



PART I - GENERAL

1.1 VACUUM BEDDING REMOVAL SYSTEM – VBRS 9400

- A. System Description** – The VBRS 9400, Vacuum Bedding Removal System, transports laboratory animal waste bedding from a Self Contained Processing Dumpstation, SCD 6800, in the cage wash area to any remote non-dedicated compactor, dumpster or bagging equipment.

Factory preassembled and tested, the separating valve, vacuum blower, cyclone separator, filter system, ozone generator and master controls of the VBRS 9400 are housed in an acoustical and environmentally controlled cabinet on a stainless steel skid-pack. Ready for typical installations, the skid-pack is elevated on stainless steel up-rights over, and shares the footprint with, a waste receptacle, such as non-dedicated compactor.

The SCD 6800 dumpstation collects, processes (mills, mixes, and fluidizes), then meters the soiled bedding and feed into the vacuum transport line. The soiled bedding is vacuum conveyed to the separating valve at the waste receptacle. The Graphic Touch Panel HMI on the SCD 6800 dumpstation visually informs the operator of cycle status, system functions and operations.

The VBRS 9400 will handle the materials for well over 1000 cages per hour. Discontinuous dense phase conveying regime uses 2" stainless transport lines for distances to 700 plus feet.

1.2 Warranty

- A. The system shall be fully warranted for parts and service for one (1) year as described in the Equipment Sales Agreement.
- B. Extended Warrantee may be purchased at any time within the one-year warrantee period.

PART II - PRODUCT

2. VACUUM BEDDING REMOVAL SYSTEM – VBDS 9400

2.1 Manufacturer

SMC-Roe
Division of Audubon Machine Corp
814 Wurlitzer Drive
North Tonawanda, NY 14120
www.smc-roe.com

2.2 System Description

2.2.1 Vacuum Bedding Removal System - VBRS 9400 System Description

- A. Vacuum conveying system, using the poly-dense phase (discontinuous dense phase) regime of conveying materials. A patented separating valve (rotary vacuum receiver) is employed to separate the soiled bedding material from the conveying vacuum air. This allows the animal bedding to be discharged into any type of receptacle. A vacuum pressure transducer monitors the vacuum pressure in the system and signals the Self Contained Dumpstation to modulate the rate at which the soiled bedding is fed into the system, thus optimizing through-put and reducing overload conditions.
- B. Dimensions:
- | | | | |
|----|-------------------------------------------|------|-----------|
| a. | LENGTH - Overall | 120" | (3048 mm) |
| b. | WIDTH - | 84" | (2000 mm) |
| c. | HEIGHT - | | |
| | i. Overall, standard. (range 96" to 264") | 168" | (4267 mm) |
| | ii. Recommended clearance over receptacle | 18" | (458 mm) |

- C. Location – At the compactor or waste container in loading area. The skid pack, with separator and vacuum blower assembly, is elevated over a non-dedicated compactor. The stainless steel uprights supporting the skid pack are placed so that the compactor is easily moved into place and to provide easy access for discarding other refuse into the compactor.
- D. A vacuum separating valve (rotary vacuum receiver) is contained within the skid pack cabinet of the Vacuum Bedding Removal System and separates the soiled bedding solids from the conveying vacuum air.
- E. Dust Collection System with vacuum air filtration and optional HEPA Filtration, located within the cabinet on the skid pack platform.
- F. Filtered exhaust air is treated for odor by passing through an ozone reactor chamber before being released outside at between 215 and 420 CFM.
- G. PLC controls with Graphic Touch Screen HMI and Ethernet communications. Communicates between master controls on the skid pack and one or more self-contained dumpstations in the cage wash room.
- H. Discharge Chute / Dust Seal- forms a seal with the compactor. Pneumatically controlled, extends down to form a seal when compactor is in place and disengages by rising up when compactor is removed.
- I. Through-puts of 300 to 1200 cages per hour.
- J. Vacuum blower power unit - 10 hp 460 volts, 60 Hz, 3 phase, located in the skid pack cabinet.
- K. Produces less than 70db.
- L. Redundant, one primary and one secondary, 2" diameter, 16 gage, 304 SS Pneumatic Transport Tubes run between the soiled side of the cagewash room to the VBRS 9400 skid pack at the loading dock.
- M. 2" static conductive compression couplings used to join the Pneumatic Transport Tube throughout.
- N. Seismic and wind sheer analysis.
- O. Factory Acceptance Testing.

2.2.2 Self Contained Dumpstation – SCD 6800 System Description

- A. Self-Contained Bedding Dump Station that is designed for applications with either a single dedicated vacuum bedding removal system or for multi-port vacuum bedding removal systems, having more than one pickup point on a single vacuum removal line.
- B. Dimensions:
 - a. LENGTH-standard rail, longer or shorter by space allocation 54" (1375 mm)
 - c. HEIGHT- overall standard, may be higher or lower by headroom availability 38" (965 mm)
 - d. WIDTH- 26" (960 mm)
- C. PLC controls with Graphic Touch Screen HMI and Ethernet communications with Vacuum Bedding Removal System master controls with vacuum pressure transducer.
- D. 2" diameter, 16 gage, 304 SS Pneumatic Transport Tube.
- E. Factory Acceptance Testing.

2.3 System Operation - VBRS 9400 Vacuum Bedding Removal System and SCD 6800 Self Contained Dumpstation

- A. The Vacuum Bedding Removal system uses photo electric sensor to detect that the compactor is in place and is ready for operation. The system ready condition is displayed on the Self-contained dumpstation HMI.

The SCD 6800 collects, processes by milling, mixing, and fluidizing, and then meters the soiled bedding and feed into the vacuum transport line. A patented separating valve (rotary vacuum receiver), at the skid pack over the compactor, is employed to separate the soiled bedding material from the conveying vacuum air. A vacuum pressure transducer monitors the vacuum pressure in the system and signals the Self Contained Dumpstation to modulate the rate at which the soiled bedding is fed into the system, thus optimizing through-put and reducing overload conditions.

- B. The vacuum air from the vacuum receiver is filtered prior to entering the vacuum blower. Filtered exhaust air is treated for odor by passing through an ozone reactor chamber before being released outside at between 215 and 420 CFM.

2.4 Construction

2.4.1 VBRS 9400 Vacuum Bedding Removal System Construction:

- A. Construction- The skid pack platform frame is fabricated with type 304 stainless steel with aluminum diamond plate deck. The weatherproof cabinet is constructed with aluminum and insulated with acoustically absorbing foam. The cabinet assembly includes lighting, a heating unit and a ventilating fan.
- B. Structure- All structural support uprights (legs) are type 304 stainless steel.

- D. A permanently attached stainless steel ladder and safety cage is provided for access to the skid pack.
- E. Controls- Graphic Touch panel with auxiliary E-stop switch are mounted on a NEMA 4X enclosure containing PLC controls, vacuum pressure switch and ethernet communication apparatus.
- G. Vacuum Blower power unit- 10 hp 460/60/3 phase, is contained within the acoustically insulated cabinet on the skid pack.
- I. Discharge Chute / Dust Seal- forms a seal with the compactor. Pneumatically controlled, extends down to form a seal when compactor is in place and disengages by rising up when compactor is removed.
- M. 2 each 2" diameter, 16 gage, 304 SS Pneumatic Transport Tubes.
- N. 2" static conductive compression couplings are used to join the Pneumatic Transport Tube throughout.
- O. Vacuum Bedding Removal System skid pack (platform and cabinet) is shipped fully assembled and tested, ready for installation.

2.4.2 SCD 6800 Self Contained Dumpstation Construction:

- A. Type 304 Stainless Steel Construction and panels
- B. Screw Discharger with motor speed control & on-off functions.
- C. Mill sizing rollers and integral vacuum pick-up with oversize enrichment discharger
- D. Lip exhaust system for allergen and dust control
- E. Bar grate with integral scraper for removal of difficult materials
- F. Magnetic Safety Switch on bar grate and two (2) e-stops
- G. Sectional Shipment - The unit shall be shipped in sectional components for entry into building. Uncrated sections shall pass through a 3' 6" x 6'8" standard doorway.

2.5 MEP Services / Utilities

2.5.1 VBRS 9400 Vacuum Bedding Removal System – Loading Dock Area MEP Services / Utilities

- A. Compressed air - 8 CFM @ 90PSI
- B. Electrical –
 - a. 120VAC 60Hz 1phase, at 20 amps.
 - b. 230/460 VAC, 60Hz,10 amps
- C. Communications – Plenum Rated CAT 5e or CAT 6 shall run between the VBRS 9400 Vacuum Bedding Removal skid pack controls and SCD 6800 controls in the soiled cage wash room.

2.5.2 SCD 6800 Self Contained Dumpstation – Soiled Cagewash Area / Room MEP Services / Utilities

- A. NO heat load is generated in the cagewash area.
- B. Electrical – 120v, 15 Amp, single phase, GFI power supply, receptacle.
- C. Communications – Plenum Rated CAT 5e or CAT 6 shall run between the VBRS 9400 Vacuum Bedding Removal skid pack controls and SCD 6800 controls in the soiled cage wash room.

PART III – EXECUTION

3.1 Installation and Start Up

- A. Installation – The system shall be installed by manufacturer.
- B. Installation Costs – The costs of the installation shall be included in the sale of the system by the manufacturer under the sales Agreement, specifically described in "Attachment B" entitled "Installation".
- C. Start up – The manufacturer shall start up and prove out the system using the animal bedding materials supplied by the end user.

3.2 Delivery

- A. Shipping – The system shall be shipped FOB plant.
- B. Uncrating – The system shall be uncrated by the manufacturer at the time of installation.
- C. Storage – The customer shall be responsible for storage costs, if any.
- D. Delivery – The customer shall set the delivery date with the intent of immediate installation upon delivery.

3.3 Training

- A. An on-site training course of 1 day shall be provided by a factory representative.

3.4 Documentation

- A. The manufacturer shall furnish all necessary manuals and as-built documents pertaining to the system.