

# H

# OPTICAL EQUIPMENTS

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## HBB - Education

### Series 116



- 1 | Monocular microscope with LED light and option of battery operation without the need for a power cable.
- 2 | Monocular head inclined 45° and rotating 360°.
- 3 | Macro and micro coaxial controls
- 4 | Single lens fixed condenser with iris diaphragm and filter holder.

|                               |                                                              |
|-------------------------------|--------------------------------------------------------------|
| <b>Code</b>                   | HBB003                                                       |
| <b>Model</b>                  | 116                                                          |
| <b>Head</b>                   | Monocular inclined 45° and rotary 360°                       |
| <b>Eyepieces</b>              | WF10x/18 mm (Ø 23 mm)                                        |
| <b>Diopter correction</b>     | No                                                           |
| <b>Nosepiece</b>              | Triple                                                       |
| <b>Objetives</b>              | Achromatic<br>4x (NA:0,10); 10x (NA:0,25); 40x (R) (NA:0,65) |
| <b>Stage</b>                  | 110 x 110 mm (clamps)                                        |
| <b>Focus</b>                  | Coaxial knobs                                                |
| <b>Condenser</b>              | Fix single lens (A.N.: 0,65)                                 |
| <b>Diaphragm</b>              | Iris                                                         |
| <b>Filter holder / Holder</b> | Blue (Ø 32 mm)                                               |
| <b>Illumination</b>           | LED diode (adjustable)                                       |
| <b>Power</b>                  | Adaptor (220V, 50/60Hz); Batteries 3x1,5V (AA)               |

### 'E' Series



CODE - HBB010



- 1 | Models with monocular head (Model M-HB10) or binocular (Model B-HB11) are available. The head is inclined 30° and can be rotated 360°. The binocular model has interpupillary distance regulation and diopter adjustment in one of the eyepieces.
- 2 | The eyepieces are fitted with fixing screws to prevent removal of the eyepiece tubes.
- 3 | Inverted quadruple nosepiece with the lenses tilted in the opposite direction to the user for more comfortable handling of the preparations.
- 4 | Double-bed mechanical stage with coaxial travel controls; the microscope has a screw to fix the maximum height of the plate and prevent it from hitting or damaging the objectives.

|                     |                                                                                               |           |
|---------------------|-----------------------------------------------------------------------------------------------|-----------|
| <b>Code</b>         | HBB010                                                                                        | HBB011    |
| <b>Model</b>        | M-HB10                                                                                        | B-HB11    |
| <b>Head</b>         | Monocular                                                                                     | Binocular |
|                     | Siedentopf type; inclined 30° and rotary 360°<br>Adjustable interpupillary distance (55-75mm) |           |
| <b>Eyepieces</b>    | WF10x/18 mm (Ø 23 mm)                                                                         |           |
| <b>Nosepiece</b>    | Quadruple upside down                                                                         |           |
| <b>Objetives</b>    | Achromatic objectives: 4X, 10X, 40X (R), 100X (R) (I)                                         |           |
| <b>Stage</b>        | Double bed mechanical stage, size 115x 125 mm,<br>movement 75x50mm                            |           |
| <b>Condenser</b>    | NA 1.25 Abbe type with iris diaphragm and filter                                              |           |
| <b>Focus</b>        | Micro and macrometric controls. Focusing scale 0.02mm                                         |           |
| <b>Illumination</b> | LED 3W/4V, adjustable intensity                                                               |           |
| <b>Power</b>        | 100-240V; 50-60Hz                                                                             |           |



CODE - HBB011





▶ HBB - Education

▶ Model 300



1| Can be used with rechargeable batteries (not included).

|                            |                                            |
|----------------------------|--------------------------------------------|
| <b>Code</b>                | HBB014                                     |
| <b>Model</b>               | 300                                        |
| <b>Head</b>                | Monocular, inclined at 45°, 360° rotatable |
| <b>Eyepieces</b>           | WF10x/18 mm (Ø 18 mm)                      |
| <b>Diopter adjustment</b>  | No                                         |
| <b>Revolving nosepiece</b> | Triple                                     |
| <b>Objectives</b>          | Achromatic finite 4X 10X 40Xs              |
| <b>Stage</b>               | Single-layer 120x125mm                     |
| <b>Condenser</b>           | Abbe NA 0.65 with diaphragm                |
| <b>Illumination</b>        | LED 1W                                     |



▶ Serie 300



1| Focusing: Coaxial adjustment of coarse and fine focusing via gears.  
2| Can be used with rechargeable batteries (not included).

|                            |                                             |                                             |                                              |
|----------------------------|---------------------------------------------|---------------------------------------------|----------------------------------------------|
| <b>Code</b>                | HBB015                                      | HBB016                                      | HBB017                                       |
| <b>Model</b>               | 300M                                        | 300B                                        | 300T                                         |
| <b>Head</b>                | Monocular<br>inclined 45°<br>rotatable 360° | Binocular<br>inclined 30°<br>rotatable 360° | Trinocular<br>inclined 38°<br>rotatable 360° |
| <b>Eyepieces</b>           | WF10x (Ø 18 mm)                             |                                             |                                              |
| <b>Revolving nosepiece</b> | Quadruple                                   |                                             |                                              |
| <b>Objectives</b>          | Achromatic finite 4X 10X 40Xs               |                                             |                                              |
| <b>Stage</b>               | Single-layer 120x125 mm                     |                                             |                                              |
| <b>Condenser</b>           | Abbe N.A. 1.25 with diaphragm and filter    |                                             |                                              |
| <b>Illumination</b>        | LED 1W                                      |                                             |                                              |

Code HBB015



Code HBB017

▶ Serie 400



1| These models are intended for clinical examinations, laboratory teaching, and research in biology, bacteriology, pathology, and pharmacy.  
2| Available with a monocular, binocular, or trinocular head and a 360-degree rotating head.  
3| Mechanical stage with two layers allowing for two preparations.

|                            |                                                                   |                                             |                                              |
|----------------------------|-------------------------------------------------------------------|---------------------------------------------|----------------------------------------------|
| <b>Code</b>                | HBB021                                                            | HBB022                                      | HBB023                                       |
| <b>Model</b>               | 400M                                                              | 400B                                        | 400T                                         |
| <b>Head</b>                | Monocular<br>inclined 45°<br>rotatable 360°                       | Binocular<br>inclined 30°<br>rotatable 360° | Trinocular<br>inclined 30°<br>rotatable 360° |
| <b>Eyepieces</b>           | WF10x (Ø 20 mm)                                                   |                                             |                                              |
| <b>Revolving nosepiece</b> | Quadruple                                                         |                                             |                                              |
| <b>Objectives</b>          | Semi-plan achromatic: 4X, 10X, 40Xs, 100Xs (oil)                  |                                             |                                              |
| <b>Stage</b>               | Double mechanical stage, 130x130 mm                               |                                             |                                              |
| <b>Condenser</b>           | Abbe N.A. 1.25 with diaphragm and filter                          |                                             |                                              |
| <b>Focusing</b>            | Coarse and fine coaxial adjustment with rack and pinion mechanism |                                             |                                              |
| <b>Illumination</b>        | LED 1W                                                            |                                             |                                              |

Code HBB021



Code HBB023



## HBB - Education

### ► Monocular Polarising Microscope, 400 Series



- 1 | These transmission polarizing microscope models are designed for routine inspections and teaching. They are useful in fields such as crystal analysis, chemistry, medicine, biosciences, environmental sciences, pharmacology, and toxicology.
- 2 | Available with a monocular or binocular head, and a 360° rotatable head.
- 3 | Equipped with polarizing accessories, including a circular stage, a polarizer, and an analyzer.

|                     |                                                                   |                                             |
|---------------------|-------------------------------------------------------------------|---------------------------------------------|
| <b>Référence</b>    | HBB024                                                            | HBB025                                      |
| <b>Modèle</b>       | 400M-P                                                            | 400D-P                                      |
| <b>Tête</b>         | Monocular 45° inclined<br>360° rotatable                          | Binoculaire inclinée 30°<br>pivotant à 360° |
| <b>Oculaires</b>    | WF10x (Ø 20 mm)                                                   |                                             |
| <b>Revolver</b>     | Quadruple                                                         |                                             |
| <b>Objectifs</b>    | S-plan achromatic objectives: 4X, 10X, 40Xs, 100Xs (oil)          |                                             |
| <b>Platine</b>      | Rounded graduated stage Ø 135 mm                                  |                                             |
| <b>Condenser</b>    | Abbe NA 1.25 with diaphragm                                       |                                             |
| <b>Focus</b>        | Coaxial coarse and fine adjustment with rack and pinion mechanism |                                             |
| <b>Illumintaion</b> | LED 1W                                                            |                                             |

## HBC - Professional

### ► Series 'P'



CODE - HBC015



CODE - HBC016

- 1 | Available with binocular head (model B-HC15) and trinocular (model T-HC16) type Siedentopf, inclined 30° and rotatable 360°. They have a diopter correction mechanism in both eyepieces and interpupillary distance regulation.
- 2 | Inverted quadruple nosepiece with the lenses inclined in the opposite direction to the user to make the manipulation of the preparations more comfortable.
- 3 | Double bed mechanical stage with coaxial translation controls and a sample clamp which can hold 2 slides simultaneously. The microscope has a screw to fix the maximum height of the slide and prevent it from hitting or damaging the objectives.
- 4 | Ergonomically positioned macro and micro coaxial focusing controls; equipped with tension adjustment ring
- 5 | Built-in rechargeable batteries for working with the equipment without connection to the mains.

|                     |                                                                                                |           |
|---------------------|------------------------------------------------------------------------------------------------|-----------|
| <b>Code</b>         | HBC015                                                                                         | HBC016    |
| <b>Model</b>        | B-HC15                                                                                         | T-HC16    |
| <b>Head</b>         | Binocular                                                                                      | Triocular |
|                     | Siedentopf type; inclined 30° and rotary 360°<br>Adjustable interpupillary distance (55-75 mm) |           |
| <b>Eyepieces</b>    | WF10x/18 mm (Ø 23 mm)                                                                          |           |
| <b>Nosepiece</b>    | Quadruple upside down                                                                          |           |
| <b>Objetives</b>    | Objectives achromatic and antifungals<br>4X, 10X, 40X (R), 100X (R) (I).                       |           |
| <b>Stage</b>        | Double bed mechanical stage, size 132x 142 mm<br>movement 75x50mm                              |           |
| <b>Condenser</b>    | NA 1.25 Abbe type with iris diaphragm and filter                                               |           |
| <b>Focus</b>        | Micro and macrometric controls. Focusing scale 0.002 mm                                        |           |
| <b>Illumination</b> | LED 3W/4V, adjustable intensity                                                                |           |
| <b>Power</b>        | 100-240V; 50-60Hz<br>Rechargeable batteries 3x NiMH AA1400mAh 1.2 V                            |           |

\* diopter adjustment in both eyepieces



▶ HBC - Professional

▶ Series 107



- 1| Professional biological microscopes, handy and robust.
- 2| Head inclined 45° and rotary 360° with interpupillary distance adjustment and diopter correction.
- 3| Macro and micro coaxial controls with friction control ring and upper limit of focus.
- 4| Double-bedded mechanical stage with clamp to accommodate two slides.

|                             |                                                                                                      |
|-----------------------------|------------------------------------------------------------------------------------------------------|
| <b>Code</b>                 | HBC002                                                                                               |
| <b>Head</b>                 | Binocular                                                                                            |
| <b>Eyepieces</b>            | WF10x/18 mm (Ø23 mm) + WF16x/11mm (Ø23 mm)                                                           |
| <b>Interpupillary dist.</b> | -53-72 mm                                                                                            |
| <b>Diopter correction</b>   | ±2 diopters (both eyepieces)                                                                         |
| <b>Nosepiece</b>            | Quadruple                                                                                            |
| <b>Objetives</b>            | Achromatic and antifungals<br>4x (NA:0.10); 10x (NA:0.25)<br>40x (R) (NA:0.65); 100x (R)(I)(NA:1.25) |
| <b>Stage</b>                | 130 x 140 mm double bed mechanics                                                                    |
| <b>Condenser</b>            | Abbe (AN: 1.25)                                                                                      |
| <b>Diaphragm</b>            | Iris                                                                                                 |
| <b>Filters</b>              | Blue and Green (Ø 32 mm)                                                                             |
| <b>Lamp</b>                 | LED                                                                                                  |
| <b>Power</b>                | 100-240V, 50/60 Hz                                                                                   |



▶ Series 505



- 1| The biological microscopes Zuzi Serie 505 are an excellent election for whatever professional application field: Clinical or research laboratories, hospital, university, industry.
- 2| The Serie 505 microscopes built-in an excellent plan achromatic infinity optical system offering a perfect imagen with high re-solution and definition. Their robust and stable design made it ergonomic and the use is very comfortable.
- 3| We have available a whole range of accessories to multiple applications: Phase contrast, dark field, polarizing.

|                                |                                                                                                                                         |            |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------------|
| <b>Code</b>                    | HBC021                                                                                                                                  | HBC022     |
| <b>Model</b>                   | 505                                                                                                                                     | 505T       |
| <b>Head</b>                    | Binocular                                                                                                                               | Trinocular |
|                                | Rotable 360°; Inclined 30°                                                                                                              |            |
| <b>Eyepieces</b>               | WF10x/20 mm (ø 23mm)                                                                                                                    |            |
| <b>Dioptic correction</b>      | ± 5 in both eyepieces                                                                                                                   |            |
| <b>Interpupillary distance</b> | 48 – 75 mm                                                                                                                              |            |
| <b>Nosepiece</b>               | Quintuple inverted                                                                                                                      |            |
| <b>Objetives</b>               | Plan achromatic, infinity corrected 4x / 0.10<br>4x (AN:0.10); 10x (AN:0.25); 20x (AN: 0,40)<br>40x (R) (AN:0.65); 100x (R)(I)(AN:1.25) |            |
| <b>Stage</b>                   | Double bed graduated, 175x145 mm<br>Movement 78x55 mm                                                                                   |            |
| <b>Condenser</b>               | Abbe N.A. 1.25; Diafragma Iris                                                                                                          |            |
| <b>Illumination</b>            | Koehler; 3W LED                                                                                                                         |            |
| <b>Filters</b>                 | Blue (32 mm)                                                                                                                            |            |
| <b>Power</b>                   | 100-240 VAC /50-60 Hz                                                                                                                   |            |
| <b>Dimensions (WxDx H)</b>     | 220x 370x480 mm                                                                                                                         |            |
| <b>Weight</b>                  | 8.6 Kg                                                                                                                                  |            |



Code - HBC022



## HBC - Professional

### ► Plane achromatic microscope, P series



Code - HBC023



Code - HBC024



- 1| Quadruple inverted nosepiece to make changing the sample easier and more comfortable.
- 2| Double layer mechanical stage with coaxial translation knobs and a clamp to hold up to 2 slides at the same time; the microscope is equipped with a safety screw to fix the maximum upper position of the stage and avoid it to hit and damage the objectives.
- 3| Coarse and fine focusing coaxial knobs at an ergonomic position and equipped with tension adjustment ring.
- 4| Rechargeable batteries NOT INCLUDED, allowing the equipment to be used without being connected to the power grid.

|                                |                                                                         |            |
|--------------------------------|-------------------------------------------------------------------------|------------|
| <b>Code</b>                    | HBC023                                                                  | HBC024     |
| <b>Model</b>                   | Serie P                                                                 | Serie P    |
| <b>Head</b>                    | Binocular                                                               | Trinocular |
|                                | Siedentopf-type; 30° inclined and 360° rotary                           |            |
| <b>Eyepieces</b>               | WF10x/18 mm                                                             |            |
| <b>Dioptric correction</b>     | (± 5 dioptres) in both eyepiece holders                                 |            |
| <b>Interpupillary distance</b> | 55-75 mm                                                                |            |
| <b>Nosepiece</b>               | Quadruple inverted and rotatable in both directions                     |            |
| <b>Objectives</b>              | Plane achromatic and antifungal<br>4x; 10x; 40 (R); 100x (R) (I)        |            |
| <b>Focus</b>                   | Macrometric and micrometric with coaxial knobs                          |            |
| <b>Stage</b>                   | 132x142 mm<br>Transverse movement 75 mm and longitudinal movement 50 mm |            |
| <b>Condenser</b>               | Abbe (A.N. 1.25) with diaphragm and portafilters                        |            |
| <b>Illumination</b>            | LED with intensity potentiometer                                        |            |
| <b>Power</b>                   | 100/240V AC 50/60 Hz                                                    |            |
| <b>Battery</b>                 | Rechargeable                                                            |            |



## HBD - Digital

### ► Series 148



- 1| Siedentopf binocular head inclined 30° and rotary 360°.
- 2| Double bed mechanical stage with translation controls in lowered position.
- 3| Macro and micro coaxial controls with friction control ring and enrique upper limit lock. Köhler type lighting system.
- 4| Image processing software included.



|                             |                                                                                                                           |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Code</b>                 | HBD003                                                                                                                    |
| <b>Model</b>                | 148/7                                                                                                                     |
| <b>Head</b>                 | Binocular                                                                                                                 |
| <b>Interpupillary dist.</b> | 55 - 75 mm                                                                                                                |
| <b>Dioptric correction</b>  | Left eyepiece                                                                                                             |
| <b>Eyepieces</b>            | WF10x/22 mm (Ø30 mm)                                                                                                      |
| <b>Nosepiece</b>            | Inverted quadruple                                                                                                        |
| <b>Objectives</b>           | Plane achromatics corrected to the infinite<br>4x (NA:0,10) - 10x (NA:0,25)<br>40x (R) (NA:0,65) - 100x (R) (I) (NA:1,25) |
| <b>Stage</b>                | 180 x 150 mm Double bed mechanics                                                                                         |
| <b>Focus</b>                | Macro/micro coaxial focusing                                                                                              |
| <b>Condenser</b>            | Abbe (AN: 1,25)                                                                                                           |
| <b>Diaphragm</b>            | Graduated field and opening (Köhler type)                                                                                 |
| <b>Filters</b>              | Blue, Green and yellow (Ø 32 mm)                                                                                          |
| <b>Lamp</b>                 | LED diode 1W (Regulable)                                                                                                  |
| <b>Power</b>                | 100-240V, 50/60Hz                                                                                                         |
| <b>Camera</b>               | 3,0 Mp, 2048 x 1536 resolution                                                                                            |
| <b>Output</b>               | USB 2.0                                                                                                                   |



▶ HBD - Digital

▶ Model 135/8

Zuzi

- 1| This model is the most basic equipment within Zuzi digital microscopes, being specially indicated for secondary schools and for those applications of initiation to the study of biology.
- 2| Monocular head inclined 45°, making it easier to use by students who are just starting out in microscopy.
- 3| Macro and micro coaxial focus controls for easier and more comfortable operation.
- 4| Height-adjustable Abbe condenser with iris diaphragm and filter holder.

|                               |                                                                       |
|-------------------------------|-----------------------------------------------------------------------|
| <b>Code</b>                   | HBD004                                                                |
| <b>Model</b>                  | 135/8                                                                 |
| <b>Head</b>                   | Digital, Monocular, 45° 360°                                          |
| <b>Camera resolution</b>      | 1280 x 1024 (1.3MPixel)                                               |
| <b>Software</b>               | ScopelImage 9.0                                                       |
| <b>Operative system</b>       | Windows 2000 / XP / Vista / 10                                        |
| <b>Output</b>                 | USB 2.0                                                               |
| <b>Range of field of view</b> | 75%                                                                   |
| <b>Eyepieces</b>              | WF10/18mm (ø 23 mm)                                                   |
| <b>Objetives</b>              | Achromatics<br>4x (0.10), 10x (0.25), 40x R (0.65), 100x Oil-R (1.25) |
| <b>Focus control</b>          | Macro/micro coaxial focusing                                          |
| <b>Mechanical stage</b>       | 125mm x 115mm (70mm x 20 mm)                                          |
| <b>Condenser</b>              | Abbe type<br>1.25 AN, with iris diaphragm and filter holder 32 mm     |
| <b>Filter</b>                 | Green and white                                                       |
| <b>Illumination</b>           | Lamp LED 1W, dimmable                                                 |
| <b>Power</b>                  | 100-240v 50/60hz                                                      |



▶ Model 135/9

Zuzi

- 1| This is a model with slightly higher characteristics than the previous one, with a binocular head for applications that require longer observations, an inverted revolver that allows a more comfortable handling of the samples and with a larger mechanical platen surface to have a greater range of movement to explore the samples.
- 2| 30° inclined binocular head.
- 3| Macro and micro coaxial focusing controls for easier and more comfortable operation.
- 4| Height adjustable Abbe condenser with iris diaphragm and filter holder.

|                                    |                                                                       |
|------------------------------------|-----------------------------------------------------------------------|
| <b>Code</b>                        | HBD005                                                                |
| <b>Model</b>                       | 135/9                                                                 |
| <b>Head</b>                        | Digital, binocular; 30°; 360°                                         |
| <b>Camera resolution</b>           | 1280 x 1024 (1.3MPixel)                                               |
| <b>Software</b>                    | ScopelImage 9.0                                                       |
| <b>Operative system</b>            | Windows 2000 / XP / Vista                                             |
| <b>Output</b>                      | USB 2.0                                                               |
| <b>Range of field of view</b>      | 90%                                                                   |
| <b>Interpupillary Distance</b>     | 48-75 mm                                                              |
| <b>Eyepieces</b>                   | WF 10/18mm (ø23 mm)                                                   |
| <b>Eyepiece dioptic correction</b> | Left eyepiece, ±5dpt                                                  |
| <b>Objetives</b>                   | Achromatics<br>4x (0.10), 10x (0.25), 40x R (0.65), 100x Oil-R (1.25) |
| <b>Focus control</b>               | Macro/micro coaxial focusing                                          |
| <b>Mechanical stage</b>            | 132mm x 142mm (74mm x 40mm)                                           |
| <b>Condenser</b>                   | Abbe type<br>1.25 AN, with iris diaphragm and filter holder 32 mm     |
| <b>Filter</b>                      | Green                                                                 |
| <b>Illumination</b>                | Lamp LED 1W, dimmable                                                 |
| <b>Power</b>                       | 100-240v 50/60hz                                                      |





▶ HBD - Digital

▶ Digital Microscope, series 300 NS



- 1 | Equipment specially designed for high schools and universities, for the teaching of biology, bacteriology, histology, pathology, etc.
- 2 | Finite optical system.
- 3 | Both models are equipped with a digital monocular head.
- 4 | Coaxial macro and micro focusing controls.
- 5 | Double-layer mechanical stage.
- 6 | Abbe condenser with diaphragm and filter.
- 7 | They can be used with rechargeable batteries (not included).

|                            |                                                                                                                            |           |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>Code</b>                | HBD010                                                                                                                     | HBD011    |
| <b>Model</b>               | 300NS-130                                                                                                                  | 300NS-500 |
| <b>Head</b>                | Digital monocular, inclined at 38°, rotatable at 360°                                                                      |           |
| <b>Camera</b>              | Integrated CMOS camera, resolution 1280 x 1024 (1.3 MPixel)<br>Integrated CMOS camera, resolution 2560 x 1920 (5.0 MPixel) |           |
| <b>Eyepiece</b>            | WF10X/18mm                                                                                                                 |           |
| <b>Revolving nosepiece</b> | Four objectives                                                                                                            |           |
| <b>Objectives</b>          | Achromatic 4X, 10X, 40Xs, 100Xs (oil)                                                                                      |           |
| <b>Stage</b>               | Double-layer mechanical stage Size: 110x125 mm                                                                             |           |
| <b>Condenser</b>           | Abbe N.A. 1.25 with diaphragm and filter                                                                                   |           |
| <b>Focusing</b>            | Coaxial coarse and fine focusing adjustment                                                                                |           |
| <b>Illumination</b>        | 1W LED lamp, with intensity adjustment                                                                                     |           |

▶ Digital Microscope, Model 400 NS



- 1 | These models are ideal for clinical examinations, laboratory teaching, and research in biology, bacteriology, pathology, and pharmacology.
- 2 | Available with a monocular or binocular head, and a 360° rotating head.
- 3 | Double-layer mechanical stage allowing for two preparations.
- 4 | With integrated camera of 1.3 MP or 5.0 MP.

|                            |                                                                   |                                                |
|----------------------------|-------------------------------------------------------------------|------------------------------------------------|
| <b>Code</b>                | HBD007                                                            | HBD008                                         |
| <b>Model</b>               | 400NS-130                                                         | 400NS-500                                      |
| <b>Head</b>                | Monocular, inclined at 45°<br>rotatable at 360                    | Binocular, inclined at 30°<br>rotatable at 360 |
| <b>Camera</b>              | Integrated CMOS<br>1280x1024 (1,3MP)                              | Integrated CMOS<br>2560x1920 (5,0 MP)          |
| <b>Eyepiece</b>            | WF10X (20 mm)                                                     |                                                |
| <b>Revolving nosepiece</b> | Quadruple                                                         |                                                |
| <b>Objectives</b>          | Semi-plan achromatic: 4X, 10X, 40Xs, 100Xs (oil)                  |                                                |
| <b>Stage</b>               | Double-layer mechanical stage, 125x110 mm                         |                                                |
| <b>Condenser</b>           | Abbe N.A. 1.25 with diaphragm and filter                          |                                                |
| <b>Focusing</b>            | Coaxial coarse and fine adjustment with rack and pinion mechanism |                                                |
| <b>Illumination</b>        | LED 1W                                                            |                                                |





## HBD - Digital

▶ Microscope with 7-inch Display, model 400SP



- 1| Model with integrated 7-inch screen and color CMOS image sensor.
- 2| Double-layer mechanical stage to accommodate two preparations.

|                            |                                                                   |
|----------------------------|-------------------------------------------------------------------|
| <b>Code</b>                | HBD006                                                            |
| <b>Model</b>               | 400SP                                                             |
| <b>Head</b>                | With 7" screen, 360° rotatable                                    |
| <b>Camera</b>              | Integrated CMOS camera 1280x1024 (1.3 MP)                         |
| <b>Eyepiece</b>            | WF10X (20 mm)                                                     |
| <b>Revolving nosepiece</b> | Quadruple                                                         |
| <b>Objectives</b>          | Semi-plan achromatic: 4X, 10X, 40Xs                               |
| <b>Stage</b>               | Double-layer mechanical stage, 130x130 mm                         |
| <b>Condenser</b>           | Abbe N.A. 1.25 with diaphragm and filter                          |
| <b>Focusing</b>            | Coaxial coarse and fine adjustment with rack and pinion mechanism |
| <b>Illumination</b>        | LED 1W                                                            |



▶ Microscope with 7-inch Display, Model 300SP



- 1| Equipment specially designed for high schools and universities, for the teaching of biology, bacteriology, histology, pathology, etc.
- 2| Finite optical system.
- 3| 7-inch color screen, 360° rotatable.
- 4| Coaxial macro and micro focusing controls.
- 5| Double-layer mechanical stage.
- 6| Abbe condenser with diaphragm and filter.
- 7| Can be used with rechargeable batteries (not included).

|                            |                                                                                                        |
|----------------------------|--------------------------------------------------------------------------------------------------------|
| <b>Code</b>                | HBD012                                                                                                 |
| <b>Model</b>               | 300SP                                                                                                  |
| <b>Screen</b>              | 7" IPS color screen with an integrated CMOS camera for capturing microscope images and recording video |
| <b>Revolving nosepiece</b> | Four objectives                                                                                        |
| <b>Objectives</b>          | Achromatic 4X, 10X, 40Xs                                                                               |
| <b>Stage</b>               | Double-layer mechanical stage Size: 110x125mm                                                          |
| <b>Condenser</b>           | Abbe N.A. 1.25 with diaphragm and filter                                                               |
| <b>Illumination</b>        | 1W LED lamp with intensity adjustment                                                                  |





HBF - Fluorescence

▶ Epi-fluorescence microscope



- 1 | Wide and solid base for good stability.
- 2 | 45° inclined head with interpupillary distance adjustment and diopter correction.
- 3 | Nosepiece sixfold with 4 flat achromatic lenses corrected to the infinite specially designed for fluorescence.
- 4 | Turret with different interchangeable positions to select the appropriate excitation and emission filters.
- 5 | Köhler system for transmitted light with field and aperture diaphragms and Abbe condenser with sliding top lens.
- 6 | Mercury lamp for fluorescence by reflected light with power supply with hours-of-use timer.

|                             |                                                                                                                                                  |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Code</b>                 | HBF001                                                                                                                                           |
| <b>Model</b>                | 158/358                                                                                                                                          |
| <b>Head</b>                 | Triocular; 360°                                                                                                                                  |
| <b>Eyepieces</b>            | WF 10X/20 (ø30 mm)                                                                                                                               |
| <b>Interpupillary dist.</b> | 50-75 mm with diopter correction                                                                                                                 |
| <b>Nosepiece</b>            | Sixfold                                                                                                                                          |
| <b>Objetives</b>            | Plane apo-achromatic corrected to the infinite<br>4x, ∞ (A.N.: 0,15) - 10x, ∞ (A.N.: 0,35)<br>40x, ∞ (R) (A.N.: 0,75) - 100x, ∞ (R) (A.N.: 0,90) |
| <b>Stage</b>                | 180x160 mm. Double bed mechanics (80x50 mm)                                                                                                      |
| <b>Illumination</b>         | Köhler type, field diaphragm and graduated opening                                                                                               |
| <b>Condenser</b>            | Abbe (AN: 1,25) deslizable                                                                                                                       |
| <b>Lamp</b>                 |                                                                                                                                                  |
| <b>Epi-fluorescence</b>     | High pressure mercury lamp 20V, 100W                                                                                                             |
| <b>Transmitted</b>          | Halogen lamp 12V, 50W (adjustable)                                                                                                               |
| <b>Power</b>                | 100-240V, 50/60Hz                                                                                                                                |

▶ Epi-fluorescence microscope LED



- 1 | It has 5W LED lights, with power regulator, and blue and green filters.
- 2 | Trinocular head inclined 30° rotatable 360° with interpupillary distance adjustment (48-75 mm).
- 3 | Nosepiece sixfold with 4 flat achromatic lenses corrected to the infinite specially designed for fluorescence.
- 4 | Turret with different interchangeable positions to select the excitation and emission filter cube of the most suitable wavelength for the fluorochrome used (filters included blue and green).
- 5 | Köhler system for transmitted light with field diaphragms and aperture and Abbe condenser with sliding top lens.

|                         |                                                                                                                                          |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Code</b>             | HBF002                                                                                                                                   |
| <b>Head</b>             | Triocular type Sidentopf. Inclined 30° and rotary 360°.                                                                                  |
| <b>Eyepieces</b>        | WF 10X/20 mm                                                                                                                             |
| <b>Nosepiece</b>        | Inverted quintuple                                                                                                                       |
| <b>Objetives</b>        | Plane achromatics corrected to the infinite<br>4x, ∞ (0.10) - 10x, ∞ (0.25) - 20x, ∞ (0.40)<br>40x(S), ∞ (0.66(S)) - 100x, 1.25(Oil) (S) |
| <b>Stage</b>            | 180 x 145 mm double-bedded<br>Movement 90 x 60 mm                                                                                        |
| <b>Condenser</b>        | Abbe N.A. 1.25 with diaphragm                                                                                                            |
| <b>Illumination</b>     | Lamp LED 3W                                                                                                                              |
| <b>Filter</b>           | Blue                                                                                                                                     |
| <b>Epi-fluorescence</b> | LED Lamps blue and green 5W                                                                                                              |



## HBJ - Inverted biological

## Series 180

- 1| Inclined head with interpupillary distance regulation and diopter correction.
- 2| Nosepiece with long-distance flat achromatic lenses; one of the lenses is phase contrast
- 3| Long distance condenser, centrable and adjustable with iris diaphragms and filter holder.
- 4| Large rectangular stage.

|                             |                                                                                                                                   |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| <b>Code</b>                 | HBJ001                                                                                                                            |
| <b>Head</b>                 | Triocular, 30°                                                                                                                    |
| <b>Eyepieces</b>            | WF10x/18mm (Ø23mm)                                                                                                                |
| <b>Interpupillary dist.</b> | 55-75mm                                                                                                                           |
| <b>Diopter correction</b>   | ±5 diopters (left eye)                                                                                                            |
| <b>Nosepiece</b>            | Quadruple                                                                                                                         |
| <b>Objectives</b>           | Plane achromatics of long distance<br>10x (A.N.: 0,25) Phase contrast<br>10x (A.N.: 0,25); 25x (A.N.: 0,40); 40x (R) (A.N.: 0,65) |
| <b>Stage</b>                | 200 x 150 mm; Movement 70x30 mm                                                                                                   |
| <b>Condenser</b>            | Long distance with centring and contrast ring adjustment                                                                          |
| <b>Diaphragm</b>            | Field                                                                                                                             |
| <b>Filter</b>               | Blue, yellow, green and neutral                                                                                                   |
| <b>Lamp</b>                 | Halogen (6V, 20W) adjustable intensity                                                                                            |
| <b>Power</b>                | 220V/50 Hz                                                                                                                        |





## HBL - Accessories, condensers

| Code                  | Descripción                                                                                                                                                                                 |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Condenser accessories |                                                                                                                                                                                             |
| HBL001                | Bright Field condenser with Iris Diaphragm<br>For microscopes series 100 and 137 - Numerical aperture: 1.25                                                                                 |
| HBL002                | Dry dark field condenser, series 122<br>For microscopes series 122 - Numerical aperture: 0.9 - Type dry                                                                                     |
| HBL003                | Immersion dark field condenser, series 122<br>For microscopes series 122 - Numerical aperture: 1.25 - Type immersion                                                                        |
| HBL005                | Dark Field Condenser Oil, series 100<br>For microscopes series 100 - The images are displayed on a black background and highlighted by a border effect. 100x immersion objectives are used. |
| HBL006                | Dry dark field condenser, series 505                                                                                                                                                        |
| HBL007                | Inmersion dark field condenser, Series 505                                                                                                                                                  |



## HBP - Accessories, objectives

| Code                                      | Description                                                            |
|-------------------------------------------|------------------------------------------------------------------------|
| <b>Achromatic objectives</b>              |                                                                        |
| HBP001                                    | Achromatic objectives 4X Numerical aperture (A.N.) 0.10                |
| HBP002                                    | Achromatic objectives 10X Numerical aperture (A.N.) 0.25               |
| HBP003                                    | Achromatic objectives 20X Numerical aperture (A.N.) 0.40               |
| HBP004                                    | Achromatic objectives 40x (R) Numerical aperture (A.N.) 0.65           |
| HBP005                                    | Achromatic objectives 60x (R) Numerical aperture (A.N.) 0.85           |
| HBP006                                    | Achromatic objectives 100x (R) (I) Numerical aperture (A.N.) 1.25      |
| <b>Plan achromatic objectives</b>         |                                                                        |
| HBP007                                    | Plan achromatic objectives 4x Numerical aperture (A.N.) 0.10           |
| HBP008                                    | Plan achromatic objectives 10x Numerical aperture (A.N.) 0.25          |
| HBP009                                    | Plan achromatic objectives 20x Numerical aperture (A.N.) 0.40          |
| HBP010                                    | Plan achromatic objectives 40x (R) Numerical aperture (A.N.) 0.65      |
| HBP011                                    | Plan achromatic objectives 100x (R) (I) Numerical aperture (A.N.) 1.25 |
| HBP031                                    | Objective plan achromatic corrected to infinite 4x                     |
| HBP032                                    | Objective plan achromatic corrected to infinite 10x                    |
| HBP033                                    | Objective plan achromatic corrected to infinite 20x                    |
| HBP034                                    | Objective plan achromatic corrected to infinite 40x                    |
| HBP035                                    | Objective plan achromatic corrected to infinite 60x                    |
| HBP036                                    | Objective plan achromatic corrected to infinite 100x                   |
| <b>Plan achromatic objectives</b>         |                                                                        |
| HBP012                                    | Semi-plan achromatic objectives 4X                                     |
| HBP013                                    | Semi-plan achromatic objectives 10X                                    |
| HBP014                                    | Semi-plan achromatic objectives.40x/R                                  |
| HBP015                                    | Semi-plan achromatic objectives. 100X R/I                              |
| <b>Operational microscopes objectives</b> |                                                                        |
| HBP026                                    | Objective F250, series 191                                             |
| HBP027                                    | Objective F400, series 191                                             |



## HBQ - Accessories, eyepieces

| Code   | Description                                                      |
|--------|------------------------------------------------------------------|
| HBQ001 | Wide field eyepiece WF10x/18 mm. Diameter 23 mm                  |
| HBQ002 | Wide field eyepiece WF16x/11 mm. Diameter 23 mm                  |
| HBQ003 | Wide field eyepiece point WF10x. Diameter 23 mm                  |
| HBQ004 | Wide Field eyepiece with micrometer WF 10x/18 mm. Diameter 23 mm |
| HBQ005 | Photographic eyepiece 4x. Diameter 23 mm                         |
| HBQ006 | Extra wide field eyepiece WF10x/21 mm. Diameter 23 mm            |
| HBQ007 | High point eyepiece WF10x/18,5 mm. Diameter 23 mm                |
| HBQ008 | Eyepiece WF10x /22 mm. Diameter 30mm                             |
| HBQ009 | Eyepiece WF16x. Diameter 30 mm                                   |
| HBQ010 | Micrometric eyepiece WF10x/22 mm. Diameter 30 mm                 |
| HBQ011 | Huygens eyepiece 10x. Diameter of 23 mm                          |
| HBQ012 | Huygens eyepiece 5x. Diameter of 23 mm                           |
| HBQ013 | Plain eyepiece 10x. Diameter of 23 mm                            |
| HBQ014 | Eyepiece WF15x. Diameter of 23 mm                                |
| HBQ015 | Wide filed eyepiece WF10x/20mm. Diameter 23 mm                   |
| HBQ017 | Wide filed eyepiece WF20x/11mm. Diameter 23 mm                   |



▶ HBR - Accessories, others

| Code                                  | Description                                           |
|---------------------------------------|-------------------------------------------------------|
| <b>Stages</b>                         |                                                       |
| HBR010                                | Heating Stage Serie of RT at -50°C for models 100/122 |
| HBR014                                | Mechanical stage for models 119/116/128               |
| <b>Video-photography</b>              |                                                       |
| HBR006                                | Photographic attachment T mount                       |
| <b>Condenser, diaphragm, lighting</b> |                                                       |
| HBR004                                | Diaphragm iris for series 100                         |
| HBR005                                | Halogen Lamp 6V, 20W                                  |
| HBR009                                | Filter for condenser, blue (Ø 32 mm)                  |
| HBR015                                | Epi-fluorescence lamp                                 |
| HBR025                                | Halogen Lamp 12V 20W                                  |
| <b>For operating microscopes</b>      |                                                       |
| HBR022                                | Wall stand for microscope for model 191               |
| HBR023                                | Table stand for microscope for model 191              |
| <b>Others</b>                         |                                                       |
| HBR001                                | Microscope cover, Dimesions 300x307x400               |
| HBR002                                | Lens tissues 110x85 mm, b/50                          |
| HBR003                                | Microscope cleaning kit                               |
| HBR011                                | Plastic dust cover for professional microscopes       |
| HBR013                                | AC/DC adapter 230V/5.5V 200mA for model 116           |

▶ HDB - Education

▶ Series 200



- 1| For teaching in the observation of minerals or small animals.
- 2| Binocular head with interpupillary distance regulation and diopter correction.
- 3| Bilateral controls for focusing through a rack and pinion mechanism.
- 4| Black/white contrast stage and frosted glass stage.

|                             |                                           |
|-----------------------------|-------------------------------------------|
| <b>Code</b>                 | HDB002                                    |
| <b>Head</b>                 | Binocular, inclined 45°                   |
| <b>Eyepieces</b>            | WF10x/20mm (ø 30.5 mm)                    |
| <b>Interpupillary dist.</b> | 55-75mm                                   |
| <b>Diopter correction</b>   | ± 5 mm diopters                           |
| <b>Objetives</b>            | 2x/4x                                     |
| <b>Working distance</b>     | 60 mm                                     |
| <b>Stage</b>                | B/W and frosted glass with clamps (95 mm) |
| <b>Illumination</b>         | Incident and transmitted                  |
| <b>Power</b>                | 220V, 50/60 Hz                            |



▶ Series 250



- 1| Compact stereo microscope with carrying handle
- 2| Binocular head with diopter correction
- 3| Incident and transmitted LED light adjustable in 5 intensities

|                             |                                          |
|-----------------------------|------------------------------------------|
| <b>Code</b>                 | HDB005                                   |
| <b>Head</b>                 | Inclined binocular 45°                   |
| <b>Eyepieces</b>            | WF10x/20 (ø 30.5 mm)                     |
| <b>Interpupillary dist.</b> | 54-76 mm                                 |
| <b>Diopter correction</b>   | ± 5 mm diopters (left eye)               |
| <b>Objetives</b>            | 2x y 4x                                  |
| <b>Working distance</b>     | 76 mm                                    |
| <b>Stage</b>                | 60 mm                                    |
| <b>Illumination</b>         | Incident and transmitted adjustable, LED |
| <b>Power</b>                | 100V-240V/4.5V                           |





## HDD - With zoom

### 'Z' Series

YouTube



- 1| Stereo microscope with 0.7x to 4.5x zoom
- 2| Wide field eyepieces with diopter adjustment in both eyepieces
- 3| Fine but wide base with great stability. Double working distance. Rubber blinkers and eye caps

| Code                    | HDD011                           | HDD012              |
|-------------------------|----------------------------------|---------------------|
| Head                    | Binocular 45°; 360°              | Triocular 45°; 360° |
| Eyepieces               | WF10x/20 mm (ø 30 mm)            |                     |
| Diopter correction      | ± 5 dps in the 2 eyepieces       |                     |
| Interpupillary Distance | 55-75 mm                         |                     |
| Objective               | 1x                               |                     |
| Zoom                    | 0.7x-4.5x                        |                     |
| Working distance        | 35 y 100 mm                      |                     |
| Stage                   | Translucent and Black/White      |                     |
| Plate size              | 60 mm, with clamps               |                     |
| Illumination            | Incident and transmitted. LED 3W |                     |

### Chart of magnification series Z

| Zoom | Objectives  | Eyepiece WF10X |                | Eyepiece WF15X |              | Eyepiece WF20x |              |
|------|-------------|----------------|----------------|----------------|--------------|----------------|--------------|
|      |             | Magnification  | Ø field (mm)   | Magnification  | Ø field (mm) | Magnification  | Ø field (mm) |
| 0.5x | 3.25x-22.5x | 57.1-8.9 mm    | 4.8x-33.75x    | 42.8-6.7 mm    | 6.5x-45x     | 28.6-4.4 mm    |              |
| 1.0x | 6.5x-45x    | 28.6-4.4 mm    | 9.75x-67.5x    | 21.1-3.3 mm    | 13x-90x      | 14.3-2.2 mm    |              |
| 1.5x | 9.75x-67.5x | 19-3 mm        | 14.62x-101.25x | 14.3-2.2 mm    | 19.5x-135x   | 9.5-1.5 mm     |              |
| 2.0x | 13x-90x     | 14.3-2.2 mm    | 19.5x-135x     | 10.7-1.7 mm    | 26x-180x     | 7.1-1.1 mm     |              |

## HDG - Accessories, objectives



| Code   | Description             |
|--------|-------------------------|
| HDG016 | Objective 0,5x series Z |
| HDG017 | Objective 1,5X series Z |
| HDG018 | Objective 2X series Z   |

## HDH - Accessories, eyepieces



| Code   | Description                                |
|--------|--------------------------------------------|
| HDH001 | Eyepiece 5x for series 200/234             |
| HDH002 | Eyepiece 10x for series 200/234            |
| HDH003 | Eyepiece 15x for series 200/234            |
| HDH004 | Eyepiece 20x for series 200/234            |
| HDH005 | Eyepiece micrometer 10x for series 200/234 |
| HDH010 | Eyepiece foto 2.5x for series 230/240/Z    |

## HDK - Accessories, others



| Code                | Description                                                |
|---------------------|------------------------------------------------------------|
| <b>Illumination</b> |                                                            |
| HDK002              | 21V 150W lamp for cold light source                        |
| HDK003              | Halogen lamp 12V 10W for series 200/234                    |
| HDK020              | Dicroic halogen lamp 12V 100W                              |
| HDK025              | Fluorescent ring lamp                                      |
| <b>Others</b>       |                                                            |
| HDK005              | White/Black Contrast stage plate for series 200/234, 95 mm |
| HDK006              | Pair of blinkers for stereomicroscope                      |
| HDK007              | Ground glass stage plate (95mm) for series 200/234         |
| HDK009              | Ground glass stage plate (60 mm) for model 220             |



HDK - Accessories, others

Cold light source



- 1| For microscopic examinations, illumination of specific regions, or examinations of light-sensitive samples.
- 2| High-power lamp with no color change or heat emission.
- 3| Double flexible arm, 50 cm in length, with a continuous intensity adjustment mechanism.
- 4| Includes two Köhler condensers and devices for placing color filters.
- 5| LED illumination.



|                       |                    |
|-----------------------|--------------------|
| <b>Code</b>           | HDK001             |
| <b>Spectral range</b> | 450-700 nm         |
| <b>Halogen lamp</b>   | 21 V / 150 W       |
| <b>Dimensions</b>     | 208x105x124 mm     |
| <b>Weight</b>         | 1 kg               |
| <b>Power</b>          | CA 220 V, 50-60 Hz |

\* Optional 110V on request; code V

HGB - Eyepiece

Videocameras



| Code                              | HGB004                                        | HGB005           |
|-----------------------------------|-----------------------------------------------|------------------|
| <b>Sensor</b>                     | 1/2.2"CMOS                                    | 1/2.5"CMOS       |
| <b>Max. resolution</b>            | 2592x1944 (5 MP)                              | 3264x2448 (8 MP) |
| <b>Speed at max resolution</b>    | <7 FPS                                        | <1 FPS           |
| <b>Sensibility</b>                | 1.2                                           | 1.3              |
| <small>(v/lux-s a 550 nm)</small> |                                               |                  |
| <b>Dynamic range</b>              | 67 dB                                         | 75 dB            |
| <b>Wavelength</b>                 | 400-600 nm (with IR-cut filter)               |                  |
| <b>Eyepiece diameter</b>          | 23 mm (adapters of 30 and 30.5 included)      |                  |
| <b>Dimensions</b>                 | Cylindrical-shaped metal body, 50 mm diameter |                  |
| <b>Auto exposure</b>              | Automatic/Manual                              |                  |
| <b>Output</b>                     | USB 2.0                                       |                  |



HGG - Accesories for tablets

Adapters



- 1| Microscope and stereo adapters.
- 2| HGG001\* included with HGF001 and HGF002 tablets.

| Code   | Adaptor for |
|--------|-------------|
| HGG001 | 23 mm       |
| HGG002 | 30 mm       |
| HGG003 | 30.5 mm     |



Code - HGG001



Code - HGG002



Code - HGG003

Calibration slides



- 1| Graduated slide for the calibration of digital cameras/tablets

| Code   | Scales                                                                   |
|--------|--------------------------------------------------------------------------|
| HGG004 | Scales 1 mm / 100 Divisions 0.01mm<br>Scales 1 mm / 100 Divisions 0.1 mm |





## ▶ HJB - Visible

### ▶ Series 4100



CODE - HJB001



CODE - HJB002



- 1 | Manual wavelength selector and digital display.
- 3 | Absorbance and transmittance measurements in visible range.
- 4 | Model 4111RS allows calculation of concentrations by taking a sample of known concentration as a reference or by entering the value of the factor F ( $Abs = F \times conc$ ). Application software based on Windows operating system is available.
- 5 | Includes two glass cuvettes and a black cell for autozeroing.

|                              |                                                    |        |
|------------------------------|----------------------------------------------------|--------|
| <b>Code</b>                  | HJB001                                             | HJB002 |
| <b>Model</b>                 | 4101                                               | 4111RS |
| <b>Wavelength range</b>      | 330 – 1000nm                                       |        |
| <b>Optic system</b>          | Single beam, 1200 line/mm grid                     |        |
| <b>Bandwidth</b>             | 6 nm                                               |        |
| <b>Wavelength accuracy</b>   | ±2 nm                                              |        |
| <b>Wavelength resolution</b> | ±1 nm                                              |        |
| <b>Photometric range</b>     | 0-100%T; 0-1,999A; 0-1999 C; 0-1999 F              |        |
| <b>Detector</b>              | Silicon photodiode                                 |        |
| <b>Sample compartment</b>    | For 2 cuvettes of 10 mm                            |        |
| <b>Output</b>                | ----                                               | RS232  |
| <b>Power supply</b>          | 110V 60Hz / 220V 50Hz by means of a manual changer |        |

### ▶ Series 4201/20



- 1 | Manual wavelength selector. White and auto zero easy to perform.
- 2 | Absorbance, transmittance and concentration readings (factor method).
- 3 | Includes EasyUV Basic Software to work via PC.
- 4 | User assistance, indicating the steps to follow, ideal for education
- 5 | Auto-calibration at startup.
- 6 | 3.2" TFT color screen

|                              |                                      |
|------------------------------|--------------------------------------|
| <b>Code</b>                  | HJB003                               |
| <b>Wavelength range</b>      | 325-1050 nm                          |
| <b>Optic system</b>          | Single beam, 1200 line/mm grid       |
| <b>Bandwidth</b>             | 4 nm                                 |
| <b>Wavelength accuracy</b>   | ±1nm                                 |
| <b>Wavelength resolution</b> | ±0.5 nm                              |
| <b>Photometric range</b>     | -0,3-3 A; 0-200% T; 0-9999.9 C       |
| <b>Detector</b>              | Silicon photodiode                   |
| <b>Sample compartment</b>    | For 4 cuvettes de 10 mm              |
| <b>Output</b>                | USB and parallel port (printer)      |
| <b>Light source</b>          | Tungsten                             |
| <b>Power supply</b>          | 100-240VAC; 50/60Hz (manual changer) |

### ▶ Series 4211/20



- 1 | Memory for storing up to 200 absorbance and transmittance data. It also allows to save and retrieve up to 200 standard curves.
- 2 | MWave basic software included. Compatible with MWave professional software that increases the functions of the equipment through the computer.
- 3 | Photometric analysis (absorbance and transmittance) and quantitative mode (method of coefficient and standard curve).

|                              |                                            |
|------------------------------|--------------------------------------------|
| <b>Code</b>                  | HJB004                                     |
| <b>Wavelength range</b>      | 325-1000 nm                                |
| <b>Optic system</b>          | Single beam, 1200 line/mm grid             |
| <b>Bandwidth</b>             | 4nm                                        |
| <b>Wavelength accuracy</b>   | ±2 nm                                      |
| <b>Wavelength resolution</b> | ±0,1 nm                                    |
| <b>Photometric range</b>     | -0,3-3 A   0 - 200% T                      |
| <b>Lamps</b>                 | Tungsten                                   |
| <b>Detector</b>              | Silicon photodiode                         |
| <b>Sample compartment</b>    | 4 standard cuvettes with 10 mm light path  |
| <b>Output</b>                | USB and parallel port                      |
| <b>Power supply</b>          | 110 V 60 Hz / 220 V 50 HZ (manual changer) |



## HJB - Visible

### ► Serie 4310/3

- 1| The 1200 l/mm holographic grating with low stray light and the optimized optical design ensure greater accuracy.
- 2| Increased strength and durability thanks to the cast aluminum base and molded plastic housing.
- 3| Improved precision and repeatability of the wavelength and noise reduction due to the new (patented) wavelength control mechanism.
- 4| The high-resolution TFT color LCD touch screen provides excellent display effect and simple operation.
- 5| Auto-calibration and preheating countdown on startup.
- 6| File management function. Automatic wavelength adjustment.
- 7| Can be connected to a printer for direct output of measurement results.



|                            |                                             |
|----------------------------|---------------------------------------------|
| <b>Code</b>                | HJB007                                      |
| <b>Wavelength range</b>    | 315 – 1100 nm                               |
| <b>Wavelength accuracy</b> | ±0.5 nm                                     |
| <b>Spectral bandwidth</b>  | 4 nm                                        |
| <b>Photometric range</b>   | -0.3~3 A / 0~200 %T / 0~9999.9 C            |
| <b>Optical system</b>      | Simple beam 1200 line / mm                  |
| <b>Functions</b>           | Photometry, Quantitative and scan           |
| <b>Screen</b>              | Colour touch screen (110x62 mm)             |
| <b>Sample compartment</b>  | 10 mm manual 4-position cell holde          |
| <b>Lamps</b>               | Tugsteno                                    |
| <b>Output</b>              | 1 printer port, 1 PC USB port, 1 USB output |
| <b>Software</b>            | EasyUV Basic                                |
| <b>Detector</b>            | Silicon photodiode                          |
| <b>Power supply</b>        | AC 100-240 V; 50/60Hz                       |
| <b>Dimensions (LxWxA)</b>  | 450x370x187mm                               |
| <b>Weight</b>              | 10,5 Kg                                     |

### ► Spectrophotometer 4265/50

- 1| Equipment specially developed for water analysis using Chemetrics brand instrumental kits.
- 2| The 1200 l/mm holographic grating with low stray light and the optimized optical design ensure greater accuracy.
- 3| Increased strength and durability thanks to the cast aluminum base and molded plastic housing.
- 4| Improved precision and repeatability of the wavelength and noise reduction due to the new (patented) wavelength control mechanism.
- 5| The high-resolution TFT color LCD touch screen provides excellent display effect and simple operation.
- 6| Auto-calibration and preheating countdown on startup. File management function. Automatic wavelength adjustment.
- 7| Can be connected to a printer for direct output of measurement results.



|                            |                                                                                                                         |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>Code</b>                | HJB008                                                                                                                  |
| <b>Wavelength range</b>    | 315 – 1100 nm                                                                                                           |
| <b>Wavelength accuracy</b> | ±0.5 nm                                                                                                                 |
| <b>Spectral bandwidth</b>  | 2 nm                                                                                                                    |
| <b>Photometric range</b>   | -0.3~3 A / 0~200 %T / 0~9999.9 C                                                                                        |
| <b>Optical system</b>      | Simple beam 1200 line / mm                                                                                              |
| <b>Functions</b>           | Photometry, quantitation, spectrum, user program<br>44 methods programmed to work with the CHEMetrics instrumental kits |
| <b>Screen</b>              | 5 - inch TFT color touch screen (110x62 mm)                                                                             |
| <b>Sample compartment</b>  | Two-position sample holder 1 tube 13 to 16mm<br>Cuvettes 10 to 50mm                                                     |
| <b>Lamps</b>               | Tugsteno                                                                                                                |
| <b>Output</b>              | port × 1 (printer), port x 1 USB (PC), port x 1 USB                                                                     |
| <b>Software</b>            | EasyUV Basic                                                                                                            |
| <b>Detector</b>            | Silicon photodiode                                                                                                      |
| <b>Power supply</b>        | AC 100-240 V; 50/60Hz                                                                                                   |
| <b>Dimensions (LxWxA)</b>  | 450x370x187mm                                                                                                           |
| <b>Weight</b>              | 10,5 Kg                                                                                                                 |



## HJD - UV - Visible

### ▶ Model 4201/50



- 1 | White and auto zero easy to perform.
- 2 | Absorbance, transmittance and concentration readings (factor method)
- 3 | You can display and store 50 groups of data, 3 per display.
- 4 | Includes MWave Basic Software for working via PC.

|                              |                                           |
|------------------------------|-------------------------------------------|
| <b>Code</b>                  | HJD001                                    |
| <b>Wavelength adjustment</b> | Digital                                   |
| <b>Wavelength range</b>      | 200-1000nm                                |
| <b>Bandwidth</b>             | 4nm                                       |
| <b>Optic system</b>          | Single beam, 1200 line/mm grid            |
| <b>Wavelength accuracy</b>   | ±2nm                                      |
| <b>Wavelength resolution</b> | ±0.1nm                                    |
| <b>Photometric range</b>     | -0,3-3 A; 0-200% T                        |
| <b>Detector</b>              | Silicon photodiode                        |
| <b>Sample compartment</b>    | For 4 cuvettes of 10 mm                   |
| <b>Output</b>                | USB and parallel port (printer)           |
| <b>Power</b>                 | 110 V 60 Hz / 220 V 50 HZ (manual switch) |
| <b>Light source</b>          | Tungsten and deuterium                    |

### ▶ Model 4211/50



- 1 | Memory for storing up to 200 absorbance and transmittance data It also allows to save and retrieve up to 200 standard curves.
- 2 | Photometric (absorbance and transmittance) and quantitative analysis (coefficient and standard curve method)
- 3 | MWave basic software included. Compatible with MWave professional software that supports the functions of the device through the computer.

|                                   |                                           |
|-----------------------------------|-------------------------------------------|
| <b>Code</b>                       | HJD002                                    |
| <b>Wavelength range</b>           | 200-1000 nm                               |
| <b>Optic system</b>               | Single beam, 1200 line/mm grid            |
| <b>Bandwidth</b>                  | 4nm                                       |
| <b>Wavelength accuracy</b>        | ±2 nm                                     |
| <b>Wavelength resolution</b>      | ±0.1 nm                                   |
| <b>Wavelength reproducibility</b> | 0,8 nm                                    |
| <b>Photometric range</b>          | -0,3-3 A; 0-200% T                        |
| <b>Lamps</b>                      | Tungsten and deuterium                    |
| <b>Detector</b>                   | Silicon photodiode                        |
| <b>Sample compartment</b>         | 4 standard cuvettes with 10 mm light path |
| <b>Output</b>                     | USB and parallel port                     |
| <b>Power</b>                      | 110 V 60 Hz / 220 V 50 Hz (manual switch) |

### ▶ Model 4251/50



- 1 | Memory for storing up to 200 absorbance and transmittance data It also allows to save and retrieve up to 200 standard curves.
- 2 | Photometric (absorbance and transmittance) and quantitative (coefficient and standard curve method) and kinetic analysis
- 3 | MWave basic software included. Compatible with MWave professional software that increases the functions of the device through the computer.

|                                   |                                           |
|-----------------------------------|-------------------------------------------|
| <b>Code</b>                       | HJD003                                    |
| <b>Model</b>                      | 4251/50                                   |
| <b>Wavelength range</b>           | 190-1100nm                                |
| <b>Optic system</b>               | Single beam, 1200 line/mm grid            |
| <b>Bandwidth</b>                  | 2nm                                       |
| <b>Wavelength accuracy</b>        | ±0,5nm                                    |
| <b>Wavelength resolution</b>      | ±0,1nm                                    |
| <b>Wavelength reproducibility</b> | 0,3nm                                     |
| <b>Photometric range</b>          | -0,3 - 3 A, 0 - 200% T                    |
| <b>Lamps</b>                      | Tungsten and deuterium                    |
| <b>Detector</b>                   | Silicon photodiode                        |
| <b>Sample compartment</b>         | 4 standard cuvettes with 10 mm light path |
| <b>Output</b>                     | USB and parallel port                     |
| <b>Power</b>                      | 110 V 60 Hz / 220 V 50 Hz (manual switch) |



▶ HJD - UV - Visible

▶ Model 4255/50



- 1| Memory for data and curve storage in the equipment.
- 2| Advanced and complete functions to cover the whole range of applications: photo-metric analysis (absorbance and transmittance), quantitative, kinetic, scanning, DNA/protein and multiple wavelength analysis.
- 3| Compatible with UV/Vis Analyst software (not included)

|                                   |                                           |
|-----------------------------------|-------------------------------------------|
| <b>Code</b>                       | HJD004                                    |
| <b>Wavelength range</b>           | 190-1100nm                                |
| <b>Optic system</b>               | Single beam, 1200 line/mm grid            |
| <b>Bandwidth</b>                  | 2nm                                       |
| <b>Wavelength accuracy</b>        | ±0,5nm                                    |
| <b>Wavelength resolution</b>      | ±0,1nm                                    |
| <b>Wavelength reproducibility</b> | 0,3nm                                     |
| <b>Scanning speed</b>             | High, medium and low (max 3000nm/min)     |
| <b>Photometric range</b>          | -0,3 - 3 A, 0 - 200% T, 0 - 9999 C        |
| <b>Lamps</b>                      | Tungsten and deuterium                    |
| <b>Detector</b>                   | Silicon photodiode                        |
| <b>Sample compartment</b>         | 4 standard cuvettes with 10 mm light path |
| <b>Output</b>                     | USB and parallel port                     |
| <b>Power</b>                      | 110 V 60 Hz / 220 V 50 Hz (manual switch) |



▶ Double beam model 4260/50



- 1| Double-beam optic system .
- 2| Quantitative analysis, kinetics, scanning, multi-component analysis and DNA/protein analysis .
- 3| Excellent measurement performance in the range of 190 to 1100 nm
- 4| Variable bandwidth (0.5/1/2/4/5nm) to maximize the balance between resolution, accuracy and precision in each application
- 5| Supplied with Windows-based UV/Vis Analyst application software

|                                   |                                                                                                                             |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <b>Code</b>                       | HJD007                                                                                                                      |
| <b>Wavelength range</b>           | 190-1100 nm                                                                                                                 |
| <b>Wavelength accuracy</b>        | ± 0.3 nm                                                                                                                    |
| <b>Wavelength reproducibility</b> | 0.2 nm                                                                                                                      |
| <b>Spectral bandwidth</b>         | Variable: 0.5/1/2/4/5 nm                                                                                                    |
| <b>Photometric range</b>          | 0-200% T, -0.3 – 3 A                                                                                                        |
| <b>Photometric accuracy</b>       | ± 0.3% T o ± 0.003 A @ 1 A                                                                                                  |
| <b>Optic system</b>               | Double beam, rack 1200 lines/mm                                                                                             |
| <b>Scanning speed</b>             | High, medium, low (max. 3000 nm/min)                                                                                        |
| <b>Stray light</b>                | 0.04% T @ 220 nm, 360 nm                                                                                                    |
| <b>Stability</b>                  | 0.0003 A/h @ 500 nm                                                                                                         |
| <b>Baseline flatness</b>          | ± 0.0005 A                                                                                                                  |
| <b>Screen</b>                     | LCD 5 inch (320x240 points)                                                                                                 |
| <b>Sample compartment</b>         | 10 mm single cell holder (sample and reference)                                                                             |
| <b>Cells</b>                      | Includes 4 glass cuvettes and 2 quartz cuvettes                                                                             |
| <b>Light source</b>               | Tungsten and Deuterium Lamps (pre-aligned)                                                                                  |
| <b>Outputs</b>                    | USB type A port for USB memory stick (right side)<br>USB type B port for PC connection (rear side)<br>Parallel printer port |
| <b>Power</b>                      | AC 110/220 V, 50/60 Hz                                                                                                      |
| <b>Dimensions (LxWxA)</b>         | 589x428x200 mm                                                                                                              |
| <b>Weight</b>                     | 22 Kg                                                                                                                       |





HJD - UV - Visible

Series UV/Vis, model 4320/1



- 1| The 1200 l/mm holographic grating with low stray light and optimised optical design ensure greater accuracy.
- 2| Increased strength and durability due to cast aluminium base and moulded plastic housing.
- 3| Improved wavelength accuracy and repeatability and noise reduction due to new (patented) wavelength control mechanism.
- 4| High-resolution TFT colour LCD touch screen provides excellent viewing effect and easy operation.
- 5| Auto-calibration and pre-heating countdown at start-up. File management function.
- 6| Automatic wavelength adjustment.
- 7| Can be connected to a printer for direct output of measurement results.

|                                 |                                             |
|---------------------------------|---------------------------------------------|
| <b>Code</b>                     | HJD008                                      |
| <b>Wavelength range</b>         | 195 – 1050 nm                               |
| <b>Wavelength accuracy</b>      | ± 0.8 nm                                    |
| <b>Wavelength repeatability</b> | ≤ 0.4 nm                                    |
| <b>Spectral bandwidth</b>       | 4 nm                                        |
| <b>Photometric range</b>        | -0.3~3 A; 0~200 %T; 0~9999.9 C              |
| <b>Optical system</b>           | Simple beam 1200 line/mm                    |
| <b>Functions</b>                | Photometric and quantitative                |
| <b>Screen</b>                   | Color touch screen (110x62 mm)              |
| <b>Sample compartment</b>       | 4 standard cuvettes with 10 mm light path   |
| <b>Lamps</b>                    | Tungsten and deuterium                      |
| <b>Output</b>                   | 1 printer port, 1 PC USB port, 1 USB output |
| <b>Power</b>                    | 100-240vAc 50/60Hz                          |
| <b>Dimensions (LxWxA)</b>       | 450x370x187mm                               |
| <b>Weight</b>                   | 10,5 kg                                     |

Series UV/Vis, model 4320/2



- 1| Compatible with EasyUV software (HJH064), software must be purchased to use the scanning function.
- 2| 1200 l/mm holographic grating with low stray light and optimised optical design ensure greater accuracy.
- 3| Increased strength and durability due to cast aluminium base and moulded plastic housing.
- 4| Improved wavelength accuracy and repeatability and noise reduction due to the new (patented) wavelength control mechanism.
- 5| High-resolution TFT colour LCD touch screen provides excellent viewing effect and easy operation.
- 6| Auto-calibration and pre-heating countdown at start-up. File management function.
- 7| Automatic wavelength adjustment.
- 8| Can be connected to a printer for direct output of measurement results. EasyUV Basic software included.

|                                 |                                             |
|---------------------------------|---------------------------------------------|
| <b>Code</b>                     | HJD009                                      |
| <b>Wavelength range</b>         | 195 – 1050 nm                               |
| <b>Wavelength accuracy</b>      | ± 0.8 nm                                    |
| <b>Wavelength repeatability</b> | ≤ 0.4 nm                                    |
| <b>Spectral bandwidth</b>       | 2 nm                                        |
| <b>Photometric range</b>        | -0.3~3 A; 0~200 %T; 0~9999.9 C              |
| <b>Optical system</b>           | Simple beam 1200 line/mm                    |
| <b>Functions</b>                | Photometry and Quantitative                 |
| <b>Screen</b>                   | Color touch screen (110x62 mm)              |
| <b>Sample compartment</b>       | 4 cuvettes of 10 mm                         |
| <b>Lamps</b>                    | Tungsten and deuterium                      |
| <b>Output</b>                   | 1 printer port, 1 PC USB port, 1 USB output |
| <b>Power</b>                    | 100-240vAc 50/60Hz                          |
| <b>Dimensions (LxWxA)</b>       | 450x370x187mm                               |
| <b>Weight</b>                   | 10,5 kg                                     |



## HJD - UV - Visible

## Series UV-Vis model 4320/3

- 1| The 1200 l/mm holographic grating with low stray light and the optimized optical design ensure greater accuracy.
- 2| Increased strength and durability thanks to the cast aluminum base and molded plastic housing.
- 3| Improved precision and repeatability of the wavelength and noise reduction due to the new (patented) wavelength control mechanism.
- 4| The high-resolution TFT color LCD touch screen provides excellent display effect and simple operation.
- 5| Auto-calibration and preheating countdown on startup. File management function.
- 6| Automatic wavelength adjustment.
- 7| Can be connected to a printer for direct output of measurement results.



|                                 |                                               |
|---------------------------------|-----------------------------------------------|
| <b>Code</b>                     | HJD010                                        |
| <b>Wavelength range</b>         | 190 – 1100 nm                                 |
| <b>Wavelength accuracy</b>      | ± 0.5 nm                                      |
| <b>Wavelength repeatability</b> | ≤ 0.4 nm                                      |
| <b>Spectral bandwidth</b>       | 4 nm                                          |
| <b>Photometric range</b>        | -0.3~3 A; 0~200 %T; 0~9999.9 C                |
| <b>Optical system</b>           | Simple beam 1200 line/mm                      |
| <b>Functions</b>                | Photometric, quantitative, scanning           |
| <b>Screen</b>                   | Colour touch screen (110x62 mm)               |
| <b>Sample compartment</b>       | 4 cuvettes of 10 mm                           |
| <b>Lamps</b>                    | Tungsten and deuterium                        |
| <b>Output</b>                   | 1 printer port<br>1 USB PC port, 1 USB output |
| <b>Power</b>                    | 100-240vAc 50/60Hz                            |
| <b>Dimensions (LxWxA)</b>       | 450x370x187mm                                 |
| <b>Weight</b>                   | 10,5 kg                                       |

## Series UV-Vis model 4320/4

- 1| The 1200 l/mm holographic grating with low stray light and the optimized optical design ensure greater accuracy.
- 2| Increased strength and durability thanks to the cast aluminum base and molded plastic housing.
- 3| Improved precision and repeatability of the wavelength and noise reduction due to the new (patented) wavelength control mechanism.
- 4| The high-resolution TFT color LCD touch screen provides excellent display effect and simple operation.
- 5| Auto-calibration and preheating countdown on startup. File management function.
- 6| Automatic wavelength adjustment.
- 7| Can be connected to a printer for direct output of measurement results.



|                                 |                                               |
|---------------------------------|-----------------------------------------------|
| <b>Code</b>                     | HJD011                                        |
| <b>Wavelength range</b>         | 190 – 1100 nm                                 |
| <b>Wavelength accuracy</b>      | ± 0.5 nm                                      |
| <b>Wavelength repeatability</b> | ≤ 0.4 nm                                      |
| <b>Spectral bandwidth</b>       | 2 nm                                          |
| <b>Photometric range</b>        | -0.3~3 A; 0~200 %T; 0~9999.9 C                |
| <b>Optical system</b>           | Simple beam 1200 line/mm                      |
| <b>Functions</b>                | Photometric, quantitative, scanning           |
| <b>Screen</b>                   | Colour touch screen (110x62 mm)               |
| <b>Sample compartment</b>       | 4 cuvettes of 10 mm                           |
| <b>Lamps</b>                    | Tungsten and deuterium                        |
| <b>Output</b>                   | 1 printer port<br>1 USB PC port, 1 USB output |
| <b>Power</b>                    | 100-240vAc 50/60Hz                            |
| <b>Dimensions (LxWxA)</b>       | 450x370x187mm                                 |
| <b>Weight</b>                   | 10,5 kg                                       |



## ▶ HJD - UV - Visible

### ▶ Series UV-Vis model 4330/6



- 1| The 1200 l/mm holographic grating with low stray light and the optimized split-beam optical system design ensure greater instrument accuracy.
- 2| Improved precision and repeatability of the wavelength and noise reduction due to the new (patented) wavelength control mechanism.
- 3| The external tablet (10.1-inch IPS color LCD touch screen) provides excellent display quality and simple operation.
- 4| Auto-calibration and preheating on startup. The powerful measurement and analysis functions and the open user-defined measurement methods can meet the measurement requirements of scientific research.
- 5| The optional software (UVstudio) has GLP/GMP functions, which can effectively track and manage instrument performance and measurement data.
- 6| File management function. Through various interfaces, keyboards, mice, scanners, and printers can be connected for data input and output, and network access for remote control, data transmission, and sharing.

|                                 |                                                                                                                       |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>Code</b>                     | HJD012                                                                                                                |
| <b>Wavelength range</b>         | 190-1100 nm                                                                                                           |
| <b>Wavelength accuracy</b>      | ± 0.3 nm                                                                                                              |
| <b>Wavelength repeatability</b> | ≤ 0.1 nm                                                                                                              |
| <b>Spectral bandwidth</b>       | 1.5 nm                                                                                                                |
| <b>Photometric range</b>        | 0 to 400%T, -4 to 4A, 0 to 9999C                                                                                      |
| <b>Optical system</b>           | Split beam, 1200 lines/mm grid                                                                                        |
| <b>Functions</b>                | Photometry, multi-WL, Kinetics, Quantitative test, Dual component DNA/Protein, Time scan                              |
| <b>Display</b>                  | IPS colour capacitive touchscreen 10.1 inches                                                                         |
| <b>Sample compartment</b>       | 10 mm manual 4-position cell holder                                                                                   |
| <b>Lamps</b>                    | Tungsten and deuterium                                                                                                |
| <b>Output</b>                   | 1 printer port, 1 USB port for PC, 1 USB output, Connectivity via Bluetooth / 1 hub with 3+1 USB 3.0 ports + 1 type C |
| <b>Power</b>                    | 100-240VAC, 50/60Hz, 120W                                                                                             |
| <b>Dimensions (LxWxA)</b>       | 450x370x187mm                                                                                                         |
| <b>Weight</b>                   | 11 kg                                                                                                                 |

### ▶ Series UV-Vis model 4330/9



- 1| The 1200 l/mm holographic grating with low stray light and the optimized dual-beam optical system design ensure greater measurement accuracy.
- 2| Improved precision and repeatability of the wavelength and noise reduction due to the new (patented) wavelength control mechanism.
- 3| The built-in computer (10.1-inch IPS color LCD touch screen) provides excellent display quality and simple operation.
- 4| Auto-calibration and preheating on startup.
- 5| The software (UVstudio) has GLP/GMP functions, which can effectively track and manage instrument performance and measurement data.
- 6| File management function. Through various interfaces, keyboards, mice, scanners, and printers can be connected for data input and output, and network access for remote control, data transmission, and sharing.

|                                 |                                                                                                          |
|---------------------------------|----------------------------------------------------------------------------------------------------------|
| <b>Code</b>                     | HJD013                                                                                                   |
| <b>Wavelength range</b>         | 190-1100 nm                                                                                              |
| <b>Wavelength accuracy</b>      | ± 0.3 nm                                                                                                 |
| <b>Wavelength repeatability</b> | ≤ 0.1 nm                                                                                                 |
| <b>Spectral bandwidth</b>       | Variable: 0.5,1,2,4,5nm                                                                                  |
| <b>Photometric range</b>        | -0,3 - 3A, 0-200 %T                                                                                      |
| <b>Optical system</b>           | Double beam, 1200 lines/mm grid                                                                          |
| <b>Functions</b>                | Photometry, Quantitation, Spectrum, Kinetics, Time scanning Multi Wavelength, DNA/Protein, Custom Method |
| <b>Screen</b>                   | IPS colour capacitive touchscreen, 10.1 inches                                                           |
| <b>Sample compartment</b>       | 10 mm, 1-position cuvette holder                                                                         |
| <b>Lamps</b>                    | Tungsten and deuterium                                                                                   |
| <b>Output</b>                   | 1 VGA port, 1 WLAN port, 1 HDMI port<br>2x USB ports (left), 1 USB port (right)<br>1 rear USB B port     |
| <b>Power</b>                    | 100-240 VAC, 50/60 Hz, 140 W                                                                             |
| <b>Dimensions (LxWxA)</b>       | 580x420x230 mm                                                                                           |
| <b>Weight</b>                   | 15 kg                                                                                                    |



## HJD - UV - Visible

### Series UV-Vis model 4510/4

- 1| The 1200 l/mm holographic grating with low stray light and the optimized optical design ensure greater accuracy.
- 2| Increased strength and durability thanks to the cast aluminum base and molded plastic housing.
- 3| Improved precision and repeatability of the wavelength and noise reduction due to the new (patented) wavelength control mechanism.
- 4| The high-resolution TFT color LCD touch screen provides excellent display quality and simple operation. Auto-calibration and preheating countdown on startup.
- 5| File management function. Automatic wavelength adjustment.
- 6| Can be connected to a printer for direct output of measurement results. EasyUV Basic software included.



|                                 |                                                                           |
|---------------------------------|---------------------------------------------------------------------------|
| <b>Code</b>                     | HJD014                                                                    |
| <b>Wavelength range</b>         | 190 – 1100 nm                                                             |
| <b>Wavelength accuracy</b>      | ± 0.5 nm                                                                  |
| <b>Wavelength repeatability</b> | ≤ 0.2 nm                                                                  |
| <b>Spectral bandwidth</b>       | 2 nm                                                                      |
| <b>Photometric range</b>        | -0.3~4 A; 0~200 %T; 0~9999.9 C                                            |
| <b>Optical system</b>           | Split beam, 1200 lines / mm grid                                          |
| <b>Functions</b>                | Photometry, Quantitation, Spectrum                                        |
| <b>Screen</b>                   | TFT colour touchscreen, 5 inches (110x62 mm)                              |
| <b>Sample compartment</b>       | For 4 x 10 mm cuvettes                                                    |
| <b>Light source</b>             | Flashing Xenon lamp                                                       |
| <b>Output</b>                   | RS232 serial port × 1 (printer), USB-A<br>1 (USB storage), USB-B × 1 (PC) |
| <b>Power</b>                    | 100-240vAc 50/60Hz                                                        |
| <b>Dimensions (LxWxA)</b>       | 450x370x187mm                                                             |
| <b>Weight</b>                   | 10,5 kg                                                                   |

### Series UV-Vis model 4510/5

- 1| The 1200 l/mm holographic grating with low stray light and the optimized split-beam optical system design ensure greater accuracy.
- 2| Improved precision and repeatability of the wavelength and noise reduction due to the new (patented) wavelength control mechanism.
- 3| The external tablet (10.1-inch IPS color LCD touch screen) provides excellent display quality and simple operation.
- 4| Auto-calibration and preheating on startup. The powerful measurement and analysis functions and the open user-defined measurement methods can meet the measurement requirements of scientific research.
- 5| The software (UVstudio) has GLP/GMP functions, which can effectively track and manage instrument performance and measurement data.
- 6| File management function. Through various interfaces, keyboards, mice, scanners, and printers can be connected for data input and output, and network access for remote control, data transmission, and sharing.



|                                 |                                                                                                                                                                     |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Code</b>                     | HJD015                                                                                                                                                              |
| <b>Wavelength range</b>         | 190 – 1100 nm                                                                                                                                                       |
| <b>Wavelength accuracy</b>      | ± 0.3 nm                                                                                                                                                            |
| <b>Wavelength repeatability</b> | ≤ 0.1 nm                                                                                                                                                            |
| <b>Spectral bandwidth</b>       | 2 nm                                                                                                                                                                |
| <b>Photometric range</b>        | 0 to 400%T, -4 to 4A, 0 to 9999C                                                                                                                                    |
| <b>Optical system</b>           | Split beam, 1200 lines / mm grid                                                                                                                                    |
| <b>Functions</b>                | Photometry, Quantitation, Spectrum, Kinetics<br>Time scanning, Multi Wavelength, DNA/Protein, Custom                                                                |
| <b>Screen</b>                   | IPS colour capacitive touchscreen, 10,1 inch<br>External tablet (10.1" IPS colour LCD touch screen)                                                                 |
| <b>Sample compartment</b>       | For 4 x 10 mm cuvettes                                                                                                                                              |
| <b>Light source</b>             | Flashing Xenon lamp                                                                                                                                                 |
| <b>Output</b>                   | USB-A x1 (OTG function, expandable, connectable to printer<br>storage, mouse, keyboard and other), USB-B x1 (PC)<br>WIFI x1 (Internet), SD card x1, HDMI, Bluetooth |
| <b>Power</b>                    | 100-240vAc 50/60Hz                                                                                                                                                  |
| <b>Dimensions (LxWxA)</b>       | 450x370x187mm                                                                                                                                                       |
| <b>Weight</b>                   | 10,5 kg                                                                                                                                                             |



## HJD - UV - Visible

▶ Series UV-Vis model 4510/7



YouTube



- 1| The 1200 l/mm holographic grating with low stray light and the optimized dual-beam optical system design ensure greater accuracy.
- 2| Improved precision and repeatability of the wavelength and noise reduction due to the new (patented) wavelength control mechanism.
- 3| The built-in computer (10.1-inch IPS color LCD touch screen) provides excellent display quality and simple operation. Auto-calibration and preheating on startup.
- 4| The powerful measurement and analysis functions and the open user-defined measurement methods can meet the measurement requirements of scientific research.
- 5| The optional software (UVstudio) has GLP/GMP functions, which can effectively track and manage instrument performance and measurement data.
- 6| File management function. Through various interfaces, keyboards, mice, scanners, and printers can be connected for data input and output, and network access for remote control, data transmission, and sharing.

|                                 |                                                                                                                                                           |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Code</b>                     | HJD016                                                                                                                                                    |
| <b>Wavelength range</b>         | 190 – 1100 nm                                                                                                                                             |
| <b>Wavelength accuracy</b>      | ± 0.3 nm                                                                                                                                                  |
| <b>Wavelength repeatability</b> | ≤ 0.1 nm                                                                                                                                                  |
| <b>Spectral bandwidth</b>       | 1.8 nm                                                                                                                                                    |
| <b>Photometric range</b>        | 0 to 400%T, -4 to 4A, 0 to 9999C                                                                                                                          |
| <b>Optical system</b>           | Double beam 1200 line/mm                                                                                                                                  |
| <b>Functions</b>                | Photometry, Quantitation, Spectrum, Kinetics, Time scanning, Multi Wavelength, DNA/Protein, Custom                                                        |
| <b>Screen</b>                   | IPS colour capacitive touchscreen, 10,1 inches                                                                                                            |
| <b>Sample compartment</b>       | 10 mm cuvettes (sample and reference)                                                                                                                     |
| <b>Light source</b>             | Flashing Xenon lamp                                                                                                                                       |
| <b>Output</b>                   | USB-A x3 (extensible, connectable to printer, storage, mouse, keyboard), USB-B (PC) x1, RJ-45 x1 (Ethernet) VGA x1, HDMI x1, Bluetooth (extensible, WIFI) |
| <b>Power</b>                    | 100-240vAc 50/60Hz                                                                                                                                        |
| <b>Dimensions (LxWxA)</b>       | 580x420x230 mm                                                                                                                                            |
| <b>Weight</b>                   | 15 kg                                                                                                                                                     |

## HJF - Microvolume nanodrop

▶ Model Z-6500



YouTube



- 1| Integrated computer with a 7-inch touchscreen and intuitive software that requires no installation, accompanied by internal storage ≥ 32GB for saving user-defined results and methods, with export capability in spreadsheet format via USB or network.
- 2| UV/VIS wavelength range from 190 to 900 nm, with an accuracy of ±1 nm, 2 nm resolution, split-beam optical system, and adjustable optical path lengths (1, 0.5, 0.05 mm), ideal for high-precision measurements.
- 3| Efficient and versatile detection, with a sample volume of 0.3-2.5 µl, photometric range of 0-300 A, and accuracy of 0.002 A, allowing quantification of nucleic acids (0.4-15000 ng/µl dsDNA) and proteins (0.1-400 mg/ml BSA) in less than 5 seconds per cycle.
- 4| Advanced light source and high-resolution detector ensuring reliable and long-lasting optical performance.
- 5| Compact and robust design, with a detection base made of stainless steel with a quartz central point.

|                                     |                              |         |
|-------------------------------------|------------------------------|---------|
| <b>Code</b>                         | HJF001                       | HJF002  |
| <b>Model</b>                        | Z-6500                       | Z-6500C |
| <b>Wavelength range</b>             | 190-900 nm                   |         |
| <b>Wavelength accuracy</b>          | ± 1 nm                       |         |
| <b>Optical system</b>               | Split beam                   |         |
| <b>Bandwidth</b>                    | 1, 0.5, 0.05 mm (adjustable) |         |
| <b>Photometric range</b>            | 0-300 A                      |         |
| <b>Sample volume</b>                | 1-2.5 µl                     |         |
| <b>Detector</b>                     | Linear silicified CCD array  |         |
| <b>Nucleic acid measuring range</b> | 0.4-15000 ng/µl (dsADN)      |         |
| <b>Protein measuring range</b>      | 0.1-100 mg/ml (BSA)          |         |
| <b>Detection cycle</b>              | ≤ 5 s                        |         |
| <b>Power</b>                        | 29 W                         |         |
| <b>Power supply</b>                 | 100-240 V CA, 50/60 Hz       |         |
| <b>Dimensions</b>                   | 300x200x180 mm               |         |
| <b>Weight</b>                       | 3.2 kg                       |         |



## HJG - Checking standards

▶ Dididium glass filter



1 | Solid filter for verification of wavelength accuracy in the range visible and UV (from 329 nm to 875 nm) and for verification of photometric accuracy.

|                           |                         |
|---------------------------|-------------------------|
| <b>Code</b>               | HJG001                  |
| <b>Description</b>        | Dididium (F5)           |
| <b>Peak position (nm)</b> | 327, 473, 513, 684, 875 |
| <b>Nominal absorbance</b> | 5.0 (280 nm)            |
|                           | 3.0 (300 nm)            |
|                           | 0.5 (320 nm)            |
|                           | 0.2 (340 nm)            |



▶ Neutral density glass filter



1 | Grey glass filters for verification of photometric accuracy (absorbance) in the visible range (440 nm to 635 nm).  
 2 | They show a relatively constant transmission along the visible spectrum being calibrated at certain wavelengths.  
 3 | The glass filter thickness has been adjusted to give nominal absorbance values of 0.25 A, 0.5 A and 1 A.

| Code   | Des. | Nominal absorbance | Medium absorbance (nm)  |
|--------|------|--------------------|-------------------------|
| HJG003 | F2   | 0.25 A             | 440, 465, 546, 590, 635 |
| HJG004 | F3   | 0.5 A              | 440, 465, 546, 590, 635 |
| HJG005 | F4   | 1.0 A              | 440, 465, 546, 590, 635 |



## HJH - Accessories

▶ Accessories for spectrophotometers 4100, 4419, 4201/20, 4200, 4211/20, 4211/50, 4251/50, 4255/50'



| Code                         | Description                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------------------|
| <b>Lamps</b>                 |                                                                                                            |
| HJH003                       | Halogen lamp 6 V 10 W, for model 4201/20                                                                   |
| HJH006                       | Halogen lamp 12 V 20 W, for series 4201/4211/4251/4255                                                     |
| HJH007                       | Deuterium lamp, for series 4200                                                                            |
| HJH034                       | Halogen lamp 12V 20W for model 4260/50                                                                     |
| <b>HJH060</b>                | Xenon lamp for models: 4510/4, 4510/5 y 4510/7                                                             |
| <b>Software and printers</b> |                                                                                                            |
| HJH008                       | Software MWave Professional, for models 4201/50, 4211/20, 4211/50, 4251/50                                 |
| HJH009                       | Software UV/Vis Analyst, for model 4255/50                                                                 |
| <b>HJH062</b>                | Stylus printer for spectrophotometers. For series 4211/20, 4201/50, 4211/50, 4251/50, 4255/50 and 4260/50. |
| <b>HJH063</b>                | Thermal printer for spectrophotometers, For series 4201/20, 4310/3, 4320/1 to 4320/4 and 4510/4.           |
| <b>HJH064</b>                | EasyUV scanning software for codes HJB007, HJB008, HJD008, HJD009, HJD010, HJD011 and HJD014               |
| <b>HJH065</b>                | UV Studio data tracking software for codes HJD012, HJD015, HJD016 and HJD013                               |
| <b>HJH066</b>                | Software of red wine for codes HJD003, HJB004, HJD001 and HJD002                                           |
| <b>HJH067</b>                | Software UVStudio GLP/GMP for HJD012, HJD013, HJD015 and HJD016                                            |



## HJH - Accessories

- ▶ Accessories for spectrophotometers 4100, 4419, 4201/20, 4200, 4211/20, 4211/50, 4251/50, 4255/50'

| Code                   | Description                                                                                                                                                                |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Supports</b>        |                                                                                                                                                                            |
| HJH027                 | Support for 4 cells of 10 to 50mm                                                                                                                                          |
| HJH031                 | Support for cylindrical tubes of Ø16 mm                                                                                                                                    |
| HJH035                 | Support for 4 cuvettes of 10mm for 4211/20, 4201/20, 4201/50, 4211/50, 4251/50, 4255/50, 4260/50, 4310/3, 4320/1 to 4320/4, 4330/6, 4510/4 and 4510/5                      |
| HJH036                 | Support for 4 cuvettes up to 100 mm for 4211/20, 4201/20, 4201/50, 4211/50, 4251/50, 4255/50, 4260/50, 4310/3, 4320/1 to 4320/4, 4330/6, 4510/4 and 4510/5                 |
| HJH037                 | Support for 4 cuvettes up to 100 mm, double beam for series 4260/50, 4330/9 and 4510/7                                                                                     |
| HJH038                 | Support for 1x100mm cuvette, double beam for series 4260/50, 4330/9 and 4510/7                                                                                             |
| HJH039                 | Support for 1 cuvette of 10mm for series 4211/20, 4201/20, 4201/50, 4211/50, 4251/50, 4255/50, 4260/50, 4310/3, 4320/1 to 4320/4, 4330/6, 4510/4 and 4510/5                |
| HJH040                 | Support for 1 cylindrical cuvette Ø22 mm for series 4211/20, 4201/20, 4201/50, 4211/50, 4251/50, 4255/50, 4260/50, 4310/3, 4320/1 to 4320/4, 4330/6, 4510/4 and 4510/5     |
| HJH041                 | Support with water jacket for 1x10 mm cuvette for series 4201/20, 4251/50, 4255/50, 4260/50, 4310/3, 4320/1 to 4320/4, 4330/6, 4510/4 and 4510/5                           |
| HJH042                 | Support with water jacket for 1x10 mm cuvette, double beam for series 4260/50, 4330/9 and 4510/7                                                                           |
| HJH043                 | Support with water jacket for 4x10 mm cuvettes for series 4201/20, 4251/50, 4255/50, 4260/50, 4310/3, 4320/1 to 4320/4, 4330/6, 4510/4 and 4510/5                          |
| HJH044                 | Support for microcuvette for series 4211/20, 4201/20, 4201/50, 4211/50, 4251/50, 4255/50, 4260/50, 4310/3, 4320/1 to 4320/4, 4330/6, 4510/4 and 4510/5.                    |
| HJH045                 | Support cylindrical cuvette Ø8-22 mm for series 4211/20, 4201/20, 4201/50, 4211/50, 4251/50, 4255/50, 4260/50, 4310/3, 4320/1 to 4320/4, 4330/6, 4510/4 and 4510/5.        |
| HJH046                 | Solid sample holder (d1.5mm-3mm) 1 position for series 4211/20, 4201/20, 4201/50, 4211/50, 4251/50, 4255/50, 4260/50, 4310/3, 4320/1 to 4320/4, 4330/6, 4510/4 and 4510/5. |
| HJH047                 | Solid sample holder (d1.5mm-3mm) 1 position, double beam for series 4260/50, 4330/9 and 4510/7                                                                             |
| HJH048                 | Solid sample holder (d1.5mm-3mm) 2 positions for series 4211/20, 4201/20, 4201/50, 4211/50, 4251/50, 4255/50, 4260/50, 4310/3, 4320/1 to 4320/4, 4330/6, 4510/4 and 4510/5 |
| HJH049                 | Automatic 8-position holder for 10 mm cuvettes, type A HJH050 for series 4201/50, 4251/50, 4255/50 and 4260/50                                                             |
| HJH051                 | Automatic 5-position holder for 10 mm cuvettes from 10mm to 100mm for series 4330/9 and 4510/7                                                                             |
| HJH052                 | Automatic 8-position holder for 10 mm cuvettes, type B series 4310/3, 4320/1 to 4320/4, 4330/6, 4330/9 and 4510/4 to 4510/7                                                |
| HJH053                 | Support for 5° reflectance accessory for series 4201/20, 4211/20, 4201/50, 4211/50, 4251/50, 4255/50, 4260/50, 4310/3, 4320/1 to 4, 4330/6, 4510/4 and 4510/7              |
| <b>Peltier systems</b> |                                                                                                                                                                            |
| HJH054                 | Peltier system type A for series 4251/50, 4255/50, 4260/50, 4330/9 and 4510/7                                                                                              |
| HJH055                 | Peltier system type B for series 4310/3, 4320/1 to 4320/4, 4330/6, 4510/4 and 4510/5                                                                                       |
| HJH056                 | Peltier system type A for series 4251/50, 4255/50, 4260/50, 4330/9 and 4510/7                                                                                              |
| HJH057                 | Peltier system type B for series 4310/3, 4320/1 to 4320/4, 4330/6, 4510/4 and 4510/5                                                                                       |

## HJK - Cells, glass

- 1| They are supplied in paired unit boxes and all have the following characteristics:
- 2| Material specifications: two types of material, optical glass (340-2500 nm) for the visible spectrum (vis) and synthetic quartz (190- 2500 nm) for the ultraviolet (UV)
- 3| Construction of the cells: they are made by tuning their walls, that is, following a process of heating, without reaching the temperature of fusion, of powder conglomerates to which it is modelled by pressure.
- 4| General characteristics:
  - Resistance to alkali of 6mol/L of sodium hydroxide (NaOH), kept in the tank for 24 hours, without breakage or dripping.
  - Resistance to acids of 6mol/L of hydrochloric acid (HCl), kept in the cuvette for 24 hours, without breakage or dripping.
  - Resistance to organic solvents such as ethanol (C<sub>2</sub>H<sub>5</sub>OH), carbon tetrachloride (CCl<sub>4</sub>) or benzene (C<sub>6</sub>H<sub>6</sub>), kept separately in the cuvette for 24 hours, without breaking or dripping.



## HJK - Cells, glass

▶ Semi-micro glass cell (10 mm)

- 1| They are the most common in analytical chemistry.
- 2| They have two polished walls and have a cap (not airtight).
- 3| External dimensions 12.5 x B x 45 mm / Inlet beam width: 10 mm



| Code   | Light path | Volume   |
|--------|------------|----------|
| HJK001 | 1 mm       | 0.35 mL  |
| HJK002 | 2 mm       | 0.70 mL  |
| HJK003 | 5 mm       | 1.70 mL  |
| HJK004 | 10 mm      | 3.50 mL  |
| HJK005 | 20 mm      | 7.00 mL  |
| HJK006 | 40 mm      | 14.00 mL |
| HJK007 | 50 mm      | 17.50 mL |

▶ Standard glass cell with stopper (10 mm)

- 1| They incorporate an airtight PTFE cap, recommended for volatile liquids.
- 2| External dimensions 12.5 x 12.5 x 48mm / Inlet beam width: 10 mm



| Code   | Light path | Volume  | Lot |
|--------|------------|---------|-----|
| HJK008 | 10 mm      | 3.50 mL | 2   |

▶ Semi-micro glass cell, black walls (4 mm)

- 1| To reduce the volume of the sample needed to make a measurement.
- 2| Its black faces improve sensitivity by eliminating stray light from the measurement.
- 3| External dimensions 12.5 x B x 45 mm / Input beam width: 4 mm
- 4| They have a cap (not watertight).



| Code   | Light path | Volume  | Lot |
|--------|------------|---------|-----|
| HJK009 | 5 mm       | 0.50 mL | 2   |
| HJK010 | 10 mm      | 1.00 mL | 2   |
| HJK011 | 20 mm      | 2.00 mL | 2   |

▶ Semi-micro glass cell with stopper, black walls (4 mm)

- 1| They incorporate an airtight PTFE cap, recommended for volatile liquids.
- 2| External dimensions 12.5 x 12.5 x 48mm / Inlet beam width: 4 mm.

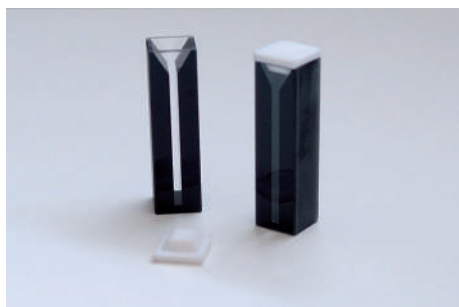


| Code   | Light path | Volume  | Lot |
|--------|------------|---------|-----|
| HJK012 | 10 mm      | 1.00 mL | 2   |



## HJK - Cells, glass

### Micro glass cell, black walls (2 mm)



- 1 | For small sample volumes.
- 2 | Outside dimensions 12.5 x 12.5 x 48mm / Input beam width: 2 mm
- 3 | Have a cap (not watertight)

| Code   | Light path | Volume  | Lot |
|--------|------------|---------|-----|
| HJK013 | 10 mm      | 0.50 mL | 2   |

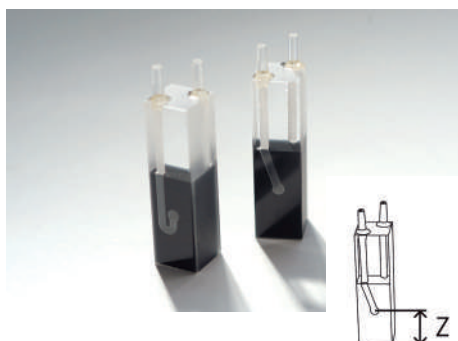
### Micro glass cell with stopper, black walls (2 mm)



- 1 | The same as the micro cuvettes except that they include a PTFE stopper that seals them hermetically, making them better for preventing the evaporation of volatile liquids.
- 2 | External dimensions 12.5 x B x 48mm / Inlet beam width: 2 mm

| Code   | Light path | Volume  | Lot |
|--------|------------|---------|-----|
| HJK014 | 5 mm       | 0.25 mL | 2   |
| HJK015 | 10 mm      | 0.50 mL | 2   |

### Flow through cell



- 1 | Made of optical glass (G).
- 2 | Used in applications requiring a measuring range of 340 nm to 2.5 μm.
- 3 | Cuvettes have sample inlet and outlet tubes and two polished circular opening windows for the passage of the light beam.
- 4 | Each model is supplied in a case with two units. External dimensions 12.5 x 12.5 x 45mm / Ø inlet beam: 3 mm

| Code   | Height Z | Light path | Volume  | Lot |
|--------|----------|------------|---------|-----|
| HJK016 | 8.5 mm   | 10 mm      | 0.07 mL | 2   |
| HJK017 | 15 mm    | 10 mm      | 0.07 mL | 2   |

## HJL - Cells, quartz

### Standard quartz cell (10 mm)



- 1 | They are the most common in analytical chemistry.
- 2 | They have two polished walls and have a cap (not airtight).
- 3 | External dimensions 12.5 x B x 45 mm / Inlet beam width: 10 mm

| Code   | Light path | Volume   | Lot |
|--------|------------|----------|-----|
| HJL001 | 1 mm       | 0.35 mL  | 2   |
| HJL002 | 2 mm       | 0.70 mL  | 2   |
| HJL003 | 5 mm       | 1.70 mL  | 2   |
| HJL004 | 10 mm      | 3.50 mL  | 2   |
| HJL005 | 20 mm      | 7.00 mL  | 2   |
| HJL006 | 40 mm      | 14.00 mL | 2   |
| HJL007 | 50 mm      | 17.50 mL | 2   |



## HJL - Cells, quartz

▶ Standard quartz cell with stopper (10 mm)



- 1 | They incorporate an airtight PTFE cap, recommended for volatile liquids.
- 2 | External dimensions 12.5 x 12.5 x 48mm / Inlet beam width: 10 mm

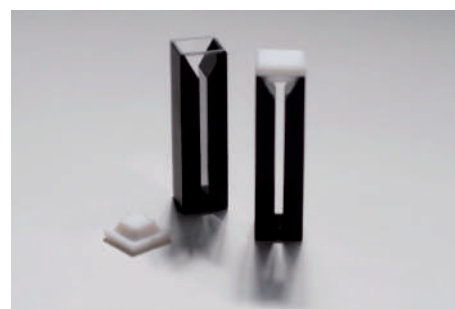


| Code   | Light path | Volume  | Lot |
|--------|------------|---------|-----|
| HJL008 | 10 mm      | 3.50 mL | 2   |

▶ Semi-micro quartz cell, black wall (4 mm)



- 1 | To reduce the volume of the sample needed to make a measurement.
- 2 | Its black faces improve sensitivity by eliminating stray light from the measurement.
- 3 | External dimensions 12.5 x B x 45mm / Input beam width: 4 mm
- 4 | They have a cap (not watertight).



| Code   | Light path | Volume  | Lot |
|--------|------------|---------|-----|
| HJL009 | 5 mm       | 0.50 mL | 2   |
| HJL010 | 10 mm      | 1.00 mL | 2   |
| HJL011 | 20 mm      | 2.00 mL | 2   |

▶ Semi-micro quartz cell with stopper, black walls (4 mm)



- 1 | They incorporate an airtight PTFE cap, recommended for volatile liquids.
- 2 | External dimensions 12.5 x 12.5 x 48mm / Inlet beam width: 4 mm.



| Code   | Light path | Volume  | Lot |
|--------|------------|---------|-----|
| HJL012 | 10 mm      | 1.00 mL | 2   |

▶ Micro quartz cell, black walls (2 mm)



- 1 | For small sample volumes.
- 2 | External dimensions 12.5 x 12.5 x 48mm / Input beam width: 2 mm
- 3 | They have a cap (not watertight).



| Code   | Light path | Volume  | Lot |
|--------|------------|---------|-----|
| HJL013 | 10 mm      | 0.50 mL | 2   |



**HJL - Cells, quartz**

- ▶ Micro quartz cell with stopper, black walls (2 mm)



- 1 | The same as the micro cuvettes except that they include a PTFE stopper that seals them hermetically, making them better for preventing the evaporation of volatile liquids.
- 2 | External dimensions 12.5 x B x 48mm / Inlet beam width: 2 mm

| Code   | Light path | Volume  | Lot |
|--------|------------|---------|-----|
| HJL014 | 5 mm       | 0.25 mL | 2   |
| HJL015 | 10 mm      | 0.50 mL | 2   |

**HJM - Cells, others**

- ▶ Cuvette macro PS



**Kartell**

- 1 | External dimensions 12x12x45 mm

| Code   | Description   | Cap.   | Pack    |
|--------|---------------|--------|---------|
| HJM004 | Macro         | 4.5 mL | 100 pcs |
| HJM005 | Semi-micro    | 1.5 mL | 100 pcs |
| HJM007 | Semi-micro    | 2.5 mL | 100 pcs |
| HJM010 | 4 clear faces | 4.5 mL | 100 pcs |

- ▶ Spectr. UV cuvette PMMA

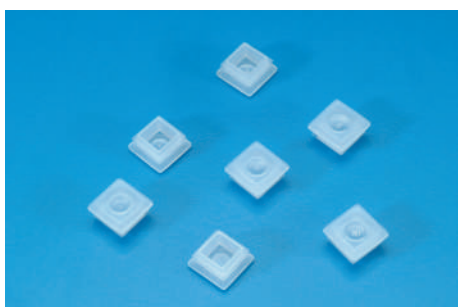


**Kartell**

- 1 | External dimensions (mm): 12x12x45
- 2 | Light path: 10

| Code   | Description   | Cap.   | Pack    |
|--------|---------------|--------|---------|
| HJM006 | Macro         | 4.5 mL | 100 pcs |
| HJM008 | Semi-micro    | 2.5 mL | 100 pcs |
| HJM009 | Semi-micro    | 1.5 mL | 100 pcs |
| HJM011 | 4 clear faces | 4.5 mL | 100 pcs |

- ▶ Caps for cuvettes



**Kartell**

- 1 | Polyethylene pressure cap to close the cells with square section mouth (10x10 mm).
- 2 | Ideal for shaking the sample eventually or as safety in case of accidental spillage.

| Code   | Dimensions | Pack  |
|--------|------------|-------|
| HJM012 | 10x10 mm   | 1.000 |



## HJM - Cells, others

## ▶ Tray

**Kartell**

1 | It can hold 12 x 10 mm cells in an upright position for preparation and in a horizontal position for conservation and protection.

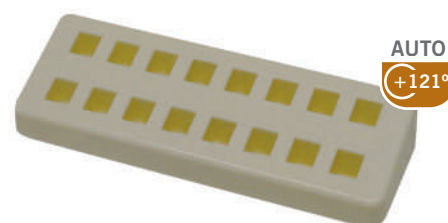
| Code   | Positions | Cuvette type | Dimensions |
|--------|-----------|--------------|------------|
| HJM002 | 12        | 2x12         | 170x50x15  |



## ▶ PP cuvette rack, 16 positions

1 | The wells hold standard spectrophotometer cuvettes with a 13mm cross-section. Sloped top makes the second tier more accessible

| Code   | Dimensions (LxWxH) | Array               |
|--------|--------------------|---------------------|
| HJM020 | 210x70x35mm        | 2 rows x 8 cuvettes |



## HMB - Polarimeters

## ▶ 404 and 404-LED models

**Zuzi**

- 1 | Inclined sample compartment that can accommodate tubes up to 220 mm
- 2 | Double reading scale by means of Vernier to avoid differences due to eccentricity.
- 3 | Eyepiece with diopter adjustment.
- 4 | Two lateral magnifying glasses of 4 magnifications to facilitate the reading of the scale.
- 5 | Supplied with two tubes for samples of 100 and 200 mm respectively.

| Code                 | HMB001                            | HMB002       |
|----------------------|-----------------------------------|--------------|
| Model                | 404                               | 404-LED      |
| Illumination         | Sodium vapour lamp                | LED + filter |
| Wavelength length    | 589,4 nm                          | 589,4 nm     |
| Number of scales     | 2                                 |              |
| Measurement range    | Two quadrants ( $\pm 180^\circ$ ) |              |
| Scale division       | 1°                                |              |
| Legibility (Vernier) | 0,05°                             |              |



CODE - HMB001



CODE - HMB002



▶ HMB - Polarimeters

▶ Model 412



- 1 | Photoelectric detection, RS 232 output.
- 2 | Repeats the measurement 3 times and calculates the average value.
- 3 | High sensitivity, used with samples of low optical rotation that are difficult to analyze in the optical polarimeter.
- 4 | Supplied with two tubes for 100 and 200 mm samples.
- 5 | Measurement of optical rotation.

|                                            |                                 |
|--------------------------------------------|---------------------------------|
| <b>Code</b>                                | HMB003                          |
| <b>Model</b>                               | 412                             |
| <b>Range</b>                               | From +45° to -45°               |
| <b>Accuracy</b>                            | ±(0,001+ measured value ×0,05%) |
| <b>Minimum transmittance of the sample</b> | 10%                             |
| <b>Illumination</b>                        | LED + filter (589,4nm)          |
| <b>Speed</b>                               | 1,3°/s                          |

▶ Model 418



- 1 | Advanced digital circuit and microprocessor control, RS 232 output
- 2 | Repeats the measurement 3 times and calculates the average value.
- 3 | Performs readings on dark samples with a transmittance close to 1%
- 4 | Supplied together with two sample tubes of 100 and 200mm
- 5 | Optical rotation and sugar degree measurement

|                                        |                                                                                     |
|----------------------------------------|-------------------------------------------------------------------------------------|
| <b>Code</b>                            | HMB004                                                                              |
| <b>Model</b>                           | 418                                                                                 |
| <b>Range</b>                           | From +45° to -45°/ From +130°Z to -130°Z                                            |
| <b>Accuracy</b>                        | ±0,01° + (measured value ×0,05%)/n10000<br>±0,03°Z + (measured value ×0,05%)/n10000 |
| <b>Min transmittance of the sample</b> | 1%                                                                                  |
| <b>Illumination</b>                    | LED + filter (589,4nm)                                                              |
| <b>Speed</b>                           | 1°/s                                                                                |

▶ Model 430



- 1 | Photoelectric detection and microprocessor control. RS232 output.
- 2 | Measurement of specific rotation, optical rotation, sugar level and concentration
- 3 | Repeat the measurement 6 times and calculate the main value and RMS value.
- 4 | Supplied with two sample tubes of 100 and 200mm.

|                                        |                                                                                     |
|----------------------------------------|-------------------------------------------------------------------------------------|
| <b>Code</b>                            | HMB005                                                                              |
| <b>Model</b>                           | 430                                                                                 |
| <b>Range</b>                           | From +45° to -45° / From +130°Z to -130°Z                                           |
| <b>Accuracy</b>                        | ±0,01° + (measured value ×0,05%)/n10000<br>±0,03°Z + (measured value ×0,05%)/n10000 |
| <b>Min transmittance of the sample</b> | 10%                                                                                 |
| <b>Illumination</b>                    | Sodium lamp + filter (589,4nm)                                                      |
| <b>Speed</b>                           | 1°/s                                                                                |



## HMF - Calibration pieces

- 1| To check the accuracy of the polarimeter measurements.
- 2| Quartz piece with metal mount. Supplied in a case.

| Code   | Description                                      |
|--------|--------------------------------------------------|
| HMF001 | Quartz piece for calibration of polarimeter +5°  |
| HMF002 | Quartz piece for calibration of polarimeter -5°  |
| HMF003 | Quartz piece for calibration of polarimeter +17° |
| HMF004 | Quartz piece for calibration of polarimeter -17° |
| HMF005 | Quartz piece for calibration of polarimeter +35° |
| HMF006 | Quartz piece for calibration of polarimeter -35° |



## HMG - Accessories

| Code   | Description                                                                                                                                                                                                       |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HMG001 | Sodium vapor lamp 589,3 nm                                                                                                                                                                                        |
| HMG002 | Rubber joint for polarimeter                                                                                                                                                                                      |
| HMG003 | Test tube with stopper for polarimeter                                                                                                                                                                            |
| HMG004 | Test tube circular glass disk 15 mm                                                                                                                                                                               |
| HMG005 | Test tube for polarimeter 100 mm                                                                                                                                                                                  |
| HMG006 | Test tube for polarimeter 200 mm                                                                                                                                                                                  |
| HMG007 | Polarimeter kit. Composed of: <ul style="list-style-type: none"> <li>- HMG002, Rubber joint for Test Tubes</li> <li>- HMG003, Test Tube Stopper</li> <li>- HMG004, Test tube circular glass disk 15 mm</li> </ul> |
| HMG008 | Glass for polarimeter lamp protector model 404                                                                                                                                                                    |

CODE - HMG005



CODE - HMG006



## HPB - Abbe

## Model Abbe 315RS, digital

- 1| Application in the chemical, oil, food, pharmaceutical and scientific industries universities, etc.
- 2| Measurement of the refractive index (nD) of transparent and translucent solids and liquids, as well as the sugar (or Brix) concentration in solutions
- 3| Automatic temperature compensation for the Brix scale

|                        |                    |
|------------------------|--------------------|
| Code                   | HPB001             |
| Range                  |                    |
| Refractive index       | 1,3000-1,7000 nD   |
| Brix                   | 0-95%              |
| Accuracy               |                    |
| Refractive index       | ±0,0002 nD         |
| Brix                   | ± 0,1              |
| Dimensions             | 330 x180x380 mm    |
| Temperature correction | 15/45 °C           |
| Weight                 | 10 kg              |
| Power                  | CA 220 V, 50-60 Hz |





▶ HPB - Abbe

▶ Model Abbe 325



- 1 | To measure refractive indices and sugar concentration (Brix).
- 2 | Metal construction equipment ready to be coupled to a circulation thermostat, with digital thermometer
- 3 | The scale is illuminated by natural light and the lighting can be incident or transmitted
- 4 | Optical system magnification: 2x. Magnification of the reading system: 30x

|                         |                    |
|-------------------------|--------------------|
| <b>Code</b>             | HPB002             |
| <b>Range</b>            |                    |
| <b>Refractive index</b> | 1,3000 - 1,7000 nD |
| <b>Brix</b>             | 0-95%              |
| <b>Accuracy</b>         |                    |
| <b>Refractive index</b> | ±0,0005 nD         |
| <b>Brix</b>             | ± 0,25%            |
| <b>Dimensions</b>       | 100x200x240 mm     |
| <b>Weight</b>           | 2,6 kg             |

▶ HPC - Digital refractometers

- 1 | These equipments have automatic temperature compensation (ATC) that make temperature corrections between 0 to 40 °C (32~104°F).
- 2 | These refractometers use the standardised brix scale which is accurate and easy to read.
- 3 | More specific refractometers are available for measuring sugar concentration in wine, must and juices and also to measure various scales in colostrum.
- 4 | With digital display. Quick to obtain and easy to read measured values

▶ Wine



- 1 | To measure both the sugar content and alcohol level in wine and the density of grape must (Oechsle degree - Oe).

| Code            | HPC004     |            |          |
|-----------------|------------|------------|----------|
|                 | Range      | Resolution | Accuracy |
| <b>Brix %</b>   | 0.0 - 45.0 | 0.10       | ±0.2     |
| <b>% VOL ap</b> | 0.0-22.0   | 0.1        | ±0.2     |
| <b>Oe</b>       | 0-150      | 1          | ±2.0     |
| <b>KMW</b>      | 0.0-25.0   | 0.1        | ±0.2     |

▶ Milk



- 1 | To measure different scales in colostrum from milk.

| Code                                         | HPC005 |            |          |
|----------------------------------------------|--------|------------|----------|
|                                              | Range  | Resolution | Accuracy |
| <b>Milk concentration</b>                    | 0 - 50 | 0.10       | ±0.2     |
| <b>Total serum immoglobulin content g/dl</b> | 0 - 12 | 0.1        | 0.2      |



▶ HPC - Digital refractometers

▶ Brix



- 1| To measure the sugar content in various samples such as fruit juice, syrups, puree, coffee drinks, cocoa drinks, soft drinks, water-soluble cutting oil, water-soluble washing solution, etc.
- 2| These devices feature Automatic Temperature Compensation (ATC) that makes temperature corrections between 0 to 40°C (32~104°F).
- 3| These refractometers use the standardized Brix scale, which is accurate and easy to read.
- 4| Availability of more specific refractometers to measure the sugar concentration in wine, must, and juices, as well as to measure different scales in colostrum.
- 5| With a digital display. Quick measurement values that are easy to read.



| Code                | HPC001          |            |          | HPC002          |            |          | HPC003          |            |          |
|---------------------|-----------------|------------|----------|-----------------|------------|----------|-----------------|------------|----------|
|                     | Range           | Resolution | Accuracy | Range           | Resolution | Accuracy | Range           | Resolution | Accuracy |
| Brix %              | 0.0 - 50.0      | 0.10       | ±0.2     | 0.0 - 90.0      | 0.10       | ±0.2     | -               | -          | -        |
| Index refraction nD | 1.3330 - 1.4200 | 0.0001     | ±0.0003  | 1.3330 - 1.5177 | 0.0001     | ±0.0003  | 1.3330 - 1.4200 | 0.0001     | ±0.0003  |
| Dextrose %          | -               | -          | -        | -               | -          | -        | 0.0 - 10.6      | 0.10       | ±0.2     |
| Fructose %          | -               | -          | -        | -               | -          | -        | 0.0 - 68.9      | 0.10       | ±0.2     |
| Glucose %           | -               | -          | -        | -               | -          | -        | 0.0 - 59.9      | 0.10       | ±0.2     |
| Lactose %           | -               | -          | -        | -               | -          | -        | 0.0 - 16.5      | 0.10       | ±0.2     |
| Maltose %           | -               | -          | -        | -               | -          | -        | 0.0 - 15.6      | 0.10       | ±0.2     |

▶ HPD - Hand, Brix scale



- 1| Supplied in plastic case with pipettes for sampling, cover, screwdriver, rubber blinkers and rubber handle.

▶ Brix



| Code     | Range     | Accuracy |
|----------|-----------|----------|
| HPD012   | 0-10% Bx  | 0.1%     |
| HPD013   | 0-20% Bx  | 0.1%     |
| HPD026 * | 0-20% Bx  | 0.1%     |
| HPD014   | 0-32% Bx  | 0.2%     |
| HPD027*  | 0-32% Bx  | 0.2%     |
| HPD015   | 28-62% Bx | 0.2%     |
| HPD028*  | 28-62% Bx | 0.2%     |
| HPD016   | 45-82% Bx | 0.5%     |
| HPD029*  | 45-82% Bx | 0.5%     |
| HPD017   | 58-92% Bx | 0.5%     |
| HPD019   | 0-50% Bx  | 0.5%     |
| HPD031*  | 0-50% Bx  | 0.5%     |
| HPD020   | 0-80% Bx  | 0.5%     |
| HPD032*  | 0-80% Bx  | 0.5%     |

\*LED refractometer

▶ 58-92% Brix | 38-43 ° Baume | 12-27% Water



- 1| This refractometer is specially suited for analyzing the three main values in honey; sugar content, Baumé degrees and water content.
- 2| Calibration is performed with a test piece and bromonaphtalene, both included.

| Code    | Range        | Accuracy |
|---------|--------------|----------|
| HPD018  | 58-92% Bx    | 0.5%     |
|         | 38-43 °Bé    | 0.5%     |
|         | 12-27% Water | 0.5%     |
| HPD030* | 58-92% Bx    | 0.5%     |
|         | 38-43 °Bé    | 0.5%     |
|         | 12-27% Water | 0.5%     |

\*LED refractometer



## ▶ HPD - Hand, Brix scale

### ▶ 0-80% Brix (2 scales)



1 | Refractometer consisting of a 0-80% Brix scale. The separation line in this model is white/blue.

2 | It is used for the determination of all kinds of substances such as fruits, juices, non-alcoholic beverages, and even for the determination of industrial oils.

| Code   | Range                       | Accuracy | ATC (10-30°C) |
|--------|-----------------------------|----------|---------------|
| HPD021 | 0-80% Bx<br>(0-50%; 50-80%) | 1%       | No            |

### ▶ 0-90% Brix | 0-90% Brix (3 scales)



1 | Has a wide range 0-90% Brix, it allows the measurement of very different types of samples.

2 | Calibration is performed with distilled water (model HPD011)

| Code   | Range                              | Accuracy | ATC (10-30°C) |
|--------|------------------------------------|----------|---------------|
| HPD011 | 0-90% Bx                           | 0.5%     | No            |
| HPD010 | 0-90% Bx<br>(0-42% 42-71%; 41-90%) | 0.2%     | No            |

## ▶ HPF - Hand, salinity

### ▶ 0-100‰ Sal



| Code    | Range                                      | Accuracy            |
|---------|--------------------------------------------|---------------------|
| HPF005  | 0-28% Salt                                 | 0.2%                |
| HPF004  | 0-100‰ Salt<br>1,000-1,070 g/L             | 1‰<br>0.001         |
| HPF007  | 0-100‰ Salt<br>0-10% Bx<br>1,000-1,070 g/L | 1‰<br>0.1%<br>0.001 |
| HPF010* | 0-100‰ Salt<br>1,000-1,070 g/L             | 1‰<br>0.001         |
| HPF012  | 0-40‰ Salt<br>1,000 - 1,030 sg             | 0,1‰<br>0,001 sg    |
| HPF013  | 20-40‰ Salt<br>1,015 - 1,030 sg            | 0,1‰<br>0,001 sg    |

\*LED refractometer

## ▶ HPH - Hand, oenology

### ▶ 0-25% probable alcohol and 3 scales

| Code    | Range                                           | Accuracy              |
|---------|-------------------------------------------------|-----------------------|
| HPH002  | 0-25%*                                          | 0.2%                  |
| HPH003  | 0-25% probable alcohol<br>0-22° Bé;<br>0-40% Bx | 0.2%<br>0.2°<br>1%    |
| HPH013  | 0-25%*                                          | 0.2%                  |
| HPH014* | 0-25% probable alcohol<br>0-22° Bé;<br>0-40% Bx | 0.2%<br>0.2°<br>1%    |
| HPH015  | 0-190° Oe<br>0-38° KMW Babo<br>0-44% mash sacch | ±2°<br>±0,4°<br>±0,4% |

\* probable alcohol . Code. HPH013 LED refractometer

## ▶ HPK - Hand, batteries

| Code   | Solution              | Range              | Accuracy           |
|--------|-----------------------|--------------------|--------------------|
| HPK002 | Antifreeze            | -50 a 0 °C (EG/PG) | 5 °C               |
|        | Electrolytic solution | 1.15-1.30 sg       | 0.01 sg            |
|        | Cleaning liquid       | -40 a 0 °C         | 5°C                |
| HPK005 | Antifreeze            | -50 a 0 °C (EG/PG) | 5°C 0.01 Kg/L 10°C |
|        | Electrolytic solution | 1.10-1.40 Kg/L     |                    |
|        | Cleaning liquid       | -40 a 0 °C         |                    |
| HPK008 | Antifreeze            | -50 a 0 °C (EG/PG) | 5°C 0.01 Kg/L 10°C |
|        | Electrolytic solution | 1.10-1.40 Kg/L     |                    |
|        | Cleaning liquid       | -40 a 0 °C         |                    |
|        | UreaAddblue           | 30-35 %            | 0.2%               |
| HPK006 | Antifreeze            | -50 a 0 °C (EG/PG) | 5 °C               |
|        | Electrolytic solution | 1.15-1.30 sg       | 0.01 sg            |

## ▶ HPM - Hand, clinical

### ▶ Clinical hand refractometer, 3 scales



1 | Model that has three scales, the first for serum protein, the second indicates the specific weight of urine and the third the refractive index.

2 | Calibration is performed with distilled water by matching the separation line with the value 1.333 of the refractive index scale.

| Code   | Range            | Accuracy   |
|--------|------------------|------------|
| HPM002 | 0 - 12 g/dl      | 0.2 % g/dL |
|        | 1.000-1.050 sg   | 0.002 sg   |
|        | 1.333-1.360 nD   | 0.005 nD   |
| HPM005 | 0 - 12 g/dl      | 0.2 % g/dL |
|        | 1.000-1.050 sg   | 0.002 sg   |
|        | 1.3330-1.3600 nD | 0.0005 nD  |

\*LED refractometer

### ▶ URIVET, hand refractometer



1 | Specially designed for veterinary applications and in particular for dog and cat urine analysis. Simple, fast and easy to use, it allows immediate readings with just a drop.

| Code   | Range          | Accuracy     |
|--------|----------------|--------------|
| HPM003 | 2-14 g/100 mL  | 0.1 g/100 mL |
|        | 1.000-1.060 sg | 0.001 sg     |



## HPP - Hands, others

## Hand refractometer for milk



- 1 | Refractometer indicated to know the concentration of water in the milk.
- 2 | Calibrated with distilled water.

| Code   | Range   | Accuracy |
|--------|---------|----------|
| HPP002 | -1%-20% | 0.2%     |

## Refractometer 1.333-1.520 nD, 3 scales



- 1 | Handheld refractometers are very useful to know the concentration of dissolved solids (%Brix) or the refractive index (nD) of aqueous solutions.
- 2 | They allow a wide variety of samples to be analyzed thanks to their division into three scales that cover a wide measuring range.

| Code   | Range                                                                            | Accuracy  |
|--------|----------------------------------------------------------------------------------|-----------|
| HPP003 | 1.333-1.515 nD (3 scales)<br>(1.333-1.400 nD<br>1.400-1.470 nD<br>1.470-1520 nD) | 0.0005 nD |

## Beer refractometer



| Code   | Range                                            | Accuracy             |
|--------|--------------------------------------------------|----------------------|
| HPP017 | 0-32% Brix<br>Wort Specific Gravity: 1,000-1,130 | ±0,2% Brix<br>±0,001 |
| HPP018 | 0-18 Plato                                       | ±0,1 Plato           |

## Milk refractometer



- 1 | Refractometer suitable for determining the water concentration in milk.
- 2 | It is calibrated with distilled water.

| Code   | Range                    | Accuracy                 |
|--------|--------------------------|--------------------------|
| HPP019 | 0-25% Soja<br>0-32% Brix | ±0,5% Soja<br>±0,2% Brix |

## HPP - Hands, others

## Hand refractometer, accessories



| Code   | Description                                        |
|--------|----------------------------------------------------|
| HPP004 | Cover prism plate, two pieces                      |
| HPP005 | Blinker for hand refractometers                    |
| HPP006 | Plastic box for hand refractometers                |
| HPP007 | Test piece for the calibration of ABBE Refractomet |
| HPP009 | Digital thermometer f/refractometer 325            |
| HPP008 | Lamp 6.3v, 2.5w for ABBE Refractometer 315         |
| HPP015 | Portable bag for hand refractometer                |

## HRB - Hand

## Metal ring magnifying glass



- 1 | Black metal ring handle that can be unscrewed and separated from the rest of the magnifying glass. The lens is glass.

| Code   | Diameter | Magnification |
|--------|----------|---------------|
| HRB010 | 50 mm    | 5x            |
| HRB011 | 75 mm    | 3x            |



## NEW PRODUCTS



### ▶ Monocular microscope 116, LED light



- 1| The Zuzi microscope model 116, due to its design and ease of use, is intended for educational demonstrations in school laboratories. It can also be used in field applications.
- 2| Wide field eyepiece with pointer. Coaxial macro and micrometric focusing knobs.
- 3| ABBE condenser, height-adjustable, with iris diaphragm and filter holder (incl. blue filter, diameter 32 mm).
- 4| Compartment for rechargeable batteries. Batteries are charged while the microscope is connected to the mains.
- 5| Dust cover included (344x410 mm).

|                     |                                                                      |
|---------------------|----------------------------------------------------------------------|
| <b>Code</b>         | HBB003                                                               |
| <b>Model</b>        | 116                                                                  |
| <b>Head</b>         | Monocular; 30° inclined and 360° rotatable                           |
| <b>Eyepieces</b>    | WF10x/18mm eyepiece (with pointer)                                   |
| <b>Nosepiece</b>    | Triple                                                               |
| <b>Objectives</b>   | Achromatic 4X, 10X, 40X (R)                                          |
| <b>Stage</b>        | Double layer mechanical stage, 125x115 mm, moving range 70x20 mm     |
| <b>Condenser</b>    | ABBE condenser N.A.=1.25, with iris diaphragm and filter holder      |
| <b>Focusing</b>     | Macro/micro coaxial controls                                         |
| <b>Illumination</b> | LED 1 W adjustable intensity                                         |
| <b>Power supply</b> | 100-240VAC, 50/60Hz<br>Rechargeable batteries (3 pcs. type AA, 1.5V) |

### ▶ Professional microscope, series 222



Code - HBC025

- 1| The professional microscopes of the 222 Series feature high-quality optics with infinity-corrected plan achromatic objectives, ensuring sharp and precise images across the entire field of view.
- 2| Siedentopf-type head with dioptre adjustment on the left eyepiece and interpupillary distance adjustable from 48 to 75 mm.
- 3| Large mechanical stage with a travel range of 75 mm (X-axis) and 50 mm (Y-axis) for precise sample positioning.
- 4| 32 mm filters are supplied with a plastic adapter and are mounted in the Köhler pre-condenser housing.
- 5| For model 222T: the third co-observation tube has a 23 mm diameter and includes a C-mount adapter (1x).

|                     |                                                                     |            |
|---------------------|---------------------------------------------------------------------|------------|
| <b>Code</b>         | HBC025                                                              | HBC026     |
| <b>Model</b>        | 222 B                                                               | 222 T      |
| <b>Head</b>         | Binocular                                                           | Trinocular |
|                     | 30° inclined and 360° rotatable                                     |            |
| <b>Oculars</b>      | WF10x/22 (wide field)                                               |            |
| <b>Revolver</b>     | Quadruple                                                           |            |
| <b>Objetives</b>    | Plan achromatic, infinity-corrected<br>4x; 10x; 40 (R); 100x (R)(I) |            |
| <b>Stage</b>        | Double layer graduated, 185 x 142 mm                                |            |
| <b>Condenser</b>    | Abbe N.A.1.25                                                       |            |
| <b>Focus</b>        | Coaxial coarse and fine focus controls                              |            |
| <b>Illumination</b> | Köhler; LED 5W                                                      |            |
| <b>Power</b>        | 100-240VAC, 50/60Hz                                                 |            |
| <b>Dimensions</b>   | 380x275x430 mm                                                      |            |





## NEW PRODUCTS



▶ Metallographic microscope 505MT

1 | The Zuzi 505MT metallographic microscope is a high-precision instrument designed for the detailed analysis of metallographic structures and opaque surfaces. It stands out for its great versatility, as it allows use in biological, petrographic, and metallographic applications, effectively adapting to a wide range of analytical needs with a single piece of equipment.

|                         |                                                        |
|-------------------------|--------------------------------------------------------|
| <b>Code</b>             | HBH012                                                 |
| <b>Model</b>            | 505MT                                                  |
| <b>Head</b>             | Trinocular (third tube 23 mm)                          |
| <b>Eyepieces</b>        | 10WF 22mm (Ø30mm)                                      |
| <b>Nosepiece</b>        | Quintuple                                              |
| <b>Objectives</b>       | Plan achromatic: 5X, 10X, 20X, 50X                     |
| <b>Stage</b>            | Double-layer mechanical stage 175x145mm (without clip) |
| <b>Glass plate</b>      | 95x85 mm                                               |
| <b>Condenser</b>        | Abbe N.A. 1.25                                         |
| <b>Precondenser</b>     | Köhler type                                            |
| <b>Focusing</b>         | Coaxial coarse and fine adjustment                     |
| <b>Illumination</b>     | 5W- LED x2                                             |
| <b>Power supply</b>     | 100-240VAC 50/60Hz                                     |
| <b>Weight</b>           | 10.5 kg                                                |
| <b>Dim. (L x W x H)</b> | 400x210x555 mm                                         |



YouTube



▶ Microscope USB2.0 camera, 5.1MP

|                                       |                                               |
|---------------------------------------|-----------------------------------------------|
| <b>Code</b>                           | HGB004                                        |
| <b>Sensor</b>                         | 1/2.2" CMOS                                   |
| <b>Max. resolution</b>                | 2592x1944 (5 MP)                              |
| <b>Speed at max. resolution</b>       | <7 FPS                                        |
| <b>Sensibility</b> (v/lux-s a 550 nm) | 1.2                                           |
| <b>Dynamic range</b>                  | 67 dB                                         |
| <b>Wavelength</b>                     | 400-600 nm (with IR-cut filter)               |
| <b>Eyepiece diameter</b>              | 23 mm (adapters of 30 and 30.5 included)      |
| <b>Dimensions</b>                     | Cylindrical-shaped metal body, 50 mm diameter |
| <b>White balance</b>                  | Automatic/Manual                              |
| <b>Interface</b>                      | USB 2.0, 480 Mb/s; length of wire 2.5 m       |



▶ Microscope USB2.0 camera

- 1 | Supplied with a high-speed USB 2.0 cable and complete software for image capture, processing, and analysis.
- 2 | Integrated high-precision ISP processor ensuring excellent color reproduction.
- 3 | C-mount threaded cameras.



Note: For microscopes with a 23 mm eyepiece tube diameter, the 0.5X C-mount to 23 mm adapter is required (code: HGG001).

|                             |                                         |                                          |
|-----------------------------|-----------------------------------------|------------------------------------------|
| <b>Code</b>                 | HGB002                                  | HGB005                                   |
| <b>Sensor and size (mm)</b> | 2.1 MP / IMX307(C)<br>1/2.8" (5.73x4.3) | 8.3 MP / IMX274(C)<br>1/2.5" (6.22x3.50) |
| <b>FPS/Resolution</b>       | 38 / 1920x1080                          | 30 / 3840x2160                           |
| <b>Exposición (ms)</b>      | 0.1-2000                                |                                          |
| <b>Thread</b>               | C-Mount thread                          |                                          |
| <b>Weight (g)</b>           | 200                                     |                                          |
| <b>Dimensions (mm)</b>      | 59x59x41                                |                                          |





## NEW PRODUCTS



### ▶ USB2.0 eyepiece camera



1 | CMOS camera with output for a 23 mm tube. Includes adapters for 30 mm and 30.5 mm tubes.  
 2 | It uses USB 2.0 as a high-speed data transfer interface.

|                             |                                  |
|-----------------------------|----------------------------------|
| <b>Code</b>                 | HGB010                           |
| <b>Sensor and size (mm)</b> | 5.1M/AR0521(C) 1/2,5"(5,70x4,28) |
| <b>FPS/Max. resolution</b>  | 30/2592x1944                     |
| <b>Exposure (ms)</b>        | 0,1 - 1000                       |

### ▶ Cameras USB / LAN / WIFI



Code: HGB008



Code: HGB009



Note: This camera is designed for use with trinocular microscopes. If the third tube of the microscope is 23 mm, we recommend purchasing the 0.5X C-mount-23 mm adapter (reference HGG001) for attachment.

| Code                        | HGB008                                                          | HGB009                                                         |
|-----------------------------|-----------------------------------------------------------------|----------------------------------------------------------------|
| <b>Connections</b>          | HDMI (direct to screen)<br>WIFI (USB adapter)<br>Ethernet (LAN) | USB (computer cable)<br>WIFI (AP) (STA)(LAN)<br>Ethernet (LAN) |
| <b>Sensor and size (mm)</b> | 1080P/2MP/Sony IMX185(C)<br>1/1,9"(7,20x4,05)                   | 4MP/Sony IMX347(C)<br>1/1,8"(7,8x4,38)                         |
| <b>FPS/Max. resolution</b>  | 30/1920x1080 (HDMI)<br>25/1920x1080 (RED)                       | 30/2688x1512 (USB)<br>30/2688x1512 (RED)                       |
| <b>Exposure (ms)</b>        | 0,06 - 918                                                      | 0,021 - 1000                                                   |
| <b>Software</b>             | XCamView                                                        | XCamView                                                       |
| <b>Output</b>               | Type C                                                          | Type C                                                         |

