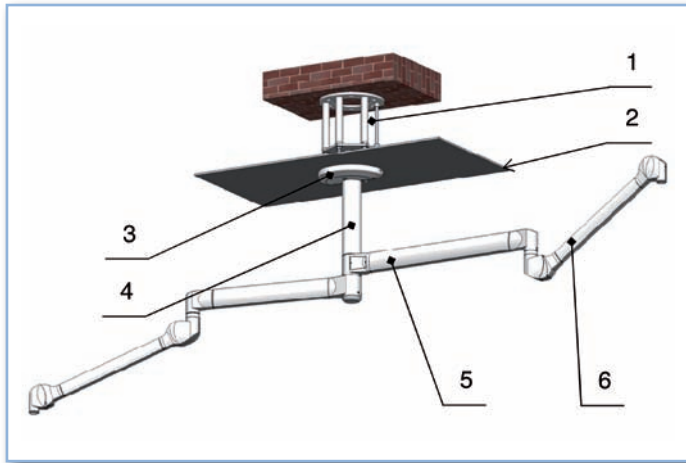
Ceiling Loading	N	Nm
SINGLE	300*	320
* for Tube length LT = 500 mm		
Spacer H2 = 390 mm	250	-
Max. Loading Capacity	260	550
TOTAL	810	870

Example - Ceiling Loading is defined for standard Tube length (500 mm) a Spacer length 390 mm



Length of Rotary Arm [mm]
X
1100
900
700

# SPR10 – 2 (DUO)



Legend:

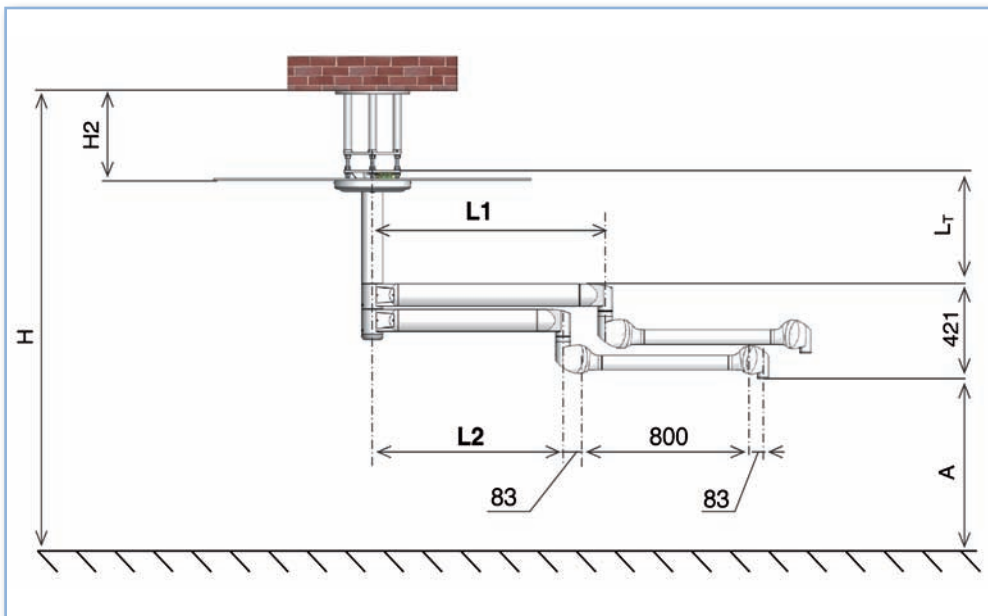
- 1 Spacer
- 2 Lower Ceiling
- 3 Ceiling Cover
- 4 Suspension Tube
- 5 Rotary Arm
- 6 Spring Arm

Loading Capacity See Table 1  
 Weight (without Spacer) 42 kg  
 Spring Arm + 35°, - 55°  
 Height adjustment 360°  
 Rotating in horizontal plane (320, 334, 325°\*)

\* in case the uninterrupted (optic) cables are used the rotary angle of rotary arms is limited by stops

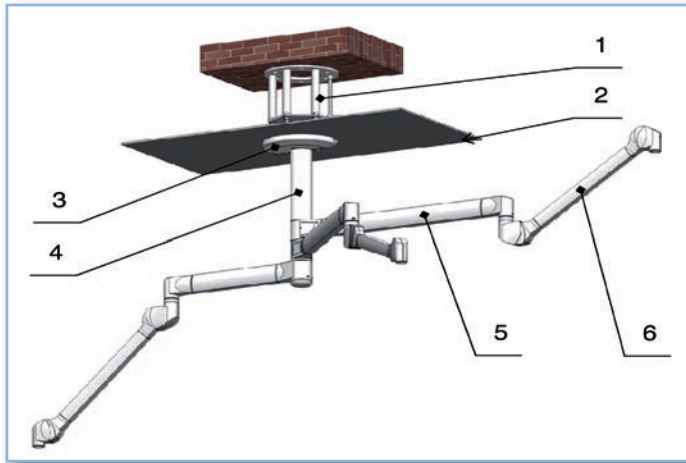
Ceiling Loading	N	Nm
DUO	420*	535
* for Tube length LT = 500 mm		
Spacer H2 = 390 mm	250	-
Max. Loading Capacity	520	1035
TOTAL	1190	1570

Example - Ceiling Loading is defined for standard Tube length (500 mm) a Spacer length 390 mm



Length of Rotary Arms [mm]	
L1	L2
1100	900
1100	700
900	700

# SPR 10 – 3 (TRIO)



**Legend:**

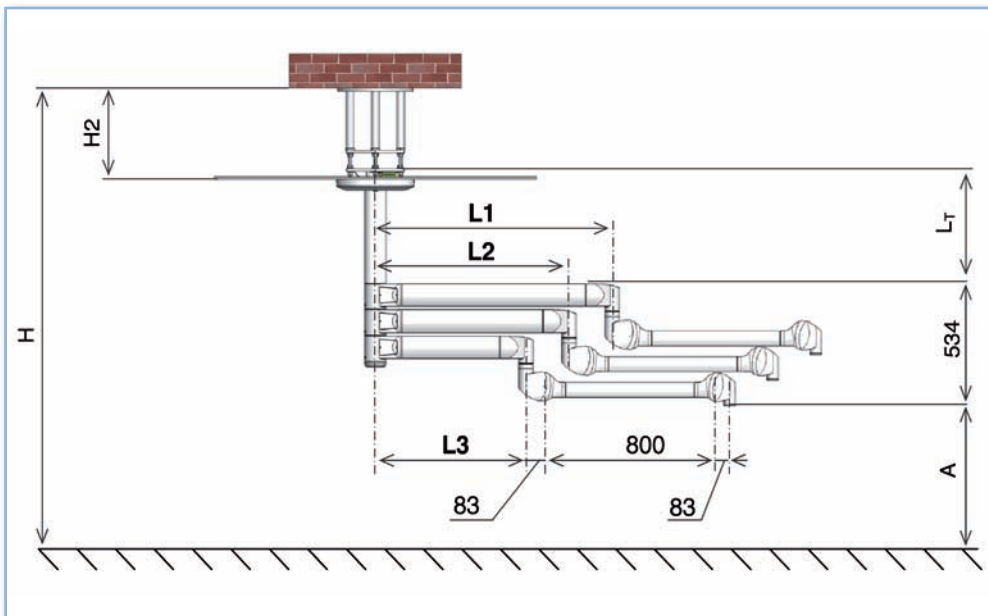
- 1 Spacer
- 2 Lower Ceiling
- 3 Ceiling Cover
- 4 Suspension Tube
- 5 Rotary Arm
- 6 Spring Arm

Loading Capacity See Table 1  
 Weight (without Spacer) 55 kg  
 Spring Arm + 35°, - 55°  
 Height adjustment 360°  
 Rotating in horizontal plane (320, 334, 325°\*)

\* in case the uninterrupted (optic) cables are used the rotary angle of rotary arms is limited by stops

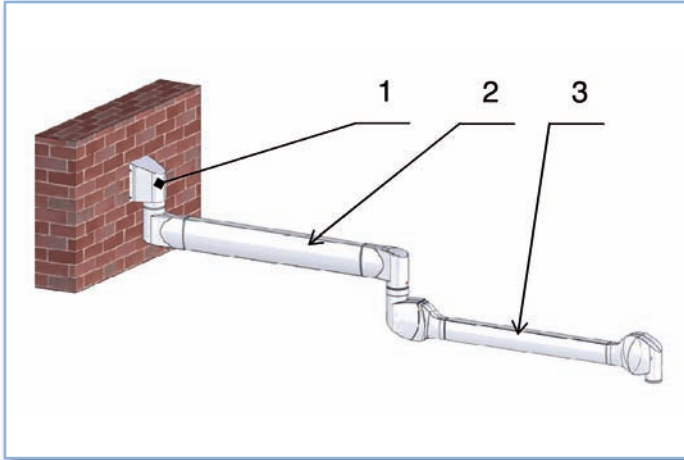
Ceiling Loading:	N	Nm
TRIO	550*	655
* for Tube length LT = 500 mm		
Spacer H2 = 390 mm	250	-
Loading Capacity	780	1480
TOTAL	1580	2135

Example - Ceiling Loading is defined for standard Tube length (500 mm) a Spacer length 390 mm



Length of Rotary Arms [mm]		
L1	L2	L3
1100	900	700

# SPR10 – 1W (SINGLE)



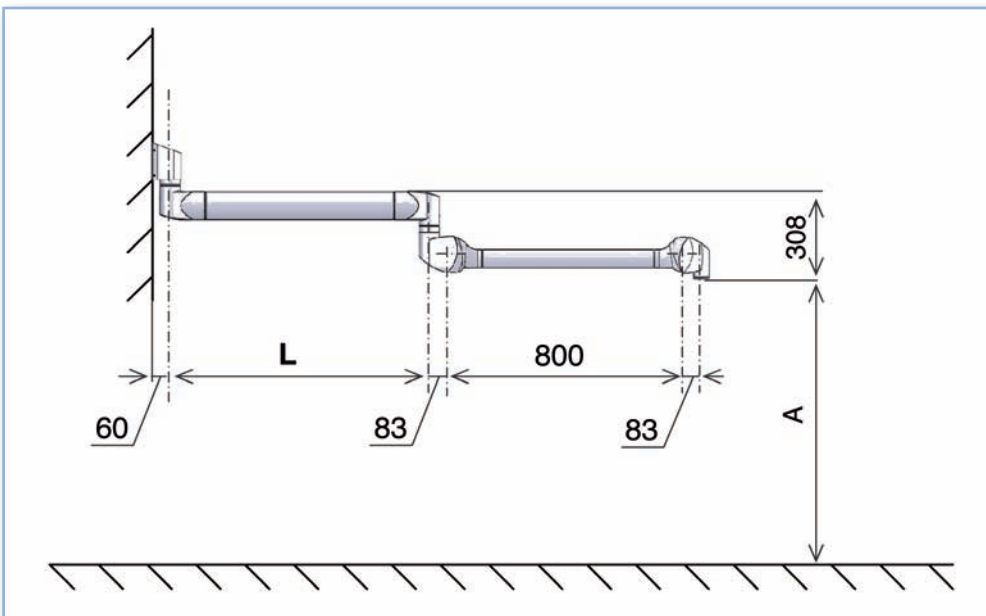
Loading capacity	See Table 1
Weight (without hinge)	25 kg
Spring Arm	+ 35°, - 55°
Height Adjustment	180, 360, 360°
Rotating in axes a, b, c:	(180, 334, 325°*)

\* in case the uninterrupted (optic) cables are used the rotary angle of rotary arms is limited by stops

Support structure loading	N	Nm
SINGLE W	250	230
Loading Capacity	520	970
TOTAL	770	1200

Описание:

- 1 Anchoring Hinge
- 2 Rotary Arm
- 3 Spring Arm



Length of Rotary Arms [mm]

L
900
700

# MONITORING DEVICE

## MZU010/II



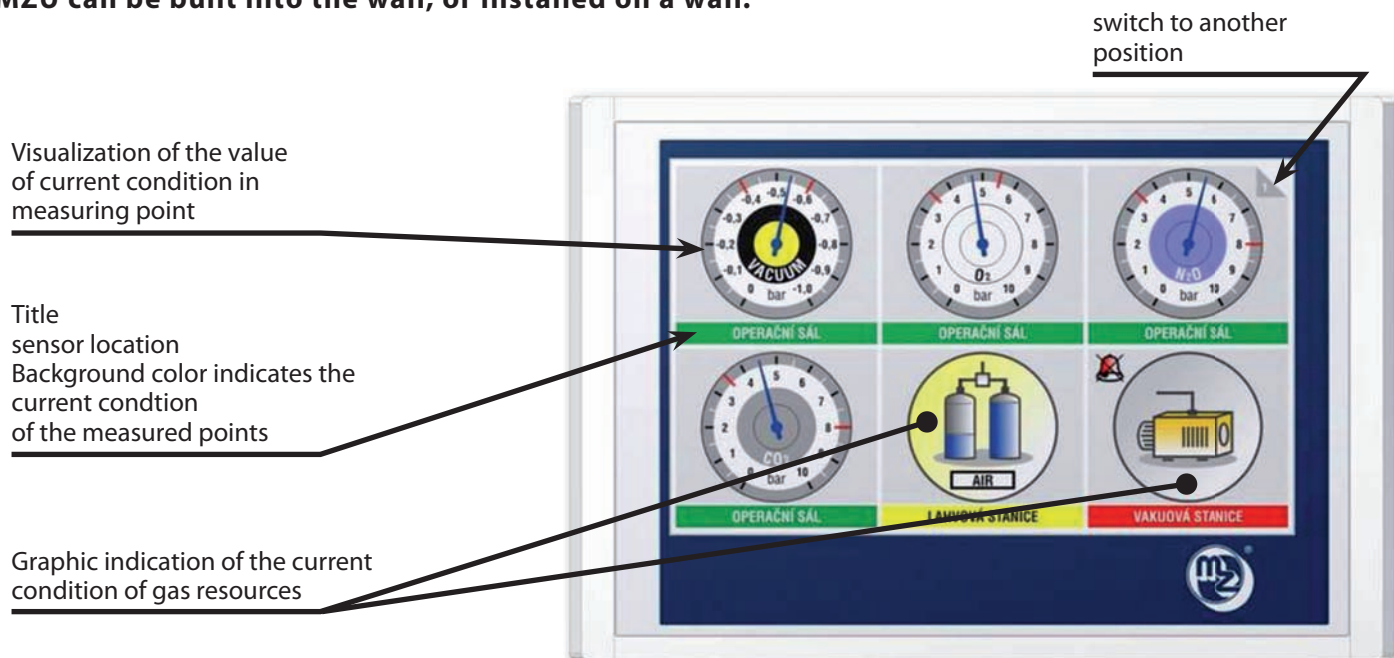
Monitoring and alarm system which was designed to indicate the condition of sources and presence of pressure in piping for compressed medical gases.

Technical Data MZU	
Class of protection according to ČSN EN 60 950-1 ed.2	Class I, type B
Supply voltage – from the most important circuits (DO)	230V, 50Hz
Number of connection points	max. 12
Weight	approx. 3 kg
Dimensions	(202x138x60) mm

Types of alarms
<i>MZU fulfills the requirements for alarms acc. to ČSN EN ISO 7396-1</i>
Operating alarms
Emergency operation alarm
Clinical Emergency alarms
Information signalisation

MZU works by evaluating conditions obtained from communication lines from individual sensors, pressure sensors and condition of sources, max. 12 plug analog inputs (4 – 20 mA), from which 6 can be switched to digital (1/0), Alternatively from the communication protocol RS 485.

**MZU can be built into the wall, or installed on a wall.**



User interface of the MZU

# LED EXAMINATION LAMP



LED Examination Lamps are intended for use as a reading lights in patient's rooms or as small examination lamp in doctor's office. The newest LED technologie provides an economic long term operation in Hospitals and Clinics. The 800 mm-long flexible arm allows comfortable manipulation. Life time of the light bulbs is more than 50.000 hours.



## Technical description

Colour of lamp:	white
Bulb type:	LED
Bulb details:	3 x 2 W
Light intensity 40 cm:	28.000 Lux
Light intensity 50 cm:	20.000 Lux
Light intensity 1 m:	6.000 Lux
Colour temperature:	3.500 Kelvin
Length of arm:	800 mm

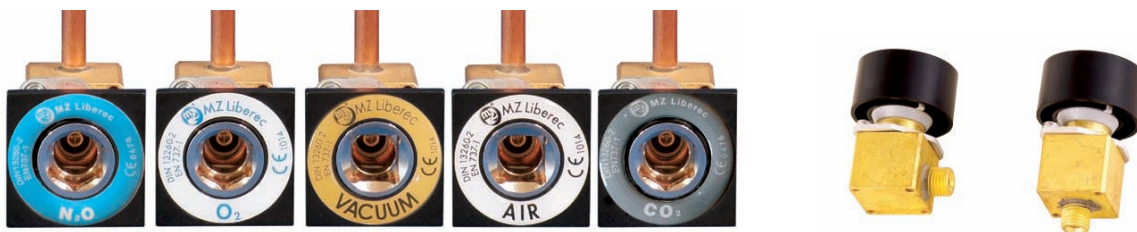
# OUTLETS FOR MEDICAL GASES

## UR.07



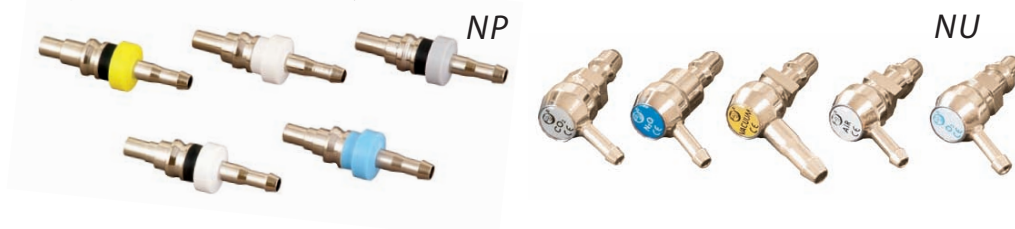
This element is used for quick connecting and disconnecting of two distribution system parts. When joined with corresponding counter-part, it makes a permanent and tight joint, when being disconnected it acts as a selfoperating isolation stop with isolation valve (in conformity with standard EN 737-1).

The UR.07 quick outlet has several versions that differ from each other mainly in the way they are fixed to the base plate and connected to the central distribution system. The description of different versions is given in the technical conditions. The UR.07 medical gas quick outlet is intended for use with prescribed sort of gas only and the assignation to exact gas is made by means of colour marking. We supply gas outlets for medical gases in ALL STANDARDS - approved in EU (DIN, AFNOR, BS, UNI, AGA, CSN, and EU)



### ADAPTERS AND COUNTER-PARTS OF OUTLETS NP AND NU

The quick outlet adapters are located in UR.07 (and previous models) medical gas quick outlet. Adapters along with the medical gas quick outlet create a unit after they are connected together. The straight as well as elbow type adapters are intended for termination of interconnecting hose that is to be connected to the medical gas quick outlet. The adapters are manufactured for wide range of medical gases, they are intended for use with prescribed sort of gas only and the assignation to exact gas or function is made by means of colour marking.



### MEDICAL GAS QUICK OUTLETS FOR PNEUMATIC DRIVES - RM

Medical gas quick outlets for pneumatic drives are the terminal units of separate distribution of compressed air with pressure 8 bar (max.10 bar). The advantage of pneumatic drive against the electric one is possibility to eliminate potential danger of initiation of anaesthetic mixtures in dangerous concentrations in the operational field and elimination of electromagnetic disturbances danger.



RM quick outlets are special couplings intended for connecting hose systems of surgical pneumatic tools that are adjusted and arranged according to requests of medical care personnel. They connect/disconnect supply of drive gas (air, event. nitrogen) and simultaneously off -take of exhausted gas polluted after flow through turbine (with lubrication). This can be then led out away from the clean health centre area. The preferential use of quick outlets is in columns of Ceiling pendants.



## TERMINAL PANELS WITH QUICK COUPLINGS – URN, URP, URO +UR.51

The terminal assemblies of medical gas distribution systems consist of 1 – 5 units in a common frame and are mainly intended for flush and/or surface mounting on the wall. One unit contains 1 output with coupling UR.07 or one manometer (with connecting pipe).



## AGSS

Systems AGSS are intended for taking off the exhaled mixtures of anaesthetic gases (eventually of different concentrated mixtures that could be health harmful) from the health centre area into the space of their exhausting. These systems, similar to distribution of commedical gas, are individually designed for concrete medical workplaces. Suction pressure in these systems is formed by flowing of compressed gas (air, eventually nitrogen), by means of ejector. This eliminates possibility of electric interference. Under specific conditions they could be even used for suction of air with particles of inflammable anaesthetics.



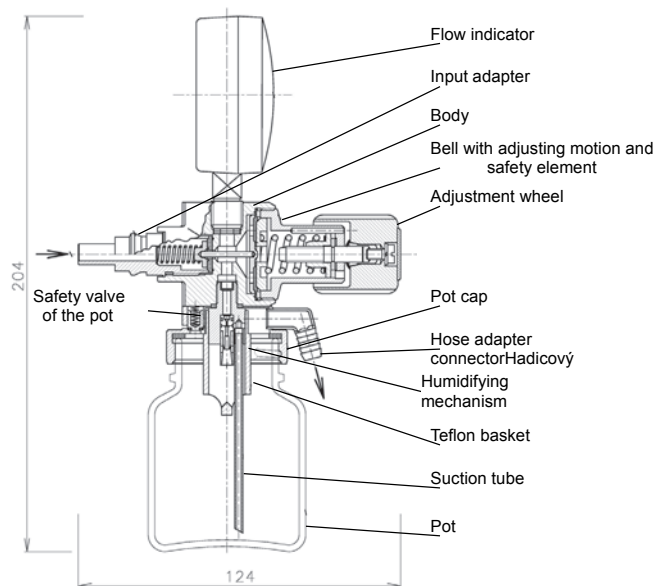
# DISPENSER - HUMIDIFIER

## type

### MZ 103F, MZ 104F



MZ 103F and MZ 104F (further more MZFs only) are special elements designed for connecting with flat lying quick-disconnect couplings, designed to effectual humidifying and dosing of oxygen to the patient. Because of the safety reasons in service they must be fixed in vertical position with the pot down. MZFs are designed entirely for use without counter pressure for instance into open mask and nasal glasses MZFs are designed for humanizing of oxygen with pure distilled water only.

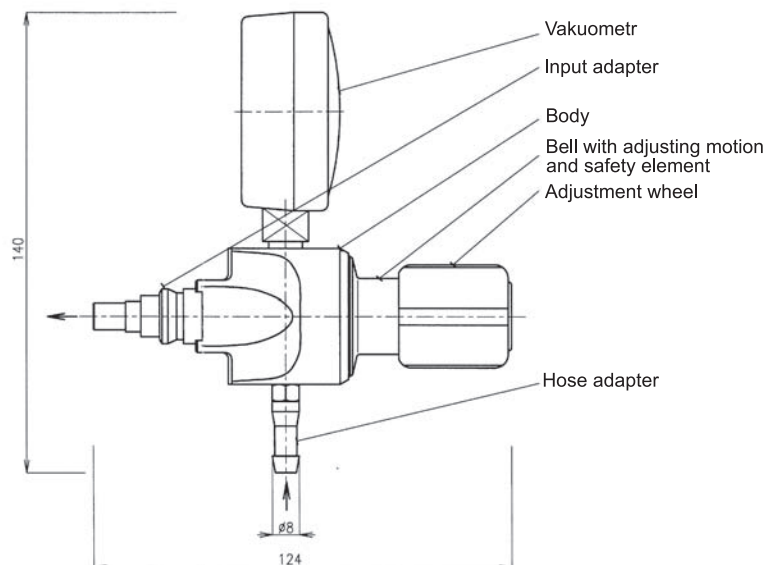


**MZFs are marked with CE1014 and with serial No. on the bell. Conformity with requirements, determined by technical documentation is confirmed by issuing of CERTIFIKÁT VÝROBCE C 641 (MANUFACTURER'S CERTIFICATE C 641).**

		MZ 103F	MZ 104F
Input overpressure	[bar]	2,5 – 6	2,5 – 6
Dosing range	[l.min-1]	1 – 20	1 – 5
Estimated range of common use	[l.min-1]	5 – 15	1,5 – 5
Accuracy of outflow measurement, outspread to measurement range	[%]	± 10	± 10
For dose achieving	[l.min-1]	15	5
The overpressure must be min.	[bar]	4	4
Humidity efficiency min.	[% relative humidity]	80	80
Middle-sized diameter at min. 80% of drops	[µm]	Max. 2,5	Max. 4
Common working temperature	[°C]	15 – 25	15 – 25
Working temperature limits	[°C]	0 – 50	0 – 50
Gross weight	[kg]	0,83	0,83

# VACUUM REDUCING VALVE

## VR.01



Vacuum reduction valve VR 01 is intended for underpressure reduction. It can be connected to all vacuum distribution terminals with quick couplings delivered by MZ Liberec, a.s.

Vacuum regulation is provided by turning of regulation control wheel placed in the body axis of valve. For output underpressure control, VR 01 is equipped with vacuum meter with range from 0 to -100 kPa.



polycarbonate bottles



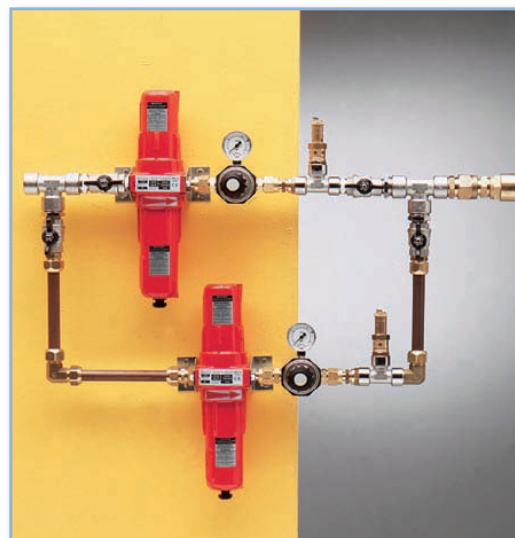
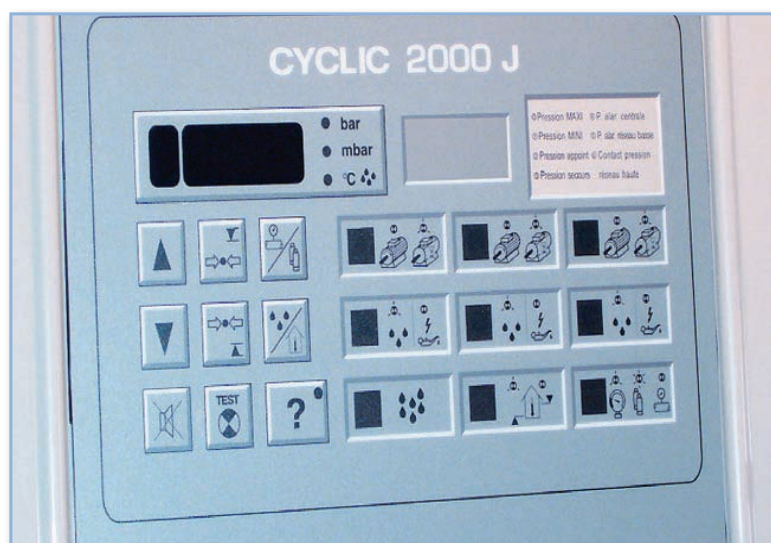
Bottle holder on medical rail

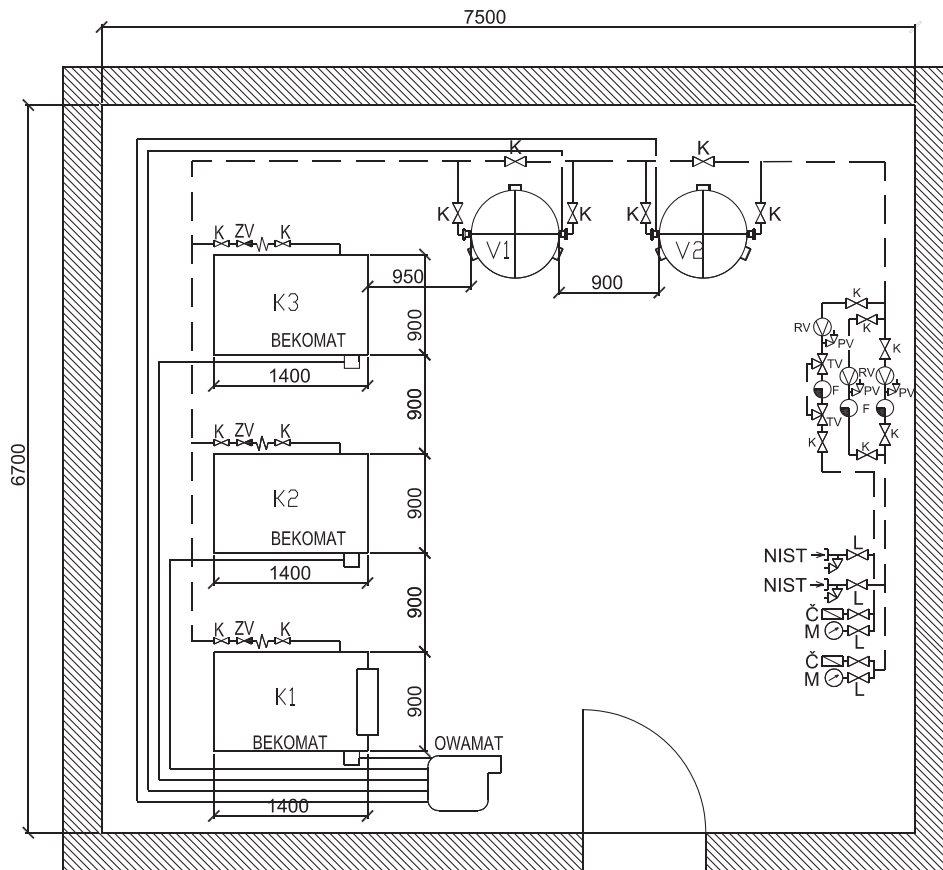


Silicon hose

# COMPRESSOR STATIONS

Compressor station ensures the supply of required pressure and flow of compressed air in the automatic mode of operation as source for central distribution of medical air in conformity with parameters of EU Pharmacopeia. Compressor stations usually consist of 3 compressor units. Compressors are delivered in stationary version and could be in oil-free/oil version, screw/ piston version, with different cooling systems, type of drive etc. Rated supply pressure is set by reducing valve at the compressor outlet. MZ Liberec, a.s. supplies compressor stations with nominal capacity from 2,2 to 1000 Nm<sup>3</sup> / h.

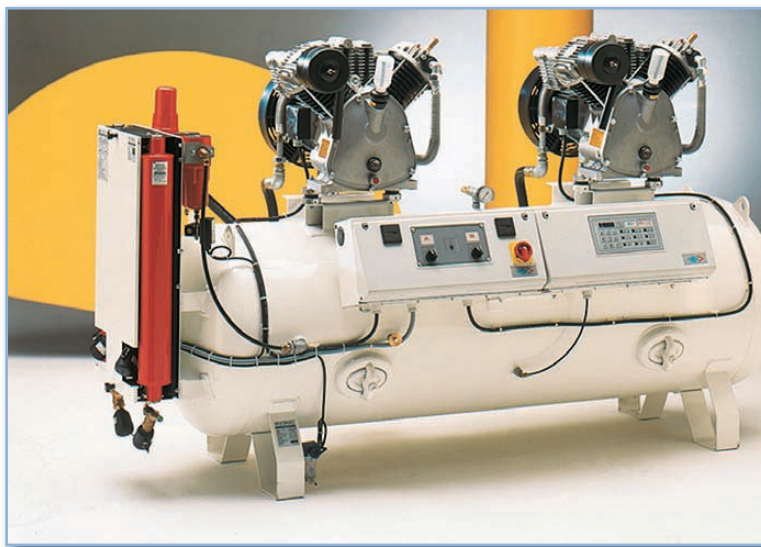




**DESCRIPTION:**

- — — DISTRIBUTION PIPELINE COMPRESSED AIR – COPPER PIPE
- - - HOSE FOR CONDENSATE OUTLET
- NIST → EMERGENCY AND SERVICE INLET
- L X CYLINDER CLOSE VALVE
- Č x SENSOR
- M ○ CONTROL MANOMETER
- K X BALL CLOSING VALVE
- TV X THREE-PORT- VALVE
- RV ○ REDUCTION VALVE
- PV → SAFETY VALVE

- F ○ FILTER
- ZV → NON RETURN VALVE
- - - FLEXIBLE CONNECTION HOSE
- BEKOMAT ELECTRONIC DRAIN
- OWAMAT OIL SEPARATOR
- K1, K2, K3 K1 - COMPRESSOR WITH CONTROL BOARD; K2, K3- COMPRESSOR
- V1, V2 AIR RECEIVER

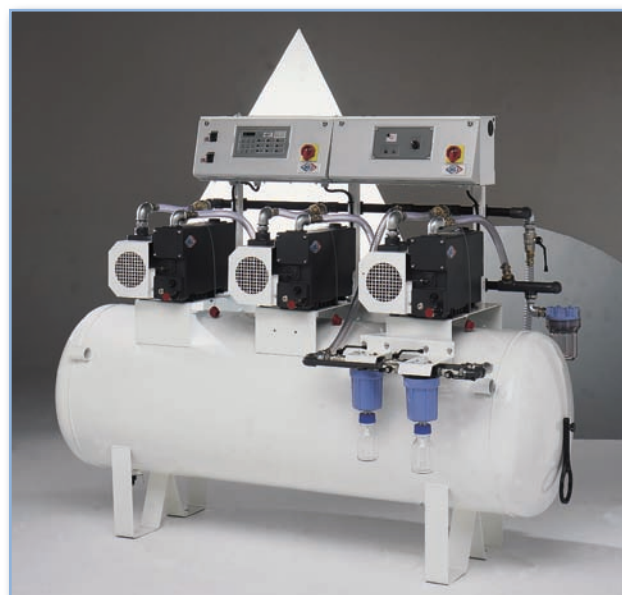


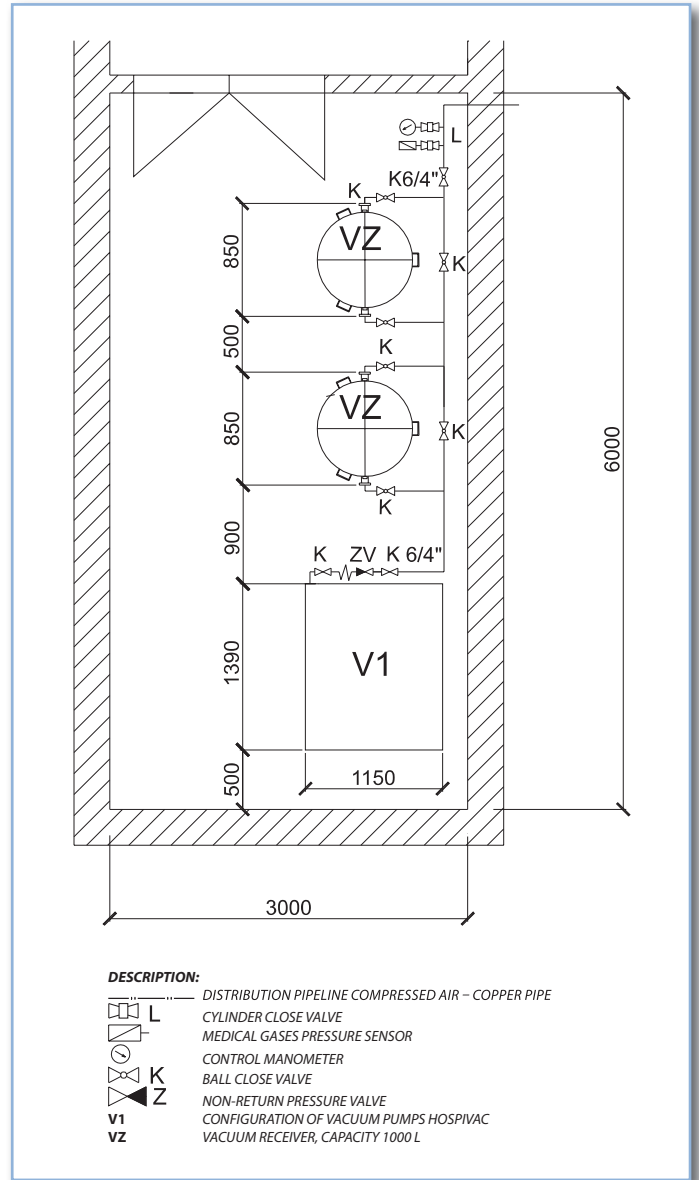
# VACUUM STATIONS

Vacuum stations consist (according to standards) of 3 vacuum pumps with appropriate power that are connected to vacuum container. The most important is the modification and cleaning of exhausted air referred to as highly contaminated, from vacuum pumps. That is why each vacuum station has to be equipped by perfect antibacterial filter and collector of secretion. Despite this filtration it is necessary to ensure the exhaust from the vacuum station to a place inaccessible for any person. Vacuum station must be always placed separately from the compressor station.

MZ Liberec, a.s. supplies vacuum stations with nominal capacity from 6,4 to 632 Nm<sup>3</sup> / h.

As an example you will find below the detailed scheme of station VS 65, which is equipped by rotating oil vacuum pump Hospivac G.





# OXYGEN SOURCES

Oxygen sources for central distribution can be solved by 3 possible ways:

a) Cylinders – mainly are used cylinders of capacity 50 litres at max. pressure 200 bar, that are connected into batteries

b) Vaporization station of liquid oxygen that is stored into high-capacity container. This container is placed usually in a place outside the building

c) Oxygen generator – this technological device is working on the basis of molecular screen for the filtration of nitrogen and partially CO<sub>2</sub> from the ambient air and at the output provides oxygen in minimal concentration of 92% O<sub>2</sub>, completed by CO<sub>2</sub>, inert gas and residual nitrogen. Such solution is from the operation point

of view the less expensive but it is much more demanding for the initial investment.

Oxygen Supply Modes		
	Advantages	Disadvantages
Liquid Oxygen (LOX)	Stable Purity	Limited Capacity / Procurement Evaporation Losses Only Suitable for Medium and Large Oxygen Quantities Vulnerable to Price Increases by Gas Supplier
High Pressure Cylinders or Cylinder Bundles	Suitable for Small Oxygen Quantities	Unstable Purity Limited Capacity / Procurement Safety (High Pressure, Heavy) Cylinder Handling Vulnerable to Price Increases by Gas Supplier
OXYSWING® PSA Oxygen Generator	Stable Purity Unlimited Capacity Safety (Low Pressure) Invariable Oxygen Cost	Space Requirements for Large Systems

## CYLINDERS SOURCE

Such solution by means of cylinders is the oldest and the most proven way of oxygen supply. The great disadvantage of this solution is manipulation with heavy cylinders and operating costs.





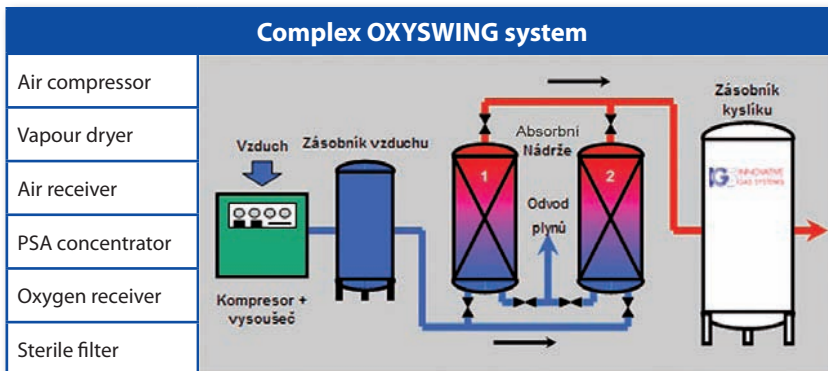
## OXYGEN VAPORIZER

Another solution of supply of liquid oxygen in hospitals with high consumption of oxygen are vaporizing stations. EU standards require supply of oxygen from three independent sources. Most frequent system consists of: vaporizer and two standby cylinder batteries.



## MEDICAL OXYGEN CONCENTRATORS (IGS)

The modular design of the Oxyswing R Medical Oxygen Concentrators allows an unlimited flexibility in the selection and layout a medical oxygen supply system. After installation the end users has even the possibility to adapt his generator to changed oxygen supply conditions by simply varying the number of PSA modules of the unit. Thanks to this unique and patented design no other changes to the system are required. Additionally, the Dual Bank system option makes it possible to double or even to triple the generator's output flow, so that any medical oxygen requirement could be satisfied at very competitive costs. These types of Oxygen Concentrators are in accordance with ISO 9001:2000 and ISO 13485: 2003. Installations in hospitals have to be in accordance with ISO 10083.



## N<sub>2</sub>O AND CO<sub>2</sub> SOURCES

N<sub>2</sub>O or CO<sub>2</sub> sources for central distribution are solved by help of cylinders that are usually connected into batteries. In conformity with valid standards, stations must have independent sources.

