



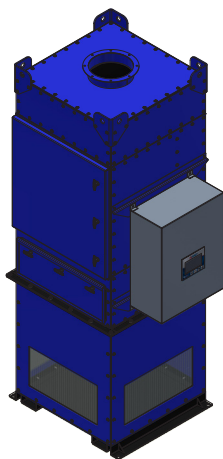
Spire Series

Cartridge Collectors

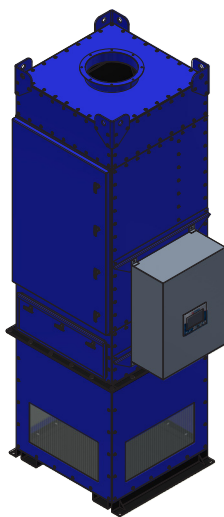
Owner's Manual

Installation, Operation
& Maintenance

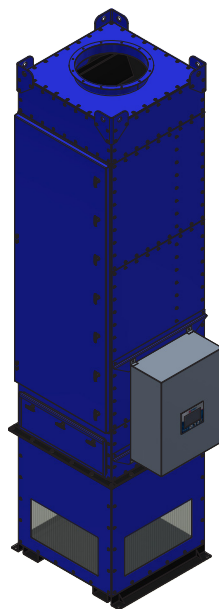
Revised March 2024



MLS-02-04



MLS-02-06



MLS-02-10

Spire Series

(MLS-) Cartridge Collectors

Owner's Manual

Installation, Operation & Maintenance

Models:

MLS-02-04

MLS-02-06

MLS-02-10

Manufactured by:

RoboVent

37900 Mound Road

Sterling Heights, MI 48310 USA

(888) 762-6836

www.robovent.com

Congratulations!

Dear Customer,

Thank you for purchasing a Spire Series Collector. This manual will help you install, start-up, commission, maintain, and troubleshoot your new dust collector. Please take time to read this manual thoroughly before installing and/or operating your unit.

When your Spire dust collector is due for scheduled maintenance, keep in mind that RoboVent has specially trained staff to perform these tasks. If you would like one of our qualified service staff to discuss a customized service plan for your factory, don't hesitate to reach out. Our team can also discuss the wide array of replacement filter cartridges we have in stock for purchase to maximize your dust collectors efficiency and performance. For any technical issues you may experience, RoboVent has a dedicated technical support team that is only a call away 24-7.

At RoboVent, we are committed to making your facility a safe and healthy environment for your workers. We look forward to continuing to work with you!

The RoboVent Team



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SECTION 100

Important Safety Instructions

Ensure you are reviewing the instruction for the correct size unit.

Important Safety Instructions



Failure to follow all instructions may result in electric shock, bodily injury and/or destruction of the unit.



Use of controls, adjustments, or performance of procedures other than those specified herein, may result in electrical shock.

IMPORTANT SAFETY INSTRUCTIONS

1. Read all instructions thoroughly.
2. Heed all warnings.
3. Do not block intake or exhaust vents. Keep the exhaust vent free from debris and materials that could restrict airflow. Prolonged restriction could damage the motor and electrical components. Any blockage of the air flow will decrease efficiency of this unit.
4. Refer all service matters to qualified service personnel. Servicing is required when the unit is damaged in any way including the control panel, supply wiring or in the case of excessive filter loading.



5. **Disconnect power before working on the motor or blower wheel. The motor or blower wheel should be disassembled only by a factory authorized technician.**



6. **Risk of serious personal injury or death!**
Use extreme care to make sure you are never in a position where your body (or any item you are in contact with, such as a screwdriver or test instrument) can accidentally touch the blower wheel.



7. If welding stainless steel, special safety measures need to be followed when maintaining collector. Consult your Safety Director for further information on **OSHA's Hexavalent Chromium Standards.**

SECTION 200

Glossary of Terms

Glossary of Terms

Autogates/Blast Gates: Blast gates are gate valves used to focus a dust collection system's vacuum pressure for maximum dust (or other material) extraction at the desired location. Blast gates are positioned near individual pieces of machinery and operate by being, by default, closed — blocking air flow. They are opened as needed to achieve the desired air velocities at the specific inlet point.

Containment: This term is used to describe the portion of the dust collector that is collecting particulate for removal and/or disposal. This is typically either a hopper, or a tray.

Control Panel (RV-3.0): A RoboVent Control System that controls the Blower and Pulsing functions through an easy to understand Interface. Control the pulse timing and trigger points; Set Filter service alarms; setup Automatic Run schedules. Operate and control the blower speed manually or automatically through the control screen. Monitor Filter pressure and see operation events.

Damper: A damper is a valve or plate that stops or regulates the flow of air inside a duct, chimney, VAV box, air handler, or other air-handling equipment. A damper may be used to cut off central air conditioning (heating or cooling) to an unused room, or to regulate it for room-by-room temperature and climate control.

Delta3: RoboVent's proprietary Spark Arrestor that utilizes cylindrical force and air patterns to extinguish sparks and prevent them from entering a dust collection system.

Differential Pressure: The difference in pressure between the dirty air side of the enclosed plenum and the clean air side of the enclosed plenum. This difference quantifies the amount of loading across the cartridge filters installed in the machine and allows you to monitor and understand when a filter change is necessary. Typically measured in either KPA (Kilopascal) or Inches of Water Column (Notated by SP or WC).

Fire Suppression System: A system that is installed onto an industrial machine, e.g. a dust collector, to control a fire from spreading. These systems allow necessary personnel to get to the scene of the event and react appropriately, while using gas or chemical agents in the space the event occurred to limit its immediate damage.

Hexavalent Chromium: Hexavalent chromium [Cr(VI)] is one of the valence states (+6) of the element chromium. It is usually produced by an industrial process. Cr(VI) is known to cause cancer. In addition, it targets the respiratory system, kidneys, liver, skin and eyes. Chromium metal is added to alloy steel to increase hardenability and corrosion resistance. A major source of worker exposure to Cr(VI) occurs during "hot

work" such as welding on stainless steel and other alloy steels containing chromium metal. Cr(VI) compounds may be used as pigments in dyes, paints, inks, and plastics. It also may be used as an anticorrosive agent added to paints, primers, and other surface coatings. The Cr(VI) compound chromic acid is used to electroplate chromium onto metal parts to provide a decorative or protective coating.

HMI: A human-machine interface (HMI) is the user interface that connects an operator to the controller for an industrial system. In the dust collection industry, these interfaces are utilized to connect the operator with the PLC that is controlling the operation of the equipment.

Hopper: A container for a bulk material such as grain, rock, or trash, typically one that tapers downward and is able to discharge its contents at the bottom. In the dust collection industry, a hopper is used to contain and funnel collected particulate into a tray or barrel so it can be cleaned out and/or removed from the dust collector.

OSHA: The Occupational Safety and Health Administration, an agency of the US government under the Department of Labor with the responsibility of ensuring safety at work and a healthful work environment. OSHA's mission is to prevent work-related injuries, illnesses and deaths.

Plenum: an enclosed chamber where a treated substance collects for distribution, as heated or conditioned air through a ventilation system.

Pulse Cleaning System: In RoboVent's Spire Dust Collectors, dust and fume enters from the side or back of the unit and flows from outside to inside the cartridge filters. The cartridge filters are cleaned by short bursts of compressed air injected through a common manifold that supports individual solenoid valves. The compressed air is accelerated by a special nozzle mounted above the filter cartridge. Since the duration of the compressed-air burst is very short, it acts as a rapidly moving air bubble, traveling through the entire length of the cartridge and causing the surfaces to flex. This flexing of the cartridges breaks the dust cake, and the dislodged dust falls into a storage tray or hopper below. Reverse pulse-jet dust collectors can be operated continuously and cleaned without interruption of flow because the burst of compressed air is very small compared with the total volume of dusty air through the collector. The bursts of air are timed, and controlled by the pressure differential of the filters, as well as by pre-programmed threshold settings within the collectors onboard control system.

Glossary of Terms

SafeSensor: A particulate monitoring device that is commonly referred to as a smoke detector. This device alerts your dust collector in the event of a thermal event or bypass. The device is triggered by smoke passing by the photoelectric sensing eye.

VFD: A variable frequency drive setup with pressure transmitters to control the speed of the motor on the dust collector. This device regulates the motor speed and increases its speed to compensate for losses occurring within the dust collector, primarily filter loading. This allows the dust collector to maintain a consistent airflow throughout the life of the cartridge filters while also saving energy by eliminating the need to run a collector at full speed with little to no filter resistance.

SECTION 300

Features of the Spire Series Collector

Features of the Spire Series Collector



MLS-02-04

Dimensions: 46.5" D X 52" W X 110.5" H

CFM: 2,200

Duct Size: 12"

Filter Cartridges: (4) PL-12D26-A15-OC-DBG

Ideal for single robot or small 10' X 10' weld cell



MLS-02-06

Dimensions: 46.5" D X 52" W X 127.5" H

CFM: 3,300

Duct Size: 14"

Filter Cartridges: (6) PL-12D26-A15-OC-DBG

Ideal for 15' X 15' robotic cell



MLS-02-10

Dimensions: 46.5" D X 52" W X 163.5" H

CFM: 5,500

Dust Size: 20"

Filter Cartridges: (10) PL-12D26-A15-OC-DBG

Ideal for two robotic weld cells up to 15' X 15'

Features of the Spire Series Collector

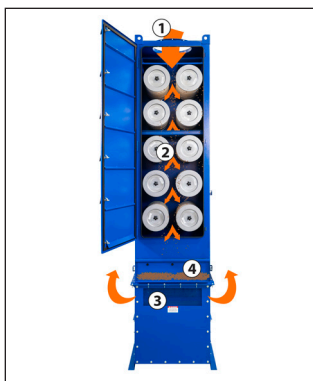


FIGURE 1

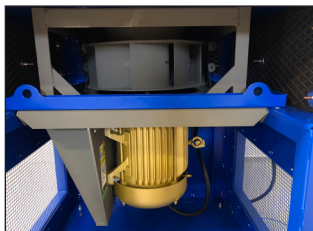


FIGURE 2

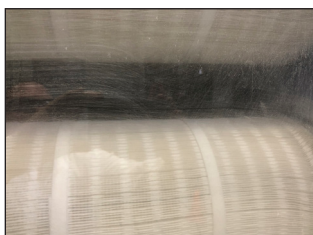


FIGURE 3



FIGURE 4

1. Downflow Filtration System

The RoboVent Spire Series cartridge collectors utilize a vertical airflow into horizontal cartridge filters as shown in Figure 1, maximizing airflow near the top of the cartridge plenum. This design helps overcome re-entrainment of the dust back onto the filter cartridge after it has been removed by the Pulse Filter Cleaning System. Air is brought in through the intake (1) and evenly distributed throughout the cartridge plenum (2). After passing through the PleatLock Cartridge Filters, clean air is then returned to the plant through the exhaust vent (3). Formed dust cakes are pulsed off the high efficiency media and captured into the particulate containment below (4).

2. High Performance Blower Design

Each RoboVent Spire Series Collector comes with a high output airfoil blower and direct drive motor. This highly efficient blower design and direct drive system maximizes the airflow (CFM) delivered by the motor power requirements. (see Figure 2).

3. Pulse Filter Cleaning System

RoboVent filter cleaning systems utilizes powerful compressed air pulses for unmatched filter cleaning. The on-line and off-line cleaning cycles are pre-programmed for optimal efficiency but can be customized for changes in usage patterns. (see Figure 3).

4. Pulse Cleaning Valves

The RoboVent Spire Series Collectors utilize a special cleaning cone which optimizes the cleaning pulse by ensuring that the developed overpressure in the filter is even throughout the filter element. (see Figure 4).

Features of the Spire Series Collector



FIGURE 5



FIGURE 6

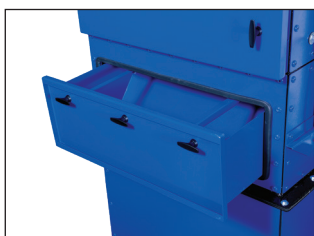


FIGURE 7



FIGURE 8

5. Control Panel

The Modular Control panel contains all the components that operate the Spire. Everything is contained within the enclosure allowing the controls to be mounted in various location configurations on or near the Machine. (see Figure 5).

6. Control Panel Screen

Robovent's Control System controls the Blower and Pulsing functions through an easy to understand interface. Control the online and offline pulse timing and trigger points; set filter service alarms; setup automatic run schedules; operate and control the blower speed manually or automatically; monitor filter pressure and see operation events. Watch the how-to video: www.youtube.com/watch?v=pczwkL2CyE&t=17s (see Figure 6)

7. Sturdy 7 and 11 GA Reinforced Collector Housing Construction

This heavy-duty construction secures a lifetime of industrial use. Seams are welded and sealed to assure there are no leaks or cracks that could contaminate the facility air system.

8. Large Capacity Dust Tray

RoboVent Spire Series Collectors come standard with a convenient Dust Tray (see Figure 7). The Dust Tray is designed to capture and store particulate pulsed off the filter cartridges and minimize "re-entrainment." (Re-entrainment is the term used for picking up dust that has already been removed from the filter and re-depositing it on the filter.)

9. Front Load System

Cartridge filters are easily accessible through an oversized front door. The cartridge filters are mounted on a robust filter yoke, and they are secured with a threaded handle. This makes it easy to change and replace filters. (See Figure 8)

Features of the Spire Series Collector

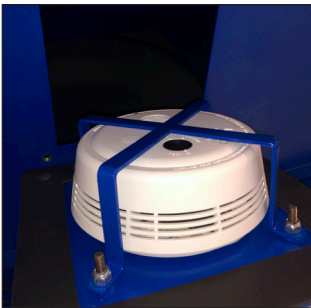


FIGURE 9

10. Acoustic Motor Plenum

High-density sound materials and Bass Trap Acoustics have been implemented as part of the blower compartment. The acoustically designed plenum greatly reduces motor and blower noise levels and decreases ambient noise into the facility.

11. SafeSensor Particulate Monitoring Device

The SafeSensor particulate monitoring device detects a leak past your filters. If a leak occurs, the system shuts the equipment down and sets off an alarm. The SafeSensor also monitors smoke, and in case of a thermal event, will automatically shut down the motor and blower. It will also change the andon light to red and sound a high intensity audible alarm. (see Figure 9).

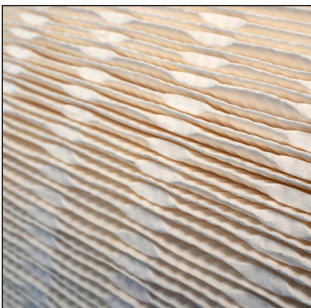


FIGURE 10

12. A15 PleatLock Filters

(Standard, alternate medias are available)

The A15 PleatLock filter media is RoboVent's high quality cellulose/polyester blend that provides superior filtration efficiency and long life in welding applications. Every filter is fire retardant and uses Nanofiber technology to achieve a MERV 15 efficiency rating. A15 PleatLock filters are highly-efficient for particulate down to 0.1 micron in size. (Figures 10).

13. VFD: Variable Frequency Drive

The VFD system uses a sensor that constantly monitors the airflow. Using a VFD, it automatically adjusts the RPM of the motor to compensate for filter loading. This reduces energy peaks, resulting in 20%-30% energy savings, and extending filter life. The VFD is key for a system that is quieter, can operate at maximum operating efficiency and saves you money. (see Figure 11).



FIGURE 11

Features of the Spire Series Collector



FIGURE 12

14. AutoSaver Auto On/Off (option)

The AutoSaver feature (if equipped) allows your RoboVent Spire Series air filtration system to rest when not needed, saving energy dollars. This also allows the unit to enter off-line pulsing mode to reduce filter loading if filter pressure is above threshold limits. The AutoSaver turns the system on when cutting, welding, or process operations start and turns it off after the operation is complete. (see Figure 12).

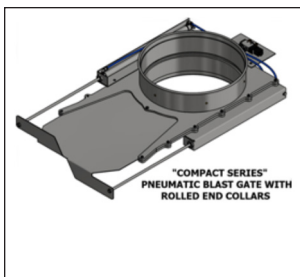


FIGURE 13

15. Built-in fire suppression system (option)

Water, Co2 or clean agent gas for superior protection from thermal events. The Supprex-200 Fire Suppression System is engineered to our exacting standards for safety and effectiveness. The Supprex-200 is a two part system that combines heat activated suppression system and our safe sensor with intake dampers. (see Figure 13).

If heat is detected, FM-200 gas (Figure 14) is released to suppress the fire either directly at the heat source through specialized heat sensitive tubing, or indirectly into the cabinet through a special discharge nozzle(s). With the Supprex-200 System there is little or minimal clean up after a fire as it is a clean agent.



FIGURE 14

The effectiveness of this suppression system is greatly enhanced with the safe sensor smoke detection that is standard on all RoboVent Spire collectors. Once smoke is detected, the unit goes into an emergency alarm state, immediately shutting off the blower and activating the motorized dampers to a closed position. This prevents air from continuing to flow through the system and maximizes the hold time of the FM-200 gas in the event the heat rises enough in the cabinet to trigger its release. An optional ABC-Dry Chemical suppression system is also available.

SECTION 400

Receiving & Inspection

Receiving & Inspection

Receiving

RoboVent equipment is typically shipped on skids or direct loaded. The number of skids will vary, depending the type, size and accessories ordered. The skids or direct loaded equipment are too heavy to lift by hand. The items will need to be unloaded by an industrial forklift, crane, or overhead crane.

Inspection

A visual inspection of your equipment should be performed before it is removed from the truck. Dents, scratches, and other damages should be noted on the shipping documents, and also photographed. The structural integrity of the housing can be adversely affected by large dents. RoboVent should be immediately notified of any structural damage to your equipment. It is the purchaser's responsibility to file shortage reports and damage claims with the carrier and with your RoboVent Representative. The carrier is responsible for any damage to the equipment while it is in transit unless specific arrangements are made otherwise.

Compare the number of items received against the carrier's bill of lading. Inspect all items for apparent damage. Immediately report any shortages or obvious damage to the carrier and to your local RoboVent Representative, call the factory at **1-(888)-762-6836**, or email: **customer.service@robovent.com**.

When all skids are completely unpacked and uncrated, check all items received against the packing lists. Further inspect the unit and components for hidden damage. Again, report any shortage or damage to the carrier and to your local RoboVent Representative.

The filter cartridges are typically shipped installed in your collector. Be sure to check them for alignment, as they may have shifted during transit. If they have shifted, it is possible that damage may have been done. Remove all filter cartridges and inspect thoroughly.

Note: Do not return any damaged components without first contacting your RoboVent Representative to obtain a Returned Goods Authorization (RGA).

Small Parts

Carefully inspect all packing material before it is discarded, to be sure that no small parts have been missed.

SECTION 500
Installation

SECTION 500

Installation

Note: Installation reference below is for the MLS-02-10

1. Remove steel strapping so the collector can be lifted off from the pallet. (see Figure 15).

Note: Collector will ship fully assembled on its side.

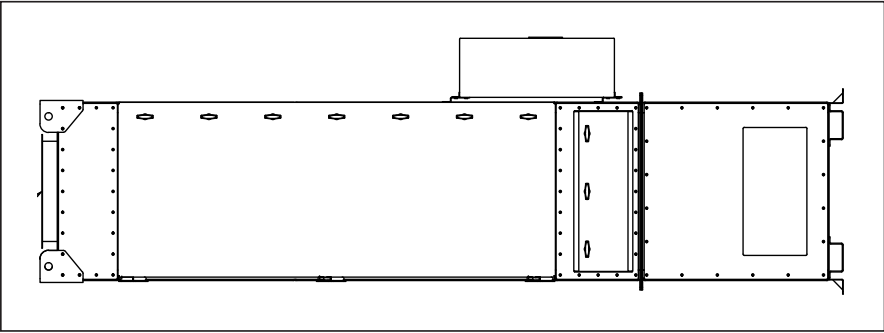


FIGURE 15

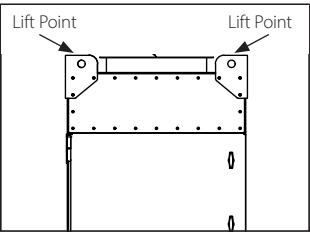
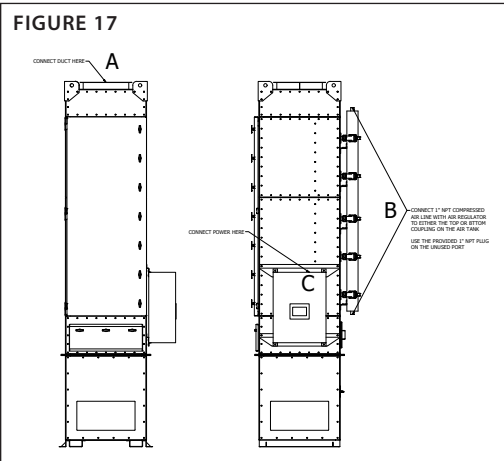


FIGURE 16

2. Using all four lifting points, hoist the collector up and set it in its upright position. (see Figure 16).
3. Move collector into place, install anchors and secure to the ground.
4. Connect ductwork A, compressed air B and provide power C to the collector, Install filters D. (see Figure 17).



SECTION 500

Installation

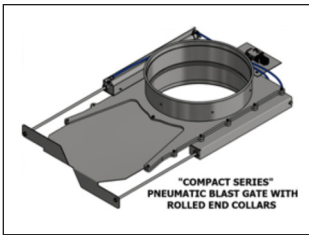


FIGURE 18

Intake Damper Installation (option)

Optional Accessory that comes with Suppress-200 System (If not pre-assembled onto unit at factory) (see Figure 18).

Refer to your engineering drawing to determine where to mount the intake damper on your system. Typically, the intake damper will be located directly on the intake or spark arrestor as close as possible to the unit.

Utilize these instructions to ensure your intake damper is connected appropriately both pneumatically and electrically. This damper is critical to have in place in order for the installed fire suppression agent to perform in the event you have thermal event.

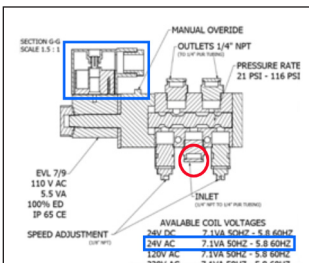


FIGURE 19

- Mount the pneumatic blast gate in place.
- The blast gate should already have the tubing connected and Coil mounted to it .
- If there is a reed switch there is no need to install.
- You will need to connect both 1/4 inch tubing (regulated from 80-90PSI) to the solenoid valve, and the wiring to the Din connector.
- See Figure 19 for the 1/4 inch tube connection. See Figure 19 for Din connector wiring.
- Circled in red on Figure 19 is where the connection from the 1/4 inch tubing will be connected this will need to be regulated from 80-90 PSI.
- Highlighted in blue in Figure 19 identifies where to locate the Din Connector and the Voltage requirement to power the valve. (24VAC 7.1VA 50HZ - 5.8 60HZ)
- Refer to Figure 34 for proper wire placements.
 - 1 = red wire (24VAC)
 - 2 = white wire (neutral)
 - G = green wire (ground)

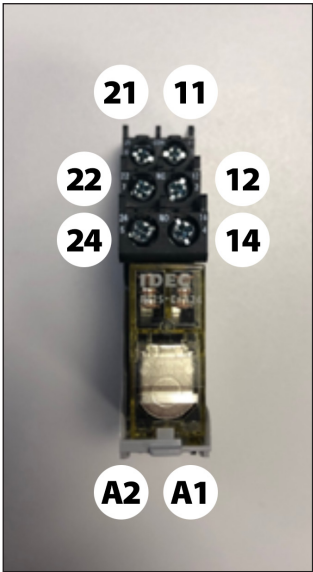


FIGURE 20

Intake Damper Installation (continued)

- See Chart 1.0 highlighted in yellow is the connections made to the Intake Damper Din connector.
- See chart below, highlighted in orange will be the connection to be made from the Intake Damper Din connector.

Notes:

When connections are made, and system is ready to be tested you can do so by turning system on and off. When system is on the dampers should open and when system is off the dampers should close. If you do not have the same wire colors from “Figure 20” just make sure the connections match with “Chart 1.0”. If the dampers are acting in reverse you must bleed air supplying to the Valve and swap the Outlet tubes and retest.

CHART 1.0: Wiring for 24VAC Coil Voltage Dampers

Terminal Strip wire # in RV control panel	VFD Output	Din Connector terminal #	IDEC Relay Input	Fuse holder
41-			A1	
61	R1B		A2	
		1 (24VAC)	14 (NO)	
2 (0VAC)		2 (0VAC)		
G (Ground)		G (Ground)		
			11	60 (24VAC)

SECTION 600

Start-up/ Commissioning

Start-up/Commissioning

Once your RoboVent collector has been assembled at your facility, contact your RoboVent Project Manager to get the start-up/commissioning and balancing of your system scheduled. Dependent on the scope of the contract, this may or may not be included in your projects scope of work as it is a small additional charge.

In order to schedule start-up/commissioning and balancing, the following items must be completed:

1. The RoboVent collector must be assembled
2. The electrical must be connected to the collector
3. The compressed air must be connected to the collector
 - a. The compressed air line from the shop must go through the air regulator that RoboVent provides before it is connected to the collector.
 - b. Clean, dry air is essential for operation.
4. The ductwork from the RoboVent collector to the cell/station(s) must be installed and connected.

Commissioning Your Unit

Note: the directions below are for the MLS-02-10, ensure you have accurate information for your unit.

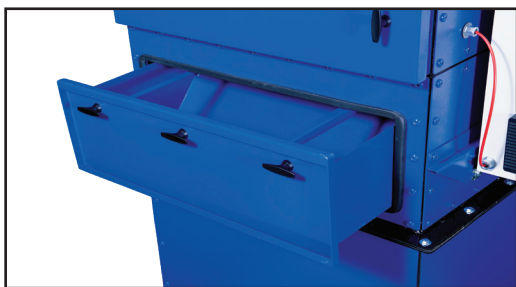
The following items checked during the start-up/commissioning process, as applicable to your specific layout:

1. Check the electrical connection to the collector and ensure there are no loose wires.
2. Check the compressed air that was hooked-up to the RoboVent supplied regulator and confirm it is clean, dry, and set to 85 psi.
3. Check the blower rotation on each motor to confirm it is spinning correctly.
4. Perform basic system check to ensure it is functional:
 - a. Check to ensure blower turns on when touched on HMI
 - b. Perform a valve check (See maintenance guideline for more information on how to perform this check) to ensure that each pulse valve is operational.
5. Check to ensure the fire suppression (FM200) tubing is hooked up correctly, if applicable.
6. Check the FM200 gauge to ensure your suppression tank is charged, if applicable.
7. Check that the filter differential tubes (running from the control panel to the reading ports) are correctly connected; ensure the filter pressure is reading correctly on the HMI control screen.
8. Check to ensure every bolt was installed during the collector assembly.
9. Check and confirm operation of other custom equipment options (ex: Intake Dampers, etc.).
10. Check the ductwork and ensure it is connected and sealed correctly.
11. Check the filter and control door gaskets to ensure consistent seal during operation.
12. Check and ensure collector seams were properly sealed during the assembly process.
13. Verify and record the velocity (FPM) through the Delta3 spark arrestor, if applicable.
 - a. Specific velocity range is required through the Delta3 to prevent sparks from getting through.
14. Verify and record the velocity (FPM) and airflow (CFM) for the entire system

Start-up/Commissioning

15. Set and record the hertz that the VFD is set at, if applicable.
 - a. The VFD will be set by using an airflow meter to measure and confirm the velocity (FPM) and airflow (CFM) within the ductwork.
16. Check the measured velocity (FPM) and airflow (CFM) vs. the designed velocity (FPM) and airflow (CFM).
17. Photos will be taken of the RoboVent Collector, RoboVent HMI, RoboVent Control Panel, Delta3 spark arrestor if applicable, ductwork install, and the customer's cell.
18. Record any parts that need to be fixed or replaced, if it cannot be done at that time.

Congratulations! Your unit is now fully commissioned and ready for operation.



SECTION 700

System Balancing

System Balancing (Model MLS-02-10 ONLY)

Before fully releasing your new RoboVent into production, RoboVent recommends a system balance. Balancing is recommended to ensure the designed velocity and airflow is being pulled from each drop on the system.

The following process is a high-level view of how to balance an industrial ventilation experts. Balancing should only be completed by trained ventilation experts. If you interested in having your system(s) balanced or rebalanced, contact RoboVent at 1-888-ROBOVENT.

1. Prior to starting the Balancing Procedure ensure that all autogates/manual blast gates are fully open for the entire system.
2. Following the balancing print (engineering drawing showing airflow requirements at each air pick-up point on your system), locate the drop with the highest pressure draws.
3. Balancing should start at the highest static point.
4. Record the elevation of the plant, the temperature within the ductwork, and the static pressure within the ductwork. If these values stray from the standard (Standard: Elevation > 1000 FASL; Temperature > 90 F; Static Pressure 20" w.g.) you must do a density factor correction.
5. Starting with the highest static point adjust the VFD until the required CFM is achieved (Blast Gate must be fully open).
6. Move to drop number 2 on the balancing print. Adjust the blast gate until the desired CFM is reached.
7. Repeat for the remaining drops in descending order.
8. Record all values (velocity and static pressure at each drop).
9. Once complete go back to the first drop and re-check the system. If the measurement is within 15% of the original value obtained at that location the balancing is complete. If the value strays more then 15% from the original value, then the system needs to be checked for changes, and/or re-balance the system.

SECTION 800

Operating your Spire Collector using the Control Screen

ePro Controller Operation

Home Screen

Navigation Buttons

Navigate to the appropriate menu within the control system and quickly find the desired controls.

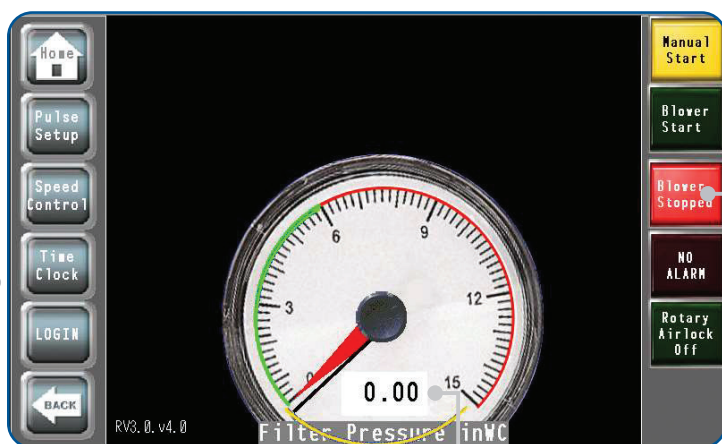
Blower Control

Turns the Blower on or off.

Status

Indicates current status of the machine.

Allows a quick check of the state of machine operation.



Filter Pressure

Displays current Filter Pressure Differential as 'in. WC'.

Auto Start

Enables an interlocked machine to start and stop the collector with an isolated nonpowered signal.

Pulsing Screen

Pulse Control Buttons

Quickly turn Pulse modes on or off.

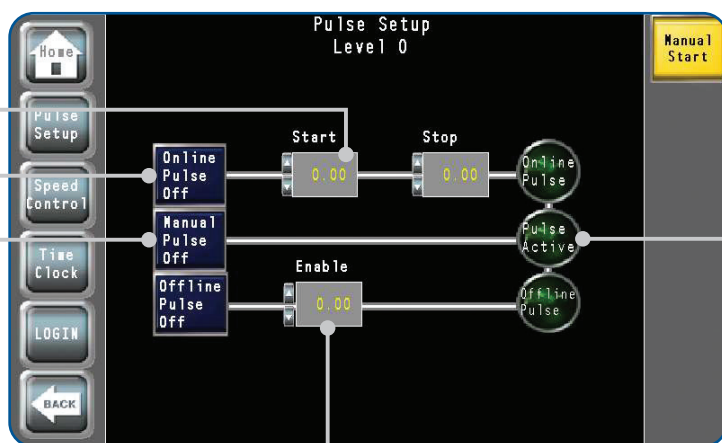
Online Pulse Thresholds

Sets the Filter Pressure level where Online Pulsing activates (High Threshold) and when it shuts off (Low Threshold).

Status

Indicates current status of the Pulsing.

Allows a quick check of the state of Pulsing system.



Offline Pulse Settings

Allows setting of the Offline Pulse Trigger point (Offline Threshold) and length of Offline pulsing (Offline Pulse Time).

Elapsed Time shows how long Offline Pulse has been running.

Manual Pulse

Press once to run one full cycle.

Alarm Log Screen

- **Alarm Log**
Quickly review history.



ePro Controller Operation

Time Clock Screen

Time On Hour Setting

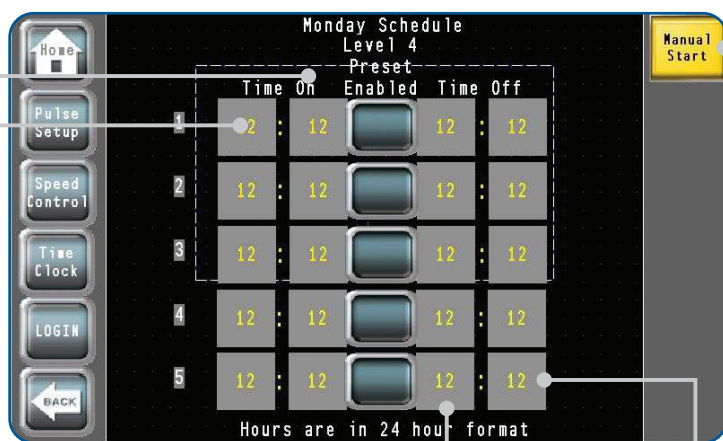
Sets the hour for Scheduled On Time (24hr format).

Time On Minute Setting

Sets the minute for Scheduled On Time (24hr format).

Weekly Schedule Screen

Allows turning individual days schedule on or off.



Schedule Line Control

Allows each line to be enabled or disabled. (Dark Blue is disabled).

Time Off Hour Setting

Sets the hour for the Scheduled Off Time (24hr format).

Time Off Minute Setting

Sets the minute for the Scheduled Off Time (24hr format).

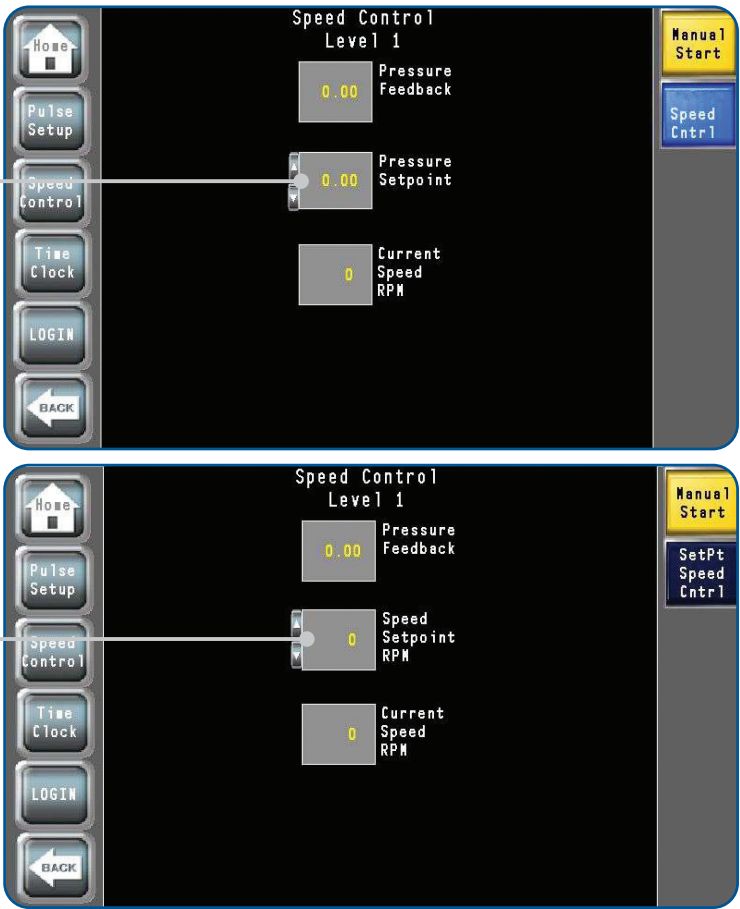
Operation Screen

● **RPM Setpoint**

Sets the desired running RPM when running in Manual Control

● **Cabinet Pressure Setpoint**

Sets the Static Pressure the collector maintains in the Ductwork/Cabinet when running in Auto Control mode.



SECTION 900

Maintenance



Safety

When performing maintenance on your RoboVent, PPE is required to minimize exposure to metal dust. At a minimum it is recommended to wear disposable coveralls with hood, non-porous gloves, P100 filtered respirator and safety goggles. Consult your company's policies to develop MSDS and PPE related documentation and procedures.

Dust collected by your machine may be hazardous. Toxicity testing must be performed by your local waste service provider and dust must be disposed of in accordance with local, state and federal law.

When ladder or lift is required to access the machine disconnect and spark arrestor(s) during service, use proper fall protection equipment and follow all OSHA safety regulations.



Special Safety Note

Stainless steel processes create a hexavalent chromium (hex chrome) dust which is a known carcinogen. Special care should be taken when servicing a in area that processes stainless steel. For more information regarding Hex Chrome, please visit OSHA's section on Occupational Safety and Health Standards-Toxic and Hazardous Substances-Chromium (VI).





FIGURE 21

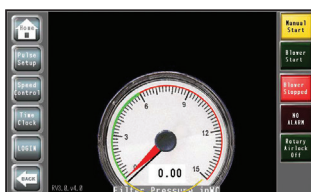


FIGURE 22



FIGURE 23

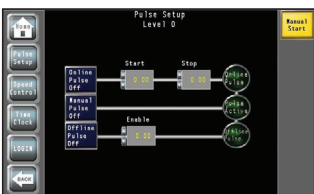


FIGURE 24

Monthly Maintenance

On a monthly schedule, perform the following steps and checks to ensure proper machine function and performance.

Tools required for maintenance: (see Figure 21).

1. 8mm wrench
2. Lock Out set
3. Clean rag(s) and an industrial cleaner
4. Industrial cleaning brush (with extension is ideal)
5. Industrial vacuum with HEPA filter
6. Trash bags for disposal of particulate from cleaning process. Follow proper protocol for discarding contaminated waste.
7. Ladder or lift depending on unit location and placement

Maintenance Procedure:

1. Start the machine and record the starting filter differential pressure once the blower reaches full speed. (see Figure 22).
2. Turn blower off. (see Figure 23).
3. Press the Manual pulse button and allow to pulse for 15-20 minutes. This will send a jet of pressurized air through the filters to knock the dust built up on the filters and into the dust containment. You may find that you may need to lengthen or can shorten the manual pulse time based on your usage patterns. Allowing enough time for this procedure is necessary to ensure filters are thoroughly cleaned thus improving filter life. (see Figure 24).



FIGURE 25



FIGURE 26

4. While the unit is under going the manual pulse cycle. Listen for each of the 10 valves to fire or for air leaks. Failed pulse valves will fail open, draining the air supply. If this happens, turn off the air supply and contact RoboVent tech support (1-888-762-6836) for assistance.
5. Ensure the system is off on the HMI (Figure 25). Then, turn power to the machine completely off at the disconnect for the unit. This is typically located near the HMI. You can trace the incoming power wires back to the disconnect if in doubt. Follow Lock out Tag out procedures to ensure unit is de-energized before opening it up. (see Figure 26).
6. Spark Arrestance: Your unit will have a Delta3.
 - a. Cleaning your Delta3 (If applicable):
 - i. Inspect the inside of your Delta3 for dust build-up using the built-in inspection port; you will need an 8mm wrench to perform this task. (see Figure 27).
 - ii. If there is buildup on your Delta3, you will need to clean it to ensure safe operation and maximum performance of the spark extinguishing technology.
 1. The Delta3 is accessed through the top panel by loosening the ring clamp and removing the center bolt, then lifting by the two handles. (see Figure 28).

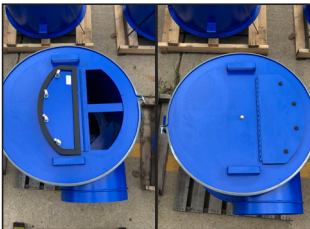


FIGURE 27



FIGURE 28

SECTION 900

Maintenance



FIGURE 29

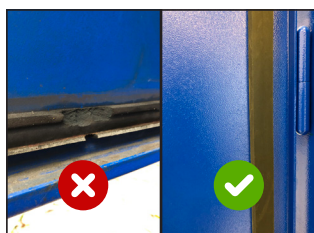


FIGURE 30



FIGURE 31

2. Use a long-handled brush to sweep/scrap dust loose inside of the arrestor. Once dust is dislodged, depending on the composition of the material, either wipe it out using a rag and industrial cleaner, or vacuum it out with your industrial vacuum. (see Figure 29).
3. Ensure inside walls of spark arrestor are clean and free of any build up to ensure continued function before putting your Delta3 back together.
7. Inspect inside filter cabinet for build-up. Brush the interior walls pushing the dust down into the containment area. **DO NOT BRUSH THE FILTERS.** Brushing the filters will cause unseen damage severely shortening the filter life and efficiency.
8. Visually inspect filter door gasket. Any damaged, torn, or loose gasket will need to be replaced. (see Figure 30).
9. Close filter door.
10. Open dust tray, record percentage full for reference to help estimate the frequency needed for proper maintenance.
11. Visually inspect machine to ensure there are no signs of leakage, and that the latches and hinges are tight.
12. Confirm air pressure on filter regulator located at rear of unit is set to 85 psi. Supplied air should be clean and dry. Oil and/or water in the supplied air will damage the filters. Check the regulator bowl for any build up. Blow out any build up found by depressing the button on the bottom. (see Figure 31).
13. Ensure all doors and access panels are closed and dust tray is secure.
14. Check floor for any dust that may have spilled, clean as needed.



FIGURE 32



FIGURE 33



FIGURE 34

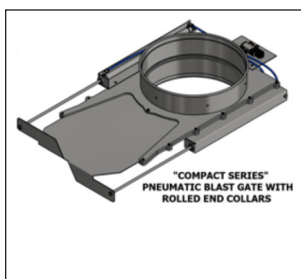


FIGURE 35

15. With the unit still locked out and power confirmed off, open control panel and inspect interior. Ensure there is no dust build up within the enclosure. If there is any debris at the bottom of the control cabinet, thoroughly vacuum it out. If debris has settled on electrical components contact Robovent for a full inspection.
16. Remove filter from side of the control cabinet and replace with clean filter. (See Figure 32).
17. Remove lock-out and turn power to machine back on at the disconnect. Start blower, listen for any abnormal vibration or excess noise.
18. Record differential pressure of filters once the machine is at full speed.
19. Locate the smoke detector, it will be mounted behind the access panel on the rear of the unit below the pulsing system air tank.
 - a. Inspect the smoke detector and mount for any obvious signs of damage or dust build up.
 - b. To test the smoke detector, turn the test indicator to TEST 1, while the unit is running. (See Figures 33 and 34). After 5-10 seconds the smoke detector alarm should trigger, red light on the control cabinet, motor will shut down, intake damper, if equipped will close, alarm button on HMI will turn red. After confirming the previous return test indicator to Normal.
 - c. The smoke detector should shut the unit down and go into alarm. If the unit is equipped with dampers, the dampers will close. Ensure the dampers close all the way. (see Figure 35).
 - d. Once you have confirmed the above operations, return the smoke detector to normal mode.
 - e. The unit should now be out of alarm state. Turn the system back on to ensure the unit restarts. Inspect the damper to ensure it fully opens on start up.
20. Now that all checks have been completed, return to normal 'ready' condition by turning blower off (indicated by a steady blue light).



FIGURE 36



FIGURE 37



FIGURE 38

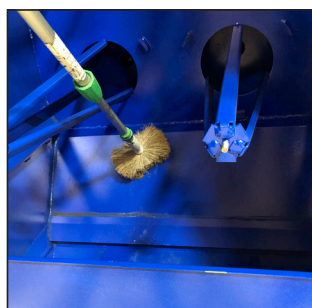


FIGURE 39

Filter Change

Filter condition is the key to maintaining clean air and an efficient dust collector. Filters, over time, will load with particulate and either need to be pulse cleaned or replaced. Due to application, system design, type of particulate collected, and usage levels you may see a drop in performance when the filter pressure reads 4" to 6" I.W.C. after a full offline cleaning. At this point filter replacement could be warranted.

1. Turn blower and system off. (see Figure 36).
2. Turn power to the machine off using disconnect on the control panel door. Lock out. (see Figure 37).
3. Lay out protective floor covering below door area for simplified clean-up.
4. Open filter door. Brush any built up debris from the door area into the hopper. (see Figure 38).
5. The filters are removed from the unit by turning the filter handle counter clockwise.
6. Remove filters individually, properly containing each filter as they are removed. Dispose of according to local regulations and according to processes determined as a result of dust toxicity testing.
7. Use a long-handled brush to sweep inside wall of cabinet and debris down into the dust drawer. (see Figure 39).
8. Take care not to get dust into the clean air side.
9. Empty and replace the dust tray.



FIGURE 40

10. Slide new filters over the filter yoke, place sealing washer over threaded rod and tighten filter handle until filter is snug. (see Figure 40).
11. Visually inspect filter door gasket. Replace any loose or damaged gasket.
12. Close filter door.
13. Turn power to machine back on.
14. Turn system on and start blower.
15. Record new filter differential pressure. The blower will need some time to ramp up to speed. Once CFM and pressure have stabilized, the value can be recorded.

Monthly PM Checklist

This guide is recommended to be followed and performed on a monthly basis. We recommend keeping these maintenance records in the event you need to make a warranty claim. If you have any questions or concerns, please call us anytime.

1. Serial number
2. Service date
3. Starting filter pressure

(KPA)
4. Ending filter pressure

(KPA)
5. Total pulse time

(Mins)
6. Pulse type

☐ Offline ☐ Online
7. % Particulate accumulated in drum
8. Containment emptied?

☐ Yes ☐ No
9. Each valve checked to ensure operational?

☐ Yes ☐ No
10. Filter regulator clear of moisture?

☐ Yes ☐ No
11. Air pressure

(PSI)
12. Spark arresstance status (select one of three options)

☐ Delta3 was cleaned

☐ System has no spark arresstance

☐ Baffles and mesh were changed

☐ Green ☐ Yellow ☐ Red
13. Fire suppression tank (CO², Dry Chemical, or FM200) pressure checked

☐ Yes ☐ No
14. eStop function tested

☐ Yes ☐ No
15. Machine visually inspected for any signs of defect

☐ Yes ☐ No
16. Filter status

☐ Changed this service

☐ Needed for next service

☐ Good condition
17. Hours on service meter
18. Hour meter reset

☐ Yes ☐ No
19. VFD operating

(Hz)
20. Total machine downtime while servicing
21. Service notes
22. Technician signoff

Monthly Sign-off Sheet Instructions

1. Serial number	This is located on the rating tag.
2. Service date	Date of service.
3. Starting filter pressure	This is found on the control screen, and is the number that should be recorded PRIOR to servicing the piece of equipment.
4. Ending filter pressure	This is found on the control screen, and is the number that should be recorded AFTER servicing the piece of equipment.
5. Total pulse time	This should be the total time the service technician allowed the unit to pulse, in minutes.
6. Pulse type	This should be noted as OFFLINE if the machine was pulsed while the blower was OFF. If for some reason production was not able to allow the technician to turn off the blower, the pulse type should be noted as ONLINE.
7. % Particulate accumulated in drum	This should be the % the particulate containment was filled up. It can be a dust tray, hopper drum, etc. Look inside the containment source and estimate.
8. Containment Emptied?	This should be checked YES if the containment drum/drawer was cleaned out on the equipment. This should be checked NO if it was not cleaned out for some special reason.
9. Each valve checked to ensure operational?	This should be checked YES once each valve is individually tested from the controller.
10. Filter regulator clear of moisture?	This should be checked YES once the air-line regulator is visually checked for moisture. If there is an accumulation of moisture, check NO, and ensure that the moisture is released from the regulator.
11. Air pressure	The pressure gauge on the airline leading into the unit should read the current PSI flowing to the unit. Write down the actual PSI.
12. Spark arresstance status (select one of three options)	One of the following should be circled depending on the unit: baffles & mesh were changed OR Delta3 was cleaned OR System has no spark arresstance.

Monthly Sign-off Sheet Instructions

13. Fire suppression tank (CO₂, Dry Chemical, or FM200) pressure checked

Circle one of the following: Green, Yellow, Red OR unit does not have fire suppression.

14. eStop function tested

This should be checked YES once the emergency stop button has been pulled with the blower on. If it is working correctly, it should sound an alarm and shut down the system.

15. Machine visually inspected for any signs of defect

This should be checked YES once the unit has been given a visual inspection. Things to look for are visible cracks in welds, unusually loud noises coming from the motor/blower, controls screen damage, etc. Any damage that is found should not be written in this box, but should be included in the NOTES section below.

16. Filter status

One of the following should be circled: changed this service OR needed for next service OR good condition. KEY: Filters are in good condition if the ending KPA is under 2.70 KPA. The Filters should be marked needed for next service if the ending KPA is between 2.70-3.50.

17. Hours on service meter

This should be written down off of the service meter on the control.

18. Hour meter reset

This should be checked YES if the service meter clock has been reset from the control.

19. VFD operating

If the unit has a VFD, the hertz should be written down from the VFD screen when the unit is started back up when service is complete.

20. Service notes

ANY and ALL noted issues with the machine should be filled in here. If the machine is inactive, also note it here.

21. Total machine downtime while servicing

This should be the signature of the technician that serviced the machine.

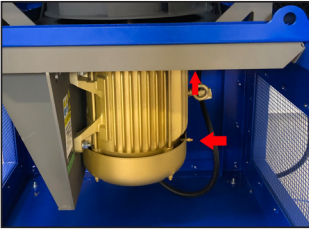


FIGURE 41

Motor Greasing

Motor bearing greasing frequency, type of lubrication and amounts will vary depending on the type and size of the motor in the unit. For more information, please contact RoboVent Tech Support at **(1-888-762-6836)** or email **customer.service@robovent.com**. Motor manuals can be sent upon request. As a general rule, RoboVent recommends greasing all motors over 20hp once annually. (see Figures 41 and 42).

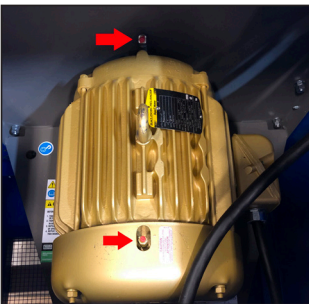


FIGURE 42

Fire Suppression Inspections

Dry Chemical: Monthly Inspection

Inspection by the owner or end user should verify the following:

1. The Suppression Unit is in its proper location as installed by the factory or factory certified technicians.
2. The Manual Actuators are unobstructed.
3. The Suppression Unit shows no physical damage or condition that might prevent operation.
 - a. This includes inspecting the detection tubing in the hazard area for abrasion, distortion, cuts, or dirt accumulation.
4. The Pressure Gauge is in the operable range. (see Figure 43).
5. The Nozzle Blowoff Caps are intact and undamaged. (see Figure 44).
6. Neither the Protected Equipment nor the Hazard has been replaced, modified, or relocated.



FIGURE 43

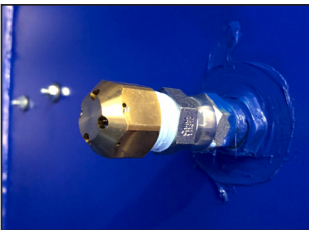


FIGURE 44

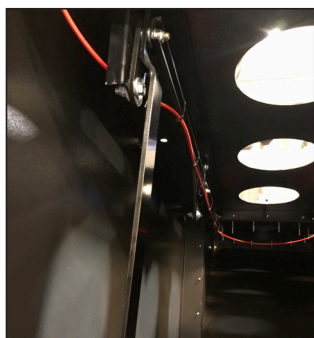


FIGURE 45

Dry Chemical: Semiannual Inspection

Semiannual Inspection is to be performed only by a Certified Firetrace Distributor.

1. Check to see that the hazard has not changed.
2. Inspect detection/actuation tubing, Manual releases, discharge piping, nozzles, signals, and all other auxiliary equipment.
3. Verify that the agent distribution piping is not obstructed.

Dry Chemical Powder

Examination of the Dry Chemical shall be conducted at an Authorized Firetrace Service Location at least once every 6 years. The powder will be examined for caking and may require replacement.

Fire Suppression Co²

Monthly Inspection

1. Ensure the Suppression Unit is in its proper location as installed by the factory or factory certified technicians.
2. Ensure the tank shows no physical damage or condition that might prevent operation.
 - a. This includes inspecting the detection tubing in the hazard area for abrasion, distortion, cuts, or dirt accumulation. (see Figure 45).
3. The pressure gauge is in the operable range. (see Figure 43).
4. The Nozzle Blowoff Caps are intact and undamaged. (see Figure 44).
5. Neither the Protected Equipment nor the Hazard has been replaced, modified, or relocated.

Annual Inspection

Annual Inspection is to be performed only by a Certified Firetrace Distributor.

1. Remove the cylinder from the installation as follows:
 - a. Close the ball valve by turning the ball valve lever clockwise to the "OFF" position
 - b. Disconnect the detection tubing at the ball valve
2. Note: There will be a loss of nitrogen pressure out of the tubing
 - a. Disconnect the copper tubing and fittings from the cylinder valve discharge port(s)
 - b. Immediately install the safety plugs(s) into the valve discharge port(s)
 - c. Remove the cylinder from the bracket
2. Weigh the cylinder. Compare the measured weight with the weight found on the cylinder nameplate. If the container shows a loss in agent quantity of more than 5 percent or a loss in pressure (adjusted for temperature) of more than 10 percent, the cylinder shall be refilled or replaced.
3. Remove the nozzle(s) and inspect for obstructions. Reinstall the nozzles.
4. Reinstall the cylinder and re-pressurize the detection tubing with nitrogen following the applicable procedures outlined in Section 5.

VFD Maintenance Procedure

Periodic Inspection of VFD

Check the following items during periodic maintenance:

- The motor should not be vibrating or making unusual noises.
- There should be no abnormal heat generation from the Drive or motor.
- The ambient temperature should be within the Drive specification (-10°C to 40°C (14°F to 104°F)).
- The output current value shown in parameter U1-03 should not be higher than the motor rated current for an extended period of time.
- The cooling fan in the Drive should be operating normally.

Always turn OFF the input power before beginning inspection. Confirm that the digital operator indicators on the front cover have all turned OFF, and then wait an additional five minutes before beginning the inspection. Be sure not to touch terminals immediately after the power has been turned off. Doing so can result in electric shock.

WARNING: Prior to removing any protective cover or wiring any part of the Drive, remove all power sources, including main input power and control circuit power. Wait a minimum of 5 minutes after power removal, before removing any cover. The charge lamp located within the Drive should be off prior to working inside. Even if the charge lamp is off, one must measure the AC input, output, and DC Bus potential to insure safe levels prior to resuming work. Failure to adhere to this warning may result in personal injury or death.

Table 8.1 Periodic Inspection With NO Power Applied

ITEM	INSPECTION	CORRECTIVE ACTION
External terminals, mounting bolts, connectors, etc.	Are all screws and bolts tight?	Tighten loose screws and bolts firmly.
	Are connectors tight?	Reconnect the loose connectors.
Cooling fins	Are the fins dirty or dusty?	Clean off any dirt and dust with an air gun using clean and dry air at a pressure between 55-85 psi.
Control PCB Terminal PCB Power PCB Gate Drive PCBs	Is there any conductive dirt or oil mist on the PCBs?	Clean off any dirt and dust with an air gun using clean and dry air at a pressure between 55-85 psi. Replace the boards if they cannot be made clean.
Input Diodes IPMs Output Transistors	Is there any conductive dirt or oil mist on the modules or components?	Clean off any dirt and dust with an air gun using clean and dry air at a pressure between 55-85 psi.
DC bus capacitors	Are there any irregularities, such as discoloration or odor?	Replace the capacitors or Drive.

Apply power to the Drive and conduct the following inspection.

Table 8.2 Periodic Inspection With Power Applied

ITEM	INSPECTION	CORRECTIVE ACTION
Cooling fan(s)	Is there any abnormal noise or vibration, or has the total operating time exceeded 20,000 hours. Check UI-40 for elapsed cooling fan operation time.	Replace Cooling Fan

VFD Maintenance Procedure

Preventative Maintenance of VFD

Table 8.3 Preventative Maintenance				
INSPECTION POINT	ITEM	CHECK POINTS	EVERY 3-6 MONTHS	YEARLY
General	Environment	Ambient Temperature Humidity Dust Harmful Gas Oil Mist	X X X X X	
	Equipment	Abnormal vibration or noise	X	
	AC Power Supply	Main circuit & control voltage	X	
AC Power Circuit & Devices	Conductors & Wire Connections	Loose lugs, screws & wires Hot spots on parts Corrosion Bent conductors Breakage, cracking or discoloration Check spacing		X X X X X X
	Transformers & Reactors	Discoloration or Noise	X	
	Terminal Blocks	Loose, damaged		X
	DC Bus Capacitors	Leakage Ruptures, broken, expansion Capacitance & insulation resistance		X X X
	Relays & Contactors	Noisy Contact discoloration		X X
	Soft Charge Resistors	Cracked Discoloration		X X
Control Circuits	Operation	Speed reference voltage/current I/O contact operation		X X
Cooling System	Cooling Fans/Fins & Heatsink	Abnormal fan noise Loose connections Free of accumulation	X X	 X
Keypad/Display	Digital Operator	LEDs Monitor display values Key functionality Clean	X X	 X X

If the Drive is used under the following conditions, it may be necessary to inspect more often:

- High Ambient temperatures, humidity or altitudes above 3,300 feet
- Frequent starting and stopping
- Fluctuations of the AC power supply or load
- Excessive vibration and/or shock loading
- Poor environment, including dust, metal particles, salt, sulfuric acid, chlorine

SECTION 1000

Troubleshooting

RoboVent unit is making excessive noise. Check the following:

1. Make sure the blower wheel is not hitting the venturi.
2. Check that all venturi bolts are securely tightened.
3. Make sure motor bearings are good. (Amperage rating will be higher than normal.) Motor Overload will trip frequently/need to be set >then 125% FLA.
4. If the noise is an electrical hum in the control panel, it could be a defective motor starter relay. Loose connection in motor contact/loose wire
5. Blower wheel could be out of balance. If the blower wheel has gone out of balance, there will be excessive vibration. In this case, please contact the RoboVent Service Department at 1-888-762-6836. Blower wheels should only be balanced by qualified service personnel.

Pulse Filter Cleaning System not operating. Check the following:

1. Check thresholds are set to recommending levels
 - a. High – 3.0
 - b. Low – 2.0
3. Verify that the airline is connected to the air tank and that there are no pinched or clogged airlines.
4. Check air tank pressure at the filter regulator. The pulsing system works best when pressurized at 85 PSI.
5. Check control pad to make sure Online and Offline pulse are turned on.
6. Manually check each valve by pressing the manual pulse button and listening for each of the 10 valves to fire. Default pulse timing is 10 seconds between each valve.

Little or no suction at intake. Check the following:

1. Confirm the set point selected. May need to increase set point to increase suction.
2. Confirm if it is set to Auto Speed Control and what that set point level is.
3. Confirm if it is set to RPM Setpoint and what that set point level is.
4. Check motor rotation. When the unit is powered down note the rotation of the motor shaft. Motor rotation should be clockwise when viewed from above unit.
5. If motor is spinning backwards, Change Phase A and Phase C on line out side of VFD. DO NOT change Phasing on disconnect or Overload.
6. Cartridge filters are loaded. Check the Controller reading. Any reading of 6" Water Column (Collector loading level maximums can vary depending on application, contact Robovent for specifics on your unit if in doubt) or greater signals that the cartridge filters could be loaded. Initiate a manual cleaning cycle (see "Operating your Spire Collector Using the Control Pad") before replacing cartridges.
7. Check intake damper, if closed, limited suction will occur.

Overload is Tripping

1. Confirm the FLA of the motor and that the overload is set to 125% of the FLA.
2. Multiply the FLA * 1.25 to set overload amperage.

Cartridge filters load up but no dust in the dust tray. Check the following:

1. Check that the Pulse Filter Cleaning System is working properly.
2. Check for oil or moisture on the filter media. If oil or moisture exists in the air supply, it will transfer to the cartridge.
3. In some cases, very high oil content is present on the surface of the steel stock, and the cutting process may cause the oil to vaporize. This will cause the cartridge filters to load up prematurely. In this situation the best solution is to remove most of the oil from the steel before it is processed. Call the RoboVent Service Department at 1-888-762-6836 for more information.

HMI display reads "0" or has a consistently low reading for Filter Pressure.

1. Check that the plastic tubing from the Controller has not come loose from either of the barbed ends on the pressure transducer.
2. Check for a pinched line in the plastic tubing from the Controller.
3. Remove tubing from pressure transmitter connection barbs and blow air into the ¼" plastic tubing lines with low pressure away from the transmitter. Dust particles, insects and dirt can get into the tubing and prevent an accurate reading.
4. In some cases, the Pressure Transducer will need to be replaced.

Smoke Detector Alarm Sounds*:

1. Alarm trips – Audible alarm, red light on control cabinet is red, alarm button on control pad is red. Press Log on HMI screen for detail of what alarm tripped. If smoke is detected follow below.
 - a. Power to motor is turned off by the onboard control system, and the audible alarm goes off alerting you of a shutdown. The Andon light on the cabinet door will turn red.
 - b. If the unit is equipped with the Supprex-200 Fire Suppression system, intake dampers will close, sealing off the unit. The intake damper is fail-safe and will close either when the unit goes into alarm, or when power is cut off to the unit.
 - c. Turn power off at the main disconnect for the unit.
 - d. Turn the compressed air supply off to the unit.

- e. If your system is equipped with a Fire Suppression Co², do **not** open the filter door or proceed to the next step unless the necessary staff are present to extinguish a fire if one has occurred inside the cabinet. The Fire Suppression Co² system utilizes intake and exhaust dampers to prevent oxygen from entering the cabinet after shutdown and uses a clean agent gas to suppress the fire for a limited amount of time to allow appropriate emergency response staff to arrive to the event scene. The suppression agent will not release unless the temperature in the cabinet has exceeded 383°F or a direct flame has touched the Firetrace activation tubing that is installed around the top of the filter cartridges.
 - f. Check filter cabinet of unit for fire/smoldering filters.
 - g. Have fire suppression equipment on hand in the event of a flare up.
 - h. If smoldering, quickly remove filters from cabinet and use water to extinguish using appropriate protection equipment.
2. Clean and inspect unit for thermal damage, replacing filters if necessary, and power unit back up. ***It is important to note that not every smoke detector alarm is triggered by a thermal event. Dust bypass will also cause a smoke detector shutdown and could be occurring through a torn/damaged filter or damaged gasket on the filter top pan.***
 3. Remove rear smoke detector inspection panel, use low PSI compressed air or canned compressed air to blow off smoke detector.
 4. If, when starting the unit back up, the smoke detector goes off again:
 - a. Remove filters
 - b. Inspect inside of filters for holes/perforations
 - c. Check sealing gaskets for nicks or cuts.
 - d. Re-install good filters / replace damaged filters, ensuring filters are level and square and the clamping mechanism is locked securely in place.
 - e. Locate smoke detector, remove, and clean out with Low pSi compressed air, repeat start up process.
 - f. Run blower for 2-4 minutes without cutting and/or welding process active to exhaust dirty air.
 - g. If alarms continue to sound even after all the above has been tried, you may need to replace your smoke detector. Call RoboVent at 888-762-6836 for support.

*This is a recommendation only. In the event of a fire, follow your state/local/company firefighting procedures.

APPENDIX A

General Wiring Diagrams

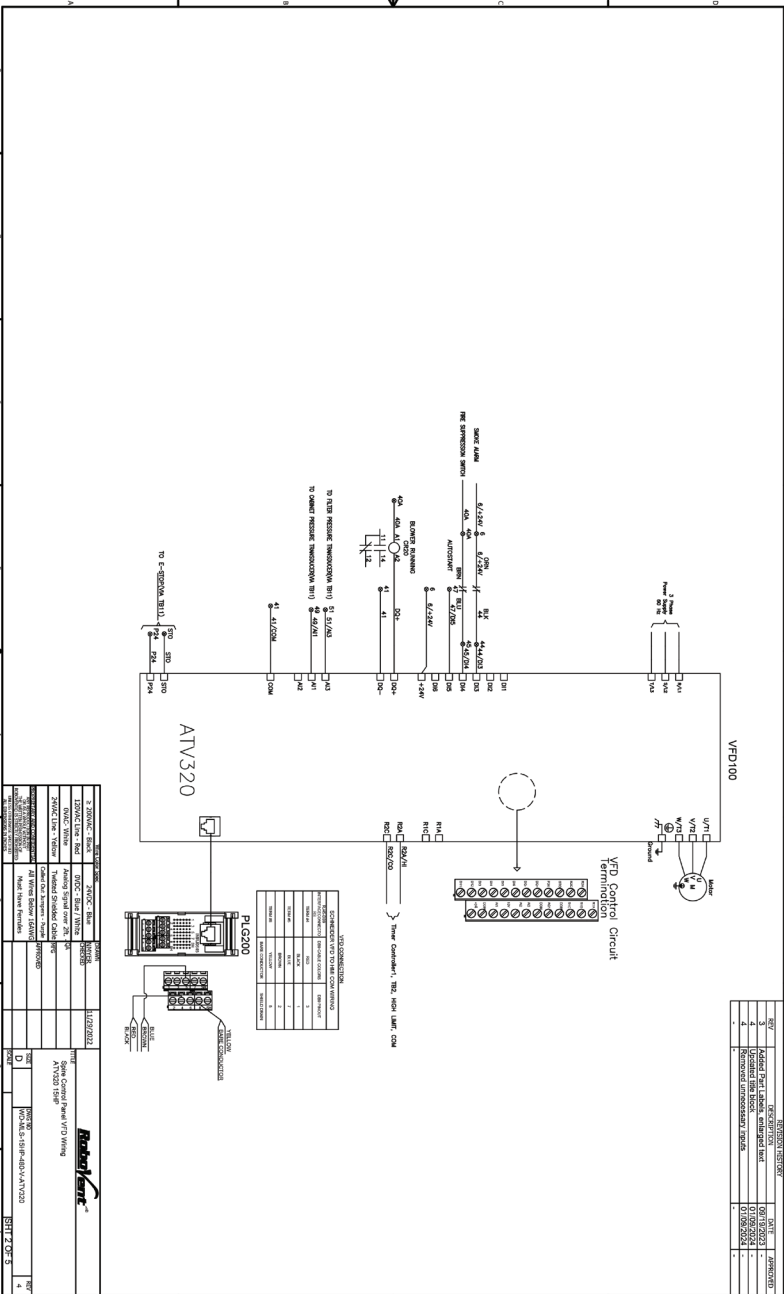
Primary Wiring



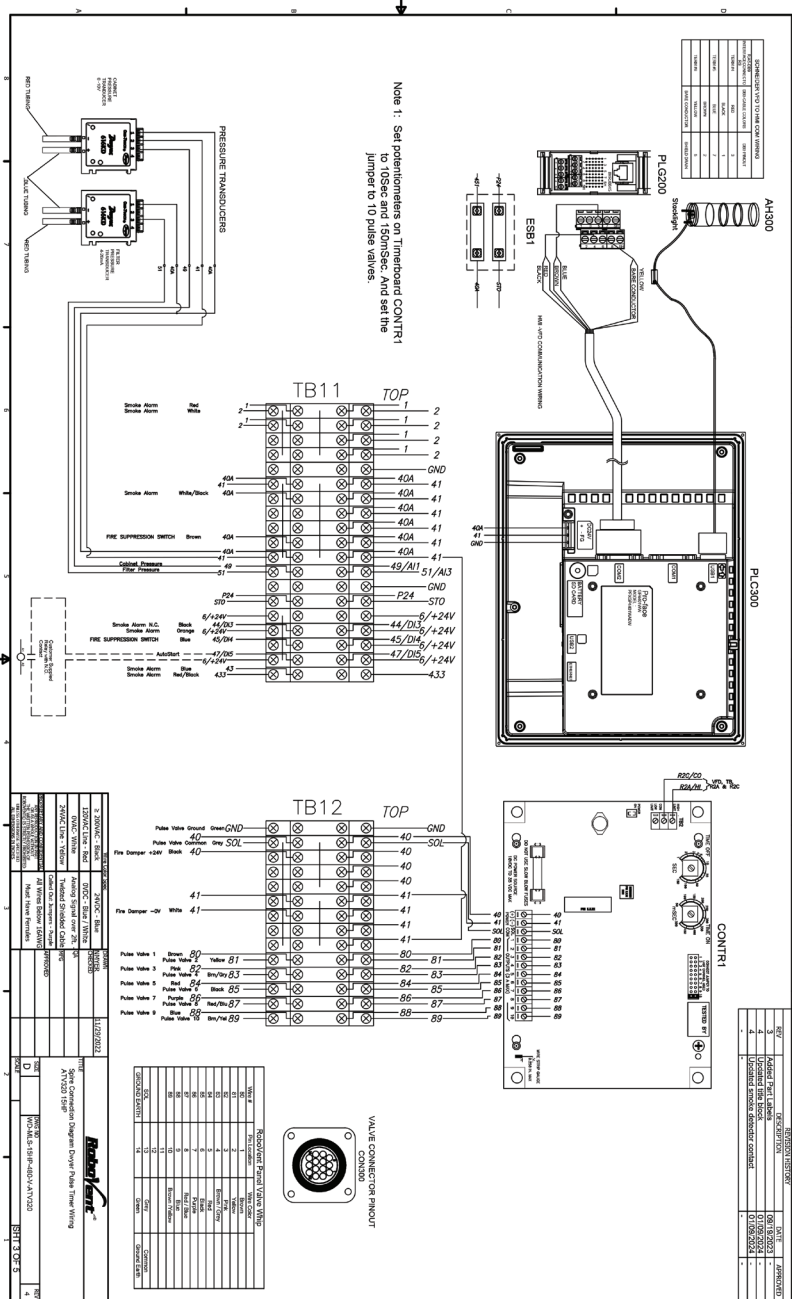
APPENDIX A

Wiring Diagram

Control Panel VFD and Pulse Timer Wiring

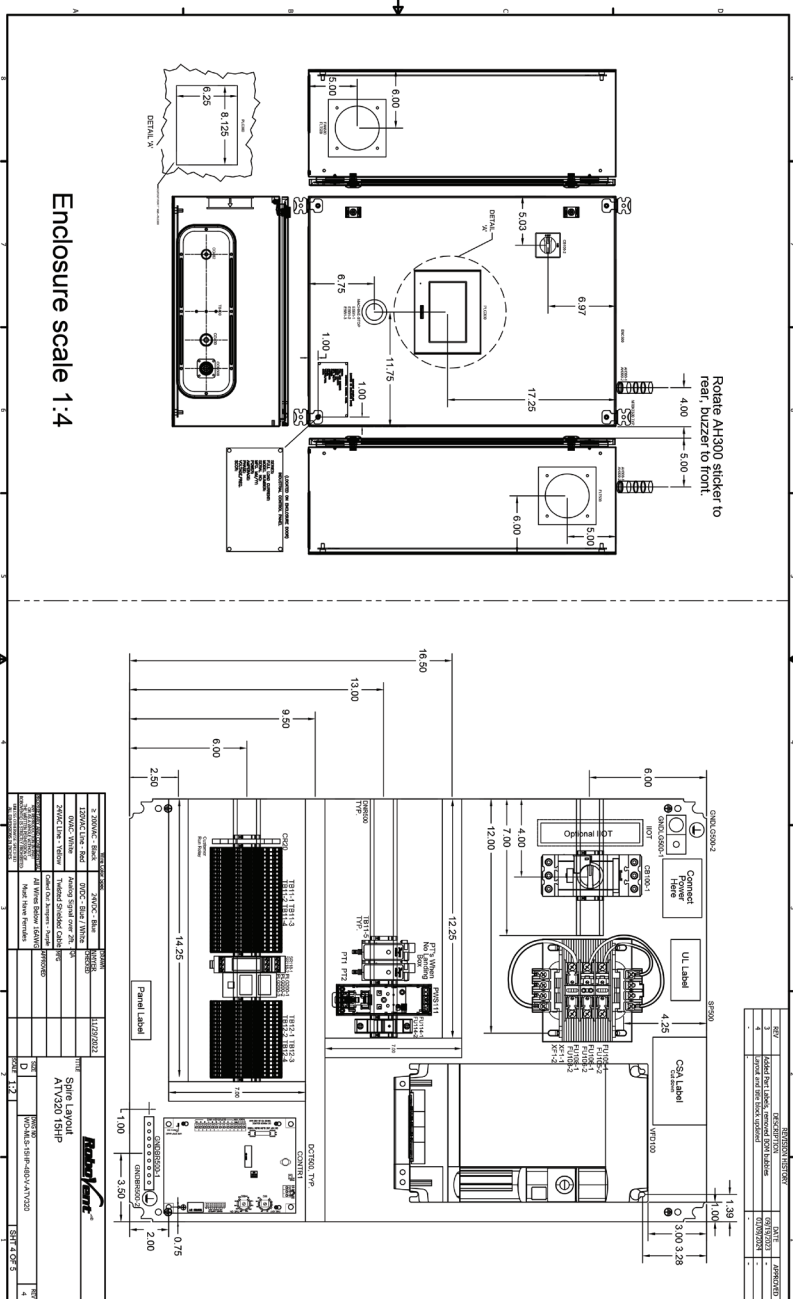


Electrical Enclosure



Wiring Diagram

Control Panel BOM



APPENDIX A

Wiring Diagram

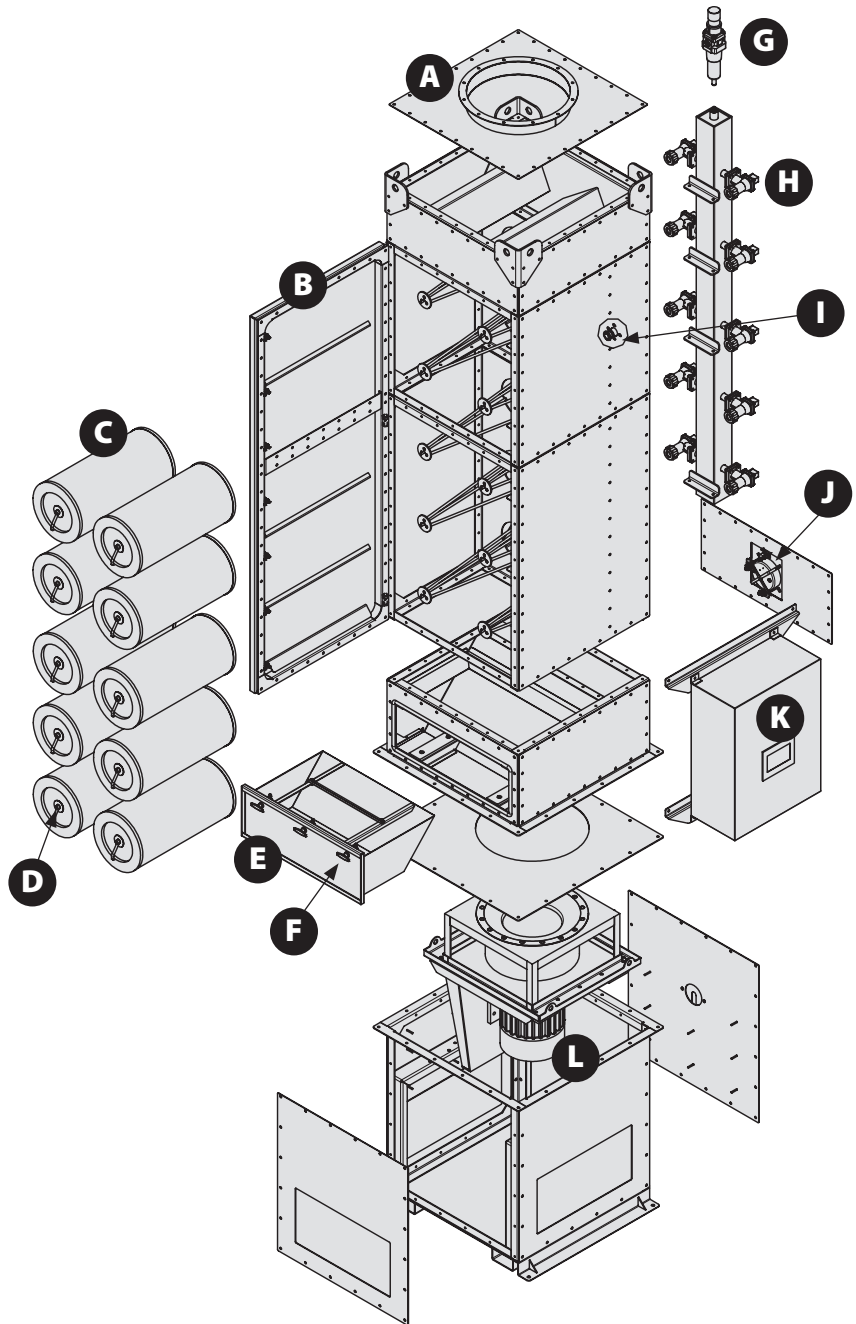
VFD Parameters

Collector					
Item	Robovest Part Number	Manufacturer Part Number	Manufacturer	Description	Part Label
1	T-480-750VA	900077501	SCN-EIDER	750VA 480V 150V light transformer	XFI-1
2	TT-COVER	90007552	SCN-EIDER	Transformer terminal cover 150V to 500V	XFI-2
3	705-5-PULLER	3800791	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
4	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
5	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
6	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
7	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
8	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
9	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
10	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
11	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
12	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
13	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
14	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
15	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
16	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
17	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
18	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
19	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
20	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
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32	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
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46	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
47	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
48	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
49	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2
50	705-5-STOP	3800792	SCN-EIDER	Transformer Fuse Cover	FU05-2, FU08-2

APPENDIX B

Parts List

APPENDIX B
Parts List



APPENDIX B

Parts List

Spire Series

ITEM	QTY	PART NUMBER	DESCRIPTION
A	1	MLS-TP-01	Standard top
B	6	TH-SL	T-Handle latch
C	10	PL-12D26-A15-OC-BDG	Filter
D	10	MLS-FH	Filter Handle
E	1	MLC-FC-01-04	Dust tray
F	3	DL-8	8 mm door latch
G	1	FR-1	Compressed air regulator
H	10	PV-1	Pulse valve
I	10	NS-SPR-200	Jet Pulse cone
J	1	SD-120-91	Safe Sensor
K	1	HMI-PF-7.0	HMI/Control Screen
L	1	15-1885	Motor/Blower/Venturi Assembly



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