

Central Vac Installation Manual

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Overview

- This manual is a breakdown and walk through of Walinga's Central Vac System.
- It was created in order to generate efficiency and clarity in the set up of Central Vac Systems.
- You will find a break down of all the components that are included in a Central Vac system and how they come together; as well as a break down of how the piping system shall be installed.
- This manual will cover key points and procedures utilized in the construction and installation of the central vac system.
- Every Central Vac piping system is original and built to suit the customer's needs.

Safety During the Installation of the Central Vac System (Refer to unit manual)

- Ensure that the blower and airlock have no power and are locked out, before performing service work on the Central Vac system. Failure to do so may result in severe injury or death.
- Ensure that all chain guards or moving parts have their proper guards installed, preventing injury.
- Wear the appropriate protective gear.
- Ensure that the Central Vac is anchored to firm and level ground.

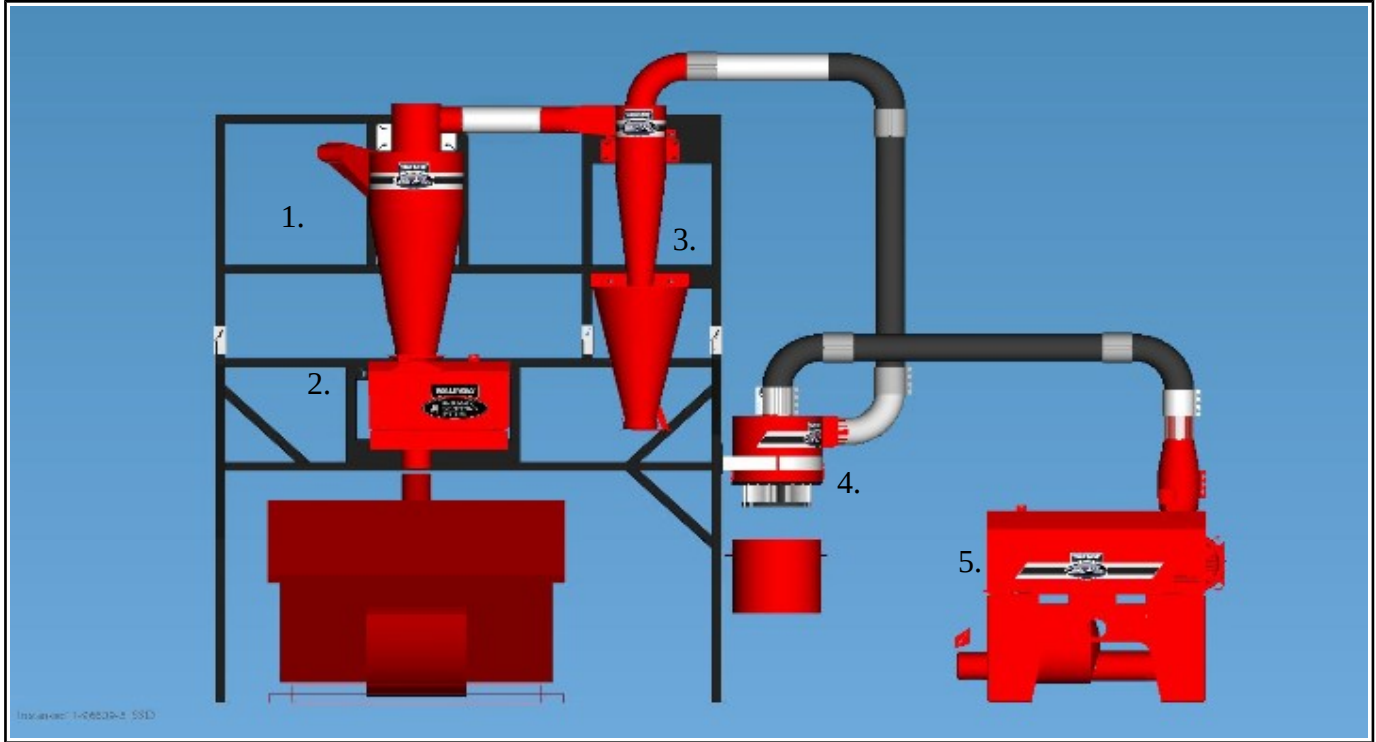


- Make certain that sufficient amperage, at the proper voltage and frequency (60Hz) is available before connecting power for the electric model. Have a licensed electrician provide power to the machine. Always follow ANSI/NFPA 70 Standard and all local codes when providing electrical power.
- Have at least one extra person available to assist when elevating, moving or connecting to other equipment.
- Wear appropriate protective gear while working on the Central Vac System.
- Once finished, give the machine a “once over” for any loose bolts, components, leaks, faulty seals, and proper anchoring.
- Think SAFETY! Work SAFELY!

Key Items to Follow

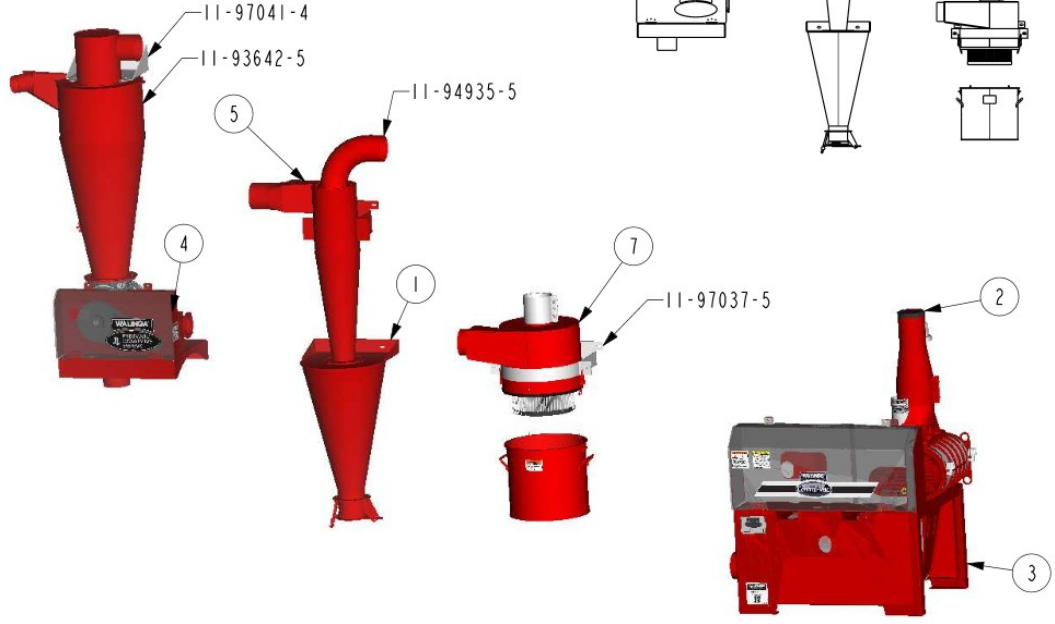
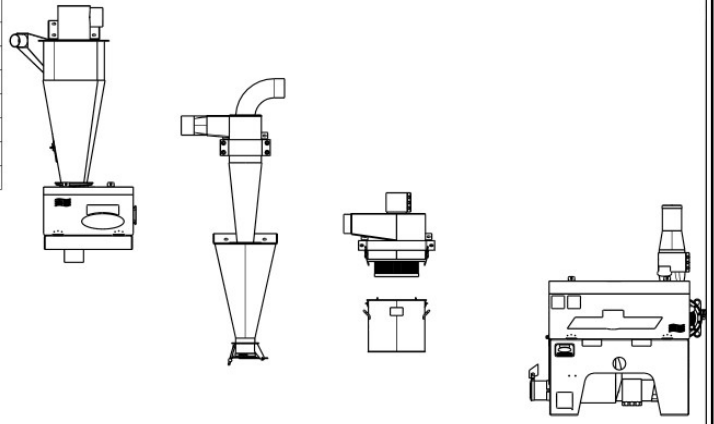
- Follow Safety procedures.
- Ensure proper sealing of the mating components.
- Inlet placements in the piping.
- Use compression couplings and grounding strips at all joints.
- Keep piping as straight as possible.
- Keep all components within 400' of the Central Vac unit.
- Install Y elbows from the side or from the top of piping, and have the elbows follow the flow of the air stream.

Components of a Central Vac System



BILL OF MATERIALS

ITEM	QTY	NUMBER	DESCRIPTION
1	1	11-108619-5	SECONDARY CYC,BOT,CPLT,FLG
2	1	11-59788-6	Cap, Black Vinyl 6" x 1" long
3	1	11-76941-5	BLOW PKG,614CV,POST PAINT,2014
4	1	11-90466-5	DRV A/L PKG,CV,1210,20,F730,W/O MTR
5	1	11-94385-5	SECONDARY CYC, TOP,CPLT,W/O FILTER
6	1	11-94936-5	PAINT KIT,614CV,2014
7	1	11-96796-5	CV FILTER CYCLONE ASSY,DRUM

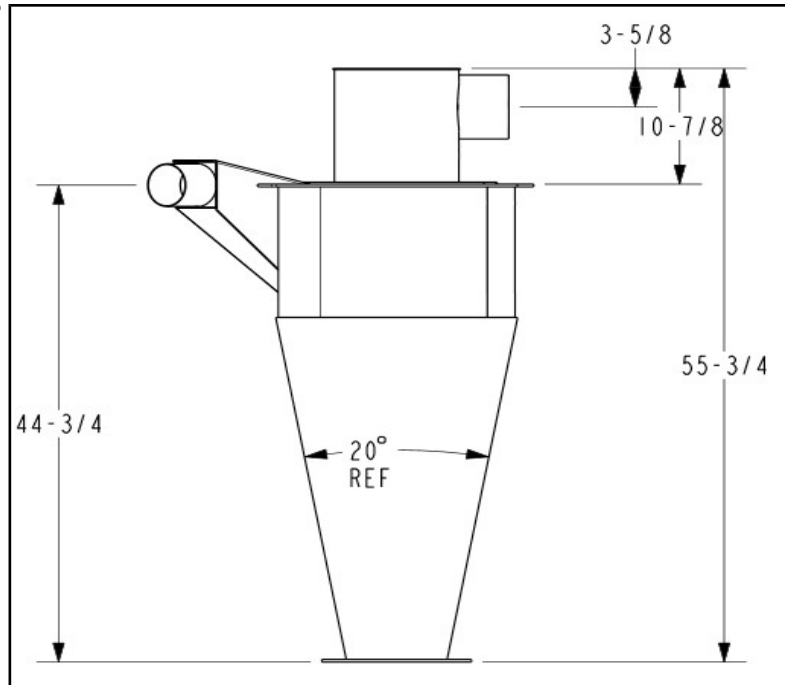


Typical Central Vac Set Up



- **1. Primary Separator**

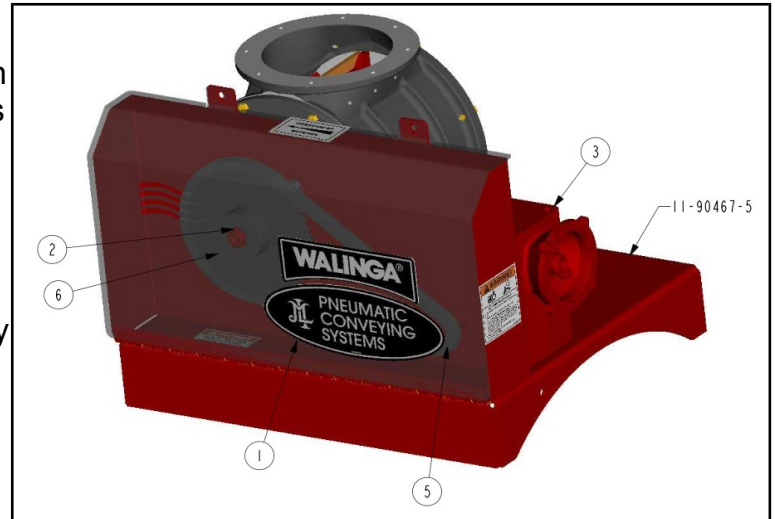
- Separates the incoming product from the air stream and uses cyclonic action to send material down to the discharge system. The product, being heavier than air, will fall down the tank towards the airlock.
- 55" high X 19" diameter.
- Where gaskets are not available use silicon to seal between components in order to maintain a constant vacuum.



- The Primary Separator is bolted onto the top of the airlock.
- The Primary Separator is equipped with two ports.
 - The port on the top has a diameter of 6" and will lead to the Secondary Separator.
 - The suction lines connect to the 4" side port.

2. Airlock / Rotary Valve

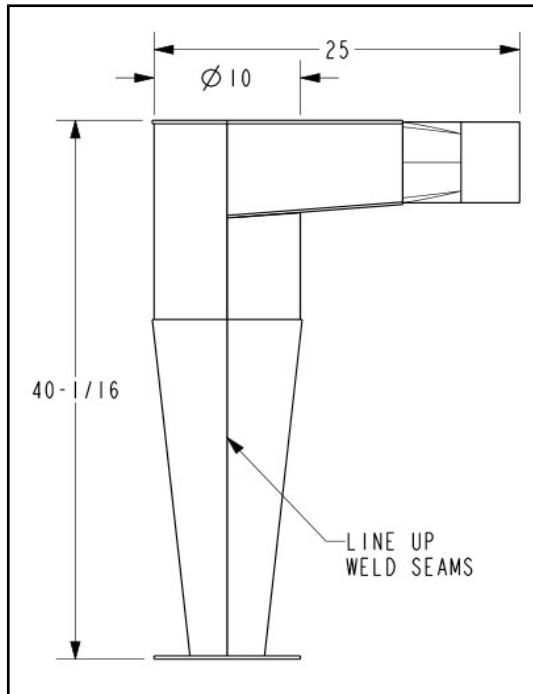
- The airlock is a Walinga 1210 drop thru airlock, built as a single assembly.
 - 27 1/2" long X 23" wide.
- The airlock will be placed under the primary separator and above the customer's discharge option, which will be indicated on the piping layout / system design drawings.
- Discharge piping is 6" and should be installed vertically with a maximum of 20deg slope. This ensures that dust will flow through spouting using only gravity.
- The airlock operates off of an electric motor and chain drive and has to be placed in an easily accessible location for service.



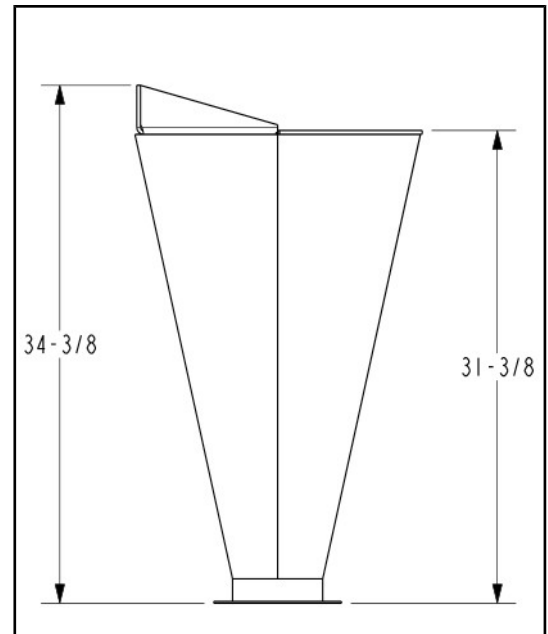
3. Secondary Receiver / Separator

- Placed after the primary separator, the secondary separator operates the same way as the primary. It's purpose is to further separate product from the air stream.
- It typically ships as two pieces that need to be assembled.
- On the bottom of the secondary separator is a 6" outlet with a mounting plate built into it. Below this will be a slide gate or a flap seal.
 - When equipped with a slide gate 6" discharge spouting will be required.
 - When equipped with a flap seal ensure there is enough room below to empty the cone into an appropriate container
- 70" high X 19" diameter.

Top



Bottom

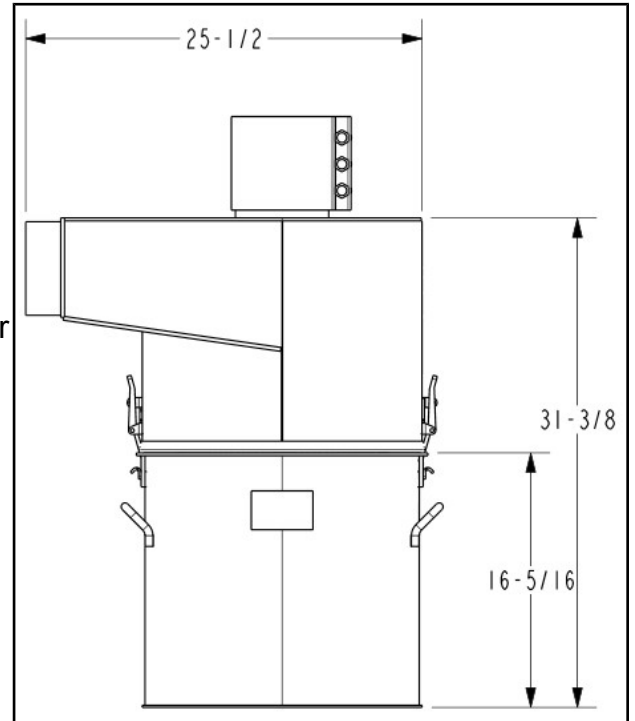


- The top and bottom assembly of the secondary separator needs to be mated, bolted and siliconed together.
 - A full seal is required to maintain constant vacuum.
- The secondary separator will also have two ports both 6" diameter.
 - The 6" pipe heading out of the top of the separator will have to be connected to the filter housing.



4. Filter Housing

- The filter housing is the last component that the air stream flows through. It protects the blower from any remaining product still in the air stream.
- Filters are washable and reusable. Please ensure the filter housing is mounted in an easily accessible location, to allow for maintenance.
- The filter housing consists of two parts; filter housing and basket, which easily detach.
 - To allow easy removal the basket component must not be obstructed.
- 31 – 3/8" high and 25 – 1/2" wide.
- The 6" port coming out of the top of the filter housing will lead towards the blower package.



5. Blower Package

- The blower package generates the suction and pressure. It is built out of a heavy duty steel frame.
- The base itself is 32" wide X 43 – 3/8 long (31 – 1/2" wide X 41 – 1/2" long for the 510 blower base).
- The blower package has a single 6" port where the air stream is generated.
- The 6" pipe going into the blower comes from the filter housing.
- The blower is a crucial part of the Central Vac system and requires service.
- When installing ensure that the belt cover and blower are assessable for service personnel





Piping Components

- **Aluminum tubes**

- 4" aluminum tubing is the typical size of the main line of the Central Vac system.
- 3" aluminum tubing is used for the drop lines, going down towards the camlock inlets.
- In some applications the unit will be equipped with a 3" mainline and 2" drop lines



- **Galvanized steel elbows**

- Used for corners in the piping system.
- Available in 2", 3", 4", and 6"
- 6" elbows are utilized between the blower, filter housing, and separators.
- TY's are used to connect the inlet piping going to the main pipe line.



- Drop lines should never enter the main line from the bottom.
- TY's are directional and must be installed in accordance with the air flow.



- **Compression Coupling**

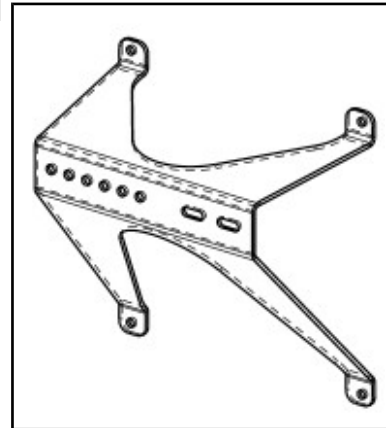
- These are used to join all the piping together. They consist of a three bolt compression clamp, black gasket, and a grounding strip.
- In order to fully function, the clamp must be fully tightened for maximum clamping force.
- Ground strip

is put into place in order to prevent static electricity build up.



- **Mounting Brackets**

- The mounting brackets are mounted to the wall or to any other solid support.
- The saddle clamps are attached to the mounting brackets.



- **Saddle Clamps**

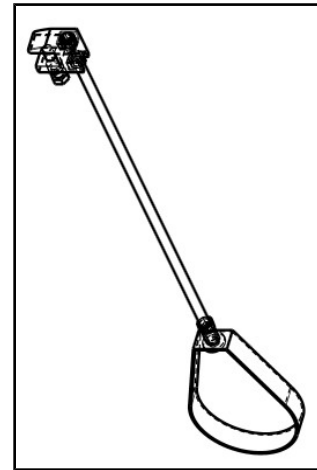
- Saddle clamps consist of two parts; a “saddle” and a u-bolt, and are used to attach the piping system to mounting

brackets.

- Tighten the nuts evenly to prevent any incidents of piping separation or falling.

- **Tube Hangers**

- Tube hangers are an effective way to hang the piping system from the beams running along the roof.
- Consists of a Top Beam Clamp, a rod, and a hanger properly sized to the piping.

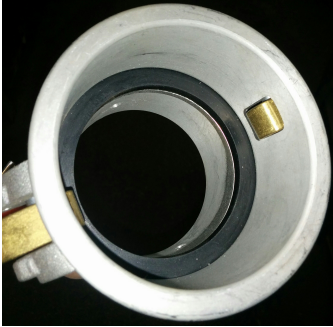


- **Rubber Flex Line**

- Rubber flex line is used on the suction end of the central vac system, and is used for by the operator.
- Has a static wire built into it to prevent static electricity build up.
 - If servicing a rubber hose, ensure that the ground wire is making contact with the coupling.
 - After the service, the installer must check the resistance by using an OHM meter on the couplings while they are in contact with each other.
 - The conductivity of the coupling should read between 0 and 5 ohms resistance.
- Also available as a clear hose.

- **Camlock Coupling**

- The camlock couplings are used to connect the piping to pickup hoses.
- They are designed for quick and easy connect and release.



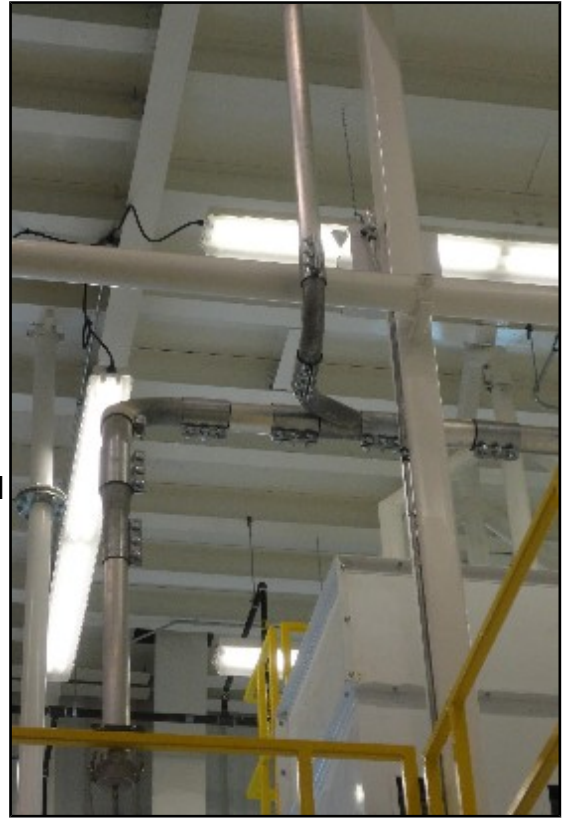
- A rubber seal is installed in the opening of the coupling to ensure proper connection and to prevent connection leaks.



- When installing a camlock coupling, be sure to have a ring of silicone around the piping and have the coupler closed.
- Camlocks must be installed with dust plugs inserted to ensure gasket is not pushed out by pipe
 - After installing the coupler, attach the chain from the dust plug to the Camlock coupling.
 - This ensures that the dust cap will not be lost when an operator is using the Central Vac system.

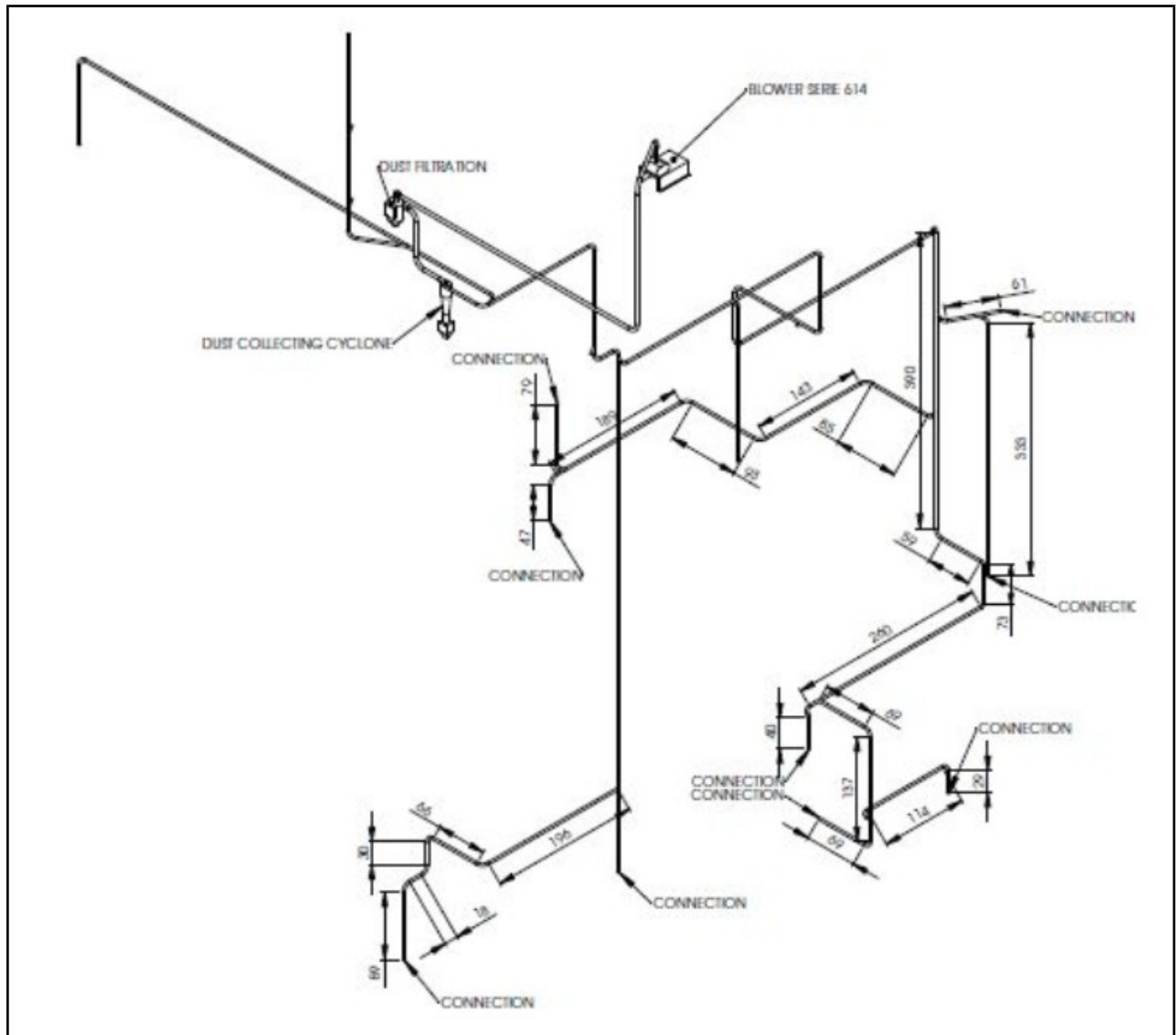
Piping Requirements

- Every system is different, built to suit the customer.
- Typical system will include piping layout/ system design drawings provided by either approved project engineering staff or qualified Walinga personnel.
- All piping installed must be properly supported.
 - When installing the support points, ensure that there is enough strength to support a full pipe line, should the system become plugged.
 - One support point every 10' is recommended.
- Ensure that the main lines are as straight as possible to maintain maximum conveying rate.
- Space the inlets and the inlet piping, at a maximum of 40' apart. Or in accordance with piping layout drawing provided.
- When installing the inlet lines, ensure that the Y elbows enter from either the side or the top of the main pipe line. The Y must also follow the flow of the product and air stream.
- All the piping should be within 400' of the main Central Vac system to maintain product air speed and avoid plugging
- All compression couplers must be fully tightened, ensuring a proper seal.
 - Grounding strip must be properly installed, making contact to both pipes, to ensure total protection from static electricity build up.



- As much as possible ensure that all joining components are easily accessible for any future service and maintenance.
- Electro-Static hazard warning labels must be installed on the piping by all inlets.
- For ease in future maintenance, install all the compression couplings facing the same way.

Typical System Design



Set Up Procedure

Every System is different!

1. Inspect the system design drawings, compare with all the parts received.
2. Inspect all the locations of where the components will be installed, look for:
 - (a) Proper support points.
 - (b) Obstructions
3. Starting at the Central Vac's main components install and anchor the hanger manifold.
4. Install the airlock and fasten it to the hanger manifold.
5. Run a bead of silicone around the top lip of the airlock,



and then position the

primary separator with the 6" outlet port facing towards the secondary separator.

6. Install the secondary separator.
 - (a) Ensure that silicone is applied between any of the secondary separator parts.
7. Install the 6" pipe and 6" compression couplers in between the separators.
8. Along the side of the hanger manifold, install the filter housing.
 - (a) Install the filter inside the basket at the bottom of the filter cannister.
9. Run the 6" piping along with the 6" elbows and 6" compression couplers from the secondary separator, out of the top, down to the inlet port on the side of the filter housing.
10. Place the Blower package close to the hanger manifold and run your 6" piping from the top of the filter housing to the blower inlet.
11. Refer to the supplied system drawing to map out the location of the piping.
12. When joining piping, ensure that the grounding strip is present on all compression couplers. Do not leave gaps between piping sections or between piping and elbows. Gaps will lead to premature wear of piping and create holes in couplers and gaskets.
13. For ease in maintenance install all compression couplings facing the same way.
 - (a) This created minimal movement when removing any couplings.
14. When installing the camlock couplings, ensure that the dust cap is installed and clamped on, before applying silicone to the piping and installing the camlock coupling.



15. Install Electro-Static Hazard warning labels on the piping at all the pick up points.
16. Install the chain from the dust cap to the camlock couplings.

Options

- Customers may have different discharge options making every installation a little different.
- Refer to the system design drawing for every single install.
- Walinga offers a dust free 2 cubic yard dust bin which will be installed under the Airlock.
- A customer may also order a slide gate for underneath their Secondary Separator requiring installation and more sealant.
- A selection of different electrical options are available for the customers.
- Nema 4 starter control panel complete with starters for both blower and airlock drive motors. The panel will include a relay to control the optional slide gate.
- Custom panels are available. Refer to sales contract
- Note: As a rule Walinga Central-Vac systems are equipped with Toshiba 3 phase electric motors. Please refer to the sales contract for voltage and hp requirements, or contact your local Walinga representative.
- **All electrical connections must be made by a certified electrician in accordance with local electrical codes.**

"It is the responsibility of the owner/operator of facilities in which explosion vents are utilized to comply with the requirements of the AHJ, which is typically the use of National Fire Protection Association ("NFPA") Standard 68. Owners / operators must deploy an appropriate number and configuration of vents; ensure vents are installed where activation will not cause personal injury or unacceptable property damage; and ensure vents are not adversely affected by process conditions or conditions on the non-process side of the vent. Seller's installation and operating instructions shall be followed by the Buyer."