

RevolveAir Systems Smartfill Breathing Air Compressor

The system shall be designed to tie into the air storage/charge station module. This document describes the minimum requirements for a complete breathing air compressor system. The system shall be modular and capable of being supplied as one module as specified herein. The ability to separate the compressor module from the charge station is for operator safety.

Warranty

The equipment supplied shall be guaranteed to be new, of current design, and free of all defects in material and workmanship for a period of two years based on prescribed service and maintenance.

Air Compressor Construction

1. Compressor shall be 5 stage, air-cooled reciprocating compressor which is belt driven by an induction motor
2. Maximum pressure continuous duty is (6K) 6000psi/413.7 bar or (7K) 7000psi/482.63 bar
3. Delivery of high-pressure air shall be temperature only slightly above the ambient air temperature (Approximately 15°F (9.4°C) above ambient)
4. Reduction of moisture content and impurity levels in the air stream issuing from the last stage separator to CGA Grade "E" criteria by absorption, chemical reaction, and filtration in the purification subsystem.
5. Oil Pressurized system at 40 Psi, Oil mist lubrication for all cylinders, main, big, and small end rod bearings
6. Auto condensate drain system (ACD)
7. Multi-valve dump block design for ease of service consisting of four piston-type valves
8. Oil change only required every 200 hours
9. Auto condensate drain system service only required at 500 hours or one year
10. 12-blade high-velocity fan for cooling efficiency
11. Serviceable and re-buildable multi-ported reed valves & flat plates
12. Compressor shall be of a fully enclosed design
13. Cylinders shall have finned aluminum heads for superior heat dissipation 3rd and 4th stage only
14. Compressor shall have piston rings on all pistons
15. Flywheel shall be precision-balanced and fan-bladed for excellent cooling capacity
16. Enclosed all metal fan-blade guard
17. Modular construction to fit through a 36" door opening
18. Compressor shall utilize a pressurized oil lubrication system with a spin-on Oil Filter
19. Compressor shall have incorporated intercoolers and relief valves for all stages, and condensate traps after 2nd, 3rd, 4th, & 5th stage of compression.
20. Compressor and electric motor shall be mounted in a vertical format with a self-adjusting belt system.
21. Radial layout for reduced vibration
22. Stainless steel valves assemblies on all stages for long wear, excellent heat resistance and dissipation
23. Ductile iron connecting rods for high strength.
24. Needle bearings on connecting rods for added durability and reliability

Calibration Kit for Carbon Monoxide Monitor

- Includes a calibration regulator and connection hose assembly
- 1ea 20PPM calibration gas cylinder and 1ea Zero PPM calibration gas cylinder (Optional). Complete instructions for proper calibration and a protective hard plastic carrying case that houses all kit components.

Purification System

1. The purification system shall consist of a mechanical oil/moisture separator and a final chemical purification chamber.
2. Purification chambers shall be constructed in aluminum alloy 7075-T6 as its anti-corrosive properties exceed all other chamber materials.
3. Purification system shall process a maximum of the following under ideal conditions: 90,000 scf of air per cartridge set (2 pieces) for the 20hp compressor or 40,000 scf of air per cartridge set (1 pieces) for the 10hp compressor, (3 piece)(140,000 scf) for additional filtration (Optional) remote add on.
4. Purified air shall be measured by the actual weight of Molecular Sieve. Electronic Dew point (DP) detection shall not be used as a means to claim extended chemical cartridge life.
5. 7000 PSI working pressure.
6. 4 to 1 safety factor.
7. 15 SCFM minimum flow capacity per purification chamber.

10 HP Air Compressor

1. Charge rate (12 scfm/340 lpm)
2. 1050 RPM
3. Electric ODP motor shall be 10 HP, single phase 208, 230; or three phase 208, 230, 460 volts at 60hz

20 HP Air Compressor

1. Charge rate (23.5 cfm/665 lpm)
2. 1050 RPM
3. Electric ODP motor shall be 20 HP, three phase 208, 230, 460 volts at 60hz

Controller Functions

1. Compressor Assembly

- Compressor start/stop (advise normal/alarm abnormal condition, auto shutdown if parameters exceeded)
- Discharge air pressure (advise normal/alarm abnormal condition, auto shutdown if parameters exceeded)
- Programmable Auto Condensate Drain control cycle drain function (advise normal/alarm abnormal condition, auto shutdown if parameters exceeded)
- Auto Drain/Cool Down Cycle ** (on each shutdown, pressure transducer deactivation or Stop button)
- Oil temperature and pressure (advise normal/alarm abnormal condition, auto shutdown if parameters exceeded)
- Display automatic service alerts for oil, air sample, CO calibration and purifier elements. optional

- Multi-level user access control for security and safety.

2. Miscellaneous

- Total time on compressor assembly from manufacture date (advise time on command)
- Automatic calibration notification of CO monitors (advise procedure on command)

3. Alarms (AUDIO/VISUAL)

- High discharge air temperature - with automatic compressor "STOP"
- High discharge air carbon monoxide - with automatic compressor "STOP"
- High discharge air moisture (dew point) - with a "WARN" to advise a pending filter (purification cartridge) change; an "ALARM" with automatic compressor "STOP"
- Low oil level and/or pressure - with automatic compressor "STOP"

4. Special Features and Controls

- Demand Control **(In Automatic mode)
- "Emergency Stop" control mounted on the main control panel.

5. Display

- Final Output Pressure (0-10,000 psi)
- Oil Sight Level, Low Oil Pressure Gauge and Shut-Down
- Carbon Monoxide Level

Delivery, Installation and Training

The system shall be assembled and tested as a complete system at the factory prior to shipment. A factory test certificate shall be shipped with the system.

- The system shall be delivered FCA seller's premise
- The system shall be set up, installed, and checked out at the user's destination by the distributor
- The user shall receive training by the distributor on the operation and maintenance of the system as required

Options

- High and Low pressure auxiliary outlets
- SCUBA adapter: CGA to Yoke or DIN to Yoke

RevolveAir Systems Compressor System

Built in the USA

PLC 24vdc Controls

System Design, Automatic or Manual Mode

Gauges on all stages and Oil

High Pressure and Oil Transducers

High Temperature Shutdown

Low Oil Pressure Shutdown

E-Stop

External Main Power Disconnect

Vertical Enclosed Compressor Frame

Removable Doors for 270 Degree Survivability

Self-Tightening Drive Belt

Frame will fit thru a 36" Door, 34w x 40w x 70h

Compressor Design to Provide Remote Intake Hook-up

6K or 7K Tilt Filtration, ease of Cartridge Installation

6K Upgradable to 7K on Site

CO / Moisture Capable with Shutdown (Optional)

Standard Features: Compressor Pump

Five stages

Five Cylinder Radial

7500 Psi Compressor Design

Cast iron Block

Pressurized Oil lubrication system

Radial layout for reduced vibration

Connecting rods with needle bearings

ASME Relief Valves on 1st, 2nd, 3rd & 4th Stage

Oil Filter, Spin-on type

5 Quart Oil Capacity

Latest technology in Valve and Ring design

Stainless Steel Valves

Replaceable Piston and Sleeve on 4th and 5th Stages

Inter-coolers on 1st, 2nd, 3rd & 4th

Stainless Steel After-cooler on 5th stage

Designed and built in the USA

Benefits Low RPM technology:

Long life

Low noise, dB

High efficiency with reduced heat

Low RPM