

# MODULAR REGENERATIVE DRYERS



## USER/SERVICE MANUAL

EMD US SERIES (EMD US-25 TO EMD US-260)

### WARRANTY NOTICE



Failure to follow the instructions and procedures in this manual or misuse of this equipment will VOID its warranty !



## TABLE OF CONTENTS

### SECTION 1—SAFETY

3	1.1	SAFETY INFORMATION
4	1.2	DEFINITION OF THE SAFETY SYMBOLS USED
5	1.3	WARNINGS
6	1.4	PROPER USE OF THE DRYER
6	1.5	INSTRUCTIONS FOR THE USE OF PRESSURE EQUIPMENT

### SECTION 2—INTRODUCTION

7	2.1	INTRODUCTION
7	2.2	GENERAL SPECIFICATIONS
7	2.3	PRESSURE SWING ADSORPTION (PSA)

### SECTION 3—INSTALLATION

9	3.1	ESSENTIAL INFORMATION
9	3.2	TECHNICAL SPECIFICATIONS

### SECTION 4—SPECIFICATIONS

9	4.0	SPECIFICATIONS
10	4.1	P&I—EMD US 25-45
11	4.2	P&I—EMD US 110-120
12	4.3	P&I—EMD US 190
13	4.4	P&I—EMD US 260
14	4.5	ID—EMD US-25
15	4.6	ID—EMD US-45
16	4.7	ID—EMD US-110-120
17	4.8	ID—EMD US-190
18	4.9	ID—EMD US-260
19	4.10	WD—EMD US SERIES

### SECTION 5—STARTUP AND OPERATION

20	5.1	INITIAL STARTUP
20	5.2	WITHOUT THE BY-PASS LINE
20	5.3	USING THE BY-PASS LINE
21	5.4	NORMAL OPERATION
21	5.5	SHUT-DOWN PROCEDURE TO DEPRESSURIZE THE DRYER
21	5.6	ALARM SIGNAL
22	5.7	MILLENNIUM-3 SMART RELAY ON DRYER

### SECTION 6—MAINTENANCE

23	6.1	MAINTENANCE GUIDELINES
23	6.2	DAILY CHECKS
23	6.3	GENERAL SERVICE

### SECTION 7—SPARE PARTS LIST & ED

24	EMD US-25
24	EMD US-45
24	EMD US-110
24	EMD US-120
24	EMD US-190
24	EMD US-260
25	EMD US-25
26	EMD US-45
27	EMD US-110 -120
28	EMD US-190
29	EMD US-260

### SECTION 8—TROUBLESHOOTING

30	TROUBLESHOOTING
----	-----------------



## SECTION 1

# SAFETY

The dryer has been designed and constructed in accordance with the generally recognized rules pertaining to adsorption technology as well as industrial safety and accident prevention regulations. The equipment design, development, production, assembly and customer service fall under the Airbase quality control system. The dryer is state of the art. There are, however, hazards to the body, equipment and life accompanying this type of product if it is not operated for the purpose which it is intended by trained and specialized personnel.

The equipment supplied is intended exclusively for drying compressed air. Any other use or one exceeding this is considered unauthorized. Airbase can not be held liable for damages resulting from incorrect or unauthorized use of the equipment. Any such risk is carried solely by the end user. Authorized use means complete compliance with all of the conditions of operation, servicing and maintenance prescribed by Airbase in this Instruction and Operation Manual. The dryer is only to be operated, serviced and repaired by trained personnel who are familiar with this type of equipment and understand fully its operation and any potential dangers.

### 1.1 SAFETY INFORMATION

The end user and operator must observe all National, State, and Local industrial and safety regulations dealing with the operation of pressure vessels under compressed air service. Also all "end user" safety rules for the same type of service must be adhered to. The following points list some of the important factors dealing with this type of equipment.

- Never make any structural changes to the equipment
- Use only original spare parts and accessories
- Never weld on any pressure vessel or modify it in any way
- All maintenance on "pressure parts" must be carried out with the equipment shutdown, depressurized and locked out. Any in plant procedures or work permits regarding pressure vessels are to be adhered to.
- Do not operate the equipment with the control panel door open, the electrical system energized and live parts exposed.
- Disconnect the dryer from the electrical supply when any electrical work is performed. Lock out the safety disconnect and obtain any required work permits.

The desiccants used in this equipment are not considered hazardous. However all contact with or disposal of the desiccant should be in accordance with the relevant MSDS. The following lists the more common safety measures normally observed during filling operations.

- In the case of accidental contact of the desiccant with the eyes, rinse immediately with an abundance of clean water. Refer to the MSDS.
- Accidental spillage of desiccant on the floor should be cleaned up avoiding the creation of excess dust during this procedure.
- Use a contoured face mask during any filling or draining operations. Refer to the MSDS.

## 1.2 DEFINITION OF THE SAFETY SYMBOLS USED



Before attempting any intervention on the dryer, read carefully the instructions reported in this use and maintenance manual.



General warning sign. Risk of danger or possibility of damage to the machine. Read carefully the text related to this sign.



Electrical hazard. The relevant text outlines conditions which could result fatal. The related instructions must be strictly respected.



Danger hazard. Part or system under pressure.



Danger hazard. Component or system which during the operation can reach high temperature.



Danger hazard. It's absolutely forbidden to breathe the air treated with this apparatus.



Danger hazard. It's absolutely forbidden to use water to extinguish fire on the dryer or in the surrounding area.



Danger hazard; It's absolutely forbidden to operate the machine when the parts (under pressure or electric panels) are not in place or have been tampered with and changed.



Danger hazard: Machine level noise could be higher than 85 dBA. It is mandatory to install the machine in dedicated area where people are not normally present. The installer and/or the user is responsible for correct installation of the dryer, in order to prevent noise propagation to the near work environment. The installer and/or the user is also responsible for the safety signs affixing into installation site.



Attention : the User or Operator must wear hearing protection before performing any procedure on the dryer. All personnel must select the proper PPD (Personal Protection Device) hearing protector ( earmuffs, ear canal caps or ear plugs) in order to prevent damage to the person's hearing.

## 1.3 WARNINGS

	Maintenance and/or control operation to be very carefully performed by qualified personnel 1.
	Compressed air inlet connection point.
	Compressed air outlet connection point.
	Condensate drain connection point.
	Operations which can be worked out by the operator of the machine, if qualified 1.
	<p>In designing this unit a lot of care has been devoted to the protection of the environment:</p> <ul style="list-style-type: none"> <li>• Dryer and relevant packaging composed of recyclable materials.</li> <li>• Energy saving design.</li> </ul> <p>Not to spoil our commitment, the user should follow the few ecological suggestions marked with this sign.</p>
	<p>Compressed air is a highly hazardous energy source. Never work on the dryer with parts under pressure. Never point the compressed air or the condensate drain jet towards anybody.</p> <p>This user is responsible for the installation of the dryer, which has to be executed on the basis of the instructions given in the "Installation" chapter. Otherwise, the warranty will be voided and dangerous situations for the personnel and/or damages to the machine could occur.</p>
	<p>Only qualified personnel can use and service electrically powered devices. Before attempting any maintenance action, the following conditions must be satisfied :</p> <ul style="list-style-type: none"> <li>• Ensure that any part of the machine is under voltage and that it can not be connected to the mains.</li> <li>• Ensure that any part of the dryer is under pressure and that it cannot be connected to the compressed air system.</li> </ul>
	Any change to the machine or to the relevant operating parameters, if not previously verified and authorised by the Manufacturer, in addition to create the possibility of dangerous conditions it will void the warranty.
	Don't use water to extinguish fire on the dryer or in the surrounding area.

## 1.4 PROPER USE OF THE DRYER

This dryer has been designed, manufactured and tested only to be used to separate the humidity normally contained in compressed air. Any other use has to be considered improper. The Manufacturer will not be responsible for any problem arising from improper use; the user will be in any case responsible for any resulting damage.

Moreover, the correct use requires the compliance with the installation conditions, in particular:

- Voltage and frequency of the primary electrical supply.
- Pressure, temperature and flow rate of the incoming air.
- Ambient temperature.

This dryer is supplied tested and fully assembled. The only operation left to the user is the installation of the desiccant into the dryer towers and the connection to the plant in compliance with the instructions given in the following chapters.

The purpose of the machine is the separation of water present in compressed air. The dried air cannot be used for respiration purposes or for operations leading to direct contact with foodstuff, unless subject to further treatments.

### **NOTE: PRE-FILTRATION REQUIRED**

## 1.5 INSTRUCTIONS FOR THE USE OF PRESSURE EQUIPMENT

To ensure the safe operation of pressure equipments, the user must conform strictly to the following:

1. The equipment must only be operated within the temperature and pressure limits stated on the manufacturers name/data plate.
2. No welding is allowed on the shell and end caps.
3. The equipment must not be stored in badly ventilated spaces, near a heat source or inflammable substances.
4. Vibration must be eliminated from the equipment to prevent fatigue failure.
5. An internal inspection must be carried out at 12 month intervals to check for pressure equipment corrosion. The actual wall thickness of the tower after corrosion should not be less than the data indicated on the chart located on the side on the tower.
6. Condensate drains should be checked for operation every day to prevent a build up of condensate in the pressure equipment.
7. The maximum working pressure stated on the manufacturers data plate must not be exceeded.
8. All documentation supplied with the equipment (manual, declaration of conformity etc.) must be kept for future reference.

## SECTION 2

# INTRODUCTION

The EMD US range of compressed air dryers are designed to remove moisture from compressed air by utilising state of the art technology to obtain dewpoints of -40 (-40°F) PDP and by appropriate de-rating -70°C (-100°F) PDP.

EMD US dryers have been designed to require minimal maintenance and can be installed virtually anywhere.

The EMD US dryer consists of upper and lower head assemblies joined together with an aluminium extrusion containing twin internal chambers. The upper head assembly contains inlet and outlet manifolds. The lower head assembly contains two exhaust valves and a passive shuttle ball valve. During operation one chamber is on-line (drying) while the other is regenerating, using the Pressure Swing Adsorption (PSA) process

### 2.2 GENERAL SPECIFICATION

Outlet Dewpoint: -40 °F (-40 °C) Optional:  
-100 °F (70 °C) Optional: -4 °F (-20 °C)

Environmental Protection IP65 (NEMA12)  
Noise Level <70 dB(A)

### 2.3 PRESSURE SWING ADSORPTION (PSA)



A small percentage of dried air is taken from the dryer outlet flow and is used to regenerate the saturated chamber by expanding the dried air from line pressure to atmospheric pressure. During this process, the moisture is physically removed from the regenerating chamber and vented to atmosphere through the exhaust.

GROUP	MODEL TYPE	INLET FLOW RATE		INLET -OUTLET CONNECTION*	WEIGHT (kg)	WEIGHT (Lbs)
		CFM	(m <sup>3</sup> /h)			
Modular	EMD US-25	20	35	1/2" NPT	42	92
Modular	EMD US-45	40	70	1 1/2" NPT	71	156
Modular	EMD US-110	100	170	1 1/2" NPT	133	292
Modular	EMD US-120	120	200	1 1/2" NPT	152	334
Modular	EMD US-190	180	300	1 1/2" NPT	186	409
Modular	EMD US-260	240	400	1 1/2" NPT	235	517

\*NPT thread is standard. Optional BSP thread is available

**Note:** Performance data based on 100°F ambient temperature, 100°F inlet temperature and 100 psig inlet pressure.

### 3.1 ESSENTIAL INFORMATION

Care must be taken to ensure that the dryer is not subject to flows (even peaks) in excess of the dryers rated capacity, e.g. dryers downstream of an air receiver have increased potential to be overflowed.

The dryer can be installed free standing, secured to the floor via the fastening points provided in the base or secured to a wall using optional brackets.

The dryer must be installed vertical and level. Suitable rated pipe and connections must be used for the installation. All pipework must be secure and safely positioned.

The purge flow is factory set for 7 bar (100 psig) inlet pressure operation. Should the minimum pressure requirement be different, the purge flow must be reset by a Airbase engineer or a Airbase approved agent.

Ensure the dryer is electrically connected to a supply suitable for the unit. See wiring diagram printed in 2.3 Electrical Details.



#### 1. Filtration

A 0.01 micron coalescer and a 1 micron particle after filter is to be installed before and after the EMD US dryer. Filters must be maintained.

#### 2. By-pass Line

A by-pass line ensures complete safety during maintenance and enables a continuous supply of compressed air to be maintained if required. It should be remembered that air bypassing the dryer is dirty untreated air.

## 3.2 TECHNICAL SPECIFICATION

Table 3-1: Operating Specification

Parameter	Minimum	Maximum	Nominal
Inlet Pressure	60 psig (4.1barg)	230 psig (16.0 barg)	100 psig (6.9 barg)
Control Air Pressure	60 psig (4.1barg)	145 psig (10 barg)	87 psig (6 barg)
Ambient Air Temperature	34°F (1,6°C)	122°F (50°C)	100°F (38°C)
Inlet Temperature	40°F (4.4°C)	120°F (48.9°C)	95°F (35°C)

Table 3-2: Electrical Specification

Dryer Model	Voltage Supply	Supply Need	Electrical Approval
50-60 Hz	115-240V	1 phase	CE/UL (CSA <sup>*optional</sup> )

## SPECIFICATIONS

MODEL TYPE	INLET FLOW RATE		INLET-OUTLET CONNECTION	LENGTH		WIDTH		HEIGHT		WEIGHT		VOLTAGE
	CFM	(m <sup>3</sup> /h)	NPT	mm	inc	mm	inc	mm	inc	kg	lbs	
EMD US-25	20	35	1/2"	350	13,8	370	14,5	1108	43,6	42	92	115-240V/ 50-60Hz
EMD US-45	40	70	1 1/2"	495	19,5	410	16,1	1250	49,2	71	156	115-240V/ 50-60Hz
EMD US-110	100	170	1 1/2"	622	24,5	430	22	1450	58	133	292	115-240V/ 50-60Hz
EMD US-120	120	200	1 1/2"	622	24,5	430	25	1750	68,8	152	334	115-240V/ 50-60Hz
EMD US-190	180	300	1 1/2"	734	28,9	410	16,1	1499	59	186	409	115-240V/ 50-60Hz
EMD US-260	240	400	1 1/2"	889	35	410	16,1	1497	59	235	517	115-240V/ 50-60Hz

MODEL TYPE	INLET FLOW RATE		INLET-OUTLET CONNECTION	NEMA cycle in minutes	Drying time in minutes	Regen. time in minutes	Repress. time in seconds	Purge Source	Purge Rate (at -40°C)	Purge Rate (at -70°C)	Activated Alumina	
	CFM	(m <sup>3</sup> /h)	NPT						(-40°F)	(-100°F)	(kg)	ibs
EMD US-25	20	35	1/2"	5	2,5	2	30	Dry Air	15%	20%	10	22
EMD US-45	40	70	1 1/2"	5	2,5	2	30	Dry Air	15%	20%	18	39
EMD US-110	100	170	1 1/2"	5	2,5	2	30	Dry Air	15%	20%	43	94
EMD US-120	120	200	1 1/2"	5	2,5	2	30	Dry Air	15%	20%	53	116
EMD US-190	180	300	1 1/2"	5	2,5	2	30	Dry Air	15%	20%	67	147
EMD US-260	240	400	1 1/2"	5	2,5	2	30	Dry Air	15%	20%	89	195

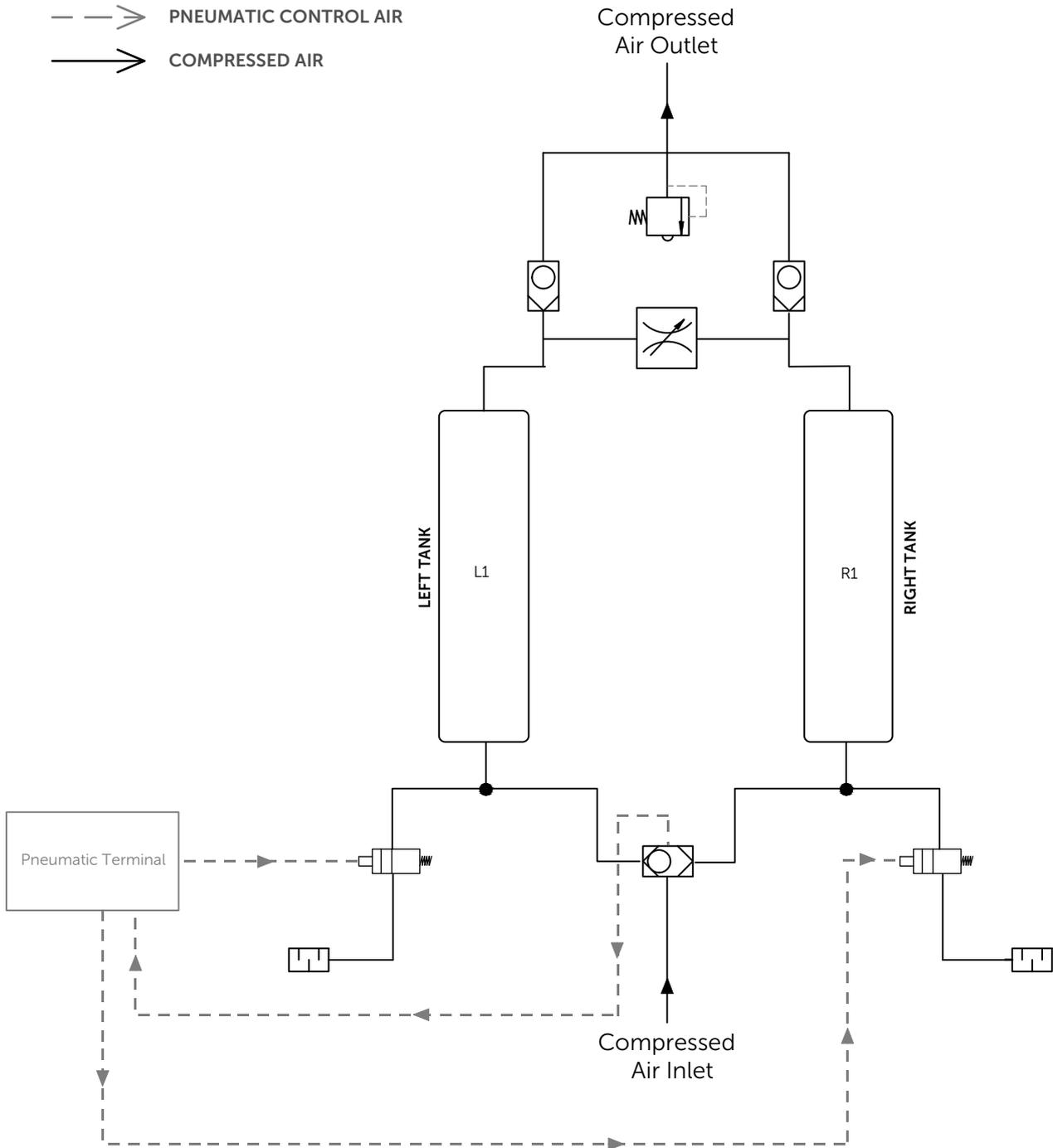
### NOTE

Performance data based on 100°F (38°C) ambient temperature, 100°F (38°C) inlet temperature and 100 psig (6,9 barg) inlet pressure.

# 4.1 P&I—EMD US-25 - EMD US-45

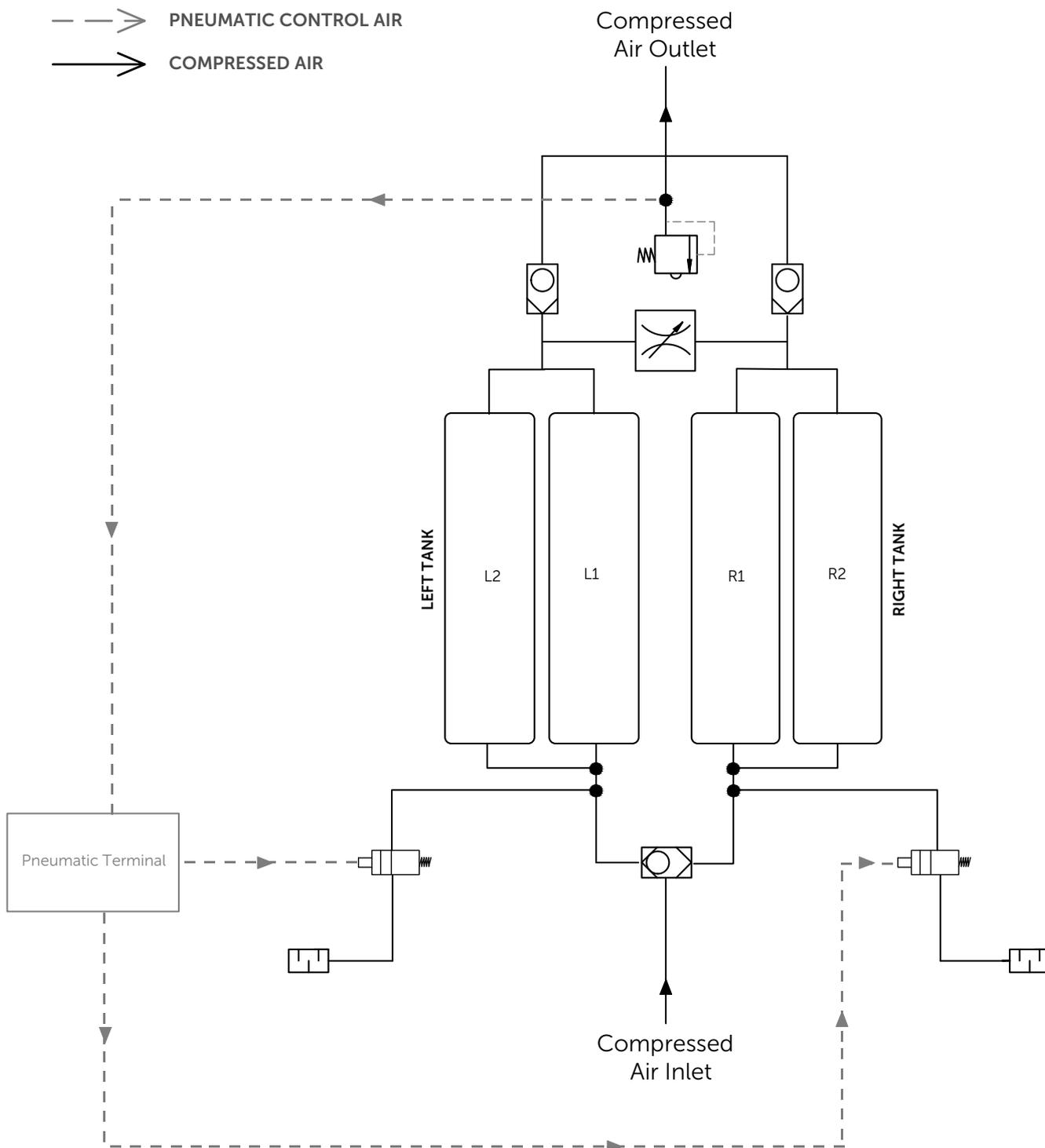
## SYSTEM PRESSURE CONTROL DIAGRAM

- - - - -> PNEUMATIC CONTROL AIR  
 ————> COMPRESSED AIR



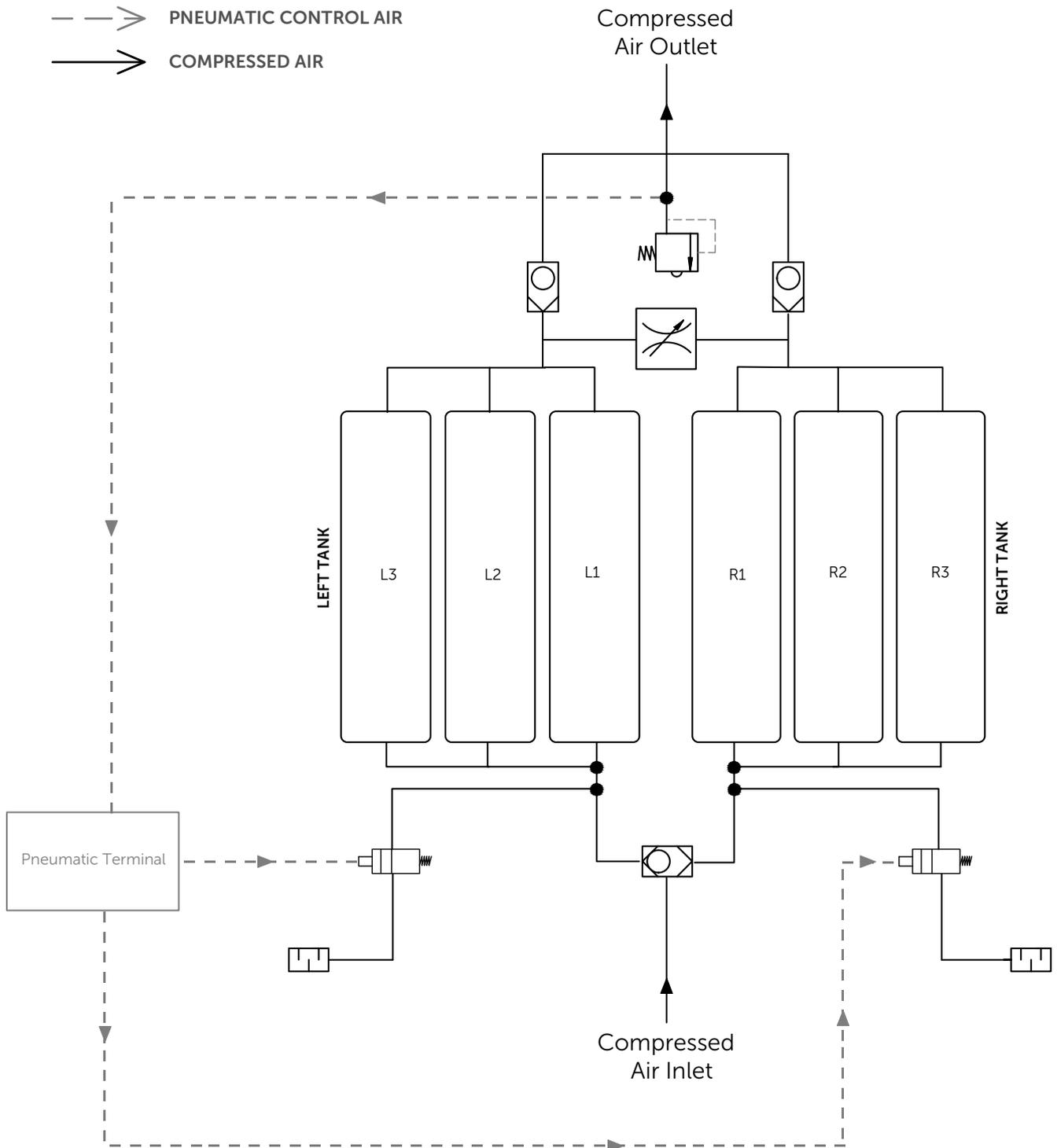
# 4.2 P&I—EMD US-110 - EMD US-120

## SYSTEM PRESSURE CONTROL DIAGRAM



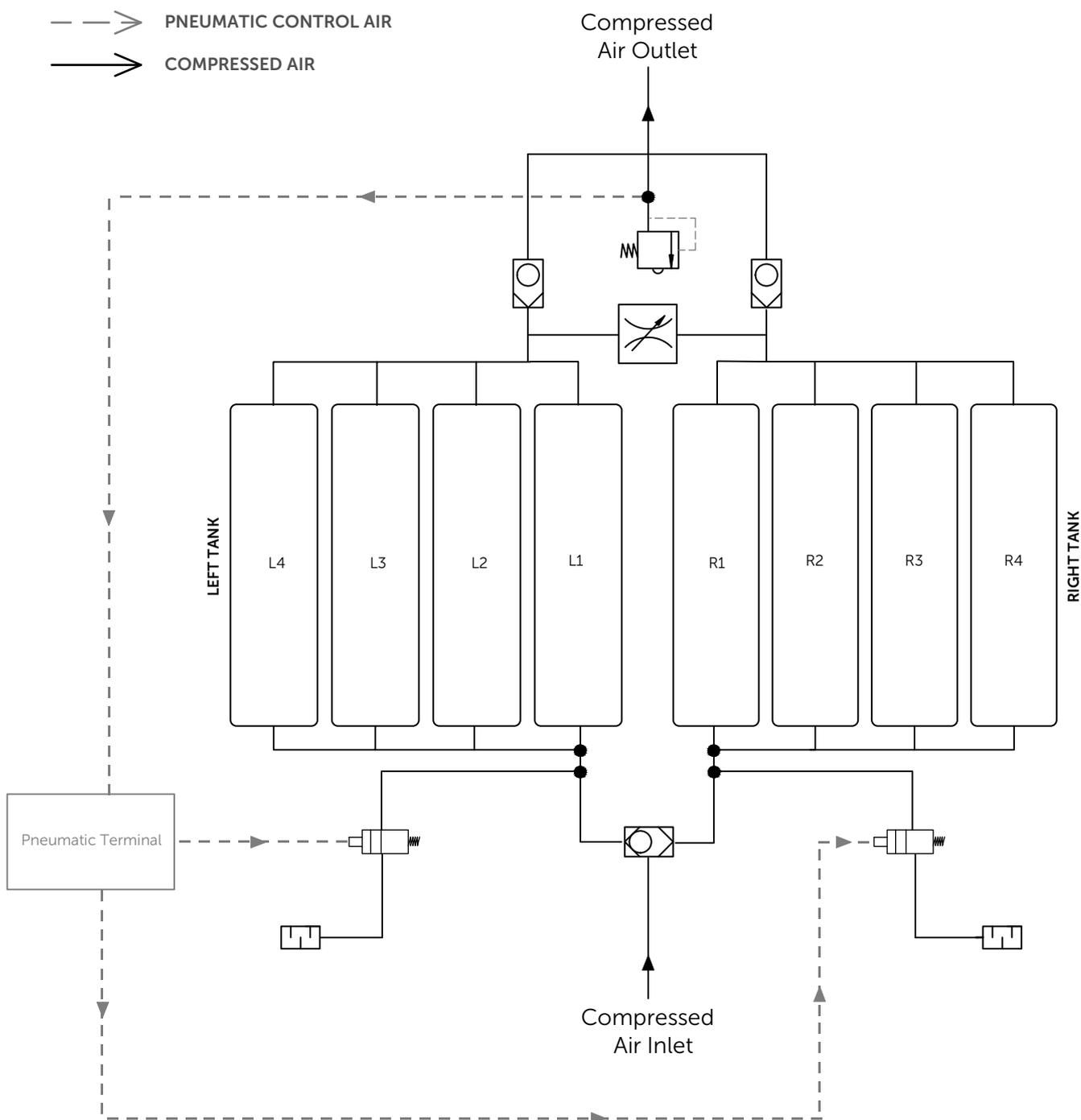
# 4.3 P&I—EMD US-190

## SYSTEM PRESSURE CONTROL DIAGRAM



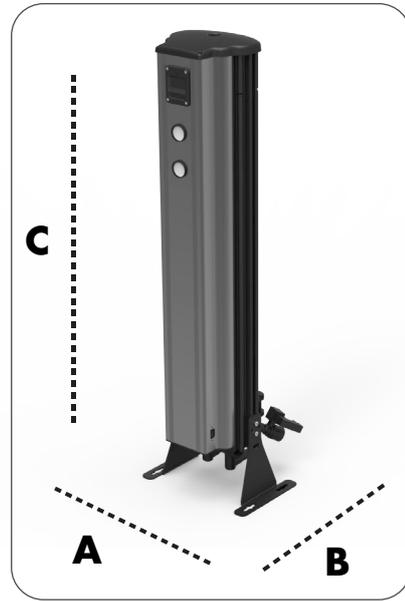
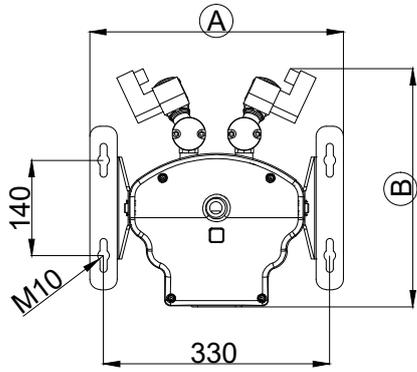
# 4.4 P&I—EMD US-260

## SYSTEM PRESSURE CONTROL DIAGRAM

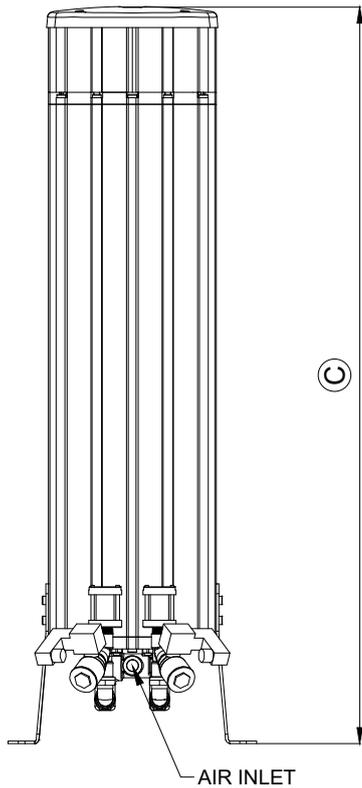


# 4.5 EMD US-25 ID

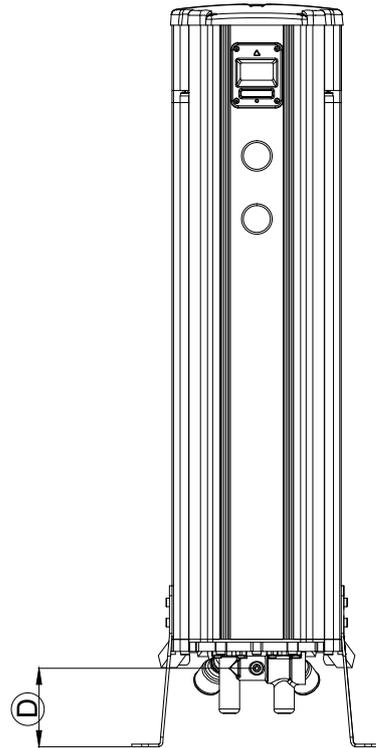
**TOP**



**BACK**



**FRONT**

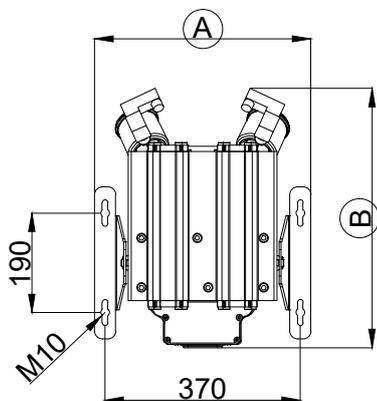


Model Type	Inlet-Outlet Connection	B Length		A Width		C Height		Weight		Voltage
		mm	Inc	mm	Inc	mm	Inc	kg	lbs	
EMD US-25	1/2"	350	13.8	370	14.5	1108	43.6	42	92	115-240V/50-60Hz

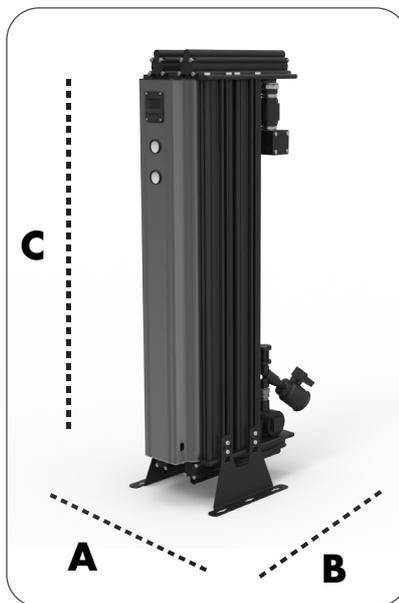
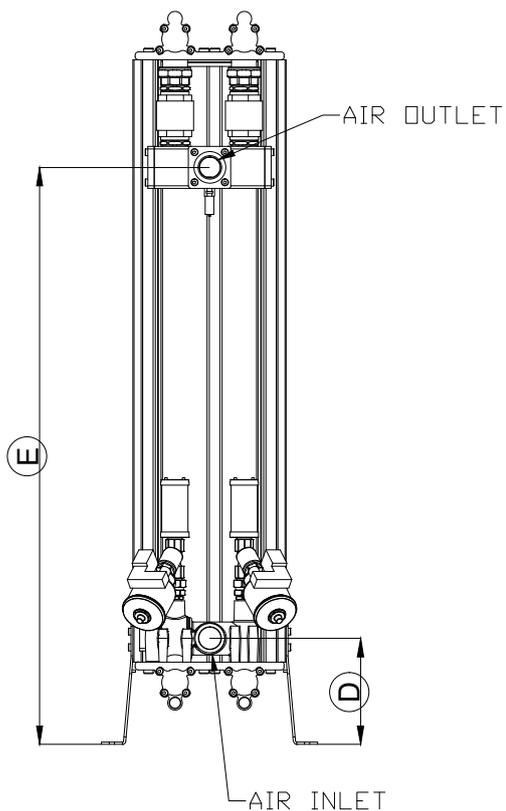
# 4.6 EMD US-45-ID

○ - DIMENSION ARE FOR REFERENCE ONLY  
 POWER RATINGS: 115-240V/1 Phase/50-60Hz

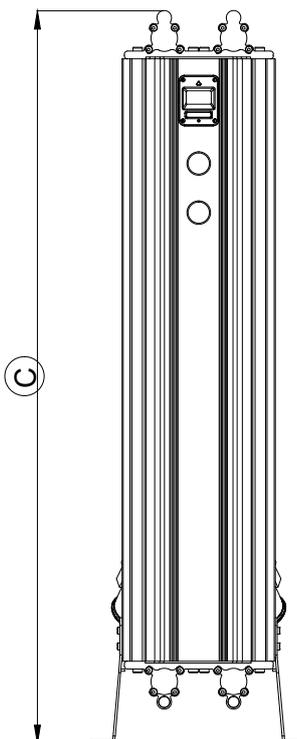
**TOP**



**BACK**



**FRONT**



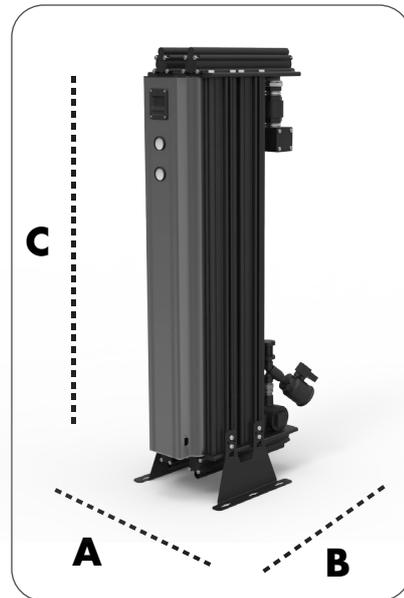
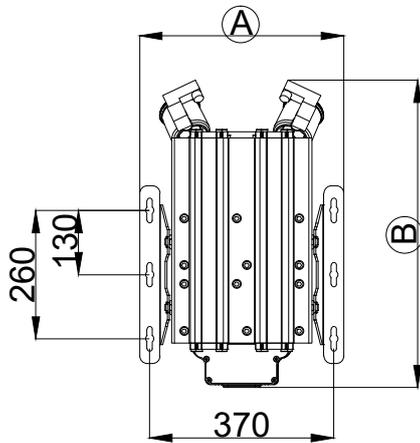
Model Type	Inlet-Outlet Connection	B Length		A Width		C Height		Weight		Voltage
		mm	Inc	mm	Inc	mm	Inc	kg	lbs	
EMD US-45	1 1/2"	495	19.5	410	16.1	1250	49.2	71	156	115-240V/50-60Hz

# 4.7 EMD US-110-120-ID

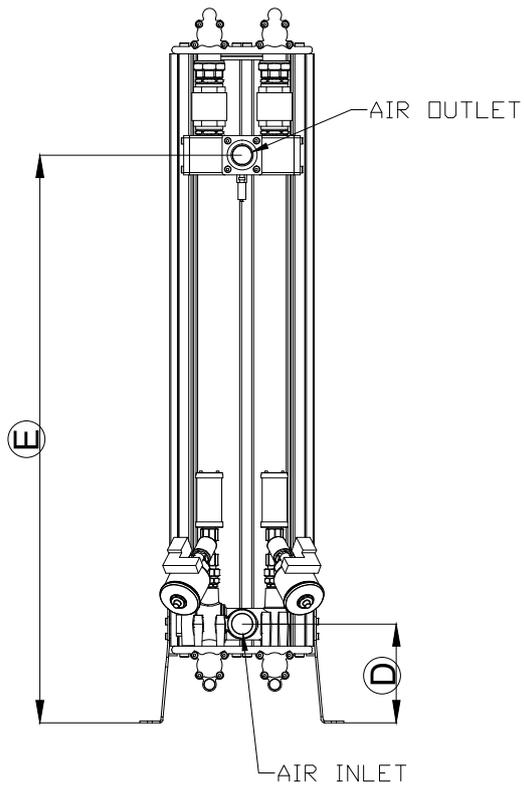
○ - DIMENSION ARE FOR REFERENCE ONLY

POWER RATINGS: -240V/1 Phase/50-60Hz

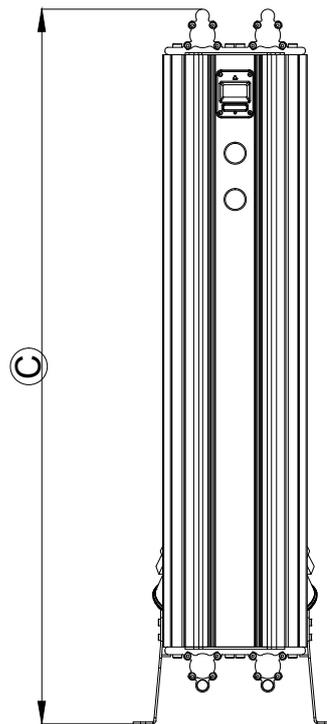
**TOP**



**BACK**



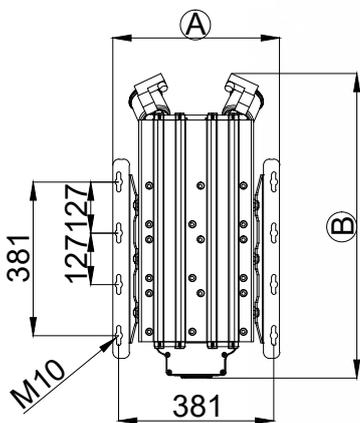
**FRONT**



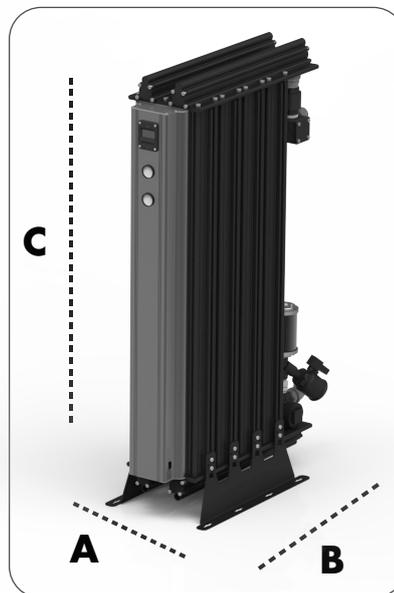
Model Type	Inlet-Outlet Connection	B Length		A Width		C Height		Weight		Voltage
		mm	Inc	mm	Inc	mm	Inc	kg	lbs	
EMD US-110	1 1/2"	622	24.5	430	22	1450	58	133	292	115-240V/50-60Hz
EMD US-120	1 1/2"	622	24.5	430	25	1750	68.8	152	334	115-240V/50-60Hz

# 4.8 EMD US-190-ID

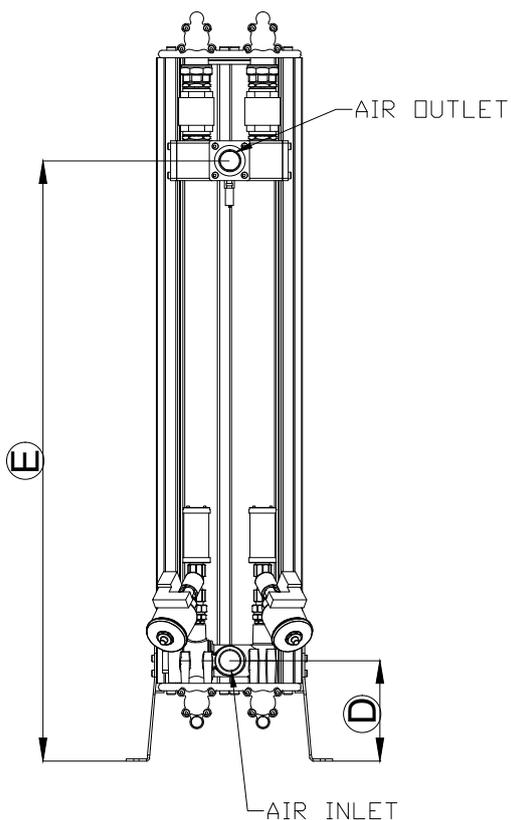
**TOP**



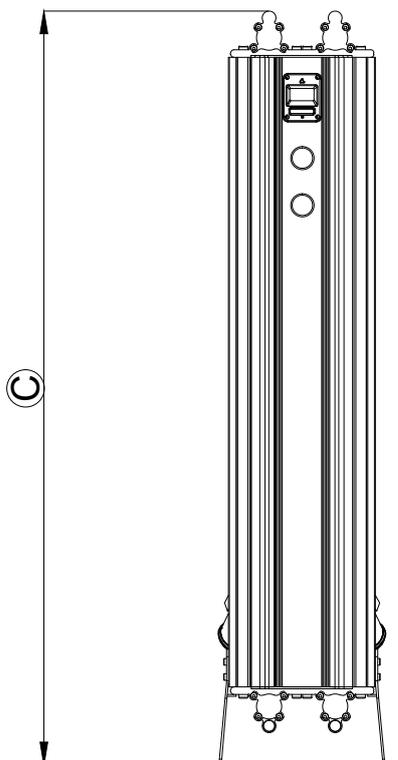
○ - DIMENSION ARE FOR REFERENCE ONLY  
 POWER RATINGS: 115-240V/1 Phase/50-60Hz



**BACK**



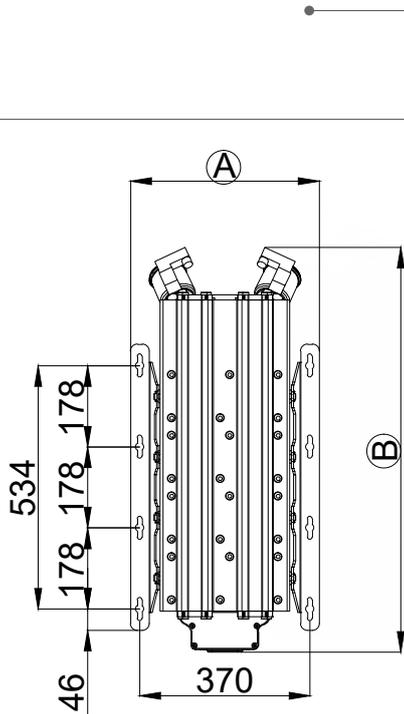
**FRONT**



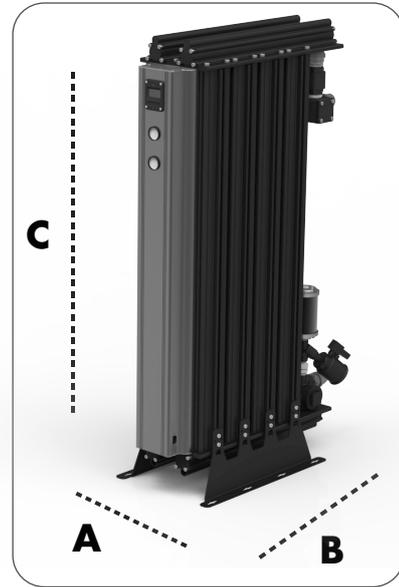
Model Type	Inlet-Outlet Connection	B Length		A Width		C Height		Weight		Voltage
		mm	Inc	mm	Inc	mm	Inc	kg	lbs	
EMD US-190	1 1/2"	754	29,6	410	16,1	1499	59	186	409	115-240v/50-60Hz

# 4.9 EMD US-260-ID

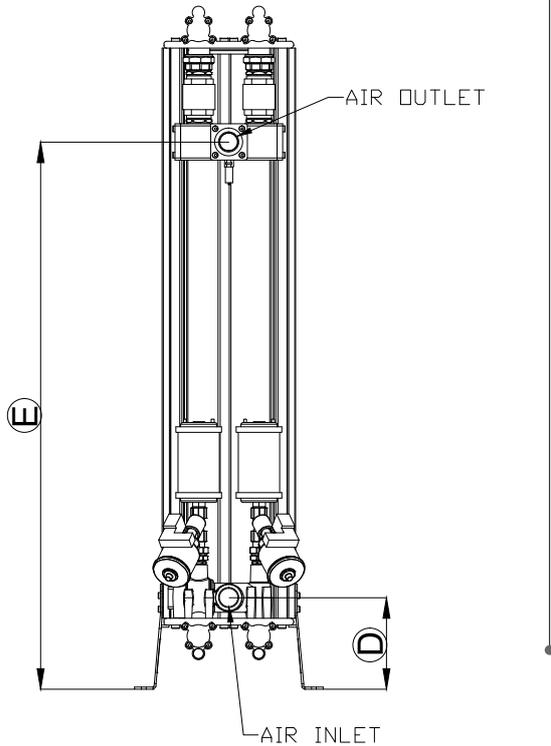
**TOP**



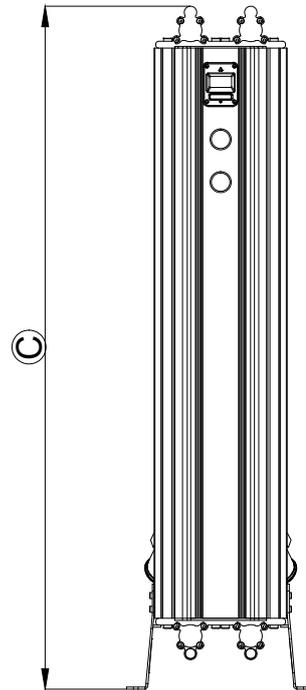
○ - DIMENSION ARE FOR REFERENCE ONLY  
 POWER RATINGS: 115-240V/1 Phase/50-60Hz



**BACK**

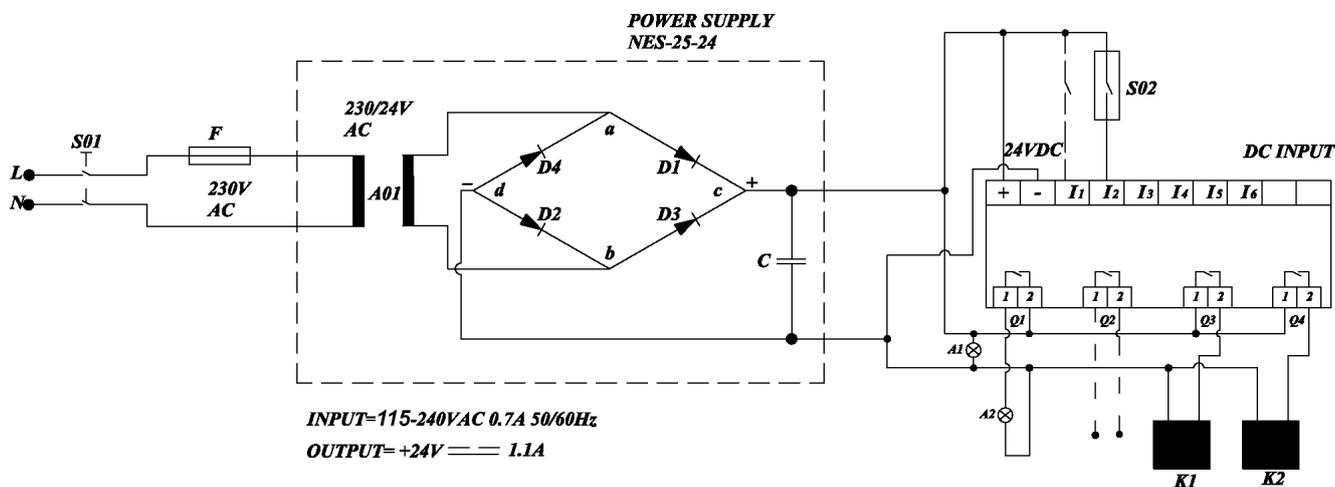


**FRONT**



Model Type	Inlet-Outlet Connection	B Length		A Width		C Height		Weight		Voltage
		mm	Inc	mm	Inc	mm	Inc	kg	lbs	
EMD US-260	1 1/2"	889	35	410	16,1	1497	59	235	517	115-240v/50-60Hz

# 4.10 WD—EMD US SERIES



KEY	DESCRIPTION
A01	START LED (GREEN)
A02	ALARM (RED)
C	STABILIZER CONDENSATOR
D1, D2, D3, D4	STABILIZER
F	FUSE
I1	REMOTE INLET
I2	RESET INLET
K1	TOWER A SOLENOID
K2	TOWER B SOLENOID
S01	MAIN SWITCH
S02	MAIN SWITCH
S03	RESET SWITCH
Q1	CONTACT FOR ALARM LED
Q2	CONTACT FOR REMOTE ALARM
Q3	CONTACT FOR TOWER A SOLENOID
Q4	CONTACT FOR TOWER B SOLENOID

# SECTION 5

## STARTUP AND OPERATION

### 5.1 INITIAL STARTUP



Ensure a suitable supply of compressed air between 4,1 bar (60 psi g) and 16 bar (230 psi g) pressure is available and check that the dryer cannot be overflowed.

#### IMPORTANT NOTE



Control air pressure is to be below 10 bars. If the working pressure is above 10 bars then use a pressure regulator and set it below 10 bars. (Pressure regulator is not supplied with the dryer.) Inlet temperature must be between 4.4°C (40°F) to 49°C (120°F) at all times.



#### IMPORTANT NOTE



Ensure all valves are opened and closed gradually. Proceed as follows: (Refer to Figure 3-2)

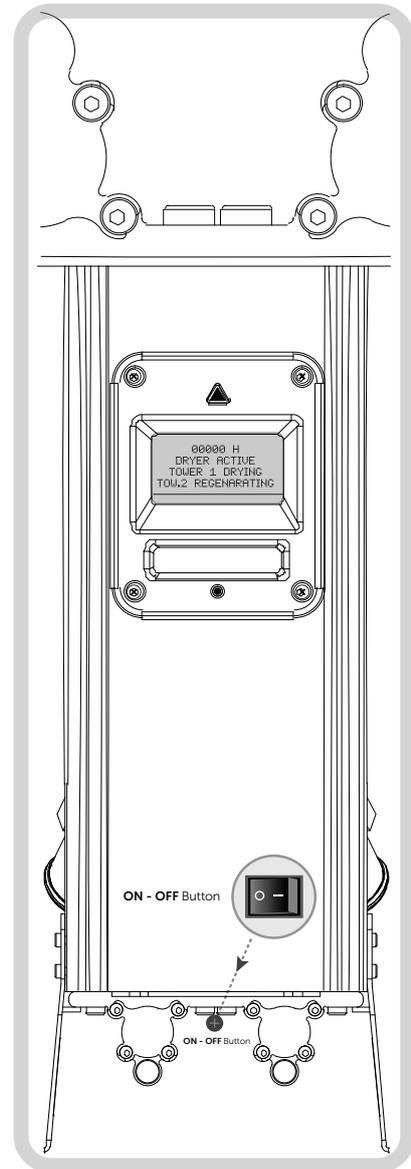
### 5.2 WITHOUT THE BY-PASS LINE

Close inlet and outlet valves.



Introduce air to the dryer by opening the inlet valve slightly, wait for the dryer to fully pressurize then fully open the valve. Allow dryer to fully pressurise, then gradually open the outlet valve.

Turn on the ON/OFF switch at the bottom of the dryer. The green LED on the panel will illuminate and the dryer will start cycling in 10 seconds. The mini- PLC screen shows the operations at that moment. The dryer is now on stream.



### 5.3 USING THE BY-PASS LINE



With the inlet and outlet valves closed and the by- pass valve open, introduce air to the dryer by opening the inlet valve slightly, wait for the dryer to fully pressurize then fully open the valve.



Allow the dryer to fully pressurise, then open the outlet valve while simultaneously closing the by-pass valve.

Turn on the ON/OFF switch at the bottom of the dryer. The green led on the panel will illuminate and the dryer will start cycling in 10 seconds. The mini-PLC screen shows the operations at that moment. The dryer is now on stream.

# STARTUP AND OPERATION

## 5.4 NORMAL OPERATION



Following the start-up procedure the operation of the dryer is fully automatic and requires no further attention until shut down.

The green 'power on' LED and the green 'correct operation' LED should be illuminated continuously.

The dryer contains two desiccant chambers, while one chamber is drying the compressed air (adsorption), The other chamber is simultaneously undergoing regeneration (desorption). At a predetermined time both exhaust valves close and repressurisation begins. Every two and a half minutes the chambers are reversed in function, this is the changeover point.



Changeover is characterised by an immediate venting of compressed air from the chamber entering regeneration.

The dryer can be shut down at any point in its cycle and when restarted will enter an automatic repressurisation stage. After repressurisation the cycle will commence at the



point at which it stopped. If power is switched on, the dryer will enter an automatic repressurisation stage at the point at which it stopped.

## 5.5 SHUT-DOWN PROCEDURE TO DEPRESSURIZE THE DRYER



Prior to isolating the electrical supply close the outlet valve while simultaneously opening the by-pass valve if fitted. Close the inlet valve.

The dryer will now be isolated from supply pressure. Cycle the dryer for a minimum of 5 minutes to ensure the dryer vents and is completely depressurized. When the dryer is completely depressurized, isolate the electrical supply.

The by-pass valve should only be opened if the dryer is undergoing maintenance.

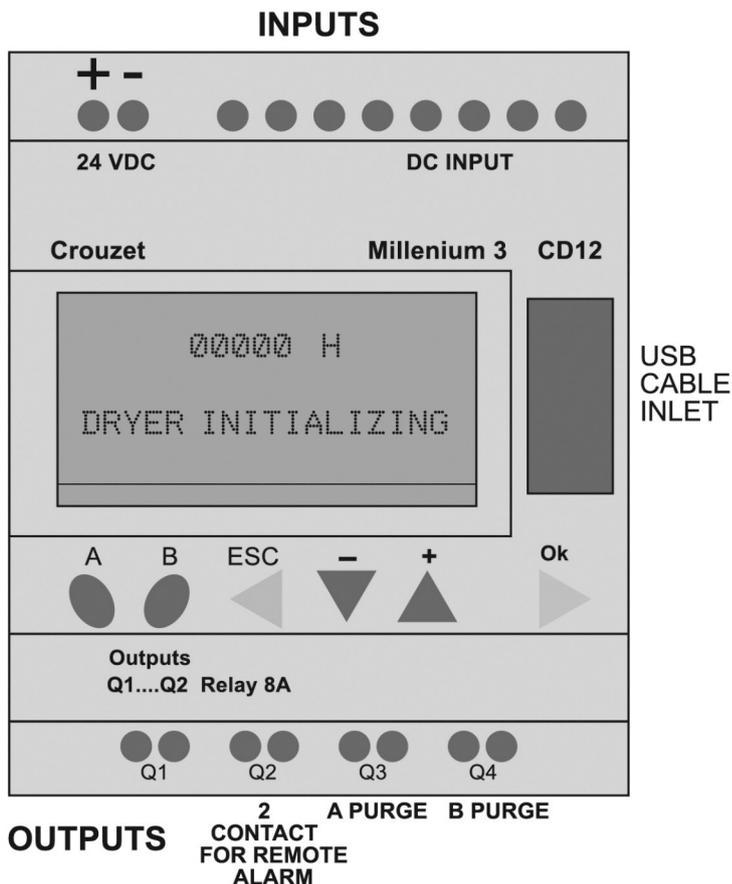
## 5.6 ALARM SIGNAL



It is possible to get an alarm signal and control the dryer by a remote control. In order to get the alarm and/or remote control the connector under the dryer is to be used. Refer to the wiring diagram for wiring details.

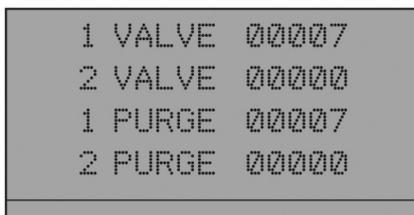


# MILLENNIUM-3 CD12 / SMART RELAY ON DRYER

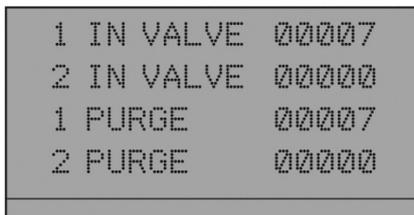


### TIME SETTING :

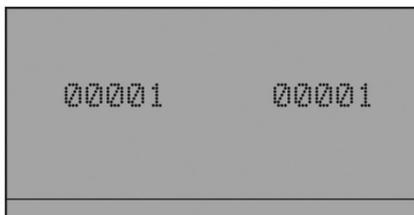
Use the **B** button to see the time settings



Use the **A** button to change the time settings and use **+ -** buttons to enter the new set. And use the **ok** button to save the setting.



Pressing button **A** and **B** opens the screen on which remote control can be activated.



Pressing **ok** repeatedly until the **5th** digit is selected. Then change this digit from **1** to **0** by using **+ -** arrow buttons

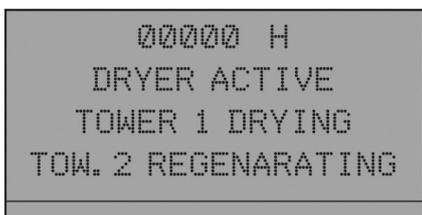
Pressing buttons **A** and **B** at the same time opens main menu.

### OUTPUTS

**!** Use ESC or wait 6 sec. the screen will turn back automatically to main menu

### MAIN MENU :

- The total run time of dryer.
- Dryer is active
- The tower that makes drying
- The tower that makes regeneration



# SECTION 6

## MAINTENANCE

### Maintenance operations should only be carried out by authorised personel



#### 6.1 MAINTENANCE GUIDELINES

- Maintenance operations should be held only when the system is shut down and fully depressurised



- Do not modify or change the control settings
- Use only approved replacement parts



- Always check connections against leakage
- Ensure all loose parts are removed and secured to the dryer before operation

#### 6.2 DAILY CHECKS

Functional and visual checks are to be done daily. Ensure the Green power-on led is illuminated.



- Check any external damages.
- If the service led (red led) appears, contact local distributor for Service.
- Remove the dust and dirt from the dryer. Clean all surfaces which are contaminated.

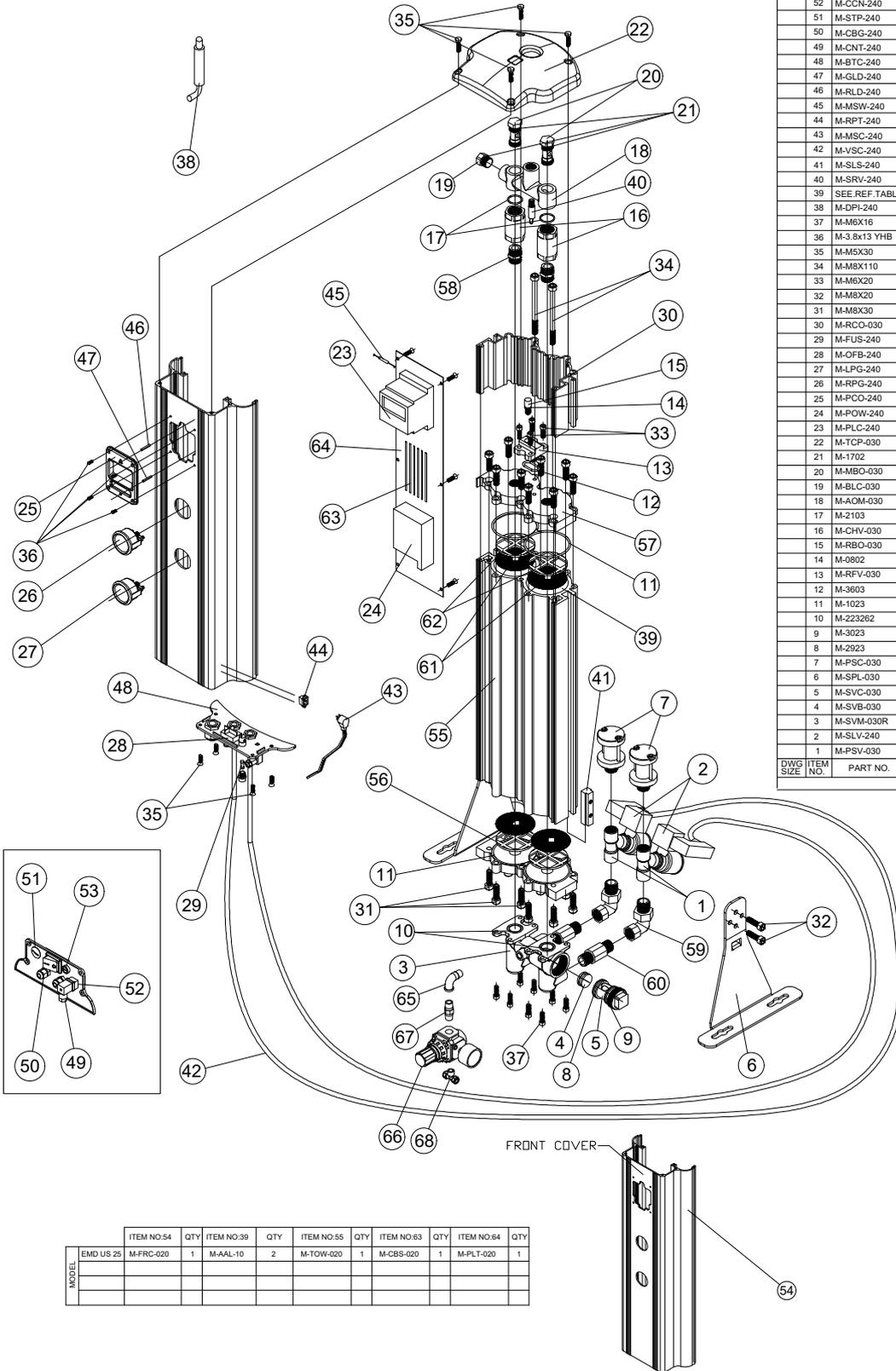
#### 6.3 GENERAL SERVICE



A full product service is recommended every 2 years or 12.000 hours of operation (whichever occurs first). Desiccant to be replaced. Valves and silencers are to be checked and replaced if necessary.



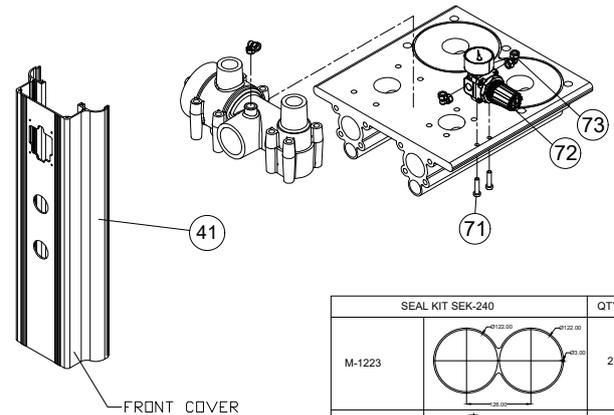
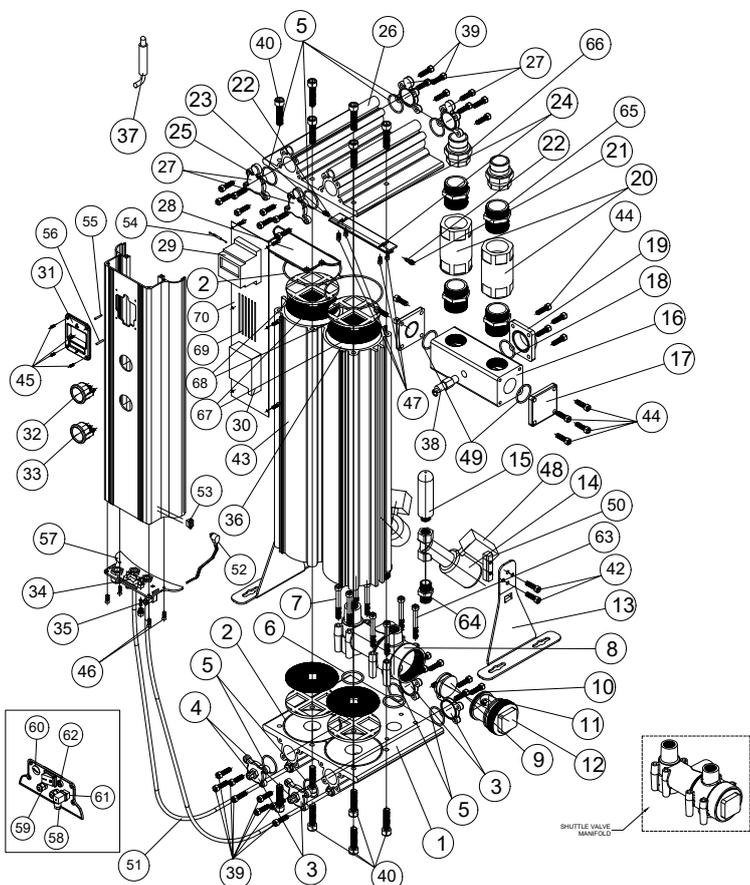
# EMD US - 25



68	M-FTN-030	TEE FITTING	1	
67	M-NPP-030	NIPPLE	1	
66	M-RLR-030	REGULATOR	1	
65	M-STE-030	STREET ELBOW	1	
64	SEE REF. TABLE	PLATE	1	
63	SEE REF. TABLE	CABLE SET	1	
62	M-PSM-030	PLASTIC MESH	4	
61	M-SSM-030	STAINLESS STEEL MESH	4	
60	M-PPE-030	PIPE	2	
59	M-CRF-030	CORNER FITTINGS	2	
58	M-NPL-030	NIPPLE	2	
57	M-AOD-030	AIR OUTLET DISTRIBUTOR	1	
56	M-AID-030	AIR INLET DISTRIBUTOR	1	
55	SEE REF. TABLE	TOWER		
54	SEE REF. TABLE	FRONT COVER		
53	M-FSH-240	FUSE HOLDER	1	
52	M-CCN-240	COUNTER CONNECTOR	1	
51	M-STP-240	STOPPER	1	
50	M-CBG-240	CABLE GLAND	2	
49	M-CNT-240	CONNECTOR	1	
48	M-BTC-240	BOTTOM COVER	1	
47	M-GLD-240	GREEN LED	1	
46	M-RLD-240	RED LED	1	
45	M-MSW-240	MAGNETIC SWITCH	1	
44	M-RPT-240	RECEPTACLE	1	
43	M-MSC-240	MAINS SUPPLY CABLE	1	
42	M-VSC-240	VALVE SUPPLY CABLE	2	
41	M-SLS-240	SUPPORTING LEG SPACER	2	
40	M-SRV-240	SAFE RELIEF VALVE	1	
39	SEE REF. TABLO	ACTIVE ALUMINA (03mm)		
38	M-DPI-240	DEW POINT INDICATOR (OPTIONAL)	1	
37	M-M6X16	BOLT	8	
36	M-3.8X13 YHB	BOLT	4	
35	M-M5X30	BOLT	8	
34	M-M8X110	BOLT	2	
33	M-M6X20	BOLT	4	
32	M-M8X20	BOLT	4	
31	M-M8X30	BOLT	20	
30	M-RCO-030	REAR COVER	1	
29	M-FUS-240	M-FUSE	1	
28	M-OFB-240	ON-OFF BUTTON	1	
27	M-LPG-240	LEFT TANK PRESSURE GAUGE	1	
26	M-RPG-240	RIGHT TANK PRESSURE GAUGE	1	
25	M-PCO-240	PLASTIC COVER	1	
24	M-POW-240	POWER SUPPLY	1	
23	M-PLC-240	MINI M-PLC	1	
22	M-TCP-030	TOP CAP	1	
21	M-1702	O-RING	3	
20	M-MBO-030	MANIFOLD BOLT	2	
19	M-BLC-030	BLIND CAP	1	
18	M-AOM-030	AIR OUTLET MANIFOLD	1	
17	M-2103	O-RING	2	
16	M-CHV-030	CHECK VALVE	2	
15	M-RBO-030	REGENERATION BOLT	1	
14	M-0802	O-RING	1	
13	M-RFV-030	REGENERATION FLOW VALVE	1	
12	M-3603	O-RING	1	
11	M-1023	O-RING	2	
10	M-223262	O-RING	2	
9	M-3023	O-RING	1	
8	M-2923	O-RING	1	
7	M-PSC-030	PURGE SILENCER	2	
6	M-SPL-030	SUPPORTING LEG	2	
5	M-SVC-030	SHUTTLE VALVE CAP	1	
4	M-SVB-030	SHUTTLE VALVE BALL	1	
3	M-SVM-030R	SHUTTLE VALVE MANIFOLD	1	
2	M-SLV-240	SOLENOID VALVE	1	
1	M-PSV-030	PISTON VALVE	2	
DWG SIZE	ITEM NO.	PART NO.	DESCRIPTION	QTY
			PART LIST	

SEAL KIT SEK-030		QTY.
M-1023		2
M-3603		1
M-3023		1
M-2923		1
M-223262		2
M-2103		2
M-1702		2
M-0802		1

# EMD US - 45



SEAL KIT SEK-240		QTY.
M-1223		2
M-6903		1
M-6403		1
M-5203		1
M-43262		2
M-4203		2
M-4003		8
M-0802		2
M-0402		2

73	M-FTT-240	FITTINGS	3	
72	M-RGT-240	REGULATOR	1	
71	M-M4X20	BOLT	2	
70	SEE REF. TABLE	PLATE		
69	SEE REF. TABLE	CABLE SET		
68	M-PSM-240	PLASTIC MESH	2	
67	M-SSM-240	STAINLESS STEEL MESH	4	
66	M-FTT-240	FITTINGS	2	
65	M-NPP-240	NIPPLE	4	
64	M-NPL-240	NIPPLE	2	
63	M-M8X70	BOLT	4	
62	M-FSH-240	FUSE HOLDER	1	
61	M-CCN-240	COUNTER CONNECTOR	1	
60	M-STP-240	STOPPER	1	
59	M-CBG-240	CABLE GLAND	2	
58	M-CNT-240	CONNECTOR	1	
57	M-BTC-240	BOTTOM COVER	1	
56	M-GLD-240	GREEN LED	1	
55	M-RLD-240	RED LED	1	
54	M-MSW-240	MAGNETIC SWITCH	1	
53	M-RPT-240	RECEPTACLE	1	
52	M-MS-240	MAINS SUPPLY CABLE	1	
51	M-VSC-240	VALVE SUPPLY CABLE	2	
50	M-SLS-240	SUPPORTING LEG SPACER	2	
49	M-4203	O-RING	2	
48	M-SLV-240	SOLENOID VALVE	2	
47	M-M5x15	BOLT	4	
46	M-5x20 YHB	BOLT	8	
45	M-3.8x13 YHB	BOLT	4	
44	M-M8x25	BOLT	12	
43	SEE REF. TABLE	TOWER		
42	M-M8x20	BOLT	4	
41	SEE REF. TABLE	FRONT COVER		
40	M-M12x50	BOLT	12	
39	M-M8x30	BOLT	32	
38	M-SRV-240	SAFE RELIEF VALVE	1	
37	M-DPI-240	DEW POINT INDICATOR (OPTIONAL)	1	
36	SEE REF. TABLE	ACTIVE ALUMINA (Ø3mm)		
35	M-FUS-240	M-FUSE	1	
34	M-OFB-240	ON-OFF BUTTON	1	
33	M-LPG-240	LEFT TANK PRESSURE GAUGE	1	
32	M-RPG-240	RIGHT TANK PRESSURE GAUGE	1	
31	M-PCO-240	PLASTIC COVER	1	
30	M-POW-240	M-POWER SUPPLY	1	
29	M-PLC-240	MINI M-PLC	1	
28	M-PTC-240	PLASTIC TOP COVER	1	
27	M-ODC-240	AIR OUTLET DISTRIBUTOR CAP	4	
26	M-AOD-060	AIR OUTLET DISTRIBUTOR	1	
25	M-RFV-240	REGENERATION FLOW VALVE	1	
24	M-0802	O-RING	2	
23	M-RBB-240	REGENERATION BLIND BOLT	1	
22	M-0402	O-RING	2	
21	M-RSB-240	REGENERATION SET BOLT	1	
20	M-CHV-240	CHECK VALVE	2	
19	M-AOP-240	AIR OUTLET PORT	1	
18	M-5203	O-RING	1	
17	M-BLC-240	BLIND CAP	2	
16	M-AOM-240	AIR OUTLET MANIFOLD	1	
15	M-PSC-180	PURGE SILENCER	2	
14	M-PSV-240	PISTON VALVE	2	
13	M-SPL-060	SUPPORTING LEG	2	
12	M-SVC-240	SHUTTLE VALVE CAP	1	
11	M-6903	O-RING	1	
10	M-6403	O-RING	1	
9	M-SVB-240	SHUTTLE VALVE BALL	1	
8	M-SVM-240	SHUTTLE VALVE MANIFOLD	1	
7	M-M8x75	BOLT	4	
6	M-43262	O-RING	2	
5	M-4003	O-RING	8	
4	M-ARF-240	AIR RELIEF FITTINGS	4	
3	M-DGC-240	DISTRIBUTOR GAUGE CAP	4	
2	M-1223	O-RING	2	
1	M-AID-060	AIR INLET DISTRIBUTOR	1	
DWG SIZE	ITEM NO.	PART NO.	DESCRIPTION	QTY
PART LIST				

MODEL	ITEM NO.41	QTY	ITEM NO.36	QTY	ITEM NO.43	QTY	ITEM NO.69	QTY	ITEM NO.70	QTY
EMD US 45	M-FRC-040	1	M-AAL-50	1	M-TOW-040	1	M-CBS-040	1	M-PLT-040	1









# TROUBLESHOOTING

Problem	Indication	Probable Cause	Remedy
Poor Dewpoint	n/a	High inlet temperature	Check after cooler condition and clean as necessary
		Entrained Water	Check pre-filtration and pre-filtration drains
		Excessive air flow demand	Check actual flow against rated flow of dryer Check for recent additions to air system
		Inlet pressure too low	Check against technical specification
		Excessive inlet air temperature	Check against technical specification
		Insufficient purge air flow	Factory set for 100 psig system pressure
		Exhaust silencers blocked	Change by trained personnel
		Contaminated desiccant	Eliminate source of contamination. Desiccant change by trained personnel
Electrical Fault	Power LED 'OFF'	Hardware fault	Contact customer service
Failure to Purge	No depressurisation and poor dewpoint	Purge valve blocked or shut	Trained personnel to adjust
		Exhaust silencer blocked	Change by trained personnel
Outlet Air Flow Stops	Downstream pressure drops	No air supply to the dryer	Check compressor air supply to dryer Check all pipework and fittings for leaks
Constant depressurisation	Erratic air flow from exhaust	Damaged valve	Change by trained personnel