One Beam

Bilirubinometer

GINEVRI

Quality for life

One Beam

The One Beam is Ginevri's new concept bilirubinometer designed to give a precise measurement of the bilirubin serum level in newborns by using a simple micro sample of blood.
Knowing and understanding the precise bilirubin level is very important and helps in the successful treatment of newborn jaundice, caused by the accumulation of the bilirubin in various tissues of the body, the skin being the most obvious (the classic skin colour yellow in jaundice patients). The risk is that this accumulation of bilirubin could also involve the brain tissues causing irreversible damage to the patient (kernicterus).
Unfortunately, for Doctors treating newborns the evaluation of jaundice is made more difficult because of the high level of haemoglobin present in the blood.

The One Beam with it's ease of use and it's remarkable precision, gives the precise information on bilirubin levels and support which the Doctors need.
The One Beam allows for a rapid photo-metric analysis of the bilirubin total in the serum (totals of the conjugated and non-conjugated) using a capillary tube as an optical cell.
The bilirubin concentration is determined with a photo-metric measurement at the 455nm and 575nm wavelengths: the first wave length gives important information on the quantity of bilirubin, the second gives an indication of the presence of haemoglobin, the substance which interferes with accurate measurement of the bilirubin level.
Thanks to an algorithmic mathematical calculation, the One Beam is capable of eliminating the haemoglobin interference factor allowing for accurate results to be of the bilirubin concentration level in the blood. The results are immediately displayed on the One Beam's LCD screen in mg/100ml, or alternatively in micro-moli per litre.
The One Beam's important innovation with respect to previous Ginevri models is the use of a single optical beam which illuminates the sample at one single point, achieved using a special system of automatic filters. Thanks to this system it is possible to have a

- More stable signal – because when the light beam crosses the sample it is cleaned of all frequencies not useful for the measurement, thereby reducing the photo-isomerization phenomenon of the bilirubin which distorts the measurement, guaranteeing a more stable signal.
- More precise – because the reading is taken at only one point of the capillary tube which eliminates errors and discrepancies caused by readings taken at two different points.
- Stronger signal – due to the fact that it is a single beam is used not one which has been split down into two or more beams.

A special system of collimation and concentration of the light beams allows for a reading even when the sample quantity of serum obtained after centrifugation is very small, as in the case of polycythemia (up to a haematocritic level of 80%), or due to partial filling of the capillary tube.
The One Beam's sophisticated electronics, micro-processor controlled, guarantees better working of the signal which is then transformed into the corresponding bilirubin level and immediately displayed on the LCD screen.
The One Beam with printer allows for immediate printing of the results of every single exam.

Principle Characteristics

Simplicity of Use: the entire operation consists simply of the taking a blood sample from the newborn (only 0.06 ml – two drops!), putting this blood sample into a capillary tube and then centrifuging the sample for 5 minutes at 12,000 rpms.
Disposable Single - Use Capillary Tubes: a heparinated capillary tube of 0.06ml is used as a disposable single use cell, thus avoiding the necessity for a cuvette or special test tubes which are not absolutely safe, are expensive and are to breaking.
Rapidity of the Exam: the exam is carried out when the centrifuged capillary tube containing the blood sample is placed inside the One Beam.
Completely automatic correction the haemoglobin interference factor: this interference in the sample is automatically corrected, by means of a calculation carried out by the One Beam's micro-controller.

Accessories

Micro CL-17 Hematocrit Centrifuge
The Micro CL-17 micro-centrifuge combines power, versatility, and practicality in a single safe, compact, and easy to use laboratory instrument. Thanks to its high velocity and capacity the Micro CL-17 has been designed to accelerate the preparation process of routine samples, in addition to guaranteeing maximum level of safety and practicality. Taking up only a small space it is the most ergonomic, economic and reliable instrument for determining hermatocrit levels, which is easy to transport and use. It is ideal in emergency rooms, for preventative medicine and haematology laboratories. The high acceleration and powerful slowing (approx. 12 seconds) making it possible for normal cycling at 13300 rpms (17000 x g) to process a larger number of samples in less time.
The optional rotating head can hold up to 24 capillary tubes and the Micro CL-17 Centrifuge offers a wide choice of rotors able to carry all types of mini-volume samples.
The Micro CL-17 micro-centrifuge is designed to guarantee safe use by any user.
The unique bio-containment ClickSeal cover guarantees a completely hermetic seal of the rotor.
The intuitive commands and easy to read luminous display make the Micro-17 micro-centrifuge easy to configure and use.

The material with which the rotor has been manufactured allows it to be autoclaved and sterilized guaranteeing years of safe, reliable use.
The light-weight, linear design makes it very compact and facilitates cleaning and maintenance operations.
Electronic Timer: 1min / 99min (1min increments).
Noise level: <55dBA

Ematocrit reader
for capillary tubes
dimensions 230x160x95 mm
weight: 0.350 Kg

Rotating head
for 24 capillary tubes
weight: 0.800 Kg

Spare parts and consumables

Capillary Tubes (Heparinated)
The precision of the exam, in addition to being determined by the apparatus' reliability, is very dependant upon the type of capillary tube used. In fact, perfect internal and external heparination coupled with uniform calibration and transparency are the fundamental requirements of the supplied capillary tubes.
Container of Wax to close the capillary tubes.
Lancette

One Beam

Technical Specifications

USE	Measurement of bilirubin level in newborns.
SAMPLE	Centrifuged blood.
VOLUME	Less than 70 micromol.
CUVETTE	Capillary tubes (Heparinated glass).
MEASUREMENT	4/30 mg/dL or 68/510 Micromol/L.
TYPE OF MEASUREMENT	Photometric.
HAEMOGLOBIN INTERFERENCE	Automatic compensation.
READING TIME	Average 2 seconds.
MEASUREMENT RESOLUTION	+/- 0.1 mg/dl.
MEASUREMENT PRECISION	+/- 1% FS+ mis.
SENSOR	Silicon photo-diode.
OPTIC FILTER	455 and 575 nm
RESULTS	On LCD Display and Printer.
OTHER FUNCTIONS	Date and Time on Display.
WEIGHT	2.0 Kg (2.2 Kg with printer)
DIMENSIONS	15 x 19 x 24cm (Length x Depth x Height)
POWER SUPPLY	220v AC, 50/60hz 10/50W

References

- Developed in collaboration with the Department of Sensors and Readers of the Roma Tor Vergata University

- Tested by the “UOC of Pediatric, Neonatology, and TIN of the Fatebenefratelli “S.Giovanni Calibita” General Hospital (Roma)

Since 1954 Ginevri is a leading designer, manufacturer and world-wide distributor of electromedical equipment for neonatal and pediatric care. Ginevri’s policy has always been to promote the best quality, safety, user friendliness and easy maintenance of its products for the full satisfaction of its customers: public and private hospitals.

Quality System ISO 9001:2000
ISO 13485:2003

The specifications in this catalogue are indicative. Ginevri, the company, reserves the right to make changes, without further notice, to the products described within this catalogue in order to improve reliability, function or design.

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