INTRODUCTION

The SKYTRON Integrity 270 sterilizers utilize gravity displacement and pressure/vacuum pulse cycles for sterilization. Each Integrity sterilizer is equipped with prevacuum, gravity, immediate use and express prevacuum cycles together with leak test, self-diagnostic cycle test, warm up and Bowie-Dick test cycles. Liquid cycles are available as an option. The Integrity Series sterilizers are equipped with 12 factory programmed cycles and 12 fully customizable cycles which can be added, modified and renamed with password access. All sterilization parameters are monitored for deviation of temperature, pressure and time by the control system.

APPLICATION

The Integrity 270 sterilizers incorporate high-pressure steam to sterilize heat and moisture stable devices and materials used in the health care industry. Various sterilization cycles are capable of processing non-porous and porous items wrapped or unwrapped, including towel, gown or other linen packs. Optional liquid cycles are capable of sterilizing liquids in borosilicate containers with vented closures.

FEATURES

Spacious 26.5" x 37.5" x 53" (675mm x 955mm x 1350mm) sterilization chamber designed to accommodate a carriage and loading cart with a wide range of trays, containers, packs and devices of various sizes.

Standard water recirculation system is equipped on all Integrity™ Series sterilizers within the installation footprint. The integrated water recirculation system drastically reduces the amount of water consumed per cycle up to 33% compared to existing units without affecting cycle times. Additional water conservation can be achieved by lengthening overall cycle times.

The Integrity 270 has been validated to process up to sixteen (16), 25 pound (11.36 kg) instrument trays. Please see section titled Processing Cycles for specific load recommendations for each cycle.

The Integrity 270 has been validated to process a maximum of three (3) lumen instruments per cycle load, with an inside diameter of 2 mm (minimum) and 400 mm (maximum) length with Immediate Use 2, Prevacuum 270, Prevacuum 275, and Express Prevacuum cycles only (3 mm inside diameter lumens may be processed according to current ANSI/AAMI ST8:2008).
A 5.7” (145 mm) touch panel screen displays easy to use operator controls, operating conditions, service interface panel and troubleshooting information.

Standard electronic cycle data recording to CF card in addition to traditional ink-to-paper printed receipt.

Steam actuated door gasket reduces the potential for incoming air to the chamber.

Bürkert Solenoid Valves with LED indicators are used to assist with service troubleshooting and eliminate the need for compressed air.

The Integrity 270 features a dual walled, fully jacketed, all welded rectangular chamber to reduce the potential for cool spots inside the chamber compared to partially jacketed sterilizers.

12 open slots to create custom sterilization cycles.

12 factory programmed cycles are capable of modification with password access.

Password protected access to supervisor and service modes.

Auto run timer, daily timer and operator identification functionality.

Standard electric-powered door locking/unlocking system functions with only four moving parts.

Fully integrated water recirculation system reduces water usage, stabilizes water pressure while also accounting for drain temperature requirements.

**OPTIONS**

- **Vacuum pump/voltage requirements**

Vacuum pump option offers high efficiency evacuation of air and steam while further reducing water consumption.

- **Install location**

  - **Recessed** – sterilizer is mounted inside a wall opening with service accessibility provided behind finished wall.

  - **Double Door** – sterilizer is mounted between one or two walls with pass through capability. Service accessibility provided on one side or between the two walls.

  - **Freestanding/cabinet** – stainless steel side panels and frame provided to allow stand alone room installation.

- **Seismic tie-down kit/anchorage assembly** – Seismic anchoring requirements per California Building Code (CBC).

- **Liquid cycle** – Optional liquid cycle and liquid temp load probe.

**STANDARDS**

ASME Code, Section VIII, Division 1 for unfired pressure vessels, shell and door are constructed to withstand working pressure of 45 psig.

USA – UL61010-1, IEC61010-2-040:2005 as certified by Met Laboratories Inc.

CSA – C22.2 No. 61010-1

Factory programmed cycles have been performance validated to ANSI/AAMI ST-8:2008

**Engineering Data**

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<td>Left*</td>
</tr>
</tbody>
</table>

* refers to door swing on operational side, opposite for unload side.
**PROCESSING CYCLES**

**Immediate Use 1** (3 minute exposure time) – The Immediate Use 1 cycle program will sterilize one (1) unwrapped, non-porous instrument no heavier than 0.22 lbs (100 grams). This program provides quick sterilization for accidently dropped instruments for immediate use. Porous, lumened or cannulated items cannot be processed using the Immediate Use 1 cycle. Exposure temperature is 270° F (132 °C) for 3 minutes, 1 minute dry time. This cycle has been validated to AAMI ST-8:2008.

**Immediate Use 2** (4 minute exposure time) – The Immediate Use 2 cycle program is recommended for processing sixteen (16), 25 pound (11.36 kg) unwrapped instrument trays and up to three (3) lumen instruments (2 mm ID minimum by 400 mm long maximum). This program provides quick sterilization for immediate use. Exposure temperature is 270° F (132 °C) for 4 minutes, 1 minute dry time. This cycle has been validated to AAMI ST-8:2008.

**Express Prevacuum (Immediate Use 3)** – The Express Prevacuum cycle program is recommended for processing sixteen (16), single wrapped, 25 pound (11.36 kg) instrument trays and up to three (3) lumen instruments (2 mm ID minimum by 400 mm long maximum). Peel pouches are not acceptable for sterilization with an Express cycle program. Sterilized items are intended for immediate use. The single wrapper used with the Express cycle program protects the sterilized item from contaminants en route from the Integrity 270 to the point of use. Exposure temperature is 270° F (132 °C) for 4 minutes, 3 minute dry time. This cycle has been validated to AAMI ST-8:2008.

**Prevacuum 270** – The Prevacuum 270 cycle program is recommended for processing sixteen (16), double-wrapped, 25 pound (11.36 kg) instrument trays and up to three (3) lumen instruments (2 mm ID minimum by 400 mm long maximum) Exposure temperature is 270° F (132 °C) for 4 minutes, 30 minute dry time. This cycle has been validated to AAMI ST-8:2008.

**Prevacuum 275** – The Prevacuum 275 cycle program is recommended for processing sixteen (16), double-wrapped, 25 pound (11.36 kg) instrument trays and up to three (3) lumen instruments (2 mm ID minimum by 400 mm long maximum) Exposure temperature is 275° F (135 °C) for 3 minutes, 30 minute dry time. This cycle has been validated to AAMI ST-8:2008.

**Gravity 1** – The Gravity 1 cycle will sterilize a maximum of thirty two (32) fabric packs. Exposure temperature is 250° F (121 °C) for 30 minutes, 15 minute dry time. This cycle has been validated to AAMI ST-8:2008.

**Gravity 2** – The Gravity 2 cycle is recommended for processing sixteen (16), 25 pound (11.36 kg) double-wrapped instrument trays. Exposure temperature is 270° F (132 °C) for 15 minutes, 30 minute dry time. This cycle has been validated to AAMI ST-8:2008.

**Custom cycles** – The custom cycle programs allow the customer to modify the parameter values to their unique specifications. The operator/supervisor/service technician may create twelve custom programs using any of the eight (8) program icons. It is the customer’s responsibility to validate all custom cycle programs for sterilization assurance. The range for minimum steam exposure time will be determined by the selected steam exposure temperature.

**Liquid cycle (optional)** – The Liquid cycle program will sterilize a maximum of three (3) borosilicate containers with vented closures. Exposure temperature is 250° F (121 °C) for 45 minutes, dry time is not applicable. This cycle has been validated to AAMI ST-8:2008. Liquid cycles are not intended for the sterilization of materials that come into direct contact with patients.
**TEST CYCLES**

**Warm up** – The Warm up cycle program warms the sterilizer chamber before daily operation. Exposure temperature is 270° F (132 °C) for 4 minutes, 3 minute dry time. Do not use this program to sterilize materials.

**BD test** – The BD Test cycle is utilized to perform the Bowie-Dick Test on the sterilizer. Do not use this program to sterilize materials. Exposure temperature is 273° F (133.8 °C) for 3 ½ minutes, 2 minute dry time. This cycle has been validated to AAMI ST-8:2008.

**Cycle test** – The Cycle Test program verifies the repeatability of the operation cycles. The Cycle Test is a sterilizer-performance test conducted by authorized service technicians. Exposure temperature is 270° F (132 °C) for 15 minutes, 15 minute dry time. Do not use this program to sterilize materials.

**Leak test** – The Leak Test cycle program verifies the vacuum integrity of the sterilizer. The Leak Test cycle is a sterilizer-performance test conducted by authorized service technicians. The chamber must be empty for this test. Exposure temperature is 270° F (132 °C) for 4 minutes, 3 minute vacuum time, 5 minute keep time and 15 minute test time. This cycle has been validated to AAMI ST-8:2008.

**CONTROLS**

**LCD touch screen display** – The 5.7” (145 mm) color liquid crystal touch panel displays easy to use operator controls, operating conditions, service interface panel and troubleshooting information.

**Countdown timer and progression bar** – During cycle operation, the LCD touch screen displays a large countdown timer in addition to a progression bar to indicate the remaining cycle time during operation.

**Operator/Supervisor/Service Mode** – The Integrity 270 has the ability to restrict access to custom cycle creation, sterilizer settings and service menus by utilizing the password identification feature.

**Operator ID** – The Integrity 270 has the ability to enable the Operator ID feature that requires an up to 8 digit, alpha-numeric login when starting a sterilization or test cycle program. The operator ID will then appear on the cycle program printout and operation history.

**Auto run timer** – Allows the operator/supervisor/service technician to set the starting time for an automatic sterilization or test cycle.

**Daily start up/shut down timer** – The operator/supervisor/service technician has the ability to program the daily start-up (power-up) and daily turn-off (power-down) times for each day of the week. The power-down mode functions as an “Energy Saver” by closing the incoming steam supply to conserve utilities.

**Printed cycle reports** – Standard ink to paper impact printer equipped on all Integrity sterilizers to provide a hard copy cycle report. Printed cycle reports provide the start time, date, cycle count, sterilizer number, cycle type, temperature and pressure information during the cycle. Printed cycle reports also provide the operator ID and/or cycle error information when applicable.

**Electronic data recording** – The Integrity™ Sterilizer Compact Flash (CF) interface captures cycle report data electronically. The data is saved as a .csv file that can be moved to a personal computer for analysis and conversion to a graph in Microsoft Excel®. Skytron recommends retrieving the cycle report files and saving to a PC on a monthly basis to avoid losing any recorded cycles.

**On screen troubleshooting** – The 5.7” (145 mm) LCD touch screen display features an error warning and on-screen troubleshooting system that can help identify a possible fault and reduce the amount of downtime for repair. Accessibility to this menu can be set for password protection.

**CONSTRUCTION**

**Pressure vessel and steam jacket** – The Integrity 270 sterilizer features a rectangular, fully jacketed, pressure vessel with a maximum effective chamber capacity of 32.3 ft³ (916 L).

The sterilization chamber, flange and door plate are constructed of SA-240 grade 316L stainless steel.

The full steam jacket and reinforcement material are constructed of SA-240 grade 304L Stainless Steel.

The vessel socket is manufactured with SA-479 Type 316L Stainless Steel.

Maximum working pressure for the chamber and jacket is 45 psi (310 kPa).

**Piping** – A combination of Stainless Steel SUS304TP screwed joint and copper tubing C1220T ring joints are used throughout the steam and water piping system.
**Integrity™ 270 Single Door, Venturi Pump, Recessed Installation**

Left Door Swing & Left Mechanical Cart shown – Right Door Swing & Right Mechanical Cart available, see Order Configuration Chart

(For Right Door Swing & Right Mechanical Cart mirror all Plan View dimensions from the center line and the wall opening)

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**PLAN VIEW**

- **24"** (610mm) MINIMUM
- **25 7/8"** (659mm)
- **31 1/2"** (800mm)
- **18 7/8"** (479mm)
- **55 1/2"** (1410mm)
- **24"** (610mm) MINIMUM
- **49 1/4"** (1251mm)
- **17 3/4"** (449mm)
- **38"** (965mm) Wall Opening MINIMUM
- **104 7/8"** (2661mm) MINIMUM
- **Venturi Pump Mechanical Cart**
- **Chamber Door Swing**
- **29"** (736mm)
- **29"** (736mm)
- **24"** (610mm) MINIMUM
- **38"** (965mm)
- **STERILIZER Center Line**
- **MINIMUM CLEARANCES**

**SIDE VIEW**

- **82 3/4"** (2100mm) MINIMUM
- **55"** (1397mm)
- **55 1/2"** (1410mm)
- **4 3/4"** (106mm)
- **FRONT PANEL SWING**
- **74 3/4"** (1906mm)
- **78 7/8"** (1992mm)
- **MINIMUM CLEARANCES**

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**Integrity 270 Sterilizers** require a model-specific detailed installation drawing package provided by SKYTRON.

Minimum clearances shown are recommended for installing and servicing the sterilizer.

Access to recessed area from the control end of the sterilizer is recommended.

**UTILITIES**

- **COLD WATER SUPPLY**
  - 3/4" NPT Fitting
- **STEAM SUPPLY**
  - 1" NPT Fitting
- **RECIRCULATION TANK**
  - 3/8" ODT
- **MANUAL DRAIN**
  - 1 1/2" NPT Fitting
- **RECIRCULATION TANK DRAIN**
  - 1" NPT Fitting
- **JACKET SAFETY VALVE**
  - 1" NPT Fitting

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Drawings are not to scale.
**Integrity™ 270 Single Door, Vacuum Pump, Recessed Installation**

Right Door Swing & Right Mechanical Cart Shown – Left Door Swing & Mechanical Cart Available, See Order Configuration Chart
(For Left Door Swing & Left Mechanical Cart mirror all Plan View dimensions from the center line and the wall opening)

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**PLAN VIEW**

- **Vacuum Pump Mechanical Cart**
- **Chamber Door Swing**
- **Sterilizer Center Line**
- **Wall Opening Minimum**

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**SIDE VIEW**

- **Front Panel Swing**
- **Vacuum Pump**
- **Mechanical Cart**

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**FRONT VIEW**

- **Wall Opening Minimum**
- **Vacuum Pump Mechanical Cart**

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**Utilities**

- **Cold Water Supply**
  - ¾" NPT Fitting
- **Steam Supply**
  - 1" NPT Fitting
- **Recirculation Tank**
  - ¾" ODT x 8' L Tube
- **Recirculation Tank Drain**
  - 1½" NPT Fitting
- **Jacket Safety Valve**
  - 1" NPT Fitting

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**Notes**

- Drawings are not to scale.
- Integrity 270 model sterilizers require a detailed installation drawing package provided by SKYTRON.
- Clearances shown are recommended for installing and servicing the equipment.
- Access to the recessed area from the control end of the sterilizer is recommended.
Integrity™ 270 Double Door, Venturi Pump, Recessed Installation

Right/Left Door Swing & Left Mechanical Cart Shown (Left/Right Door Swing & Right Mechanical Cart Available, See Order Configuration Chart)
(For Left/Right Door Swing & Right Mechanical Cart mirror all Plan View dimensions from the center line and the wall openings)

Access to the recessed area from the control end of the sterilizer is recommended.

Drawings are not to scale. Integrity 270 model sterilizers require a detailed installation drawing package provided by SKYTRON.

Clearances shown are the minimum for installing and servicing the equipment.

Utilities
- Cold Water Supply
  - ¾" NPT Fitting
- Steam Supply
  - 1" NPT Fitting
- Recirculation Tank Manual Drain
  - ¾” ODT x 8’ L Tube
- Recirculation Tank Drain
  - 1½” NPT Fitting
- Jacket Safety Valve
  - 1” NPT Fitting

Integrity 270 model sterilizers require a detailed installation drawing package provided by SKYTRON.

Clearances shown are the minimum for installing and servicing the equipment.

Access to the recessed area from the control end of the sterilizer is recommended.

Utilities
- Cold Water Supply
  - ¾" NPT Fitting
- Steam Supply
  - 1" NPT Fitting
- Recirculation Tank Manual Drain
  - ¾” ODT x 8’ L Tube
- Recirculation Tank Drain
  - 1½” NPT Fitting
- Jacket Safety Valve
  - 1” NPT Fitting
**Integrity™ 270 Double Door, Vacuum Pump, Recessed Installation**

Left/Right Door Swing & Right Mechanical Cart Shown (Right/Left Door Swing & Left Mechanical Cart Available, See Order Configuration Chart)
(For Right/Left Door Swing & Left Mechanical Cart mirror all Plan View dimensions from the center line and the wall opening)

Clearances shown are recommended for installing and servicing the equipment.
Access to the recessed area from the control end of the sterilizer is recommended.

**Utilities**
- **Cold Water Supply**: 3/4" NPT Fitting
- **Steam Supply**: 1" NPT Fitting
- **Recirculation Tank Manual Drain**: 3/8" OD x 8' L Tube
- **Recirculation Tank Drain**: 1 1/2" NPT Fitting
- **Jacket Safety Valve**: 1" NPT Fitting

Drawings are not to scale. Integrity 270 model sterilizers require a detailed installation drawing package provided by SKYTRON.
**Integrity™ 270 Single Door, Freestanding Installation**

Left Door Swing & Left Mechanical Cart Shown (Right Door Swing & Right Mechanical Cart Available, See Order Configuration Chart)

(For Right Door Swing & Right Mechanical Cart mirror all Plan View dimensions from the center line and the wall openings)

Clearances shown are the minimum for installing and servicing the equipment.

Drawings are not to scale. Integrity 270 model sterilizers require a detailed installation drawing package provided by SKYTRON.

**UTILITIES**

- **COLD WATER SUPPLY**
  - ▶ 3/4" NPT Fitting

- **STEAM SUPPLY**
  - ▶ 1" NPT Fitting

- **RECIRCULATION TANK**
  - ▶ 3/8" ODT x 8' L Tube

- **MANUAL DRAIN**
  - ▶ 11/2" NPT Fitting

- **JACKET SAFETY VALVE**
  - ▶ 1" NPT Fitting

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Integrity 270 model sterilizers require a detailed installation drawing package provided by SKYTRON.
SAFETY FEATURES

Alarms – An error detected by the sterilizer control system will result in a related error message on the touch screen display. An audio alarm buzzer will sound and any cycle operating at the time will be aborted.

Safety valves – ASME Section I/Section VIII capacity certified pressure release valves are in place to prevent the sterilizer from exceeding the rated pressure limit of the vessel.

Door safety – The door safety switch prevents the steam supply from entering the chamber unless the door is closed and sealed/locked. The door interlock also prevents the door from unlocking if the chamber pressure is not at atmospheric pressure.

Emergency E-stop knob – Pressing the emergency E-stop knob will terminate the operation of the sterilizer and return the chamber to atmospheric pressure.

Circuit protector – Electrical current is cut-off in the event of a short circuit or over-current condition in the control circuit of the sterilizer. A circuit breaker activation interrupts the power supply if the current exceeds the rated amperage to the circulation pump motor, door motor and optional vacuum pump motor.

Preventative maintenance – Annual maintenance and service agreements are available to help assure the reliability and low cost of ownership associated with SKYTRON products.

UTILITY REQUIREMENTS

Steam Supply – 1” NPT connection provided. 1” facility piping, 50 - 80 PSIG (0.34 - 0.55 MPa) dynamic pressure, 220 lb/hour (100 kg/hour) flow rate.

Recirculation Tank Overflow Drain – 1½” NPT connection provided. Floor sink with minimum 2” ID drain to accommodate recirculation tank overflow recommended. Water drain temperature may exceed 140°F (60°C) if instructions are not followed.

Recirculation Tank Manual Drain – ¾” ODT.

Cold Water Supply – ¾” NPT connection provided. 30 to 50 PSIG dynamic (0.21 - 0.34 MPa), 50° to 70° F (10 to 25 ºC) Total hardness as CaCO², 50 -120 mg/L and max 171 mg/L, Total dissolved solids 100 - 200 mg/L and max 500 mg/L, pH 6.8 - 7.5 and max 6.5 - 8.5.

Steam Pressure Relief Valve – 1” NPT outlet for jacket.

System Electrical Power – 120 VAC, 60 Hz, single phase, 15A power cord with 3 prong grounded plug provided, dedicated outlet recommended.

Vacuum Pump (Optional) Electrical Power – 208 VAC, 60 Hz, 3 phase, 15A 480 VAC, 60 Hz, 3 phase, 7A

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**Utilities Consumption**

<table>
<thead>
<tr>
<th>Model</th>
<th>Chamber Size inch (mm)</th>
<th>Heating</th>
<th>Water</th>
<th>Steam</th>
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<td>Maximum Consumption gal/cycle (l/cycle)</td>
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<td>Steam</td>
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The base language for this document is ENGLISH. Any translations must be from the base language document. Printed copies are not controlled documents.
## REVISION HISTORY

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