



2

**NEMOG**

**NITROGEN ENGINEERS  
MEDICAL OXYGEN GENERATORS**



# Why Medical Oxygen Generator ?



Generally Hospitals are dependent on the source of Cylinders or Liquid Oxygen tanks. But these sources are dependent on transport facility. Transport facility can be disturbed due to transport strike, natural calamity, erratic supply, or some unavoidable circumstances. Also for storage of cylinders or Liquid Oxygen tanks, there is requirement of huge space. There is also wastage of gas due to low pressure after usage of cylinders. Also for installation of tanks there is requirement of legal permissions. But why to worry? Around 21% of Oxygen is available in atmosphere. We can purify it further upto 96% by PSA Technology. This Oxygen available as per guidelines for Medical Oxygen.

## Why PSA Technology?

PSA technology is worldwide proven technology for over 3 decades, used for separation of gases. It is very safe, reliable and economical process. PSA based plants are very easy to handle. There is no requirement of skilled employees to operate these plants even fourth grade employees also can operate these plants. These plants are almost maintenance free. There is no specific requirement of space for installation of these plants, these plants can even installed on terrace. A storage tank can be installed in any open area and Oxygen can be distributed from there to beds. There is no any requirement of raw material, it is just atmospheric air. Only there is requirement of power, which is available in plenty for hospitals, even Power generators are mandatory for hospitals. There is single time investment for installation of these plants.

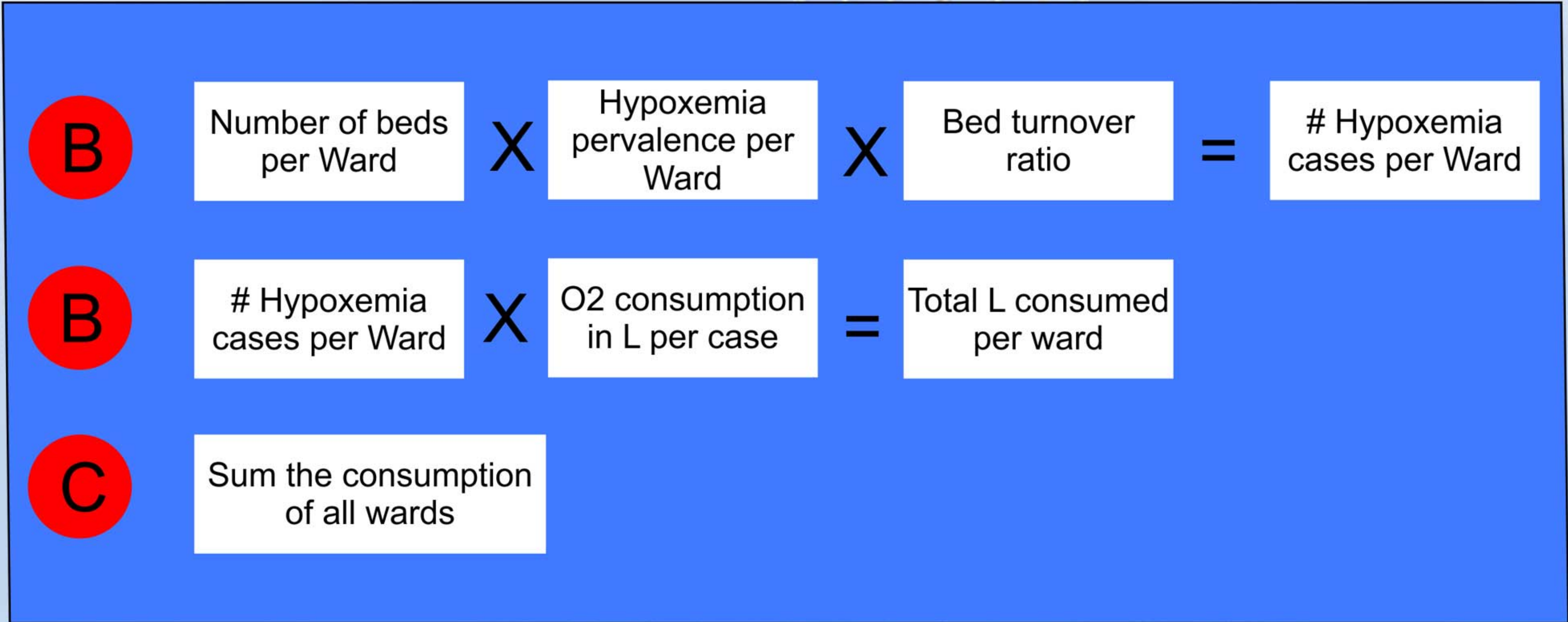
## What is PSA Technology?

PSA System contains of Twin Tower Adsorbers filled with desiccant. These two towers are interconnected with valves for automatic changeover of towers. In this system while one tower is in production, another is in regeneration to provide uninterrupted supply of gas. The changeover of valves is controlled by timer installed in control panel. Unless until we do not achieve desired purity, Gas is not get stored in storage tank, it is vented out to atmosphere. Continuous air is supplied to PSA systems by a Compressor, which is first made oil free, and then cooled.





# How to Calculate Requirement of Oxygen ?



Typically, one Type B cylinders are used for 3 major surgeries each lasting for an average duration of 2 hours. This information can be used to estimate the Oxygen requirement of a hospital. Detailed and accurate information can be obtained by analysing data about Oxygen consumption and different types of surgeries (major/minor) performed by a hospital during defined time period. Another method to measure the Oxygen requirement is given below  
(No. of beds X 1.25 + ICU and OT X 1.25 + delivery beds X 1.25) X 0.06  
= Oxygen required per hours

Source: Uttar Pradesh State Oxygen Operational Guidelines and Guidebook

## Requirements of Medical gas and Air Points

All critical areas of the hospitals such as emergency wards, operation theatre, ICU, NICU, labour room should have uninterrupted 24 X 7 Oxygen Supply. As per industry norms the requirement of Oxygen supply in Hospitals are as follows

Specialities/Wards	Number of Outlet Points per Bed		
	Oxygen	Suction	Air
ICU	2	2	1
PICU/NICU	3	3	3
HDU	2	2	1
Wards	1	1	1
OT	2	2	1
Labour Room	2	2	1
Cardiac ICU	2	2	1

In General wards at least 20% of the beds should have an Oxygen outlet.

Source: Uttar Pradesh State Oxygen Operational Guidelines and Guidebook

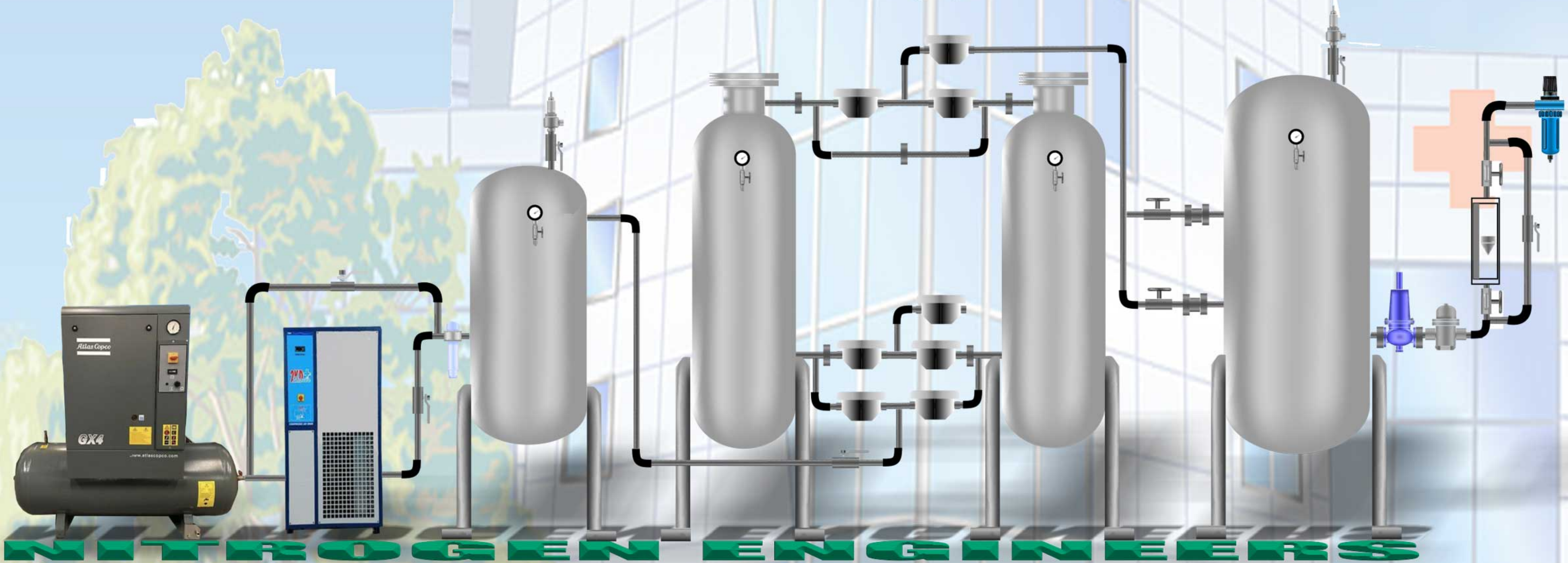


# General Standard Required Models

Capacity LPM	Air Required Nm3/Hr	Suitable for Hospital Beds			Power Consumption kWh
		General Ward	ICU	OT	
50	3.9	4	0	0	1.3
10	7.8	3	1	0	1.6
25	19.5	5	2	1	2.5
50	39	10	5	1	3.4
100	78	20	10	2	7.0
250	195	65	25	2	16.0
500	390	135	50	3	31.0

Note: These Models are for reference only, to understand the requirements of capacity, Air consumption and Power consumptions. We are providing tailor-made plants, it means each and every plant is designed by understanding your hospitals consumption requirements

## General Schematic of Medical Oxygen Plant



## NITROGEN ENGINEERS

**Office**  
16/3, Jay-Vijay Industrial Estate,  
Mumbai- Ahmedabad Highway, Bapane,  
Naigaon - 401 208, Thane  
**Contact** : +91-9323383550 / 7738072611  
**email** : nitrogen.engineers@gmail.com  
info@nitrogenengineers.com



Scan with your  
phone using QR  
code Scanner