

# Complete Medical Gas Management Solutions



**KARAKORAM**  
HEALTHCARE

## Medical Gas Business

- Medical Oxygen is a high-purity gas (purity of 99.5%) manufactured as per Indian Pharmacopeia Standard. Medical Oxygen is used extensively in the hospitals for treating the patients- through Nebuliser, Ventilator and Direct Oxygen Therapy.
- The Medical Oxygen cylinders is available in 3 variants; D Type, B Type and A Type.
- We also handle/manage Nitrous Oxide (N<sub>2</sub>O) and Nitrogen gas in hospitals for other specialty requirements.
- We also have vast experience in handling complex machines for other medical gas services, including Vacuum, compressed air, Atmospheric Air, Carbon Dioxide, AGSS, LMO, and PSA systems.



## Design, Supply & Installation of Medical Gas Pipeline System

Karakoram Healthcare Services LLP offer single-stop turnkey solution to Medical Gas Pipeline System (MGPS) in design, installation, commissioning, testing of MGPS and system validation in compliance with the international standards followed in healthcare business worldwide. Our dedicated design and project team, having over 30 years experience in this field, deliver tailor-made system solutions to health care facilities in order to meet specific requirements of the customers maintaining highest quality and safety standards viz HTM02-01 Part A.

The Medical Gas Pipeline System consists of the following services :

- Medical Oxygen System
- Medical Nitrous Oxide System
- Medical Air System
- Instrument Air System
- Medical Vacuum System
- Carbon-Di-Oxide System
- Anaesthetic Gas Scavenging System
- Liquid Medical Oxygen (LMO)
- Pressure swing adsorption (PSA)

## Pipework For Medical Gas Pipeline System

- Medical grade copper tube conforming to BS EN 13348: 2016 is used for gas distribution pipeline.
- Medical gas fittings conforming to BS EN 1254 are used for connecting the pipes.

## Pipeline Accessories

All pipeline accessories, we offer, are manufactured as per HTM 02-01 Standard.

## Architectural Products

The architectural products in connection to MGPS are as follows :

- Bed Head Panels
- OT Pendant

The above products provide better aesthetic view vis-à-vis clean working area in High Dependency Areas, ICU and Operation Theatres.

The products are built in customized way and conform to HTM 02-01 Standard.

## Service & Support

Service Support is extension of our other activities viz. installation and commissioning of medical Ggs pipeline Ssstem. It is our commitment to our customers to provide preventive vis-à-vis corrective maintenance for trouble-free performance of the equipment and thus uninterrupted supply of gas to the health care facilities.

# Auto Change Over System For Medical Gas Pipeline



## Technical Data :

1. Upstream Pressure	140 bar (2030 psi) max.
2. Delivery Pressure (Preset)	4 bar (58 psi)
3. Flow Rate at 4 Bar- Oxygen -Nitrous Oxide	660 lpm / 1500 lpm (max) 710 lpm (max)
4. Working Pressure	Adjustable 0-10 bar (0-145 psi)
5. Working Temperature	0-50°C
6. Pressure of Safety Valve	140>10 bar = 12.5 bar / 180 psi 10>5 bar = 7.5 bar / 108 psi
7. Bank Switching	Automatic (Pneumatic Switching)
8. Electrical	230 V AC / 12 V DC external adapter for audio visual alarm
9. Manifold Configuration	2,4 & 6 Cylinder (Module)- Header can be interconnected to expand bank size

# TERMINAL UNIT, Lucifer Outlet for Compressed Gases & Vacuum

## Technical Data :

Gas Services	Operating Pressure	Flow Lpm (min)
Oxygen, Nitrous Oxide, CO2, Medical Air (AR 4)	58 psig or 4 bar	58 psig or 4 bar
Nitrogen & Mixed Gases	58 psig (4 bar)	58 psig (4 bar)
Air for Surgical Tools (AR 7)	102 psig (7 bar)	102 psig (7 bar)
Vacuum (Below Atmosphere)	450 mmHg (8.7 psig)	450 mmHg (8.7 psig)
Safety	Geometric Indexing	



# Zonal Valve Box



## Technical Data :

1. Flow Capacity at 4.7 bar	1500 lpm
2. Allowable Pressure	58 psig (4 bar)
3. Extensions of Stub End	102 psig (7 bar)
4. Working Temperature	450 mmHg (8.7 psig)
5. Closing/ Opening of Valve	Geometric Indexing

## Ward Vacuum Unit



### Technical Data :

1. Inlet Vacuum Level (Below Atmosphere)	450 mmHG (8.7 psig) Max
2. Controllable Vacuum Level (Below Atmosphere)	0-450 mmHG (0-8.7 psig)
3. Gauge Range (Analog) (Below Atmosphere)	0- 760 mmHG (0-14.7 psig)
4. Free Flow Rate	0-55 Lmp (min)
5. Operating Temperature	-18 °C to 50 °C
6. Collection Jar	Autoclavable at 121 °C
7. Humidity	Max 95% non- condensing

## Gas Alarm System

### Technical Data :

Gases	Nominal Pressure ISO 7396-1:2007	Triggering of Alarm	
		Low	High
1. Oxygen	65 psi	Not <58 psig	Not >80 psig
2. Nitrous Oxide	(4.8 bar)	(4 bar)	(5.5 bar)
3. Medical Air			
4. Carbondioxide			
Air/ Nitrogen for Surgical Use	130 psi (8.9 bar)	Not <100 psi (6.9 bar)	Not >145 psi (10 bar)
Vacuum (Below Atmosphere)	300 mmHg (5.8 psig)	Not <258 mmHg (Not <5 psig)	Not >310 mmHg (Not >6 psig)
Electrical	230 VAC- 12V DC 20W External Adapter		



## Theatre Suction Trolley



### Technical Data :

1. Inlet Vacuum Level (Gauge) (Below Atmosphere)	450 mmHG (8.7 psig) Max
2. Controllable Vacuum Level (Below Atmosphere)	0-450 mmHG (0-8.7 psig)
3. Gauge Range (Analog) (Below Atmosphere)	0- 760 mmHG (0-14.7 psig)
4. Free Flow Rate	0-55 Lmp (min)
5. Operating Temperature	-18 °C to 50 °C
6. Collection Jar	Autoclavable at 121 °C
7. Humidity	Max 95% non- condensing

## BPC Flowmeter



### Technical Data :

1. Flow Max	15 Lmp
2. Increments	1 Lmp
3. Calibration Pressure & Temperature	50 psig (3.45 bar) at 21 °C 60 psig (4.13 bar) at 21 °C
4. Maximum Pressure	145 psig (10kPa)
5. Accuracy	At calibrated pressure and temperature in a vertical orientation +10% of reading at 3,5,10 & 15 Lmp

## Bed Head panel

### Standard Module

Guideline	HTM 2015
Unit Length	1 meter (Customization up to 5m max)
Pre-piped Gas Service	Outlets (Terminal units) for Oxygen, Medical Air & Vacuum or any other combinations
Electrical	Combined 5 & 15 Amps sockets (4 switches & 4 sockets or 6 sockets) for critical, normal and low voltage
Closing/ Opening of Valve	90° (1/4th turn)



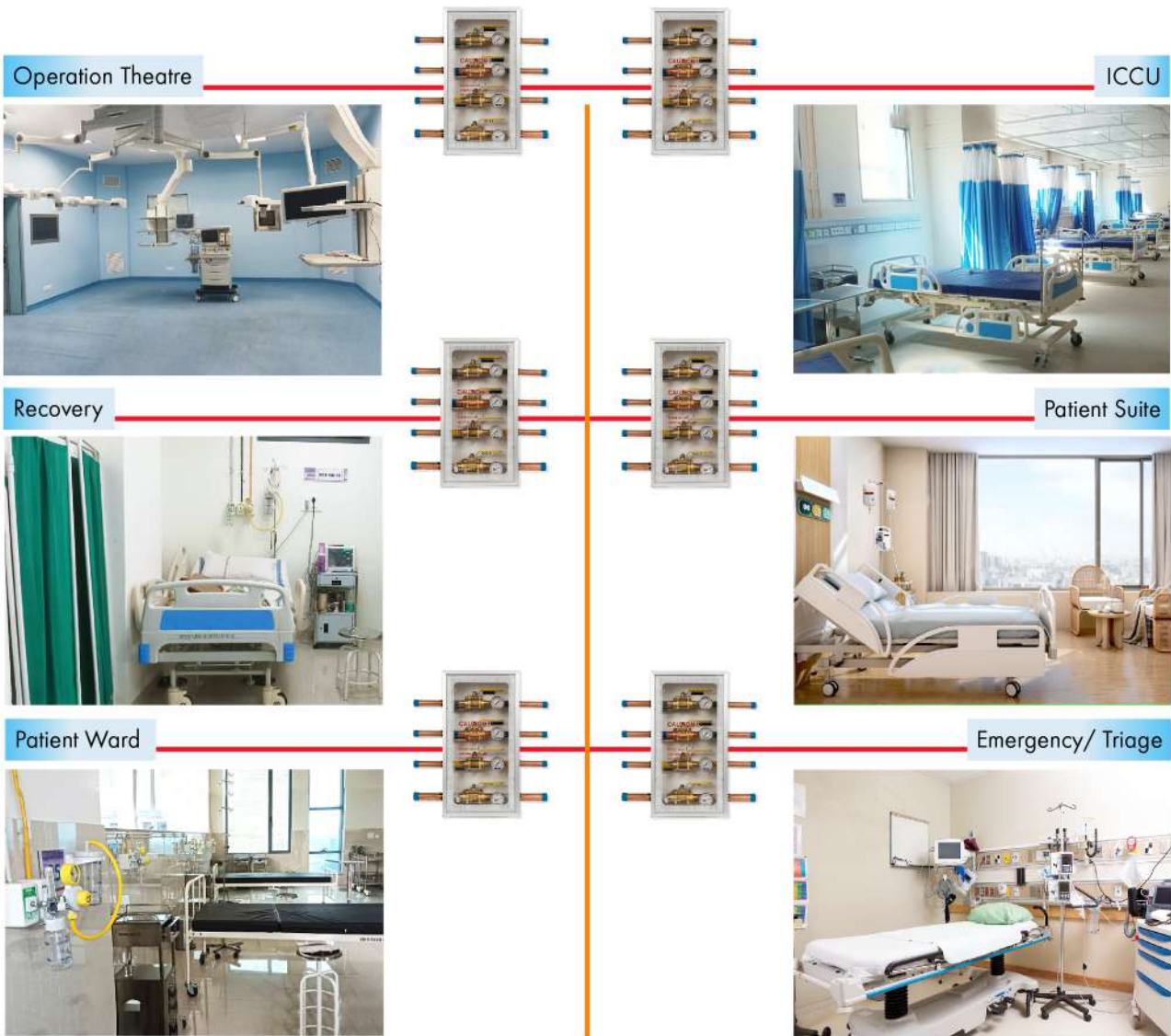
## New Age Ceiling Pendants



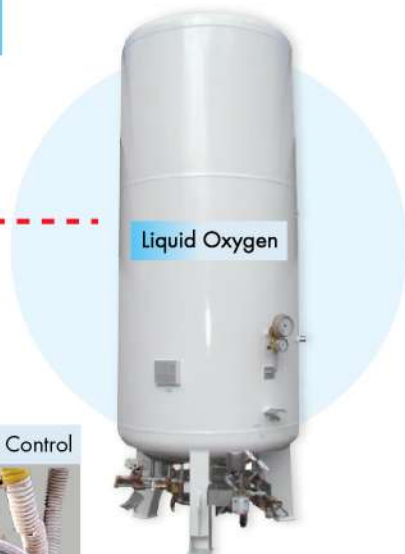
### Technical Data :

Arm Based Ceiling Pendants (Mechanical or Motorized)		Beam Based Ceiling Pendants (Mechanical or Motorized)	
1. Arm Length	600 & 800 mm	Beam Length	2 to 3 mts (Customization Possible)
2. Swivel Range	330° at joint	Working Range of Carrier	<500 mm
3. Load Capacity	150 Kg max	Load Capacity	300 Kg max
4. Outlet (Terminals)	Medical Gases & Power	Outlet (Terminals)	Medical Gases & Power
5. Power Supply	220 V/ 50 Hz	Power Supply	220 V/ 50 Hz

# Pictorial Representation of Medical Gas Pipelin System



## Source Equipments



## Our Services

Comprehensive MGPS management and turn key installation services:

- LMO
- MGPS (manifold + machine room+ ward level inspections)
- PSA operations and maintenance
- Rapid response team for break down and repair works
- In-house installation and planning experts
- Expertise in handling and installing MGPS related machines of any make
- Real time updates
- Routine and surprise site visits and client interactions

## Our Team



## Our Esteemed Clients



All India Institute of Medical Sciences (Kalyani)



Chitranjan National Cancer Institute



Steel Authority of India Limited (Burnpur)



Indian Railways (South Eastern Railways  
+Liluah Railway Workshop)



WBMSCL (various SDH+SGH)



ESI Hospitals



# **KARAKORAM**

HEALTHCARE

Registered Office:  
Chatterjee International Centre  
33A J. L. Nehru Road, unit #912,  
Kolkata 700071

Phone : +91 98365 23652  
E-mail : [info@k2healthcare.in](mailto:info@k2healthcare.in)