Compressor Specification

Air-Cooled, Oil-Free Mutli Scroll

1.0 Scope

1.1 This specification is for an oil-free; air-cooled multiple scroll air compressor. The compressor shall be Atlas Copco model SF8-22+ Multi Full Feature or pre-approved equivalent.

1.2 The units shall be manufactured in accordance with this specification. The construction, as described in this specification, is considered essential and critical to the application. Therefore any deviation from the specification must be quoted as an option or detailed in the proposal.

2.0 General

2.1 The orbiting scroll air compressor shall be capable of producing and delivering 100% of the required air demand as specified.

2.2 The compressor shall be designed and supplied as a complete package with all necessary equipment, including but not limited to the following components: inlet filter, air compressor elements, drive motor, aftercooler, moisture separator, starter, regulation and control system. All components shall be mounted within a common six sided low sound enclosure, including solid base frame to provide protection from loose debris (dust clump particles, etc) in the ambient air.

2.3 The units shall be built by a qualified manufacturer who has been manufacturing air compressors for at least ten (10) years.

2.4 Compressor manufacturer shall be certified under ISO 9001 / 9002 quality standards and ISO 14001 environmental standards.

2.5 The compressor shall deliver a continuous supply of Class Zero oil free air as per ISO 8573-1 (Ed.3 of 2010)

3.0 Compressor Unit

3.1 Compressor Modules

The compressor package shall be made up of 2 to 4 compressor modules, each consisting of a compressor element belt driven by an electric motor and radial fan. Each module shall be equipped with a temperature sensor to monitor the element housing temperature.

3.2 Compression Element

Each compressor element shall consist of a fixed scroll housing and an orbiting scroll rotor. The element and housing shall be pressure die cast aluminum. The crankshaft and pulley shall be cast iron. Each element shall be V-belt driven using belts with XPZ profile. Bolts for adjusting belt tension shall be easily accessible via removable panels.

3.3 Drive Motor

Each compressor module shall be belt driven by an IE3 NEMA Premium Efficiency, Totally Enclosed Fan Cooled motor for optimum performance and reliability. The motor insulation shall be Class F with a B rise.

3.4 Cooling System

Each compressor element shall be equipped with a radial fan mounted as part of the element to generate cooling air across the element. The compressor package shall be fitted with an aluminum block aftercooler for cooling of compressed air. The cooling system shall include a fan driven by an electric motor to generate cooling air for the aftercooler.

3.5 Starter

The compressor shall be factory equipped with a direct on line starter.
The starter shall be mounted and wired within the UL listed compressor control cubicle.

3.6 Moisture Separator

If required, the compressor shall be equipped with a moisture separator located after the aftercooler to remove condensation from the cooled air. The moisture separator vessel shall be of cast aluminum construction to prevent corrosion. The separator shall also be equipped with an automatic float drain for condensate removal during operation and manual drain for condensate removal after the compressor is stopped.

3.7 Regulation System

The compressor regulation system shall keep the net pressure between programmable limits by starting and stopping the compressor modules.

3.8 Compressor Control

3.8.1 The compressor shall have a microprocessor controller capable of controlling and monitoring all the modules. The controller shall distribute the running time evenly among the compressor modules by selecting the module with the lowest hours and starting that one first and stopping the unit with the most run hours first when applicable. The controller will prevent simultaneous stopping and starting of the individual modules.

3.8.2 The microprocessor shall allow programming of two pressure bands for loading and unloading.

3.8.3 Time based start / stop and changeover for net pressure band shall be programmable.

3.8.4 The compressor shall be able to be controlled locally, remotely or via a local area network. Compressor shall be equipped with auxiliary contacts for external indication of run status, automatic or manual run control, general warning and general shutdown conditions.

3.8.5 The control system shall have the capability to control and monitor the following functions:

- Delivery air pressure
- Element outlet temperature
- Compressor status
- Motor overload status
- Delivery air temperature
- Running hours
- Regulator hours

3.9 Compressor Protection

3.9.1 The microprocessor shall provide service requirement indication as well as warning and shutdown indication and alarms.

3.9.2 Compressor protective functions shall include:

- Emergency stop
- Element outlet temperature
- Drive overload
- Service warnings

4.0 Inlet Air Filter

A paper cartridge type filter shall be provided. The filter shall have a rated efficiency of SAE fine. The filter will remove 98% of all dust particles greater than 1 micron, 99.5% of particles greater than 2 microns and 99.9% of particles greater than 3 microns in size. The inlet filter shall be factory installed within compressor package.

5.0 Compressor Enclosure

The compressor modules shall be enclosed in a steel sound insulated canopy with removable panels to provide access for maintenance. The sound insulating material shall be flame retardant polyurethane.

6.0 Noise Levels

The compressor package shall not exceed 65 dB(A) when measured in the free field conditions at once meter in accordance with the CAGI-Pneurop Test Code.

7.0 General Installation Requirements

Upon placement on a level surface and connection to essential utilities, the unit shall be provided available for immediate operation. The compressor shall not require bolting to the floor.

8.0 Optional Integrated Dryer

8.1 The compressor shall be fitted with an integrated refrigerated dryer.

8.2 The dryer must be integrated inside the compressor canopy and be controlled by the compressor's primary controller.

8.3 The dryer must use R134A refrigerant.

8.4 The refrigerant compressor shall be a hermetic piston type design.

8.5 The dryer shall include an air-to-air heat exchanger to pre-cool the incoming compressed air and re-heat the exiting compressed air.

8.6 The condenser shall have aluminum fins and copper tubes.