

BS-240

Clinical Chemistry Analyzer

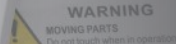
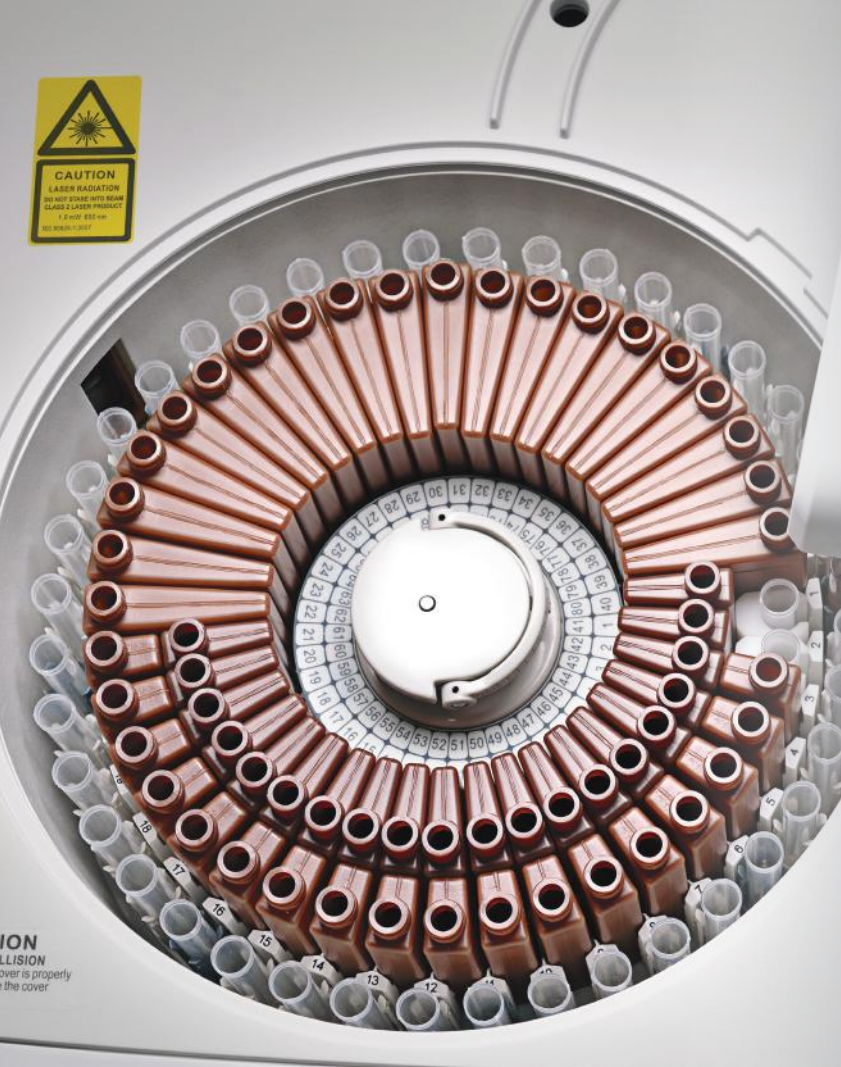


CAUTION
LASER RADIATION
DO NOT STARE INTO BEAM
CLASS 2 LASER PRODUCT
1.0 mW 650 nm
IEC 60825-1:2007

WARNING
MOVING PARTS
Do not touch when in operation.

WARNING
MOVING PARTS
Do not touch when in operation.

W
roperly
er



Flexible loading:
 Up to **80** sample positions,
 Up to **80** reagent positions.
 (40 fixed + 40 interchangeable)

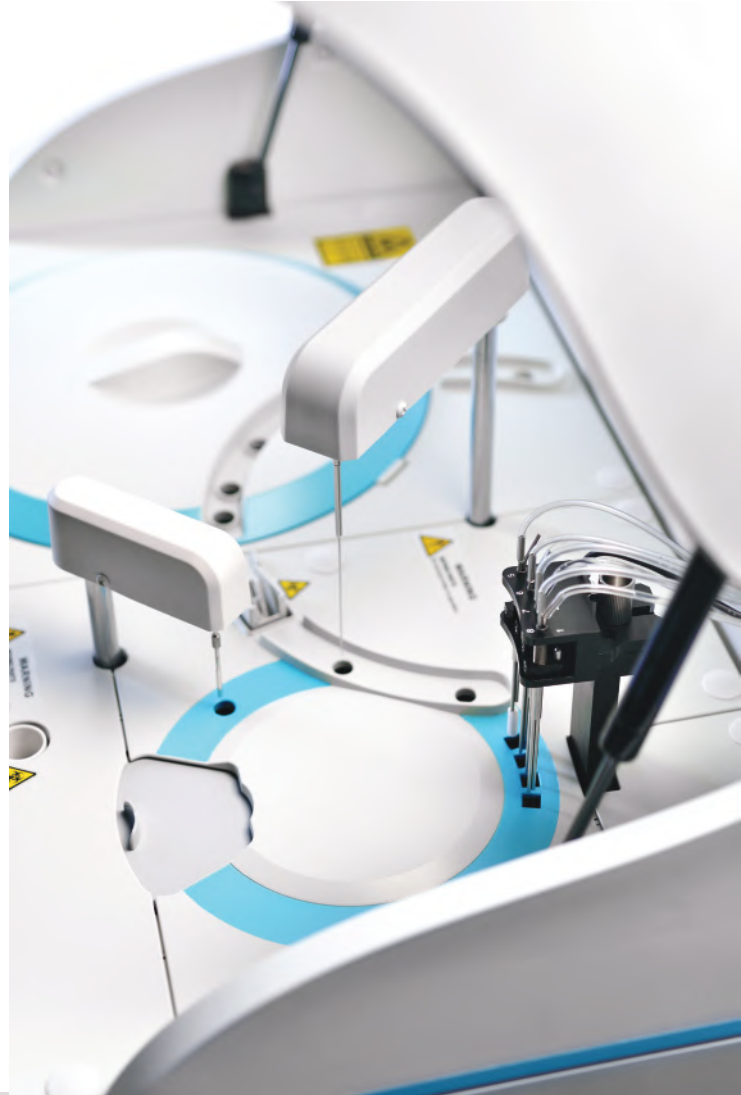
ION
 COLLISION
 cover is properly
 the cover

Smart-Sampling Technology

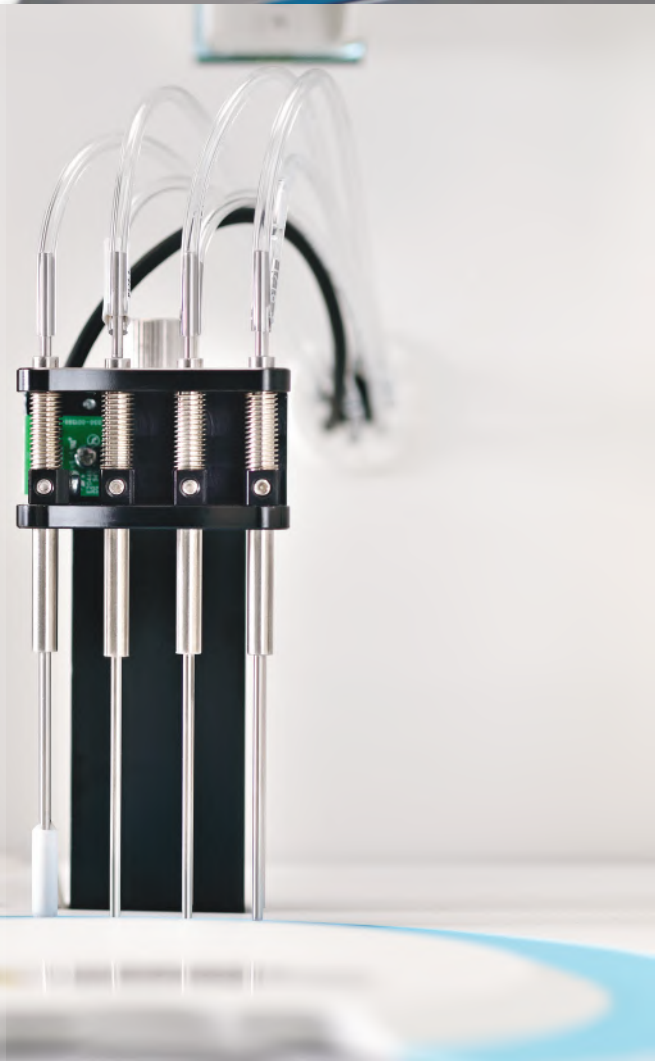
Automatic hemolysate
 preparation for
HbA1c test



100 μ l
minimum reaction volume



Upgraded auto-washing system
ensures low carryover and low water
consumption.



BS-240

Clinical Chemistry Analyzer

Compact Size with Robust Functions



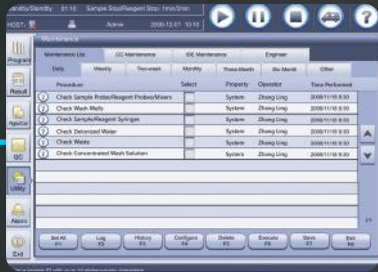
Independent mixing bar



Built-in barcode reader



Intelligent software with user-friendly interface



Step-by-step maintenance guide



Waterfall probe cleaning

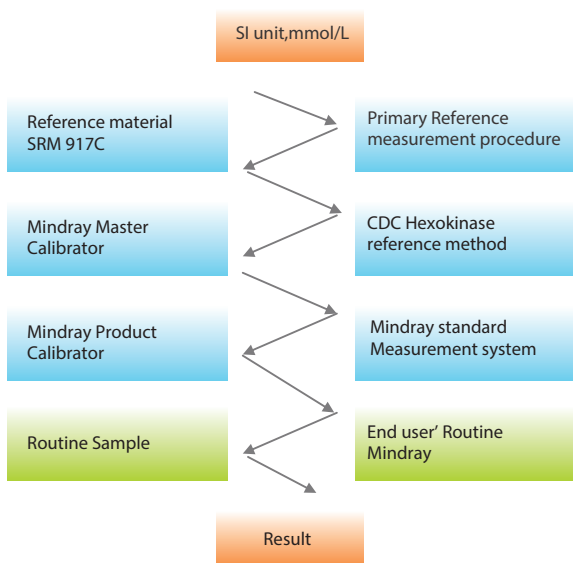
BS-240

Complete traceability process

Complete calibration hierarchy and traceability chain are 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 $U_c(y)$

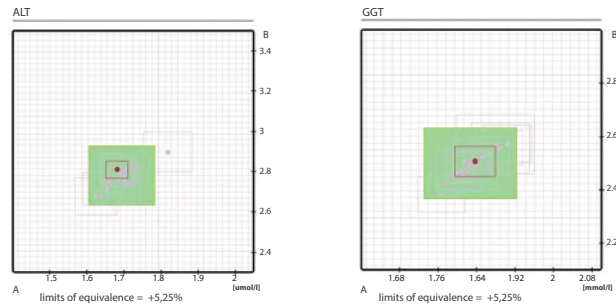


External quality assurance for reference measurement

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

EQA for Mindray Reference laboratory—REL A

Mindray reference laboratory has passed RELA for 6 consecutive years.



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



All the items Mindray participate RELA

- ALT
- AMY
- ALP
- CK
- GGT
- GLU
- LDH
- TB
- TP
- UA
- UREA

EQA for Mindray Testing System—CAP

Mindray testing system has passed CAP for 6 consecutive years.



CAP Number: 7198395-01 Kit# 1
 Institution: Shenzhen Mindray Biomed Elec Co Ltd
 Attention: LiXing Liu MD
 City / State: Hongkong HK CH 518055

Kit ID: 25733824
 Kit Mailed: 6/3/2013
 Original Evaluation: 7/8/2013

EVALUATION ORIGINAL

C-B 2013 Chemistry

CAP

| 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 | % | | |
| | CAP #: 7198395 Subspecialty: Routine Chemistry | | | | | | | | | | |
| 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
 β 2-Microglobulin (β 2-MG)
Cystatin C (CysC)
Retinol binding protein(RBP)

Immune Panel

Immunoglobulin A (IgA)
Immunoglobulin G (IgG)
Immunoglobulin M (IgM)
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)

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)

Technical Specifications

System function

Automatic, Discrete, Random Access, Bench-top

STAT sample priority

Throughput: Up to 200 tests/hour, up to 400 tests/hour with ISE

Measuring principles: Absorbance photometry, Turbidimetry, Ion

Selective Electrode technology

Methodology: End-point, Fixed-time, Kinetic, optional ISE,
Single/Dual/ reagent chemistries,
monochromatic / bi-chromatic

Original system pack reagent ready to use

Close system and open system is optional

Reagent/Sample Handling

Reagent/Sample tray: 80 positions for reagents and 40 positions
for samples in 24-hour refrigerated
compartment (2~12 °C)

Reagent volume: 10~250µl, step by 0.5µl

Sample volume: 2~45µl, step by 0.1µl

Reagent/Sample probe: Liquid level detection, vertical collision
protection and inventory checking, reagent pre-warming

Probe cleaning: Automatic washing for interior and exterior
Carry over < 0.05%

Automatic sample dilution: Pre-dilution and post-dilution

Internal bar code reader (optional)

Used for sample and reagent programming

Be applicable to various bar code systems of Codabar、ITF
(Interleaved Two of Five)、code128、code39、UPC/EAN、
Code93

Capable to communicate with LIS in bi-directional mode

Reaction System:

Reaction rotor: Rotating tray, containing 40 cuvettes

Cuvette: Reusable, optical length 5mm

Reaction volume: 100~360µl

Operating temperature: 37 °C

Temperature fluctuation: ± 0.1 °C

ISE Module (optional)

Measuring K+, Na+, Cl-

Mixing Unit

Independent mixing bar

Cuvette Washing: Washing station with pre-warmed detergent
and water

Optical System

Light Source: Halogen-tungsten lamp

Wavelength: 8 wavelengths, 340nm、405nm、450nm、
510nm、546nm、578nm、630nm、670nm

Absorption range: 0~4.0 Abs (10mm conversion), resolution
0.0001Abs

Stray Light 5.6Abs

Control and Calibration

Calibration modes: Linear (one point, two points and
multi-points), Logit-Log 4P, Logit-Log 5P,
spline, exponential, polynomial, parabola

Control Rules: X-R, L-J, Westgard multi-rule, Cumulative sum
check, twin plot

Operation Unit

Operation system: Windows 8

Interface: RS-232

Working Conditions

Power Supply: 200~240V, 50/60Hz, ≤1000VA or 100~130V,
60Hz, ≤1000VA

Dimension: 690 mm (length) ×580 mm (depth) ×595 mm
(height)

Weight: 79 kg

Water Consumption: ≤ 4 L/H