LABORATORY LINES
AUTOCLAVES

Kalstein ®

A different accompaniment, at your service

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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.

Automatic Vertical Sliding Door Horizontal Autoclave

Model YR05654A

Application

Kalstein's 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, lab, scientific research institution, pharmaceutical, food industry 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
CAD-aided design

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.

Main structure

The machine adopts rectangular horizontal triple-layer design structure, with chamber and jacket, the thickness is 8mm. 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.

Welding

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

Insulating layer

The insulating layer is made by aluminium 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.

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 dual PLC + HMI + Printer. This system is easy to implement the program selection, parameter setting, equipment operation, report processing, printing, storing and others functions. The F0 value and the temperature time gives double guarantee for sterilization. Equipped with Ethernet and USB port.
- ✓ Equipped with independent temperature monitoring system.
- ✓ The master controller system equipped with three 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.

User interface

- ✓ User login: Admin, engineer, user
- ✓ Monitoring interface: Real-time running status
- ✓ Parameter setting: User-defined cycle
- ✓ Manufacturer's parameter
- ✓ Time setting
- ✓ Printing setting
- ✓ Door operation: Front door/back door
- ✓ Operation interface: Automatic operation, manual operation, cycle selection, B & D test, Vacuum test.
- ✓ Maintenance
- ✓ Emergency button and light

Pipeline system

The pipes connected with the inner chamber are made of AISI 316 and the rest are made of AISI 304. All pipes are polished inside and outside, are seamless stainless steel medical-grade pipes, whose material composition can be traced. 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, air filter, vacuum pump, heat exchanger, etc...

Sterilization cycle

- ✓ Pre-set sterilization cycle: Instrument, Textile, Rubber, Liquid (new pre-set cycle can be created according to user needs)
- ✓ User-defined cycle
- ✓ Testing cycle (B & D test, Vacuum test)
- ✓ User can adjust parameters of all pre-set cycles as required and can set up new cycles through user-defined cycle. We also can pre-set new cycle according to user needs

Steam generator

The steam generator is made of AISI 304, insulated with resin embedded glass wool, and equipped with water level sensor, safety valve, etc, automatic water filling.

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Drainage control system

Automatic drainage temperature adjustment system, drainage temperature ≤55°C.

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 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.

Maintenance system

Special design for a unique maintenance information prompt function, to remind user of maintenance, including change door gasket, clean and change filter, lubrication and maintenance of door lifting mechanism, wiping main body regularly.

Fault alarm system

Perfect fault information prompt and fault self-diagnosis function.

GPM & Certificates

Equipped with standard GMP verification port.
Certificate: CE, ISO9001, ISO13485, ASME, IEC60601-1, FDA

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Safety system
- ✓ Low water cut-off 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
- ✓ Any alarms are audible and displayed on the LCD screen.
- ✓ 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.

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

Loading method
- ✓ Loading cart and Transfer trolley

Remote monitoring system(optional)
- ✓ To realize remote monitoring and remote software upgrade of the equipment operation, PC/server via Ethernet connection for remote access.

Automatic Vertical Sliding Door Horizontal Autoclave
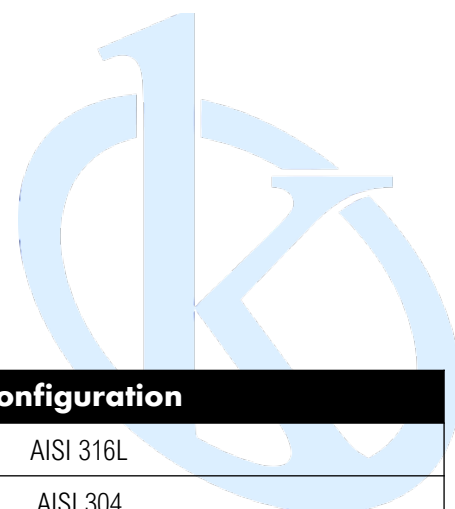### Model YR05654A

Main Parameters
- ✓ Design pressure: -0.1/0.3Mpa
- ✓ Design temperature: 150℃
- ✓ Working temperature range: 105℃-139℃
- ✓ Working pressure range: 0-0.25Mpa
- ✓ Temperature control accuracy: ≤ ± 0.2℃
- ✓ Temperature display accuracy: 0.1℃
- ✓ Timing range: 0-999min
- ✓ Drying time: 0-999min
- ✓ Vacuum rate: -97Kpa
- ✓ Temperature equilibrium: ≤±0.5℃
- ✓ Safety valve open pressure: 0.28Mpa

Sterilization Field: CSSD/ Laboratory/ Operation room/ Research institutions/ Pharmaceutical factory, etc.
Sterilization Object: Unwrapped instruments/ Wrapped instruments/ Textile/ Rubber/ Waste/ Liquid/ Medium/ Glassware, etc.

Main Configuration
- ✓ Class: Class B
- ✓ Liquid ring vacuum pump, Pre-vacuum and Post-vacuum
- ✓ Control: PLC + HMI + Printer
- ✓ Display: 10 inch color touch screen
- ✓ Built-in printer
- ✓ Built-in water tank
- ✓ Optional: Air compressor
- ✓ Language: English, Spanish, Chinese, French
- ✓ Voltage: 220/380/440V. 50/60Hz, three-phase

Items	Configuration
Chamber	AISI 316L
Jacket	AISI 304
Door	AISI 316L
Outer shell	AISI 304
Water tank	AISI 304
Number of door	Double-door
Steam source	Built-in boiler, AISI 316L
Pipeline	AISI 316L
Type of door	Fully automatic vertical sliding door
Loading cart and Transfer trolley	AISI 304

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Program	Sterilization Temperature	Sterilization Time	Drying Time
Unwrapped instruments	134°C	6 mins	8 mins
Wrapped instruments	134°C	7 mins	15 mins
Textile	134°C	7 mins	15 mins
Implant	134°C	10 mins	15 mins
Liquid	121°C	20 mins	No
Rubber	121°C	20 mins	15 mins
Hollow	134°C	6 mins	10 mins
Prions	134°C	18 mins	15 mins
PCD	134°C	3.5 mins	5 mins
Bowie-Dick test	134°C	3.5 mins	5 mins
Gravity program	√		
High vacuum program	√		
User-defined cycle	√		
Vacuum test	√		
Fast program	√		
Auxiliary program	√		
Manual control /Automatic control	√		

Model	Chamber size (W×H×D)	Outer size (W×H×D)	Packing Size	Net weight	Power
YR05654A	500L 650*650*1200mm	1450*1950*1580mm	-	1050kg	3+36 kw

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