Inorganic pretreatment

Super Microwave Digestion System

Automatic Graphite Digestion System

VOCs pretreatment

Headspace Autosampler

Canister Autosampler

Static Diluter

Canister Cleaning System

Canister Sampler

Single Canister Sampler

ODS Sampler

Automatic Air Bag Sampler

Atmospheric Pre-concentrator

Atmospheric Pre-concentrator

Organic pretreatment

Decompression Parallel Concentrator

Nitrogen Blowing Parallel Concentrator

Automatic Constant Volume Parallel Concentrator

Presserized Fluid Extractor

Automatic Homogenizer

Fully Automatic Solid Phase Extractor

Automatic Liquid Sampler

Other Accessories

High-speed Refrigerated Centrifuge

Air-cooled Chiller

Nitrogen Generator

Lab Explorers of the Future

Accessories

Hangzhou EXPEC Technology Co., Ltd.

: https://en.expec-tech.com/
: 400-700-2658
: sales_expec@fpi-inc.com
: No.2466 Science and Technology Avenue, Qingshanhu Street, Lin 'an District, Hangzhou

PY202311222V1

EXPEC TECHNOLOGY

: https://www.linkedin.com/company/expectech/
: https://www.facebook.com/Expectech

EXPEC TECHNOLOGY

About us

Hangzhou EXPEC Technology Co., Ltd founded in 2015 and headquartered in Hangzhou, Zhejiang province, is a self-incubation subsidiary of Focused Photonics Inc, which is a well-established and listed organization with more than 6000 employees across the world. We are a national high-tech enterprise focusing on the R&D and industrial innovation and application of scientific instruments, and promoting the field use, automation and intelligence of analysis, detection and monitoring through technological innovation. We are committed to becoming the leading manufacturer of scientific instruments in the world and realizing the "Chinese dream" of scientific instruments.

We have the top technical experts and R&D team of more than 400 people. We have carried the accumulation of major scientific instrument R&D for 15 years, won the second prize of the national science and technology progress award, undertook dozens of key R&D plans of the national Ministry of science and technology and the formulation of national industrial standards, mastered a relatively complete analytical and detection technology platform such as mass spectrometry, chromatography, spectroscopy and physicochemical analysis, as well as the injection pretreatment technology platform of gas, liquid and solid, and developed a series of technologically leading product combinations such as laboratory analysis, on-site analysis (portable, online and mobile), and automatic analysis. We provide comprehensive and specialized scientific analysis solutions for users all over the world in the fields of industrial analysis, environmental monitoring, life science, food and drug, safety emergency and so on.

CATALOG

Inorganic Pretreatment **01**

Super Microwave Digestion System 01

Automatic Graphite Digestion System 02

Organic Pretreatment **03**

Decompression Parallel Concentrator 03

Nitrogen Blowing Parallel Concentrator 03

Automatic Constant Volume Parallel Concentrator 04

Presserized Fluid Extractor 04

Automatic Homogenizer 05

Automatic Liquid Sampler 05

Fully Automatic Solid Phase Extractor 06

VOCs Pretreatment **06**

Automatic Air Bag Sampler 06

Headspace Autosampler 07

Canister Autosampler 08

Atmospheric Pre-concentrator 09

Static Diluter 11

Canister Cleaning System 12

Canister Sampler 13

Single Canister Sampler 14

ODS Sampler 14

Other Accessories **15**

High-speed Refrigerated Centrifuge 15

Air-cooled Chiller 16

Nitrogen Generator 16

Inorganic Pretreatment

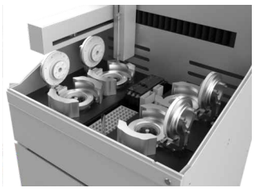
Super Microwave Digestion System

EXPEC 790S

EXPEC 790F

Key features

Based on pressurized digestion technique, EXPEC 790 series have automatic sealing, high temperature and high pressure, water cooled rapidly, such as functions and features, greatly enhance the ability and efficiency of microwave digestion, are fast digestion, less reagent dosage, the advantages of the clean, energy-saving and easy to monitor, completely solve the traditional microwave operation trivial, laborious.



Automatic Digestion System

Digestion Rack and Tube

Application

The super microwave digestion instrument can not only be used extensively in the digestion of basic samples such as biological, food, medicine, material, cosmetic and environmental samples, but can also be applicable to the samples that are hard to be digested by the traditional microwave, such as porcelain, carbon, ore, petroleum and PEEK samples. In the pressurized digestion cavity, multiple samples can be analyzed simultaneously; complete digestion can be fulfilled even for mixed samples, requiring no sample classification.

- **Can be used with ICP/ICP-MS**

Inorganic Pretreatment

EXPEC 780 Automatic Graphite Digestion System

Automatic Graphite Digestion System is a new type of pretreatment equipment that leads the development direction of wet digestion after electric furnace, electric hot plate and ordinary electric heat digestion system. It can realize automatic and continuous processing of samples under the condition of no one is on duty. The instrument automatically completes the process of feeding acid (multiple times), capping and removing, programmed temperature rising, acid drive, volume setting, sample mixing, sample transfer, and the whole process is unmanned, and the "one-button" process is standardized, programmed, and automated, which is goodbye to the monotonous, repetitive, cumbersome, and hazardous experience of sample digestion, and redefine the process of wet digestion.

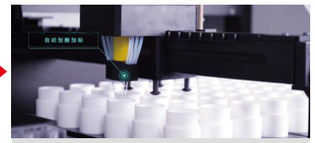
Key features

- Automatic acid feeding and labeling
- Automatic volume setting and mixing
- High precision temperature control
- Comprehensive acid-resistant and anti-corrosion design
- Automatic closing and removing
- Automatic sample transfer
- Wide range of applications

EXPEC 780

Sample digestion process

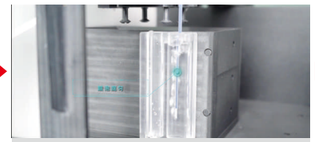
Put in sample stand



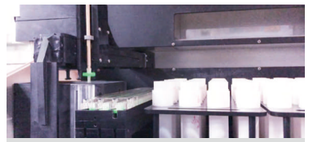
Automatic acid feeding and labeling

Automatic closing and removing

Automatic volume setting



Air blowing and bubbling evenly



Automatic Filter element filter sampling

Application

Environment (water, gas, soil, solid waste), food, metals, alloys, blood, pharmaceuticals, nuclear industry.

- **Can be used with ICP/ICP-MS**

Organic Pretreatment

EXPEC 510S Decompression Parallel Concentrator

In the organic residue analysis laboratory, high throughput, non-destructive and solvent collection are the goals pursued by laboratory staff. EXPEC 510S parallel concentrator, in the case of high throughput, realize decompression parallel concentration and solvent collection. Digital vacuum pressure control is adopted to ensure the recovery rate of the target substance.

Key features

- Good concentrated parallelism
- Environmentally friendly
- High throughput and efficiency
- Good security
- Easy to operate

EXPEC 510S

Application

Food, environment, pharmaceutical, public security criminal investigation industry,etc

- **Can be used with GC-MS/LC-MSMS/GC-MSMS**

EXPEC 520 Nitrogen Blowing Parallel Concentrator

The EXPEC 520 is heated by a water bath and uses the rapid flow of nitrogen to break the gas-liquid balance above the liquid, accelerate the volatilization speed of the liquid and achieve the effect of rapidly concentrating the solvent. It has the characteristics of processing large batches of samples, no need for personnel to guard, safety, etc. It improves the efficiency of laboratory personnel, reduces nitrogen loss and saves laboratory costs. And it reduces the harm of toxic and harmful solvents to experimenters, it is an essential sample pretreatment device in the laboratory.

Key features

- High throughput and efficiency
- Accurate and intelligent
- Good security
- Wide application range

EXPEC 520

Application

Food, environment, agriculture, pharmaceutical, petrochemical industry,etc

- **Can be used with GC-MS/LC-MSMS/GC-MSMS**

Organic Pretreatment

EXPEC 530 Automatic Constant Volume Parallel Concentrator

EXPEC 530 automatic constant volume parallel concentrator is a product developed by EXPEC technology in combination with laboratory needs and from the convenience and quickness of instrument use. The main principle is that the sample is concentrated under the combined action of water bath and nitrogen blowing, and the nitrogen blowing needle can be adjusted at multiple angles to form a vortex nitrogen blowing to speed up the concentration. It has the advantages of uniform heat transfer, fast concentration and good parallelism, and is a good helper for laboratory pretreatment.

Key features

- High throughput sample processing
- End point control function
- Highly visual observation
- High compatibility
- Bottle wall cleaning function
- Safety protection in place

EXPEC 530

Application

Environment: Soil detection, water quality analysis.
Food:Concentration of sample liquid in the analysis of pesticide residues and veterinary drug residues, etc.
Other:Drug analysis, biochemical analysis, polymer materials, public security criminal investigation, etc.

- **Can be used with GC-MS/LC-MSMS/GC-MSMS.**

EXPEC 550 Pressurized Fluid Extractor

EXPEC 550 Pressurized Fluid Extractor is an automatic instrument for extracting organic components from various solid or semi-solid samples through pressurization and heating technology. In a high-pressure environment, the solvent in a liquid state fills the entire extraction cell; Under high temperature conditions, solvent molecules rapidly diffuse and infiltrate the sample to achieve efficient and rapid extraction of organic components. It takes about 15-30 minutes per sample, and greatly save the consumption of solvents.

Key features

- Unique positioning system
- Wide application range
- Good heat insulation effect
- Reduce costs
- Good security

EXPEC 550

Application

Food, environment, agriculture, pharmaceutical, petrochemical industry, etc

- **Can be used with GC-MS/LC-MSMS/GC-MSMS**

Organic Pretreatment

EXPEC 560 Automatic Homogenizer

EXPEC 560 Automatic Homogenizer is an automatic equipment specially designed for sample preparation such as homogeneous extraction, tissue dispersion, and biological sample cracking in various laboratories. It can process up to 36 samples in batches, eliminating the tedious manual operations, widely used in sample pretreatment in food safety, medicinal material testing, grain testing, environmental monitoring and other fields.

Key features

- Automation
- Dynamic homogenization
- Multi-effect cleaning mode
- Fully enclosed design
- Intelligent terminal

EXPEC 560

Application

Food safety, agricultural product testing, biomedicine industry, etc

- **Can be used with GC-MS/LC-MSMS/GC-MSMS**

AS 3016 Automatic Liquid Sampler

Key features

- 16 positions, 110 positions and 150 positions can be selected for sample according to its throughput
- It supports the dual-tower simultaneous injection function

AS 3016

Application

Environment, food, material, forensic, etc.

- **Can be used with GC/GC-MS**

Organic Pretreatment

EXPEC 570 Fully Automatic Solid Phase Extractor

EXPEC 570 is a pretreatment equipment for organic analysis that can automatically run the solid phase extraction method under unattended conditions. Automatically complete the whole process of solid phase extraction (column activation, sample loading, column rinsing, column drying, column elution, etc.), automatically complete functions such as column switching, and realize batch sample processing. Widely used for food safety testing, agricultural product residue monitoring, medical and health, environmental protection and other fields.

Key features

- High throughput automation
- Environmental safety
- Strong ability to process samples continuously
- The recovery rate is stable
- Easy to operate

EXPEC 570

Application

Environment: Enrichment of semi-volatile organic compounds in water, purification of soil and sediment-semi-volatile organic compounds, etc.
Food: Pre-treatment of pesticide residues/veterinary drug residues/additives in food.
Traditional Chinese medicine: Pesticide residues in traditional Chinese medicine.

- **Can be used with GC-MS/LC-MSMS/GC-MSMS**

VOCs Pretreatment

EXPEC 266 Automatic Air Bag Sampler

Key features

- It supports 30-position high-throughput air bag sample
- The direct injection of gas samples or the injection after the enrichment and thickening is optional

EXPEC 266

Application

Environment, food, material, forensic, etc.

- **Can be used with GC/GC-MS**

VOCs Pretreatment

EXPEC 236 Headspace Autosampler

EXPEC 236 Headspace Autosampler is a pre-processing device that puts the sample to be tested in a sealed and constant temperature system for gas-liquid or gas-solid equilibrium, and sends the balanced components to be tested to the chromatographic analysis. It has a new design based on static headspace pressurization technology, which realizes solvent-free and efficient extraction of liquid samples and solid samples. EXPEC 236 has the functions of automatic leak detection/multiple extraction/multiple injection, etc. It is easy to operate and maintain, and improves the pretreatment efficiency of complex samples in an all-round way.

EXPEC 236

Key features

- **High sample throughput**
  Sequential processing of up to 75-position samples, combined with dual moving sample trays and overlapping heating, significantly improves work efficiency.
- **Full inert treatment of the flow path**
  Low risk of cross-contamination, low loss of components, high reproducibility.
- **Full process high temperature design**
  300°C high temperature eliminates cold spots, strong detection ability, and extremely high analytical sensitivity.
- **Machine reinforcement design**
  Can be used in stationary and mobile laboratories.
- **Any combination**
  Can be used with various brands of GC instruments.
- **Precision control**
  Precise gas flow, time, temperature control system, high reproducibility and accuracy of analysis results.
- **Easy to operate**
  Automatically complete all process, the results are reliable;
  Intuitive visual software interface, easy to operate.
- **Function assistant**
  The heating box has a built-in five-level vibration function to accelerate the gas-liquid balance of the sample and shorten the analysis cycle;
  Overlap heating function increases sample throughput and saves pretreatment time;
  System leak check of the complete flow path to effectively ensure data quality.

Application

Medicine, cosmetics, public security investigation, environmental science, energy, material science, light industry packaging, food science， etc.

- **Can be used with GC/GC-MS**

VOCs Pretreatment

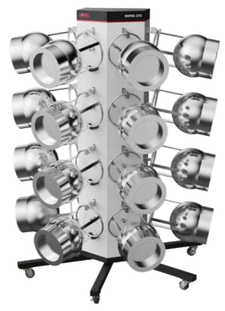
EXPEC 272 Canister Autosampler

The samples in the connected sampling bags or canister are transferred to the pre-concentrator for processing in sequence according to the instructions of the pre-concentrator. Before injecting samples, the flow path can be checked for leaks; between analyzing different samples, the flow path can be purged to remove interference.

Key features

- Can connect canisters, air bags and sampling bottles ofvarious volumes
- Fully automated operation, including automatic leak detection and automatic cleaning of flow paths
- Full flow path inertization and heat tracing, low adsorption, low residue, and low cross-contamination
- For use with Pre 3900, Pre 4000, and Pre 4100 atmospheric preconcentrators, the tower injector can be connected to 16 positions, and the desktop injector can be connected to 8 positions.
- For users with large sample volumes, it supports the expansion of 3-way samplers, with a total of 48 positions, meeting the requirements for unattended testing on weekends.
- The body is designed with storage slots for convenient storage of tools and connectors

Users can choose between tower and desktop autosampler according to laboratory space and sample volume requirements.



EXPEC 272 Tower Autosampler

EXPEC 272 Desktop Autosampler

Application

Environmental monitoring, emergency monitoring, occupational health, public health, scientific research.

VOCs Pretreatment

Pre 3900 Atmospheric Pre-concentrator

The three-stage cold trap design is adopted, and the temperature of the cold trap can be quickly reduced to -196℃ by using liquid nitrogen as a refrigerant. With intelligent algorithm control, the consumption of liquid nitrogen is reduced. All sample streams adopt inertization treatment, suitable for the analysis of trace multi-component VOCs in the atmosphere.

Pre 3900

Key features

- **Rapid cooling**
  quid nitrogen flows directly to the cold trap, which can quickly cool to -196℃. Intelligent temperature control algorithm saves liquid nitrogen consumption.
- **High throughput**
  11 sampling positions are standard, and 3 additional 16-bit automatic samplers can be configured to support up to 59 canisters.
- **Wide injection concentration**
  The sampling method can be a quantitative loop or a vacuum canister, and the injection volume is 1-1500mL, which can be flexibly responded to.
- **Precise sampling control**
  Using a high-precision proportional valve combined with a vacuum canister for sampling, there is no need to worry about the impact of the sample matrix on the sampling.
- **Friendly human-computer interaction**
  The instrument adopts a rotating control screen design, which makes it easy to view the real-time status of the instrument and perform quick inspections.
- **Analytical efficiency**
  Automatic calculation of aging, cooling, and GC waiting times, single analysis process ≤30min

Application

Environment, Food, Material, Forensic, etc.

VOCs Pretreatment

Pre 4000 Atmospheric Pre-concentrator

The Pre 4000 Atmospheric Pre-Concentrator adopts a three-stage cold trap design, combined with innovative Stirling refrigeration technology, does not need to consume liquid nitrogen or liquid CO2, is easy to operate, stable and reliable, and can perfectly replace liquid nitrogen refrigeration, It provides a new solution for the detection of trace multi-component VOCs.

Pre 4000

Key features

- **CO2 &H2O management technology**
  The first-level cold trap removes water at low temperature without losing VOCs. The second-level cold trap has special packing that effectively removes CO2, O2, and N2 while capturing VOCs.
- **Precision sampling technology**
  The combination of a high-precision mass flow meter and a diaphragm vacuum pump is used. Compared with the pressure control sampling method, it has the advantages of larger sampling volume, is not affected by ambient temperature, and is more accurate.
- **Three-level technology that takes multiple measures at the same time**
  The third level is -180℃ capillary empty tube. Low temperature achieves efficient focusing, empty tube achieves micro-flow desorption, and unique closed rotary valve technology seals both ends of the cold trap while simultaneously heating the cold trap and inlet pressure, splitless pulse injection during desorption, low band broadening, high sensitivity
- **Automated system leak detection**
  The atmospheric preconcentrator can detect leaks in the system through pressurization or vacuum to ensure the airtightness of the system. The entire process is automated and the system prompts the leak detection results.
- **Flexible internal standard injection**
  The instrument adopts a rotating control screen design, which makes it easy to view the real-time status of the instrument and perform quick inspections.
- **Humanized intelligent software**
  Can switch between laboratory sequence mode and online timing mode; automatically record the temperature and pressure flow operation trend diagram of each sample for traceability and tracking; when operation is abnormal, SMS will report to the user.

Application

Environmental monitoring, emergency monitoring, occupational health, food processing, public health, scientific research

VOCs Pretreatment

EXPEC 270 Static Diluter

This product can configure the target concentration, standard gas concentration, and final pressure according to the user's needs. Add the four standard gases to the canister in sequence to mix, then add the diluent gas to the canister, and pressurize to the required standard gas (also It is called primary standard gas). The primary standard gas can also be diluted again, or the atmospheric sample can be diluted under pressure. The entire process is fully automatic calculation and fully automatic operation.

Key features

- The dilution factor can reach 10,000 times
- Compared with dynamic diluter, more than 95% of standard gas can be saved
- Can be equipped with 4 kinds of mixed standard gas, which can be diluted under pressure
- Optional canister humidifier to ensure the stability of VOCs in the canister application
- Environmental monitoring, emergency monitoring, occupational health, public health, scientific research

EXPEC 270

Application

Environmental monitoring, emergency monitoring, occupational health, public health, scientific research.

VOCs Pretreatment

EXPEC 273 Canister Cleaning System

The vacuum pump evacuates the canister, then fills it with clean gas, and cycles repeatedly to clean the contaminants in the canister. After cleaning, the canister is evacuated to a vacuum for later use. During cleaning, the canister can be heated and moist cleaning gas added to improve cleaning efficiency.

EXPEC 273

Key features

- Diaphragm pump and molecular pump form an oil-free system, with 3/8-inch pipeline, quick cleaning, and meet the 50mTorr vacuum requirement.
- The tablet communicates with the host through WIFI and supports remote operation of the handheld tablet
- Equipped with humidification and cleaning function
- Heating and cleaning, even heating and thorough cleaning
- Automated leak detection, automated cleaning

Application

Environmental monitoring, emergency monitoring, occupational health, public health, scientific research.

Oven Type Canister Cleaning System

Users with a large cleaning capacity of canister and spacious laboratory space can choose an oven-type canister cleaning system to clean 8 6L canisters or 4 15L canisters at one time, and it supports expansion.

Electric Heated Jacket Canister Cleaning System

Users with a small amount of cleaning of canister and compact laboratory space can choose an electric heated jacket canister system, which can be installed on the desktop or in a vehicle. It can clean four 6L canisters or four 15L canisters at one time.

VOCs Pretreatment

EXPEC 271 Canister Sampler

Once the canister is in place on the instrument, the flow rate is controlled by the atmospheric pressure differential. The sample enters the canister and the sample is collected. Its instantaneous sampling and constant current sampling modes are switched as required.

EXPEC 271

Key features

- **Various sampling modes**
  Unique flow path design, when the environmental concentration exceeds the threshold, instantaneous sample retention is completed within 60 seconds; constant flow sampling is also available, with a flow rate of 0.2~500mL/min, meeting the sampling time requirements of HJ 759
- **Dual channel design**
  Dual channels can be turned on at the same time to achieve parallel sampling, or when one channel is sampling, the other channel can be replaced to achieve no blind spot sampling
- **Leak-proof design**
  When the instrument is on standby, the rotary valve is in a closed state to prevent micro-leakage in the flow path, which may cause changes in the vacuum degree of the canister.
  canister pressure drop ≤0.01kPa/day, ensuring data quality
- **Low adsorption design**
  All flow paths are inertized and heat-traced, resulting in low adsorption, low residue, and low cross-contamination.
- **Software friendly**
  Android system, easy to operate and refreshing interface
- **Support optional**
  Standard configuration is 8 sampling bits, which can also be expanded to 16 sampling bits
- **Automated leak detection**
  Leak detection through negative pressure of canister
- **Data traceability**
  A code scanner can be configured to bind the sampling information to the canister to facilitate traceability from sampling to injection.

Application

Environmental monitoring, emergency monitoring, occupational health, public health, scientific research.

- **Can be used with Pre 4000**

VOCs Pretreatment

EXPEC 274 Single Canister Sampler

After the canister is evacuated, it is connected to the Sampler. The sampler automatically calculates the flow rate based on the canister volume and sampling time set by the user. When the set time is reached, it automatically samples.

EXPEC 274

Key features

- Integrated flow control, calibration, timing, pressure reading, and leak detection functions
- Supports 1L/3L/6L and other canisters, and the sampling time can be set from 0.1h to 24h
- All flow paths are inertized to avoid adsorption of VOCs
- With 5-inch display screen, easy to operate, and supports mobile app operation
- The battery capacity is 9500mAh. There is a touch switch on the panel to turn off the control screen and WIFI is automatically disconnected.
- Low power consumption design ensures continuous operation for more than 48 hours
- Dustproof and waterproof grade IP56, adaptable to extreme weather
- Optional instantaneous sampler, 3L canister can complete sampling within 1 minute
- Optional flow evaluator can calibrate the integrating sampler or be used as an electronic pressure gauge

EXPEC 275 ODS Sampler

Before the sample enters the sampler, the particulate matter is removed through a filter. The sampling pump repeatedly evacuates the canister and flushes the sample, completely replacing the gas in the canister. Finally, the sample is pressurized into the canister for storage and transportation.

EXPEC 275

Key features

- The flow path adopts welded low-leakage design
- Inert pipelines are used, and the flow paths in contact with the sample are all fluorine-free and chlorine-free materials.
- Equipped with lithium battery, can work continuously for more than 12 hours
- Support parallel sampling function
- Waterproof design for sampling in bad weather
- The weight of the whole machine is ≤6kg and can be carried by one person

Application

Environmental monitoring, emergency monitoring, occupational health, public health, scientific research.

Other Accessories

PreX 210 High-speed Refrigerated Centrifuge

PreX 210 high-speed refrigerated centrifuge uses the principle of centrifugal sedimentation to separate, concentrate or purify cells (particles) with different densities in the solution under the action of centrifugal force.
This instrument is widely used in biology, medicine, chemistry, physics and other laboratories. It is an ideal tool for hospitals and blood stations to separate serum, plasma, urine, radioimmunoassay and other items.

PreX 210

Key features

- Full metal chassis, electronic door lock
- Equipped with automatic operation protection function and automatic shutdown when the cover is opened
- Single-chip microcomputer control system, low failure rate
- LCD touch screen display, intuitive and easy to operate
- Supports multiple parameter settings, speed or centrifugal force
- Speed up and down adjustment function
- Set the temperature by yourself, support normal temperature/freezing
- Brushless DC motor with built-in speed measurement system
- Excellent vibration filtering system, smooth operation without vibration

Other Accessories

CW-200 Air-cooled Chiller

After the canister is evacuated, it is connected to the Sampler. The sampler automatically calculates the flow rate based on the canister volume and sampling time set by the user. When the set time is reached, it automatically samples.

CW-200

Key features

- Embedded design, extremely convenient to install
- It has a compressor overcurrent protection function (and the protection current value can be adjusted,
- see below for the adjustment method)
- Temperature over-limit protection
- Constant temperature operation
- Can display cold water temperature
- Automatically memorize various parameters when power off
- Compressor start and stop protection
- Compressor overcurrent protection

NG-200 Nitrogen Generator

NG-200 is a nitrogen generator product developed by EXPEC Technology. It uses membrane separation technology to separate N2 in compressed air from other gas components. The nitrogen produced meets the demand for high-purity nitrogen in the laboratory, provides gas source guarantee for the instruments, and meets the continuous and safe operation requirements of instruments.

NG-200

Key features

- Using hollow fiber membrane separation technology, low operating noise
- Two imported air compressors operate alternately with start-stop delay protection to extend service life.
- Adopting a multi-stage precision large-capacity filtration system to ensure that the flow and purity meet the requirements of multi-stage mass spectrometry gas sources
- LCD touch screen display, easy to operate, automatic maintenance prompts and alarms
- When the internal pressure of the nitrogen generator is abnormal, the system has a self-protection function
- With operating temperature warning prompt function
- Compact structure design, covering an area of no more than 0.5 square meters