BMT

MMM Group

UNISTERI® HP

Medium-sized Steam Sterilizer for Health Care
– Efficient, Intelligent, Exceptional

protecting human health

MMM Group – Leading Service Supplier for Health Care

Since its establishment in 1921, the company BMT Medical Technology s.r.o., a traditional manufacturer of medical equipment, gradually changed from a small region-oriented company "Chirana" to the international company "BMT". In 1992, it became the member of the European MMM Group, operating on the world market as an important supplier of systems used in health, science and research since 1954.

The MMM Group has established itself with its complex offer of products and services for hospitals, science institutes, laboratories and pharmaceutical industry as an excellent quality and innovation holder over the worldwide market.

MMM Group – perfection in laboratory and medical technique.

Individual Assembly of The Sterilizer

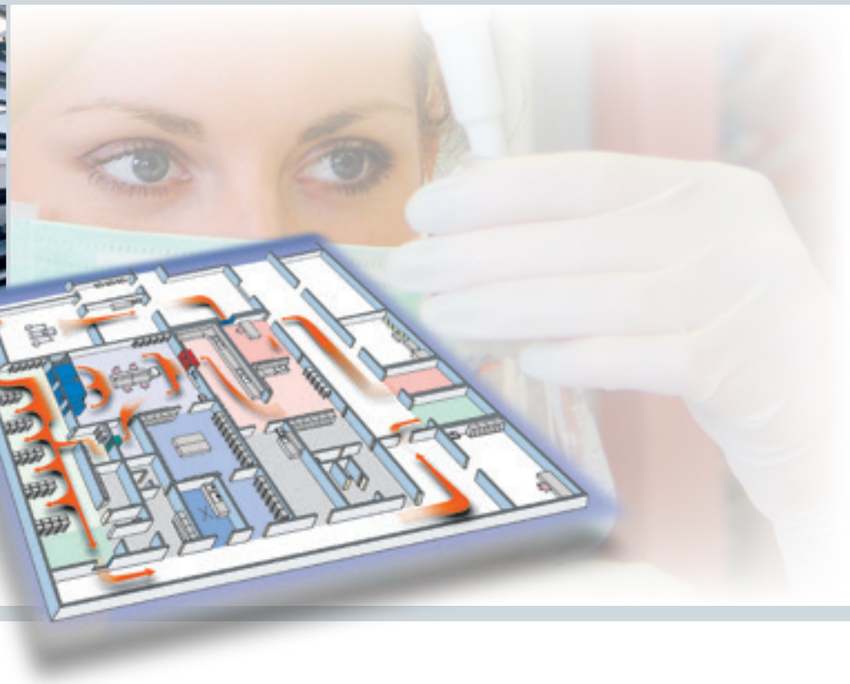
The most recent series of modular steam sterilizer UNISTERI® HP is an ideal choice for everyday use in health care.

UNISTERI® HP sterilizer is the right choice both for smaller health care providers and all central sterilization departments laying stress on the advantageous price/utility value ratio.
UNISTERI® HP devices are designed for quick sterilization in health service establishments:

- one-day surgical clinics and consulting rooms of policlinics – sterilization of all necessary materials: Instruments, glass, textile, objects made of rubber, ...
- surgical departments of hospitals too far from the departments of central sterilization – in particular, optimization of the repeated use of necessary instruments
- health service clinics and first aid centres where quick sterilization of sanitary material is required
- dental practices where the necessary material volumes cannot be treated by table-top types of sterilizers
- microbiological departments of health service establishments – sterilization of solutions in half-closed bottles, culture media, ...

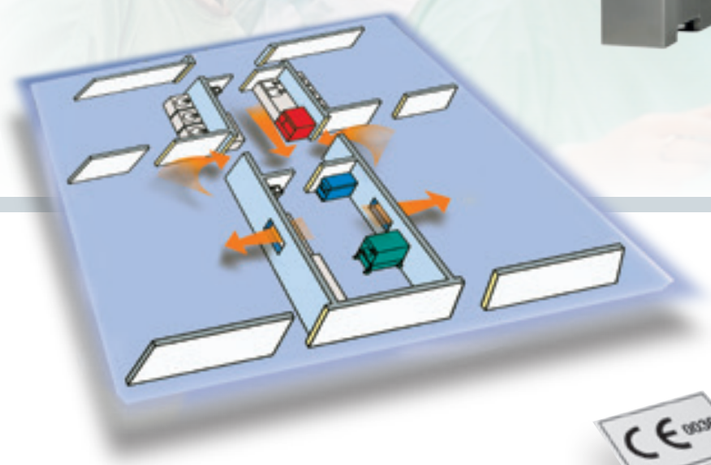
The steam sterilizer UNISTERI® HP is designed for sterilization of solid, porous and plastic materials, and solutions in open bottles.
Customers interested in a quick and high-quality sterilization will be satisfied with the standard option offering the usable volume 73, 160 and 254 litres, and with a variety of optional accessories.

Top-quality production, modern electronics and high-quality materials used in the devices are as natural as the user properties or an extraordinary level of safety and reliability.
UNISTERI® HP steam sterilizers – safe, quick, ergonomically designed, easy operable devices offering individual adjustments and multilateral applications.



General Actively Proved Quality

The steam sterilizer UNISTERI® HP is designed for the health service to sterilize medical devices. The sterilizer complies with the European Directive no. 93/42/EEC as amended by the Directive no. 2007/47/EC, and with the appropriate standards, especially EN 285. It is manufactured within a certified quality control system according to EN ISO 13485 and adjusted to the individual needs of single worksites.
The pressure equipment of the sterilizer has been designed and can be produced alternatively in accordance with the European Pressure Equipment Directive no. 2014/68/EU and additionally for example, with ASME Code requirements (for the USA and Canada), or AQCIQ licence regulations (for China). Validation according to EN ISO 17665-1 is performed by our accredited testing laboratory.



... hospitals
clinics
consultation rooms
laboratories...

UNISTERI® HP

New Design, New Construction

- control panel with an 8.2" touch-screen providing maximum operation and service comfort
- immovable maintenance-free door sealing
- low-energy steam generator for lower operating cost (commencing from 7.5 kW)
- efficient water ring vacuum pump for short charge times and quick and accurate cycle processing
- double-processor PLC control by two independent Master-Slave systems for quick, accurate and safe cycle processing
- special method of control of continuous steam filling into the steam sterilizer chamber
- the device is made of high-quality stainless steel ensuring long-term lifetime and reliability

UNISTERI® HP

Modular System

- both single-door and double-door models offering an installation into a stainless steel wall
- optional steam source – internal, external, or combined
- optional coarseness of the internal surface of the sterilization chamber
- system for manual material loading and system of transport and loading carts
- wide range of optional software
- various possibilities how to process the batch records
- wide range of optional accessories to minimize the operating cost
- possibility to select specific accessories (e.g. chamber provision with a flexible PT 100 sensor for safe and accurate cycle control during work with microbiological cultures and solutions; wide range of individual programmes adjustments, ...)
- wide range of services (including the ON-LINE internet diagnostics, various kinds of tests, validations, etc.)

medicine laboratories

Efficient and comfortable

Unique Microprocessor Control

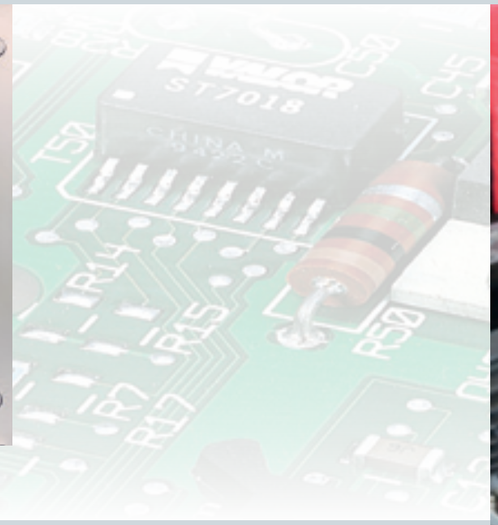
- the highest possible operating safety, doubled system sensors for collection and assessment of process information and their continuous comparison and assessment
- PLC consisting from two microprocessor control systems ("Master-Slave") for independent cycle assessment, control and documentation
- any found deviation exceeding the permitted levels results in an error message
- unique error report for an accurate and quick error diagnostics

Pressure Sterilization Chamber

- the pressure chamber heated by steam through the heating jacket is made of high-quality stainless steel DIN 1.4404 (AISI 316 L)
- ppecial method of control of continuous steam filling into the steam sterilizer chamber
- descending bottom of the sterilization chamber for perfect drying
- ground surface of the sterilization chamber, coarseness Ra 1.25 µm (Ra 50 µinch)
- high-quality insulation materials Rockwool (chlorides free) with an Al foil

Steam Generator

- the steam generator and the heating elements are made of high-quality stainless steel DIN 1.4571 (AISI 316 Ti)
- high-quality insulation Rockwool (chlorides free) with an Al foil reducing markedly the heat losses;
- Decreased requirement to conductivity of feeding water 15 µS/cm compared to the value recommended by the standard EN 285 provides significant savings in water treatment costs.
- The functions of water filling and the generator output are controlled by a two-processor control system Master-Slave, with



- up to 20 standard programmes in the basic programme equipment
- easy implementation of individual programme adjustments
- unlimited number and easy changes of programmes by means of chip cards
- easy and intuitive access for service allows a technician to comfortably set all and any calibrations and configurations and to perform fast diagnostics of the device

- to allow validation, all sterilization chambers are equipped, as a standard, by two easy accessible inlet hollows according to EN 285
- new unique horizontally rotating automatic system of the door closing, fixed in 4 points, special door hinge ensures secured enlarged space for the user for comfortable and safe manipulation with material and easy cleaning of inner side of the door

a unique construction, with thermal degasification of feeding demi-water for minimisation of non-condensable gases (optional equipment) and with automatic desalination arranges short times of sterilisation cycles and permanently high quality of steam

UNISTERI® HP

- the structural modular system allows an individual device assembly
- the shape simplicity and usefulness and high-quality surface of the face metals allow perfect hygiene
- the face metals fastened firmly to the device frame provide quiet operation and extended lifetime of the device
- ergonomic position of the touch control panel
- maximum effective use of the inner sterilization space
- both manual and transporting and loading systems guarantee easy work of the personnel with the sterilized material
- easy software upgrade – the device properties can be adapted to the new future demands
- wide range of optional accessories according to individual needs
- possibility of integrated water treatment system

High utility value

New Control Panel

- user-friendly with intuitive control
- PLC consulting from two integrated microprocessor control systems (Master-Slave) with own sensors for independent assessment, control and documentation of working cycles
- ergonomically positioned control panel
- the technology of an 8.2'' touch screen allows clear and simple operation on the loading side
- on the unloading side of the device (a two-door model), there is an LED display allowing monitoring of the actual working phase, sterilization chamber pressure and time remaining till the cycle end
- the "Emergency stop" function integrated in the control panel allows stopping the device in case of need
- selection of language for communication with the device
- clear digital displaying of pressure in the sterilization chamber jacket and the steam generator, and of pressure and temperature in the sterilization chamber (reference bottle)
- clock – the remaining programme time and real time displaying
- error report with all parameters recording in the moment of a defect for both quick and distant service
- visual and acoustic condition and process signalling
- chip card system (optional accessories)
- a printer installation option for the sterilization processes documentation (optional accessory)

The Basic Programme Equipment Offers Up to 20 Programmes

As a standard, the device is equipped with a preheating programme (134°C/1 min)

Standard programmes:

- **"Instruments Quickly"** – 134°C/ 4 min, with following short drying, for non packed instruments for immediately following use
- **"Universal"** – 134°C/ 7 min, with following drying
- **"Universal Containers"** – 134°C/ 7 min, with intensive drying
- **"Packed glass, Rubber and Plastics Products"** – 121°C/ 20 min, with following drying

Equipment According to The Customer's Specific Needs

- Prions
- Disinfection 105°C/20 min
- Laparoscopy
- Alloplastics
- Plastic materials
- Optics, ...

Programs according to specific requirements must be validated at the customer's!

Special programmes with possibility of use of the movable PT 100 sensor:

- Solutions in open bottles 121°C/20 min, unprompted cooling
- Solutions with forced cooling and back air pressure
- Arnold steaming 100°C
- Agars (culture media) with unprompted cooling

Standard testing programmes for routine check

- Vacuum test – chamber air-tightness testing; compensating phase duration: 5 min, test duration: 10 min
- Bowie&Dick test 134 – steam penetration test, 134°C/3,5 min

Solutions sterilization safety

Sterilization of solutions in open bottles and regeneration bottles with a GL 45 thread, corresponding to DIN 168, Part 1, ISO 4796, mark SIMAX, blue cap. In addition to the standard working and safety procedures and processes, the solutions safety is also checked by three independent systems – temperature and pressure checking in the sterilization chamber, temperature in the reference bottle, and the minimum required sterilization cycle time. Only if all above mentioned processes are complied with, the programme is declared to be finished and the system allows the chamber door opening.

Individual Programme Adjustments

The programmes installed in the device can be modified directly in the device at any time (depending on the access rights), or by means of a chip card system at the device user's site. On the chip cards, new programmes developed and tested by the manufacturer upon an order are saved. We offer a special UNICONFIG software as well, allowing modification of all sterilization cycle values (evacuation, vacuum depth, exposure, drying) and setting of the sterilization cycle temperature and time. (Verification by the manufacturer required.)

Cycle Documentation

A clear documentation of work cycles can be ensured by:

- independent documentation of working cycles with pressure and temperature recording, allowing the storage of the last 10 records in the sterilizer memory (up to tens of thousands optionally – SD card)
- connection to a PC and storing the records in the computer memory by means of the "Printer Archive" software
- connection of the sterilizer to a computer network (LAN) together with the software application Ecosoft
- integrated printer allowing to select one of two graphic outputs

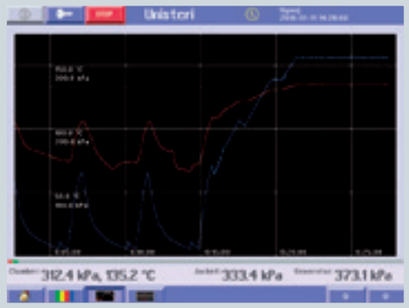
Service Equipment

The PLC automatics is equipped with a rich software allowing easy checking, maintenance and testing (interactive schemes of the piping connection, testing programmes allowing the device safety elements testing, calibration setting, etc.).

We offer an ON-LINE internet diagnostics and monitoring of the sterilization device, allowing 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. The device allows a detailed planning of service activities with a subsequent notification on the display or the printer record.





Economy of Operation

Intelligent Systems of Media and Working Time Savings

The low consumption factor is reflected in the models of the future. The more and more demanding legislative requirements, laying emphasis on the introduction of safe products on the market, and the more and more rising prices of the input media constitute a pressure to the rise of the operating costs of the sterilisation technique. Therefore, the low consumption of cost saving and, at the same time, comfortably equipped sterilizers is the hit and advantage of the present age. Such sterilizers have increasingly been setting a new tone in the health care facilities.

Version with autonomous operation

The UNISTERI® HP steam sterilizers can be equipped with the system for cooling water saving by which water consumption can be reduced by about 25%. In cases of strict requirements for low sterilizer operating costs in the health-care facilities, field hospitals, or in regions with drinking water absence, this principle of cost savings might not be sufficient. Therefore, we offer a version with autonomous operation which totally eliminates the need of connecting the device to a water source. There is thus no cost of the cooling water. This version of the sterilizer is equipped additionally with an integrated cooling aggregate placed in the rear part of the device. The operation of this apparatus is controlled fully by the sterilizer automatics and requires no operating personnel. The electrical energy and demineralised water source for the integrated steam generator are sufficient for the proper steam sterilizer operation. The supply of the steam generator by demineralised water could be solved by a fixed connection to a water treatment apparatus or in an autonomous way, namely by a reservoir with the volume of approximately 25 litres. Demineralised water supply from it is controlled by the device automatics.

The Automatic Morning Switching-on function

This is another feature of the economy product series that you can order together with the device and that will save your time. The Automatic Morning Switching-on function is able to start the device at a time set by you and to perform the pre-heating and the Vacuum Test automatically without any operator's presence. The routine test programmes can thus be performed more effectively.

Door mechanism

Comfort and safety of the user by operation of the device is secured by automatic door closing system including door sealing; course and multiple checks of processes are controlled by double microprocessor control.

Easy maintenance of the sterilization chamber and door

The construction of the pressure vessel and the door, and the selection of the inner surfaces quality allow a perfect, quick and comfortable cleaning of all parts of the sterilization space.

All For Cost Savings

You will save with us!

Accessories for documentation and independent data storage

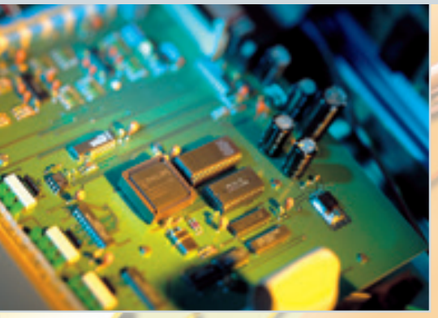
Use of the new Ecosoft software application which, together with the connection of the device on the sterilisation work site to the computer network (LAN), allows the documentation of all sterilisation processes and independent data storage, reports printing on an A4 paper, and connection of a bar code reader.

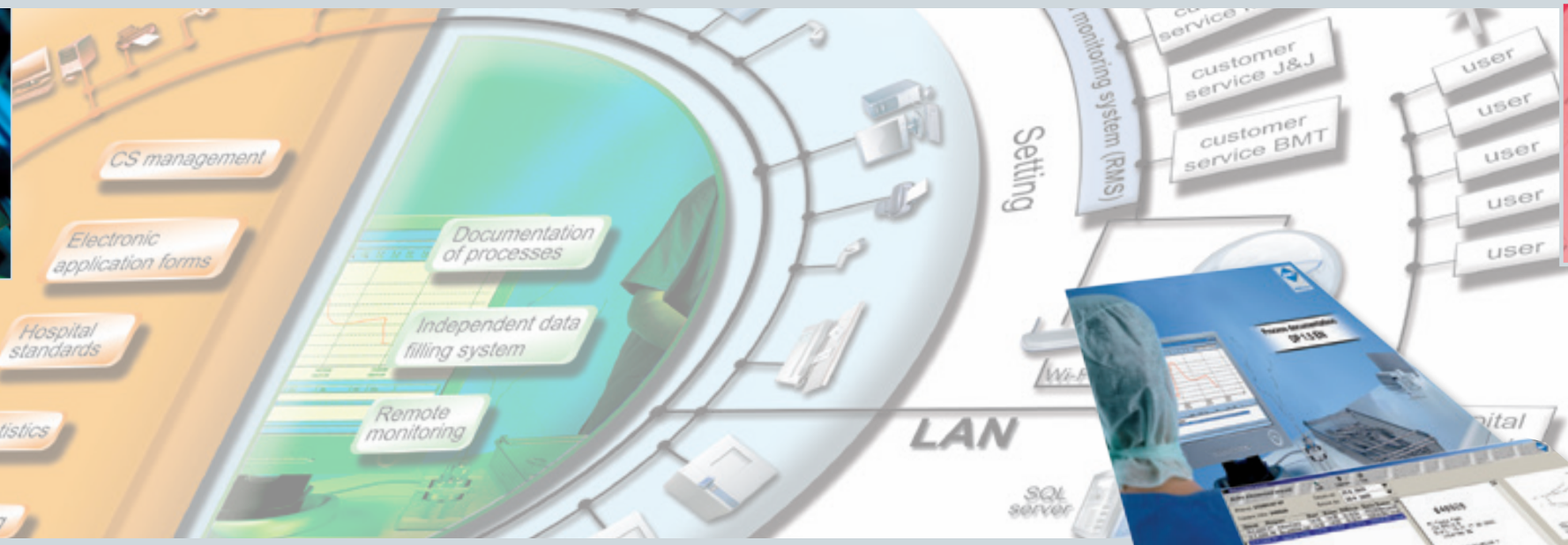
Accessories for energy peaks watching

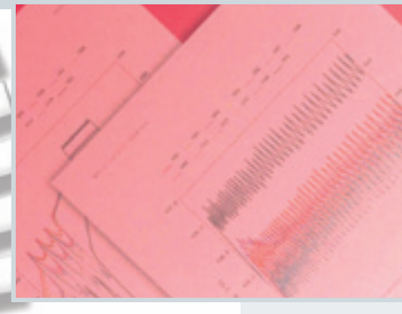
This is a set of software and hardware sterilizer modifications that give the possibility of a single and mutual regulation of the integrated steam generators operation to secure the energy peaks watching and communication with the central technical office, or the possibility to limit the electrical distribution system sizing on the installation place.

Air Detector

The Air Detector is a device which monitors and detects continuously the air and/or non-condensable gasses penetration and presence in the sterilisation chamber during each programme of packed materials sterilisation. The equipment of the device with this apparatus represents a higher guarantee of the sterilisation safety than the so far performed routine checks by testing programmes (Vacuum Test and Bowie&Dick Test) done once a day only before the commencement of the common operation.







The low consumption factor is projected into the models of future

UNISTERI® HP – Basic Equipment

13 frame: Stainless steel
12 inner surface of the sterilization chamber – ground surface, coarseness Ra 1.25 µm (Ra 50 µinch);
pipelines and valves transporting the steam to the sterilization chamber and demineralised water to the integrated steam generator are made of stainless steel, valves of brass
technology of touch-screen display 8.4" ensures transparent and easy operating on the loading side
1 control panel on the unloading side in the two-door variant – LED display
"The Automatic Morning Switching-on function"
standard batch counter and an additional optional daily batch counter
6 rolling wheels for easy handling during assembly and/or service

UNISTERI® HP – Optional Accessories

1 both one-door and two-door (pass-through) variant
stainless-steel face metals of the sterilizer
possibility to built the device into stainless steel partition walls
mirror variant of the device allowing joining of two service areas into one if more devices are installed side by side
2 optional steam source
– FD – Steam from a central source,
– ED – Integrated steam generator (from 7.5 kW)
– FDED – Combined steam supply either from a central source or an integrated steam generator
12 inner surface of the sterilization chamber – ground surface, coarseness Ra 0.8 µm (Ra 32 µinch);
Ra 0.125 µm (Ra 5 µinch)
chamber passivation (acid cleaning) – only in ground/polished surface
stainless steel valves transporting the steam to the sterilization chamber and demineralised water to the integrated steam generator
3 control panel on the unloading side – touch screen 8.4"
4 optional language version for communication with the device
air Detector for a continuous control of air and uncondensable gasses presence in the sterilization chamber Thermal degassing of the steam
thermal degassing of the steam generator for higher operation reliability and sterilization safety
media monitoring – continuous checking of input media parameters (both demineralised and cooling water)
energetic Maximum function: Regulation of the device operation – energy peaks watching when more devices are connected to the electric power mains
5 integrated equipment for condensate aftercooling to reduce the waste water temperature if plastic waste piping is used
back-up power distribution for the device automatics
7 additional mechanical gauges

phases of the sterilization cycle (evacuation, vacuum depth, exposure, drying) and setting of the sterilization cycle temperature and time values (verification with the manufacturer required)
14 chip cards system
optional electrical connection depending on the requested main parametrs
3-phase socket
steam generator for Decontamination feeded with mineral tap water
stainless vat under device
according to the ASME, AQSIQ
testing and validations according to EN ISO 17665-1
monitoring indicators starting package
32 GB memory card to record the sterilization cycles
"Audit trail" – system events recording to a memory card (conforms to 21CFR part11)

– on the loading side
– on the unloading side
tropical version for countries with high temperature of cooling water
8 integrated printer for the sterilization cycle record printing
9 Printer Archive software for batches documentation in a PC
10 software (Euro SDS and DP 3.5) for the ste-rilizer connection to a computer network (LAN)
11 flexible PT 100 temperature sensor in the chamber
special programmes – allow the operator individual adjustments of already programmed programmes from the sterilizer screen (e.g. microbiological laboratories)
special UNICONFIG software allows the modification of the individual

... and other

UNISTERI® HP

System for manual loading

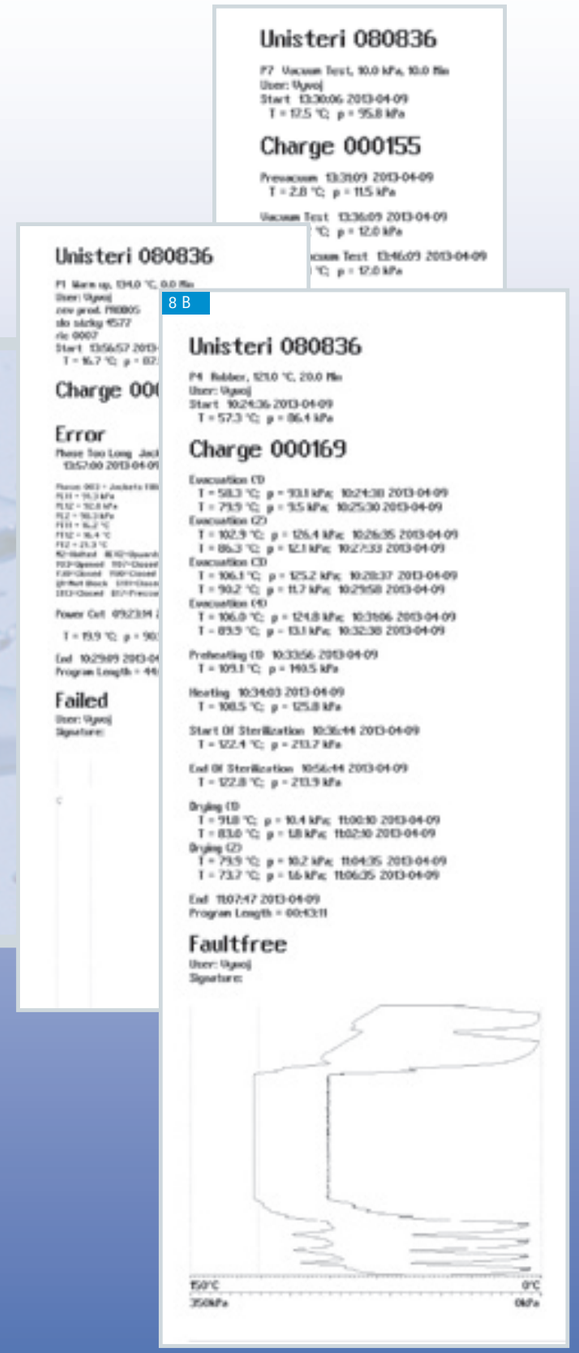
20 stainless steel wire insert for shelves and sieves
21 stainless steel wire insert for containers and baskets
22 stainless steel shelf (max. 4 pcs)
23 stainless steel sieve (max. 4 pcs)
24 drip tank for solutions put inside the sterilization chamber
25 sterilization basket – 1 STU, ½ STU

Transport loading system

15 transport cart
loading cart
16 container-type
17 cassette-type
18 for solutions
19 frame for the loading cart
hook for unloading of the loading carts

Modular System of The Device Arrangement

Unique Solution for Your Individual Requirements



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

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.

Validation

The ability of the sterilization processes to be validated and recorded is one of the conditions for their quality assurance. For these purposes, the users of UNISTERI® HP steam sterilizers are also offered a new service – Validation – which allows proving the compliance of the appropriate standards EN 285 and EN ISO 17665-1 with the device parameters. The technical measurements are performed by our own accredited testing laboratory.

Environmental awareness

The device complies with all up-to-date ecological requirements. It does not burden the working and living environment. An efficient vacuum pump with a standardly intergated feeding water sparing equipment saves 15% of the operating costs. A unique construction of the steam generator with an automatic desalting ensures a continuous high quality of the steam.

High-quality materials ensuring a long lifetime of the device are used during the manufacture. We offer an equipment with the waste water aftercooling apparatus allowing the waste temperature setting. 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 Directive. (Waste Electric and Electronic Equipment)

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

TECHNICAL PARAMETERS
UNISTERI® HP

Chamber	Dimension (mm) (height × width × depth)		Number of sterilization modules	Chamber volume (l)	Weight (kg)	Cca max. input (kW) / fuses (A)		Consumption cca max. per ster. cycle				
	Internal of the chamber	External of the unit		Total		ED	FD	Water [m³]	Demineralized water [m³]]	Steam [kg]	El. energy ** [kWh]	El. energy * [kWh]
336 – 1	320 × 320 × 625	1500 × 600 × 805	1	73	260	8,5 / 16	1 / 6	0,06	0,003	2,7	3,0	0,2
336 – 2	320 × 320 × 625	1500 × 600 × 860	1	73	297	8,5 / 16	1 / 6	0,06	0,003	2,7	3,0	0,2
636 – 1	670 × 350 × 700	1720 × 690 × 965	2	160	520	17 / 25	2 / 6	0,07	0,005	5,0	5,0	0,3
636 – 2	670 × 350 × 700	1720 × 690 × 1020	2	160	635	17 / 25	2 / 6	0,07	0,005	5,0	5,0	0,3
559 – 1	509 × 509 × 990	1720 × 850 × 1255	***	254	690	24,5 / 35	2 / 6	0,08	0,008	8,0	8,0	0,4
559 – 2	509 × 509 × 990	1720 × 850 × 1310	***	254	710	24,5 / 35	2 / 6	0,08	0,008	8,0	8,0	0,4

Chamber xxx–1 single – door
Chamber xxx–2 double – door.
Connecting voltage model 336 and 636 – 3P/PE 400 V, 50/60 Hz
Connecting voltage model 559 – 3P/N/PE 480 V, 60 Hz (for USA)
Noisiness: max. 65 dB

* FD type – without steam generator,to be connected to external steam distribution
** ED type – with steam generator
*** the dimensions are not standardized for the container system

The values may differ depending on specific charge and media parameters. Changes in the design and make reserved.

CE 0123

UNISTERI® HP

– equipped with more individuality and comfort

Make acquaintance with our further offers...


Small steam sterilizers 15–25 l


Steam sterilizers 140–1490 l


Laboratory drying devices and incubators 22–1212 l


Stainless steel instrumentation


Formaldehyde sterilizer 110 l


Exchanger steam/steam


Washer Disinfectors


Cleaning and disinfection agents

BMT Medical Technology s.r.o., Cejl 157/50, Zábrdovice, CZ 602 00 Brno
Tel.: +420 545 537 111, fax: +420 545 211 750, e-mail: mail@bmt.cz, www.bmt.cz

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