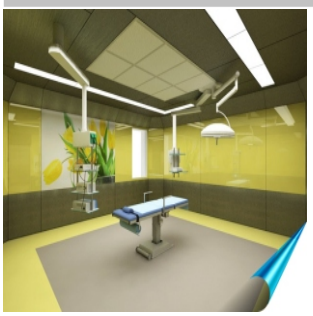
Optimum Quality, Efficiency and Services

RADON MED-TECH

MEDICAL ENGINEERING



COMPLETE TURNKEY SOLUTION FOR HOSPITAL TERITORY

*CENTER GAS PIPE LINE * MODULAR OR * VINYL FLOORING
* VOC FREE CLEAN LAB * IVF / IUI SETUP

VER. 2017

ISO 9001 : 2008

Micro, Small & Medium Enterprises

Radon Med-Tech

Medical engineering

TURNKEY SETUP OF PMGS

- Copper Piping
- Oxygen Base Unit
- Nitrous Bas Unit
- Medical Air base Unit
- Surgical Base Unit
- Vacuum System base Unit
- Gas Outlet
- Bed Head Panel
- Isolation Ball Valve
- Valve Box Assembly
- Area Gas Monitoring Alarm
- ICU Gas Alarm
- ICU Media Bridge
- Ceiling Pendant
- ICU Pendant
- Single Arm Pendant
- Double Arm Pendant
- Vertical Bed Head panel
- Double Vertical Bed Head Panel

Radon Med-Tech
Medical engineering

About Company

Radon Med-Tech was established in 2009 as an Indian venture of one of the world's foremost Hospi infra & medical engineering group. Over the past few years, Radon Med-tech has become one of the primary Turnkey Setup of Center Gas Pipe Line & Modular Operating Theatre construction and also specialists in Medical Systems including Drafting & Designing of project with provision of quality healthcare on a truly global basis, backed by a wealth of technical expertise and extensive experience

Radon Med-Tech is works & prepare Hospital/Clinic design as International Medical Gas and Operation Theater Standards. It provides full technical support and design services, understanding the customer's needs and providing a complete, safe, maintainable and cost effective system.

COMPLIANCE CERTIFICATE

RADON MED-TECH

REG. ADDRESS :- 1287, GARHA ROAD,PHILLAUR, JALANDHAR (PB) - 144410, INDIA

has been assessed and conforms to:

CE

Applicable to products : As Per Annexure 1st

Certificate Number : CE-15-2039

Original Certification Date : 27/12/2015 1st Surveillance Due on : 25/12/2016

Certificate Expiration Date : 26/12/2018 2nd Surveillance Due on: 23/12/2017

DAB

Deutsche Akreditation Board

CERTIFICATE OF REGISTRATION

This is to Certify that Quality Management System of

RADON MED-TECH

REG. ADDRESS :- 1287, GARHA ROAD,PHILLAUR, JALANDHAR (PB) - 144410, INDIA

has been assessed and conforms to:

ISO 9001 : 2008

Applicable to Products :-

Central Gas Pipe line System, Bed Head Panel, ICU Media Bridge, Medical Gas Alarm, Valve Box, Hatch Box, OT Suction Trolley, OT Pendants, Electric OT Pendant, Laminar Air Flow System, Periphery Light, X-Ray Viewer, OT Control Panel, Gas Control Panel (Automatic/ Manual), Class 100, 1000 MOT Oxygen Flow Meter, Suction Jar, Humidifier Bottle, Regulator & Accessories for Pipe Medical Gases System & MOT.

Certificate Number : QMS-15-2038

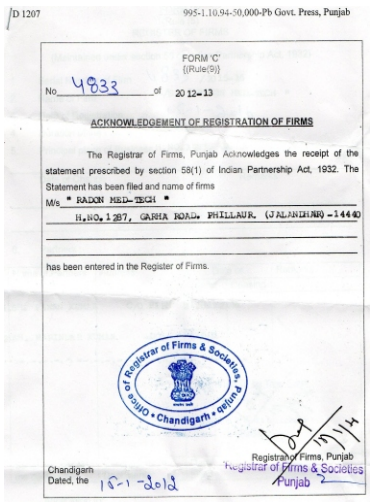
Original Certification Date : 27/02/2015 1st Surveillance Due on : 25/02/2016

Certificate Expiration Date : 26/02/2018 2nd Surveillance Due on: 23/02/2017

DAB

Deutsche Accreditation Board

ISO 9001 : 2008



D 1207 995-1.10.94-50,000-Pb Govt. Press, Punjab

FORM 'C'
{(Rule(9)}

No 4933 of 20 12-13

ACKNOWLEDGEMENT OF REGISTRATION OF FIRMS

The Registrar of Firms, Punjab Acknowledges the receipt of the statement prescribed by section 58(1) of Indian Partnership Act, 1932. The Statement has been filed and name of firms

M/s " RADON MED-TECH "

H.NO. 1287, GARHA ROAD, PHILLAUR. (JALANDHAR) -144410

has been entered in the Register of Firms.

Registrar of Firms & Societies Chandigarh

Chandigarh Dated, the 18-1-2012

Registrar of Firms, Punjab
Registrar of Firms & Societies
Punjab

MINISTRY OF MICRO, SMALL & MEDIUM ENTERPRISES

उद्योग आधार Udyog Aadhaar

A

Type of Enterprise	Micro	Small	Medium
Manufacturing	A	B	C
Services	D	E	F
UAN	PB10A0000733		

Udyog Aadhaar Memorandum

1 Aadhaar Number	458086569220				
2 Name of Entrepreneur	PAWAN KUMAR				
3 Social Category	SC				
4 Name of Enterprise	RADON MED-TECH				
5 Type of Organization	PARTNERSHIP				
Postal Address	B2/0030, MOHALLA, SARAI, NEAR RAILWAY STATION, NAKODAR, JALANDHAR (PB)-144040				
6	District: JALANDHAR	State: PUNJAB	PIN: 144040		
	Mobile No: 8968514269	Email: pawan.radon@hotmail.com			
7 Date of commencement	01/01/2016				
8 Previous Registration details-if any	-				
Bank Details	IFS Code: VIJB0007541				
9	Bank Account: 754100301000009				
10 Major Activity	MANUFACTURING				
11 National Industry Classification Code	MANUFACTURE OF OTHER ARTICLES N.E.C.				
12 Persons employed	15				
13 Investment (Plant & Machinery / Equipment's)	3(Rs. In Lakhs)				
14 District Industry Centre	JALANDHAR				

Declaration
I hereby declare that information given above is true to the best of my knowledge. Any information, that may be required to be verified, shall be provided immediately before the concerned authority.

Standard & Codes:-

BS-5682:1998, MDD -93/42/EEC, HTM 2022 and 02-01, NFPA 99, BS 864, BS: EN 13348 , IS/7396-1: 2007 & Class I, Class II, Class III & Class IV, EN 438, IS/ISO 4586. ISO 9000, ISO 13485,GB/T/1900- 2000, ISO 9001:2008, YY/T/0287- 2003/ ISO 13485.

PIPED MEDICAL GASES SYSTEM

Table of contents

PIPED MEDICAL GASES SYSTEM

Radon Med-Tech
Medical engineering

Overview

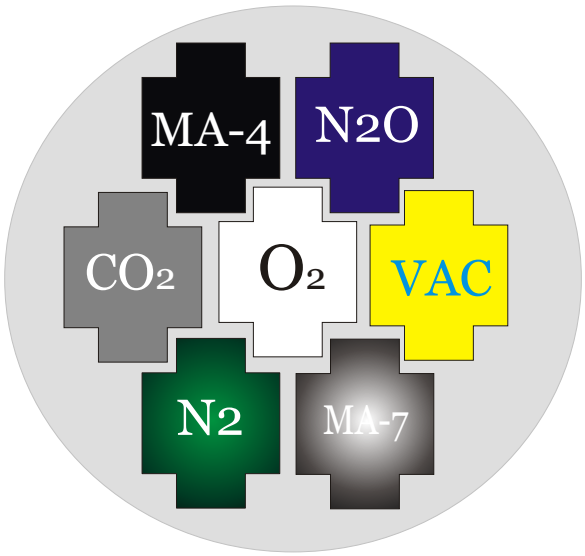
First as a start, we will discuss what is the important of the Piped Medical Gases used in hospitals. Why the system designed as a central system that replaced with the old-fashioned portable medical gases cylinders ...

Medical Gases used for the patient's health care, some patients suffers from shortness in breathing and not for not effective oxygen provision to the lungs. Medical gases are such named because of its great effect in the Medical field

How does the Pipe Medical Gases reach for the patient in their rooms?

- Medical gases as a definition they are specific gases that separate from the air individually and the commonly used in hospitals are:

1- Oxygen O2 with white coloured pipes
2- Nitrous Oxide N2O with its blue piped
3- Medical air 400 Kpa Or 4 Bar MA-4 with black/white pipes or white/salmon pink
4- Medical air 700 Kpa Or 7 Bar MA-7
5- Medical Vacuum, which listed as a medical gas but in fact, it is a suction system, pipes for liquid wastes known by its yellow pipes.
6- Carbon Dioxide CO2 grey pipes
7- Nitrogen N2 (commonly used instead of compressed air in surgical equipment) Black/Green pipes



PIPED MEDICAL GASES SYSTEM

These gases flows through a huge central pipes network that have outlets in the patient's rooms (recovery room), Emergency Department (ER), intensive care unit (ICU) and operations unit.

In the next paragraphs we will see also how is that central gases network connected by taking examples of two international Installation standards systems. In addition, how to differentiate between them.

1- Single Stage.
2- Double Stage.

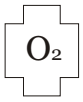
The old-fashioned medical gases system replaced by the new system, which is the central gases network known by MGPS (Medical Gases Pipeline System)

Old system formed from cylinders that placed in the rooms and distributed in the hospital (Operations unit, ER, ICU) causing efforts in transportations with high costs and issues in sterilization and waste if areas. Regardless of the terrible Chaos view in rooms and risky status cause, it will be as a ticking (time) bomb.

MGPS had solved all these problems by well-designed and well-demonstrated pipeline system.

PIPED MEDICAL GASES SYSTEM

The Uses of Each Medical Gases

Oxygen O2 

- As a gas: oxygen is the most important gas on the earth; it formed about 21% of the natural air.

In the ordinary conditions, oxygen is colorless, odorless, tasteless gas. Primarily used in respiratory - therapy and anesthesia, Has the ability to support life and support combustion. Although oxygen is non-flammable gas, Materials that burn in air will much more vigorously and create higher temperature in oxygen-enriched atmospheres so the oxygen pipes or cylinders considered as a high-risky source.

Oxygen used in the internal department, preterm babies department, ICU, Recovery department and Operations units (OR).

Nitrous Oxide 

Exists in the normal conditions in atmosphere as a gas, its smell is somehow sweet itch, capable of producing the first and second stages in anaesthesia when inhaled, primarily used as an anaesthetic.

Nitrous Oxide is non-flammable gas but it helps in burning in a lesser extent than oxygen. Used commonly in operational rooms (OR), and not further in the ICU.

Medical Air 400Kpa 

Exclusively used in human respiration (respiratory therapy) or calibration for respiratory applications, supplied from cylinders or medical air compressors

PIPED MEDICAL GASES SYSTEM

Medical Air 700Kpa1

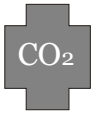
Surgical air at 700 kPa used as the power source for surgical tools.

Medical Vacuum

The medical vacuum pipeline system provides immediate and reliable suction for medical needs, particularly in operating theatres.

Primarily used for patient treatment in surgery, recovery, and ICU.

Carbon Dioxide CO2



Carbon dioxide is used less commonly now as a respiratory stimulant, and for insufflation during surgery.

Nitrogen N2

Exists as a gas at atmospheric temperatures and pressures.

Clear, colourless, and tasteless gas.

Comprises approximately 18% of the earth's atmosphere.

Used for pipe joining -welding- and pressure testing purposes.

Used to power instruments.

PIPED MEDICAL GASES SYSTEM

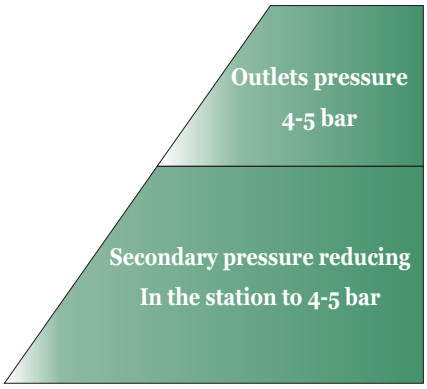
The international installation system standards of the medical gases pipeline systems:

Single stage distribution system (German)

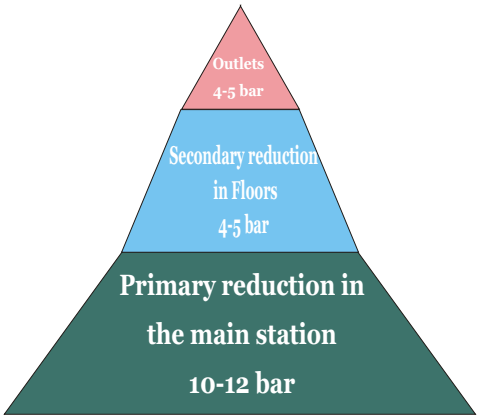
The single stage distribution system standard known as (German) and that's because the medical gases pressure is reduced to the required pressure at the outlets and that is occurred in the main station bear in mind that it's necessary to provide the system with more than one supplying source.

Benefits:

- Reducing the pipes diameter as much as possible (cost reduction).
- The pressure inside the pipes is much less than in the double stage distribution system.



SSDS(German)



DSDS (French)

Double stage distribution system (French)

Medical gases pressure reduced in two successive stages, the first stage is to set the pressure to be abnormal if compared with the required pressure let us say (10-12) bar, and then the second stage takes place and the pressure reduced again in the floors to reach the desired pressure at the outlets (4-5) bar via secondary regulators.

Benefits:

- The ability to supply new sections, departments and rooms in the hospital with medical gases from the main pipeline branch in the floors without installing a new supplying source in the main station unlike the single stage distribution system.

PIPED MEDICAL GASES SYSTEM

Radon Med-Tech
Medical engineering

Medical Gas pipeline system components

Medical gas pipeline

Medical Oxygen plant

Medical Nitrous oxide

Medical compressed air

Medical Vacuum plant

Terminal units

Regulators

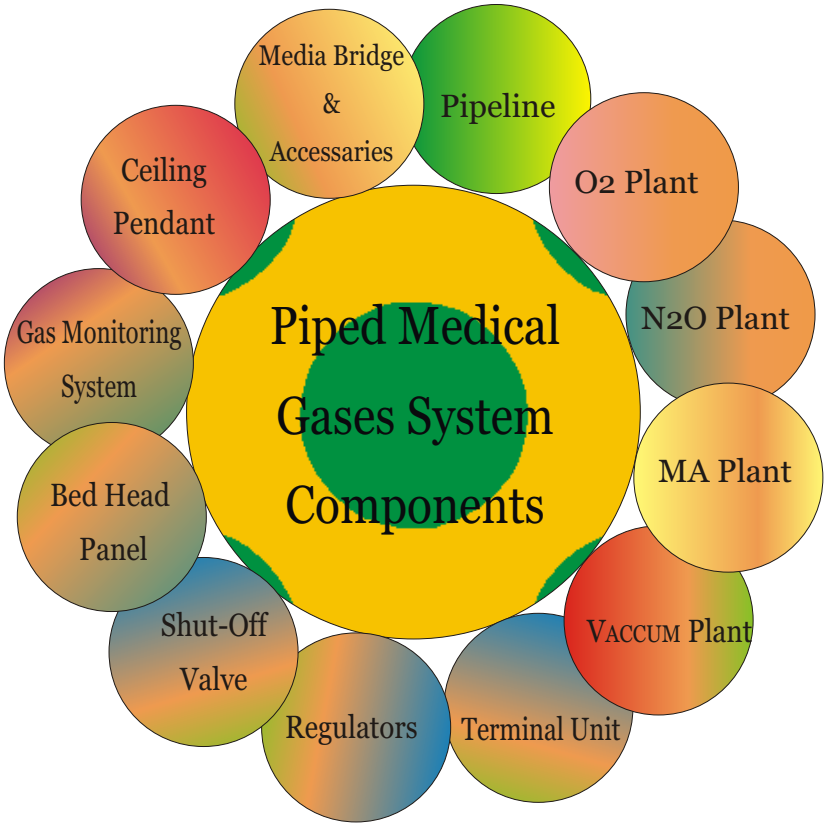
Shutoff valves

Bed head unit

Warning and alarm system

Ceiling pendant

Media Bridge & Accessories



Pipeline

Material:

-Medical clean chemically treated against corrosion copper pipes also the all the installing equipment.

- Pipes must transported with a sealing at the two ends keeping it safe from dust, pollution and other pollutants.

-Delivering it cleanly and must be for medical purposes only (medical degreased)

Installing Instructions:

Avoid

- Mechanical Hazards (Elevators)
- Chemical Hazards (Laundry)
- High temperature (incinerator)
- Greases, oils and electrical sparks (Generators)
- Physical Hazards (trolleys path)

Precautions

-Surrounding the pipeline with St. Steel or PVC pod passing in the walls to avoid the pipes from the corrosion.

- Never install exposed oxygen pipes in the flammable materials stores or in the kitchens and laundries.

-If it is Necessitate to install the oxygen pipes in these conditions, a protecting cover must attached to the pipes avoiding gas leakage.

Guidance

- Identification of pipelines with arrows, which indicates flow direction.
- All the gases have the same direction except the vacuum pipe.
- Every pipe have a special colour code as previously explained.

Oxygen Plant

Sources

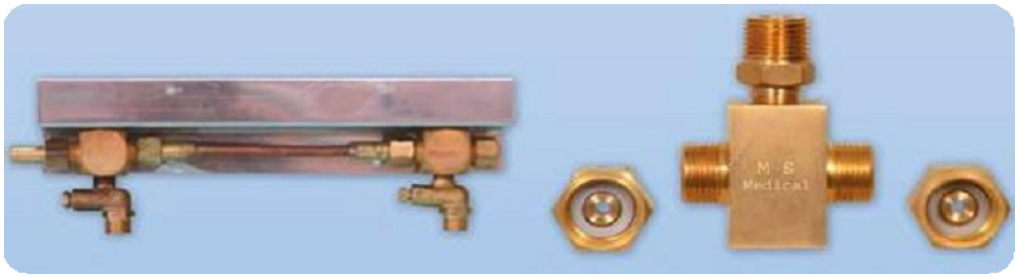
- Oxygen main station.
- Liquefied oxygen tank.
- Oxygen Generator

Oxygen station components

- Reducer / Changeover:

Allow the gas to pass from the both sides according to the pressure deference (Automatic switching)

-Manifold



Allowing gas to be branched through several pipes.

-Cylinder rack

Fixing the cylinder

-Liquefied Oxygen

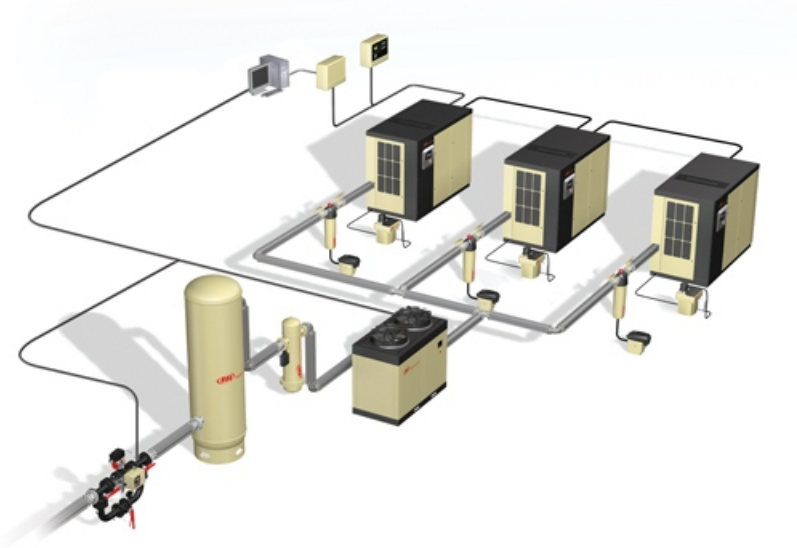
Fixing the cylinder

- Liquefied Oxygen tanks used in the huge hospitals or when consuming rate is higher than normal value.
- Isolate tanks contain thousands of liquefied oxygen liters.
- Liquefied oxygen when evaporated expand to multiple times of its liquefied state volume (more economical)
- Every Tank has its own evaporator.
- The temperature inside the tank about -183°C.
- Every tank has its own pipeline system responsible to compensate the decreasing in Oxygen level.
- These tanks placed in private areas, easy to reach via Oxygen car and easy to be maintained.

PIPED MEDICAL GASES SYSTEM

Medical compressed air plant

Medical Air Plants used to supply medical quality air for Respiration and Surgical needs.



Medical Air Plant Main Parts:

1- Air Compressors.
2- Heatless Desiccant Duplex Dryer.
3- Electrical Control Panel including Alarm Systems.
4- 4 Bar and 7 bar Regulation Group.
5- Filter Group, Oil, Odour, Bacteria and Sterile Filters Group.
6- Pressed Air Receiver.
7- Connection Equipment between units.

PIPED MEDICAL GASES SYSTEM

System design of medical air plant

- Must consists of two or more compressors.
- Automatic back-flow prevention.
- Isolation valves
- Pressure regulators
- Filters

o Dust filter: for removing dust and harmful particles from the compressed medical air

o Activated carbon filter: for removing hydrocarbons, oils and water vapour from compressed medical air.

o Bacterial filter: remove the bacteria from the compressed medical air.

Air dryer

o Drying the used air by getting rid of water vapour.

PIPED MEDICAL GASES SYSTEM

Medical compressed air plant

Medical Vacuum Plant

Terminals units

- **Outlets of hospital**

o Oxygen outlets

o Nitrous oxide outlets

o Compressed air 4bar

o Compressed air 7bar

o Vacuum outlet

- **Types of outlets**

o Wall outlets

o Trunking mounted

For a horizontal array, when viewed from the front, left to right:

Oxygen, nitrous oxide, medical air, surgical air, vacuum, (O2, N2O MA4, SA7, MV)
The same at vertical array from
top to bottom .

PIPED MEDICAL GASES SYSTEM

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Bead head units

Bed Head Panel
(Aluminum Die Pressed Continuos Type)

Bed Head Panel
(Aluminum Die Pressed Continuos Type)

Bed Head Panel
(Aluminum Excluded)

Bed Head Panel
(Aluminum Excluded Plan Type)

Vertical Bed Head Panel
(Aluminum Excluded)

Vertical Bed Head Panel
(Aluminum Excluded)

PIPED MEDICAL GASES SYSTEM

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Ceiling Pendnat

PIPED MEDICAL GASES SYSTEM

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Medical engineering

Warning Alarm & Accessories

Gas Monitoring Alarm

(Analog)

(Digital)

Isolation Ball Valve & Aseembly

O2 Flow meter and Suction Jar & Regulator

(O2 Flow meter & Bottle)

(Suction Jar & regulator)

(O.T. Suction Jar Trolley)

Customer support :- +91-1821-221234
Customer support (Technical) :- +91-8968514269

Optimum Quality, Efficiency and Services

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