ROHNER POWDER BOOTH & BLAST BOOTH |OWNERS MANUAL

ROHNER FINISHING SYSTEMS

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INTRODUCTION

EQUIPMENT DESCRIPTION - KNOW YOUR EQUIPMENT'S INTENDED USE AND FUNCTION:

Rohner Equipment is designed to provide years of safe trouble-free service when installed, maintained, and used properly.

PURPOSE AND INTENDED USE:

Equipment Series: CM2000 – CM14000 | RM6000 – RM24000 | IBE6000 – IBE14000

This Collector Module is designed to be used for the blast room ventilation, the collection of powder overspray, and/or sanding dust. CFM requirements vary by application. Please refer to OSHA, NFPA & the local building codes to verify the correct requirements for your specific application. At ALL TIMES the booth/enclosure's atmosphere must maintain less than 25% of the lower explosive limit (L.E.L). Collectors incorporate an open cartridge style collection system to reduce the risk of explosion. Rohner equipment adheres to industry standard design parameters to construct the collector modules. It is the customer's responsibility to determine the suitability of the Rohner equipment for the customer's intended processes. Air-flow design should consider orientating the collector module to reduce operator exposure to particulate.

NOTE: the sanding and blast application require upgraded cartridge filters and may also require a hinged louvered inlet filter guard

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BASIC OPERATION

All collector modules are to be in operation while the enclosure is in use. Collector module(s) are controlled from the Rohner control panel(s) located on or near one of the modules.

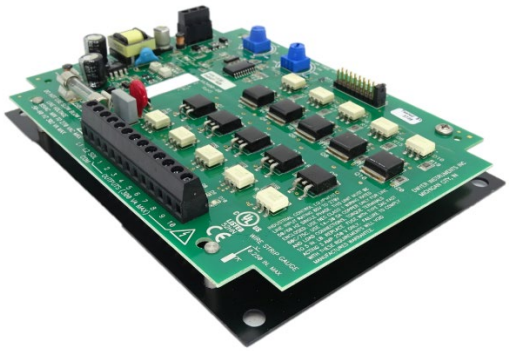
CONTROLS:

Refer to control panel schematics.

GENERAL:

1. Switching the Blower Switch to the “ON” position energizes the respective Collector Module (CM) blower motor VFD.
2. Once the Blower Switch is turned on and the VFD(s) have no active faults such as over current protection, the terminal provided for a spray/application air solenoid will also be energized.
3. Setting the Blower Switch to “OFF” de-energizes:
    a. The respective CMs’ blower motor,
    b. The spray/application air solenoid terminals.
    c. The Dust Collection Timer controller
4. Switching the Booth Lights “ON” or “OFF” will energize or de-energize the booth lights.

DUST COLLECTION TIMER CONTROLLER (DCT):



Switching the 3-way Backpulse selector switch to:

- **“OFF”** - Disconnects power from the DCT and the back-pulse solenoids at the Collector Module (CM).
- **“AUTO”** - Enables the Demand Mode Cleaning.

- The back-pulse solenoids at the Collector Module will automatically enter a timed cleaning cycle when the sensed differential pressure at the module is over the differential proving switch (DPS) high limit set point.

- If at the end of that cleaning time period the sensed differential pressure is still greater than the (DPS) high limit set point, the controller will default to an ALARM Mode.
- While in the AUTO mode:
  - The amber colored Clogged Filter Alarm Reset Momentary Push Button can be depressed to reset the alarm mode.
  - If continual resetting of the alarm mode is required, the CM filters would then need to be replaced.
- See (TABLE 1) for factory set Low and High alarm set points and factory timer durations.
- See also DCT O&M Manual for further information.

- **"MANUAL"**
  - Will energize terminal (High Limit) at the DCT
  - The back-pulse solenoids at each collector module will be forced into an untimed cleaning cycle, regardless of sensed differential pressure.
- **"ALARM Mode"**
  - The controls system has an ALARM Mode that will:
    - Illuminate the "Clogged Filter Alarm Reset" Push Button and
    - Shut down all Collector Module (CM) blower motor VFD's When the sensed differential pressure at the module is over the Differential Proving Switch (DPS) high limit set point for the duration of the TD1 timer (usually 60 minutes).
    - Pressing the "Clogged Filter Alarm Reset" Push Button resets the latched fault. This allows for another 60 minutes of use if the filters are still clogged above the DPS set point before it will alarm and shut down again. This is an indication that it is time to change filters.

Table 1: Timer Durations and Setpoints

PROCESS DESCRIPTION	FACTORY/STARTUP SETPOINTS	RECOMMENDED OPERATING RANGE
Time off – Interval between each solenoid pulse. (i.e. difference in 10 to 5 sec. equals 100% increase in cleaning, but larger consumption of compressed air and increased wear on filters and solenoids)		10 Seconds
Time On-duration each back pulse solenoid is open.		250 Milliseconds
High Alarm-Set point that indicates the modules are no longer safe to operate and will not achieve rated air flow.		4 Inches W.C. (5 Inches W.C. for High Static applications or Reclaim Modules)
Auto or Demand Mode Cycle Length-User defined duration period for demand mode clean.		60 Minutes
Auto Alarm Reset- Duration period for alarm reset.		60 Minutes

- Operators should locate themselves away from the collector module face and avoid the main air stream containing particulate to avoid overexposure.
- Product should be located at or near collector module face as to reduce particulate air travel and improve the efficiency of the collector modules.

PARTICULATE EXPOSURE:

Please refer to manufacturer's MSDS for the materials being applied or processed and use the appropriate PPE (personal protective equipment).

BACKPULSING

OVERVIEW:

WHAT IS BACK-PULSING

Back-pulsing is used to clean the cartridge filters in a Collector Module (CM). A blast of air is used to clear powder from the filters and to drop into a collection tray below.

A single series of back-pulsing may not clear the entire filter, it will take multiple cycles to clear the powder. Back-pulsing is most effective on properly seasoned filters.

Each cycle, the powder will be pushed out of the filter, drop down, then either be sucked back into the filter or drop into the collection tray below.

WHEN TO BACK-PULSE

As the cartridge filters load with powder, airflow will drop and the Magnehelic gauge on the front of the control panel will increase. To fight the low airflow, a potentiometer can be adjusted on the front of the Rohner CM Control panel to increase fan speed.

If the above occurs, it is a good sign that the filters are loading with powder and should be cleaned (back-pulsing).

It is important to note that increasing the fan speed will also increase pressure drop across the filter. While this causes more back-pulsing, it is crucial to maintain designed airflow through the powder booth to remain compliant to local and national codes including, but not limited to, NFPA.

BACKPULSE MODES:

There are three (3) modes of back-pulsing: OFF, MANUAL, and AUTO. A 3-position switch on the front of the Rohner CM Control Panel is used to select a mode.

OFF MODE

In the OFF mode, no back-pulsing will occur.

MANUAL MODE

In Manual mode, back-pulsing will occur as long as the fan is running. Each filter bank will pulse, wait approximately 10 seconds, then pulse the next filter bank.

If the fan is shut off or faults, back-pulsing will be disabled.

AUTO MODE

In AUTO mode, the fan has to be running and the pressure drop across the filters (measured on the Magnehelic on the front of the Rohner Control Panel) must go above the threshold limit. On standard CMs, that is 4 in. W.C. and on high-static applications, 5 in. W.C.

When this happens, the filters will automatically start back-pulsing until the pressure drop across the filters reduces below the above pressure setpoint.

WHEN TO USE EACH MODE

AUTO is a great mode to leave in for high production environments. It allows the filters to clear on their own without an operator having to intervene. When running optimally, back-pulsing should not affect production.

At stopping points, including breaks and End-Of-Day, it is a good idea to switch to MANUAL to clear out the filters and prepare for the next shift. In general, it does not hurt to back-pulse too often.

SEASONING FILTERS:

Before using filters normally, a seasoning process is required for longevity of cartridge filters. When using new filters, keep the velocity low to avoid sucking powder too deep within the filters. If powder gets pulled too deep into the filter initially, the filter will not be able to back-pulse as efficiently and will reduce filter life. As they begin to load, back-pulse and slowly ramp up speed as they load and back-pulse. For more information, please contact Rohner's Service department.

TROUBLESHOOTING BACKPULSE:

Below are a few common problems many customers face and common solutions.

POWDER ESCAPING DURING BACK-PULSING

If excessive powder is escaping or exceeding 12 inches away from the filter, it is recommended to increase airflow.

PROCESS POWDER BOOTH – RECLAIM MODULE OPTION

For Process Powder Booths the Standard Collector Module control panel is upgraded to a Reclaim Module control panel.

1. The control panel has the addition of the Transfer Pump switch on the face of the control panel.
    a. "OFF" – When switched to the "OFF" position the transfer pump is disabled.
    b. "ON" – When switched to the "ON" position the terminals for the field wired reclaim pump solenoid are energized. This will constantly leave the solenoid enabled until the switch is flipped to the off position.
    c. "AUTO" – When switched to the "AUTO" position an additional trigger transfer pump dry contact is needed that will be field wired in the control panel. When the dry contact is closed, a 2-minute timer is energized to enable the reclaim solenoid pump. The solenoid is de-energized after 2-minutes, or when the transfer pump trigger is disengaged therefore opening the dry contact.

2-SPEED UPGRADE FOR PROCESS APPLICATION WITH CONVEYOR SYSTEM INTEGRATION

The 2-speed upgrade presents a valuable enhancement for process applications that incorporate a conveyor system. This upgrade facilitates the seamless integration of the conveyor system into the Reclaim Module control panel, resulting in optimized performance and efficiency.

FUNCTIONALITY

The key feature of this upgrade lies in its ability to regulate the blower motor speed in correlation with the conveyor's operational status. When the conveyor is not running, the system automatically slows down the blower motor, conserving energy and reducing unnecessary wear and tear.

INTEGRATION PROCESS

To enable this advanced functionality, the conveyor system must be integrated with the Reclaim Module control panel. This integration necessitates the provision of an additional relay and dry contact, ensuring a synchronized operation.

CUSTOMER RESPONSIBILITY

As part of the integration process, it is the customer's responsibility to supply the required additional relay and dry contact. This proactive involvement ensures a seamless setup tailored to the specific requirements of the application.

BENEFITS

The 2-speed upgrade offers several advantages, including:

- Energy Savings: Reduced blower motor speed during conveyor inactivity leads to energy conservation.
- Enhanced Efficiency: Automatic regulation enhances overall system efficiency and prolongs equipment lifespan.

BLAST BOOTH UPGRADE

A 10HP motor starter with overload protection is included to control the added reclaim motor. An hour meter is mounted on the front of the panel to display total system run time. A 3-position selector switch allows the operator to:

2. Run only the reclaim system,
3. Run both the reclaim and dust collector modules simultaneously, or
4. Turn the equipment to the “OFF” mode

This setup provides flexibility for operating blast reclaim equipment independently or in conjunction with media recovery.

INSTALLATION

CAUTION!

OSHA may require additional safety equipment for operators and the process of recycled air (if applicable). Equipment does not include any fire suppression systems or explosion relief systems. Prior to installation consult your local codes to verify compliance.

GENERAL INSTALLATION PARAMETERS TO CONSIDER:

- Location (concrete slab, interior building, etc.).
- Codes (local, state, fire, building, and electrical, seismic, anchorage)
- Utilities (electric, air, gas, fire, actual requirements located on signed approval drawings)
- Rigging (unload of pallets, mechanical rigging, etc.)
- Assembly (for specific details refer to the construction drawings)

Note: Improper installation, misuse, or modification of this equipment may result in personal injury!

STARTUP CHECK LIST

UTILITIES VERIFICATION:

Proper electrical, gas, and compressed air service should be verified by startup personnel prior to turning equipment on for the first time. Refer to electrical drawings, equipment submittals, and equipment name plates to verify the input voltage, phase, and amp draw and consult with the installing electrician to verify proper supply. Natural gas or propane requirements should also be verified for correct CFH (cubic feet per hour) and supply pressure. Equipment submittals and equipment name plates show acceptable supply pressure range. Compressed air supply should be regulated to meet the CFM (cubic feet per minute) and pressure range requirements. Requirements for equipment not provided by Rohner may not be listed on the submittal drawings. Please refer to equipment provider and verify requirements.

CAUTION!

Incorrect voltage, pressure, or capacity may damage the equipment and may result in equipment malfunction causing severe personal injury. Natural gas and propane are not equivalent substitutes and may cause equipment to malfunction with risk of explosion.

- Prior to energizing equipment verify all field installed utilities, pipe, conduit, and support structures do not interfere with moving parts.

Please refer to the Startup & Commissioning checklist for additional startup information.

RECOMMENDED MAINTENANCE

The following is a minimum recommended maintenance guide. Depending upon use and Customer specific processes additional maintenance may be required at increased intervals to keep equipment running at peak performance.

Maintenance and regular equipment inspections are critical to proper equipment operation. Any damaged, worn or defective components must be replaced immediately to ensure proper equipment function. Dangerous conditions may result from improperly maintained equipment and may result in personal injury, risk of fire, or explosion. Only replace equipment components with factory original equipment.

FILTERS:

- To ensure proper function of the paint spray booth filters require periodic replacement depending on equipment usage. Collector Module filters average 4”-5” w.c. Back-pulsing the filters to clean them results in a static pressure drop to 3”-3.5”. If the static pressure does not drop it is time to replace the cartridge filters. Final filters should be changed once a year.

Table 2: MAINTENANCE SCHEDULE

MAINTENANCE	DAILY	Weekly	Monthly	Annually
Visually monitor static pressure via panel mounted gauge is within normal operation range	1			
Inspect final filters frame knobs and cartridge filter speed ball handles for proper tightness			1	
Remove final filter and check inside face for contamination (contamination is an indication of a tear or leaking gasket on the cartridge filters).			6	

MAINTENANCE	DAILY	Weekly	Monthly	Annually
Check regulator pressure supplying back pulse manifold (working range 60 – 90 psi), check pop off valve by manually pulling and resetting.			3	
From face of module verify each cartridge stack back pulses to ensure all solenoids are functioning (a loud pop will be heard and dust should have been shaken from each cartridge during back pulse).		1		
Lubricate blower motor bearings if applicable (refer to motor manual)			2	
Inspect blower wheel, cone, and drive assembly			6	

PLEASE REFER TO THE SPARE PARTS LIST PROVIDED BY THE PROJECT MANAGER FOR RECOMMENDED SPARE PARTS AND MAINTENANCE ITEMS. PLEASE CONTACT PARTS@ROHNER-USA.COM TO GET ALL SCHEMATICS, SPARE PARTS LISTS, ETC.

LIMITED WARRANTY

Rohner Finishing Systems, LLC ("Seller"), warrants to the original end user that the new components (the "Products") manufactured by Seller for each piece of equipment manufactured by Seller and purchased by Buyer from Seller or Seller's authorized distributors and when installed, operated, and maintained in accordance with Seller's installation, operation and service manual, shall be free of defects in materials and workmanship for the lesser of (a) one (1) year following the shipment of the equipment from Seller or (b) 2500 hours of operation (the "Warranty Period"). This limited warranty cannot be transferred.

During the Warranty Period, if a Product is determined by Seller to be defective, Seller will, at Buyer's sole option, either (1) repair or replace a defective Product (which decision will be at Seller's sole option) or (2) provide Buyer with a credit equal to 70% of the purchase price of new replacement Product (less shipping and handling) purchased by Buyer from Seller to replace a defective Product.

Seller will determine if a Product is defective and will issue a written acceptance or denial of each claim. Products must be returned to Seller for Seller to process any claim made under this limited warranty. Pre-authorization must be obtained before sending any Product to Seller. Products returned to Seller without prior authorization may be refused by Seller. Seller will provide such authorization, if granted, to Buyer in writing. To obtain pre-authorization, Buyer must contact Seller at info@rohner-usa.com or Warranty Request, PO Box 822049, Vancouver, WA 98682.

Seller may replace a defective Product with a new or reconditioned component. All replacement Products will be warranted for a period of 90 days or the remainder of the Warranty Period, whichever is greater.

Seller is not responsible for labor charges, installation, or other incidental or consequential costs. This limited warranty does not cover the cost of labor to service or repair a defective Product. Buyer is responsible for all labor, shipping and handling costs associated with the return of any defective Product. Buyer must prepay all return shipping and handling costs.

Immediately upon Buyer's discovery of a potential warranty claim against Seller, Buyer shall notify Seller in writing and discontinue use of the suspect Product. Buyer may not attempt to repair the suspect Product without the prior written consent of Seller.

This limited warranty does not apply to: (1) damage resulting from normal wear and tear; (2) damage caused by accident, abuse, or misuse; (3) acts of God; (4) unauthorized modification or alteration; (5) improper installation, maintenance, repair, or operation; (6) failure to follow Seller's installation instructions, operator guides, or service manuals; (7) use with equipment other than as specified in Seller's manual or use of components or parts not approved by Seller; or (8) continued operation of equipment after discovery of a defective Product.

Seller offers no warranty for components manufactured or supplied by third parties and used as a component of equipment manufactured by Seller except to the extent that Seller is entitled to pass through a warranty of the original equipment manufacturer of those goods, Seller will pass through such warranties to Buyer.

No person is authorized to make any other warranties or to assume any other liability on Seller's behalf.

THIS LIMITED WARRANTY AND THE REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, REMEDIES, AND CONDITIONS, WHETHER WRITTEN OR ORAL, EXPRESS OR IMPLIED. SELLER EXPRESSLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. ANY IMPLIED WARRANTY NONETHELESS IMPOSED BY STATE CONSUMER LAW IS LIMITED TO ONE YEAR FROM THE ORIGINAL DATE OF PURCHASE. Seller will not be responsible for loss, damage or injury to persons or property, or for consequential damages, resulting from the possession or use of the Products or equipment. (V18.4)