

APPLICATION

The Reliance 200 and 250 Glassware Washers are indicated for point of use automatic cleaning, and drying of typical laboratory glassware and miscellaneous plastic items used in environments such as analytical and quality control laboratories, as well as in university, biotechnology, or pharmaceutical research laboratories.

DESCRIPTION

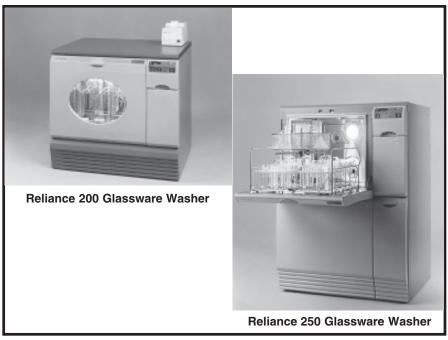
The Reliance 200 Glassware Washer is built as a counter-height unit. The Reliance 250 Glassware Washer is a cabinet unit available as a freestanding or recessed unit.

A drop-down door is available to facilitate loading of both models/units.

An optional user-friendly **load-lifting door** is also available to facilitate loading and unloading of manifolded accessory racks.

Both glassware washers feature a state-of-the-art microcomputer control system with a user-friendly operator interface.

A printer can be installed to record and monitor glassware washer cycles and cycle parameters.



(Typical only - some details may vary.)

SIZE (W x H x L)

Interior wash chamber dimensions:

• 24 x 19 x 23" (610 x 482 x 585 mm)

Exterior Dimensions:

Reliance 200

- 38 x 34 x 29" (965 x 860 x 735 mm) Height with optional countertop:
- 35-1/2" (901 mm)

Reliance 250

• 38 x 54 x 32" (965 x 1372 x 813 mm)

Load height:

Reliance 200

Manual Door and/or Optional loadlifting door (lowered)

• 11-1/2" (292 mm)

Optional load-lifting door (raised)

• 27-1/4" (692 mm)

Reliance 250

• 30" (762 mm)

The Selections Checked Below Apply To This Equipment

MODEL

- ☐ Reliance 200 Undercounter Washer
- ☐ Reliance 250 Cabinet Washer

VOLTAGE

- □ 208 V, 60 Hz, 3-Phase, 23.1 A
- □ 460 V, 60 Hz, 3-Phase, 10.1 A
- □ 230 V, 50/60 Hz, 1-Phase, 27.9 A
- □ 400 V, 50 Hz, 3-Phase, 12.1 A

OPTIONS

- ☐ Load-lifting Door (Reliance 200 Glassware Washer only)
- ☐ Drying System

ACCESSORIES

- ☐ Countertop (for freestanding Reliance 200)
- ☐ Freestanding Panels (for freestanding Reliance 200)
- ☐ Remote Printer Kit, 110-240 V, AC, 50/60 Hz
- ☐ Large Glassware Rack and Support
- Small and Medium Glassware Rack and Support
- ☐ Pipette and Glassware Rack and Support
- Second Level Washing System with GPB Basket
- GPB Basket with Cover
- ☐ Barrier Wall Flanges (Reliance 250)
- ☐ Seismic Anchorage Kit

ACCESSORIES (Continued)

- ☐ Installation Kit
- ☐ 208 V, 60 Hz, 3-Phase, 23.1 A
- ☐ 460 V, 60 Hz, 3-Phase, 10.1 A
- 220/240 V, 60 Hz, 1-Phase, 27.9 A
- □ 220/240 V, 50 Hz, 1-Phase, 27.9 A
- □ 380/415 V, 50 Hz, 3-Phase, 12.1 A
- ☐ IQ/OQ/PQ Documentation
- ☐ Water Treatment Systems (see separate product literature)

Item	
Location(s)	-

STANDARDS

Reliance 200/250 Glassware Washers meet the applicable requirements of the following standards; as certified by ITS (ETL marking)

- Underwriters Laboratories (UL) Standard 3101-1
- Canadian Standards Association CAN/CSA-C22.2 No. 1010.1.

FEATURES

Front Loading Drop-down Door is constructed of #316 stainless steel covered with a decorative, easy-to-clean, thermoformed plastic panel. A tempered glass window allows the operator to view chamber interior while cycle is in progress. Door panel and glass window remain cool to the touch.

Storage Space (Reliance 250 only) – the Reliance 250 provides a storage space that can be used for one accessory rack, and/or for detergent containers. An easy-to-remove front service access panel provides access to the storage space and to some of the mechanical components.

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

Wash Chamber is constructed of 20 gauge, #316 L stainless steel (No. 4 finish). Chamber inhibits corrosive action of detergents, and is easy to clean, with no enameled surfaces to chip or crack should an object be accidently dropped in the chamber.

Interior Fluorescent Light with a 20,000-hour life expectancy allows operator to view (process/load) during the cycle.

Rotary Spray Assembly, constructed of #304L stainless steel (No. 4 finish), and positioned at the top of the wash chamber, ensures complete coverage of all load surfaces. Accessory manifold connector, located at the back of the wash chamber, automatically connects to accessory rack when pushed into position.

Two 3-kW Heating Coils, constructed of Incoloy®, located at the bottom of the wash chamber, raise and maintain water temperature up to 180°F (82.2°C) during the wash phase, and up to 203°F (95°C) during some of the rinse phases. Air in 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 240°F (115°C) if temperature is set at HIGH.

Removable Debris Screen, constructed of 304L stainless steel (No. 4 finish), located at the bottom of the sump, prevents large debris from entering the piping system and pump. Screen can easily be removed for cleaning.

Detergent Injection System is designed to reduce handling of chemicals, and to minimize waste and residues.

A **Detergent Compartment**, located to the right of the wash chamber, can hold two different types of chemicals: **CIP 100**® (alkaline) and **CIP 200**® (acidic). Chemicals are available in easy-to-install, biodegradable **bag-in-a-box-type containers**.

Chemical Pumps are located under the wash chamber door, behind an easy-to-remove service access panel. A vacuum switch detects when detergent container is empty, and an alarm sounds indicating that container needs to be replaced.

Stainless-steel Pump – All treatments are under pressure of a 3/4 HP (560 W), #316L stainless steel pump with a 50 U.S. gal/min at 40 ft (189 L/min at 12,2 m) capacity. Pump impeller shaft and casing are fitted with a mechanical seal. Pump impeller is mounted directly on motor shaft. Pump motor is thermally protected, and is equipped with a totally enclosed frame (TEFC), magnetic starter, thermal protection, and sealed bearings, requiring no periodic lubrication.

The glassware washers are interpiped and interwired, requiring only one connection for each service and utility hookup.

Non-vented System means that chamber vapors are exhausted to the room through a condenser, and eliminates the need to connect to a duct system.

Drain Discharge Cooldown feature ensures that all water is drained from wash chamber sump at a temperature that complies with international plumbing codes. During the draining phase, cold water is automatically injected in the sump when the water temperature is higher than 140°F (60°C).

Reliance 200 has three **adjustable wheels** to help pull out unit for maintenance purposes. Reliance 250 has four adjustable wheels.

SAFETY FEATURES

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

- **DOOR UNLOCK** pushbutton must be pressed before opening door.
- Safety door switch prevents cycle from starting if door is not fully closed.

CONTROL PANEL

Design Features

A microcomputer monitors and controls glassware washer 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, as well as time display and printout units (standard AM/PM or 24-hour international/military [MIL]).

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

A **TEST cycle** is available for service technicians only, and is designed to simplify testing procedures.

Maintenance Due 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 ensures that the cycle memory will be retained. Even if the RAM battery should fail, factory-set values will be preserved in the control main Flash memory.

CYCLE DESCRIPTION

Reliance 200/250 Glassware Washers feature six preprogrammed operator-selectable cycles: LIGHT 1, MEDIUM 2, HEAVY 3, CYCLE 4, CYCLE 5, and CYCLE 6. Each cycle can be programmed to include up to 10 separate treatments.

A DESCALER cycle is preprogrammed to simplify cleaning and descaling of the wash chamber and piping components.

The optional DRYING cycle is adjustable from 01 to 60 minutes.

Standard available treatments include: two Pre-washes, two Washes, three Rinses, and two Purified Water Rinses. (An optional Drying phase is also available.) Once a cycle is selected, the glassware washer automatically processes the load through the preprogrammed treatments. Cycle values are locked in and cannot be changed until cycle is completed.

NOTE: All treatments and phases in the cyles can be bypassed by setting values to 00:00.

Three additional cycles (CYCLE 4, CYCLE 5, and CYCLE 6) may be programmed to suit specific needs. The DESCALER cycle is provided to prevent the formation of scale in the wash chamber and recirculation system, without the need for additional cycle programming.

On initial start-up, pressing the ON/OFF pushbutton will place the control and unit in operating mode. Pressing the touch pad for the desired cycle with initiate that cycle. The glassware washer will automatically processes the load through the following factory-set treatments:

- PRE-WASH 1: Sump fills with cold tap water from building supply line.
 Load is sprayed for the selected time. When treatment is completed, water is sent to drain.
- PRE-WASH 2: Sump fills with hot tap water from building supply line. Load is sprayed for 01 minute (factory-set) or for selected time. When treatment is completed, water is sent to drain.
- WASH 1: Sump fills with hot tap water from building supply line. A pre-selected amount of CIP 100 (alkaline detergent) or CIP 200 (acidic detergent) is automatically injected into the water. Detergent injection rate is adjustable between 0.0 and 2.0 oz/gal (0.0 to 16 ml/L) (factory-set at 1/2 oz/gal [4.0 ml/L]). The solution starts recirculating and is heated and maintained at 150°F (66°C) or at selected temperature (non-heated, or adjustable between 110°F and 180°F [43.3°C to 82.2°C]). Once temperature is reached, solution is sprayed over the load for selected time. When the treatment is completed, wash solution is sent to drain (cold water is injected if solution temperature is above 140°F [60°C]).
- RINSE 1: Sump fills with hot tap water from building supply line. Load is sprayed for 01 minute (factory-set) or for selected time. If selected, water is heated and maintained at selected temperature (adjustable between 110°F and 150°F [43.3°C to 65.6°C]). Cycle countdown only starts once selected temperature is reached. When treatment is completed, rinse solution is sent to drain (cold water is injected if solution temperature is above 140°F [60°C]).
- WASH 2: Sump fills with hot tap water from building supply line. A pre-selected amount of CIP 100

(alkaline detergent) or CIP 200 (acidic detergent) is automatically injected into the water. Detergent injection rate is adjustable from 0.0-2.0 oz/gal (0.0-16 ml/L), factoryset at 1/2 oz/gal (4.0 ml/L). The solution starts recirculating and is heated and maintained at 150°F (66°C) or at selected temperature (non-heated, or adjustable between 110°F and 180°F [43.3°C to 82.2°C]). Once temperature is reached, solution is sprayed over load for selected time. When treatment is completed, wash solution is sent to drain (cold water is injected if solution temperature is above 140°F [60°C]).

- RINSE 2: Sump fills with hot tap water from building supply line. Load is sprayed for 01 minute (factory-set) or for selected time. If selected, water is heated and maintained at selected temperature (adjustable from 110°F to150°F [43.3°C to 65.6°C]). Cycle countdown only starts once selected temperature is reached. When treatment is completed, rinse solution is sent to drain (cold water is injected if solution temperature is above 140°F [60°C]).
- RINSE 3: Sump fills with hot tap water from building supply line. Load is sprayed for 01 minute or for selected time. If selected, water is heated and maintained at selected temperature (adjustable between 110°F and 150°F [43.3°C to 65.6°C]). Cycle countdown only starts once selected temperature is reached. When treatment is completed, rinse solution is sent to drain (cold water is injected if solution temperature is above 140°F [60°C]).
- Purified Water Rinse 1: Sump fills with purified water from building supply line. The water starts recirculating and is heated and maintained

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The base language of this document is ENGLISH. Any translations must be made from the base language document. at 110°F (43.3°C), or at selected temperature (non heated or adjustable between 110°F and 203°F [43.3°C to 95°C]). Once temperature is reached, water is sprayed over the load for 01 minute, or for selected time. When treatment is completed, solution is sent to drain (cold water is injected if solution temperature is above 140°F [60°C]).

- Purified Water Rinse 2: Sump fills with purified water from building supply line. The water starts recirculating and is heated and maintained at 110°F (43.3°C) or at selected temperature (non-heated or adjustable between 110°F and 203°F [43.3°C to 95°C]). Once temperature is reached, water is sprayed over the load for selected time. When treatment is completed, solution is sent to drain (cold water is injected if solution temperature is above 140°F [60°C]).
- Optional Drying: During the Drying phase, non-recirculated, HEPA-filtered, heated air is circulated both inside the items and over the load for 05 minutes (adjustable from 01 to 60 minutes). The operator can select two levels of heat: HIGH (maximum temperature of 240°F [116°C]) or LOW (maximum temperature of 200°F [93°C]).

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.

TECHNICAL DATA

Resistive Temperature Devices (RTD) sense temperature inside 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.

Sump capacity is 3.0 U.S. gal. (11,4 L), ensuring low water consumption.

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

OPTIONAL FEATURES

Once the door is open, the optional **load-lifting door** system (Reliance 200 only) allows the operator to raise or lower the door by pressing DOOR UP/DOOR DOWN pushbuttons. The door can be raised or lowered, and can be stopped at any height, to provide an adjustable, ergonomic loading/unloading platform. Gearbox motor and chain drive mechanism are located under the unit.

Manifolded Drying System consists of a pre-filter, a blower, a HEPA filter, and two 3.5 kW electrical elements. Hot air is forced through the wash chamber and circulated over and inside the items. Wash chamber heating elements can be activated in a special HIGH or LOW power configuration to assist the heating process.

ACCESSORIES

Countertop, constructed of sturdy, easy-to-clean Formica® laminated board, is available for Reliance 200 freestanding units.

Freestanding panels (one for each side), constructed of 18-gauge, 304L painted stainless steel can be installed on Reliance 200 units. (Freestanding panels are standard on Reliance 250).

Remote Printer Kit monitors and records process parameters, such as time, temperature, date, as well as abnormal conditions (faults and alarms) that may occur during a cycle. The printer is connected to an RS-232 port on the control panel and can be installed up to 10 ft away from the unit.

Large Glassware Rack and Support

holds up to 10 large glassware items. Each item fits on a spindle to ensure complete coverage and cleaning of inner surfaces. The glassware support helps stabilize each item in proper position. Protective polypropylene blocks and Hydex plastic tips with silicone O-rings prevent glassware breakage during loading or treatments.

Small and Medium Glassware Rack and Support holds up to 49 small and medium glassware items. Each item fits

on a spindle to ensure complete coverage and cleaning of inner surfaces. The glassware support helps stabilize each glassware item in proper position. A protective silicone band and Hydex plastic tips prevent breakage of glassware during loading and treatments. The Small and Medium Glassware Rack is compatible with the Second Level Washing System.

Pipette and Glassware Rack holds up to 46 pipettes, and/or volumetric pipettes (maximum length: 15-3/4" [40 cm]). Four additional pipettes, and/ or volumetric pipettes (maximum length: 21-3/8" [53 cm]), can be placed at an angle on the corner spindles. The rack can also hold 36 small glassware items. Each item fits on a spindle to ensure complete coverage and cleaning of inner surfaces. Pipettes are inserted through a plastic protective support and connected to individual jet nozzles for maximum cleaning efficiency. A glassware support helps stabilize each glassware item in proper position. A protective silicone band and Hydex plastic tips prevent breakage of glassware during loading and treatments. The Pipette and Glassware Rack is compatible with the Second Level Washing System.

Second Level Washing System

includes a General Purpose Basket, a cover, and a rotary spray arm assembly, which can be installed on the Small and Medium Glassware Rack as well as on the Pipette and Glassware Rack. The accessory holds miscellaneous glassware or plastic items such as beakers, test tubes, funnels, and bottle caps. Test tube baskets with covers are placed upside-down in the General Purpose Basket. The cover retains and secures small items in the basket, which can easily be removed to facilitate loading and unloading on the first level. The entire Second Level Washing System can also be removed by unscrewing the spray header and replacing it with the stopper provided.

General Purpose Basket (GPB) and Cover – round, mesh baskets can be used with the Second Level Washing System. Covers hold down miscellaneous glassware and plastic items.

Seismic Anchorage System is available for high-risk seismic zones.

Installation Kit includes an electrical cable for specific voltages, and three flexible hoses for water supply connections (108" [2743 mm] long), as well as service handles, and pressure regulators to facilitate installation and maintenance.

IQ/OQ/PQ Documentation includes protocols that can be used as template to facilitate Installation, Operation, and Performance Qualifications.

Two types of **Water Treatment Systems** are available: **Purified Water Generator** generates heated deionized

water from customer building hot tap water, and **Water Softener System** treats and eliminates hardness of building water to improve customer water quality (see SD748 for details).

MOUNTING ARRANGEMENT

The Reliance 200 Glassware Washer is designed for undercounter or free-standing (optional) installation. The Reliance 250 Glassware Washer is designed as a fully enclosed cabinet for recessed or freestanding installation. Casters and flexible utilities (included in installation kit) are provided with the Reliance 200 Washer to

allow the unit to be moved into and out of its mounting location for maintenance purposes.

PREVENTIVE MAINTENANCE

A global network of skilled service specialists can provide periodic inspections and adjustments to assure low-cost peak performance. STERIS representatives can provide information regarding Annual Maintenance Agreements.

Accessories - General

DESCRIPTION	OVERALL DIMENSIONS W x L x H inches (mm)	WEIGHT LBS (KG)	APPLICATION	
Freestanding Panels (MB00-0012)			Side Panels (for optional freestanding 200)	
Countertop	38 x 1-1/2 x 31-1/8	38	Countertop	
(MB00-0017)	(965 x 38 x 805)	(17)	(for optional freestanding 200)	
Remote Printer Kit	6-1/4 x 10 x 5.0	5.0	Record cycle values and data.	
(MB00-0018)	(159 x 254 x127)	(2,27 kg)		

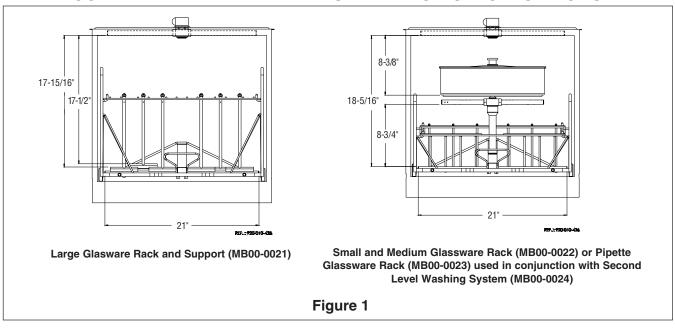
Accessories – Glassware Racks and Supports

DESCRIPTION	OVERALL DIMENSIONS WxLx H inches (mm)	WEIGHT lbs (kg)	CLEARANCE inches (mm) (See Figure 1)	APPLICATION
Large Glassware Rack and Support (MB00-0021)	22-11/16 x 23-5/8 x 15-1/2 (576 x 600 x 394)	16 (7.0)	17-15/16 (456)	Clean up to 10 large glassware items
Small and Medium Glassware Rack and Support (MB00-0022)	22-11/16 x 23-5/8 x 11-5/8 (576 x 600 x 295)	18 (8.0)	18-5/16 or 8-3/4 (466 or 222) if used with Second Level System	Clean up to 49 small and medium glassware items
Pipette and Glassware Rack and Support (MB00-0023)	22-11/16 x 23-5/8 x 11-5/8 (576 x 600 x 295)	23 (10.5)	8-3/4 (222) if used with Second Level System	Clean up to 46 pipettes and 36 small and medium glassware items (or also accommodate four pipettes with maximum length of 21-3/8")
Second Level Washing System (MB00-0024): General Purpose Basket with Cover	15 (381) diameter	6.0 (3.0)	8-3/8 (213)	Clean miscellaneous-sized beakers, test tube baskets with covers, and miscellaneous glassware or plastic items

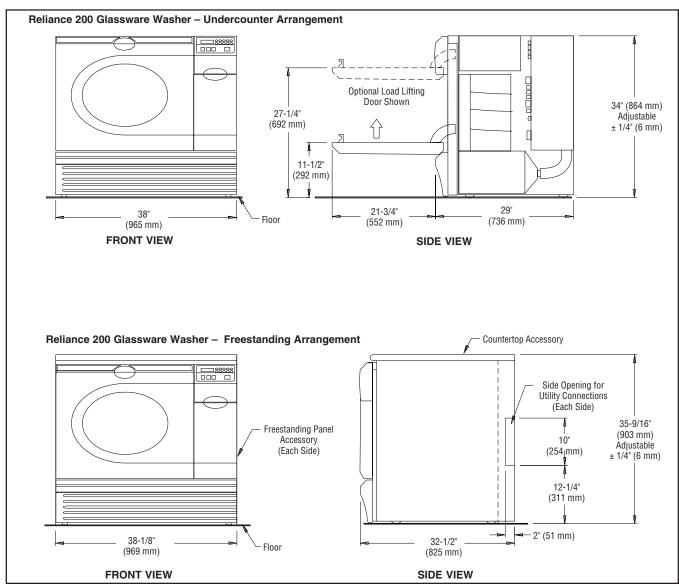
Accessories – Glassware Processing Capacity

Accessories and saware i recessing capacity							
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Accessory	Volumetric	Erlenmeyer Flasks	Graduated Flasks	Pipette Cylinders	Beakers		
Large Glassware Rack Rack and Support	500 mL to 2000 mL	500 mL to 6000 mL	250 mL to 500 mL				
Small and Medium Glassware Rack and Support	25 mL to 250 mL	25 mL to 250 mL	10 mL to 100 mL				
Pipette and Glassware Rack and Support	25 mL to 250 mL	25 mL to 250 mL	10 mL to 100 mL	max 100 mL			
Second Level Washing System: General Purpose Basket with Cover					20 mL to 2000 mL		

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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UTILITY REQUIREMENTS

	Hot Water (HW)	Cold Water (CW)	Purified Water (PW)	Drain		
Size	1/2 NPT F or BSPT M	1/2 NPT F or BSPT M	1/4 NPT F or BSPT M	1-1/2 Ø		
Dynamic Pressure	30 to 50 psig (2.06 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 Water Supply Temp.	110°F (43°C) Minimum	70°F (21°C) Maximum	70°F (21°C) Minimum	N/A		
Maximum 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)	3.0 US gpm (11.36 L/min)		
Minimum Specific Resistivity	N/A	N/A	0.1megohm/cm	N/A		
Water Hardness	120 ppm (CaCO ₃)	120 ppm (CaCO ₃)	N/A	N/A		
Electricity	208 V, 60 Hz, 3-Phase, 23.1 A 460 V, 60 Hz, 3-Phase, 10.1 A 220/240 V, 50/60 Hz, 1-Phase, 27.9 A 380/415 V, 50 Hz, 3-Phase, 12.1 A					

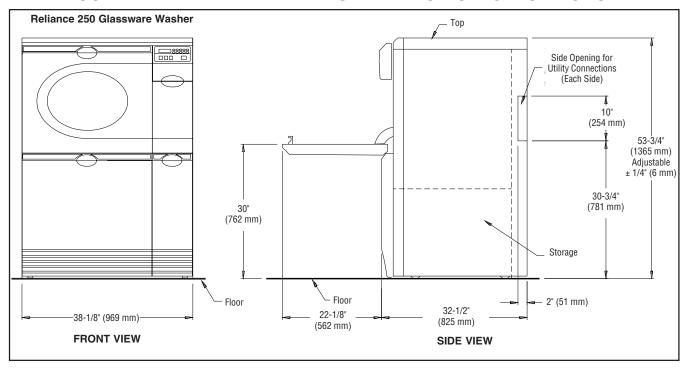
ENGINEERING DATA

Model	Shipping Weight Ibs (kg)	Operating Weight Ibs (kg)	A-Weighed Equivalent Surface Sound	Heat Loss BTU/hr (W)	Cold Water U.S. gal (L) per Cycle	Hot Water U.S. gal (L) per Cycle	Pure Water U.S. gal (L) per Cycle
Reliance 200	550 (250)	420 (190)	65.6 dB	2420 (710)	0.5 (1.9)	11 (42)	2.75 (10.5)
Reliance 250	630 (286)	500 (227)	65.6 dB	2420 (710)	0.5 (1.9)	11 (42)	2.75 (10.5)

NOTES

- Pipe sizes shown indicate terminal outlets only. Building service lines, (not by STERIS), must supply the specified pressures and flow rates.
- Customer must be sure washer stands on non-combustible non-slip floor.
- A minimum of 20" (508 mm) on each side, and 24" (610 mm) behind the unit is required for servicing if the washer cannot be moved.

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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