



# LABORATORY SECTOR

## AUTOCLAVE



**Kalstein**®

A different accompaniment, at your service





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A different accompaniment, at your service

OUR SERVICES

## Benefits and Support

In Kalstein France, we take care of the full satisfaction of our customers, that is why we provide value-added services of the highest level based on our experience.



### Online Inductions and Trainings

In any part of the world, receive your induction or training from our specialized team of engineers



### Quick Response

Our work team is always available to response all your consults or questions, in order to support you in any situation.



### #Letsgivemore ♥

Thanks to your purchase, a donation will be made to a non-profit foundation that fights against breast cancer and helps most vulnerable communities.



### Technical Support

Enjoy of personalized advice for the correct preventive and corrective maintenance of your equipment, thanks to Kalstein's manuals and articles, special catalogues and video tutorials.



### Delivery Logistics

We take care of all the necessary logistics for the dispatch of your goods, whether is by sea, land or air.



### Kalstein Worldwide

With more than 25 years growing with our customers, Kalstein's multiformat and modern content, is now present in more than 10 countries and increasing.



**KALSTEIN® Autoclave**  
**Double Door Horizontal Pulsating Vacuum Autoclave**  
**Model YR0HS-HSP1000**



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**Application:**

YR series horizontal pressure steam autoclave is the equipment that disinfects and sterilizes the objects with saturated steam, its structure is horizontal and heating way is electric heating. It is composed of sterilization chamber, shell, jacket, door, steam generator, vacuum system, cooling system, pipe system, control system, display system and power-supply system. It is widely used in CSSD, pharmaceutical and is suitable for items which are high temperature-resisting and high pressure-resisting including unwrapped or wrapped instrument, dressing, rubber, liquid, plant-in instrument, porous item, hollow instrument to be sterilized.

**Product Features:**

Application of finite element analysis tools: Good structural design stems from good design methods. The use of finite element analysis methods in the design process not only increases the design pressure of the sterilizer, but also extends the life of the sterilizer..

**Welding:**

Automatic welding using plasma welding machine, strictly follow WPS standard.

**Insulating Prayer:**

The insulating layer is made by aluminum silicate which is the best insulating material, and equipped with silicate insulation cotton with strong thermal insulation performance, which effectively reduces energy loss and heat radiation.

**Main Structure:**

The machine adopts rectangular horizontal triple-layer design structure, with chamber and jacket, the thickness is 8 mm. Chamber is composed of compound gauge, non-return valve, steam trap, plug screen etc. Jacket is composed of pressure gauge, safety valve, vacuum circuit breaker etc. Horizontal sterilization chamber, rectangular cross-section, European-style ring-shaped stiffener jacket structure. The unique inner shell and ring-shaped jacket combination structure enhances the strength and rigidity of the main body.

**Seal Door:**

Pneumatic sealing, the door gasket is made of high-quality silicone rubber sealing ring and adopts patented compressed air sealing technology, it is fully automatic operation when sealed, the lifespan is more than 2000 sterilization cycles. The door equipped with complete electromechanics safety interlocking device to ensure the safety of personnel and equipment.



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**Control System:**

- ✓ It is integrated by PLC + HMI + Printer. This system is easy to implement the program selection, parameter setting, equipment operation, report processing, printing, storing and others functions. The FO value and the temperature time gives double guarantee for sterilization.
- ✓ Equipped with Ethernet interface and USB interface.
- ✓ Equipped with independent temperature monitoring system.
- ✓ The master controller system equipped with four levels of authority.
- ✓ When automatic controller in the failure of the circumstances, the security device makes the sterilization indoor pressure safety in the pressure of the atmosphere to the back of the state, and allow the loading door can be opened.
- ✓ In order to maintenance, test and emergency needs, manual operation can be through the use of access control tools to complete

**Pipeline System:**

- ✓ All pipes are made of AISI 316L. All pipes are polished inside and outside, are seamless stainless steel medical-grade pipes, whose material composition can be traced.
- ✓ Drain lines are equipped with removable filter plugs to prevent clogging.
- ✓ The main control and action components are all internationally renowned brands to ensure stable operation of the equipment.
- ✓ The pipeline system is mainly composed of pneumatic angle seat valve, 0.02um HEPA filter, non-return valve, steam trap, water feeding pump, water tank, vacuum pump, heat exchanger, etc...
- ✓ With thermal insulator, reduce steam consumption, avoid scalding, improve sterilization and drying effect.

**Sterilization Cycle:**

- ✓ Preset sterilization cycle: 5 cycles (We can create more new cycles if needs)
- ✓ User-defined cycle: 10 cycles (We can create more new cycles if needs)
- ✓ Testing cycle (B & D test, Vacuum leakage test)

**Steam Generator:**

Non-pyrogenic steam supply boiler with steam power supply (Non-electric).

**Drainage Control System:**

Automatic drainage temperature adjustment system, drainage temperature  $\leq 55^{\circ}\text{C}$ .



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**Automatic Hydrophobic Device:**

Installed automatic control hydrophobic device for chamber and jacket, automatic program control, automatic drain, ensure the steam saturation.

**Internal Drainage:**

The bottom of the chamber has a certain inclination, which is convenient for cleaning and drainage, and ensures the discharge of condensate in the inner chamber, and equipped with drain line strainer.

**Water Saving and Noise Reduction System::**

For water-saving and noise reduction system, which can save 30% recycled water consumption of vacuum pump and reduce the noise of vacuum pump.

**Vacuum System:**

- ✓ The highly efficient liquid ring vacuum pump (with silencer) is provided to effectively remove air from within the chamber. Multiple negative pressure pulsation (1-99 times) + cross pressure pulsation (1 time)
- ✓ + positive pressure pulsation (1-3 times) mode is adopted to reduce the alternating load of the sterilizer and improve the fatigue life of the equipment.
- ✓ The steam condenser is fitter in the exhaust / vacuum line to condense the steam before entering inside the vacuum pump.

**Additional Request:**

Compliance with 21CFR11  
 Output communication with ERP process system  
 GAMP5 software compliance

**Fault Alarm System:**

Perfect fault information prompt and fault self-diagnosis function.

**Advance Configuration:**

All major components are world famous brand, stable performance, reliability and long service life..

**GPM and Certificated:**

Equipped with standard GMP verification port.  
 Certificate: CE, ISO9001, ISO13485, ASME, FDA, IEC60601-1, DQ, IQ, PQ, OQ, FAT, SAT, material certificate, calibration certificate, PI&D



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## KALSTEIN® Autoclave

### Double Door Horizontal Pulsating Vacuum Autoclave

#### Model YR0HS-HSP1000



#### Safety System:

- ✓ Low water cutoff sensor
- ✓ Mechanical pressure relief safety valve for chamber and jacket
- ✓ Over-pressure protective device
- ✓ Over-temperature protective device
- ✓ Protective measure device of door safety
- ✓ Interlock function device
- ✓ Door safety interlock device: The program can't start up when the door is not closed well. When the pressure of chamber is not 0, the door can't be opened. The door cannot be opened when the machine is running.
- ✓ Perfect fault alarm and fault self-diagnosis function
- ✓ Emergency stop button
- ✓ Two doors cannot be opened at the same time

#### Alarm System:

- ✓ Alarm system with sound and indicator light device.
- ✓ Door is not closed in place alarm.
- ✓ Chamber over-pressure can not open the door alarm.
- ✓ Chamber low-pressure can not open the door alarm.
- ✓ Chamber over-temperature can not open the door alarm.
- ✓ Chamber over-temperature alarm.
- ✓ Chamber low-temperature alarm.
- ✓ Door interlock alarm.
- ✓ Door opening and closing overtime alarm.
- ✓ Door not closed can not start program alarm.
- ✓ Program running can not open the door alarm.
- ✓ Door overload or blocked alarm.
- ✓ Door is not closed to open the chamber steam inlet valve alarm.
- ✓ Chamber low temperature and high temperature alarm during sterilization process.
- ✓ Emergency stop alarm.
- ✓ Water lacking alarm.
- ✓ Anti-dry burning alarm for electric heat pipe of steam generator.
- ✓ Sterilization failure alarm.
- ✓ Vacuum pump overload or blocked alarm.
- ✓ Sensor detection abnormality alarm.
- ✓ Chamber vacuum leak alarm.



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**Main Material:**

I Number of Door	I Door Type
“ Single-door	ρ Automatic horizontal sliding door
ρ Double-door	“ Motorized door
I Side Cover	I Steam Source
ρ With side cover	ρ External steam supply
“ Without side cover	“ Built-in steam generator
I Material of Chamber + Jacket	I Loading Method
“ AISI 316L+ AISI 304	ρ Loading cart and transfer trolley
ρ AISI 316L + AISI 316L	“ Floor trolley loading
I Material of Pipeline	I Material of Door
“ AISI 316 L+ AISI 304	“ AISI 304
ρ AISI 316L	ρ AISI 316L
I Optional Configuration	I Voltage and Frequency
“ Remote monitoring system	ρ Based on request
Note: ρmeans current configuration	



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### Double Door Horizontal Pulsating Vacuum Autoclave

#### Model YR0HS-HSP1000



#### Main Parameters:

- ✓ Design pressure: -0.1/0.3Mpa
- ✓ Design temperature: 150°C
- ✓ Working temperature range: 105°C-139°C
- ✓ Working pressure range: 0-0.25Mpa
- ✓ Temperature control accuracy:  $\leq \pm 0.2^\circ\text{C}$
- ✓ Temperature display accuracy: 0.1°C
- ✓ Pressure display accuracy: 0.1Kpa
- ✓ Sterilization time range: 0-999min
- ✓ Drying time range: 0-999min
- ✓ Vacuum rate: -97Kpa
- ✓ Temperature equilibrium:  $\leq \pm 0.5^\circ\text{C}$
- ✓ Safety valve open pressure: 0.28Mpa
- ✓ Water source: 0.15-0.3MPa
- ✓ Steam pressure: 0.2-0.6Mpa
- ✓ Compressed air source: 0.4MPa-0.7MPa

#### Main Configuration:

- ✓ Type: Class B front loading horizontal pulsating vacuum autoclave
- ✓ Door number: Double-door
- ✓ Door type: Horizontal sliding door
- ✓ Liquid ring vacuum pump, Pre-vacuum and Post-vacuum
- ✓ Control: PLC + HMI + Printer
- ✓ Display: 7 inch color touch screen
- ✓ Built-in printer
- ✓ Built-in water feeding pump and water tank
- ✓ With USB interface, Ethernet interface, data storage system, cycle counting function, cycle record, password authority function, noise reduction system.
- ✓ Loading: Loading cart x 1 pcs and Transfer trolley x 2 pcs
- ✓ Language: English, French, Spanish, Chinese
- ✓ Warranty: 2 years



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**Size and Utilities:**

			Steam	Water	Net	
	Chamber size (W×H×D)	Outer size (W×H×D)	Consumption (kg/cycle)	Consumption (kg/cycle)	Weight (kg)	Power (kw)
Model						
	1000L					
YR0HS-HSP1000	610*910*1800mm	1750*2100*2100m m	55	300	1550	58
	1200L					
YR0HS-HSP1200	680*1180*1500mm	1820*2200*1800m m	65	400	1650	76
	1500L					
YR0HS-HSP1500	680*1180*1850mm	2020*2200*2100m m	80	500	1850	94



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**Kalstein Blog**  
Not just be informed, be fully informed

**The 3 articles of the week!**

Read more on Kalstein's social medias or official websites  
<https://kalstein.eu/articles>

**1**  
Read this ARTICLE NOW



**How does the climate affect your microscope?**

microscope is an instrument that allows observing and measuring small objects. This is achieved through a series of lenses that focus light on the object being observed.

**Kalstein Blog**

**Article of the week:**  
How does the climate affect your microscope?

Read more on Kalstein's social medias or official websites  
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**2**  
Read this ARTICLE NOW



**What is the importance of the laboratory refrigerator?**

Refrigerator is a device that is one of the most common equipment that is used to maintain, in a controlled environment (refrigerated space), various fluids and substances.

**Kalstein Blog**

**Article of the week:**  
What is the importance of the laboratory refrigerator?

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