



**500LPM PSA MO2 PLANT
MAIN PRODUCT DOCUMENT
AIR COMPRESSOR WITH
REFRIDGERATED AIR DRYER**

DOCUMENT NO. STE- Z13-467-01

REV. 00 DATE : 08.05.2021

MATERIAL CODE : ST4110077001

**Purchase Specifications for
Air Compressor with Refrigerated Air Dryer**

Introduction

Purchase specification is intended to design, manufacturing, assembly, testing and supply of Air Compressor with refrigerated air dryer, Micron Filters (Course, Fine & Carbon Activated) and Air Receiver for Medical grade PSA Oxygen plant of 500 LPM Capacity.

The feed air system comprises of **screw type air compressor**, motor, air cooler, starter and control system etc. The screw compressor has integrated / built in Refrigerated type dryer so as to reduce the moisture load on the desiccant and the condensed water is drained out through a timer operated auto drain valve. To further reduce oil contents from the air, an additional activated carbon filter is provided. Micron air filter is provided before oil filter to remove any particulate matters. Thus, clean, oil free air is available for continuous usage in the system.

Scope of supply

Scope of supply shall be **(Item-1 + Item-2 + Item-3 + Item-4 + Item-5)** as per following Technical Specifications of major components:

Item No.1: **Air Compressor with motor, Integral Refrigerated Air Dryer and Air Suction Filter. If Air dryer is a non-integral type, then Compressor & dryer to be supplied mounted on common skid and power supply of air dryer to be made available from air compressor system.**
(Quantity : 01 No)

Type : SCREW fluid cooled air end heavy duty with world renowned Sigma Profile heavy duty stationary screw air compressor

Pressure : 7.0 to 8.0 bar(g)

Stage : Single stage

FAD : **280 cfm to 300 cfm** as per ISO-1217: 2009

Motor : S-1 Duty, minimum IE-2 efficient Squirrel Cage induction motor with TEFC IP 55 enclosure, Class F insulation suitable for 46 C ambient temp.
Electrical Supply : 415V, 3 Ph, 50 Hz±5%.

Noise level: max 85 dB at one(1) meter.

Drain : As per Annexure-1

Item No.2: **Micro Filters Course (Quantity : 01 No)**

- Coalescence Line Filter
- Initial differential pressure at saturation < 200 mbar
- *Aerosol content at Inlet:* - 10 mg/m³
- Remaining Aerosol content at Outlet as per ISO 12500- 1:06-2007 <0.1 mg/m³
- *Filter Medium:* Deep-pleated with support structure & polyester drainage fiber



**500LPM PSA MO2 PLANT
MAIN PRODUCT DOCUMENT
AIR COMPRESSOR WITH
REFRIDGERATED AIR DRYER**

DOCUMENT NO. STE- Z13-467-01

REV. 00 **DATE : 08.05.2021**

MATERIAL CODE : ST4110077001

- *Application:* Filtration of solids, liquids, aerosols and particulate matter.
- *Connecting Pipe Size-* NB50
- Flanges & Counter Flanges along with applicable fasteners and gaskets (in case of flanged Connection)

Item No.3 : Micro Filters Fine (Quantity : 01 No)

- Coalescence Line Filter
- Initial differential pressure at saturation < 200 mbar
- *Aerosol content at Inlet :* 10 mg/m³
- Remaining Aerosol content at Outlet as per ISO 12500- 1:06-2007 <0.01 mg/m³
- *Filter Medium:* Deep-pleated with support structure & polyester drainage fiber
- *Application:* Filtration of solids, liquids, aerosols and particulate matter.
- *Connecting Pipe Size-* NB50
- Flanges & Counter Flanges along with applicable fasteners and gaskets (in case of flanged Connection)

Item No.4 : Micro Filter Activated Carbon (Quantity : 01 No)

- Coalescence Line Filter
- Initial differential pressure at saturation < 40 mbar
- *Aerosol content at Inlet:* 10 mg/m³
- Remaining Aerosol content at Outlet as per ISO 12500-1:06- 2007 < 0.003 mg/m³
- *Application:* exclusively used for removal of oil vapours.
- *Connecting Pipe Size-* NB50
- Flanges & Counter Flanges along with applicable fasteners and gaskets (in case of flanged Connection)

Item No.5 : Air Receiver (Quantity : 01 No)

- Geo. Volume : 1000 liters Minimum
- Operating Pressure: 7.0 Kg/cm²
- Design Pressure / Temp. : 8.0 Kg/ cm²g./ 80 Degree C
- Hydro test Pressure: 12.0 KG/ cm²g.
- Inlet Air Temperature: 40 °C.
- Material of Construction : IS-2062
- Design Code: ASME Section VIII Div. I / IS-2825
- Corrosion Allowance : 1.5 mm
- Thickness, shell : 6 mm (min)
- End Covers : Dish end
- Weld Joint Radiography : Longitudinal 100% & Circumferential 10%
- Nozzles : Nos. and sizes of nozzles and drain arrangement as per Annexure-1



**500LPM PSA MO2 PLANT
MAIN PRODUCT DOCUMENT
AIR COMPRESSOR WITH
REFRIDGERATED AIR DRYER**

DOCUMENT NO. STE- Z13-467-01

REV. 00

DATE : 08.05.2021

MATERIAL CODE : ST4110077001

- Pressure gauge, Temperature gauge (0-100 deg.C) along with SS thermowell, Hand operated Ball Valves at outlets and drain point, Pressure safety valve to be provided.
- Foundation: Stands with accessories

Note:

1. Above equipments should be supplied with all accessories for full installation and operation in ready to use condition with our existing PSA setup.
2. The equipment should comply with applicable safety standard. System shall have adequate and reliable safety interlocks/ devices to avoid damage to the equipment and/or avoid unsafe condition for the operator due the malfunctioning or mistakes. Rigid and stable structure to support all components and unit to be equipped with anti-vibration pads to absorb vibration.
3. List of recommended spares, if any shall be provided by manufacturer.

Quality assurance Inspection and Testing Requirement:

- i) Test report / certificates to be furnished by the manufacturer.
- ii) COC to be furnished by the manufacturer (for catalogue items)

Painting, Conservation and Packing:

Cleaning, painting conservations and packing shall be as per manufacturer standard practices. Finish Paint color – preferably Epoxy Siemens Grey.

Warranty:

The equipment is provided with warranty against faulty/defective material/workmanship/manufacturing defects for 18 months from the date of dispatch or 12 months from the date of commissioning whichever is earlier.

Documents Required:

Following documents and drawings Air compressor with refrigerated air dryer, Air Receiver vessels and Micron filters etc. shall be furnished by manufacturer:

- Make and Model and Schematic Arrangement drawing
- GA drawings including weight and dimensions.
- Datasheet
- Foundation skid details.
- Bill Of Materials / Material Of Construction
- O&M manuals
- Erection Manuals

Reference Drawing: - Annexure-1



500LPM PSA MO2 PLANT MAIN PRODUCT DOCUMENT AIR COMPRESSOR WITH REFRIDGERATED AIR DRYER

DOCUMENT NO. STE- Z13-467-01

REV. 00 | DATE : 08.05.2021

MATERIAL CODE : ST4110077001

