

Installation, Operation, and Maintenance Manual





## **GUARANTEE**

- 1. Guarantee. PPE guarantees, for a period of (1) one year from the date of shipment from PPE's plant, the Desiccant Rotor Dryer sold by PPE. The terms of this guarantee are:
  - (A) The merchandise must have been installed and maintained in accordance with the PPE installation, Operation and Maintenance instructions.
  - (B) PPE warrants the machinery to be delivered hereunder against defects in the material and workmanship under normal use and service for one year from date of shipment, unless noted in (C). PPE's obligation under this warranty is limited to repairing or furnishing without charge, F.O.B. point of origin, a similar part to replace any part which within the warranty period is proven to have been defective at the time it was shipped, provided the purchaser has given PPE immediate notification to obtain an RMA#. PPE shall require the customer to return the defective part, transportation prepaid, to establish the claim. PPE shall not be held liable for damages or delay caused by defects. No allowance will be made for repairs or alterations without PPE's written consent or approval.
  - (C) The process and reactivation filters are not covered by the above stated warranty. The desiccant rotor is warranted for (2) two years. The process and reactivation heaters are warranted for 90 days.
- 2. Disclaimer of Warranties. Except for the guarantee set out above, PPE MAKES NO WARRANTY OR MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, AS TO THE MERCHANDISE SOLD CUSTOMER. Customer acknowledged and represents to PPE that no employee, agent, or representative of PPE has made any warranty or representation regarding the merchandise, except as set out in paragraph 1 above.
- 3. Limitation of Remedy. PPE's sole obligation under it's guarantee is to furnish the replacement part of credit memorandum. PPE is NOT obligated to pay the cost of shipping the defective part to and from PPE's plant.

In no event will PPE be liable to Customer for consequential damages sustained by Customer, whether such damages are caused by the nondelivery of merchandise, the delivery of defective or unordered merchandise, or any other cause.

4. Technical Advice. Upon request, PPE will furnish technical advice to Customer regarding the use of PPE's merchandise, under standing that PPE assumes no obligation or liability for such advice or the results obtained therefrom and that such advice is given and accepted at Customer's risk.

If you have any questions, please contact PPE directly for further information.

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1 INTRODUCTION

## **1-1 MD SERIES RESIN DRYERS INTRODUCTION**

Congratulations on your purchase of the MD Series Resin Dryer from Plastic Process Equipment. The MD Series Resin Dryer offers the finest in resin drying technology, however, this machine can only provide maximum service if properly installed, operated, and maintained.

This manual is provided to familiarize you with the resin dryer. Instructions are provided to install, operate and maintain your resin dryer. Ultimate satisfaction depends on the quality of installation and a thorough understanding of the equipment. The MD Series Resin Dryer is built around tested engineering principles and has passed a thorough inspection for quality of workmanship and function.

There are many models in the MD Resin Dryer line, some differences may exist between the pictures in this manual and your specific dryer.

## **1-2 PRINCIPLES OF OPERATION**

The function of the MD Series Resin Dryer is to continuously remove vapor state moisture from an air stream. This is accomplished by using a rotating desiccant media and three separate air streams. Figure 1-1 illustrates the three air streams.

The first air stream passes the moisture laden air from the drying hopper through the desiccant media. After the air has been exposed to the desiccant media, the air is returned to the drying hopper. As the desiccant media absorbs moisture from the process stream, it is rotated out of the process stream into the reactivation stream. This second air stream is heated to drive moisture out of the desiccant media, and prepare it for more adsorption. The desiccant media then rotates out of the reactivation air stream into the purge air stream. The purge stream consists of a small portion of the process outlet air that cools the desiccant media. Once cooled, the desiccant media rotates back into the process stream to begin adsorption again. This cycle is done on a continuous basis, providing a constant drying process.

The MD Series Resin Dryers are designed with the process and reactivation air streams flowing in opposite directions. This counter flow design maximizes the energy efficiency of the equipment.



Figure 1-1. Air streams

## **1-3 FRONT PANEL CONTROLS**

The front panel of the MD Series Resin Dryers contains all controls and indicators necessary for dryer operation. For a description of the controls and indications, refer to Figure 1-2 and the following list:

- 1. POWER ON indicator This white light illuminates when power has been supplied to the dryer. This does not indicate that the unit is turned on. This only indicates that power is available to the dryer.
- 2. SYSTEM ON indicator This green light illuminates when the Power switch is in the ON position. This indicates that the unit is turned on.
- 3. PROCESS HTR. On indicator This amber light illuminates when the process heater circuit is functional.
- PROCESS FILTER DIRTY indicator This red light illuminates when the process filter is dirty, as indicated by the differential pressure of the process stream across the process filter. If this illuminates, the process filter should be replaced per paragraph 4-4.
- 5. REACT HTR. On indicator This amber light illuminates when the reactivation heater circuit is functional.

- 6. FAULTS indicator This red light illuminates when the bed failure alarm occurs, or a failure of motor protection circuit breaker. A bed failure alarm will occur if the desiccant rotor does not rotate at least once every ten minutes.
- 7. Seven Day Timer The seven day timer can control the automatic starting and stopping of the dryer over a period of seven days. This allows the dryer to automatically start at the beginning of a work day, and shut down at the end of the work day. Refer to paragraph 3-6 for instructions on programming the seven day timer.
- 8. Audible Alarm The audible alarm will sound to indicate a fault.
- 9. Dew point Display This indicator displays the current process outlet dew point. The top half of this display shows the current dew point. The bottom half shows the dew point Set point.

#### NOTE

#### Dew point Set point is for reference only; dew pointer is strictly display, not control.

- Temperature Controller This indicator/controller displays the temperature selected by the Temperature Indication selector, and controls the process outlet temperature. The top of the display shows the currently selected process variable. The bottom of the display shows the process outlet temperature set point. Refer to paragraph 3-3 for information on setting the process outlet temperature.
- 11. Temperature Indication selector This selector controls the temperature displayed on the Temperature Controller. This selector spring returns to the center, Process Out, position.
- 12. Power switch This switch controls power to the dryer.



Figure 1-2. Front Panel Controls and Indicators

2 INSTALLATION

## 2-1 INSPECTION UPON RECEIPT

Thoroughly inspect the dryer to ensure no damage has occurred during shipping. Inspect both the inside and outside of the dryer. If any damage is found, a claim should be filed with the shipping company immediately. Please notify Plastic Process Equipment immediately so we may provide whatever assistance we can.

- Check dryer external surfaces for damage.
- Ensure the desiccant rotor is tightly secured in place.
- Ensure the drive chain is in good contact with the desiccant rotor, tensioner arm, and drive pulley.
- Ensure the top and bottom desiccant rotor seals are in good contact with the desiccant rotor.
- Check all electrical connections to ensure they are tight.

## 2-2 PLACING THE EQUIPMENT

The dryer should be carefully located and set in place on a level surface. If mounting the dryer on a machine or stand, the dryer must be adequately supported. At a minimum, support is required below the caster mounting plates.

Dryer maintenance and service will require access to all sides of the dryer. If the unit is machine or stand mounted, leave enough room on all sides to open all dryer access doors.

## 2-3 ELECTRICAL CONNECTIONS

#### CAUTION

Ensure the supply power requirements are in accordance with the dryer nameplate data. Serious damage to the dryer motor and control systems can occur if incorrect power is supplied to the dryer.

Install electrical connections in accordance with all applicable federal, state, and local regulations. Good electrical practices should be followed to achieve the best installation possible. Refer to the electrical schematic provided with this manual before installing any electrical connections.

If a disconnect switch is not furnished with your dryer, one should be installed adjacent to the dryer for safety and ease of servicing. Electrical wiring to the equipment must be adequately sized for the minimum amperage shown on the unit nameplate.

## 2-4 DUCT WORK CONNECTIONS

#### NOTE

All supply and return air duct work and hose connections for the dryer must be air and vapor tight. Failure to achieve air and vapor tight connections may impact dryer performance.

The most common type of duct work used with resin drying equipment is flexible hose that is both temperature and moisture resistant. Moisture resistance is extremely important for proper dryer performance. Even though the dryer is removing moisture from the hopper return air, the air will not be dry when it reaches the process if moisture enters the dry supply air stream through leaks in the duct work. Air ducts must be properly sized to keep pressure losses at a minimum. Pressure loss must not exceed the designed static capacity. Connect the process inlet and process outlet hoses to the appropriate connections on the back of the dryer cabinet. Refer to Figure 2-1 for hose connection locations.



Figure 2-1. Hose Connections

## 2-5 WATER CONNECTIONS

Water should be supplied to the unit only if maximum performance is required. Your application may not require the use of the cooling coil for desired performance, so we suggest running the unit without water connected to test performance. Generally speaking, higher process temperatures may require use of the cooling coil.

Connections ports for the inlet air-cooling coil are located on the rear of the dryer assembly with the air inlet and outlet connections. When facing the rear of the dryer the connections are located in the lower left hand corner of the rear panel. The connections are barb-type for use with flexible tubing. The tubing must be attached to the barb fittings with hose clamps to prevent leakage. Water temperature required: 40 to 80° F. For water flow requirements see chart below:

Unit	Water GPM
MD-30	1.0
MD-60	1.5
MD-100	2.5
MD-150	4.0
MD-200	5.0
MD-300	7.0
MD-400	9.0



Water connections, rear of unit



Water lines inside of unit

**OPERATION** 

## 3-1 INITIAL START-UP

After the dryer has been installed it is ready for initial start-up. The following items need to be checked when energizing the dryer for the first time:

- Verify fan rotation direction per paragraph 3-2.
- Set process outlet temperature per paragraph 3-3.
- Set reactivation temperature per paragraph 3-4.

## 3-2 VERIFYING FAN ROTATION

MD Series Resin Dryers other than the MD-30 & MD-60 models are powered by 3-phase electrical circuits. With this type of power, it is possible for the process & react fan motor to rotate in the wrong direction. On initial power up of the dryer, FAN ROTATION MUST BE CHECKED TO ENSURE PROPER DRYER OPERATION.

On some models of dryers, it may be possible to view the rotation of the process fan motor. On these models, ensure that the motor is turning in the direction indicated by the arrow on the motor. See **Figure 3-1**.



Figure 3-1. Process Fan Motor



If the process fan motor rotation is not visible, open the process filter access door shown in Figure 3-2. If the process fan is rotating in the proper direction, the dryer should be sucking air in through the filter. If air is blowing out the filter, then the process fan is rotating in the wrong direction.

If the react fan motor rotation is not visible, check that air is blowing out of the react exhaust on the top of the cabinet

If the fans are turning in the wrong direction, perform the following procedure to fix the rotation direction.

#### WARNING

Lock out all power to the dryer before servicing any electrical connections. High voltages are present inside the control cabinet. Failure to lock out power may result in serious injury or death.

- 1. Turn off the dryer and lock out power at the disconnect switch.
- 2. Reverse any two of the three main power leads at the electrical disconnect.
- 3. After making changes to the electrical wiring, verify proper process fan rotation.

## 3-3 SET THE PROCESS OUTLET TEMPERATURE

The process outlet temperature is set using the Temperature Controller on the front panel, shown in Figure 3-3 and is limited by the thermostat labeled PTAS inside the cabinet. The top half of the display indicates the currently selected temperature. This is selected by the Temperature Indication switch, which spring returns to the Process Out position. The bottom half of the display always indicates the process out temperature set point.



Figure 3-3. Temperature Controller

## **3-4 REACTIVATION TEMPERATURE**

The reactivation temperature is controlled by a thermostat labeled RTAS, inside the cabinet. It is factory preset and should not be adjusted. Contact Plastic Process Equipment if there are issues with this setting.

## 3-5 DESICCANT ROTOR ROTATION

The desiccant rotor turns at a speed of approximately 15-20 revolutions per hour. If the desiccant rotor does not complete a minimum of one revolution every 10 minutes, the Faults alarm will activate. This alarm illuminates the red Faults light on the control panel and sounds an audible alarm.

## 3-6 SEVEN DAY TIMER SETUP

The MD Series Resin Dryers include a programmable seven day timer, shown in Figure 3-5. This timer can be used to automatically turn the dryer on and off on a seven day cycle. This allows the dryer to automatically turn itself on at the beginning of the work day, and off at the end of the workday. The times are individually programmable for each day of the week, and can be overridden at any time.

#### NOTE

The control switch must be left in the ON position for the seven day timer to function. The dryer will not operate with the control switch in the OFF position.

The seven day timer can be programmed per the following procedure. For more information on the seven day timer, refer to the manufacturer's documentation included with your dryer.



Figure 3-4. Seven Day Timer

(If this Timer does not match the one in your unit, refer to the Timer instructions at the end of this manual.)

#### NOTE

The dryer does not need to be turned on to program the seven day timer. The seven day timer is equipped with its own battery backup power source. The battery backup will provide power to the timer for approximately 150 hours. Longer power outages will result in the loss of the programmed times.

#### Set the Current Time and Day

- 1. Press the Res. (reset) button. (Note: Pressing the reset button clears all programming from the seven day timer memory; do not press the reset button if you wish only to modify an existing program).
- 2. Press and hold the button with the clock symbol located on the left hand side of the seven day timer below the PROG key. Hold the clock button until the time and day setting procedure is complete.
- 3. Press the "h" and "m" buttons to set the current time. Holding the buttons will cause the timer to rapidly advance the time. Note that the times are displayed in the 12-hour AM/PM format
- 4. When the time is correct (Note: For daylight savings time set the time 1 hour early and press the +1h key located directly above the h button after completing the below set up instructions, the seven day timer will automatically add 1 hour to the display).
- 5. Press the Day button to set the current day of the week.
- 6. Release the clock button

#### **Programming the Timer**

- 1. Press and release the Prog button to enter programming mode. The display should show the current settings for program 1 or "—:—" if program 1 has not been defined.
- Press the Day button to select the day or days to program. The days can be programmed individually as separate programs in the seven day timer or as a block of days requiring only a single program set up. All days in the selected block will be programmed with the same on and off times. Available blocks are Monday through Sunday, Monday through Friday, and Saturday and Sunday.
- 3. Press the ON/OFF button to display a circle with a dot in the center in the lower portion of the display, this indicates that you are programming a set point time to turn the unit on.
- 4. Use the "h" and "m" buttons to set the time for the dryer to turn on.

#### NOTE

To erase the on and off times for a specific day or group of days, set the on and off times to "----".

- 5. When the on time is set, press the Prog button to enter the setting into the memory of the seven day timer. The display will change to "—:—".
- 6. Press the ON/OFF button twice to display a circle without a dot in the center in the lower portion of the display; this indicates that you are programming a set point time to turn the unit off.
- 7. Use the "h" and "m" buttons to set the time for the dryer to turn off.
- 8. When the off time has been properly set, press the clock button. The display will return to the time of day. Note: If the ON time occurred in the past you must press the ON button to energize the unit, the timer will not automatically check the current time and day against the program and turn the dryer on based on a set point in the past.
- 9. Repeat steps 1 through 6 as necessary for the remainder of the programming periods.

#### **Overriding the Program**

The seven day timer will automatically cycle power to the dryer according to its timer. The program may be overridden at any time using the override button. The override button is the top center button with the hand symbol. The override button functions as follows:

- Press the override button once to toggle power to the dryer. If the dryer is on, it will turn off. If the dryer is off, it will turn on. This does not affect the program. The dryer will still cycle on and off at the programmed times.
- Pressing the override button a second time switches the timer into permanent on mode. The dryer will remain powered on, overriding the program, until this mode is cancelled.
- Pressing the override button a third time switches the timer into permanent off mode. The dryer will remain powered off, overriding the program, until this mode is cancelled.
- Pressing the override button a fourth time will switch the unit back to automatic mode. The unit will check the current day and time against the program and switch on or off as appropriate.

#### **Daylight Savings Time**

The seven day timer does not automatically compensate for Daylight Savings Time. However, a button is provided to shift the time one hour when entering or leaving Daylight Savings Time. To turn on Daylight Savings Time, press the  $\pm$ 1h button. The time will switch by one hour and the  $\pm$ 1h indicator will be displayed. To switch back, press the  $\pm$ 1h button. The  $\pm$ 1h indicator will disappear and the time will switch back to normal.

**4 MAINTENANCE** 

## 4-1 DESICCANT ROTOR

The desiccant rotor supplied with the dryer, Figure 4-1, will last very long under ideal conditions. However, by their very nature desiccants make good filters. The life of the desiccant is directly related to the airborne contaminants passed through it. Airborne contaminants, exposure to acidic gases or air streams, and contact with petroleum based airborne particles can reduce the efficiency of the desiccant rotor. Proper filtration and preventing contact with chemicals will significantly improve the life of the desiccant.



Figure 4-1. Desiccant Rotor

#### CAUTION

Do not place the desiccant rotor on its face. Serious damage can occur to the desiccant. Damage to the desiccant media may cause improper operation and lack of dryer performance. Always set the desiccant rotor on the metal rotor band. Brace the rotor with blocks to prevent rolling.

The preferred method of cleaning the desiccant rotor is to blow dust out with compressed, oil free, air at a maximum pressure of 20 psig. The desiccant media should then be reactivated by heating at 350°F maximum for 15 minutes. Washing the desiccant media is not recommended. Wash water impurities may contaminate the desiccant. Inspect the face of the rotor to see that no surface damage has occurred.

## **4-2 DESICCANT ROTOR SEALS**

The top and bottom desiccant rotor seals, Figure 4-2, separate the process, reactivation, and purge air streams. The seals do not normally require service or replacement. Should damage occur, or if poor performance as the result of an air leak is suspected, the seals should be checked and re placed if necessary. Inspect the desiccant rotor seals at the following intervals:

- Upon installation of the dryer
- After 1 week of operation
- After 3 months of operation
- Annually
- Upon loss of performance

To check the desiccant rotor seals, perform the following procedure:

- 1. Turn off the dryer by placing the power switch in the OFF position.
- 2. Open both side access doors and allow the unit to cool.
- 3. Visually inspect for gaps between the desiccant rotor and the desiccant rotor seals. If gaps are noticed, adjust the top plate assembly as required to close the gap. To adjust the top plate assembly, tighten the hex nuts to increase spring tension to the minimum required to attain a good seal.
- 4. If no gaps are noticed, slide a piece of thick paper or a thin piece of cardboard, such as a business card, between the desiccant rotor and the desiccant rotor seals. If the card slides through with no restriction, adjust the top plate assembly as required to close the gap.
- 5. If no gaps are present and the dryer is still not performing properly, remove the desiccant rotor and check for tears or leaks in the seals. A leak between any of the three air streams can cause a lack of performance. If a tear in a seal is noticed, replace the seal in accor dance with paragraph 5-2



Figure 4-2. Desiccant Rotor Seals

## 4-3 DESICCANT ROTOR DRIVE MOTOR

The desiccant rotor drive motor is permanently lubricated and requires no maintenance.

## 4-4 FILTERS

The MD Series Resin Dryers include filters for process and reactivation airflow. The maintenance interval for filters depends on the cleanliness of the air entering the dryer. The filters should be inspected often enough that they do not become clogged. Clogged filters could lead to improper operation of the dryer. Refer to the following paragraphs for replacement procedures for each of the filters.

#### **Reactivation Filter Replacement**

 Turn the dryer off by placing the power switch in the OFF

position. Wait for the blowers to stop.

- 2. Open the left side access panel.
- 3. Remove the reactivation filter, shown in Figure 4-3.
- 4. Install replacement reactivation filter into the dryer.

#### **Process Filter Replacement**

- Turn the dryer off by placing the power switch on the OFF position. Wait for the blowers to stop.
- 2. Open the process filter access door, shown in Figure 4-4.
- 3. Remove the process filter by removing the wing nut and retaining plate.
- 4. Install replacement process filter into the dryer. Make sure filter fits over the wing nut bracket.
- 5. Replace the filter retaining plate; install and tighten the wing nut.
- 6. Inspect the filter access door seals. Replace the seals if they are dry, brittle, or cracking.
- 7. Close the process filter access door.



Figure 4-3



PROCESS FILTER WING RETAINING ACCESS DOOR NUT PLATE

Figure 4-4

## 4-5 CHAIN AND SPROCKETS

Chain and sprockets should be cleaned and lubricated once every 6 months.



# 5 Service

## 5-1 REPLACING THE DESICCANT ROTOR

#### **Desiccant Rotor Removal**

#### WARNING

Lock out all power to the dryer before performing any service on the dryer. High voltages may be present inside the dryer. Failure to lock out power may result in serious injury or death.

#### NOTE

It is recommended that desiccant rotor installation be performed by two people. This will aid in the proper positioning of the desiccant rotor and installation of the drive chain, and minimize the possibility of damage to the desiccant rotor and desiccant rotor seals.

- 1. Shut off power to the dryer by placing the power switch in the OFF position.
- 2. Open both side access doors.

#### NOTE

Allow unit to cool 30 minutes before removing desiccant rotor.



#### **Replacing the Desiccant Rotor - continued**



- 3. Remove React and Process air hoses.
- 4. Remove the top access cover.
- 5. Remove poly tubing from barbed inserts on the Top Plate assembly
- 6. Remove hex nuts, springs, and washers from the top of the supporting tie rods.
- 7. Remove Top Plate assembly, taking extra care not to damage the seals or the Rotor.
- 8. Remove supporting tie rod located near the center of the unit.
- 9. Rotate the drive chain tensioner arm away from the desiccant rotor. While holding the tensioner arm, remove the drive chain from the drive sprocket.
- 10. Carefully slide the Desiccant Rotor upward to remove.



#### CAUTION

When removing the desiccant rotor, be careful not to damage the desiccant rotor seals or the desiccant media. If the rotor seals are damaged, they must be replaced.

#### CAUTION

While the desiccant rotor is being removed from of the dryer, ensure nothing falls inside the bottom seal plate drying chambers. If an object falls inside these chambers, it MUST be removed before operation of the unit. Serious damage to the desiccant rotor can occur if any objects are left in these chambers.

#### **Desiccant Rotor Installation**

#### CAUTION

When installing the desiccant rotor, be careful not to damage the desiccant rotor seals. If the rotor seals are damaged, they must be replaced.

#### NOTE

It is recommended that desiccant rotor installation be performed by two people. This will aid in the proper positioning of the desiccant rotor and installation of the drive chain, and minimize the possibility of damage to the desiccant rotor and desiccant rotor seals.

- 1. Wrap the chain around the rotor sprocket and hold in place while lowering Rotor into position.
- 2. Rotate the drive chain tensioner arm away from the desiccant rotor. While holding the tensioner arm, install the drive chain on the drive sprocket.
- 3. Install supporting tie rod located near the center of the unit.
- 4. Install Top Plate assembly, taking extra care not to damage the seals or the Rotor.
- 5. Install hex nuts, springs, and washers on the top of the supporting tie rods. After nuts make contact with the spings turn them an additional 4 -6 turns. Do not overtighten.

#### CAUTION

Do not over-tighten the desiccant rotor seals. Over-tightening of the desiccant rotor seals may cause failure of the rotor drive motor.

- 6. Install poly tubing on barbed inserts on the Top Plate assembly.
- 7. Install the top access cover.
- 8. Install the React and Process air hoses.
- 9. Close the side access doors.

### **5.2 SEAL REPLACEMENT**

1. Remove Rotor as explained in para 5.1

2. Remove the silicone seals from the plates with the help of a scraper or other tool.

#### CAUTION

While the desiccant rotor is being removed from of the dryer, ensure nothing falls inside the bottom seal plate drying chambers. If an object falls inside these chambers, it MUST be removed before operation of the unit. Serious damage to the desiccant rotor can occur if any objects are left in these chambers.

- 3. Clean the plate surfaces.
- 4. Place the seal on a clean flat surface, the PTFE side of the seal should be facing down.

PTFE SIDE UP - INCORRECT



PTFE SIDE DOWN - CORRECT



## 5.2 SEAL REPLACEMENT - continued

- 5. Using a putty knife spread the RTV so it thoroughly covers the entire surface of the seal, approximately 1/32" thick. Ensure the RTV covers the entire surface of the seal. Uneven coverage can lead to seal leakage and improper dryer operation.
- 6. Line up and gently set the seal onto the plate, make sure the seal's section does not get offset. Place the desiccant rotor or similar shape and weight object on the seal to hold the seal securely against the plate. Allow a minimum of four hours for the RTV to cure.
- 7. Allow time to dry and then apply a bead of RTV around the circumference of the seal.

#### NOTE

Make sure the surfaces of the seals that contact the Desiccant Rotor are free from RTV or any other material.

- 8. Allow to dry for 24 hrs.
- 9. Install Rotor as explained in para 5.1



#### UNEVEN COVERAGE INCORRECT



**FULL AND EVEN COVERAGE - CORRECT** 



## **5.3 DRIVE MOTOR REPLACEMENT**

- 1. Remove the chain from the drive sprocket.
- 2. Remove the drive sprocket from the motor shaft.
- 3. Remove the Screws holding the motor to the plate.
- 4. Remove the Drive motor.

To re-install drive motor, reverse the above procedure.

6

## **TROUBLE SHOOTING**

## 6-1 TROUBLE SHOOTING INDEX

TROUBLE	PROBLEM REASON	CORRECTIVE ACTION
	Main power off.	Check power supply
	Circuit breaker tripped	Check circuit breakers.
1) Unit not running	Control power interrupted.	Check the circuit as per electrical drawing.
	Timer off.	Either program timer or press override button 2 times for permanent on mode.
	React filter dirty.	Change or clean filter.
2) React temperature too high	React thermostat setting too high.	Adjust thermostat for proper reactivation heat at around 400 ↔ Note: the adjustment must be done with a clean react filter.
3) React heat too low (Desiccant not fully reactivating)	React thermostat setting too low.	Adjust thermostat for proper reactivation heat at around 400 ↔ Note: the adjustment must be done with a clean react filter.
	React heater faulty.	Replace heater.
	Blower MCB/MPCB tripped.	Reset MCB/MPCB.
4) Process blower not running	Motor overload tripped	Rectify fault, reset overload and check motor AMPS are in limit.
	Blower MCB/MPCB tripped.	Reset MCB/MPCB.
5) React blower not running	Motor overload tripped	Recify fault, reset overload and check motor is in limit of full load current
	Controller defective	Replace controller
6) Potor not working	Bed limit switch not aligned properly.	Set the limit switch properly.
	Bed drive motor defective.	Replace motor.
7) chain slippage	Misalignment of chain	Check and adjust alignment of the driver and idler sprocket.
	Main power is off	Check the main power supply
	Drive motor is not operational	Replace the drive motor
8) Rotor is not rotating	Seal is tight on rotor	Adjust the seal
	Tensioner sprocket engagement is not right	Adjust or replace the sprocket
	Tensioner sprocket loose	Adjust or replace the sprocket
	Error in measuring instrument	Re-check with other method
9) Rotor is rotating but lower performance.	Clearance between seal and rotor	Adjust the seal
	Leakage in duct	Close the leakage
10) Llish process sutlet to prove ture	Clearance between seal and rotor	Adjust the seal
ioj nigri process oullet temperature	Rotor speed is high	Check the rotor speed
	Clearance between seal and rotor	Adjust the seal
(11) Low reactivation outlet temperature	Rotor speed is high	Check the rotor speed
	Heaters are not switching ON	Check the heaters

## **7** TECHNICAL INFORMATION

#### MD-30



NOTE:- (1) IN POWER WIRING THE ALL LINE IS BLACK WIRE. (2)EARTH IS GREEN.

## CONTROL WIRING DIAGRAM MD-30



(2) CONTROL WIRING IS RED WIRE.

## **ELECTRICAL BILL OF MATERIALS**

#### UNIT: MD-30

FULL CONNECTED LOAD:**2.5 KW**MINIMUM CIRCUIT AMPACITY:**11.36 AMPS**VOLTAGE:**220/1/60** 

ID	QTY	P/N	DESCRIPTION
CB1	1	MD-28762	CIRCUIT BREAKER, 20AMP, DP
CB2	1	MD-10781	CIRCUIT BREAKER, 6AMP, DP
CS	1	MD-26054	CONTROL SWITCH, 2 POSITION
1M	1	MD-10919	CONTACTOR AC 9A, PROCESS BLOWER MOTOR
2M	1	MD-10919	CONTACTOR AC 9A, REACT BLOWER MOTOR
1H	1	MD-10919	CONTACTOR AC 9A, REACTIVATION HEATER
2H	1	MD-10919	CONTACTOR AC 9A, PROCESS HEATER
CR	1	MD-10965	CONTROL RELAY, 2NO, 2NC, 220V, 60HZ
MTR1	1	RB1-025-1	PROCESS BLOWER WITH MOTOR25 HP
MTR2	1	RB1-025-1	REACT BLOWER WITH MOTOR25 HP
MTR3	1	MD-28205	ROTOR DRIVE GEAR MOTOR, 6W
	1	MD-28206	LOWER GEAR HEAD OR ROTOR MOTOR
	1	MD-28208	UPPER GEAR HEAD OR ROTOR MOTOR
	1	MD-28827	MOTOR SPEED CONTROL FOR MTR3
	1	MD-29505	DRIVE SPROCKET FOR ROTOR MOTOR
HTR1	2	MD-10696	REACTIVATION HEATER, ELECTRIC, 0.75 KW (1.5 KW TOTAL @ 220/1/60)
HTR2	1	MD-28730	PROCESS HEATER, ELECTRIC, 1.25 KW (1.95 KW TOTAL @ 220/1/60)
	1	MD-10696	PROCESS HEATER, ELECTRIC, 0.75 KW
PTC	1	MD-28743	PID. TEMPERATURE CONTROLLER
RTD1	1	MD-11013	TEMPERATURE SENSOR, PT-100, 2 MTR LONG, REACTIVATION INLET
RTD2	1	MD-11014	TEMPERATURE SENSOR, PT-100 7 MTR LONG, PROCESS OUTLET
RTD3	1	MD-11013	TEMPERATURE SENSOR, PT-100 2 MTR LONG, PROCESS INLET
W	1	MD-10778	PILOT LIGHT, 'POWER ON", WHITE
G	1	MD-28708	PILOT LIGHT, 'SYSTEM ON", GREEN
A1	1	MD-10775	PILOT LIGHT, 'PROCESS HTR READY", AMBER
A2	1	MD-10775	PILOT LIGHT, 'REACT HTR ON", AMBER
R1	1	MD-10777	PILOT LIGHT, 'PROCESS FILTER DIRTY", RED
R2	1	MD-10777	PILOT LIGHT, 'FAULTS", RED
PFS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, PROCESS FILTER
RPS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, REACTIVATION ROTOR
PPS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, PROCESS ROTOR
RTAS	1	MD-11089	REACT THERMOSTAT HIGH TEMPERATURE LIMIT, 500∞F, FIXED
PTAS	1	MD-11089	PROCESS THERMOSTAT HIGH TEMPERATURE LIMIT, 500∞F, FIXED
SS	1	MD-28426	SWITCH, 3 POSITION, SPRING RETURN RIGHT AND LEFT
SSR1	1	A2450	SOLID STATE RELAY, 50AMP, LINE 48-280VAC, INPUT 90-280VAC
SB	1	MD-29344	SENSOR BOARD
DPS	1	1205DM	DEW POINT SENSOR
DPI	1	MD-28623	DIGITAL DEWPOINT INDICATOR
TM-1	1	MD-15450	TIMER, 7-DAY, GIC
TD-2	1	MD-11093	DELAY TIMER, 800M
LS	1	MD-21392	LIMIT SWITCH, UL, XCJ-126
	1	MD-26514	DP SENSOR MANIFOLD - 01028
	1	MD-26515	DP SENSOR CABLE - 00999
	1	MD-26516	DEW POINT SENSOR GASKET - 0823
	1	MD-26517	DP SENSOR INSERT - 0824
	1	MD-26518	DP SENSOR MANIFOLD GLAND - 01048
	1	HS-2	HEAT SINK
ALARM	1	MD-28716	BUZZER HY-226-MA, 240VAC (HANYOUNG MAKE)
	1	MD-28724	REACT FILTER FOR MD-30 (63mm O.D. X 120mm O.A.L., 1î BSP)
	1	MD-28721	PROCESS FILTER FOR MD-30 (115mm O.D. X 57mm I.D. X 90mm O.A.L.)
	1	MD-29496	DESICCANT ROTOR FOR MD-30





## NOTE:- (1) IN POWER WIRING THE ALL LINE IS BLACK WIRE. (2)EARTH IS GREEN.

## CONTROL WIRING DIAGRAM MD-60



NOTE:- (1) IN POWER WIRING THE ALL LINE IS BLACK WIRE. (2) CONTROL WIRING IS RED WIRE.

## **ELECTRICAL BILL OF MATERIALS**

#### UNIT: MD-60

FULL CONNECTED LOAD: 6 KW MINIMUM CIRCUIT AMPACITY: 27.27 AMPS VOLTAGE:

220/1/60

ID	QTY	P/N	DESCRIPTION
1CB	1	MD-22822	CIRCUIT BREAKER, 40AMP, DP
2CB	1	MD-10781	CIRCUIT BREAKER, 6AMP, DP
CS	1	MD-26054	CONTROL SWITCH, 2 POSITION
1M	1	MD-10919	CONTACTOR AC 9A, PROCESS BLOWER MOTOR
2M	1	MD-10919	CONTACTOR AC 9A, REACT BLOWER MOTOR
1H	1	MD-10919	CONTACTOR AC 9A, REACTIVATION HEATER
2H	1	MD-10919	CONTACTOR AC 9A, PROCESS HEATER
CR	1	MD-10965	CONTROL RELAY, 2NO, 2NC, 220V, 60HZ
MTR1	1	RBH2-067-1	PROCESS BLOWER WITH MOTOR67 HP
MTR2	1	RB1-025-1	REACT BLOWER WITH MOTOR25 HP
MTR3	1	MD-28205	ROTOR DRIVE GEAR MOTOR, 6W
	1	MD-28206	LOWER GEAR HEAD OR ROTOR MOTOR
	1	MD-28208	UPPER GEAR HEAD OR ROTOR MOTOR
	1	MD-28827	MOTOR SPEED CONTROL FOR MTR3
	1	MD-29505	DRIVE SPROCKET FOR ROTOR MOTOR
HTR1	2	MD-10696	REACTIVATION HEATER, ELECTRIC, 0.75 KW (1.5 KW TOTAL @ 220/1/60)
HTR2	3	MD-28730	PROCESS HEATER, ELECTRIC, 1.25 KW (3.75 KW TOTAL @ 220/1/60)
PTC	1	MD-28743	PID, TEMPERATURE CONTROLLER
RTD1	1	MD-11013	TEMPERATURE SENSOR, PT-100, 2 MTR LONG, REACTIVATION INLET
RTD2	1	MD-11014	TEMPERATURE SENSOR, PT-100 7 MTR LONG, PROCESS OUTLET
RTD3	1	MD-11013	TEMPERATURE SENSOR, PT-100 2 MTR LONG, PROCESS INLET
W	1	MD-10778	PILOT LIGHT, 'POWER ON", WHITE
G	1	MD-28708	PILOT LIGHT, 'SYSTEM ON", GREEN
A1	1	MD-10775	PILOT LIGHT, 'PROCESS HTR READY", AMBER
A2	1	MD-10775	PILOT LIGHT, 'REACT HTR ON", AMBER
R1	1	MD-10777	PILOT LIGHT, 'PROCESS FILTER DIRTY", RED
R2	1	MD-10777	PILOT LIGHT, 'FAULTS", RED
PFS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, PROCESS FILTER
RPS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, REACTIVATION ROTOR
PPS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, PROCESS ROTOR
RTAS	1	MD-11089	REACT THERMOSTAT HIGH TEMPERATURE LIMIT, 500∞F, FIXED
PTAS	1	MD-11089	PROCESS THERMOSTAT HIGH TEMPERATURE LIMIT, 500∞F, FIXED
SS	1	MD-28426	SWITCH, 3 POSITION, SPRING RETURN RIGHT AND LEFT
SSR1	1	A2475	SOLID STATE RELAY, 75AMP, LINE 48-280VAC, INPUT 90-280VAC
SB	1	MD-29344	SENSOR BOARD
DPS	1	1205DM	DEW POINT SENSOR
DPI	1	MD-28623	DIGITAL DEWPOINT INDICATOR
TM-1	1	MD-29345	TIMER, 7-DAY, GIC
TD-2	1	MD-11093	DELAY TIMER, 800M
LS	1	MD-21392	LIMIT SWITCH, UL, XCJ-126
	1	MD-29342	DP SENSOR MANIFOLD
	1	MD-29346	DP SENSOR CABLE - 6020-72
	1	MD-26516	DEW POINT SENSOR GASKET - 0823
	1	MD-26517	DP SENSOR INSERT - 0824
	1	MD-29343	DP SENSOR MANIFOLD GLAND - 01048
	1	HS-2	HEAT SINK
ALARM	1	MD-28716	BUZZER HY-226-MA, 240VAC (HANYOUNG MAKE)
	1	MD-28724	REACT FILTER FOR MD-30 (63mm O.D. X 120mm O.A.L., 1î BSP)
	1	MD-28721	PROCESS FILTER FOR MD-30 (115mm O.D. X 57mm I.D. X 90mm O.A.L.)
	1	MD-29497	DESICCANT ROTOR FOR MD-60
#### MD-100 230v

# ELECTRICAL WIRING DIAGRAM MD-100 (230/3Ø/60Hz)



### MD-100 230v

230/03/60

## CONTROL WIRING DIAGRAM MD-100



# ELECTRICAL BILL OF MATERIALS

## UNIT: MD-100

FULL CONNECTED LOAD:8.94 KWMINIMUM CIRCUIT AMPACITY:22.44 AMPSVOLTAGE:230/3/60

ID	QTY	P/N	DESCRIPTION
1CB	1	MD-10789	CIRCUIT BREAKER 6AMP TP
2CB	1	MD-21765	CIRCUIT BREAKER, 2AMP, TP
3CB	1	MD-10790	CIRCUIT BREAKER, 10AMP, TP
4CB	1	MD-10793	CIRCUIT BREAKER, 20AMP, TP
5CB	1	MD-10781	CIRCUIT BREAKER, 6AMP, DP
CS	1	MD-26054	CONTROL SWITCH, 2 POSITION
1M.2M	2	MD-10919	CONTACTOR AC 9A, PROCESS & REACT BLOWER MOTOR
1H	1	MD-10919	CONTACTOR AC 9A, REACTIVATION HEATER
2H	1	MD-10919	CONTACTOR AC 9A, PROCESS HEATER
10L	1	MD-28741	OVERLOAD RELAY 3.2-5.0A , HAND RESET
20L	1	MD-15693	OVERLOAD RELAY 0.65-1.A . HAND RESET
CR	1	MD-10965	CONTROL RELAY, 2NO, 2NC, 220V, 60Hz
MTR1	1	RBH3-101-3	PROCESS BLOWER WITH MOTOR - 1.1 HP
MTR2	1	RB1-025-3	REACT BLOWER WITH MOTOR25 HP
MTR3	1	MD-28205	ROTOR DRIVE GEAR MOTOR, 6W
	1	MD-28206	LOWER GEAR HEAD OR ROTOR MOTOR
	1	MD-28208	UPPER GEAR HEAD OR ROTOR MOTOR
	1	MD-28827	MOTOR SPEED CONTROL FOR MTR3
	1	MD-29505	DRIVE SPROCKET FOR ROTOR MOTOR
HTR1	2	MD-10702	REACTIVATION HEATER, ELECTRIC, 1.25 KW (2.5 KW TOTAL @ 230/5/60)
HTR2	3	MD-10710	PROCESS HEATER, ELECTRIC, 1.75 KW (5.25 KW TOTAL @ 250/3/60)
PTC	1	MD-28743	PID, TEMPERATURE CONTROLLER
RTD1	1	MD-11013	TEMPERATURE SENSOR, PT-100, 2 MTR LONG, REACTIVATION INLET
RTD2	1	MD-11014	TEMPERATURE SENSOR, PT-100, 7 MTR LONG, PROCESS OUTLET
RTD3	1	MD-11013	TEMPERATURE SENSOR, PT-100, 2 MTR LONG, PROCESS INLET
W	1	MD-10778	PILOT LIGHT, 'POWER ON", WHITE
G	1	MD-28708	PILOT LIGHT, 'SYSTEM ON", GREEN
A1	1	MD-10775	PILOT LIGHT, 'PROCESS HTR READY", AMBER
A2	1	MD-10775	PILOT LIGHT, 'REACT HTR ON", AMBER
R1	1	MD-10777	PILOT LIGHT, 'PROCESS FILTER DIRTY", RED
R2	1	MD-10777	PILOT LIGHT, 'FAULTS", RED
PFS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, PROCESS FILTER.
RPS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, REACTIVATION ROTOR.
PPS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, PROCESS ROTOR.
RIAS	1	MD-11089	REACT THERMOSTAT HIGH TEMPERATURE LIMIT, 500∞F, FIXED
PTAS	1	MD-11089	PROCESS THERMOSTAT HIGH TEMPERATURE LIMIT, 500∞F, FIXED
SS	1	MD-28426	SWITCH, 5 POSITION, SPRING RETURN RIGHT AND LEFT
SSR1	1	A4850	SOLID STATE RELAY
SSR2	1	A4850	SOLID STATE RELAY
SB	1	MD-29344	SENSOR BOARD
	1	1205DM	DEW POINT SENSOR
	1	MD 15450	
	1	MD-15450	
10-2	1	MD-11093	
LO	1	MD 06514	
	1	MD 26515	DEVEPOINT SENSOR MANIFOLD-01028
		MD-20313	
	1	MD-20510	DP SENSOR INSERT-0820
	1	MD-20017	
	4		
	1	MD_22716	
	1	MD-2710/	BEACT FILTER FOR MD-100 ( $63mm$ O D X 150mm O A L 11 RSP)
	1	MD-28729	PROCESS FILTER FOR MD-100 (202mm $\Omega D \times 135$ mm $I D \times 150$ mm $\Omega \Delta L$ )
	1	MD-29498	DESICCANT ROTOR FOR MD-100

### MD-100 460v

ELECTRICAL WIRING DIAGRAM MD-100 (460/3Ø/60Hz)





### MD-100 460v

460/3/60

CONTROL WIRING DIAGRAM MD-100



# **ELECTRICAL BILL OF MATERIALS**

### UNIT: MD-100

FULL CONNECTED LOAD:8.94 KWMINIMUM CIRCUIT AMPACITY:11.22 AMPSVOLTAGE:460/3/60

ID QTY P/N DESCRIPTION 1 MPCB 1 MD-28734 2-3.2 - 3VU1340-1 NHOO 2 MPCB MD-28739 0,4-0.6 3VU 1340-1 MEOO 1 1 CB MD-22648 CIRCUIT BREAKER, 6AMP, TP 1 2 CB MD-22857 CIRCUIT BREAKER, 10AMP, TP 1 5 CB 1 MD-22882 CIRCUIT BREAKER, 6AMP, DP CS MD-26054 CONTROL SWITCH, 2 POSITION 1 1M. 2M 2 MD-10919 CONTACTOR AC 9A. PROCESS BLOWER&REACT BLOWER MD-10919 CONTACTOR AC 9A. REACTIVATION HEATER 1H 1 MD-10919 CONTACTOR AC 9A. PROCESS HEATER 2H 1 CR 1 MD-10965 CONTROL RELAY, 2NO, 2NC, 220V, 60Hz MTR1 RBH3-101-3 PROCESS BLOWER WITH MOTOR - 1.1 HP 1 MTR2 1 RB1-025-3 **REACT BLOWER WITH MOTOR - .25 HP** MTR3 1 MD-28205 ROTOR DRIVE GEAR MOTOR, 6W 1 MD-28206 LOWER GEAR HEAD OR ROTOR MOTOR MD-28208 UPPER GEAR HEAD OR ROTOR MOTOR 1 MD-28827 1 MOTOR SPEED CONTROL FOR MTR3 MD-29505 DRIVE SPROCKET FOR ROTOR MOTOR 1 HTR1 2 MD-19173 REACTIVATION HEATER, ELECTRIC, 1.25 KW (2.5 KW TOTAL @ 460/3/60) HTR2 3 MD-19175 PROCESS HEATER, ELECTRIC, 1.75 KW-(5.25 KW TOTAL @ 460/3/60) PTC MD-28743 PID, TEMPERATURE CONTROLLER 1 RTD1 MD-11013 TEMPERATURE SENSOR, PT-100, 2 MTR LONG, REACTIVATION INLET 1 RTD2 1 MD-11014 TEMPERATURE SENSOR, PT-100, 7 MTR LONG, PROCESS OUTLET RTD3 TEMPERATURE SENSOR, PT-100, 2 MTR LONG, PROCESS INLET 1 MD-11013 PILOT LIGHT, 'POWER ON", WHITE W 1 MD-10778 G 1 MD-28708 PILOT LIGHT, 'SYSTEM ON", GREEN PILOT LIGHT, 'PROCESS HTR READY", AMBER MD-10775 A1 1 A2 MD-10775 PILOT LIGHT, 'REACT HTR ON", AMBER 1 R1 1 MD-10777 PILOT LIGHT, 'PROCESS FILTER DIRTY", RED PILOT LIGHT, 'FAULTS", RED R2 MD-10777 1 PRESSURE SWITCH, DIFFERENTIAL PRESSURE, PROCESS FILTER. PFS MD-11065 1 RPS MD-11065 PRESSURE SWITCH, DIFFERENTIAL PRESSURE, REACTIVATION ROTOR. 1 PPS 1 MD-11065 PRESSURE SWITCH, DIFFERENTIAL PRESSURE, PROCESS ROTOR. RTAS MD-11089 REACT THERMOSTAT HIGH TEMPERATURE LIMIT, 500∞F, FIXED 1 PTAS MD-11089 PROCESS THERMOSTAT HIGH TEMPERATURE LIMIT, 500∞F, FIXED 1 MD-28426 SWITCH, 3 POSITION, SPRING RETURN RIGHT AND LEFT SS 1 SOLID STATE RELAY SSR1 1 A4850 SSR2 A4850 SOLID STATE RELAY 1 SB 1 MD-29344 SENSOR BOARD DPS 1 1205DM DEW POINT SENSOR DPI 1 MD-28623 DIGITAL DEWPOINT INDICATOR TM-1 1 MD-15450 TIMER, 7-DAY, GIC TD-2 MD-11093 **DELAY TIMER, 800M** 1 CT 1 MD-28640 TRANSFORMER STEP DOWN 460V TO 220V, 150VA LS 1 MD-21392 LIMIT SWITCH, UL, XCJ-126 MD-26514 **DEW POINT SENSOR MANIFOLD-01028** 1 1 MD-26515 **DIGITAL DEWPOINT SENSOR CABLE-00999** 1 MD-26516 **DP SENSOR GASKET-0823** MD-26517 **DP SENSOR INSERT-0824** 1 MD-26518 **DP SENSOR MANIFOLD GLAND-01048** 1 1 HS-2 HEAT SINK ALARM MD-28716 BUZZER HY-226-MA.240VAC (HANYOUNG MAKE) 1 MD-47194 REACT FILTER FOR MD-100 (63mm O.D. X 150mm O.A.L., 1î BSP) 1 MD-28729 PROCESS FILTER FOR MD-100 (202mm O.D. X 135mm I.D. X 150mm O.A.L.) 1 1 MD-29498 **DESICCANT ROTOR FOR MD-100** 

ELECTRICAL WIRING DIAGRAM MD-150 230/3/60



### MD-150 230v

230/03/60

## CONTROL WIRING DIAGRAM MD-150



### MD-150 230v

# **ELECTRICAL BILL OF MATERIALS**

## UNIT: MD-150

FULL CONNECTED LOAD:14.19 KWMINIMUM CIRCUIT AMPACITY:35.62 AMPSVOLTAGE:230/3/60

ID	QTY	P/N	DESCRIPTION
1CB	1	MD-10789	CIRCUIT BREAKER, 6AMP, TP
2CB	1	MD-10799	CIRCUIT BREAKER, 4AMP, TP
3CB	1	MD-10792	CIRCUIT BREAKER, 16AMP, TP
4CB	1	MD-10796	CIRCUIT BREAKER, 32AMP, TP
5CB	1	MD-10781	CIRCUIT BREAKER, 6AMP, DP
CS	1	MD-26054	CONTROL SWITCH, 2 POSITION
1M, 2M	2	MD-10919	CONTACTOR AC 9A, PROCESS & REACTIVATION BLOWER MOTOR
1H	1	MD-10919	CONTACTOR AC 9A, REACTIVATION HEATER
2H	1	MD-10919	CONTACTOR AC 9A, PROCESS HEATER
10L	1	MD-28741	OVERLOAD RELAY 3.2-5A , HAND RESET
20L	1	MD-10968	OVERLOAD RELAY 1.6-2.5A , HAND RESET
CR	1	MD-10965	CONTROL RELAY, 2NO, 2NC, 220V, 60Hz
MTR1	1	RBH4-2-3	PROCESS BLOWER WITH MOTOR - 2 HP
MTR2	1	RBH2-067-3	REACT BLOWER WITH MOTOR67 HP
MTR3	1	MD-28205	ROTOR DRIVE GEAR MOTOR, 6W
	1	MD-28206	LOWER GEAR HEAD OR ROTOR MOTOR
	1	MD-28208	UPPER GEAR HEAD OR ROTOR MOTOR
	1	MD-28827	MOTOR SPEED CONTROL FOR MTR3
	1	MD-29505	DRIVE SPROCKET FOR ROTOR MOTOR
HTR1	5	MD-10702	REACTIVATION HEATER, ELECTRIC, 1.25 KW (3.75 KW TOTAL @ 230/3/60)
HTR2	6	MD-10706	PROCESS HEATER, ELECTRIC, 1.5 KW (9 KW TOTAL @ 230/3/60)
PTC	1	MD-28743	PID, TEMPERATURE CONTROLLER
RID1	1	MD-11013	TEMPERATURE SENSOR, PT-100, 2 MTR LONG, REACTIVATION INLET
RID2	1	MD-11014	IEMPERATURE SENSOR, PT-100, 7 MTR LONG, PROCESS OUTLET
RTD3	1	MD-11013	TEMPERATURE SENSOR, PT-100, 2 MTR LONG, PROCESS INLET
W	1	MD-10778	PILOT LIGHT, 'POWER ON", WHITE
G	1	MD-28708	PILOT LIGHT, 'SYSTEM ON", GREEN
A1	1	MD-10775	PILOT LIGHT, 'PROCESS HTR READY'', AMBER
A2	1	MD-10775	
R1	1	MD-10777	PILOT LIGHT, 'PROCESS FILTER DIRTY", RED
R2	1	MD-10777	PILOT LIGHT, 'FAULTS", RED
PES	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, PROCESS FILTER.
RPS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, REACTIVATION RUTUR.
PPS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, PROCESS RUTOR.
RIAS	1	MD-11089	REACT THERMOSTAT HIGH TEMPERATURE LIMIT, 500%F, FIXED
PIAS	1	MD-11089	
55		WD-28420	SWITCH, 3 POSITION, SPRING RETORN RIGHT AND LEFT
55R1	1	A4875	SOLID STATE RELAY
00n2		A4075	
	1	1005DM	
	1		
	1	MD-26023	
	1	MD-13450	DELAV TIMER 200M
10-2	1	MD 21202	
L3	1	MD 26514	
	1	MD 26515	
	1	MD-20515 MD-26516	DP SENSOR GASKET-0823
	1	MD-26517	
	1	MD-26519	
	1	HS-2	
	1	MD-28716	BUZZER HV-226-MA 240 VAC (HANYOUNG MAKE)
	1	MD-28766	BEACT FILTER FOR MD-150 (90mm O D X 120mm O $\Delta$ L 1 25° RSP)
	1	MD-28729	PBOCESS FILTER FOR MD-150 (202mm O D X 135mm I D X 150mm O A L )
	1	MD_20/00	DESICCANT BOTOR FOR MD-150
		10 20-00	

### MD-150 460v

ELECTRICAL WIRING DIAGRAM MD-150

460/3/60



### MD-150 460v

460/3/60

CONTROL WIRING DIAGRAM MD-150



# **ELECTRICAL BILL OF MATERIALS**

## UNIT: MD-150

FULL CONNECTED LOAD:14.19 KWMINIMUM CIRCUIT AMPACITY:17.81 AMPSVOLTAGE:460/3/60

ID	QTY	P/N	DESCRIPTION
1 MPCB	1	MD-28734	2-3.2 - 3VU1340-1NHOO
2 MPCB	1	MD-28733	1-1.6 A 3VU 1540-1MGOO
1 CB	1	MD-22857	CIRCUIT BREAKER. 10AMP. TP
2 CB	1	MD-22860	CIRCUIT BREAKER, 20AMP, TP
3 CB	1	MD-22882	CIRCUIT BREAKER, 6AMP, DP
CS	1	MD-26054	CONTROL SWITCH, 2 POSITION
1M. 2M	2	MD-10919	CONTACTOR AC 9A. PROCESS & REACTIVATION BLOWER MOTOR
1 <sup>́</sup> H	1	MD-10919	CONTACTOR AC 9A, REACTIVATION HEATER
2H	1	MD-10919	CONTACTOR AC 9A, PROCESS HEATER
CR	1	MD-10965	CONTROL RELAY, 2NO, 2NC, 220V, 60Hz
MTR1	1	RBH4-2-3	PROCESS BLOWER WITH MOTOR - 2 HP
MTR2	1	RBH2-067-3	REACT BLOWER WITH MOTOR67 HP
MTR3	1	MD-28205	ROTOR DRIVE GEAR MOTOR, 6W
	1	MD-28206	LOWER GEAR HEAD OR ROTOR MOTOR
	1	MD-28208	UPPER GEAR HEAD OR ROTOR MOTOR
	1	MD-28827	MOTOR SPEED CONTROL FOR MTR3
	1	MD-29505	DRIVE SPROCKET FOR ROTOR MOTOR
HTR1	5	MD-19173	REACTIVATION HEATER, ELECTRIC, 1.25 KW (3.75 KW TOTAL @ 460/3/60)
HTR2	6	MD-19174	PROCESS HEATER, ELECTRIC, 1.5 KW (9 KW TOTAL @ 460/3/60)
PTC	1	MD-28743	PID, TEMPERATURE CONTROLLER
RTD1	1	MD-11013	TEMPERATURE SENSOR, PT-100, 2 MTR LONG, REACTIVATION INLET
RTD2	1	MD-11014	TEMPERATURE SENSOR, PT-100, 7 MTR LONG, PROCESS OUTLET
RTD3	1	MD-11013	TEMPERATURE SENSOR, PT-100, 2 MTR LONG, PROCESS INLET
W	1	MD-10778	PILOT LIGHT, 'POWER ON", WHITE
G	1	MD-28708	PILOT LIGHT, 'SYSTEM ON", GREEN
A1	1	MD-10775	PILOT LIGHT, 'PROCESS HTR READY", AMBER
A2	1	MD-10775	PILOT LIGHT, 'REACT HTR ON", AMBER
R1	1	MD-10777	PILOT LIGHT, 'PROCESS FILTER DIRTY", RED
R2	1	MD-10777	PILOT LIGHT, 'FAULTS", RED
PFS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, PROCESS FILTER.
RPS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, REACTIVATION ROTOR.
PPS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, PROCESS ROTOR.
RTAS	1	MD-11089	REACT THERMOSTAT HIGH TEMPERATURE LIMIT, 500∞F, FIXED
PTAS	1	MD-11089	PROCESS THERMOSTAT HIGH TEMPERATURE LIMIT, 500∞F, FIXED
SS	1	MD-28426	SWITCH, 3 POSITION, SPRING RETURN RIGHT AND LEFT
SSR1	1	A4850	SOLID STATE RELAY
SSR2	1	A4850	SOLID STATE RELAY
SB	1	MD-29344	SENSOR BOARD
DPS	1	1205DM	DEW POINT SENSOR
DPI	1	MD-28623	DIGITAL DEWPOINT INDICATOR
IM-1	1	MD-15450	TIMER, 7-DAY, GIC
ID-2	1	MD-11093	DELAY TIMER, 800M
CI	1	MD-28640	TRANSFORMER STEP DOWN 460V TO 220V- 150VA
LS	1	MD-21392	LIMIT SWITCH, UL, XCJ-126
	1	MD-26514	DEW POINT SENSOR MANIFOLD-01028
	1	MD-26515	DIGITAL DEWPOINT SENSOR CABLE-00999
	1	MD-26516	
	1	WD-26517	
	4		
	4		
ALAKIVI	4	WD-28/10	
	1	MD-28700	DRACESS EILTER FOR MD-150 (9011111 O.D. & 120111111 O.A.L., 1.201 DOP)
	4	MD 20400	
	I	WD-29499	

#### MD-200 230v

ELECTRICAL WIRING DIAGRAM MD-200 230/3/60



### MD-200 230v

230/03/60

## CONTROL WIRING DIAGRAM MD-200



# **ELECTRICAL BILL OF MATERIALS**

## UNIT: MD-200

FULL CONNECTED LOAD:**18.36 KW**MINIMUM CIRCUIT AMPACITY:**46.08 AMPS**VOLTAGE:**230/3/60** 

ID	QTY	P/N	DESCRIPTION
1CB	1	MD-10789	CIRCUIT BREAKER, 6AMP, TP
2CB	1	MD-10799	CIRCUIT BREAKER. 4AMP, TP
3CB	1	MD-10793	CIRCUIT BREAKER, 20AMP, TP
4CB	1	MD-10797	CIRCUIT BREAKER, 40AMP, TP
5CB	1	MD-10781	CIRCUIT BREAKER, 6AMP, DP
CS	1	MD-26054	CONTROL SWITCH, 2 POSITION
1M	1	MD-10919	CONTACTOR AC 9A, PROCESS BLOWER MOTOR
2M	1	MD-10919	CONTACTOR AC 9A, REACT MOTOR
1H	1	MD-10919	CONTACTOR AC 9A, REACTIVATION HEATER
2H	1	MD-10913	CONTACTOR AC 16A, PROCESS HEATER
10L	1	MD-10976	OVERLOAD RELAY 5-8A , HAND RESET
20L	1	MD-10968	OVERLOAD RELAY 1.6-2.5A , HAND RESET
CR	1	MD-10966	CONTROL RELAY, 2NO, 2NC, 220V, 60Hz
MTR1	1	RBH4-205-3	PROCESS BLOWER WITH MOTOR - 2.5 HP
MTR2	1	RBH2-067-3	REACT BLOWER WITH MOTOR67 HP
MTR3	1	MD-28205	ROTOR DRIVE GEAR MOTOR, 6W
	1	MD-28206	LOWER GEAR HEAD OR ROTOR MOTOR
	1	MD-28208	UPPER GEAR HEAD OR ROTOR MOTOR
	1	MD-28827	MOTOR SPEED CONTROL FOR MTR3
	1	MD-29505	DRIVE SPROCKET FOR ROTOR MOTOR
HTR1	5	MD-10706	REACTIVATION HEATER, ELECTRIC, 1.5 KW (4.5 KW TOTAL @ 230/5/60)
HTR2	3	MD-10710	PROCESS HEATER, ELECTRIC, 1.75 KW
	4	MD-10706	PROCESS HEATER, ELECTRIC, 1.5 KW (11.25 KW TOTAL @ 230/3/60)
PIC	1	MD-28743	PID, TEMPERATURE CONTROLLER
RID1	1	MD-11013	TEMPERATURE SENSOR, P1-100, 2 MTR LONG, REACTIVATION INLET
RID2	1	MD-11014	TEMPERATURE SENSOR, PT-100, 7 MTR LONG, PROCESS OUTLET
RID3	1	MD-11013	TEMPERATURE SENSOR, PT-100, 2 MTR LONG., PROCESS INLET
W	1	MD-10778	PILOT LIGHT, 'POWER ON", WHITE
G	1	MD-28708	PILOT LIGHT, 'SYSTEM ON", GREEN
A1	1	MD-10775	
A2	1	MD-10775	
	1	MD-10777	
R2	1	MD-10777	
PFS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, PROCESS FILTER.
	1	MD 11065	
DTAS	1	MD 11000	PRESSURE SWITCH, DIFFERENTIAL FRESSURE, PROCESS ROTOR.
	1	MD 11089	
	1	MD-28426	
55 55 81	1	MD-20420 Δ/975	SOLID STATE BELAV
SSB2	1	Δ/875	SOLID STATE RELAY
SB	1	MD-29344	SENSOB BOABD
DPS	1	1205DM	DEW POINT SENSOB
DPI	1	MD-28623	
TM-1	1	MD-15450	TIMER 7-DAY GIC
TD-2	1	MD-11093	DELAY TIMER 800M
15	1	MD-21392	LIMIT SWITCH UIL XCI-126
20	1	MD-26514	DEW POINT SENSOR MANIFOL D-01028
	1	MD-26515	DIGITAL DEWPOINT SENSOR CABLE-00999
	1	MD-26516	DP SENSOR GASKET-0823
	1	MD-26517	DP SENSOR INSERT-0824
	1	MD-26518	DP SENSOR MANIFOLD GLAND-01048
	1	HS-2	HEAT SINK
ALARM	1	MD-28716	BUZZER HY-226-MA, 240 VAC (HANYOUNG MAKE)
	1	MD-28766	REACT FILTER FOR MD-150 (90mm O.D. X 120mm O.A.L., 1.25î BSP)
	1	MD-28729	PROCESS FILTER FOR MD-150 (202mm O.D. X 135mm I.D. X 150mm O.A.L.)
	1	MD-29499	DESICCANT ROTOR FOR MD-200

#### MD-200 460v

ELECTRICAL WIRING DIAGRAM MD-200 460/3/60



NOTE:- (1) IN POWER WIRING THE ALL LINE IS BLACK WIRE. (2) CONTROL WIRING IS RED WIRE.

460/3/60

CONTROL WIRING DIAGRAM MD-200



# **ELECTRICAL BILL OF MATERIALS**

## UNIT: MD-200

FULL CONNECTED LOAD:**18.36 KW**MINIMUM CIRCUIT AMPACITY:**23.04 AMPS**VOLTAGE:**460/3/60** 

ID	QTY	P/N	DESCRIPTION
1MPCB	1	MD-28735	2.4-4 - 3VU1340-1MJOO
2MPCB	1	MD-28733	1-1.6 - 3VU1340-1MGOO
1 CB	1	MD-22857	CIRCUIT BREAKER, 10AMP, TP
2 CB	1	MD-22776	CIRCUIT BREAKER, 25AMP, TP
3 CB	1	MD-22882	CIRCUIT BREAKER, 6AMP, DP
CS	1	MD-26054	CONTROL SWITCH, 2 POSITION
1M	1	MD-10919	CONTACTOR AC 9A. PROCESS BLOWER MOTOR
2M	1	MD-10919	CONTACTOR AC 9A, REACT MOTOR
1H	1	MD-10919	CONTACTOR AC 9A, REACTIVATION HEATER
2H	1	MD-10919	CONTACTOR AC 9A. PROCESS HEATER
CR	1	MD-10965	CONTROL RELAY, 2NO, 2NC, 220V, 60Hz
MTR1	1	BBH4-205-3	PROCESS BLOWER WITH MOTOR - 2.5 HP
MTR2	1	RBH2-067-3	REACT BLOWER WITH MOTOR67 HP
MTR3	1	MD-28205	ROTOR DRIVE GEAR MOTOR. 6W
	1	MD-28206	LOWER GEAR HEAD OR ROTOR MOTOR
	1	MD-28208	UPPER GEAR HEAD OR ROTOR MOTOR
	1	MD-28827	MOTOR SPEED CONTROL FOR MTR3
	1	MD-29505	DRIVE SPROCKET FOR ROTOR MOTOR
HTR1	5	MD-19174	REACTIVATION HEATER, ELECTRIC, 1.5 KW (4.5 KW TOTAL @ 460/3/60)
HTR2	5	MD-19175	PROCESS HEATER, ELECTRIC, 1,75 KW
	4	MD-19174	PROCESS HEATER, ELECTRIC, 1.5 KW (11.25 KW TOTAL @ 460/5/60)
PTC	1	MD-28743	PID. TEMPERATURE CONTROLLER
RTD-1	1	MD-11013	TEMPERATURE SENSOR, RTD PT-100, 2 MTR LONG, REACTIVATION INLET
RTD-2	1	MD-11014	TEMPERATURE SENSOR, RTD PT-100, 7 MTR LONG, PROCESS OUTLET
RTD-3	1	MD-11013	TEMPERATURE SENSOR, RTD PT-100, 2 MTR LONG, PROCESS INLET
W	1	MD-10778	PILOT LIGHT, 'POWER ON", WHITE
G	1	MD-28708	PILOT LIGHT, 'SYSTEM ON", GREEN
A1	1	MD-10775	PILOT LIGHT, 'PROCESS HTR READY", AMBER
A2	1	MD-10775	PILOT LIGHT, 'REACT HTR ON", AMBER
R1	1	MD-10777	PILOT LIGHT, 'PROCESS FILTER DIRTY", RED
R2	1	MD-10777	PILOT LIGHT, 'FAULTS'', RED
PFS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, PROCESS FILTER.
RPS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, REACTIVATION ROTOR.
PPS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, PROCESS ROTOR.
RTAS	1	MD-11089	REACT THERMOSTAT HIGH TEMPERATURE LIMIT, 500∞F, FIXED
PTAS	1	MD-11089	PROCESS THERMOSTAT HIGH TEMPERATURE LIMIT, 500∞F, FIXED
SS	1	MD-28426	SWITCH, 3 POSITION, SPRING RETURN RIGHT AND LEFT
SSR1	1	A4850	SOLID STATE RELAY
SSR2	1	A4850	SOLID STATE RELAY
SB	1	MD-29344	SENSOR BOARD
DPS	1	1205DM	DEW POINT SENSOR
DPI	1	MD-28623	DIGITAL DEWPOINT INDICATOR
TM-1	1	MD-15450	TIMER, 7-DAY, GIC
TD-2	1	MD-11093	DELAY TIMER, 800M
СТ	1	MD-28640	TRANSFORMER STEP DOWN 460V TO 220V, 150VA
LS	1	MD-21392	LIMIT SWITCH ,UL, XCJ-126
	1	MD-26514	DEW POINT SENSOR MANIFOLD-01028
	1	MD-26515	DIGITAL DEWPOINT SENSOR CABLE-00999
	1	MD-26516	DP SENSOR GASKET-0823
	1	MD-26517	DP SENSOR INSERT-0824
	1	MD-26518	DP SENSOR MANIFOLD GLAND-01048
	1	HS-2	HEAT SINK
ALARM	1	MD-28716	BUZZEH HY-226-MA, 240VAC (HANYOUNG MAKE)
	1	MD-28766	REACT FILTER FOR MD-150 (90mm O.D. X 120mm O.A.L., 1.25ï BSP)
	1	MD-28729	PROCESS FILTER FOR MD-150 (202mm O.D. X 135mm I.D. X 150mm O.A.L.)
	1	MD-29499	DESICCANT ROTOR FOR MD-200

### MD-300 230v



230/3/60



230/03/60



NOTE:- (1) IN POWER WIRING THE ALL LINE IS BLACK WIRE. (2) CONTROL WIRING IS RED WIRE.

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## MD-300 230v

# ELECTRICAL BILL OF MATERIALS

## UNIT: MD-300

FULL C MINIMU VOLTAC	ONNEC JM CIRC GE:	TED LOAD Cuit Ampa	D: 26.5 KW CITY: 73 AMPS 230/3/60
ID	QTY	P/N	DESCRIPTION
1 CB 2 CB	1	MD-10792 MD-10789	MCB,16A,TP,10kA MCB.06A,TP.10kA
3 CB	1	MD-10795	MCB,25A,TP,10kA
4 CB 5 CB	1	MD-10797 MD-10797	MCB,40A, I P,10KA MCB 40A TP 10kA
6 CB	1	MD-10781	MCB,06A,DP,10kA
1M	1	MD-26054 MD-10919	CONTROL SWITCH, 2 POSITION CONTACTOR AC 9A. PROCESS BLOWER MOTOR
2M	1	MD-10919	CONTACTOR AC 9A, REACT MOTOR
10L 20I	1	MD-10978 MD-10789	O/L RELAY, 8-12.5A, 3UA50 O/L RELAY, 2.5-4A
1H	1	MD-10919	CONTACTOR AC 9A, REACTIVATION HEATER
2H 3H	1	MD-10913 MD-10913	CONT, 16A (AC3), 32A(AC-1) 220V PROCESS HEATER CONT 16A (AC3), 32A(AC-1) 220V PROCESS HEATER
CR	1	MD-10965	CONTROL RELAY, 2NO, 2NC, 220V, 60Hz
MTR1 MTR2	1	RBH6-305-3 RBH3-101-3	PROCESS FAN WITH MOTOR - 3.5 HP REACT FAN WITH MOTOR - 1.1 HP
MTR3	1	MD-28205	ROTOR DRIVE GEAR MOTOR, 6W
	1	MD-28206 MD-28208	LOWER GEAR HEAD OR ROTOR MOTOR UPPER GEAR HEAD OR BOTOR MOTOR
	1	MD-28827	MOTOR SPEED CONTROL FOR MTR3
HTR1	1 2	MD-29505 MD-10706	DRIVE SPROCKETFOR ROTOR MOTOR REACTIVATION HEATER, ELECTRIC, 1.5 KW
	2	MD-10710	REACTIVATION HEATER, ELECTRIC, 1.75 KW -(6.5 KW TOTAL @ 250/3/60)
HIR2	4 1	MD-10710 MD-10706	PROCESS HEATER, ELECTRIC, 1.75 KW PROCESS HEATER, ELECTRIC, 1.5 KW -(8.5 KW TOTAL @ 250/3/60)
HTR3	4	MD-10710	
РТС	1	MD-10706 MD-28743	PROCESS HEATER, ELECTRIC, 1.5 KW -(8.5 KW TOTAL @ 250/3/60) PID TEMPERATURE CONTROLLER
RTD-1	1	MD-11013	TEMPERATURE SENSOR, RTD PT-100, 2 MTR LONG, REACTIVATION INLET
RTD-2 RTD-3	1	MD-11014 MD-11013	TEMPERATURE SENSOR, RTD PT-100, 7 MTR LONG, PROCESS OUTLET TEMPERATURE SENSOR, RTD PT-100, 2 MTR LONG, PROCESS INLET
W	1	MD-10778	
A1	1	MD-28708 MD-10775	PILOT LIGHT, 'PROCESS HTR READY", AMBER
A2	1	MD-10775	
R2	1	MD-10777	PILOT LIGHT, FROCESS FILTER DIRTY, RED
PFS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, PROCESS FILTER.
PPS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, PROCESS ROTOR.
RTAS	1	MD-11089	REACT THERMOSTAT HIGH TEMPERATURE LIMIT, 500∞F, FIXED
SS	1	MD-28426	SWITCH, 3 POSITION, SPRING RETURN RIGHT AND LEFT
SSR1	1	A4875	SOLID STATE RELAY
SSR3	1	A4875	SOLID STATE RELAY
SSR4	1	A4875	SOLID STATE RELAY DEW POINT PCB BOARD
DPS	1	1205DM	DEW POINT SENSOR
DPI TM-1	1	MD-28623 MD-29545	DIGITAL DEWPOINT INDICATOR
TD-2	1	MD-11093	DELAY TIMER, 800M
LS	1	MD-21592 MD-29542	LIMIT SWITCH ,UL, XCJ-126 DEW POINT SENSOR MANIFOLD-01028
	1	MD-26515	DIGITAL DEWPOINT SENSOR CABLE-00999
	1	MD-26516 MD-26517	DP SENSOR GASKET-0823 DP SENSOB INSERT-0824
	1	MD-29543	DP SENSOR MANIFOLD GLAND-01048
ALARM	1	HS-2 MD-28716	HEAT SINK BUZZER HY-226-MA.240VAC (HANYOUNG MAKE)
	1	MD-47132	REACT FILTER FOR MD-300 (90mm O.D. X 180mm O.A.L., 1.5î BSP)
	1	MD-28729 MD-47015	DESICCANT ROTOR FOR MD-300 (20211111 O.D. & 13511111 I.D. & 15011111 O.A.L.)

### MD-300 460v



460/3/60



460/3/60





# ELECTRICAL BILL OF MATERIALS

## UNIT: MD-300

FULL CONNECTED LOAD:	26.5 KW
MINIMUM CIRCUIT AMPACITY:	38 AMPS
VOLTAGE:	460/3/60

ID	QTY	P/N	DESCRIPTION
1MPCB	1	MD-28737	MPCB.5-8-3VU1540-1NK00
2MPCB	1	MD-28734	MPCB.2-3.2-3VU1340-1NH00
1 CB	1	MD-22858	MCB.16A.TP.10kA UL
2 CB	1	MD-22859	MCB,32A,TP,10kA UL
3 CB	1	MD-22882	MCB.06A.DP.10kA UL
CS	1	MD-26054	CONTROL SWITCH, 2 POSITION
1M	1	MD-10919	CONTACTOR AC 9A, PROCESS BLOWER MOTOR
2M	1	MD-10919	CONTACTOR AC 9A, REACT MOTOR
1H	1	MD-10919	CONTACTOR AC 9A, REACTIVATION HEATER
2H	1	MD-10913	CONT, 16A (AC3), 32A (AC-1) 220V PROCESS HEATER
CR	1	MD-10965	CONTROL RELAY, 2NO, 2NC, 220V, 60Hz
MTR1	1	RBH6-305-3	PROCESS FAN WITH MOTOR - 3.5 HP
MTR2	1	RBH3-101-3	REACT FAN WITH MOTOR - 1.1 HP
MTR3	1	MD-28205	ROTOR DRIVE GEAR MOTOR, 6W
	1	MD-28206	LOWER GEAR HEAD OR ROTOR MOTOR
	1	MD-28208	UPPER GEAR HEAD OR ROTOR MOTOR
	1	MD-28827	MOTOR SPEED CONTROL FOR MTR3
	1	MD-29505	
нікі	2	MD-19173	REACTIVATION HEATER, ELECTRIC, 2 KW -(6.5 KW TOTAL @ 460/3/60)
	2	MD-19175	REACTIVATION HEATER, ELECTRIC, 1.75 KW
HIR2	8	MD-19175	
рто	2	MD-19173	PROCESS HEATER, ELECTRIC, 2 KW -(17 KW TOTAL @ 400/3/00)
	1	MD-28743	PID, TEMPERATURE CONTROLLER
	1	MD 11013	
RTD-2	1	MD-11014	TEMPERATURE SENSOR, ATD PT-100, 7 MTR LONG, PROCESS OUTLET
W	1	MD-10778	DI OT LIGHT 'DOWER ON" WHITE
۰۷ G	1	MD-28708	PILOT LIGHT 'SYSTEM ON" GREEN
Δ1	1	MD-10775	PILOT LIGHT 'PROCESS HTR BEADY" AMBER
A2	1	MD-10775	PILOT LIGHT 'BEACT HTB ON" AMBER
R1	1	MD-10777	PILOT LIGHT 'PROCESS FILTER DIRTY" BED
R2	1	MD-10777	PILOT LIGHT, 'FAULTS", RED
PFS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, PROCESS FILTER.
RPS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, REACTIVATION ROTOR.
PPS	1	MD-11065	PRESSURE SWITCH, DIFFERENTIAL PRESSURE, PROCESS ROTOR.
RTAS	1	MD-11089	REACT THERMOSTAT HIGH TEMPERATURE LIMIT, 500∞F, FIXED
PTAS	1	MD-11089	PROCESS THERMOSTAT HIGH TEMPERATURE LIMIT, 500∞F, FIXED
SS	1	MD-28426	SWITCH, 3 POSITION, SPRING RETURN RIGHT AND LEFT
SSR1	1	A4875	SOLID STATE RELAY
SSR2	1	A4875	SOLID STATE RELAY
SB	1	MD-29344	DEW POINT PCB BOARD
DPS	1	1205DM	DEW POINT SENSOR
DPI	1	MD-28623	
IM-1	1	MD-29345	TIMER, 7-DAY, GIG
ID-2	1	MD-11093	DELAY TIMER, 800M
	1	MD-28640	TRANSFORMER STEP DOWN 460V TO 220V, 150VA
LS	1	MD-21392	LIMIT SWITCH, UL, AUT-120 DEW/ DOINT SENSOD MANIFOLD 01000
	1	MD-29342	DIGITAL DEW/DOINT SENSOD CARLE 00000
	1	MD-20515 MD-26516	
	1	MD-26517	DP SENSOR INSERT-0824
	1	MD-20343	DP SENSOR MANIFOLD GLAND-01048
	1	HS-2	HEAT SINK
ALARM	1	MD-28716	BUZZER HY-226-MA. 240VAC (HANYOUNG MAKE)
	1	MD-47132	REACT FILTER FOR MD-300 (90mm O.D. X 180mm O.A.L., 1.5î BSP)
	1	MD-28729	PROCESS FILTER FOR MD-300 (202mm O.D. X 135mm I.D. X 150mm O.A.L.)
	1	MD-47015	DESICCANT ROTOR FOR MD-300



NOTE:- (1) IN POWER WIRING THE ALL LINE IS BLACK WIRE.

#### (2) CONTROL WIRING IS RED WIRE.



# MD-400 460v ELECTRICAL WIRING DIAGRAM MD-400

FULL LOAD :-40.4KW MAX.CURRENT :-59.3AMP 14-20A 1 MPCB 3VU1340-1MN00 460/3/60Hz FROM TERMINAL BLOCK 16.0 SQ. MM. COPPER 1M-25A(AC-3) 4 L1 ---0 41 L2 -L3 -0-13-Ε ∽⊋ 2.5 SQ. MM. COPPER 2-3.2 A 2 MPCB 3VU1340-1NH00 2M-9A(AC-3) - H 4 1 13 1.5 SQ. MM. COPPER OFF ON 1H-25A(AC-3)  $\overline{}$ 25A TP 1 CB 40A(AC-1) 2.5 SQ. MM. COPPER OFF ON 2H-25A(AC-3) 40A(AC-1) 2 CB 25A TP



460/3/60

PROCESS BLOWER EHS-729, 6.3 KW RATED MAX. AMP-15.3

REACT BLOWER EHS-429-1.1 KW RATED MAX, AMP-2.6

1

1

2

2

2

MTR

MTR2



# SPECIFICATIONS TABLES

Resin Type	Drying	Drying Time	MD-30	MD-60	MD-100	MD-150	MD-200	MD-300	MD-400
	Temp. (∞F)	Time (Hrs)	(Lbs/Hr)						
ABS	180 - 200	2 - 3	30	60	100	150	200	300	400
Acrylic	170 - 190	2 - 3	30	60	100	150	200	300	400
Barex	160	6	30	60	100	150	200	300	400
Noryl	175	2 - 3	23	46	80	120	160	240	320
Nylon 6/6	160 - 190	2 - 3	24	48	90	135	180	270	360
Polycarbonate	250	1.5 - 2	24	48	90	135	180	270	360
PET	325 - 375	3 - 4	20	40	75	115	150	215	285
Polysulfone	250 - 275	4 - 5	23	46	80	120	160	240	320
Polyurethane	180 - 200	3 - 4	30	60	110	160	220	330	435
SAN	180	2 - 3	30	60	110	160	220	330	435

### **DRYING RATES\***

\* Times and temperatures are general guidelines. Information on specific resins should be obtained from resin suppliers. Maximum drying temperature is 400%F.

MAX-DRY	SIZES	AND	SPECI	FICAT	IONS
					10110

	LBS. PER	PROCESS	OUTLET			DIMENSIONS		
MODEL NO.	HOUR	CFM	SIZE	VOLTAGE	AMPS	LENGTH	WIDTH	HEIGHT
MD-30220	20 - 30	20	2"	220/60/1	15	29"	24"	56"
MD-60220	40 - 60	35	2"	220/60/1	26	29"	24"	56"
MD-100230	75 - 110	60	3"	230/60/3	26	40"	30"	58"
MD-100460		60		460/60/3	16	40		
MD-150230	115 - 160	90	4"	230/60/3	40	43"	33"	61"
MD-150460				460/60/3	23			
MD-200230		100	4"	230/60/3	52	43"	33"	61"
MD-200460	150 - 225	120		460/60/3	30			
MD-300230		180	4"	230/60/3	77	40	33"	61"
MD-300460	215 - 330			460/60/3	41	43"		
MD-400230	005 405	0.10		230/60/3	114	50	441	701
MD-400460	285 - 435	240	<u>6</u> "	460/60/3	59	50"	41"	73"



### Instruction Manual





20 memories time switches



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Deleting programs	
Summer/winter time	
Automatic operation / fixed ON / fixed OFF	



#### Safety precautions

- The connection and installation of electrical devices may only be carried out by a qualified electrician.
- · Interventions in and changes to the device result in the voiding of the warranty claim.
- Observe your national regulations and the respective safety provisions.
- Switch-off commands have priority over switch-on commands.



#### Assembly

MIL 72 D120



MIL 72E D120



#### MIL 72A D120



MIL 72 D220



#### Connection

MIL 72 D120 MIL 72A D120 MIL 72E D120 FMD 120

GB







Accessory

MIL 72 D120



Terminal cover 01.78.0004.6

MIL 72E D120



Flush mounting base 01.79.0002.2



Sealing glass - IP40 01.78.0021.6





Multi-terminal busbar, latch 01.78.0036.6



- : Overview of daily switching program
- 2чьям : Setting of 24h or am/pm
- +1h : Summer/winter clock changes
- Weekday display
- Switching status display ON/OFF
- Manual operation / fixed ON / fixed OFF
- O : Automatic operation



- +/- : Adjustment keys: By pressing the key longer than 2 sec. you can adjust the timer in steps of 5 units
- Res. : Reset
- Menu : By pressing the menu key programming is terminated and the system reverts to automatic operation
- OK : Confirmation of programming





Setting of this programmable timer is depending of the user preference to use pre-set programs or defining own programming.

#### Using Pre-set programs (first time installation)



Using **Reset** key you can adjust the following values:

24h or am/pm:	see pg 22
Time (hour and minutes):	see pg 23
Week day:	see pg 23
Pre-set programs P01 to P03:	see pg 24

#### User defined programming by Menu mode



Using **Menu** key you can adjust / review the following values:

24h or am/pm:	see pg 22
Time (hour and minutes):	see pg 23
Week day:	see pg 23
Programs P:	see pg 24

 $\Theta$ 

Sequence to follow after selecting programming by pre-set programs or Menu mode.



#### Set display format 24h or am/pm



Select 24h or am/pm (+/-) and confirm with  $\mathbf{OK}.$




Set hour



Select hour (+/-) and confirm with OK.





Set minutes



Select minutes (+/-) and confirm with OK.





Select week day (+/-) and confirm with OK.

- 1 = Monday 2 = Tuesday
- 3 = Wednesday
- 5 = Friday 6 = Saturday 7 = Sunday
- 4 = Thursday

# Prog.

P01: Mo - Su, 1 x ON/OFF



### P01: Mo - Su, 2 x ON/OFF





-		014			_
0	7	12	14 18	20 22	24

## Programs P01-03

The switching on and off times for programs P01 to P03 are preset (pre). The user can change these programs.

## Individual program, P--

Under the menu option P-- you have the option of creating a user-defined program. This program can be changed at any time. There are up to 20 me-mory locations available for 10 OFF and 10 ON commands. You can allocate a corresponding weekday or week block to each memory location.

## Note:

For two channels version pre-set program is established in the two channels.



Sequence to follow after setting time in the Reset mode.





Select pre-set program (+/-).





GB



Once selected the program desired there are following options:

Menu: terminate programming

OK. Going through pre-set programs to modify selection (any program ON or OFF can be modified by using "+" or "+" keys and confirming with OK) or accept it with OK key to go the next free memory location in order to add new user defined programs (see pg 30).

e.g. after selecting PO2 you should also program:

Sa-Su 22:30 ON (prog05) 23:00 OFF (prog06)



Sequence to follow after setting time and week day while running Menu mode or adding programs to the pre-set PO1 to PO3.



#### 

#### 

Select program ON



and confirm with OK.



Select hour (+/-) and confirm with OK.

## Set minutes ON



Select minutes (+/-) and confirm with OK.





Set week day ON



Select week day (+/-) and confirm with OK.

## Possible week blocks and individual days

	ŧ	ŧ	+	+	•
1	•	•	•		•
2	•	•	•		
3	•	•	•		
4	•	•	•		
5	•	•	•		-
6	•	•		•	
7					



Set Channel (only for 2 Channel version)



Select Ch1 or Ch2 (+/-) and confirm with OK.





Set hour OFF



Select hour (+/-) and confirm with OK.





Select minutes (+/-) and confirm with OK.



Set week day OFF

Set minutes OFF



Should the OFF command be the same day of ON command then select **Menu** to terminate programming or select **OK** to go to a new program ON setting.



## Shift

Should the OFF command be the following day of ON command then select "+" key then select  ${\rm Menu}$  or  ${\rm OK}.$ 





Select **Menu**, then select **OK** key until getting onto the ON time of the program you want to delete.



del



Select "--" with (+/-) key and confirm with OK.







Switching programmes are deleted in ON-OFF pairs. If you delete a single ON instruction, the corresponding OFF instruction is also deleted.

## +1h





The +1h key is for the changeover from summer to winter time.

- By pressing the +1h key 1 hour is added to the current time.
- +1h is shown on the display.
- By pressing +1h again 1 hour is subtracted from the current time.







The "+" key serves to change over between automatic ☉, fixed ON ≪ and fixed OFF operations (Ch1).

The "-" key serves to change over between automatic ☉, fixed ON ≪ and fixed OFF operations (Ch2).