



Scroll Medical Air Compressor

Rev. 3/24/09

GENERAL

The Powerex Skid Mount Scroll Medical System is designed to provide medical breathing air for hospital and medical institutions. This system meets NFPA 99 requirements for Level 1 medical air.

MEDICAL AIR COMPRESSOR SYSTEM

The package shall include multiple oil-less scroll air compressors and associated equipment, one ASME tank, one medical desiccant air dryer system, one dewpoint monitor, one carbon monoxide monitor, and one medical control panel. The only field connections required will be system intake, exhaust, and power connection at the control panel. All interconnecting piping and wiring shall be included and operationally tested prior to shipment. Vibration isolation pads are included with the system.

OILLESS SCROLL COMPRESSOR PUMP

Each compressor shall be belt driven oil-less rotary scroll single stage, air-cooled oil-less construction with absolutely no oil needed for operation. The rotary design shall not require any inlet or exhaust valves 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. 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 10,000 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.

Each compressor pump shall be provided with an electric drive motor, discharge check valve, a diverter isolation valve, an air-cooled after-cooler, a moisture separator with automatic drain, and a high discharge temperature shut down switch.

MOTORS

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, safety relief valve, block and by-pass valves, and automatic electronic tank drain with manual override. The receiver shall be internally lined with an FDA approved material for corrosion resistance.

CONTROL PANEL

The system shall include a UL listed control panel in a NEMA 12 enclosure with the following accessories for each pump: H-O-A switch, magnetic starter with 3 leg overload protection, high temperature shutdown with audible and visual alarm, hour meter, and compressor run light. Standard features also include a PLC controller, a reserve compressor in-use alarm with visual and audible alarms, an externally operable circuit breaker disconnect, and a redundant control circuit transformers with visual indication of a main transformer failure. All alarms shall have dry contacts on a labeled terminal strip for remote alarms. All control and alarm functions shall remain energized while any compressor in the system remains electrically on-line. The lag compressor shall be able to start automatically if the lead compressor fails to operate.

INTAKE FILTERS

The medical air system shall include a dual inlet filter system with one filter on-line and one filter in reserve to enable servicing of the filter elements without shutting down any of the air compressors units or disrupting service to the facility. The inlet filter system shall be located on the compressor package and plumbed up-stream of the compressor pumps.

AIR PURIFICATION PACKAGE

The air purification package shall be sized in conformance with NFPA 99 specifications and consist of the following: Dual desiccant air dryers, dual filter and regulator bank with sample ports, Dew Point and CO Monitors 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

Each twin-tower desiccant dryer 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.

FILTRATION AND PRESSURE REDUCING STATION

The filtration systems shall consist of 2 stages of filtration, two pressure reducing valves with pressure gauges, a 75 psig final line safety valve, and a sample air port. The first stage of filtration shall include dual .01 micron coalescing pre-filters with element change indicators and automatic condensate drains and installed up-stream of the air dryers. The second stage shall include dual 1 micron particulate filters with element change indicators and installed downstream of the air dryers. 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 55 psig.

Each filter/dryer/regulator assembly shall be plumbed with bypass valves to enable service without disrupting air flow to the facility.

DEW POINT MONITOR

The system-integrated hygrometer shall be equipped with an LCD dewpoint display and high dewpoint alarm with dry contacts for remote monitoring. The dew point sensor (probe) shall be installed so that the monitored airflow is downstream of the pressure regulator assembly. The sensor shall include an auto calibration feature to ensure the accuracy of the dewpoint measurement.

CARBON MONOXIDE MONITOR

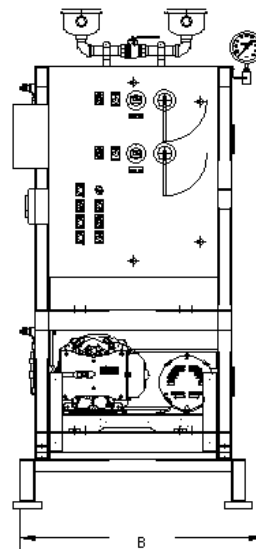
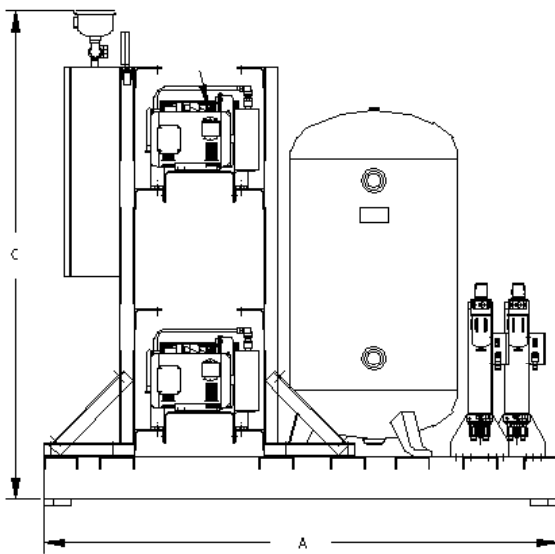
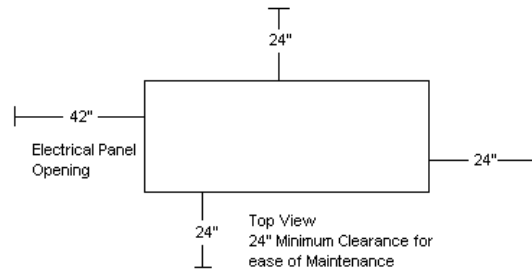
The carbon monoxide (CO) monitor is provided in an enclosure with LCD display of CO concentrations. The monitor shall continuously display the CO content of the discharge air and shall provide audible and visual high CO alarms. High alarm is set at 10 ppm per NFPA99. Dry contacts are provided for remote monitoring of the high CO alarm.



Medical Scroll Skid Mount Package Duplex

rev. 10/29/09

DIMENSIONS					
MODEL	DIM. A	DIM. B	DIM. C	Inlet	Outlet
MSD0203	74"	35"	71"	3/4"	1/2"
MSD0303	74"	35"	71"	3/4"	1/2"
MSD0503	74"	35"	71"	3/4"	1/2"



Medical Scroll Skid Mount Package - Duplex										
MODEL	HP	ICFM @ 50 PSIG ^(1,3)	NFPA System Capacity ¹	TANK SIZE	BTU/HR ²	dB(A) ⁴ LEVEL	SYSTEM F.L.A.			SYSTEM WEIGHT
							208V	230V	460V	
MSD0203	2	7.5	7.5	80 gal.	5,082	70	17	16	9	1,325
MSD0303	3	11.5	11.5	80 gal.	7,638	70	23	21	11	1,325
MSD0503	5	19.3	19.3	80 gal.	12,730	72	35	32	15	1,425

- Notes:
- 1- System Capacity is shown with one or more compressors in reserve per NFPA 99
 - 2- BTU/HR Levels are shown with reserve compressor(s) on standby
 - 3- Medical Air Systems should not be sized using ICFM . For comparison purposes only
Powerex recommends using performance ratings in SCFM (Standard Cubic Feet per Minute) when sizing medical air systems.
 - 4- dB(A) is shown with one compressor in reserve per NFPA99
 - 5- 3 Year Limited Warranty

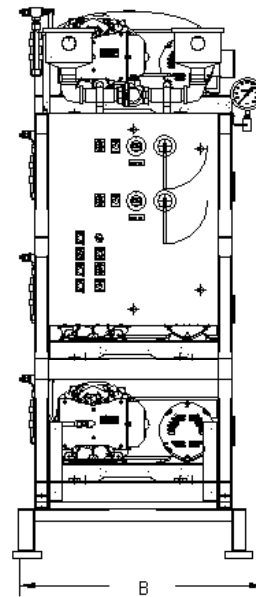
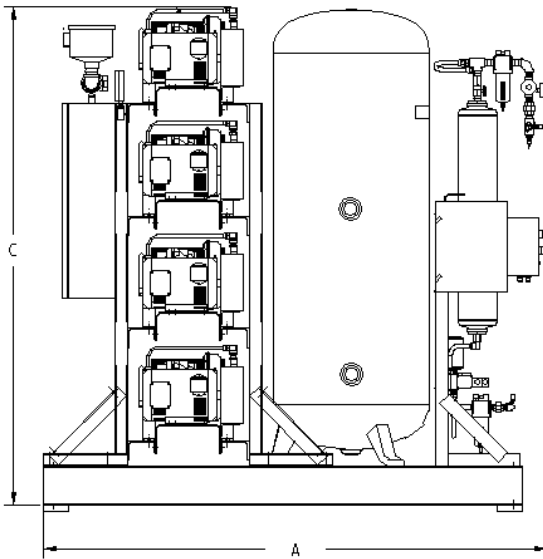
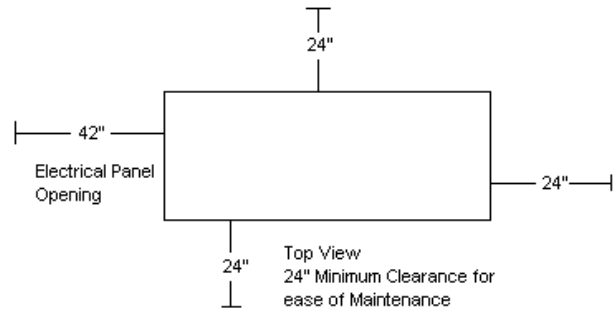


Medical Scroll Skid Mounted Packages

Duplex

Rev. 10/29/09

DIMENSIONS					
MODEL	DIM. A	DIM. B	DIM. C	Inlet	Outlet
MSD1004	78"	35"	77"	1-1/2"	3/4"



Medical Scroll Skid Mount Package - Duplex										
MODEL	HP	SCFM @ 50 PSIG ^(1,3)	NFPA System Capacity ¹	TANK SIZE	BTU/HR ²	dB(A) ⁴ LEVEL	SYSTEM F.L.A.			SYSTEM WEIGHT
							208V	230V	460V	
MSD1004	10	38.6	38.6	120 gal.	25,470	75	65	58	30	2,175

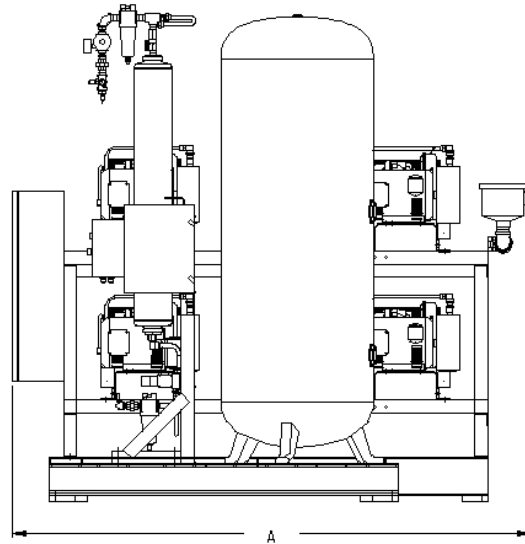
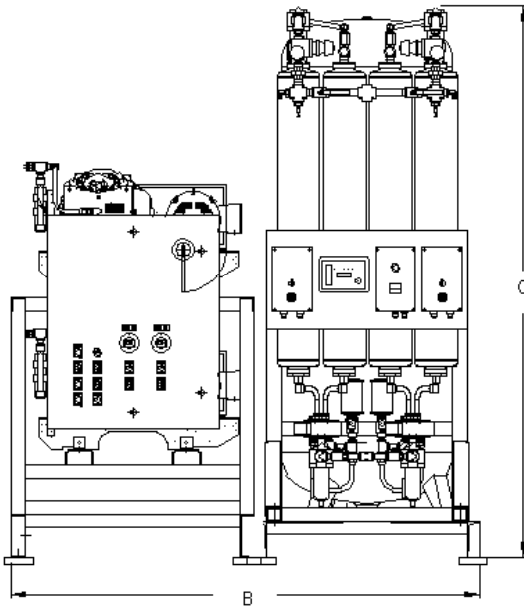
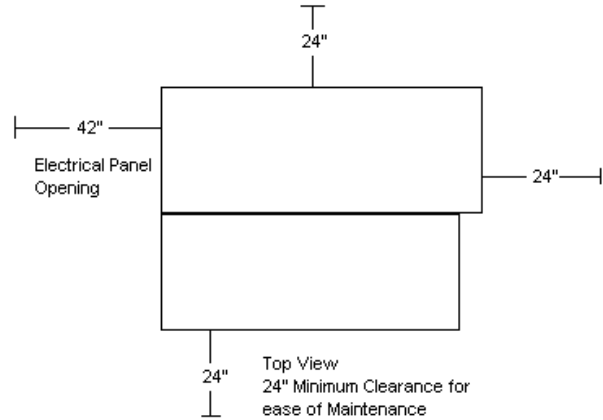
- Notes:
- 1- System Capacity is shown with one or more compressors in reserve per NFPA 99
 - 2 - BTU/HR Levels are shown with reserve compressor(s) on standby
 - 3 - Medical Air Systems should not be sized using ICFM. For comparison purposes only
Powerex recommends using performance ratings in SCFM (Standard Cubic Feet per Minute) when sizing medical air systems.
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 - 5 - 3 Year Limited Warranty



Medical Scroll Skid Mount Package Duplex

Rev. 10/29/09

DIMENSIONS					
MODEL	DIM. A	DIM. B	DIM. C	Inlet	Outlet
MSD1504	82"	66"	78"	1-1/2"	3/4"



Medical Scroll Skid Mount Package - Duplex										
MODEL	HP	ICFM @ 50 PSIG ^(1,3)	NFPA System Capacity ¹	TANK SIZE	BTU/HR ²	dB(A) ⁴ LEVEL	SYSTEM F.L.A.			SYSTEM WEIGHT
							208V	230V	460V	
MSD1504	15	57.9	57.9	120 gal.	38,205	77	94	86	44	3,550

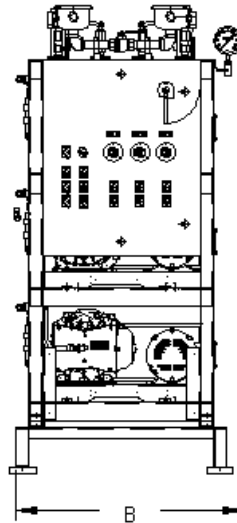
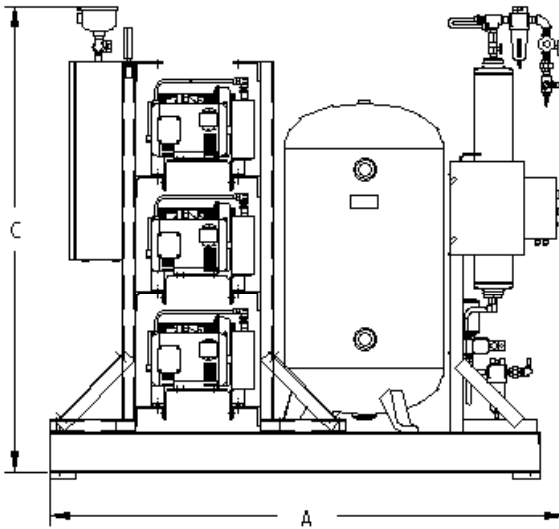
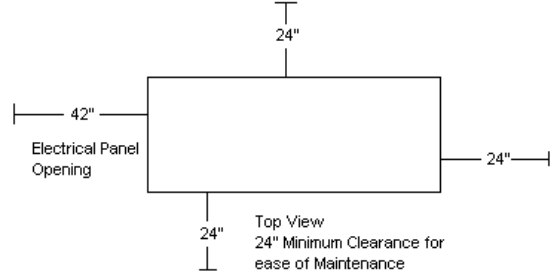
- Notes:
- 1- System Capacity is shown with one or more compressors in reserve per NFPA 99
 - 2 - BTU/HR Levels are shown with reserve compressor(s) on standby
 - 3 - Medical Air Systems should not be sized using ICFM . For comparison purposes only
Powerex recommends using performance ratings in SCFM (Standard Cubic Feet per Minute) when sizing medical air systems.
 - 4 - dB(A) is shown with one compressor in reserve per NFPA99
 - 5 - 3 Year Limited Warranty



Medical Scroll Skid Mounted Packages Triplex

Rev. 10/29/09

DIMENSIONS					
MODEL	DIM. A	DIM. B	DIM. C	Inlet	Outlet
MST0503	78"	35"	71"	1"	3/4"



Medical Scroll Skid Mount Package - Triplex										
MODEL	HP ¹	CFM @ 50 PSIG ^(1,3)	NFPA System Capacity ¹	TANK SIZE	BTU/HR ²	dB(A) ⁴ LEVEL	SYSTEM F.L.A.			SYSTEM WEIGHT
							208V	230V	460V	
MST0503	5	19.3	38.6	80 gal.	25,470	72	52	48	25	1,885

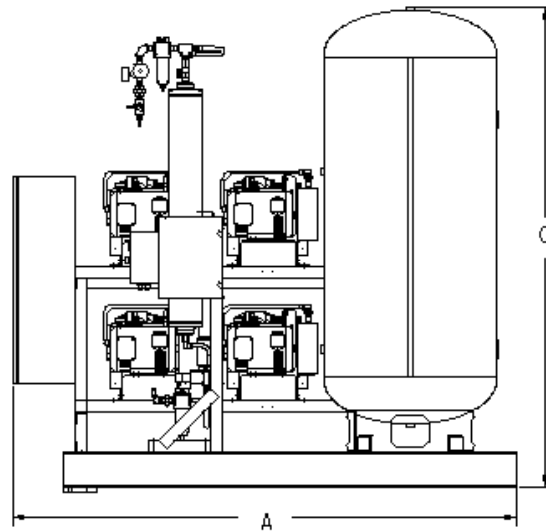
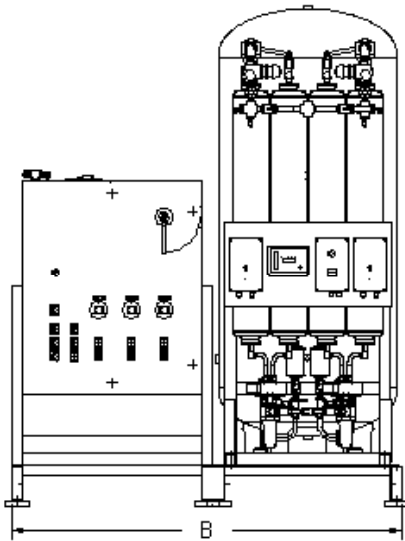
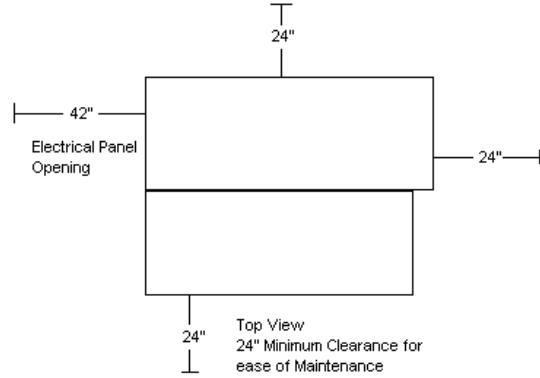
- Notes:
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 - 2 - BTU/HR Levels are shown with reserve compressor(s) on standby
 - 3 - Medical Air Systems should not be sized using ICFM. For comparison purposes only
Powerex recommends using performance ratings in SCFM (Standard Cubic Feet per Minute) when sizing medical air systems.
 - 4 - dB(A) is shown with one compressor in reserve per NFPA 99
 - 5 - 3 Year Limited Warranty



Medical Scroll Skid Mounted Packages Triplex

Rev. 10/29/09

DIMENSIONS					
MODEL	DIM. A	DIM. B	DIM. C	Inlet	Outlet
MST1005	88"	66"	84"	1-1/2"	1"
MST1505	86"	66"	84"	2"	1-1/2"



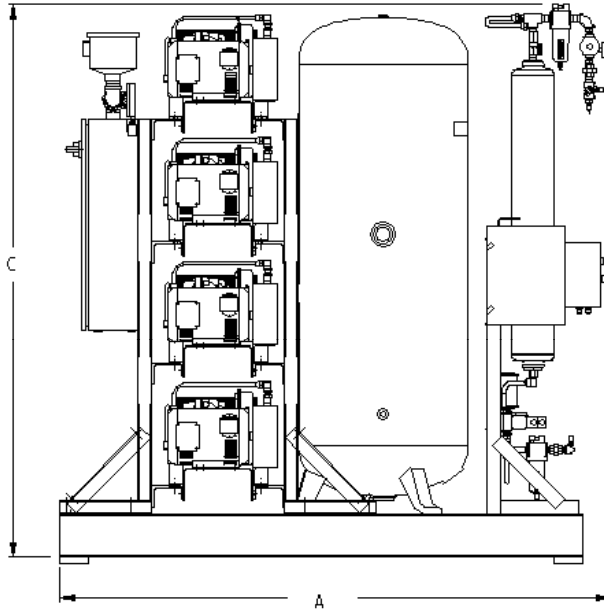
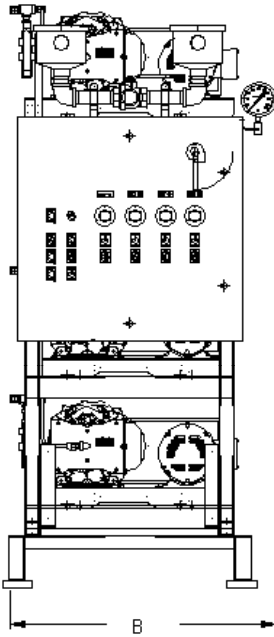
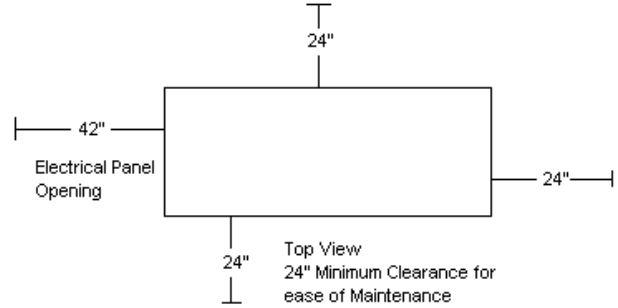
Medical Scroll Skid Mount Package - Triplex										
MODEL	HP	SCFM @ 50 PSIG ^(1,3)	NFPA System Capacity ¹	TANK SIZE	BTU/HR ²	dB(A) ⁴ LEVEL	SYSTEM F.L.A.			SYSTEM WEIGHT
							208V	230V	460V	
MST1005	10	38.6	77.2	200 gal.	50,940	75	95	86	44	3,524
MST1505	15	57.9	116	200 gal.	76,410	77	141	128	65	4,626

- Notes:
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 - 2 - BTU/HR Levels are shown with reserve compressor(s) on standby
 - 3 - Medical Air Systems should not be sized using ICFM. For comparison purposes only
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 - 4 - dB(A) is shown with one compressor in reserve per NFPA99
 - 5 - 3 Year Limited Warranty

Quadplex

Rev. 10/29/09

DIMENSIONS					
MODEL	DIM. A	DIM. B	DIM. C	Inlet	Outlet
MSQ0504	78"	36"	79"	1-1/2"	3/4"



Medical Scroll Skid Mount Package - Quadplex										
MODEL	HP	CFM @ 50 PSIG ^(1,3)	NFPA System Capacity ¹	TANK SIZE	BTU/HR ²	dB(A) ⁴ LEVEL	SYSTEM F.L.A.			SYSTEM WEIGHT
							208V	230V	460V	
MSQ0504	5	19.3	57.9	120 gal.	38,190	72	69	63	32	2,175

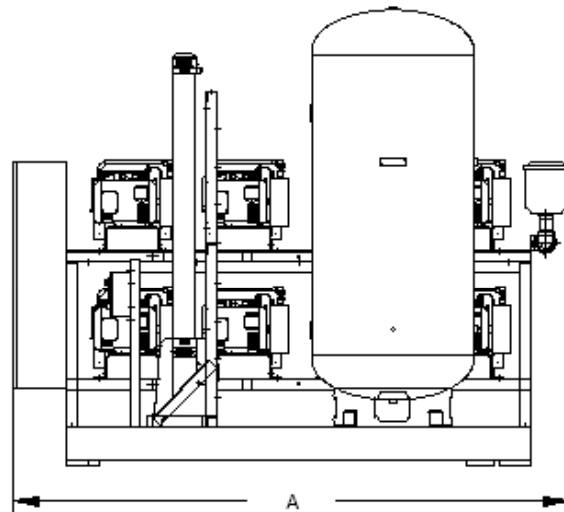
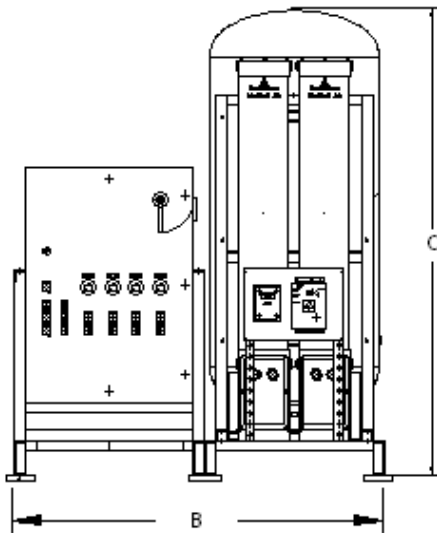
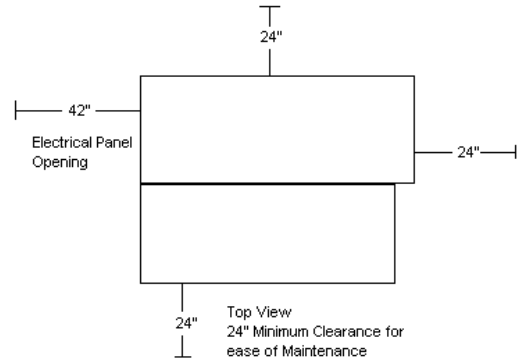
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 - 4 - dB(A) is shown with one compressor in reserve per NFPA 99
 - 5 - 3 Year Limited Warranty



Medical Scroll Skid Mounted Packages Quadplex

Rev. 11/11/09

DIMENSIONS					
MODEL	DIM. A	DIM. B	DIM. C	Inlet	Outlet
MSQ1005	104"	66"	84"	2"	1-1/2"
MSQ1505	104"	66"	84"	2"	1-1/2"



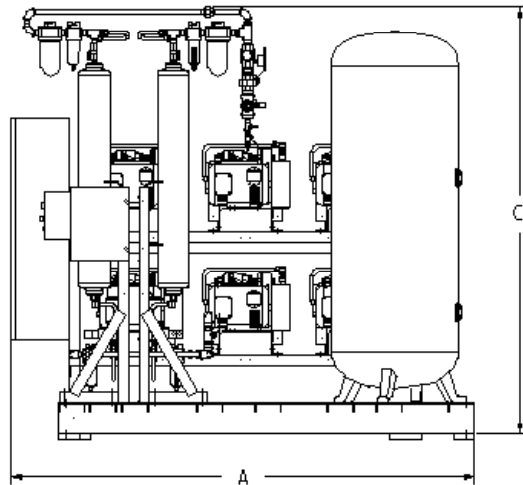
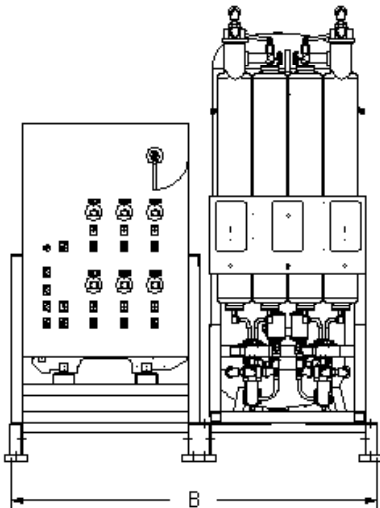
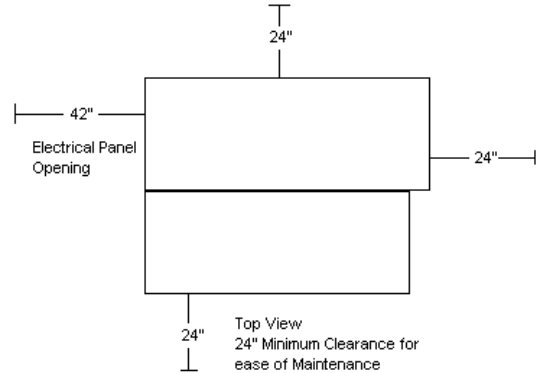
Medical Scroll Skid Mount Package - Quadplex										
MODEL	HP	ICFM @ 50 PSIG ⁽³⁾	NFPA System Capacity ¹	TANK SIZE	BTU/HR ²	dB(A) ⁴ LEVEL	SYSTEM F.L.A.			SYSTEM WEIGHT
							208V	230V	460V	
MSQ1005	10	38.6	115.8	200 gal.	76,380	75	125	114	58	4,700
MSQ1505	15	57.9	173.7	200 gal.	114,570	77	187	170	86	5,750

- Notes:
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 - 4 - dB(A) is shown with one compressor in reserve per NFPA99
 - 5 - 3 Year Limited Warranty

Multiplex

Rev. 10/29/09

DIMENSIONS					
MODEL	DIM. A	DIM. B	DIM. C	Inlet	Outlet
MSH0504	88"	66"	83"	1-1/2"	1"
MSN0505	93"	66"	84"	2"	1-1/2"



Medical Scroll Skid Mount Package - Multiplex										
MODEL	HP	SCFM @ 50 PSIG ^(1,3)	NFPA System Capacity ¹	TANK SIZE	BTU/HR ²	dB(A) ⁴ LEVEL	SYSTEM F.L.A.			SYSTEM WEIGHT
							208V	230V	460V	
MSH0504	5	19.3	96.5	120 gal.	63,675	79	84	82.8	41.1	3,550
MSN0505	5	19.3	154.4	200 gal.	101,880	81	126	124.2	62.1	4,800

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 - 5- 3 Year Limited Warranty