Specification

General

The Powerex Laboratory Open Scroll Air Compressor System is designed to provide clean, dry air for applications where the quality of the compressed air is critical. The standard unit is rated for a maximum of 145 PSIG. Each system is completely tested before shipment and includes:

- Multiple oil-less scroll air compressors and associated equipment.
- Corrosion resistant air receiver.
- Desiccant air dryers with purge control.
- Control panel.
- Dew point monitor.

Open Scroll Air Compressor System

The package shall include multiple oil-less scroll air compressors and associated equipment. The only field connections required will be system intake, exhaust, and power connection at the control panel. All interconnecting piping, wiring, and vibration isolation pads are included with the system.

Oilless Scroll Compressor Pump

Each compressor shall be belt driven oilless rotary scroll single stage, air-cooled construction with absolutely no oil needed for operation. Direct drive compressors shall not be used.

- The rotary design shall not require any inlet or exhaust valves and shall be rated for 100% continuous duty.
- Tip seals shall be of a composite PTFE material and be rated for 5,000 hours operation for 2, 3, and 5 HP pumps, and rated for 8,000 hours operation for 7.5 and 10 HP pumps.
- Compressor bearings shall be external to the air compression chamber and shall all be serviceable for extended compressor life. Bearing maintenance shall not be required until 5,000 run hours. Compressors with bearings that are not accessible for service have a limited life span and shall not be accepted. Compressors shall have an integral radial flow fan for cooling and shall not require any additional electric cooling fans.
- Each compressor shall have flexible connectors on intake and discharge, an electric drive motor, a discharge check valve, a fan-cooled aftercooler, a condensate separator* and a high discharge temperature shut down switch.
- Each compressor module shall have an isolation valve and a moisture separator* with automatic drain.

Motor

Each compressor shall be belt driven by a 1750 RPM, ODP, NEMA construction motor. Motors running at speeds higher than 1750 RPM shall not be acceptable. OSHA approved belt guards shall be provided.

Air Receiver

The system shall include an ASME air receiver rated for 200 PSI MAWP. The tank shall be equipped with:

- A pressure gauge and a safety relief valve.
- By-pass valves to allow tank isolation without system shutdown.
- A sight gauge.
- An automatic electronic tank drain with manual override.

The receiver shall be internally lined for corrosion resistance.

Service Slide

The service slide enables easy maintenance access to each pump and motor basemount without having to remove them from the system.

- Unique maintenance friendly base mount slide design.
- Allows safe access to important system components necessary for improved pump life.
- Allows faster component replacement time.

Motor Slide Base

Maintenance feature designed for easy adjustment of belt tension from the motor side on the basemount assembly.

- Robust single screw linear belt tension adjustment.
- Custom compact design.

Premium Control Panel

The control system provides automatic lead/lag sequencing and automatic alternation of all compressors in order to equalize the amount of usage among the available compressors. The Premium Control Panel shall include a gateway server card and all features listed below:

- Building automation communication gateway with BacNet® protocol and Web server features. Web server features include email notifications in case the system is in alarm or has achieved one of its maintenance intervals and requires service.
- Ethernet port for connection to BacNet® server or direct connection to facility Ethernet for viewing of system operations and status via device IP-address.
- UL508-A listed control panel in a NEMA 4/12 enclosure. The panel door will include:
  - 6” Color touch-screen
  - HOA (hand-off-auto) switch for each pump
  - 3-position Dryer control switch (dryer1-bothdryer2)
  - 95 dba alarm horn
  - Acknowledge push-button (to silence the horn)
- The 6-inch color touch-screen will display:
  - Pump status: On, Off, or Ready
  - Pump Faults/Service state: High temperature, overload trip, service required
  - Pump run hours
  - System pressure
  - System Dew-point
  - Trends

- Pump information screens will display pump maint intervals with required service
- System alarm screen:
  - Low Pressure Alarm
  - General Fault Alarm (Pump faults)
  - Air Quality Alarm (Dew-point or optional CO)
  - Pump Maint required
  - Dryer and monitor service notices
  - Alarm log

Dry contacts are provided on a labeled terminal strip for remote monitoring of all system alarms.

Air Purification Package

The air purification package shall consist of the following: dual desiccant air dryers, dual filter and regulator bank with sample ports, and dew point monitor with alarms, and all bypass piping. Piping to be brass, stainless, or type K copper, and cleaned for medical air use. All components shall be mounted piped and wired to the air receiver.

Desiccant Air Dryers

The twin-tower, heatless desiccant air dryer is designed for a pressure dew point of -40 degrees F. Each dryer is sized to meet the full SCFM requirement of the system. The dryer shall be installed and plumbed on a common steel skid to the air receiver. The dryer design shall be of the automatic pressure swing, heatless, regenerative type and shall include a solid state cycle timer, reliable switching valve design, and purge muffler for quiet operation. Dryer controls shall include on/off/variable mode selector switch, and digital display.

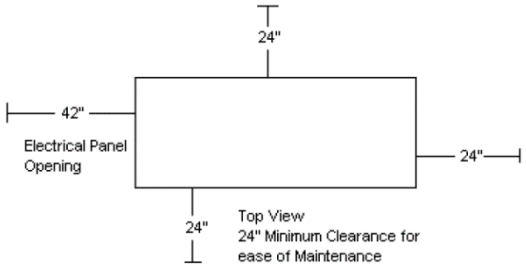
The filtration system shall consist of 2 stages of filtration mounted and plumbed to the air dryer. The first stage of filtration shall include a centrifugal water separation and a 5 micron filter element with element coalescing vibration or a .01 micron or finer pre-filter with element change indicator and automatic condensate drain and installed upstream of the air dryer. The second stage shall include a 1 micron (or finer) particulate filter with element change indicator and installed downstream of the air dryer.

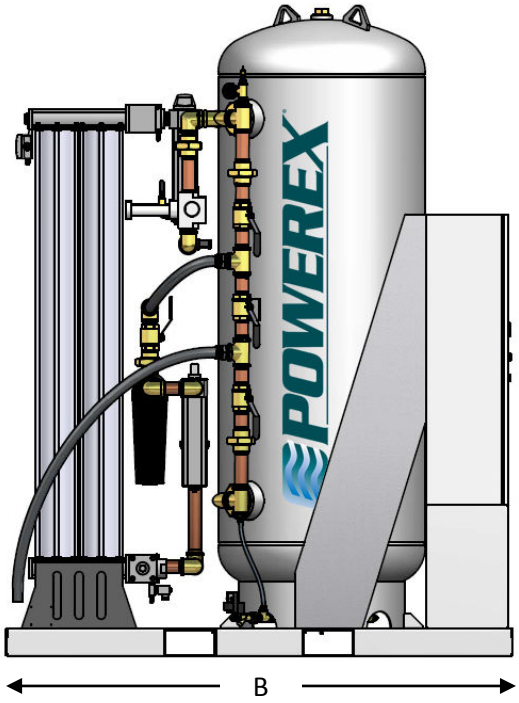
Filtration and Pressure Reducing Station

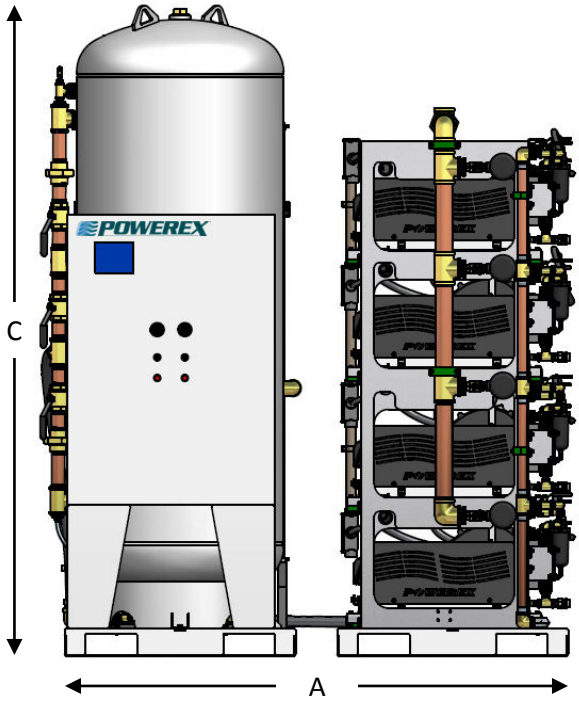
Each filter/dryer/regulator assembly shall be plumbed with bypass valves to enable service without disrupting air flow to the facility. Each assembly also includes a sample air port. The filtration systems consist of two stages of filtration as outlined above in the Desiccant Air Dryers section. Additionally, each assembly shall include a dual set of pressure reducing valves with pressure gauges shall be installed downstream of the final filters and shall be adjusted to an outlet pressure of 115 psig.

Laboratory Open Scroll Quadplex with Premium Controls

Dimensions					
Model	Dim. A	Dim. B	Dim. C	Inlet	Outlet
LSQ05A4	73”	51”	75”	1.5”	1.25”
LSQ10A5	73”	60”	83”	2”	1.5”
LSQ15A5	73”	85”	83”	2”	2”
LSQ15A6	73”	85”	95”	2”	2”







Laboratory Open Scroll Quadplex with Premium Controls									
Model	HP	SCFM @ 145 psig(1)	Tank Size (gal)	BTU/Hr (1)	dB(A) Level(1)	System F.L.A. (1)			System Weight (lbs)
						208V	230V	460V	
LSQ05A4	5 (4)	50	120	48,800	77	58	52.8	27.3	2450
LSQ10A5	10 (4)	100	200	97,600	80	114	103.6	52.6	4300
LSQ15A5	15 (4)	150	200	146,400	82	170	154.4	78	5700
LSQ15A6	15 (4)	150	240	146,400	82	170	154.4	78	5800

Notes:

1 – SCFM values, BTU/Hr levels, and dB(A) are shown with all pumps running.

2 – Powerex recommends using performance ratings in SCFM (Standard Cubic Feet per Minute) when sizing laboratory air systems.

3 – 3 Year Limited Warranty.

5 – Drawing is representative and not exact.