Specifications

Morphologi 4

General

Technology:
Static automated imaging

Particle size:
0.5 µm – 1300 µm (upper limit may be extended for some applications*)

Particle properties measured:
Size, shape, transparency, count, location

Particle size parameters:
Circle equivalent (CE) diameter, length, width, perimeter, area, maximum distance, sphere equivalent (SE) volume, fiber total length, fiber width

Particle shape parameters:
Aspect ratio, circularity, convexity, elongation, high sensitivity (HS) circularity, solidity, fiber elongation, fiber straightness

Particle transparency parameters:
Intensity mean, intensity standard deviation

Integrated Sample Dispersion Unit:
For fully automated dispersion and measurement of dry powders. Manual or SOP control of
dispersion pressure, injection time and settling time

Illumination:
White light LED: brightfield, diascopic and episcopic; darkfield, episcopic

Detector:
18 MP; 4912 x 3684 pixel color CMOS array; pixel size 1.25 µm x 1.25 µm

Optical system:
Nikon CFI 60 brightfield / darkfield system

Lens (and particle size range):
2.5x: 8.5 µm – 1300 µm (nominal)
5x: 4.5 µm – 520 µm (nominal)
10x: 2.5 µm – 260 µm (nominal)
20x: 1.5 µm – 130 µm (nominal)
50x: 0.5 µm – 50 µm (nominal)

Weight and dimensions:

Dimensions (W, D, H):
810 mm (W) x 520 mm (D) x 685 mm (H)
with carry handles: 1100mm (W) x 520mm (D) x 685mm (H)

Weight:
76 kg (84kg including carry handles)
Power:
100-240 V ac 50/60 Hz (<100W load)
Notes:
* Sample and substrate dependent

Morphologi 4-ID

General:

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Size, shape, transparency, count, location
Particle size parameters:
Circle equivalent (CE) diameter, length, width, perimeter, area, maximum distance, sphere equivalent (SE) volume, fiber total length, fiber width
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Optical system:
Nikon CFI 60 brightfield / darkfield system
Lens (and particle size range):
2.5x: 8.5 µm – 1300 µm (nominal)
5x: 4.5 µm – 520 µm (nominal)
10x: 2.5 µm – 260 µm (nominal)
20x: 1.5 µm – 130 µm (nominal)
50x: 0.5 µm – 50 µm (nominal)

Raman Spectroscopy:

Size range:
1 µm - 1300 µm*
Spectral performance:

150 cm⁻¹ to 2800 cm⁻¹
6 cm⁻¹ resolution measured on an atomic line source. Average of < 8 cm⁻¹ across the range.

Wavelength:
785 nm

Power output from spectrometer:
< 100 mW

Power output at sample:
> 45 mW at max power

Laser spot size:
2 µm at 50x magnification

Laser safety:
Class 1

Chemical identification method:
Raman spectral correlation

Weight and dimensions:

Dimensions (W, D, H):
810 mm (W) x 520 mm (D) x 685 mm (H)
with carry handles: 1100mm (W) x 520mm (D) x 685mm (H)

Weight:
80 kg (88 kg including carry handles)

Power:
100-240 V ac 50/60 Hz (<100W load)

Notes:
* Sample and substrate dependent