



BDM CRYOFUSION & MANDRESSI ITALIA

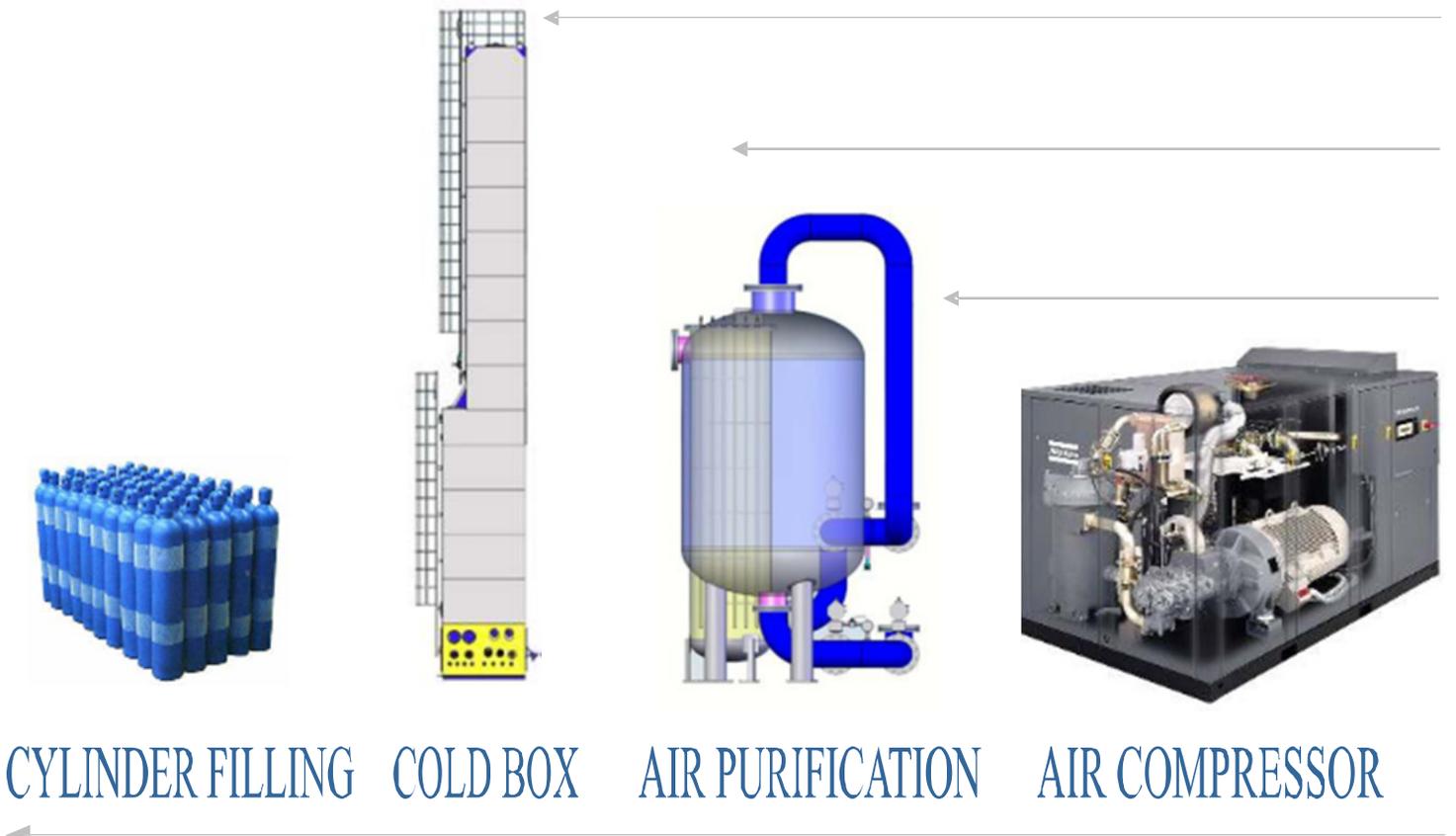
LABORATORY INSTRUMENTS | REPAIRS | OIL FREE | ASSISTANCE | ADJUST | AIRFLOW



TURBO OXYGEN NITROGEN PLANT

WITH LATEST ROTARY AIR COMPRESOR

PICTORIAL FLOW CHART OF THE LOW PRESSURE TURBO AIR SEPARATION PLANT FOR OXYGEN & NITROGEN.



CYLINDER FILLING

COLD BOX

AIR PURIFICATION

AIR COMPRESSOR

OXYGEN - NITROGEN PLANT

FOR CYLINDER FILLING AND PIPELINE SUPPLY



SALIENT FEATURES

- **EASY TO INSTALL**
- **VERY LOW POWER CONSUMED**
- **NO SPECIAL CIVIL FOUNDATION REQUIRED**
- **AIR COOLED DESIGN FOR AIR COMPRESSOR**
- **LATEST TECHNOLOGY PLANTS WITH LOW PRESSURE ROTARY AIR COMPRESSOR**
- **ZERO MAINTENANCE PLANT & BREAK DOWN FREE WORKING IN THE PLANT**
- **OXYGEN FILLED INTO CYLINDERS AT HIGH PURITY**
- **NITROGEN PRODUCTION AT HIGH PURITY OF 5PPM AT THE SAME TIME ALONG WITH OXYGEN PRODUCTION**



AIR COMPRESSOR



Atlas Copco



FEATURES

FULLY AUTOMATIC OPERATION BY PLC AS SHOWN BELOW.

AUTOMATIC START UP & SHUTDOWN WITH BUILT IN SAFETY RELEASE.

OIL FREE VERSIONS ARE AVAILABLE.

BDM

OPERATING PRESSURE OF 7 BAR FOR GASEOUS OUTPUT AND 10 BAR FOR LIQUID OUTPUT.

APPLICABLE FOR BOTH OXYGEN & NITROGEN OUTPUTS.

CENTRIFUGAL COMPRESSORS FOR HIGHER CAPACITIES ARE AVAILABLE.

MAINTENANCE VIRTUALLY NIL DUE TO ROTARY DESIGNS.



AIR PRE-COOLING UNIT



Danfoss

HITACHI
Inspire the Next

BDM

PRE-COOLING UNIT INSTALLED NEXT TO AIR COMPRESSOR



FEATURES

INSTRUMENT PANEL WITH DIGITAL READOUTS FOR EASY OPERATION.

AUTOMATIC ADJUSTMENT FOR COOLING AS PER SET PARAMETERS.

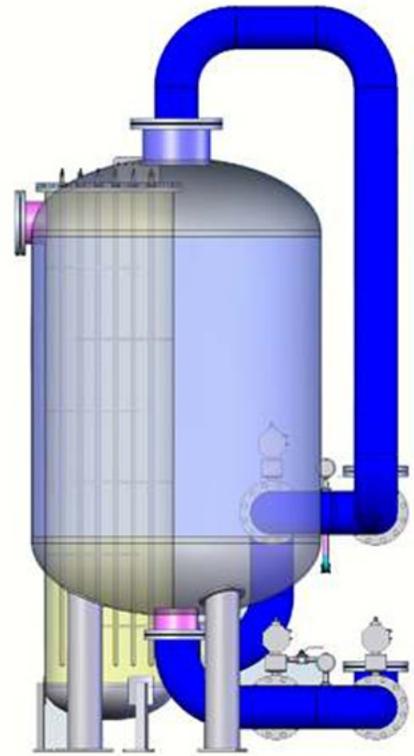
RELIABLE COOLING WITH NO CHANCE OF BREAKDOWN DUE TO PERFECTED DESIGN.

DESIGNED TO HANDLE OPTIMUM AIR CAPACITY.

CE CERTIFIED COMPONENTS FROM DANFOSS, HITACHI & MITSUBISHI.

AIR PURIFICATION UNIT

BDM



3D SIDE VIEW

FEATURES

SKID MOUNTED DESIGN

ULTRA HIGH PURIFICATION UPTO 5 PPM CO₂.

LONG LIFE OF MOLECULAR SIEVES.

HIGH INSULATION EFFICIENCY REDUCES POWER CONSUMPTION.

EASY TO OPERATE. (AUTOMATIC SWITCH OVER OPERATION IS OPTIONAL)



AIR SEPARATION UNIT

BDM



The **Air Separation Unit** also known as the Cold Box is the most essential component of the air separation plant.

This unit is designed to cool incoming atmospheric air after purification to temperatures of -195°C below zero in order to separate the mixture of Oxygen and Nitrogen.

This is done through a double distillation cryogenic liquefaction process by virtue of the difference in the liquefying point of Oxygen & Nitrogen.

The Unit is made from Cryogenic grade stainless steel or Aluminium depending on the model. Our CE and SGS certified welding quality assures the customer of a Leak proof design which is built to last for many decades.

FEATURES

ROBUST LEAK PROOF DESIGN WITH PERLITE INSULATION.

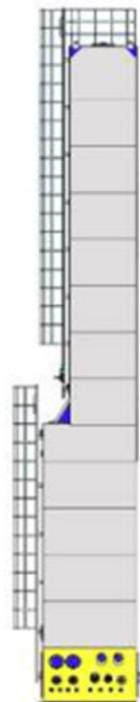
HIGH PURITY OF 99.6% FOR OXYGEN PRODUCTION (GAS AND LIQUID).

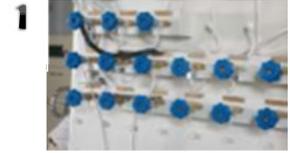
ULTRA HIGH PURITY OF 99.999% FOR NITROGEN PRODUCTION. (GAS AND LIQUID).

EASY TO OPERATE DUE TO SIMPLIFIED DESIGN.

VERY LOW SPECIFIC POWER CONSUMPTION TO HELP SAVE MANUFACTURING COST.

PARAMETERS MONITORED VIA DIGITAL CABINET (AS SHOWN ON THE RIGHT)





- 1 - PURITY TESTING POINTS
- 2 - TURBINE FLOW REGULATORS
- 3 - PRESSURE TRANSMITTERS

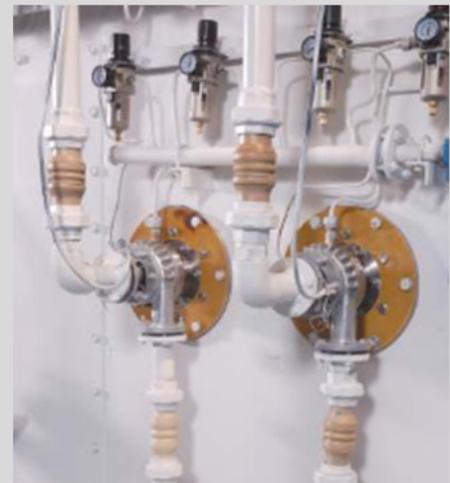
TURBINE EXPANDER



FEATURES

99.9 % COOLING EFFICIENCY RPM VARIABLE SPEED FOR OPTIMUM EXPANSION AND COOLING.

GAS LUBRICATED DESIGN FOR MINIMUM MAINTENANCE.



OXYGEN - NITROGEN GAS FILLING IN CYLINDER BOTTLES

SPECIAL OXYGEN-NITROGEN MANIFOLD FILLING AT 200 BAR FOR SOME COUNTRIES IS OPTIONAL EXTRA



CYLINDER FILLING IS DONE AT 165 BAR PRESSURE AND THE PRODUCT IS SUITABLE FOR ALL APPLICATIONS.

OXYGEN GAS PURITY - 99.6%

**NITROGEN GAS HIGH PURITY – 99.99%
(Up to 1 PPM purity available)**



**NITROGEN FILLING MANIFOLDS
UPTO 165 BAR PRESSURE OR MORE OPTIONAL**



INSTALLATION OF PLANTS



BUILDING FOR THE OXYGEN NITROGEN PLANT OF CAPACITY 200 m3 per HOUR



ELECTRICAL ROOM OF A 100 M3 PER HOUR OXYGEN PLANT WITH SMALL 200KVA TRANSFORMER



BDM LP GOX 100 PLANT FOR OXYGEN & NITROGEN CYLINDER FILLING (READY TO INSTALL)



HIGH PURITY NITROGEN GAS
PPM FILLING STATION OF
PLANT MODEL BDM GOX 200

(200 BAR WITH OIL FREE
WATER FREE SYSTEM IS
OPTIONAL)

TECHNICAL SPECIFICATIONS

OXYGEN AND NITROGEN GAS PLANT

| Model | CAPACITY - nm3 per hour | | OXYGEN PURITY | NITROGEN PURITY |
|----------------|-------------------------|------------|---------------|---------------------|
| | OXYGEN | + NITROGEN | | |
| BDM 50 | 50 | + 50 | 99.6% | 99.99% or more PPM |
| BDM 100 | 100 | + 100 | 99.6% | 99.99% or more OPT. |
| BDM 150 | 150 | + 150 | 99.6% | 99.99% or more OPT. |
| BDM 200 | 200 | + 200 | 99.6% | 99.99% or more OPT. |
| BDM 250 | 250 | + 250 | 99.6% | 99.99% or more OPT. |
| BDM 300 | 300 | + 300 | 99.6% | 99.99% or more OPT. |
| BDM 400 | 400 | + 400 | 99.6% | 99.99% or more OPT. |
| BDM 500 | 500 | + 500 | 99.6% | 99.99% or more OPT. |

Oxygen purity 99.6% at 165 BAR filling Pressure

OXYGEN AND NITROGEN GAS PLANT

| Model | CAPACITY - nm3 per hour | | NO. OF OXYGEN CYLINDERS PER DAY | POWER CONSUMED |
|----------------|-------------------------|------------|------------------------------------|----------------|
| | OXYGEN | + NITROGEN | | |
| | | | | 02+N2 |
| BDM 50 | 50 | + 50 | 200 | 56 KW |
| BDM 100 | 100 | + 100 | 400 | 78 KW |
| BDM 150 | 150 | + 150 | 600 | 110 KW |
| BDM 200 | 200 | + 200 | 800 | 130 KW |
| BDM 250 | 250 | + 250 | 1000 | 150 KW |
| BDM 300 | 300 | + 300 | 1200 | 200 KW |
| BDM 400 | 400 | + 400 | 1600 | 280 KW |
| BDM 500 | 500 | + 500 | 2000 | 350 KW |

Oxygen Purity 99.6%

Nitrogen Purity 99.99% or more OPT

Power managed at outlet of Cold Box