

**PRODUCT PROFILE**



# NORMAG

— Lab & Process Glass

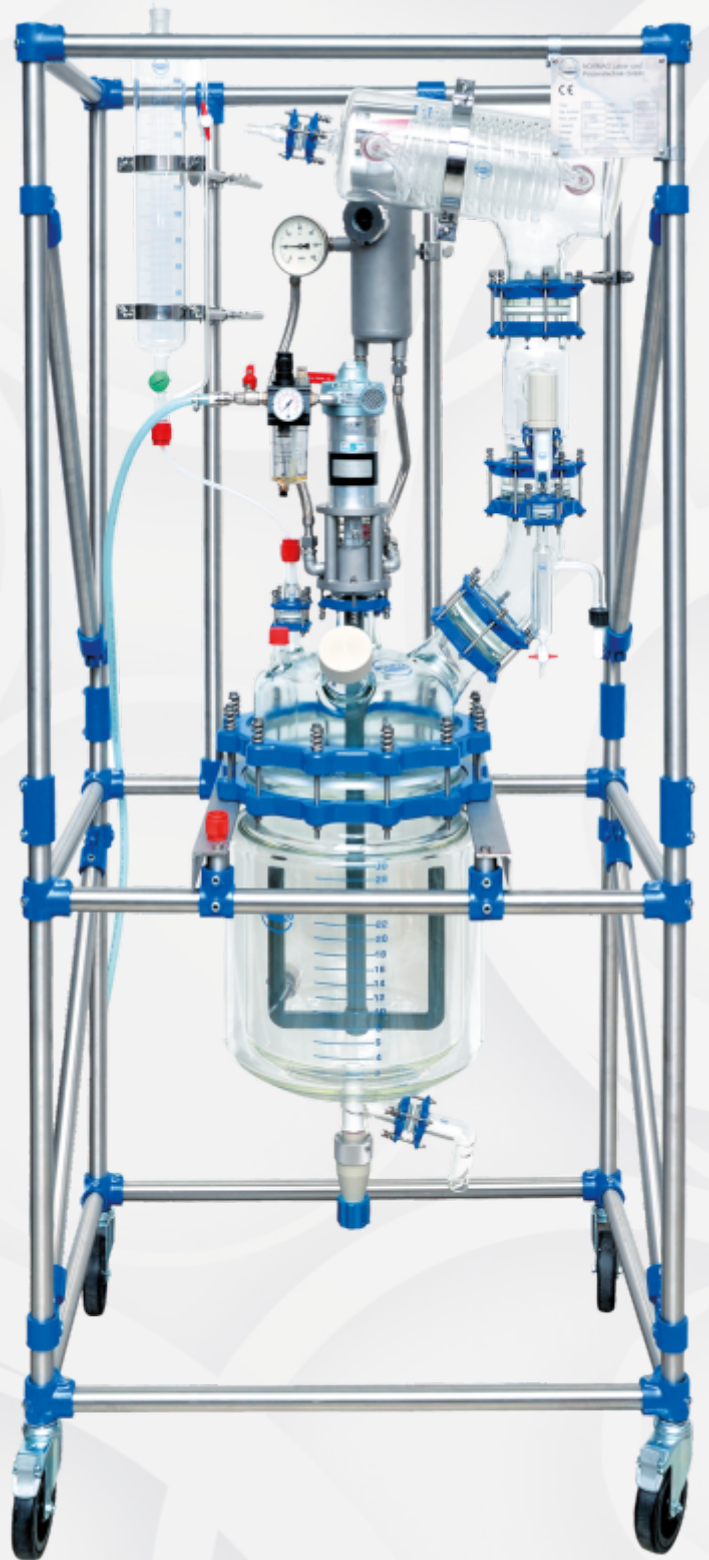
**Glass Reactors**

**Filter Reactors**

**Thin Film  
Evaporation Systems**

**Short Path  
Evaporation Systems**

**Falling Film  
Evaporation Systems**



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## About Us:

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

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

SRICO's primary focus is to address the laboratory / process 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, Automotive, E-mobility, Electronics & semiconductor Industries

SRICO's product range includes Analytical Instruments, General Laboratory equipment, process temperature control solutions and consumables. The products represented by us are supplied/supported across India through our own branch offices and residential representatives spread across PAN 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 Product, Application and 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 doorstep 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, with better performance. JULABO products are widely known to perform, with a low cost of ownership, for many years after first installation. Its 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 our OEM suppliers.

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

The products 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.

### **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 Service support on the product, please e-mail at [service@srico-labworld.com](mailto:service@srico-labworld.com) 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 customers in the application field of Quality Control, R&D, and Production**

- Pharmaceutical Industries
- Chemistry, Chemical and Petrochemical Industries
- Automotive, E-mobility, Electronics & semiconductor Industries
- Testing Laboratories
- Life Sciences and Biotechnology
- Agricultural Sciences
- Food and Beverages
- Environmental Sciences
- Universities, Institutions, Government Organizations in the above field.

## ● Refrigerated Circulators / Baths

- Working temperatures range from -50°C to +200 °C
- Heating capacity from 2 to 3 kW
- Cooling capacity from 0.22 to 2.5kW
- Pump capacity flow rate from 15 - 31LPM & pressure from 0.1 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 3 kW
- Pump capacity flow rate from 15 - 31LPM & pressure from 0.1 to 0.92bar
- Bath Volume range from 3.5 to 41 liter



## ● Highly Dynamic Temperature Control System / Process System

- Ideal for highly precise, external temperature control tasks from -93°C to +400 °C
- Heating capacity from 2.7 to 36 kW
- Cooling capacity from 0.5 to 27 kW
- Pump capacity flow rate from 0 to 80 LPM & pressure from 0.1 to 5.5 bar
- Designed for temperature control of jacketed reaction vessels in exothermic conditions



## ● Recirculating Coolers / Chillers

- Working temperature from -25 °C to +95°C
- Cooling capacity from 0.2 kW to 20 kW
- Heating capacity from 1.3 to 18 kW
- Pump capacity flow rate from 15 LPM to 140 LPM & pressure from 0.35 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 liter



## ● 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 liter

## ● Immersion Coolers

- Working temperature range from -90 °C to RT
- Temperature variation is between -2°C to + 5°C
- Suitable for reaction volume from 10 ml to 500 ml
- With immersion probe for rapid cooling of fluids upto - 78°C
- Dry ice substitution

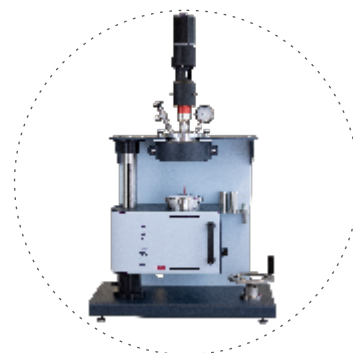
● **High Pressure Reactors (BR Series)**

- MOC : SS316Ti / Hastelloy C22
- Volume : 5.7Ltr ( SS ) , 4.7Ltr ( PTFE insert)
- Temp : +300°C ( +230°C with PTFE insert )
- Pressure : 200 bar
- Stirring : Bottom magnetic stirrer for small volume and magnetic clutch for larger volume
- Heating : Hot plate with heating jacket for small volume and heating jacket/thermostatic jacket for larger volume
- 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
- With or without bottom valve



● **Inductive Single Point Magnetic Stirrer with Internal Control**

- Stirring volume from 1ml to 10L
- Speed range from 100 to 2000 rpm



● **Inductive Single Point Magnetic Stirrer with External Control**

- Stirring volume from 1ml up to 10 L
- Speed range from 100 to 2000 rpm
- Submersible, up to +95 °C in water and up to 200 °C in air(oven)

● **Inductive Multiple Point Magnetic Stirrer with Internal Control**

- 4,6,8,12,15 stirring positions
- Speed range from 100 to 2000 rpm
- Stirring volume per stirring point: 10 ml to 3000 ml
- Stirring point distance: 4 positions-140 mm, 6 positions-130 mm, 8 positions-90 mm, 12 positions-90 mm, 15 positions-65 mm



● **Inductive 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)
- Stirring point distance: 6 positions-130 mm, 15 positions-65 mm, 60 positions-32.5 mm



● **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

● **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



● **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

● **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, temperature range up to +40°C





● **Elmasonic Easy**

- 37 kHz ultrasonic frequency
- Temperature Range: RT to +80°C ( Devices with Heating Option)
- Volume Range from 0.9L to 27.5L
- Adjustable Cleaning Time from 1min to 30min
- 2 Operating Modes (Eco, Dynamic)
- Automatic shutdown of ultrasonic operation at a bath temperature 90°C
- Splash-proof housing and cleaning tray made of stainless steel
- Round Shaped models available for Sieve Cleaning



● **Elmasonic Select**

- 37 kHz ultrasonic frequency
- Digital control unit with wipe able membrane keyboard
- Temperature Range: RT to +80°C ( Devices with Heating Option)
- Volume Range from 2.7L to 89L
- Adjustable Cleaning Time from 1 min to 6 hours
- 5 Operating Modes (Eco, Sweep, Pulse, Dynamic, De-gas)
- Adjustable temperature limit from 40-60°C
- Automatic safety shutdown after 8 hours
- Splash-proof case and cleaning tank made of stainless steel



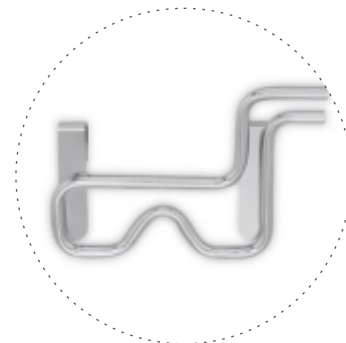
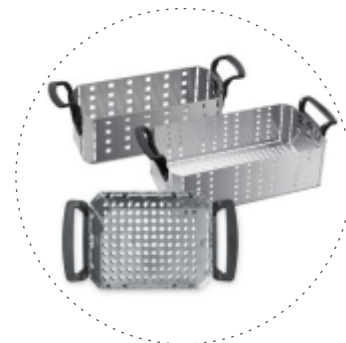
● **Elmasonic P**

- Switchable Ultrasonic Frequency 37kHz and 80kHz
- Temperature Range: RT to +80°C ( Devices with Heating Option)
- Volume Range from 2.7L to 27.5L
- Ultrasonic power is adjustable from 30 - 100 % in steps of 10
- Adjustable Cleaning Time from 1 min to 60min
- 4 Operating Modes (Sweep, Pulse, De-gas, )
- Automatic safety shutdown after 12 hours and at 90°C bath temperature
- Splash-proof case and cleaning tank made of stainless steel



● **Accessories**

- Baskets
- Cooling Coil
- Sieve Cleaning Module
- Immersion Basket
- Mutebox
- Covers
- Holders
- Inserts



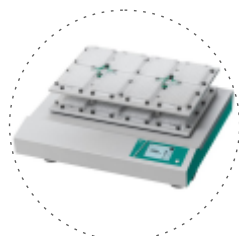
● **Shakers for mixing a variety of different samples:**

- 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



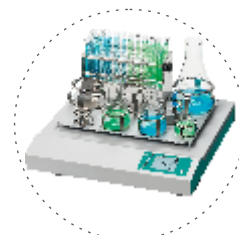
● **Laboratory shakers upto 15 kgs**

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



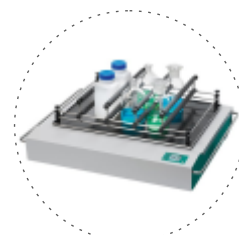
● **Laboratory shakers upto 30 kgs**

- 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



● **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  $\pm 0.5$ ml
- All-purpose dispenser, universal chemical compatibility
- Built-in recalibration mechanism including calibration tool

● **Minispensor**

- Volume range: 50 to 2000 $\mu$ l with accuracy of 1.5 $\mu$ l to 12 $\mu$ l
- Ideal for long pipetting series with a fixed micro-volume
- Ideal for crystalline solution



## ● 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
- ATEX models available



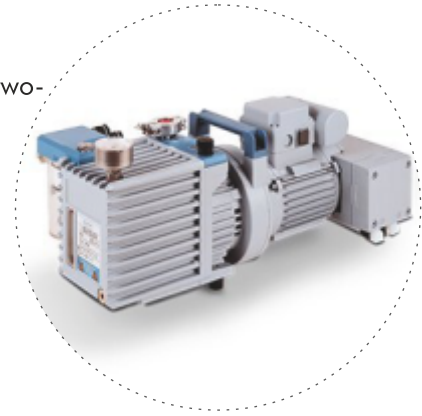
## ● Vacuum Gauges and Controllers

- 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 0.001 mbar to 1080 mbar
- VACUU·SELECT® - the interactively operable controller for all vacuum processes in the laboratory - with touch display and user-friendly interface.
- Vacuum gauges measuring range from 5x10<sup>-3</sup> mbar to 1100 mbar
- ATEX vacuum gauges available



## ● 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>/h
- 100% oil free, chemical resistant, No Wear parts

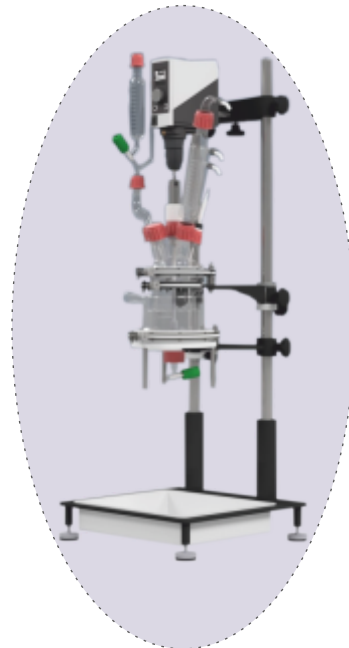
## ● Applications

- 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



## • Lab Glass reactor:

- Vessel capacity: 100 ml to 5 L
- Vessel Types: Double Jacketed, Tripled jacketed, Interchangeable reactors vessels with different capacity on same lid, Bottom drain,
- Two sizes of the main flange (DN100 and DN150) available.
- Operating pressure: Full Vacuum to atmospheric pressure
- Operating jacket pressure: -1...+0.5 bar
- Operating temperature ranges: -90...+200°C
- Support structures made up of SS304 with PTFE coating.



## • Process Glass reactor:

- Vessel capacity: 10 L to 100 L
- Vessel Types: Double Jacketed, Tripled jacketed, Interchangeable reactors vessels with different capacity on same lid, process vessels.
- Operating pressure: Full Vacuum to atmospheric pressure
- Operating jacket pressure: -1...+0.5 bar
- Operating temperature ranges: -90...+200 °C
- Support structures made up of SS304.

## • Filter reactor Lab/Process

- Vessel Capacity: 1 – 10L
- Vessel Types: Non jacketed and full-jacketed design
- Filtration area:
- DN100 – 1L (0.008m<sup>2</sup>)
- DN150 – 3L, 5l (0.017m<sup>2</sup>)
- DN200 – 10L (0.030m<sup>2</sup>)
- Operating temperature: -90°C to +200°C
- Support structures made up of SS304 with PTFE coating.



## • Schlenk line

- Stable and thick-walled tubes for enhanced Safety
- Adjustable 6-way sealed and grease-free PTFE valve
- Large cross sections for fast evacuation and deepest vacuum
- Flexible interchangeable connectors for constantly changing requirements
- ATEX compliant for EX-Zone 2/2



### ● 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
- Large Insulating Dewar Flasks: 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



### ● Liquid Nitrogen Containers

- Vacuum Insulated SS container, Type APOLLO: Capacity: 50L, 100L, 150L, 200L & 350L
- Liquid N<sub>2</sub> Container made of AL for storage of biological materials, Type ARPEGE: Capacity: 40L, 70L, 116L, 144L, 172L  
No of Cryoboxes: 30 -60 nos  
Holding capacity of 2ml Vials: 750 to 6000

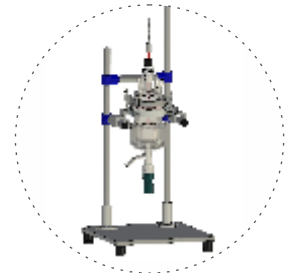


### ● Cold Traps

- 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 Tripe walled reaction vessels



### ● Laboratory Refrigerators with explosion-proof Interior

- Refrigerators from 95L to 700L capacity
- Temperature range: 0°C to 15°C
- Automatic defrosting
- Self-closing door

### ● Laboratory Freezers with explosion-proof Interior

- Freezer from 70L to 700L capacity
- Temperature range: -10 to -30°C
- Automatic defrosting
- Self-closing door



## ● Kjeldahl method for nitrogen determination

- Workstation consists of digestion system, steam distillation unit and titration.

### ● Standard systems

- Two digestion systems namely Block digestion and Infrared digestion
- Block digestion can accommodate 100 ml (16,24 or 40 sample slots), 250 ml (8,12 or 20 sample slots) or 400 ml ( 8 sample slots)
- Infrared digestion system can have 250 ml (6 or 12 sample slots), 500 ml (4 sample slots) or 750 ml ( 4 sample slots)
- Infrared digestion systems can be either manual or programmable with temperature control
- Digital scales with documentation and analysis software for the determination



### ● 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 (10% - 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 Randall

- Manual apparatus for hot extraction up to 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 package up to 6 positions simultaneously with 250ml 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

Workstation consists of:

- COD heating blocks and reaction vessels.
- Programmable time and temperature controller TRS 300.
- Manual/Automatic titration station.
- Cooling bath with racks and 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°C to 1600°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 60 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 160 kg to 1000 kg per day
- Air and water cooled models
- Refrigerant R290 and ROHS free
- Dust-proof water basin

## ● Storage Bin

- Capacity from 100 to 1000kg
- HCFC free insulated storage

## ● Other ice forms Possible

- Ice Cubes, Ice Fingers and Ice Pebbles



### ● Rotary Evaporator

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



### ● Overhead Stirrer

- Speed range from 20 rpm to 6000 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 600°C
- Adjustable safety temperature
- Max. capacity up to 20L with rotation speed 100 to 1000rpm
- LED/LCD display
- Liquid drainage above the control board to prevent liquids from accessing the system
- Single and Multi-point Stirrer ( 4 and 6 Positions )



### ● Soft Dry Bath

- Aluminium bottom bath surrounded by PTFE material, for insulation and anticorrosion
- Uniform heat transfer and fast heat conduction
- Temp Range: (RT+5°C) to 150°C
- Can be easily mounted on top of 135mm round hotplate
- 2Kg Al Alloy seeds



### ● Shaking Ultrasonic Bath/Ultrasonic Bath

- Capacity: 3L - 22L
- Shaking Stroke: 20 mm
- Frequency: 37 kHz
- Material of Construction: Stainless Steel
- Temperature Range: 20°C -80°C



### ● Parallel Reaction Station (PRS)

- Upto 6/12 experiments performed individually or simultaneously
- Ring design, built-in time controller, automatic end of heating and stirring
- Working Volume: 50ml, 100ml or 250ml (for PRS-6) /20ml (for PRS-12)
- Minimum Vacuum : 20 mbar
- Stirring speed: 0 -600 rpm
- Temperature range: (RT+5) to 180°C





## hemTron 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



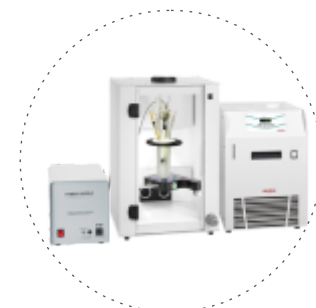
### ● Standard Pilot Reactor

- 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 60 psig
- 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

## hemTron 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 - 2.2 L
- 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 up to 60 bar (with bottom drain valve) and 100 bar ( without bottom drain valve)
- Temperature up to 300°C
- 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

### ● Constant Temperature Incubators

- Chamber Volume: 50, 100, 150, 250, 400, 650, 850, 1200 L
- Temperature Range: (RT+5°C) to 65°C
- Temperature Stability:  $\pm 0.1^\circ\text{C}$  at 37°C
- Heating Capacity: 340W -1600W
- Material of Construction: Interior made of Stainless Steel with inner glass door; Outer casing made of Steel plate, spray coating



### ● Low Temperature Incubators

- Chamber Volume: 150, 250, 400 L
- Temperature Range: 4°C - 60°C
- Temperature Control Method: Forced circulation method
- Temperature Stability:  $\pm 1.5^\circ\text{C}$  at 37°C
- Material: Interior:Stainless Steel ; Exterior:Polished stainless steel with observation glass window



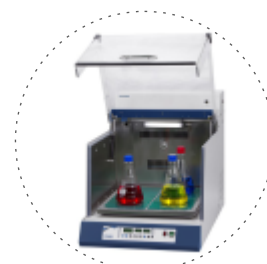
### ● Peltier Cooled Incubators

- Chamber Volume: 15, 50, 100 & 150L
- Temperature Range: 4°C - 60°C
- Temperature Stability :  $\pm 0.1^\circ\text{C}$
- Heating and peltier cooling system
- Material of Construction: Stainless steel



### ● 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 40, 120, 180, 260, 650, 850, 1200 L
- 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



### ● Peltier Cooled CO<sub>2</sub> Incubators

- Chamber Volume: 40, 120, 180, 260, 650, 850 L
- Temp Range : +20 to 60°C
- Heating & Peltier cooling system
- Temperature Stability:  $\pm 0.1^\circ\text{C}$  at 37°C
- Standard & Sterilization models
- Material of construction: Stainless Steel



## ● CO<sub>2</sub> Shaking Incubators

- Chamber Volume: 650L & 850 L
- Temp Range: RT+5°C to 60°C
- Shaking motion: Orbital
- Speed range: 30 - 300 rpm
- Material of construction: Stainless Steel



## ● Handheld/High Speed Homogenizer

- Process Volume: 0.1ml - 40 L
- Speed range: 500 - 30000 rpm
- Speed Display: Scale/LED
- Contact material: Stainless steel 316L /PTFE



## ● Microplate shaker

- Working Speed range: 150 to 1200 rpm
- Rotational motion with shaking radius of 3mm
- Tube volume: 1.5ml, 15ml or 50 ml tubes
- Well plate capacity: 96/384 nos
- BLDC motor



## ● Rotational Viscometer

- Speed Range from 0.01 to 250 rpm
- Measuring Range from 10 to 32,00,00,000 cP
- Precision: +/- 1% of full scale
- Repeatability of 0.2%
- Viscosity Units displayed in cP /mPa-s/ cSt
- Temperature measurement by using Pt100 sensor
- Programmable Features based on Target Time or 3 Target Viscosity
- Touch Keyboard, USB Interface for data transfer



## ● Various SS316 spindle options available



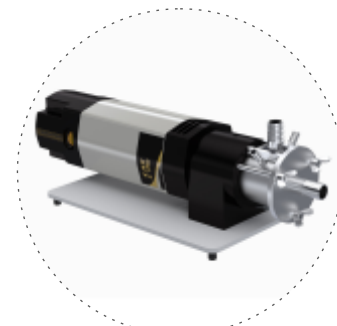
● **Overhead Stirrers**

- Speed Range : 40-2000rpm
- Stirring Capacity : 30-200Ltrs
- Torque Range : 20-150 N-cm
- Viscosity Range : 10,000-60,000mPas



● **Homogenizer / Disperser**

- Speed Range : 2,500-33,000rpm
- Stirring Capacity : 0.2ml-20,000ml
- Motor Rating : Input – (1050W-1800W); Output – (650W-1200W)
- Flow through chamber DK 30 is compatible with shafts G20 and G30



● **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: Ubbelohde, CF, & Ostwald
- Measuring range : Time 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 :  $\pm 0.1^{\circ}\text{C}$



● **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  $4^{\circ}\text{C} \pm 1^{\circ}\text{C}$
- 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



### ● Hotplate Stirrer/Magnetic Stirrer

- Magnetic stirrers, magnetic stirrer with hotplate, Hotplates
- Capacity: max. 20L (H<sub>2</sub>O) Speed : max.1500 rpm
- 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, 105L, 155L, and 305L
- Temperature range: (RT +5°C) to 250°C with accuracy of ±0.5°C at 150°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, 30L and 70L
- Vacuum Range : 10 to 750 mmHg
- Models with Digital LCD or Touch screen TFT LCD Displays are available



### ● Muffle Furnace

- Temperature range: 1000°C, 1200°C
- Capacity from 3L to 63L
- Digital LCD display
- Heating power from 1.4kW to 9kW



### ● Digital Homogenizers

- Speed Range (rpm) : 2000-27000 (without Load)
- High efficiency dispersing tool made of SS and PTFE
- Designed for liquid and tissue samples
- LCD for Speed and Power bar graph
- Set A includes Dispersing tool with rotor of 12.8 mm for up to 1000ml of sample volumes
- Set B includes Dispersing tool with rotor of 20 mm for up to 2500ml of sample volumes



### ● Dry Bath, Heating & Peltier Cooling bath

- Temp. range: RT to 150°C & -5°C to 95°C
- Temperature accuracy: ± 0.1°C at 37°C
- LCD display
- Heat up time: 5°C/min
- Capacity of test tubes: 0.2ml to 50ml tubes
- Number of tubes: 8 to 96 tubes

## ● Incubators

- Forced and Gravity convection incubators
- Capacity from 50L to 155L
- Temperature range: (RT+5) to 70°C with stability of  $\pm 0.2^{\circ}\text{C}$  at 37°C
- Digital LCD and Touch screen TFT LCD Display



## ● Autoclaves

- Capacity from 47L 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
- With PED Pressure Equipment Directive



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

- Capacity: 25L, 82L, 393L, 503L, 714L and 796L
- Temperature range from -95°C to -65°C
- Touch screen TFT LCD Display
- Single / Dual compressor models
- Cool Down 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° to 90°
- LCD display
- Applications: General Mixing, Diffusing, Dialyzing and Hybridization, Aerating Culture





## ● 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
- 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 ( ΔT: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 ( ΔT : 110 °C)
- Support Structure made up of Stainless steel 316

## ● 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 316





# High - Pressure Reactors

## Applications

- Digestion
- Extraction
- Catalysis research
- Synthesis
- Material tests
- Hydrothermal Synthesis
- Biofuels
- Supercritical Fluids





# Ultrasonic Cleaning Device



Cleaning Basket



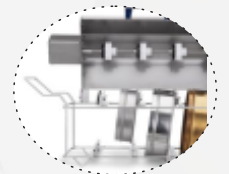
Mute Box



Holders



Inserts



Cleaning Module



Cooling Coil



Pins

● Multi Frequency Unit : 37kHz & 80kHz ● Temp Range: RT to 80°C ● Volume Range : 3L to 90L

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