

**ELITE**



***METROEPP***<sup>®</sup>  
**Series metering pumps**

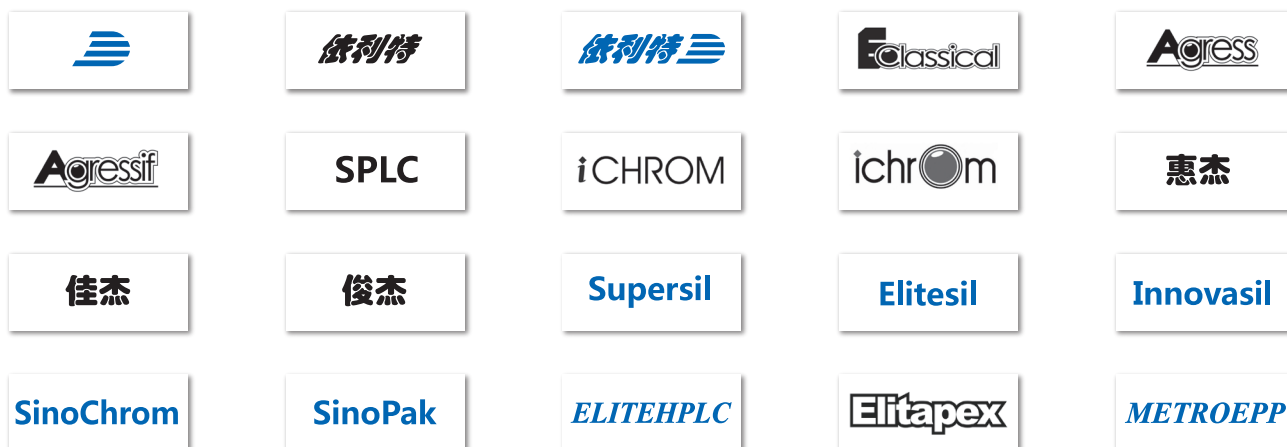
[www.eliteHPLC.com](http://www.eliteHPLC.com)

## Company profile

Dalian Elite Analytical Instruments Co., Ltd. and Elite (Suzhou) Analytical Instruments Co., LTD. (collectively, Elite Instruments), focus on the research and development of liquid chromatographs. And Elite is the leading drafter of national standards for liquid chromatography industry such as High Performance Liquid Chromatographs, chromatography workstations and columns.

Dalian Elite analytical Instrument Co., Ltd. is located in Dalian, a coastal city. Established Liaoning Elite chromatograph professional technology innovation platform, Liaoning Dalian Elite analytical instrument engineering technology research center, and passed the ISO9001 quality management system certification. We have completed the national "Ninth Five-Year Plan " and "Tenth Five-Year Plan" science and technology research projects, and "Eleven Five Plan" science and technology support projects. We have won many provincial awards and BCEIA Gold Award and CISILE Independent Innovation Gold Award consecutively. The company has been adhering to the principle of independent innovation and R&D priority, with more than 40 core intellectual property rights and more than 20 registered trademarks, and has passed the certification of intellectual property management system.

Elite (Suzhou) Analytical Instrument Co., Ltd. is located in Suzhou Nano Industrial Park and won the 2019 "Bright New Talent Award" enterprise title. And Elite Suzhou company also has "Academician workstation, with innovation as the goal, research and development of more stable and more efficient liquid chromatography.



# METROEPP®

## Series metering pumps

The medium and high pressure metering pumps independently developed by Elite have the advantages of accurate flow rate, stable pressure and corrosion resistance, and are available in various materials.

### Features

- Adopt microprocessor control, double-drive pump head design, multi-point flow curve correction, accurate flow rate.
- Flow rate is automatically compensated with system pressure change to ensure smooth flow and high stability.
- Double plunger parallel reciprocating metering pump, effective control of fluid pressure pulsation, small pulsation.
- Real-time pressure detection display, high pressure limit, low pressure limit alarm, safe and reliable
- With flow gradient performance over time.
- A variety of pressure units (MPa, psi, bar) conversion display modes.

### Use

- Suitable for university experiments, research control, pharmaceutical manufacturing, biotechnology, petrochemicals, etc.
- Special fields, such as as feedstock for high-precision catalytic evaluation devices, feedstock for microreactors.

### Material

- 316L stainless steel, titanium alloy, PEEK, fluorine material, Hastelloy, etc.



# METROEPP®

## Series metering pumps



### 316L metering pump

The materials of this series of infusion pumps head and flow piping are high-quality 316L, especially suitable for pumping organic solvents, widely used in chemical, pharmaceutical, food, military and other fields.



### Titanium alloy metering pump

The materials of this series of metering pumps head and flow piping are titanium metal, suitable for atmospheric pressure to high pressure, better corrosion resistance to acid and alkali salts and higher strength compared with stainless steel materials, suitable for petrochemical, coal, dyestuff, chemical, aerospace and other fields.



### PEEK metering pump

This series of metering pumps are made of PEEK for pump head and flow path piping, used in atmospheric to medium pressure applications, with good corrosion resistance and full biocompatibility, especially suitable for the transfer of liquids with biological activity.



### Fluorine material metering pump

The main material of this series of metering pumps is fluorine material, which is applied from atmospheric pressure to low pressure and can tolerate all organic and inorganic solvents, and can be applied in petrochemical, fine chemical, biopharmaceutical, aviation military and other fields at present.



### Hastelloy

The main material of the pump head of this series of metering pumps is Hastelloy, which is one of the most corrosion-resistant modern metal materials. It is mainly resistant to wet chlorine, various oxidizing chlorides, chlorinated salt solutions, sulfuric acid and oxidizing salts, and has good corrosion resistance in low and medium temperature hydrochloric acid. It is widely used in chemical industry, petrochemical industry, flue gas desulfurization, paper making, environmental protection and other fields.

## Performance Index

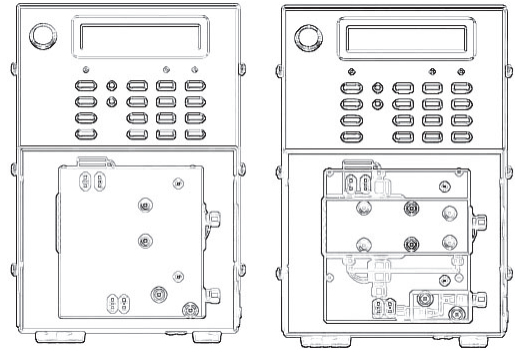
Item	METROEPP series										P series						
	EPP010S	EPP010T	EPP010Y	EPP010P	EPP010F	EPP050S	EPP050T	EPP050Y	EPP050P	EPP050F	EPP100S	EPP300S	P500+	P1000+	P2000+	P3000+	
Material	316L	Titanium 9	Hastelloy	PEEK	Fluorine material	316L	Titanium 9	Hastelloy	PEEK	Fluorine material	316L	316L	316L				
Flow Rate	0.001~10.000mL/min					0.01~50.00mL/min					0.01~100.00mL/min	0.01~300.00mL/min	1-500mL/min	1-1000mL/min	1-2000mL/min	1-3000mL/min	
Repeatability	≤0.1%					≤0.3%					≤1%	≤1%	≤0.5%	≤0.5%	≤0.5%	≤0.5%	
Accuracy	≤±0.2%					≤±1.0%					≤±1.5%	≤±1.5%	≤±3%	≤±3%	≤±3%	≤±3%	
Pressure range	≤45MPa	≤45MPa	≤30MPa	≤20MPa	≤3MPa	≤30MPa	≤30MPa	≤30MPa	≤20MPa	≤3MPa	≤20MPa	≤20MPa	≤20MPa	≤20MPa	≤10MPa	≤10MPa	
Pressure pulsation	≤0.1MPa					≤0.4MPa					≤0.2MPa	≤0.8MPa	≤0.5MPa	≤0.5MPa	≤0.5MPa	≤0.5MPa	
Control mode	Dual control by computer and manual panel control																
Power Supply	AC220V±10%/50Hz												AC220V±10%/50Hz/60Hz				
Power consumption	80W					80W					160W			800W			
Weight	10kg										18kg						
Boundary dimension	400×155×235mm										470×195×275mm			600mm×350mm×230mm			

# Heat pump

The heating metering pump not only has flow accuracy and flow repeatability, but also can heat and keep warm the pumped liquid to 80°C. It can realize full flow heating and stable pumping the liquid melting point below 60° C.

- Using 24V low pressure heating, to ensure safety in the process of use.
- Temperature control and real-time monitoring are used flexibly for solvent bottle, inlet pipe, pump head and outlet pipe .
- When the pump head temperature does not reach the preset temperature, the pump can be forbidden to operate to protect the plunger and sealing ring.

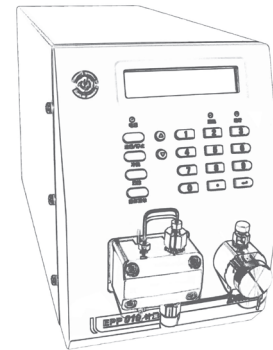
Note: The heating jacket for solvent bottles and pipelines does not include solvent bottles and pipelines.



# Acid-proof pump

316L acid-proof metering pump has good acid-proof performance, suitable for metering, pumping special needs of acidic liquid, with smooth operation, strong acid resistance, low noise, long life and so on. The application range is wide, including equipment supporting of liquid chromatography system, chemical feed, reactant addition, catalyst addition, new energy research and so on.

Note: acid-proof pump with heating function can be customized.



# NMP Series Metering Pumps

The new generation of NMP series metering pumps of Elite adopts the ultra-compact design to save space, and has stable and high-precision infusion function.

NMP series metering pump can be widely used in sewage treatment, petrochemical, food and beverage, pharmaceutical manufacturing, electric power system, laboratory and electronic industries.

- Small size, high precision, and low power consumption.
- Stainless steel 316L, PEEK, Ti, fluorine and other materials are available.
- Plunger type cam structure, completely leak-free.
- High cost performance for precise measurement and quantitative increase of various chemicals.
- The entire process can be customized according to your needs.



## Guide for selection of metering pump

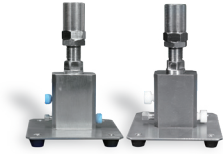
Pump series	METROEPP series	P series
Size	400×155×235/470×195×275mm	600×350×230mm
Flow Rate	10~300mL/min	10~3000mL/min
Maximum operating pressure range	3~45MPa	5~60MPa
Material	316L, PEEK, titanium alloy, Fluorine material and Hastelloy alloy are optional	
Inlet pressure	Inlet hard connection, back pressure valve (note 1)	
Temperature	The heating module (note 2)	
Plunger cleaning	Automatic plunger cleaner is optional	
Damper	Internal and external dampers are optional	
Inlet and outlet line	Variable diameter joints are arranged according to requirements, Metric/English system optional	
Control mode	Panel control, computer controlled, self-programmed	
Special appearance	Custom pump mechanical parts and special appearance	

NOTE:

1. Suitable for gaseous medium at room temperature and pressure, liquefy it through inlet pressure. The inlet is required to be pressure-resistant connection, and the back pressure valve should be added at the outlet to make the outlet pressure greater than the inlet pressure.
2. The heating module is suitable for solid or viscous medium at room temperature and pressure, which can be liquefied and reduced viscosity by heating.

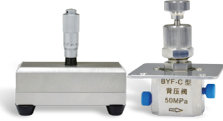
# Accessories

## Flow accessories



### Damping valve

Damping Valve Type	Connection line	Pressure Range
ZF-01A Damping valve (Analytical , 10MPa)	1/16"	10MPa
ZF-01 Damping valve (Preparation , 10MPa)	1/8"	10MPa



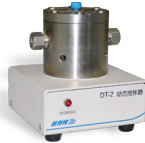
### Back pressure valve

The type of Back pressure valve	The material of touching the liquid	Connecting line	Pressure range
Needle-Valve	316L	1/16" 1/8"	10MPa 20MPa 50MPa 100MPa
Pressure tube	PEEK	1/16"	10MPa



### Damper

Suitable for high flow rate pump which has higher requirements for the pressure pulsation, can be built in/outside damper, and buffer the pressure fluctuation produced in the movement of the plunger



### Mixer

Mixer type	Mixer connection line	Mixed volume
Static mixer	1/16"	1.5mL 3.0mL 4.5mL
Dynamic mixer	1/16" 1/8"	7mL



### Filter

Filter type	Filter connection line	The material of touching the liquid
In-line filter	1/16" 1/8"	316L PTFE



### Solvent bottle

Solvent bottle type	Specifications
Solvent bottle (colorless)	100mL 250mL 500mL 1000mL 2000mL
Solvent bottle (brown)	250mL 500mL 1000mL

## Pipes and fittings

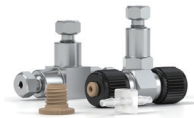
316L, PEEK, fluorine and other materials for choice



Connecting pipeline



Joint



Connector



Filter and sieve plate

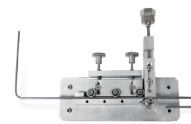
## Pipeline making tools



Pipe cutter  
manual/electric, stainless steel  
tube /PEEK tube switcher



Hole saw  
used with pipe cutter to prevent  
hole clogging after pipe cutting



Pipe bender  
1/8 in., 1/16 in



Straight tube  
1/8 in., 1/16 in

## Maintenance tools



### Check valve cleaner:

The method of syringe flushing, compared with the traditional ultrasonic method, can quickly clean the check valve and wash out the larger impurities in the check valve.



### Automatic plunger cleaner:

An automatic plunger cleaner is optional to relieve the wear of plunger and sealing ring when transporting crystallizable medium.

# Customer service

Elite has always followed the "customer-centric" service concept and attaches great importance to customer service support. In order to ensure that users receive effective and timely services as well as comprehensive technical support, a Customer Service Center was established in June 2010, and after continuous development to establish a comprehensive and systematic customer service system, including Customer Service Center and Analysis and Testing Center. The Customer Service Center provides you with product installation, product operation guidance, training, repair and maintenance services, and the Analysis and Testing Center provides users with solutions and testing methods. For a long time, our after-sales service team has spread all over the world, forming a perfect, high-quality, professional and timely networked service system.

## Service Teams

**Customer Service Center**—We have a senior team to solve users' technical problems with a strong technical backing.

- Call center: 400-66-35483 customer service telephone number has been opened to receive customer problems 7×24 hours, providing customers with a full range of technical advice and repair services. At the same time, it supports a variety of online service methods such as email, QQ and WeChat.
- Installation and maintenance platform: there are full-time after-sales engineers in Beijing, Shanghai, Nanjing, Guangzhou, Xi'an, Chengdu, Wuhan, Changsha and Jinan to provide installation and maintenance services for users.

**Analysis and Testing Center**—Relying on professional talents, we build an excellent application development team to provide solutions for you.

## Service Commitment

**Installation:** we confirm the installation conditions with the user in advance and provide free installation and commissioning services according to the time and location requested by the user.

**Maintenance:** Three levels of maintenance system to ensure that after receiving technical advice and repair requests from users, respond within 24 hours, such as telephone can no solve the need for on-site maintenance, we promise to send someone to the scene as soon as possible, and in the shortest possible time to remove the fault. If the user is in urgent need of work, we can provide the customer with a turnover instrument after confirmation by the company's authorized technical personnel. The cost of replacement parts and repair hours will be charged according to the uniform price set by the company.

## Training Commitment

**On-site training:** The company and the company's authorized technicians provide free on-site training services to the user's operators during the installation and commissioning of the instrument and daily maintenance, including instrument performance, operation and use and general maintenance.

**After-sales training:** The company offers several training courses each year, taught by a number of instructors who are qualified in training and assessment by the NTC (National Training Council for Analytical Testers). The training courses last for one week and are held in Dalian.

At the same time, the company is equipped with 4 after-sales service managers, who provide regular training for after-sales service engineers on product performance, maintenance and other aspects.



**About Elite**

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