

WD250/WD230 Washer/Disinfector Product Specification

Product Description

The WD230 and WD250 washer/disinfectors are engineered to provide the most effective wash of instruments, containers and basins with minimal use of natural resources.

With an efficiently designed stainless steel chamber and unique high volume / low pressure water circulation system, they can process up to 10 DIN trays of instruments and ensure Intermediate Level Disinfection with an $A_0 > 3000$, per ISO 15883-1.

The WD250 is available with 2 powered, vertically sliding doors with full glass for complete viewing, while the WD230 utilizes either stainless steel or framed glass tilt down door(s).

Application

For use in Healthcare facilities for the processing of re-usable instruments, utensils and other hard goods.

Dimensions

Chamber: 24.75" w x 27" h x 26" d

630mm x 690mm x 660mm

External: 35.5" w x 72.5" h x 31.5" d

900mm x 1840mm x 800mm

Configuration & Options

Model	Heating Options	Doors
☐ WD230	☐ House Steam	☐ Single (Only available on WD230)
☐ WD250	☐ Electric, 208V	☐ Double

Options

- ☐ Drain Discharge Cool Down
- ☐ Additional Dosing Pump
- ☐ Seismic Anchoring Kit
- ☐ Printer
- ☐ Detergent Flow Meter
- ☐ DI Pre-heater

Accessories

- ☐ 1 Level Rack
- ☐ 3 Level Rack
- ☐ 5 Level Rack
- ☐ Endoscopic 2 Level Rack
- ☐ 2 Level Utensil Rack
- ☐ 2 Level Basin Rack
- ☐ 2 Level Rack
- ☐ 4 Level Rack
- ☐ Endoscopic Rack
- ☐ 1 Level Utensil Rack
- ☐ 1 Level Basin Rack
- ☐ Transport Cart

Standards

UL 921, ISO 15883-1

Standard Features

Construction / Design

Doors & Seal - Double wall safety glass with silicon polymer door seal. Powered, vertically sliding doors with WD250 and manual hinged tilt door with WD230.

Chamber - Stainless steel, type 316L.



Exterior - Stainless steel

Service Access – Service access panels on the front, above and below the chamber as well as a pull out area for access to control system electronics.

Dryers – Two high performance blowers force air through a 10.5 kW heater to produce hot, dry air. Air is filtered through a HEPA system.

Vented Exhaust – Drying air is exhausted through a damper flap.

Control System – Microprocessor based control system with a sealed tactile membrane keypad and a 2 x 20, 5/16" high character, vacuum florescent display.

Internal Diagnostics – Components and parameters are monitored and any fault or error conditions are logged for retrieval to aide in repair diagnosis.

Smart Water Filling – During each cycle phase, water enters the sump and the circulating pump starts as soon as there is sufficient water. Sensors monitor water levels and additional water is added, as needed, depending upon the load size. With this active system, smaller loads will use less water and detergent than larger loads.

Fully Draining Pump – The water circulation pump fully drains between each cycle phase to ensure no residual water remains inside the pump housing. This reduces the potential for bacterial build up and cross contamination.

Rotary Spray Arms – Located on the top and bottom of the chamber, and on each level of the loading racks, the design includes specifically located, large spray holes for maximum coverage, high water flow rates and effective cleaning.

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Water Circulation Pump – A 1-1/3 HP (1100 watt) stainless steel pump circulates water through the spray arms at a 195-234 gallons per minute rate.

Dosing Pumps – Four (4) peristaltic dosing pumps are included with options to add an additional, up to a total of five (5). Optional flow meters can be added to monitor detergent dosing levels.

Available Cycles – Leaves the factory with 6 pre-programmed cycles that can be tailored, in the field, to meet user requirements and conditions. A total of 12 program cycles can be stored.

Remote Service Diagnostics – An internal modem allows remote telephone connection with Belimed Service Engineers. Error codes can be retrieved and parameters read and changed to assist in problem diagnosis.

Dual Temperature Sensors – Two sensors provide a cross check that proper water temperatures are met. If readings deviate beyond a set tolerance a message is displayed.

Cycle Description

Pre-wash - Cold water is used to rinse blood and other loose contaminants before the wash phase. Water enters the sump and the pump starts when a minimum is reached. Water continues to fill the sump, as needed, while being circulated. At the end of this phase the water is sent to the drain.

Wash – Hot and cold water are mixed, depending upon the type of detergent being used, to reach the proper temperature. Detergent solution is dosed for the proper concentration. At the end of this phase the water is sent to the drain.

Rinse - Hot water is used to rinse off any detergent residue. Depending upon the detergent used, there may be two (2) rinse phases. An Acid neutralizer may be needed in the first rinse if an alkaline detergent was used. At the end of this phase the water is sent to the drain.

Thermal Rinse - Hot water, preferably DI, is used and heated, as it is circulated, to 93°C. Water is circulated, at temperature, for 2.5minutes (factory default) to reach a disinfection $A_0 > 3000$. This A_0 level has been shown by the Robert Koch Institute to be more effective in deactivation of Hepatitis B.

Drying – Fresh air is drawn through a HEPA filter then passed over electric elements. The air is vented through a damper, typically to the HVAC system.

The above cycle description, with one post wash rinse step, will result in a typical cycle time of about 30 minutes. Time will vary depending upon variations in utilities such as water temperature and pressure, steam pressure, and DI/RO water flow rate.

Automation

WD250 washers can be configured in parallel, next to each other, and racks can be fed to them on an automated conveyor system. The conveyors utilize a chain drive and multiple sensors to provide a robust system.

A single point feed to the system allows better utilization of personnel and the ability to queue rack loads in front of each washer. When a washer is available the system will deliver a rack to the front of the washer and automatically load it into the washer. Magnet patterns on the rack, read by sensors on the chamber wall, indicate what type of cycle is to be run.

The control system monitors each washer's cycle and will queue the next rack in front of the next available washer.

When the cycle is done, the rack is automatically fed out of the washer onto a clean side conveyor which then drives it to an unload point. When emptied, the rack is placed on a rack return to feed it back to the decontamination side for re-use.

Cleaning Chemistries

Belimed supplies a number of cleaning chemistries for the WD230 & WD250 Washer/Disinfectors. Enzymatic and alkaline detergents along with a neutralizer for the alkaline are available, along with an instrument lubricant. Many are available in concentrated solutions.

Installation

Matching stainless enclosures, fabricated for various ceiling heights, are available to provide a smooth finish to wall recessed washers. For single, standalone units, a full stainless enclosure is provided.

All utility connections are easily accessible at the top of the washer.

Preventive Maintenance

Belimed recommends regular preventive maintenance to ensure proper operation of the equipment. Belimed maintains a nationwide, factory trained Service Technician Group who can perform this maintenance and/or train Biomedical staff on the proper procedure. Belimed also offers a number of PM Plans. Contact Belimed Technical Service for more details.

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Technical Information

For REFERENCE Only – Refer to Cutsheets for Construction Purposes

WD230 WASHER/DISINFECTOR - TECHNICAL SPECIFICATIONS			
REQUIRED INPUTS			
Symbol	Description	Value	Utility Notes
SS	Utility:	Steam Supply	Steam must be dry, saturated, and free from all impurities such as gases, oil, dirt, or other contaminants. Provide steam strainer with #100 mesh size. All steam drops must be piped from top of steam supply line.
	Connection Size/Type:	3/4 Inch NPT	
	Pressure:	Min: 30 Max: 70 psig	
	Peak Consumption:	3.6 lbs/mln	
	*Consumption per Load:	Min: 14.5 Max: 20 lbs	
HW	Utility:	Hot Water	Hot water must have a total hardness less than 60 ppm. Minimum temperature of 120°F. (Colder HW temperature will result in longer cycles and higher steam consumption.)
	Connection Size/Type:	3/4 inch NPT	
	Pressure:	Min: 30 Max: 70 psig	
	Peak Consumption:	10.6 gal/mln	
	*Consumption per Load:	Min: 14.4 Max: 18 gal	
CW	Utility:	Cold Water	Cold water must have a total hardness less than 60 ppm.
	Connection Size/Type:	3/4 Inch NPT	
	Pressure:	Min: 30 Min: 70psig	
	Peak Consumption:	10.6 gal/min	
	*Consumption per Load:	Min: 7.2 Max: 9.0 gal	
DI	Utility:	Deionized Water	Deionized (DI) or Reverse Osmosis (RO) water can be used with a conductivity <30 µS/cm. (Slower flow rate results in longer cycle times.)
	Connection Size/Type:	3/4 inch NPT	
	Pressure:	Min: 30 Max: 70 psig	
	Operating Consumption:	Min: 2.0 Max: 10.6 gal/mln	
	*Consumption per Load:	Min: 7.2 Max: 9.0 gal	
EL	Utility:	Electric	Peak consumption occurs during drying portion of cycle. Receptacle: Grainger Part Number - 5Z891
	Connection Type:	NEMA 15-50R Receptacle	
	Voltage (Phase):	3 Phase	
	Voltage (Nominal):	208 VAC	
	Voltage (Frequency):	60 Hz	
	Circuit Protection:	40 Amps	
	Peak Consumption:	32 Amps	
	*Consumption per Load:	Min: 2.8 Max: 3.0 kW-h	
DP	Utility:	Data Port	Location: Preferred Ethernet port location is in the enclosed service area of the washer/disinfector or within 5 ft of machine
	Connection Type:	RJ45 Receptacle	
	Connection Quantity:	One (1) RJ45 Ethernet port per machine	
	Facility Wiring:	Cat-5 or better	
	Final Connection:	Patch cables for final connection provided	
	Port IP Setup:	Each RJ45 requires static IP address	
ELX	Utility:	Electric	One GFCI receptacle per WD
	Connection Type:	110V GFCI Receptacle	
* Values are for an "Instruments - General Instrument Cycle" with 888 detergent. Minimum consumption values are measured with an empty rack. Maximum consumption values are measured with a fully loaded rack. Values will vary with rack size, load size, utility inputs, detergents and cycle setup. Additional Information: NPT = Male Pipe Thread Maximum finished floor level tolerance is 1/4" for washer and conveyor area. All utility supplies and connections are to be provided by others, per local code.			
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	Connection Size/Type:	3/4 Inch NPT	
	Pressure:	Min: 30 Max: 70 psig	
	Peak Consumption:	3.6 lbs/min	
	*Consumption per Load:	Min: 14.5 Max: 20 lbs	
HW	Utility:	Hot Water	Hot water must have a total hardness less than 60 ppm. Minimum temperature of 120°F. (Colder HW temperature will result in longer cycles and higher steam consumption.)
	Connection Size/Type:	3/4 inch NPT	
	Pressure:	Min: 30 Max: 70 psig	
	Peak Consumption:	10.6 gal/min	
	*Consumption per Load:	Min: 14.4 Max: 18 gal	
CW	Utility:	Cold Water	Cold water must have a total hardness less than 60 ppm.
	Connection Size/Type:	3/4 Inch NPT	
	Pressure:	Min: 30 Min: 70psig	
	Peak Consumption:	10.6 gal/min	
	*Consumption per Load:	Min: 7.2 Max: 9 gal	
DI	Utility:	Deionized Water	Deionized (DI) or Reverse Osmosis (RO) water can be used with a conductivity <30 µS/cm. (Slower flow rate results in longer cycle times.)
	Connection Size/Type:	3/4 inch NPT	
	Pressure:	Min: 30 Max: 70 psig	
	Operating Consumption:	Min: 2.0 Max: 10.6 gal/min	
	*Consumption per Load:	Min: 7.2 Max: 9 gal	
EL	Utility:	Electric	Peak consumption occurs during drying portion of cycle. Receptacle: Grainger Part Number - 5Z891
	Connection Type:	NEMA 15-50R Receptacle	
	Voltage (Phase):	3 Phase	
	Voltage (Nominal):	208 VAC	
	Voltage (Frequency):	60 Hz	
	Circuit Protection:	40 Amps	
	Peak Consumption:	32 Amps	
	*Consumption per Load:	Min: 2.8 Max: 3.0 kW-h	
DP	Utility:	Data Port	Location: Preferred Ethernet port location is in the enclosed service area of the washer/disinfector or within 5 ft of machine
	Connection Type:	RJ45 Receptacle	
	Connection Quantity:	One (1) RJ45 Ethernet port per machine	
	Facility Wiring:	Cat-5 or better	
	Final Connection:	Patch cables for final connection provided	
	Port IP Setup:	Each RJ45 requires static IP address	
ELX	Utility:	Electric	One GFCI receptacle per WD
	Connection Type:	110V GFCI Receptacle	
* Values are for an "Instruments - General Instrument Cycle" with 888 detergent. Minimum consumption values are measured with an empty rack. Maximum consumption values are measured with a fully loaded rack. Values will vary with rack size, load size, utility inputs, detergents and cycle setup. <u>Additional Information:</u> For automated systems, additional utilities may be required. Consult site drawings for specific details. NPT = Male Pipe Thread Maximum finished floor level tolerance is 1/4" for washer and conveyor area. All utility supplies and connections are to be provided by others, per local code.			
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