



ANALYTICAL EQUIPMENT

Digital Gas Flow Meter
Ultrasonic Bath (Sonicator)
Recirculating Water Chiller
Probe Sonicator
HPLC Column Safety Cabinet
HPLC Liquid Flow Meter
Universal Electronic Module
HPLC Column Washing Pump, High Pressure Pump
Ultrasonic Performance Meter
Ultrasonic Bath with Shaker
HPLC Column Oven
Pre Installation Requisite for HPLC
IR / FTIR Accessories - Hydraulic Press, KBr Die Set
Nitrogen Concentrator / Nitrogen Evaporator
Solid Phase Extraction - SPE
Advanced Sonicator with Chiller, HMI & Printer
Oil Free Vacuum Pump
Ultrapure Water Purification System

www.pcianalytics.in

ULTRASONIC BATH (SONICATORS)



1.5 Liters
MODEL : USB 1.5 L



3.5 Liters
MODEL : USB 3.5 L



6.5 Liters
MODEL : USB 6.5 L

Principle of Ultrasonic Bath

High frequency electrical energy is converted into ultrasound waves by means of ultrasonic Transducers, which are bonded on the base of SS water tank. These high frequency sound waves create countless, Microscopic vacuum bubbles, which rapidly expand and collapse. This phenomenon is called as CAVITATION. These bubbles act like miniature high speed brushes, driving the liquid into all openings and minutes recesses of the object immersed in the liquid. Intense scrubbing of Cavitation cleans away all the dirt and soil from the object immersed and the object is perfectly cleaned. Intricate objects can be cleaned with either complete or little dismantling.

Application

- Laboratory : For glassware, filters cleaning & HPLC mobile phase degassing
- Industrial : Semi-Conductors, Electronic components, Precious parts & Mechanisms.
- Medical : Dental & Surgical instruments.
- Opticals : Spectacles, Spectable frames, Lenses
- Jewellery : For all kinds of jewellery, Precious stones etc.
- To Remove : Dust, Oil, Greases, Polishing compounds, Waxes, Swarfs, Stains, Soils and any other contaminant.

Salient Features

- Easy to operate & made of one piece SS Tank.
- Indigenously manufactured with advanced MOSFET technology, with Auto-tuning facility.
- Digital tuning of transducers with generators to avoid any frequency shifted even during demanding applications.
- Compact, rugged and highly durable systems.
- Extensively protected electronic circuits means longer and safer operations.

Technical Specifications

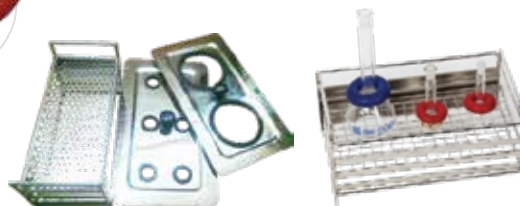
- Operating frequency 33 ± 3 KHz, for all general purpose cleaning is highly recommended. Frequency of 40 KHz is also available.
- Input voltage range of 200V AC - 230V AC, 50 Hz, single phase.
- Micro controller based timer range 0 to 15 minutes upto 3.5 ltrs. 30/99 min. timer are also available.
- Thermostatic heating
- Digital temperature controller, degassing, PSP (optional) if required.

Weight Rings

Weight rings for Volumetric Flask / Measuring Cylinder



Model	Inner Dia	Capacity of Flasks	Weight in kg/pc.
WR-20	20	5 ml to 50 ml	0.145
WR-30	30	100 ml to 500 ml	0.250
WR-50	50	1000 ml to 2000 ml	0.375



Special Customised Basket

Model	Capacity	Tank Size (LxBxH) mm	Overall Dim (LxBxH) mm	Wattage
USB-1.5 L	1.5 Ltr	240 x 135 x 65	265 x 160 x 180	60 W
USB-3.5 L	3.5 Ltr	300 x 150 x 100	330 x 175 x 250	120 W
USB-6.5 L	6.5 Ltr	300 x 150 x 150	450 x 200 x 350	200 W
USB-9 L	9 Ltr	300 x 200 x 150	450 x 300 x 375	250 W

- Higher capacity other than mentioned are also available as per customer requirements.
- Different shape baskets available.
- Weight rings of differences sizes available for different measuring cylinders.
- Available with Heater, DTC, PSP, Degassing as optional.

ULTRASONIC PERFORMANCE METER



MODEL : Hygea

Ultrasonic performance meter provides a fast, effective & simple to use method of measuring the ultrasonic activity generated in ultrasonic baths. It is used to give a comparative measurement of one a bath's performance over a period of time.

Specifications

- Probe Assembly in SS : 15 x 244 mm long
- Handle in ABS : Plastic 105 mm long
- Instrument case in ABS : Plastic 130 x 65 x 25 mm
- Weight (Probe & Cable) : 350 grams
- Weight (Incl. Battery) : 200 grams
- Indicator 1 Frequency : 5 - 50 KHz
- Indicator 2 Power : 10 - 100 %
- Battery : 9 V
- Cable Connector : BNC 2P
- Calibration Period : 12 months

ULTRASONIC BATH (SONICATOR) WITH CHILLERS

Ultrasonic Bath with cooling facility specially for Pharma Application



Bench Top Model

Application of Ultrasonic Bath in Laboratory

- Laboratory : For Glassware, Filters Cleaning & HPLC Mobile Phase Degassing and homogenization.
- Industrial : Semi-Conductors, Electronic Components, Precious Parts & Mechanism.
- Medical : Dental & Surgical Instruments.
- Opticals : Spectacles, Spectacle Frames, Lenses
- Jewellery : For all kinds of Jewellery, Precious stones etc.
- To remove : Dust, Oil, Greases, Compounds, Waxes, Swarf, Stains, Soils & any other contaminant.

Specification of Water Chiller

It consist of chiller unit connected to S.S Water Storage Tank of about 15 liters capacity to reduce the water temperature to about 15° C. It has an inbuilt pump & Re-Circular unit to circulate chilled water through the S.S cooling coils and bring back to chiller unit.

Technical Specification

- Electric Supply : 230V AC, 50 Hz 1 Phase
- Tank Material : S.S 304 Grade Inner & Outer
- Construction : Ultrasonic Generator & S.S Transducer. Tank is housed in one S.S 304 grade cabinet.
- Transducer : PZT sandwich type bonded on the base of S.S Tank. With transducer are protection for chilled water condensation.
- Cooling Coils : SS coil of 1/2" dia are fitted in the SS tank to cool the liquid inside the tank, through which chilled water is circulated. Water in & out connection are provided for the coils.
- Special tray to collect & drain water of condensation (chilled water)
- Capacity Available : 10 ltr, 20 ltr, 30 ltr & higher as requirement
- Digital Time : Two digit, 0-30 min. timer.

Salient Features

- Easy to operate & made of S.S tank.
- Indigenously manufactured with advanced MOSFET technology, with auto-tuning facility.
- Digital tuning of transducers with generators to avoid any frequency shifted even during demanding applications.
- Compact, Rugged & Highly durable systems.
- Extensively protected electronic circuits means longer & safer operations.



Floor Model with Castor Wheels

Various Ultrasonic Bath Models

USB Volume	Model without Heater	Model with Heater	Model with DTC	Model with Chiller
USB-10 ltr.	USB-10	USB-10 H	USB-10 DTC	USB-10 C
USB-20 ltr.	USB-20	USB-20 H	USB-20 DTC	USB-20 C
USB-30 ltr.	USB-30	USB-30 H	USB-30 DTC	USB-30 C
USB-40 ltr.	USB-40	USB-40 H	USB-40 DTC	USB-40 C
USB-50 ltr.	USB-50	USB-50 H	USB-50 DTC	USB-50 C



(Special Combined Model)



Print Slip

Technical Specifications

- Fully S.S. Body & S.S. Tank
- Digital, Micro controller based timer
- Operating frequency 33 +/-3 KHz
- Compact, rugged and highly durable systems
- With Standard supply of lid, basket etc.
- P S & P mode-Pulse sweep power for uniform distribution of ultrasonic energy
- Transducers- PZT type bonded to the bottom of the tank (Imported make) with weld bond technique.
- Auto degassing present 5 minutes for ultrasonic tank
- Ultrasonic Generator power supply through advanced IGBT based SMPS.
- Temperature controller- Digital temperature controller with setting range 10° to room temperature max 35°
- Puff solution - Puff solution covered out side of the tank to safe guard the transducer,& maintain the water temperature,

Including chiller unit consist of :

- Digital temperature controller & PT 100 sensor
- Compressor power- 450/535W
- Compressor capacity- 926/1077 kcal/h
- Compressor type- Hermetically sealed gas compressor
- Data Output
- Printing Facility
- Alarm, Water level Sensor

Ultrasonic breakdown (main PCB board) indication on front panel

Capacity : 80 Liters

Tank Size : 635 L x 635 B x 200 H (mm)



Model
Sonoshaker USB 9.5 L (H)

- Capacity of Bath : Min. 9.5 ltr. & above
- Chiller : With & Without
- Analog setting of shaking frequency with digital display.
- Reciprocating motion : Continuous motion with motor RPM 0-100
- Constant amplitude of 10 mm independently of loading

What is PCI Sonoshaker ?

It's the powerful combination of the Ultrasonic bath > 9.5 Liter capacity combined with the electro-mechanical shaking device. With features including the analog setting of time (1-15 min. or continuous) and shaking frequency reciprocating motion of upto 100 rpm.

What are the benefits of the PCI Sonoshaker ?

Sonoshaker offers a wide range of possible applications for sample preparation in many areas of analysis for example, in pharmaceuticals, environmental & food stuff analytics. Benefits includes the setting of time & shaking frequency, reciprocating motion of upto 100 rpm.

PCI Ultrasonic Bath combined with shaking device, with / without chiller

PCI Analyticals offers choice of Ultrasonic Bath in various capacities in Liters with / without Chiller & with / without mechanical shaker and combination of Sonicator + Shaker + Chiller as a unique product to suit variety of applications in the laboratory.

Features Shaking Frequencies

The samples can be sonicated either for a selected period or in continuous mode. Quick degassing using the Degassing function is also possible. With a setting of different shaking frequencies, the shaking device enables gentle to vigorous reciprocating motion upto a maximum of 20 mm and 100 rpm. Both procedures can be carried out simultaneously or separately.

This means that, for example, a sample can be pre-homogenized at a specified shaking frequency and then final homogenization can be achieved in a very short time using ultrasound.

PROBE SONICATOR (ADVANCED)



Titanium Tip / Rod

Model Features

- Auto frequency chasing, avoiding adjustment liquid crystal display at peak value.
- Convenient operation.
- Display temperature control checking and set over-hot protection on the samples.
- Output amplitude 0-100% adjustment.
- Overlead protection, so that equipment can not be damaged.
- 10 operation programs for application or reserve after refreshing.

Specification

- Working Voltage : 220-240 VAC, 50-60 Hz
- Timing Mode Working Time Clocking : 0~59 mins. 59 seconds.
- Counting Mode Ultrasonic Working Times : 0~149 Times.
- Ultrasonic Time Scope : 0~10 seconds.
- Interval Time Scope : 0~10 seconds.
- : The interval time = 0s is for Ultrasonic Continuous Working
- Power Adjustment Scope : 0~99% of the rated power.
- Temperature Setting Scope : 0~59 °C
- Time Control Precision : 1S + 0.1%
- Temperature Control Precision : ±1°C
- Over temperature protection & alarming functions.
- Ultrasonic output intensity automatic restriction functions.

Model	PKS 250F	PKS 500F	PKS 750F	PKS 900F	PKS 1200F	PKS 1800F
Ultrasonic Wave Power (Watt)	250	500	750	900	1200	1800
Available Probe Tips Dia. in mm	3,6,8	3,6,8,10	3,6,8,10,15	3,6,8,15,20	10,15,20,25	15,20,25
Pulverizing Volume (ml)	0.5-200	0.5-400	0.5-600	0.5-700	0.5-1000	0.5-1200

PROBE SONICATOR MODEL : PS-120 W

This Velocity Horn is used for THE PROCESSING APPLICATIONS. Ultrasonic processor (Probe sonicator is a tool specially designed for Pharmaceutical, Chemical Labs & various research institutes, colleges, universities.

Some of its applications are

- Tissue Processing (Plant & Animal Tissues)
- Emulsification of Immiscible Liquids.
- De-gassing & De-aerating of Liquids.
- Formulations.
- Particle Dispersion
- In small volume batches of upto 500 ml.

Advantages

- Homogenization, Micro Fined Emulsion.
- More stable compared to other processes.
- Very Flexible. It can easily be transferred from one batch to other without intermediary operations like emptying, cleaning & refilling. Ultrasonic Processor can be transported to various locations of sample operations.

Principle of Ultrasoni Processor

High frequency vibrations are produced by the S.S velocity Horn which is immersed into liquid to be processed. The vibrations give raise to millions of Intense Microscopic Vacuum Bubbles which form & implode at a very high rate. This phenomenon is known as 'CAVITATION'. Cavitation give rise to intense Local Pressure Waves & Micro Streaming of liquid round the points of collapse. This in turn produces High Shear gradients which are responsible for the above stated applications.

Model	Sample Capacity	Probe Size	Frequency	Wattage
PS120W	50 ml - 500 ml	20,12	20 khz	120 watts

Ultrasonic Processor Consists of

(A) Ultrasonic Generator to produce high ultrasonic frequency of 20 KHz and an Ultrasonic Power 120 watts.

(B) Velocity Horn fitted with PZT Crystals (Transducer Elements). This Velocity Horn assembly converts the electrical energy fed from the Ultrasonic Generator to mechanical vibrations at the rate of applied electrical frequency. The amplitude of these mechanical vibrations are magnified by this Velocity Horn.

For Mounting 2 column of 300mm length with Complete Micro Controller / PID Controller with Special features, which can be adjusted by end user through front panel feather touch Keys

Technical Specification

- Temperature Range:- + 5° above ambient to 100°C
- Accuracy :- +/- 0.1°C
- Control Action :- Complete PID controller with low & high temp calibration facility, PID parameter & Temp Overshoot facility (Settable)
- Oven Heating type: Block Heater Type
- Stabilization time: 15 min.
- Sensor Fail/Break : No power to oven heater & 'SO' indication on front display
- Control Output : 3 Amp SSR Output, 230 V, resistive load
- Status Indication : By 2 LEDs (Heater ON, Alarm Buzzer ON)
- Key Board : Feather touch keys
- Programme memory : Non-Volatile memory for set temp. & other parameters
- Power Supply : 230 V AC +/- 10%, 50 Hz, 120VA
- Oven Accomodate : 30 cm long colum or small colums with guard column
- Oven Mounting : Vertical or Horizontal
- Size (for HCO-02) : 105 x 118 x 425 mm
- Weight : 8 kg (Approx)



LCD Display

MODEL : HCO-02

For Mounting 3 column of 300mm length with Complete Micro Controller / PID Controller with Special features, which can be adjusted by end user through front panel feather touch Keys

Technical Specification

- Temperature Range:- + 5° above ambient to 100°C
- Accuracy :- +/- 0.1°C
- Control Action :- Complete PID controller with low & high temp calibration facility, PID parameter & Temp Overshoot facility (Settable)
- Oven Heating type: forced air circulation
- Stabilization time: 15 min.
- Sensor Fail/Break : No power to oven heater & 'SO' indication on front display
- Control Output : 3 Amp SSR Output, 230 V, resistive load
- Status Indication : By 2 LEDs (Heater ON, Alarm Buzzer ON)
- Key Board : Feather touch keys
- Programme memory : Non-Volatile memory for set temp. & other parameters
- Power Supply : 230 V AC +/- 10%, 50 Hz, 120VA
- Oven Accomodate : 30 cm long colum or small colums with guard column
- Oven Mounting : Vertical or Horizontal
- Size (for HCO-04) : 165 x 310 x 508 mm
- Weight : 9 kg (Approx)



MODEL : HCO-04

Salient Features

- Precise Temperature Control
- Digital display of set & actual temperature
- Insures reproducible analysis
- Accepts varieties of column sizes
- Assures safe, accurate control action

Model Selection

- HCO-02 : Inbuild temperature controller & oven
- HCO-04 : Force air circulation heating type oven
- HCO-05 : Block heater type

Consist of

- Micro controller based / PID temperature controller
- Oven module



MODEL
DFM-01, DFM-02, DFM-03



MODEL : DFM-04



MODEL : DFM-06

Technical Specifications

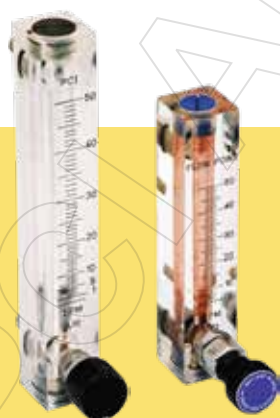
• Flow Range	: DFM-01 : 1 ml/min. to 50 ml/min. with least count of 0.1 ml/min. : DFM-02 : 5 ml/min. to 500 ml/min. with least count of 1 ml/min. : DFM-03 : 200 ml/min. to 2000 ml/min. with least count of 0.1 ml/min. : DFM-04 : 1 ml/min. to 500 ml/min. with least count of 0.1 ml/min. (auto range) : DFM-06 : 10 ml/min. to 400 ml/min. with least count of 0.1 ml/min. (auto range)
• Accuracy	: $\pm 2\%$ of reading, ± 1 digit
• Power Supply	: 230 V AC, 50 Hz, 10W
• Resolution	: 0.1 ml/min. & 1 ml/min.
• Dimensions	: DFM-01 : 24 cm (H) x 13 cm (W) x 10 cm (D) : DFM-02 : 24 cm (H) x 13 cm (W) x 10 cm (D) : DFM-03 : 24 cm (H) x 13 cm (W) x 10 cm (D) : DFM-04 : 25 cm (H) x 16 cm (W) x 4 cm (D) : DFM-06 : 20 cm (H) x 10 cm (W) x 4 cm (D)
• Optional Attachment	: Battery operated rechargeable system

Salient Features

- Direct Digital Readout
- Microcontroller Based
- Digital Display of LED/LCD
- Highly Accurate & Fast Readout
- Useful for measuring any gas flow rate specially for G.C. & Analytical instruments
- Easy to Operate
- Free of Operational & Human Errors
- DFM-01, 02, 03 & 04 - Table Mounting (Soap Solution Based)
- DFM-05, DFM-06 - Portable (Direct Measurement)

Principle

The DIGITAL GAS FLOW METER is based on the classical method viz. Soap Film Method. The instrument is automated by using Microcontroller which provides highly accurate measurement and direct digital read out of gas flow rate. The time required for the soap film to pass through a fixed known volume is measured. The soap film is sensed by IR sensors. When the soap film passes through first sensor, it activates the timer of Microcontroller. Timer is stopped when the film crosses second sensor. The flow rate is then calculated by Microcontroller and instantly displayed in ml/min. Where as DFM-05 & DFM-06 are direct flow measurement based & battery operated.



Rotameter : is used to measure flow of different gases.

Body : Acrylic body or glass body (aluminium encased) with appropriate float as per flow and gas requirement.

Size : Standard size available is 6" - 8" length with needle valve.

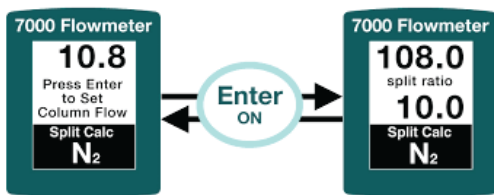
Inlet & Outlet Connection : Back side with 1/4" BSP female connection with panel mounting, table mounting stand are also available.

Range : Any range in LPM or ml/min. (cc/min.) or LPH

DIGITAL GAS FLOW METER DFM-05 (ELLUTIA 7000 GC FLOWMETER)



MODEL : DFM-05 (Ellutia 7000 GC Flowmeter)



Salient Features

Accurate & repeatable gas flow measurements are a crucial part of obtaining good results from the gas chromatograph. The new DFM-05 flow meter makes gas flow measurement easier and more accurate, helping to eliminate user errors.

Linear Velocity

The user is able to select their column diameter in the options menu, the linear velocity can then be calculated and displayed. The user can easily switch between standard flow and linear velocity with a single button press.

Split Flow Calculation

Split flow mode allows the user to measure and store a column flow, the user can then measure the split flow and the DFM-05 flowmeter displays both the flow rate and the split ratio.

Specification

- Range : 10 to 500 ml/min. (1 to 275 ml/min. for Carbon Dioxide)
- Resolution : 0.1 ml/min
- Accuracy : ± 0.4 ml/min. or 2.5% of reading (whichever is greater)
- Gases : Air, Argon, Argon / 5% Methane, Carbon Dioxide, Helium, Hydrogen, Nitrogen, Oxygen
- Size : 68 x 130 x 30 mm
- Weight : 150 gm
- Calibration : Annually
- Traceability : Calibration traceable to UKAS standards

Digital Gas Flow Meter DFM-08 (Restek ProFLOW-6000)



MODEL : DFM-08 (Restek ProFLOW-6000)

PC Control System : Gas Flow Management System (GFMS 5.0)



Technical Specification

- Type of Measurement : Volumetric Flow
- Accuracy of Measurements : $\pm 2\%$ of flow reading or ± 0.2 ml/min. whichever is greater
- Power Requirements : 2 AA alkaline batteries 1.5 V DC each / 3 V DC 200 ma
- Operating Flow Range : 1 to 500 ml/min.
- Operating Temperature Range : 0° - 48° C
- Available Communication : USB data port
- Warranty : 3 Years
- Calibration : NIST traceable. Yearly calibration is recommended
- Certification : CE, Ex
- Compliance : WEEE, RoHS

Salient Features

- Flow for gases across a range of 1-500 ml/min.
- Yearly Calibration
- Over-range warning indicator
- Auto shutoff feature
- Ergonomic design and side grips for comfort
- Use as a benchtop or handheld unit
- Measures most gas types
- Convenient carrying / storage case included
- Uses 2 AA batteries (included)
- Data output via USB port

RESTEK Certificate of Calibration

110 Benner Circle, Bellefonte, PA 16823

Catalog Number: 22008
 Model Name: ProFLOW-6000
 Serial Number: 92100667
 Calibration Date: 06/08/2020
 Calibrated By: LD
 Test Location: 853
 NIST Traceability Document: 03-16-11
 Calibration Procedure Number: 02-18-08
 Temperature PC: 21.989
 Pressure Unit: 14.23
 Calibration Unit: Millibar

Request Accuracy: $\pm 2\%$ or 0.25 ml/min, whichever is greater

Reference Flow	R.O.M. Error	% Error	Fixed Error (ml/min)	Result
0.000	1.00	n/a	-0.004	0.000
2.000	2.00	n/a	-0.005	0.000
4.000	4.00	n/a	-0.010	0.000
6.000	6.00	n/a	-0.006	0.000
8.000	7.98	n/a	-0.005	0.000
9.998	10.0	0.00	n/a	0.000
10.000	20.0	0.00	n/a	0.000
20.000	20.0	0.20	n/a	0.000
30.000	40.0	0.40	n/a	0.000
50.000	40.0	0.71	n/a	0.000
125.000	125	0.00	n/a	0.000
240.000	240	0.00	n/a	0.000
275.000	275	0.00	n/a	0.000
400.000	400	0.00	n/a	0.000

*Device Under Test

Document Control: 03F-010

HPLC LIQUID FLOW METER



- The ideal instrument for IQ / OQ / PQ and troubleshooting
- Accurate to 1% of reading with guaranteed linearity from 0.05 to 25.00 ml/min.
- Durable and easy to use with any HPLC pump
- Easy diagnosis of leaking piston seals or malfunctioning check valves
- Automatic data transfer
 - Dramatically simplify liquid flow rate data collection for HPLC / IQ / OQ / PQ
 - Collect flow rate data via RS232 or with an optional battery powered mini Printer, or with Software
- Specially designed software collects the data received into a database. Gives average reading, standard deviation & many more features



The handy carrying case allows for convenient transportation as well as added protection

Liquid Flow Management System



21 CFR Compliance

User Creation Screen

PCI is pleased to introduce the HPLC Liquid Flow Meter & Data Recorders

The digital liquid flow meter accurately & reliably determines liquid flow. It is designed primarily as a flow meter for HPLC systems. Our liquid flow meter has the following features:

- New PEEK valve which is fitted with a soft elastomer seal and teflon diaphragm.
 - The newly designed sensor head is more stable.
 - The inlet pipe - is made with a 1/16" diameter PEEK tube.
 - New modern looking and light weight brushed aluminium case.
- The total unit now is very light weight.

The instrument measures liquid flow over a wide range, from 50µl/min to 25 ml/min. You can see the working flow ranges & accuracy in the table below. Flow rate is measured by volume & is independent of the liquid type up to a viscosity of 10 centipoise.

The unit uses a single chip micro-controller. The flow rate (rounded to four digits) is displayed on a large four digit back-lit Liquid Crystal Display (LCD) & data can be conveniently output via the build-in RS232 interface to the full 6 digit reading. No user calibration is required; the unit is generally supplied gravimetrically calibrated at 1.0 (+10%) ml/min. Calibration at multiple points is available. All wetted parts are made of PTFE, PEEK, DAI-EL PERFLUOR or Pyrex glass. There are no wetted metallic parts.

Three modes of operation are available

- **Printer Mode** : Liquid flow reading are displayed on LCD and output to a printer if one is connected. A running average option is available in this mode.
- **Terminal Mode** : In this mode liquid flowmeter is controlled by the terminal or PC. Extra commands for averaging any number of readings are included.
- **Test Mode** : This mode allows the user to test the display, valve and RS232 interface and also display calibration date.

The RS232 output allows the flowmeter to output data to any device fitted with RS232 serial interface e.g. printer, terminal or personal computer. The unit is supplied with an RS232 cable fitted with a nine way female plug to connect directly to the COM port of a PC. By using the Terminal or Hyper Terminal program supplied with MS Windows results can be collected and displayed. The baud rate is internally switch selectable for 19200, 9600, 4800, 2400, 1200, 600, 300 baud with the option of sending a CR/LF after reading. X-on / x-off handshaking is used.

All instruments are supplied with the following :

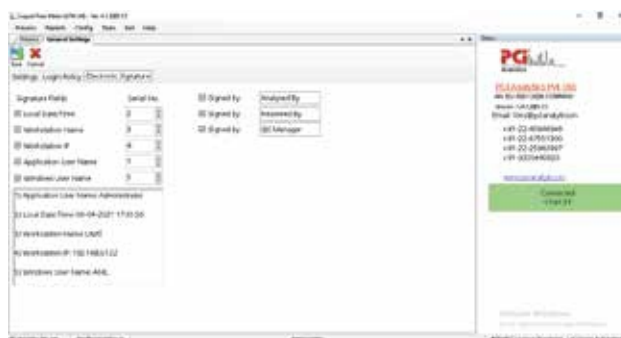
- Main 'wall block' power supply with a choice of 240V 3 pin UK, 230V 2 pin European or 100V 2 pin USA / Japan.
- RS232 input / output cable : 8 way mini-din plug to PC COM port 9 pin female.
- UKAS traceable flow calibration certificate is supplied. (UKAS is the UK equivalent of NIST)
- Universal mounting kit : allows free standing mount, wall mounting, 'stack system' mounting and bottle top mount.
- Black plastic carrying case with foam inserts. All parts of the mounting kit are packed within the carrying case.
- Cleaning kit now supplied with the flow meter.

Specification for HPLC Liquid Flow Meter

- Reading update time
 - 15 sec @ 2 ml/min.
 - 25 sec @ 1 ml/min.
 - 45 sec @ 0.5 ml/min.
- Range : 0.05 to 25 ml/min.
- Measuring volume - 140 µl
- Size : 138 mm x 76 mm x 45 mm
- LCD Display - (12.7 mm) - 4 digits and 3 status symbols
- RS232 output - (6 digits) XX.XXXX ml/min.
- UKAS traceable calibration certificate
- Accuracy : better than 1% of reading
- Priming volume - 250 µl
- Weight - 320g, 12 oz

Model	Calibration Point	Calibration at
LFM-01	Single	1.0 ml/min.
LFM-02	Three	0.5, 1.0, 2.0 ml/min.
LFM-03	Four	0.5, 1.0, 2.0, 3.0 ml/min.

* Five point calibration also available





Model : EM UV-100



Printer

Technical Specifications

- Microcontroller based Electronic Module : For any instruments with Serial / USB / COM ports to print Data to Serial printers.
- Header generation -
 - (a. 35 characters per line including blanks)
 - (b. 2 lines programmable information)
 - (c. 3 lines fixed information)
- Display : 2 Lines LCD display, 16 Characters per Line.
- Footer generation : 4 lines fixed information.
- Keypad : Feather touch Keypad.
- Modes of operation : Set mode and Run mode.
- Ports for connection : 1 Input and 1 output port, D connector
- Calendar & Real time clock : Programmable Day, Date DD-MM-YYYY and Time HH:MM:SS
- Communication protocol : Standard RS 232/485 serial Com port
- Baud Rate : 9600 / 2400 switch selectable.
- Power supply : 9V DC / 500 mA regulated supply.
- Programming Interface : Standard Windows HyperTerminal or compatible program.
- Parameters : One, 5 digits Flow rate / Weight / Volume / Temperature.
- Data process Memory : Nil.
- Applications : Electronic balance, Laboratory devices, Calibration instruments, Any other instruments generating data to be printed.



Model : LCP 02 (MX Class)



5 Column Washing attachment



Model : LS Class

The high performance liquid chromatography (HPLC) pump is designed to be a reliable component within a basic analytical or sophisticated research instruments. While ideal for HPLC applications the pump is also useful as a column washing pump for washing analytical HPLC columns.

The flow rate of the pump fitted with the standard 10 ml pump head can be set in 0.01 ml increments from 0.01 to 10.0 ml/min. size is available in type 316 stainless steel or biocompatible (metal free) PEEK™.

The low pulsation flow produced by the reciprocating, single piston pump is achieved by using an advanced rapid-refill cam design, programmed stepper motor acceleration, and an internal pulse dampner.

Pump Features

- Can easily be modified for analytical and semi-preparative techniques.
- Incorporates a diaphragm - type pulse dampner which reduces pulsation in the system by as much as 90%.
- Integrated prime / purge valve.
- Self-flushing pump head.
- LED readout on the front panel - shows the flow rate.
- Tactile response, chemically resistant front panel keypad.
- Microprocessor advanced control.
- Digital stepper motor design prevents flow rate drift over time and temperature, which is a common problem found in analog design.
- Back panel RS232 serial communications port for complete control and status monitoring.
- Quickset Software.

Model	LCP-02 (MX Class)	LS Class Pump
Flow Rate	0.01 to 10.00 ml/min.	0.001 to 10.00 ml/min.
Pressure	0 to 5000 psi for stainless steel or PEEK head with pressure accuracy of $\pm 2\%$ (full scale pressure)	0 to 6000 psi for SS head 0 to 5000 psi for Peak head
Flow Accuracy	With in 2% of set flow rate, 0.20 ml/min. and above 80:20 Water / IPA @ 1000 psi	With in 2% of pull scale pressure on 20 ml/min. & above 80:20 Coater / IPA @ 1000 psi
Flow Precision	0.5% RSD	0.2% RSD
Dimensions	H 6.5" x W 7" x D 16"	H 6.5" x W 7" x D 16"
Weight	16 lbs	15 lbs
Power	100-240 VAC, 50-60 Hz	100-240 VAC (I 10%), 50-60 Hz
Remote inputs	RS-232, USB 2.0 Micro-B, Run / Stop, Analog (0-10V, 4-20 mA)	RS-232, USB 2.0, Ethernet, Run / Stop, Analog (0-10V, 4-20 mA)
Fuse Rating	1A, 250 V time leg, 5 x 20 mm size, one required per pump	1A, 250 V time leg, 5 x 20 mm size, two required per pump
Standard Features	Autoflush™ Purging, Autoflush™ piston wash	Autoflush™



M1 Class Pumps



MX Class Pumps



LS Class Pumps



LD Class Pump



LS Binary Class Pumps



CP Class Pump

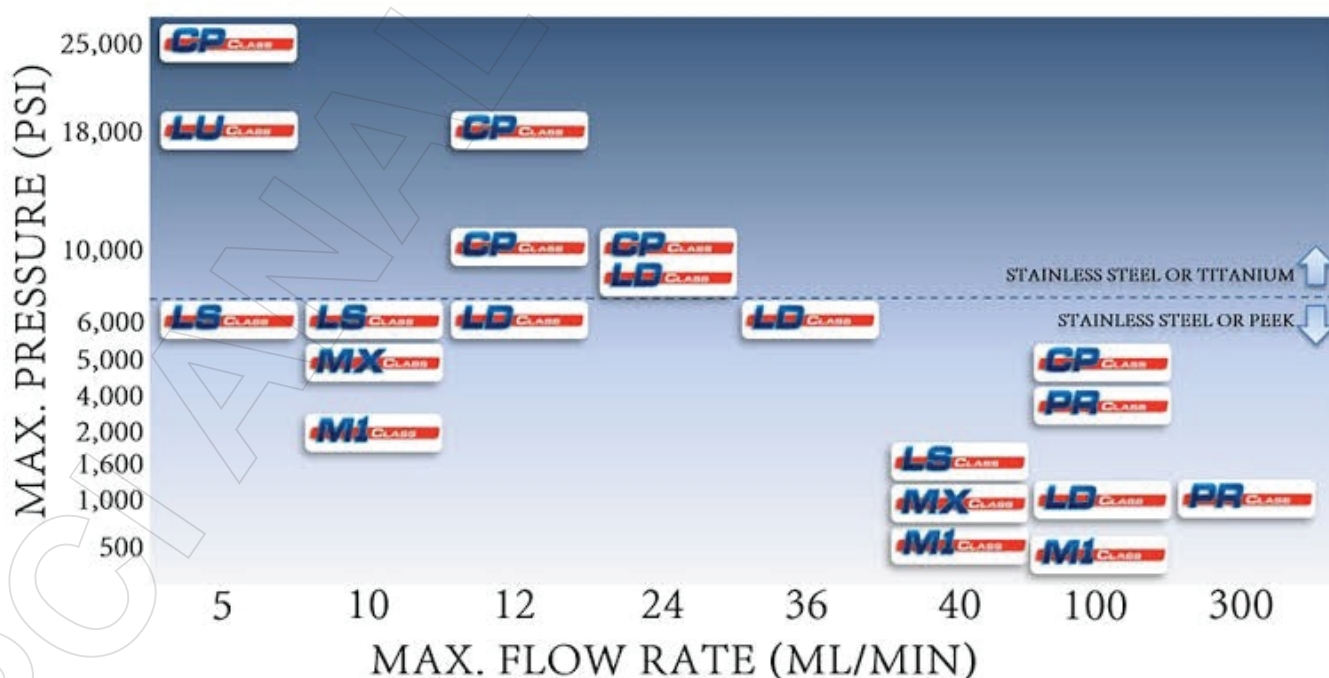


PR Class Pumps



HF Series Pump

- Precision Delivery for Continuous Processing
- Very Low Pulsation, Pressure and Leak Sensor
- Wide Variety of Configurations
- Chemically Compatible Materials
- Choice of MOC of fluid path (PEEK, SS 316, Titanium, Hastalloy)
- Choice of flow rate between 0 - 300 ml/min

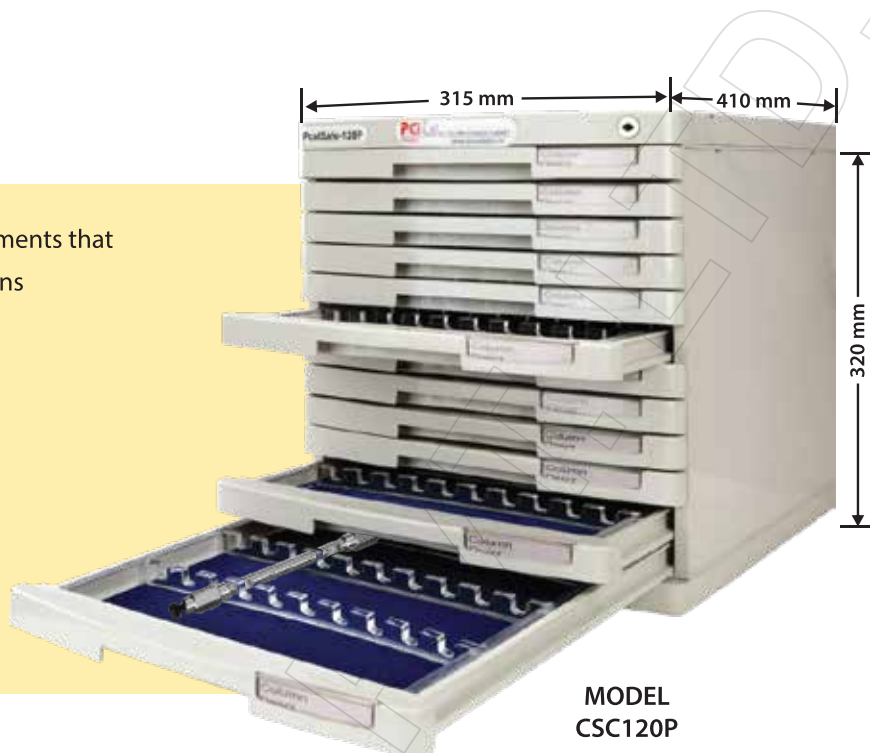


HPLC COLUMN SAFETY CABINET

PcolSafe®-CSC120P

(Column Safety Cabinet)

- Cabinet has a total of 120 Adjustable Compartments that have dividers to fit most analytical HPLC columns
- Each tray comes with an acrylic column holder
- **Construction** : Easy to clean ABS (Plastic)
- **Dimension in mm** : 315 (W) x 320 (H) x 410 (D)
- **No. of drawers** : 12 drawers
- **Weight** : 10 kgs Approx
- **Capacity** : Adjustable upto 120 column space
- **Central Lock**
- **ID Label Space** on each tray



MODEL
CSC120P

GC COLUMN SAFETY CABINETS

PcolSafe®-GC

(Column Safety Cabinet)

- Safe column organizer cabinet for capillary columns
- 5 Drawers for each capillary column
- Each drawer provided with soft cushioning for safety of capillary columns from jerks & shocks
- **MOC** : MS Powder coated
- **Central Lock**

Specification

■ CSC 5

- Capacity : 5 GC column
- Dimensions (WxHxD) : 295 x 590 x 410 mm
- No. of Drawers : 5 drawers

■ CSC 10

- Capacity : 10 GC column
- Dimensions (WxHxD) : 850 x 600 x 420 mm
- No. of Drawers : 5 drawers (2 Capillary columns storage per drawer)



MODEL
CSC 5



MODEL
CSC 10

PcolSafe®
(Column Safety Cabinets)



CSC 30SS

Specification

■ CSC 30

- Capacity : 30 HPLC column
- Dimensions (WxHxD) : 295 x 380 x 400 mm
- No. of Drawers : 5 drawers

■ CSC 60

- Capacity : 60 HPLC column
- Dimensions (WxHxD) : 295 x 760 x 400 mm
- No. of Drawers : 10 drawers

■ CSC 90

- Capacity : 100 HPLC column
- Dimensions (WxHxD) : 295 x 1140 x 400 mm
- No. of Drawers : 15 drawers

■ CSC 120

- Capacity : 120 HPLC column
- Dimensions (WxHxD) : 590 x 760 x 400 mm
- No. of Drawers : 20 drawers

Available in 4 Sizes (Standard)

- Column storage 30, 60, 90 & 120
- Also available 250, 500 & 1000 columns

Stackable

Unique stacking kit allows increase the number of columns you can store at any time

100% Steel Cabinet

Quality, Solid Steel Construction with chrome plated O-Ring handles

Versatile

Store upto 12 x 12.5 cm columns in a single drawer, or a combination of short columns, guard columns & analytical columns. Holds all columns upto 30 cm long

Special size available as per requirement

Stainless Steel (SS) cabinet also available

Colour Options (Red / Blue / Gray / Off White)



CSC 30



CSC 60



CSC 90



CSC 120



CSC 100 / CSC 200 / CSC 250
CSC 500 / CSC 1000

NITROGEN CONCENTRATOR / SAMPLE EVAPORATOR



Rack



Dry Heating

For Dry Model: EV-PLUS-DRY

Product Specifications for Model : EV-PLUS-50

- Time Range : 15 sec to 10 hours
- Time Set Up / Down arrow keys (15 sec increments)
- Temperature Range : Ambient to 90°C (thermal cutout for safety)
- Temperature Set Up / Down arrow keys (1°C increment)
- Start / Stop : Green LED indication when process is On
- Display : LCD (Digital)
- Gas Stations : 5 Nos. with LED indication
- Pressure Regulator Range : 0 to 100 PSI (approximate)
- Pressure Gauge Range : 0 to 100 PSI
- Controlled : Fully Microprocessor Based
- Sample Capacity : 50 Nos.
- Gas Line : 5 Nos. (1-10 samples per line, nozzle caps provided)
- Water Tank Capacity : 6.5 Ltr. (Not over flow)
- Dimensions : 600 (L) x 520 (H) x 400 (W) mm
- Weight : 25 kgs. (Empty tank)
- Exhaust : Built-in exhaust, no fume hood required
- Power Supply : 230 V AC / 6 Amp
- Error Indication : LED indication with Buzzer

Rack Specifications for Model EV-Plus-50

Rack Type	Working Volumes
12 mm x 75 mm	4 ml
12 mm x 100 mm	5 ml
16 mm x 100 mm (Standard)	10 ml
15 mm x 125 mm	11 ml
15 mm x 150 mm	12 ml
17 mm x 125 mm	15 ml
18 mm x 150 mm	20 ml
20 mm x 150 mm	30 ml

100 Samples Concentrator

- Work Area : Flat levelled and stable surface
- Gas Supply : Laboratory Grade Nitrogen
- Inlet Pressure : minimum 60 - maximum 100 PSI (And ON / OFF control valve)
- Exhaust : Built-in exhaust, no fume hood required
- Water Bath Capacity : 11 Ltr. distilled water
- Sample Tube : 12mm x 75 mm (4 ml) RIA Tubes

Nitrogen Concentrator is a Precision Sample Concentrator by Nitrogen Purging. It is newly designed Sample Concentrator for multiple sample pre-concentration of samples in organic media. A tabletop model, the unit can be set to a constant flow and constant temperature to ensure good evaporation.

Technical Specifications

- Space Requirements : Table top or fume hood with minimum dimension L, W & H (cms) 70 x 50 x 65 and table weight capacity 35 kg.
- Work Area : Flat levelled and stable surface
- Power Supply : 230 AC / 5 Amp single phase stable and well grounded.
- Gas Supply : Laboratory grade nitrogen
- Inlet Pressure : 60 PSI minimum, 100 PSI maximum (And ON / OFF control valve)
- Exhaust : Exhaust duct outlet or fume hood - the exhaust duct must go outside the lab.
- Water Bath Capacity : 6.5 Ltr. distilled water (6.5 Ltr. do not over flow)

Note : Do not operate the instrument without the exhaust duct.

Product Specifications for Model : EV-PLUS-100

- Time Range : 15 sec to 10 hours
- Time Set Arrow Keys (UP / DOWN) : 15 sec increments
- Temperature Range : Ambient to 90°C (with thermal cut off for safety reasons)
- Start / Stop Green LED : Indication when process is ON
- Sample Capacity : 100 Nos.
- LCD Display : Digital
- Gas Consumption : 30 LPM
- Pressure Regulator Range : 0-100 PSI
- Pressure Gauge Range : 0-100 PSI
- Controller : Fully Microprocessor based
- Water Tank Capacity : 6.5 Ltrs.
- Gas Lines : 10 Nos. (1-10 samples per line, nozzle caps provided)
- Dimensions (HxWxL) : 540 x 380 x 590 mm
- Weight : 35 kgs. (Empty tank)
- Exhaust : Built-in exhaust, no fume hood required
- Error Indication : Buzzer Sound
- 230 V AC / 6 Amp

Low Volume Concentrator 100 Samples (Max 4 ml capacity tubes)



HIGH VOLUME CONCENTRATOR



High Volume Concentrator / N2 Evaporator Model : EV-PLUS-08

To accommodate 8 Nos. Beaker 200 ml capacity. Microprocessor based, water bath with adjustable temperature and timer for purging Nitrogen Gas with individually controlled sample concentration.

SS Rack accommodate Beakers as mentioned.

Rack Type	Working Volumes
50 x 70 mm - 100 ml Beaker	80 ml
60 x 80 mm - 150 ml Beaker	120 ml
70 x 95 mm - 250 ml Beaker	200 ml

POSITIVE PRESSURE PROCESSOR FOR SOLID PHASE EXTRACTIONS MODEL : SPE-96



Solid Phase Extraction is today's chosen method of sample preparation across all Bio-Analytical and Bio-Equivalence studies Laboratories and even Food Assay Laboratories, Toxicological Testing Laboratories.

Several technique of speeding the sample preparation work have been designed and implemented, however the **Positive Pressure Manifold for Solid Phase Extraction** remain unmatched is speed, uniformity, ease of operation and convenience to the user.

PCI Analytics positive pressure **SPE-96** sample processor is 100% indigenously developed and successfully tested **SPE Positive Pressure** manifold that offers state-of-the-art operation for moving liquids through **SPE-96** tube devices.

Each of the 96 holes in the processor manifold are restricted in order to maintain constant pressure, even if all the tube positions are not filled. SPE Sample processing by positive pressure significantly improves the flow of viscous samples like plasma / serum through SPE packed bed by providing highly uniform flow from tube to tube which will ultimately improve the reproducibility of analytes SPE recoveries.

Also Available Model SPE-48 & SPE-144 on request

Benefits of PCI Analytics SPE-96 Processor

- PCI Analytics Positive Pressure Manifold offers more sample control over traditional vacuum manifolds, providing greater confidence in the data generated.
- Easy to set-up and use : Only one gas source at all pressures. No training is required to operate.
- Reproducible Extractions : Positive pressure fine regulators improve flow control, and reproducibility.
- Inlet Gas Filter : Provides finely controlled Inlet Gas Flow without external contaminants.
- Compact Design : Occupies less table space due to small footprint.

OIL FREE DIAPHRAGM TYPE VACUUM PUMPS



PCI-15



PCI-25-S



PCI-25-P



PCI-45



PCI-75-S



PCI-75-P



PCI-45-CRP

Salient Features

- No lubrication required
- Noiseless performance
- Absolutely portable
- Totally oil-free construction
- Practically maintenance-free
- All parts made from special graded aluminium die cast material for light weight and good strength
- Diaphragms are made of special 2-ply nylon reinforced neoprene rubber
- Special diaphragms available (TEFLON / VITON etc.)
- Valve made of SS 316 material
- Built-in-micro suction filter
- Pumps available with single phase motor
- Pumps available with flame proof motor
- Pumps available with vacuum guage and regulator
- Pumps available with chemical resistive parts (PP, TEFLON contact parts) (CRP suffixed models)
- Pumps available with SS 316 contact parts
- Pumps available in 220/110 V AC motors
- Pumps available for gas charging in A/Cs (Model PCI-25-AX)
- Ideally suited for original equipment manufacturers
- PCI-25-S & PCI-75-S are double stage vacuum pumps
- Speed : 1440 rpm
- Noise level : <76 dB



PCI-75-CRP



ROCKER-300



PV-300

MODEL	MAX. FLOW (ltrs/min)	MAX. VACUUM (inch/mm Hg)	MAX. PRESS. (PSIg)	APPROX. Weight (kg)	MOTOR HP	APPROX Dimensions (mm)
PCI-15	15	22" (554 mm)	25	3.0	1/20	175 x 110 x 150
PCI-25-S	15	27" (680 mm)	35	5.5	1/16	220 x 110 x 150
PCI-25-P	25	22" (554 mm)	25	5.5	1/16	220 x 110 x 150
PCI-45	45	22" (554 mm)	35	7.0	1/8	200 x 125 x 200
PCI-45-CRP	30	22" (554 mm)	10	7.0	1/8	220 x 150 x 220
PCI-75-S	45	27" (680 mm)	55	12.5	1/4	300 x 130 x 200
PCI-75-P	75	22" (554 mm)	40	12.5	1/4	300 x 130 x 200
PCI-75-CRP	38	22" (554 mm)	10	-	1/4	-
ROCKER-300	20	27" (670 mm)	12	-	1/8	268 x 135 x 204
PV-300	17	90 mbar	-	4.1	-	-

Application for use as Vacuum Pump

- Laboratories
- Pollution Control Equipments
- Labeling Machines
- Desoldering Station
- Glass Forming
- Medical Instruments
- Dentists
- Chemical Analysers
- Gas Charging in A/C
- Suction Machines
- Leak Test Apparatus

Application for use as Compressor

- Flame Photometer
- Atomic Absorption Spectrophotometer
- Agitation of Chemicals in Electro-Plating
- Agitation of Film in Drying Tank
- Wave Soldering Machines for Forming of Flux
- Oil-Free Spray Painting
- Artist Air Brush
- Operating Small Pneumatic Tools
- Nebuliser
- Plastic Welding

Solvent Filtration Kit

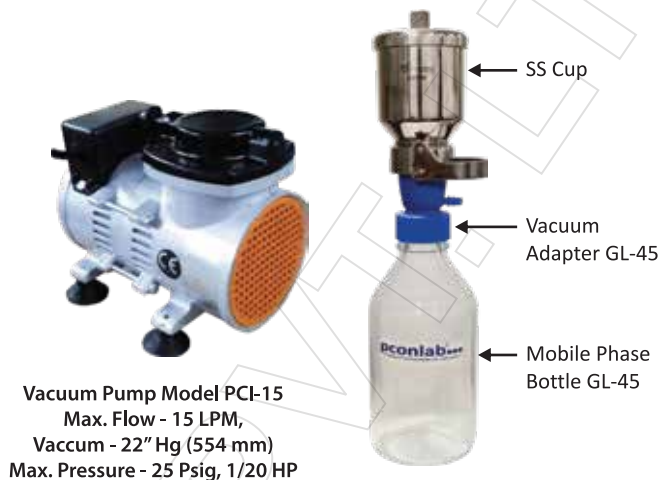
Solvent Filtrations Assembly Glass or SS (upper part) with 1 Itr. Bottom Flask Glass Size 47 mm



MODEL : SFK-GC



MODEL : SFK-SS



Vacuum Pump Model PCI-15
Max. Flow - 15 LPM,
Vaccum - 22" Hg (554 mm)
Max. Pressure - 25 Psig, 1/20 HP

Sample Filtration Kit & Sterility Test Unit



Nylon 66 Membrane Filter
Size: \varnothing 13 x 0.2 μ (Porosity)
Other sizes & porosity also available



\varnothing 13mm S. S. Filter Holder /
 \varnothing 13mm P. P. Filter Holder



5ml Glass Hypodermic Syringe (Indian) /
5ml Gas Tight Syringe (Indian)



Rheodyne Needle

Sterility Test Unit

6 Branch
Model : STU-6B



Vacuum Pump Model : PCI-75-S
Max. Flow - 45 LPM,
Vaccum - 27" Hg (680 mm)
Max. Pressure - 55 Psig, 1/4 HP



3 Branch
Model : STU-3B

Multi-Fold Solvent Filtration System



Model : PCI 75-S

Model : SFS-MF

Salient Features

- Manifold with 3 ball valves (ON / OFF)
- Single Mobile Phase in triple quantity
- Three different mobile phases simultaneously (choice of 1, 2 or 3)
- Single Vacuum Pump PCI-75-S to operate 3 solvent filtration
- Ease of operation, maintenance free
- Improves efficiency in heavy load situations
- Innovative design by PCI Analytics only
- No liquid contact with Manifold & hence no contamination
- Vacuum Flask Capacity 1 Ltr. or 2 Ltr.

Solid Sampling

Hydraulic Press



Automatic Press
MODEL : HP-15TA



Manual Press
MODEL : HP-15TM



Hydraulic Press
MODEL : HP-Mini

KBr Die Set



Most commonly used Die for IR/FTIR for solid sampling of 13 mm pallet size consist on Anvil & Plunger, Top & Bottom Die Port, Extractor Ring, Oring.

Other sizes like 10 mm, 20 mm also available.

Manual Press

- A Complete Laboratory hydraulic press producing a force about 15 tones use to make high quality 13 mm pallet used for IR / FTIR / XRF solid sampling.
- 15 ton laboratory hydraulic pallet press is a compact, elegant and robust machine, typically used by R&D & QC labs for various pelletizing applications for IR / XRF etc.
- The high pressure pumping unit supplies hydraulic fluid to the up-stroking ram of the cylinder. This causes the ram to rise steadily and positively in the upward direction. As a result, pressure is applied on any object placed between screw and piston top plate.

Automatic Press

- Compact design and easy to operate electrical controls with pressing and ejection cycle.
- Pressing cycle has both auto and manual modes whereas ejection cycle has only manual (inching) mode
- Settable Parameters : Pressure, hold time & ram retracting time.
- Safety mechanisms to avoid over pressure & excessing ram stroke.
- Transperent polycarbonate safety guard has been provided in the area of operation
- Emergency Stop button to cut-off electrical supply (if required)
- Reputed MCB, overload relay & relay contactors are included in the Control-panel for electrical safety.
- Press is enclosed in a powder coated metallic cover, which is easily removable for maintenance purpose.

KBr Die Set



Pellet Holder



Agate Mortar and Pestle

The pellet holder is use to hold pallet (13 mm) of KBr, suitable to any IR / FTIR

Agate, Motar pestle use to propre sample.

Liquid Sampling NaCl / KBr Windows



NaCl / KBr windows is available in circular & Rectangular shape.

Standard sizes :

Circular : dia 25 x 4 mm thickness

Rectangular : 38 x 19 x 4 mm

Universal Liquid Cell Holder Other windows like AgCL & CaF₂ & other dimensions also available.

Universal Liquid Cell Holder (Demountable / Fixed Thickness)



Universal Liquid Cell Holder



Mull Cell Holder

The cell holder is used to mount circular as well as rectangular windows & it can be used as Demountable Cell & Fixed Thickness Cell using different spacers supplied along with teflon washers of different sizes. Mull cell holder is used to mount circular window & for mull samples. Cell holder are supplied along with assorted spaces of size 0.1 mm, 0.2 mm, 0.5 mm & 1 mm.

Dry Box (Thermostatic / PID Controller)



MODEL : DB-02N



KBr Powder & Nujol Mull

MODEL : DB-01

The ideal method of storage of FTIR/XRF accessories which are affected by moisture since highly Hygroscopic in nature, which are to be stored in dry box.

- Input Voltage : 230 V AC, 50 Hz
- Dimensions : 407 L x 229 W x 368 H for DB-02N
: 400 L x 210 W x 18 H for DB-01
- Temperature : Ambient +5°C to 70 °C

RECIRCULATING WATER CHILLERS

The recirculating chillers are designed to handle high cooling capacities. These chillers operate in the temperature range from +5°C to atmosphere and have built in high pressure pump. These chillers are useful to cool other instruments which generate heat. Viz. Lasers, Furnaces, XRD, etc., Graphite Furnace, Fermenters, Thermal Instruments, Rotary Evaporator.

Water Chiller Unit : It consists of chilled water storage tank of about 8-15 Ltrs. capacity along with Compressor, Condensing Coils, Cooling Fan, Temperature Controller Programable Type, Water Inlet & Outlet connection and chilled water circulation pump to circulate chilled water through S.S Cooling Coils and bring back to chiller tank.

- Control panel consists of temperature and ready status of Chiller ON / OFF Switch, with Red Coloured Indicator Green coloured indicator which indicates Initial Power ON.
- This has an inbuilt delay of about 1-2 minutes for the Compressor to be ON.
- Switch for Chilled Water circulation pump. This has no time delay.
- This is fitted in a Floor Mounting type with Castor Wheels (Optional).

Specifications of Water Chiller Model PCI-WC-01 for AAS & ICP

- Inner Chamber : SS Duly Polished
- Outer Chamber : M.S Powder Coated / SS
- Insulation : Duly insulate by P.U.F
- Refrigerated system & cooling arrangement : Hermetically sealed compressor
- Flow capacity : 20 Ltrs. / min at height of 1 meter
- Outlet connection : 3/8" OD
- Temperature range : 5° to atmosphere
- Temperature control : Temperature controlled by digital temperature indicator cum controller
- Circulator : 0.25 Hp / 0.5 HP
- Condensor Fan Motor : 'EPMNADI' Brand
- Control pannel : Micro controller
- Power : 220 / 230 Volts, Single Phase, AC mains
- Outer dimensions : 14" W x 24" D x 24" H (360 W x 600 D x 600 H mm)
- Standard capacity of tank : 8-10 Ltrs.



MODEL
PCI-WC-01/02

Model	Bath Range	Temp. Capacity
PCI-WC-01	08 Ltrs.	5°C to atmosphere
PCI-WC-02	15 Ltrs.	-20°C to atmosphere

- Temperature upto 60°C with heater also available
- Higher capacity also available
- Outer chamber also available in SS on request



LABORATORY ULTRAPURE WATER SYSTEM

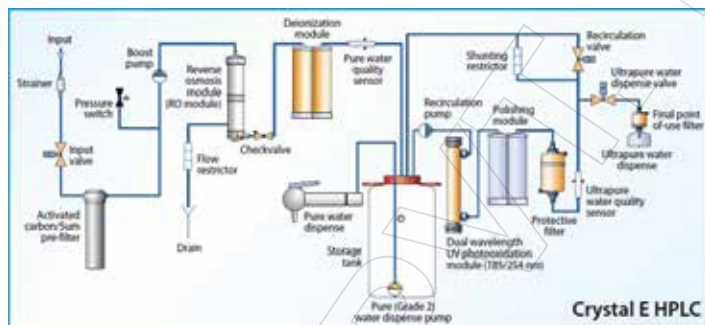
Crystal EX Series



The Crystal EX Ultrapure systems are economy class, multi-purpose, water purification systems. All Crystal EX Systems produce two types of water : Ultrapure (ISO 3696 Grade 1) and Pure (ISO 3696 Grade 2). Ultrapure water produced by the Crystal EX systems has resistivity 18.2 Mega Ohm*cm (conductivity 0.055 $\mu\text{S}/\text{cm}$). This exceeds requirements of all the relevant standards (ISO 3696 Grade 1, ASTM Type I, CLSI Type I). Purified water is collected in a storage tank. The recirculation system ensures a consistent quality of water, and a low level of organic carbon content (TOC). TOC is <2 ppb for "HPLC" and "Bio" configurations, and 5-10 ppb for the "Trace" configuration.

The dispensing rate of high quality Ultrapure water is 2 L/min.

Pure water produced by Crystal EX systems can be used for labware washing, wet chemistry methods, flame spectrophotometers, etc., Pure water is dispensed directly from the storage tank. The dispensing flow rate of pure water is 4 L/min.



Crystal EX Ultrapure water systems are available in the following configurations:

- **Crystal EX Trace System (P/N EX-1001-P)** produces water for inorganic trace analysis. This water is recommended for atomic absorption spectrometry (with graphite furnace atomizer), ICPOES analysis, ICP-MS and other inorganic analytical methods.
- **Crystal EX HPLC System (P/N EX-1101-P)** produces water with very low organic carbon content (TOC) to comply with the requirements of liquid chromatography methods. Crystal EX HPLC water can also be used for some microbiological and molecular biology applications.
- **Crystal EX Bio System (P/N EX-1201-P)** produces water with very low organic and RNase / DNase content, intended for molecular biology, including RNase - sensitive applications.

Description EX series

Application	EX-1001-P Trace	EX-1101-P HPLC	EX-1201-P Bio
Water Type	• Ultrapur water (Grade 1) • Pure water (Grade 2)	• Ultrapur water (Grade 1) • Pure water (Grade 2)	• Ultrapur water (Grade 1) • Pure water (Grade 2)
Application	• Automatic absorption spectrometry • Plasma optical emission spectrometry • Other inorganic trace analysis	• Chromatography • Mass spectrometry • Microbiology • Molecular biology	• High sensitive biology applications
Display	Monochrome LCD display	Monochrome LCD display	Monochrome LCD display
Conductivity Sensor	-	-	-
TOC Monitor	Option	Option	Option
Connection Possibility to Water Dispensing Unit	No	No	No
Storage Unit	Water storage tank 'Pro' 30 L w/o multipoint sensor included		
Installation	Installation on a laboratory bench		

Specification

Purified Water Specifications	Crystal EX Trace	Crystal EX HPLC	Crystal EX HPLC
Grade 1 water resistivity	18.2 M Ω x cm	18.2 M Ω x cm	18.2 M Ω x cm
Grade 1 water conductivity	0.055 $\mu\text{S} / \text{cm}$	0.055 $\mu\text{S} / \text{cm}$	0.055 $\mu\text{S} / \text{cm}$
Grade 2 water resistivity	>10 M Ω x cm	>10 M Ω x cm	>10 M Ω x cm
Grade 2 water conductivity	<0.1 $\mu\text{S} / \text{cm}$	<0.1 $\mu\text{S} / \text{cm}$	<0.1 $\mu\text{S} / \text{cm}$
Total organic carbon (TOC) level	5-10 ppb	<2 ppb	<2 ppb
RNase	N/A	N/A	<0.01 pg/ml
DNase	N/A	N/A	<4 pg/ml
Bacteria	<1 CFU / ml	<1 CFU / ml	<0.1 CFU / ml
Endotoxins	<0.15 EU / ml	<0.15 EU / ml	<0.001 EU / ml
Particles > 0.22 μm	<1 per ml	<1 per ml	<1 per ml
Nominal flow, pure water (to storage tank)	10 L/h	10 L/h	10 L/h
Nominal dispense flow, pure water	4 L / min	4 L / min	4 L / min
Deionization module life (standard module)	1 m ³	1 m ³	1 m ³
Deionization module life (high capacity module)	3 m ³	3 m ³	3 m ³
Recovery	>30 %	>30 %	>30 %
Dimensions (W x D x H) cm	40 x 35 x 55	40 x 35 x 55	40 x 35 x 55
Feed water pressure	1-4 bar	1-4 bar	1-4 bar
Feed water conductivity	<1500 $\mu\text{S} / \text{cm}$	<1500 $\mu\text{S} / \text{cm}$	<1500 $\mu\text{S} / \text{cm}$

LABORATORY ULTRAPURE WATER SYSTEM

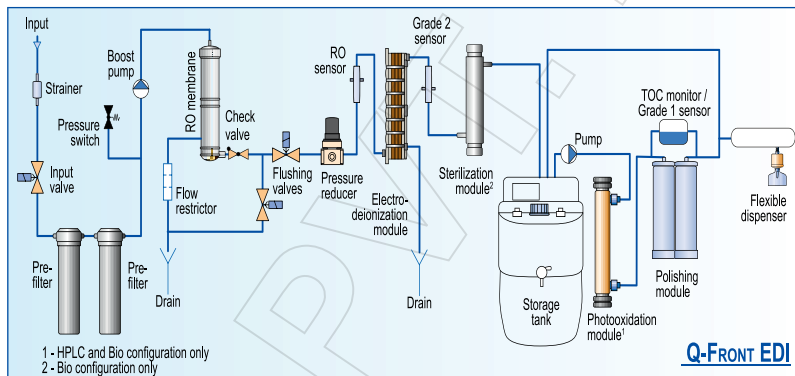
Q-Front Series

Intelligent Water Purification System



The newest pure and ultrapure water system with maximum features, convenience and performance. This is the essence of know-hows and experience of Adrona engineers obtained during the decades. Choose between 3 configurations to fit all specific laboratory needs.

- New prefilter with significantly higher trapping capability
- Improved RO and deioniser lifetime
- Stable output water quality
- Convenient flexible dispenser
- Sanitisation cartridge available
- Configuration with EDI or conventional deionisation

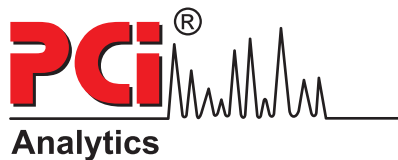
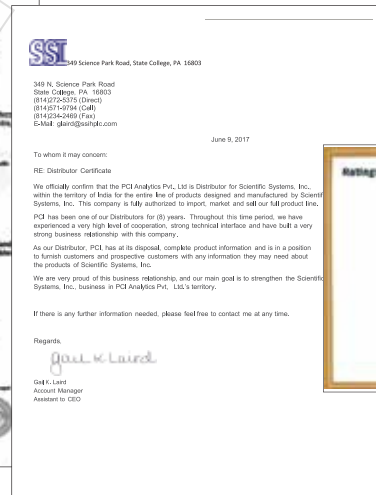


Description

Application	Q-Front EDI Trace	Q-Front EDI HPLC	Q-Front EDI Bio
Water Type	<ul style="list-style-type: none"> • Ultrapur water (Grade 1) • Pure water (Grade 2) 	<ul style="list-style-type: none"> • Ultrapur water (Grade 1) • Pure water (Grade 2) 	<ul style="list-style-type: none"> • Ultrapur water (Grade 1) • Pure water (Grade 2)
Application	<ul style="list-style-type: none"> • atomic absorption spectrometry • plasma optical emission spectrometry • other inorganic trace analysis 	<ul style="list-style-type: none"> • Chromatography • Mass Spectrometry • Microbiology • Molecular Biology 	<ul style="list-style-type: none"> • highly sensitive molecular biology • cell culture • other methods sensitive to RNase and endotoxins • biology applications
Display	Colour Graphic LCD Display	Colour Graphic LCD Display	Colour Graphic LCD Display
Water quality sensor	-	-	-
TOC Monitor	-	-	-
Measurement Validation Port	-	-	-
Volumetric Dispense	-	-	-
Dispenser	Attached flexible dispenser	Attached flexible dispenser	Attached flexible dispenser
Storage tank		Tank "Pro" 30 L included, Other tanks optional	
Installation		Installable on a laboratory bench	

Specification

Purified water parameters	Q-Front System Configuration		
	Trace	HPLC	Bio
Grade 1 water resistivity	18.2 MΩ x cm	18.2 MΩ x cm	18.2 MΩ x cm
Grade 1 water conductivity	0.055 μS/cm	0.055 μS/cm	0.055 μS/cm
Grade 2 water conductivity	0.1 μS/cm	0.1 μS/cm	0.1 μS/cm
Total organic carbon (TOC) level	<30 ppb	<2 ppb	<2 ppb
RNase	-	-	<0.01 ng/mL
DNase	-	-	<4 pg/μL
Bacteria	< 1 CFU/mL	< 1 CFU/mL	< 0.1 CFU /mL
Endotoxins	<0.15 EU /mL	<0.15 EU /mL	< 0.001 EU /mL
Particles > 0.22 μm	<1/mL	<1/mL	<1/mL
Deionization module life*	1 m3 *	1 m3	1 m3
Feed water pressure	0,8 – 4 bar	0,8 – 4 bar	0,8 – 4 bar
Data interface	RS 232	RS 232	RS 232
Dimensions (WxDxH), cm	35 x 39 x 54	35 x 39 x 54	35 x 39 x 54
Weight, kg	27	28	29



A-71, Road No.22, Wagle Industrial Estate, Opp. Lodha Grandezza, Near Spraytech Circle, (Tata Motors Bus Stop), Thane (W), Maharashtra, India. 400604.

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