

# PRODUCT PROFILE



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## About Us:

SRICO is a professionally managed Laboratory Equipment Company established to deliver the best solutions available from internationally reputed manufacturers in the field of Research and Development and Quality Control for industries and educational institutions.

SRICO is founded by a qualified engineer experienced in Scientific Instrumentation industry both in India and several countries in Asia for the past 25+ years.

SRICO is committed to provide the best customer support across India in the areas of Product & application, Consultation, system integration, installation, maintenance, technical service, IQ/OQ documentation.

SRICO's primary focus currently is to address the laboratory equipment-related needs of companies, institutions and universities (from both Government and Private sectors) which are active in the fields of Chemical, Petrochemical, Pharmaceuticals, Biotechnology & Life Sciences, Agricultural & Veterinary Sciences & Food and Environmental Sciences.

SRICO's product range includes Analytical Instruments, General Laboratory equipment and consumables. The products represented by us are supplied/supported across India through our own branch offices and residential representatives spread across India. In addition, a reliable, reputed and efficient distribution network is available at your door-step to serve your needs all the time.

SRICO's team of Product & Application specialists and Technical Support Engineers will co-ordinate through our colleagues/ Partners across India to provide you the best technical support.

SRICO's team along with its Distribution partners and Principal companies will work as ONE TEAM to provide the most effective and efficient support to end-users and offer the best timely solutions in product, application, and technical service support at an optimal price intended to benefit our customers.

Our mission is to deliver total customer satisfaction. In order to achieve this objective, we are always at your disposal and ready to serve you whenever you need us. We look forward to hear from you always.

## Service & Support

**SRICO is committed to deliver the best Customer support across India through SRICO Service Centres:**

### Product Selection, Application support, Consultancy & Technical Support:

With our experienced technical experts, We support our customers in choosing the right product & accessories, solutions based on application. Our team provides Technical consultancy and support to customer for an optimised solution.

### After Sales Service and Technical Support

Consignment verification, Installation/commissioning, Product demonstration, Training, General maintenance, and safety precautions are explained, documented, and given to customer during the implementation of the project.

### Service Partner: JULABO

We provide Service and technical support throughout India, we will inspect/troubleshoot and Service all JULABO Products. Despite the age or condition, we make every effort to ensure that your product is serviced and operational, according to the original performance specifications. JULABO products are widely known to perform, with a low cost of ownership, for many years after first installation. It's not rare to see JULABO products fully operational, even in the harshest of applications, for 20+ years. We have optimized local inventory levels on service components and spare parts for many of our products.

We provide service not only for SRICO sold products but also for those products which was supplied by OEM suppliers or for the products supplied earlier.

## **Preventive Maintenance: Annual Maintenance Contract/ Comprehensive Maintenance Contracts:**

The product represented by SRICO are of high quality and reliability. We understand that our customers especially from production processes rely on us to provide durable product performance 24x7. SRICO offers fully customizable and standard Preventive maintenance packages that helps to ensure your instruments are looked after and maintained so that they will live up to your expectations.

We believe "Prevention is better than cure". Keeping the instruments Clean, monitored, maintained regularly can help in having service free equipment which keeps the downtime to minimum and service expenses to the lowest. More over it will be worry free for the customer. We encourage you to take up Maintenance contracts. Refer to the maintenance contract details.

## **IQ/OQ Documentation:**

We provide IQ/OQ documentation and implementation services to our Pharma Industries. We have complete infrastructure and necessary tools and equipments which are calibrated by Accredited laboratory to implement 100% to fulfill any international standards.

Our Service department is ready and eager to provide support whenever it is required. You can expect prompt and competent service support for any concerns you may have, whether related to operations or service.

***For Technical support on the product, please write with details such as the Brand Name, Model Name, Serial Number, Barcode Number with a brief description such as error message etc which helps us to provide the quick solution.***

## **We serve mainly the following customers in the application field of**

- Pharmaceutical Industries in Quality Control, R&D, and Production
- Life Sciences and Biotechnology
- Agricultural Sciences
- Food and Beverages
- Environmental Sciences
- Chemistry and Chemical Engineering
- Testing Laboratories
- Universities, Institutions, Government Organizations in the above field and more.



### ● Refrigerated Circulators / Baths

- Working temperatures range from -95 °C to +200 °C
- Heating capacity from 2 to 3 KW
- Cooling capacity from 0.22 to 5.5 KW at 20 °C
- Pump capacity flow rate from 15 - 31LPM & pressure from 0.35 to 0.92bar
- With temperature stability from  $\pm 0.03$  °C to  $\pm 0.01$ °C



### ● Heating Circulators / Baths

- Working temperature range from RT to +300 °C
- Heating capacity from 2 to 3KW
- Pump capacity flow rate from 15 - 31LPM & pressure from 0.35 to 0.92bar
- Bath Volume range from 3.5 to 41 liters

### ● Highly Dynamic Temperature Control System / Process System

- Ideal for highly precise, external temperature control tasks from -92 °C to +400 °C
- Heating capacity from 2.7 to 36KW
- Cooling capacity from 0.5 to 27KW
- Pump capacity flow rate from 16 to 80 LPM & pressure from 0.3 to 5.5 bar
- Designed for temperature control of jacketed reaction vessels in exothermic conditions



### ● Recirculating Coolers / Chillers

- Working temperature from -25 °C to +130 °C
- Cooling capacity from 0.2 KW to 20KW
- Heating capacity from 1.3 to 36KW
- Pump capacity flow rate from 2.9 to 80 LPM & pressure from 0.3 to 6 bar
- Temperature stability of  $\pm 0.5$  °C



### ● Water Baths

- Working temperature range from RT to +99.9°C
- Temperature stability of  $\pm 0.15$  °C
- Heating capacity from 0.5 KW to 2 KW
- Bath Volume range from 0.8 to 36 liters

### ● Shaking Water Baths

- Temp Range from RT to +99.9°C
- Shaking frequency adjustable from 20 to 200 rpm
- Temperature stability of  $\pm 0.2$  °C to  $\pm 0.02$  °C
- Bath Volume range from 8 to 20 liters



### ● Immersion Coolers

- Working temperature range from -90 °C to RT
- Temperature stability  $\pm 1$  °C to  $\pm 0.5$  °C
- Suitable for reaction volume from 10 ml to 250 ml
- With immersion probe for rapid cooling of fluids upto - 78°C
- Dry ice substitution



## ● Chemistry Diaphragm Pumps and Pumping Systems

- Vacuum down to 70 mbar, 7 mbar, 1.5 mbar, & 0.6 mbar
- Pumping speed from 0.7 m<sup>3</sup>/h to 19.3 m<sup>3</sup>/h
- PTFE Sandwich diaphragms and valves made of Perfluoro Elastomer – FFKM or PTFE
- Single, Two, Three & Four Stage Pumps

## ● Chemistry HYBRID Pumps

- Ultimate vacuum 2X10<sup>-3</sup>mbar
- Max. Pumping speed 5.9 m<sup>3</sup>/h
- Chemistry-HYBRID pump is a combination of a two-stage rotary vane pump and a two-stage chemistry diaphragm pump for optimized corrosion resistance.

## ● Screw Pump VACUU.PURE 10C

- Ultimate Vacuum 5 x 10<sup>-3</sup> mbar
- Max pumping speed 9m<sup>3</sup>/hr
- 100% oil free, chemical resistant, No Wear parts

## ● Vacuum Guages and Controllers

- Comprehensive range of electronic measuring instruments for laboratory and industrial use, and controllers for rough and fine vacuum to regulate from atmospheric pressure down to 10<sup>-3</sup> mbar.
- Vacuum Controllers :Controlling range from 0.1 mbar to 1080 mbar
- VACUU·SELECT® - the interactively operable controller for all vacuum processes in the laboratory - with touch display and user-friendly user interface.
- Vacuum guages :measuring range from 5x10<sup>-3</sup> mbar to 1100 mbar

## ● Fluid Aspiration Systems (BioChem - VacuuCenter)

- 4L PP(Poly Propylene) or 2L glass bottle - for a perfect fit with process protocols (glass version, e.g., for chlorine bleach)
- Sensitive suction power adjustment via touch panel - for sample protection and reproducible results
- Vacuum pump that responds automatically to demand - no foot pedal switch needed
- Powerful chemical-resistant diaphragm vacuum pump with a very long service life even when working with aggressive disinfectants - minimal costs for maintenance and spare parts
- BVC professional includes liquid-level sensor to prevent aspiration of liquids into pump. Self-closing couplings (4L PP(Polypropylene) bottle version) for safe removal of bottle for change and transport

## ● Applications

- Rotary Evaporator/ Parallel Evaporators
- Vacuum Concentrators
- Vacuum Ovens
- Gel Dryer
- Filtration and solid phase extraction
- Lyophilization, drying with minimal residues and molecular distillation
- Oil-free vacuum for Kilo labs



## ● Hotplate Stirrer/Magnetic Stirrer

- Magnetic stirrers, magnetic stirrer with hotplate, Hotplates
- Capacity: max. 20L (H<sub>2</sub>O)
- Max. Temperature range: 500 °C with ceramic Hotplate
- Single & Multi-point stirrer upto 6 positions



## ● Hot air Ovens

- Forced and Gravity convection ovens
- Capacity from 50L to 305L
- Temperature range: (RT +5°C) to 250°C with accuracy of ±0.5°C at 100°C
- Digital LCD and Touch screen TFT LCD Display
- Models with front Viewing window are available



## ● Vacuum Ovens

- Temperature range (RT +10°C) to 200°C with accuracy of ±0.5°C at 100°C
- Capacity from 20L to 70L
- Vacuum Range : 10 to 750 mmHg
- Models with Digital LCD or Touch screen TFT LCD Displays are available



## ● Muffle Furnace/Tube furnace

- Temperature range: 1000°C, 1200°C
- Capacity from 3L to 63L
- Digital LCD display
- Heating power from 1.6KW to 9KW



## ● Rotary Evaporator

- Rotation Speed range: 10 to 300 rpm
- Adjustable Wide Immersion Angle : 10 Steps from 10° to +40°
- Adjustable Electric Automatic Lifting : Up to 195 mm to Accommodate Changing Flask
- Temperature Range: up to 220°C
- Max. Flask capacity: 0.5L upto 5L
- Cooling Surface: 1600 cm<sup>2</sup>



## ● Incubators

- Forced and Gravity convection incubators
- Capacity from 50L to 155L
- Temperature range: 0°C to 70°C with stability of ±0.2°C at 37°C
- Digital LCD and Touch screen TFT LCD Display



## • Autoclaves

- Capacity from 40L to 100L
- Built in recorder type models are available
- Temp. range: Room Temp +5°C to 132°C and pressure : 2.0 kgf/cm<sup>2</sup> at 132°C
- Solid or Liquid sterilization mode



## • Dry Bath, Heating & Peltier Cooling bath

- Temp. range: From -5°C to 150°C
- Accuracy: ±0.1°C
- LCD display
- Heat-up speed: 5°C/min



## • ULT Freezers (Ultra-Low Temp. Freezer)

- Capacity: 25L, 82L, 393L, 503L, 714L and 796L
- Temperature range from -86°C to -65°C
- Touch screen TFT LCD Display
- Single compressor
- Down time to -80°C is from 170 min to 430 min



## • Digital Rocker

- Speed range : 5 to 50rpm
- Platforms : 290 X 200mm & 300mm X 300mm
- LCD display
- Application: Gel Staining, Destaining, Blotting, Cell Culture, Hybridization, Washing



## • Shakers

- Digital Orbital & Reciprocating shakers
- Speed range: 10 to 300 rpm
- Max.load 10kg
- Digital LCD display



## • Rotators

- Speed range: 5 to 60 rpm
- Adjustable Angle range: 0°C to 90°C
- LCD display
- Applications: General Mixing, Diffusing, Dialyzing and Hybridization, Aerating Culture



### • **Single Point Magnetic Stirrer with Internal Control**

- Stirring volume from 3L to 150L
- Speed range from 100 to 2000 rpm
- Power setting: 2 steps (2/10), 4 steps (5/10/15/20 W), 10 steps (10 - 100%)

### • **Single Point Magnetic Stirrer with External Control**

- Stirring volume from 25ml up to 1000 L
- Speed range from 100 to 2000 rpm
- Submersible, up to +95 °C in water and up to 200 °C in air(oven)
- Power Setting: 4-steps (25/50/75/100%), 10 steps (4-40W)

### • **Multiple Point Magnetic Stirrer with Internal Control**

- 4,6,8,12,15 stirring positions
- Speed range from 100 to 2000 rpm
- Power setting : 4 steps(5/10/15/20 W )

### • **Multiple Point Magnetic Stirrer with External Control**

- 6, 15, 60 stirring positions
- From 2 to 10 steps of power setting (Depends upon control unit)
- Submersible, up to +95 °C in water and up to 200 °C in air(oven)

### • **Heatable stirrer and Stirring Dry Baths with external controller**

- Heating up to 200°C
- 1, 6, 8, 15 stirring positions
- Stirring speed from 100 rpm to 2000 rpm
- Power setting: 10 steps(4 - 40W)

### • **Magnetic Stirrer for Cell culture and Tissue Culture**

- Stirring speed from 5 to 250 rpm
- 1, 2, 3, 4, stirring positions
- Stirrers with internal & external control
- Power setting: 10-steps (10-100%)

### • **Industrial Stirrer-For Highly viscous media and for larger volume**

- With internal or external control
- From 40 L to 1000 L stirring volume
- Stirring speed from 60 to 2000 rpm
- Power setting: From 5 to 100 W

### • **Magnetic Stirrer for Explosion protection Zone**

- Stirring volume from 1ml to 10 L
- Submersible in water, oil baths
- Speed range: 100-2000 rpm
- Suitable for the use in CO<sub>2</sub>-incubators and ovens, temperate range up to +40 °C
- Power setting: 4 step (25/50/75/100%)





### ● High Pressure Reactors (BR Series)

- MOC : SS316Ti / Hastelloy C22
- Volume : 25 mL to 5.5 L ( with and without PTFE insert )
- Temp : +300°C ( +230°C with PTFE insert )
- Pressure : 200 Bar
- Stirring : Magnetic for smaller volume and Magnetic coupled for larger volume
- Heating : Heating block for small volume / Heating Jacket /  
Thermostatic Jacket for circulator
- Controller : TFT screen with data logging for Temp , RPM and Pressure
- Standard fitting : Gas valve , Rupture disc ,dip tube for thermo sensor, safe opening key
- Option : Gas sampling , Liquid sampling , Liquid sample injection ,Cooling coil ,  
Digital Pressure sensor etc



### ● High Pressure Reaction vessel for digestion and synthesis (DAB Series)

- MOC : SS316Ti with PTFE Insert (not usable without PTFE insert)
- Volume : 25mL to 420mL ( with PTFE insert )
- Temp : +230°C ( with PTFE insert )
- Pressure : 200 Bar
- Heating : Heating block – Single and multi point ( upto 12 ) with digital controller
- Standard fitting : Rupture disc



### ● High Pressure Reaction vessel for digestion and synthesis (DB Series)

- MOC : SS316Ti with PTFE lining (not usable without PTFE lining)
- Volume : 310 mL to 1.8 L (with PTFE Lining)
- Temp : +230°C ( with PTFE insert )
- Pressure : 200 Bar
- Heating : Heating block for small volume / Heating Jacket /  
Thermostatic Jacket for circulator
- Standard fitting : Rupture disc, Dip tube for thermo sensor ,pressure sensor,  
safe opening key



### ● Low Pressure Reaction vessel (NR Series)

- MOC : SS316Ti / Hastelloy C22
- Volume : 1.4 L to 11.76 L ( with and without PTFE insert )
- Temp : +300°C ( +230°C with PTFE insert )
- Pressure : 25 Bar
- Stirring : Magnetic coupled drive with variable stirrer geometrie
- Heating : Heating Jacket / Thermostatic Jacket for circulator /  
Internal coil for Hot oil circulation
- Controller : TFT screen with data logging for Temp , RPM and Pressure
- Standard fitting : Gas valve , Rupture disc ,dip tube for thermo sensor, safe opening key
- Option : Gas sampling , Liquid sampling , Liquid sample injection ,Cooling coil ,  
Digital Pressure sensor etc



### ● **Disperser/Homogenizer**

- Speed Range: 8800 rpm to 34000 rpm
- Capacity: 0.1 ml to 50,000ml
- Motor Rating: Input - (145 W - 1520 W); Output-(95 W - 900 W)
- Overload Protection with Thermal Sensor



### ● **Overhead Stirrer**

- Speed Range: 80 rpm - 2500 rpm
- Stirrer Capacity: 25L to 150 L
- Viscosity Range: 30,000 mPas to 100000 mPas
- LED/TFT/Scale display



## BRANSON

### ● **Bransonic® Ultrasonic Baths/Cleaners**

- Frequency 40 KHz
- Temperature range RT to 69°C
- Bath volume range from 1.8 L to 20.8 L
- Programmable
- 99-minute digital timer with continuous ultrasonic operation



### ● **Sonifiers: Ultrasonic Cell Disruptors**

- Frequency 40 KHz & 20 KHz
- Power: 150 W, 250 W, & 550 W
- Process volume range 0.2 ml to 1000 ml
- Amplitude control range from 10 to 100%



### ● Rotary Evaporator

- Rotation Speed Range: 5 rpm to 150 rpm
- Flask Capacity: 6 L to 100 L
- Cooling Surface Area: 0.5 m<sup>2</sup> to 1.4 m<sup>2</sup>
- Temperature Range: 0°C to 150°C
- Pressure Range: 0 - 1000 mbar
- Adjustable Electric Automatic Lift System

### ● Lab Reactors

- Vessel Capacity: 300ml ...7 L Interchangeable reaction vessels
- Vessel Type: Double wall and Triple wall vessels in the same framework
- Glass ring baffles available for the Vessels
- Working Temperature: -55°C ...180°C
- Working Volume: 150 ml ... 7 L
- Adjustable 304 Stainless Steel Frame
- Fits under most common fume hoods with Small Foot print: 45 x 37 x 105 cm
- Material in contact with medium: borosilicate glass 3.3, PTFE

### ● Pharma Jacketed Glass Reactor

- Vessel Capacity: 10, 20, 30, 50 L
- Design Temperature: -40 °C / 180 °C
- Design Pressure: -1mbar / 0,49 bar
- Max vacuum: 5mbar
- AISI304 Stirring shaft, PTFE-coated with PTFE Stirring anchor blade;
- PTFE and borosilicate glass in contact with products
- Pt100 Temperature Probe
- Support Structure

### ● Glass Easy chem reactors

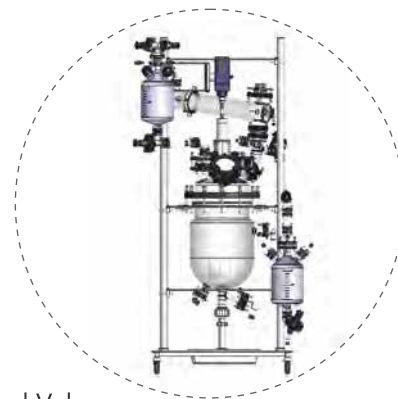
- Vessel Capacity: 10, 15, 20, 30 L
- Complete reaction system on AISI tubular free standing movable frame
- Labware design, high performing stirring system and connections.
- PTFE and Borosilicate Glass in contact with products and PTFE Piping
- Jacketed vessel easy to connect to the chiller;
- VB 50/25 Standard Bottom Valve

### ● Jacketed Filter Reactor

- Filter reactor capacities 1 / 50 L
- Operating pressure: -1 / 0.5 bar
- Operating Temperature: -90°C/ 200°C
- ΔT max. : 100 °C
- Filter paper: Mesh size 8 - 115 micron
- Material: Only borosilicate Glass. PTFE and PFA in contact with your product
- Electrical stirrer in stainless steel PTFE coated

### ● Pluss Glass Reactor

- Vessel Capacity: 10, 15, 20, 25, 30, 50, 60, 75, 80, 100 L
- Vessel Type: Cylindrical, Jacketed and Horizontal type reactor
- Dismountable Jacketed Vessel with Discharge and Glass/PTFE Valve with No Dead Volume
- Glass Thermometer Pocket for PT100
- Horizontal Coil Heat Exchanger
- High Torque-High Speed Overhead Stirrer with Spindle Motor
- Stainless Steel Frame for Reactor with cover



### • Shakers for mixing a variety of different samples:

- Different motions: horizontal, orbital or switchable from orbital to horizontal, linear tilting movement and three-dimensional orbital movement
- Shaking speed: 5 to 1400 rpm
- Loading capacities: 2 – 75 kg
- Wide choice of rack systems for different vessels (Erlenmeyer flasks, separating funnels, microplates, test tubes, barrels)
- Analog devices and control devices
- Optional control interface or USB interface

### • Laboratory shakers upto 15 kgs

- Shaking speed: 5 – 1400 rpm
- Maximum Load: 15kg
- Motion : Orbital or Reciprocating
- Shaking Platform: 200 x 295 mm to 400 x 300 mm

### • Laboratory shakers upto 30 kgs

- Shaking speed: 5 – 300 rpm
- Maximum Load: 30 kg
- Motion : Orbital or Reciprocating
- Shaking Platform: 560 x 400 mm

### • Laboratory Shakers upto 75 kgs

- Shaking speed: 30 – 200 rpm
- Maximum Load: 75 kg
- Motion : Orbital or Reciprocating
- Shaking Platform: 760 x 600 mm

### • Incubator Hoods

- Incubator Hoods can be combined with the shakers for temperatures up to +60°C (can also be used as independent units)
- Temperature range from 5°C above ambient to +50°C
- Temperature accuracy :  $\pm 1\%$  of the set value
- Coated metal housing with 3 windows, the front door opens upwards



### • Over head Stirrers

- Speed range : 20 – 2000 rpm
- Torque Range : 20 – 600 N-cm
- Stirring capacity Range : 5 – 200L
- Viscosity Range : 100 – 100000 mPas



## • Dewar Flasks

- Cylindrical Dewar flask: Capacity from 100 ml to 8 L
- Dewar flasks with flange: Capacity from 200 ml to 8 L
- Dewar flasks with flat bottom: Capacity from 150 ml to 2.1 L
- Dish-Shaped Dewar flask: Capacity from 80 ml to 5.3 L
- Dewar Flasks for Magnetic stirrer: Capacity 600 ml
- Carrying Dewar Flasks: Capacity from 1 to 4L
- Large Insulating Dewar Flasks: Capacity from 4 L to 40 L
- Large Insulating Dewar Flasks Box-Shaped: Capacity from 4 L to 40 L
- Spherical Dewar Flasks: Capacity from 1 L to 10 L
- Dewar Flasks made of Stainless Steel: Capacity from 500 ml to 6 L

## • Cold Traps

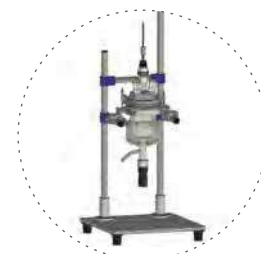
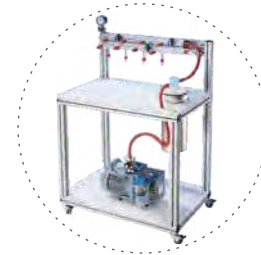
- Cold trap for gas cleaning by condensation in vacuum system
- Cold finger condenser with KF NW flange
- Cold Traps made of stainless steel with Dewar Flask

## • Chemistry pump device with two cold traps

- Chemistry pump device with two cold traps for drying process, Condensation processes, Vacuum technology and gas cleaning

## • Reaction vessel

- Volume from 250 ml up to 20 litres with flat bottom, round bottom or bumped boiler end.
- Single-walled, Double walled and Triple walled reaction vessels



## • Laboratory Refrigerators with explosion-proof Interior and recirculating air cooling

- Refrigerators from 280L to 700L capacity
- Temperature range: -10°C to -30°C
- Automatic defrosting
- Self-closing door

## • Laboratory Freezers with explosion-proof interior (intrinsically safe), re-circulating air cooling and automatic fast defrosting

- Freezer from 300L to 700L capacity
- Temperature range: -10 to -30°C
- Automatic defrosting
- Self-closing door





## • Kjeldahl method for nitrogen determination

- Digestion, distillation, titration: complete workplaces
- Kjeldahl block digestion systems Infrared digestion systems

### Standard systems

- Digestion vessels with 250 ml volume (8, 12 or 20 sample slots) Micro-Kjeldahl systems
- Digestion vessels with 100 ml volume (16, 24 or 40 sample slots)
- Infrared digestion systems with Temperature Control
- Digital scales with documentation and analysis software for the determination
- Aluminium block digestion
- Infrared rapid digestion, manual or programmable, with energy or temperature control

## • Steam distillation unit, also with connection for a titration module

- Detection limit: 0.1 mg N<sub>2</sub>
- Retrieval rate >99.5%
- Adjustable steam output (40% - 100%)
- Programmable reaction & distillation time
- USB interface
- Level monitoring for the canister set
- Practical quick-release clamping device, which the user can also easily operate with their left hand

## • Extraction

### Classic Soxhlet extractions,

- Complete with reaction vessels, intermediate extraction pieces and condensers
- individually adjustable
- Cooling water distribution strip ensures uniform cooling
- Extractors with specially developed siphon tubes guarantee consistent extraction cycles across all sample positions
- Practical condenser ledge to safely deposit the condenser between extractions Soxhlet extraction of 30 ml - 5000 ml extraction volume Serial extractors for 4, 6 or 8 extractions

## • Extraction according to Randell

- Manual apparatus for hot extraction for 6 reaction
- Every extraction thimble with sample can be independently adjusted
- The user can lower and raise all the extraction units into/out of the heating chamber with a single lever
- Every heating position has a separate temperature control

## • Twisselmann hot extractions

- Complete for 6 positions simultaneously with 250 ml round-bottomed
- Energy individually adjustable for every sample position
- Cooling water distribution strip ensures uniform cooling at sample positions
- Practical condenser ledge to safely deposit the condenser between hot extractions
- Brackets for safely holding the intermediate extraction pieces after removing the sample container

## • COD Digestion System

- Consists of the following components
- Microprocessor-controlled time and temperature controller TRS 300 with COD program
- Precision block heater
- Reaction vessels
- Cooling bath with mounting and rack | Reaction vessels | COD air cooler



- **Laboratory Chamber Ovens up to 300°C**

- Models from 20 L to 420 L capacity
- Temperature stability :  $\pm 1^{\circ}\text{C}$
- Forced horizontal air circulation
- Chamber made of stainless steel
- Optional RS232/RS-485/USB interface

- **Laboratory Ovens up to 350°C**

- Models with 58 L and 67 L capacity
- Temperature stability :  $\pm 1^{\circ}\text{C}$
- Natural or forced air circulation
- Chamber made of mild or stainless steel
- Optional RS232/RS-485/USB interface

- **Laboratory Muffle furnaces with fiber-insulated chambers**

- Capacity 3L to 80L
- Temperature range from  $900^{\circ}\text{C}$  to  $1600^{\circ}\text{C}$  with stability of  $\pm 1^{\circ}\text{C}$
- Heating power: 1.7kW to 8kW
- Optional RS232/RS-485/USB interface and PC software



- **Ice Flake Machine with Bin:**

- Production capacity from 67 to 155 kg per day
- Storage capacity from 9 to 55 kg
- Air and water cooled models
- Refrigerant R290 and ROHS free
- Material of construction: AISI 304 SS Scotch

- **Ice Flake Machine without Bin:**

- Production capacity from 157 kg to 400 kg per day
- Air and water cooled models
- Refrigerant R290 and ROHS free
- Dust-proof water basin

- **Storage Bin**

- Capacity from 100 to 550 kg
- HCFC free insulated storage

- **Other ice forms Possible**

- Ice Cubes, Ice Fingers and Ice Pebbles



- **Fast reliable measurement**

- Measurement up to an optical density of 3.0
- Very short measurement time of approx. 1 s – the fastest polarimeters in the world!
- Reliable temperature compensation
- Highest accuracy over the entire measurement range

- **Easy filling and cleaning**

- Manual, semi-automatic or fully automatic sample supply
- Chemical-resistant materials
- Freely configurable cleaning procedures
- Semi-automatic or fully automatic drying

- **Intuitive operation**

- State-of-the-art touch-screen display
- Secondary scale for displaying a second measured value
- Freely assignable shortcut keys for the most important functions

- **Complete documentation of measured values**

Documentation of all measured values of the last 999 measurements with consecutive numbering

- **Compliance with global standards**

GMP/GLP, 21 CFR Part 11, Pharmacopoeias (USP, BP, JP, Ph. Eur.), FDA, ISO, HACCP, OIML, ASTM, ICUMSA, NIST

- **Refractometer**

- Units of measurement: Refractive index (nD), Concentration of sucrose, glucose, fructose and invert sugar [%Brix], User-defined
- Measurement of turbid or highly viscous samples
- Preinstalled and freely definable scales with conversions based on tables or formulas

- **Polarimeter**

- Units of measurement: Optical rotation [°], Int. sugar scale [°Z], Concentration [g/100 ml], Spec. rotation, User-defined
- Temperature measurement directly inside the sample
- Highest accuracy over the entire measurement range
- Any number of freely definable scales with conversions based on tables or formulas

- **Density meter**

- Units of measurement: Density [g/cm<sup>3</sup>], Relative Density, Brix [%Brix], Concentration of alcohol [vol%], Concentration of sulphuric acid [wt%], User-defined
- Two density meter sets: Set 1-For low sample volumes and high viscosity samples, Set2- for highly viscous and aggressive samples

- **Melting Point Meters**

- Measuring range: 25–400 °C
- Semi-automatic and Fully automatic measurement
- Fast cooling through integrated fan
- Easy-to-clean membrane keypad with LCD display
- Includes protective cover and 100 capillaries

- **Flame Photometers**

- Reliable, simultaneous measurement of up to five alkaline and alkaline earth elements
- Maximum operational safety through intelligent security mechanisms
- Full traceability of the measurement results
- Extensive interfaces and convenient data transfer



## • Rotary Evaporator

- Steam rising & vertical type
- Flask capacity from 50ml to 2L
- Rotation speed from 20 to 300 rpm
- Temperature range up to 180°C



## • Overhead Stirrer

- Speed range from 20 rpm to 3000 rpm
- Stirring capacity from 50L to 100L
- Viscosity range from 20000 cps to 200000 cps
- LED/LCD/TFT/Scale display



## • Hot Plates/ Magnetic Stirrer

- Temperature range up to 500°C with ceramic glass plate
- Infrared Hotplate Stirrer with temperature range upto 500°C
- Adjustable safety temperature
- Max. capacity up to 20L with rotation speed 100 to 1200rpm
- LED/LCD display
- Liquid drainage above the control board to prevent liquids from accessing the system
- Single and Multi-point Stirrer



## • Shaking Incubators

- Temperature range from 15°C up to 60°C
- Capacity: 53L, 83L
- Speed range from 10 to 300 rpm
- Timer range: 10 sec to 999 hr 59 min 59 sec.
- LED display



## • CO<sub>2</sub> Incubators

- Chamber volume 42L, 180L
- Temperature range from (RT+5°C) to 60°C
- CO<sub>2</sub> range :0 - 20%
- DUAL BEAM IR CO<sub>2</sub> Sensor
- HEPA filtration for gas supply inlets



## • Jacketed Stainless Steel Reactor

- Bench top Reactors from 0.5 ml up to 5L
- Pilot Plants up to 50L
- Temperature range from 80°C to 400°C
- Vacuum 10<sup>-3</sup> mbar
- Pressure 100 bar





## **Reaction Solutions**

### **Bench-top reactor**

- Vessel capacity: 250ml, 500ml, 1L, 2L and 5L
- Working Temp Range: -60°C to +180°C
- Working Pressure Range: -1 to 0.5bar
- Max Jacket Pressure : 8psig(1.56bar)
- Wetted Surfaces is made of Borosilicate glass, PTFE

### • **Standard Pilot Reactor**

- Volume: 10 to 100L
- Working Temp Range: -60°C to +180°C
- Working Pressure Range: -1 to 0.5bar
- Max Jacket Pressure : 8psig(1.56bar)
- Wetted Surfaces is made of Borosilicate glass, PTFE
- Includes: Auto-center frame, Jacketed Flask, Head with Clamps and O-Rings, Agitator, Shaft, Bearing & Collar, Drain Valve, Couplings

### • **Plus Pilot Reactor (Horizontal Condenser/Vertical condenser)**

- Volume: 10 to 100L
- Working Temp Range: -60°C to +180°C
- Working Pressure Range: -1 to 0.5bar
- Max Jacket Pressure : 8psig
- Wetted Surfaces is made of Borosilicate glass, PTFE
- For High Performance Applications Scaling Up To The Kilolab
- Includes: Support Stand, Vessel with drain valve, Shaft and agitator(s), Bearing, Lid with clamp and o-ring, Overhead stirrer with shaft couplings, Condenser, Jacket adapters, RTD probe adapter

### • **Photochemical reactors**

- Reactor volume: 250, 500, 1000ml
- The light source uses Hanovia's high-efficiency UV mercury lamp: 100-1200W optional, 1000hr.
- Material of immersion well for Photochemical reactor are Borosilicate glass or quartz
- Water-flow power cut-off: Prevents damage caused by water or power failure.

### • **Hydrogenation Reactors**

- Volume: 9ml to 1850ml
- Built in hydrogen cylinder, the Max. pressure up to 60psig
- Two pressure gauges show pressure of the reactor and hydrogen cylinder inside
- Bright TFT screen which can display the shaking speed
- Smart and convenient on-touch control the speed
- Protective Lid for hydrogenation bottle
- Temperature control model is available

### • **Glass Pressure Reactors**

- Volume: 500ml to 5000ml
- Heavy wall borosilicate glass Pressure Reactors
- Two-Piece System: with a maximum pressure limit of 35psig @ 100°C\* One-Piece System: with a maximum pressure limit of 45psig @ 100°C
- Both systems offer jacketed and unjacketed vessels, with or without bottom outlet valves. These jackets are heat-sealed





## **Reaction Solutions**

### • **Filter Reactors**

- Allow single or multi-step reactions and filtrations in the same vessel
- Volume: 100mL to 50L standard with Unjacketed or Jacketed
- Working Temp Range: -20°C to +200°C
- Filtering by vacuum and/or pressure
- Mechanical agitation
- Reactions at vacuum or pressure conditions

### • **High Pressure Reactor-BR series**

- Reactor capacity (Total Volume): 25 mL - 5.5 mL
- Temperature up to 300°C
- Pressure up to 200bar
- With bottom drain valve
- Seals :FPM (e.g. Viton®), PTFE, FFKM (e.g. Kalrez®)

### • **High Pressure Reactor-CR series**

- Capacity: 300, 500, 1000 and 2000 ml
- Pressure upto 60 bar
- Temperature up to 300°C
- With or without bottom drain valve
- O-ring seal of PTFE, FKM, or FFKM.

### • **Low Pressure Reactor-NR series**

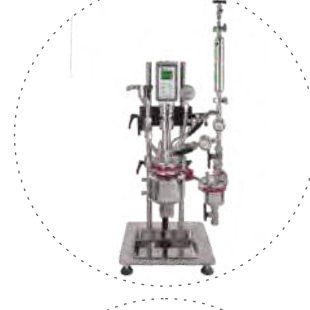
- Volume: 500ml to 50L
- Pressure up to 25bar
- Temperature up to 300°C
- With bottom drain valve

### • **S.S. Bench Top Reactor-VR series**

- Volume: 500ml to 5000ml
- Max. Temperature : 300°C
- Pressure: 1 to 5bar
- Material of construction is 316L S.S.

### • **Pilot Plants-VR series**

- Volume: 10, 20, 30 and 50L
- Max. Temperature : 300°C
- Pressure: 1 to 5bar
- O-seal ring made of PTFE, Silicon or Viton
- A total of 7 connection options are provided in the lid from VR-10L to VR-50L



## CENTRIFUGES

### • Micro Centrifuges

- Max. Rotation Speed: 18000 rpm and RCF 30,356 x g
- Max. Capacity: 1.5/2.0 ml x 48 tubes(fixed angle) & 2 ml x 24 tubes (swing out)
- Load Imbalance detection

### • Table Top High Speed Centrifuges

- Max. Rotation Speed: 16000 rpm and RCF: 27,590 x g
- Max. Capacity: 250 ml x 6 tubes(Fixed angle) & 750 ml x 4 tubes (Swing out)
- Load Imbalance detection

### • Floor Standing, high speed centrifuge

- Max. Rotation Speed: 22,000 rpm and RCF: 54,111 x g
- Max. Capacity: 1000 ml x 6 tubes(Fixed angle) & 250 ml x 4 tubes(swing out)
- Load Imbalance detection

### • Low Speed Centrifuges

- Max. Rotation Speed: 6000 rpm and RCF 3960 x g
- Max. Capacity: 50 ml x 6 tubes(Fixed angle) and 100ml x 4 tubes(Swing out)
- Load Imbalance detection

## CONCENTRATORS

### • Centrifugal Vacuum Concentrators

- Max. RPM: 2000 | Max. Capacity: Fixed angle: 5 mlx 192 tubes
- Heating Temperature Range: RT - 80°C
- Vacuum Pressuge : 1 - 1.013 mbar

### • Freeze Dryer & Cooling Trap

- Chamber Volume: 4L to 25 L | Ultimate Chamber Temperature: -55°C to -110°C
- ICE condensing capacity: 3kg - 8 kg
- ICE Condensing performance : 3 kg

### • Dry Purging Evaporation Concentrator

- Sample Volume: 5ml -300 ml | Gas: compressed air, N<sub>2</sub> etc
- Pressure: 15 psi to 50 psi
- Water bath temperature: 99°C



## • Auto Kinematic Viscosity Measuring system (Newtonian liquid)

- In Accordance to ASTM – D445 , ISO - 3105 and all polymere standards
- Standalone system with touchscreen display
- Number of Channel: 1 or 2 - either Pressure or suction mode
- Principle of measurement : Optical sensing
- Type of Viscometers: Ubblohde, CF, & Ostwald
- Measuring range : from 1 to 10000 sec with resolution of 0.01 sec and accuracy of 10 ppm
- Viscosity range : from 0.3 to app. 10000 m<sup>2</sup>/s
- Inbuilt memory for data storage.
- Supporting formula for Kinematic, Dynamic , Relative & Intrinsic viscosity.



### ● **-86°C Ultra Low Temperature Freezers**

- Ultra low temperature upright freezer for vaccines
- Temperature range: -40°C to -86°C
- Models available from 58 L to 838 L
- Inside material: Stainless Steel
- Temperature adjustment accuracy : 0.1°C

### ● **Combined Freezer & Refrigerator**

- Two Models available
- i) -20°C to -40°C Freezer & 2°C to 8°C Refrigerator
- ii) -10°C to -25°C Freezer & 2°C to 8°C Refrigerator
- For 368 L combined freezer & refrigerator model:-  
Freezer capacity (Top chamber) : 185 L  
Refrigerator capacity (Bottom chamber) : 183 L
- Equipped with two independent refrigeration circuits that enables separate temp. settings & defrosting for the two chambers

### ● **Laboratory Deep Freezers**

- Microprocessor controlled
- Temperature Range: -10°C to -25°C
- Models available from 100 L to 935 L
- Multiple malfunction alarms including high and low temperature, sensor error
- Two types of alarm indications: audible buzzing and visible flashing light

### ● **Pharmacy Medical Refrigerators**

- Adjustable Temperature Range: 2°C to 8°C
- Models available from 60 L to 1500 L
- Temperature adjustment with an increment of 0.1°C
- Auto on/off LED Interior light with manual switch on control panel
- 4 visual and audible alarms

### ● **Blood Bank Refrigerators**

- Temperature range of 4°C ± 1°C
- Models available from 108 L to 1008 L
- 304 stainless steel inner chamber for friendly using and easy cleaning

### ● **Portable / Mobile/ Transport refrigerator and freezer**

- For storage of blood sample baskets
- Temperature Range: 4°C to 22°C
- Models available from 30 L to 700 L



## ● Prominent Features of JAI Recycling preparative HPLC:

- Simple and Intuitive Operation interface
- LCD touch screen panel to operate the unit on screen from solvent delivery to fraction
- Two detectors can be fitted in the LaboACE series: UV Detector & Refractive Index (RI) Detector
- Chromatogram Data Acquisition Software available
- Sample injection volume: 5ml to 5000 ml
- Solvent delivery system (Pump type): Reciprocating serial double/triple plunger
- Flow rate range: 0.1 - 4000 ml/min
- Maximum discharge pressure: 10 to 20 MPa
- Recycle method: Switching scheme of solenoid valve
- Auto Clean up Function available
- Timer with alarm: 0 to 999 min
- PC Control: Enables to program operations from sample injection to fraction collection and run it remotely and automatically.



## ● Digital Burettes (TITREX)

- Volume range: 0 to 50ml with accuracy of  $\pm 0.03$ ml
- Resolution: 0.01 ml
- Exclusive instrument with 0% loss of reagent - air-purging and draining within a closed circuit
- Two-in- one instrument: dosing & titration

## ● Bottle-top Dispensers:

### ● LABmax premium

- Volume range: From 0.25 to 100 ml with accuracy of  $\pm 0.012$  to  $\pm 0.6$ ml
- All-purpose dispenser, universal chemical compatibility
- Built-in recalibration mechanism including calibration tool

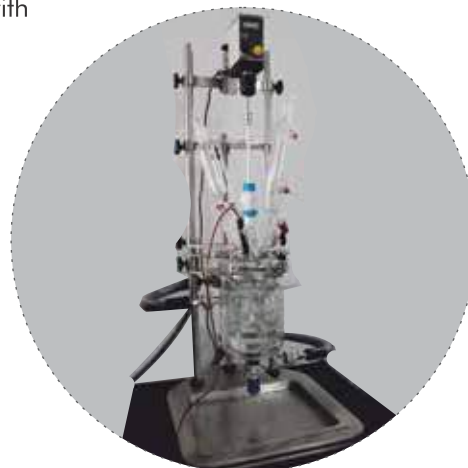
### ● Minispensor

- Volume range: 50 to 2000ml with accuracy of 1.5ml to 12ml
- Ideal for long pipetting series where you need a fixed micro-volume
- Ideal for crystalline solution



### Bench-top Reactor

- Vessel Capacity : 250ml, 300ml, 500ml, 1000ml, 2000ml, 3000ml & 5000ml
- Vessel Type : Double Wall (Jacket), Triple Wall (Jacket and Vacuum Jacket) with bottom drain
- Operating Pressure : Full Vacuum to Atmospheric
- Operating Jacket Pressure : Up to +0.5 bar G
- Operating Temperature ranges :
  1. -30 °C to +120 °C
  2. -50 °C to +150 °C
  3. -90 °C to +200 °C
- Support Structure made up of Stainless steel 304 with PTFE Coating



### Bench-top Filter Reactor

- Vessel Capacity : 1000ml, 2000ml, 3000ml & 5000ml
- Filtration Area : 78.5 cm<sup>2</sup> (1000ml 2000ml), 176.7 cm<sup>2</sup> (3000ml & 5000ml )
- Vessel Type : Double Wall; Full Jacket
- Operating Pressure : Full Vacuum to Atmospheric
- Operating Jacket Pressure : Up to +0.5 bar G (+0.05 MPa)
- Operating Temperature : -90 °C to +200 °C (  $\Delta T$ :110 °C)
- The parts that come into contact with fluid are made of borosilicate glass 3.3, PTFE, SS316 and perfluor (FFKM).
- Support Structure made up of Stainless steel 304 with PTFE Coating

### Bench-top Nutsche Filter

- Vessel Capacity : 1000ml , 2000ml, 3000ml & 5000ml
- Filtration area : 78.5 cm<sup>2</sup> (1, 2L), 176.7 cm<sup>2</sup> (3, 5L)
- Vessel type : Single Wall, Double Wall; Full Jacket
- Operating Pressure : Full Vacuum to +2 bar G (+0.2 Mpa)
- Operating Jacket Pressure : Up to +0.5 bar G (+0.05 MPa) (Double Wall)
- Operating Temperature : -90 °C to +200 °C (  $\Delta T$  : 110 °C)
- Support Structure made up of Stainless steel 316L



### S.S. Bench Top Reactor

- Volume: 500ml, 1000ml, 2000ml, 3000ml & 5000ml
- Max. Temperature : 300°C
- Pressure: 1 to 5bar
- Support Structure made up of Stainless steel 316L





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