# CENTRAL VACUUM CLEANING SYSTEM (CVCS)

**FROM**

# SANTONI

## WHAT IS A CENTRAL VACUUM CLEANING SYSTEM

A central vacuum cleaning system has a “central vacuum unit” placed anywhere in a premises (preferably in a utilities area, where DG set, compressor, water pump, etc. are housed) and pipeline is laid from this central unit to various points in the premises. At strategic locations “socket boxes” are fitted on the was (or floor). These socket boxes have flap covers which normally remain closed but can be flip opened and a flexible hose can be fitted to it as one would do in case of a regular mobile vacuum cleaner.
This way, though the vacuum cleaner is far away cleaning can be done in any part of the premises.

## HOW CAPACITY OF THE CENTRAL UNIT IS DECIDED

There may be two or hundred socket points in a premises but the capacity of the central unit (airflow rate) is dependent only on the maximum number of socket points that are needed to be used simultaneously at any point of time. For example, in a particular case if there are 20 socket points but there is a need to run 4 simultaneously, the capacity of the central unit will be good for four points only.

There are special applications wherein higher or lower airflow per point may be required.

The suction pressure to be generated by the central unit has to be decided on the basis of length and complexity of the pipeline.

## PIPELINE

The pipeline design for a central vacuum cleaning system is very different from pipelines for compressed air, water, steam, etc. because the pressure drop has to be minimized and these lines have to convey materials (dust, etc.) in addition to air. This is a specialized job.

## DISPOSAL OF COLLECTED DUST

The dust is collected at the central unit level and it can be disposed off in several ways depending upon the nature of dust (if not ordinary housekeeping dust), its quantity and its further utility.

## CAN THE MATERIALS COLLECTED FROM DIFFERENT PLACES BE RECOVERED SEPARATELY

Yes, that is a beautiful possibility with SANTONI central vacuum cleaning system.

## CAN IT COLLECT LIQUIDS TOO

Though Santoni’s Central Vacuum cleaners are essentially dry pick-up type, it is possible to collect wet materials or liquids with the help of wet collection accessories and a “wet-interceptor”.

# COMPARISON WITH A MOBILE VACUUM CLEANER

As compared to a normal mobile vacuum cleaner SANTONI's Central Vacuum cleaning system offers several advantages. Following are some important advantages:

1. Unlike mobile vacuum cleaners Santoni's Central Vac System is always ready for use. One does not have to haul-in the vacuum cleaner to work with. The Central vac is available 24X7 every where in the premises.

2. Cleaning, per se, is the job of the cleaning/housekeeping staff. Santoni's Central vac is used by everyone because it is a concept so different than just cleaning.

3. Since the central unit of the CVCS is located outside (or may be in the utilities area) the noise of the machine does not disturb anyone.

4. And, since the central unit is not to be brought in there is no possibility of some muck coming back as can happen with the wheels of a mobile machine (particularly relevant in case of "super clean areas".

5. The exhaust of a vacuum cleaner carries some residual dust (after filtration) and one has to use very expensive HEPA filters to prevent it. (This particularly true in case of Super Clean areas). Santoni's Central Vac System does not need such expensive filters because the exhaust of the central unit is discharged outdoors unlike mobile machines.

6. There is no capacity constraint with Santoni's Central Vac system. Being a stationary unit it can have a container as large as required (even a batch and/or continuous disposal system can be offered, where large quantities of materials are collected). The mobile units have to be light and compact, and, therefore, have limited capacity.

7. The filters of a mobile unit have to be cleaned often whereas CVCS has automatic filter cleaning device.

8. The mobile vacuum cleaner, for keeping it light and compact, has a single phase AC-DC universal motor which has limited life (about 200 to 800 hours). Santoni's CVCS has 3-phase induction motor that has no Life Constraint.

9. Since Santoni's CVCS is based on a three phase induction motor it works to be more economical in the long run because of its very long life. Mobile vacuum cleaners, due to their universal motor and plastic parts, have a very limited life (sometimes not more than a few months).

## Features of a Central Vac System from SANTONI

a. "Socket boxes" are fitted at strategic locations in the premises such that all areas to be cleaned are approachable with flexible hose.

b. Wall mounted (or mobile) baskets are provided to keep accessories (normally one for each area) so that accessories and hose can be nicely tucked away when not in use.

c. The system incorporates a facility by which whenever a hose is connected to any of the socket points the central unit automatically switches-ON. When none of the sockets is in use the central unit switches-off automatically (goes into "sleep mode"). The operators do not have to run to the central unit to switch it on when they want to use the system.

d. The sockets are connected to the central unit through a well designed aerodynamic pipeline (it is very different from pipelines for water, steam , compressed air, etc.)

e. The central unit is based on HVC series vacuum cleaners from Santoni. These vacuum cleaners have positive displacement "twin-lobe blower" at their heart where suction is generated. Twin-lobe blower is a heavy-duty suction blower that has characteristic performance very different from a centrifugal blower, in a way that its airflow rate does not dip much when pressure demand is high. Since normal vacuum cleaners are based on centrifugal blower their airflow rate goes to near zero when narrow cleaning nozzle is placed very close to the source of muck.

f. The central unit runs with a 3-phase induction motor – that can run virtually non-stop round the clock – round the year. There is practically no motor failure.

g. The area of the filter used in Santoni's CVCS is very large as compared to any other vacuum cleaner. This results into continued high suction performance over long hours of use as the filter does not choke.

h. The dust is collected in a container under the filter chamber in case of a basic HVC. Here it is important to note that the dusty air first passes through a "cyclone effect prefilter" that removes major part of the dust even before the air hits the main filter, reducing the dust load on the main filter. Then, dusty air strikes the bottom surface of the "cone-in-cone" filter, and forms a layer (called dust cake) which breaks after it reaches a particular thickness, and the dust falls down into the container. This is a kind of self cleaning process that keeps the filter unclogged.

i. Any filter would choke after a while. But due to a very special filter shaking device (cam operated) – available in manual version (standard) or programmable automatic motorized version (optional) – the filter remains clean and suction remains intact.

j. Each socket has a perforated mesh separator – to prevent entry of large objects which can eventually block the pipeline.

k. Motorized automatic filter shaker – Whenever the system is switched-on (by opening a socket) first the automatic shaker works for a set time (say 10 seconds) and then the main system starts. This ensures that the filter remains clean without any operator attention.

a. Silencer is standard – to reduce the noise level of the central unit.

b. Acoustic Hood is optional for very low noise level.

c. General Accessories :

1. Hose with end fittings (Standard length 3 mtrs, can be supplied up to 30 mtr long).
2. Extension pipe (standard length – 1 mtr, more pieces can be added for reaching high places, e.g. overhead pipes, cob-web removing, etc.).
3. Floor cleaning nozzle
4. Round Brush
5. Crevice Nozzle

d. Special purpose accessories

1. Overhead pipe cleaning nozzle (various models for different pipe diameters)
2. Very narrow diameter nozzles for special applications
3. Wet squeegee for floor mopping (to be used with optional wet-separator)
4. Wet separator (mobile version for location specific use, or stationary version for use with the central unit).
5. Bulk separator – to lift bulk quantities of spilled materials - (mobile version for location specific use, or stationary version for use with the central unit).
6. HEPA filter in the exhaust of the central unit (for toxic materials).
7. Acoustic hood for very low noise level.

e. Custom features (optional)

For specific applications custom-designed machines can be offered.

f. Material Conveying with Santoni's Central Vacuum Cleaning System

This is a very special feature of SANTONI's CVCS. It can be used for transferring powders or granular materials from any point A to another point B within a plant. For example, plastic granules can be transferred from stores to one or more injection molding machines using the CVCS. For more details contact Santoni