

HUMAN HEALTH

ENVIRONMENTAL HEALTH

COST-EFFICIENT SYSTEM FOR NEWBORN SCREENING



The semi-automated system for optimized newborn screening

Brochure for distribution in the US


PerkinElmer
For the Better



**EFFECTIVE
DETECTION
FOR A HEALTHIER
FUTURE**

THE TRUSTED SYSTEM FOR AFFORDABLE AND EXPANDABLE NEWBORN SCREENING

PerkinElmer is the global market leader in neonatal screening, currently serving customers in more than 90 countries. Almost 500 million babies have been screened with our products. Every day 65 babies around the world get a healthier start to life thanks to the early detection of a serious disorder.

Since 1999, the semi-automated system has been used in over 200 NBS laboratories all over the world. The large number of users is a testament to the quality and reliability of the platform: nearly 10 million newborns are screened with Victor™ 2D each year. The semi-automated system is a robust, cost-efficient solution for screening of six NBS disorders in the US: congenital hypothyroidism, phenylketonuria, congenital adrenal hyperplasia, galactosemia, cystic fibrosis and biotinidase deficiency .

WHY CHOOSE THE SEMI-AUTOMATED NBS SYSTEM?

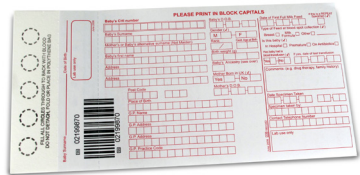
- ✓ Ideal solution for small to mid-size and start-up laboratories
- ✓ Fully expandable when needs in the laboratory change – adding new parameters or increasing sample volume is easy and cost-efficient
- ✓ Total solution guarantees excellent support and service throughout the whole workflow
- ✓ All instruments and assays are CE marked
- ✓ Over 200 satisfied NBS customers globally

OPTIMIZED PRODUCTS FOR BEST RESULTS

All products and instruments are especially optimized for use with PerkinElmer kits. They may be supplied alone or as part of a complete semi-automatic system for performing DELFIA and other assays.

VICTOR™ 2D FLUOROMETER

- Easy to use and reliable measurement device
- Preset protocols for neonatal assays based on
 - Time-resolved fluorescence (TSH, T4, 17-OHP, IRT)
 - Prompt fluorescence (PKU, GALT, TGAL, BTD)
- MultiCalc software included for result calculation, QC control and communication with LIMS



PERKINELMER 226 SAMPLE COLLECTION DEVICE

- Dried blood spot collection card comprised of 100% pure cotton linter filter paper
- Validated for even and uniform sample distribution
- PerkinElmer can custom-print and manufacture a device format that meets specialized newborn screening requirements



DBS PUNCHER® INSTRUMENT

- Semi-automatic device for punching dried-blood spot samples into microtitration plates
- The 2-plate capacity puncher is easy-to-use
- Robust option for lower capacity screening
- Alternatively Panthera-Puncher™ 9



DELFLIA® PLATE DISPENSE

- Automatic and precise addition of Enhancement solution
- Optimized for DELFIA reagents
- As an option DELFIA Dispense Unit can be ADDED allowing automatic dispensing e.g. buffer or tracer solution



DELFLIA® WASHER-DISKREMOVE

- Automatically removes the eluted filter paper disks from the wells
- Performs all needed wash stages as specified in the assay protocol
- Overfilling of wells is avoided
- Up to 100 protocols can be stored
- Optimized for use with DELFIA neonatal assays



TRINEST™ INCUBATOR SHAKER

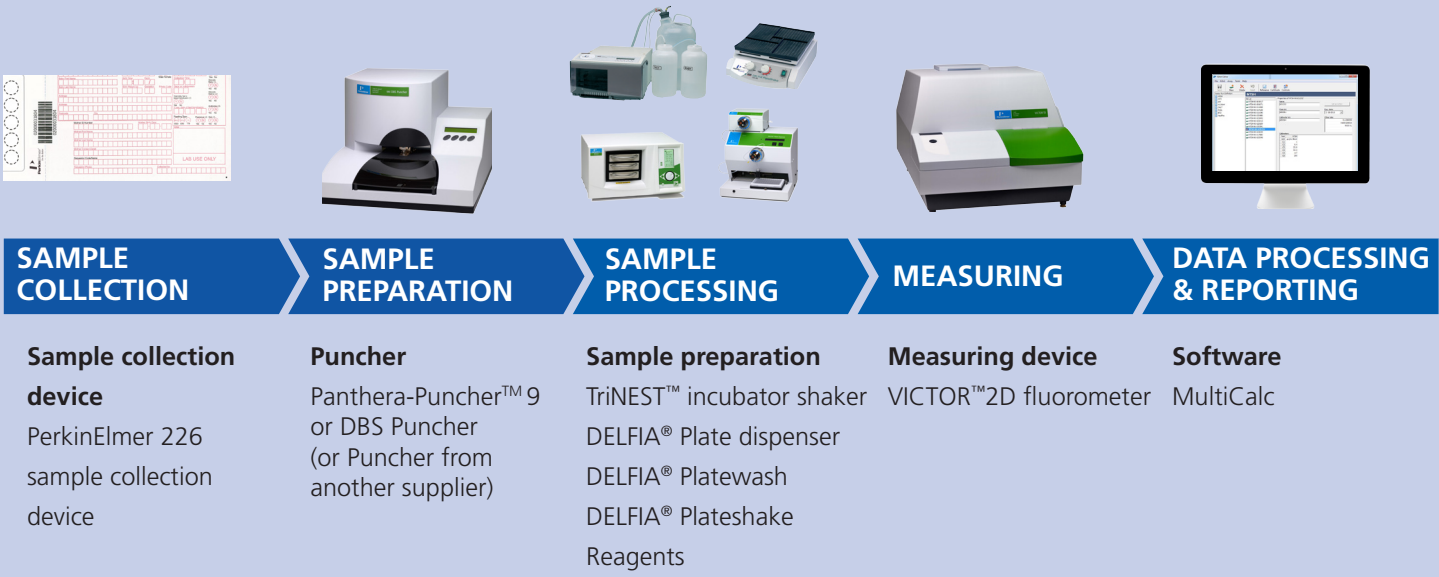
- A high quality, easy to use device for processing standard-height microplates
- Accurate and uniform temperature assures highly repeatable results
- Capacity for 3 plates
- Up to 20 incubating and shaking programs can be stored



DELFLIA® PLATESHAKE

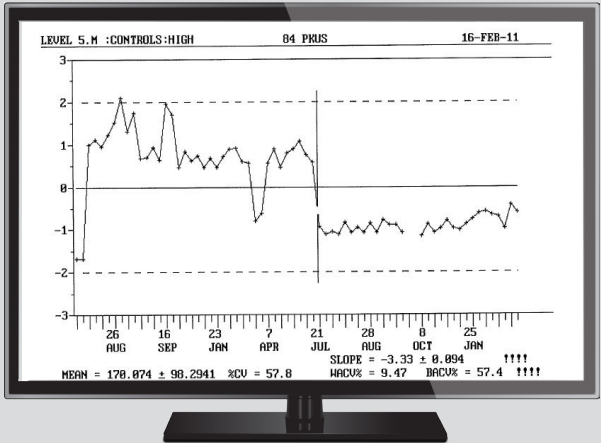
- Two preset shaking speeds optimized for DELFIA assays
- Fully adjustable shaking speed between 100-1350 rpm for general use
- With non-slip surface easy to load and easy to use
- Electronic feedback circuit ensures that shaking speeds remain constant

THE SEMI-AUTOMATED SYSTEM FOR YOUR SCREENING PROGRAM



MULTICALC SOFTWARE

For data evaluation and quality control



- ✓ Included with Victor™ 2D
- ✓ Can be connected to LIMS
- ✓ Automatic QC follow-up of assays
- ✓ Software includes all the protocols for PerkinElmer neonatal assays as default
- ✓ Results directly ready from the software

COMPLETE RANGE. BETTER SCREENING.



BENEFITS OF THE ASSAYS

- PerkinElmer offers reagents, instruments, software, training and support
- The widest test panel - easy and cost-efficient to expand the analyte menu
 - Low repeat testing rate due to high accuracy
 - Low lot-to-lot variation - no need to constantly reset cut-offs
- Long-standing provider and market leader in NBS - proof of our reliability and customer satisfaction
- Calibrators and controls in DBS, lot-specific format
- The unique fluorescent properties of lanthanide chelates of DELFIA technology are the basis for high sensitivity and low assay variation
- All assays can be run either separately or together



	DBS® Puncher	DELFIA® Plateshake	TriNest™ Incubator shaker	DELFIA® Washer Diskremove	DELFIA® Plate Dispenser	Victor™2D
TSH	x	x		x	(x)	x
T4	x	x		x	(x)	x
17-OHP	x	x		x	(x)	x
IRT	x	x		x	(x)	x
PKU	x		x			x
TGAL	x	x				x
GALT	x		x			x
BTD	x		x			x

(x) = Alternatively manual pipeting

INSTRUMENT SPECIFICATIONS



DBS® PUNCHER INSTRUMENT

INSTRUMENT SPECIFICATIONS

Physical dimensions

Height: 305 mm
Width: 420 mm
Depth: 480 mm
Weight: 20 kg

Power requirements

Voltage/Frequency: 110 -120 V/ 220 - 240 V, 50/60 Hz

Environmental conditions

Temperature: 15-35 °C
Relative humidity: 20-80 %

Punch diameter: 1.5 mm (1/16")
3.2 mm (1/8")
4.7 mm (3/16")
6 mm

Plate height: 15 -41mm (suits standard and deep well plates)

Operational control: 4 selection button for:
- operation mode selection
- plate movement
- barcode display
- operation guidance
- protocol editing



VICTOR™ 2D INSTRUMENT

INSTRUMENT SPECIFICATIONS

Physical dimensions

Height: 383 mm (510 mm with stackers)
Width: 485 mm
Depth: 590 mm
Weight: 49 kg (stacker model 60 kg)

Power requirements

Power consumption max: 400 VA
Voltage/Frequency: 110 -120 V/ 220 - 240 V, 50/60 Hz

Environmental conditions

Temperature: 15-35 °C
Relative humidity: 10-85 %

Measurement time: 1 s / sample, 3 min / plate
Noise of the device in function: max 70 dB

Light sources

Continuous light source for fluorometric measurements:
1. Tungsten-halogen lamp, 75W, lifetime > 300h, Spectral range 340 - 700 nm.
2. Rotatable filter wheel A, provided with 8 filter positions (Ø 15 mm). Standard high quality interference filters 340 nm, 355 nm, 390 nm, 485 nm, 544 nm. Changeable rotatable filter wheel B, provided with 4 filter positions (Ø 25.4 mm)
Flash light source for TR-fluorometric measurements:
1. UV xenon flash tube, L4642 or equivalent, spectral range 280 - 400 nm.
2. Filter slide, provided with 3 filter positions (Ø 22.4mm). Filters 340 nm and 320 nm are fitted.

Detection units

Fluorometry and TR-fluorometry:
1. Photomultiplier tube, R 1527
2. Emission filter slide A, provided with 8 filter positions (Ø 25.4mm) with the following filters: 405, 460, 486, 535, 590, 615 and 642 nm
Changeable emission filter slide B, provided with 8 filter positions (Ø25.4mm)



TRINEST™ INCUBATOR SHAKER

INSTRUMENT SPECIFICATIONS

Physical dimensions

Height: 223 mm
Width: 388 mm (plate carrier out)
Depth: 310 mm
Weight: 15 kg

Power requirements

Power consumption max: 160VA
Voltage/Frequency: 100-120 V or 220-240V, 50/60 Hz

Environmental conditions

Operating: 15°C to +35°C, RH 10-75%

PERFORMANCE SPECIFICATIONS

General

Capacity: 3 plates per unit, 3 units stackable
96-well and 384-well plates
Programmable: up to 20 programs
LCD graphics display
The 3 plates are processed with the same program but can be loaded at different times
Buzzer and LED lights indicate when incubation is complete

Incubation

Temperature range: from 3°C above ambient to 70°C in 1°C increments
Precision: ± 0.5°C
Variation across plate: < 0.6°C
Warming speed: less than 15 min from +24°C to +70°C
Incubation time: 0-48h in increments of 1 min
Preheat function assuring incubation starts at precisely the specified temperature

Shaking

Shaking frequency: 400-1200 rpm (or 0 rpm) in 100 rpm increments
Precision: ± 2%
Orbit: ~2 mm
Time: 0-48h in increments of 1 min
Interval shaking: interval up to 60 min in increments of 1s or 1 min



DELFIA® WASHER-DISKREMOVE

INSTRUMENT SPECIFICATIONS

Physical dimensions

Height: 483 mm
Width: 530 mm (plate carrier out)
Depth: 310 mm
Weight: 16.0 kg

Power requirements

Power consumption max: 100 VA
Voltage/Frequency: 240/100 VAC, 50/60 Hz
Power cord: on CEI socket

Environmental conditions

Temperature: 15-33 °C
Relative humidity: 15-85 %

PERFORMANCE SPECIFICATIONS

Hardware specifications

Manifold: 12 channels, 8 channels available on request
Vacuum: separate vacuum unit
Volumes of bottles: Waste 8L, Wash 5L, Rinse 2L

Software specifications

Protocols: Up to 100 washing protocols, up to 75 freely programmable.
Wash modes: Strip or Plate

VACUUM UNIT

Physical dimensions

Height: 370 mm
Width: 140 mm
Depth: 400 mm
Weight: 13.0 kg (approx.)

Power requirements

Power consumption max: 230VA
Voltage/Frequency: 200-230/100-115 VAC, 50/60 Hz

Environmental conditions

Temperature: 15-30 °C
Relative humidity: 15-85 %



DELFIA® PLATESHAKE

INSTRUMENT SPECIFICATIONS

Physical dimensions

Height: 128 mm
Width: 245 mm
Depth: 310 mm
Weight: 5.5 kg

Power requirements

Power input: 15 W
Voltage/Frequency: 1296-003: 220/240V, 50/60 Hz
1296-004: 110/240V, 50/60 Hz

Environmental conditions

Temperature: 0-50 °C
Relative humidity max: 80 %
Suitable for use in gassing and incubating cabinets

PERFORMANCE SPECIFICATIONS

Shaking frequency: 100 - 1350 cycles/min
Total stroke/orbit: 1.5 mm
The platform has a non-slip, removable moulded rubber pad for accommodating the microtitration plates.
Shaking modes: Fast, Slow or Variable



DELFIA® PLATE DISPENSE

INSTRUMENT SPECIFICATIONS

Physical dimensions

Height: 268 mm
Width: 290 mm (plate carrier out)
Depth: 300 mm
Weight: 10.3 kg

Power requirements

Power consumption max: 35 VA
Voltage/Frequency: 220/240 V 50/60 Hz or 100/120 V 40/60 Hz

Environmental conditions

Temperature: +15 – 35 °C
Relative humidity: max 85 %

PERFORMANCE SPECIFICATIONS

Speed 3 min 20 sec / plate
Volume dispensed 200 µl per well (preadjusted)
Accuracy better than 1 % at 200 µl
Precision better than 3 % at 200 µl

DELFIA® DISPENSE UNIT

INSTRUMENT SPECIFICATIONS

Physical dimensions

Height: 85 mm
Width: 150 mm (+65 mm for the bottle holder)
Depth: 135 mm
Weight: 2 kg

PERFORMANCE SPECIFICATIONS

Speed 2 min 20 sec for one plate
Volume dispensed 50 or 100 µl per stroke (user adjustable)
Accuracy better than 1 % at 200 µl
Precision better than 3 % at 200 µl

HIGH QUALITY ASSAYS FOR OPTIMIZED SCREENING

DELFIA NEONATAL HTSH KIT

- Based on DELFIA technology
- The intended use is for the quantitative determination of human thyroid stimulating hormone (hTSH) in blood specimens dried on filter paper as an aid in screening newborns for congenital hypothyroidism.
- Kit reagents for 10 plates (960 assays)

DELFIA NEONATAL THYROXINE (T4) KIT

- Based on DELFIA technology
- The intended use is for the quantitative determination of human thyroxine (T4) in blood specimens dried on filter paper as an aid in screening newborns for congenital hypothyroidism.
- Kit reagents for 10 plates (960 assays)

DELFIA NEONATAL 17α-OH-PROGESTERONE KIT

- Based on DELFIA technology
- The intended use is for the quantitative determination of human 17α-OH-progesterone in blood specimens dried on filter paper as an aid in screening newborns for congenital adrenal hyperplasia.
- Two package sizes available: 4 plates (A024-104) and 10 plates (A024-110)

DELFIA NEONATAL IRT KIT

- Based on DELFIA technology
- The intended use is for the quantitative determination of human immunoreactive trypsin(ogen) (IRT) in blood specimens dried on filter paper as an aid in screening newborns for cystic fibrosis.
- Two package sizes available: 4 plates (A005-204) and 10 plates (A005-210)

NEONATAL PHENYLALANINE KIT

- The kit makes use of a fluorescent ninhydrin method.
- The intended use is for the quantitative determination of phenylalanine in blood specimens dried on filter paper as an aid in screening newborns for elevated levels phenylalanine in the blood.
- Two packages sizes available: 10 plates (NP-1000*) and 50 plates (NP-4000*)

NEONATAL BIOTINIDASE KIT

- The assay is based on a semi-quantitative fluorometric assay.
- The intended use is for the semi-quantitative determination of biotinidase activity in blood specimens dried on filter paper as an aid in screening newborns for biotinidase deficiency
- Two packages sizes available: 10 plates (3018-0010) and 50 plates (3018-001B)

NEONATAL TOTAL GALACTOSE KIT

- Controls in DBS including both Gal and Gal-1-P
- The kit makes use of a fluorescent galactose oxidase method
- The intended use is for the quantitative determination of total galactose (galactose and galactose-1-phosphate) concentrations in blood specimens dried on filter paper as an aid in screening newborns for galactosemia
- Kit reagents for 10 plates (960 assays)

NEONATAL GALT KIT

- The assay is an adaptation of the semi-quantitative enzymatic assay of Beutler and Baluda
- The intended use is for the (semi-quantitative) determination of galactose-1-phosphate uridyl transferase (GALT) concentrations in blood specimens dried on filter paper as an aid in screening newborns for classical galactosemia caused by GALT deficiency
- Two packages sizes available: 10 plates (NG-1100) and 50 plates (NG-4100)

ORDERING INFORMATION

Instruments

- 1296-071 DBS® Puncher
- 1296-0050 TriNEST™ Incubator Shaker
- 1296-003 DELFIA® Plateshake (220/240V)
- 1296-004 DELFIA®Plateshake (110/240V)
- 1296-0010 DELFIA® Washer-Diskremove
- 1296-041 DELFIA® Plate Dispense
- 1420-020 Victor™2D fluorometer, manual loading
- 1420-021 Victor™2D fluorometer, stacker model
- Victor™2D including PC, monitor, necessary filters, instrument software and MultiCalc

Kits

- A032-310 DELFIA® Neonatal hTSH kit (10 plate)
- A065-110 DELFIA® Neonatal Thyroxine (T4) kit (10 plate)
- A024-104 DELFIA® Neonatal 17α-OH-progesterone kit (4 plate)
- A024-110 DELFIA® Neonatal 17α-OH-progesterone kit (10 plate)
- A005-204 DELFIA® Neonatal IRT kit (4 plate)
- A005-210 DELFIA® Neonatal IRT kit (10 plate)
- NP-1000 Neonatal Phenylalanine kit (10 plate)
- NP-4000 Neonatal Phenylalanine kit (50 plate)
- 3029-0010 Neonatal Total Galactose kit (10 plate)
- NG-1100 Neonatal GALT kit (10 plate)
- NG-4100 Neonatal GALT kit (50 plate)
- 3018-0010 Neonatal Biotinidase kit (10 plate)
- 3018-001B Neonatal Biotinidase kit (50 plate)

Options (sold separately)

- 1420-221D Barcode reader
- 2011-0010 Laboratory laser printer (230 V)
- 2011-0040 Laboratory laser printer (115 V)
- 1296-043 DELFIA® Dispense Unit

Consumables (sold separately)

- 3033-0010 Clear, V-bottomed microplates (for Neonatal Phenylalanine kit)
Bulk package of 100 plates
- 4090-0100 96-well plate covers
- 1420-450 ID-labels for 1-99, 10 sheets

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1599-9807 BRO The semi-automated Victor2D system (US) , April 2016

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