# DS 500 CL

## Surgical instruments washer disinfector

The DS 500 CL is an under counter washer disinfector designed for the cleaning, thermal disinfection and forced hot air drying of instruments used in surgeries, dental instruments and laboratory glassware.

The electronic programmable microprocessor is capable of storing up to 40 washing programs: 20 standard pre-programmed cycles and 20 additional adjustable and password protected so the customer can configure specialized programs for their independent needs. The user can customize any parameter needed to a wash cycle.

This unit has 2 separate washing and drying injection connections allowing the use of upper, lower and dual injection wash carts.

The upper level has telescopic bearing rails enabling the use of specific upper wash carts. The drop-down door provides a loading platform for lower and dual injection wash carts for a convenient loading and unloading job.

### *Specifications*

**Dimensions:**

External WxDxH:
600mm x 630mm x 840mm
23.62” x 24.80” x 33.46”

Chamber WxDxH:
555mm x 500mm x 670mm
21.85” x 19.68” x 26.38”

Door passage WxH:
540mm x 540mm
21.26” x 21.26”

**Water consumption:**

12 l (3.1 gal.) per chamber fill

**Heat loss:**

1’111 Btu/h (280 kcal/h)

**Sound level:**

54.0 dB

**Cycles:**

20 pre programmed, 20 user defined

**Injection cleaning:**

2 connections, upper, lower and dual injection wash carts available

**Drying:**

Forced hot air drying system: in the chamber, through the chamber washing arms and through the wash carts injection system / washing arms.

**Dosing:**

Automatic chemical dosing via peristaltic pumps

**Exhaust steam condenser:**

Standard



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*Standard features stainless steel door version*

### Hinged drop down door

- Counterbalanced for ease of operation, stainless steel AISI 316L (DIN 1.4404) washing chamber side, stainless steel AISI 304 external side.
- The door acts as a loading platform for lower and dual injection wash carts for a convenient loading and unloading job.
- Fully insulated to reduce heat loss and noise

### Fully extendable load bearing arms

- The upper level has fully extendable telescopic bearing rails enabling the use of specific upper wash carts.

### Washing system

- Two rotary spray arms, one on the bottom and one on the top of the chamber
- Up to three more washing arms in the available wash carts
- Spray arms made of AISI 316L stainless steel (DIN 1.4404)
- Easily disassemble washing arms for cleaning and maintenance

### Forced hot air drying system

- Air circulation in the chamber, through the chamber washing arms and through the wash carts injection system and washing arms.
- F5 (EN 779) pre filter
- 1.4 kW heating elements provide up to 140°C (184°F) air
- Dryer blower flow rate up to 150 $m^3$/h (5.297 $ft^3$/h)

### Direct injection system

- 2 wash chamber connections for upper, lower and dual injection wash carts

### Circulation pump

- 1 unit 450 l/min (118.88 gal.US/min) pump
- Pump power 550W.

### Filter System

- A three (3) stage filtration system helps protect recirculation and drain pumps from debris
- Filters can be easily removed for cleaning

### Steam Condenser

- Prevents vapors from entering into the washing area at a set temperature programmable from:
  0°C - 93°C (32°F - 200°F)

### Chemical dosing

- Two (2) peristaltic pumps provide precise addition of liquid chemical agents
- Vacuum switch for checking chemical presence

### Electric Heater

- 5.1 kW electric heating elements providing heating up to 93°C (200°F)
- Electronic Thermostat
- Two (2) independent PT1000 temperature probes

### Microprocessor Control System

- Possibility of up to 40 storable programs 20 standard programs, 20 user definable programs

### System control panel


- Digit pressure function buttons
- 32 character monochrome LCD display

### System Monitoring

- Audible and visual alarms provide quality control for each wash cycle
- Water level sensor for water sump load
- Additional water level sensor to prevent wash chamber overflow
- RS 232 Port for printer connection to monitor and validate washing cycle
- USB port for historical cycle data, machine parameters and washing programs download. Allows easy software upgrades.

### Drain Pump

- Independently operated drain pump for efficiently pumping out waste water



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## *Standard features variations for full glass door version only*

### Hinged drop down door

- Stainless steel door frame, stainless steel AISI 316L (DIN 1.4404) washing chamber side, high visibility HST tempered full glass door external side.
- The door acts as a loading platform for lower and dual injection wash carts for a convenient loading and unloading job.

### System control panel

- Soft touch control system on glass panel
- Graphic colour LCD display

### System Monitoring

- Audible and visual alarms provide quality control for each wash cycle
- Water Level Sensory
- Sensors control chamber water level and prevent overflow
- RS 232 Port for printer connection to monitor and validate washing cycle.
- USB port for historical cycle data, machine parameters and washing programs download. Allows easy software upgrades.

## *Safety features*

### Locking Door

- Prevents interference with wash cycle once the machine is in operation.

### Drop Down Door

- Eliminates the safety hazard associated with guillotine type doors.
- Counterbalanced for safe operation

## *Optional features*

### DI Booster Pump

- Provides proper water pressure for demineralized water supply

### Printer

- For validating washing phases with detailed information
- External. Printer can be integrated on the front panel of an accessory side cabinet

### Water Softener

- Softens incoming hot and cold water
- Programmable regeneration with low salt alarm

### Drain Cooling Solenoid Valve

- Waste water is cooled to 60°C (140°F)

### Seismic Tie Down

- Anchors washer to floor

### Additional Dosing Pump

- One (1) additional peristaltic pump for dosing an additional type of chemical to meet specific wash requirements
- One more additional peristaltic pump for chemical dosing can added into an accessory side cabinet

### Flowmeters

- Flowmeters for additional chemical control

### Conductivity Sensor

- Accurate measuring of the conductivity value during the final rinse

### Boiler to pre heat DI water

- 18 l (4.7 gal.) capacity
- Pre-heats DI water to a programmed temperature 0-93°C (32-200°F)
- Requires 600mm (23.62”) height stand or fully dedicated side cabinet (machine is built as a single 900mm (35.43”) wide unit

### Extra Power 8kW

- Total machine power raised up to 8kW to shorten cycle times through reduced heating time in the wash chamber

### HEPA filtration

- HEPA H14 filter with global efficiency M.P.P.S. 99,995% (EN 1822)



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### Network connection

- Ethernet connection by X-fire device

## *Programming and cycle operation*

The user is able to create unique programs to meet their specific needs. Listed are various phases that can be programmed and repeated into various combinations.

- **Pre-Wash** – The user is able to define the number of pre-washes, length of pre-washes and select between cold, hot and DI water or mix two sources.
- **Wash** – The user is able to define the length of the wash cycle, detergent dosing and dosing temperature, temperature of the water up to 93°C (200°F) and select between cold, hot and DI water or mix two sources.
- **Chamber Flush During Drain** – The user is able to define flush time execution during the draining of the chamber.
- **Neutralization** – The user is able to select the length of the rinse, the presence and the amount of neutralizer, temperature of the rinse up to 93°C (200°F) and what type of water is to be used, either cold, hot or DI water or two mixed sources.
- **DI Rinse** – The user can define the length of the DI rinse, temperature of the water up to 93°C (200°F) presence and amount of rinse aid.
- **Drying** – programmable between low speed and high speed drying and up to a temperature of 140°C (284°F). Operation time of the steam condenser.

## *Construction*

### Wash Chamber and door internal side

- Constructed using AISI 316L BA Ra<30µin (Ra<0.8µm)
- Designed and constructed with smooth edges and corners removing areas where dirt can accumulate and allow bacterial growth.

### Exterior

- AISI 304 Scotch Brite finish Ra<40µin (Ra<1.2µm)

### Components

- Constructed using stainless steel and other materials which are resistant against the effects of aggressive detergents

### Insulation

- High performance melamine insulation guards against heat loss and reduces noise level

## *Accessories*

A large variety of basket trays, injector racks, net baskets for: surgical instruments, MIS instruments, anaesthesia instruments, ophthalmology instruments, OP rubber shoes, containers, baby bottles…

## *Validation support documentation and services*

Installation Qualification and Operational Qualification (IQ/OQ) testing can be executed at the customer site.

## *Cleaning chemicals*

A large selection of cleaning chemicals are available.

## *Required utilities*

For connection details please refer to installation drawing of the selected model/version.

### Hot water

### Cold Water

### DI Water

### Drain Connection

### Electrical requirements

- **Electricity** (5.6kW and 8.0kW models)
- 400V/3~+N/50Hz
- 208V/3~+N/60Hz
- 480V/3~+N/60Hz
- other electrical connections are available to match electrical requirements of installation site.



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