Kalstein

Model YR431-1

Automatic Tissue Processor

Instruction Manual

Thank you very much for purchasing our Automatic Tissue Processor Model YR431-1.

Please read the “Operating Instructions” and “Warranty” before operating this unit to assure proper operation. After reading these documents, be sure to store them securely together with the “Warranty” at a hand place for future reference.

 Warning: Before operating the unit, be sure to read carefully and fully understand important warnings in the operating instructions.

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.

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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.

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1.1 General Information

1.1.1 Documentation

The information， numerical data， notes and value judgments in this manual represent the current state of scientific knowledge and state-of-the-art technology as we understand it following thorough investigation in this field。We are under no obligation to update the present manual periodically and on an ongoing basis according to the latest technical developments， nor to provide our customers with additional copies， updates etc. of this manual.

For erroneous statements， drawings， technical illustrations etc. contained in this manual we exclude liability as far as permissible according to the national legal system applicable in each individual case. In particular， no liability whatsoever is accepted for any financial loss or consequential damage caused by or related to compliance with statements or other information in this manual.

Statements， Drawings， illustrations and other information as regards contents or technical details of the present manual are not to be considered as warranted characteristics of our products。These are determined only by the contract provisions agreed between ourselves and our customers.

Kalstein reserves the right to change technical specifications as well as manufacturing processes without prior notice. Only in this way is it possible to continuously improve the technology and manufacturing techniques used in our products.

For the instrument serial number and year of manufacture, please refer to the name plate at the back of the instrument.

1.1.2 Specified use and application

The instrument may only be operated within the scope of its designated use and in accordance with the instruction manual.
Any other use of the instrument is considered improper.

1.1.3 Ordering Spare Parts

To order replacement parts or modules， specify the following information for each part

ordered：

1. Product model and serial number.
2. Kalstein Part number.
3. Part description.
4. Quantity required.

1.1.4 Warranty and Service

Kalstein guarantees that the delivered product has been subjected to a comprehensive quality control procedure based on our strict in-house testing standards in order to ensure that the product complies with its technical specification.

The warranty conditions depend on the contents of the individual Contract concluded， supplemented by the warranty conditions of your Kalstein sales agency.

Any repairs and/or exchange of parts of the product must be carried out by authorized Kalstein technical service engineers. Otherwise， any warranty becomes invalid and warranty claims can no longer be made.

The local Kalstein representative must be consulted prior to any handling of or changes to the instrument beyond the scope of this instruction manual as well as prior to any modifications or any use of the instrument in combination with non-Kalstein components not expressly authorized by Kalstein.

Spare parts and accessories not supplied by Kalstein can under no circumstances be considered as inspected and/or approved by Kalstein.

Therefore， installation or use of any such parts may impair the technical design features and thus properties of the instrument.

Kalstein assumes no liability whatsoever for any damage caused by the use of non-original spare parts or non-original accessories.
The warranty is only valid and warranty claims can only be made as long as the instrument has been operated according to its designated use and according to the instructions given in this manual.

Improper use of the product and/or faulty operation invalidate the warranty and any claims based thereon， and likewise Kalstein will not assume liability for any consequential damage.

1.2 Safety instructions

1.2.1 Danger

While this instrument is in operation， certain components of the unit are inevitably live， carrying a current which can cause severe injuries or death. It is essential to use the precautions

mentioned below， in order to reduce the risk of death and/or injury.

1. Only qualified personnel（see following page）， who are familiar with both the instrument and the instructions supplied together with the instrument， may search the instrument for faults and trouble-shoot and/or repair the instrument.

2. Installation of the instrument must be carried out in compliance with the applicable safety regulations（e.g., DIN, VDE, UL）as well as with any other pertinent national or Kalstein rules. Adequate grounding， dimensioning of conductors and corresponding short-circuit protection must be provided， in order to ensure operational safety.

3. During normal operation， all covers have to be installed and must remain closed.

4. Prior to doing visual inspections and/or maintenance work， make sure that the AC power supply is switched off and instrument is unplugged from mains.
Danger！-prior to cutting off the AC power supply， the instrument is live！

5. If certain measuring has to be done with the current supply on， never touch the electrical connections！ The plastic cover at the power supply unit must be installed. Remove all jewelry from your wrists and fingers. Make sure the test devices are in good， operationally safe working order.

6. When working on a live instrument， stand on insulated ground， i.e., make sure that there is no grounding.

7. This list does not necessarily contain all measures that may be necessary for safe operation of the instrument. If you need further information or if specific problems occur， please contact your local Kalstein office.

1.2.2 Qualified Personnel

As defined in this service manual， are persons who are familiar with installation， maintenance， repair and operation of the product of Kalstein， and who have received adequate training in order to carry out their responsibilities. Adequate training is e.g.：

- Professional training， or receiving specific instructions from a professional， or being licensed to connect/disconnect， ground and label electric circuits and instruments/systems according to all applicable safety regulations.

- Professional training or receiving specific instructions from a professional on who to use/maintain applicable safety regulations， the training itself being carried out according to all applicable safety regulations.

1.2.3 Symbols used in the test and their meanings


Warning is marked by a warning triangle


Notes，e.g., important information for the user， are Marked by an information sign


Flammable solvents and reagents are marked with the following symbol.


Instrument surfaces which become hot during operation are marked with the following symbol. Avoid direct contact with these surfaces-risk of burning.

1.2.4 Liability

This document is strictly for the use of qualified service engineers with the requisite technical skills.
Only persons who have successfully completed the appropriate service training provided by Kalstein， are in the employ of a company in the Kalstein Group or of an agency， distributor， or service workshop duly authorized by Kalstein ， have the status of qualified service engineer.
Kalstein accepts no liability whatever for direct or indirect damage that may occur due to the unauthorized or improper use or interpretation of this document by any person who is not a qualified service engineer in accordance with the above definition.

Service technicians have the following obligations：

- To understand and follow the safety information and instructions on the product and in the user manual
- To be familiar with local regulations relating to industrial and non-industrial accident prevention in the knowledge that these regulations are up to date.
- To inform Kalstein immediately in writing if the equipment becomes unsafe.

1.2.5 Note of Danger

To ensure trouble-free operation of the instrument at all times， the following instructions and warnings should be observed：

- The protective devices on the instrument and its accessories must not be removed or modified.

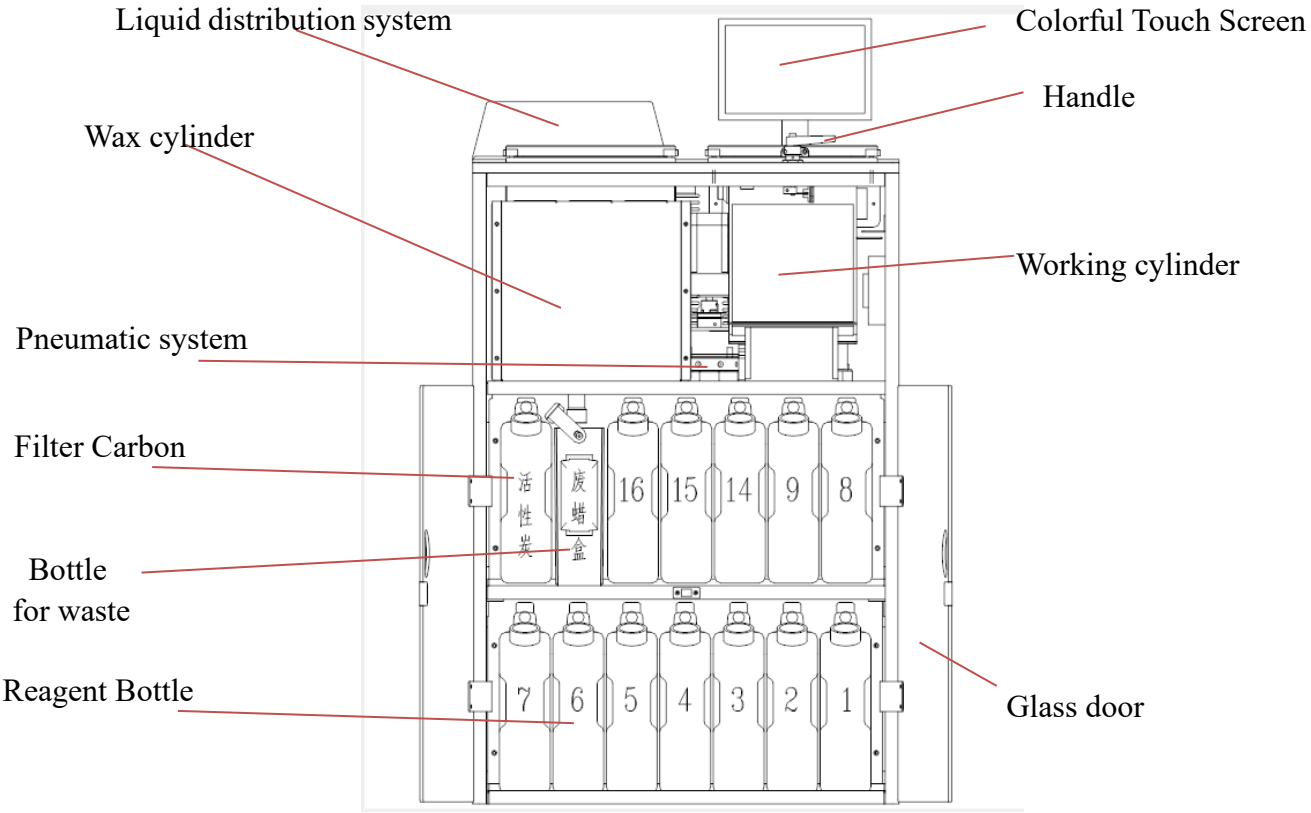
• Only service engineers authorized by Kalstein may access， service and repair the internal components of the instrument.

1.2.6 Instrument type

All information in this service manual applies only to the instrument type indicated on the title page.
A nameplate with the serial number is fixed on the back of the instrument.

Chapter 2 Structure

2.1 YR431-1 Model Schematic Diagram



The descriptions are as follows:

(1) Computer control system:15-inch color LCD touch screen, visual graphic display, English/Chinese languages switch, automatic suggestion guidance, it can complete dehydration according to the user setting.

(2) Handle: Open or locked the working cylinder. The non-locked alarm function during the operation of the dehydrating program.

(3) Working cylinder (Retort Bath）: Put the tissue into bath and different reagent to dehydration and wax fixed. It only starts to work while the handle locked well or alarm to remind.

(4) Liquid distribution system: It consists of distribution valve and micromotor. Through the motor and photoelectric switch precision control that success processing the reagents medium from No.1 to No.16

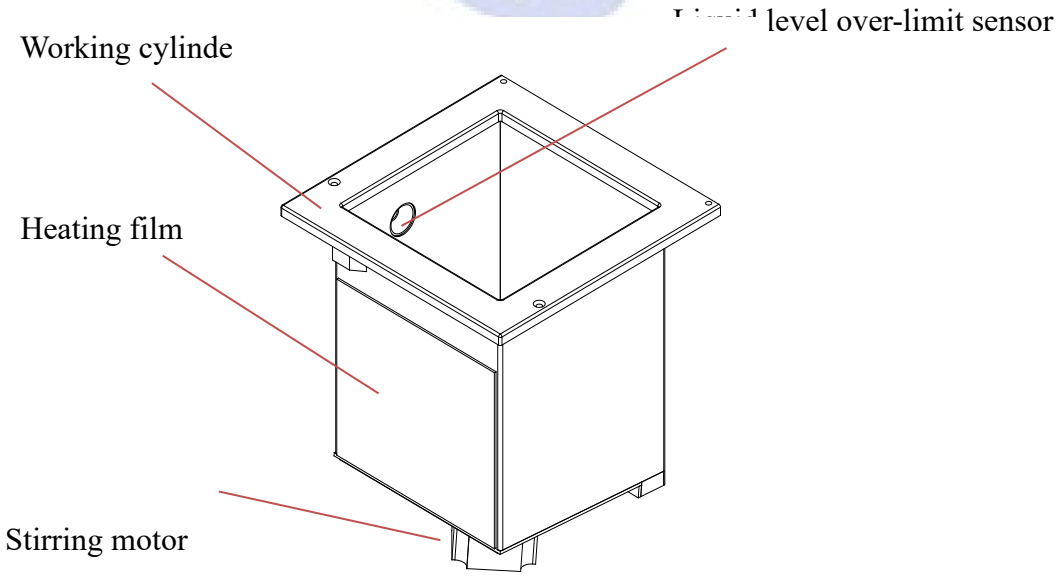
(5) Pneumatic system: It can complete the loading and unloading of various reagent in the working cylinder.

(6) Wax cylinder and reagent bottle: It could be used for storage of liquid medium.

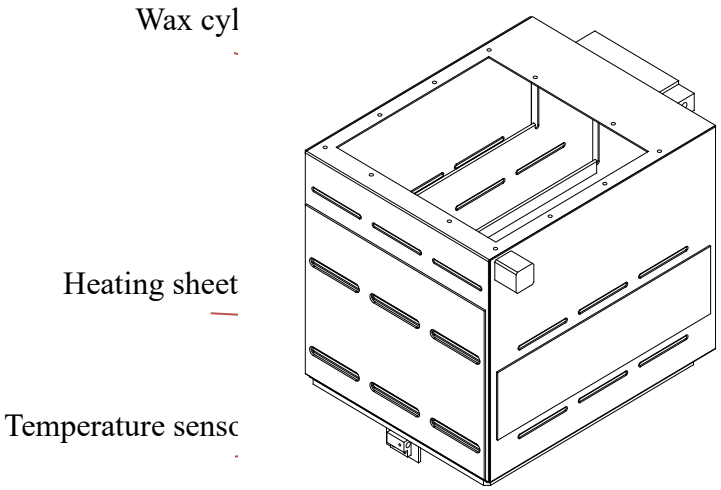
(7) Waste bottle: Collect the waste liquid when changing the wax or reagent.

(8) Carbon Filter： Used to adsorb harmful gas in the pneumatic system.

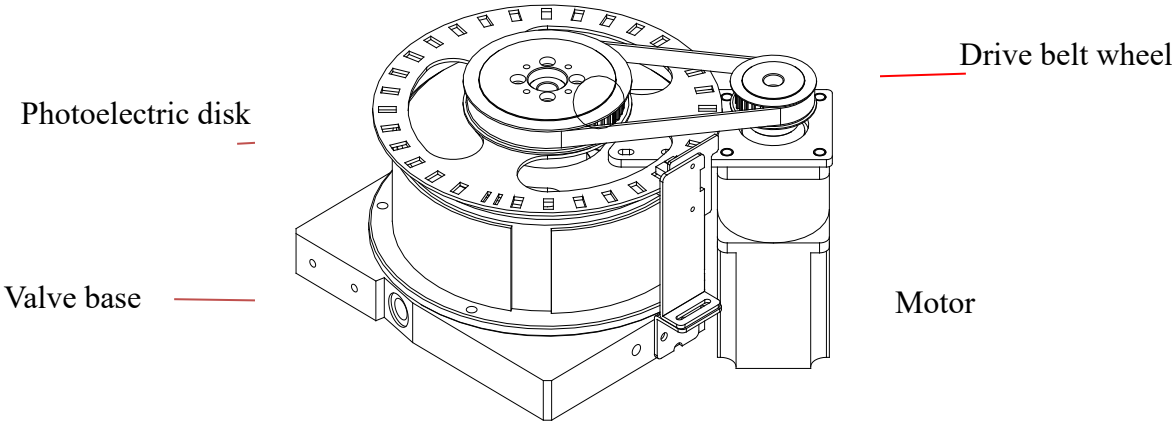
2.2 Main components structure Diagram



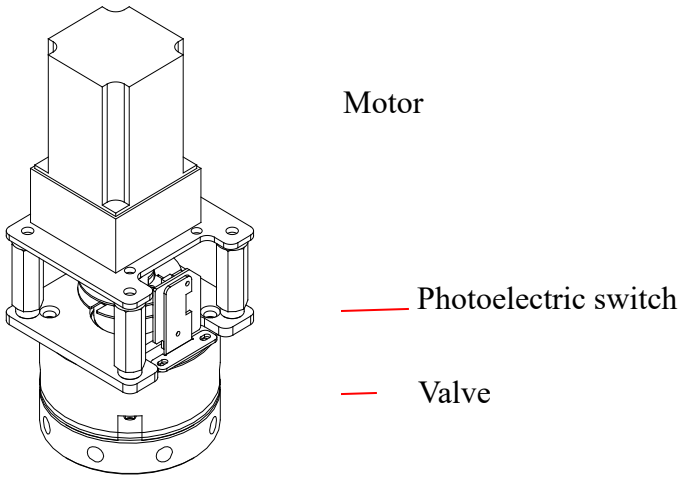
1.Working cylinder component



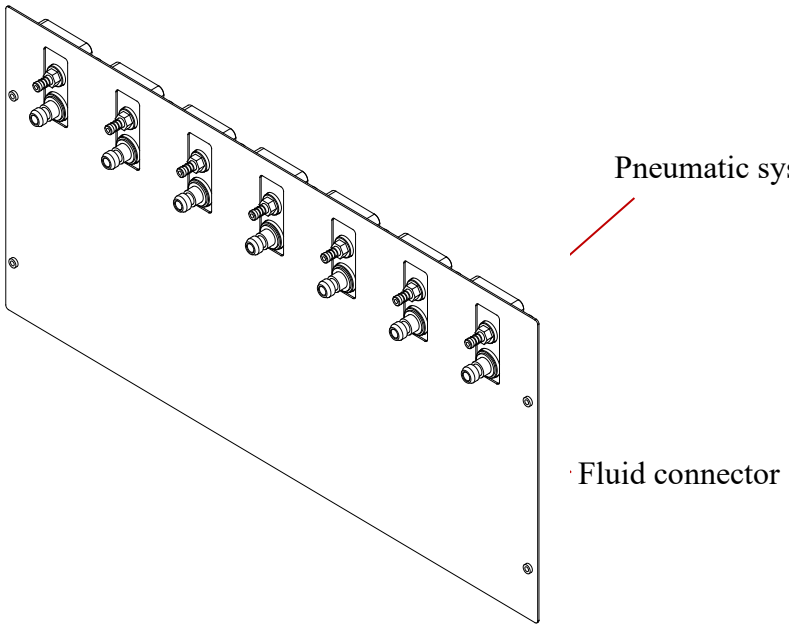
2.Wax cylinder component



3.Pneumatic distribution valve component



4.Liquid distribution valve component



5.Pneumatic and liquid plug component

Chapter 3 Maintenance

1. No display after booting

(1): The power cord is not plugged in well or is damaged, re-plug the power cord or replace the power cord. (Total 2 power cords: host power cord, touch screen power cord)
(2): The 10A fuse is broken, replace the fuse.
(3): 24V switching power supply has not output, replace the switching power supply. (Open the lower back cover to check whether the power module is working properly and whether the main control PLC power wiring is loose)

2. Abnormal solvent inlet and outlet

(1) : Over-limit protection liquid level sensor alarm: it means that the solvent was not completely retreated when the solvent was withdrawn in the previous step, and the liquid in the working cylinder was caused to be too much after the solvent was loaded this time.
Treatment method: On the main interface, enter the manual operation interface, press and hold the "Forced Stop" button, and when the safety is confirmed, press the "Withdraw" button to withdraw the liquid. After the withdrawal is completed, please manually inlet and outlet the liquid to check whether the pipeline of the previous step is blocked.
(2) : The solvent in No. 1 bottle cannot be filled or the filling is very slow: it means that the No. 1 solvent pipeline is blocked or the solvent bottle is not inserted in place, you can pull out the No. 1 solvent bottle, replace the xylene solvent bottle, and then manually inlet and outlet the liquid to clean the No. 1 pipeline.
(3) : The solvent in No. 14 bottle cannot be filled or the filling is very slow:
Because the No. 14 reagent is used for multiple times and mixed with many paraffin, the viscosity of the solvent increases and the pipeline is blocked. At this time, the reagents in the solvent bottle must be replaced, after changing the new solvent, please inlet and outlet the solvent manually.
(4) : When other solvent cannot be filled or the filling is very slow, clean the pipeline according to the above method.

3. Alarm for positioning failure of gas and liquid distribution valve system

When the alarm message of "liquid valve positioning failure" or "gas valve positioning failure" appears on the screen, in order to ensure the completion of this dehydration, you can contact the manufacturer to enter the system maintenance interface and force the valve control system to

return to zero. After that, the dehydration of the current specimen can generally be completed. Trouble shooting: open the protective cover of the liquid distribution valve, observe whether the photoelectric switch indicator is displayed normally, and check whether the fasteners of the belt wheel drive system are loose; Open the upper back cover and observe whether the light of the photoelectric switch of the gas distribution valve system is displayed normally, and whether the fastening screws of the coupling of the motor part are loose.

4. All solvents cannot inlet and outlet

Indicates that there is a leak in the air system, or the micro air pump is broken: At this time, the pressure sensor value does not change when the liquid is inlet and outlet. Check whether there is any foreign matter at the sealing ring of the working cylinder head and clean it. Check whether there is any air leakage at each gas path joint, and whether the joint nut is loose. Confirm whether the air pump can work normally.

5. The operation is normal, but the heating system does not heat

(1): The wax in the 3 wax baths (10, 12, 13 wax baths) melts slowly, which means that one of the heating elements of wax baths has broken. Need to replace the damaged heating element
(2): Cannot melt wax, and the whole machine does not heat: It means that the connector of the heating system busbar is loose, or the solid-state relay is damaged. Check the connector of the busbar or replace the solid-state relay.
(3): The temperature sensor is damaged, causing it to fail to heat. Check whether the temperature display value is normal. If a certain temperature value is found to be abnormal, the temperature sensor needs to be replaced.

6. Abnormal noise occurs during operation

Check the source of the abnormal sound, which is usually caused by the wear of moving parts. At this time, contact the manufacturer to determine the cause of the failure.

Important matters needing attention

(1): The paraffin replacement function can only be performed when the automatic dehydration is running. After the user completes the wax removal and takes out the specimen, it can be performed. If you forget to replace it, you can only replace it in the time during the next automatic dehydration.

(2): The user should pay attention to the various red reminders that appear on the screen, and especially remind the need to replace the No. 14 reagent in time to prevent the blockage of the pipeline.

(3): It is recommended that users clean and maintain the liquid system of the equipment every six months, and each reagent pipeline can be cleaned with a cleaning agent (xylene).