Specifications

General

The Powerex Scroll Enclosed 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 116 PSIG. The high pressure unit is rated for a maximum of 145 PSIG.

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 if remote intake option is chosen, exhaust, and
power connection at the control panel.

Oilless Scroll Compressor Pump

Each compressor pump shall be belt driven oil-less rotary scroll
double stage, air-cooled with absolutely no oil needed for operation.
The rotary design shall not require any inlet or exhaust valves within
the compressor pump housing or structure and shall be rated for
100% continuous duty. Direct drive compressors shall not be used.
Tip seals shall be of a composite PTFE material and be rated for 8,000
hours operation for standard units, and 4,000 hours operation for
high pressure units. Compressor pump bearings shall be external
to the air compression chamber and pin crank and moving scroll
bearings shall be serviceable for extended compressor life. Bearing
maintenance shall not be required until 8,000 run hours for standard
units, and 4,000 run hours for high pressure units. Compressor pumps
with bearings that are not accessible for service have a limited life
span and shall not be accepted. Compressor pumps shall have an
integral radial flow fan for cooling. Each compressor pump shall have
flexible connectors on intake and discharge. Each compressor pump
shall have a non-metallic heat insulating liner for the discharge air
pipe where it threads into the compressor housing.

Each compressor pump shall be provided with an electric drive
motor, discharge check valve, an air-cooled after-cooler, and a high
discharge temperature shutdown switch. Auxiliary cooling fans shall
operate from 120 volt power provided by the transformer included in
the system controls.

Approach Temperatures

The system is designed with 3 stages of internal aftercooling so
that the approach temperature shall be no greater than 24°F above
ambient at system discharge with the system running at maximum
capacity. No additional external aftercooling is required for use with
a dryer.

Motor

Each compressor shall be belt driven by a 2 pole, TEFC, NEMA
construction motor that runs at 3500 RPM. Motors are EISA compliant
and premium efficient.

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.

System Controls

The controls operate the duplex or triplex air compressor modules
as needed in response to a pressure signal from a pressure transducer
located in the system manifold. An illuminated on/off push button
controls power to the motor starters. When the button is in the off
position, the system is merely in stand-by mode, not powered off.

The pressure transducer sends a signal to the programmable logic
controller (PLC) which is programmed to operate two, three or four
compressor modules as needed to maintain the system pressure
requirements. An HMI touch screen interface displays system status
and alarm conditions. Pressure settings are user adjustable within
factory predetermined setting limits.

The PLC will alternate each compressor module based on demand
as well as timed alternation. If a compressor module is running longer
than ten minutes continuously, the control will alternate to the next
available compressor module to equalize run time and synchronize
maintenance intervals. On initial startup or if air pressure drops
rapidly, simultaneous motor starts are prevented by a programmed
three second stagger. One 120VAC control circuit transformer with
primary and secondary fuses is installed for control circuit voltage.

Motor circuit breakers with lockable disconnects are provided for
each compressor module. Operating hours, high temperature alarms,
motor overload alarms, run indication, and hours to scheduled
maintenance for each compressor module are displayed on the
screen. All alarm history is kept in the alarm log. Easily navigated
menus are provided to allow the user to select the display conditions
and acknowledge the alarms. Remote alarm contacts are provided as
shown on the system wiring diagram.

Compressor Bank Isolation

The system shall include shut-off ball valves, safety relief valve,
lockable motor protectors, and a miniature circuit breaker for low
voltage components that enables isolation of half of the compressor
pumps to allow OSHA approved service and maintenance while the
other half is in operation.

Inlet Filters

The system includes an inlet filter with a pleated element and a
canister with silencing tubes for each pump. The filters are located
on each pump inside the sound reducing cabinet protected by a
convenient access panel.

Sound Reducing Enclosure

The system is constructed with an internal frame and steel base
system with individual vibration isolation mounted compressor
modules. The sound reducing enclosure has a front access panel to
allow service of the electrical controls. The enclosure has rear cooling
air intake and all exhaust air leaves the enclosure from the top.

Optional Desiccant Air Dryer

The twin-tower desiccant dryer(s) shall be sized for the peak
calculated system demand to provide a pressure dew point of zero
degrees F. Dryer controls shall include a re-pressurization cycle to
prevent shocking of the desiccant bed prior to switching towers.
An integral purge saving control system shall be provided and shall
suspend the purge air loss during periods of low demand. When the dryer is in purge control mode, the tower switching valves shall not operate, and only one desiccant tower shall be on-line. Dryers that continue to operate the switching valves on a fixed cycle, while in purge control mode shall not be acceptable. (Dryers utilizing purge control require the optional dew point monitor listed below.) Each dryer is supplied with two stages of filtration. The pre-filter removes particulates and liquids and includes an element change indicator and automatic condensate drain. The 0.5 micron after filter includes an element change indicator. Dryers shall be powered through a separate control circuit and not through the compressor controls.

**Optional Refrigerant Air Dryer**

The refrigerated air dryers are non-cycling, direct expansion type, using R-134 A refrigerant (CFC free). A hot gas by-pass system maintains a consistent temperature at all load conditions. Heat exchangers are made of copper tube construction and fully insulated. Dryers shall have power on and high temperature lights, suction pressure gauge, internal 3-micron filter/separator with stainless steel bowl, and timed electric condensate drain. Refrigerated dryers are to be powered from a separate supply, not through the compressor controls.

**Optional Dewpoint Monitor**

**NOTE:** Installed on desiccant dryer.

The system-integrated hygrometer shall be equipped with an LCD dewpoint display and high dewpoint alarm with dry contacts for remote monitoring. The sensor shall include an auto calibration feature to ensure the accuracy of the dewpoint measurement.

**Optional Moisture Separator**

The moisture separator shall be sized for the peak calculated demand and shall include an auto float drain to purge the collected moisture.
### Enclosed Scroll Air Compressor Systems
#### SE Series – 40-60 HP

#### Dimensions

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<tr>
<th>Model</th>
<th>Dim. A</th>
<th>Dim. B</th>
<th>Dim. C</th>
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#### Enclosed Scroll Air Compressors

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Notes:

1. Actual BHP is less than rated name plate. Contact Powerex for BHP rating.
2. 3 Year Limited Warranty
3. UL/CSA Certified
4. HP after a model number indicates high pressure model. SCFM for high pressure units are @ 145 PSIG.