

WD 390



WD 390
Multi-chamber Cleaning, Disinfecting and Drying Machine
for Hospitals, Laboratories and Industry



SAFETY AND RELIABILITY WITHOUT COMPROMISE...

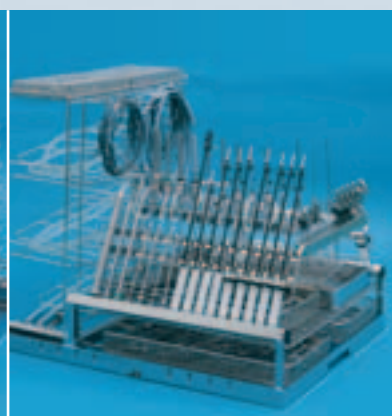
With more than 30 years of experience in the manufacture and development of multi-chamber compartmentalized washer disinfectors, the Belimed research and development team have now designed a machine WD 390 to meet the highest level of cleaning and disinfection technology.

By the use of components tested for their quality and reliability, the WD 390 has been developed to meet the most stringent production demands of any Sterile Services Department.

The Belimed WD 390 has also been type-tested and certified from an accredited test laboratory to meet the DIN EN ISO 15883.



Washing Items	Capacity/Charge	Capacity/Hour depends on number of cabins
surgical instruments	9 – 15 DIN baskets	30 – 90 DIN baskets
MIS-instruments	3 sets	6 – 12 sets
AN-material	7 sets	14 – 35 sets
sterile container 3 x 1,5 x 6 incl. lid and filter lid	3 – 5 pieces	20 – 40 pieces
theatre shoes	30 pairs	60 – 120 pairs
baby feeding bottles	126 pieces	252 – 504 pieces



THE NEW COMPACT ONE...

Design:

With the Belimed experience of working practices, as well as a close co-operation with customers and planners, Belimed have taken into consideration that space in most central sterilization areas is at a premium.

The Belimed WD 390 with its space-saving, shorter cleaning and drying cabins with the minimum machine loading and unloading areas allows this type of machine to be used in the most restrictive of areas.

Accessibility for maintenance and service can be accessed from one side, all utilities and components are placed within the machine for ease of service.

The Belimed WD 390 can be provided with service access from either right or left side of the machine.



STANDARDS CONSISTENT CONVERTED...

Design:

To fulfill the requirements of the DIN EN ISO 15883, extensive detailed solutions were developed, which ensure a consistent implementation of the required standards.

Some examples:

- Sloping internal surfaces of the chamber's roof and tank ensures free draining of water between each stage of the cleaning and disinfection process.
- The supply pipework system with services installed from the top, gives a design with 0 dead legs.
- Rounded welded chamber construction allows free draining, thus avoiding cross contamination.
- Glass sliding, heat resistant toughened doors between each chamber prevent any carryover of contamination from one chamber to another.
- Validation connections at each chamber and each tank for the connection of external measuring sensors.



Caption

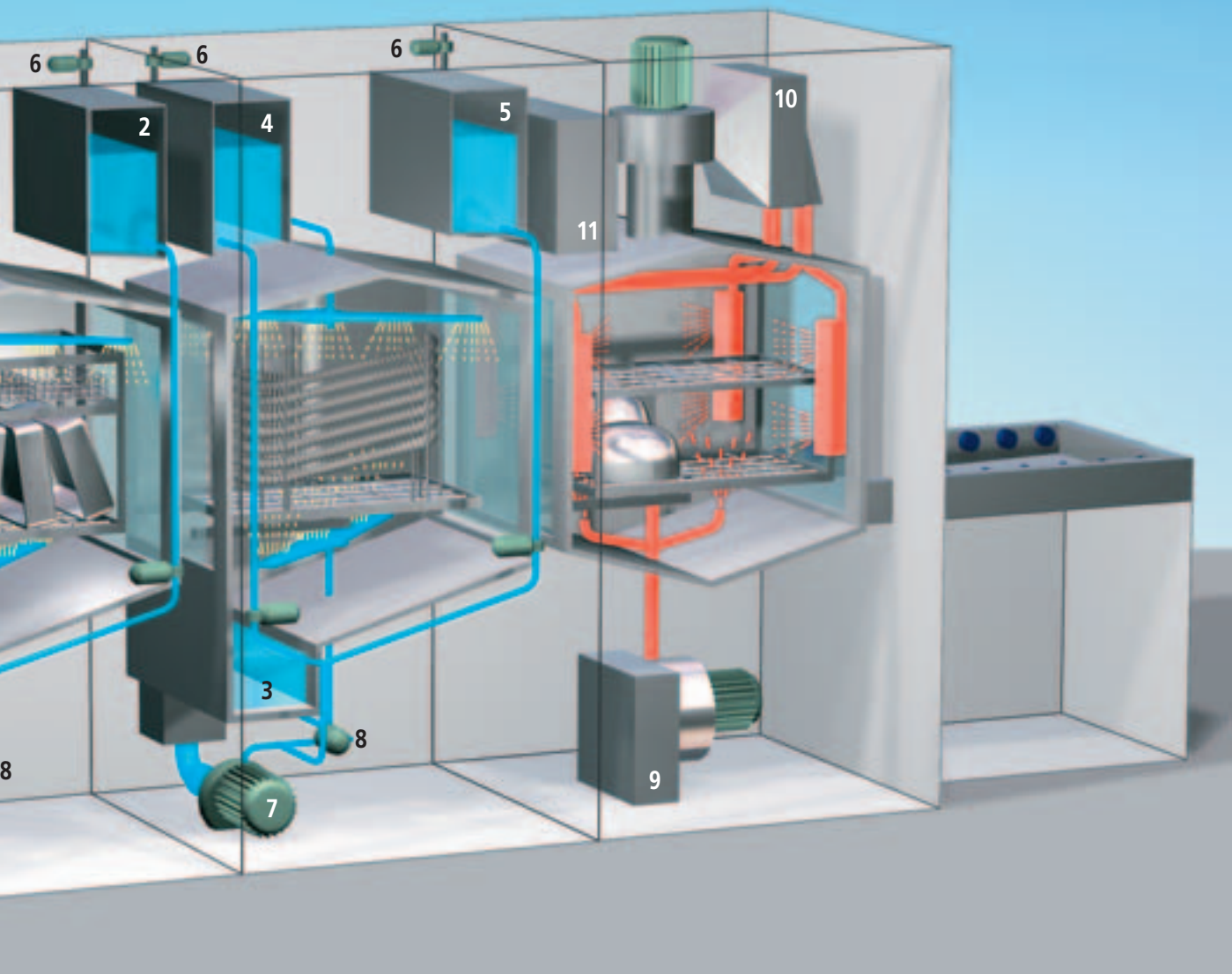
- 1) preparation tank (pre rinse/post rinse)
- 2) preparation tank (cleaning)
- 3) recirculation tank
- 4) preparation tank (post rinse)
- 5) preparation tank (final rinse/disinfecting)
- 6) supply with flowmeter
- 7) wash pump
- 8) control valve for recirculation capacity/soft-start
- 9) fresh-air drying
- 10) circulating-air drying
- 11) heat recuperation

Cleaning-chamber:

The spray chamber is equipped with a three-tank system, consisting of one recirculation tank and two preparation tanks. Using this three-tank system it is possible, use the WD 390 as a complete refill between each process or in the tank exchange method re-use of the cleaning media as well as the disinfection process steps as a rinse cycle.

This fast and flexible process is very economical and reduces water, detergents and energy consumption. The placement of the preparation tanks above the chamber makes a fast filling of the recirculation tanks possible. The capacity of the centrifugal pump, dependent on the loading rack, is automatically regulated to supply in each case the optimal quantity of water. Additionally a primer sequence that allows a gradual plateau of the centrifugal pump is installed for careful processing of delicate washing items.

For the accurate intake of water levels a flowmeter measures the quantity of water. For the accurate dosing of the detergents each dosing pump is equipped with a separate flowmeter.



Disinfection chamber:

The disinfection chamber is in the structure similar to the cleaning chamber. A fast, flexible and economic process is also possible. A large part of the water used in the thermal disinfection process can be circulated and used for post cleaning rinse for the next cycle.

For the monitoring of the thermal disinfection two temperature sensors, which cross reference themselves are installed. Optionally a drain water heat recovery is available. The heat energy is extracted from the hot drain water via a heat recovery system and supplied to the cold inflowing demineralised/RO water. The energy consumption is reduced by this preheating and the process time is reduced.

Drying chamber:

The drying chamber is equipped with two high performance dryers each of these being separate drying aggregates (fresh air drying and circulating air drying).

The hot fresh air is blown into the chamber via two inlet connections and via the connection coupling into the loading rack. The air circulation system leads the hot air via four laterally arranged air ducts into the chamber.

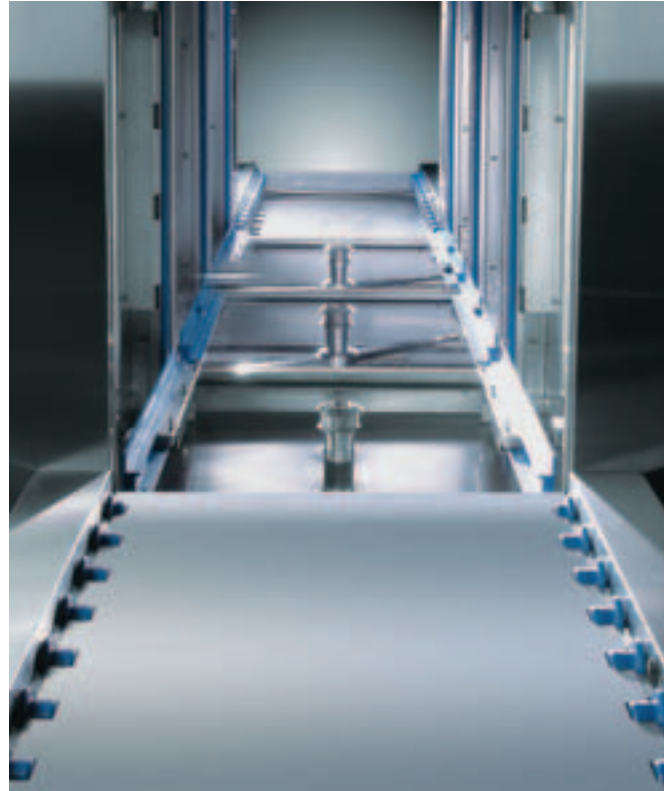
The combination of both systems guarantees an optimal drying result with minimum energy expenditure.

CUSTOMISED SOLUTIONS...

Variation:

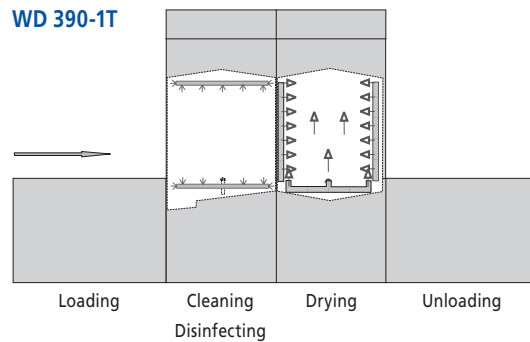
The Belimed WD 390 with its modular design allows the possibility of customised solutions. Depending on the necessary capacity and throughput required the WD 390 can be provided with two up to four chambers, with separate disinfection chamber plus the option of an ultrasonic chamber application.

The machine loading and unloading areas can be provided with simple loading and unloading conveyors, to the more sophisticated fully automated loop conveyor process and return conveyor system.

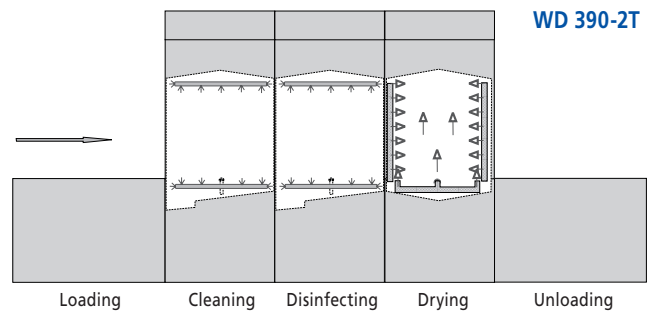


View from clean side into machine.

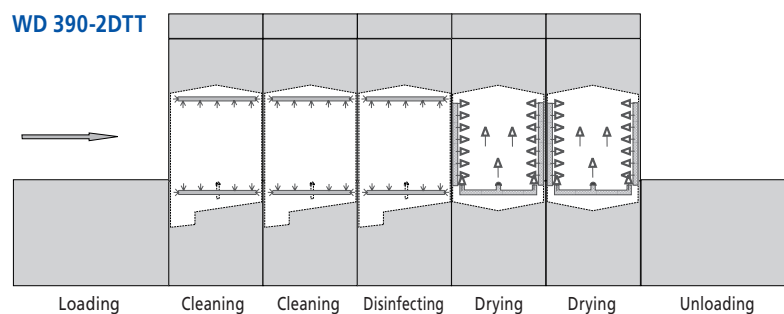
WD 390-1T

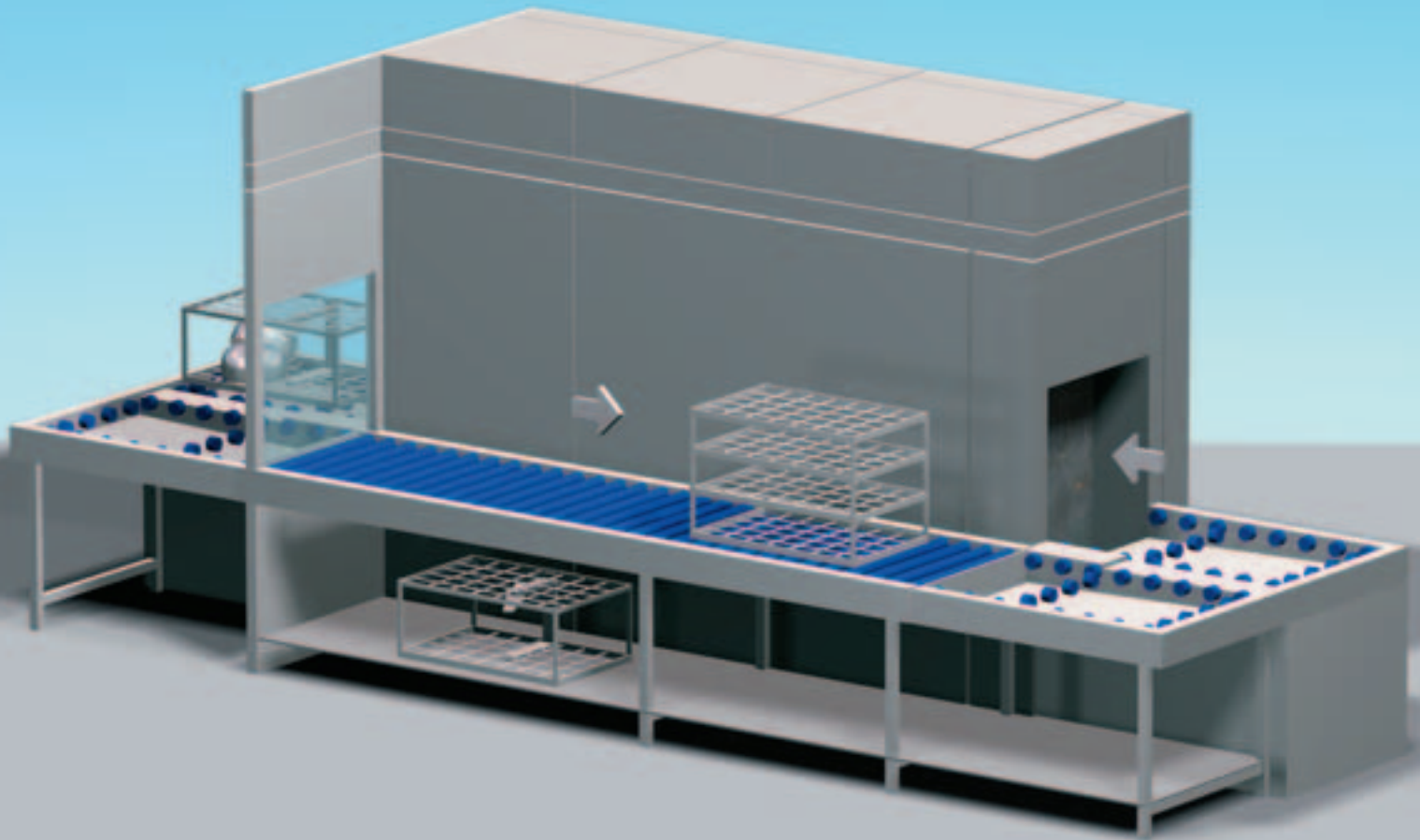


WD 390-2T



WD 390-2DTT





REDUCTION OF THE MANUAL ACTIVITIES OPTIMIZATION OF THE MATERIAL FLOW...

Transport system

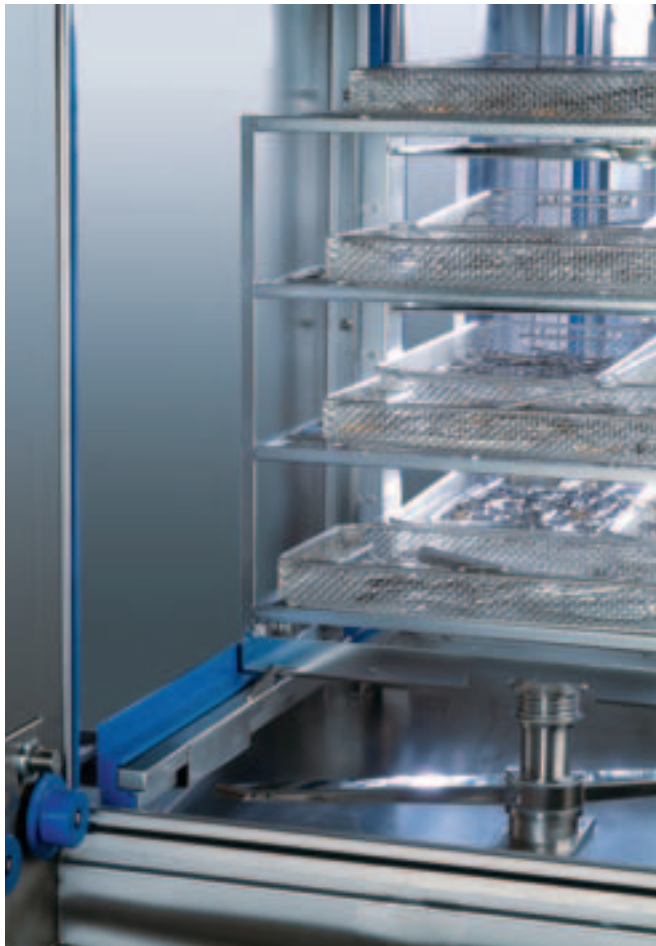
The automatic transport system of the WD 390 including the return roller conveyor offers an excellent overall design for the reduction of lifting and manual activities and makes the continuous flow of material possible.

It is possible to equip the automatic loading and unloading area with up to 3 automatically driven rack places. The transverse conveyor allows racks to be traversed with the minimum of effort to the automatic return conveyor.

The return of the loading racks from the clean to the unclean side takes place via either a single door or double door interlocking transfer hatch.

The loading area has been designed for a simple handling of the loading racks and the washing items. The design of the loading area has been equipped with a rinse/flushing system, that constantly cleans the working area of any debris or protein residue.

Use of demountable stub rollers gives easy access for cleaning purposes.



RELIABILITY BEGINS IN THE DETAIL...

Transport system

The transport of the loading racks takes place via push bar conveyor. This allows for an accurate positioning of the individual loading racks.

In order to prevent cross contamination, there is no open transport system, only two separate push bar conveyors.

This technology secures highest protection for operators.

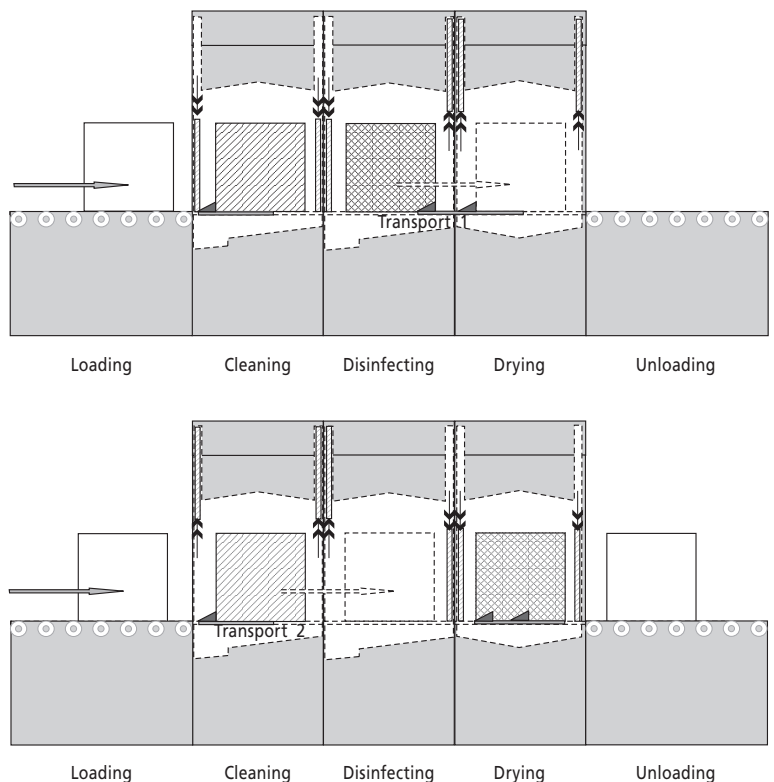
Transport-/door system in return door design

After the end of the program sequence the following steps are automatically started:

- Open the door at the exit of the disinfection chamber and the doors of the drying chamber.
- Transport system 1 pull/push the loading racks one place forward.
- Closing of the doors in this area.

- Open the door at the entry of the disinfection chamber and the doors of the cleaning chamber.
- Transport system 2 pull/push the loading racks one place forward.
- Closing of the doors in this area.

The new program sequence can start now.

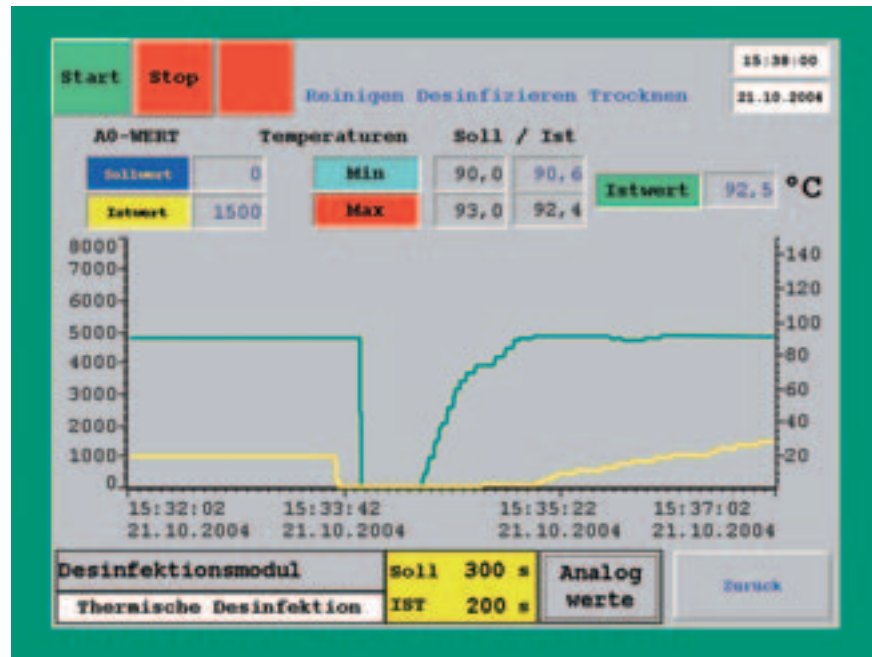


INTELLIGENT PROGRAM – MANAGEMENT WITH EFFICIENT TRANSPONDER TECHNOLOGY...

Control unit

The machine is equipped with a PLC-control unit of the newest generation. Twelve validatable programs can be stored as standard. The automatic program selection via transponder technology permits simplest operation with highest process security.

The transponder technology transmits to the control unit, with which program parameters the different cleaning items are to be treated.



Touch Panel loading site.

For the purpose of the traceability of critical loads, additional individual information about the washing item can be stored on the transponder.

The profi process field bus-technology permits a modular extension.

Operation

The machine is equipped with a Touch panel 10" screen, which supports and informs the user during the process operation data such as program step, length of time, temperature, remaining time etc. in plain text.

Loading protection

The DIN EN ISO 15883 requires a system for the protection of the washing items.

Separate control system independent of the control receive constant information from the control whether heat resistant or thermo labile washing items are in the respective chambers.

In case of failure of the control, the loading protection independently shuts off the heating, pump and the drying system.

A0-value-controller

As standard the WD 390 is equipped with a A0-value-controller. It is calculated automatically via the control and noted on batch documentation.

Independent process data logging

The DIN EN ISO 15883 describes a second monitoring system independent of the control.

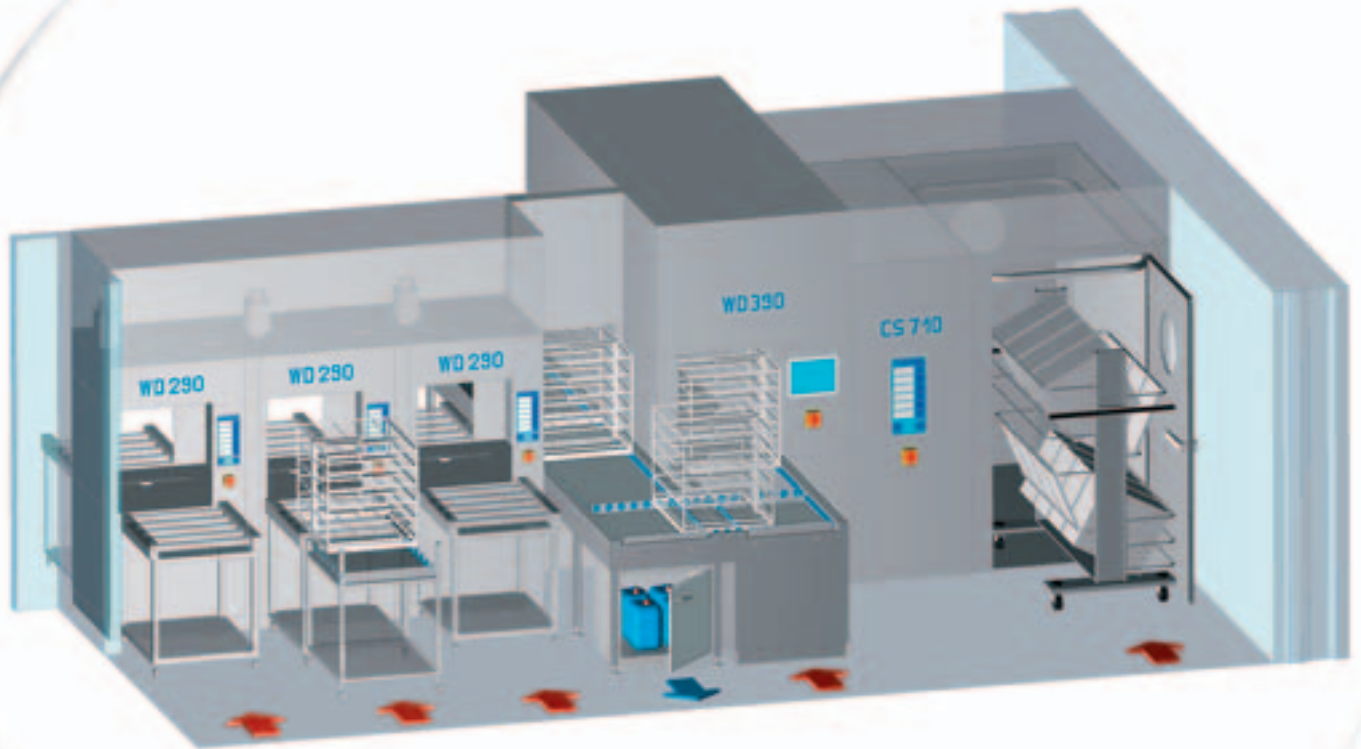
In order to ensure the traceability of the data, the process-relevant parameters must be transferred and archived such as pump pressure, water and air temperature and conductivity of the final rinse cycle, to a PC network.

Belimed fulfills this with the option of independent monitoring archiving system.



EVERYTHING FROM ONE HAND...

As leading system-provider Belimed can support its client with our total solution, this includes a planning and design department.



Project with three pass-through machines WD 290, cycle washer WD 390, automatic loading and unloading, return roller conveyor with automatic door hatch and Clean-Station CS 710/720.

Compatibility

The loading racks can be also used with the WD 290 and WD 390.



EDP-SOLUTIONS FOR EACH REQUIREMENT...

Each user has own requirements to his EDP, from the simplest kind of a batch printer up to complete electronic administration of the CSSD. As wide-ranging as these requirements might be, Belimed have an EDP-solutions to suit all needs.

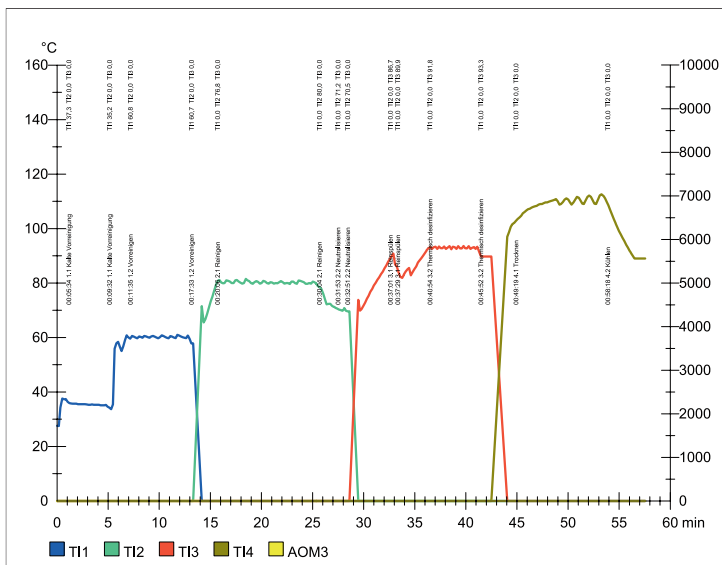
Separate printer

Batch documentation by separate installed A4 printer for the printing of a graphic as well as a log batch report.



Batch documentation

User:	: Uniklinik ZSVA 1	Manufacturer	: Belimed
Machine type	: WD390	User	: ZSVA 1
Machine no.	: 9	Act. batch no.	: 1880
Program name	: Instrum. 93C/5m	Program start	: 19.08.2004 00:04
Program no./dtd.	: 5 / 21.07.04	Batch period [min..sec.]	: 15:00
Software index	: 001.16	Disinfection period min..sec]	: 5:00
Batch content	: JORO ; 003-172-05 ; 003-136-02 ; 003-100-02 ; 003-122-05		
Program step	: Program correct finished		



Signature

Release: yes [] / no []

Central documentation system (ICS 8535)

The complete process data of the cleaning machines and sterilizers are recorded, stored in a central data base and prepared for clear documentation and printed out when desired.

All machines are connected with a data logging PC, which logs the process data of the connected machines during the process.

The main item of the PCs is a SQL data base, from which a information retrieval is possible at any time. The central documentation system 8535 has a modular structure, thus additional machines can be connected via interface RS 485 or Ethernet.

Central documentation system

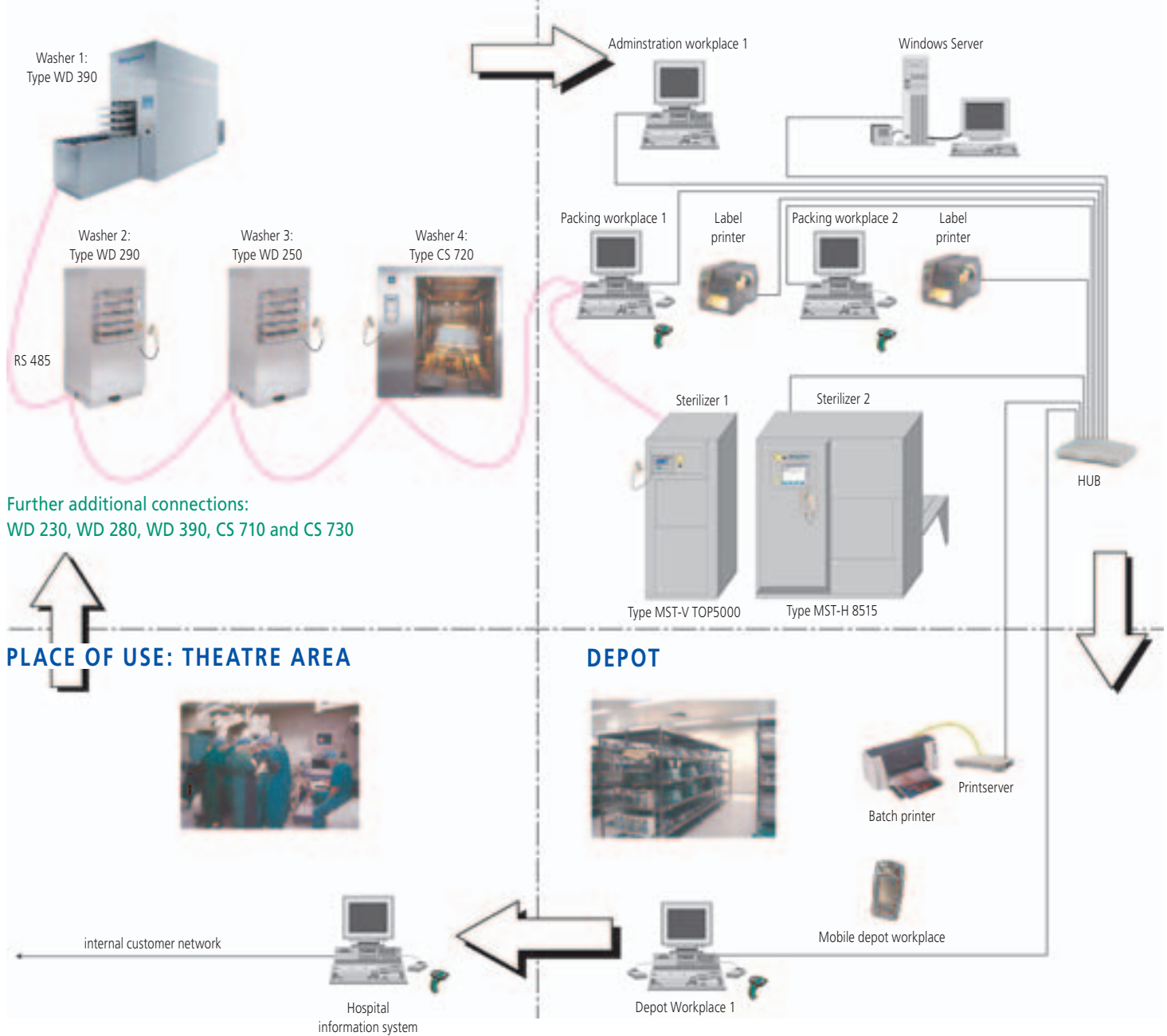
with material registration (ICS 8535-BC)

With the Belimed documentation software ICS 8535-BC, the washing item can be identified and traced back to the entire process cycle.

With this system and material registration, the instrument baskets are provided with a bar code, by means of using a tethered or radio frequency hand-bar code reader at the machine, registration will be assigned to the cleaning and disinfection and drying process.

CLEANING AND DISINFECTING

PACKING AND STERILIZATION

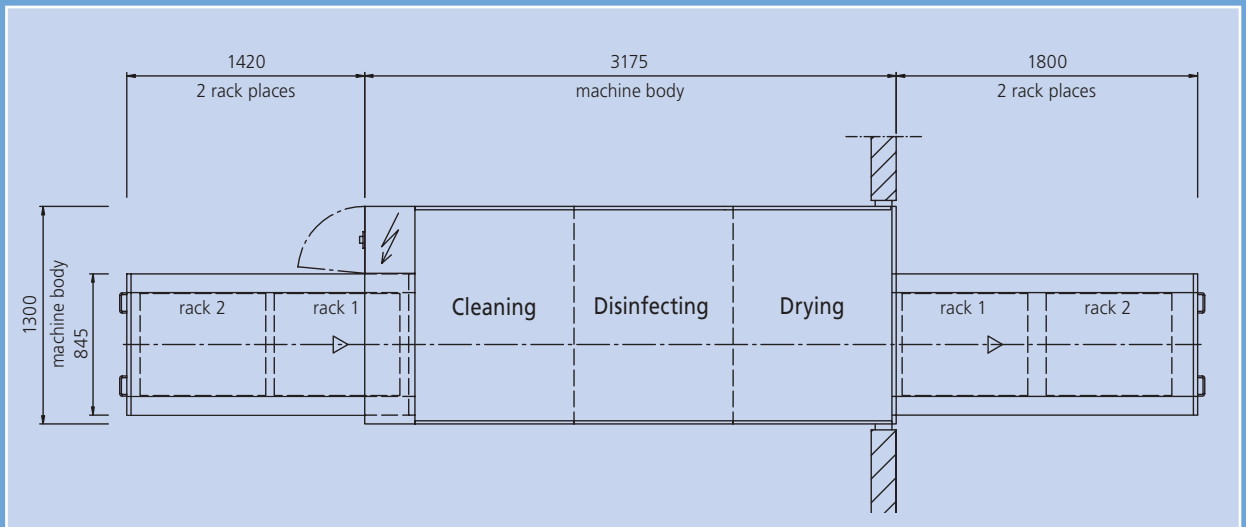


CSSD-management system (ICS 8565)

With the ICS 8565 CSSD-management system the instrument trays are registered at the machines by means of bar code.

After the cleaning and disinfection process the instrument baskets are registered on the clean side with a unique batch number linking the whole cleaning process allowing traceability of each instrument basket...

With connectivity of the decontamination process from the cleaning disinfection to the packing, sterilization and dispatch from the sterile stores maintains total traceability of instrumentation at all times.



CONNECTION DATA:

Dimensions:	Outside: Length:	W x H = 1300 x 2500 mm 2 chambers: 2255 mm 3 chambers: 3175 mm 4 chambers: 4125 mm 5 chambers: 5075 mm
Water:	KW cold water VE VE-water A drain	DN 20 2-3 bar DN 20 2-3 bar DN 70
Power:	E electrical connection	3N/AC, 400 V, 50 Hz Other voltages upon request
Exhaust air:	AL exhaust air	W x L = 200 x 500 mm
Steam:	FD heating steam KO condensate	DN 32 3-3,5 bar DN 25
Compressed air:	DL compressed air	DN 15 6-8 bar

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