

From Eye to Insight

**Leica**  
MICROSYSTEMS

## Leica EM RAPID

Pharmaceutical Milling System for Pills



# Leica EM RAPID for Pharmaceutical

The Leica EM RAPID milling system has been designed for preparation of pills and tablets prior to investigation with NIR spectrophotometry for Research on Active Pharmaceutical Ingredient Dispersal. With a tungsten carbide or diamond milling tool, pills can be decapsulated and milled without any smearing effect caused by the pills' coating.

The operating concept of the Leica EM RAPID offers versatile features which are directly converted into user benefits to achieve maximum ease of use and optimal results.



Leica Design by W. Hölbl

# Tablet Surface Preparation

- Decapsulation of pills without smearing effect
- Adjustable cutting speed between 300–20.000 rpm
- Defined layer removal in steps of 0.5, 1, 10 or 100  $\mu\text{m}$
- Brilliant ring LED top light and optimised back light illumination
- Low noise extraction and filtration unit with Hepa-filter

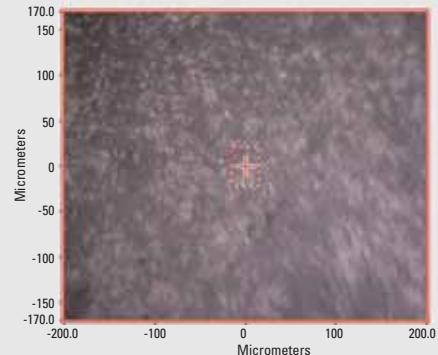


Image a

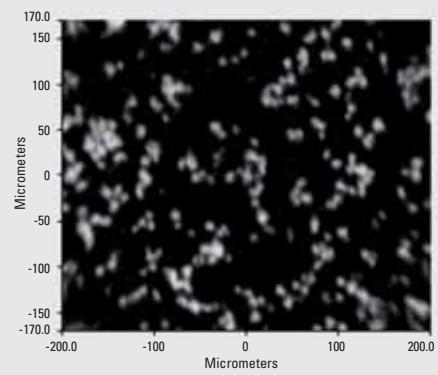


Image b

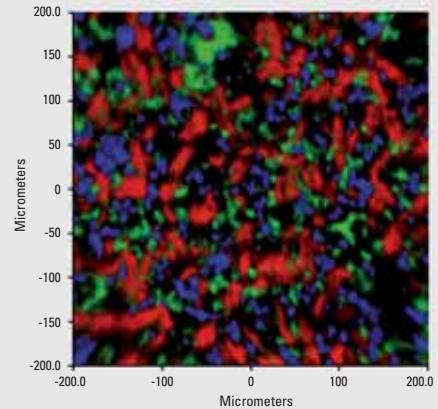


Image c

Visible (a), derived single component IR image (b) from tablet surface and (c) composite image from 3 major components  
Courtesy of Perkin Elmer

# The Leica EM RAPID is Fast

A specially designed pill holder allows a fast transfer to the NIR spectrophotometer after milling without removing the sample from the carrier. It can then be reinserted into the Leica EM RAPID for further defined layer removal, thus obtaining accurate and fast layer information. This way no information is lost and the time to the NIR microscope is very fast.

## **Single pill holder**

The pill is mounted on the insert and clamped in the adaptor. After milling the insert can be placed directly in the NIR microscope. The insert dimensions are compatible with the Perkin Elmer tablet Autosampler.



## **Multiple pill holder**

For preparation and investigation of several tablets at once, a smart designed glass slide holder increases throughput considerably, allowing more than one pill to be milled simultaneously.



# ... is Safe

The milling tool and the sample are located under a protective cover. The instrument will not run until the cover is closed or stops quickly if the cover is opened during milling. The miller ON/OFF switch is integrated into the control lever for the milling action. Hazardous dust of API material is drawn into a low-noise extraction unit fitted with a Hepa-filter. This filtration system is silent and safe.



Control lever with integrated ON/OFF switch

Exhaust tube connection to the extraction and filtration unit



Low-noise extraction and filtration unit fitted with a Hepa-filter.

# ... is Easy to Use



## Leica EM RAPID ergonomic MZ stereo outfit

The Leica EM RAPID can be ergonomically configured with an MZ stereo microscope in conjunction with the ergo-wedge. The use of the MZ stereo also allows the use of additional equipment such as TV camera and distance definition equipment.

## Integrated viewing system

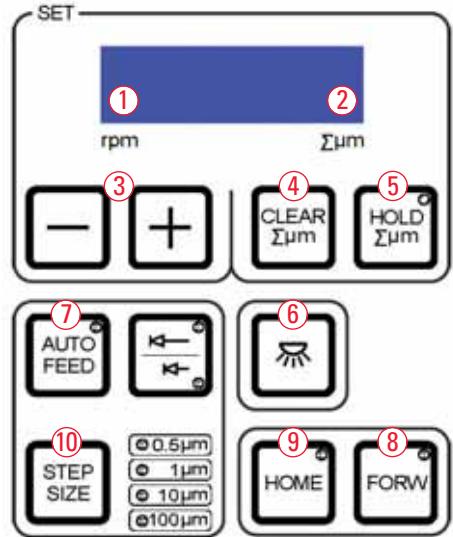
With the specimen pivot arm the sample can be observed during preparation at an angle between 0° and 60°, directly onto the front face and 90° to the front face for distance determination with the eyepiece graticule (optional). The Leica EM RAPID features brilliant LED top light ring-illumination and optimized backlighting for excellent viewing. By moving the control lever up and down the milling action is performed with the pre-selected step advance of the miller using the ergonomic positioned hand wheel.



# ... is Accurate

The Leica EM RAPID is operated by a built-in control panel which provides all necessary functions to achieve highly accurate results.

- ① Milling speed (rpm) on LCD display
- ② Miller total feed advance on LCD display
- ③ Variable cutting speed between 300-20000 rpm allows settings to be adjusted for fragile pills.
- ④ Clear total feed advance to set starting point for defined layer removal of the pill
- ⑤ Hold advance indication while the miller has been retracted without losing milling position information
- ⑥ ON/OFF ring LED illuminator
- ⑦ The Auto-Feed function allows safe and fast layer removal without operating the feed hand wheel. Two switch positions are selectable for single or multiple pill holder.
- ⑧ Fast forward movement of the miller for quick miller approach towards the sample
- ⑨ Fast retraction of the miller and automatic movement to the home position for miller exchange
- ⑩ Pre-selection of the miller advance in steps of 0.5, 1, 10 or 100  $\mu\text{m}$  at each click stop of the hand wheel encoder. Investigations on a defined layer can be accurately performed by stepwise removal of the tablet material.



## Milling tools

A selection of design-optimized tungsten carbide and diamond milling tools with a diameter of 8 mm and 12 mm provide high surface quality without any smearing effects caused by the pills' coating.

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