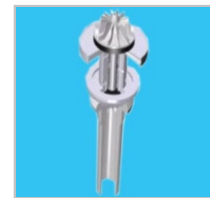
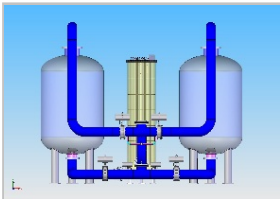
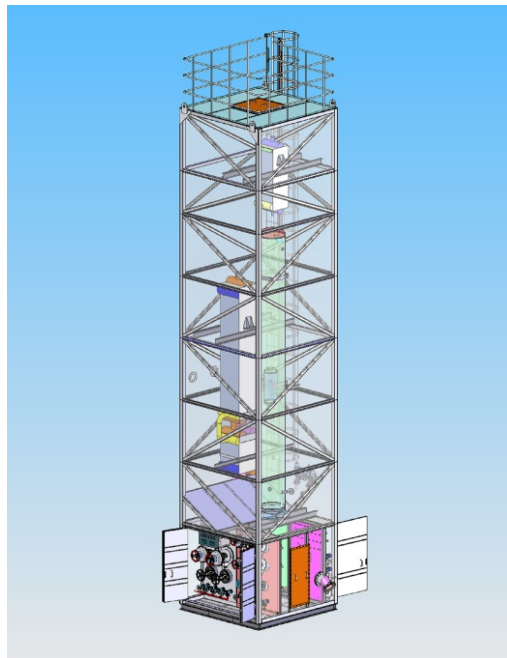
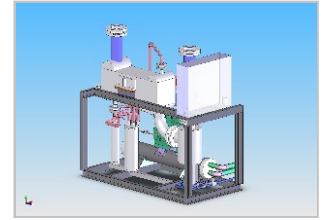


AIR SEPARATION PLANTS (Pure Nitrogen Plants)



IN TECHNICAL COLLABORATION WITH

ING L & A BOSCHI OF ITALY

www.oxygenplants.com



IMPIANTI LIQUEFAZIONE E PRODUZIONE GAS TECNICI
23 years of Excellence

CERTIFICATIONS & STANDARDS

CE 

ISO9001:2000



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23 years of Excellence

Company Profile

*Universal in Collaboration with **ING.L.A. BOSCHI Italy SINCE 1930** manufactures & suppliers Premium Quality low pressure Air separation plants of all sizes ranging from 50m³/hour to 50,000m³/hour including Cryogenic Tonnage gas plants and liquid plants.*



Dr. Boschi (Italy) at New Delhi Press Conference



OEM supplier from Switzerland

With state of the art designs and technology from Europe, established manufacturing facilities spread out in various locations all over India & Asia and sales located in New Corporate Region (NCR) of Delhi, the Italy based company is dedicated to supplying the latest in Cryogenic Technology constantly striving to improve its products through continuous research and development.

Universal is a certified ISO 9001:2000 organization and the latest achievement includes the successful approval for CE Certification which makes our company the first in Asia to certified for Cryogenic Pressure vessel, Plant machinery exports to Europe and USA. We have success in the low Pressure plants as it is the technology of today and the future. We have manufactured over 300 plants since last 23 years since 1985 at New Delhi and supplied to over 40 countries world wide.



1. Air Compressor:

Rotary air compressor screw type can be used for smaller size plants upto 500m³/hr & 1000m³/hr. Upto 40000m³/hr. Centrifugal compressor can be used for higher size plants.

2. Air pre cooling system:

Air separation plants adopts chilling system in all air pre-Cooling systems.

3. Air purification system:

This system beds of molecular sieve are used in the air purification system, it remove the Co₂ & moisture for the process air at low-Pressure.

4. Rectification column:

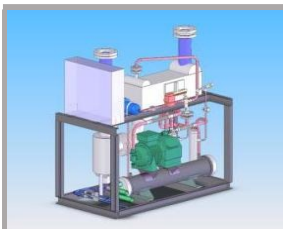
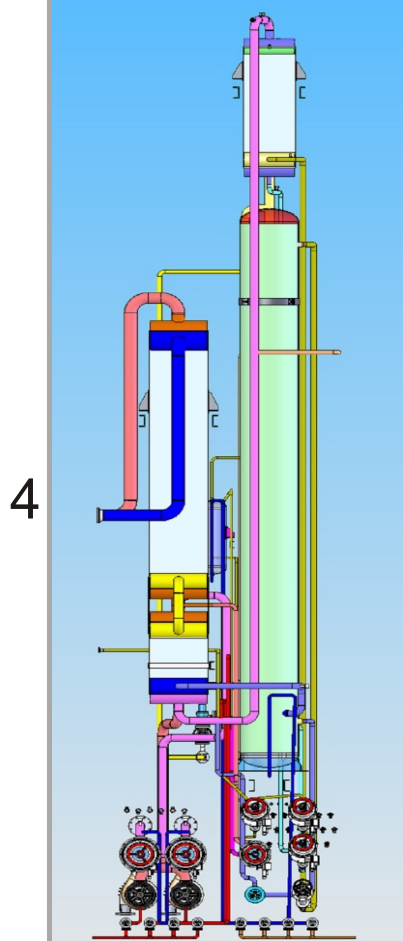
The unit in cold box are all low pressure technology. This unit employs the latest state of the art plate & fin exchanger, cond-ensor and sub- coolers. The column is supplied as a packed unit complete with all the control systems including digital flow- meters, temperature, pressure available with high purity upto 2-3 ppm nitrogen as a second product without loss in oxygen Production.

5. Turbo-expander:

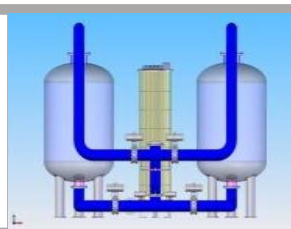
Turbo - expander is used for giving cooling to the air for the liqefication process and braked by booster, so as to reduce the expanded air volume, stablize the upper columns working condition and reduce power consumption. The turbine expanders have complete trouble free working and long life and reliability.

6. Computer control:

All the plants can be configured for automatic operation through a pc this will use a out switching valves of German or Japanese And motorized cryogenic valves on cold box.



2



3



5

Medium Capacity Pure Nitrogen Plant (32 TPD TO 320 TPD)

Range 1,000 TO 15,000m³/hr

Purity oxygen -99.6% ,Nitrogen -99.99% or 3PPM

Operating Air Pressure- 0.6 TO 0.7Mpa



AIR COMPRESSOR



PURIFICATION UNIT



AIR SEPARATION UNIT



TURBO-EXPANDER

CONTROL

Small Capacity Pure Nitrogen Plants

Range 50M³/hr TO 1000M³/hr

Purity 99.99 Upto 3ppm

Operating Air Pressure- 0.6 TO 0.7Mpa



AIR COMPRESSOR

PRE-COOLER+PURIFICATION UNIT



AIR SEPARATION UNIT



TURBO-EXPANDER

CONTROL P

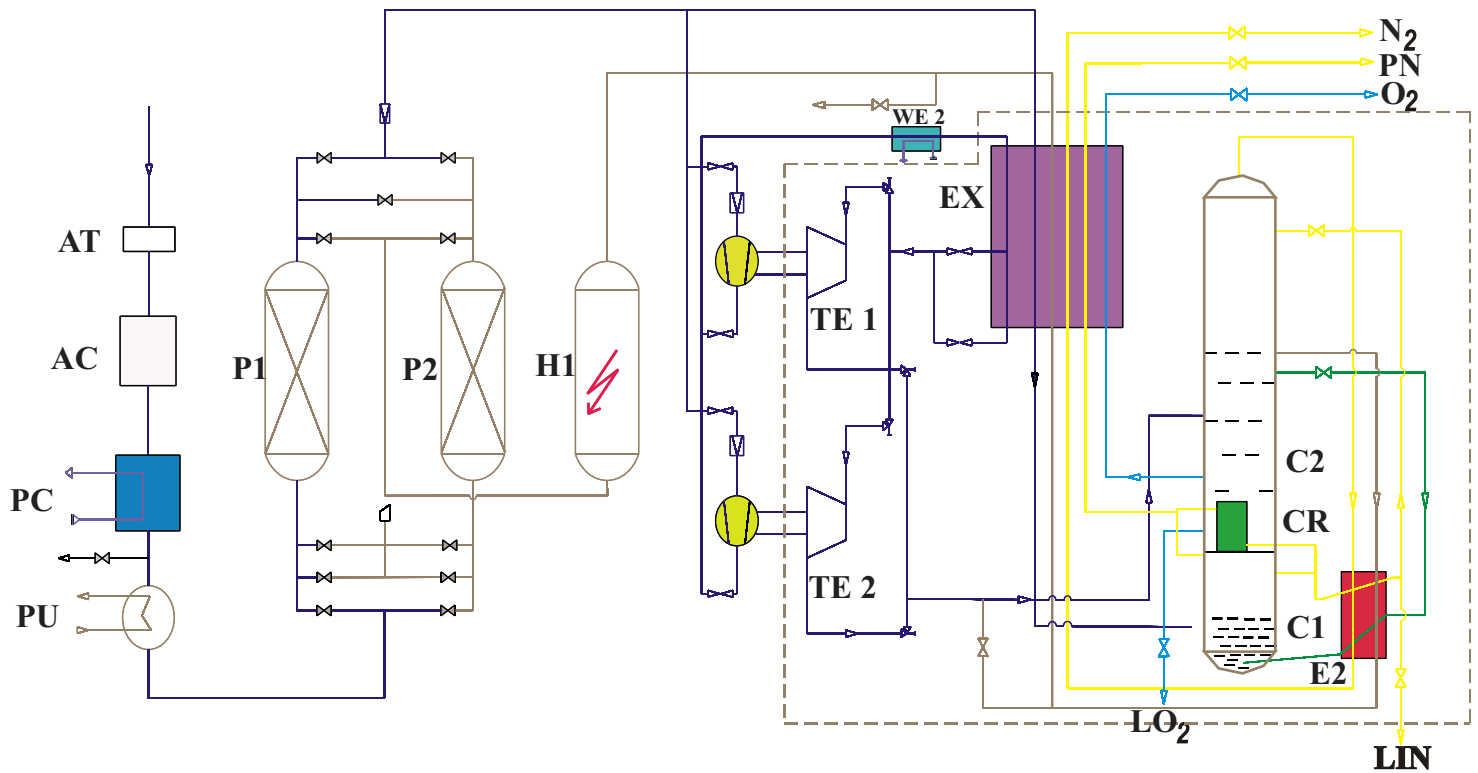
[Click for Catalogue](#)

Power Consumption:Air Compressor Power+Pre-cooling+Electro-Heater of Molecular Sieve.

■Green-Item is Molecular Sieve Absorber Waste Gas Expansion.

■Blue-Item is Molecular Sieve Absorber Air Expansion.

AIR SEPARATION PLANT FLOW CHART WITH MOLECULAR SIEVE PURIFIER AND BOOSTER AIR EXPANSION



AI	AIR FILTER	H	HEATER	CR	CONDENSOR REBOILER
AC	AIR COMPRESSOR	EX	MAIN HEAT EXCHANGER	C2	LOW PRESSURE COLUMN
PC	PRE-COOLING UNIT	TE1/2	TURBO EXPANDER		
PU	PURIFICATION UNIT	E2	SUB COOLER		
P1/2	TOWER1/TOWER 2	C1	COLUMN		

Technical Data

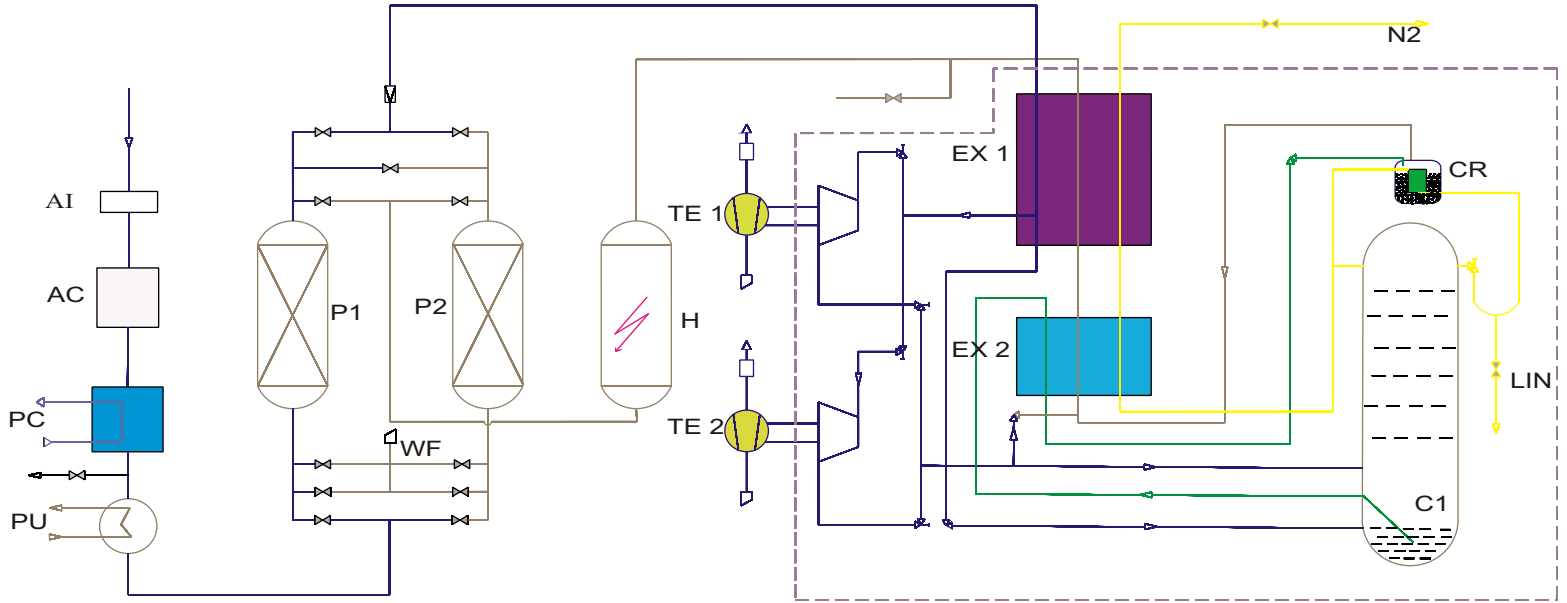
Production	Oxygen	Nitrogen	Argon
Purity		99.9%-99.99%or 3ppm	
Air Pressure	0.7Mpa/7Bar		
Normal operating pressure of plant	0.6 To 0.7Mpa	0.6 To 0.7Mpa	0.6 To 0.7Mpa
Power Consumption for oxygen	0.5 To 0.8 KWh/m	Nil	Negligible

Basic Principle

The air separation plant is a plant recovering oxygen and nitrogen from air simultaneously. It advances low pressure technology process of Bosch Italy using Rotary screw compressor (or low oil free piston compressor) and turbo expanders.

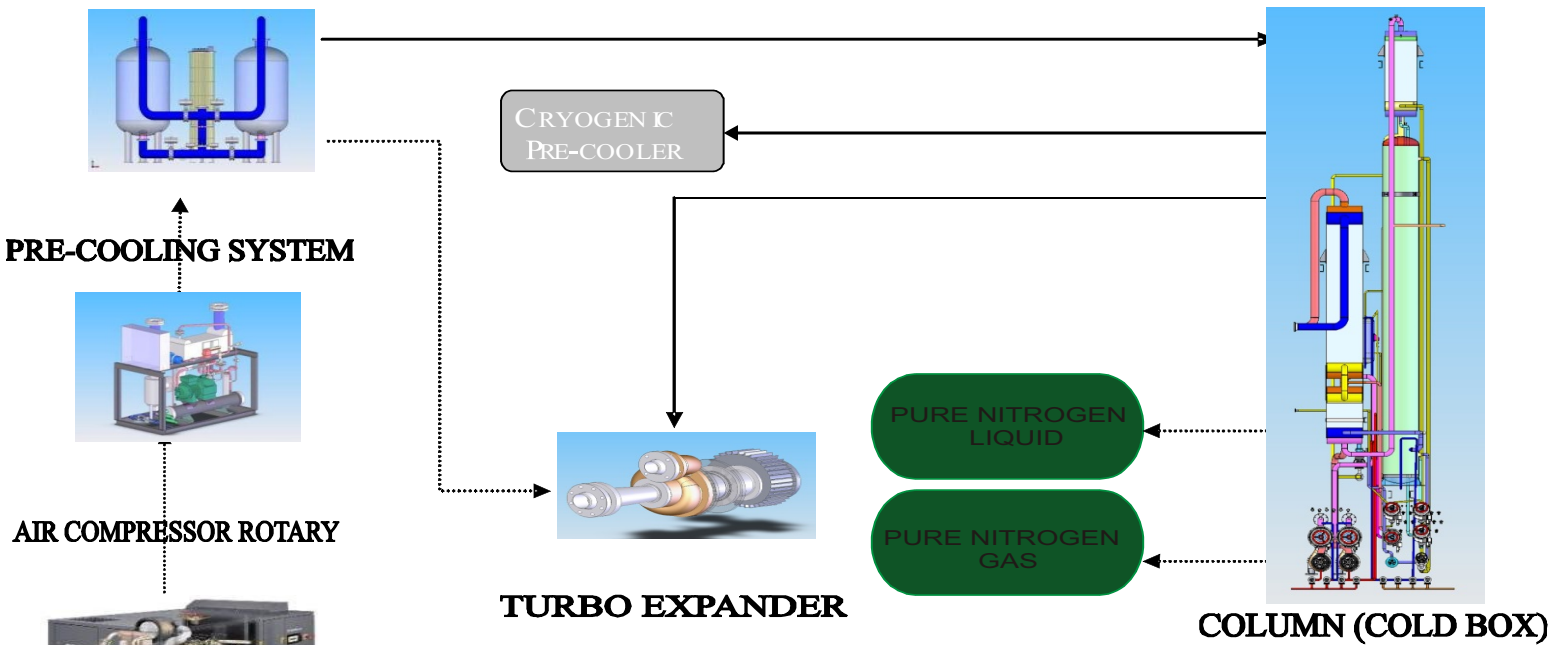
The feed air entering the Molecular Sieve purification system employed to remove the moisture and CO₂ from the process air. The air is liquefied by cryogenic cooling using latest plate and fin high efficiency heat exchangers and turbo expanders. The liquid air separates into oxygen, nitrogen, and inert gases in the air separation column.

NITROGEN PLANT FLOW CHART WITH MOLECULAR SIEVE PURIFIER AND AIR EXPANSION



AI AC PC PU P1/2 H TE1/2	AIR FILTER AIR COMPRESSOR PRE-COOLING UNIT REFRIGERATING UNIT TOWER 1/ TOWER 2 HEATER TURBO EXPANDER	EX 1 EX 2 C1 CR	MAIN HEAT EXCHANGER SUB COOLING UNIT COLUMN CONDENSOR REBOILER
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PURIFIER



PROCESS FLOW DIAGRAM

