



Laboratory Equipment

Sign with Confidence

KHB
KEHUA BIOTECH

Automatic Modular Clinical Chemistry Analyzer **Polaris C1000 , C2000**

PRODUCT CATALOG

MADE IN CHINA

www.vestalab.ir



About KHB Group



Shanghai Kehua Bio-engineering Co., Ltd.

Shanghai Kehua Bio-engineering Co., Ltd. (KHB, Stock code: 002022.SZ), founded in 1981, is an IVD company that boasts a full line of medical diagnostic products including IVD reagents and full automatic analyzers. In 2004, KHB was listed in the Shenzhen Stock Exchange (SZSE) as the first IVD company in China; In 2015, KHB developed overseas investment in TGS Italy; In 2018, KHB developed cooperation with Tianlong Science and Technology, an innovative high-tech company specializing in molecular diagnostic products.

Headquartered in Shanghai China, KHB has set up R&D centers and production bases in a number of countries and regions including Italy, Shenzhen, Xi'an, and Suzhou, with over 30 subsidiaries and over 2,000 employees.

With over 40 years, now the KHB Group has developed into an international high-tech company that integrates R&D, manufacturing and marketing business operations, focusing on clinical chemistry, immunoassay, molecular diagnostics and point-of-care testing (POCT).

Clinical Chemistry

Automatic Modular Clinical Chemistry Analyzer

Polaris c2000



Polaris c2000 Automatic Modular Clinical Chemistry Analyzer

KHB Polaris series are the latest product of KHB. As an automatic clinical chemistry immunoassay system specially designed for large and medium-sized clinical laboratories and third-party commercial laboratories, Polaris c2000 features high-speed detection, modular combination and intelligent management, providing high-quality test results and satisfying user experience.

Mixing System

- Two groups of mixing devices each with 4 mixers
- Available for automatic frequency conversion

Reaction System

- Dual-ring reaction tray with 432 reaction positions
- Permanent hard glass cuvette
- Electric Heating System

Reagent System (Reagent Tray)

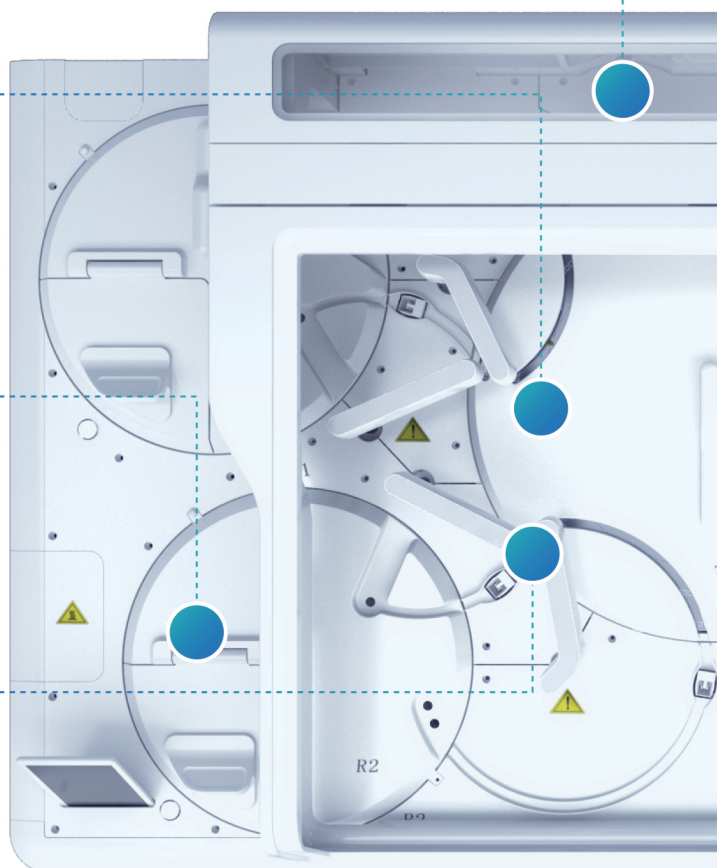
- Dual-reagent tray design with 216 reagent positions
- Refrigeration at 2 ~ 8°C
- Bar code scanning (optional)

Reagent System (Reagent Probe)

- 4 reagent probes with 2 for each reagent tray
- Level sensing, volume tracking and anti-collision protection
- Automatic maintenance and cleaning

ISE Module

- Equipped with K⁺, Na⁺ and Cl⁻ ion electrodes
- 600 tests/hour





Washing System

- Automatic cleaning with 8 steps and independent cleaning of inner and outer rings
- Multi-stage heating of cleaning agent and deionized water

Sample System (Track Unit)

- Loading capacity of 38*10 samples
- Including 30 emergency sample positions, with test priorities
- Available for feedings with sample tubes of different sizes
- Available for bar code scanning

Sample System (Sample Probe)

- Single-arm double-needle sample probe
- Liquid level sensing, volume tracking, collision protection, sample clot detection
- Automatic maintenance and cleaning

Calibration and Quality Control Tray

- 25 refrigerated calibration/quality control/emergency positions
- Available for bar code scanning (optional)

Improve detection efficiency

KHB Polaris Modular Combination Analysis System Customized Solution

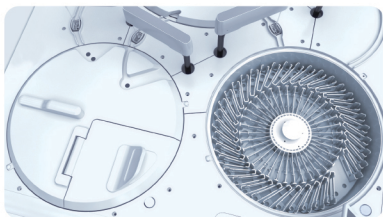
KHB Polaris series are composed of biochemical modules including c2000 (biochemical analysis with constant speed of 2000 tests/hour) and c1000 (biochemical analysis with constant speed of 1000 tests/hour), as well as i2400 immunization-module (240 tests/hour).

Extensible customized solution with over 30 configurations

- 1-4 analyzer modules selectable, optional ISE (600 tests/hour)
- Interconnection with Polaris c1000 for speed expansion
- Interconnection with KHB Polaris i2400 for a biochemical immunoassay system



Ultra-large dual-disc reagent system



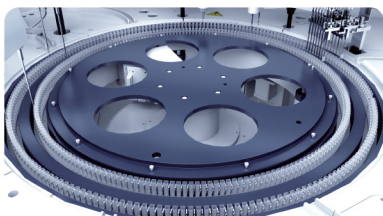
- 216 reagent positions
- Dual-disc design with 108 reagent positions on each disc

Patented[1] dual-channel batch sample input



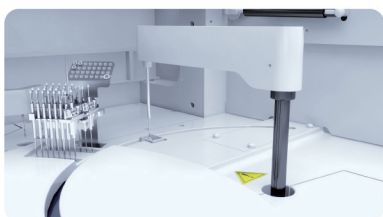
- One-time batch sample input of 380 sample available for continuous input and bar code scanning
- Single-channel LED indicator to clarify sample operation status
- 30 tracks with independent emergency sample positions for emergency detection
- 25 refrigerated disc sample positions for accelerating emergency detection
- Compatible with the entire laboratory automation system

Special dual-ring reaction tray design



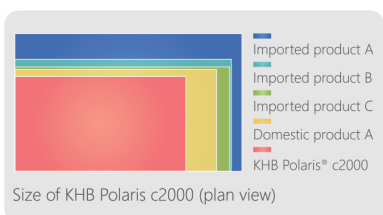
- Dual-ring reaction disc with 432 reaction positions available for high-speed operation
- Independent operation of inner and outer rings to reduce cross-contamination
- Permanent hard glass cuvette to reduce maintenance frequency

Ultra-micro system design



- It takes 3.6s to add 2 samples to ensure constant biochemical detection speed of 2000 tests/hour
- Automatic level detection of sample probe available for volume tracking and accurate feeding
- Ultra-micro sampling technology with minimum reaction volume of 80μL

Smaller stand-alone module



- Smaller stand-alone module size than similar mainstream products
- Compact design for better utilization rate of room space
- Integrated ISE module to lower maintenance cost

[1] Invention Patent No.: ZL 2015 1 0607142.9

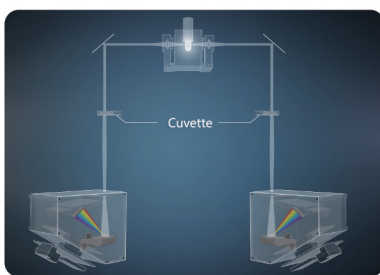
Realize accurate detection

Complete traceable system



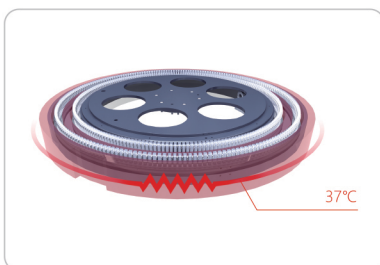
- KHB reference measurement laboratory is a ISO17025/ISO15195 accredited lab
- Engagement in the value assignment of national reference materials and formulation of industrial standards
- Traceability system integrating instruments, reagents and calibrators
- Matching calibrators, some of which come with quality controls, easy-to-use

New optical system



- Flat-filied concave grating with post spectro detection technology
- New generation of bi-directional light source to realize ultra-micro analysis
- Halogen lamp featuring ultra-long service life, stable signal and energy saving
- Special position design with strong anti-stray light interference
- 16 detection wavelengths to expand detection range
- Absorbance range as wide as -0.5 ~ 3.5Abs

High quality reaction control system



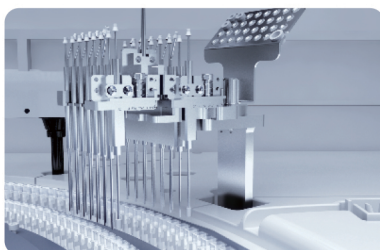
• Temperature control system

- Rapid and stable electric heating system, long service life, free of maintenance
- Real-time display of reaction tray temperature to ensure constant temperature 24 hours



• Mixing system

- Independent spiral mixing arm available for automatic frequency conversion
- Customized mixing parameter setting to realize accurate detection



• Washing system

- Thorough cleaning of reaction cuvette within 8 steps with warm water
- Preheating of deionized water and washing arm to reduce pollutant
- Independent control of cleaning water preheating for sample probe and washing arm

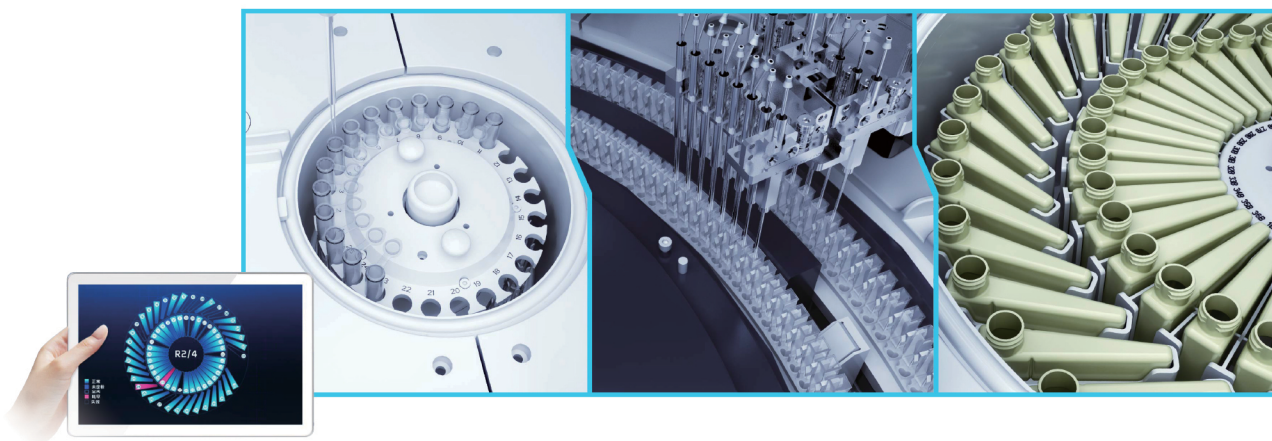
Support intelligent laboratory

Remote automatic quality control* and maintenance

- Special calibration and quality control tray refrigerated at 2 ~ 8°C 24 hours
- Available for remote quality control, providing operators with more freedom
- Automatic maintenance and cleaning during start-up and power-off, reducing manual intervention
- Available for remote wakeup, startup, shutdown, improving working efficiency

Remote automatic reminder of reagent change

- Automatic detection of remaining volume of reagent, with PAD (optional) to display such remaining quantity
- Automatic remote reminder of reagent change*, reflecting convenient intelligent services
- On-line loading of reagents to ensure continuous analysis



Intelligent cloud service

- Cloud upgrade: Real-time information on more optimized system and latest product
- Cloud diagnosis: Remote support and warning of failure for normal instrument operation
- Cloud quality control: Real-time analysis of room space comparison to improve quality management*
- Big data platform to ensure accurate and reliable detection results*



* Under development

Polaris c2000 Automatic Modular Clinical Chemistry Analyzer Parameter Specification

Performance

Throughput	Photometric test: 2000 tests/hour; ISE: 600 tests/hour (optional)
System functions	Continuous standby for 7*24 hours, emergency test, automatic dilution, automatic retest, automatic sleep and wakeup 1 ~ 4 reagents, dual-wavelength test, customized reaction time setting (1-60 minutes)
Scope of test	Clinical Chemistry and electrolytes (optional)
Type of sample	Serum, plasma, urine, whole blood, cerebrospinal fluid
Analytical method	One-point endpoint method, two-point endpoint method, kinetic method (reaction speed method), fixed time method (two-point speed method) and ISE indirect measurement method
Calibration method	Linear calibration: K factor method and linear method (including dual-point linear method and multi-point linear method) Non-linear calibration: transect method, broken line method, exponential method, logarithmic method, 3P parameter method, 4 P parameter method and 5P parameter method
Maximum number of items for analysis simultaneously	104 dual-reagent biochemistry items + 3 electrolyte items

Sample System

Sample position	405 sample positions: including 380 track sample positions (including 30 emergency positions), available for bar code scanning; 25 disc emergency positions, available for bar code scanning (optional), 2 ~ 8 °C refrigeration function
Sample volume	1.0 ~ 25.0µL, progressively increased by 0.1µL
Sample probe	Level sensing, volume tracking, anti-collision protection, sample clot detection, automatic maintenance and cleaning, with a cross-contamination rate of lower than 0.08%
Sample tube	Available for mixed placement of centrifugal cup, micro sample cup, glass blood sampling test tube, plastic blood sampling test tube and other types of samples

Reagent System

Reagent tray	216 reagent positions, available for bar code scanning (optional) and reagent bottles with volumes of 75ml, 45ml and 25ml
Reagent volume	R1: 80 ~ 300µL; R2: 10 ~ 300µL; progressively increased by 0.5µL
Reagent probe	Level sensing, volume tracking, anti-collision protection and automatic maintenance and cleaning
Temperature for refrigeration of reagent	2 ~ 8 °C

Reaction System

Reaction tray	Disc type, with 432 reaction positions
Cuvette	Permanent hard glass cuvette (glass), with optical path of 5mm
Reaction solution volume	80 ~ 450µL
Constant temperature system	Maintenance-free electric heating system
Temperature of reaction tray	37 °C, real-time display of temperature
Temperature fluctuation of reaction tray	±0.1 °C

Optical System

Light source	Halogen lamp
Spectral method	Flat-filed concave grating and diode array, with post spectro detection technology
Wavelength	16 wavelengths: 340nm, 380nm, 410nm, 450nm, 478nm, 505nm, 546nm, 578nm, 600nm, 630nm, 660nm, 700nm, 750nm, 780nm, 800nm, 850nm
Measurement range of absorbance	-0.5 ~ 3.5Abs

Mixing System

Mixing arm	Independent mixing arm
Mixing technology	Available for automatic frequency conversion

Washing System

Washing steps	Automatic cleaning within 8 steps
Washing solution	Acid and alkaline washing solution

Working Conditions

Weight	642Kg
Size	1960mm (length) ×1090mm (width) ×1238mm (height)
Power supply	~ 230 V ±10%, 50 Hz/60 Hz ± 1 Hz
Power	4000VA
Water consumption	Less than 85 liter/hour

Clinical Chemistry

Automatic Modular Clinical Chemistry Analyzer — Polaris c1000



Polaris c1000 Automatic Modular Clinical Chemistry Analyzer

KHB Polaris series are the latest product of KHB. The automatic clinical chemistry system are specially designed for large and medium-sized hospitals and third-party commercial laboratories. The automatic modular analysis system features high-speed detection, modular combination and intelligent management, and provides high-quality test results and satisfying user experience for clinical use.

Mixing System

- Two groups of stirring devices each with 2 mixing arms
- Available for automatic frequency conversion function

Reagent System (Reagent Probe)

- 2 reagent probes for 2 reagent trays
- Level sensing, volume tracking and anti-collision protection
- Automatic maintenance and rinsing

Reaction System

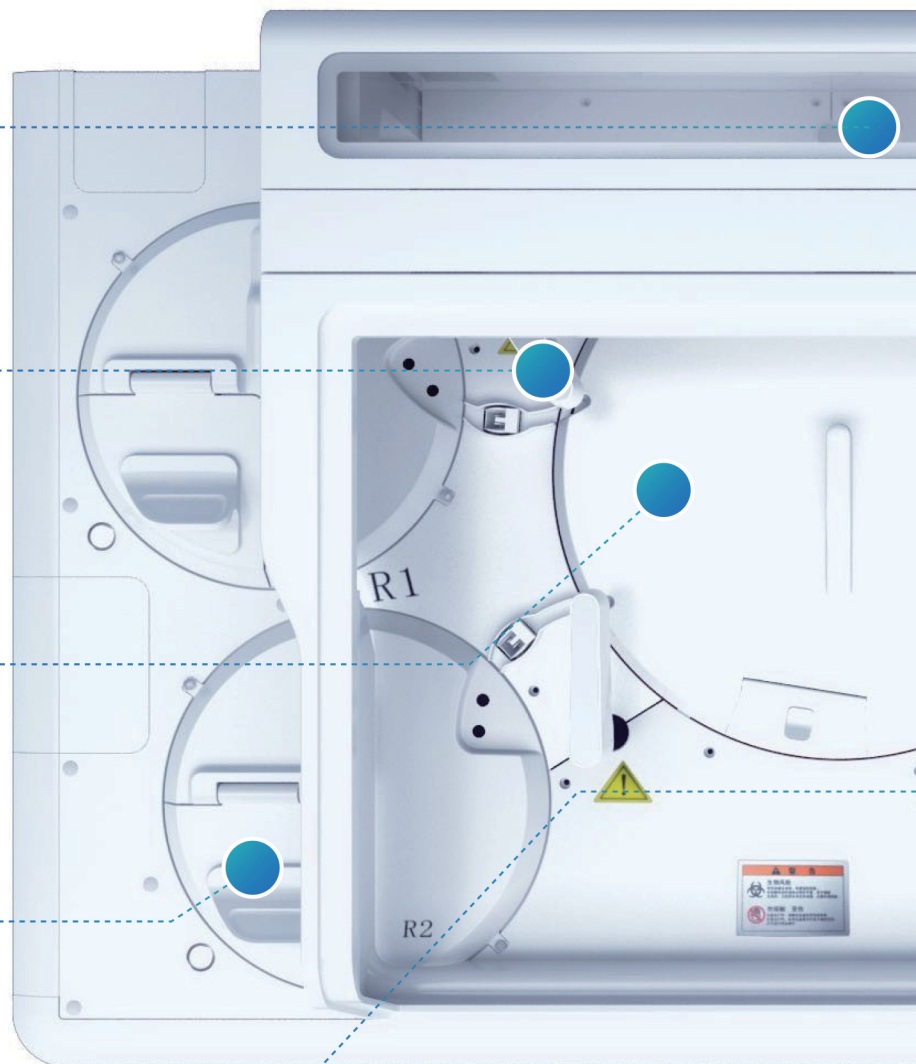
- Reaction tray with 216 reaction positions
- Permanent hard glass cuvettes
- Electric Heating System

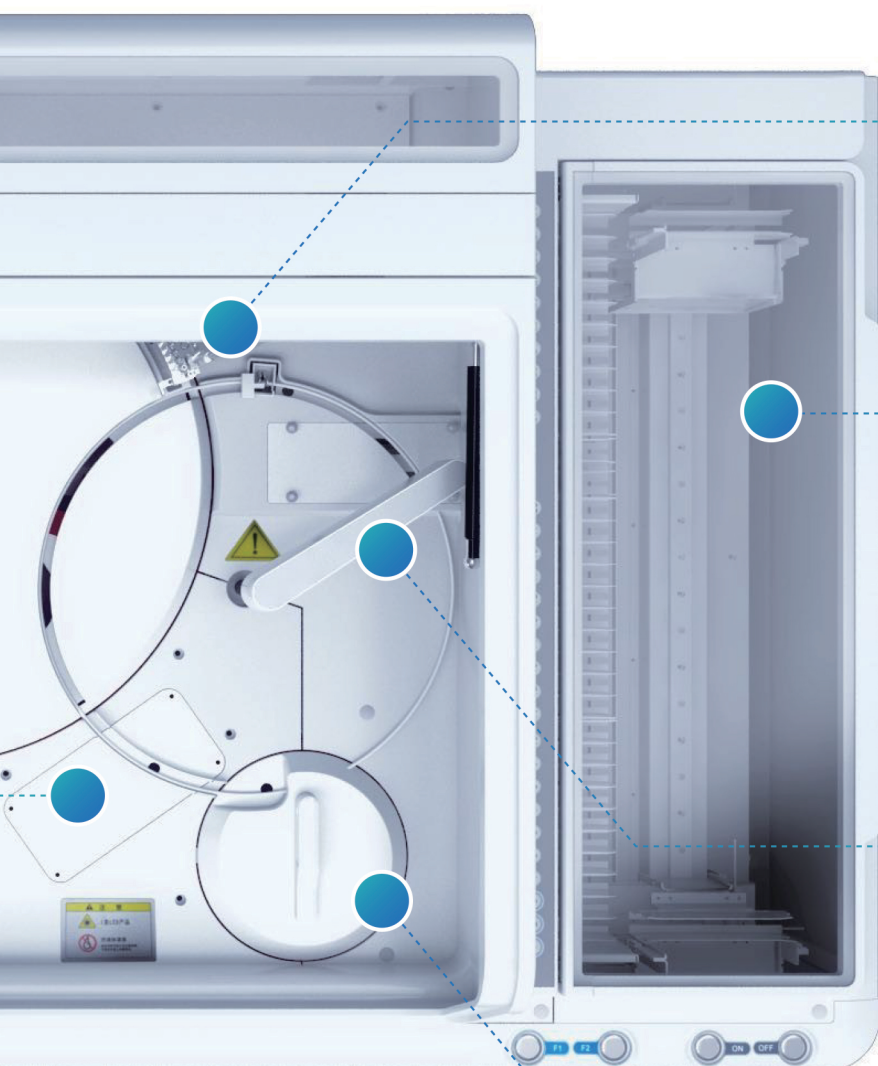
Reagent System (Reagent Tray)

- Dual-reagent-tray design with 200 reagent positions
- Refrigeration at 2 ~ 8°C
- Bar code scanning (optional)

ISE Module

- 600 tests/hour
- Equipped with K⁺, Na⁺ and Cl⁻ ion electrodes





Washing System

- Automatic 8 steps washing
- Multi-stage heating of cleaning agent and deionized water

Sample System (Track Unit)

- Loading capacity of 30*10 samples
- Including 30 emergency sample positions, with priorities to test
- Available for feedings with sample tubes of different sizes
- Available for bar code scanning

Sample System (Sample Probe)

- Single sample probe
- Level sensing, quantity tracking, anti-collision protection
- Sample clot detection (optional)
- Automatic maintenance and rinsing

Calibration and Quality Control Tray

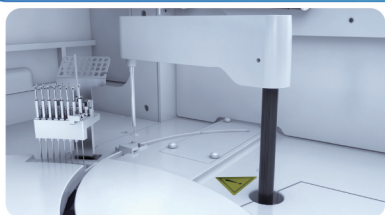
- 25 refrigerated calibration/quality control/emergency positions
- Available for bar code scanning (optional)

Patented^[2] two-channel sample processing system



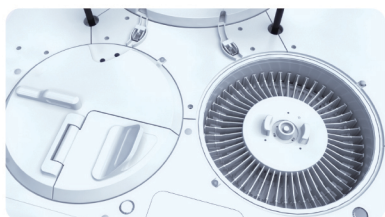
- One-time batch input of 300 samples, available for continuous input amidst operation
- 30 independent emergency sample positions for insert-and-detection purpose
- 25 refrigerated tray sample positions for accelerating emergency detection

Ultra-micro sampling system



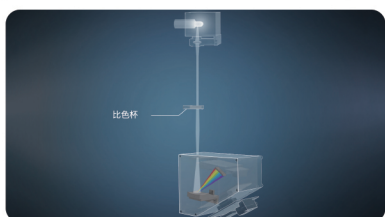
- Ultra-micro sampling technology with minimum reaction volume of 80μL
- Automatic level detection of sample feeding needle available for volume tracking and accurate feeding

Ultra-large dual-disc reagent system



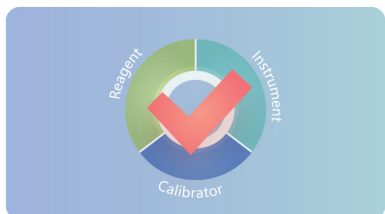
- Dual-disc design with 200 reagent positions
- Online reagent loading and change amidst operation

New optical system



- Special position design for convenience in change of light source
- Halogen lamp featuring ultra-long service life, stable signal and energy saving
- 16 wavelengths for detection, absorbance range as wide as -0.5 ~ 3.5Abs

Complete traceable system



- First-class reference method by Kehua Standard Laboratory
- Traceability system integrating instruments, reagents and calibrator
- Easy-to-use matching calibrators, some of which come with controls

[2] Patent No.: ZL 2015 1 0607142.9

Modularized combination for high speed detection

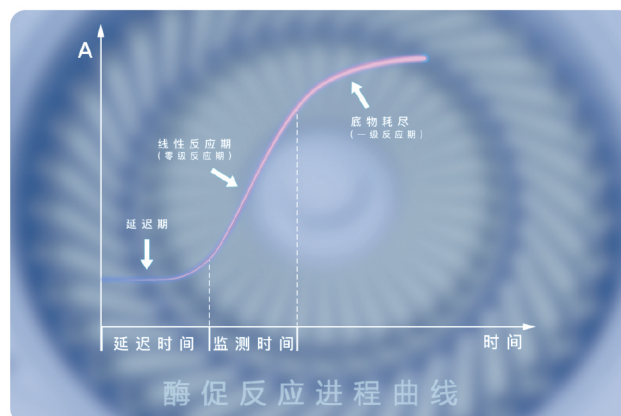
- Photometric test: 1000 tests/hour; ISE: 600 tests/hour (optional)
- Combinations of 1-4 analysis modules are optional
- Interconnection with KHB Polaris c2000 for speed expansion
- Interconnection with KHB Polaris i2400 for a biochemical immunoassay system



- ★ KHB Polaris series are composed of biochemical modules including c2000 (biochemical analysis with constant speed of 2000 tests/hour) and c1000 (biochemical analysis with constant speed of 1000 tests/hour), as well as i2400 immunization module (240 tests/hour).

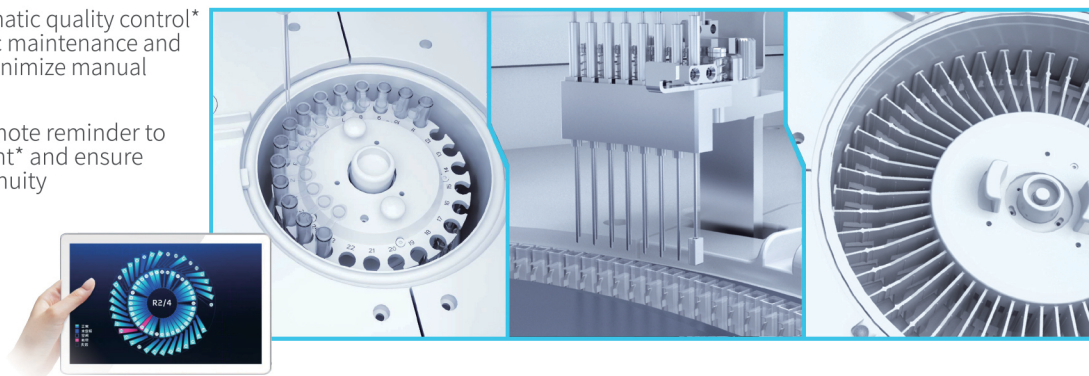
Higher accuracy in results through optimization of reaction parameters

- User-defined mixing parameters for accurate detection
- Rapid and solid support to clinical decisions by setting prozone parameters and substrate depletion parameters



Intelligent design with remote control function that offers more convenience

- Remote automatic quality control and automatic maintenance and rinsing that minimize manual intervention
- Automatic remote reminder to change reagent* and ensure analysis continuity



[1] Patent No.: ZL 2018 2 2064917.4 * Under development

Polaris c1000 Automatic Modular Clinical Chemistry Analyzer Parameter Specification

Performance

Throughput	Photometric test: 1000 tests/hour; ISE: 600 tests/hour (optional)
System functions	Continuous standby for 7*24 hours, emergency test, automatic dilution, automatic retest, automatic sleep and wakeup 1 ~ 4 reagents, dual-wavelength test, customized reaction time setting (1 ~ 60 minutes)
Scope of test	Clinical chemistry and electrolytes (optional)
Type of sample	Serum, plasma, urine, whole blood, cerebrospinal fluid
Analytical method	One-point endpoint method, dual-point endpoint method, kinetic method (reaction speed method), fixed time method (two-point speed method) and ISE indirect measurement method
Calibration method	Linear calibration: K factor method and linear method (including dual-point linear method and multi-point linear method) Non-linear calibration: transect method, broken line method, exponential method, logarithmic method, 3P parameter method, 4P parameter method and 5P parameter method
Maximum number of items for simultaneous analysis	98 dual-reagent biochemistry items + 3 electrolyte items

Sample System

Sample position	325 sample positions: including 300 track sample positions (including 30 emergency positions), available for bar code scanning; 25 disc emergency positions, available for bar code scanning (optional), 2 ~ 8 °C refrigeration function
Sample volume	1.0 ~ 35.0µL, progressively increased by 0.1µL
Sample probe	Level sensing, volume tracking, anti-collision protection, sample clot detection (optional), automatic maintenance and cleaning, with a cross-contamination rate of lower than 0.08%
Sample tube	Available for mixed placement of centrifugal cup, micro sample cup, glass blood sampling test tube, plastic blood sampling test tube and other types of samples

Reagent System

Reagent tray	All 200 reagent positions are available for bar code scanning (optional) and support reagent bottles with volumes of 75mL, 45mL and 25mL
Reagent volume	R1: 80 ~ 300µL; R2: 10 ~ 300µL; progressively increased by 0.5µL
Reagent probe	Level sensing, volume tracking, anti-collision protection and automatic maintenance and cleaning
Refrigeration of reagent	2 ~ 8 °C

Reaction System

Reaction tray	Disc type, with 216 reaction positions
Cuvette	Permanent hard glass cuvette (glass), with optical path of 5mm
Reaction solution volume	80 ~ 450µL
Constant temperature system	Maintenance-free electric heating system
Temperature of reaction tray	37 °C, real-time display of temperature
Temperature fluctuation of reaction tray	±0.1 °C

Optical System

Light source	Halogen lamp
Spectral method	Flat-filied concave grating and diode array, with post spectro detection technology
Wavelength	16 wavelength: 340nm, 380nm, 410nm, 450nm, 478nm, 505nm, 546nm, 578nm, 600nm, 630nm, 660nm, 700nm, 750nm, 780nm, 800nm, 850nm
Measurement range of absorbance	-0.5 ~ 3.5Abs

Mixing System

Mixing arm	Independent mixing arm
Mixing technology	Available for automatic frequency conversion

Washing System

Washing steps	Automatic washing within 8 steps
Washing solution	Acid and alkaline washing solution

Working Conditions

Weight	533Kg
Size	1770mm (length) × 990mm (width) × 1238mm (height)
Power supply	~ 230 V ±10%, 50 Hz/60 Hz ± 1 Hz
Power	2500VA
Water consumption	Less than 45 liter/hour

KHB Polaris Series Clinical Chemistry Testing Items

Diverse items menu

Over 100 kinds of clinical chemistry reagents that meet clinical requirement

Multiple items available for attached calibrators

Traceable matching calibrators provided to ensure detection results and lower user costs



Reagent bar code management

Bar code scanning for accurate reagent information and reliable period of validity management

Excellent anti-interference capability

Outstanding abnormal sample detection, effectively reducing retest and avoiding delayed reports

Clinical Chemistry Reagents Test Menu



Liver Function

- ALT
- AST
- ALP
- TP
- ALB
- PA
- TBA
- γ-GT
- m-AST
- CIV*
- LAP*
- TB
- DB
- CHE
- AFU
- GPDA
- ADA
- 5'-NT
- CG
- MAO*
- AMM*
- GR*



Renal Function

- CRE
- UREA
- UA
- UMA
- Cys-C
- RBP
- NAG
- NGAL
- β2-MG
- α1-MG
- uIgG
- uTRF
- CSF*
- LCλ*
- LCκ*



Blood Lipid

- TC
- TG
- HDL-C
- LDL-C
- ApoA1
- ApoB
- Lp (α)
- ApoE
- sd-LDL-C
- Lp-PLA2
- MPO*
- PLIP*



Electrolyte

- Ca
- Mg
- IP
- CO
- K
- Na
- Cl
- Fe*
- Zn*



Specific Protein

- IgA
- IgM
- IgG
- C3
- C4
- CRP
- hs-CRP
- WCRP
- RF
- ASO
- anti-CCP
- SAA
- PCT*
- MMP-3*
- C1q*
- SOD*



Myocardium

- LDH
- CK
- CK-MB
- α-HBDH
- HCY
- IMA
- ACE
- MYO
- H-FABP
- CTnl*
- LDH1*



Glycometabolism

- GLU
- HbA1c
- D3H
- NEFA
- GA
- INS*
- GSP*
- LAC*



Tumor Marker

- SA
- PGI
- PGII
- Fer*
- SGF*



Pancreas

- α-AMY
- LPS
- PAMY



Others

- D-Dimer
- TRF
- 25(OH)D
- FDP*
- Fbg*



Automatic Modular Clinical Chemistry Analyzer **Polaris C1000 , C2000**

PRODUCT CATALOG

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Laboratory Equipment

Sign with Confidence

KHB
KEHUA BIOTECH



Laboratory Equipment



KHB
KEHUA BIOTECH

وستا تجهيز پارت

نشانی: تهران، جردن، ناهید غربی، پلاک ۵۷، ساختمان وستا

تلفکس: ۷۲۸۰۱-۰۲۱ کد پستی: ۱۹۶۶۹۱۶۱۳۱

ایمیل : info@vestalab.ir

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Automatic Modular Clinical Chemistry Analyzer **Polaris C1000 , C2000**

PRODUCT CATALOG

MADE IN **CHINA**

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