



# UNICLEAN SL

Washer Disinfectors for Medical Usage



**Powerful washing, disinfection and drying of surgical instruments, MIC instruments, anaesthesia instruments, rubber shoes, baby bottles, trolleys and sterile containers...**



...protecting human health

## MMM Group

With its complete range of products and services, MMM Group has been a leader in the global healthcare industry since its foundation in 1954. It continues to strengthen its position, thanks in particular to its guaranteed highest quality and constant output of unique innovation.

## BMT Medical Technology s.r.o.

The company was established in 1921. Since that time, this small, regionally-focused company has become an integral part of the MMM Group. Until now, the company has been a reliable partner for smaller healthcare institutions, for whom it has been providing total support in terms of steam sterilizers, in addition to which it is proud of the numerous positive references received from a multitude of CSSDs.

## New Production Series UNICLEAN sL

BMT is adding a new series to its traditional, tried and tested portfolio of autoclaves – the UNICLEAN sL – a washer disinfecter. The current range of products now caters for an even broader spectrum of healthcare institutions, in particular these now include outpatient surgery centres, clinics, polyclinic surgeries, dental surgeries, and other places of work remote from a CSSD facility for used surgical instruments, i.e. for any healthcare institution that needs to solve decontamination problems. The treatment provided fully complies with EU directives and UK regulations on directives on de-contamination and disinfection.

## Quality Proven in Action

The comprehensive quality management system of BMT Medical Technology s.r.o. is certified according to EN ISO 9001:2008 and EN ISO 13485:2012. The devices from the UNICLEAN sL series meet all the required technical and legislative regulations. They are designed and constructed to meet the very latest EU standards on disinfection: EN ISO 15883-1/2 and HTM 2030. BMT washing and disinfection technology is classified as a medical device meeting the council directive 93/42/EEC (MDD), with the CE 0123 marking. A Declaration of Conformity has been issued for the devices.



... clinics  
hospitals  
dental surgeries

MMM Group – excellence  
in medical and laboratory engineering

# Overview of BMT Washer Disinfectors

The company BMT Medical Technology s.r.o. brings a new line of professional washer disinfectors for pre-sterilisation preparation of instruments.



## UNICLEAN SL M 8

## UNICLEAN SL M 9

## UNICLEAN SL M 10, SL MS 10

## UNICLEAN SL M 15, SL MS 15

### Basic characteristics

- exterior perfection
- innovative internal equipment
- exceptional washing skills
- perfect drying
- high speed
- easy and intuitive service

### Typical uses

- surgical instruments
- intensive care equipment
- sterilisation containers
- anaesthesia tools
- baby bottles and dummies
- surgical shoes

- capacity up to 8 baskets DIN
- volume 171 litres

It is designed for installation in limited space, as a standalone device with front filling.

- capacity up to 8 baskets DIN
- volume 200 litres

This is the smallest model of the washing disinfectors from BMT suitable for use for CSSD allowing building into the wall.

- capacity up to 10 baskets DIN
- volume 350 litres

It is ideal for use in surgical centres, hospitals, even in central sterilisation units with lower general use.

- capacity up to 15 baskets DIN
- volume 500 litres

This is the largest washing disinfectors from BMT designed for large hospitals and central sterilisation units requiring high washing performance.

UNICLEAN SL						
	UNICLEAN SL [baskets DIN]				UNICLEAN SL TS [l]	
Size	8	9	10	15	4200	5600
Type of usage	small		big		trolley	
	baskets					
Interface	LCD				-	
	-					
Doors	-				single-door	
	-				double-door	

## UNICLEAN SL TS 4200, UNICLEAN SL TS 5600

### Basic characteristics

- exterior perfection
- innovative internal equipment
- exceptional washing skills
- perfect drying
- high speed
- easy and intuitive service

### Typical uses

- trolleys
- sterilisation containers
- bed frames
- operating tables
- surgical shoes

It is an up-to-date floor-charged washing disinfection automat designed for washing and disinfection of containers, bed frames, surgical tables and other large objects and hospital equipment, requiring washing and thermal- disinfection.

171 litres  
8 baskets DIN



UNICLEAN SL M 8 - 1

200 litres  
8 baskets DIN



UNICLEAN SL M 9 - 1  
UNICLEAN SL M 9 - 2

350 litres  
10 baskets DIN



UNICLEAN SL M, SL MS 10 - 1  
UNICLEAN SL M, SL MS 10 - 2

500 litres  
15 baskets DIN



UNICLEAN SL M, SL MS 15 - 1  
UNICLEAN SL M, SL MS 15 - 2

4 200 litres



UNICLEAN TS 4200-1  
UNICLEAN TS 4200-2

5 600 litres

UNICLEAN TS 5600-1  
UNICLEAN TS 5600-2

# Basic Characteristics

UNICLEAN SL 8, UNICLEAN SL 9, UNICLEAN SL 10, UNICLEAN SL 15, UNICLEAN SL TS

## Construction

- optional device size with chamber for 8, 10 or 15 baskets 1/1 DIN
- for container washers – variable chamber length and width
- single- or double-door (pass-through) version, can be installed into a stainless steel wall (except for UNICLEAN SL 8)
- optional heat source – own, external or combined (according to the type of machine and to the specific customer's needs)
- wide range of optional equipment for minimising operating costs and increasing the productivity of the device (pre-heating tanks, increased heating performance, turbo drying...)
- possibility to select specific additives and options to increase user comfort (lighting, controls...)

- the function of all important device modules and sensors is monitored by automatic diagnostics, any detected errors are recorded and reported, and, where necessary, the current washing programme may be stopped
- the speed of washing rotation arms is controlled by sensor which stops the washing cycle if the speed is incorrect
- temperature control and recording using two independent PT 1000 sensors
- pressure sensor for continuous pump monitoring
- measuring water conductivity during final rinse
- water level control by water level sensor and overflow protection

## Economy

- pre-heating water tank with controlled water level reducing cycle time
- large drain diameter combined with pneumatic valve allows water to drain in 60 seconds
- controlled recirculation of heated air reduces drying time by up to 12 minutes
- recirculation tanks allow the recirculation of water used for disinfection in the subsequent washing stage
- three-stage water filtration system increases pump service life
- turbo drying saves up to 70 % of energy and reduces drying time by as much as 50 %

## Quality and Safety Guarantee

- polished washing chamber, washing arms, pre-heating tanks and three-stage water filtration system
- filters are made of high-quality stainless steel AISI 316 L (DIN 1.4404)
- transparent doors of the washing chamber allow staff to check progress during washing
- door is electrically locked, and in the double-door version are locked in opposition to each other

## Washing and Disinfection Processes

### Standard Washing Process

The washing process consists of individual phases separated by the disposal of used water from the previous cycle. The standard washing process consists of:

- pre-washing – basic step for removing blood from instruments. Water up to 25 °C is used without additional chemical substances. This is a fast phase of up to 2 minutes.
- main washing - uses warm water of 50 - 60 °C, including chemical substances (either alkaline or pH neutral detergent)
- neutralization – only necessary when using alkaline detergent in the main washing phase. In such case the neutralization step should be included into the cycle with the basic detergent.
- rinsing – removes any residual chemicals from the treated product. Use of demi-water is recommended at this stage.
- thermal-disinfection – this is the final stage of the washing process. Here the  $A_0$  parameter, corresponding to the level of product cleanliness, is measured and assessed.
- drying – after the successful completion of the washing cycles follows the drying process, which removes any remaining water from the products

The drying process is divided into two stages:  
low speed – removing condensate  
high speed – perfect drying of the product

To improve the results of drying, a preparation can be added at the final rinse stage to improve the outflow of water.

## Thermal-Disinfection

Thermal-disinfection is the recommended and most efficient method for disinfecting repeatedly used medical instruments. European directives strictly recommend the use of thermal-disinfection whenever possible. According to the regulations of various states on thermal-disinfection, such a process can only be regarded as successful if it reaches a temperature of 93 °C for a certain period of time depending on the items being treated. The thermal-disinfection temperature is controlled using 2 independent PT 1000 sensors.

## Thermal-Chemical Disinfection

Heat-sensitive tools should be treated and disinfected only by thermal-chemical disinfection. The effectiveness of thermal-chemical disinfection depends on the means of disinfection used. Questions regarding the effectiveness of this type of disinfection should be raised directly with the manufacturer of the disinfection product.

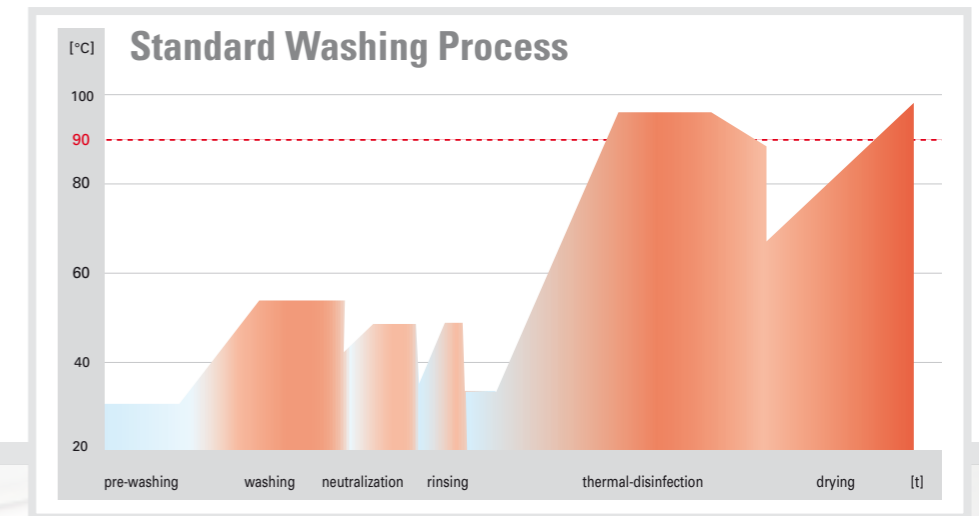
## Residual Protein Test

After the washing process is successfully completed spot checks should be carried out on products for residual protein contamination. Other tests using chemical or biological indicators are necessary for thermal-chemical processes.

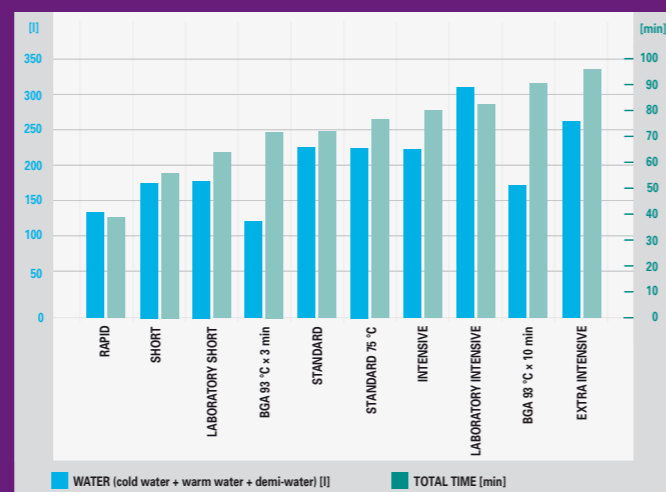
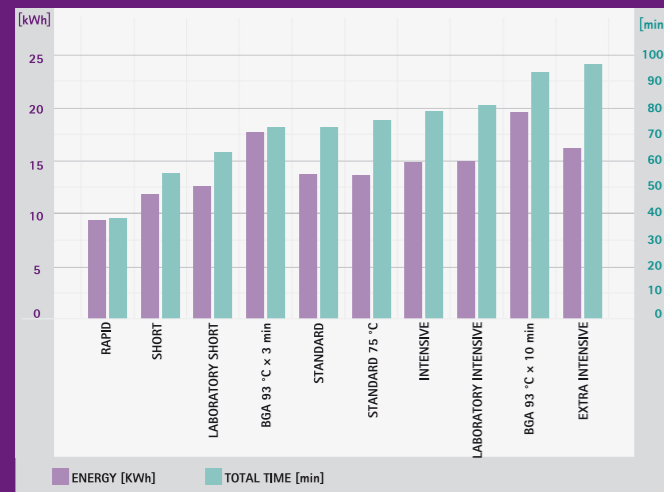
The following factors affect the final quality of the washing process:

- water – the key parameter for water quality is general hardness, which is determined by the content of calcium and magnesium ions
- detergents – good and stable quality detergents have a significant impact on the success of a washing cycle. Depending on the type of wash, either an alkaline or pH neutral product can be used. We recommend the following manufacturers of detergents and disinfection products: DR. WEIGERT (Germany) BORER CHEMIE (Switzerland) ECOLAB (USA).

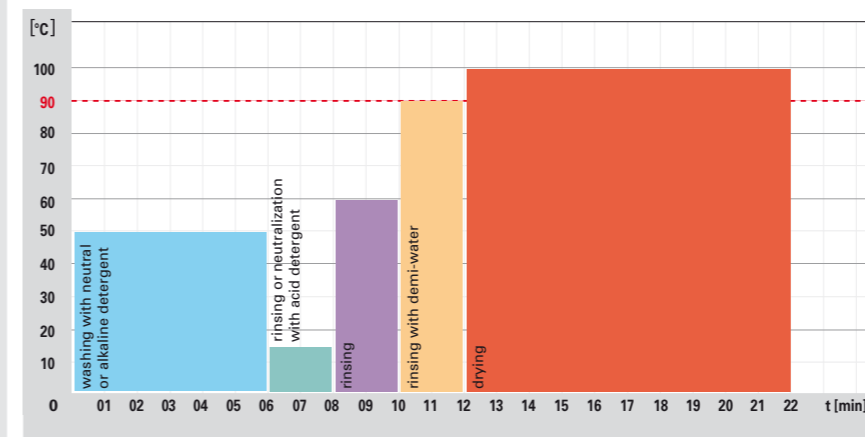
- temperature – a good result of the washing phase can only be guaranteed if the right water temperature is maintained (50 - 60 °C)
- time – this is most important for the thermo disinfection phase. Effectiveness is measured by the  $A_0$  parameter, expressed by the formula:  $A_0 = \sum 10^{(T-80)/z} \Delta t$ . To achieve the right results, it is therefore necessary to have the optimal water hardness, to use the right chemicals at the right moment, and to maintain the required temperature for the set time.



## Reducing Operating Costs to The Minimum



## Programme 7 - Short



# UNICLEAN SL M 8



- capacity up to 8 DIN baskets per one batch, volume 171 l

UNICLEAN SL M 8 is designed specifically for installation in restricted premises, as a stand-alone device with front charging, suitable for placement below the trestle board. Thanks to its simple installation with necessary connection to electricity, cold water and water waste, the device is ideally suited mainly in small private surgeries, sub-sterilisations for thermal disinfection and instrument washing. After closing the manually-open tilting door, the washing process is automatically performed. This small model has built-in washing and drying on two levels, generally used in large devices. This device is ideal for reduction and elimination of professional risks caused by infectious material handling.

## Construction

- stable, robust stainless steel construction of the device and external jacket (AISI 304) ensure a long service life
- chamber, washing arms and filter tanks made of high quality steel (AISI 316 L)
- manually operated bottom-hinged stainless steel door to chamber
- inclined chamber floor prevents water retention inside the chamber and accelerates drainage and drying
- rounded corners and edges of the chamber facilitate easier washing and prevent the retention of contaminants

## Basic Characteristics

- control panel with black and white, two-row LCD for easy service and checking the progress of the programme
- the function of all important device modules and sensors is monitored by automatic diagnostics, and any detected errors are recorded and reported, and, where necessary, the current washing programme may be stopped
- electrical water heating
- two-level washing and drying system guarantees the process achieves a perfect result
- two dosing pumps for chemical products, each with a flow meter and level sensor for convenient operation of the device
- heavy washing pump ensures high flow rate combined with effective spray pressure
- three-level filtration system for circulating water prolongs pump service life
- integrated steam condenser that does not allow steam to escape from the chamber and into the workplace, thereby ensuring the comfort of operators
- connection to printer or PC (RS 232 port) for monitoring the washing process

## Control Panel

- latest generation microprocessor control system manages and controls all device programmes and each of their phases
- ergonomic control panel built into the device housing with a black and white, two-row LCD showing programme phase, current time and date, the control temperature and temperature regulation, the required temperature of the phase, the  $A_0$  value – control and regulation, remaining time of the washing cycle, and any error message from the device
- Start and Stop push buttons on the main panel of the device
- drying push button to skip the drying phase in the standard selected cycle
- each time the control panel is pressed a sound signal is given
- current status of the device is indicated by eight function LED diodes
- batch documentation – connection to printer or PC (RS 232 port), or to computer network (LAN) together with the Ecosoft SW application
- access to cycle parameters is password protected according to ISO 15883 -1/2

## Programmes

- 20 standard washing and disinfection programmes and 20 others ready to adapt to customer specifications
- Direct choice of the most frequently selected programmes on the control panel: P1 - short cycle, suitable for lightly soiled objects  
P2 - standard cycle, suitable for normally soiled objects  
P3 - intensive cycle, suitable for heavily soiled objects
- other pre-set programmes can be accessed by using the push button P+
- programmes specially optimized for various types of treated products, types of contaminant or washing methods (baby bottles, blood, BGA, microbiological, oils and petrol, thermal-chemical disinfection, enzymatic cleaning)

- two short pre-set programmes for simple rinsing of treated products with cold water or for drying already washed objects
- automatic basket recognition enables a pre-selected washing programme to start immediately, and also detects the correct position of the basket in the chamber

## Optional Equipment, Baskets and Trays

For information about optional equipment, baskets and trays can be seen on pages 22 - 29.



# UNICLEAN SL M 9

- capacity up to 8 DIN baskets per one batch, volume 200 litres

UNICLEAN SL M 9 is a small washer disinfector from the company BMT designed for associate private practices of medicine and small hospitals with central sterilisation not requiring high washing performance. It is specially designed for installation in restricted premises as a stand-alone device with front charging or as a double-door one, interleaving, with manually open double-door. This small model has built-in washing and air drying on two levels, generally used in large devices, as well as a water softener and steam condenser.



## Construction

- stable, robust stainless steel construction of the device and external jacket (AISI 304) ensure a long service life
- chamber, washing arms and filter tanks made of high quality steel (AISI 316 L)
- manually operated bottom-hinged stainless steel door to chamber with window to monitor washing process
- inclined chamber floor prevents water retention inside the chamber and accelerates drainage and drying
- rounded corners and edges of the chamber facilitate easier washing and prevent the retention of contaminants
- integrated lockable base cabinet for storing up to three five-litre chemical containers

## Basic Characteristics

- control panel with black and white, two-row LCD for easy service and checking the progress of the programme
- electrical water heating
- two-level washing and drying system guarantees the process achieves a perfect result
- two dosing pumps for chemical products, each with a flow meter and level sensor for convenient operation of the device
- heavy washing pump ensures high flow rate combined with effective spray pressure
- three-level filtration system for circulating water prolongs pump service life
- integrated steam condenser that does not allow steam to escape from the chamber and into the workplace, thereby ensuring the comfort of operators
- integrated water softener guarantees that the washing achieves a high quality final result and cost-efficient operation with regard to use of detergents
- connection to printer or PC (RS 232 port) for monitoring the washing process

## Control Panel

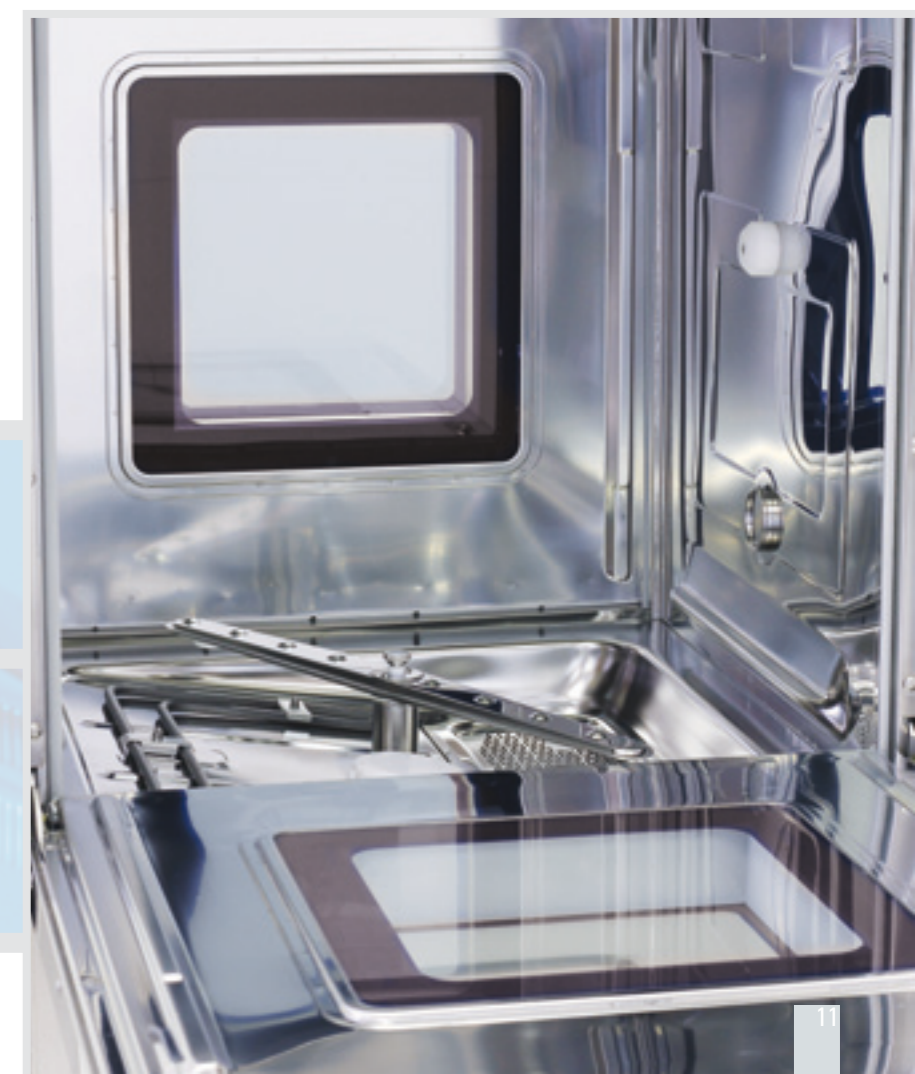
- latest generation microprocessor control system manages and controls all device programmes and each of their phases
- ergonomic control panel built into the device housing with a black and white, two-row LCD showing programme phase, current time and date, the control temperature and temperature regulation, the required phase temperature, the  $A_0$  value – control and regulation, remaining time of the washing cycle and any error message from the device
- Start and Stop push buttons on the main panel of the device
- drying push button to skip the drying phase in the standard selected cycle
- each time the control panel is pressed a sound signal is given
- current status of the device is indicated by eight function LED diodes
- batch documentation – connection to printer or PC (RS 232 port), or to computer network (LAN) together with the Ecosoft SW application
- access to cycle parameters is password protected according to ISO 15883 -1/2.

## Programmes

- 20 standard washing and disinfection programmes and 20 others ready to adapt to customer specifications
- Direct choice of the most frequently selected programmes on the control panel: P1 - short cycle, suitable for lightly soiled objects  
P2 - standard cycle, suitable for normally soiled objects  
P3 - intensive cycle, suitable for heavily soiled objects
- other pre-set programmes can be accessed by using the push button P+
- programmes specially optimized for various types of treated products, types of contaminant or washing methods (baby bottles, blood, BGA, microbiological, oils and petrol, thermal-chemical disinfection, enzymatic cleaning)
- two short pre-set programmes for simple rinsing of treated products with cold water or for drying already washed objects
- automatic basket recognition enables a pre-selected washing programme to start immediately, and also detects the correct position of the basket in the chamber

## Optional Equipment, Baskets and Trays

For information about optional equipment, baskets and trays can be seen on pages 22 - 29.



# UNICLEAN SL M 10 UNICLEAN SL MS 10

- capacity up to 10 DIN baskets per one batch, volume 350 litres

UNICLEAN SL M 10 is ideal for use in surgical centres, hospitals and also in central sterilisation units. This is a large washer disinfectant from the company BMT, meeting current increased requirements towards central sterilisation units. Simple installation allows building into a wall in the form of a double-door interlaying device for separation of clean and dirty side as well as a stand-alone single-door device.

## Construction

- stable, robust stainless steel construction of the device and external jacket (AISI 304) ensure a long service life
- chamber, washing arms and filter tanks made of high quality steel (AISI 316 L)
- automatic sliding glass doors are manufactured from double-tempered glass tested against breakage, providing safety for staff and enabling the washing process to be visually checked when underway
- inclined chamber floor prevents water retention inside the chamber and accelerates drainage and drying
- rounded corners and edges of the chamber facilitate easier washing and prevent the retention of contaminants

## Basic Characteristics

- display type according to type of device and placement:

Device	Dirty side	Clean side
UNICLEAN SL M 10-1*	Colour, multi-line LCD	-
UNICLEAN SL M 10-2**	Colour, multi-line LCD	Colour, multi-line LCD
UNICLEAN SL MS 10-1*	Colour, 5.8" touch-screen	-
UNICLEAN SL MS 10-2**	Colour, 5.8" touch-screen	Colour, 5.2" touch-screen

\* single-door version    \*\* double-door version



- integrated lockable base cabinet for storing up to three five-litre chemical containers



- electrical water heating
- connecting supplies from above (from below as option)
- washing and drying system (three-level guarantees the process achieves a perfect result)
- two dosing pumps for chemical products, each with a flow meter and level sensor for convenient operation of the device
- two separate, powerful, vertically positioned washing pumps ensure optimal distribution of water pressure in the chamber ensures high flow rate combined with effective spray pressure
- three-level filtration system for circulating water prolongs pump service life
- forced, filtered drying in chamber
- connection to printer or PC (RS 232 port) for monitoring the washing process
- integrated lockable base cabinet for storing up to three five-litre chemical containers

## Control Panel

- latest generation double microprocessor control system manages and controls all device programmes and each of their phases
- two types of display for automatic control features are available:
  - colour, multi-row display (UNICLEAN SL M 10)
  - colour, 5.8" touch-screen (UNICLEAN SL MS 10)
- display shows individual programmes, programme phase, current time and date, the control temperature and temperature regulation, the required phase temperature, the  $A_0$  value – control and regulation, remaining time of the washing cycle and any error message from the device



- Start and Stop push buttons on the main panel of the device
- each time the control panel is pressed a sound signal is given
- batch documentation – connection to printer or PC (RS 232 port), or to computer network (LAN) together with the Ecosoft SW application
- access to cycle parameters is password protected according to ISO 15883-1/2

## Programmes

- the version of the device with a colour, multi-row display for automatic control features has 20 standard washing and disinfection programmes available and 20 others ready to adapt to customer specifications
- the version of the device with a colour, touch-screen display for automatic control features has 10 standard washing and disinfection programmes available and 50 others ready to adapt to customer specifications, as well as an additional 5 service programmes for service and validation
- Direct choice of the most frequently selected programmes on the control panel:
  - P1 - short cycle, suitable for lightly soiled objects
  - P2 - standard cycle, suitable for normally soiled objects
  - P3 - intensive cycle, suitable for heavily soiled objects
- other pre-set programmes can be accessed using the push button P+
- programmes specially optimized for various types of treated products, types of contaminant or washing methods (baby bottles, blood, BGA, microbiological, oils and petrol, thermal-chemical disinfection, enzymatic cleaning)
- two short pre-set programmes for simple rinsing of treated products with cold water or for drying already washed objects

## Optional Equipment, Baskets and Trays

For information about optional equipment, baskets and trays can be seen on pages 22 - 29.



# UNICLEAN SL M 15

# UNICLEAN SL MS 15

- capacity up to 15 DIN baskets per one batch, volume 500 litres

UNICLEAN SL 15 is the biggest model in the washer disinfectors line from the company BMT. This is an ideal device for large hospitals and central sterilisation units requiring high washing performance. Similarly to the small model it can be built into a wall with other devices. The device configuration is available in a double-door interlaying version for separation of the



clean and dirty side, as well as a stand-alone single-door device. It is distinguished from the small model by an extensive volume of optional equipment, improving comfort and operation economy.

## Construction

- stable, robust stainless steel construction of the device and external jacket (AISI 304) ensure a long service life
- chamber, washing arms and filter tanks made of high quality steel (AISI 316 L)
- automatic sliding glass doors are manufactured from double-tempered glass tested against breakage, providing safety for staff and enabling the washing process to be visually checked when underway



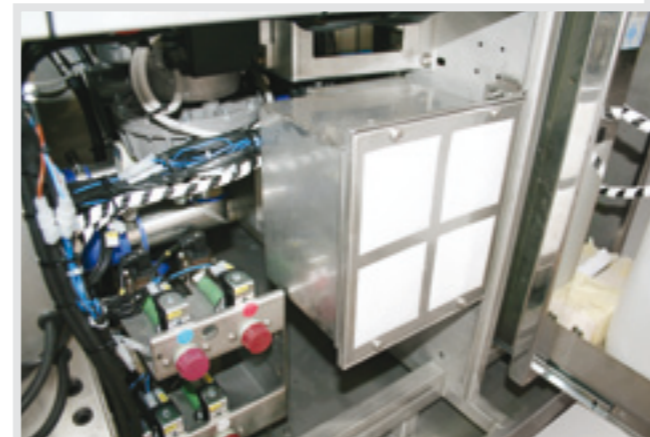
## Basic Characteristics

- display type according to type of device and placement:

Device	Dirty side	Clean side
UNICLEAN SL M 15-1*	Colour, multi-line LCD	-
UNICLEAN SL M 15-2**	Colour, multi-line LCD	Colour, multi-line LCD
UNICLEAN SL MS 15-1*	Colour, 5.8" touch-screen	-
UNICLEAN SL MS 15-2**	Colour, 5.8" touch-screen	Colour, 5.2" touch-screen

\* single-door version \*\* double-door version

- inclined chamber floor prevents water retention inside the chamber and accelerates drainage and drying
- rounded corners and edges of the chamber facilitate easier washing and prevent the retention of contaminants
- integrated lockable base cabinet for storing up to four five-litre chemical containers



User: BMT

**BMT**

No. Station : 00	Software: 1.10	Cycles:
000210		
Model : LC 80		Machine: 0001
Date: 12/03/04		Time: 14:17:44

**Cycle no. 00210**

Work order: MM0001000210      Software: 1.10

Operator: MARIO ROSSI

Start: 12 / 03 / 04      14 : 17 : 41

**Progr. 11      BGA 93 C . . 10 MIN**

Enable Pumps: BOTH

01 DRAIN	Rinse I.00	Adv. Pumps s 00	Drain cooling NO	Drain NORMAL
02 HEAT DISINF.	Waters I.170 (COLD =% 030 HOT =% 070)	Time s 0600	oC 93	
Products	ALKALINE =% 03.00	NO	=% 00.00	Advance pumps I.00
03 DRAIN	Rinse I.00	Adv. Pumps s 00	Drain cooling NO	Drain NORMAL
04 WASH I.170	(COLD =% 030 HOT =% 070)	Time s 0120	oC 00	
Products	ACID =% 03.00	NO	=% 00.00	Advance pumps I.00
05 DRAIN	Rinse I.00	Adv. Pumps s 00	Drain cooling NO	Drain NORMAL
06 1 RINSE I.170	(COLD =% 030 HOT =% 070)	Time s 0060	oC 00	
Products:				Advance pumps I.00
07 DRAIN	Rinse I.00	Adv. Pumps s 00	Drain cooling NO	Drain NORMAL
08 2 RINSE I.170	(DEMI =% 030 HOT =% 070)	Time s 0060	oC 70	
Products:				Advance pumps I.00
09 DRAIN	Rinse I.00	Adv. Pumps s 00	Drain cooling NO	Drain NORMAL
10 DRYING Low	s 0000 Medium s 0000 High s 1500 (LESS)	Time s 0000	oC 120	
11 DRAIN	Rinse I.00	Adv. Pumps s 00	Drain cooling NO	Drain NORMAL

Sampling time s 05      1 notch = 10 samples

oC Control =       oC Recording =

End: 12 / 03 / 04      15 : 46 : 57  
Duration: 01 : 29 : 16

Result: COMPLETED OK      AD : 17352 (17119)

Disinfection time s: 0786      °C disinfection: 90

Sensors: °C = OK      Products = OK      Pumps = OK

**EVENTS LIST**

time	c.	°C	event	phase/operator
14:18:04	0001	15	96 START STEP	DRAIN
14:51:24	0005	27	96 START STEP	HEAT DISINF.
14:52:24	0405	94	96 START STEP	DRAIN
14:52:42	0421	93	96 START STEP	WASH

- electrical water heating
- connecting supplies from above (from below is as option)
- two dosing pumps for chemical products, each with a flow meter and level sensor for convenient operation of the device
- high-speed water flow within the chamber and outflow from the chamber is provided using two separate, powerful, vertically positioned washing pumps
- three-level filtration system for circulating water prolongs pump service life

- three-level washing and drying system guarantees the process achieves a perfect result
- forced, filtered drying is achieved using a G3 class filter and HEPA H14 filter, which can be regulated according to time and temperature
- the function of all important device modules and sensors is monitored by automatic diagnostics, and any detected errors are recorded and reported, and, where necessary, the current washing programme may be stopped

## Control Panel

- latest generation double microprocessor control system manages and controls all device programmes and each of their phases
- two types of display for automatic control features are available:
  - colour, multi-row display (UNICLEAN SL M 15), or
  - colour, 5.8" touch-screen display (UNICLEAN SL MS 15)
  - display shows individual programmes, programme phase, current time and date, the control temperature and temperature regulation, the required phase temperature, the  $A_0$  value – control and regulation, remaining time of the washing cycle and any error message from the device
- Start and Stop push buttons on the main panel of the device

- each time the control panel is pressed a sound signal is given
- batch documentation – connection to printer or PC (RS 232 port), or to computer network (LAN) together with the Ecosoft SW application
- access to cycle parameters is password protected according to ISO 15883-1/2

## Programmes

- the version of the device with a multi-row LCD for automatic control features (UNICLEAN SL M 15...) has 20 standard washing and disinfection programmes available and 20 others ready to adapt to customer specifications
- the version of the device with a touch-screen display for automatic control features (UNICLEAN SL MS 15...)

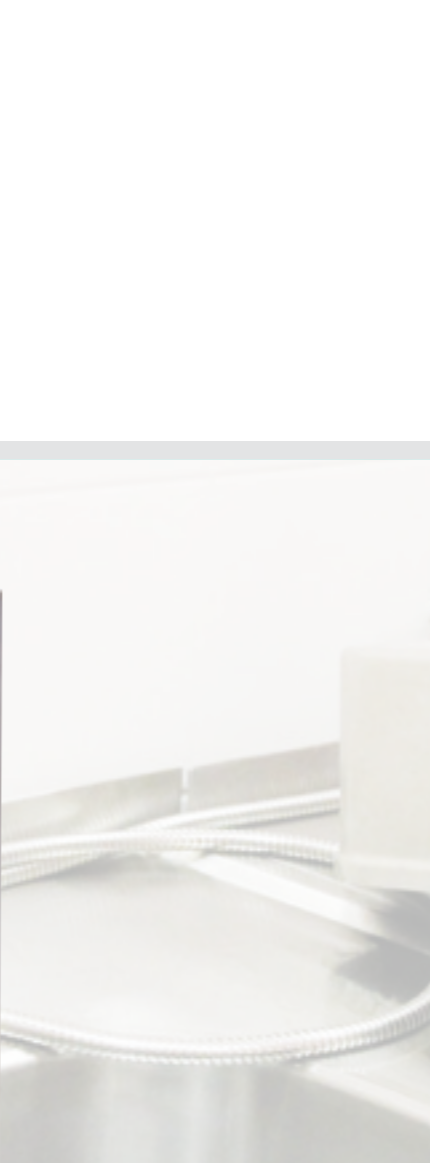
has 10 standard washing and disinfection programmes available and 50 others ready to adapt to customer specifications, as well as an additional 5 service programmes for service and validation

- Direct choice of the most frequently selected programmes on the control panel:
  - P1 - short cycle, suitable for lightly soiled objects
  - P2 - standard cycle, suitable for normally soiled objects
  - P3 - intensive cycle, suitable for heavily soiled objects
- other pre-set programmes can be accessed using the push button P+
- programmes specially optimized for various types of treated products, types of contaminant or washing methods (baby bottles, blood, BGA, microbiological, oils and petrol, thermal-chemical disinfection, enzymatic cleaning)

- two short pre-set programmes for simple rinsing of treated products with cold water or for drying already washed objects

## Optional Equipment, Baskets and Trays

For information about optional equipment, baskets and trays can be seen on pages 22 - 29.



# UNICLEAN SL TS 4200 UNICLEAN SL TS 5600

- chamber volume 4 200 and 5 600 litres

UNICLEAN SL TS is an advanced floor-charged washer disinfector designed for washing and disinfection of containers, bed frames, operating tables and other large-dimension equipment and facilities in hospitals requiring washing and thermal-disinfection. Together with special charging carriages it can be used for large-volume treatment of surgery shoes and surgical instruments. For the purpose of easy installation at the client, the washer is assembled from individual modules in the final stage. Charging material in and out of the chamber is arranged using charging and transport equipment. The automatic system of floor tilting provides excellent water removal from horizontal surfaces. The device is available in single-door and double-door interlaying version.



## Construction

- stable, robust stainless steel construction of the device and external jacket (AISI 304) ensure a long service life
- chamber, washing arms and filter tanks made of high quality steel (AISI 316 L)
- manual stainless steel doors with glass window
- inclined chamber floor prevents water retention inside the chamber and accelerates drainage and drying
- rounded corners and edges of the chamber facilitate easier washing and prevent the retention of contaminants
- tilting and flat floor system for maximum user comfort when loading and unloading the trolleys

## Basic Characteristics

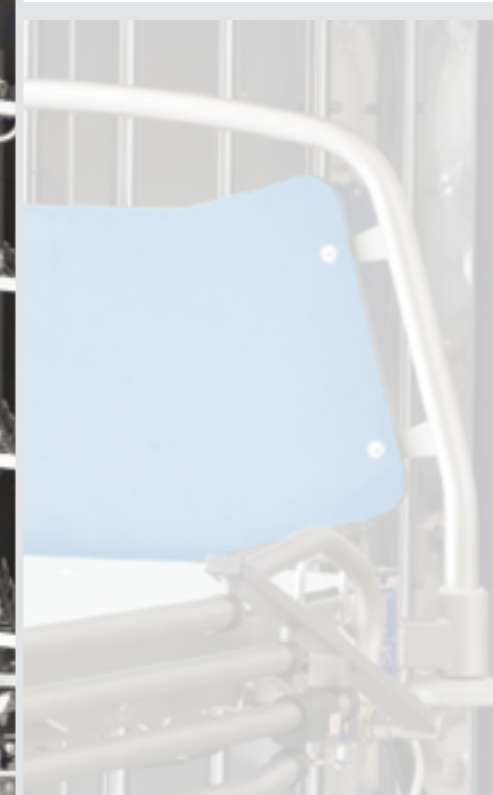
- large 5.8" touch-screen control panel on the dirty side and large 5.2" touch-screen control panel on the clean side
- water heating using technical steam from a central steam source together with a large-volume pre-heating tank shorten the process of preheating water and therefore has a positive impact on operational cost effectiveness
- two dosing pumps for chemical products, each with a flow meter and level sensor for convenient operation of the device



- forced, filtered drying is achieved using a G3 class filter and HEPA H14 filter, which can be regulated according to time and temperature
- the function of all important device modules and sensors is monitored by automatic diagnostics, and any detected errors are recorded and reported, and, where necessary, the current washing programme may be stopped

## Control Panel

- latest generation double microprocessor control system manages and controls all device programmes and each of their phases



- two separate, powerful, vertically positioned washing pumps with horizontally in-built oscillation tubes ensure optimal distribution of water pressure in the chamber
- three-level filtration system for circulating water prolongs pump service life

- colour, 5.8" touch-screen display shows individual programmes, programme phase, current time and date, the control temperature and temperature regulation, the required phase temperature, the  $A_0$  value – control and regulation, remaining time of the washing cycle and any error message from the device



- Start and Stop push buttons on the main panel of the device
- each time the control panel is pressed a sound signal is given
- access to cycle parameters is password protected according to ISO 15883-1/2
- batch documentation – connection to printer or PC (RS 232 port), or to computer network (LAN) together with the Ecosoft SW application

## Programmes

- 5 pre-set standard washing and disinfection programmes plus 5 free memory spaces for presetting basic cycles, 50 additional programmes ready to adapt to customer specifications, as well as an additional 5 service programmes for service and validation
- up to 24 washing phases in a programme with a wide range of possible parameter settings
- 2 special self-cleaning programmes
- programmes specially optimized for various types of treated products, types of contaminant or washing methods

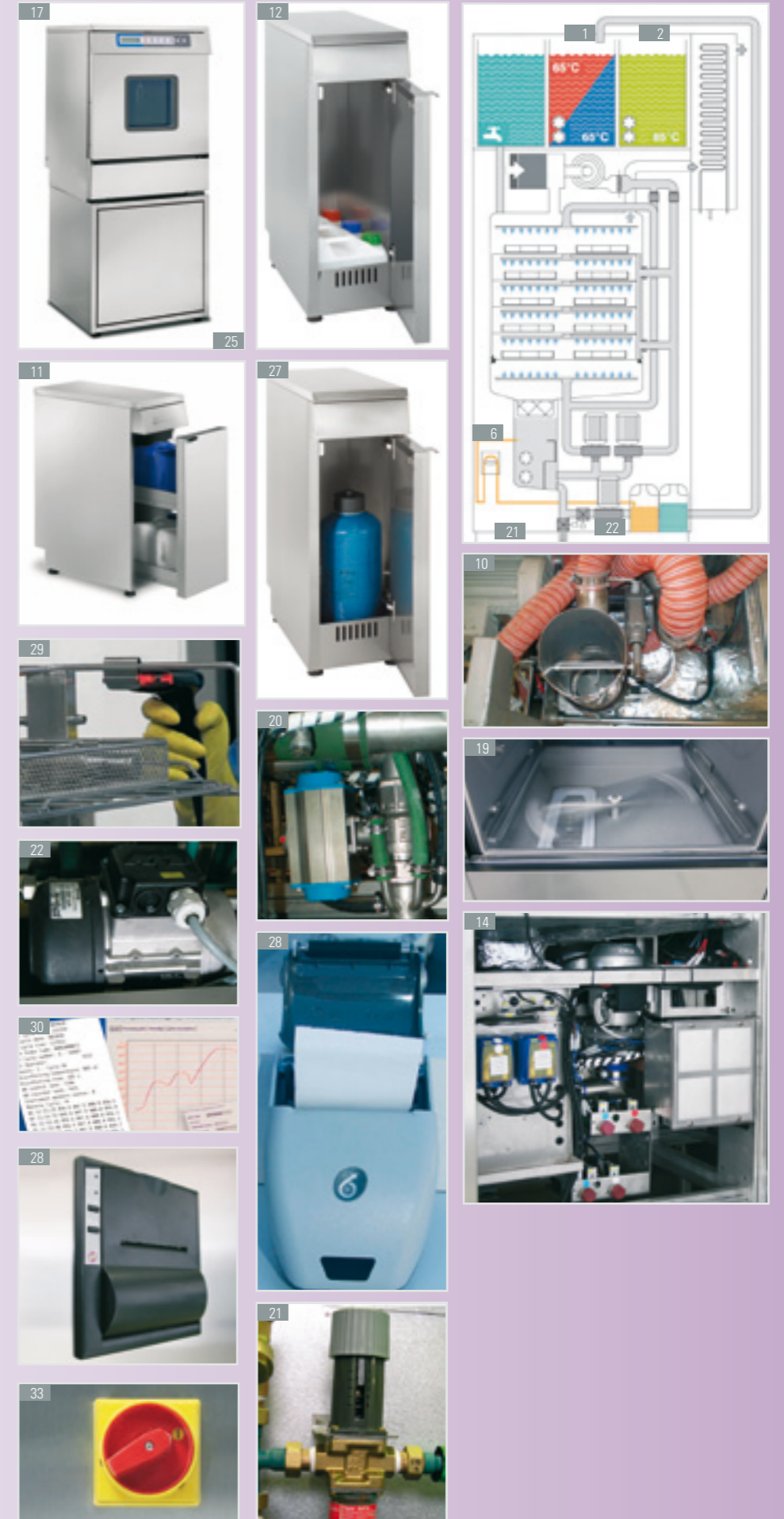
## Optional Equipment, Baskets and Trays

For information about optional equipment, baskets and trays can be seen on pages 22 - 29.

# UNICLEAN SL - Optional Equipment

Type of option	M 8	M 9	M-10	MS-10	M-15	MS-15
1 Tank for demi-water pre-heating – reduction of the total programme time by reduction of time needed for water heating in the chamber	×	×	•	•	•	•
2 Tanks for demi-water and hot water pre-heating – reduction of the total programme time by reduction of time needed for water heating in the chamber	×	×	•	•	•	•
3 Hot air drying, 98 % DOP filter – device-integrated drying guarantees perfectly dry products at the end of the washing cycle	•	C	C	C	C	C
4 Attaching inputs from below	×	×	•	•	•	•
5 Water heating using technical steam from a central steam source	×	•	•	•	•	•
6 Combined heating using central steam distribution and electricity – FED – shortening the time needed to pre-heat washing water, possibility to use reserve heating source	×	×	×	×	•	•
7 18 l pre-heating tank with electrical heating – reduction of the total time of the programme by reduction of the time needed for water heating in the chamber	•	•	×	×	×	×
8 38 l pre-heating tank with electrical heating – reduction of the total time of the programme by reduction of the time needed for water heating in the chamber	×	×	•	•	×	×
9 Increased heating output 8 000 W - reduction of time needed for washing water preheating	•	×	×	×	×	×
10 Recirculation drying by recycled air – reduction of time needed for perfect drying, power saving by use of already heated air	×	×	×	×	•	•
11 Two levels case for detergents for 5 l chemical containers - safe placement of chemicals	•	×	×	×	×	×
12 Case for detergents for two 10 l chemical containers – safe placement of chemicals	×	×	×	×	•	•
13 Steam condenser – it prevents steam leakage from the washing chamber to the staff premises	C	C	•	•	•	•
14 Dosing pump with flow meter and level sensor – in the case of using more chemicals it is possible to extend the standard configuration	•	•	•	•	•	•
15 Pneumatic safety closing valves for cold-, warm- and demi-water – a guarantee of safe operation	×	×	×	×	•	•
16 Pilot pump for demi-water – elimination of problems with demi-water pressure	•	•	•	•	•	•
17 Glass window in door – for better monitoring of washing process	•	C	×	×	×	×
18 Lighting of the chamber interior – for better washing process monitoring	×	•	•	•	•	•
19 Washing arm rotation sensor – in the case of non-fulfilment of the turning speed of washing arms the washing process stops	×	×	×	×	×	•
20 Stainless steel pneumatic discharge valve - a guarantee of safe operation	×	×	•	•	•	•
21 Electromagnetic valve for drain cooling - in the case of unsuitable waste piping it is possible to reduce the drained water temperature	×	•	•	•	•	•
22 Draining pump – reduction of cycle time and elimination of problems with installation in the case of unsuitable placement of waste piping	×	•	•	•	•	•
23 Additional water pump discharge valve	×	•	×	×	×	×
24 Two analogue pressure sensors	×	×	•	•	•	•
25 Water conductivity sensor – arrangement of perfect control of the process in the course of final rinsing	•	•	•	•	•	•
26 Stainless steel stand 600×560×600H mm - comfortable ergonomic servicing of the device	•	×	×	×	×	×
27 Box of stainless steel for the water purifier 300×630×840H mm - comfortable ergonomic servicing of the device	•	×	×	×	×	×
28 Integrated printer for documentation of processes (for UNICLEAN SL M 8 external) - comfortable and transparent way of washed batch registration	•	•	•	•	•	•
29 Bar code reader – the appropriate washing programme is selected after bar code scanning	×	×	•	•	•	•
30 Software for remote administration - simple displaying of operation cycles, easy administration of configured devices at CSSD	×	×	•	•	•	•
31 Programme according to user specification - machine setting for concrete specific assortment to reach perfect washing quality	×	×	•	•	•	•
32 USB port - simple service and handling of the device	×	•	×	×	×	×
33 ON-OFF main switch – simple device handling	×	•	×	×	×	×
34 Alternative electrical connection: 3×220 V, 50 or 60 Hz - Hz or according to other customer specifications – solving the installation problems	•	•	•	•	•	•
35 Possible automatic loading/unloading	×	×	•	•	•	•
36 Water softener – arrangement of required quality of water and economic operation and solving the installation problems	•	C	×	×	×	×
37 10 l plastic tank of resin 500H mm with basic and overpressure valve, and conductivity system	•	×	×	×	×	×
38 25 l plastic tank of resin	•	×	×	×	×	×
39 Water cleaning system – reverse osmosis – arrangement of required quality and economic operation and solving the installation problems	•	×	×	×	×	×

• optional equipment    × not available    C main optional    S on customer's specification



# UNICLEAN SL TS - Optional Equipment

	Type of option	4200-1	4200-2	5600-1	5600-2
1	Automatic stainless steel door with glass window - cheaper automatic door with comfortable handling	•	•	•	•
2	Glass door – for better monitoring of washing process	•	•	•	•
3	Direct connection of washing trolley injectors – wider application of the device	•	•	•	•
4	Loading guiding ledges made of premium steel – safer handling with carriages	•	•	•	•
5	Loading/unloading ramp, length 2 000 mm/4 000 mm (in the case that assemblage pit is not possible) – per piece - solving the installation problems	•	•	•	•
6	Gas-tight version - „Bio-Seal“ – solving the safety problems	×	•	×	•
7	Third tank for water for the recycling system - reduction of the total programme time by reduction of time needed for water heating in the chamber	•	•	•	•
8	Dosing pump with flow meter and level sensor – in the case of using more chemicals it is possible to extend the standard configuration	•	•	•	•
9	Electrical heating - ED - 110 kW - reduction of time needed for washing water pre-heating	•	•	•	•
10	Electrical heating - ED - 200 kW (for standard time of the process like with FD) – reduction of time needed for washing water pre-heating	•	•	•	•
11	Turbo drying (recirculation drying by recycled air) – reduction of time needed for perfect drying, power savings thanks to use of already heated air	•	•	•	•
12	Steam drying – reduction of time needed for perfect drying, power savings thanks to steam use	•	•	•	•
13	Steam condenser – cooling system (for air humidity reduction after the process finishing) – it prevents steam leakage from the washing chamber to the staff premises	•	•	•	•
14	Lighting of the chamber interior – for better washing process monitoring	•	•	•	•
15	HEPA filter for air H14 (99,99 %), a guarantee of safe machine servicing	•	•	•	•
16	Electromagnetic drain cooling valve (condensate after cooling) – in case of unsuitable waste piping it is possible to reduce the drained water temperature	•	•	•	•
17	Draining pump – reduction of cycle time and elimination of problems with installation in the case of unsuitable placement of waste piping	•	•	•	•
18	Analogue pressure sensor (pressure gauge)	•	•	•	•
19	Conductivity sensor (British version HTM 2030) – arrangement of perfect control of the process in the course of final rinsing	•	•	•	•
20	Integrated printer for documentation of processes - comfortable and transparent way of washed batch registration	•	•	•	•
21	Integrated printer for documentation of processes on clean side – comfortable and transparent way of washed batch registration	×	•	×	•
22	Bar code reader – the appropriate washing programme is selected after bar code scanning	•	•	•	•
23	Software for remote administration - simple displaying of operation cycles, easy administration of configured devices at CSSD	•	•	•	•
24	Alternative electrical connection: 3×220 V, 50 or 60 Hz - solving the installation problems	•	•	•	•
25	Additional stainless steel lining	•	•	•	•
26	Packed in plywood box	•	•	•	•

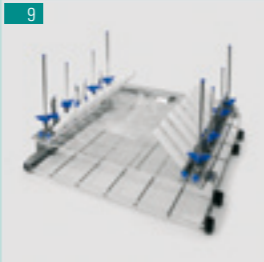
• optional equipment      × not available



Modular system  
of the device arrangement

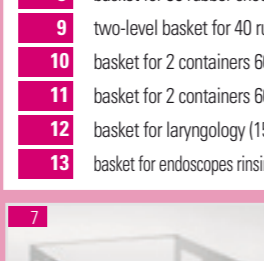
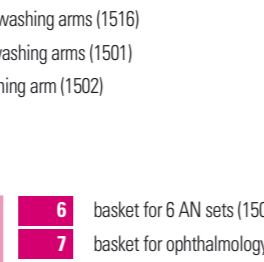
Unique solution  
for your individual requirements

# Optional Equipment, Baskets and Trays

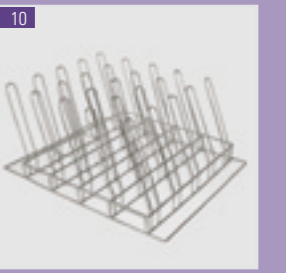
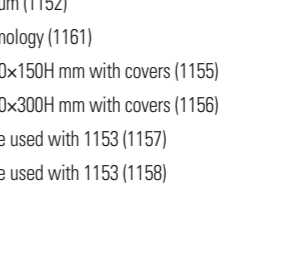
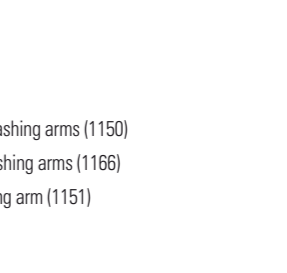
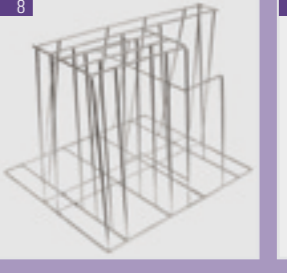
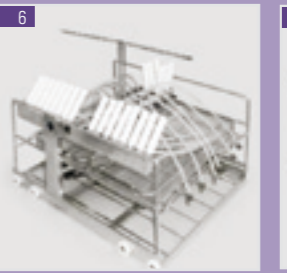
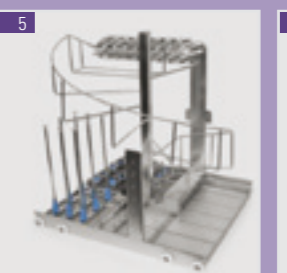
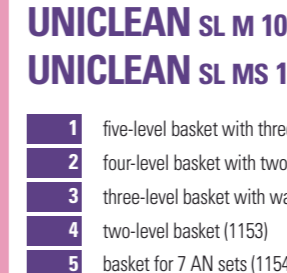
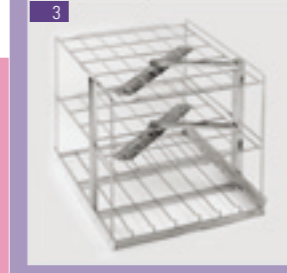
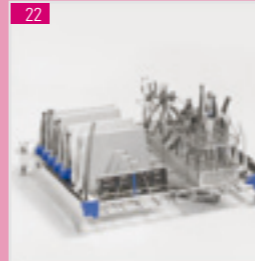
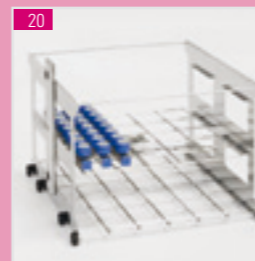


## UNICLEAN SL M 8

- 1** four-level basket with two washing arms (1825)
- 2** three-level basket with washing arm (1797)
- 3** two-level basket with washing arm (1895)
- 4** lower basket (152L)
- 5** upper basket with washing arms (1721)
- 6** one-level basket for containers (152)
- 7** basket for anesthetics, for 4 sets of instruments (1826)
- 8** three-level basket for ophthalmology (1894)
- 9** two-level basket for ophthalmology 18+18 positions (1756)
- 10** basket for baby bottles (1789)
- 11** basket for 20 rubber shoes (152A)
- 12** upper dental basket provided with 10 hand piece and 6 injector connections (1705)
- 13** upper dental basket provided with 16 hand piece connections (1704)
- 14** lower dental basket provided with 10 hand piece and 6 injector connections (1707)
- 15** lower dental basket provided with 16 hand piece connections (1706)

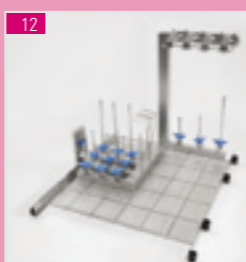
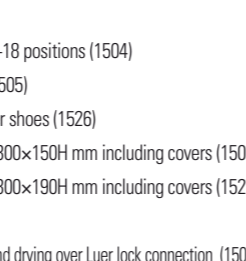
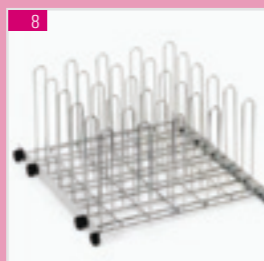
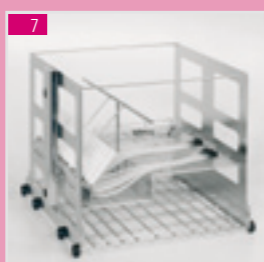
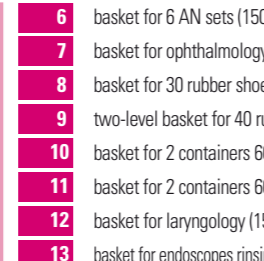


- 14** two-level basket for 42 baby (1512)
- 15** transport carriage TW (1252)
- 16** four-level basket for ophthalmology with 2 washing arms (1547)
- 17** three-level basket for ophthalmology with two washing arms (1537)
- 18** transport carriage TW with adjustable level (1251)
- 19** three-level basket with 2 washing arms and 24 attachable connectors (1520)
- 20** two-level basket with one washing arms and 24 attachable connectors (1522)
- 21** two-level basket with one washing arm and 48 attachable connectors (1529)
- 22** upper dental basket provided with 10 hand piece and 6 injector connections (1748)
- 23** upper dental basket provided with 16 hand piece connections (1747)
- 24** lower dental basket provided with 10 hand piece and 6 injector connections (1755)
- 25** lower dental basket provided with 16 hand piece connections (1749)



## UNICLEAN SL M 9

- 1** five-level basket with three washing arms (1516)
- 2** four-level basket with two washing arms (1501)
- 3** three-level basket with washing arm (1502)
- 4** two-level basket (1524)
- 5** one-level basket (1500)



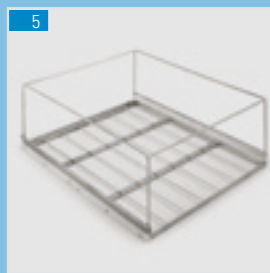
## UNICLEAN SL M 10, UNICLEAN SL MS 10

- 1** five-level basket with three washing arms (1150)
- 2** four-level basket with two washing arms (1166)
- 3** three-level basket with washing arm (1151)
- 4** two-level basket (1153)
- 5** basket for 7 AN sets (1154)
- 6** basket for micro instrumentarium (1152)
- 7** three-level basket for ophthalmology (1161)
- 8** insert for 4 containers 600x300x150H mm with covers (1155)
- 9** insert for 2 containers 600x300x300H mm with covers (1156)
- 10** insert for 25 rubber shoes to be used with 1153 (1157)
- 11** insert for 10 rubber shoes to be used with 1153 (1158)
- 12** transport carriage (1226)

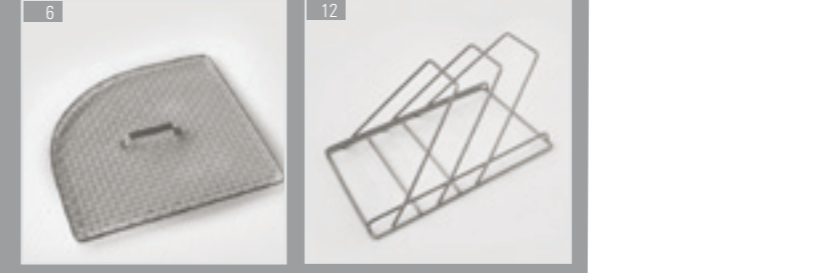
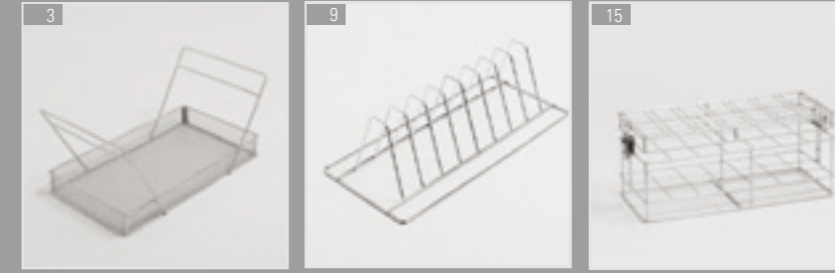
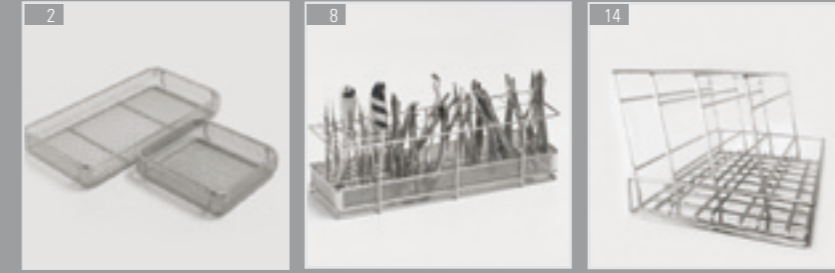


## UNICLEAN SL M 15 UNICLEAN SL MS 15

- 1** five-level basket with three washing arms (1100)
- 2** four-level basket with two washing arms (1111\_A)
- 3** three-level basket with washing arm (1101)
- 4** two-level basket (1103)
- 5** one-level basket (1105)
- 6** insert for 36 rubber shoes to be used in 1103 (1130)
- 7** insert for 18 rubber shoes to be used in 1103 (1131)
- 8** basket for seven AN sets (1104)
- 9** insert for 4 containers 600×300×300H mm with covers (1106)
- 10** insert for 6 containers 600×300×150H mm with covers (1109)
- 11** insert for 2 containers 600×300×150H mm with covers (1108)
- 12** insert for micro instrumentarium with 88 connectors to be used in 1100 (1110)
- 13** basket for endoscope rinsing and drying over Luer lock connection (1107)
- 14** three-level basket for ophthalmology with two washing arms (1134)
- 15** basket for micro instrumentarium (1102)
- 16** transport carriage TW (1201)
- 17** automatic loading/unloading trolley for 1 basket (1210, 1211)
- 18** insert for 6 trays (114)
- 19** additional lockable basket for micro instrumentarium (1107)



## Universal Trays and Baskets



- 1** tray 1/1 (162)
- 2** tray 1/2 (162, 166)
- 3** tray 1/1 with handles (107)
- 4** tray 120×120×20H mm, cover for tray 120×120×120H mm (163, 164)
- 5** tray 1/4, 100H mm, tray 1/4, 130H mm, tray 1/4, 200H mm (168, 169, 170)
- 6** cover for 1/4 Tray (177)
- 7** divider for 1/4 Tray (186)
- 8** dental basket for mirrors and instruments (103)
- 9** 8-position dental tray basket (104)
- 10** net basket for small dental items (128)
- 11** net basket for rigid dental instruments (140)
- 12** 2-position insert for dental instruments cassette (step 50 mm/1.96") (190)
- 13** 4-position insert for dental instruments cassette (step 35 mm/1.37") (191)
- 14** 4-position insert for large dental instruments cassettes (step 50 mm/1.96") (1862)
- 15** tray for 21 baby bottle 440×190×185H mm (134)
- 16** insert for 21 dummies 360×160×60H mm (135)
- 17** Hand piece support for dental baskets:  
a) cod. 1080015 hand piece adaptor  
b) cod. 1080006 stainless steel filter  
c) cod. 1080009 lower part  
d) cod. 1080010 upper part  
e) cod. 1080001 adaptor ø mm 15/0.59"  
f) cod. 1080005 adaptor ø mm 20/0.78"  
g) cod. 1080011 injector cover ø mm 15/0.59"  
h) cod. 1080012 injector cover ø mm 20/0.87"

## Charging Carriage UNICLEAN SL TS 4200 UNICLEAN SL TS 5600

- 1** transport carriage TW for 18 sterilisation containers 600×300×300H-600×300×150H mm with covers (850×1400×1850H mm) (1653)
- 2** transport carriage TW for 10 sterilisation containers 600×300×300H-600×300×150H mm with covers (850×850×1850H mm) (1654)
- 3** transport carriage TW for 12 sterilisation containers 600×400×300H mm with covers (850×1400×1850H mm) (1655)
- 4** transport carriage TW for 24 trays (850×1000×1850H mm) (1657)
- 5** transport carriage TW for 30 pairs of surgical shoes (860×1400×1850H mm) (11175)
- 6** transport carriage TW for 50 pairs of surgical shoes (860×1400×1850H mm) (11195)
- 7** four-level with washing arms (910×1400×1500H mm) (1690)



## Provision for the Customer Service

In addition to the device supplies, we offer other range of services related to the development of central and operating room sterilizations:

- counselling and project drawing including the logistics and capacity calculation
- turnkey device deliveries including the individual information systems, etc.

Service and maintenance are ensured fully by a worldwide network of BMT Medical Technology s.r.o. contractual organizations. We have a wide network of branded service worksites connected to the HOT-LINE service that ensures a quick reaction to the customer's questions and requirements. To ensure the user's comfort and possibility of a quick and high-quality service action, we have developed a special autodiagnostic programme. We offer an ON-LINE internet diagnostics and monitoring of the sterilization device, providing a quick and direct communication with the device and providing for a continuous trouble-free operation of the worksite. This all guarantees low operating costs and long lifetime of the device.

## Environmental Awareness

The device complies with all up-to-date ecological requirements. High-quality materials ensuring a long lifetime of the device are used during the manufacture. The device does not produce any harmful wastes. During its manufacture, ecological methods of processing are used as well. All substantial parts of the devices and the package are recyclable. The device contains 95 % of stainless steel, 4 % of other materials, and 1 % of electrical and plastic materials. Ecological liquidation is carried out after a disassembly by an authorized person in accordance with EU regulations complying with the WEEE (Waste Electric and Electronic Equipment) Directive.

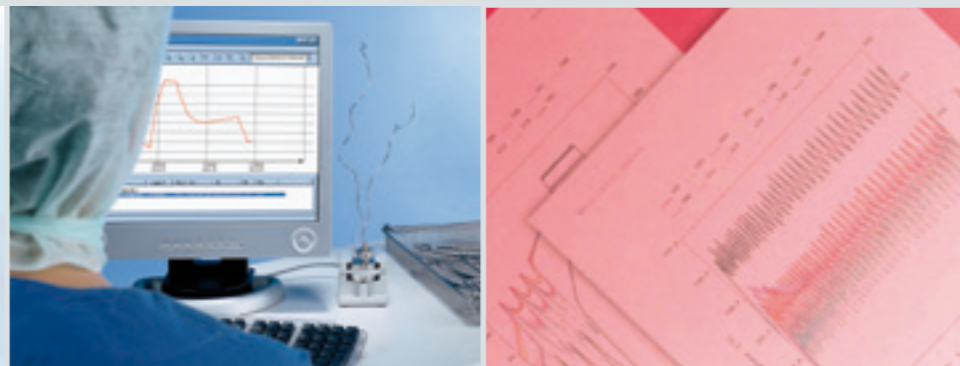
## Technical Parameters - UNICLEAN SL and UNICLEAN SL TS



Use	BMT washer disinfectors					Size [mm]						Weight [kg]			Volume [l]		Electrical connection			
	Control panel	Type of usage	Size [STM]	Doors	Models UNICLEAN s.r.	Washing chamber dimensions			External dimensions			Net weight	Gross weight	SC	Chamber volume	Basket volume	Power [kW]		Fuses [A]	
						WIDTH	DEPTH	HEIGHT	WIDTH	DEPTH	HEIGHT						ED	FD	ED	FD
Medical	LCD	Small	8	1	M 8-1	540	500	540	600	630	850	65	75	C	171	151	5,6	X	6,3	X
			8	1	M 9-1	540	580	535	650	660	1685	124	134	179	170	170	8,3	3,5	38	16
		2	M 9-2	710	174					184		229								
		Big	10	1	M 10-1	520	620	670	940	750	1850	300	343	355	350	250	13,5	8,2	38	16
				2	M 10-2							350	393	405						
			15	1	M 15-1	710	810	900	1260	960	2005	472	515	527	500	350	19,5	8,2	40	16
	2			M 15-2	522							565	577							
	Touch screen	Big	10	1	MS 10-1	520	620	670	940	750	1850	300	343	355	350	250	13,5	8,2	38	16
				2	MS 10-2							350	393	405						
			15	1	MS 15-1	710	810	900	1260	960	2005	472	515	527	500	350	19,5	8,2	40	16
				2	MS 15-2							522	565	577						
		Trolley	4200	1	TS 4200-1	1000	2230	1900	2500	2550	2400	1200	1300	C	4200	X	111	20	160	30
				2	TS 4200-2					1300		1400								
			5600	1	TS 5600-1	2950	3300	2400	1200	1300	5600									
2				TS 5600-2	1300				1400											

Standard Electrical connection 3 PE AC 400/50/60/Hz  
 Noise level max 59 dB  
 X = not suitable for this type  
 C = included in basic price of the device

ED - Electrical heating  
 FD - Steam heating  
 SC - Steam condenser  
 Desinfectors are designed to comply with the European and UK guidelines on decontamination.  
 EN ISO 15883-1/2 and HTM 2030



**Technology in the man's service**  
 – easily, economically, safely

Changes in the design and make reserved.





More information  
is available direct from  
our internet web site

**www.bmt.cz**

Make acquaintance with our further offers...



Small steam sterilizers 15 – 25 litre



Steam sterilizer 70 litre



Steam sterilizers 140 – 1 490 l



Laboratory drying devices and incubators 22 – 707 litre



Stainless steel instrumentation



Formaldehyde sterilizer 110 litre



Exchanger steam/steam



Cleaning and disinfection agents



MMM Group



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