



Medical Air Systems  
Product Selection Guide



Oil-less Scroll...

Oil-less Reciprocating...

Enclosed Scroll...

# Medical Air System Design

## General Description

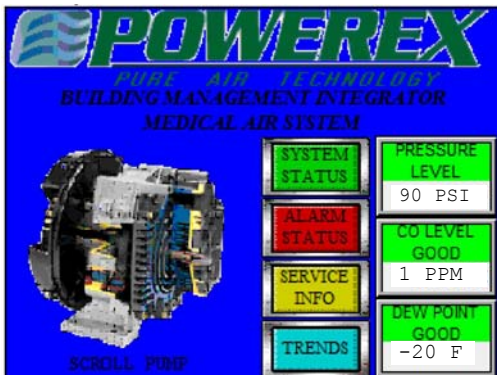
The Powerex medical air system is fully compliant with the latest edition of NFPA99 and includes multiple compressors, ASME receiver, UL listed control panel, air purification system, and monitors. Single point connections are provided for system intake, discharge, and electrical. All interconnecting piping and wiring is included and operationally tested prior to shipment. Vibration isolation pads and flex connectors are included with the system. Powerex manufactures all systems in ISO9001 UL certified facilities to ensure the highest quality. Systems are available in three configuration types: Modular Skid Mount, Modular Enclosed, and Horizontal Tank Mount.

## Modular Enclosed Configuration



## Powerex Building Management Integrator (PBMI) Option

– our state of the art human machine interface (HMI) touch screen panel provides hospital personnel with vital system information at the touch of a button. A built-in webpage with email notification ensures that staff can always be in touch with the medical system's information and alerts. PBMI utilizes BacNet® protocol for the communication gateway to the building automation system which can support hundreds of pre-configured, labeled, and listed individual data points.



## Modular Skid Mount Configuration



## Control Panel Standard Features:

Each control panel is fully compliant with the latest edition of NFPA99 and is UL508A listed and labeled. The panel is provided in a NEMA 12 enclosure with a main power on light, timed automatic lead/lag pump alternation, reserve pump in-use alarm with visual and audible indicators, and redundant control circuit transformers. Each pump is provided with an externally operable motor circuit breaker, Hand/Off/Auto selector switch, minimum run timer (to prevent short cycling of the pump), run hour meter, and run light. Dry contacts are provided on a labeled terminal strip for remote alarm monitoring. Horn silence and lamp test pushbuttons are standard. The lag compressor(s) will start automatically if the lead compressor fails to operate.

## Horizontal Tank Mount Configuration





**Desiccant Dryer Package  
(featuring CO Monitor  
and Dew point Monitor)**

### **Desiccant air purification system:**

Each system is provided with a redundant set of desiccant dryers, filters, regulators, and safety relief valves. Dew point and carbon monoxide monitors with alarms are provided to continuously monitor the air quality. Each dryer contains two vessels filled with moisture adsorbent material. The dryer uses a fully automatic pressure swing adsorption cycle in which one tower is online in a drying phase while the other is offline, either regenerating or waiting for its next drying phase. The towers alternate between phases based on either time or dew point status, depending on the mode of operation. In fixed cycle mode, the total cycle time is 4 minutes, or 2 minutes per dryer. In variable cycle mode, the total cycle time can be increased up to 60 minutes. The self-cleaning ceramic switching valves form an almost indestructible seal.

### **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 gage, internal 3-micron filter/separator with stainless steel bowl, and timed electric condensate drain.



### **Dew point Monitor**

- Auto calibration
- Polymer sensor technology
- Visual and audible alarms
- Dew point purge control



### **Carbon Monoxide Monitor/Alarm**

- Compact design
- Digital display
- User programmable alarms and relays
- Audio and Visual Alarms
- High capacity relays
- Flow Meter for Confirmation of Airflow

### **Air Receiver**

The system includes an ASME stamped receiver rated for a minimum of 150 PSIG MWP. The tank is equipped with a pressure gauge, an ASME relief value, block and by-pass valves, and an automatic electronic tank drain with manual override. The receiver is internally lined, in-house, with an FDA approved material for corrosion resistance.



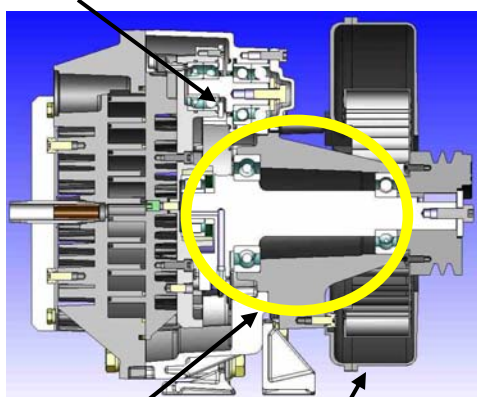


# Oil-Less Scroll Technology



Powerex introduced the first dry scroll to the US oil-less compressor market in 1989. Our technology and expertise in clean, dry air systems is unmatched. Powerex manufactures compressors, air receivers, control panels, air dryers, dew point monitors, and more, to provide a total system approach to your air compressor needs. All facilities are ISO9001 registered so you can be assured of the highest quality. The enclosed scroll compressors feature compact footprints, energy efficient operation, low maintenance, and environmentally friendly design, all in one complete package.

**Patented grease-able pin crank bearings**



**Cast Iron**

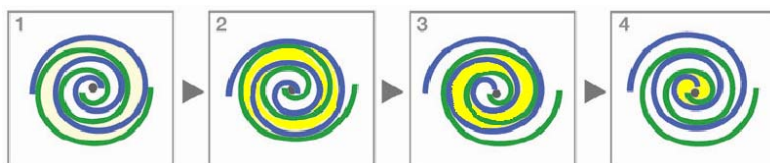
**High flow cooling fan**

## TECHNOLOGY AND INNOVATION

The best ideas seem so simple. The rotary design has few moving parts making it reliable and easier to maintain. The self lubricating tip seals, and absence of a gearbox means the pump is truly 100% oil free.

As the leaders in scroll pump technology, our latest design incorporates several innovative features:

- Main bearings are housed in durable cast iron instead of aluminum which prevents fretting and premature failure of the bearing race. This pump can be operated at 100% duty with confidence.
- A patented bearing re-grease feature also allows maintenance from the front side of the pump.
- The patented tip seal design yields the highest flow rates and longevity of any other dry scroll compressor.
- The improved efficiency and cooling results in lower operating temperatures.
- Extremely low vibration



## COMPRESSION PRINCIPLE

As the orbiting scroll orbits from No. 1 to No. 4 position, a crescent-shaped cavity is gradually reduced, compressing the air and exhausting it through the final discharge point at the center.

## Enclosed Scroll Models

Model	SCFM @ 100 PSI	HP	Tank (Gal.)	L	W	H
Duplex Systems						
MSED100	30.5	10 (2)	80	38"	26"	61"
MSED150	45.7	15 (2)	80	38"	26"	61"
MSED200	61	20 (2)	200	38"	26"	61"
MSED300	91.5	30 (2)	240	38"	58"	62"
MSED400	122	40 (2)	240	38"	58"	62"
Triplex Systems						
MSET100	61	10 (3)	80	38"	26"	61"
MSET150	91.5	15 (3)	200	38"	26"	61"
MSET200	122	20 (3)	240	38"	26"	61"
MSET300	183	30 (3)	240	38"	58"	62"
MSET400	244	40 (3)	240	38"	58"	62"
Quadplex Systems						
MSEQ150	137.1	15 (4)	240	38"	26"	61"
MSEQ200	183	20 (4)	240	38"	26"	61"
MSEQ300	274.5	30 (4)	400	38"	58"	62"
MSEQ400	366	40 (4)	400	38"	58"	62"

## Dryer Skid Dimensions\*\*

L	W	H
Duplex Systems		
32"	80"	70"
32"	80"	78"
32"	80"	78"
32"	99"	96"
33"	84"	96"
Triplex Systems		
32"	80"	78"
32"	99"	84"
32"	84"	84"
33"	84"	96"
49"	102"	96"
Quadplex Systems		
32"	85"	61"
32"	85"	61"
48"	59"	72"
55"	61"	82"

**\*\* NOTE:** Dimensions listed are with desiccant dryer packages. Refrigerated dryer option is available. If specifications with refrigerated dryer(s) are needed, please contact your Sales representative.



## Medical Package Systems—Recip

Model	SCFM @ 100 PSIG	HP	Tank (Gal.)	L	W	H
Duplex Systems						
MPD0308	10.1	3 (2)	80	64"	66"	60"
MPD0508	17.2	5 (2)	120	64"	66"	76"
MPD0608	21.2	7.5 (2)	120	67"	68"	77"
MPD0758	26.1	7.5 (2)	120	64"	73"	76"
MPD1008	35	10 (2)	200	64"	73"	83"
MPD1508	54.2	15 (2)	200	64"	73"	83"
Triplex Systems						
MPT0508	34.4	5 (3)	200	96"	73"	76"
MPT0608	42.6	7.5 (2)	200	103"	68"	78"
MPT0758	52.2	7.5 (3)	200	96"	73"	83"
MPT1008	69.3	10 (3)	240	96"	90"	96"
MPT1508	107.3	15 (3)	240	96"	90"	96"
Quadplex Systems						
MPQ0508	51.6	5 (4)	240	96"	73"	95"
MPQ0608	63.9	7.5 (4)	240	103"	90"	96"
MPQ0758	78.3	7.5 (4)	240	96"	90"	96"
MPQ1008	105	10 (4)	240	96"	90"	96"
MPQ1508	162.6	15 (4)	240	96"	90"	96"



MPD System

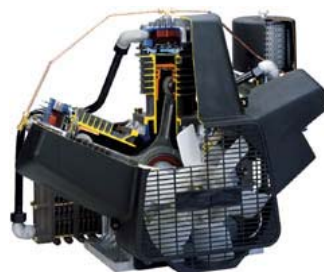
## Medical Tankmount Multiplex—Recip

Model	SCFM @ 100 PSIG	HP	Tank (Gal.)	L	W	H
Duplex Systems						
MTD0103	3.6	1 (2)	80 H	64"	29"	61"
MTD0203	6.6	2 (2)	80 H	65"	32"	48"
MTD0303	10.1	3 (2)	80 H	67"	32"	48"
MTD0304	10.1	3 (2)	120 H	73"	35"	52"
MTD0504	17.2	5 (2)	120 H	73"	36"	56"
MTD0505	17.2	5 (2)	200 H	80"	41"	61"
MTD0756	27.5	7.5 (2)	240 H	87"	51"	69"
MTD1006	35	10 (2)	240 H	87"	51"	69"
MTD1506	54.2	15 (2)	240 H	87"	51"	69"

## Oil-Less Reciprocating Technology

### Why we're different:

Self-lubricating composite piston technology - standard on our reciprocating compressors, increases ring life and reduces temperature providing reliability for years to come.



## Medical Scroll Multiplex

Model	SCFM @ 100 PSIG	HP	Tank (Gal.)	L	W	H
Duplex Systems						
MTSD0303	8.6	3 (2)	80 H	73"	29"	66"
MTSD0503	15.2	5 (2)	80 H	73"	29"	66"
MSD0203	5.7	2 (2)	80 V	47"	31"	78"
MSD0303	8.8	3 (2)	80 V	47"	31"	78"
MSD0503	15.2	5 (2)	80 V	47"	31"	78"
MSD1004	30.4	10 (2)	120 V	78"	35"	77"
MSD1504	45.6	15 (2)	120 V	85"	66"	78"
Triplex Systems						
MST0503	30.4	5 (3)	80 V	78"	35"	71"
MST1005	60.8	10 (3)	200 V	88"	66"	84"
MST1505	91.2	15 (3)	200 V	88"	66"	84"
Quadplex Systems						
MSQ0504	45.6	5 (4)	120 V	78"	36"	79"
MSQ1005	91.2	10 (4)	200 V	104"	66"	84"
MSQ1505	136.8	15 (4)	200 V	104"	66"	84"
Hexaplex System						
MSH0504	76	5 (6)	120 V	88"	66"	77"
Nine Pump System						
MSN0505	121.6	5 (9)	200 V	88"	66"	84"



MSN System

## WHY POWEREX?

Powerex is a highly integrated company where we not only assemble systems but we also manufacture many of the major components. From compressors, UL control panels, desiccant dryers, and monitors, to air receivers, we control quality at every stage of design and manufacturing. All of our facilities are ISO 9001 certified.

Powerex combines engineering, innovation, quality and service to fulfill its commitment to its customers to provide the best value in compressed air and vacuum systems.

Powerex has an extensive network of trained sales and service dealers —over 220 authorized service centers throughout the USA, Canada, the Middle East, Central and South Americas.

Powerex ensures complete NFPA99 compliance. We have been designing and packaging systems since 1988 and assume all liability for NFPA 99 compliance.

## **ACCESSORIES AND OPTIONS**

- Powerex Building Management Integrator (PBMI) controls
- -40° F dew point dryers
- Activated carbon filters
- Receiver sizes 20— 600 Gallon
- Seismic spring mounts
- Laboratory system packaging
- Sterile filters



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