



Quadruplex Oil-Less Scroll Laboratory Air System

System Description:

The *Global Vac & Air* Oil-less Scroll Laboratory air system is built as three skids bolted together for ease of transport and installation. One skid consists of the system control panel and two oil-less scroll compressors mounted on an assembled frame in a vertical configuration. The second skid consists of two oil-less scroll compressors stacked in a vertical configuration. The third skid is built with a vertical receiver and two desiccant drying systems piped in parallel. The system is completely tested before shipment and is built with a single point connection for air discharge, drainage, and system power. The system is piped, wired and factory tested prior to shipment.

Oil-Less Scroll Compressor Assembly:

The system includes four air cooled oil-less scroll compressors rated for continuous duty. Each compressor is belt driven and requires absolutely no oil. All interconnecting wiring, plumbing, and vibrations isolation pads are included. Each assembly contains:

- TEFC NEMA Electric motor
- Integral cooling fan and aftercooler
- 5-micron inlet filter with polyester element
- Exhaust high temperature switch
- Inlet & outlet flex connector
- Adjustable motor mounting base to achieve proper belt tensioning

Air Filtration, Dryer, and Regulator:

The system contains two heatless regenerative desiccant dryers piped in parallel. Each dryer is sized for full system demand producing a pressure dewpoint of -40°F. Each dryer has an energy savings feature that actuates the purge cycle as needed depending on the actual dew point reading. All filters and the tank drain are manifolded together with an electrically actuated automated drain valve for single point connection of oil-free condensate drainage. Each dryer can independently be isolated without stopping airflow to the facility. Each dryer assembly includes the following items:

- Outlet adjustable pressure regulator with gauge and safety relief valve
- Outlet particulate filter with manual drain and element change indicator
- Inlet filtration consists of two coalescing filters, rated 1 micron and 0.01 micron.

- Outlet filtration consists of one 0.01-micron coalescing filter.

Air Receiver:

The ASME coded vertical air receiver is ASME coded and rated for a minimum of 200 PSIG. The receiver is epoxy lined for corrosion resistance. Additional receiver size options available. The receiver assembly is equipped with the following items:

- Sight glass to check for excess liquid
- Electrically actuated timer drain valve
- Manual drain valve
- Mechanical water separator between each compressor outlet and tank inlet
- 3-valve bypass
- Pressure Gauge

Quadruplex Control Panel:

The system is controlled by a UL labeled quadruplex mounted and wired control panel.

The control panel is built with:

- Finger safe power distribution block
- 120V control transformer with CB protection for primary and secondary circuits
- 120vac/24vdc power supply
- 7" color OIT with integrated Hand/Off/Auto
- Door mounted system disconnect
- Door mounted Emergency Stop button
- Adjustable run-on timer (frequent start protection) integrated into OIT
- 4-20 mA dew point transmitter with unique autocalibration function and $\pm 2^{\circ}\text{C}$ accuracy
- 4-20 mA pressure transmitter to control pumps via PLC input
- Selectable, Auto Timed Alternation (default), Auto Alternation or Manual Alternation
- Hour meter integrated into OIT
- Dry contacts for remote monitoring
- Maintenance screens with adjustable time intervals for tracking critical maintenance items
- UL508A listed NEMA 12 enclosure
- Adjustable low-pressure alarm
- Door mounted Bypass circuit with selector switch
- Panel mounted pressure gauge
- Ethernet bulkhead for temporary site connection
- *OPTIONAL: Protocol converter for BMS interface (Modbus TCP/IP-BACnet/IP Client Gateway)*



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Laboratory Air System**

Model Number*	Pump motor rating (HP)	Maximum Pressure (PSIG)	System capacity @ 145 PSIG (SCFM)**	Receiver / Orientation
CH05Q-XXL-12V	5	145	51.6	120 Gallon Vertical
CH05Q-XXL-20V	5	145	51.6	200 Gallon Vertical
CH07Q-XXL-20V	7.5	145	68.8	200 Gallon Vertical
CH07Q-XXL-24V	7.5	145	68.8	240 Gallon Vertical
CH10Q-XXL-20V	10	145	98.8	200 Gallon Vertical
CH10Q-XXL-24V	10	145	98.8	240 Gallon Vertical

*XX in the model number is a placeholder for system voltage. 43=460V/3/60Hz, 23=230V/3/60Hz, 53=575V/3/60Hz

** All data shown assumes 60 Hz electrical supply