RoboVent®

FloorSaver Series (DFS-)

Dust Collectors

Owner's Manual

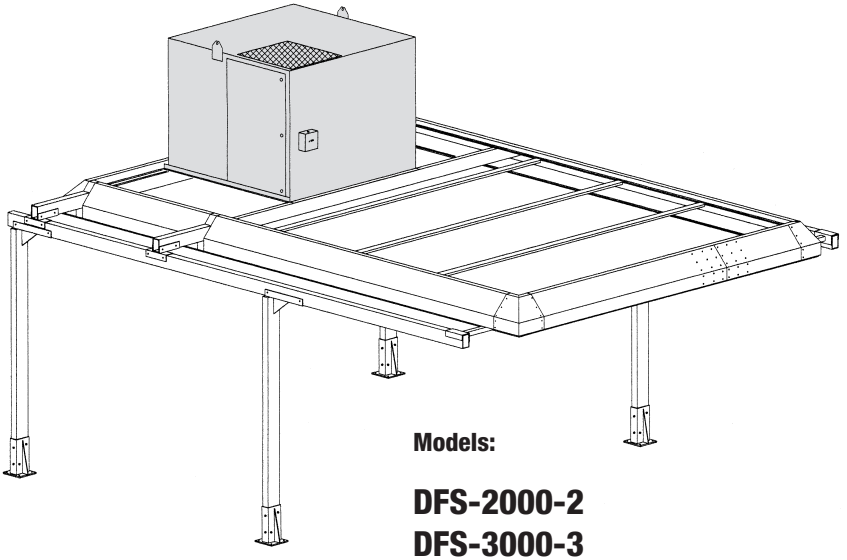
Installation, Operation & Maintenance

Revised 11-30-20

RoboVent®

Owner's Manual

Installation, Operation & Maintenance



Models:

DFS-2000-2
DFS-3000-3
DFS-4000-4
DFS-6000-6
DFS-8000-8
DFS-12000-12

Manufactured by:
RoboVent
37900 Mound Road Sterling Heights, MI 48310 USA
(888) 762-6836 www.robovent.com

Congratulations!

Dear Customer,

Thank you for purchasing the DFS FloorSaver Dust Collector. This manual will help you use the many features available to customize the unit to your specific welding needs.

When your DFS unit needs scheduled maintenance, keep in mind that your local RoboVent distributor has technicians specially trained in servicing our collectors. We would be pleased to set up a preventative maintenance program or answer your questions and concerns.

At RoboVent we are committed to making your plant a safe and healthy environment for your workers. Please take time to read this manual thoroughly before installing and operating the unit.

Table of Contents

SECTION 100

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. **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.

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

SECTION 200

Features of DFS Series Collectors

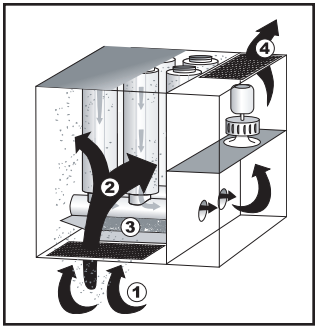


FIGURE 1

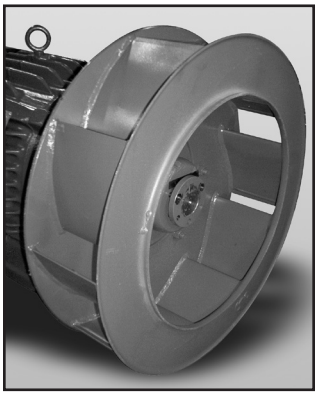


FIGURE 2

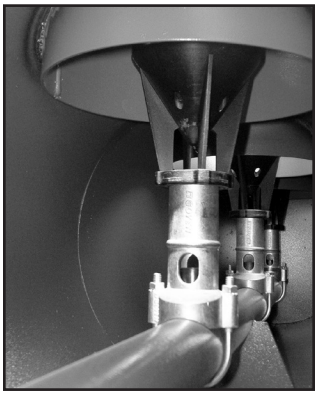


FIGURE 3

1. **The DFS Ductless System**
   The DFS FloorSaver system is a self-contained air cleaning unit that captures fumes at the source, filters impurities and returns clean air into the work place. Your DFS unit is part of the RoboVent FloorSaver system that can be customized to any weld cell configuration and requires no footprint in the plant.

   Energy cost, floor space and improved air quality are only some of the benefits from the DFS product line.

2. **Vertical Filter Design**
   The DFS ductless system utilizes a vertical cartridge filter concept to overcome the tendency for dust in the collector to be re-entrained back onto the filter cartridges after it has been removed from the filters by the Self Cleaning System. The unique design increases filter life by 30% to 40% over traditional horizontal filter placement.

3. **High Performance Blower Design**
   Each DFS Series Dust Collector comes with Air Foil blowers with direct drive motors. This highly efficient blower design and direct drive system maximizes the airflow (CFM) delivered by the motor power requirements. (see Figure 2).

4. **Filter Self-Cleaning System (FSS)**
   The DFS FloorSaver Series comes equipped with an automatic Filter Self-Cleaning System (FSS) utilizing a calculated pulse of high-pressure air into the core of the cartridge filters. This reverse-jet cleaning system can be programmed to best fit your welding application.

5. **Pulse Cleaning Cones and Nozzles**
   The DFS Model Collector utilizes a special cleaning cone and nozzle combination which optimizes the cleaning pulse by ensuring that the developed overpressure in the filter is even throughout the filter element. (see Figure 3).

Features of DFS Series Collectors (continued)

FIGURE 5

6. Automatic Maintenance Indication

The ePad Controller constantly monitors the differential pressure between the dirty and clean sides of the cartridge filters letting you know when the filters should be changed. The ePad is preset with default settings to assure the longest life of your filters. Default settings can be changed to meet your particular situation. See **Appendix A** for changing the default setting of the ePad Controller.

FIGURE 6

7. Control Panel Station

The DFS Series come fully equipped with all needed controls in one compact, control panel. The ePad Controller can be accessed from the front panel allowing ease in changing the ePad Controller settings. (see Figure 5).

8. Sturdy 10 GA Reinforced Collector Housing Construction

This heavy-duty construction secures a lifetime of industrial use. Seams are robotic welded and ground to assure there are no leaks or cracks that could contaminate the facility air system. Each unit is pre-tested for air leaks during construction and again before installation.

9. Large Dust Storage Capacity

Your DFS unit comes equipped with an oversized dust tray. (see Figures 6). 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.)

Features of DFS Series Collectors (continued)

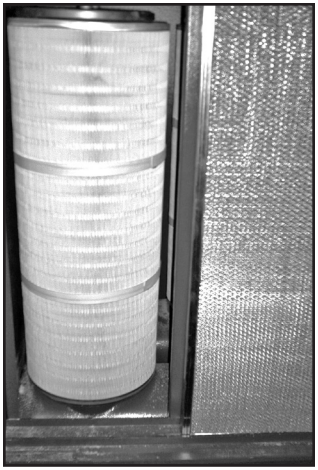


FIGURE 7

10. Front Door Filter Access

Both the spark arrester baffles and the cartridge filters are easily accessible through the filter access door. Filter replacement is made easy and requires less time and effort than traditional side loading systems. (see Figure 7)

11. 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. (see Figure 8)

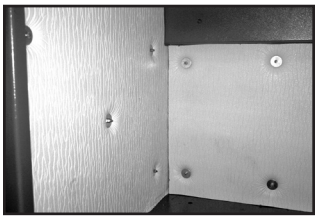


FIGURE 8

12. Smoke Detection Shut-Down System

Each DFS unit is equipped with a Smoke Detection Shut-Down System. In the event that a fire or excessive smoke should appear in the clean air plenum, the blower wheel and ePad Controller will automatically shut down and a strobe light will be activated.

13. High Efficiency Pre-Coated Filters

High efficiency filter media is used in the construction of the pleated cartridge filters. The high density, pre-coated filter allows the air to flow slowly past the filter media to lay the dust gently on the outside surface, allowing it to be pulsed off easily. Filter construction, media and the pre-coat process assures more efficient smoke capture and longer filter life.

SECTION 300

Receiving & Inspection

Receiving

RoboVent Equipment is typically shipped on skids or in crates. The number of skids/ crates will vary, depending on the type, size and accessories ordered. These skids/ crates are too heavy to lift by hand, and will need to be unloaded by an industrial fork-truck or similar equipment.

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, or call the factory at 1-(888)-762-6836.

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 400

General Description: DFS Series Collectors

FIGURE 9

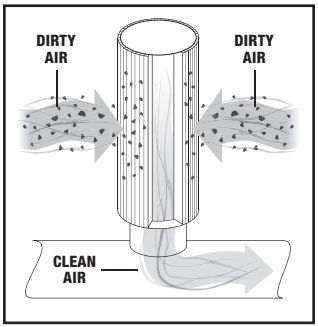


FIGURE 10

The DFS Series Collectors are a compact, continuous duty, self-contained dust collector. The units consist of a housing with blower, motor, integral silencer, filter cartridges, spark arrester baffles and pulse cleaning system. (see Figure 9).

The Filter Self-Cleaning System (FSS)

The DFS Series is a reverse jet-pulse dust collector with a powerful Filter Self-Cleaning System (FSS). The FSS utilizes a calculated reverse jet-pulse of air into the inner core of the cartridge filter. (see Figure 10). This shock wave of reverse air will dislodge particulate that has caked on the outside of the cartridge filter. As the filter cartridges are mounted vertically, the dislodged dust eventually works its way down to the lower collection tray. This process reconditions the filter media and can prolong cartridge life for several months (filter life depends upon your application).

General Operation

Dust and smoke laden air is drawn through the floor of an enlarged intake plenum where it passes through a dual layered spark arrestor before entering the cartridge plenum. Dust particles are then collected on the surface of the pleated filter cartridges as air flows through the high efficiency media and into the clean air duct. Recycled air is then exhausted by the blower fan through an acoustically designed motor plenum.

To operate your new DFS unit, you will need to connect both electrical power and compressed air.
See **“Installation”**.

RoboVent

Specifications

Model DFS-2000-2

Filter Media: Comparable to 710 square feet

Filter Cartridges: (2) EX-14D36-A13, Blended Non-Woven Media, Nanofiber

Electrical Requirements: 480 Volt, 3 phase, 3.0 amps, 3.7 amps**

Built-in Spark Arrestance:
(2) Metal Mesh (Part#: MM-17402)
(2) Spark Arrestance Baffles (Part#: FB-17402)

Pulse Valves: (2) 1", Electronically Actuated Solenoids

Compressed Air Requirements: 1.0 SCFM On-Line Pulse; 6.0 SCFM Off-Line Pulse @ 80 PSI

Silencing: Built-in Acoustical Lining

Weight: 1,190-1,330 Lbs. (depends on options) without stand

Dimensions: 59" W x 30" D x 60" H

ePad Controls: Included

Model Number	Configuration	CFM IN W.C	Air to Cloth Ratio
DFS-2000-2-M1530	2 HP/15" @ 30%	1200 @ 5"	1.7:1
DFS-2000-2-M1632	3 HP/16" @ 32%	1850 @ 5"	2.6:1
DFS-2000-2-M1830-V	5 HP/18" @ 30% w/VFD	1700 @ 12"	2.4:1

Standard Features:

PowerFlex™: Pulsing System to deliver constant pulsing pressure across entire filter

E-Pad™: Control Board - Touch Screen Panel to control all system Functions

SafeSensor™: Particulate Monitoring Device

Heavy Duty Construction: Fully welded 7-10 Gauge Steel

Nema 12 Super Seal Doors and Control Panel Enclosure

Internal Slide-Out Dust Tray: For Fast and Easy Removal of Accumulated Particulate

Available Options:

E-Drive™: Automatically adjust the Airflow via a Flow Monitor and VFD to extend Filter Life and Reduce Energy Cost by up to 30%.

AutoSaver™: Auto On/Off Feature.

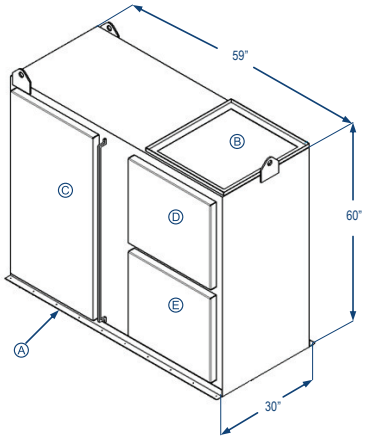
Supprex-200™: A Proprietary Engineered Fire Suppression System designed specifically for Collector systems.

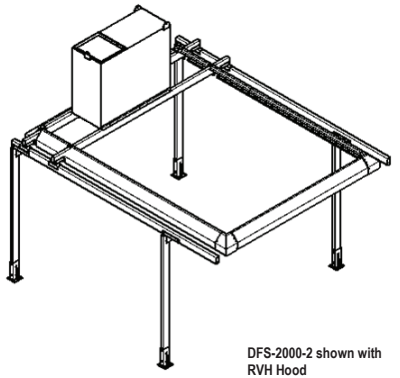
HEPA After Filters

Acoustical Sound Plenum: Reduces Sound Levels up to 50%.

E-Pad™ XE: Premium Controls Upgrade

Ⓐ **Inlet**
Ⓑ **Clean Air Exhaust**
Ⓒ **Filter Access Door**
Ⓓ **Motor Enclosure Door**
Ⓔ **Electrical Enclosure**





DFS-2000-2 shown with RVH Hood

888.ROBOVENT (888.762.6836)

Rev.#1 7/21/11

RoboVent

Specifications

Model DFS-3000-3

Filter Media: Comparable to 1,065 square feet

Filter Cartridges: (3) EX-14D36-A13, Blended Non-Woven Media, Nanofiber

Electrical Requirements: 480 Volt, 3 phase, 3.7 amps, 6.2 amps, and 9.2 amps**

Built-in Spark Arrestence:
(2) Metal Mesh (Part#: MM-17402)
(2) Spark Arrestence Baffles (Part#: FB-17402)

Pulse Valves: (3) 1", Electronically Actuated Solenoids

Compressed Air Requirements:
1.0 SCFM On-Line Pulse; 6.0 SCFM Off-Line Pulse @ 80 PSI

Silencing: Built-in Acoustical Lining

Weight: 1,410-1,560 Lbs. (depends on options) without Stand

Dimensions: 73" W x 30" D x 60" H

ePad Controls: Included

Model Number	Configuration	CFM IN W.C	Air to Cloth Ratio
DFS-3000-3-M1632	3 HP/16" @ 32%	1850 @ 5"	1.7:1
DFS-3000-3-M1830	5 HP/16" @ 30%	2650 @ 5"	2.5:1
DFS-3000-3-M2030-V	10 HP/20" @ 30% w/VFD	2700 @ 13"	2.5:1

Standard Features:

PowerFlex™: Pulsing System to deliver constant pulsing pressure across entire filter

E-Pad™: Control Board - Touch Screen Panel to control all system Functions

Safe Sensor™: Particulate Monitoring Device

Heavy Duty Construction: Fully welded 7-10 Gauge Steel

Nema 12 Super Seal Doors and Control Panel Enclosure

Internal Slide-Out Dust Tray: For Fast and Easy Removal of Accumulated Particulate

Available Options:

E-Drive™: Automatically adjust the Airflow via a Flow Monitor and VFD to extend Filter Life and Reduce Energy Cost by up to 30%.

AutoSaver™: Auto On/Off Feature.

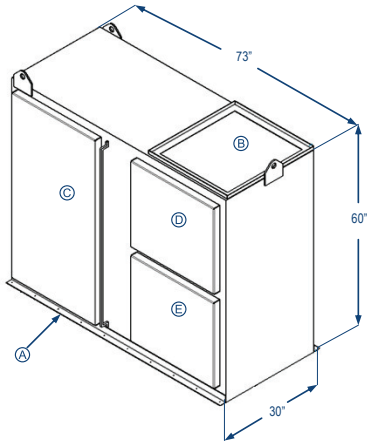
Supprex-200™: A Proprietary Engineered Fire Suppression System designed specifically for Collector systems.

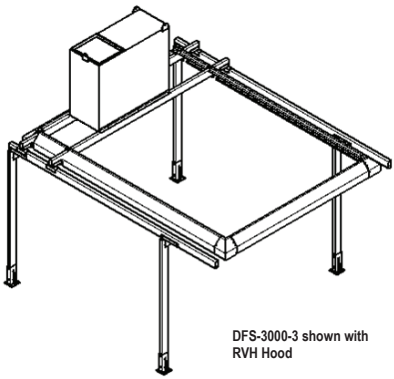
HEPA After Filters

Acoustical Sound Plenum: Reduces Sound Levels up to 50%.

E-Pad™ XE: Premium Controls Upgrade

Ⓐ **Inlet**
Ⓑ **Clean Air Exhaust**
Ⓒ **Filter Access Door**
Ⓓ **Motor Enclosure Door**
Ⓔ **Electrical Enclosure**





DFS-3000-3 shown with RVH Hood

888.ROBOVENT (888.762.6836)

Rev.#1 7/21/11

RoboVent

Specifications

Model DFS-4000-4

Filter Media: Comparable to 1,420 square feet

Filter Cartridges: (4) EX-14D36-A13, Blended Non-Woven Media, Nanofiber

Electrical Requirements: 480 Volt, 3 phase, 6.2 amps, 9.2 amps, 17.5** amps

Built-in Spark Arrestance:
(2) Metal Mesh (Part#: MM-17402)
(2) Spark Arrestance Baffles (Part#: FB-17402)

Pulse Valves: (2) 1.5", Electronically Actuated Solenoids

Compressed Air Requirements:
1.3 SCFM On-Line Pulse; 7.8 SCFM Off-Line Pulse @ 80 PSI

Silencing: Built-in Acoustical Lining

Weight: 1,850-2,100 Lbs. (depends on options) without Stand

Dimensions: 60" W x 60" D x 60" H

ePad Controls: Included

Model Number	Configuration	CFM IN W.C	Air to Cloth Ratio
DFS-4000-4-M1830	5 HP/18" @ 30%	2650 @ 5"	1.9:1
DFS-4000-4-M1836	7.5 HP/18" @ 36%	3200 @ 5"	2.3:1
DFS-4000-4-M2230-V	15 HP/22" @ 30% w/VFD	3000 @ 19"	2.2:1

Standard Features:

PowerFlex™: Pulsing System to deliver constant pulsing pressure across entire filter

E-Pad™: Control Board - Touch Screen Panel to control all system Functions

SafeSensor™: Particulate Monitoring Device

Heavy Duty Construction: Fully welded 7-10 Gauge Steel

Nema 12 Super Seal Doors and Control Panel Enclosure

Internal Slide-Out Dust Tray: For Fast and Easy Removal of Accumulated Particulate

Available Options:

E-Drive™: Automatically adjust the Airflow via a Flow Monitor and VFD to extend Filter Life and Reduce Energy Cost by up to 30%.

AutoSaver™: Auto On/Off Feature.

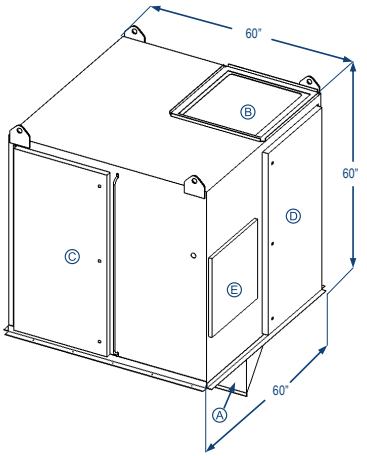
Supprex-200™: A Proprietary Engineered Fire Suppression System designed specifically for Collector systems.

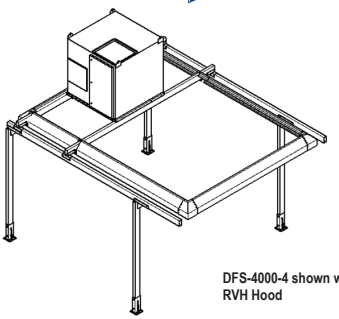
HEPA After Filters

Acoustical Sound Plenum: Reduces Sound Levels up to 50%.

E-Pad™ XE: Premium Controls Upgrade

Ⓐ **Inlet**
Ⓑ **Clean Air Exhaust**
Ⓒ **Filter Access Door**
Ⓓ **Motor Enclosure Door**
Ⓔ **Electrical Enclosure**





DFS-4000-4 shown with RVH Hood

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Rev.#1 7/21/11

RoboVent

Specifications

Model DFS-6000-6

Filter Media: Comparable to 2,130 square feet

Filter Cartridges: (6) EX-14D36-A13 Blended Non-Woven Media, Nanofiber

Electrical Requirements: 480 Volt, 3 phase, 9.2 amps, 9.2 amps, 23.5 amps**

Built-in Spark Arrestance:
(3) Metal Mesh (Part#: MM-17402)
(3) Spark Arrestance Baffles (Part#: FB-17402)

Pulse Valves: (2) 1.5", Electronically Actuated Solenoids

Compressed Air Requirements:
2.0 SCFM On-Line Pulse; 12.0 SCFM Off-Line Pulse @ 80 PSI

Silencing: Built-in Acoustical Lining

Weight: 2,080-2,290 Lbs. (depends on options) without Stand

Dimensions: 76" W x 60" D x 60" H

ePad Controls: Included

Model Number	Configuration	CFM IN W.C	Air to Cloth Ratio
DFS-6000-6-M1846	7.5 HP/18" @ 46%	4050 @ 5"	1.9:1
DFS-6000-6-M1855	10 HP/18" @ 55%	4900 @ 5"	2.3:1
DFS-6000-6-M2235-V	20 HP/22" @ 35% w/VFD	4650 @ 15"	2.2:1

Standard Features:

PowerFlex™: Pulsing System to deliver constant pulsing pressure across entire filter

E-Pad™: Control Board - Touch Screen Panel to control all system Functions

SafeSensor™: Particulate Monitoring Device

Heavy Duty Construction: Fully welded 7-10 Gauge Steel

Nema 12 Super Seal Doors and Control Panel Enclosure

Internal Slide-Out Dust Tray: For Fast and Easy Removal of Accumulated Particulate

Available Options:

E-Drive™: Automatically adjust the Airflow via a Flow Monitor and VFD to extend Filter Life and Reduce Energy Cost by up to 30%.

AutoSaver™: Auto On/Off Feature.

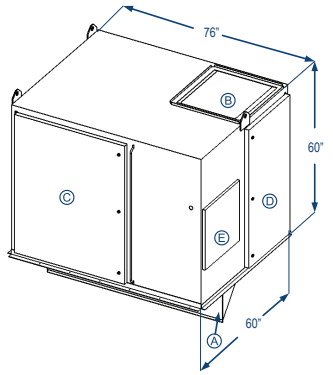
Supprex-200™: A Proprietary Engineered Fire Suppression System designed specifically for Collector systems.

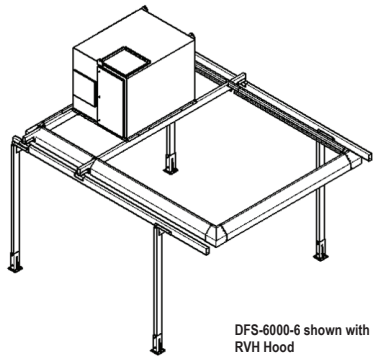
HEPA After Filters

Acoustical Sound Plenum: Reduces Sound Levels up to 50%.

E-Pad™ XE: Premium Controls Upgrade

Ⓐ **Inlet**
Ⓑ **Clean Air Exhaust**
Ⓒ **Filter Access Door**
Ⓓ **Motor Enclosure Door**
Ⓔ **Electrical Enclosure**





DFS-6000-6 shown with RVH Hood

888.ROBOVENT (888.762.6836)

Rev.#1 7/21/11

RoboVent

Specifications

Model DFS-8000-8

Filter Media: Comparable to 2,840 square feet

Filter Cartridges: (8) EX-14D36-A13, Blended Non-Woven Media, Nanofiber

Electrical Requirements: 480 Volt, 3 phase, 9.2 amps, 17.5 amps, 23.5 amps**

Built-in Spark Arrestance:
(4) Metal Mesh (Part#: MM-17402)
(4) Spark Arrestance Baffles (Part#: FB-17402)

Pulse Valves: (2) 2", Electronically Actuated Solenoids

Compressed Air Requirements:
6.5 SCFM On-Line Pulse; 39.0 SCFM Off-Line Pulse @ 80 PSI

Silencing: Built-in Acoustical Lining

Weight: 2,310-2,495 Lbs. (depends on options) without Stand

Dimensions: 92" W x 60" D x 60" H

ePad Controls: Included

Model Number	Configuration	CFM IN W.C	Air to Cloth Ratio
DFS-8000-8-M1855	10 HP/18" @ 55%	4900 @ 5"	1.7:1
DFS-8000-8-M1870	15 HP/18" @ 70%	6200 @ 5"	2.2:1
DFS-8000-8-C2245-V	20 HP/22" @ 45% w/VFD	6000 @ 15"	2.1:1

Standard Features:

PowerFlex™: Pulsing System to deliver constant pulsing pressure across entire filter

E-Pad™: Control Board - Touch Screen Panel to control all system Functions

SafeSensor™: Particulate Monitoring Device

Heavy Duty Construction: Fully welded 7-10 Gauge Steel

Nema 12 Super Seal Doors and Control Panel Enclosure

Internal Slide-Out Dust Tray: For Fast and Easy Removal of Accumulated Particulate

Available Options:

E-Drive™: Automatically adjust the Airflow via a Flow Monitor and VFD to extend Filter Life and Reduce Energy Cost by up to 30%.

AutoSaver™: Auto On/Off Feature.

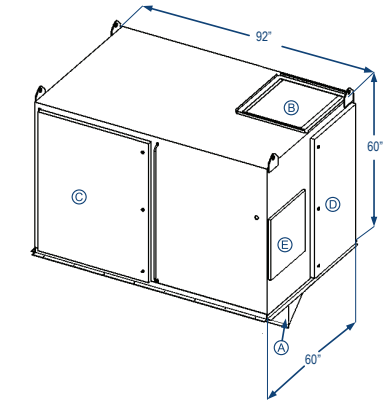
Supprex-200™: A Proprietary Engineered Fire Suppression System designed specifically for Collector systems.

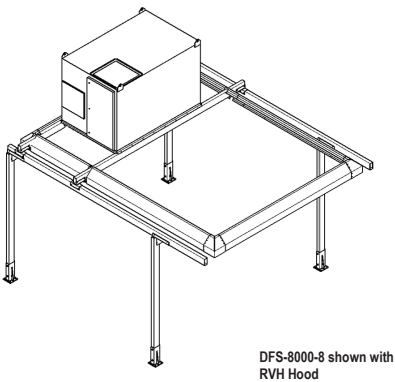
HEPA After Filters

Acoustical Sound Plenum: Reduces Sound Levels up to 50%.

E-Pad™ XE: Premium Controls Upgrade

Ⓐ **Inlet**
Ⓑ **Clean Air Exhaust**
Ⓒ **Filter Access Door**
Ⓓ **Motor Enclosure Door**
Ⓔ **Electrical Enclosure**





DFS-8000-8 shown with RVH Hood

888.ROBOVENT (888.762.6836)

Rev.#1 7/21/11

RoboVent® **Specifications**

Model DFS-12000-12

Filter Media: Comparable to 4,260 square feet

Filter Cartridges: (12) EX-14D36-A13, Blended Non-Woven Media Nanofiber

Electrical Requirements: 480 Volt, 3 phase, 17.5 amps, 17.5 amps, 23.5 amps, 36.0 amps**

Built-in Spark Arrestance:
(6) Metal Mesh (Part#: MM-17402)
(6) Spark Arrestance Baffles (Part#: FB-17402)

Pulse Valves: (2) 1.5", Electronically Actuated Solenoids

Compressed Air Requirements:
2.6 SCFM On-Line Pulse; 15.6 SCFM Off-Line Pulse @ 80 PSI

Silencing: Built-in Acoustical Lining

Weight: 3,990-4,120 Lbs. (depends on options) without Stand

Dimensions: 124" W x 60" D x 60" H

ePad Controls: Included

Model Number	Configuration	CFM IN W.C	Air to Cloth Ratio
DFS-12000-12-15-M1870	15 HP/18" @ 70%	6200 @ 5"	1.5:1
DFS-12000-12-15-M1890	15 HP/18" @ 90%	7950 @ 5"	1.9:1
DFS-12000-12-30-M18100	20 HP/18" @ 100%	8900 @ 5"	2.1:1
DFS-12000-12-30-C2270-V	30 HP/22" @ 70% w/VFD	8700 @ 17"	2.0:1

Standard Features:

PowerFlex™: Pulsing System to deliver constant pulsing pressure across entire filter

E-Pad™: Control Board - Touch Screen Panel to control all system Functions

SafeSensor™: Particulate Monitoring Device

Heavy Duty Construction: Fully welded 7-10 Gauge Steel

Nema 12 Super Seal Doors and Control Panel Enclosure

Internal Slide-Out Dust Tray: For Fast and Easy Removal of Accumulated Particulate

Available Options:

E-Drive™: Automatically adjust the Airflow via a Flow Monitor and VFD to extend Filter Life and Reduce Energy Cost by up to 30%.

AutoSaver™: Auto On/Off Feature.

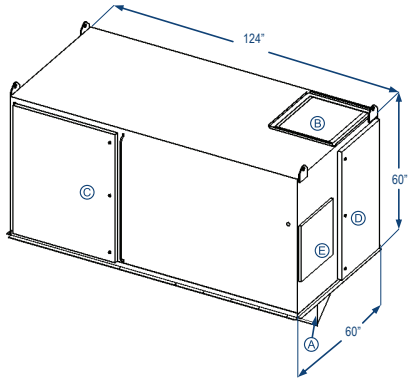
Supprex-200™: A Proprietary Engineered Fire Suppression System designed specifically for Collector systems.

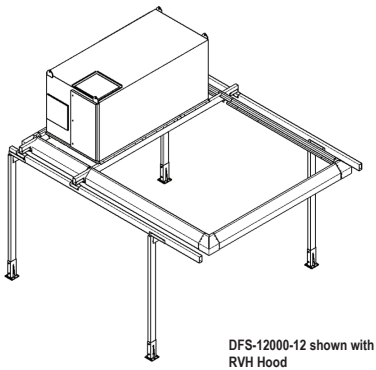
HEPA After Filters

Acoustical Sound Plenum: Reduces Sound Levels up to 50%.

E-Pad™ XE: Premium Controls Upgrade

Ⓐ **Inlet**
Ⓑ **Clean Air Exhaust**
Ⓒ **Filter Access Door**
Ⓓ **Motor Enclosure Door**
Ⓔ **Electrical Enclosure**





DFS-12000-12 shown with RVH Hood

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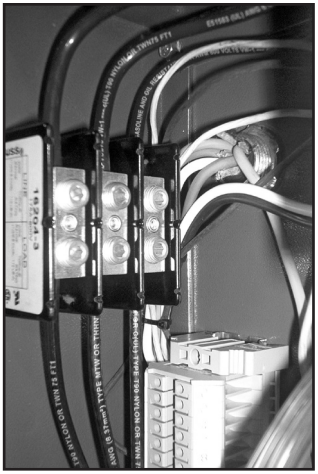


FIGURE 11

Electrical Hook-Up
The DFS Collectors require a 3 phase, 460 volt electrical feed. (Other voltages are also available). Amperage requirements for the motor can be found under **"Specifications"** for the particular DFS model. Electrical connections should only be done by a licensed electrician and in accordance with NEC and all applicable local codes.

Note: The complete enclosure of the DFS Model is CSA certified. The control panel and all electrical mechanical components are UL certified. CSA and UL certification numbers are located on each component and or on the control panel door and the cartridge filter door. If further documentation is needed for CSA or UL certification contact the RoboVent Service Department at 800-470-3430.

A 460 volt, 3 phase service should be connected to the provided lugs inside the J-box as shown in Figure 11.

FIGURE 12

Compressed Air Hook-Up
IMPORTANT! First and foremost, your DFS unit needs a clean, dry compressed air source, approximately 90 PSI. Many problems can be traced back to the presence of either oil or water in the compressed air stream. If contamination is present, both the cartridges and cleaning system will suffer.

The DFS series come complete with an air regulator and accumulator. In most cases the provided accumulator will trap a low volume of oil and water in your systems air lines. In some rare cases however, a larger accumulator might be needed.

On the back of the DFS unit is a 3/4" pipe for connecting the provided air regulator. Install as shown in Figure 12.

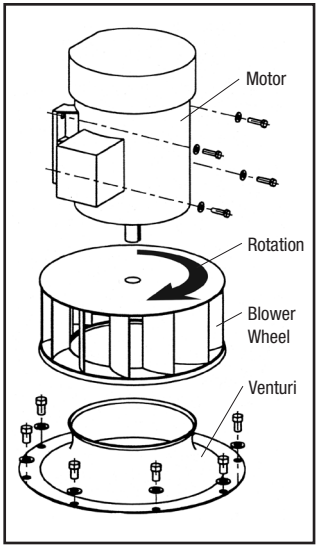


FIGURE 13

After running the DFS for 50 hours unscrew the filter element from the accumulator housing and examine the filter element. If the element already shows excessive contamination, a larger accumulator will need to be installed. A dryer may also need to be placed in the line before the accumulator.

Blower Rotation

IMPORTANT! Check blower rotation of the unit by jogging the motor. Blower rotation should be CLOCKWISE when viewed from above the unit. *The blower will still draw air if the motor is running backward but the air draw will only be a fraction of what it should be!* (see Figure 13).

A visual inspection will verify that the motor is turning clockwise when viewed from above the unit.

Accessories

If your DFS Dust Collector is supplied with some of the available optional accessories, these may need to be wired into the system.

Auto On/Off Option

For the Automatic Operation Option, the supplied current transformer must be positioned around one of the power conductors to the welding power supply, and secured so as to avoid physical damage. This usually involves disconnecting the conductor, installing the current transformer, and then re-connecting the system.

Fire Suppression System

Your DFS equipment comes standard with the “Smoke Detection Shut-Down” system. This equipment will shut down the blower and ePad Controller but will not extinguish a fire. The optional Fire Suppression System uses a FM-200 agent to suppress a fire along with extra controls that shut off the intake and exhaust plenums. This system is wired into the control panel when purchased with the equipment.

Automatic VFD Drives

A Variable Frequency Drive (VFD) Option is also available on the DFS equipment. VFD’s and velocity transmitters are pre-wired into the control panel and DFS unit.

Operation

FIGURE 15

Before operating your DFS Dust Collector, double check the following items:

1. Be sure all electrical connections are secure and wired properly.
2. Double check blower rotation. (see Figure 13).
3. Check the compressed air connection.
4. Before starting the unit make sure the motor plenum door is locked shut.

Starting the DFS Collector

The DFS system comes complete with full electrical controls and automatic pulsing system. The entire contents of the control systems are installed inside the electrical enclosure.

The Electrical Control Panel inside the equipment cabinet contains the Service Disconnect, Motor Starters and Controller. With the Service Disconnect in the “ON” position press the “SYSTEM START” button on the touch screen (this may either be remote, or mounted on the unit) to energize the control system, then continue through the “MAN FAN” and “LIGHTS” and/or “START MODE” screens (if these option are applicable) to the “BLOWER CONTROL” to engage the Motor Starters and start the system blowers.

Auto On/Off Option

If your system is equipped with the Auto-Start Feature, a “START MODE SELECTOR” screen will appear during the above process (see Figure 15). Touch the selector switch image to toggle between HAND and AUTO. In the “AUTO” mode, the blower is cycled automatically when triggered by welder operation and automatically turns the unit off after approximately 3 minutes of inactivity. The “HAND” position overrides this function and the blower operates continuously.

ePad Automatic Pulse Controller
The DFS Series Collectors come equipped with the RoboVent ePad controls, which includes automatic control of all pulse cleaning functions. The Controller constantly measures the pressure across the filter surface and provides a display in both kilopascals (kPa) and inches of Water (in. WC). This Pressure Differential value shows the pressure drop across the filters, helping to gauge filter life. Once the pressure across the filter has risen by a pre-set factor, the self-cleaning system will begin to operate. (see **APPENDIX A**).

On-Line Cleaning vs Off-Line Cleaning
The On-Line Cleaning Cycle pulses the equipment while it is running by a pre-set time programmed into the controller. (see **APPENDIX A**). The on-line default setting is 90 seconds. Once the differential pressure between the clean and dirty sides of the filters has reached a pre-determined pressure, a signal will be sent to one of the pressure valves and compressed air will back-flush that line of cartridges. This helps keep the dust loose so that the off-line cleaning can remove the dust from the filter.

Off-line cleaning happens automatically every time the system is shut down. This is the most effective means of removing the dust from the filters. The duration and frequency of this cleaning cycle is programmed into the controller. (see **APPENDIX A**).

IMPORTANT!
The off-line cleaning cycle is extremely important for extended filter life! Therefore, it is important that power to the ePad Controller is not disconnected via the main disconnect switch on the control panel. The DFS should be powered on via the ePad touch screen. Turn off the main disconnect only when servicing the unit.

A record of this pressure differential should be recorded periodically and kept for future reference. During use of your DFS the differential pressure will increase as the filters load up. (Cartridge filters should be replaced when the gauge reads approximately 2.7 kPa. to 3.4 kPa.) To change cartridges follow the procedure for "**Cartridge Filter Maintenance**".

Note: 1 kPa is equivalent to approximately 4 inches of water gauge.

SECTION 800

Standard Maintenance Procedure

Note: To be performed while there is no welding occurring

1. Record ΔP/Static pressure reading from the controller while the unit is operating
2. Turn off the system (Blower motor only!)
3. Set the controller to Maintenance/Pulse mode for filter cleaning. Verify solenoid operation by placing your hand near the solenoids and feeling a rapid air discharge from each solenoid.

   Note: The amount of cleaning is directly proportional to the time devoted. A minimum of 1⁄2 hour is necessary. There is no maximum time limit.
4. Set the controller to Automatic to stop the pulsing (**DO NOT** start the motor.)
5. Remove and replace Spark Arrestance filters. (Metallic Baffle and metal mesh filter at the welding area inlets)

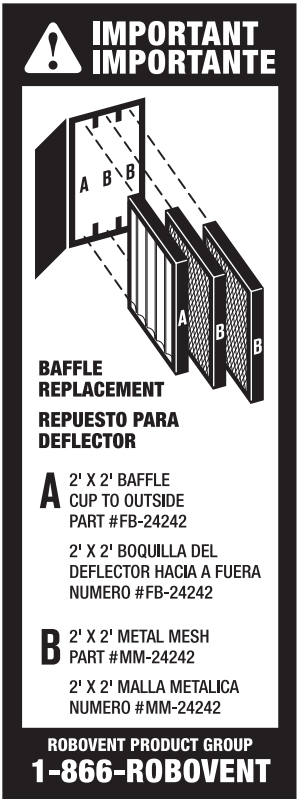
   A. Clean the entire inlet plenum to include:

      i. Spark deflector plate

      ii. Spark arrestor filter (metallic filter) tracks and cover door

      iii. Inlet Plenum Box (inside and outside)

   Note: Most particulate can usually be vacuumed out; however, if it is high in oil content, it will tend to smear. If smearing occurs then a commercial degreaser can be used to assist in cleaning. The cleaning does not have to return the system to new condition, but should be void of pockets of particulate.



6. Replace all metallic metal mesh and baffle filters in the welding areas inlets with clean ones.

Standard Maintenance Procedure (continued)

7. Empty the dust tray and leave it out of the collector.

   Note: Observe through the dust tray slot, with a flashlight, that there are no residual piles of left over particulate. If excessive material is left over there are two options:

   A. Vacuum out the visible material through the dust tray slot. Or:

   B. Start the blower motor. The residual material will mix with the air current and reentrain itself onto the filters. Compressed air can be used to blow in thru the slot and speed the process. If an equal amount of material is in the unit to what was removed, then reinsert the dust tray and repeat steps 2, 4, 5, and 6 for 15 minutes. Then empty the dust tray.

8. Insert the dust tray and lock in place.

9. Turn on the collector and record the new ΔP/Static Pressure.

10. Open the petcock valve on the solenoid accumulator and verify that there is no moisture in the compressed air stream.

11. Check for excessive motor/blower vibration.

12. Check overall system for any loose bolts or screws, and also door latches, hinge wear.

13. Verify that compressed air pressure is set to 80 PSI

14. Wipe off any major hand prints off collector door, control panel that may have gotten there while doing the service.

15. Clean up any fallen debris from the system service.

16. Observe the welding process when possible and determine if sparks are getting near the inlet.

Notes:

- Any single spark has the potential to cause a fire. Observation is always the best way to determine if potential exists or if something has changed since the last service.
- If the welding parameters change, (i.e. weld wire size, shielding gas mixture, new parts or supplier) then we should verify spark containment away from the inlets.

SECTION 800

Filter Change Maintenance Procedure

Note: To be performed while there is no welding occurring

1. Record ΔP/Static pressure reading from the controller while the unit is operating
2. Turn off the system completely (SYSTEM OFF)
3. Turn off the main power disconnect.
4. Open the dust collector filter door.
5. Remove and replace Spark Arrestance filters. (Metallic Baffle and metal mesh filter at the welding area inlets)
6. Remove and replace Spark Arrestance filters.

   A. Clean the entire inlet plenum to include:

      i. Spark deflector plate

      ii. Spark arrestor filter (metallic filter) tracks and cover door

      iii. Inlet Plenum Box (after Metal Mesh filters)

   Note: Most particulate can usually be vacuumed out; however, if it is high in oil content, it will tend to smear. If smearing occurs then a commercial degreaser can be used to assist in cleaning. The cleaning does not have to return the system to new condition, but should be void of pockets of particulate.

7. Empty the dust tray and replace in its slot.
8. Remove the Endurex (paper pleated) filters. As a stack of filters are removed, place the Top Pan, located on the top of each stack over the filter seat at the bottom of the lower filter. This is to prevent particulate from getting into the clean air side of the collector. Continue until all filters are removed. Close the filter access door.

   Note: It may be easier to place a piece of plywood over the exposed holes (filter seats) to make things easier. The top pans are strong enough to walk on, but plywood placed on the openings is preferable.

9. Climb on top of the dust collector and disconnect the 1st clamp on the ductwork up from the flange attached to the unit. Slide the ductwork to the side so that the “Strike Plate” is accessible from the top. Clean the plate by either vacuuming or scraping debris. If scraping, just push the built up particulate over the edges and it will fall toward the dust tray). Excessive build-up should be scraped only, as it is much faster to perform this task. You may have to reposition the duct to get to all the plate. Clean the bottom of the top of

the collector as far as you can reach. Upon completion, reconnect the duct to its original configuration.

10. Access the filter cabinet to continue the cleaning of the unit. The goal is to remove all pockets of built up particulate.

    Note: Monitor the dust tray from time to time to verify that it is not overflowing.

11. Remove and empty the dust tray. Observe thru the dust tray slot that all particulate has been removed. If pockets of particulate are present, they should be vacuumed up to prevent it from reentering onto the new filters. Reinstall the dust tray.

12. Place the new cartridge filters into the dust collector. The filters have metal end caps. The bottom has a rubber gasket. They must be installed in this configuration only to ensure a proper seal. Place the 1st (bottom) filter on center, over the "seat" or opening. The filter will be level and stable (no rocking) when properly set. Look down through the center of the filter to verify uniformity to the filter "seat" inner ring and opening. Place the 2nd filter evenly over the 1st filter and place a top pan, centered on top of the filter stack. The T-handle filter tightening mechanism will turn (right to left) and make contact with the indentation on the center of the top pan. Sometimes a slight movement of the filter stack is necessary to center the T-handle/top pan. When T-handle/top pan contact is made, continue turning (roughly 14-18, 1⁄2 turns) until the filter stack is properly installed. To verify proper installation, place your hand on the seam of the 2 filters in the middle and push on the seam. There should be very little or no movement noticed. Continue this procedure until all filters are installed.

    Note: The gasket will usually compress to a gap of 1/4" to 3/8" when properly installed.

13. Close and secure the filter door.

14. Turn on the main power disconnect.

    Note: Anytime that the filter access door is open, the main power disconnect should be turned off. This is to prevent random solenoid firing of the compressed air through the cleaning mechanism. This should also be done while looking into the dust tray slot.

15. Turn on the collector and record the new ΔP/Static Pressure.

16. Open the petcock valve on the solenoid accumulator and verify that there is not moisture in the compressed air stream.

    Note: Any oil visible in the accumulator will be blown into the system and onto the filters causing premature filter failure. Water, though not preferred is less damaging and will evaporate over time. A lot of water may necessitate shutdown of the collector so as to not damage the paper filter pleats.

Filter Change Maintenance Procedure (continued)

17. Check for excessive motor/blower vibration.

18. Check overall system for any loose bolts or screws, include door latches and hinge wear.

19. Verify that compressed air pressure is set to 80 PSI

20. Wipe off any major hand prints off collector door, control panel that may have gotten there while doing the service.

21. Clean up any fallen debris from the system service.

Notes:

- There are certain procedures that apply to both Quarterly as well as Major Maintenance. If the Quarterly Maintenance was performed the previous month, then those procedures can be skipped until the next Quarterly scheduled maintenance. This would apply to step 3, mainly.

SECTION 900

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 (continued)

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

Motor Greasing Guide

RoboVent®

Motor Greasing Guide

Your RoboVent unit will have one of four motor manufacturers installed: **TECO, Marathon, Weg,** or **Baldor**.

These motors are created with anti-friction, grease-lubricated bearings. Grease is essential to your motor bearings because it creates an oil film that counteracts the abrasive metal-to-metal contact that can occur between rotating elements. Follow RoboVent's Motor Greasing Guidelines to properly lubricate your electric motor.

Manual Grease Gun

Heavy Duty Lever Grease Gun w/ 18"
Hose Ext & Coupler
Fastenal Part No. (SKU) 0425881

DELIVERY RATE = 1 OZ PER 28 PUMPS

Grease Conversion Chart for use with this grease gun

OUNCES (OZ)	GRAMS (G)	GREASE GUN PUMPS
0.1 oz	2.835 g	2.8 pumps
1 oz	28.35 g	28 pumps
2 oz	56.70 g	56 pumps
3 oz	85.05 g	84 pumps
4 oz	113.40 g	112 pumps
5 oz	141.75 g	140 pumps

NOTE: 1 Pump = 1 gram of grease

Teco Motor Greasing Guidelines

Lubrication Procedure

It is advisable to re-grease when the motor is running to allow the new grease to be evenly distributed inside the bearing. Before re-greasing, the inlet fitting should be thoroughly cleaned to prevent any accumulated dirt from being carried into the bearing with the new grease. The outlet of grease drainage should be opened to allow the proper venting of old grease. Use a grease gun to pump grease through grease nipple into the bearings. After re-greasing, operate the motor for 10-30 minutes to allow any excess grease to vent out.

Approved Greases

- All motors with ZZ bearings will have SHELL Alvania R3 (lithium base grease).
- All motors with open bearings will have Polyrex EM (polyurea base grease).
- Certain T-frame models will utilize special grease and will be noted on the lubrication nameplate.

Relubrication Time Interval & Amounts

*Fill new grease until it overflows and the old grease is entirely replaced.

Relubrication Time Interval

BEARING SIZE	MOTOR HP	GREASE AMOUNT IN GRAMS	1800 RPM – HOUR CHANGE INTERVAL	3600 RPM – HOUR CHANGE INTERVAL
All motors listed are ODP				
DE & NDE: 6306ZZ	5	30 grams	3000 hours	2000 hours
DE & NDE: 6306ZZ	7.5	30 grams	3000 hours	2000 hours
DE: 6308ZZ	10	30 grams	3000 hours	2000 hours
DE: 6310ZZ	20	40 grams	3000 hours	2000 hours
DE: 6311ZZ & DE: 6212C3	30	40 grams	3000 hours	2000 hours
DE & NDE: 6213 & DE: 6212C3	40	50 grams	3000 hours	2000 hours
DE & NDE: 6213 & DE & NDE: 6213C3	50	50 grams	3000 hours	1000 hours
DE: 6314, NDE: 6213, DE: 6313C3 & NDE: 6213C3	75	80 grams	3000 hours	1000 hours
DE & NDE: 6317, DE: 6313C3 & NDE: 6213C3	100	120 grams	2000 hours	1000 hours
DE & NDE: 6317 & DE & NDE: 6313C3	125	120 grams	2000 hours	1000 hours

Marathon Motor Greasing Guidelines

Lubrication Procedure

1. Stop motor. Disconnect and lock out of service.
2. Remove contaminates from grease inlet area.
3. Remove filler and drain plugs.
4. Check filler and drain holes for blockage and clean as necessary.
5. Add proper type of amount of grease. See the relubrication amounts table for volume of grease required.
6. Wipe off excess grease and replace filler and drain plugs.
7. Motor is ready for operation.

Approved Greases

- Chevron SRI #2
- Rykon Premium #2
- Exxon Polyrex EM
- Texaco Polystar RB

Service Types

- **Seasonal Service:** The motor remains idle for a period of 6 months or more.
- **Standard Service:** Up to 16 hours of operation per day, indoors, 100° F max ambient temp.
- **Severe Service:** Greater than 16 hours of operation per day. Continuous operation under high ambient temp (100 to 150° F), dirty moist locations, high vibration, heavy shock loading or where shaft extension end is hot.

Motor Greasing Guide

Relubrication Time Interval

	NEMA FRAME SIZE (IN RPMs)					
	140-180		210-360		400-510	
SERVICE CONDITIONS	1800 RPM OR LESS	OVER 1800 RPM	1800 RPM OR LESS	OVER 1800 RPM	1800 RPM OR LESS	OVER 1800 RPM
Standard	3 yrs	6 months	2 yrs	6 months	1 year	3 months
Severe	1 yr	3 months	1 yr	3 months	6 months	1 month
Seasonal	The motor remains idle for a period of 6 months or more					

Relubrication Amounts

NEMA FRAME SIZE	MOTOR HP	VOLUME OF GREASE
140	5 HP	4 grams
180	7.5 HP	8 grams
210	10 HP	12 grams
250	20 HP	16 grams
280	30 HP	19.5 grams
320	40 HP-50 HP	23.5 grams
360	60 HP-75 HP	27.5 grams
400	100 HP	34 grams
440	125 HP	42.5 grams

Weg Motor Greasing Guidelines

Lubrication Procedure

Machines without Grease Nipples

Motors up to frame size 215T are normally fitted without grease fittings. In these cases the regreasing shall be done during preventive maintenance service paying attention to the following aspects:

1. Take motor apart carefully.
2. Take all the grease out.
3. Wash the bearing with kerosene or diesel.
4. Dry the bearings
5. Regrease the bearing immediately.

Motors Fitted with Grease Fitting

It is strongly recommended to grease the machine while running. This allows the grease renewal in the bearing housing. When this is not possible due to rotating parts by the grease device (pulleys, bushing, etc.) that offer some risk to physical integrity of the operator, proceed as follows:

1. Clean the area near the grease nipple.
2. Put approximately half of the total grease and run the motor for 1 minute at full speed.
3. Then turn off the motor and pump in the rest of the grease.

Note: The injection of all the grease with the motor in standstill can make the grease penetrate into the motor, through the bearing housing inner seal.

Approved Grease

- Mobile Polyrex EM Grease

Special Note

The table below is specifically intended for relubrication with MOBIL Polyrex EM grease and bearing absolute operating temperature of:

- 70°C (158°F) for 254/6T to 324/6T frame size motors
- 85°C (185°F) for 364/5T to 586/7T frame size motors
- For every 15°C (59°F) above these limits, relubrication intervals must be reduced by half.
- Shielded bearing (ZZ) are lubricated for bearing life as long are they operate under conditions and temperature of 70°C (158°F).

*****When motors are used on the vertical position, their relubrication interval is reduced by half if compared to horizontal position motors.*****

On applications with high or low temperatures, speed variation etc., the type of grease and relubrication intervals is given on an additional nameplate attached to the motor.

Motor Greasing Guide

Relubrication Time Interval & Amount of Grease

FRAM SIZE	MOTOR HP	GREASE AMOUNT IN GRAMS	3600 RPM	1800 RPM
254 / 6T	20 HP	13 grams	15700 hours	20000 hours
284 / 6T	30 HP	18 grams	11500 hours	20000 hours
324 / 6T	40 HP	21 grams	9800 hours	20000 hours
364 / 5T	60 HP	27 grams	3600 hours	9700 hours
404 / 5T	100 HP	27 grams	3600 hours	9700 hours
444 / 5TS	125 HP	27 grams	3600 hours	9700 hours
RELUBRICATION INTERVALS IN HOURS				
324 / 5T	40 HP	21 grams	9800 hours	20000 hours
364 / 5T	60 HP	27 grams	4800 hours	9700 hours
404 / 5T	100 HP	34 grams	3000 hours	6000 hours
444 / 5T	125 HP	45 grams	2300 hours	4700 hours

Baldor Motor Greasing Guidelines

Lubrication Procedure

*****Lock off and tag out power at the disconnect before servicing*****
***** Motor should be warm prior to greasing*****

1. Locate the grease inlet, clean the area, replace the pipe plug with a grease fitting.
2. Remove grease drain plug.
3. Add recommended amount of grease. Stop when new grease appears at shaft hole in the endplate or grease outlet plug.
4. Replace grease inlet plug and run the motor for 15 minutes.
5. Replace the grease drain plug.

Correct Grease Gun Procedures

1. Use hand-operated grease gun, not a pneumatic grease gun. Pump grease slowly, taking 10 to 12 seconds to complete each stroke.
2. Apply quantity of grease called for. Over-lubrication can be as damaging as under-lubrication.
3. Do not over-lubricate motors. Over-lubrication of a motor can seriously damage it by forcing grease into motor windings. Over-lubrication of the extract motor can force grease into the centrifugal switch causing it to malfunction.

Approved Grease

- Shell Dolium R (factory installed)
- Chevron SRI (standard service conditions)
- Darmex 707 (high temp conditions)
- Arrowshell 7 (low temp conditions)

Motor Greasing Guide

Service Types

SEVERITY OF SERVICE	HOURS OF OPERATION PER DAY	MAX AMBIENT TEMP	ATMOSPHERIC CONTAMINATION	INTERVAL MULTIPLIER
Standard	8	104 F (40 C)	Clean, little corrosion	1
Severe	16 +	122 F (50 C)	Moderate dirt, corrosion	0.5
Extreme	16 +	>122F (>50 C) (NOTE 1)	Severe dirt, abrasive dust, corrosion	0.1
Low Temp		-22 F (-30 C) (NOTE 2)		1

Note 1: Use high temp grease

Note 2: Use low temp grease

Relubrication Time Interval

NEMA (IEC) FRAME SIZE	MOTOR HP	3600 RPM	1800 RPM	1200 RPM	900 RPM
Up to 125 (132)	5 HP	5500 hours	12000 hours	18000 hours	22000 hours
254 to 286 (160-180)	25 HP-30 HP	3600 hours	9500 hours	15000 hours	18000 hours
324 to 365 (200-225)	40 HP-50 HP	2200 hours	7400 hours	12000 hours	15000 hours
404 to 5000 (280-315)	100 HP-125 HP	2200 hours	3500 hours	7400 hours	10500 hours

Note: For vertically mounted motors and roller bearings, divide the relubrication interval by 2.

Relubrication Amounts

NEMA (IEC) FRAME SIZE	MOTOR HP	LARGEST BEARING IN SIZE CATEGORY	OD D MM	WIDTH B MM	VOLUME OF GREASE
Up to 215 (132)	5 HP-15 HP	6307	80	21	4.5 grams
254 to 286 (160 - 180)	25 HP-30 HP	6311	120	29	9 grams
324 to 365 (200 - 225)	40 HP	6313	140	33	12 grams
404 to 5000 (280 - 315)	100 HP-125 HP	NU322	240	50	31.5 grams

SECTION 1100
Troubleshooting

DFS unit is making excessive noise. Check the following:

1. Check for correct blower rotation, (see "Blower Rotation.")
2. Make sure the blower wheel is not hitting the venturi.
3. Check that all venturi bolts are securely tightened.
4. Make sure motor bearings are good. (Amperage rating will be higher than normal.)
5. If the noise is an electrical hum in the control panel, it could be a defective motor starter relay.
6. 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 Technical Department at 1-866-ROBOVENT.

Filter Self-Cleaning System (FSS) not operating. Check the following:

1. Verify that the airline is connected to the air tank.
2. Check air tank pressure. The FSS works best when pressurized at 90 – 105 PSI.
3. Check settings of ePad Controller. See **Appendix A**.
4. Check diaphragm on solenoid valve. If optimized pressure is supplied to the air tank and the timers are operational then a problem may exist with the solenoid diaphragm. See Figure 28 of "Solenoid Valve" and order a new diaphragm kit from RoboVent Service Department.

Little or no suction across intake plenum. Check the following:

1. 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.
2. Cartridge filters are loaded. Check the ePad Controller reading. Any reading of 3.00 kPa or greater signals that the baffles and/or cartridge filters could be loaded. Initiate a manual cleaning cycle (see "**Appendix A**") before replacing cartridges.

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

1. Check that the FSS 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 introduced in the welding process causing 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 parts before they are welded. Call the RoboVent Service Department at 1-866-ROBOVENT for more information.

ePad Controller display reads "0" or has a consistently low reading.

1. Check that the clear tubing from the Controller has not come loose from either of the two NPT fittings.

2. Check for a pinched line in the clear plastic tubing from the Controller.

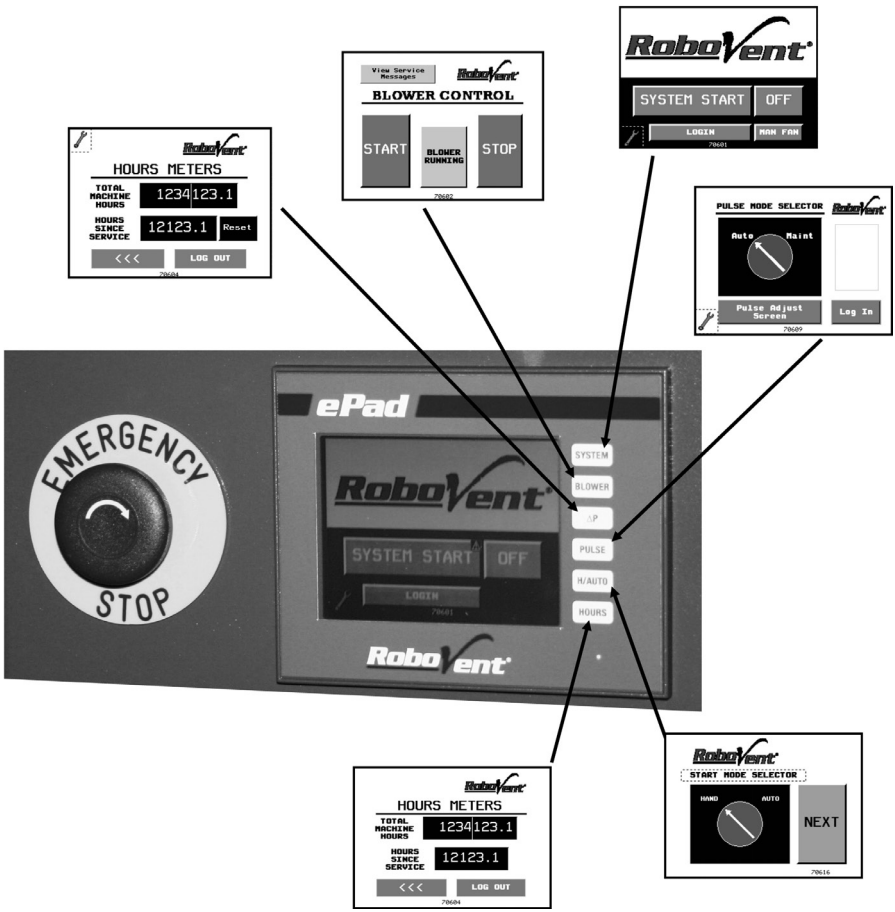
ePad Controller consistently displays a high reading.

1. Check for a pinched line in the clear plastic tubing from the Controller.

2. Filters are loaded and need changing.

APPENDIX A

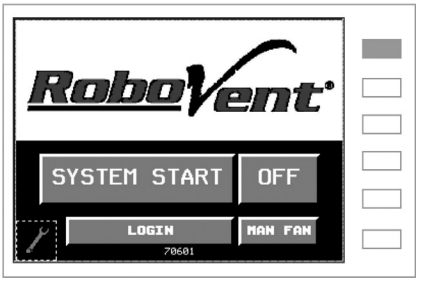
ePad Electronic Programmable Controller - Instruction Manual



APPENDIX A

ePad Operator Instructions

SYSTEM PANEL



SCREEN 1

Start System – Energizes the control system. When powered, switches to System On and flashes.

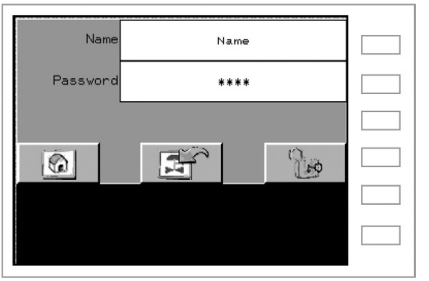
Off – De-energizes the logic controls.

Login – Accesses the Security Panel.

Man Fan – Accesses the Man Fan control screen (if so equipped).

Maintenance (Wrench) – accesses the maintenance screens.

SECURITY PANEL



Name: Enter assigned 'User Name'.

Password: Enter assigned 'Password'.

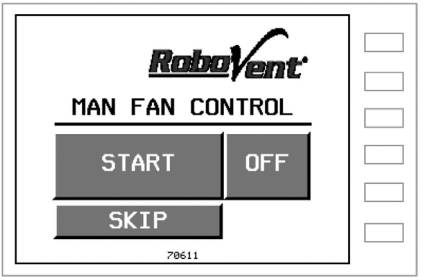
(When either of the above are pushed a Keypad is displayed. Use caution, codes are case sensitive.)

Press this button to activate the Name & Password, after they are entered.

Returns to the System Screen.

Returns to the screen that was last accessed.

MAN FAN CONTROL (optional feature)



SCREEN 7

Controls a fan provided for the operator.

Start & Stop: Turns the Man Fan on and off.

Skip: Advances control to next startup step.

Note: Screens normally change automatically when in a sequence (ie: Startup)

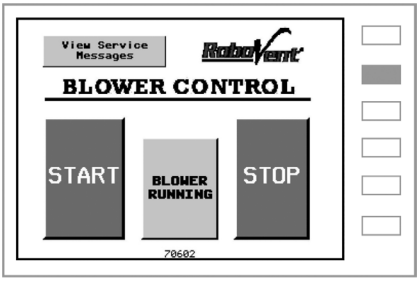
ePad Operator Instructions (continued)

BLOWER CONTROL

Start/Stops Exhanust Blower(s).

Indicator Light(s) are visible and/or flashing when running.

Note: An auxiliary STOP Button is also on Panel No. 3.



SCREEN 2

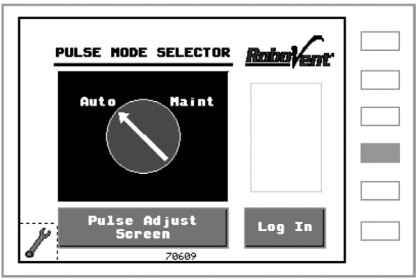
PULSE MODE SELECTOR

Touch Selector Switch to toggle to position.

AUTO: Normal running operation. Online and/or Offline Modes are activated automatically.

MAINT: Initiates the Maintenance cycle of pulsing.

(Note: Maint. Selection overrides all other pulsing control.)



SCREEN 3

PULSE ADJUST SCREEN

Brings up Pulse Control screens. (Maintenance Security Level required.)

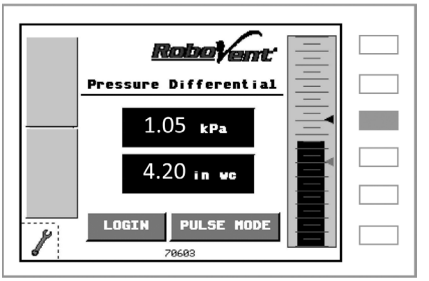
LOGIN

Brings up the security code input screen.

ePad Operator Instructions (continued)

PRESSURE DIFFERENTIAL

This shows the ΔP or pressure drop across the filters. As the filters get dirty the pressure increases. This info is measured in kPa (kilopascals) and in WC (inches of water column). The gauge on the right graphically shows the reading.



SCREEN 3

LOGIN

Brings up the security code input screen.

PULSE MODE

Brings up Pulse Mode screen.

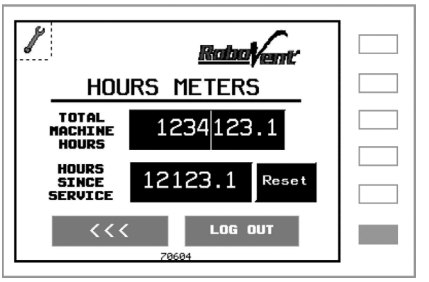
Blocks shown on the left are indicator lights that show which Pulse Mode is currently active.

HOUR METERS

Total Machine Hours (non-resettable) shows total running hours of equipment since installation.

Hours Since Service (resettable) shows running time since service was last performed.

Note: Manual reset required.
See “Hours Meters" screen #70604



SCREEN 6

ALARM SCREEN

ALARM SCREEN

Indicates tripping of an E-Stop. Unit controls are completely shutdown.

ALARM SCREEN

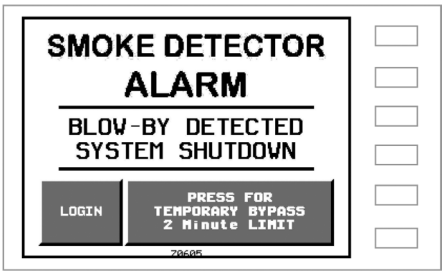
Electrical Power Overload Escape; Transfers to Screen #2.

ALARM SCREEN - Blow-by Detected

This feature is very important. It detects both when filters are 'leaking' as well as if there is smoke present.

Temporary Bypass: provides for unit operation. Basically bypasses the detector for 2 minutes. This feature is intended for troubleshooting purposes only.

Note: Maintenance Security Level login required to activate this feature.

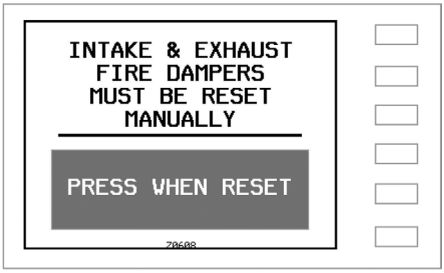


ALARM SCREEN - (Optional Equipment)

Indicates the Fire Dampers have been deployed.

Unit wil NOT operate properly until dampers are reset.

Only press **RESET** Button when Dampers have manually been reset.



ALARM SCREEN (continued)

ALARM SCREEN - (Optional Equipment)

Indicates the Fire Suppressant Tank is low or empty.

Unit will operate without tank being full but it is not advised.

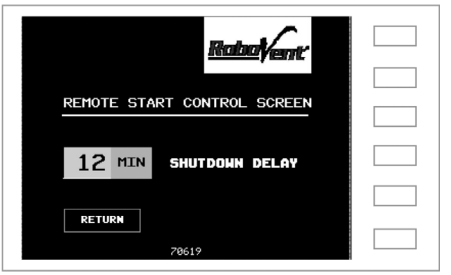
When **Proceed Without Servicing** button is pressed, screen is switched to Screen #2

REMOTE START CONTROL - (Optional Equipment)

Amount of time (in minutes) equipment continues to run after the remote start signal ends.

Value usually set between 5 - 15.

Touch display box to bring up number entry screen.



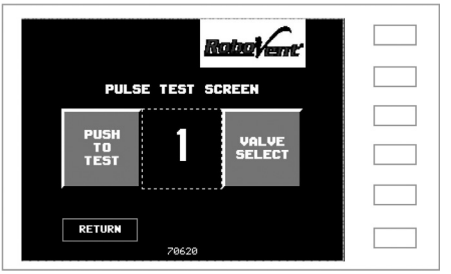
SCREEN 10

PULSE TEST

Push to Test energizes the value that is shown.

Valve Select cycles through the values.

This screen can be helpful with diagnostics. The number displayed, shows the next valve to be energized while running.



SCREEN 8

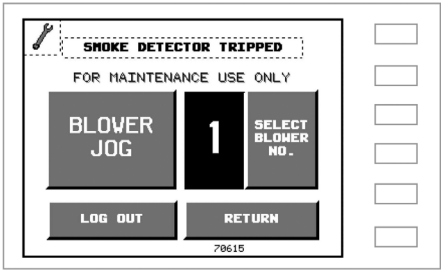
ePad Operator Instructions (continued)

BLOWER JOGGING

Momentary contact to test Blower Motor rotation, etc.

Select Blower (Multi-Blower feature) Provides selection of blowers individually.

Smoke Detector Tripped is a message that appears only when detector is tripped.



SCREEN 9

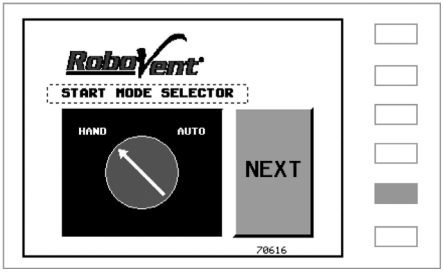
START MODE SELECTOR -

(Optional Feature)

HAND overrides the remote start signal.

AUTO puts equipment in automatic running mode.

NEXT to advance through normal Hand Startup Mode.

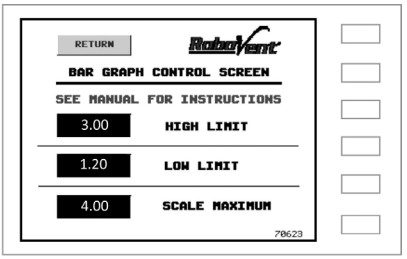


SCREEN 5

ePad Operator Instructions (continued)

BAR GRAPH CONTROL -

(values are in kPa)



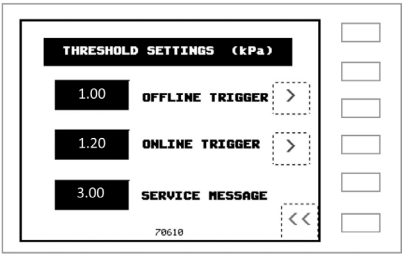
High Limit: controls the position of the top pointer. Often set at the same value as the Service Message.

Low Limit: controls the position of the lower pointer. Often set at the same value as teh Offline Trigger.

Scale Maximum: sets the overall range of the display. Usually set at 4.00.

THRESHOLD SETTINGS -

(values are in kPa)



These are ΔP values across the filters.

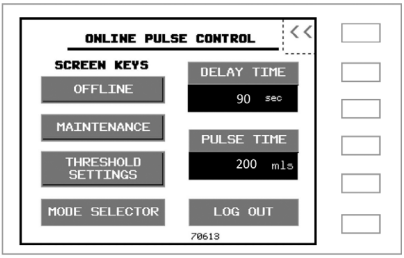
Offline Trigger: controls at what point the Unit begins to pulse while running.

Online Trigger: controls at what point the Unit will pulse after shutdown.

Service Message: controls when the 'Service Filters' message is displayed.

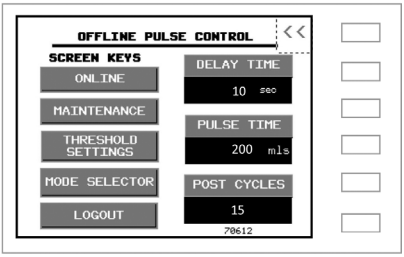
PULSE CONTROL SETTINGS

There are (3) different Pulse Modes. Online (while running, Offline (after shutdown) and Maintenance (at select times to maximize filter life).



Online: Filters are pulsed while unit is running. The typical value settings are shown.

Offline: Filters are pulsed after blower(s) are shutdown. The typical value settings are shown.

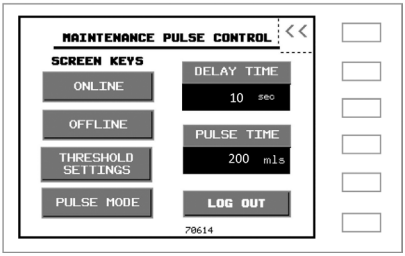


Maintenance: Filters are pulsed for an extended period, for maximum cleaning. The typical value settings are shown.

Delay Time: amount of time (in seconds) between pulses.

Pulse Time: amount of time (in milliseconds) that pulse valve is open. Usually set at 200msec. (Note: the right hand zero is fixed, so enter 20 for 200).

Post Cycles: number of times each filter bank is pulsed after blower shutdown.



Important Note: Supervisory Maintenance Security Level is required to access these screens.

ePad Operator Instructions (continued)

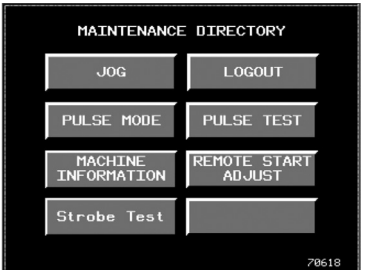
JOG: to access screen #9

PULSE MODE: to access screen #4

MACHINE INFO: to access machine information screen

STROBE TEST: momentarily turns Horn/Strobe Light on.

PULSE TEST: to access screen #8



GRAPH CONTROL: brings up that screen

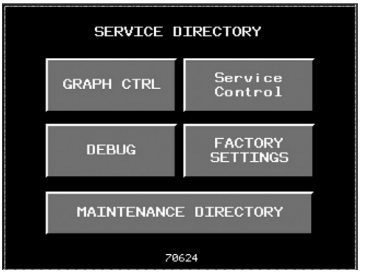
DEBUG: factory access only

SERVICE CONTROL: factory access only

FACTORY SETTINGS: factory access only

MAINTENANCE DIR.: Brings up that screen

Note: Field Service security login required.



COUNTDOWN FEATURE

Activates/Deactivates the Maintenance Pulsing Time LImit

To change the Maintenance Pulse time (in minutes) - touch the display to bring up the number entry screen.

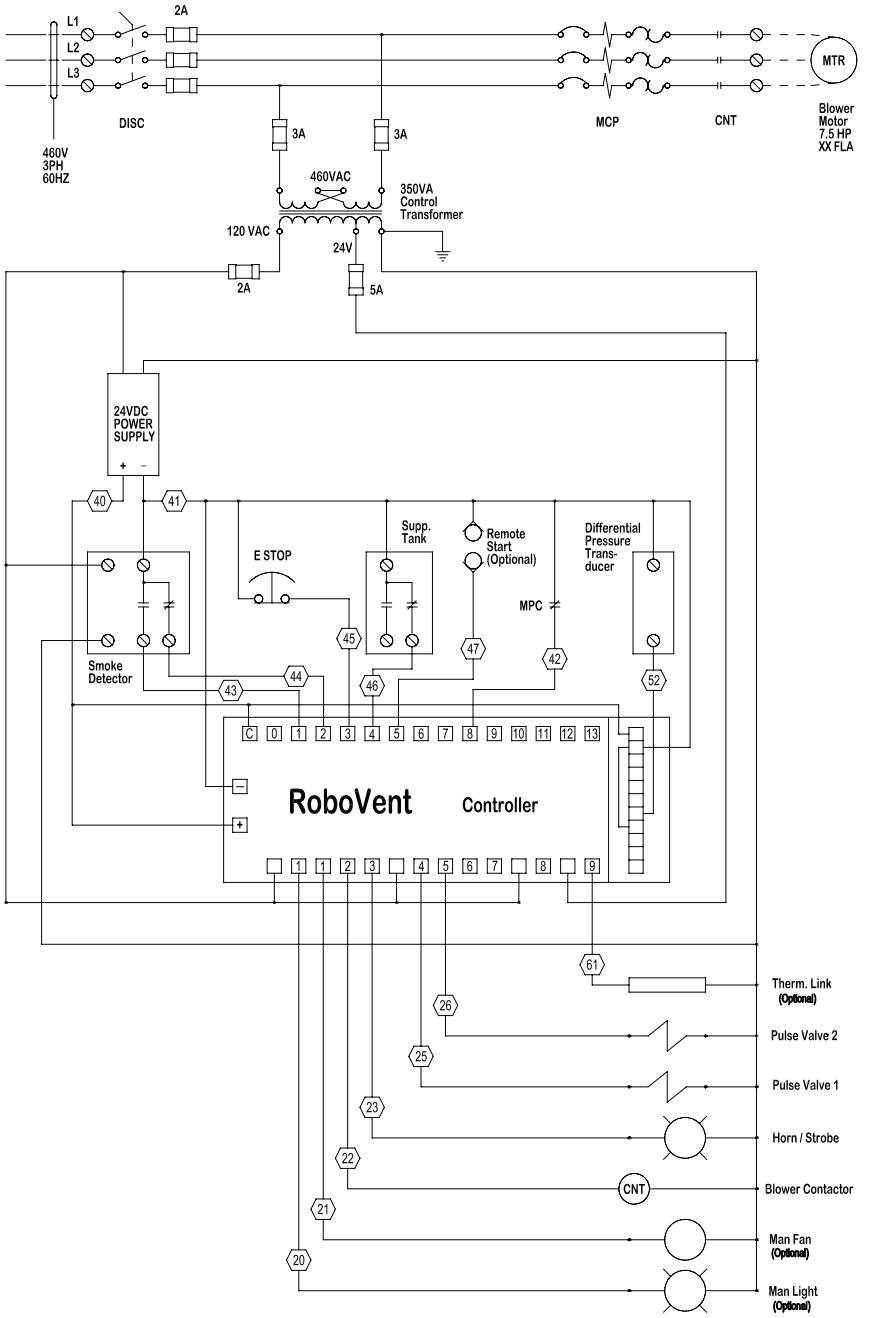
Note: Field Service security login required.

APPENDIX B

General Wiring Diagram

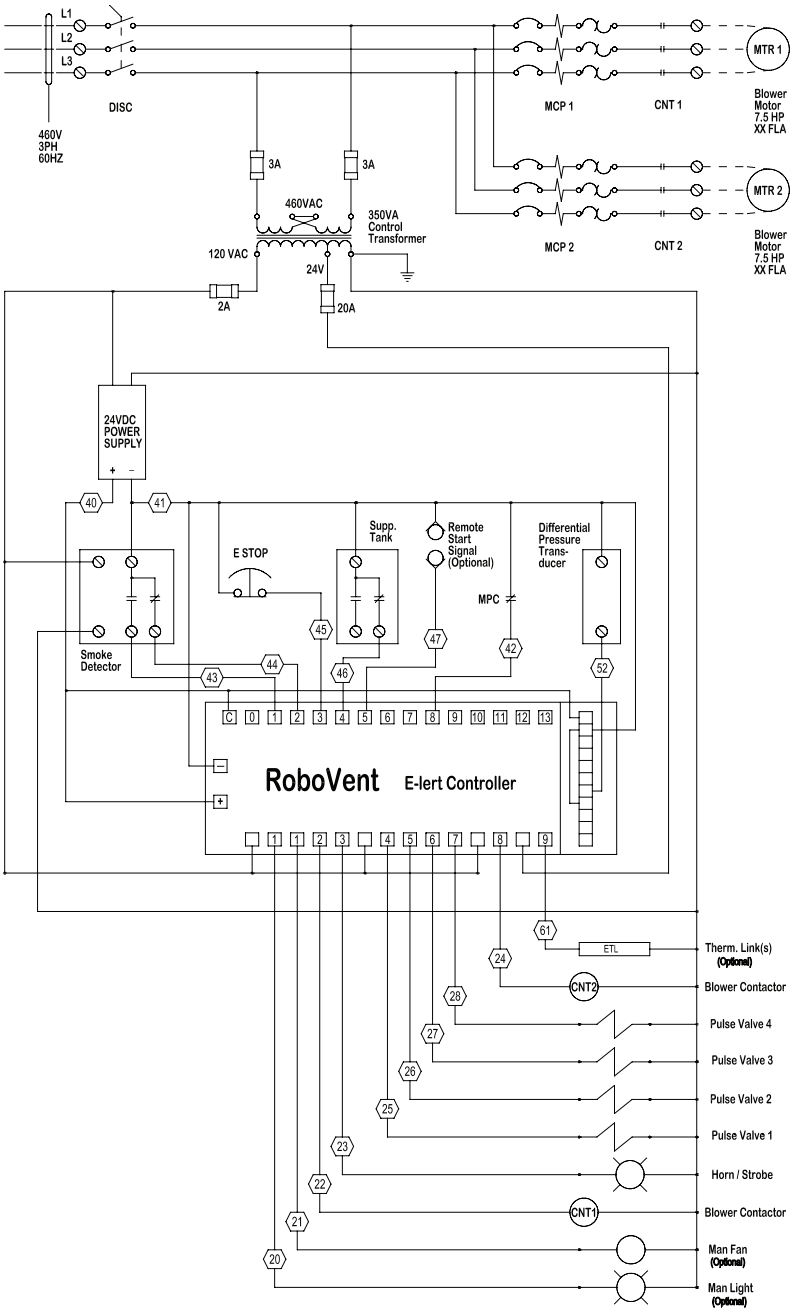
APPENDIX B

General Wiring Diagram - Single Blower



APPENDIX B

General Wiring Diagram - Double Blower



APPENDIX C

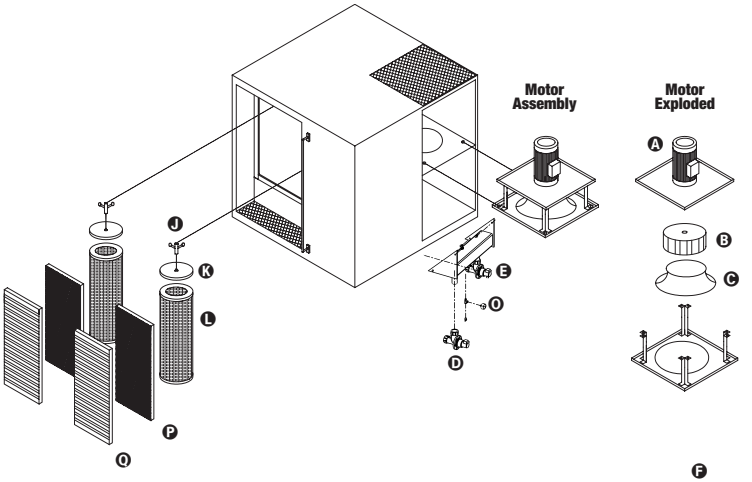
Parts List

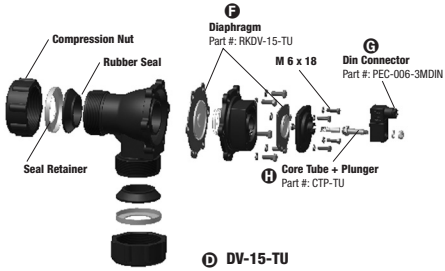
APPENDIX C
Parts List

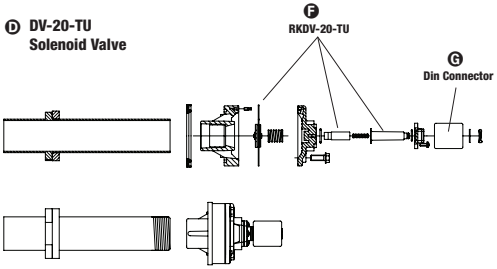
Ref No.	Part #	Description	Model
Ⓐ	MTR-3HP	3 HP Motor 182 TC Frame	DFS-2000-2
Ⓐ	MTR-5HP	5HP Motor 184 TC Frame	DFS-3000-3, 4000-4
Ⓐ	MTR-7.5HP	7.5 HP Motor 213TC Frame	DFS-4000-4, 6000-6, 8000-8
Ⓐ	MTR-15HP	15 HP Motor 254 TC Frame	DFS-4000-4, 8000-8, 12000-12
Ⓐ	MTR-20HP	20 HP Motor 256 TC Frame	DFS-6000-6, 8000-8, 12000-12
Ⓐ	MTR-30HP	30 HP Motor 286 TSC-Frame	DFS-12000-12
Ⓑ	M1632	16" @ 32% Blower Wheel	DFS-2000-2
Ⓑ	M1830	18" @ 30% Blower Wheel	DFS-3000-3, 4000-4
Ⓑ	M1836	18" @ 36% Blower Wheel	DFS-4000, 6000-6
Ⓑ	M1846	18" @ 46% Blower Wheel	DFS-6000-6, 8000-8,
Ⓑ	M1870	18" @ 70% Blower Wheel	DFS-8000-8, 12000-12
Ⓑ	M1890	18" @ 90% Blower Wheel	DFS-12000-12
Ⓑ	M18100	18" @ 100% Blower Wheel	DFS-12000-12
Ⓑ	M2230	22" @ 30% Blower Wheel	DFD-4000-4,
Ⓑ	M2235	22" @ 35% Blower Wheel	DFD-6000-6
Ⓑ	M2245	22" @ 45% Blower Wheel	DFS-8000-8
Ⓑ	M2270	22" @ 70% Blower Wheel	DFS-12000-12
Ⓒ	MV16	16" Venturi	DFS-30000-3
Ⓒ	MV18	18" Venturi	DFS-3000-3, 4000-4, 6000-6, 8000-8, 12000-12
Ⓒ	MV22	22" Venturi	DFS-4000-4, 6000-6, 8000-8, 12000-12
Ⓓ	DV-10-TU	3/4" Solenoid Valve	DFS-2000-2, 3000-3
Ⓓ	DV-15-TU	1-1/2 Immersion Solenoid Valve	DFS-4000-4, 6000-6, 8000-8
Ⓓ	DV-20-TU	2" Solenoid Valve	DFS-12000-12
Ⓔ	P-DFS-301	Air Tank	All
	CC-75	3/4" Nozzle Assembly	DFS-2000-2, 3000-3
	CC-150	1.5" Nozzle Assembly	DFS-4000-4, 6000-6, 8000-8
	CC-200	2.0" Nozzle Assembly	DFS-12000-12
Ⓕ	RKDV-10-TU	3/4" Valve Repair Kit	DFS-2000-2, 3000-3
Ⓕ	RKDV-15TU	1.5" Valve Repair Kit	DFS-4000-4, 6000-6, 8000-8
Ⓕ	RKDV-20TU	2" Valve Repair Kit	DFS-12000-12
Ⓖ	PEC-006-3MDIN	DIN Connector (24 VDC)	All
Ⓗ	CTP-TU	Core + Tube + Plunger	All
Ⓙ	TH-9	T-Handle	All
Ⓚ	12TP	Top Pan	All
Ⓛ	EX-14D36-A13	Cartridge Filter	All
Ⓜ	P-DFS-DT-2000	Dust Tray Assembly	DFS-2000-2
Ⓜ	P-DFS-DT-3000	Dust Tray Assembly	DFS-3000-3
Ⓜ	P-DFS-DT-4000	Dust Tray Assembly	DFS-4000-4
Ⓜ	P-DFS-DT-6000	Dust Tray Assembly	DFS-6000-6
Ⓜ	P-DFS-DT-8000	Dust Tray Assembly	DFS-8000-8
Ⓜ	P-DFS-DT-12000	Dust Tray Assembly	DFS-12000-12
Ⓝ	DL-8	1/2 Turn Compression Latch	All - also for Blower Door
Ⓞ	P-DFS-306	Air Gauge	All
Ⓟ	MM-17402	Metal Mesh	All
Ⓠ	FB-17402	Metal Baffle	All

APPENDIX C

Parts List







Parts & Service

1 (888) 762-6836

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