TORONTECH

HPLC P1/P2/P4 PUMP

The HPLC P1/P2/P4 Pump cam, crafted from high-hardness alloy steel with high-frequency heat treatment, boasts a wear-resistant surface exceeding 55HRC hardness, extending its service life. Coupled with a high-power customized motor, Japanese NSK bearings, and an independent air duct, this setup enhances both power and durability for superior performance and longevity.

APPLICATIONS

The Torontech P-series HPLC pumps are engineered to be the robust, reliable core of any liquid chromatography system, particularly where uptime and long-term performance are non-negotiable. Built with superior wear-resistant components, these pumps are designed to deliver stable, pulse-free solvent flow under demanding, continuous-use conditions, ensuring the foundation for precise and reproducible analytical results.

This focus on durability makes them the ideal choice for high-throughput environments in:

- **Pharmaceutical QC/QA:** For routine, high-volume analysis where instrument reliability is paramount to ensuring batch release schedules and maintaining regulatory compliance without interruption.
- **Contract Research Organizations (CROs):** To maximize sample throughput and meet tight project deadlines, where instrument downtime directly impacts profitability and client satisfaction.
- **Environmental Testing:** To provide the long-term analytical stability required for the continuous analysis of contaminants, even with challenging sample matrices that can stress lesser systems.
- **Food & Beverage Safety:** As a workhorse for the repetitive, 24/7 testing of raw materials and finished products, ensuring consistent quality control and consumer safety.

FEATURES

Precision

Excellent repeatability

We ensure precise gradient changes and retention time through the reciprocating tandem plunger pump and a pressure dynamic suppression algorithm. The retention time's repeatability is less than 0.2%.

Gradient test

HPLC P1/P2/P4 Pump

Pressure fluctuation test

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Pressure fluctuation test

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Reliability

The reliable design makes service life longer

Material

The cam undergoes integral processing using high-hardness alloy steel, coupled with high-frequency heat treatment technology. This process enhances the cam's surface, making it more wear-resistant (with a hardness above 55HRC) and extending its service life.

Power

The use of a high-power customized motor, Japanese NSK bearings, and an independent air duct further enhances both the power and lifespan of the equipment.

Gearing

We utilize self-lubricating and wear-resistant materials for the piston drive mechanism. Additionally, the inner wall rifling design serves to prevent accidental piston locking, ensuring more reliable gearing.

Plunger

The patented suspended floating plunger (Patent Number: ZL 2020 2 1896102.3) adjusts automatically to various working conditions, offering convenient disassembly and effectively preventing eccentric wear of the sealing ring. Featuring a special

sealing structure and automatic plunger cleaning, the pump seal becomes more reliable.

Ease of use

Equipped with an online automatic rinsing mechanism

During pump operation, the rinsing pump activates automatically at intervals. This process effectively prevents buffer salt crystallization, microbial growth, and extends the service life of both the plunger and its sealing.

HPLC P1/P2/P4 Pump

Easy to purge

Both the workstation and instrument panel feature a purging function, simplifying the purging process.

HPLC P1/P2/P4 Pump

Easy to Intelligent solvent switching to improve efficiency

Featuring a 4-channel solvent selection valve for the binary pump, the solvent can automatically switch based on the method being used.

HPLC P1/P2/P4 Pump

Independent 4-channel gradient proportioning valve, easy for maintenance

The quaternary pump's gradient proportioning valve uses a four-channel independent design. Intelligent monitoring and diagnosis enable real-time tracking and independent replacement of each channel. This overall design effectively minimizes maintenance costs.

HPLC P1/P2/P4 Pump

TECHNICAL SPECIFICATIONS

Flow rate range	0.001mL/min~10.000mL/min
Pump type	Isocratic(P1), Binary(P2), Quaternary(P4)
Maximum pressure	62MPa
Plunger rinsing	Supported

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