The possibilities are endless...

AN ISO 9001:2015 CERTIFIED COMPANY

(•) KESAR®
TESTING SERVICE LLP
CALIBRATION & VALIDATION EXPERTS
DESTINATION OF ACCURACY

AN ISO 9001:2015 CERTIFIED COMPANY

(•) KESAR®
CONTROL SYSTEMS PVT. LTD.
TEMPERATURE & HUMIDITY EXPERT
MFG. OF PHARMA & LAB EQUIPMENTS

25 YEARS EXPERIENCE

SINCE 2010
CELEBRATING
15 YEARS OF EXCELLENCE

www.kesarcontrol.com

About us :

Established in the year 2007, **KESAR CONTROL SYSTEMS** is engaged in manufacturing of pharmaceutical and scientific equipments.

Our entire products are globally acclaimed for their excellent features such as durability, unique design and smooth operation.

A well laid infra structural set up with latest technological advancement has enabled us to meet the voluminous demand of customer's across the global. We have a team skilled professionals with ample industrial experience who carry out the whole manufacturing process.

Accentuating on quality and streamlining of manufacturing process, we stay ahead of our competitors by providing our clients with one stop solution for their requirements.

We manufacture all our equipments as per GMP / ICH guidelines and also Confirms MCA & US FDA requirements.

Who we are :

We have been working continuously in the field of manufacturing of Pharma and Lab equipments since Last Thirteen years.

A blend of young and truly professional enthusiasts driven by a desire to succeed, we take pride in our professionalism.

Our Values :

* Customers are our highest priority.
* Customers are most important to us.
* Valuing customer feedback.
* We never lose sight of our customers.
* We do business with integrity.
* We play to our strength & analyze our weaknesses.
* Exceed customer's expectation

What we do :

Kesar Control Systems apply continuous development technology tools to our needs as well as those of our clients. Hence we can offer better quality and more relevant products & services than what can be attained from other manufacturer. Our success lies in providing the best quality products with best manpower & services at the lowest price.

Our Mission :

To be the leading manufacturer of Temperature & Humidity base equipments Adopting advance techniques for enhancing quality & improving good performance. To provide best quality equipments and surpass customer expectation by offering 24 x 7 x 365 Services.

What Distinguish Us :

Our business is improving human life. All of our actions must be measured by our success in achieving this goal. Above all we value our ability to serve everyone who can benefit from the appropriate use of our equipments, thereby providing long lasting consumer satisfaction. We are committed to the highest standards of ethics and integrity. In discharging our responsibilities, we do not take professional or ethical shortcuts.

We strive to create an environment full of mutual respect, encouragement and team work. An environment that reward commitment and performance.

Our Commitment :

"In this spirit, **KESAR CONTROL SYSTEMS** is committed to become an indispensable element for Pharmaceutical Industry and therefore we must as a team, continuously improve our professional knowledge and skills. Each and every one of our employees in their own specialized area of employment has a vital role to play in achieving this goal."

Our Achievement

Our Team

Our Product Range

- Walk-in Stability Chamber
- Walk-in B.O.D. Incubator
- Photostability Chamber
- Walk-in Cold Chamber
- Hot Air Oven
- Vacuum Oven
- Muffle Furnace
- De- Humidifier

- Humidity/Stability Chamber
- B.O.D. Incubator
- Bacteriological Incubator
- Cold Chamber/Cooling Cabinet
- Vertical Auto Clave
- Deep Freezer
- Water Chiller
- Portable Humidity Chamber for Calibration Lab

Walk-in Stability Chamber

For Stability Study as per ICH Q1A(R2), ANVISA, ASEAN, WHO, MCA, USFDA etc...

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Technical Specification :

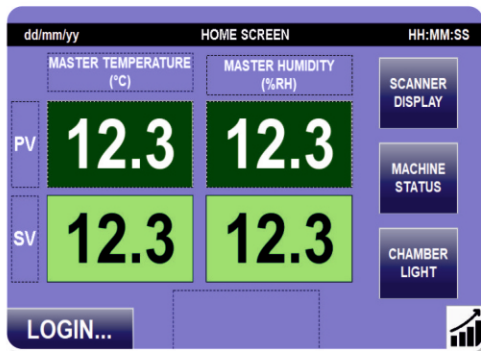|		
Temperature Range	:	20°C - 60 °C
Humidity Range	:	40 %RH - 95 %RH
Accuracy	:	± 0.2 °C / ± 2.0 %RH
Uniformity	:	± 2.0 °C / ± 3.0 %RH
Suitable for	:	25°C & 60 %RH, 30°C & 65 %RH, 40°C & 75 %RH, 30°C & 75 %RH Specially designed chambers for Low Humidity conditions such as 25°C & 40 %RH, 40°C & 25 %RH , 30°C & 35 %RH

Models	Capacity in Liters	Internal Dimension In MM			External Dimension In MM			Rack Qty.	No. of Trays
		Width	Depth	Height	Width	Depth	Height		
KGWS - 2400	2400 Ltr.	1600	750	2000	1720	870	2120	2	10
KGWS - 3K	3008 Ltr.	1600	940	2000	1720	1060	2120	2	10
KGWS - 4K	4000 Ltr.	1600	1250	2000	1720	1370	2120	2	16
KGWS - 5K	5120 Ltr.	1600	1600	2000	1720	1720	2120	2	16
KGWS - 6K	6120 Ltr.	1700	1800	2000	1820	1920	2120	2	16
KGWS - 7K	7000 Ltr.	1750	2000	2000	1870	2120	2120	2	16
KGWS - 8K	8000 Ltr.	1850	2080	2080	1970	2200	2200	2	16
KGWS - 10K	10000 Ltr.	1850	2600	2080	1970	2720	2200	2	24
KGWS - 12K	12000 Ltr.	1850	2730	2380	1970	2850	2500	2	24
KGWS - 16K	16000 Ltr.	2250	3000	2380	2370	3120	2500	2	24
KGWS - 18K	18000 Ltr.	2250	3380	2380	2370	3500	2500	2	32
KGWS - 20K	20000 Ltr.	2250	3740	2380	2370	3860	2500	2	32
KGWS - 24K	24000 Ltr.	2480	4100	2380	2600	4220	2500	2	32

NOTE : Extra Trays will provide on request as per capacity of chamber Other Sizes and Customize models are available on request.
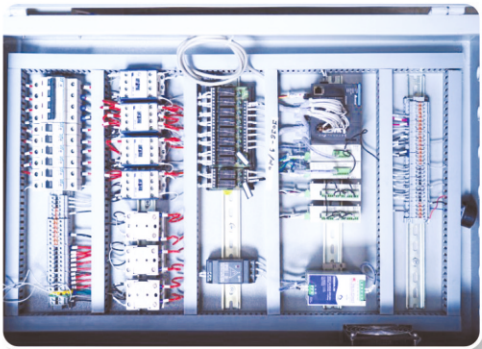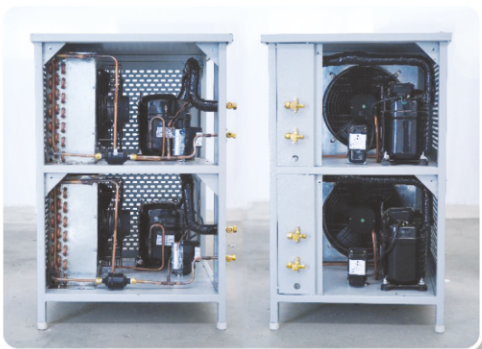
Features

Touch Screen | Standby Cooling | PLC Control | Ethernet | Door Access | Alarms | Safety | Documents | Software | Mobile Alert | E-mail Alert

Inner View

Display (HMI)

Control Panel

Refrigeration Unit

Features :

Low energy and Low water Consumption Equipments.

Construction :

- Pre-fabricated modular panel type construction with PUF insulation to be assembled on site with floor panels having extra reinforcement to sustain the movement and sample load inside the chamber.
- The inner working chamber is water & vapour tight high-grade stainless steel.
- Chambers are provided with effective air circulation system, heating & cooling systems and humidity generator system.
- Multi pane vacuum sealed observation glass window to view the samples without disturbing the test condition & human safety.
- Heavy duty solid stainless steel duly electro polished wire mesh/perforated type trays are provided which are easy to clean, time & efforts saving, also adjustable for convenience, along with detachable racks with adjustable angles.

Control Systems :

- 7" HMI with TFT LCD Colour touch screen with password protection for all parameter actual status monitoring of utilities like Sensor, Heating & Cooling System, Humidity System.
- Rotronic make 4-20mA sensors for better accuracy.
- PLC with auto tuning facility for accurate control of temperature and humidity conditions.
- Data Storage facility in HMI and PLC Both PLC'S Stored data transfer in software via Ethernet and HMI'S Stored data can be veiw obtain in PDF form through USB Drive.

Alarm & Safety :

- Temperature deviation & RH deviation Alarm
- Power Failure Alarm
- Continues open door alarm
- Temperature & RH Safety Cutoff
- Low water level Cutoff
- Auto change over Facility for RH Generator & Cooling System

Special Features :

- Special door lock is provided which can opened from inside even if locked from outside.
- Password Protected Door Access.
- Person trapped Emergency stop protection.

Software (21 CFR PART-11 Compliance)

- Log data, Event data, Audit Trail data, E-Records & E-signatures, Graphical analysis & Data acquisition.

Additional Features :

- Stand by Cooling System
- Stand by Humidity System
- Scanner (8 Temp. + 8 RH for Online Monitoring Purpose)
- Mobile Alert System
- Security Alarm System
- Chiller System
- Eco - Smart System

Humidity Chamber / Stability Chamber

PID Based Control System

HMI/PLC Based Control System

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Technical Specification :

Temperature Range	: 20°C to 60°C
Humidity Range	: 40% RH to 95% RH
Accuracy	: ±0.2°C & ±2.0% RH
Uniformity	: ±2.0°C & ±3.0%RH
Suitable For	: 25°C & 60%RH, 30°C & 65%RH, 40°C & 75%RH, 30°C & 75% RH & also for low Humidity 25°C & 40%RH, 40°C & 25%RH , 30°C & 35%RH
Control System	: PLC or PID Based

Models	Capacity in Liters	Internal Dimension In MM			External Dimension In MM			No. of Trays
		Width	Depth	Height	Width	Depth	Height	
KGOS-72	72 LTR	400	400	450	550	980	1060	2
KGOS-90	90 LTR	450	450	450	600	1030	1060	2
KGOS-120	120 LTR	450	450	600	600	1030	1210	2
KGOS-227	227 LTR	600	630	600	750	1210	1210	2
KGOS-325	325 LTR	600	630	900	750	1210	1510	2
KGOS-400	400 LTR	600	630	1060	750	1210	1670	3
KGOS-500	500 LTR	600	630	1330	750	1210	1940	4
KGOS-600	600 LTR	800	800	950	950	1380	1560	4
KGOS-800	800 LTR	800	800	1250	950	1380	1860	4
KGOS-1000	1000 LTR	800	800	1570	950	1380	2180	4
KGOS-1600	1600 LTR	1600	800	1250	1750	1400	1860	10
KGOS-2000	2000 LTR	1600	800	1570	1750	1400	2180	10

NOTE : Other Sizes and Customize models are available on request.

PHOTOSTABILITY CHAMBER

Technical Specification :

Temperature Range	: 20°C to 50°C
Accuracy	: ± 0.2°C
Uniformity	: ± 2.0°C
Control System	: PLC or PID Based

Optional :

Humidity Range	: 40% RH to 85% RH
Accuracy	: ± 2.0% RH
Uniformity	: ± 3.0% RH

- As per ICH - Q1B For confirmatory studies, sample should be exposed to light providing an overall illumination of not less than 1.2 million lux hours and an integrated near ultraviolet energy of not less than 200 watt hour/ square meter to allow direct comparison to be made between drug substance & drug product.
- On line and actual study of UV & LUX Exposure.
- Automatic cycle cutoff after complete the study / test of UV & LUX.

Models	Capacity in Liters	Internal Dimension In MM			External Dimension In MM			Nos. of Light Bank
		Width	Depth	Height	Width	Depth	Height	
KGOP-227	227 LTR	600	630	600	790	1070	1210	1
KGOP-325	325 LTR	600	630	900	800	1190	1510	2
KGOP-400	400 LTR	600	630	1060	800	1190	1670	2

NOTE : Other Sizes and Customize models are available on request.

Features

Touch Screen | PLC Control | Ethernet | Alarms | Safety | Documents | Software | Mobile Alert | E-mail Alert

Features :

Low energy and Low water Consumption Equipments.

Construction :

- Constructed and fabricated on fully automatic CNC machines. Chamber Interior is fabricated of stainless steel with dull/mirror finish & exterior is of stainless steel for GMP Model / G.I. Powder coated for standard Model.
- The inner working chamber is water & vapour tight high-grade stainless steel. All seams are arc-welded & passivity for strength & durability.
- Chambers are provided with effective air circulation system, heating & cooling systems and humidity generator system.
- Double Door : Inner full viewing glass door and outer door insulated with lock and key arrangement. Inner& outer doors are sealed by silicone sponge rubber gasket.
- Control panel with electrical switch gear and refrigeration system mounted on top for easy service accessibility.
- Equipment mounted on heavy castor wheels for easy movement.
- Heavy duty solid stainless steel duly electro polished wire mesh/perforated type trays are provided which are easy to clean, time & efforts saving, also adjustable for convenience.

Control Systems :

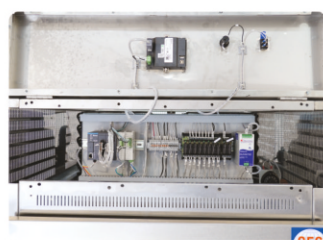**Option 1 :** (PID controller based)

- Microprocessor based PID controller with auto tuning for accurate control of temperature and humidity conditions.
- Rotronic make 4-20mA sensors for better accuracy / Pt100 Sensor for Temperature & Direct % RH electronic capacitance type humidity sensor.
- Data Storage unit facility to store data and to print directly on printer or transfer to software with Date, Time, SV, PV, Door Open/ Close, Power On/Off remarks.
- Safety : Temperature & Humidity High / Low Alarm, Temperature very High / Low cut off, Water level low cut off.
- Software (21 CFR PART-11 Compliance) :
  Log data, Event data, Audit Trail data, E-Records & E-Signatures, Graphical analysis & Data acquisition.
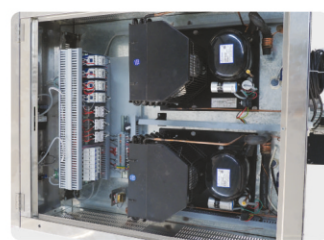
Option 2 : (HMI + PLC controller based)

- 7" HMI with TFT LCD Colour touch screen with password protection for all parameter actual status monitoring of utilities like Sensor, Heating & Cooling System, Humidity System)
- Rotronic make 4-20mA sensors for better accuracy.
- PLC with auto tuning facility for accurate control of temperature and humidity conditions.
- PLC system for auto changeover of standby systems.
- Data Storage unit facility to transfer the data to software via Ethernet for web based online remote monitoring with Date, Time, SV, PV, Door Open/ Close, Power On/Off remarks. Direct report printout provision from HMI.
- Safety / Alert :
  Temperature & Humidity High / Low alarm, Temperature & Humidity High / Low cut off, Low water level cut off, Auto change over for standby systems.
- Software (21 CFR PART-11 Compliance) :
  Log data, Event data, Audit Trail data, E-Records & E-Signatures, Graphical analysis & Data acquisition.
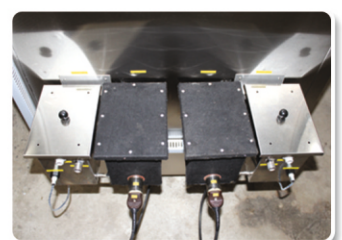
Optional :

- Software (21 CFR PART-11 Compliance)
- Stand by Cooling System
- Stand by Humidity System
- Scanner (4 Temp. + 4 RH for Online Monitoring Purpose)
- Mobile Alert System
- Security Alarm System

Front Control Panel View

Top Panel View

Reserve Boiler Tank

BOD Incubator/ Bacteriological Incubator

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BOD Technical Specification

Temperature Range : 10°C to 60°C
Accuracy : ± 1.0°C
Uniformity : ± 2.0°C

Bacteriological Technical Specification

Temperature Range : 10°C above ambient to 60°C
Accuracy : ± 1.0°C
Uniformity : ± 2.0°C

Cold Chamber
Technical Specification

Temperature Range : 2°C to 8°C
Accuracy : ± 1.0°C
Uniformity : ± 3.0°C

Features of Incubator & COLD Chamber :

- Constructed and fabricated on fully automatic CNC machines. Chamber Interior is fabricated of stainless steel with dull/mirror finish & exterior is of stainless steel for GMP Model / G.I. Powder coated for standard Model.
- The inner working chamber is water & vapour tight high-grade stainless steel.
- All seams are arc-welded & passivity for strength & durability.
- Chambers are provided with effective air circulation system.
- **Double Door :** Inner full viewing glass door and outer door insulated with lock and key arrangement. Inner and outer doors are sealed by silicone sponge rubber gasket.
- Control panel with electrical switch gear and refrigeration system mounted on top for easy service accessibility.
- Equipment mounted on heavy castor wheels for easy movement.
- Heavy duty solid stainless steel duly electro polished wire mesh/perforated type trays are provided which are easy to clean, time & efforts saving, also adjustable for convenience.

BOD PID Based

PID CONTROLLER BASED & HMI / PLC CONTROL BASED

Model	Inner Moc	Outer Moc
GMP Model	S.S.304 / S.S.316	S.S.304
Trays Moc : S.S.304 Perforated Type **Note :** Extra Charges will be applicable for Extra Tray		

BOD / Bacteriological Incubator Models	COLD Chamber Models	Capacity in Liters	Internal Dimension In MM			External Dimension In MM			No. of Trays
			Width	Depth	Height	Width	Depth	Height	
KGOB-72/KGOI-72	KGOC-72	72 liters	400	400	450	550	870	1060	2
KGOB-90/KGOI-90	KGOC-90	90 liters	450	450	450	600	920	1060	2
KGOB-120/KGOI-120	KGOC-120	120 liters	450	450	600	600	920	1210	2
KGOB-227/KGOI-227	KGOC-227	227 liters	600	630	600	750	1100	1210	2
KGOB-325/KGOI-325	KGOC-325	325 liters	600	630	900	750	1100	1510	2
KGOB-400/KGOI-400	KGOC-400	400 liters	600	630	1060	750	1100	1670	3
KGOB-500/KGOI-500	KGOC-500	500 liters	600	630	1330	750	1100	1940	4
KGOB-600/KGOI-600	KGOC-600	600 liters	800	800	950	950	1270	1560	4
KGOB-800/KGOI-800	KGOC-800	800 liters	800	800	1250	950	1270	1860	4
KGOB-1000/KGOI-1000	KGOC-1000	1000 liters	800	800	1570	950	1270	2180	4

NOTE : Extra Trays will provide on request as per capacity of chamber Other Sizes and Customize models are available on request.

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TEMPERATURE & HUMIDITY EXPERT

Features

- Fabricated on fully automatic CNC machines.
- PUF insulation has thickness 125 MM thickness.
- The inner working chamber is water & vapour tight high-grade stainless steel.
- All seams are arc-welded & passivity for strength & durability.
- Hermetic compressors build on cascade system (-80ºC) with CFC free refrigeration.
- Equipment mounted on heavy castor wheels for easy movement.
- Heavy duty solid stainless steel duly electro polished wire mesh/perforated type trays are provided which are easy to clean, time & efforts saving, also adjustable for convenience.

PID CONTROLLER BASED & HMI / PLC CONTROL BASED

Temperature Range	Accuracy	Uniformity
- 5°C to - 25°C	± 3.0°C	± 5.0°C
- 20°C to - 40°C	± 3.0°C	± 5.0°C
- 50°C to - 80°C	± 3.0°C	± 10.0°C

Model	Inner Moc	Outer Moc
GMP Model	S.S.304 / S.S.316	S.S.304

Trays Moc : S.S.304 Wire mesh Type / Perforated Type **Note :** Extra Charges will be applicable for Extra Tray

Optional Features

- Stand by Refrigeration System (For -25ºC & -40ºC PLC Model)
- Mobile Alert System
- Security Alarm System

Dual Cold Chamber

Size of Deep Freezer -25ºC & -40ºC

Capacity in Litres	Inner Size in MM (W x D x H)	Outer Size in MM (W x D x H)	No. of Tray
KGOF 100 LTR	450 x 450 x 500	700 x 650 x 1250	02
KGOF 227 LTR	600 x 630 x 600	850 x 800 x 1350	03
KGOF 325 LTR	600 x 600 x 900	850 x 800 x 1650	04
KGOF 400 LTR	600 x 630 x 1060	850 x 830 x 1910	04
KGOF 600 LTR	800 x 800 x 950	1050 x 1000 x 1800	04
KGOF 800 LTR	850 x 850 x 1110	1130 x 1085 x 2110	05
KGOF 1000 LTR	900 x 900 x 1250	1200 x 1200 x 2400	05

Size of Ultra low Freezer -80ºC

Capacity in Litres	Inner Size in MM (W x D x H)	Outer Size in MM (W x D x H)
KGOF 80-100 LTR	450 x 450 x 500	770 x 790 x 1560
KGOF 80-200 LTR	600 x 600 x 600	860 x 860 x 1700
KGOF 80-325 LTR	600 x 600 x 900	860 x 860 x 2000
KGOF 80-400 LTR	600 x 630 x 1060	860 x 890 x 2260
KGOF 80-500 LTR	600 x 800 x 1050	900 x 1000 x 2050

Dual Cold Chamber Size

Modle	Capacity	Temp. Range	Inner Size in mm	Outer Size in mm	No. of Tray
KGO2C - 90 Ltr.	90 Liter Upper	2 - 8°C	450 x 450 x 450	750 x 1030 x 1800	2
	90 Liter Lower	-20°C	450 x 450 x 450		2
KGO2C - 200/100 Ltr.	200 Liter Upper	2 - 8°C	600 x 600 x 600	800 x 1050 x 1900	2
	100 Liter Lower	-20°C	600 x 600 x 300		2
KGO2C - 200 Ltr.	200 Liter Upper	2 - 8°C	600 x 600 x 600	800 x 1050 x 2200	2
	200 Liter Lower	-20°C	600 x 600 x 600		2

Hot Air Oven

Technical Specification :

Temperature Range : 10°C Above Ambient to 300°C
Accuracy : ± 2.0°C
Control System : Operation through digital PID controller with inbuilt cycle timer auto cutoff.
Uniformity : Upto 150°C : ±5.0°C & 150°C to 200°C / 300°C : ±10.0°C

- Double walled interior and exterior S.S. 304 / 316 with matt finish insulated with high grade glass wool insulation.
- S.S. Wire Mesh Trays with adjustable Support. • Forced air circulation for uniform temperature.

Models	Capacity in Liters	Internal Dimension In MM			External Dimension In MM		
		Width	Depth	Height	Width	Depth	Height
KGOH-43	43 LTR	350	350	350	610	840	785
KGOH-73	73 LTR	350	350	600	610	840	1035
KGOH-90	90 LTR	450	450	450	710	960	905
KGOH-120	120 LTR	450	450	600	710	960	1055
KGOH-200	200 LTR	600	600	600	860	1110	1055
KGOH-325	325 LTR	600	600	900	860	1110	1355
KGOH-400	400 LTR	600	600	1110	860	1110	1565
KGOH-600	600 LTR	700	700	1225	960	1210	1680

Vacuum Oven

Technical Specification :

Temperature Range : 50°C to 200°C
Accuracy : ± 2.0°C
Vacuum Range : More than -700mm of Hg.
Control System : Operation through digital PID controller.

- Double walled interior and exterior S.S. 304 with matt finish insulated with high grade rock wool insulation.
- Door with glass window, silicone gasket & positive latch to maintain seal at all vacuum Levels.

Round Vacuum Oven

Model	Working Chamber Size Dia x Depth (in inch)
KGOV-12	9" x 12"
KGOV-28	12" x 15"
KGOV-52	15" x 18"

Rectangular Vacuum Oven

Model	Working Chamber Size W x D X H (in inch)
KGOV-28	12" x 12" x 12"
KGOV-95	18" x 18" x 18"

Muffle Furnace

Technical Specification :

- Furnace finds application in Industries & Laboratories for Ashing, Heat treatment, Ignition test, Gravimetric analysis, Determination of volatile and suspended solids & Cement testing.
- Heavy gauge Mild Steel construction for durability having powder coating finish.
- Outer Casing Made from Stainless Steel - 304 grade in all GMP Models.
- Un-exposed long lasting KANTHAL A-1 heating elements.
- Light Weight, Ceramic Fiber Wool insulation of High quality to give maximum thermal efficiency.
- Temperature controlled by Dual Display Microprocessor based PID Temperature Controller.
- Temperature Sensor: "K" Type (Cr/Al) Thermo couple sensor.
- Working Temperature Range: 400°C to 1050°C or 400°C to 1150°C
- Temperature Control Accuracy : + 3°C.
- Operates on 230 Volts AC Single phase 50Hz.
- **Two models :** (1) Muffle For 1050°C (2) Refractory for 1150°C

Sizes :

Models	Inner Size Inch	Capacity (In Ltrs)	Rating Watts
KGMF - 449	4" X 4" X 9"	2.30 Ltrs	2000 W
KGMF - 5510	5" X 5" X 10"	4.25 Ltrs	2500 W
KGMF - 6612	6" X 6" X 12"	6.75 Ltrs	3500 W
KGMF - 8812	8" X 8" X 12"	12.00 Ltrs	4500 W
KGMF - 9918	9" X 9" X 18"	23.80 Ltrs	7000 W
KGMF - 121212	12" X 12" X 12"	28.00 Ltrs	7500 W

Auto Clave (Vertical Type) Models only
FULLY AUTOMATIC WITH FO VALUE FACILITY & RADIAL LOCK DESIGN

KESAR CONTROL SYSTEMS PVT. LTD.
TEMPERATURE & HUMIDITY EXPERT

Technical Specification : (Single Lever)

- Vertical Autoclave widely used in Microbiology Laboratory, Waste treatment Plant, Pharma QC / QA / R & D and all applications requiring sterilization.
- Double walled construction with Inner chamber (boiler) made of SS 304 grade(16 SWG Sheet) and Outer shell of SS - 304 grade, mirror polish.
- The Boiler and outer shell is provided with air insulation.
- Lid is made of die pressed Thick Stainless Steel plate & is equipped with Pressure gauge, Steam release / Exhaust valve & spring loaded safety valves 02"nos & 1/4" or 3/8 BSP Port fitted with coupling for validation purpose.
- Fully Argon welded to avoid steam and pressure leakage.
- Heavy duty industrial flange heaters.
- Full sterilization cycle including Air purging, Sterilizing hold time, Cycle end with release/exhaust of pressure.
- Microprocessor based PID temperature Controller with PT-100 sensor, Timer & Solenoid valve Controls system, which controls : pressure and Set temperature, Timer for Set time of Autoclave with Air purge : Auto air / pressure purge at time of start and end of cycle high temperature alarm, End of cycle alarm, Low Water Level indicator / alarm (i.e Heater will cutoff and given alarm when water level goes below H/Element).
- **Timer Range :** 1- 99 Minutes.
- PU Caster Wheels GI Support
- Perforated basket made of SS - 304 grade.
- Operates on 230 Volts AC Single phase 50Hz.

Temperature Range	: 120°C to 125°C
Working Temperature Range Between	: 100°C to 127°C & Factory Set will be at 120.0°C
Temperature Resolution	: 0.1°C
Temperature Control Accuracy	: +/-0.5°C or better
Working Pressure Range Between	: 15 PSI to 25 PSI. (Factory Set will be at 15 PSI)

Optional features :

- Digital Controller cum data logger with Software F0 value with USB data converter & cable with Fully Automatic having all the feature of low level water cut off feature, purging system, timer, & releasing of the steam after completing the sterilization of the cycle, Cooling Coil & Pressure Transmitter.
- Pressure Transducer with Pressure Data in Software.

Size & Models :

Models	Size (DIA x HT)		Rating	Capacity (Ltrs.)	No. of Bsket
	INCH	CM			
KGAC - 35L	12 Ø x 20 Ht	30 Ø x 50 Ht	2000 W	35 LTR	1
KGAC - 53L	14 Ø x 22 Ht	35 Ø x 55 Ht	3000 W	53 LTR	1
KGAC - 75L	16 Ø x 24 Ht	40 Ø x 60 Ht	4000 W	75 LTR	1
KGAC - 95L	18 Ø x 24 Ht	45 Ø x 65 Ht	4500 W	95 LTR	1
KGAC - 125L	18 Ø x 30 Ht	45 Ø x 75 Ht	5000 W	125 LTR	2
KGAC - 185L	22 Ø x 30 Ht	55 Ø x 75 Ht	6000 W	185 LTR	2
KGAC - 215L	22 Ø x 35 Ht	55 Ø x 90 Ht	6000 W	215 LTR	2

Multi Channel Scanner :
(4 / 8 / 16 Channel)

Technical Specification :

No. of Channels	4 / 8 / 16 Channel	
Display	128 x 64 alphanumeric graphical display	
Sensor Input	Temperature	: RTD Pt - 100 and PT - 1000 (0 to 400°C)
	Thermocouple	: 2 types (J type : 0 to 850°C, K type : 0 to 1300°C)
	Linear Inputs	: 4mA - 20mA , 0mA - 20mA 0 - 1 V, 0 - 5 V, mV Can Support
	Humidity RH	: 0 -1V, 0 - 3.3V (3 wire), 4mA - 20mA
Alarm	Common Alarm for all channels	
Communication port	RS 485 to 232 (Pc communication) or Ethernet (Tamper proof data with 21cfr part 11 compliance software.)	
Print features	1. Date wise data recovery 2. Page wise data recovery	
Printer supported	EPSON LX - 300+ (Dot Matrix) with provided printer cable	
Scan time	1 to 255 minutes interval time	
Memory capacity	up to 3000 records	
Audio Indication	For Critical condition and Memory full condition	
Supply voltage	110/230 VAC - 50/60 Hz	
Size	96mm x 96mm x 65mm	

CE APPROVED

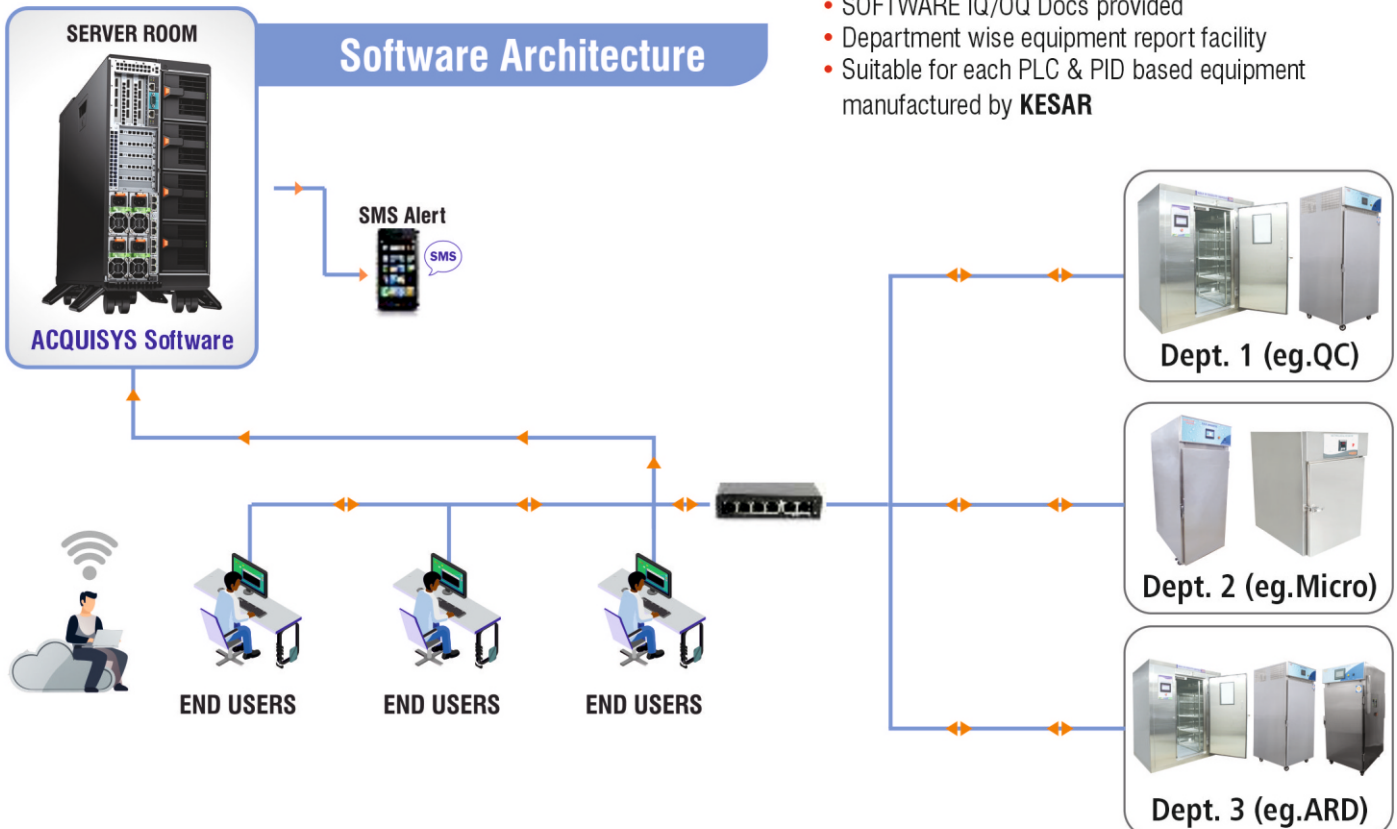**SOFTWARE NAME :** "ACQUISYS"
KESAR CONTROL SYSTEMS

Silent Features of "ACQUISYS" Software

- Meets all 21 CFR part 11 requirements
- Ethernet communication with PLC
- Secured audit trail with date and time stamp (users, equipments, all events/alarm, SMS)
- Real time analysis & graphical analysis
- All connected equipment's utility status, process parameters & active alarms can online observed by software
- Auto & manual backup with restore data facility
- No limit for user account creation
- Forced password change on first time login
- Frequency based password expiry
- Account block with 3 wrong login attempt (unlock only by administration)
- 8 to 20 alphanumeric password length
- Online downloading for all stored data of PLC, such that master data, scanner data, mkt calculation, event/alarms, master graph & scanner graph
- GMP-compliant, tamper proof reports of measured data
- E-signature Facility for all Reports
- Report header and footer with logo can customize
- Auto time synchronize facility
- Time of auto log off in idle condition of PC (10 MINS LATER)
- Password reset server email configuration
- SOFTWARE IQ/OQ Docs provided
- Department wise equipment report facility
- Suitable for each PLC & PID based equipment manufactured by **KESAR**

Software Architecture

SERVER ROOM

ACQUISYS Software

SMS Alert

END USERS   **END USERS**   **END USERS**

Dept. 1 (eg.QC)

Dept. 2 (eg.Micro)

Dept. 3 (eg.ARD)

Ethernet Communication:

- High-speed data transfer
- Significantly faster than serial(RS-485)communication
- Global standard for communication protocol
- No need for a separate PC interface
- Data Operations from any PC over the LAN

Touch Screen Display

- All operations through a Color touch screen display (HMI)
- PLC IP Address setting
- Component Working Hours
- Standby system change over
- Password protection for set values and calibration mode
- Alarms recordings

Touch Screen Door Access System

- Password-based Door access control
- Biometric Door access control (optional)
- Restricts access to unauthorized persons

Mobile Alert System

- Time of Alarm transmission
- Name of Equipment
- Transmitted Message (Equipment Name, Alarm time, Type of Alarm & Limits)

Standby Humidity & Cooling Systems

- Completely ready-to-use systems
- Automatic switch-over upon failure of primary systems
- Switch-over also upon detection of Internal faults
- Scheduled & manual change-overs
- Recording of all change-overs in the software

Complete Range of Alarms

- Temperature & Humidity Deviations
- Door Opening
- Water level low
- Component Failure
- Power Failure
- Communication Failure

Alarm Transmissions

- To Software
- To Remote Location (such as Security Gate)
- Through detailed SMS Notification
- Locally at equipment (audio-visual indication & on the display)

Safety

- Temperature Overshoot/Undershoot
- Humidity Overshoot
- Low water-level
- Delay Timer to safeguard the Compressor
- MCB for over load protection
- Standby Controlling Sensor upon failure of Primary
- Special door lock is provided which can opened from inside even if locked from outside
- Emergency stop protection
- Person trapped protection

Multiple Sensors

- 4 Channel Scanner for Standalone Chamber
- 8 Channel Scanner for Walk in chamber
- Helps study the distribution of conditions in the different locations of the chamber
- Works as an auto-validation in continuous operation
- Easy detection of drift in the sensors

Documentation & Training

- DQ, IQ, OQ, PQ & SOP & SMP
- Calibration Certificates
- Test Certificates
- GA & Electrical Drawings
- MOC Test Certificates
- Training to end-users

Audit Support

- Quick Resolution to NCs
- Justification to Excursions
- On-site support
- Remote support via Team Viewer
- Documentation

KESAR
CONTROL SYSTEMS PVT. LTD.
TEMPERATURE & HUMIDITY EXPERT

Portable Dehumidifiers (Refrigerated)

Model	KGDH 100	KGDH 150	KGDH 200
Moisture Extraction Capacity	@30° C & 80 % RH 100 Liters /day	@30° C & 80% RH 150 Liters / day	@30° C & 80% RH 200 Liters / day
Coverage Area (Non A.C.)	800 Sq Ft / 8000 ft³ / 226 m3	1200 Sq Ft / 12000 ft³ / 399 m3	1600 Sq Ft / 16000 ft³ / 453 m3
Moisture Extraction Capacity	@23° C & 60% RH 50 Liters / day	@23° C & 60% RH 75 Liters / day	@23° C & 60% RH 100 Liters / day
Coverage Area (A.C. w/o AHU)	400 sq. ft / 4000 ft³ / 113 m3	600 sq. ft / 6000 ft³ / 169 m3	800 sq. ft / 8000 ft³ / 226 m3
Body Material	SS 304 / GI	SS 304 / GI	SS 304 / GI
Humidity Control & Display	Up to 40% & Digital 90%	Up to 40% & Digital 90%	Up to 40% & Digital 90%
Humidity Control*	Up to 30%	Up to 30%	Up to 30%
Water Collection Tank	22 Liter	22 Liter	22 Liter
Compressor	Reciprocating 3.5 Kw	Reciprocating 5.25 Kw	Reciprocating 7 Kw
Refrigerant	R 22	R 22	R 22
Air Flow (Axial Fan)	1850 m3 / hr	2300 m3 / hr	2600 m3 / hr
Air Filter	20 Micron	20 Micron	20 Micron
Power	440 / 220V AC, 50Hz	440 / 220V AC, 50Hz	440 / 220V AC, 50Hz
Noise Level	72 dB	82 dB	82 dB
Direct Drain Facility	Yes	Yes	Yes
Castor Wheel	Yes	Yes	Yes
Dimension(inch) (L x D x H)	21.5" x 20" x 38.50"	21.5" x 20" x 38.50"	21.5" x 20" x 38.50"

Other Sizes and Customize Models are Available on Request.

AN ISO 9001:2015 CERTIFIED COMPANY

KESAR
CONTROL SYSTEMS PVT. LTD.
TEMPERATURE & HUMIDITY EXPERT

PORTABLE CALIBRATION HUMIDITY CHAMBER

TECHNICAL SPECIFICATIONS

Parameter	Temperature	Humidity
Range	5°C To 50°C	15%RH To 90%RH
Accuracy	±0.2°C	±0.5%
Uniformity	±1°C	±1%
● LOW TEMP & HUMIDITY SET POINTS :	● 25°C Temperature - 15% RH ● 25°C Temperature - 20% RH ● 20°C Temperature - 25% RH	● 20°C Temperature - 40% RH ● 30°C Temperature - 35% RH ● 40°C Temperature - 25% RH
● Construction (Both Construction Given)	1. **GMP Model** : Interior & Exterior body made of Stainless Steel 304. 2. **Standard Model** : Interior body made of Stainless Steel 304 & Exterior body made of MS **(CRCA)** Powder Coating. Inner glass door will be provided.	
● Insulation	Double walled PUF insulation 50 mm modular panel.	
● Control System	Digital Indication for temperature / Humidity PID Controller.	
● PID	Digital indication for temperatures and Humidity.	
● Temperature Sensor	Temperature PT 100 Sensor will be provided.	
● Humidity Sensor	Humidity Sensor will be provided.	
● Cooling System	Compressor make "EMERSON" fitted with ISO-9001 certified ozone friendly hermetically sealed compressor charged with CFC / HCFC free refrigerant, complete with air cooled condenser, fan motor, drier, capillary with complete compressor accessories.	
● Humidity System	By steam injection method.	
● Heating System	Long lasting (S.S) tubular fin type heating elements stainless steel.	
● Power Supply	Mains supply 230V AC, 50Hz Single phase.	
● Air Circulation	Forced air circulation for uniform temperature & Humidity.	
● Trays	Perforated stainless steel (SS 304).	
● Boiler Tank	Complete set made of SS including accessories like float switch, float valve and Humidifier Heaters.	
● Weight	Approx. 50 KG	

SIZE & MODEL

MODEL	CAPACITY		INNER CHAMBER SIZE W x D x H MM	EXTERNAL CHAMBER SIZE W x D x H MM	TRAY SIZE (MM)	NO. OF TRAY
KCS / PCHC / 22 L	-	22	300 X 250 X 300	760 X 460 X 490	290 X 240	1

AN ISO / IEC 17025:2017
ACCREDITED LAB by NABL

CC-2673

Destination of Accuracy

KESAR
TESTING SERVICE LLP
CALIBRATION & VALIDATION EXPERTS

VALIDATION

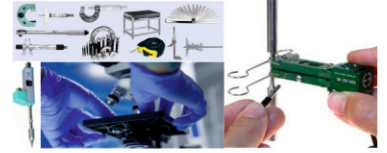CALIBRATION

QUALIFICATION

Balances

Thermal Discipline

Dimension Discipline

Electrotechnical

Fluid Flow Discipline

Volumetric

Pressure Vacuum

Mass Weights

PH Conductivity TDS ORP

LUX UV Sound Anemometer

Tachometer Rpm

Torque

Force Discipline

Civil Lab

Capability for both In-House & Onsite Calibration

VALIDATION

CALIBRATION

QUALIFICATION

An ISO / IEC 17025 : 2017 Accredited (by NABL) Calibration Services
AT IN HOUSE AND AT ONSITE CALIBRATION FACILITIES

THERMAL

Temperature Sensor, Humidity Sensor, Glass Thermometer, Temperature Gauge, Dry-wet Thermometer, themrohygrometer, Temp. & Humidity Data Loggers, Pyrometer, Infrared Thermometer, Dry / Liquid Temperature Bath, Stability/Humidity Chambers, Incubators, Cold Chambers, Deep Freezer, Refrigerators, Ovens, Furnaces, Autoclaves etc...

PRESSURE

(Pressure / Vacuum / Compound) Gauges, (Pressure / Vacuum) Transmitter, Pressure Switches, Manometer, Magnehelic Gauge, Differential Pressure Gauges etc…

ELECTRO-TECHNICAL

Timer, Stop Watch, Temperature Controller / Indicator, Volt Meter, Ammeter, Clamp Meter, Multimeter, Resistance Tester, Frequency Meter, Insulation Tester Megger, Earth Tester, 1 or 3 Phase Power Analyzer, Watt Meter, Multifunction Calibrator, Universal Calibrator etc...

DIMENSION

Caliper & Micrometer (Inside/Outside), Test Sieve / Wire Mesh, Depth Vernier / Micrometer, Micrometer setting peice/rod, Bore Dial Gauge, Dial Calibration Tester, Plunger / Lever Dial Gauge, LVDT / Displacement Transducer, Extensometer, Plaint Plug Gauge, Wire Gauge, Chamfer Gauge, Taper Scale, Pitch Gauge, Length Bar, Slip Gauges, Caliper Checker, Height Gauge, Feeler Gauge, Coating Thickness Gauges, Ultrasonic Thickness Gauges, Dial Thickness Gauge, Radius Gauge, Measuring Glass Scales, Measuring Tape, Flakiness Gauge, Elongation Gauge, Moulds etc...

MASS, VOLUME, BALANCE

Weighing Balance, Wight Box, Weights, Spring Balance, Pipette, Micropipettes, Measuring Cylinder, Flask, Hydrometer, Burettes, Beaker etc…

FORCE, HARDNESS, TORQUE

CTM, UTM, TTM, Pull Tester, Force Gauge, Torque Wrench, Torque Transducer, Shore Hardness Tester, Rockwell / Brinnel / Vicker Hardness Tester, Portable Hardness Tester etc…

AIR / LIQUID FLOW

Air Flow Meter / Transmitters, Air Rotameter, Laminar Flow, Orifice (Air Flow), Liquid Flow Meter / Transmitters, Rotameter (Liquid Flow) etc…

RPM, ACOUSTIC, VELOCITY

Tachometer / RPM Measurement / RPM Meter (RPM), Centrifuge, Vaibration Machine, Stirrer, Anemometer (wind Speed), Displacement & Speed of Machine, Sound Level Meter / Measurement in Room, PH / TDS / ORP / CONDUCTIVITY Meters etc…

MAPPING

Room / Area, Chambers, Incubators (walk In Type also), Cold Chamber, Deep Freezer, Refrigerator, Ovens, Furnaces, Autoclave, Sterilizer / DHS Validation, Tunnel, heating block

HVAC VALIDATION

HVAC / AHU / HEPA Filter, Bio Safety Cabinet, Laminar Air Flow, Pass Box, Clean Room Validation, PLC Validation, Compressed Air Validation, Sterilizer / DHS Validation

Annual Maintenance Contract

Routine Maintenance :

Kesar Control Systems offers a comprehensive range of service tailored to individual requirements designed to suit different products and budgets. With over "20 years" experience in the pharmaceutical and related industries our engineers have an extensive knowledge of controlled environment products. Our service can also include inspections, maintenance, and repairs. We offer these services to customers without a full service contract as well as to customer with their one service terms. Our engineers not only correct defect. Replace wearing parts and install technological advances. They also generate a maintenance plan that is kept up to date.

Annual Maintenance :

- Free one time calibration (1 Hr) and validation (24 Hrs), three routine visit and three breakdown visit.
- We attend a complaint within 24 Hours.
- One source of your maintenance repair issues.
- Allows your staff to focus on higher priority operational issues.
- Comprehensive range of services.
- Solution for operational efficiency and plant criticality.
- Resolve minor problems by one phone call.
- Maintenance regimes tailored individual requirements.
- In additions, we include a 24 hrs x 7 days x 365 days per year emergency response, including technical support service you.

Calibration :

Kesar control systems regular calibration of control, induction recording system verifies and documents measurement equipment performance. This routine calibration is essential to ensure the accurate and repeatable performance of equipment. Kesar engineers are trained in single point calibration. All test matters are regularly calibrated to NIST standard.

To guarantee peak performance to your vital equipment. It is essential to set up regular calibration visits our service package. The frequency of calibration is normally undertaken on an annual basis year but some critical applications are calibrated bi-annually. Kesar offer a flexible approach, tailored to each individual customers needs.

- Correction to specifications
- Traceable results
- Reliable service undertaken within regulatory requirements
- Equipments setting optimized for performance
- Clear and concise certification documentation

Validation :

We offer a full on-site validation service for environmental rooms, chambers and all associated equipments (data logging systems, chart recorders etc...)
All reference standards are regularly calibrated by NIST accredited laboratories and are traceable to national standard.

Performance mapping tests can be executed for temperature, humidity and light distribution. All documentation is designed to show compliance with ICH guidelines and to meet FDA and state-of-the-art data acquisition system, **Kesar** have a long established reputation for helping client demonstrate compliance with regulatory authority, saving both time, money and preventing the occurrence of embarrassing audit visits.

Our Overseas Customers

proVet · B & S COLORAMA · GUNNEBO For a safer world · RLC Representaciones Quimicas S.A.C. · SPI Saudi Pharmaceutical Industries · Alman Pharmaceuticals

GDC Gulf Drug Company · KriGen Pharmaceuticals LLC Changing Lives · BioSerene · NutraMed · Alidac Pharmaceuticals Limited · VETS PLUS, Inc. Global Animal Health · PRIMEWELL MANAGEMENT LTD

WHPL · S.M. PHARMACEUTICALS Our Concern is to Save Lives · cementra · PLASTRUE · Techno Drugs Ltd. · NEWGEN Lanka Healthcare Pvt Ltd · biotech access to innovation

BLUESKY TRADING · HESTER · Yash Life Sciences · Medmac Manufacturing Agricultural Chemicals and Veterinary Products Ltd · GC · Polisano PHARMACEUTICALS

MPP GROUP LLC · PRIME LABS Excellence in Quality · Swisspharma Research Laboratories, Inc. · RADIANT PHARMACEUTICALS · PHYTOGEN Phytogen Pharma (India) pvt. Ltd · WGK

Our Valuable Customers

Cadila Healthcare Limited · LUPIN PHARMACEUTICALS, INC. · amneal PHARMACEUTICALS · torrent · CADILA PHARMACEUTICALS LIMITED · SANOFI · P&G

Piramal knowledge action care · CONCORD BIOTECH LIMITED · NOVAGEN Healthcare Private Limited · ISRO · SUN · INTAS · PUNISKA HEALTHCARE

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MAHARSHI PHARMA CHEMPRIVATE LIMITED · ip · KAMRON Kamron Laboratories Ltd. · Sahajanand LASER TECHNOLOGY LIMITED · halcyon labs pvt. ltd.

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SOTAC · ZCL CHEMICALS LIMITED · OASIS TEST HOUSE · Aan Pharma Private Limited · Aum Resear Labs · VASAS EMPOWERING EXCELLENCE · Raks Pharma

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and many more...

www.kesarcontrol.com

Our Global Presence

NOTE : In our corporate policy of continuing product improvment, KESAR CONTROL SYSTEMS reserve the rights to change product specification without notice.

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