

HORIBA
Medical

Pentra ES 60

Open tube sampling
Compact 5-Part Differential Analyzer
Workstation capability



Explore the future

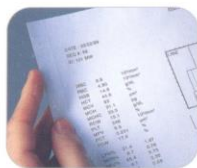
Automotive Test Systems | Process & Environmental | Medical | Semiconductor | Scientific

HORIBA

Pentra ES 60

Get the most Reliable Technology with the most Powerful Data Management

- **Data Management Capability**
- **Micro-sampling on whole blood with MDSS* Technology**
- **High Resolution Matrix**
- **3 Histograms (RBC, BAS/WBC, PLT)**
- **Atypical Lymphocytes (ALY) and Large Immature Cells (LIC)**
- **26 Parameters: CBC (12), DIFF (14)**
- **60 samples/hour (open tube)**
- **DHSS** Technology**



◀ **Clear & Concise Reports**

- . Test results
- . Demographics
- . Matrix & Histograms
- . Flags & Normal Limits



◀ **Compact & Economic**

- . 4 reagents onboard
- . Only 1 external reagent (Diluent)
- . Reduced consumption of reagents
- . Reduced consumption of power



◀ **Simplicity**

- . Automatic analyzer
- . No daily maintenance
- . Automatic calibration



◀ **Security**

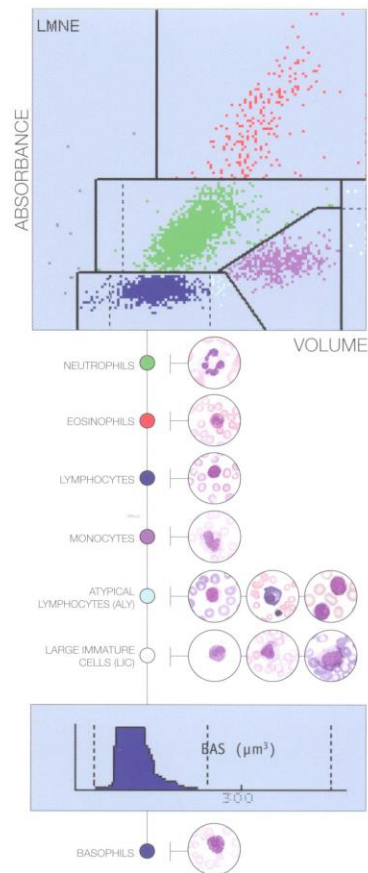
- . 100% positive sample identification
- . External barcode reader
- . Alphanumeric identification

Serving the Patient with the Be

Excellent Quality Results

Highly reliable results are obtained with the best technologies MDSS* and DHSS** for fast, accurate and confident diagnosis.

- Colour results and graphics
- Perfect differentiation of the 5 WBC sub-populations with DHSS** Technology
- 3 histograms for RBC, BAS/WBC and PLT together with the 5 DIFF Matrix.
- Basophils counted through specific channel
- High resolution matrix includes the determination of 2 additional subpopulations (% and #):
 - Atypical Lymphocytes (ALY***)
 - Large Immature Cells (LIC***)



With its new model, **Pentra ES 60**, HORIBA Medical enlarges its open tube analyzer family, by adding a dedicated workstation.

Pentra ES 60, compact hematology analyzer with 5-part cytochemical differential, provides for better patient care, because of its reliability, speed, simplicity and excellent analytical performance.

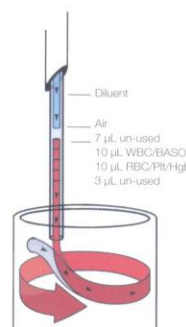
st Technologies

MDSS* and DHSS** Patented Technologies

HORIBA Medical Expertise and Know-How offer you Exclusive Concepts and Proven Technologies

Micro-sampling MDSS*

- Micro-aspiration and complete homogenization of blood samples with reagents.
- Precise aliquot volumes with patented control valve system.
- Only 30 μL in CBC mode and 53 μL in CBC+DIFF mode are extracted.



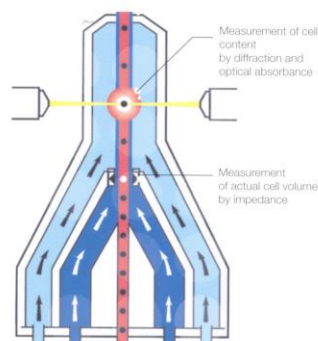
Cytochemistry / Cytometry DHSS**

Cytochemistry

Produces excellent cell differentiation by regulating the temperature during the cytochemical staining of internal cellular components using Chlorazol Black. 48 hour post-draw stability.

Cytometry

Precise cellular identification by injecting the prepared sample into a double hydrofocusing cytometer: **impedance** (real cell volume measurement) & **optical** (analysis of the internal cellular structure by measuring light absorbency).



* MDSS : Multi-Distribution Sampling System (HORIBA Medical Patent)

** DHSS : Double Hydrodynamic Sequential System (HORIBA Medical Patent)

A Dedicated Workstation for a Powerful Management of your Workflow

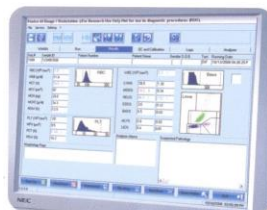


▶ Performing Data Management

- Restricted access via login & password
- Rapid access to the essential information
- Traceability & Compliance with Quality Requirements

▶ Real-time Status Overview

- View of reagent levels, lot number, operator...
- Logs (calibration, QC, maintenance...)
- Status bar display during cycle progression

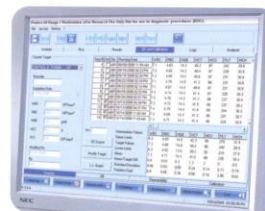


▶ Memory stores up to 10,000 patient results

- Type of test (CBC or CBC+DIFF)
- Sample ID, Patient Number, Demographics
- Test Results: graphs, colour matrix, flags...

▶ Quality Assurance

- 3 active control levels (identified by barcode)
- Control results (charts, Levey-Jennings graphs)
- XB results and graphs (60 batches, 20 samples per batch)



Pentra ES 60

Haematology Analyzer



PHYSICAL SPECIFICATIONS

- **Dimensions & Weight (approximate)**

	Height	Width	Depth	Weight
Analysers	51.5 cm	44.5 cm	48 cm	35 kg
	20.3 in	17.5 in	19 in	77 lbs
- **Printer**
Laser (optional)
- **Throughput**
Up to 60 samples/hour
- **Sound Pressure Level**
< 60 dBA
- **Operating Temperature & Humidity**
16 – 34°C (61 – 93°F) room temperature
Maximum relative humidity 80% without condensation
- **Specimen Volume**
CBC 30 µL
CBC + DIFF 53 µL
- **Power Requirements**
Power supply 100 V to 240 V (± 10%)
50 Hz to 60 Hz
Power consumption Analyser and computer 200 VA
- **Reagents**
Only 4 onboard reagents and 1 diluent :
ABX Diluent (10L or 20L)
ABX Lysebio (cyanide free lyse)
ABX Cleaner
ABX Eosinofix
ABX Basolysate II

METHODS & TECHNOLOGIES

- **MDSS* Technology**
- **RBC/PLT Detection Principles**

Method	Impedance
Aperture diameter	50 µm
Counting depression	-200 mb
Counting duration	2 x 6 seconds
Dilution ratio	1/10 000
Reaction temperature	35°C (95°F)
- **HGB Measurement**

Method	Photometry
Wavelength	550 nm
Dilution ratio	1/250
Reaction temperature	35°C (95°F)
- **HCT Measurement**

Method	Numeric integration
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- **WBC & BAS Detection Principles**

Method	Impedance
Aperture diameter	80 µm
Counting depression	-200 mb
Counting duration	2 x 6 seconds
Dilution ratio	1/200
Reaction temperature	35°C (95°F)
- **WBC Differentiation**

Method	DHSS** Technology
Aperture diameter	Cytometry & Cytochemical association
Hydrofocusing flow diameter	60 µm
Injection duration	42 µm
Dilution ratio	12 seconds
Incubation time	1/80
Reaction temperature	12 seconds
	35°C (95°F)
- **MCV, MCH, MCHC, RDW, PCT***, PDW*****
Calculation

SOFTWARE SPECIFICATIONS

- **Data Processing**
Colour screen: 15 in. monitor (800 x 600px)
Windows XP Prof.™
Capacity: 10 000 results + graphics
User defined flagging limits
Transmit patient & QC to LIS
Uni-directional or bi-directional connection
Communication Protocols: ABX / ASTM
CD-ROM drive / Floppy disk
2 serial ports minimum
USB Keyboard / USB Mouse
- **Quality control Management**
12 selectable QC files
XB: 60 operator selectable batches with statistics (20 samples per batch)
Within run
Levey-Jennings graphs
- **Logs**
Reagents, calibration, maintenance, errors, blank cycle

PARAMETERS & PERFORMANCE DATA

- **26 Parameters**

WBC	RBC	PLT
NEU# & NEU%	HGB	MPV
LYM# & LYM%	HCT	PCT***
MON# & MON%	MCV	PDW***
EOS# & EOS%	MCH	
BAS# & BAS%	MCHC	
ALY# & ALY%***	RDW	
LIC# & LIC%***		
- **Linearity**

	Linearity Limits	Visible range	Unit
WBC	0 - 120	120 - 150	10 ⁹ /µL
RBC	0 - 8.0	8.0 - 18.0	10 ¹² /µL
HGB	0 - 24	24 - 30	g/dL
HCT	0 - 67	67 - 80	%
PLT (whole blood)	0 - 1900	1900 - 2800	10 ⁹ /µL
PLT (concentrate)	0 - 2800	2800 - 3200	10 ⁹ /µL
- **Precision**

	%CV	Range	Unit
WBC	< 2.0	4 - 10	10 ⁹ /µL
RBC	< 2.0	3.6 - 6.2	10 ¹² /µL
HGB	< 1.0	12 - 18	g/dL
HCT	< 2.0	36 - 54	%
PLT	< 5.0	150 - 500	10 ⁹ /µL

CERTIFICATION

- EN 61326-1 98/79/EC (IVD)
- EN 61326-2-6 cTUVus Mark
- IEC 61000-3-2
- IEC 61000-3-3
- IEC 61010-1
- IEC 61010-2-81
- IEC 61010-2-101
- CAN/CSA -C22.2 61010-1
- UL 61010-1

- * **MDSS** : Multi-Distribution Sampling System (HORIBA Medical Patent)
- ** **DHSS** : Double Hydrodynamic Sequential System (HORIBA Medical Patent)
- *** **RUO** parameters (Research Use Only)

Valid for software version 2.5.0 of Pentra ES 60

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