



GENEVA SCIENTIFIC
LAB EQUIPMENT SOLUTIONS

Universal Cage and Rack Washer

URW6514



Model URW6514 Universal Cage and Rack Washer

1.0 General Description

The SMC Model URW6514 Universal Cage and Rack Washer is a high capacity spray cabinet washer capable of processing any items which can be placed inside the washing compartment. Based upon the highly successful SMC Model RW6290, it is specifically designed to clean and sanitize animal cages, racks, pans, and other items ancillary to the care of laboratory animals. In addition to running all of the "traditional" Rackwasher cycles, the URW6514 is designed to wash and rinse 100 standard mouse cages in 5 minutes with 100% effectiveness. The Model URW6514 incorporates a large number of "state-of-the-art" features to ensure thorough, efficient cleaning, as well as many features unique to our design.

2.0 Dimensions SIZE (W"X H" X L")

Model	Chamber Size*	External Overall Size	Pit Size**
URW6514	46" x 85" x 92" 116.84 x 215.9 x 233.68 cm	85" x 104" x 96" 215.9 x 264.16 x 243.84 cm	84" x 10" x 101" 213.36 x 25.4 x 256.54 cm

*Maximum chamber opening size. Actual Load size must be smaller to allow for clearances. Custom chamber sizes can be provided as required.

**No pit required for floor mounted unit with ramps.

3.0 Separate Vertical Reciprocating Spray Headers

3.1 Separate vertical headers shall be supplied for Wash and Final Rinse treatments and shall be equipped with machined jets. Wash jets shall deliver a flat spray pattern for optimal impact to the load. Rinse jets shall deliver a concentrated elliptical pattern for full rinse coverage. No rotating spray arms shall be utilized.

3.2 Headers shall be interconnected and mounted to a carriage having non-lube Acetal plastic wheels.

3.3 Carriage shall be moved reciprocally from end to end within the cabinet by a non-proprietary pneumatic device. No electric motors, gearboxes or cable capstans shall be used.

3.4 All cable sheaves shall be Acetal plastic with Stainless Steel axles.

3.5 Failure of the header system to traverse the machine interior within the allotted time shall result in a Fault Condition. (Blocked Header; see par. 6.7.3)

4.0 Self-Flushing Debris Strainer

4.1 All recirculating solutions shall be pumped through a specially designed strainer that ensures that the wash spray jets shall not be plugged by entrapped debris.



4.2 Strainer shall be designed with orifices significantly smaller than those in the jets, such that debris which is suspended in the treatment fluids and which could lodge in the jet orifices shall be trapped prior to delivery to the header system.

4.3 At preset intervals, dependant upon cycle selections, any particles that have been trapped are flushed to drain.

4.4 Floor screens, which are subject to overflow and subsequent failure, and which continue to expose refreshed treatment fluids to previously entrained debris, shall not be acceptable.

4.5 Strainer shall be removable with no tools via a sanitary-style clamp. System shall be completely self-regulating and require routine inspection and maintenance no more than once per week.

5.0 Automatic Temperature Regulation and Guarantee

5.1 The Final Rinse cycle phase shall be selectable as a Guaranteed Temperature Phase.

5.2 Timing of a Guaranteed Temperature Phase shall not begin until the solution temperature has reached the set point [typically 180°F or higher (82.22°C)], thus ensuring that the load has been subject to the proper temperature for the entire time set.

5.3 Failure of any Guaranteed Temperature Phase to reach the setpoint temperature within the allotted time shall result in a Fault Condition. (Temperature Failure; see par. 6.7.4)

6.0 Safety and Certifications

6.1 All door hardware shall be of the 'explosion venting' type. This means that anyone inside can get out simply by pushing on the door. The design of the door shall be maintained in such a way that it shall open with less force than is required to close it, thus ensuring that no one can be trapped inside.

6.2 An OSHA-type cable stop shall run through the cabinet at a height of about 3' (0.91m). This cable when pulled shall interrupt any machine operation, requiring a reset and restart.

6.3 An OSHA-style Emergency Stop button shall be installed on the operator control panel. This switch shall be inter-wired with the cable switch to a hard-wired safety stop relay, which when de-activated shall interrupt all power to the outputs of the machine, thus satisfying OSHA standards for industrial machinery.

6.4 Magnetic safety switches on the door(s) shall reliably ensure that all treatments stop instantly if the door(s) is opened. These switches shall be equipped with an internal fail-safe fuse and circuitry, such that if the door is opened and the internal reed switch does not disconnect, the switch will fail open and prevent the operation of the machine.

6.5 All outputs external to the electrical box shall be low voltage DC, Intrinsically Safe by the definition of OSHA and NEC.

6.6 All devices and components which consume electrical power shall be UL listed and/or approved, and shall bear NEMA, IEC or other recognized International ratings appropriate for the use intended.

6.7 Fault Conditions shall be annunciated on the operator interface screen, and shall be sent to the RS232 interface port for printing or data acquisition. At least five (5) fault conditions shall be so identified.



6.7.1 Emergency Stop- Depression of the Emergency Stop Button or activation of the Emergency Stop Cable shall reset the machine and display a fault message which identifies the source of the emergency stop signal.

6.7.2 Door Open- Lack of positive door closure shall cause the machine to enter Pause mode, from where the current cycle can be recovered. Fault message shall indicate which door is at fault, if the machine is so equipped.

6.7.3 Drive Blocked- Failure of the drive to traverse the cabinet in the time allowed shall cause the machine to enter Pause mode and shall cause the screen to display the Drive Blocked message.

6.7.4 Sump Heat - Failure of the sump to reach the desired temperature in the expected time shall cause the machine to enter cause mode and shall cause the screen to display the Sump Heat Fault message.

6.7.5 Fill Fault- Fill Fault message shall be displayed and Pause mode shall be entered whenever the sump fails to fill in the allotted time.

7.0 Pneumatically Operated Valves

7.1 All automatic ball valves shall be controlled by Pneumatic operators. Electric-motor-operated ball valves shall not be acceptable.

7.2 All automatic water and steam control valves shall be direct-operated pneumatic types. Pilot-operated solenoid valves or any valve which incorporates a diaphragm-type sealing system shall not be acceptable.

8.0 Microprocessor Control

8.1 The treatment schedule and all other machine functions shall be controlled by a readily available, non-proprietary, industrial style modular programmable controller such as that manufactured by Koyo and sold throughout the United States by Automation Direct.

8.2 Module replacement for the I/O system shall be easily accomplished with no tools and no wiring disconnection or connection.

8.3 The control system shall be programmed in simple ladder logic.

8.4 A Color Touch Screen shall provide complete operator interface, diagnostic and programming capability. No special skills or knowledge shall be necessary to set up and control all machine functions.

8.5 Diagnostics shall be available from the Color Touch Screen which will allow direct access to all I/O points for complete diagnosis of all machine systems.

8.6 Treatment schedules and cycle phase selections shall be programmable from the Screen, and PIN screens shall be available at the discretion of the supervisor to lock out access to the cycle phase programming functions. All timers in the program, as well as all cycle phase temperatures, shall be accessible and settable through the operator interface screen, with no necessity for the connection of either an auxiliary programming device or a modem/telephone line connection.

8.7 All controls shall be of industrial design and type, in order to resist the extreme environmental demands of the washroom. All electrical wiring, operator interface controls and circuits shall be protected in accordance with NEMA, UL and NEC standards.



9.0 Insulated Exterior

9.1 The exterior of the machine shall be fully insulated with 2" (5.08 cm) of rigid insulation covered by a Stainless Steel jacket for protection. This insulation shall be an integral part of the machine, designed to maintain the high temperatures required in the washing chamber and to limit radiation loss to the surrounding air.

10.0 Positive Door Gasketing

10.1 The doors shall be sealed with long-life, durable neoprene gaskets, which will ensure that vapor leakage around the door is minimized. Labyrinthine seals or other gasket-less methods which allow vapor to escape will not be utilized.

11.0 Modular Construction

11.1 The machine shall be constructed in modular fashion such that each part of the machine can pass through a standard door.

11.2 Machine wall sections shall be designed to be bolted together in such a way as to minimize site welding. Bolted cabinet flanges shall utilize a capping channel design to eliminate cabinet joint leakage.

12.0 Manuals & Documentation

12.1 A full set of manuals explaining machine operation and PLC operator controls shall be provided.

12.2 A hard copy of the PLC ladder diagram shall be available at no additional charge.

12.3 A complete list of purchased parts including original part numbers, where the parts were purchased, and the nearest local distributor where the parts can be purchased shall be provided as a standard part of the manual. All purchased machine components such as jets, valves, PLC modules, pneumatic system parts, etc., shall be entirely non-proprietary and available for purchase freely and widely through normal industrial supply outlets.

20.0 Machine Operation

20.1 Items to be cleaned shall be placed inside the cabinet by the operator. The door shall be closed and the pre-programmed treatment cycle phase options chosen. Treatment shall commence and continue automatically to the end of the cycle. Once the treatment cycle is complete, the operator shall open the door and remove the cleaned items.

20.2 All cycle phase selections and other cycle options shall be available for selection from the Color Touch Screen, with optional supervisory PIN screens preserving security of standard cycle phases. Machine memory shall allow storage of at least four(4) distinct cycles, to be recalled through simple screen selections.

20.3 Standard cycle phases shall be selectable from the following menu of treatment options:

20.3.1 Pre-rinse - Water retained in the sump from the last rinse shall be used to remove heavy soil, flushing any easily removed matter to drain in order to ensure that the detergent solution stays as clean as possible. Treatment shall be under pressure from the main treatment pump at 250 GPM (946.35 LPM) @ 90 feet (27.43 m) of head. This cycle phase shall be used to enhance the life of the detergent solution in a recycling situation and to increase the efficiency of the wash solution in all cases. At the end of this cycle phase, debris entrapped by the self-flushing strainer shall be sent to drain with the used treatment water.



20.3.2 Wash - Dependant upon cycle option selection, wash water may already be present in the sump. If not, fresh hot water from the customer's supply shall be used to fill the sump, with detergent being introduced by dispenser. When the sump is full, heating shall begin in order to bring the wash solution up to the desired temperature. The wash treatment shall be under pressure from the main treatment pump at 250 GPM (946.36 LPM) @ 90 feet (27.43 m) of head. At the end of the wash cycle, detergent solution shall be flushed to drain or retained in the sump for the next wash, at the discretion of the operator. The self-flushing debris strainer is cleaned in the process of draining the sump, sending any entrained debris to the sewer immediately or at the next drain cycle phase.

20.3.3 First Rinse - Fresh hot water from the customer's hot water supply shall fill the sump, and shall be circulated through the jet system by the main treatment pump at 250 GPM (946.36 LPM) @ 90 feet (27.43 m) of head. The heating system shall be active during this cycle, maintaining the temperature of the rinse water. At completion, the used water shall be conducted to drain, flushing the strainer in the process.

20.3.4 Second Rinse - Fresh hot water from the customer's hot water supply shall fill the sump, and shall be circulated through the jet system by the main treatment pump at 250 GPM (946.35 LPM) @ 90 feet (27.43 m) of head. The heating system shall be active during this cycle, maintaining the temperature of the rinse water. At the election of the operator, this treatment cycle phase shall utilize the temperature guarantee circuitry. In this case, timing of the cycle phase does not begin until the rinse water is recirculating at the setpoint temperature, thus guaranteeing appropriate sanitation. At completion, this rinse water shall be retained in the sump for use as pre-wash water for the next load.

20.3.5 Final Rinse - Fresh hot water from the customer's hot water supply shall be conducted through the onboard heat exchanger, where its temperature shall be raised to and maintained at 180 (82.22°C) to 190°F (87.78°C). This temperature guaranteed, fresh hot water will be conducted through the separate final rinse header and jet system and sprayed over all surfaces of the load. Spent water shall be used to refresh the wash water which has been retained in the machine sump.

20.3.6 Exhaust - When all wet cycle phase treatments are complete, the automatic exhaust damper shall open and any residual vapor in the cabinet shall be vented to the customer's air handling system. The time allowed for this ventilation shall be determined by experience with the specific application and subsequent adjustment of the user program through the operator touch screen, thus ensuring clement washroom conditions without wasting excess time with an idle machine.

30.0 Details of Construction

30.1 General

30.1.1 All wetted parts shall be of Type 304 Stainless Steel or appropriate polymeric materials.

30.1.2 All electrical assemblies, piping assemblies and mechanical apparatus shall be designed for, and be appropriate for use in, a high temperature sanitary wash-down environment. All components shall be selected for their ability to perform for long periods of time in the adverse and high production environment of the laboratory washroom. Each purchased part and each engineered part and sub-assembly shall be scrutinized and all specific design decisions shall be made in the light of these basic criteria.

30.1.3 All purchased components shall be un-modified, off-of-the-shelf items available to the owner in his locality, should he need them.



30.1.4 Original manufacturers' part numbers and descriptive information for all purchased parts shall be made an integral part of the service manual information provided at time of installation, and every effort shall be made throughout the life of the machine to assist the owner in acquiring any parts needed.

30.2 The door(s) of the washer shall be of double-walled stainless steel construction, 2" (5.08 cm) thick, and filled with insulation. The door hardware shall permit emergency exit of any personnel from the washer interior under any circumstances whatsoever. Tempered Safety Glass windows shall be provided in any doors to allow visual inspection of the interior with the door(s) closed. Machine shall be equipped with two fluorescent strip light assemblies which shall be mounted outside the machine above the roof. Tempered glass windows shall be placed in the roof panels to allow light from the fixtures to enter the machine. Lights mounted interior to the machine shall not be acceptable. Magnetic, fail-safe door safety switches shall ensure that the machine cannot operate with the doors open. A safety cable shall be installed in the machine so that all functions can be terminated from inside at any time.

30.3 A stainless steel floor grid shall cover the entire floor of the wash chamber, leaving no open space for an individual to come in contact with the hot solutions in the sump.

30.4 The recirculating sump shall be equipped with a stainless steel steam coil, fully welded and fabricated from Stainless Steel materials designed to carry steam at the rated pressures. No structural parts will be acceptable. The coil shall be easily removed for cleaning or maintenance.

30.5 Temperature shall be controlled directly by the PLC. Temperature sensor(s) shall be Type J Thermocouples, connected directly to the analog inputs of the PLC.

30.6 Steam controls shall be included for 30-80 PSI (206.84-551.58 kPa) dry steam. No diaphragm-type steam valves shall be acceptable. Condensate trap(s) shall be disc/thermodynamic type only. Heat exchanger shall be of 100% Stainless Steel. No heat exchanger designs utilizing dissimilar metals shall be acceptable. Steam valve for the heat exchanger shall be of modulating design, operated pneumatically and controlled by a PID loop program running on the main PLC. No outboard controller shall be acceptable. Water temperature at the heat exchanger outlet shall be controlled to within +/- 2°F (1.11°C) during Final Rinse phase.

30.7 Water level shall be maintained by an electronic level control with removable and easily cleaned probes. Probes shall be removable for cleaning with no tools required, such as with a sanitary-type clamp fitting.

30.8 The treatment pump shall be a horizontal, close coupled, cast-volute pump equal to a Worthington Model D824 centrifugal pump capable of delivering 250 GPM (946.35 LPM) at 90 feet (27.43 m) of pressure head. Mechanical seals shall be carbon ceramic and Stainless Steel. No vertical or seal-less pumps shall be acceptable. No pumps having a stamped or deep-drawn volute or wet end will be acceptable.

30.9 Wash spray jets shall be flat spray jets equal to Spraying Systems Co. 3/8P5060. Rinse jets shall be equal to Spraying Systems 1/4USS80XX. No proprietary jets shall be acceptable.

30.10 An automatic, pneumatically-operated exhaust damper shall be provided to work with the cycle program in order to reduce exhaust during the wet phases and maximize exhaust during the exhaust and resting phases of machine operation. A Stainless Steel tube-axial-type exhaust fan shall be provided to work in concert with the automatic damper to fully exhaust the wash chamber.

30.11 Three monitored automatic proportional injection systems shall be provided to inject user supplied alkaline, acid and/or neutralizing agents into the sump. The concentration of the treatment solution shall be sensed with a probe and a proportional amount of agent shall be injected to attain and maintain the desired selected agent



concentration. A low agent reservoir level shall be annunciated to the operator. Systems shall be under the supervision of the PLC program.

30.12 Washer programmable control shall provided by a modular industrial-type programmable logic controller, programmed in ladder logic and replaceable and programmable by the customer's own personnel if necessary. No proprietary control will be acceptable. All wiring and control shall be per National Electric Code and all devices utilized shall be UL, NEMA and/or IEC-rated. All operator controls or devices shall be of standard industrial NEMA-rated types, chosen for their ability to operate over the long haul in the tough and corrosive environment of the washroom. An RS232 output shall be provided for connection to the customer's data collection system. A tractor-feed printer shall be supplied to document each cycle, phase, time, temperature and alarm. At the discretion of the customer, this printer may be remotely mounted, connected by a serial interface, in order to remove it and its associated records from the hot and wet area of the washroom.

30.13 MATERIALS OF CONSTRUCTION

Item	Material
base and sump	12 gauge, 304 SS - #2B finish
door panels	16 gauge, 304 SS - #3 finish
side and top panels	14 gauge, 304 SS - #3 finish
recirculating piping	304 SS
spray header and jets	stainless steel
recirculating pump housing and impeller	316 SS
recirculating valves	304/316 SS
external water piping	copper
steam coils	Sch 40. 304 SS - #2B finish
internal steam piping	stainless steel
external steam piping	schedule 40 black iron
temperature booster	304 SS
drain piping	304 SS and Sch 80 (C)PVC



barrier walls 20 gauge, 304 SS - #3 finish

40.0 Optional Features

40.1 Knock-Down Shipment Machine shall be provided in knocked-down condition, all pieces to pass through a standard man-door, for reassembly at the customer's site. Design shall allow for minimal welding; cabinet panels shall be bolted together utilizing a stainless steel cap channel which shall prevent all leakage from the interior. No special lifting equipment of any kind shall be required.

40.2 Pass-Through Operation Machine shall be provided with a door at each end for operation within a clean/dirty room environment.

40.3 Door Interlocks Doors shall be provided with pneumatically-operated door locks arranged such that the two doors can never be open at the same time, thus preventing passage of contaminated material from one side to the other. Interlocks shall be constructed in such a way that operation of the interlocks cannot prevent personnel from opening either door from inside the machine.

40.4 Discharge Cooling: Non Monitored Washer shall be provided with an integral cool-down apparatus which shall ensure that all effluent is cooled to 140°F (60°C) or less before gravity conduction to the customer's drain. This shall be accomplished by mixing the effluent with cold water from the owner's supply.

40.5 Discharge Cooling: Monitored Washer effluent shall be conducted to a stainless steel holding tank. A probe shall sense the discharge temperature and add the required amount of cold water from the owner's supply to lower the discharge temperature to below 140°F (60°C) before discharging to the building drain system. The entire system shall be under the supervision of the machine PLC control.

40.6 Barrier Flanges for Recessing Through One Wall Stainless Steel Flanges shall be provided to fully enclose the recessed end of the unit from wall to wall and floor to finished ceiling.

40.7 Barrier Flanges for Recessing Through Two Walls Stainless Steel Flanges shall be provided to fully enclose the "clean" and "soiled" ends of the unit from wall to wall and floor to finished ceiling.

40.8 Aesthetic Side Enclosure A stainless steel enclosure with sliding access doors shall be provided to enclose the service and component side of the unit from the floor to the top of the unit. This enclosure shall be type 304 stainless steel, with #3 finish, and shall be fully insulated.

40.9 Interior Ramp for Rack Tilting Stainless Steel appliance(s) shall be provided to tilt racks and therefore provide for more efficient draining and cleaning of large horizontal surfaces. The appliance(s) shall be light and easily removable., using no tools whatsoever to install or remove.

40.10 Automatic Water Rack Flush System Two quick-disconnect hoses with automatic valves and flow reducers shall be provided to flush the watering lines of automatic watering type racks with fresh hot water during the final rinse cycle.

40.11 Seismic Restraints Properly designed and attached seismic restraints shall be provided to comply with local codes.



40.12 Feeder Bottle Washing- Four (4) Baskets A stainless steel cart shall be provided to wash four (4) baskets of feeder bottles. The cart shall be equipped with a quick disconnect which mates with a connection inside of the machine. Bottle processing shall be fully programmed and selectable from the operator interface screen.

40.13 Feeder Bottle Washing- Six (6) Baskets A stainless steel cart shall be provided to wash six (6) baskets of feeder bottles. The cart shall be equipped with a quick disconnect which mates with a connection inside of the machine. Bottle processing shall be fully programmed and selectable from the operator interface screen.

40.14 Floor Mount with Exterior Ramps Machine shall be provided with exterior Stainless Steel ramps, with a non-skid surface coating, which shall allow the machine to be floor mounted. If this option is chosen, no pit shall be required.

40.15 High Altitude Inducer An inducer designed to provide for optimal pumping efficiency at high elevation and reduced atmospheric pressure installations shall be provided as part of the pump package.

40.16 Integral Air Compressor An integral air compressor shall be provided to operate the drive and pneumatic valves. This option shall be chosen whenever compressed air is not available from building utilities.

40.18 Fused Electrical Disconnect Switch A NEMA 4X Listed fuseable disconnect switch of appropriate size and capacity shall be provided and mounted exterior to the machine control cabinet.

40.19 Special Cabinet Size Cabinet shall be supplied in the exact shape and size specified to suit the owner's special needs.

40.20 Low Steam Pressure The unit shall be designed for a steam pressure below 30 PSI (206.84 kPa). All coils, valves, pipes and other devices shall be sized to operate under the conditions specified.

40.21 Vent Condenser A condensing apparatus shall be provided to remove most of the vapor from the exhaust, in the event that the owner's air-handling system cannot accept the saturated air, which must be removed from the cabinet. This condenser shall cool the effluent vapors by utilizing customer-supplied cold water.

50.0 Available Accessories

50.1 Universal Wash Rack Stainless Steel Wash Rack shall accommodate 5" – 8" (12.7 cm – 20.32 cm) height cages as well as all pans with a maximum depth of 3" (7.62 cm). The rack dimensions shall be 32" (81.28 cm) wide, 70" (177.8 cm) high and 72" (182.88 cm) long. Rack shall incorporate stainless steel casters with washdown roller bearings for easy transportation.

50.2 Cage Processing Rack Stainless steel rack shall provided to process cages from 5" to 8" (12.7 cm – 20.32 cm) in height. The rack dimensions shall be 32" (12.7 cm) wide, 70" (20.32) high and 72" (81.28 cm) long. Rack shall incorporate stainless steel casters with washdown roller bearings for easy transportation.

50.3 Pan Processing Rack Stainless steel rack shall be provided to process pans with a maximum depth of 3" (7.62 cm) . The rack dimensions shall be 32" (12.7 cm) wide, 70" (177.8) high and 72" (81.28) long. Rack shall incorporate stainless steel casters with washdown roller bearings for easy transportation.

50.4 Feeder Bottle Baskets Stainless Steel bottle baskets shall be provided for processing 8, 16, or 32 ounce (236.58, 473.18, or 946.35 mL)bottles. Baskets shall be configured in a 4 X 6 pattern.

60.0 Utility Requirements



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Electrical 3ph, 60hz, 12 HP (8.95 KW)

Steam 1 1/2" (3.81 cm) FPT

30-80 PSI
206.84-551.58 kPa

600#/Hr Max Flow
272.16 kg/hr

400#/Hr Avg Flow
181.44 kg/hr

Condensate 1" (2.54 cm) FPT

Hot Water 1" (2.54 cm) FPT
35 PSI
241.32 kPa

140-180 Deg. F.
60-82.22 Deg. C

200 Gal/Load Max **If running rodent cycles only, water consumption is limited
757.08 Liter/Load Max to >15 gallons/cycle (56.78 Liters/Load)

Drain 2" (5.08 cm) FPT

180 Deg. F. Max
60-82.22 Deg. C Max

120 GPM Max
454.25 LPM Max

Exhaust 12" (30.48 cm) Dia.



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600 SCFM
16.99 CMM

180 Deg Saturated
60-82.22 Deg. C Saturated

Compressed 1/2" (1.27cm) FPT
80 PSI (551.58 kPa)

Air 4 SCFM
0.11 CMM

Cold Water 1" (2.54 cm) FPT
35 PSI (241.32 kPa)

(Optional) 25 GPM Avg Flow
94.64 LPM Avg Flow

60.1 Notes to Utilities Table

60.1.1 A disconnect switch shall be installed by others than SMC in accordance with all NEC and local electrical codes.

60.1.2 Condensate shall be connected by others than SMC to a non-pressurized gravity main. The maximum condensate lift shall not exceed 15' (4.57 m).

60.1.3 Steam pressure shall not exceed 80 PSI (551.58 kPa). Factory shall be consulted for steam pressures below 30 PSI (206.84 kPa) dynamic.

60.1.4 Hot water temperatures of less than 180°F (82.22°C) may impact treatment cycle times. Factory shall be consulted for recommendations if 180°F (82.22°C) water is not available.

60.1.5 Cold water shall be a required utility only when the Vent Condenser (par. 40.21) or Discharge Cool-Down (pars. 40.4/.5) are chosen.

60.1.6 Drain shall be installed by others than SMC such that there is an air gap between the discharge point and the floor drain, or otherwise in strict accordance with local plumbing codes.

60.1.7 Exhaust connection shall be made by others than SMC using non-corroding materials, and all ductwork shall be sealed and pitched towards the machine. Any low points shall have individual drains lines installed. Effluent vapor is 180°F (82.22°C), 100% saturated air.

70.0 Additional Engineering Information



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Shipping Wgt.	4800# 2177.25 kg
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Dynamic Wgt.

as Installed	4600# 2086.53 kg
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Cage Capacity

Std. Mouse	100
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Std. Rat	40
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Sump Capacity	50 Gals. 189.27 Liters
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Heat Radiation

(typ. door end)	9000 btu/hr 9502.83 kj/hr
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(typ. svce. side)	25000 btu/hr 26396.75 kj/hr
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(typ. blank side)	2000 btu/hr 2111.74 kj/hr
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Cycle Duration

Rodent Cycle	5 minutes/load
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Acid/Descale	15-25 min/load
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