



RESPA® -CF Vortex HyperFLOW™ /CFX/FF/FFX SERVICE & INSTALLATION

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REV001 (12V)
REV003 (24)
REV010



REV002 (12V)
REV004 (24)
REV005

Introduction

RESPA-CF Vortex HyperFLOW provides precleaning and pressurization through integrated Gideon® Technology and filtered air through a MERV 16 filter. The RESPA-CFX provides powered inline filtration through a MERV 16 filter. RESPA-FF provides filtered air through a MERV 16 filter in a filter housing that is upgradable to include the Gideon powered precleaning technology. The RESPA-CF Vortex HyperFLOW powered precleaner system provides a positive airflow which works to pressurize an enclosure reducing dirt infiltration. It is recommended that the Sy-Klone Cab Pressure Monitor System be installed to alert the operator when it is time for the RESPA filter to be changed. RESPA products provide MERV 16 quality for sustained periods of time with no maintenance. Uses included all environmentally controlled operator and control spaces in all industries.

RESPA IS NOT CERTIFIED FOR USE IN EXPLOSION RISK ENVIRONMENTS.

***SYSTEM RATING:** RESPA system with specified filter produces air of rated quality with airflow ≤ 100 cfm (2.832 m³/m). System rating does not apply when filter is used in a recirculation system. MERV 16 filtration options meet EU P2 standards.

Vortex HyperFLOW™: How RESPA®-CF works

Creating the Vortex

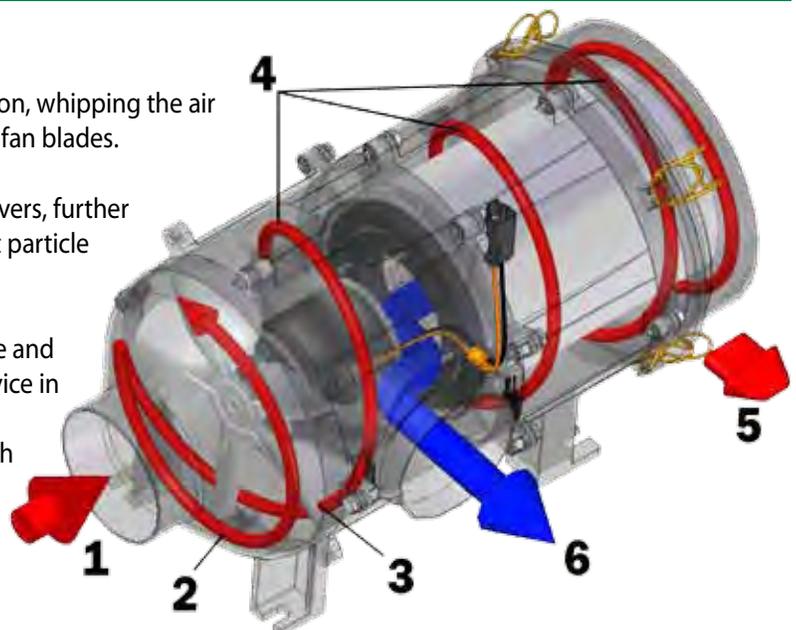
1. Particulate-laden air enters the precleaner inlet.
2. The fan creates a VORTEX, a tornado-like spinning motion, whipping the air and particulate to the outside wall as it approaches the fan blades.

Creating the Hyper spin

3. Spinning air HYPER-accelerates as it passes through louvers, further enhancing centrifugal forces powerful enough to affect particle separation down to 5 μ .

Creating the continuous Flow

4. Particulate is spun against the outside wall of the device and propelled rapidly around the filter to the rear of the device in one continuous FLOW of air.
5. Particulate is ejected back into the environment through two ejection slots located at the rear of the device.
6. Pre-cleaned air passes through the filter. Filtered air continues to the outlet.



Mounting Considerations



IMPORTANT CONSIDERATIONS:

Leave adequate room to release filter latches and remove filter from the filter housing. Approximately 6.5 Inches (16.51 cm) of clearance will be necessary to service filter.

The location should be selected to require the **shortest amount of plumbing with as few bends as possible.**

The RESPA-CF unit can be mounted in a variety of locations and orientations, as long as the ejection slots are oriented in a fashion that **water can NOT fall/run into the filter housing.** The RESPA-CF unit ejects debris at a high rate. Make sure the ejection slots are pointed **away from any surface and away from the operator's field of vision.**

When mounting the RESPA vertically, with the inlet down, the rain cap should not be used as it could retain debris and moisture in this orientation.

When plumbing with rigid piping, you must **use a soft connection such as a flex hose or rubber adaptation between the RESPA unit and the rigid piping.** This is important to prevent mechanical stress of the RESPA and air connections. A soft connection also allows for ease of disconnection and reconnection when changing the filter.

If the HVAC has a **recirculation setting** it should be **disabled or modified to NOT restrict the fresh/ make-up air.** Note: Fresh/make-up air is required to pressurize the cabin.

Care should be taken to **prevent High pressure water or air from entering the RESPA ejection slots during cleaning.**

See Maintenance Section for special instructions regarding filter changes.

When using flex hose, take care to **protect the flex hose from potential wear points.**

Installation Guidelines

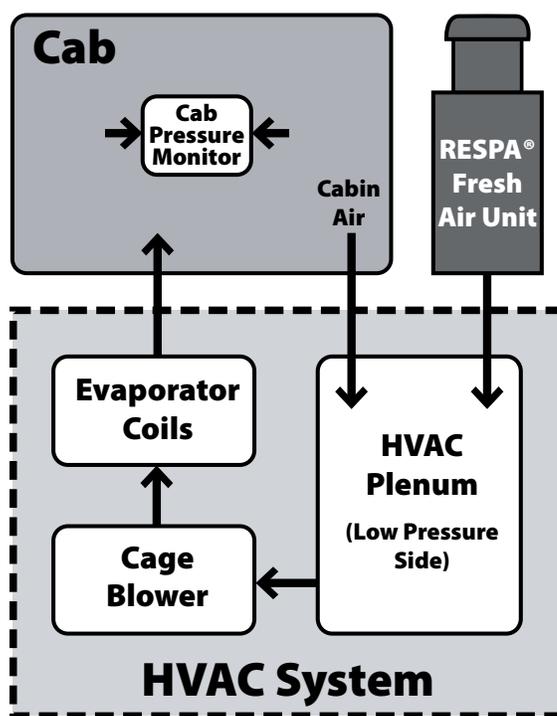
If system comes with a Pressure Monitor System, install it first.

Mounting:

1. The machine should be off.
2. Consider the routing and destination of the plumbing when determining the mounting location for the RESPA unit. (See Plumbing Section)
3. The RESPA unit can be mounted in a variety of locations and orientations. (See Mounting Considerations Section)
4. A mounting plate is available. If welding the mounting plate in place:
 - a. The plate can be tacked in place with unit mounted. Take care not to heat the unit.
 - b. Remove the unit prior to final weld.
5. Allow mounting plate to cool before reassembly.
5. Do not mount the unit such that it will greatly reduce operator visibility.
6. Avoid mounting the unit in high heat areas.
7. Consider vehicle clearances when mounting the RESPA unit.
8. The RESPA unit has 6 mounting locations. The mounting slots will accommodate 3/8 inch mounting hardware.
9. Do not use power tools – **tighten bolts by hand ONLY!!**

PLUMBING RESPA-CF Vortex HyperFLOW or FF (Fresh Air Plumbing)

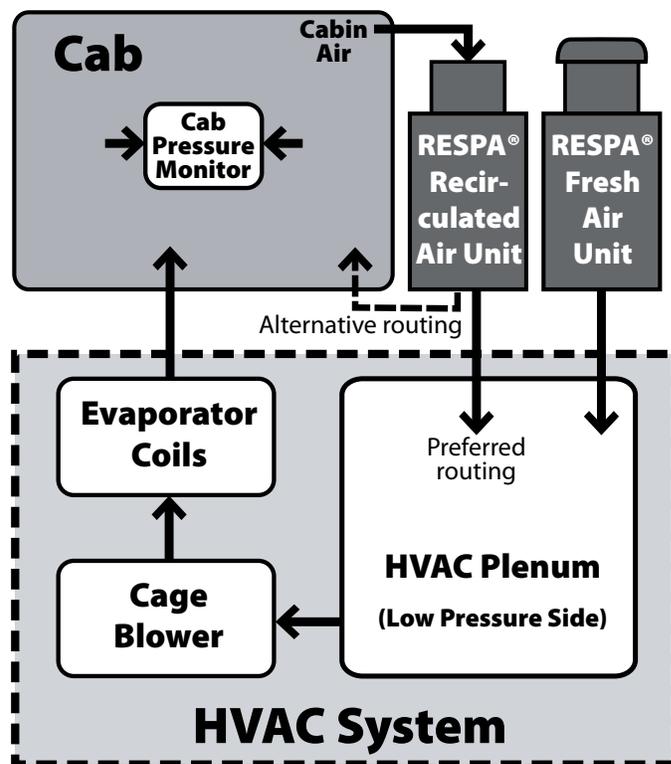
1. The machine should be off.
2. The factory fresh/make-up air and recirculation filters should be removed to allow access to the HVAC system.
 - a. Refer to the manufacturer's removal directions.
 - b. The fresh/make-up air filter will not be necessary after installation of the RESPA-CF or FF. Note: Not all HVAC systems use a fresh/make-up air filter.
3. Clean the factory HVAC system and cab following the manufacturer's approved methods before and after installing the RESPA system.
4. Routing the clean filtered air provided by the RESPA system:
 - a. If available, plumb the clean filtered air into the fresh/make-up air cavity.
 - b. If the HVAC system does not include a fresh/make-up air cavity, plumb the clean filtered air into the HVAC plenum between the recirculation filter cavity and the evaporator coils/cage blower. Note: In an HVAC system the position of the cage blower and evaporator coils can be reversed.
 - c. It is not recommended to plumb the cleaned filtered air directly into the cab.
5. A RESPA installation kit is available and provides a universal flange adapter that can be used to create a port into the HVAC system.
6. If using the universal flange adapter, the port hole should be slightly larger than the adapter's tubing. Note: Using a hole saw at low RPM is ideal for large holes.
7. When plumbing into a HVAC system ensure that the system and adaptation is sealed. Note: All fresh/make-up air must be drawn through the RESPA unit.
8. The 100% RTV Silicon sealant provided with the RESPA installation kit, or an equivalent sealant, can be used



- to create gaskets or seal minor leaks.
 9. A new recirculation filter should be installed.
 10. Routing the hose or tubing:
 - a. 3" or 4" plumbing should be used. Hard tubing is suggested to reduce restriction.
 - b. Each bend in the routing adds restriction; amount of airflow the RESPA will provide.
 - c. Avoid high heat areas, routing across walkways, tight bends, and reducing operator visibility.
 - d. Secure plumbing as routed.
- A successful installation is achieved when cab pressurization remains at or above .2" H₂O (49 pascal) or pressure when the HVAC fan is running on high speed. Optimal Pressurization varies with installation.

PLUMBING RESPA-CFX/FFX (Recirculated Air Plumbing)

1. The machine should be off.
2. The factory fresh/make-up air and recirculation filters should be removed to allow access to the HVAC system.
 - a. Refer to the manufacturer's removal directions.
 - b. The fresh/make-up air filter will not be necessary after installation of the RESPA-CF or FF. Note: Not all HVAC systems use a fresh/make-up air filter.
3. Clean the factory HVAC system and cab following the manufacturer's approved methods before installing the RESPA system.
4. The cabin air outlet to the RESPA-CFX/FFX system should be mounted at the lowest point possible.
5. Routing the clean filtered air provided by the RESPA-CFX/FFX system:
 - a. If possible, plumb the clean filtered air into the recirculation air cavity.
 - b. If not, plumb the clean filtered air into the cabin the highest point possible.
6. A RESPA installation kit is available and provides a universal flange adapter that can be used to create a port into the HVAC system. Additional universal flange adapters are available. Note: Use the flange adapter to locate the correct port location.
7. If using the universal flange adapter, the port hole should be slightly larger than the adapter's tubing. Note: Using a hole saw at low RPM is ideal for large holes.
8. When plumbing into a HVAC system ensure that the system and adaptation is sealed.
9. The 100% RTV Silicon sealant provided with the RESPA installation kit, or an equivalent sealant, can be used to create gaskets or seal minor leaks.
10. A new recirculation and fresh/make-up air filter should be installed. Note: The factory installed fresh or make-up air filter is not necessary if installing the RESPA-CF Vortex HyperFLOW or RESPA-FF.
11. Routing the hose or tubing:
 - a. 3" or 4" plumbing should be used. Hard tubing is suggested to reduce restriction.
 - b. Each bend in the routing adds restriction; reducing the amount of airflow the unit can provide.
 - c. Avoid high heat areas, routing across walkways, tight bends, and reducing operator visibility.
 - d. Secure plumbing as routed.



A successful installation is achieved when the cab pressure is at or above .2" of H2O (49 pascals) with the HVAC motor running on high.

Wiring Powered Units (RESPA-CF Vortex HyperFLOW or CFX):

1. The machine should be off.
2. Finding proper power is critical for system performance.
 - a. The unit must receive power when the ignition key is in the on position.
 - b. The power must terminate when the ignition key is in the off position.
 - c. Do not wire the unit to a variable voltage source.
 - d. A master system relay or ignition switch can be a good source of constant power when the ignition key is in the on position.
 - e. The source power must provide sufficient current.
 - f. An appropriate relay can be used to provide suitable power from a non-terminating constant source.
3. The current requirement for the 12 volt system is 24 amps maximum initial draw with 12 amps constant.
4. The current requirement for the 24 volt system is 12 amps maximum initial draw with 6 amps constant.
5. Ensure the input voltage correlates to the 12 or 24 volt unit being installed.
6. The RESPA system must be fused inline to at least twice the constant current requirements.
7. Use 16 GA or larger wire for the system.
 - a. Black wire = neutral (negative) and red wire OR white wire with red trace = active (positive)
 - b. Incorrect electrical connection will reverse motor polarity and the RESPA will not function correctly.
8. Finding a good ground is also critical to system performance. Use an existing grounding point if possible. If not, grind a small area to bare metal and use a self-tapping screw to ground the system.
9. Route the wiring, avoiding high heat areas, routing across walkways, and reducing operator visibility.
10. Use wire loom and grommets as necessary to protect wiring.
11. Secure wiring as routed.

Inspecting RESPA-CF Vortex HyperFLOW or CFX (Powered) installation:

1. Turn the master power switch ON to inspect the RESPA system. Note: If the system powers on while the ignition key is off, an alternate power source must be located.
2. Turn the ignition key to the ON position and inspect the following:
 - a. System is running. If not, an alternate power source must be located.
 - b. Airflow out of RESPA-CF Vortex HyperFLOW ejection slots is strong. If not, check proper wiring polarity or that the power source is not variable voltage.
 - c. From inside cabin, check that airflow is strong entering the cabin air outlet to the RESPA-CFX system or if possible check that airflow is strong entering the cabin from the cabin air inlet.
3. With HVAC system to OFF and RESPA-CF Vortex HyperFLOW operating, cabin pressure should be greater than 0.00 inches of water column (*0 pascal*).
4. Increase HVAC system fan speed. Cabin pressure should increase as fan speed increases.
5. If cabin pressure never reaches 0.20 inches of water column (49 pascal), check for leaks, improve sealing of cabin, and test again. **Note:** Ideal pressure, with new filters and a sealed cab, is 0.50 inches of water column (*125 pascal*).

Use the Sy-Klone Cab Pressure Monitor to inspect RESPA-CF Vortex HyperFLOW installation. Note: Initial pressure readings should be taken with new fresh/make-up and recirculation filters.



RESPA[®]-CF Vortex HyperFLOW[™], RESPA[®]-CFX, FF & FFX Filter Change & Maintenance

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WHEN TO REPLACE FILTER:

Replace filter when the cab pressure drops below the minimum pressure threshold when cab is sealed. (Refer to Pressure Sensor Installation Manual)

Change the RESPA filter after every 1000 hours of operating time, even if the pressure monitor does not alert and there are no noticeable changes.

Replace filter only!
Do not clean or re-use filters.
Re-using filters can create health hazards!
Replace with
genuine SY-KLONE filters only.
Order from your dealer or from Sy-Klone.

Sy-Klone recommends the use of a Pressure Monitor System with all installations.

FILTER REPLACEMENT:

1. Work in a clean covered area to reduce operator and HVAC exposure to harmful particles.
2. Wear appropriate personal protection equipment such as gloves, mask, and coverall to protect against contaminants.
3. The machine should be off.
4. Inspect the RESPA system for any damage.
5. Release the 4 filter latches that retain the filter element noting the orientation of the ejection ports when applicable.
6. Once the filter latches are released remove the filter element. **Note:** Place thumbs on RESPA's exterior hardware for additional leverage when removing filter element.
7. Bag and seal used filter element and dispose of according to local regulation.
8. Inspect and remove any loose debris using a clean rag – never use compressed air.
9. Before installing the new filter, the powered systems, RESPA-CF Vortex HyperFLOW or CFX, should be inspected for proper operation.
 - a. Turn on the RESPA system staying clear of the open end of filter housing.
 - b. Ensure that air is blowing out of the empty filter housing cavity.
 - c. Turn off the RESPA system.
10. Install new filter element ensuring the ejection port orientation, when applicable, is correct and that the filter element end cap seats properly on the filter housing.
11. Restrain the filter element by reattaching the 4 filter latches.



WARNING:

When cleaning equipment, care should be taken to **prevent high pressure water or High Pressure air from entering the RESPA-CF Vortex HyperFLOW ejection slots.**

When replacing the slotted filter (RESPA-CF Vortex HyperFLOW) do not point ejection slots at a solid surface in close proximity to the slots.

FIELD SERVICE PARTS:

Order genuine Sy-Klone filters and parts from your dealer:

- FEFF008** RESPA-CF MERV 16 Ejective Filtration Unit; Fresh Air Replacement Filter (Ported)
- FEFF011** RESPA-CFX/FF/FFX MERV 16 Inline Filtration Unit; Recirculated Air Replacement Filter (Non-Ported)
- REVA-002** ADAPT the REVOLUTION; Inlet Assortment including Duct, Screen and Rain Cap
- REVA-003** CLEAN the REVOLUTION; Filter Housing for RESPA-CF Vortex HyperFLOW with MERV 16 Ejective Filter
- REVA-004** CLEAN the REVOLUTION; Filter Housing for RESPA-CFX/FF/FFX with MERV 16 Inline Filter
- REVA-006** POWER the REVOLUTION; 12 volt Motor and Motor Housing for RESPA-CF Vortex HyperFLOW/CFX
- REVA-008** POWER the REVOLUTION; 24 volt Motor and Motor Housing
- GK011** INSTALL the REVOLUTION; RESPA Product Family Universal Installation Kit with Mounting plate

TECHNICAL SUPPORT

Contact your dealer for filters, parts and technical support, or contact support at Sy-Klone:

Sy-Klone International
P.O. Box 550859
Jacksonville, FL 32255
USA
Tel: +1 (904) 448-6563
FAX: +1 (904) 448-6626
email: support@sy-klone.com

www.sy-klone.com

Your dealer:

Dealer name: _____
Phone: _____
Email: _____
Website: _____