

BS-600

Chemistry Analyzer

Technical Specifications

System function

Fully automated, discrete, random access,
STAT, urine and homogeneous immunoassays; STAT sample priority
Throughput: 600 photometric tests/hour, up to 770 tests/hour for ISE
Measuring principles: Absorbance Photometry, Turbidimetry
Methodology: End-point, Fixed-time, Kinetic, optional ISE
Single/Dual/Triple/Quadruple reagent chemistries,
Monochromatic/Bichromatic
Programming: User defined profiles and calculation

Sample Handling

Sample tray: 90 positions for primary or secondary tubes and sample cups
Sample volume: 1.5~45 µl, step by 0.1µl
Sample probe: Liquid level detection, clot detection and collision protection
Probe cleaning: Interior and exterior automatic probe washing carry-over < 0.05%
Automatic sample dilution, Pre-dilution and post-dilution

Internal bar code reader (optional)

Sample/Reagent barcode reading – applicable to various bar code systems including Codabar, ITF (Interleaved Two of Five), code128, code39,
UPC/EAN, Code93; Bi-directional LIS Interface transmission

ISE Module (optional)

Optional selection of K+, Na+, Cl Throughput: Up to 255 tests per hour

Reagent Handling

Reagent tray: 80 positions in refrigerated compartment (2~10°C)
Reagent volume: 10~200µl, step by 0.5µL
Reagent probe: Liquid level detection, collision protection and inventory check, reagent bubble detection
Probe cleaning: Interior and exterior automatic probe washing

Reaction System

Reaction rotor: Rotating tray, 124 cuvettes with automatic washing
Cuvette: Optical length 5mm
Reaction volume: 100~300µl
Operating temperature: 37°C
Mixing system: 2 independent mixers

Optical System

Light Source: Halogen-tungsten lamp
Photometer: Reversed optics, grating photometry
Wavelength: 340nm, 380nm, 412nm, 450nm, 505nm, 546nm, 570nm, 605nm, 660nm, 700nm, 740nm, 800nm
Absorbance range: 0~3.3Abs (10mm conversion)
Resolution: 0.0001Abs

Control and Calibration

Calibration mode: Linear (one-point, two-point and multi-point), Logit
-Log 4P, Logit-Log 5P, Spline, exponential, Polynomial, Parabola
Control rules: Westgard multi-rule, Levy-Jennings, Cumulative sum check, Twin plot

Operation Unit

Operation system: Window XP Professional or Windows 7 Professional or Windows 8,
Interface: RS-232, Network Port, USB/ parallel port

Working Condition

Power Supply: 220V, 50/60Hz; ≤1700VA
Temperature: 15~30°C
Humidity: 35~85%
Water consumption: ≤28L/H, De-ionized water
Dimension: 1190mm(W)*1155mm(H)*720mm(D)
Weight: 300 Kg



BS-600

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Mindray is listed on the NYSE under the symbol "MR"

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BS-600

Chemistry Analyzer

Accurate

- Complete metrological traceability
- Highly precision sampling
- Reagent bubble detection

Economical

- Light-spot flattening optical system- lower the reaction volume to 100 μ L
- Minimum sample volume: 1.5 μ L

Intelligent

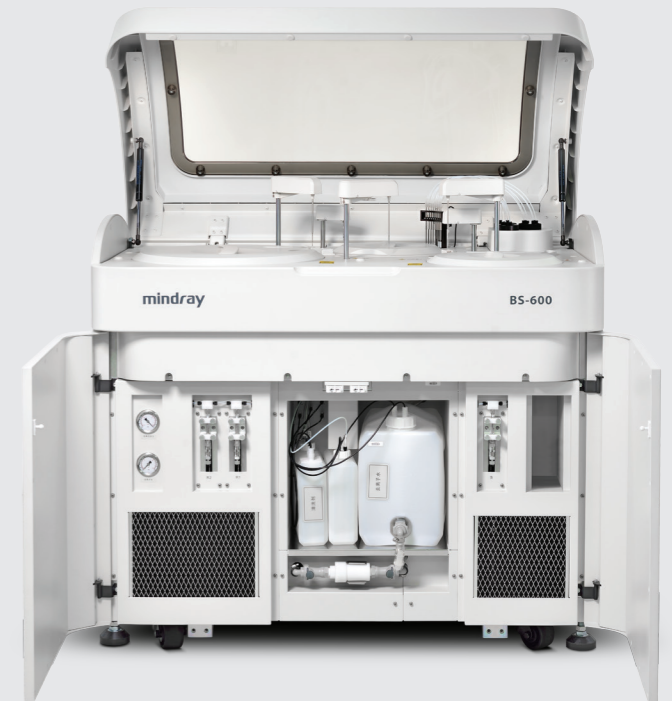
- Whole blood HbA1C testing*
- Advanced software
- Easy maintenance

Easy maintenance

- All containers & maintenance kits are located in the front of the analyzer
- Easily accessible for part replacement, routine maintenance or troubleshooting

Reagent bubble detection

- Able to detect bubbles in reagent bottles, as well as detect real liquid level before reagent aspiration



Whole blood HbA1C testing*

- No need pretreatment of the sample
- Proven precision and specificity
- No interference from hemoglobin variants
- Traceable to IFCC/NGSP reference methods

Cost-effective

- Sampling precision up to 1.5 μ L
- Perfect match between instrumentation and dedicated reagents
- 100 μ L minimum reaction volume ensures more effective cost per test

Lower carry over

- High pressure washing for interior and water fall washing for exterior
- Carry over < 0.05%

* in development

BS-600

Chemistry Analyzer

Advanced software

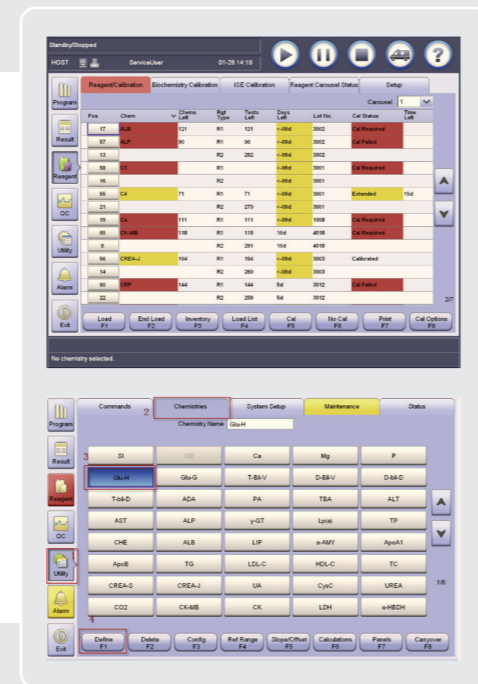
User-friendly interface

- Touch screen
- Share the same platform with BS-2000 series and BS-800 series
- Real-time status monitoring between analytical unit and carousels



Convenient R/S continuous loading and offloading

- Remaining time counter makes it easy for operator to follow the instructions

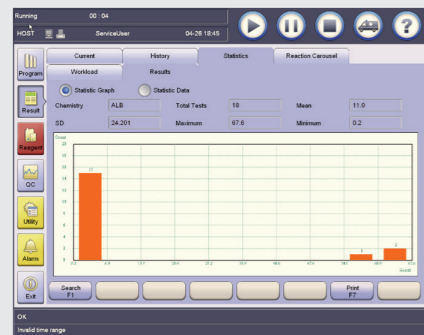


Intelligent reagent management

- Real-time indicating the test number, inventory and expiry date
- Improve work efficiency

Reflex function

- Pre-defined reflexive assays will be performed automatically when preset criteria is met
- Each assay may involve multiple reflexive criteria
- Each criteria may initiate up to a maximum of 20 relevant assays

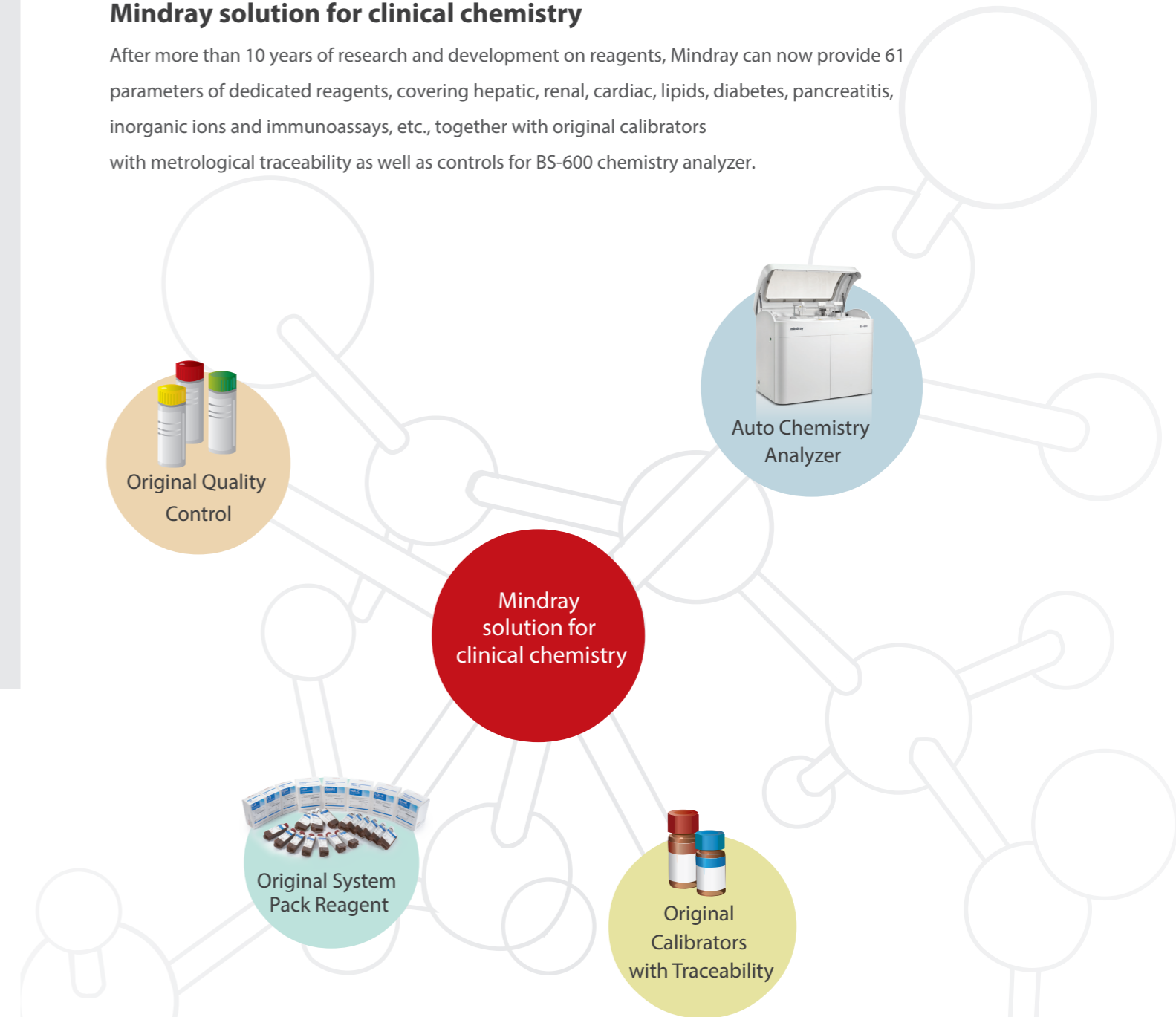


Test Summary

- Test summary report calibration, QC, sample, validation test and rerun tests can be generated
- Facilitate computation of total test costs
- Error Log Export function -facilitate error report to engineers
- Results Archive can be transferred to engineers for evaluation

Mindray solution for clinical chemistry

After more than 10 years of research and development on reagents, Mindray can now provide 61 parameters of dedicated reagents, covering hepatic, renal, cardiac, lipids, diabetes, pancreatitis, inorganic ions and immunoassays, etc., together with original calibrators with metrological traceability as well as controls for BS-600 chemistry analyzer.



Standard reference system

- Adopt JCTLM reference system
- IFCC primary method for enzyme, ID/MS method for substrate
- NIST, IRMM reference materials

JCTLM, Joint Committee On Traceability In Laboratory Medicine

NIST, National Institute of Standards and Technology, USA

IRMM, Institute for Reference Materials and Measurements, EU

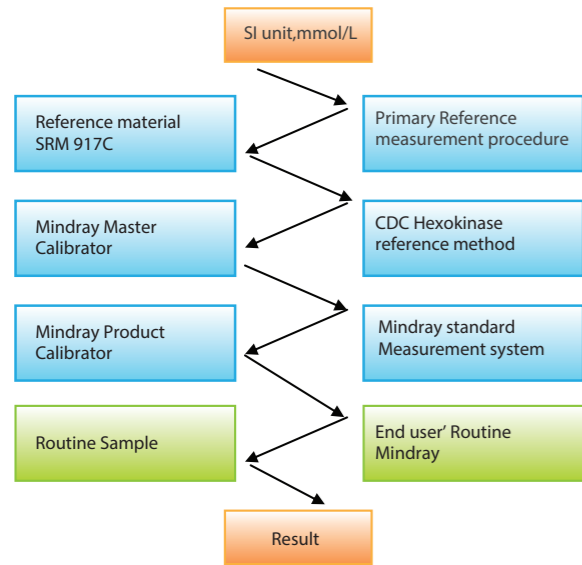
IFCC, International Federation of Clinical Chemistry and Laboratory Medicine

Complete traceability process

Complete calibration hierarchy and traceability chain based on ISO standard (EN/ISO17511) from reference system to routine measurement system

Traceability chain of Mindray measurement system (Glu)

Traceability Material Calibration / Value Assignment Procedure Implementation Uncertainty Uc(y)

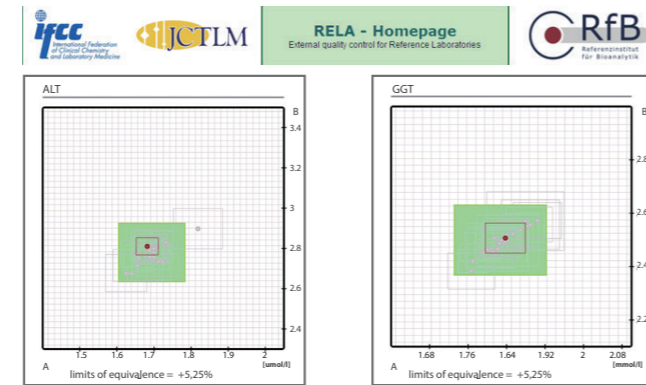


External quality assurance for reference measurement

Mindray participates RELA (External quality control for reference laboratory) and CAP (College of American Pathologists external quality control)

EQA for Mindray Reference laboratory—— Rela

Mindray reference laboratory has passed Rela for 6 continuous years



More Rela results please refer to: www.dgkl-rfb.de/81



EQA for Mindray Testing System—— CAP

Mindray testing system has passed CAP for 6 continuous years

College of American Pathologists 325 Waukegan Road, Northfield, Illinois 60093-2750 800-323-4040 • http://www.cap.org Advancing Excellence		CAP Number: 7198395-01 Kit# 1		Kit ID: 25733824							
EVALUATION ORIGINAL		Institution: Shenzhen Mindray Biomed Elec Co Ltd		Kit Mailed: 6/3/2013							
		Attention: Lixing Liu MD		Original Evaluation: 7/8/2013							
		City / State: Hongkong HK CH 518055									
		C-B 2013 Chemistry									
		CAP #: 7198395		Subspecialty 2: Routine Chemistry							
Regulated Analyte	Proficiency Event 2012 3			Proficiency Event 2013 1			Proficiency Event 2013 2			Current Event Performance Interpretation	Cumulative CLIA '88 Performance Interpretation
	Test Event	Score	%	Test Event	Score	%	Test Event	Score	%		
ALT	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Albumin	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Alkaline Phosphatase	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Amylase	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
AST	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Bilirubin, Total	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Calcium, Total	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Chloride	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Cholesterol, Total	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Cholesterol, HDL	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Creatine Kinase	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Creatinine	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Glucose	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Iron, Total	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
LD	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Magnesium	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Potassium	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Sodium	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Protein, Total	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Triglycerides	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Urea Nitrogen	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful
Uric Acid	C-C	5/5	100	C-A	5/5	100	C-B	5/5	100	Satisfactory	Successful

Reagent menu

Hepatic Panel

Alanine Aminotransferase (ALT)
Aspartate Aminotransferase (AST)
Alkaline Phosphatase (ALP)
γ-GlutamylTransferase (γ-GT)
Direct Bilirubin (D-Bil) DSA Method
Direct Bilirubin (D-Bil)VOX Method
Total Bilirubin (T-Bil) DSA Method
Total Bilirubin (T-Bil)VOX Method
Total Protein (TP)
Albumin (ALB)
Total Bile Acids (TBA)
Prealbumin (PA)
Cholinesterase (CHE)
α-L-fucosidase (AFU)
5'-nucleotidase (5'-NT)

Renal Panel

Urea (UREA)
Creatinine (CREA) Modified Jaffé Method
Creatinine (CREA)Sarcosine Oxidase Method
Uric Acid (UA)
Carbon dioxide (CO2)
Microalbumin
β2-Microglobulin (β2-MG)
Cystatin C (CysC)
Retinol binding protein(RBP)

Immune Panel

Immunoglobulin A (IgA)
Immunoglobulin G (IgG)
Immunoglobulin M (IgM)
Immunoglobulin E (IgE)
Complement C3 (C3)
Complement C4 (C4)

Diabetes Panel

Glucose (Glu) GOD-POD Method
Glucose (Glu) HK Method
Hemoglobin A1c (HbA1c)
Fructosamine (FUN)
β-Hydroxybutyrate(β-HB)

Cardiac panel

Creatine Kinase (CK)
Creatine Kinase-MB (CK-MB)
Lactate Dehydrogenase (LDH)
α-Hydroxybutyrate Dehydrogenase(α-HBDH)
High sensitive C-reaction protein(HS-CRP)
Homocysteine (HCY)
Myoglobin(MYO)
D-Dimer(D-Dimer)

Inorganic & Anemia

Iron (Fe)
Ferritin (FER)
Transferrin (TRF)
Calcium (Ca)
Magnesium (Mg)
Phosphate Inorganic (P)
Unsaturated iron binding capacity (UIBC)
Glucose-6-phosphate dehydrogenase (G6PD)

Lipid Panel

Total Cholesterol (TC)
Triglycerides (TG)
HDL-Cholesterol (HDL-C)
LDL-Cholesterol (LDL-C)
Apolipoprotein A1 (ApoA1)
Apolipoprotein B (ApoB)
Lipoprotein(a) [Lp(a)]

Rheumatism Panel

C-reactive protein (CRP)
Rheumatoid Factor (RF)
Antibodies Against Streptolysin O (ASO)

Lung Panel

Adenosine Deaminase (ADA)
Angiotensin Converting Enzyme(ACE)

Pancreatitis Panel

α-Amylase (α-AMY)
Lipase (LIP)