

# BS-480

Chemistry Analyzer

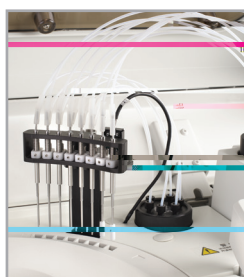


# BS-480 Chemistry Analyzer

## Robust and durable

### Enhanced Liquid System

- Precise sample and reagent aspiration
- Built in air bubble elimination prior to washing
- High pressure interior probe wash
- Carry-over <0.05%



### Economical Usage

- Light-Spot Flattening Technology facilitates lower reaction volume
- 24 hour non-stop refrigeration at 2-10°C
- Minimum sample volume: 1.5 µl
- Reagent volume: 10 ~ 350 µl
- States Cuvette Volume: 120~360µl



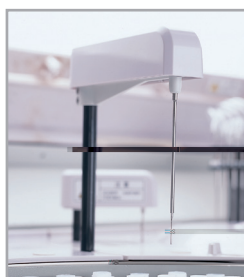
### Easy access for maintenance

- Front loaded reagent compartment for easier access
- Easy access for routine maintenance and troubleshooting
- Built in Step-by-Step maintenance guide



### Intelligent Probe System function and maintenance

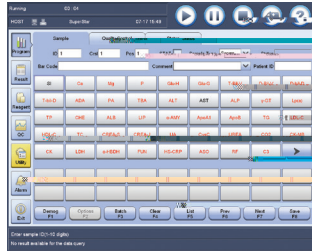
- Supports methods with up to 4 reagents
- Vertical and horizontal collision protection
- Automatic System Recovery
- Liquid level detection, clot detection



Tailor made



## Advanced software



### User-friendly Interface

- Real-time analytical and carousel status monitoring
- Bi-directional LIS interface transmission



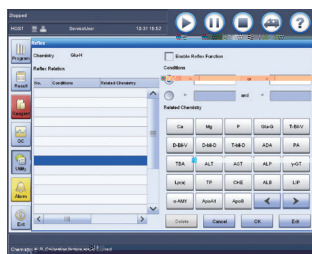
### Real-time QC Status Monitoring

- Levy-Jennings chart and Twin-Plot chart
- QC Out-of-Range real-time alarm
- Customizable periodic QC reminder



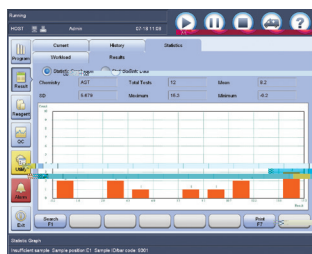
### Traceable Test Results

- Historic data recall from reagent/ calibrator/ control archive
- Intuitive software, intuitive software design, easy historical results



### Reflexive Function

- User-defined customizable reflexive assays
- Multiple reflexive criteria may apply to a single assay
- A single reflexive criteria may apply up to 20 assays



### Test Summary

- Test summary reports & sample rerun available on all assays and Quality Assurance
- Facilitate computation of total test costs
- Error Log Export function -facilitate error report to engineers
- Results Archive can be transferred to engineers for evaluation



## International Standardization

- International Standardization certificates of Cholesterol and HbA1c from CRMLN and NGSP.

More information refers to website (<http://www.cdc.gov>).

CRMLN (Cholesterol Reference Method of Laboratory Network)

NGSP(National glycosylated hemoglobin standardization program)

CHOLESTEROL REFERENCE METHOD LABORATORY NETWORK  
Certificate of Traceability

Shenzhen Mindray Bio-medical Electronics Co., Ltd.  
Shenzhen, China

has demonstrated capability to the National Cholesterol Education Program's recommended...  
The comparison was performed with:  
Beijing Institute of Geriatrics Beijing Hospital  
Beijing, China

The system evaluated was:  
Instrument: Shenzhen Mindray Bio-medical Electronics Co., Ltd. BS-800 Chemistry Analyzer  
Calibrator: Shenzhen Mindray Bio-medical Electronics Co., Ltd. Lipid Calibration Kit LK-01  
Lot No.: 20110101  
Set Point(s): 2.05 mmol/L  
Formed Source: Formed Source

Cholesterol request: Shenzhen Mindray Bio-medical Electronics Co., Ltd. HD-Cholesterol EB Lot #: 02110101  
System Method: HD-Cholesterol EB  
Pre-analytical Review: HD-Cholesterol EB

Date of evaluation: June 14, 2011 Date of expiration: June 14, 2013  
CRMLN Laboratory Director

CHOLESTEROL REFERENCE METHOD LABORATORY NETWORK  
Certificate of Traceability

Shenzhen Mindray Bio-medical Electronics Co., Ltd.  
Shenzhen, China

has demonstrated capability to the National Reference System for Cholesterol by performing a line...  
The comparison was performed with:  
Beijing Institute of Geriatrics Beijing Hospital  
China, Beijing

The system evaluated was:  
Instrument: Shenzhen Mindray Bio-medical Electronics Co., Ltd. BS-800 Chemistry Analyzer  
Calibrator: Shenzhen Mindray Bio-medical Electronics Co., Ltd. Lipid Calibration Kit LK-01  
Lot No.: 20110101  
Set Point(s): 4.10 mmol/L  
Matrix: Formed Source

Cholesterol request: Shenzhen Mindray Bio-medical Electronics Co., Ltd. Total Cholesterol BY Lot #: 02110101

Date of evaluation: June 15, 2011 Date of expiration: June 15, 2013  
CRMLN Laboratory Director

University of Washington  
Northwest Lipid Metabolism and Diabetes Research Laboratories  
Seattle, Washington

Based on the results of the comparison performed with this laboratory using forty fresh frozen specimens covering a clinical meaningful range, it can be stated that the Mindray BS-800 Analyzer is:

Shenzhen Mindray Bio-Medical Electronics Co., Ltd.  
Nanhai Road, Shenzhen, Guangdong Province, P. R. China

was traceable to the WHO-International Reference Material for Apo A-I, 971-01.  
This laboratory has demonstrated an average absolute bias of 2.11 versus the comparison method and a coefficient of variation of 0.67%. The analyses were performed on a BS-800 Mindray.

Director: [Signature]  
Date of evaluation: June 2010

University of Washington  
Northwest Lipid Metabolism and Diabetes Research Laboratories  
Seattle, Washington

Based on the results of the comparison performed with this laboratory using forty fresh frozen specimens covering a clinical meaningful range, it can be stated that the Mindray BS-800 Analyzer is:

Shenzhen Mindray Bio-Medical Electronics Co., Ltd.  
Nanhai Road, Shenzhen, Guangdong Province, P. R. China

was traceable to the WHO-International Reference Material for Apo B, 971-01.  
This laboratory has demonstrated an average absolute bias of 0.4 versus the comparison method and a coefficient of variation of 0.67%. The analyses were performed on a BS-800 Mindray.

Director: [Signature]  
Date of evaluation: June 2010

NGSP  
National Glycohemoglobin Standardization Program  
Certificate of Traceability  
Manufacturer Certification

This certifies that Mindray, using Enzymatic on BS-800, has participated in and successfully completed the NGSP proficiency testing program and is traceable to the National Reference System for Hemoglobin A1c. The comparison was performed with Reference Material International for Clinical Chemistry Standards (RBCCS) ASRU #1.

The system evaluated was:  
Instrument: Mindray BS-800  
Reagent Lot: 44612004  
Calibrator: 44612004  
CV: 5.0%, 11.9%

Date of Certification: May 3, 2012 Certification Expires: May 1, 2015

NGSP Steering Committee Chair: [Signature] NGSP Network Coordinator: [Signature] SRI director/supervisor: [Signature]

## Matched calibration and control

- Dedicated calibrators with traceability and specific target value
- Convenient design of multi items of calibrators and controls combined into one vial
- Long shelf life of lyophilized powder

## Dedicated, high-quality reagent

- Diagnostic function test panels

Test panels such as : Hepatic panel, renal panel, pancreatic panel, lipid panel, cardiac panel, diabetic panel, rheumatic factor panel

- Reliable analysis performance

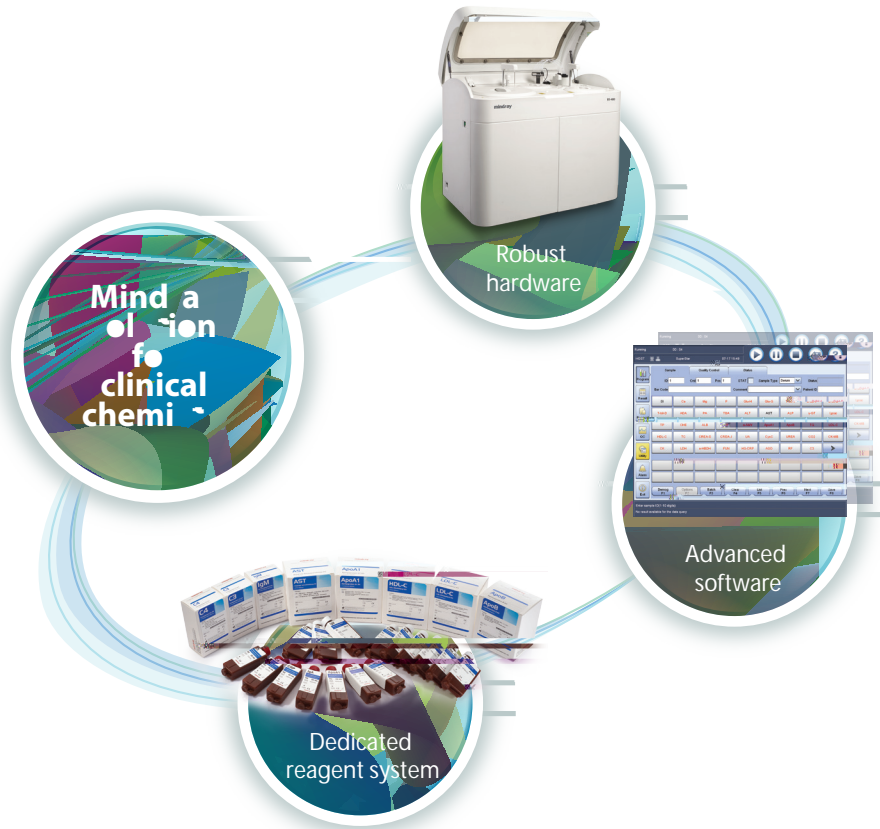
EP series standard (CLSI)-evaluate and optimize reagent system for reliable performance in precision, linearity, stability, specificity and anti-interference capability

- ISO standard manufacturing

Mindray follows straightly the ISO certified manufacturing process to ensure every lot of reagent in production is of supreme quality



## Mindray solution for clinical chemistry



Mindray can now provide 60 parameters of dedicated reagents (more than 8 others are coming), 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-480 chemistry analyzer.



## Technical Specification

### System function

Fully automated, discrete, random access,  
STAT, urine and homogeneous immunoassays: STAT sample priority  
Throughput: 400 photometric tests/hour, up to 240 tests/hour for ISE  
Measuring principles: Absorbance Photometry, Turbidimetry  
Methodology: End-point, Fixed-time, Kinetic, ISE (Optional)  
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 0.1 µl  
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  
Dilution with ratio up to 1: 150  
Dilution vessel: Quartz cuvette

### Internal bar code reader

Sample/Reagent barcode reading  
including Codabar, ITF (Interleaved Two of Five), code128, code39,  
UPC/EAN, Code93; Bi-directional LIS Interface transmission

### ISE Module (optional)

Optional selection of K<sup>+</sup>, Na<sup>+</sup>, Cl<sup>-</sup>  
Throughput: Up to 240 tests per hour

### Reagent Handling

Reagent tray: 80 positions in refrigerated compartment (2–10°C)  
Reagent volume: 10–350 µl  
Reagent probe: Liquid level detection, collision protection and  
inventory check  
Probe cleaning: Interior and exterior automatic probe washing

### Reaction System

Reaction rotor: Rotating tray, 90 cuvettes with automatic washing  
Cuvette: Optical length 5mm  
Reaction volume: 120–360 µl  
Operating temperature: 37°C  
Temperature fluctuation: ±0.1°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: Windows 8  
Interface: RS-232, Network Port, USB/ parallel port

### Working Conditions

Power Supply: 200–240V, 50/60Hz, 1500VA  
or 110–130V, 60Hz, 1500VA  
Temperature: 15–30°C  
Humidity: 35–85%  
Water consumption: 20L/hour, De-ionized water  
Dimension: 1180mm x 710mm x 1150mm (W x D x H)  
Weight: 300 Kg

**mindray**