

## *Medical Air Systems: Oil-less Reciprocating*

### **GENERAL**

The Chemetron® medical air skid mounted system is designed to provide medical breathing air for hospital and medical institutions. This system meets NFPA 99 requirements for Level 1 breathing air. Note that larger systems are shipped on 2 or more skids and require connection of clearly labeled wiring and piping between skids once they are mounted on-site.

### **MEDICAL AIR COMPRESSOR SYSTEM**

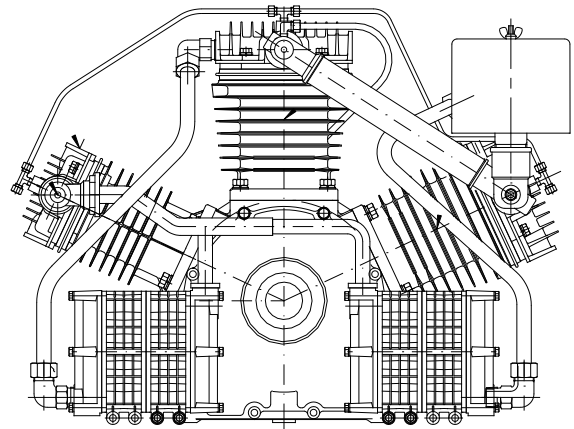
The package shall include multiple oil-less air compressors and associated equipment, one ASME tank, one medical desiccant air treatment center, and one medical control panel. The only field connections required will be system intake, exhaust, power connection at the control panel, and between-skid air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

### **OIL-LESS COMPRESSOR PUMP**

The compressor shall be belt-driven reciprocating, single-stage(1-3 hp), two-stage (5-15 hp), single acting, air cooled oil-less design with no oil needed for operation. Main bearings shall be permanently sealed and the wrist-pin bearings shall be lip sealed and field serviceable. Pistons shall be constructed of a heat rejecting composite graphite material with PTFE base resin rings. Piston rings shall have a minimum life of 10,000 run hours. Compressor design shall also include stainless steel valves with PTFE coated aluminum die-cast valve plates, precision bore die-cast anodized aluminum cylinders, and anodized inter-stage intercooler(s). Compressors shall utilize a dual cooling system which consists of a radial flow fan and flywheel that are attached to the compressor pumps crankshaft. All 7.5, 10, and 15 hp model compressors shall have spring type vibration isolation mounts. Each compressor shall include a discharge check valve of brass construction, an ASME safety relief valve, intake and discharge flexible connectors, a solenoid valve discharge line unloader, an isolation valve, an air cooled aftercooler, a moisture separator with automatic drain, and a high discharge temperature shutdown switch on each cylinder.

### **MOTORS**

Each compressor shall be belt driven by a 1750 RPM, ODP NEMA construction motor with a 1.15 service factor rating. OSHA approved belt guards shall be provided.



### **AIR RECEIVER**

The system shall include a ASME rated 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 condensate sight gauge 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 UL508 listed control panel conforming to NEMA ICS-2 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 alarm monitoring, and an acknowledge pushbutton for horn silencing. The lag compressor shall be able to start automatically if the lead compressor fails to operate.

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**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. 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.

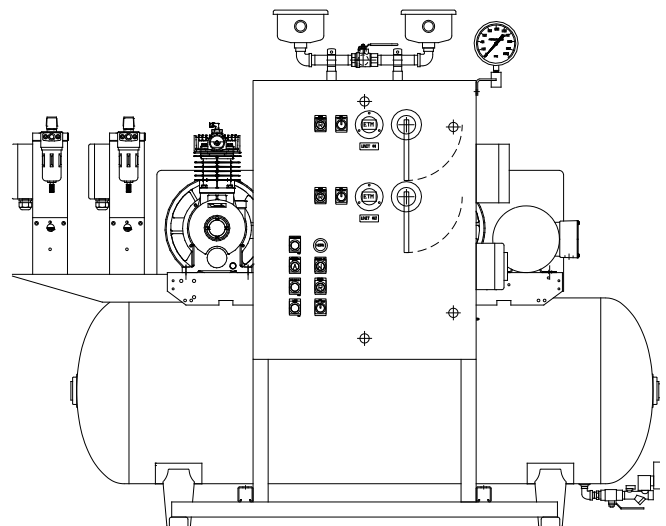
Each filter/dryer/regulator assembly shall be plumbed with bypass valves to enable service without disrupting air flow to the facility.

**DEW POINT MONITOR**

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

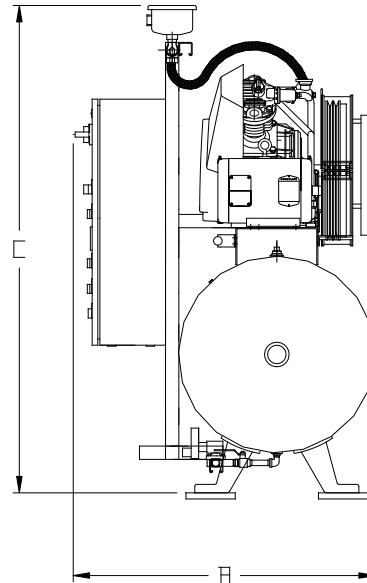
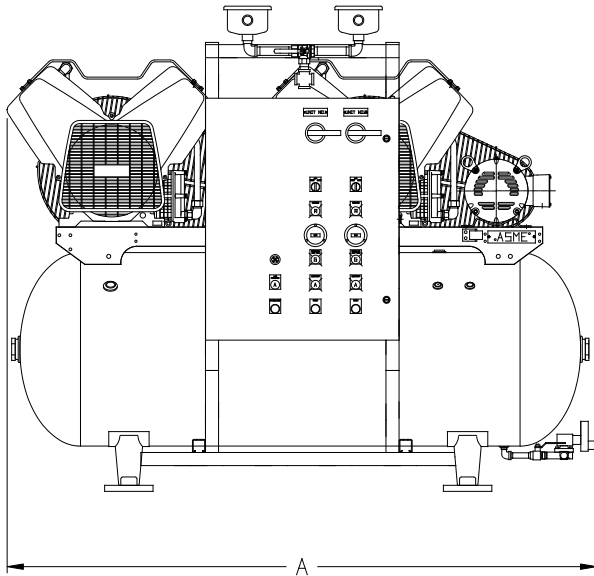
**CARBON MONOXIDE MONITOR**

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 NFPA 99. Dry contacts are provided for remote monitoring of the high CO alarm.



DIMENSIONS					
MODEL	DIM. A	DIM. B	DIM. C	Inlet x 2	Outlet x 1
DOR010-80T	65"	34"	60"	3/4"	1/2"
DOR015-80T	68"	35"	60"	3/4"	1/2"
DOR020-80T	68"	35"	60"	3/4"	1/2"
DOR030-120T	68"	35"	60"	3/4"	1/2"
DOR050-120T	73"	37"	60"	1"	1/2"
DOR075-120T	74"	48"	60"	1-1/2"	1/2"
DOR100-102T	74"	48"	60"	1-1/2"	3/4"
DOR150-120T	74"	48"	60"	1-1/2"	3/4"

**Duplex Tankmount Less ATC**  
**1 - 15 hp**



Duplex Tankmount Less ATC										
MODEL	HP <sup>1</sup>	CFM @ 50 PSI Each	NFPA System Capacity <sup>1</sup>	TANK SIZE	BTU/HR <sup>2</sup>	dB(A) LEVEL <sup>3</sup>	SYSTEM F.L.A.			SYSTEM WEIGHT
							208V	230V	460V	
DOR010-80T	1	4.7	4.7	80	2,546	73	11	10	6	710
DOR015-80T	1-1/2	6.7	6.7	80	3,819	74	13	12	7	730
DOR020-80T	2	9.2	9	80	5,092	72	17	16	9	800
DOR030-120T	3	11.5	11.5	120	7,638	74	23	21	11	825
DOR050-120T	5	20.5	20.5	120	12,730	78	35	32	15	930
DOR075-120T	7-1/2	31	31	120	19,095	78	50	46	24	1,050
DOR100-102T	10	40.7	40.7	120	25,460	80	65	58	30	1,150
DOR150-120T	15	60	60	120	38,190	81	94	86	44	1,300

Notes:  
 1 - HP and NFPA System Capacity are shown with one or more pumps in reserve per NFPA 99  
 2 - BTU/HR levels are shown with reserve pump(s) on standby  
 3 - dB(A) is shown with one pump in reserve per NFPA 99

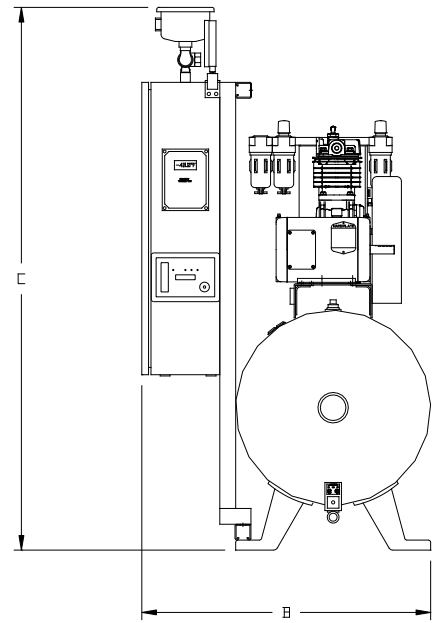
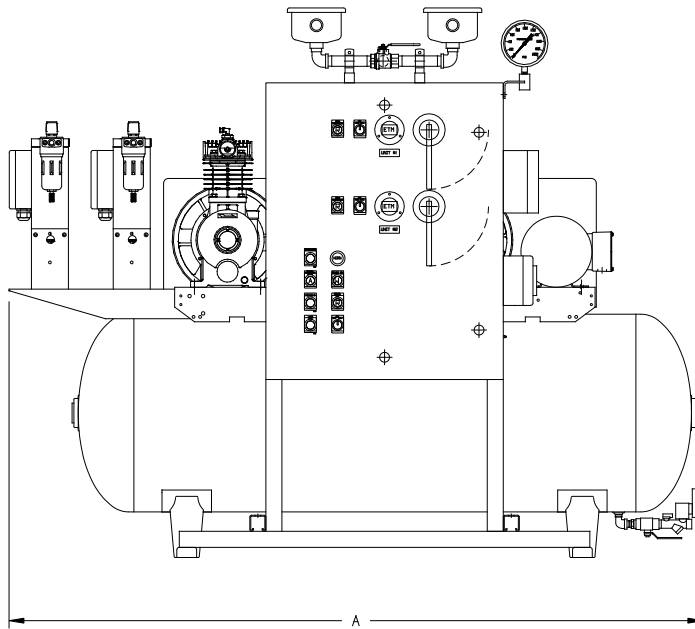
## Product Specification

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### Duplex Tankmount with ATC 1 - 15 hp

DIMENSIONS					
MODEL	DIM. A	DIM. B	DIM. C	Inlet x 2	Outlet x 1
DOR010-80TDD	70"	32"	51"	3/4"	1/2"
DOR015-80TDD	70"	32"	56"	3/4"	1/2"
DOR020-80TDD	77"	33"	66"	3/4"	1/2"
DOR030-120TDD	75"	35"	67"	3/4"	1/2"
DOR050-120TDD	75"	40"	67"	1"	1/2"

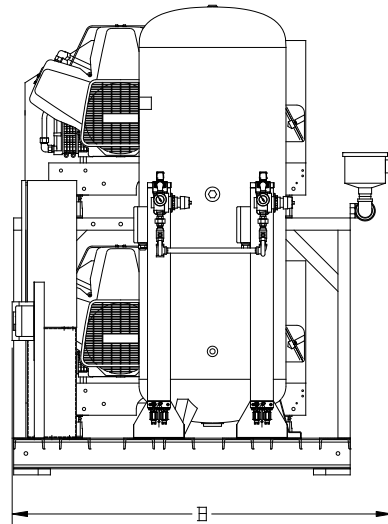
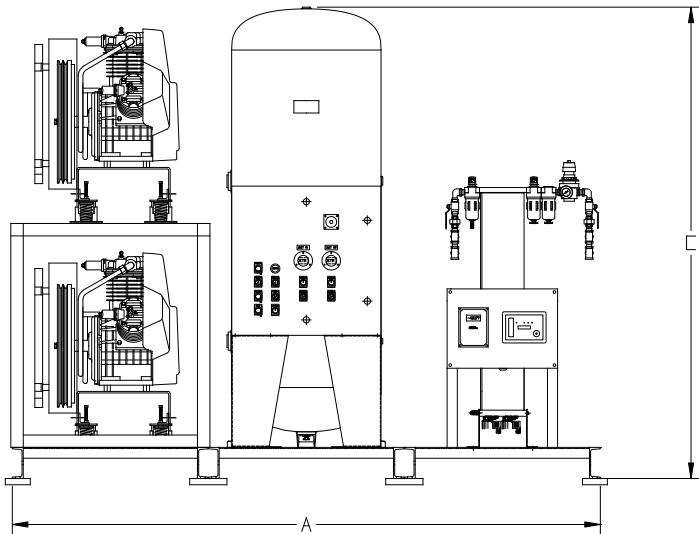


Duplex Tankmount With ATC										
MODEL	HP <sup>1</sup>	CFM @ 50 PSI Each	NFPA System Capacity <sup>1</sup>	TANK SIZE	BTU/HR <sup>2</sup>	dB(A) LEVEL <sup>3</sup>	SYSTEM F.L.A.			SYSTEM WEIGHT
							208V	230V	460V	
DOR010-80TDD	1	4.7	4.7	80	2,546	73	11	10	6	825
DOR015-80TDD	1-1/2	6.7	6.7	80	3,819	74	13	12	7	845
DOR020-80TDD	2	9.2	9	80	5,092	72	17	16	9	915
DOR030-120TDD	3	11.5	11.5	120	7,638	74	23	21	11	1,000
DOR050-120TDD	5	20.5	20.5	120	12,730	78	35	32	15	1,150

Notes:  
 1 - HP and NFPA System Capacity are shown with one or more pumps in reserve per NFPA 99  
 2 - BTU/HR levels are shown with reserve pump(s) on standby  
 3 - dB(A) is shown with one pump in reserve per NFPA 99

DIMENSIONS					
MODEL	DIM. A	DIM. B	DIM. C	Inlet x 2	Outlet x 1
DOR030-120BDD	96"	60"	77"	3/4"	1/2"
DOR050-120BDD	96"	60"	77"	1"	1/2"
DOR075-120BDD	96"	60"	77"	1-1/2"	1/2"
DOR100-120BDD	96"	60"	77"	1-1/2"	3/4"
DOR150-120BDD	96"	60"	77"	1-1/2"	3/4"

**Duplex Basemount with ATC**  
**3 - 15 hp**



Duplex Basemount With ATC										
MODEL	HP <sup>1</sup>	CFM @ 50 PSI Each	NFPA System Capacity <sup>1</sup>	TANK SIZE	BTU/HR <sup>2</sup>	dB(A) LEVEL <sup>3</sup>	SYSTEM F.L.A.			SYSTEM WEIGHT
							208V	230V	460V	
DOR030-120BDD	3	11.5	11.5	120	7,638	74	23	21	11	1,850
DOR050-120BDD	5	20.5	20.5	120	12,730	78	35	32	15	2,197
DOR075-120BDD	7-1/2	31	31	120	19,095	78	50	46	24	2,345
DOR100-120BDD	10	40.7	40.7	120	25,460	80	65	58	30	2,352
DOR150-120BDD	15	60	60	120	38,190	81	94	86	44	2,462

Notes:  
 1- HP and NFPA System Capacity are shown with one or more pumps in reserve per NFPA 99  
 2- BTU/HR levels are shown with reserve pump(s) on standby  
 3- dB(A) is shown with one pump in reserve per NFPA 99

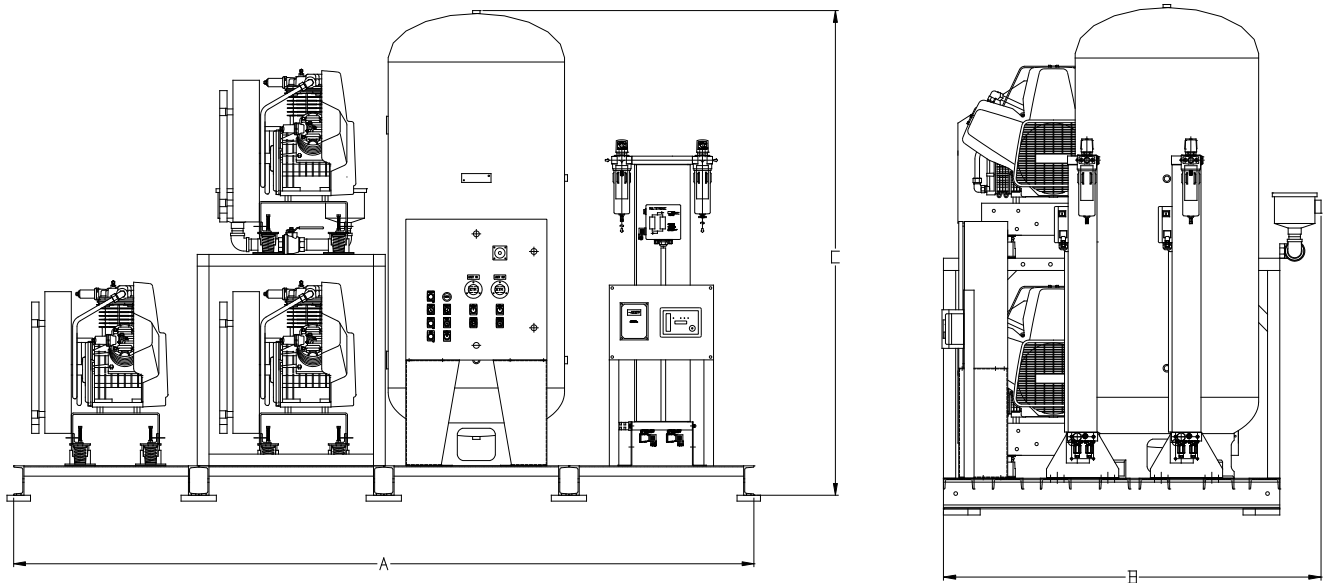
## Product Specification

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### Triplex Basemount with ATC 5 - 15 hp

DIMENSIONS					
MODEL	DIM. A	DIM. B	DIM. C	Inlet x2	Outlet x1
TOR050-200BDD	128"	62"	83"	1-1/2"	3/4"
TOR075-200BDD	128"	62"	83"	1-1/2"	1"
TOR100-200BDD	128"	62"	83"	1-1/2"	1"
TOR150-200BDD	128"	62"	83"	2"	1-1/2"



Triplex Basemount With ATC										
MODEL	HP <sup>1</sup>	CFM @ 50 PSI Each	NFPA System Capacity <sup>1</sup>	TANK SIZE	BTU/HR <sup>2</sup>	dB(A) LEVEL <sup>3</sup>	SYSTEM F.L.A.			SYSTEM WEIGHT
							208V	230V	460V	
TOR050-200BDD	5	20.5	41	200	25,460	78	52	48	25	2,840
TOR075-200BDD	7-1/2	31	62	200	38,190	78	75	68	35	3,010
TOR100-200BDD	10	41	81.40	200	50,920	80	95	86	44	3,115
TOR150-200BDD	15	60	120	200	76,380	81	141	128	65	3,245

Notes:

1 - HP and NFPA System Capacity are shown with one or more pumps in reserve per NFP A 99

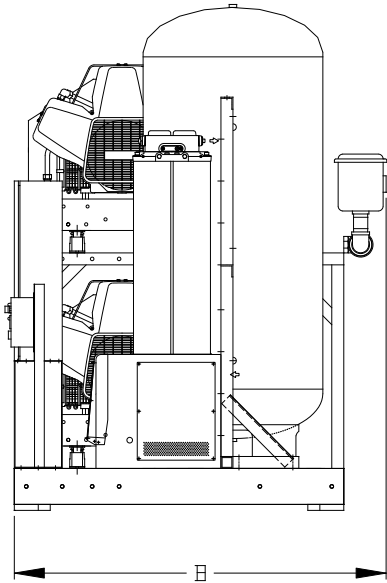
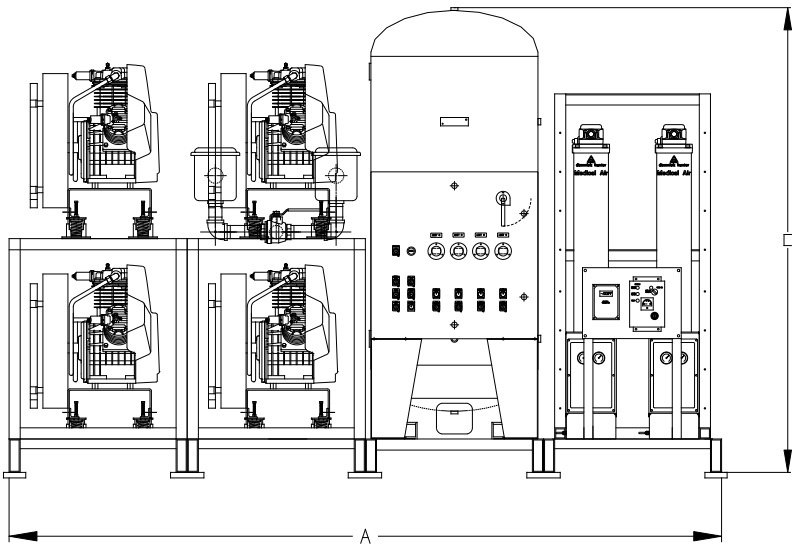
2 - BTU/HR levels are shown with reserve pump(s) on standby

3 - dB(A) is shown with one pump in reserve per NFP A 99

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DIMENSIONS					
MODEL	DIM. A	DIM. B	DIM. C	Inlet x2	Outlet x1
QOR050-200BDD	128"	62"	83"	1-1/2"	3/4"
QOR075-200BDD	128"	62"	83"	2"	1"
QOR100-200BDD	128"	62"	83"	2"	1-1/2"
QOR150-200BDD	128"	62"	83"	2"	1-1/2"

**Quad Basemount with ATC**  
**5 - 15 hp**



Quadplex Basemount With ATC										
MODEL	HP <sup>1</sup>	CFM @ 50 PSI Each	NFPA System Capacity <sup>1</sup>	TANK SIZE	BTU/HR <sup>2</sup>	dB(A) LEVEL <sup>3</sup>	SYSTEM F.L.A.			SYSTEM WEIGHT
							208V	230V	460V	
QOR050-200BDD	5	20.5	61.5	200	38,190	78	69	63	32	3,475
QOR075-200BDD	7-1/2	31	93	200	57,285	78	99	90	46	3,565
QOR100-200BDD	10	41	122	200	76,380	80	125	114	58	3,595
QOR150-200BDD	15	60	180	200	114,570	81	187	170	86	3,975

Notes:  
 1 - HP and NFPA System Capacity are shown with one or more pumps in reserve per NFPA 99  
 2 - BTU/HR levels are shown with reserve pump(s) on standby  
 3 - dB(A) is shown with one pump in reserve per NFPA 99



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For over 60 years, Chemetron® has built its name on quality American-made medical gas delivery products with unmatched reliability and durability.

Today our commitment to quality products and expert service remains our top priority.

- ▶ **Chemetron products are still designed for longevity.**
- ▶ **Chemetron products are still manufactured using only the highest quality materials.**
- ▶ **Chemetron products are still manufactured in the USA.**

These values ensure that when you choose Chemetron for your medical gas delivery and monitoring needs, you are investing in quality products that will last a lifetime.

**Chemetron ... Your Source for Quality Medical Gas Delivery Products**

- Medical Vacuum Systems
- Medical Air Systems
- Medical Gas Manifolds
- Ball Valves & Check Valves
- Zone Valve Boxes
- Medical Gas Control Panels
- Area & Master Alarms
- Ceiling Columns & Pedestals
- Gas Tracks
- Hose Reels
- Medical Gas Outlets
- Retrofit Upgrades

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All specifications are nominal and subject to change without notice.

Warranty: See Allied Statement of Warranties for details.

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**Construction Customer Service**

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**ISO 13485: 2003**

***Product Specification***

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