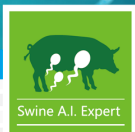




# A.I. Solutions

Swine Reproduction  
Technology



## INTRODUCTION

We are well known as a manufacturer for pig A.I. catheters and one-stop A.I. solution equipments since 2003 and have supplied our products to all over the world for 20 years.

Our engineering team has developed a lot of attractive new machines for whole market. In China, we are the most important supplier and technique service group for pig farm groups.

### Our qualified product includes:

- Design of boar stud
- Auto semen collecting system
- CASA for swine semen evaluation
- Water purification system for semen dilution
- Auto dilution barrel for diluents
- Semen filling and sealing machines
- Semen storage solution
- A.I. consumables



# Contents



INTELLIGENT BOAR® STATION 05

SEMEN COLLECTION 09

SEMEN ANALYSIS 17

SEMEN PREPARATION 27

SEMEN PACKAGING 37

SEMEN STORAGE TRANSPORT 43

AI INSTRUMENT & CONSUMABLE 47



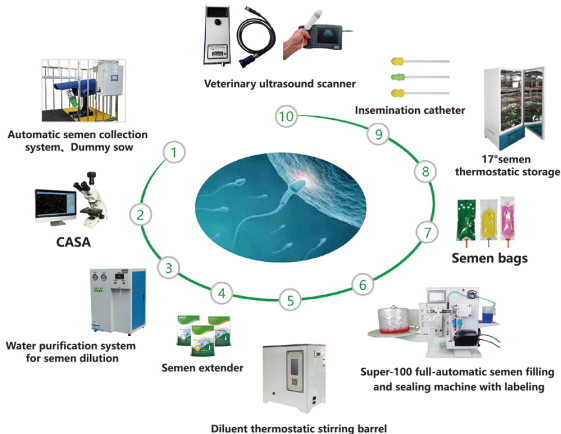


## INTELLIGENT BOAR STATION

- Semen collection
- Semen analysis
- Semen preparation
- Semen packaging
- Semen storage

## SMART A.I. LAB 2.0

RATO lab software integrates all the data and from semen collection to filling machine and semen storage.



RATO laboratory management system is an efficient concept to realize the automation of semen production and ensure the traceability of the whole stage from semen collection to final artificial insemination of sows.



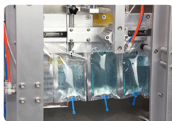
### Semen collection

When the boar climbed on the dummy, the operator will read the boar's ID by RFID reader. Boar ID and operator info are combined and printed on barcode



### Semen analysis

The collected semen is sent to the laboratory. The laboratory staff can identify the semen through the bar code reader and analyze them by SIPER VISION II CASA, these info will be sent to the management system.



### Semen packaging

The filling machine will fill bags, all the semen bags will be labeled to ensure traceable. The label information on the semen bag, can read through bar code.



### Semen preparation

After scan the information from barcode, the system will calculate dilution volume needed. According to this volume, system will prepare needed diluents.



### Semen storage & transport

After the semen is prepared, the semen should be stored and kept at a constant temperature of 17 degrees to avoid temperature changes and ensure the best condition of the semen before artificial insemination. Temperature changes and storage time will be displays in the system.



### A.I.

When sell or use, scan it by bar code reader to make it go out on the system. The source, quality, storage info of semen can be traced.





# S EMEN COLLECTION

The innovated semen collection technology makes the semen collection process more hygienic safe , efficient and humanized.

Boars are more relaxed during collection, this is an improvement in animal welfare.

---

## Dummy sow for boar with a slide rail

Designed for hygienic and efficient semen collection with maximum comfort for the boar

- The surface covered with plastic coat, hygienic, easy to clean
- The height and angle are adjustable to give the boar the most comfortable position to mate.
- Thick base that can be fixed to the floor
- Auto semen collection can be added



### Dimensions:

11inch L×W×H = 870×560× (640-800) mm

9 inch L×W×H = 870×510× (640-800) mm

### Weight:

11 inch: 60 kg

9 inch: 58.3kg

## Dummy sow for boar with plastic coating mount adjustable in angle and height

Designed for hygienic and efficient semen collection with maximum comfort for the boar

- The surface covered with plastic coat, hygienic, easy to clean.
- The height is adjustable to give the boar the most comfortable position to mate.
- Thick base that can be fixed to the floor,



### Dimensions:

L×W×H = 820×510× (700-860) mm

Weight = 40.6kg

## UV germicidal lamp thermostatic semen transfer window

This transfer window can be placed where the collected semen is transferred from the collection barn to the A.I. lab.

- 37°C constant temp avoid damage to the collected semen by temperature changes.
- Unidirectional opening and closing to avoid cross contamination between laboratory and collection area.
- Specifications can be customized according to customer requirements.
- UV germicidal lamp can kill surface microorganisms.



### Common Dimensions:

40×40×40cm

50×50×40cm

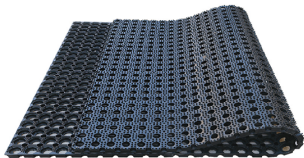
60×60×40cm

70×70×50cm

## Anti-slip rubber mat for semen collection

Used as a Anti-slip rubber behind a boar mount. Prevent the boar from slipping during semen collection. Easy to clean with a high pressure cleaner.

- Very durable
- Anti slip



### Specification & Dimensions:

8kg: 1524×914×12mm

20kg: 1450×980×20mm

- With electric heating system to heat the cup wall and bottom.
- With lithium battery to power the heating system for up to five hours.
- The temperature can be controlled and adjusted to 37°C.
- The Electric thermostatic cup is used at cool room temperature, to keep the ejaculate warm and reduce the temperature loss of semen.
- Equipped with power adapter and car power cord.

**Dimension:**

External diameter: 106mm

External total height: 211mm

Internal diameter: 80mm

Internal height: 128mm

Capacity: 600ml



## Electric thermostatic semen collection cup, 600ml

The cup is used to collect the semen and keep the semen warm.



## Semen collection cup, 450ml, 1000ml

- Wide opening, for manual semen collection.
- Keeps semen warm during collection.



Dimension(450ml):

diameter: 95mm  
total height: 170mm



Dimension(1000ml):

diameter : 120mm  
total height : 220mm

## Semen collection bag with filter

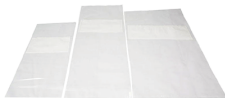
This semen collection bag is developed to filter semen during semen collection.

- One step solution from semen collection to packaging.
- Minimize semen contamination and ensure a hygienic way for the process from collecting to packing.



Specification & Dimensions:

2L : 52.5×22.5 cm  
5L : 71.5×25.5 cm  
6L : 64×33 cm





## Bag for semen mixing with spout

- Special developed for single use.
- In the bag it is possible to warm the water together with the diluent, so that the semen can be mixed in it afterwards.
- The mixture can be divided on shape bags, bottles or tubes.
- 3L/5L



## Disposable Semen collection bag

Bag for collecting boar semen during manual collection.

### Specification & Dimensions:

2L: 52.5×22.5 cm

5L: 71.5×25.5 cm

6L: 64×33 cm



## Semen filter gauze

This filters are used to filter the ejaculate after semen collection. It can be fastened with a piece of elastic over the collection cup.  
Pieces per bag: 100pcs

### Specification & Dimensions:

Square filter: 20×20 cm

Circular filter: φ25

## Gloves for semen collection

- Used for semen collection or hygienic pre-collection.
- Powdered or Powder-free.
- For once use only



Disposable nitrile gloves

Size: S, M, L and XL

Pieces per package: 10 boxes/ carton  
(100pcs/ box)



Disposable latex gloves

Size: S, M, L and XL

Pieces per package: 10 boxes/ carton  
(100pcs/ box)



Disposable PVC gloves

Size: S, M, L and XL

Pieces per package: 10 boxes/ carton  
(100pcs/ box)



Disposable PE gloves

Size: S, M, L and XL

Pieces per package: 10 boxes/ carton  
(100pcs/ box)





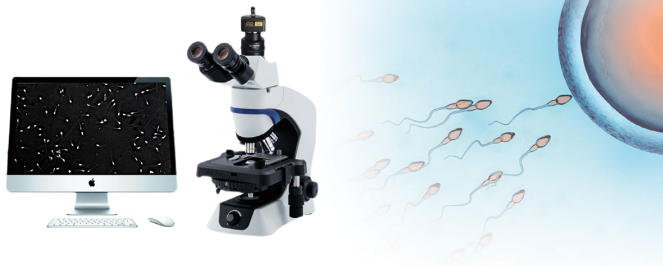
# S EMEN ANALYSIS

With the help of the advanced CASA system, sperm density, motility as well as acrosomal integrity, viability can be checked in accurate data to improve the breeding efficiency.

---

## RATO Vision II CASA

RATO Vision II is a highly precise CASA system for standardized, interactive semen analysis, includes microscope, PC, monitor and all accessories to choose. Additional Software modules available. RATO owns the independent intellectual right for this unique system.



### ■ Technical feature:



#### Function

RATO CASA can accurately analyze the sperm density, linear movement of sperm cell, eliminating variability and error caused by human analysis.



#### Rapid

Within 20 seconds, a complete comprehensive quality analysis of sperm is done, process integrated in smart AI lab program to improve quality and traceability.



#### Effectiveness

A detailed results report can be exported into a spread sheet such as Excel.



#### Safty

- Parametric analysis of semen cell movement.
- The most accurate analysis of cell concentration.
- Count the number of spermatozoa.
- Track the movement of single sperm to ensure the accuracy of sperm analysis in the field of vision.



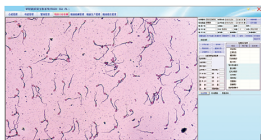
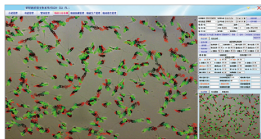
#### File record

Semen cell test images, video files and all analytical data are stored and can be exported to other documents (e.g., Excel).



#### Data share

The tested data can be communicate with other instruments.



### RATO CASA

Automatic tests of distal and proximal droplets. Protoplasmic droplets are produced during the maturation of a defective sperm cell. There are many factors contributing to the defect, such as stress response or disease. Protoplasm droplet belongs to secondary sperm deformity, which may lead to the decrease of sperm quality and insemination rate. Survey data showed that every 10 percent increase in the rate of secondary sperm abnormality in boars was associated with a 10 percent decrease in litter size in fertilized sows.

### Morphological and morphometric analysis

Interactive, self-learning sperm morphometry. The length and width as well as head shape and tail angle of the cell can be measured. The results will be classified in a database containing a large number of abnormal patterns.

### Automatic morphology analysis

Automatic identifying the number proportion and density of normal sperm and 5 kinds of abnormal sperm, including curved tail %, curly tail %, DMR%, distal protoplasm drop %, proximal protoplasm drop %.



## Monocular electric luminaire thermostatic microscope 640X



Technical parameters:

Magnification	40X-640X
Observing tube	Monocular, 30°inclining,360°rotation
Eyepiece	WF10X/18mm, H 16X10.5mm
Objective	Achromatic objective 4X 10X 40X
Control accuracy	$\leq \pm 1^{\circ}\text{C}$
Heating power	12V
Power	36W
Focus system	Coaxial coarse without focus, Coarse tuning 20mm, fine focusing 1.3mm
Light illumination	LED cold light illumination, high brightness brightness adjustable
Power supply	12V/4A switch adapter



## Electric luminaire microscope 640X with TV screen

Technical parameters:

Magnification	40X-640X
Observing tube	Monocular, 30°inclining,360°rotation
Eyepiece	WF10X/18mm, H 16X10.5mm
Objective	Achromatic objective 4X 10X 40X
Nosepiece	Three holes inward
Objective stage	Double mechanical mobile platform
Stage dimensions	115x125mm
Moving range	76X52mm
LCD size	5' / 7'

## Pipette

Used primarily for sampling semen or pipetting liquid samples.

Specification: 2-20ul 20-200ul 200-1000ul

- Fully adjustable, air-displacement pipette with selected volume shown on indicator.
- It's perfect for pipetting small volumes of liquid samples of moderate viscosity and density.
- Used primarily for sampling semen for photometric re-ading.



## Pipette holder

Hold different pipettes to be convenient for pipette placement and use



## Plastic pipette

Can be used to transfer semen or other liquid



## Pipette tip

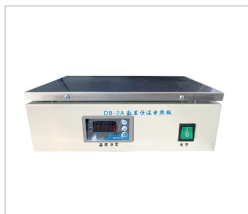
These tips are designed to fit our pipette perfectly

Specification: 2-20ul/20-200ul /200-1000ul



## Plastic tip box

Used to place pipettes tip



### Digital preheated object stage (300x200mm)

- Digital preheated object stage, suitable for placing object slide, cover slide, beaker and so on to keep them warm.
- Digital temperature reading and adjustable
- Dimensions: 300x200 mm.



### Digital heated object stage (95x54mm)

- Digital temperature reading and adjustable
- Suitable for professional microscopes monocular and binocular
- Delivered as standard with bolts for re-assembling the mechanical stage to the heated stage
- Dimensions: 95x54 mm



### Preheated and heated object stage

- Device Power: 40w  
Object stage power: 12W  
Preheated stage power: 15w
- Dimension: 90mmx150mmx220mm
- Use high-precision temperature sensor, LED digital display, temperature error  $\pm 0.1$  °C
- It is equipped with a constant temperature preheating table for the sample to be tested to be heated to the required temperature in advance
- Equipped with current fuse, temperature fuse and other safety devices, safe and reliable
- High durability encoder knob, easy and fast operation.



## Lens paper

The papers are used to clean all kinds of cameras, microscopes lenses. The absorbency and softness of the paper prevent the lens from being scratched during cleaning.

- 100 pieces per book
- Material : Cotton paper
- Dimension: 10x15cm



## Sample cup, sample tube

- Specification: 2ml 5ml



## Test tube box

Used to place sample cup or microtube.



## Semen coloration

Colouring for dilute semen. By colouring the semen the differences between the semen can be easily seen.

- Capacity: 20ml
- Colour: red, blue, green, yellow



## Semen meter

RATO Semen meter is a compact and accurate semen meter. Used to detect Sperm density of boar semen samples (expressed in millions of sperm cells / ml)

- LED high contrast reading display
- It can quickly calculate how much semen can be diluted
- The detection is rapid and accurate
- The semen meter can be adjusted and calibrated automatically



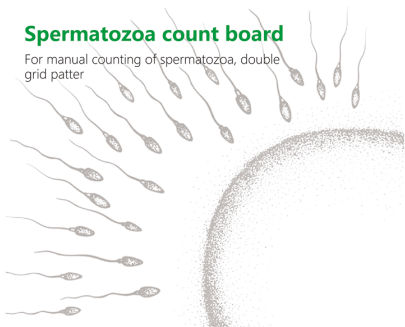
## Counter

Manual cell counter during semen morphological analysis

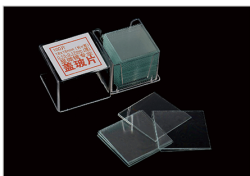


## Spermatozoa count board

For manual counting of spermatozoa, double grid patter



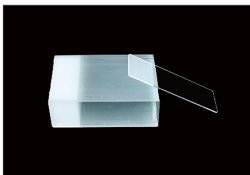




### Cover slide

Cover slide, per 200 pieces

- Dimension 18 x 18 mm and a thickness of 0.13-0.17 mm
- Standard packed per 100 pieces



### Object slide,specimen slide

- Dimension 76.2 x 25.4 mm and a thickness of 1-1.2 mm
- Between every slide there is a grease-proof paper
- Standard in a box of 50 pieces,  
box dimension:80\*65\*25mm



### Disposable four-cavity slide

- 4 cavity disposable glass slides
- The depth of the counting pool is 20um
- The amount of sample added in each counting pool is 3ul



### Disposable six-cavity slide

- 6 cavity disposable glass slides
- The depth of the counting pool is 20um
- The amount of sample added in each counting pool is 3ul



# S EMEN PREPARATION

Semen preparation system includes: water purification equipment , constant temperature mixing equipment for dissolving semen extender. All the equipment are computer-controlled and high efficiency

---

The equipment purifies the running water and the purified water can be used for semen dilution

- PURI-EASY water purification system, operates with the latest reverse osmosis technology, non-fiber membrane.
- A microprocessor checks and controls the water quality during the process.
- Reverse osmosis membrane in combination with an UV sterilizer to make water sterile.
- The build in self-cleaning function makes the system to have a long problem free life.
- Pre-warning function will alarm when filters need to be replaced.
- Easy to operate and maintain
- It has ten grade filters.
- Water production rate: 7L/h, 30L/h, 60L/h

## PURI-EASY water purification system



Grade	Filter	Working Time
Grade 1	5 microns PPF filter	1-3 Months
Grade 2	CTO activated carbon filter	2-4 Months
Grade 3	1 microns PPF filter	1-3 Months
Grade 4	RO Membrane	1-2 Years
Grade 5-8	Mixed resin	Depends on local water quality and water consumption
Grade 9	UV lighting	9000 Hours
Grade 10	0.5 microns PPF filter	1 Year

## PURI-CLASSIC water purification system

The system purifies the running water and the purified water can be used for semen dilution. The system includes pretreatment module, host + pure water arm and water tank.

- The system contains following parts
- Purified column combination system
- Two-stage reverse osmosis system
- EDI module
- Water intake arm:
- Intelligent human-machine interaction:
- Water tank:60L



### Water production technical specifications of Classic E/D pure water machine

Secondary water specification (from E-Arm water intake arm)	
Resistivity	>5MΩ.cm@25°C, typical value 10-15MΩ.cm@25°C
TOC (Total Organic Carbon)	<30ppb (μg/L)
Particles(>0.2 μ m particles)	<1/mL
Bacteria	<0.1CFU/mL
Velocity	Stepless speed change,maxomum 2L/min

## Pure water tank of water purification system

According to water consumption, the water system can be equipped with pressure tank to store water.

- To store purified water hygienically.
- The tank has a built in membrane to keep the water pressurized and it can be dispensed with free flow.

The following water tank can be used.

Tank A : 12 L

Tank B: 40 L

Tank C: 70 L



## Electric heating thermostatic incubator

The incubator can keep all the instruments used during the semen analysis and preparation at the right temperature.

- Adjustable range of 5 to 65°C
- Digital display (LED) met set and actual temperature
- Temperature fluctuations:  $< \pm 0.5^{\circ}\text{C}$

The sizes of different specifications are as follows:

- A) External dimensions: 480 x 520 x 400 mm  
Internal dimensions: 250 x 250 x 250 mm
- B) External dimensions: 730 x 720 x 520 mm  
Internal dimensions: 420 x 360 x 360 mm
- C) External dimensions: 800 x 700 x 570 mm  
Internal dimensions: 500 x 400 x 400 mm



## Precision thermostatic blower drying box, 70L / 225L

The cabinet can also be used to dry, sterilize and warm materials.

All used materials such as glass can be dried and sterilized in this cabinet. The cabinet can also be used to warm material at 36 °C. To avoid atemperature shock, these materials must be at the same temperature as the semen.

- Setting range from 10 °C to 300°C
- Temperature fluctuations:  $< \pm 1^{\circ}\text{C}$
- Extra mixing of preheated fresh through adjustable air slide
- Air flow through convection
- Internal dimensions: 350 x 450 x 450 mm
- Internal dimensions: 600 x 500 x 750 mm



70L



225L

## Thermostatic magnetic stirrer

The magnetic stirrer is used to quickly dissolve diluent mixture for semen in demineralized water.

- A beaker or flask filled with demineralised water and diluent mixture is placed on the magnetic stirrer
- A stirrer is put in the flask and the magnetic stick stirs continuously to homogenize the solution



## Diluent thermostatic stirring barrel

A special designed diluent stirring and heating vessel that operates at a constant temperature. The diluent thermostatic stirring barrel is used to prepare diluent on the basis of semen extender and purified water, and the appropriate volume of diluent is provided at fixed temperature in time.

### Thermomix-70L

- Barrel wall disc heating system to ensure quick and uniform heat transmission
- Programmed temperature control to ensure the heating accuracy  $\pm 0.5^{\circ}\text{C}$ .
- Temperature can be set freely.
- Pre-set start time to prepare diluted water before work.
- Equipped with a high pressure cleaning pump to clean the interior after use.
- LED touch screen control.
- Made in stainless steel, easy to clean and disinfect.
- Magnetic stirring method for stirring
- UV sterilization lamp
- Capacity: 35L-70L



### Top-70L

This is the updated version of the Thermomix-70L, which is adding 2 functions.

- Auto pump water quantitatively.
- Disposable water bags can be used, reduce the difficulty of cleaning.



## Semen extender

1. Balanced formula, developed with microbiologists and biochemists.
2. Very fast dissolving mixture ( less than 3 minutes) due to carefully selected A-brand raw materials.
3. Minimal risk for osmotic shock due to a stable pH and a excellent osmolarity buffer.
4. Due to strict GMP guidelines Quality, security and reliability is 99.99% secured
5. Produced under acclimatized conditions to ensure no moisture is packed and according to EU Directive 90/429/CEE.

### Semen extender Activeplus

The semen extender ensures a high rate of fertilization, preserves semen up to 10 days

- Ensures a high rate of fertilization, preserves semen up to 10 days
- This especially made diluent contains the broad spectrum antibiotic gentamycin.
- The duo-pack consists of an A-component ( antibiotic and buffer) and B-component (supplements and PH buffer).  
To ensure no chemical reactions during storage.
- RATO long term diluents contains high pure protein to minimize temperature shock and improve the fertilization rate.



### Semen extender Spermstar

The semen extender ensures semen can be stored for 5-7 days.

- Minimize the natural damage caused by semen preservation.
- Special antibiotic formula can effectively control bacterial contamination in the stored semen, and ensure semen can be stored for 7 days.
- Formula has anti oxidants for osmotic pressure control and to stabilize plasma membranes.



### Semen extender Basicrom

The semen extender ensures semen can be stored for 3-5 days.

- Basic formula guarantees PH buffering and protection against bacterial action.
- Special antibiotic formula can effectively control bacterial contamination in the stored semen, and ensure semen can be stored for 3-5 days.





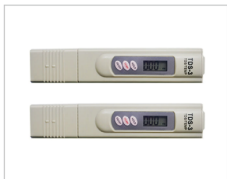
## Digital thermometer

- High precision, rapid measurement.
- Temperature measurement range:  $-50^{\circ}\text{C}$ - $+300^{\circ}\text{C}$  ( $-58^{\circ}\text{F}$ - $+572^{\circ}\text{F}$ )
- Temperature resolution:  $0.1^{\circ}\text{C}$  ( $0.1^{\circ}\text{F}$ )
- Temperature measurement accuracy:  $\pm 1^{\circ}\text{C}$  or  $2^{\circ}\text{F}$  ( $0^{\circ}\text{C}$ - $+80^{\circ}\text{C}$ )  $\pm 5^{\circ}\text{C}$  (other range)
- Storage of the measurement value
- Automatic shut-off in 10 minutes
- Switchable from  $^{\circ}\text{C}$  to  $^{\circ}\text{F}$
- Overall size:  $\varnothing 21 \times 228 \text{mm}$
- Probe length: 150mm



## Infra-red thermometer

- Can choose  $^{\circ}\text{C}$  or  $^{\circ}\text{F}$
  - Automatic adaptable range; resolution is  $0.1^{\circ}\text{C}$  ( $0.1^{\circ}\text{F}$ ) .
  - Automatic data storage and shut down.
- Resolution:  $0.1^{\circ}\text{C}$  ( $0.1^{\circ}\text{F}$ )  
 Storage temperature:  $0$ - $50^{\circ}\text{C}$  ( $32$ - $122^{\circ}\text{F}$ )  
 Operation temperature:  $10$ - $40^{\circ}\text{C}$  ( $50$ - $104^{\circ}\text{F}$ )  
 Relative humidity:  $\leq 85\%$   
 Power: two #7 battery in series  
 Dimension:  $158 \times 90 \times 37 \text{MM}$



## TDS Water quality testing pen

- Hold function:saves measurements for convenient reading and recording.
- Auto-off function:turns off meter after 10 minutes of nonuse to conserve batteries.
- Dual range:measures from  $0$ - $999 \text{ppm}$ ,with a resolution of  $1 \text{ppm}$ .From  $1000$  to  $9990 \text{ppm}$ , the resolution is  $10 \text{ppm}$ , indicated by drinking  $\times 10$  symbol,Factory calibrated.
- Accuracy:  $\pm 2\%$
- Battery:  $2 \times 1.5 \text{V}$ (Button Cell)



## Glass stick

Used as a stirrer to quickly dissolve diluent mixture for semen in demineralized water



### Ultrasonic washer

The washer is used to clean small parts such as slide, test-tube, glass beaker, flask and more.

- Used to clean small parts such as slide, test-tube, glass beaker, flask and more.
- Under the tank is an element that creates a high frequency and causes vibration. Millions of small pointed bubbles break against the item to be cleaned and reach in inside small holes.



### Glass beaker

The beaker is used to mix solutions.

- Made of glass
- Graduated in different graduations (1,2,3,5 liter)
- Only suitable for mixing solutions



### Plastic measuring beaker

Graduated measuring beaker made of polypropylene. Used for the measuring of all kinds of liquid.



中浦(青島)畜牧

# S EMEN PACKAGING

After more than a decade research and development RATO has developed a complete line of filling, sealing and labeling solutions for fresh semen production.

From on site semen processing to small, medium and big boar studs, we developed series filling machines.

Our filling machine fill tens of millions semen bags worldwide each year.

This illustrates stable quality of filling machines. We take the number one market share in China

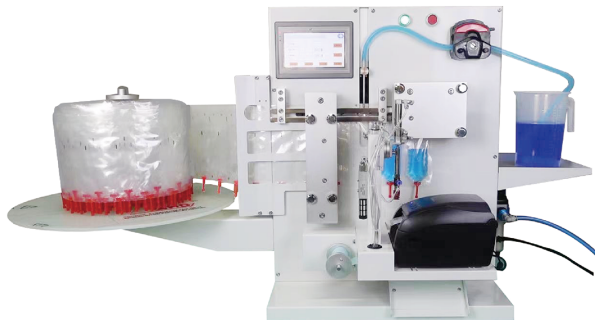
---

## Super-100 full-automatic semen filling and sealing machine with labeling

The Super-100 machine provides a solution for a complete automatic filling ,sealing and labeling for fresh semen production.

### Technical data:

- Automatic filling, sealing, labeling and cutting
- The control system adopt industrial computer to ensure the system stability.
- Filling accuracy  $\pm 1\text{ml}$
- Production Capacity :up to 800bags/h
- Quantity filled: 40-100ml adjustable
- Labeling content can be set individually
- Stainless steel cover and aluminum alloy with surface oxidation parts.
- Power consumption: 55w 220V
- Stable quality ,easy to operate,easy to maintain



## Wisdom-100 automatic semen filling and sealing machine

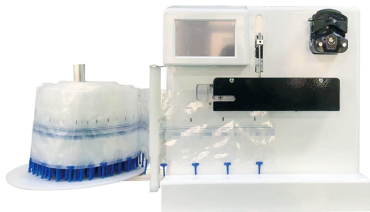
This Wisdom-100 machine is special designed for small and medium boar stud semen production

### Technical data:

- The control system adopt programmable logic controller to ensure the system stability.
- Filling accuracy : $\pm 1$ ml
- Production Capacity :up to 300bags/h
- Quantity filled: 40-100ml adjustable
- ABS cover with surface treated aluminium components.
- Power consumption: 60w 220V/50Hz
- Dimension: 280\*480\*500 mm

### Advantages:

- No compressed air needed , low noi:
- More compact, small machine size
- Very easy to handle and operate
- Less maintenance than an pneumatic machine
- Profitable for smaller boar studs.



## Tube-100 semi-automatic filling and sealing device for semen tubes

This is a special designed device for manual filling semen tubes.

- Graduated beaker 2L
- Equipped with connection tube, large white clamp for filling and stop.
- Stainless steel frame
- Power: 220V/60W
- Normal semen tubes, fill 40-100ml.





## Easy-100 manual filling and sealing device for semen bags

This device is special designed for small scale pig farm on site semen preparation

- One person can operate easily
- Graduated beaker 2L
- Equipped with connection tube, large white clamp for filling and stop.
- Stainless steel frame
- Power: 220V/60W
- Normal semen bags, fill 80-100ml.

## Semen soft tube

The semen tube is a hybrid between a semen bottle and a semen bag. The flexible material of the tube ensures that the semen flows better from the tube and easily into the sow. The tube can be connected to a pipette and contains graduations for 60ml, 80ml and 100ml

- Volume: 100ml
- Easy discharge of semen during insemination
- Diluted semen is stored over a large surface
- Easy to open.
- Frequently tested for toxicity towards semen
- Easy to hang during insemination
- Suited for Tube-100
- Package: 2000 pcs/box



## Semen bottle

The bottle will be delivered standard with cap and is packed per 1000 or 500 pieces in a box

- With snap-off tip and closure
- With graduations
- Available in the colours green, red, blue, yellow and white
- Capacity of the bottle: 40ml, 60ml, 80ml, 100 ml





## Semen bag(customized)

Printing and sizing can be customized.

- Easy discharge of semen during insemination.
- Diluted semen is stored over the largest possible surface to reduce sperm damage due to the compression.
- Easy to open and reclose.
- No pressure is needed to empty the bag
- Made of very soft, sperm friendly material
- Frequently tested for toxicity towards semen.
- Easy to hang during insemination



Semen bags in rolls (219\*72mm)  
for Super-100 Machine

- Maximum volume: 80ml
- 1 roll \* 750 pcs
- Suited for Super-100 Machine



Semen bag in rolls(205\*90mm)with  
zebra cutting,for Wisdom-100 Machine

- Maximum volume: 100ml
- 1 roll \* 500 pcs
- Suited for Wisdom-100 Machine



Semen bags in rolls(217\*72mm)

- Maximum volume: 80ml
- 1 roll \* 750 pcs
- Suited for Super-100 Machine



Single semen bag(165\*100mm)

- Maximum volume: 100ml
- Customized printing and shaping are optional



# **S**EMEN STORAGE & TRANSPORT

Semen thermostatic storage unit is a high-precision control system developed by RATO. According to the characteristics of semen storage, the unique design makes the internal temperature stable.

---

## 17°semen thermostatic storage

17°semen thermostatic storage is a semen storage cabinet for professionals. This storage cabinet has very accurate temperature control with both cooling and heating capability

- A easily readable LED display shows the set and actual temperatures with an accuracy of 0.5°C
- The standard set temperature of the storage (for application as sperm storage) is 17.0 °C
- Accurate PID controller, which maintains temperature with an accuracy of 1 °C
- Special designed inner ventilation system keep the inside temperature uniformity, and ensure optimal air circulation.
- Equipped with 4/5 trays for storing the sperm equally distributed in the cabinet. This allows the system to reach the set temperature both quickly and consistently
- The inter of the storage is finished in stainless steel, which makes it easy to clean



**BC-70L**



**BC-168L**



**BC-258L**



**BC-418L**

<b>BC-70L</b>	<b>BC-168L</b>	<b>BC-258L</b>	<b>BC-418L</b>
Capacity: 70 litres 4 storage trays Space for 130 shapebags Power : 100W Temp.rang: 17°C±0.5°C	Capacity: 168 litres 5 storage trays Space for 300 shapebags Power : 500W Temp.rang: 17°C±0.5°C	Capacity: 258 litres 5 storage trays Space for 500 shapebags Power :750W Temp.rang: 17°C±0.5°C	Capacity: 418 litres 5 storage trays Space for 900 shapebags Power :1000W Temp.rang: 17°C±0.5°C
<b>Product dimensions:</b> Inside:375*345*540mm Outside:478*600*670mm	<b>Product dimensions:</b> Inside:420*380*945mm Outside:500*520*1550mm	<b>Product dimensions:</b> Inside:470*460*1150mm Outside:547*610*1740mm	<b>Product dimensions:</b> Inside:580*550*1250mm Outside:700*770*1695mm

## Car thermostatic box, 19L/26L

The box can be used with a 12V/24V connection so that the box can for example be connected to a cigarette lighter in the car

- Supplied with accompanying cables: 220-240V AC and 12-24V DC
- Cooling capacitor: Cooling to 3-5°C at 25 °C ambient temperature
- Heating capacitor: +5-65°C
- Equipped with digital thermostat with temperature display

### Capacity & Dimension:

- Capacity: 19L
- Inner dimensions: 385X205X245mm
- Outside dimensions: 445X310X340mm
- Capacity: 26L
- Inner: 250X254X383mm
- Outside: 390X280X500mm



## Car thermostatic box, 40L

The box can be used with a 12V connection so that the box can for example be connected to a cigarette lighter in the car; the box with lithium battery can work without power connection when the battery is fully charged through the power adapter

- Supplied with accompanying cables: 220V AC (with lithium battery version) and 12V DC
- Lockable lid Temperature is set to 17 C°.
- Ambient temperature: 5 °C – 32 °C
- Equipped with digital thermostat with temperature display  
Capacity: 40L OR 40L with lithium battery



## Heat insulated box/incubator

The incubator is suitable for storing semen during the short transport distance

- A very durable and energy efficient unit, through high quality insulation with 40mm insulation foam.
- Product integral molding, good sealing, good heat preservation
- The shell is made of food-grade PE material, Non-toxic, harmless, odorless, and UV resistant.
- The lid is detachable, be convenient to place articles.
- These capacities can be available: 6L, 12L, 17L, 20L, 35L, 46L, 56L, 68L, 88L, 100L





**A** INSTRUMENT  
&  
CONSUMABLE

---

## RATO Catheters

- Specially designed to stay in the gilt for a while after insemination, in order to stimulate the uterus for a longer period of time and thus increase the absorption of sperm.
- Prevents damage to the cervix
- The special catheter head ensures a perfect closed cervix.
- Sealing cap prevents backflow of sperm
- Optimal fertilization possibilities
- Hygienic



### Foam catheter with handle, total length of 55cms

**Product dimensions:**

Length: 58 cm  
Diameter foam: 22 mm

**Technical specifications:**

Suitable for: sows  
Pipette type: foam pipette  
Contents: 500 pieces  
Individually wrapped: yes  
Provided with aseptic gel: no/yes to choose  
Closing cap: yes  
Extension: no  
Intra-uterus probe: no



### Gilt foam catheter with handle, total length of 55cms

**Product dimensions:**

Length: 55 cm  
Diameter foam: 19 mm

**Technical specifications:**

Suitable for: gilts  
Pipette type: foam pipette  
Contents: 500 pieces  
Individually wrapped: yes  
Provided with aseptic gel: no/yes to choose  
Closing cap: yes  
Extension: no  
Intra-uterus probe: no



### Conic foam catheter with handle

**Product dimensions:**

Length: 55 cm  
Diameter foam: 19mm

**Technical specifications:**

Suitable for: sows  
Pipette type: foam pipette  
Contents: 500 pieces  
Individually wrapped: yes  
Provided with aseptic gel: no/yes to choose  
Closing cap: yes  
Extension: no  
Intra-uterus probe: no





### Big spiral catheter with big handle, total length of 58cms

**Product dimensions:**  
Length: 55 cm  
Diameter spiral: 19 mm

**Technical specifications:**

Suitable for: sows  
Pipette type: spiral pipette  
Contents: 500 pieces  
Individually wrapped: no  
Provided with aseptic gel: no  
Closing cap: yes  
Extension: no  
Intra-uterus probe: no



### Midium spiral catheter with handle, total length of 50cms

**Product dimensions:**  
Length: 55 cm  
Diameter spiral: 17 mm

**Technical specifications:**

Suitable for: sows  
Pipette type: spiral pipette  
Contents: 500 pieces  
Individually wrapped: no  
Provided with aseptic gel: no  
Closing cap: yes  
Extension: no  
Intra-uterus probe: no



### Foam catheter without handle, straw of 6.8mm

**Product dimensions:**  
Length: 53 cm  
Diameter foam: 22mm

**Technical specifications:**

Suitable for: sows  
Pipette type: foam pipette  
Contents: 500 pieces  
Individually wrapped: yes  
Provided with aseptic gel: no/yes to choose  
Closing cap: no  
Extension: no  
Intra-uterus probe: no



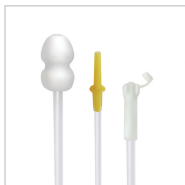
#### Foam catheter with handle + flexible extension

**Product dimensions:**

Catheter length: 55 cm  
Extension length: 46 cm  
Diameter foam: 22 mm

**Technical specifications:**

Suitable for: sows  
Pipette type: foam pipette  
Contents: 250 pieces  
Individually wrapped: yes  
Provided with aseptic gel: no  
Closing cap: yes  
Extension: yes  
Intra-uterus probe: no



#### Conic foam catheter with handle + flexible extension

**Product dimensions:**

Catheter length: 55 cm  
Extension length: 46 cm  
Diameter foam: 22 mm

**Technical specifications:**

Suitable for: sows  
Pipette type: foam pipette  
Contents: 250 pieces  
Individually wrapped: yes  
Provided with aseptic gel: no  
Closing cap: yes  
Extension: yes  
Intra-uterus probe: no



#### Conic foam catheter without handle + hard extension

**Product dimensions:**

Catheter length: 53 cm  
Extension length: 47 cm  
Diameter foam: 19 mm

**Technical specifications:**

Suitable for: sows  
Pipette type: foam pipette  
Contents: 500 pieces  
Individually wrapped: yes  
Provided with aseptic gel: no  
Closing cap: no  
Extension: yes  
Intra-uterus probe: no

## RATO Catheters+intra-uterus probe

The foam catheter for sows includes an intra-uterus probe. Its main feature is the special shape of the tip, making it even easier to insert the probe

- Ideal spreading of the semen at the end of the probe
- The probe has a graduation in centimeters from 0 to 15 cm
- With special lock ensures that the probe stays at the same depth during insemination
- Time saving: Tube can be emptied at once (about 30 seconds)
- Less semen per sow: Only 30 to 40 ml semen needed per insemination



### Foam catheter with lock + intra-uterus probe with graduation

#### Product dimensions:

Length: 75 cm  
Diameter foam: 22 mm

#### Technical specifications:

Suitable for: sows  
Pipette type: foam pipette  
Contents: 500 pieces  
Individually wrapped: yes  
Provided with aseptic gel: no/yes to choose  
Closing cap: no  
Intra-uterus probe: yes



### Gilt foam catheter with lock + intra-uterus probe with graduation

#### Product dimensions:

Length: 75 cm  
Diameter foam: 19 mm

#### Technical specifications:

Suitable for: gilts  
Pipette type: foam pipette  
Contents: 500 pieces  
Individually wrapped: yes  
Provided with aseptic gel: no/yes to choose  
Closing cap: no  
Intra-uterus probe: yes



### Foam catheter with handle + intra-uterus probe with graduation

#### Product dimensions:

Length: 75 cm  
Diameter foam: 22 mm

#### Technical specifications:

Suitable for: sows  
Pipette type: foam pipette  
Contents: 500 pieces  
Individually wrapped: yes  
Provided with aseptic gel: no/yes to choose  
Closing cap: yes  
Intra-uterus probe: yes



### Foam catheter with cut handle + intra-uterus probe with graduation

**Product dimensions:**

Length: 75 cm  
Diameter foam: 22 mm

**Technical specifications:**

Suitable for: sows  
Pipette type: foam pipette  
Contents: 500 pieces  
Individually wrapped: yes  
Provided with aseptic gel: no/yes to choose  
Closing cap: no  
Intra-uterus probe: yes



### Midium spiral catheter with handle + intra-uterus probe with graduation

**Product dimensions:**

Length: 75 cm  
Diameter spiral: 17 mm

**Technical specifications:**

Suitable for: sows  
Pipette type: spiral pipette  
Contents: 500 pieces  
Individually wrapped: yes  
Provided with aseptic gel: no  
Closing cap: yes  
Intra-uterus probe: yes



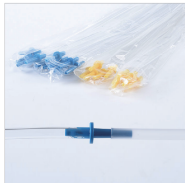
### Foam catheter with rounded edge, straw of 7cm

**Product dimensions:**

Length: 53 cm  
Diameter foam: 22mm

**Technical specifications:**

Suitable for: sows  
Pipette type: foam pipette  
Contents: 500 pieces  
Individually wrapped: yes  
Provided with aseptic gel: no/yes to choose  
Closing cap: no  
Extension: no  
Intra-uterus probe: no



### Flexible extension with tip, length 47cm

Flexible extension allow semen bags to be hang higher and has a yellow hard plastic connection piece for the Foam catheter

- match almost any type catheters.
- Makes a flexible connection between catheter and bage,tube or bottle,Is very easy to operate , to hang the semen at any convenient position

**Product dimensions:**

Length: 47 cm  
Diameter tip: 6 mm

## RATO Insemination Trolley

This trolley is especially developed for simplifying insemination. Using this trolley ensures that all A.I. tools are close at hand for the pig breeder

- Made of stainless steel
- Fitted with castor wheels allowing easy movement
- Car thermostatic box
- Lithium battery
- Medicine box
- Lubricant
- Marking sprays
- Disinfection wet wipes

Contains the following useful accessories to choose:  
Breeding buddy, Insemination holder



## Animal marking spray

An aerosol spray for marking or numbering animals

Available in green, red, and blue

- Dries quickly
- Remains visible for a long time
- Does not irritate skin
- Canister will spray until 100% empty
- Contents: 500 ml





**Breeding buddy, Insemination holder for semen bag**



**Breeding buddy, Insemination holder for semen bottle**



## Breeding buddy Insemination holder

Breeding buddy is an insemination holder for improved and faster insemination of sows.

The holder can be fit with semen bag, tube or bottle and catheters can be attached, so that the semen can be inserted directly into the sow.

- Improves the standing reflex and semen absorption
- Light-weight and flexible
- Firmly presses onto the sow's flanks
- Fits any sow, regardless of their size and breed
- Easy to place
- The metal and plastic rod is optional available

## Breeding saddles Insemination bag

Breeding saddles is an insemination bag for improved and faster insemination of sows

- The bag can be filled with sand to ensure proper weight of the bag
- Improves the standing reflex and semen absorption
- Firmly presses onto the sow's flanks
- Fits any sow, regardless of their size and breed
- Easy to place



## Lubricant

This silicone oil is used as a lubricant in the insemination of gilts and sows

- Very high purity
- Does not irritate
- Prevents internal injuries to cervix
- Non-spermicidal
- Contents: 250ml
- Colour: transparent



## Disinfection wet-wipes

The wet-wipes are used for animal disposable disinfection

- Hygienic
- Powerful cleaning effect and care
- Quick in use
- Economic
- Quick drying
- Wipe size:200\*250mm
- 900pcs/bucket



## Tool box/ Medicine box

The box can be used as a tool box or medicine box to for transport and storage of hypodermic syringes , medicines and other things

- Plastic box with aluminum handle
- Can be hung over a partition
- Divided in two sections
- Ideal for transport and storage of hypodermic syringes and medicines while working in a pen
- Dimension: lengthxwidthxheight(without handle)=420x260x120mm total height: 205mm



## Ultrasound gel/Scan gel

Gel is a lubricant for making hands, arms, gloves and instruments smooth and soft for vaginal and rectal examinations or in obstetric procedures

- Does not irritate
- Lubricate generously
- Also used as ultrasound gel

## Diagnostic instrument Veterinary ultrasound scanner CD66V

Ultrasound scanner device for bovine, horses, sheep, pigs, cats, dogs diagnosis

- Good image quality at an affordable price
- Easy documentation of the analyses through labelling of images and recording of short video sequences
- A variety of probes can be employed (see accessories)
- Compact, light weight and very robust
- Complete waterproofing
- Integrated auto-measure function to easily measure back fat



### Optional parts:

- 3.5MHz convex probe/4.0MHz rectal convex probe/5.0MHz micro-convex probe
- UP-D897 video printer/Video line/Video goggles
- Sunshine hood

### Standard parts:

- Main machine
- 6.5MHz rectal linear probe/3.5MHz convex probe
- Li-ion Battery (-7.4V/3000mAh)
- AC-adaptor/Power cord/Charge cable
- USB data cable
- Carry belt/ Screws\*5
- Couplant / 250ml
- Operating instruction/Packing list

### Technical specifications:

- Monitor size: 7.0" TFT-LCD
- Detection depth:120-240mm
- working frequency:2.0-10MHz
- Scanning range:Convex array 60°-150°
- Display modes: B, B+B, B+M, M, 4B
- Image gray scale: 256 levels
- Measure functions: Distance, circumference, area
- Port: USB 2.0
- Battery capacity: 3000 mAh/7.4V
- Power consumption: 7 W
- Weight (excl. probe): 950 g
- Scanner dimensions: 228 x 152 x 37 mm
- Voltage: 100 V-240 V

## Wireless Vet ultrasound scanner

This product is a general-use handhold software-controlled veterinary ultrasound scanner. It obtains real-time ultrasound through WIFI and reflects them on Android devices like smart phones or tablet PC. This makes the scanner well suited to pregnancy testing. This makes the scanner well suited to pregnancy testing

- Pregnancy testing
- Backfat measurement
- Waterproof
- Wireless probe
- Included tablet serves as display
- Independent PT report
- Still and live images saved
- Testing data: Excel format, pregnancy and back-fat conclusion saved.
- Depth control: 100-180mm adjustable
- Probe charger: AC240-110V, 5.0V, 1A





## Veterinary ultrasound scanner S5

Ultrasound scanner device for pigs, sheep diagnosis

- 5.5-inch TFT-LCD display screen
- compact and light weight
- portable, battery operated
- robust, electric probe
- very easy to clean
- Complete waterproofing
- integrated auto-measure function to easily measure back fat thickness



### Standard parts:

Main machine  
 Probe: (Can be choose by customers, one unit with one probe)  
 3.5MHz convex probe / 4.0 MHz rectal convex probe / 6.5 MHz rectal linear probe  
 18650 battery/3000mAh, 4pcs  
 Battery charger  
 USB cable  
 Carry belt  
 A bottle of 250ml gel  
 An Operating Instruction  
 Screws/5

### Technical specifications:

Detection depth:120-240mm  
 Dead zone: ≤3mm  
 Display mode:B,B+B  
 Measure functions: Distance, circumference, area, volume  
 Image gray scale: 256 levels  
 Probe frequency:3.5MHz  
 Scanning range:Convex array 60°-150°  
 Memory capacity: >8GB  
 Battery capacity: 3000mAh, 7.4V  
 Power consumption: 7W  
 Weight (incl. probe): 854 g  
 Overall size:240\*117\*40mm

## Sow oestrus detecting instrument

This detector is an economical and simple instrument developed by our company to determine the estrus time of sows. For sows whose oestrus is not obvious, this instrument can prompt the accurate estrus period, so as to calculate the fertilization time and improve the pregnancy rate of sows.

Technical parameters  
 Power supply: 6F22 9V battery  
 Working current: 8mA  
 Display: LCD displays the measured data  
 Measurement range: 0-1990  
 Measurement accuracy: (R) ± 1%  
 Working temperature: 0-50 °C  
 Maximum humidity: 85%  
 Low battery display





**RATO**  
Animal Reproduction

Innovations makes the world better!

**QINGDAO RATO INDUSTRIAL & TRANDING CO.,LTD**

Add: Room 102 Building NO.14 Lian Dong U Valley,  
Huanguan Road High-tech District, Qingdao,China

Tel : +86-532-89098060

Web: [www.ratoai.com](http://www.ratoai.com) Email: [info@ratoai.com](mailto:info@ratoai.com)