

# *Microlab Advanced*

## *Code 250E*



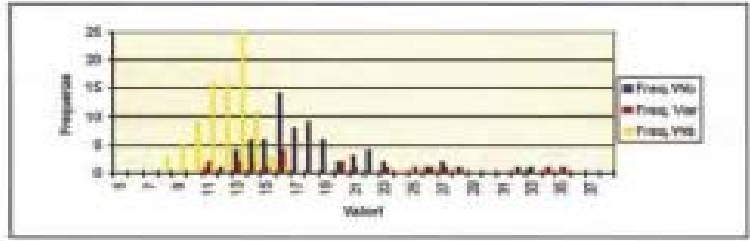
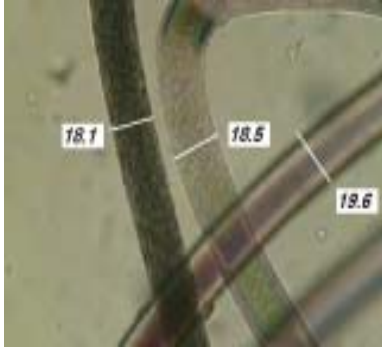
**The most advanced computerised high definition system for the microscopic analysis of fibres and yarns.**

The system is composed by:

- Leica Biological Microscope
- Professional colour Video camera with 1/2" CCD
- «**Mesdan Video Analyser**» graphic card for images acquisition
- Special «**Mesdan Video Analyser**» software
- IBM Personal Computer
- PHILIPS 17" LCD Monitor (or equivalent)
- EPSON STYLUS COLOR high quality printer
- Sample preparation kit for longitudinal and sectional analysis (microtome, slides and covers, immersion oil and other accessories)
- Fabric support kit for the analysis of irregularities in woven and knitted fabrics
- Equipment functioning instructions and sample preparation literature.
- Calibration slide (for the system calibration control)
- Microsoft Office software package for the statistics processing and report production.

# EQUIPMENT SUITABLE TO:

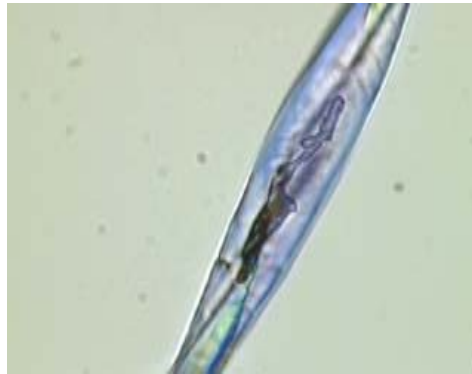
- Perform in a fast and easy way the fineness analysis of single fibres, by operating with the live image and by means of the mouse only.



	N°	Mean	Mode	Min	Max	St. Dev.	CV%	CL (95%)	Compass
WV	76	18.43621	17	10	24	1.70847	9.26428	7.00000	20.00000
Stdev	100	19.30000	18	11	25	2.45000	12.17619	4.20000	25.00000
Min	100	18.14000	18	0	25	0.18000	0.99749	0.00000	44.00000

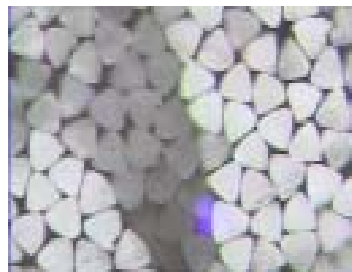
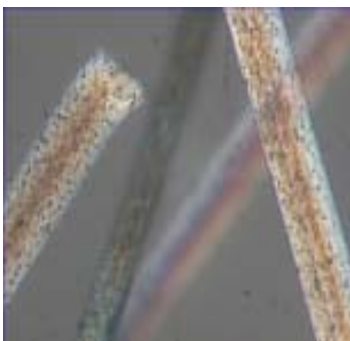
- Identify the different fibres contained in a blend and analyse the composition percentage, by operating with the live image, in accordance with the IWTO 8, IWSTM 24, ISO 137, ASTM D2130 international standards.

Longitudinal image of a cotton and a wool fibre, to highlight how different fibres can be easily detected.

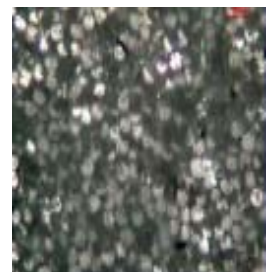
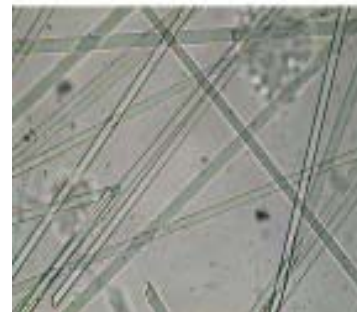


- Check the purchased material (searching for possible foreign fibres) and identify the type of fibre, comparing it with the fibre pictures stored in the DataBank, with both the longitudinal and the sectional views.

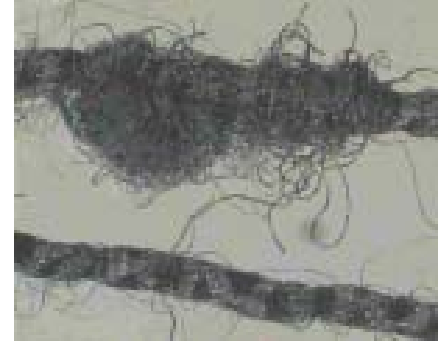
Viscose fibre in longitudinal and sectional view.



Longitudinal and sectional view of a glass fibre.

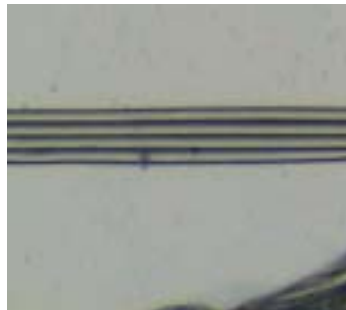


- **Analyse the yarn structure and detect possible defects.** Check the single threads of a twisted yarn; check the single yarn fibres.



- Measure the count of **circular section yarns and filaments in Dtex or den .**

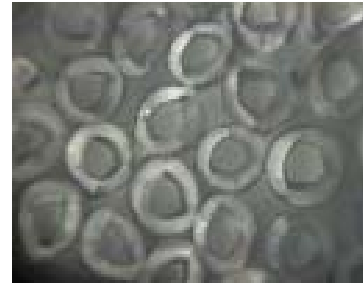
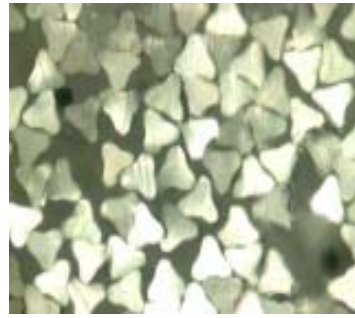
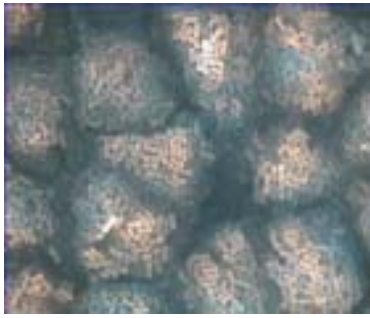
- **Check and measure the quality and shape of Lycra or synthetic multifilament single threads.**



- **Detect, identify and measure possible impurities contained in textile materials** (neps, pollution due to foreign fibre content in a fabric, oil or grease content in a yarn).



- Perform a **micro analysis of yarns and fibre sections.**



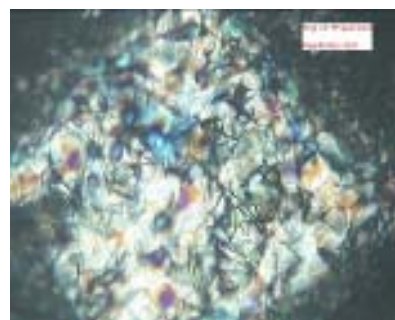
- **Measure section surfaces and perimeters.**



- **Analyse mechanical parts** (i.e. needle points, spinnerets, etc).



- **Analyse the compactness of non-woven fabrics.**



- Process, store and print the produced measurements and the minimum, medium and maximum values, CV% and distribution graphs.

I.e. count analysis of a circular section fibre, in tex and den: data are automatically processed; the report can be either printed or stored.

<b>MESDAN VIDEO ANALYSER</b>	
DATA:	15/02/2005



**Note: Use it ONLY if you are sure that the section of the fiber is circular.**  
*Importante: Da utilizzare SOLO se si è certi che la sezione delle fibre sia circolare.*

**Test parameters/ Parametri di test**

<b>Material/ Materiale</b>	Test	<b>Optics X/ Ingrandimenti X</b>	630
<b>Lot/Lotto</b>	101010	<b>Total measures/Misure totali</b>	20
<b>Customer/Cliente</b>	Test	<b>Standard test/ Normativa</b>	//
<b>Examiner/Esaminatore</b>	Davide	<b>Unit of measurement Unità di misura</b>	microns (µm)

<b>Sample description/ Descrizione campione</b>	
<b>Observations/ Osservazioni</b>	

**Statistical results/ Risultati statistici**

<b>Material Materiale</b>	POLIESTER	Nylon	0	0	0
<b>Measure number Numero di misure</b>	10	10	0	0	0
<b>Mean/ Media</b>	20,380	25,080			
<b>Max</b>	22,200	25,900			
<b>Min</b>	19,700	24,000			
<b>CV[%]</b>	3,604	2,074			
<b>Dev. St</b>	0,735	0,520			
<b>Range [%]</b>	12,267	7,576			
<b>Specific weight Peso specifico (g/cm³)</b>	<sup>1</sup> 1,38	<sup>2</sup> 1,14	<sup>3</sup>	<sup>4</sup>	<sup>5</sup>
<b>Count (Dtex)</b>	2,210	2,000			
<b>Count (Denari)</b>	1,989	1,800			

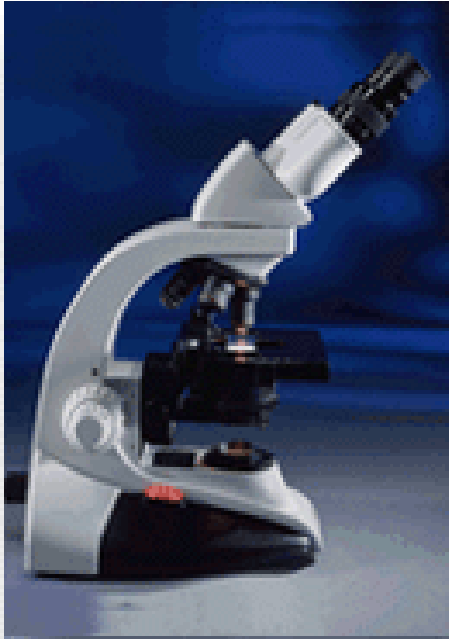
**Single measures/ misure singole**

N° measure N° misura	POLIESTER	Nylon	0	0	0
1	20,00	25,00			
2	21,00	25,30			
3	20,00	25,40			
4	22,20	25,00			
5	20,10	25,60			
6	19,90	24,80			
7	19,70	24,00			
8	20,30	25,90			
9	20,50	25,00			
10	20,10	24,80			

**In accordance with the following International Standards: UNI 5423, AATCC 20, ASTM 276-00, ASTM 2130-90, IWS TM 24, ASTM 276-00A, IWTO 8-97, ASTM D629-99, UNI 1130, UNI EN 12751 ISO 137**

# SYSTEM COMPOSITION

**LEICA biological Microscope** with professional lenses, recommended for the longitudinal and sectional analysis of fibres and yarns.



- High quality and accuracy Microscope
- Phototube trinocular viewing body with Siedentopf design, to adjust the interpupillary distance without changing the focussing.
- Koehler illumination device for the phase contrast and micro photographs (20W).
- Objective image viewing.
- Polarising filter (for a better sample viewing), blue and green coloured filters.
- High precision focussing system.
- Slide movement device with micrometric regulation.

- On screen magnifications: from **128X to 2000X**.

- Highly accurate revolving lenses system.

LENSES IN USE	OCULAR MAGNIFICATION	ON SCREEN MAGNIFICATION	ON SCREEN FIELD OF VISION (mm)
4X	40X	128X	1.6
10X	100X	320X	0.65
20X	200X	640X	0.35
40X	400X	1280X	0.15
63X (optional)	630X	2016X	0.1

Note: by using the 0.50X additional lens between the microscope and the video-camera (available as optional) the on screen magnification rate decreases by 50% and the field of vision increases by 50%.

- The mentioned dimensions and final magnifications also depend on the hardware in use.
- The above mentioned magnifications and fields of vision have been calculated by using a 17" monitor with 1280X1024 resolution.



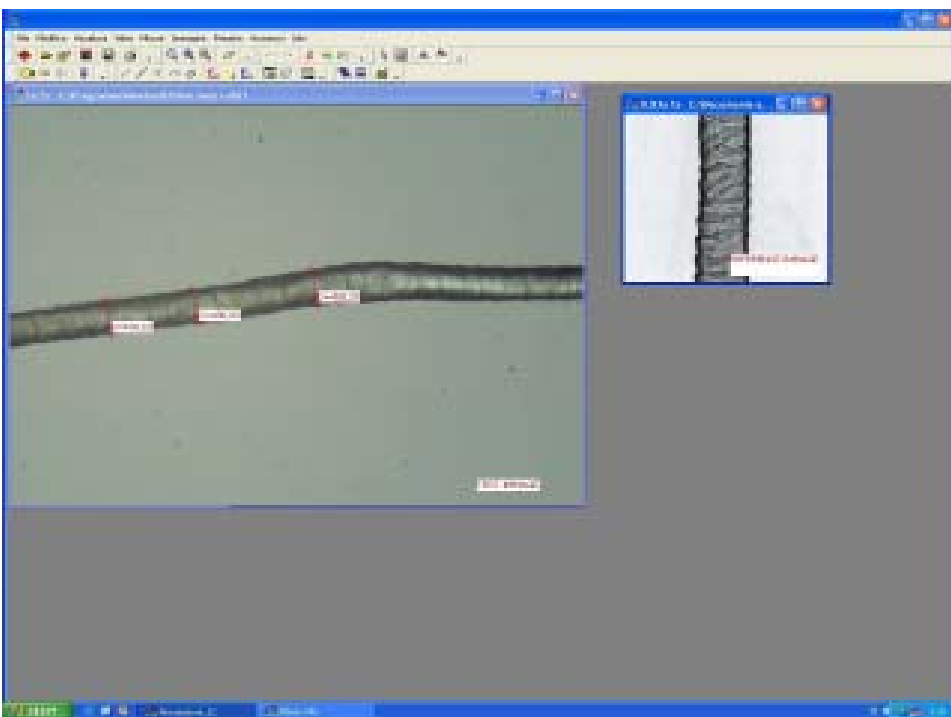
**PROFESSIONAL VIDEO-CAMERA** with 1/2" CCD; compared to the 1/3" CCD, it has a much wider field of vision – hence a wider surface of the sample is visualised – and a quicker reaction to light variations. Complete with achromatic C step connector with 1:1 lens, for the insertion on the microscope, to give the maximum contrast, colour and planarity quality.

# MESDAN VIDEO ANALYSER SOFTWARE

High flexibility to perform measurements on stored images, as well as on live images (in accordance with International Standards).

Measurements of **lengths, surfaces, perimeters, angles, distances between two points or lines or objects.**

The software allows to save a picture (complete with measurements and comments) into the Data Bank and to compare the live picture with a stored one (or more simultaneously), in order to identify a fibre or compare the defects.

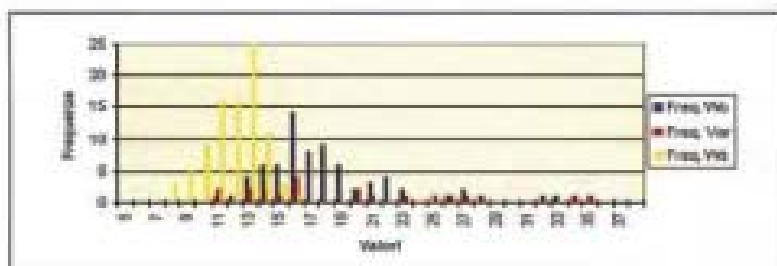


It is possible to attach to the image an informative chart containing the material composition, the type of lens in use and other information; this chart can be opened with a simple mouse click and can be printed together with the picture.

All the measurements can be exported into an Excel template for the data processing (to produce statistics and comparative graphs). The operator can also create self-made Excel templates, according to his requirements.

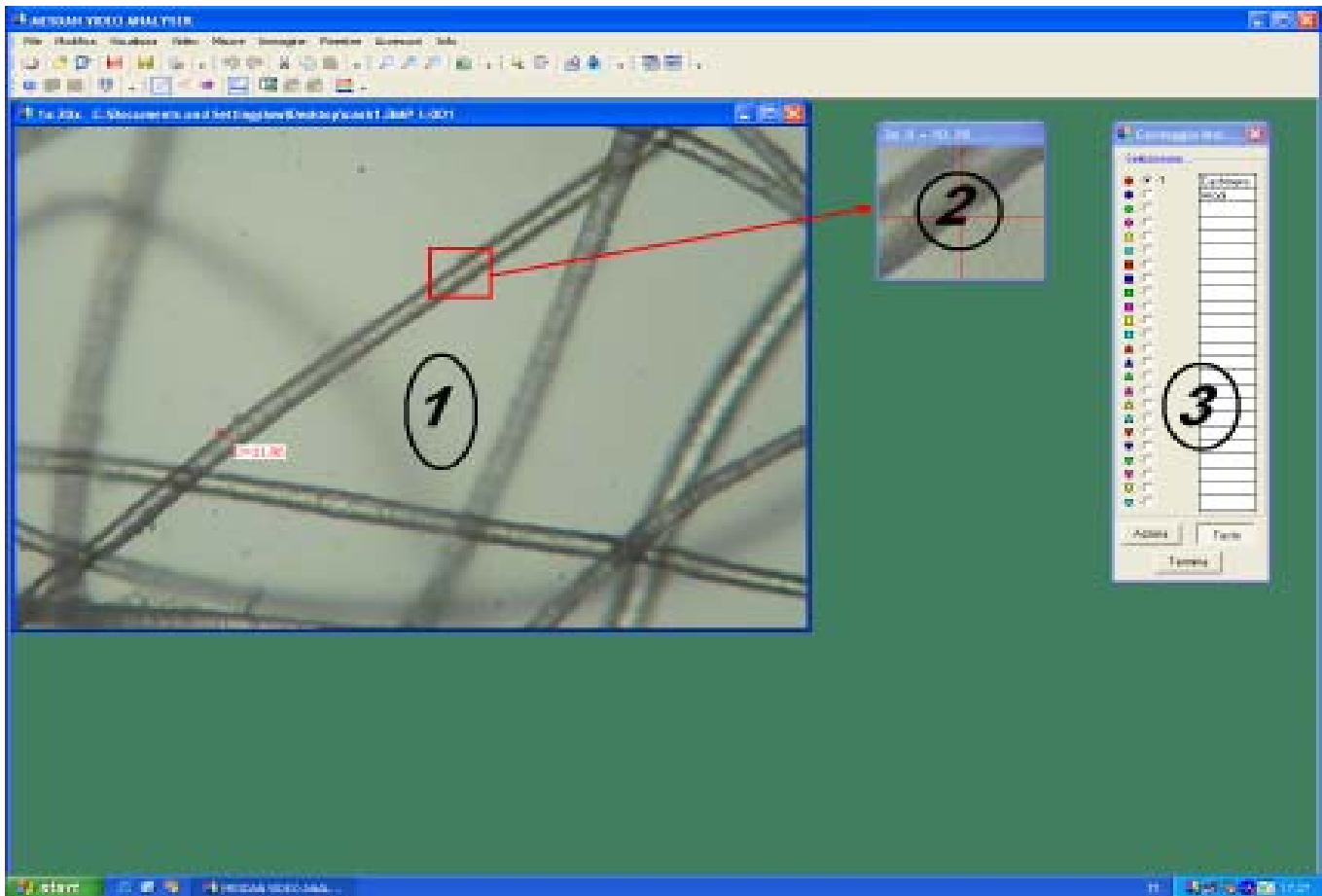
**Languages in use: Italian, English, Spanish, Portuguese and Polish.**

The software is provided with a ready-to-use Excel template to perform on 5 different materials: fibre % content in a blended yarn; perimeter and surface calculation; count measurements on perfectly circular section yarns; fabric warp and weft density reduction to cm or inch; general counting on lengths. The obtained data allow to produce reports with statistics (CV%, mean values, percentages, etc) and comparative graphs, that can be either printed or stored.



	N°	Mean	Mode	Min	Max	St. Dev.	CV%	CI (95%)	Comp.
WV	76	18.2721	17	12	24	1.7964	9.8424	17.0000	21.0000
Varia	88	19.3009	18	11	25	1.45875	7.5518	18.0000	22.0000
WV	86	12.1458	13	8	20	2.10385	17.1914	10.0000	14.0000

Fineness analysis of a blend with 3 components



1) Window to display the live picture: it is possible to store and/or print a picture complete with comments and measurements. It is then possible to perform measurements and send them to an Excel template in order to obtain statistics.

2) View finder window on the area where measurements are being taken, in order to guarantee the maximum measure accuracy.

3) Material chart: the name of the material to be tested is inserted here (the measurements on the picture will be expressed in different colours); if necessary, the measurements of every material will be inserted automatically in different Excel columns.



The simple and intuitive application bar makes the software easier to use also for less expert operators.

**The software includes a Data Bank with reference pictures that can be personalised according to the user's needs.**

In order to help the operator and guarantee the maximum accuracy, different special features are available: i.e. light and colour adjusting can be made digitally through the software (as well as mechanically, by operating on the microscope filters).

# Personal Computer



IBM PC complete with «Mesdan Video Analyser» acquisition card, Philips LCD 17" (or equivalent) monitor and photographic quality Epson printer. A set of ink cartridges and high definition photographic paper is supplied as spare.

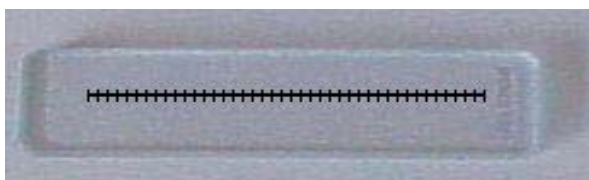


# Sample preparation and analysis kit



- 1) Complete set for sample preparation: scissors, tweezers, and other accessories; blades, needles, yarn, slides and slide holders.
- 2) Immersion oil
- 3) Fabric analysis support.
- 4) Fibre section analysis plate.

# Calibration slide



Necessary for the system routines calibration.

## Optional accessories (to be ordered separately)



**150W OPTICAL FIBRE ILLUMINATION DEVICE** (cold light) with two 50 cm semi-rigid fibre optic goosenecks. Necessary for a perfect illumination of a sample from different adjustable angles; recommended for the analysis of fabrics. Code 250 318



**63X LENS** as replacement of one of the 4 lenses supplied as standard with the microscope, it enables a 2000X on screen magnification. Code 250 336



**C-STEP CONNECTOR WITH 0.5X LENS** The installation of this connector allows to halve the magnification on screen and double the sample field of vision. **The most important textile applications of the 0.5X C-step connector are: fabric sampling, analysis of fabric defects, detection of possible irregularities and defects in the yarns of a fabric, such as for instance the presence of coloured fibres.** Thanks to the «Mesdan Video Analyser» software supplied with Microlab, it is possible to perform the fabric warp and weft density reduction (to cm or inch) in a simple and accurate way. Code 250 338

## Additional consumables

- Set of 50 slides \*\* code 191 50 \*\*
- Set of 100 slide covers \*\* code 191 52 \*\*
- Immersion oil bottle (100ml) \*\* code 191 54 \*\*
- Pack of paper for printer \*\* code 250 18 \*\*
- Set of cartridges for printer \*\* code 250 322 \*\*

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