Scroll Enclosed Air Compressor Systems – SED, SET, SEQ* – 10-20 HP

Rev. 3/1/11

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 115 PSIG. A high pressure version (max. 145 PSIG) is also available. The unit is UL/CSA certified.

SCROLL ENCLOSED 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 PUMPS

Each compressor pump shall be belt driven oil-less rotary scroll single 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 10,000 hours operation (5,000 hours for high pressure version). 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 10,000 run hours (5,000 run hours for high pressure version). 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 shut down switch. Auxiliary cooling fans shall operate from 120 volt power provided by the transformer included in the system controls.

MOTORS

Each compressor shall be belt driven by a 4 pole, TEFC, NEMA construction motor. Motors running at speeds higher than 1800 RPM shall not be acceptable. Motors are EISA compliant and premium efficient.

SYSTEM CONTROLS

The controls operate the duplex, triplex or quadplex 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 start up 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.

INLET FILTERS

The system includes a single inlet filter with a pleated element and a canister with silencing tubes. The single inlet filter serves all the compressor modules in the system. The filter is located 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 DRYERS

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 REFRIGERATED AIR DRYERS

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 (Installed on Desiccant Dryers)

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

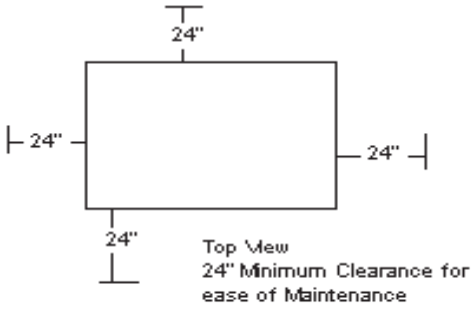
The moisture separator shall be sized for the peak calculated demand and shall include an auto float drain to purge the collected moisture.

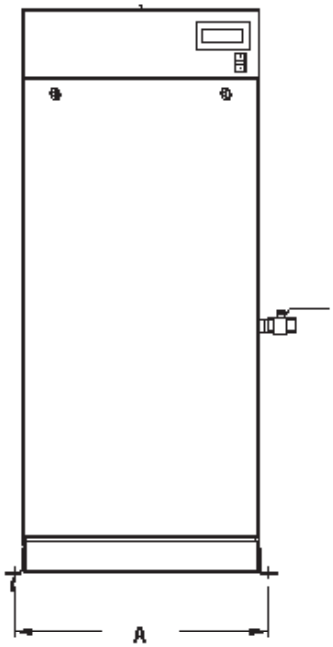
***NOTE:** SED stands for Scroll Enclosed Duplex; SET stands for Scroll Enclosed Triplex; SEQ stands for Scroll Enclosed Quadplex

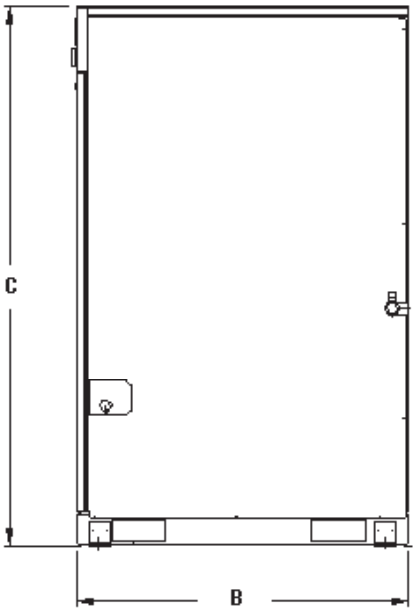
Scroll Enclosed Air Compressor Systems – SE Series

Rev. 7/18/12

MODEL	DIM. A	DIM. B	DIM. C	Outlet
SED1007	26"	38"	61"	1"
SED1007HP	26"	38"	61"	1"
SET1507	26"	38"	61"	1"
SET1507HP	26"	38"	61"	1"
SEQ2007	26"	38"	61"	1"
SEQ2007HP	26"	38"	61"	1"







Scroll Enclosed Air Compressors									
MODEL	HP[1]	SCFM @ 100 PSIG*	Maximum Pressure PSIG	BTU/HR	dB(A) LEVEL	F.L.A./MOTOR** 208V	230V	460V	SYSTEM WEIGHT
SED1007	5 (2)	30.4	116	25,467	53	30.8	28	14	825
SED1007HP	5 (2)	25	145	25,467	53	30.8	28	14	825
SET1507	5 (3)	45.6	116	38,200	56	46.2	42	21	965
SET1507HP	5 (3)	37.5	145	38,200	56	46.2	42	21	965
SEQ2007	5 (4)	60.8	116	50,934	58	59.4	54	27	1,125
SEQ2007HP	5 (4)	50	145	50,934	58	59.4	54	27	1,125

Notes:
1- Actual BHP is less than rated name plate. Contact Powerex for BHP rating.
2 - 3 Year Limited Warranty
3 - UL/CSA Certified
*HP after a model number indicates high pressure model. SCFM for high pressure units are @ 145 PSIG.
**NEC (National Electric Code) F.L.A./motor listed. Actual values are less than stated. If actual values are needed, please contact the factory.

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