

HORIBA



Connecting Labs
everywhere and beyond



Yumizen
H500 & H550



Delivering Safe Hematology Care

Affordable Hematology Solutions for Small-Mid Laboratories

Yumizen Closed Tube
H500



Yumizen Open Tube
H500



Compact Hematology Solution

- Open Tube & Closed Tube versions
- CBC/DIFF Analysis
- 2 reagents use
- 37 parameters menu

Yumizen Auto Loader
H550



Full Walk Away Solution

- Auto loader version
- Integrated auto sampler
- Positive identification
- 40 tubes in continuous loading
- Urgent mode

Dimensions for Hematology

New Dimensions for Hematology Diagnosis

Enhanced Performance, New Features, Increased Benefits

#1 Workflow Management



Optimize your daily routine

#2 Clinical Performances



Ensure effective diagnosis

#3 Infectious Screening



Cost effective flagging:
Malaria & Dengue

#4 Remote Connection



Connect the lab with Yumicare

Extensive Applications

Variety of clinical lab environments and clinical settings



Critical care

- Capillary Blood Compatibility
- Fast Testing
- Prediluted Mode



Backup System

- Satellite Labs
- Night Shift Analysis
- Back up to HELO Solution



Oncology Care

- WBC Diff Separation
- WBC Immature Cells: IMG, IML, IMM
- Blasts Flagging



Health Centers

- Simplicity of use
- HL7
- Infectious Screening Flags



Infectious Care

- Malaria & Dengue Screening Flags
- Scoring Flags
- Neutrophils-To-Lymphocyte Ratio



Blood Banks

- QC testing: RBC & PLT concentrates
- Residual Cells Detection of WBC concentrates in cellular therapy

#1 Workflow Management



Optimize your daily routine

Expand your analysis possibilities

Different analysis modes

- **Standard Patient mode**
- **Prediluted mode** with customized dilution ratio for micro sample volumes
- **QC mode** for dedicated Difftrol ® QC kits

Safe blood testing against pathogens exposure with:

- **Closed tube with the H500**
- **Sample rack auto loading with the H550**

Capillary blood compatibility

Yumizen H500 and H550 have been **validated on capillary blood samples** with correlation to venous blood.



Fully walkaway system with new usability

High automation level

- **Continuous loading** (40 tubes)
- Automatic and scheduled **start up and shutdown**
- Secured **reagent management** with unique identification code
- **Positive tube identification** in rack mode
- Automated **user maintenance**

Improved usability

- **New graphical interface** with color-coded menus
- **Only 2 reagents** for hematology analysis and 1 reagent for cleaning maintenance



Data Management

Data Management options

- **Yumizen P8000 Connection**
- **Data printout** with optional printer
- Paperless patient reports results in **PDF formats**
- **10,000 patient data storage** with easy USB export
- Bidirectional host communication: **ASTM** and **HL7** standards
- **Save & Restore** database and settings

Quality Control Management

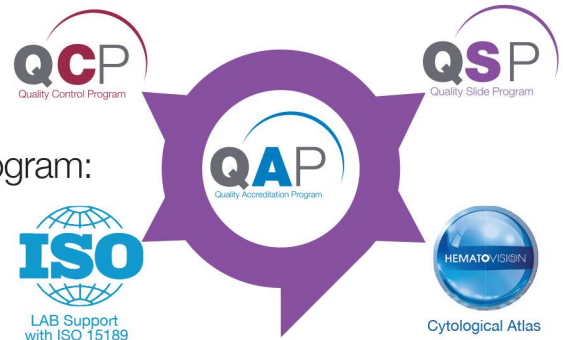
Embedded quality control indicators

- **iQC indicators:** Levey-Jennings flags, Radar Graphs view, XB means
- **Overlapping QC** when switching QC batches
- **eQC testing** in different modes
- **Repeatability testing mode**

Full quality tools package

HORIBA Medical provides a full Quality Assurance Program:

- **QCP:** inter-laboratory comparison program
- **QSP:** cytology skills staff monitoring
- **Accreditation** Help Support
- **Cytological Atlas**



Report Results Faster

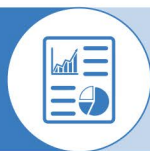
Increase throughput

60 tests per hour: 3 models able to process whole blood samples on 20µL.

Urgent mode

Yumizen H550 able to manage urgent samples in **real STAT mode** to run closed, open tubes or micro-tubes during routine workflow.





WBC: Full Leukocytes Menu for Oncology Care Monitoring

Large Immature Cells (LIC) differentiation:

- **IML:** Immature cells of lymphoid lineage with large and granulocytic lymphocytes.
- **IMM:** Immature cells of monocytic lineage which could include promonocytes or monoblasts.
- **IMG:** Immature cells of granulocytic lineage with precursors cells of myelocytes, promyelocytes and metamyelocytes.

Exclusive Lymphocytes differentiation:

- **ALY:** Atypical Lymphocytes as sub population of Lymphocytes for detecting activated lymphocytes, granulocytic lymphocytes, Sezary cells, tricholeucocytes,...

RBC: Full Digital Technology Measurement for Accurate Results

Patented RBC Filtering Technology

New digital filtering technology: RBCs pulses optimization by rejecting the rotated cells and other flow induced particles.

- **Accurate measurement of RBCs volume and distribution widths.**
- **Very good correlation** of MCV and RDW parameters between **hydro-focused system** and **classical impedance** with digital filters.

Diagnostics Tools for Anemias and Thalassemia Pathologies

Complete parameters menu for flagging RBCs disorders:

HGB (cyanide free lysis), MCV, MCHC, MIC (Microcytes), MAC (Macrocytes), RDW-CV, RDW-SD

PLT: Reliable Counting and Markers for Platelets Disorders

Low Limit Of Quantification: below $10 \cdot 10^9/L$ fitting to support clinicians taking **blood transfusion** decision.

Specific Indices for Platelets Activation at no extra cost

P-LCC and **P-LCR** (Platelet Large Cells Count & Ratio), into **large platelets size flagging:**

immature platelets in cases of thrombocytopenia, reactive thrombocytosis or Giant platelets either from inherited disorders or in myeloproliferative syndrome.

#3 Infectious Screening



Cost effective flagging
Malaria & Dengue

Infectious Screening Flags Combined with Full Blood Count

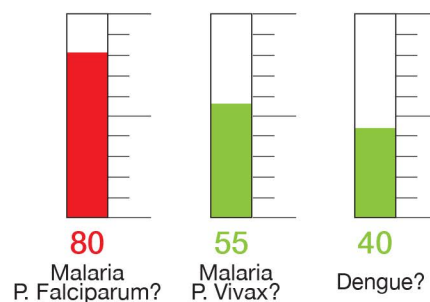


The Automated Suspicion Flags are optionally available in routine use with Diff hematology test and without any specific reagent or dedicated mode for:

- Malaria *Plasmodium falciparum*
- Malaria *Plasmodium vivax*
- Dengue fever

Flag's methodology and efficiency

- Innovative machine-learning techniques
- 3 different labs assessment: India and Africa
- Clinical accuracy: 70 to 85%
- S-Flags: triggering levels & displaying relevancy
- NLR: marker of inflammation & infectious monitoring



Infectious Screening Flags are optionally available on Yumizen H500 and H550 upon request towards your HORIBA Medical representative

#4 Remote Connection



Connect the lab with Yumicare

Increasing Analyzer Availability

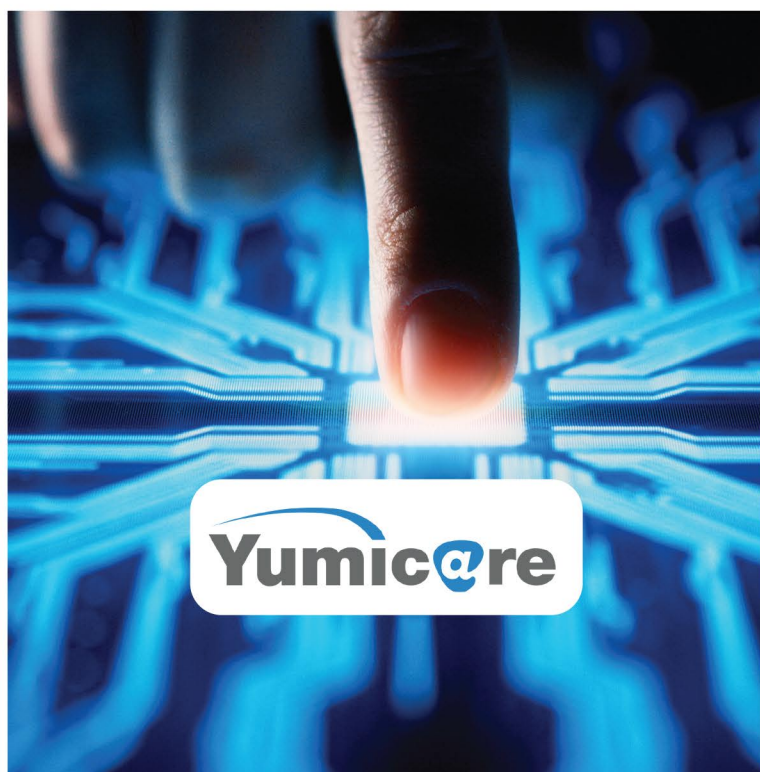
- Remote Software Update
- Predictive Maintenance

Easing Quality Control

- Remote QC target values
- Automated QC results transfer to QCP

Monitoring Hematology Activity

- Daily Routine Overview
- Consumption Monitoring



Specifications

PHYSICAL SPECIFICATIONS

Dimensions & Weight:

Height Width Depth Weight

Yumizen H500 OT

39.7 x 47.7 x 48.3 cm 22 kg

15.63 x 18.78 x 19.02 in. 49 lbs

Yumizen H500 CT

39.7 x 47.7 x 48.3 cm 23.5 kg

15.63 x 18.78 x 19.02 in. 51 lbs

Yumizen H550

53 x 66.8 x 62.1 cm 35 kg

20.87 x 26.3 x 24.45 in. 78 lbs

Printer (optional):

Compatible models with Linux drivers

Throughput:

60 samples/hour

Sample Management (Yumizen H550):

Autonomy of 40 tubes in 1 hour

Continuous Loading

STAT Mode

Rack Automatic Mixing

Tubes Positive Identification

Analysis Mode:

Patient, Prediluted, iQC (Diffrol),

eQC (External)

Sound Level: 60 dBA

Operating Temperature & Humidity:

+15°C (+59°F) to +30°C (+86°F)

Relative humidity up to 80% maximum,
without condensation

Specimen Type & Volume:

Human venous and capillary blood

EDTA K2, EDTA K3 anticoagulant

CBC mode: 20µL

DIF mode: 20µL

Power Requirements:

Power Supply: AC/DC adapter (external) 24 Vdc

Power consumption: 180 VA

Heat output: 378 KJ/h

Reagents:

2 reagents for analysis :

ABX Diluent (10L or 20L)

Whitediff 1L (cyanide free)

1 reagent for daily shutdown : ABX Cleaner 1L

ECO FRIENDLY SOLUTION

LED light source

Cyanide free lysis reagent

Low reagents consumption

WEEE Standard compliance

MEASUREMENT PRINCIPLES

WBC & Differential

Methods:

- Cytometry :
Double Hydrodynamic Sequential System 'DHSS'
- Optical Reading : Absorbance
- Impedance Variation

HGB Measurement

Method:

- Spectrophotometry

RBC & PLT Detection

Methods:

- Impedance Variation
- Analogic Digital Conversion

HCT Measurement

Method:

- Analogical integration

SOFTWARE SPECIFICATIONS

- Data Processing

Color LCD touch screen: 12,1 in.

Operating System: Linux™

Connection: RS232, Ethernet, USB

Communication: ASTM & HL7 protocols

Capacity: 10 000 results + graphs

Options: keyboard, mouse and bar code reader

- Quality Control

3 controls levels (low, normal, high)

Target values download

QC results compatible with

HORIBA Medical Quality Control Program (QCP)

Levey-Jennings graphs

Radar graphs

XB on 3 or 9 parameters

Overlapping QC (6 active QC files)

- Yumicare®

Connected service option:

LAN, Wifi, 4G

Automatic QC management

(target values download and QC results

upload to QCP)

Analyzer activity monitoring

Consumption management

Remote software update

Predictive maintenance

PARAMETERS

& PERFORMANCE DATA

37 Parameters:

WBC

NEU# & NEU%

LYM# & LYM%

MON# & MON%

EOS# & EOS%

BAS# & BAS%

IMG# & IMG%

IML# & IML%

IMM# & IMM%

ALY# & ALY%

LIC# & LIC%

RBC

HGB

HCT

MCV

MCH

MCHC

RDW-CV

RDW-SD

MIC

MAC

PLT

MPV

PCT

PDW

P-LCC

P-LCR

NLR (Neutrophil-To-Lymphocyte Ratio)

Infectious Screening Flags (Option)

Plasmodium falciparum, *Plasmodium vivax*, Dengue fever

Scoring flags

Analytical Measurements Range:

Linearity Limits	Visible Range	Unit
WBC 0 - 300	300 - 999	10 ⁹ /L
RBC 0 - 8	8 - 18	10 ¹² /L
HGB 0 - 240	240 - 300	g/L
HCT 0 - 0.67	0.67 - 0.80	L/L
PLT 0 - 2500	2500 - 4000	10 ⁹ /L
PLT (concentrate)		
0 - 4000	4000 - 5000	10 ⁹ /L
Limit Of Quantification	Unit	
WBC 0,2	10 ⁹ /L	
RBC 0,2	10 ¹² /L	
HGB 1	g/L	
PLT 10	10 ⁹ /L	

Precision (Repeatability):

Parameters CV (%)	Range	Unit
WBC <3.0	4 - 10	10 ⁹ /L
RBC <2.0	3.6 - 6.2	10 ¹² /L
HGB <1.5	120 - 180	g/L
HCT <2.0	0.36 - 0.54	L/L
PLT <5.0	180 - 500	10 ⁹ /L


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