

APPLICATION

The Reliance 333 Washer/Disinfector is intended for automated cleaning, low-level disinfection, and drying of reusable general surgical instruments prior to sterilization in outpatient/same-day surgery departments, surgical centers, and ambulatory care centers. Reusable, hard-surfaced, general surgical instruments, minimally invasive surgery (MIS) rigid instruments, and microsurgical instruments may be processed in this unit.

DESCRIPTION

The Reliance 333 Washer/Disinfector is a single door, counter height washer/disinfector, designed for undercounter installation, or as a freestanding unit.

The standard pull-down door facilitates unit loading. A load-lifting door is also available (see Options).

The washer/disinfector features state-of-the-art microcomputer control with user-friendly operator interface.

The washer/disinfector is pre-programmed with three specific application cycles (INSTRUMENT 1, MICRO 2, and MIS 3), including a selectable lubrication phase. Three additional cycles (CYCLE 4, CYCLE 5, and CYCLE 6) are pre-programmed with factory-set values. All six pre-programmed cycles have minimal factory-set values to assure minimal cleaning and low-level disinfection of loads.

A printer (see Accessories) can be installed to record and monitor cycles and cycle parameters.



Shown with Countertop
 (Typical only - some details may vary.)

SIZE (W x H x D)

Exterior dimensions:

- 38 x 34* x 29"
 (965 x 864 x 736 mm)

**35-1/2" (903 mm) high with countertop*

Interior wash chamber dimensions:

- 24 x 19 x 23"
 (610 x 482 x 585 mm)

Load height:

- With manual (pull-down) door:
 11-12" (292 mm)
- Optional load lifting door, lowered:
 11-12" (292 mm)
- Optional load lifting door, raised:
 27-1/4" (692 mm)

STANDARDS

The Reliance Washer/Disinfector, including the MIS Rack, meets the applicable requirements of the following:

- **Underwriters Laboratories (UL) Standard 61010-1** as certified by ITS Testing Laboratories, Inc.
- **Canadian Standards Association CAN/CSA-C22.2 61010-1.**
- **Governing Directive for the affixing of the CE mark:** Medical Device Directive 93/42/EEC.
- Standards applied to demonstrate compliance to directive IEC-61326-1 (1997), EN-61010-1 (1993).

The Selections Checked Below Apply To This Equipment

VOLTAGE

- 220-240 V, 60 Hz, 1-Phase
- 208 V, 60 Hz, 3-Phase
- 460 V, 60 Hz, 3-Phase
- 220-240 V, 50 Hz, 1-Phase (CE Marked)
- 380-415 V, 50 Hz, 3-Phase (CE Marked)

ACCESSORIES

- Rigid MIS Rack
- Instrument Tray with Cover
- Two-Level Instrument Rack
- Remote Printer Kit, 110-240 VAC, 50/60 Hz
- Countertop
- Installation Kit:
 - 220-240 V, 60 Hz, 1-Phase
 - 208 V, 60 Hz, 3-Phase
 - 460 V, 60 Hz, 3-Phase
 - 220-240 V, 50 Hz, 1-Phase (CE Marked)
 - 380-415 V, 50 Hz, 3-Phase (CE Marked)
- Seismic Anchorage Kit

OPTIONS

- Load Lifting Door
 (Automated Door Mechanism)
- Drying System

Item _____
 Location(s) _____

FEATURES

Front-loading drop-down door is constructed of #316 stainless steel covered with a plastic panel. The tempered glass window allows the operator to view the chamber interior while a cycle is in progress. The door panel and glass window remain cool to the touch.

- Pressing the **UNLOCK** pushbutton opens the door.
- **Safety door switch** prevents the start of a cycle if the door is not fully closed.

Insulated construction of chamber exterior reduces heat loss and noise level to the work area.

Wash chamber is constructed of 20 gauge, #316L stainless steel (No. 4 finish). Stainless-steel chamber inhibits corrosive action of detergents.

Interior fluorescent light allows the operator to view (process/load) during the cycle, and has a 20,000-hour life expectancy.

Rotary spray assembly is constructed of #304L stainless steel (No. 4 finish) and positioned at the top of the wash chamber to assure complete coverage of all load surfaces. The accessory manifold connector, located at the back of the wash chamber, automatically connects to the accessory when pushed into position.

Heating coils, constructed of Incoloy iron-nickel-chromium alloy, located at the bottom of the wash chamber, raise and maintain water temperature to 140°F (60°C) during the Wash phase, and to 203°F (95°C) during the Thermal Rinse phase. Air in the chamber during the optional Drying phase will reach a maximum temperature of 200°F (93.3°C) if the drying temperature is set at LOW, or will reach 240°F (115°C) if temperature is set at HIGH.

Removable debris screen, of #304 L stainless steel (No. 4 finish), located at the bottom of the sump, prevents large debris from entering the piping system and pump.

Detergent injection system is designed to reduce handling of chemicals, and to minimize waste and residue.

Three-shelf detergent compartment, located to the right of the wash chamber, can hold three different types of chemicals: * Renu-Klenz, Neutral pH Detergent Klenzyme, Enzymatic Presoak and Cleaner, and Hinge Free, Concentrate

Instrument Lubricant. Chemicals are available in easy-to-install, biodegradable, **bag-in-a-box-type containers**.

Chemical pumps are located under the wash chamber door, behind the service access panel. An empty bag is detected by a vacuum switch triggering an alarm alerting the operator a container needs to be replaced.

Stainless-steel pump is 3/4 HP, with a 50 U.S. gal/minute at 40 ft. (189 L/min at 12.2 m) capacity. All treatments are under pressure of the pump. Pressure at spray jets is 10 psig (1.12 bar). Pump impeller shaft and casing are fitted with a mechanical seal. Pump impeller is mounted directly on the motor shaft. Pump motor is thermally protected and is equipped with a totally enclosed, fan-cooled magnetic starter and sealed bearings requiring no periodic lubrication.

Non-vented system allows chamber vapors to be exhausted to the room through a condenser and a HEPA filter located at the back of the unit.

Drain discharge cool down feature assures all water is drained from the wash chamber sump to the building draining system. Cold water is automatically injected into the sump when the water temperature is too high. Drain discharge cooldown will keep the temperature in the drain piping below 140°F (60°C).

Unit has three adjustable wheels: two in front and one in the back. All fill valves are mounted at the back of the unit. Draining valves and pumps are located under the wash chamber.

Washer is interpiped and interwired, requiring only one connection for each service and utility hookup.

SAFETY FEATURES

A **safety door switch** prevents a cycle from starting when the door is opened.

CONTROL PANEL

A **microcomputer** monitors and controls washer/disinfectant operations and functions. Cycle progresses automatically through the designated phases, as programmed.

Membrane-type touch pads allow operator to select, start, stop, or abort cycles.

Display window features a 2-line x 16-character, easy-to-read vacuum fluorescent display. Display shows cycle status, time, temperature, alarms, and instructional messages. Display also indicates abnormal conditions that may occur during a cycle.

Supervisor Mode allows modification of cycle parameters (within a range of factory-set values), and time display and printout units (standard AM/PM or 24-hour/military [MIL]).

Service Mode allows service technicians to perform preventive maintenance and testing, and facilitates troubleshooting.

TEST cycle is available for service technicians only. This cycle simplifies testing procedures.

Maintenance due alarms recall and cycle/day count recall system reminds the operator when a complete preventive maintenance check is required.

Internal battery backs-up all cycle memory for up to 10 years. If a power failure occurs during a cycle, the control battery backup system assures the cycle memory will be retained. Even if the RAM battery should fail, factory set values will be saved in the control main flash memory.

CYCLE DESCRIPTION

NOTE: ADVISORY NOTE: STERIS does not intend, recommend nor represent in any way that this Reliance 333 Washer/Disinfectant be used for the terminal disinfection or sterilization of any regulated medical device. Reliance Washer/Disinfectants are intended only to perform an initial step in the reprocessing of soiled, reusable medical devices. If medical devices will be contacting blood or compromised tissues, such devices must be terminally reprocessed in accordance with current Good Hospital Practices before each use in human patients.

NOTE: Always refer to instrument manufacturer for recommended cleaning procedures.

The Reliance 333 Washer/Disinfectant features three factory-set cycles:

INSTRUMENT 1, MICRO 2 (microsurgery), and **MIS 3** (minimally invasive surgery) to accommodate typical loads and processing requirements. Each cycle can be programmed to include up to eight separate treatments.

Standard available treatments include:

- two pre-washes
- one pulsed enzyme wash
- one pulsed enzyme rinse
- one wash
- one rinse
- one thermal rinse (with lubricant)
- (an optional drying phase is also available.)

Once a cycle is selected, the washer/disinfector automatically processes the load through the pre-programmed treatments. Cycle values are locked in and cannot be changed until the cycle is completed.

Three additional cycles (**CYCLE 4**, **CYCLE 5**, and **CYCLE 6**) may be programmed to suit specific needs.

CYCLE 6 may be programmed as a special **DRYING** cycle if the optional drying system is ordered (see Options). A **DECONTAM** cycle is provided to prevent the formation of biofilm or scale in the wash chamber and piping without the need for additional cycle programming.

On initial startup, pressing the ON/OFF pushbutton will place the control and unit in the operating mode. (It is recommended the unit be left on at all times, except for major service or maintenance procedures.)

When the desired touch pad symbol is pressed to start a cycle, the washer/disinfector will automatically process the load through the following factory-set treatments (see Table 1, page 5):

- **PRE-WASH 1:** Sump fills with cold tap water from the building supply line; load is pre-washed for 45 seconds (factory set), then water is sent to drain.
- **PRE-WASH 2:** Sump fills with cold tap water from the building supply line; load is pre-washed for three minutes (adjustable from three to 15 minutes), then water is sent to drain.
- **PULSED ENZYME:**

Wash: Sump fills with enzyme detergent-injected hot tap water from the building supply line; load is pulsed for four minutes (adjustable from four to 15 minutes), then solution is sent to drain.

Rinse: Sump fills with hot tap water from the building supply line. Enzyme rinse time is 20 seconds (factory-set).

Solution is sent to drain.

- **WASH:**

Wash: Sump fills with detergent injected hot tap water from the building supply line (minimum 110°F [43°C] and heated up to 140°F [60°C]). Load is sprayed for three minutes (heated three to 15 minutes), then solution is sent to drain.

Rinse: Load is pulsed with hot tap water from the building supply line. Rinse time is 20 seconds (factoryset).

- **THERMAL RINSE:** Sump fills with hot purified water from the building supply line, or from optional purified water generator. Solution is heated to 180-203°F (82.2-95°C). Purified water is sprayed on the load until the preset temperature is reached. **Lubricant** is added to the purified water during filling (if selected). Once the preset temperature is reached, solution is sprayed over the load for one minute (adjustable from one to 15 minutes), then solution is sent to drain.

NOTE: Items processed during the Thermal Rinse phase will reach a maximum of 183°F (83.8°C) if thermal rinse temperature is set at 180°F (82.2°C), or 206°F (96.6°C) if thermal rinse temperature is set at 203°F (95°C).

- **Optional DRYING:** The drying temperature can be preset LOW or HIGH. Drying time is five minutes (adjustable from one to 60 minutes). Door can be opened at any time during the Drying phase.

NOTE: Items processed during the Drying phase will reach a maximum temperature of 200°F (93°C) if drying temperature is set at LOW, or 240°F (115°C) if drying temperature is set at HIGH.

OPTIONS

Load Lifting Door (automated door lift mechanism) facilitates loading and unloading of manifolded accessory racks. When the door is open, the load lifting door allows the operator to raise or lower the door by pressing the DOOR UP/DOOR DOWN toggle switch. The door can be raised or lowered and stopped at any height to provide an adjustable, ergonomic loading/unloading platform. Gearbox motor and chain drive mechanism are located under the unit.

Drying System, located at the bottom of the unit, consists of a pre-filter, blower, HEPA filter, and electrical heating elements. The heating elements can be activated in a special high/low power configuration to enhance the heating process. A second HEPA filter, located at the outlet of the wash chamber, reduces the risk of contamination in the room (caused by contaminated items treated in the wash chamber). Drying cycle time is adjustable from one to 60 minutes.

ACCESSORIES

MIS (minimally invasive surgery)

Rack (for MIS 3 cycle only) allows operator to clean rigid MIS instruments efficiently. The manifolded rack automatically connects to the washer/disinfector to maximize efficiency of cleaning and low-level disinfection. MIS instruments are connected to special spray jets, lumened holders, and irrigation tubes, to allow a constant flow of solution inside hard-to-reach areas of the instruments. Extra trays can be used to clean small miscellaneous instrument components such as handles, connections, end caps, compression springs, etc.

NOTE: The MIS Rack must be used with the MIS 3 cycle, including the enzyme treatment, to assure efficient cleaning of rigid MIS instruments.

Instrument Tray with Cover is approximately 10-1/2 x 21" (267 x 533 mm).

Two-Level Instrument Rack can hold up to four large instrument trays (two on each level), eight small instrument trays (four on each level), or two or four micro-surgery trays. Rack can also be used to clean miscellaneous instrument trays.

Remote Printer Kit can help the supervisor monitor cycles and cycle values, as well as any abnormal conditions (faults) that may occur during a cycle. An RS-232 connection is located on back of contactor box.

Countertop is available for the tops of freestanding washer/disinfectors. Countertop is Formica®¹ brand laminate.

Installation Kit includes an electrical cable for specific voltages, service handles, and pressure regulators to facilitate installation and maintenance.

¹ Formica® is a registered trademark of Formica Corporation.

Seismic Anchorage Kit is available for high risk seismic zones.

Two types of **water treatment systems** are available:

1. **Purified Water Generator:** Generates heated deionized water from customer building hot tap water.
2. **Water Softener System:** Treats and eliminates hardness of building water to improve customer water quality (see SD748 for details).

MOUNTING ARRANGEMENT

The washer/disinfector is designed as a fully enclosed cabinet for recessing (undercounter) or freestanding installation.

Casters and flexible utilities connections are provided for the washer/disinfector to allow the unit to be moved into and out of its mounting location for maintenance purposes.

TECHNICAL DATA

Resistive Temperature Devices (RTDs) sense temperature inside the sump and wash chamber. These signals, converted into electrical impulses, provide accurate control inputs and readouts throughout the entire cycle. Individual temperature calibrations can be made by a trained service technician.

Water level sensors monitor water level of the sump in the wash chamber. If water level and/or temperature sensor failure occurs, an alarm will sound.

PREVENTIVE MAINTENANCE

A global network of skilled service specialists can provide periodic inspections and adjustments to help assure low-cost peak performance. STERIS representatives can provide information regarding annual maintenance agreements.

NOTES

1. Pipe sizes shown on rough-in drawing indicate terminal outlets only. Building service lines (not provided by STERIS) must supply the specified pressures and flow rates.
2. Customer must assure the washer/disinfector stands on a noncombustible, non-slip floor.
3. Isolation valves, vacuum breakers, main breaker (or fuse) disconnect switch box, junction box, and connectors on utility lines to the washer/disinfector as required are not provided by STERIS.

UTILITY REQUIREMENTS

Electricity

- 220-240 V, 60 Hz, 1-Phase, 27.9 Amps
- 208 V, 60 Hz, 3-Phase, 23.1 Amps
- 460 V, 60 Hz, 3-Phase, 10.1 Amps
- 220-240 V, 50 Hz, 1-Phase, 27.9 Amps*
- 380-415 V, 50 Hz, 3-Phase, 12.1 Amps*

* CE-marked

**STERIS Corporation,
Quebec, Canada, is an ISO 9001
and ISO 13485 certified facility.**

The base language of this document is ENGLISH. Any translations must be made from the base language document.

Table 1. CYCLE DESCRIPTION CHART (Factory-Set Values)

	PRE-WASH 1	PRE-WASH 2	PULSED ENZYME		WASH		THERMAL RINSE * (with lubricant, if selected)	DRY (Optional)
			WASH	RINSE	WASH	RINSE		
CHEMICAL			KLENZYME		RENU-KLENZ		HINGE FREE (lubricant)	
INSTRUMENT 1								
Temperature °F (°C)	CTW	CTW	HTW	HTW	HTW Heated to 140.0 (60.0)	HTW	DI Heated to 180.0 (82.2) 180.0 (82.2) - 203.0 (95.0)	HIGH Low/High
Time	00:45	03:00 03:00-15:00	04:00 04:00-15:00	00:20***	03:00 03:00-15:00	00:20	01:00 [01:00-15:00]	05:00 00:00**, 01:00 - 60:00
Injection Rate oz/gal (mL/L)	N/A	N/A	1 (8)	N/A	1/2 (4) 1/2, 1 (4, 8)	N/A	1/2 (4) [0, 1/2, 1-1/2, 2 (0, 4, 8, 12, 16)]	N/A
MICRO 2								
Temperature °F (°C)	CTW	CTW	HTW	HTW	HTW Heated to 140.0 (60.0)	HTW	DI Heated to 180.0 (82.2) 180.0 (82.2) - 203.0 (95.0)	HIGH Low/High
Time	02:00	00:00 00:00-15:00	00:00 00:00-15:00	00:20***	02:00 02:00-15:00	00:20	01:00 01:00-15:00	05:00 00:00**, 01:00 - 60:00
Injection Rate oz/gal (mL/L)	N/A	N/A	1 (8)	N/A	1/2 (4) 1/2, 1 (4, 8)	N/A	1/2 (4) 0, 1/2, 1-1/2, 2 (0, 4, 8, 12, 16)	N/A
MIS 3								
Temperature °F (°C)	CTW	CTW	HTW	HTW	HTW Heated to 140.0 (60.0)	HTW	DI Heated to 180.0 (82.2) 180.0 (82.2) - 203.0 (95.0)	HIGH Low/High
Time	00:45	05:00 05:00-15:00	10:00 10:00-15:00	00:20***	05:00 05:00-15:00	00:20	01:00 01:00-15:00	05:00 00:00**, 01:00 - 60:00
Injection Rate oz/gal (mL/L)	N/A	N/A	1 (8)	N/A	1/2 (4) 1/2, 1 (4, 8)	N/A	1/2 (4) 0, 1/2, 1-1/2, 2 (0, 4, 8, 12, 16)	N/A
CYCLE 4, 5, 6								
Temperature °F (°C)	CTW	CTW	HTW	HTW	HTW Heated to 140.0 (60.0)	HTW	DI Heated to 180.0 (82.2) 180.0 (82.2) - 203.0 (95.0)	HIGH Low/High
Time	02:00	00:00 00:00-15:00	00:00 00:00-15:00	00:20***	02:00 02:00-15:00	00:20	01:00 01:00-15:00	05:00 00:00**, 01:00 - 60:00
Injection Rate oz/gal (mL/L)	N/A	N/A	1 (8)	N/A	1/2 (4) 1/2, 1 (4, 8)	N/A	1/2 (4) 0, 1/2, 1-1/2, 2 (0, 4, 8, 12, 16)	N/A
DECONTAM								
Temperature °F (°C)	N/A	N/A	N/A	N/A	HTW Heated to 150.0 (65.5)	HTW	N/A	HIGH
Time	N/A	N/A	N/A	N/A	15:00	3 x 01:00	N/A	30:00
Manual injection oz(mL)	N/A	N/A	N/A	N/A	5 (148)	N/A	N/A	N/A

NOTES:

CTW: Cold tap water

HTW: Hot tap water

DI: Purified water (de-ionized)

MIS: Minimally Invasive Surgery

* **Thermal Rinse:** Temperature of items treated.

** To bypass drying, set drying time to 00:00

*** If Enzyme Wash is selected, Enzyme Rinse will be 00:20.

Factory Set Values	XX:XX
Adjustable Values	XX:XX – XX:XX

Table 2. ACCESSORIES

DESCRIPTION	OVERALL DIMENSIONS W x H x L inches (mm)	WEIGHT lb (kg)	TRAY HEIGHT CLEARANCE inches (mm)	LOAD CAPACITY	APPLICATION	
Two-Level Instrument Rack (MB00-0015)	22-3/4 x 12-3/4 x 23-1/4 (577 x 323 x 590)	20 (9.0)	9.0 (228)	UPPER LEVEL: 2 full size trays 10-1/2 x 20-1/2 x 3.0 (267 x 521 x 76) or 1 oversize tray 22-1/2 x 22-1/2 x 4.0 (572 x 572 x 102) or Microsurgery Trays	For holding loaded instrument trays, or miscellaneous hard goods individually or in basket-type trays.	
			3-3/4 (95)	LOWER LEVEL: 2 full size trays 10-1/2 x 20-1/2 x 3.0 (267 x 521 x 76) or 1 instrument tray with cover 12-1/2 x 20-1/2 x 2.0 (318 x 520 x 50)	For holding loaded instrument trays, or miscellaneous hard goods individually or in basket-type trays.	
MIS Rack (MB00-0010)	22-3/4x 15-3/4 x 23-1/4 (577 x 400 x 590)	23 (10.5)	<i>NOTE: Clearance varies according to instruments. Refer to the Equipment Manual P920007-826 for complete loading instructions.</i>	3 large instrument holders; 12 small instrument holders; 13 flexible tubes for suction/irrigation connections. 2 large spindles; 6 medium spindles 6 small spindles	For cleaning, rinsing, drying, and low-level thermal disinfection of rigid MIS (minimally invasive surgery) lumened instruments: outer tubes, Verres needles, suction tips, biopsy channels, and suction tubes, as well as lumened instruments: trocars, sleeves, bridges, and automatic flap valves.	
	3-1/2 x 1-1/2 x 14 (88 x 38 x 355)			Mesh Basket with Cover	Small miscellaneous instrument components	Handles, connections, end caps, compression springs, etc.
	12-1/2 x 2.0 x 20-1/2 (318 x 50 x 520)			Instrument Tray with Cover (MB00-0011)	Miscellaneous non-lumened instruments or components	For cleaning, rinsing, drying, and low-level thermal disinfection of non-lumened components and instruments such as clamps, rods, etc.
	3-3/4 x 1-3/4 x 8-1/2 (95 x 45 x 215)			Instrument Support	6 non-lumened instruments or inserts	For cleaning, rinsing, drying, and low-level thermal disinfection trays of non-lumened rods, clamps, inserts, etc.
Countertop (MB00-0019)	37 x 6 x 33 (940 x 152 x 838)	42 (15)	N/A	N/A	Countertop for freestanding installation.	
Remote Printer Kit (MB00-0018)	11 x 10 x 17 (274 x 254 x 432)	14 (6.4)	N/A	N/A	Printer records cycle values and data.	
Installation Kit (MB00-0020) (MB00-0036) (MB00-0037) (MB00-0040)	14 x 9 x 25 (356 x 229 x 635)	38 (17)	N/A	N/A	Utilities Main Supply Cord Flexible Hoses Service Handles Pressure Regulator Klenzyme® Enzymatic Presoak and Cleaner (1.0 U.S. gal [3.78 L]) Renu-Klenz™ Neutral pH Cleaner (1.0 U.S. gal [3.78 L])	

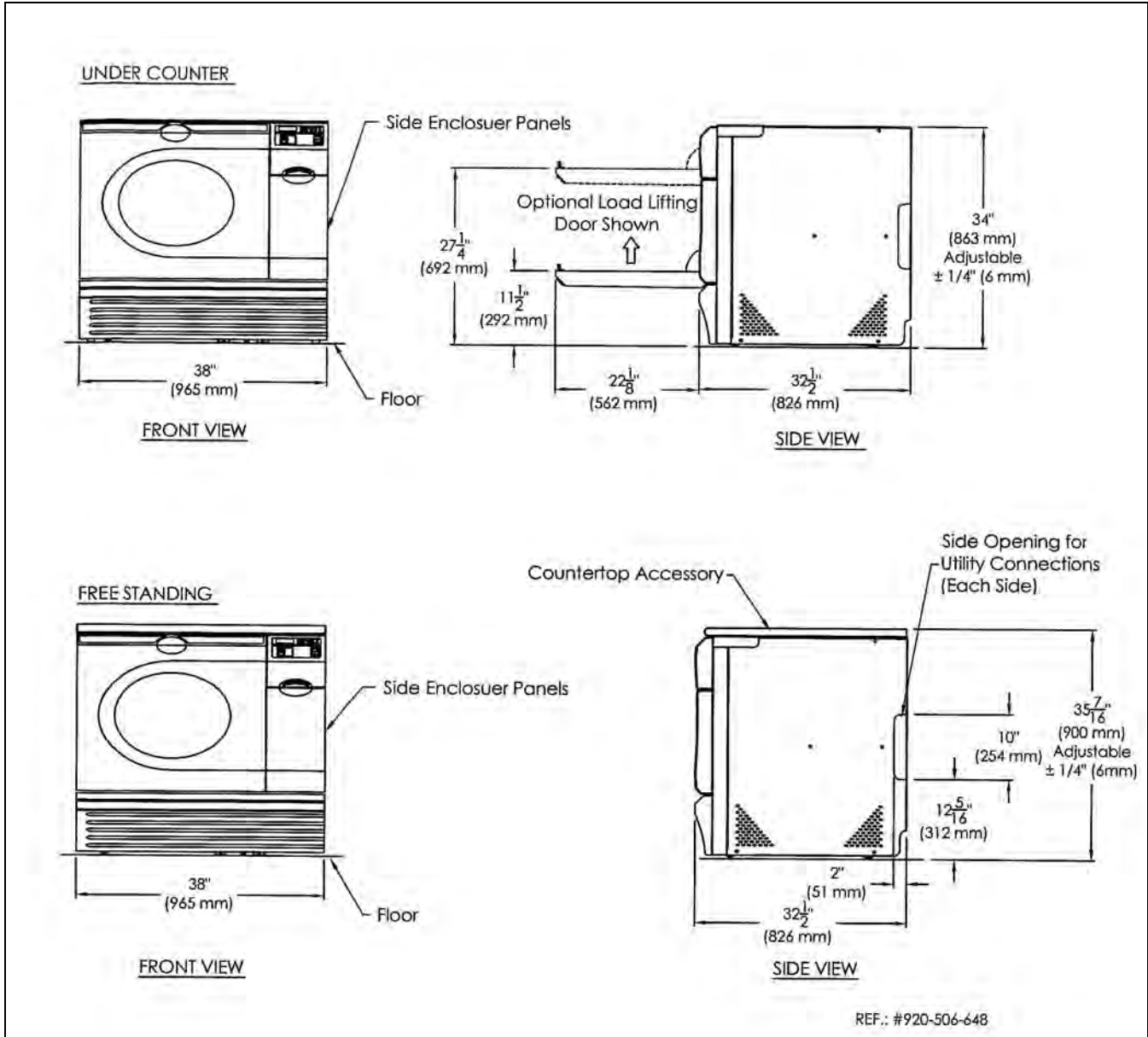
Table 3. ENGINEERING DATA

SHIPPING WEIGHT lb (kg)	OPERATING WEIGHT lb (kg)	A-WEIGHTED EQUIVALENT SURFACE SOUND	HEAT LOSS BTU/h (W) per CYCLE*	COLD WATER U.S. gal (L) per CYCLE*	HOT WATER CONSUMPTION per CYCLE*	PURIFIED WATER CONSUMPTION U.S. gal (L)
660 (299)	420 (190)	65.4 dB	2420 (710)	11 (42)	11 (42)	2.75 (10.5)

* Based on instrument cycle with drying option.

	HOT WATER (HW)	COLD WATER (CW)	PURIFIED WATER (PW)	DRAIN
Dynamic Pressure	15 to 50 psig (1.03 to 3.45 bar)	30 to 50 psig (2.06 to 3.45 bar)	15 to 50 psig (1.03 to 3.45 bar)	N/A
Building Supply Water Temperature	110 to 150°F (43 to 66°C)	70°F (21°C)	70 to 150°F (21 to 66°C)	N/A
Flow Rate	1.3 to 4.2 U.S. gpm (4.92 to 16.28 L/min)	1.9 to 4.2 U.S. gpm (7.19 to 16.28 L/min)	1.3 to 4.2 U.S. gpm (4.92 to 16.28 L/min)	4.0 U.S. gpm (15.0 L/min)
Minimum Specific Resistivity	N/A	N/A	0.1 megohm/cm	N/A

**Dimensions shown here are typical, and subject to change without notice.
REFER TO STERIS EQUIPMENT DRAWINGS FOR
COMPLETE AND DETAILED INSTALLATION SPECIFICATIONS.**



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