

# WD290 Washer/Disinfector Product Specification

## Product Description

The WD290 washer/disinfector is 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 15 DIN trays of instruments and ensure Intermediate Level Disinfection with an  $A_0 > 3000$ , per ISO 15883-1.

The WD290 is available with 2 powered, vertically sliding doors with full glass for complete viewing.

## 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 31.5" d  
630mm x 690mm x 800mm  
External: 35.5" w x 72.5" h x 37" d  
900mm x 1840mm x 940mm

## Configuration & Options

### Heating Options

- House Steam
- Electric, 208V

### 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

UL60601-1, ISO 15883-1:2006

## Standard Features

### Construction / Design

**Doors & Seal** - Double wall safety glass with silicon polymer door seal. Powered, vertically sliding doors.

**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 touch sensitive keys.

**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.

**Water Circulation Pump** – A 3 HP (2200 watt) stainless steel pump circulates water through the spray arms at a 195-234 gallons per minute rate.

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**Dosing Pumps** – Three (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.

**Flow meters** – One flow meter is placed in series with each dosing pump to ensure detergent and lube flow is occurring.

**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 level 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. The standard cycle setup uses one (1) rinse phase. If an alkaline detergent is used, an additional rinse with acid neutralizer is necessary. 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 A0 level has been shown by the Robert Koch Institute to be more effective in deactivation of Hepatitis B.

**Drying** – Fresh air is pulled through a HEPA filter then passed over electric heating elements into the wash chamber. 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 32 minutes. Time will vary depending upon variations in utilities such as water temperature and pressure, steam pressure, and DI/RO water flow rate.

## Automation

WD290 washers can be configured in parallel, next to each other, and racks can be fed to them on an automated system.

Automation 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.

## 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 Cut sheets for Construction Purposes

| WD290 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:      | 2 lbs/min                     |  |
|  | *Consumption per Load: | Min: 28 Max: 34 lbs           |  |
| HW   | Utility:               | Hot Water                     | Minimum temperature of 120°F. (Colder temperature will result in longer cycles and higher steam consumption.) Water must have a TDS measurement of less than 200 ppm.  |
|  | Connection Size/Type:  | 3/4 inch NPT                  |  |
|  | Pressure:              | Min: 30 Max: 70 psig          |  |
|  | Peak Consumption:      | 10.6 gal/min                  |  |
|  | *Consumption per Load: | Min: 16 Max: 18.2 gal         |  |
| CW   | Utility:               | Cold Water                    | Water must have a TDS measurement of less than 200 ppm.  |
|  | Connection Size/Type:  | 3/4 inch NPT                  |  |
|  | Pressure:              | Min: 30 Max: 70 psig          |  |
|  | Peak Consumption:      | 10.6 gal/min                  |  |
|  | *Consumption per Load: | Min: 8.0 Max: 9.1 gal         |  |
| DI   | Utility:               | Deionized Water               | Deionized (DI) or Reverse Osmosis (RO) used with a conductivity of less than 30 µS/cm. Slower flow rates will result 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: 8.0 Max: 9.1 gal         |  |
| EL   | Utility:               | Electric                      | Peak consumption occurs during drying portion of cycle.  |
|  | Connection Type:       | Hard wire within junction box |  |
|  | Voltage (Phase):       | 3 Phase                       |  |
|  | Voltage (Nominal):     | 208 VAC                       |  |
|  | Voltage (Frequency):   | 60 Hz                         |  |
|  | Circuit Protection:    | 40 Amps                       |  |
|  | Peak Consumption:      | 26.7 Amps                     |  |
| *Consumption per Load:   | Min: 2.8 Max: 3.0 kW-h |                               |  |
| PH   | Utility:               | Phone                         | Provide one analog phone line per system   |
|  | Connection Type:       | RJ11 Receptacle               |  |
| ELP  | Utility:               | Electric for Phone            | One GFCI receptacle per WD   |
|  | Connection Type:       | 110V GFCI Receptacle          |  |
| <p>*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.</p> <p>Additional Information:<br/>           For automated systems, additional utilities may be required. Consult site drawings for specific details.<br/>           NPT = Male Pipe Thread<br/>           Maximum tolerance for finished floor level tolerance is 1/4" for washer and conveyor area.<br/>           All utility supplies and connections are to be provided by others, per local code.</p> |                        |                               |  |

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