Steinemann
CENTRAL VACUUM SYSTEMS

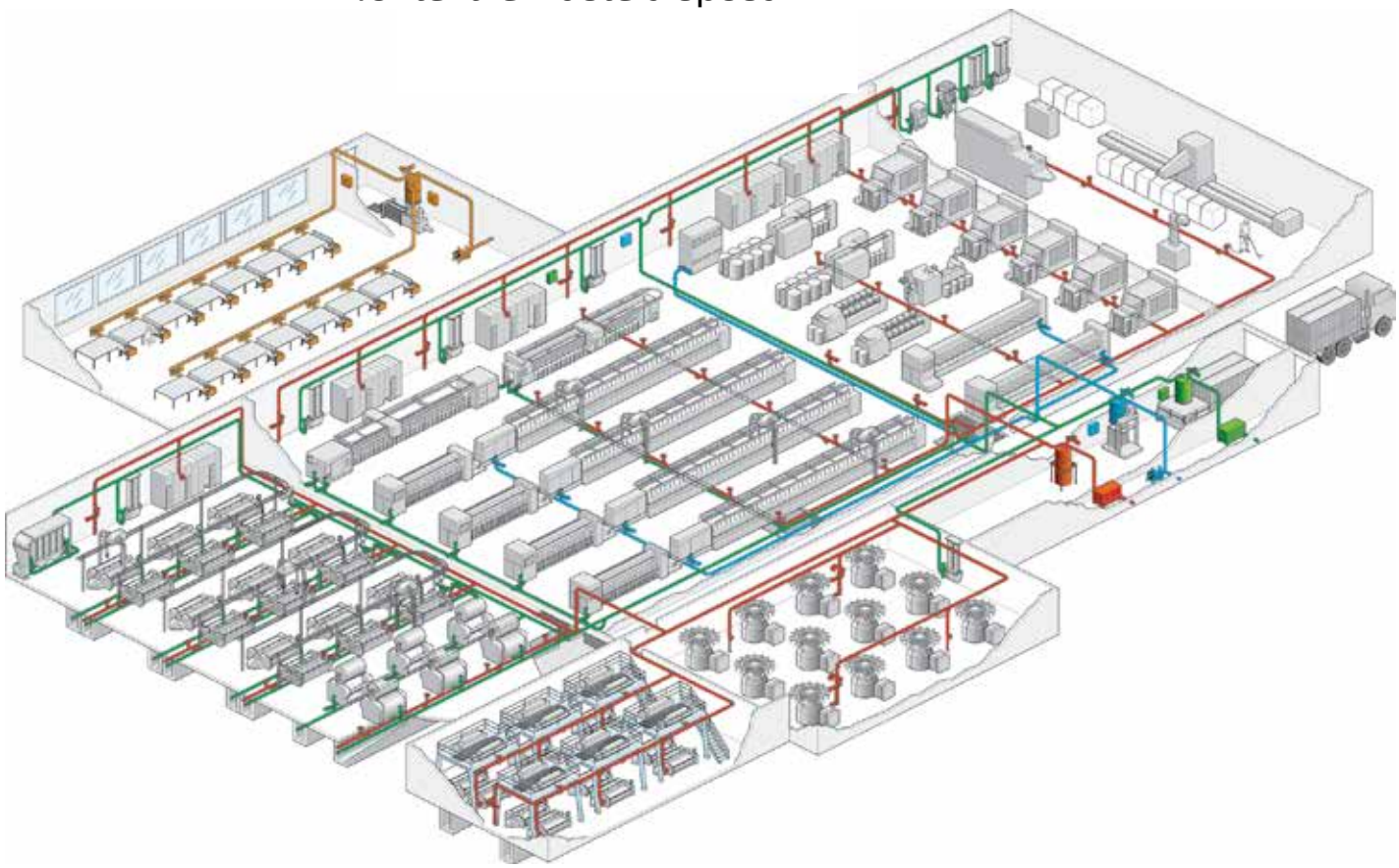
ConVacc AG
Wilerstrasse 2180
9230 Flawil
Switzerland

Tel. +41 71 394 14 14
Fax +41 71 394 14 83

www.steinemann-cvs.ch
cvs@steinemanngroup.com

The ideal solution

for textile waste disposal



Manual Cleaning with Floor Sweeping

Automatic Disposal of Recyclable Fibers

Automatic Disposal of Yarn, Dust and other Waste

Automatic Disposal of Selvedge Cuts

Cleanliness is Quality

From numerous distant vacuum sockets to one collecting and emptying point, with high speed up to 300 km/h.

02
Vacuum Units:
Vacuum units, ready for connection, sound insulated, with vacuum of up to –500 mbar and air volume from 1'100 to 6'000 m3 / hour. Air-cooled periphery blower for smallest application. Air-cooled, oil-free-blow-off air roots blowers for all other applications, with integrated electrical switchboard and control valves, constant high efficiency over entire pressure range, energy saving controls, overheating protection for blower and motor. All units are compact, easy to install or retro-fit, low maintenance concept, low cost in respect of both installation and plant infrastructure; factory tested.

03
Pipe Network:
Systematically designed pipe network in aluminium DN 100, 120 and 150; carefully molded bends, branch-, cross-, T- and Y-pieces as well as reducers, sight glasses, etc. Parallel program of aero-dynamically optimized stainless steel fittings for difficult dust and waste. Very easy and fast installation due to simple connecting and fastening technique, saving erection time and cost.

04
Automatic Disposal:
Logically programmed, standardized control systems; complete series of vacuum slide valves DN 50, 100 and 150, electric or pneumatic drives, suitable for automatic waste collection from traveling cleaners, good fiber and trash chambers, yarn chambers, dust filters and collecting points of dust and waste in the entire production area. Separation of reusable material and disposable dust / waste.

05
Manual Cleaning:
Self-sealing, resistant floor- and wall sockets in aluminium, ready for installation; complete program of vacuuming accessories, hoses, nozzles and brushes; floor sweeping points with slide valve, trolley for cleaning tools – for an efficient and proper room and machine cleaning.

06
Filters and Compactors:
Filter installed on tri-pod or fixed to wall, e.g. at the central point of waste collection, net capacity up to 1'100 lt. Options for automatic (motor driven) cover port, multiple filter, automatic filter fabric cleaning, overcharging indication, combination with various compacting possibilities (bale press or briquetting press).

07
Applied Profitability

08
Technical Information

Different performance ratings, with well-balanced vacuum, air-volume and power consumption.

Steinemann
CENTRAL VACUUM SYSTEMS

ConVacc AG
Wilerstrasse 2180
9230 Flawil
Switzerland

Tel. +41 71 394 14 14
Fax +41 71 394 14 83

www.steinemann-cvs.ch
cvs@steinemanngroup.com

Roots Blower

keeps your waste powerfully moving

Roots Blower

Facts

- Vacuum units with maximum volumetric capacities of blower of 1'400 up to 5'950 m3/h and vacuum up to 500 mbar (2 10 simultaneous flexible hoses for manual cleaning).
- Energy saving with AS (Automatic Stop) or ESS (Energy Saving System – Frequency Converter) controls.
- Low maintenance concept (yearly oil change, etc.).
- Compact, fully equipped, easy to install and ready for fitting.
- Factory test with acceptance certificate.
- Low cost in respect of both installation and plant infrastructure.
- Easy to operate and service.
- Roots blower, air-cooled, oil-free blow off air, robust, low maintenance with constant delivery volume over entire pressure range.
- Constant high efficiency over entire pressure range.
- Overheating protection of blower and motor.
- Option: external interfaces (filter control, group control, fire protection signals, etc.).

SERIES OF ROOTS BLOWERS

Series of types 2/11 to 10/15

- for smaller unit type 1/PB and 2/PB see sheet "Periphery Blower"
- for technical data see sheet "Summary Vacuum Units"

Vacuum Unit with open soundproof hood

Range of energy saving vacuum units easy to install, operate and maintain

Easy accessibility for inspection and maintenance

Easy control and setting of operating parameters and practical configuration of valves and control devices

Clear arrangement of all electrical and control components

Cooling fan for efficient cooling of blower and motor

2 different performance ratings with well-balanced vacuum, air-volume and power consumption

Steinemann
CENTRAL VACUUM SYSTEMS

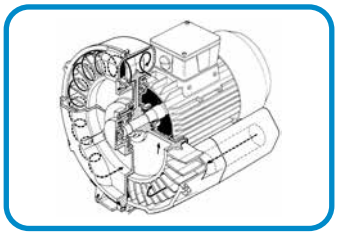
ConVacc AG
Wilerstrasse 2180
9230 Flawil
Switzerland

Tel. +41 71 394 14 14
Fax +41 71 394 14 83

www.steinemann-cvs.ch
cvs@steinemanngroup.com

Periphery Blower,

your first step to the solution



Periphery Blower

Facts

- Vacuum units with maximum volumetric capacities of blower of 1'140 and 1'850 m3/h and vacuum up to 280 mbar (1 or 2 simultaneous flexible hoses for manual cleaning).
- Compact, low noise, fully equipped, easy to install and ready for fitting.
- Factory test with acceptance certificate.
- Low cost in respect of both installation and plant infrastructure.
- Easy to operate and service.
- Periphery blower, air-cooled, oil free, low maintenance.
- Motor and blower with high quality lubricators, ensuring low-revision-requirement operation.
- Electrical power switch on the motor casing, allowing easy switch on / off directly at the vacuum unit.
- Option:
  · external switchboard with remote control boxes and energy saving with AS (Automatic Stop).
  · external interfaces (group control, fire protection signals, etc.).

SERIES OF PERIPHERY BLOWER

Series of types 1/PB and 2/PB

- or larger units type 2/11 to 10/15 see sheet "Roots Blower"
- for technical data see sheet "Performance overview and AS / ESS function"

Periphery blower with attached control cabinet (AS control)

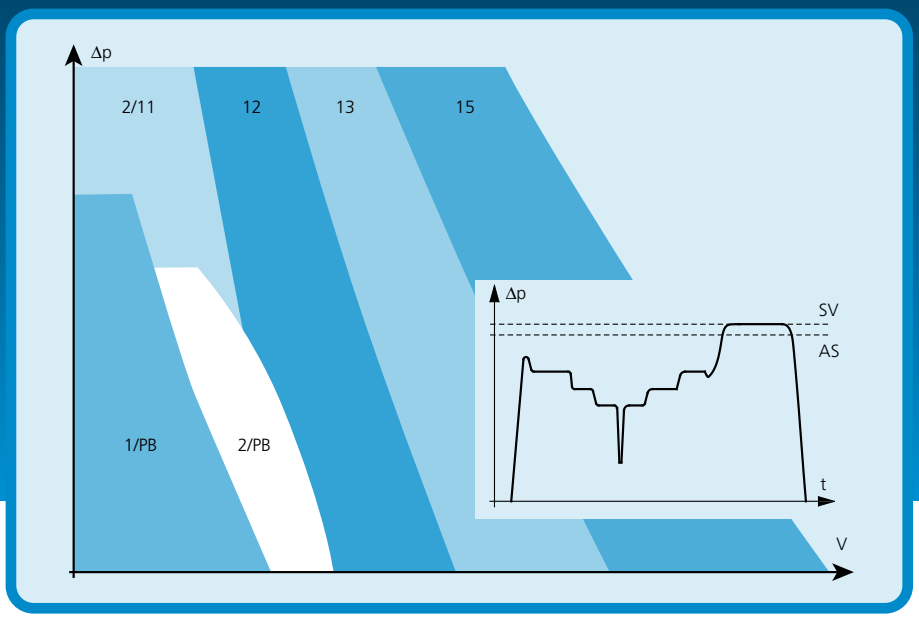
Energy saving vacuum unit easy to install, operate and maintain

Spring tube Manometer

Valve housing with safety valve

Control cabinet

Electrical motor switch with fuse control attached to motor



Performance overview and AS-function

Steinemann
CENTRAL VACUUM SYSTEMS

ConVacc AG
Wilerstrasse 2180
9230 Flawil
Switzerland

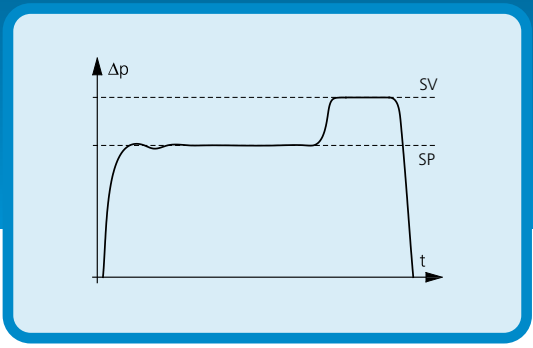
Tel. +41 71 394 14 14
Fax +41 71 394 14 83

www.steinemann-cvs.ch
cvs@steinemanngroup.com

Summary Vacuum Units

AS Control 50 Hz

Type	1/PB (AS)	2/PB AS	2/11 AS	3/12 AS	4/12 AS	5/13 AS	6/13 AS	8/15 AS	10/15 AS
Weaving: No. of weaving m/c A)	45	70	120	240	360	480	600	960	1200
Spinning: No. of spindles installed A)	9000	15 000	24 000	36 000	48 000	60 000	72 000	96 000	120 000
Simultaneously used hoses qty	1	2	2	3	4	5	6	8	10
Max. volum. capacity blower m3/h	1140	1500	1400	2600	2600	3750	3750	5950	5950
Max. set vacuum mbar	280	240	350	350	350	350	350	350	350
Suction capacity total m3/h B)	420	700	908	1250	1600	2015	2250	3200	3840
Suction capacity per hose m3/h B)	420	350	454	417	400	403	375	400	384
Air intake velocity m/s B)	59,0	49,0	64,0	59,0	57,0	57,0	53,0	57,0	54,0
Average power consumption kW C)	(6,5)	8,0	10,0	16,0	22,0	30,0	35,0	53,0	65,0
Installed motor power kW	11,5	15,0	18,5	30,0	30,0	45,0	45,0	75,0	75,0
Room-requirement L * W * H m D)	5,75 * 3,1 * 3,5		6,27 * 3,1 * 3,5			6,75 * 3,5 * 3,5			



ESS-function

ESS Control 50 Hz

Type	4/12 ESS	6/13 ESS	10/15 ESS
Weaving: No. of weaving m/c A)	360	600	1200
Spinning: No. of spindles installed A)	48 000	72 000	120 000
Simultaneously used hoses qty	4	6	10
Max. volum. capacity blower m3/h	2600	3750	5950
Max. set vacuum mbar	350	350	350
Suction capacity total m3/h B)	1600	2250	3840
Suction capacity per hose m3/h B)	400	375	384
Air intake velocity m/s B)	56,5	53	54
Average power consumption kW C)	16,5	23	42
Installed motor power kW	30	45	75
Room-requirement L * W * H m D)	6.27 *3.1*3.5	6.75 * 3.5 * 3.5	

Remarks:
All data are at Sea level and for 50 Hz. All blowers are roots type except the 1/PB- and 2/PB-unit which are periphery blowers.

AS
Automatic Stop (The Vacuum Unit switches off automatically if no vacuuming is performed)

ESS
Energy Saving System (Frequency Converter - controlled motor / blower + AS control)
A) Only approximate - / upper limit - value (depending on material processed and various other factors)
B) At design conditions (i.e. standard network with cleaning hose diameter 50 mm)
C) Only approximate value, tolerances + 0 / - 20 %
D) Measurements are minimum values and with filter in same room

Further documentation is available covering Vacuum Unit Specification, Types of Control, Average Power Consumption, Comparison Blower Types, Optimization Vacuuming Efficiency and Power Consumption, Pipe Network, Automatic Disposal, Manual Cleaning, Filters and Compactors and Spare Parts.
We reserve the right to modify design and specification without prior notice.

Complete pipe network with minimal pressure loss.
Quick and easy installation.

Steinemann
CENTRAL VACUUM SYSTEMS

ConVacc AG
Wilerstrasse 2180
9230 Flawil
Switzerland

Tel. +41 71 394 14 14
Fax +41 71 394 14 83

www.steinemann-cvs.ch
cvs@steinemanngroup.com

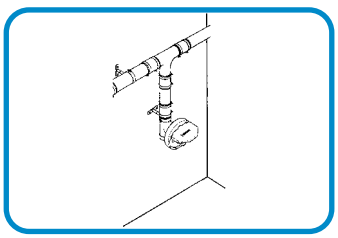
Conveyance,

fast and airtight

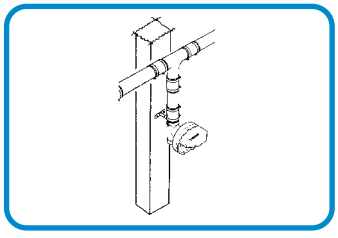
Facts

- Systematically designed aluminum pipe network with practical connections and fastenings.
- Aerodynamically shaped bends, branches, tees and forks.
- Three different diameters for optimal flow conditions.
- Low pressure loss design resulting in less power consumption.
- Aluminium selected for less air-friction, durability, non-corrosion and no sparks.
- Stainless steel fittings for special applications (abrasive material, excessive quantities).
- Easy installation for local erectors thus saving installation cost (no bolting nor welding).
- Due to simple concept and small diameters easy to install, specially also for retro-fitting.
- Pipe network up to several 1000 meters of entire length.
- Network can be overhead or underfloor (in AC pits or basement) installed.

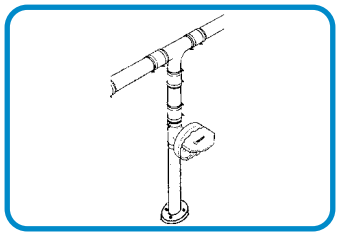
Adaption to architectural conditions



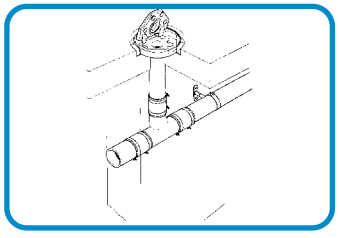
Pipe network fixed to wall



Fixed to pillar



Fixed to floor



Underfloor

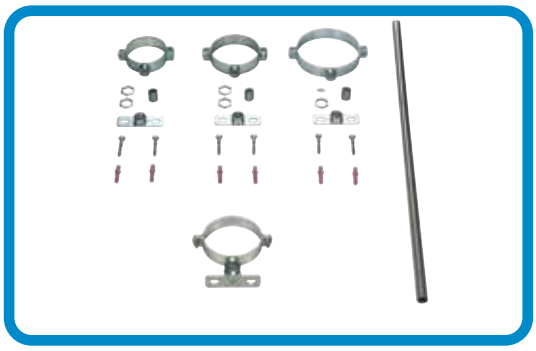
Aluminium pipes in 3 diameters DN 100, DN 120 and DN 150

Systematically designed pipe network program for easy installation

Fittings to facilitate appropriate routing

Pipe connectors: easy to install, flexible, airtight

Fastenings designed for quick and easy assembly



Special stainless steel fittings for transport of abrasive waste material and excessive quantities

Modern control and valve technology automatically solves your waste problems

Steinemann
CENTRAL VACUUM SYSTEMS

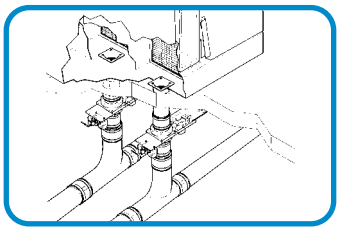
ConVacc AG
Wilerstrasse 2180
9230 Flawil
Switzerland

Tel. +41 71 394 14 14
Fax +41 71 394 14 83

www.steinemann-cvs.ch
cvs@steinemanngroup.com

Constantly relieved airflows

increase production machine productivity



Application possibilities in spinning, weaving, or other productions with recycling or waste handling problems

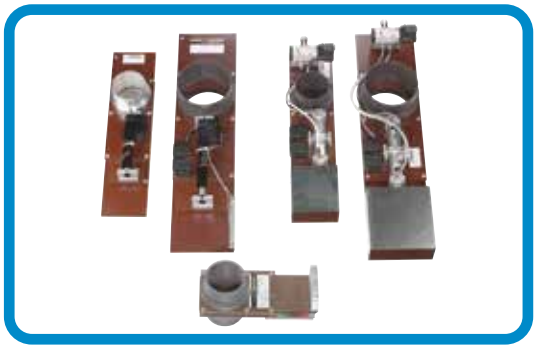
Facts

- Emptying of fibre, yarn and trash chambers, air-conditioning filter collectors, overhead traveling cleaning collectors and other dust collectors throughout the production area relieves and facilitates air management and thus results in increased product quality and productivity.
- Solves logistic problems from place of origin until compacting.
- Production increase due to less or no shut off time during emptying.
- Simple material-separation possibilities for recycling, etc..
- Reduced energy requirement due to supercharging of system.
- Practical free programmable and easy extendible controls designed to help solve disposal problems.
- Individual, product-related addressability of extraction and collections points.
- Comprehensive range of vacuum slide valves with electric and pneumatic drives.
- Economical transport of material in very long pipe networks without additional booster units required.

Disposal of waste from OHC or / and A/C filter dust collectors

A range of valves and standardized or custom designed / applicable control systems to solve automatic waste disposal

Standardized group control for normal systems and central control for complex waste disposal



Ready-to-fit pneumatic and electric control and disposal valves

Filter chambers (fiber and yarn) of Rotor spinning machine

Filter chambers (fiber and yarn) of Air Jet spinning machine

A complete range of tools for practical, efficient cleaning.

Steinemann
CENTRAL VACUUM SYSTEMS

ConVacc AG
Wilerstrasse 2180
9230 Flawil
Switzerland

Tel. +41 71 394 14 14
Fax +41 71 394 14 83

www.steinemann-cvs.ch
cvs@steinemanngroup.com

Once seized...

...and gone

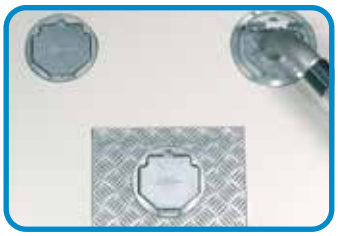
Manual Cleaning of Ring spinning machine

Floor sweeping: waste collected with brooms to a sweeping point

Facts

- Powerful vacuum accelerates manual cleaning of your machines, peripheral installations and production rooms. In weaving for example, this can mean fewer ends down, improved fabric quality, shorter warp changing times and thus higher efficiency.
- Complete range of hoses, nozzles, brushes, floor sweeping points and liquid separators.
- Tool trolley for vacuuming equipment.
- CVS replacing compressed air results in
  - Waste is effectively transported out of the production area (with compressed air the waste is only moved around)
  - Quality and production improvement due to increased cleanliness
  - Improved working conditions
  - Reduced energy costs
  - Less stops and maintenance of production machines due to improved cleanliness
- CVS replacing mobile cleaners results in
  - Higher suction efficiency ensuring faster cleaning times (less downtime of production machine) and increased cleanliness
  - No electric cables in aisles obstructing traffic
  - No filter emptying in production area
  - Less maintenance and spare parts necessary
  - No oil or fine dust blown-off inside the mill

Practical floor and wall socket system

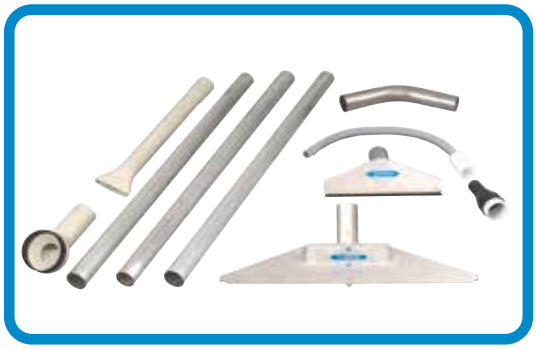


Floor sockets capable of supporting wheel loads up to 2 tons

Room cleaning: versatile, even at exposed locations

A complete range of tools for practical and efficient cleaning

Tool trolley: helps cleaning personnel keep equipment tidy



Cleaning tools for every application

Universal wall socket

Flexible suction hose with connecting parts

Filter system mounted on installation platform
The closed-circuit system keeps your waste separate from pick-up to compaction.

Steinemann
CENTRAL VACUUM SYSTEMS

ConVacc AG
Wilerstrasse 2180
9230 Flawil
Switzerland

Tel. +41 71 394 14 14
Fax +41 71 394 14 83

www.steinemann-cvs.ch
cvs@steinemanngroup.com

Collects, filters and dumps

at the right place

Facts

- Flexible design allows different installation possibilities
  - Mounting method (fixed to wall / roof or platform, on tripod or fixed to Vacuum unit)
  - Application retro-fitting or upgrading easy possible and at any time
- Overcharging indication device
- Automatic filter fabric cleaning (no compressed air necessary)
- Filter cover opening (manually, by motor drive or pneumatic drive)
- Easy to install and maintain (re-usable and washable filter fabric, etc.)
- Separation of qualities (e.g. for recycling, etc.), possible with 2 or more filters
- Large filter capacity (up to 750 respectively 1'100 lt per filter)
  - Allows long operation time between filter-emptying

- Filters, which can be installed at a suitable location, enabling dumping of waste to:
  - Bale press
  - Briquetting press
  - Conveyor belts
  - Recycling plants
  - Compactor containers

  etc.

Standard version without compactor, manual swivel cover

Fabric filter: Effective, wear resistant, low maintenance

Filters to collect and process the accumulated waste

Level control device (optical): signal for a variety of displays or control commands

Automatic filter cover opening for controlled emptying

Filter fabric cleaning: integrated, simple, without any additional installation

Filter above bale press

Manual Cleaning of a weaving machine

Steinemann
CENTRAL VACUUM SYSTEMS

ConVacc AG
Wilerstrasse 2180
9230 Flawil
Switzerland

Tel. +41 71 394 14 14
Fax +41 71 394 14 83

www.steinemann-cvs.ch
cvs@steinemanngroup.com

FLASH

Manual Cleaning

in a Weaving Mill

Clean textile machinery is

- producing better quality (yarn, fabric).
- reducing second grade material (less fly spun woven into yarn/fabric).
- increasing production efficiency (less downtime).
- reducing component wear (requiring less spare part)
- extending life-time expectancy.
- less fire hazardous

With Central Vacuum Systems

- less labor involvement (cleaners) is required.
- cleaner environment is achieved (positive effect on employee-productivity).
- the waste is centralized collected and can be further processed (briquetting, compacting, etc,).
- the waste can easily be separated into different qualities / designations
- the waste is not redistributed as with compressed-air-blowing
- small pipe diameters (mostly 100 mm, up to max. 150 mm); also easy retro-fitable for existing mills

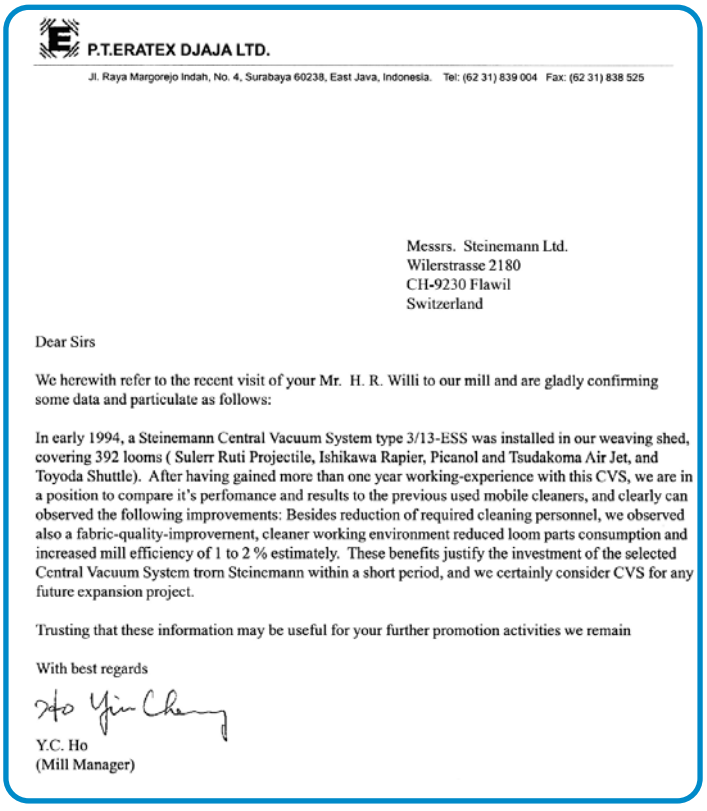
EFFICIENCY / PRODUCTIVITY INCREASE =
1 – 2 %

Very short and attractive pay-back times in the order of a few years or even months only.

More than 450 Central Vacuum Systems are already installed in 60 countries around the world, and with our first CVS installed in 1965 more than 35 years running experience have been accumulated.

Manual cleaning solution in a weaving mill

Manual Cleaning during warp beam change



P.T.ERATEX DJAJA LTD.

Jl. Raya Margorejo Indah, No. 4, Surabaya 60238, East Java, Indonesia. Tel: (62 31) 839 004 Fax: (62 31) 838 525

Messrs. Steinemann Ltd.
Wilerstrasse 2180
CH-9230 Flawil
Switzerland

Dear Sirs

We herewith refer to the recent visit of your Mr. H. R. Willi to our mill and are gladly confirming some data and particulate as follows:

In early 1994, a Steinemann Central Vacuum System type 3/13-ESS was installed in our weaving shed, covering 392 looms (Sulerr Ruti Projectile, Ishikawa Rapier, Picanol and Tsudakoma Air Jet, and Toyoda Shuttle). After having gained more than one year working-experience with this CVS, we are in a position to compare it's perfomance and results to the previous used mobile cleaners, and clearly can observed the following improvements: Besides reduction of required cleaning personnel, we observed also a fabric-quality-improvement, cleaner working environment reduced loom parts consumption and increased mill efficiency of 1 to 2 % estimately. These benefits justify the investment of the selected Central Vacuum System trom Steinemann within a short period, and we certainly consider CVS for any future expansion project.

Trusting that these information may be useful for your further promotion activities we remain

With best regards

Y.C. Ho
(Mill Manager)

Reference letter from our esteemed customer P.T. Eratex, Probolinggo / Indonesia:

"Besides reduction of required cleaning personnel, we also observed a fabric-quality-improvement, cleaner working environment, reduced loom parts consumption and increased mill efficiency of 1 to 2 %."

Card cleaning with CVS

Steinemann
CENTRAL VACUUM SYSTEMS

ConVacc AG
Wilerstrasse 2180
9230 Flawil
Switzerland

Tel. +41 71 394 14 14
Fax +41 71 394 14 83

www.steinemann-cvs.ch
cvs@steinemanngroup.com

FLASH

Manual Cleaning

in a Spinning Mill

Our esteemed customer P.T. World Yamatex in Bandung, Indonesia, ordered in 2001 a CVS (Central Vacuum System) for the following purpose:

- Manual cleaning of textile machinery at spinning preparation and winding area
- Floor sweeping waste extract
- Automatic waste extract from OHC and AC filter waste collection boxes

Calculation:

- Basic data for cleaning without CVS: All cards have to be stopped once a day for 75 min.
- Basic data for cleaning with CVS: One card at the time has to be stopped for 15 min once a day.

Maximum production time of carding without cleaning-interruption per day:

- 39 cards x 24 h x 60 min.=56'160 min.

Maximum production time with compressed air cleaning per day:

- 56'160 min. - 39 cards x 75 min. = 53'235 min.
- Productivity factor: 53'235 / 56'160 = 94.8 %

Maximum production time with CVS cleaning per day:

- 56'160 min. – 39 cards x 15 min. = 55'575 min.
- Productivity factor: 55'575 / 56'160 = 99.0 %

Note: Above mentioned considerations are based on actual experience and have been informed / verified by our customer. They are applicable for the 24 Toyoda cards type CN and 15 Toyoda cards type TM8S installed at P.T. World Yamatex in Indonesia (30200 sp).

EFFICIENCY / PRODUCTIVITY INCREASE:
99.0% - 94.8%
= 4.2%

Logistic consideration: with CVS, one card after another can be cleaned / shut off for 15 minutes, whereas with compressed air all cards have to be shut down together for 75 min, thus resulting in a 75 minute production interruption.

Manual cleaning solution in a spinning mill

Card cleaning with compressed air (before CVS was installed).

Card cleaning with CVS

Winder cleaning with CVS

Automatic waste disposal from OHC waste collection box

Floor sweeping point

The system was commissioned early 2002, and after a few months experience the customer showed great satisfaction with the installed CVS, specially concerning the manual cleaning at the carding area.

Logistic Solution for waste collection of 1260 kg/day respective 75m3/day waste at Schlafmond Krämer in Germany

FLASH

Disposal logistics

at a Quilt Manufacturer

Steinemann
CENTRAL VACUUM SYSTEMS

ConVacc AG
Wilerstrasse 2180
9230 Flawil
Switzerland

Tel. +41 71 394 14 14
Fax +41 71 394 14 83

www.steinemann-cvs.ch
cvs@steinemanngroup.com

Facts

- STEINEMANN CVS performs the complete process: to seize, to transport, to filter + collect and to compact (baling press) – FULLY AUTOMATIC.
- Easy installation of the complete pipe network
- Possibility of CVS extension or modification at any time
- Minimum maintenance required
- Low energy consumption
- Avoiding of hazards due to slippery sewing-waste on the floor

EFFICIENCY / PRODUCTIVITY INCREASE = 16%

No more production-interruption caused by waste disposal activities

No more waste accumulation / piles in the production area

New application in the field of Quilt – and Sleeping Bag - Manufacturers

Before

After

Selvedge cuts on the floor

Aluminium-pipe-network for the automatic transport of the waste

Slide under the sewing table

Sewing table with collecting box. The waste is automatically / intermittently extracted

PLegende 3
Part of the sewing area

A clean production area saves costs and reduces risks

Schlafmond Krämer GmbH before the installation of our Central Vacuum System

Schlafmond Krämer GmbH with fully automatic disposal of the quilt selvedge

Perfect manual cleaning thanks to high suction performance and suitable cleaning tools

Steinemann
CENTRAL VACUUM SYSTEMS

ConVacc AG
Wilerstrasse 2180
9230 Flawil
Switzerland

Tel. +41 71 394 14 14
Fax +41 71 394 14 83

www.steinemann-cvs.ch
cvs@steinemanngroup.com

CVS, your solution

for economic and efficient in-house cleaning

Mobile cleaners

- Heavy machine to push around and which disturbs access to textile machinery. It is not possible to clean all areas / machines, e.g. mobile cleaners are not carried up to Jacuard gantries or down into air-conditioning return-air ducts!
- Filter with single / small compartment (100 lt or less), which fills up very quickly and causes quick drop of suction performance.

- Decreasing air-flow / suction power with collected waste in filter.
- Lower suction performance resulting in:
  - longer cleaning time.
  - production machines cannot be cleaned properly.
  - longer downtime of textile machinery.
  - mill efficiency decrease.
- The waste is only seized. The filter has to be emptied very frequently, the waste is then carried through the mill resulting in increased machine downtime (cleaning must wait / be interrupted and for each waste area at least 1 mobile cleaner is required), labor requirement, etc..
- Maintenance intensive; frequent general overhaul and limited lifetime of blower, electrical power cords dama ged, etc.

- The fine dust after the filter, which contains also oil, is blown back into the mill.
- Electrical power cords of mobile cleaners on the mill floor are hazardous.

CVS (Central Vacuum System)

- Light-weight suction hose allows easy handling and easy access to machines and areas (e.g. top of gantries for Jacquard weaving machines, down in air-conditioning return air ducts, etc.).

- Filter with 2 compartments! 1'100 lt waste collecting room and 500 lt free filtering / airflow volume.

- Constant air-flow / suction power.

- Much better suction performance / efficiency (please refer to back of this page), results in:
  - cleaner textile machinery runs better and results in a reduction of downtime.
  - mill efficiency increase.
- Solves the waste handling logistic problem: With one single CVS all waste from all production areas, filters, underground ducts, etc. is seized and transported to the final waste destination of your mill, the central waste room.
- Low maintenance requirement (yearly oil change and lubrication of the motor covers the main activities) and high life-time (many of our Central Vacuum Systems have already been performing for more than 30 years).
- The clean blow-off air after the filter is discharged to the outside.
- No hazardous electrical power cords on the mill floor.

CVS solves the logistic problem of efficient and economical cleaning and disposal of dust, waste and fly from all production machines and areas

Home vacuum cleaner
Air-volume: 110 m3/h
Vacuum: 150 mbar
Relative suction performance.: 11%
Filter capacity: 8 lt

Mobile vacuum cleaner
Air-volume: 230 m3/h
Vacuum: 200 mbar
Relative suction performance: 23%
Filter capacity: 70 lt

Steinemann CVS
Air-volume: 1'140...5'950 m3/h
Vacuum: 280...350 mbar
Relative suction performance: 100%
Filter capacity: 1'600..3'200 lt