

PREPARATIVE HPLC COLUMNS

- Industrial-scale preparative HPLC columns and systems
- High-pressure pulseless pumps
- Complete LC systems equipped with gradient mixers
- Fraction collectors
- Column temperature control

ECOM preparative HPLC columns and systems are used in laboratories and production facilities where the isolation or purification of various compounds is required. These systems and columns are suitable for ATEX environments. These instruments are used in many plants around the world and are characterized by perfect functionality, reliability, ease of use, quality workmanship, competitive pricing and flexibility in customization. ECOM preparative HPLC columns and systems can be conveniently combined with other ECOM portfolio – preparative and analytical HPLC systems, detectors, pumps, etc.

High performance columns with axial compression ECOM Separchrom PC01

ECOM SEPARCHROM PC01 columns meet the highest requirements of preparative liquid chromatography. They are designed to be used in axial compression mode with a moving input piston.

The PC01 columns are equipped with identical pistons on both input and output (biaxial compression is an option). Also, a modification is available, where the lower piston is replaced by a fixed plate. Pistons and plates are equipped with frits. A liquid distributing system is installed under each frit. The design guarantees perfect piston flow and high efficiency – even at a high injection volume – and the simple accessibility of frits for cleaning.

Materials and design: ECOM SEPARCHROM PC01 columns are made of stainless steel AISI 316L (tube inner surface is polished to reach Ra < 0.3μ m) with stainless steel pistons and UHMWPE (PTFE on request) sealing rings. The stroke of the main piston is proportional to the hydraulic cylinder used or the length of the flange bolts. The pistons are sectional. The frit (sintered mesh disc 3 µm pore size, 5 mm thickness) with the frit ring can be removed. The output plate in the FE version is made of UHMWPE, and the frit is fixed with a simple frit ring. Column flanges are not welded, but they are screwed onto the column tube. No temperature increases during their manufacture guarantee that there are no changes in their steel properties. The column stand, made of stainless-steel profiles, is included for columns over 100 mm I.D. Hydraulic cylinders fitted onto the upper flange are offered with manual oil pumps as well as with fully automated electric motor-driven devices for column packing/unpacking procedures.

Column packing methods: Columns can be packed by the dynamic slurry method, by sedimentation, or by sorbent in a dry state.

Accessories: Available in a broad range, such as filling adapters, slurry mixing vessels, slurry transporting pumps, etc.

PREPARATIVE COLUMNS AND SYSTEMS

Columns for Medium-pressure with Axial Bed Compression ECOM Separchrom PC02

ECOM SEPARCHROM PC02 medium-pressure stainlesssteel columns are intended for separation where high pressure is not necessary, but excellent efficiency is still required.

Materials and design: Stainless steel tubes, UHMWE piston with stainless steel support and mesh frit.

Flow distributor with grooves is incorporated into the piston to guarantee piston flow with nearly zero pressure drop. The frits are simply accessible for easy cleaning.

Column packing methods: Columns can be packed by the dynamic slurry method, by sedimentation, or by sorbent in a dry state. For soft polymer sorbents, ECOM Separchrom PC02 oil systems can be equipped with a special software application to compensate for the swelling and unswelling of sorbents in different mobile phases. (The column piston is moved in very small up-and-down increments during use.)

Non-metal Columns ECOM Separchrom PC04

Polyethylene cartridge columns are usually intended for flash chromatography, especially in bio chromatography and some other special applications.

Materials and design: Columns are made of high-quality ultra-high molecular weight polyethylene. They are equipped with moving pistons with no metal coming into contact with the mobile phase. They are equipped with the same pistons on the input and the output.

The input piston is moved either by flange bolts, or by a central stainless steel threaded rod.

ECOM SEPARCHROM PC04 plastic columns for preparative liquid chromatography arrive unfilled.

Hydraulic Systems for Prep Chromatographic Columns ECOM Separpress

ECOM SEPARPRESS hydraulic system for preparative chromatographic columns. It is used to compress the piston inside the column and to compact the sorbent.

Supplied as a kit that includes a hydraulic double-action cylinder or a spring, connecting hoses, oil pump - manual or driven by motor, with a mechanical manometer control device or an electronic system with a pressure gauge. Small single-action cylinders are not able to pull a column piston out of the tube, so liquid pressure has to be used instead.

Bigger cylinders (D30 +) are delivered only with an electric oil pump, since a high oil-flow rate is necessary.

All EE systems can be ordered in versions for hazardous environments.







Other Parts of the Preparative Column Systems Mobile Phase Delivery

HPLC Pumps ECOM Separtrix PP03 Series

ECOM Separtrix PP03 are non-pulsating triplex piston pumps for preparative chromatography applications, but they can be used wherever high pressure, precise flow without pulsation, and high corrosion resistance are required. PP03 units are also used for ATEX environments.

The pumps are equipped with a unique compact triplex piston head for smooth flow and easy maintenance without risk of leakage between the connecting parts. Back-flushed pistons are coated with a hard and chemically resistant polycrystalline carbon layer. Piston cylinders have a low dead volume, and samples injected through the pump appear to be low spreading.

Pumps with different flow ranges differ only by head type, piston diameter, and tubing diameter. ECOM Separtrix PP03 pumps are normally supplied with an asynchronous motor and a frequency converter. But, they are also available with a stepper motor, which allows the pump to be used in an extremely wide range of flow rates for both analytical and preparative applications.

Special configurations of the ECOM Separtrix PP03 pumps are used for three-phase low-pressure gradient applications where it is extremely important that pumps provide an almost constant flow rate not only at the output but also at the input. Low-pressure gradient units are supplied with three solenoid valves on the plate that can be connected to the pump side. The power supply for the valves is installed in the pump housing. The 10 linear steps are programmable. PP03 pumps are also supplied in a high -pressure binary gradient configuration.

Control software: Pumps can be controlled with either ECOMAC or Clarity data station software. Flow rate, gradient composition, and pressure limit can be programmed. PP03 pumps can also be controlled by ECOMAC software. A remote control mode is available as well.

Fraction Collectors ECOM Separflow FC X-Y

ECOM Separflow FC X-Y fraction collectors are designed to capture fractions in preparative liquid chromatography. However, they can be used in other facilities where the programmed collecting of liquid volume is required.

Materials: It is designed for liquids which are resistant to stainless steel, PTFE, and UHMW. ECOM Separflow FC X-Y typically consists of a stainless steel box of electronics with a keyboard and display on an oblique front panel and a circular segment consisting of two parts with a radial groove in between. The groove has side outputs in which a liquid input and Y-solenoid valves (with PTFE closing elements) on the output are connected. The opening of various valves can be programmed. The outlet valve pipes are connected by flexible hoses and are forwarded to liquid containers of the proper size.



Control: The collector can be controlled independently from the front panel keyboard or externally via an RS232 serial port. In the external control, the keypad is locked, and it is only possible to display parameters. Nevertheless, the STOP button always works. Step time is 0.1–180 min., and the pressure limit is 2 bar.

ECOM Separflow fraction collectors can be supplied in versions for environments with the danger of explosion according to ATEX, where the electronic part of the system has to be situated in a remote place out of the critical zone.

Automatic Flow Splitting

ECOM Separpass

ECOM Separpass is a device that allows preparative liquid chromatography detector cells to be used with analytical detectors.

Often older analytical detectors are available but they cannot be used due to their low flow rates and limited pressures on the cell. ECOM Separpass allows a small amount of liquid to flow through the detector while a large number of phases bypass the detector cell. An overpressure for the detector is generated by a spring force.

The pressure drop to the detector can be adjusted with a control knob.

The bypass eliminates any flow adjustment during separation – the spring force is only adjusted at the beginning by a rotary knob. The pressure on the detector cell can be set in a range of 1–3 bar.



ECOM is an established European manufacturer of scientific and laboratory instruments for liquid chromatography. The company is based in the Czech Republic and headquartered just outside of the capital Prague in Chrastany. Our company strategy is to supply our customers with high-quality, powerful and durable laboratory equipment at good prices. We develop and manufacture our devices in the European Union.



Portfolio

We manufacture high-quality instruments for liquid, HPLC, analytical, preparative and flash chromatography. Whether it is for preparative or analytical use, customers can choose from both complete laboratory chromatographic sets and standalone single-function devices – such as HPLC detectors, pumps, fraction collectors and others. We also offer custom flow cells, control software and many other related products. Thanks to our reliable production quality and ongoing development, we are recognized not just as a supplier of standalone devices and systems for end users, but also as a supplier of high-quality built-in units and OEM devices for manufacturing companies.

Worldwide distribution and service support

ECOM successfully supplies its devices and systems all over the world. For more than 30 years we have built a large worldwide network of distributors and service partners who, together with us, ensure that high-quality support is provided for all end customers.

ECOM main focus

ECOM intensely emphasizes research and development and hones the skills and knowledge of our experts. This allows us to constantly expand our product portfolio to provide customers with a wider range of products and to continuously pursue innovations. Besides our standard product offer, we can provide many customer solutions and modifications, in contrast to many other manufacturers, thanks to our enduring focus on innovative development.

Certifications

One of the ways in which we ensure consistently high performance levels of production process and process management is through our fulfillment of the ISO 9001 standard. Our other certifications include product certifications – e.g. CSA for detectors.

We would also like to mention that sustainability and a strong focus on areas related to the environment, social impact, and governance are among the values we hold in high esteem, which is why we work in accordance with ESG principles.



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