



# Leica E Series

Technical information

Living up to Life

***Leica***  
MICROSYSTEMS

## Leica E Series – Features, specifications

| <b>Stereomicroscope</b>                  | <b>Leica ES2</b>   | <b>Leica EZ4 10×</b>   | <b>Leica EZ4 16×</b>   |
|--|--|--|--|
| Type of microscope                       | 10° Greenough  | 10° Greenough  | 10° Greenough  |
| Optical system                           | parfocal   | parfocal   | parfocal   |
| Magnification changer                    | 2-level, 3:1   | zoom 4.4:1   | zoom 4.4:1   |
| Eyepieces for spectacle wearers          | 10×/20 fixed   | 10×/20 fixed   | 16×/15 fixed   |
| Diopter correction                       | –  | –  | –  |
| Viewing angle                            | 60°  | 60°  | 60°  |
| Working distance                         | 100mm  | 100mm  | 100mm  |
| Magnification range                      | 10×/30×  | 8× to 35×  | 12.8× to 56×   |
| Maximum resolution                       | 159 Lp/mm  | 170 Lp/mm  | 170 Lp/mm  |
| Maximum numerical aperture               | 0.053 nA   | 0.057 nA   | 0.057 nA   |
| Object field diameter                    | 20mm / 6.7mm   | 5.7 to 25mm  | 4.3 to 18.8mm  |
| Eyecups                                  | replaceable  | replaceable  | replaceable  |
| Interpupillary distance                  | 50 to 75mm   | 50 to 75mm   | 50 to 75mm   |
| Beam path                                | 100% visual  | 100% visual  | 100% visual  |
| Focusing drive                           | Individually adjustable ease of movement, 75mm travel  | Individually adjustable ease of movement, 75mm travel  | Individually adjustable ease of movement, 75mm travel  |
| Grip                                     | integrated   | integrated   | integrated   |
| <b>Illumination system</b>               |  |  |  |
| LED incident light and transmitted light | integrated, independent or combined  | integrated, independent or combined, dimmable  | integrated, independent or combined, dimmable  |
| Control                                  | On/off switch  | membrane switch  | membrane switch  |
| Incident light method                    | angled incident light with three upper LEDs  | choice of 3 methods: maximum intensity with 5 LEDs, angled incident light with LEDs, side light with 3 LEDs (patent pending) | choice of 3 methods: maximum intensity with 5 LEDs, angled incident light with LEDs, side light with 3 LEDs (patent pending) |
| Dimmer                                   | –  | yes, for incident and transmitted light  | yes, for incident and transmitted light  |
| Auto OFF                                 | –  | after 60 minutes   | after 60 minutes   |
| LED service life                         | approx. 25 000 hours   | approx. 25 000 hours   | approx. 25 000 hours   |
| Light quality                            | homogeneous daylight, free of UV and IR  | homogeneous daylight, free of UV and IR  | homogeneous daylight, free of UV and IR  |
| Maintenance                              | maintenance-free   | maintenance-free   | maintenance-free   |
| Power supply                             | universal from 100V to 240V, voltage-sensitive, integrated   | universal from 100V to 240V, voltage-sensitive, integrated   | universal from 100V to 240V, voltage-sensitive, integrated   |
| <b>Digital camera</b>                    |  |  |  |
| Camera                                   | –  | –  | –  |
| Output                                   | –  | –  | –  |
| Analog video port                        | –  | –  | –  |
| Integrated slot                          | –  | –  | –  |
| Recording                                | –  | –  | –  |
| Software                                 | –  | –  | –  |
| <b>Accessories</b>                       |  |  |  |
| Measurement graticule/ stage micrometer  | –  | –  | –  |
| <b>Other</b>                             |  |  |  |
| Dimensions and weights                   | 3.82kg, 180 × 255 × 365  | 3.8kg, 180 × 255 × 365   | 3.8kg, 180 × 255 × 365   |
| Ambient conditions, operation            | +10°C to +40°C / rel. hum. to 35°C: 75% / atmospheric pressure 700 to 1060 hPa / storage: 20°C to 55°C |  |  |
| Storage and transport                    | –20°C to + 52°C / rel. hum. 10 – 95% (non-condensing) / atmospheric pressure 500 to 1200 hPa           |  |  |
| Standards                                | CE Communauté Européenne / CSA Canadian Standards Association (USA, Canada)                            |  |  |

| <b>Stereomicroscope</b>                     | <b>Leica EZ4, open</b>   | <b>Leica EZ4 D 10x</b>   |
|---|--|--|
| Type of microscope                          | 10° Greenough  | 10° Greenough  |
| Optical system                              | parfocal   | parfocal   |
| Magnification changer                       | zoom 4.4:1   | zoom 4.4:1   |
| Eyepieces for spectacle wearers             | replaceable, fixed or adjustable:<br>10×/20, 16×/16, 20×/12 not suitable<br>for spectacle wearers  | 10×/20 fixed   |
| Diopter correction                          | from +5 to –5 (adjustable eyepieces)   | –  |
| Viewing angle                               | 60°  | 60°  |
| Working distance                            | 100mm  | 100mm  |
| Magnification range                         | depending on eyepieces used:<br>8× to 70×  | 8× to 35×  |
| Maximum resolution                          | 170 Lp/mm  | 170 Lp/mm  |
| Maximum numerical aperture                  | 0.057 nA   | 0.057 nA   |
| Object field diameter                       | depending on eyepieces used:<br>3.4 to 25mm  | 5.7 to 25mm  |
| Eyecups                                     | replaceable  | replaceable  |
| Interpupillary distance                     | 50 to 75mm   | 50 to 75mm   |
| Beam path                                   | 100% visual  | 50% visual and 50% video/photo   |
| Focusing drive                              | individually adjustable ease of<br>movement,<br>75mm travel  | individually adjustable ease of<br>movement,<br>75mm travel  |
| Grip  | integrated   | integrated   |
| <b>Illumination system</b>                  |  |  |
| LED incident light and<br>transmitted light | integrated,<br>independent or combined,<br>dimmable  | integrated,<br>independent or combined,<br>dimmable  |
| Control                                     | membrane switch  | membrane switch  |
| Incident light method                       | choice of 3 methods:<br>maximum intensity with 5 LEDs,<br>angled incident light with LEDs,<br>side light with 3 LEDs<br>(patent pending) | choice of 3 methods:<br>maximum intensity with 5 LEDs,<br>angled incident light with LEDs,<br>side light with 3<br>LEDs (patent pending) |
| Dimmer                                      | yes, for incident and transmitted<br>light   | yes, for incident and transmitted<br>light   |
| Auto OFF                                    | after 60 minutes   | after 60 minutes   |
| LED service life                            | approx. 25 000 hours   | approx. 25 000 hours   |
| Light quality                               | homogeneous daylight,<br>free of UV and IR   | homogeneous daylight,<br>free of UV and IR   |
| Maintenance                                 | maintenance-free   | maintenance-free   |
| Power supply                                | universal from 100V to 240V,<br>voltage-sensitive, integrated  | universal from 100V to 240V,<br>voltage-sensitive, integrated  |
| <b>Digital camera</b>                       |  |  |
| Camera                                      | optional: Leica DC150 with adapter   | integrated, 3.0 megapixel CMOS   |
| Output                                      | –  | USB 2.0  |
| Analog video port                           | –  | RCA, video, composite for projector,<br>monitor, video recorder<br>for SD (Secure Digital) cards   |
| Integrated slot                             | –  | integrated button for image recording  |
| Recording                                   | –  | software for PC and MAC  |
| Software                                    | –  |  |
| <b>Accessories</b>                          |  |  |
| Measurement graticule/<br>stage micrometer  | for length measurements, for use<br>with adjustable eyepieces  | –  |
| <b>Other</b>                                |  |  |
| Dimensions and weights                      | 3.64kg, 180 × 255 × 365  | 4.17kg, 180 × 255 × 365  |
| Ambient conditions, operation               | 10°C to 40°C / rel. hum. to 35°C: 75% / atmospheric pressure 700 to 1060 hPa /<br>storage: 20°C to 55°C                                  |  |
| Storage and transport                       | –20°C to + 52°C / rel. hum. 10 – 95% (non-condensing) /<br>atmospheric pressure 500 to 1200 hPa  |  |
| Standards                                   | CE Communauté Européenne / CSA Canadian Standards Association (USA, Canada)  |  |

# Leica E Series – Optical data

| ES2 (10 447 202) |                                   |                     |                      | EZ4 (10 447 197) and EZ4 D with 10× eyepieces (10 447 200) |                                   |                     |                      |
|------------------|-----------------------------------|---------------------|----------------------|--|-----------------------------------|---------------------|----------------------|
| Eyepieces        | Position at magnification-changer | Magnification total | Object field Ø in mm | Eyepieces  | Position at magnification-changer | Magnification total | Object field Ø in mm |
| 10×/20           | 10                                | 10×                 | 20                   | 10×/20   | 8                                 | 8×                  | 25                   |
|                  | 30                                | 30×                 | 6.7                  |  | 10                                | 10×                 | 20                   |
|                  |                                   |                     | 12.5                 |  | 12.5×                             | 16                  |                      |
|                  |                                   |                     | 16                   |  | 16×                               | 12.5                |                      |
|                  |                                   |                     | 20                   |  | 20×                               | 10                  |                      |
|                  |                                   |                     | 25                   |  | 25×                               | 8                   |                      |
|                  |                                   |                     | 30                   |  | 30×                               | 6.7                 |                      |
|                  |                                   |                     | 35                   |  | 35×                               | 5.7                 |                      |

| EZ4 with 16x eyepieces (10 447 198) |                                   |                     |                      | EZ4 without eyepieces (10 447 199) + eyepieces 10×/20 |                                   |                     |                      |
|-------------------------------------|-----------------------------------|---------------------|----------------------|---|-----------------------------------|---------------------|----------------------|
| Eyepieces                           | Position at magnification-changer | Magnification total | Object field Ø in mm | Eyepieces   | Position at magnification-changer | Magnification total | Object field Ø in mm |
| 16×/15                              | 13                                | 12.8×               | 18.8                 | 10×/20  | 0.8                               | 8×                  | 25                   |
|                                     | 16                                | 16×                 | 15                   |   | 1                                 | 10×                 | 20                   |
|                                     | 20                                | 20×                 | 12                   |   | 1.25                              | 12.5×               | 16                   |
|                                     | 25                                | 25.6×               | 9.4                  |   | 1.6                               | 16×                 | 12.5                 |
|                                     | 32                                | 32×                 | 7.5                  |   | 2                                 | 20×                 | 10                   |
|                                     | 40                                | 40×                 | 6                    |   | 2.5                               | 25×                 | 8                    |
|                                     | 50                                | 48×                 | 5                    |   | 3                                 | 30×                 | 6.7                  |
|                                     | 56                                | 56×                 | 4.3                  |   | 3.5                               | 35×                 | 5.7                  |

| EZ4 without eyepieces (10 447 199) + eyepieces 16×/16 |                                   |                     |                      | EZ4 without eyepieces (10 447 199) + eyepieces 20×/12 |                                   |                     |                      |
|---|-----------------------------------|---------------------|----------------------|---|-----------------------------------|---------------------|----------------------|
| Eyepieces   | Position at magnification-changer | Magnification total | Object field Ø in mm | Eyepieces   | Position at magnification-changer | Magnification total | Object field Ø in mm |
| 16×/16  | 0.8                               | 12.8×               | 20                   | 20×/12  | 0.8                               | 16×                 | 15                   |
|   | 1                                 | 16×                 | 16                   |   | 1                                 | 20×                 | 12                   |
|   | 1.25                              | 20×                 | 12.8                 |   | 1.25                              | 25×                 | 9.6                  |
|   | 1.6                               | 25.6×               | 10                   |   | 1.6                               | 32×                 | 7.5                  |
|   | 2                                 | 32×                 | 8                    |   | 2                                 | 40×                 | 6                    |
|   | 2.5                               | 40×                 | 6.4                  |   | 2.5                               | 50×                 | 4.8                  |
|   | 3                                 | 48×                 | 5.3                  |   | 3                                 | 60×                 | 4                    |
|   | 3.5                               | 56×                 | 4.6                  |   | 3.5                               | 70×                 | 3.4                  |

# Leica E Series Assembly – diagram



**Leica ES2 (10×)**  
10 447 202



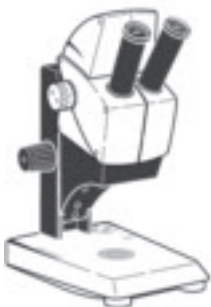
**Leica EZ4 (10×)**  
10 447 197



**Leica EZ4 (16×)**  
10 447 198



**Leica EZ4**  
10 447 199



**Leica EZ4 D (10×)**  
10 447 200

**Leica DC150 camera**



**Low eyepoint eyepieces:**

Eyepieces, fixed:  
10×/20 (10 447 281)  
16×/16 (10 447 132)  
20×/12 (10 447 134)

Eyepieces, adjustable:  
10×/20 (10 447 282)  
16×/16 (10 447 133)  
20×/12 (10 447 135)

**High eyepoint eyepieces:**

Eyepieces, fixed:  
10×/20B (10 447 278)  
16×/15B (10 447 138)

Eyepieces, adjustable:  
10×/20B (10 447 280)  
16×/15B (10 447 139)

## Leica E Series – Standard delivery

### **E Series stereomicroscopes**

- 10 447 202 Leica ES2 with 10× eyepieces, 2 step stereomicroscope (3:1) 10× and 30× magnification, 60° eyetube angle, 100 mm working distance, high eyepoint eyepieces, integrated LED illumination for incident and transmitted light, power supply 100 – 240V
- 10 447 197 Leica EZ4 with 10× eyepieces, 4.4:1 zoom ratio, magnification from 8–35×, 60° eyetube angle, 100mm working distance, high eyepoint eyepieces, integrated LED illumination for incident and transmitted light, power supply 100 – 240V
- 10 447 198 Leica EZ4 with 16× eyepieces, 4.4:1 zoom ratio, magnification from 12.8–56×, 60° eyetube angle, 100mm working distance, high eyepoint eyepieces, integrated LED illumination for incident and transmitted light, power supply 100 – 240V
- 10 447 199 Leica EZ4 without eyepieces 4.4:1 zoom ratio, 60° eyetube angle, 100mm working distance, integrated LED illumination for incident and transmitted light, power supply 100 – 240V
- 10 447 200 Leica EZ4 D with 10× eyepieces, 4.4:1 zoom ratio, magnification from 8–35×, 60° eyetube angle, 100mm working distance, high eyepoint eyepieces, integrated CMOS camera 3.0 Megapixel, USB2, PAL/NTSC, integrated LED illumination for incident and transmitted light, power supply 100 – 240V

### **Eyepieces for EZ4 with open tubes**

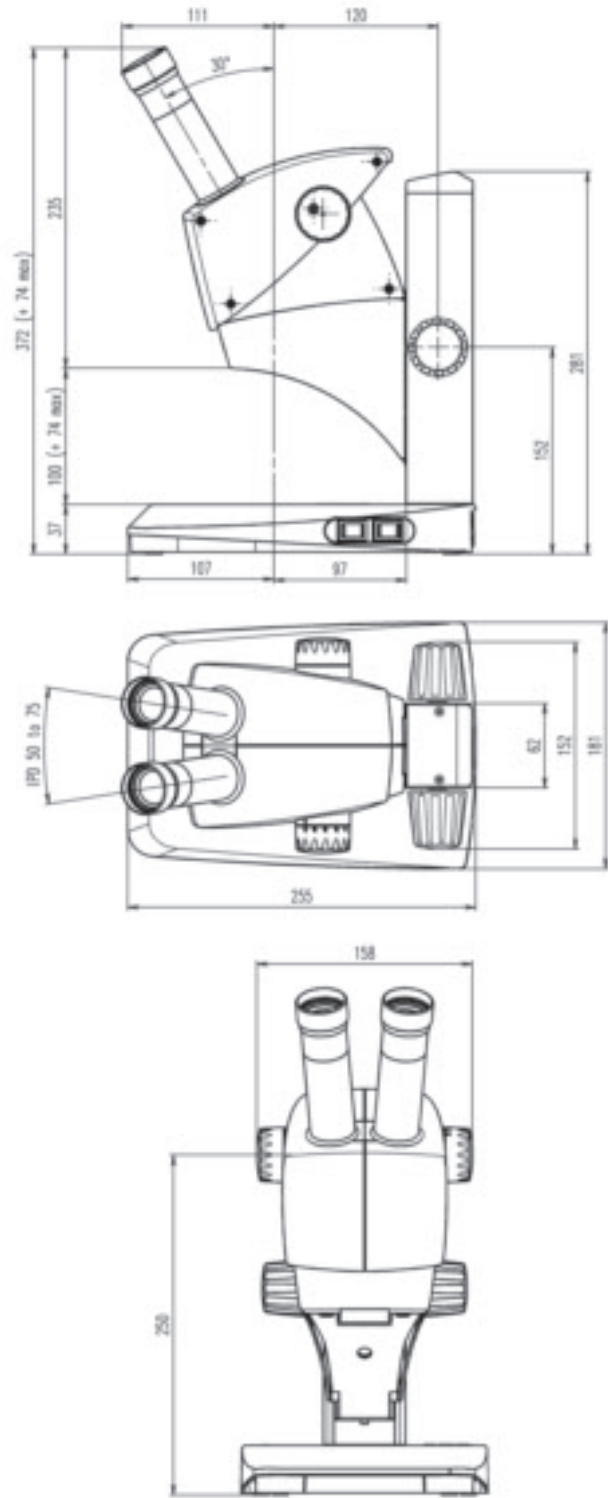
- 10 447 281 Eyepiece 10×/20, fixed, E Series
- 10 447 282 Eyepiece 10×/20, adjustable, E Series
- 10 447 132 Eyepiece 16×/16, fixed, S and E Series
- 10 447 133 Eyepiece 16×/16, adjustable, S and E Series
- 10 447 134 Eyepiece 20×/12, fixed, S and E Series
- 10 447 135 Eyepiece 20×/12, adjustable, S and E Series
- 10 447 278 Eyepiece 10×/20B, for spectacle wearers
- 10 447 280 Eyepiece 10×/20B, adjustable, for spectacle wearers
- 10 447 138 Eyepiece 16×/15B, for spectacle wearers
- 10 447 139 Eyepiece 16×/15B, adjustable, for spectacle wearers

### **Accessories for measurements with adjustable eyepieces**

- 10 446 447 Graticule 10mm / 0.1mm, S Series
- 10 446 448 Graticule 5mm / 0.1mm, S Series
- 10 446 449 Graticule 5mm / 0.05mm
- 10 446 450 Crosshair graticule
- 10 447 000 Graticule, 100 graduations / 0.002"
- 10 447 001 Graticule, 100 graduations / 0.001"
- 10 447 002 Graticule, 150 graduations / 0.0005"
- 10 310 345 Stage micrometer 50mm, 0.1 / 0.01mm graduation
- 10 447 037 Stage micrometer 1", 0.001" graduation
- 10 447 477 Soft carrying case
- 10 447 496 Leica ETB (Educational Tool Box): Educational CD-Rom, Cleaning-Set, Poster of an E-Series-Stereomicroscope

# Leica ES2 dimensions

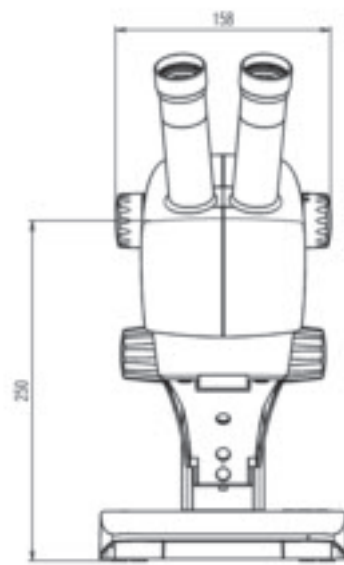
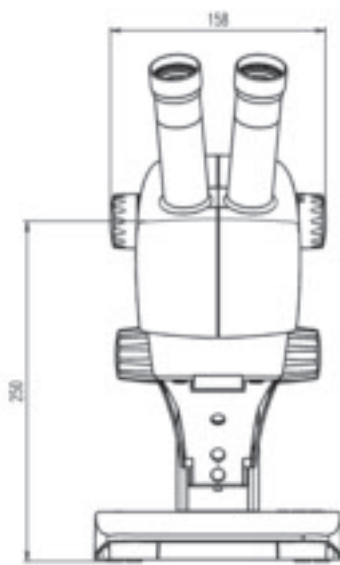
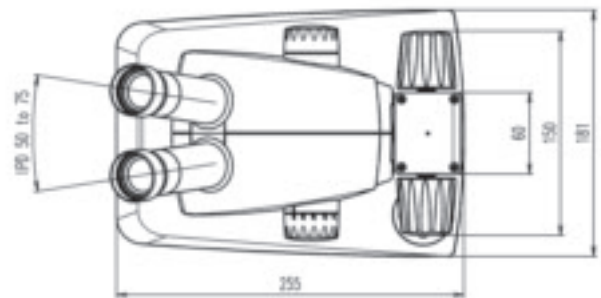
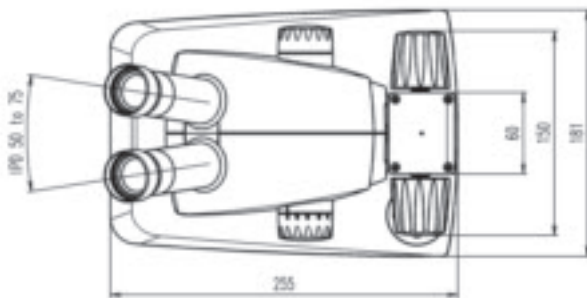
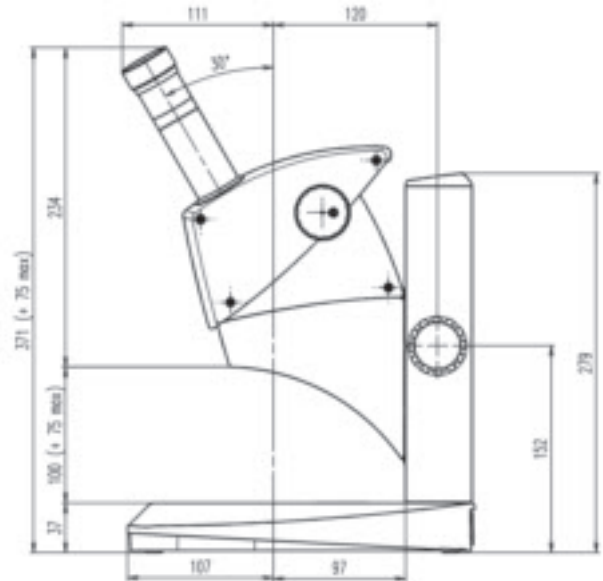
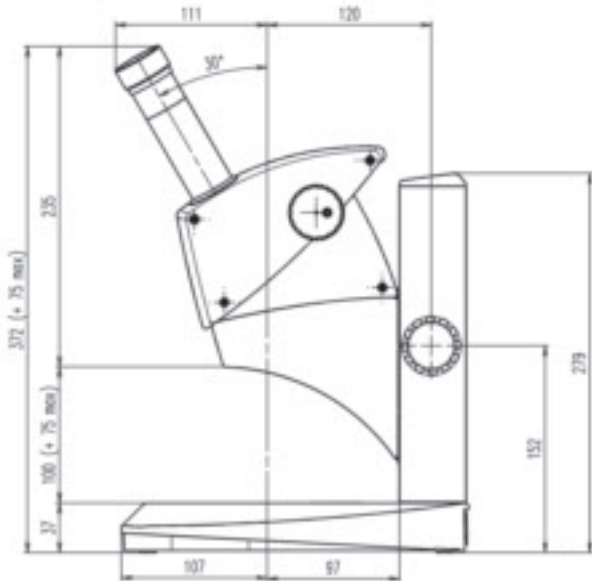
Measurements in mm



10 447 202 Leica ES2

# Leica EZ4 dimensions

Measurements in mm

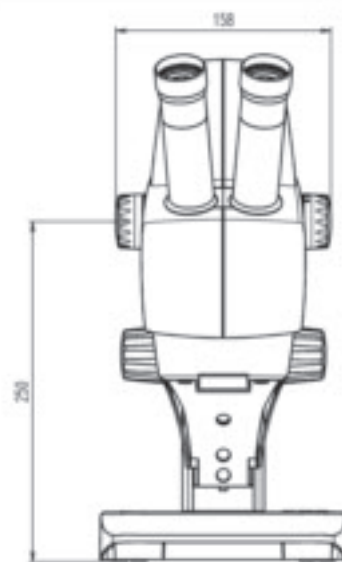
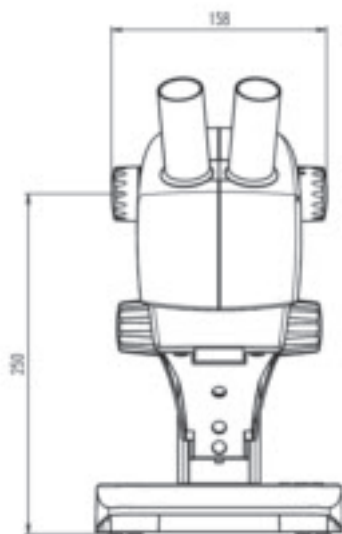
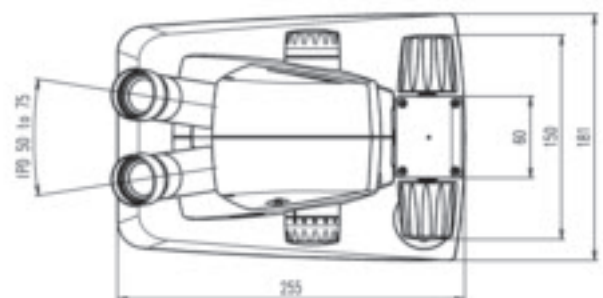
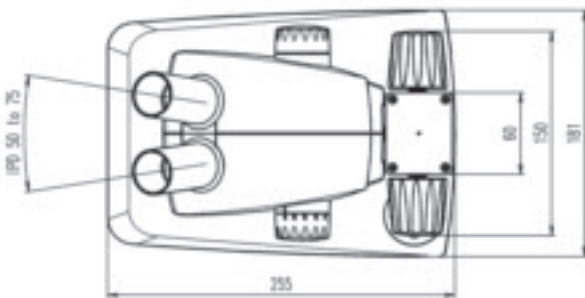
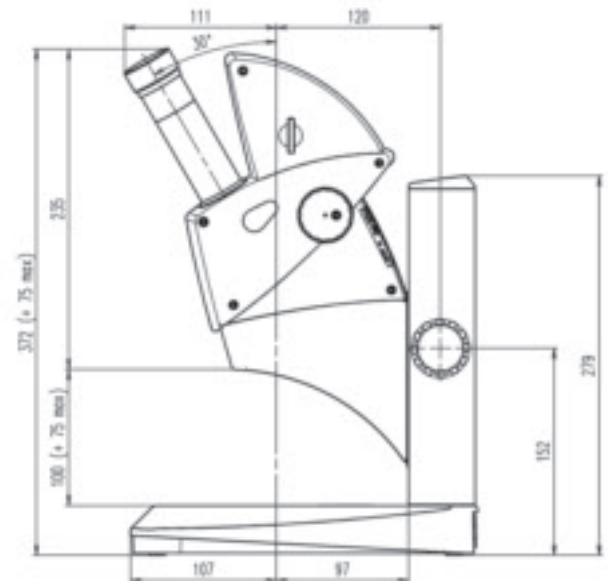
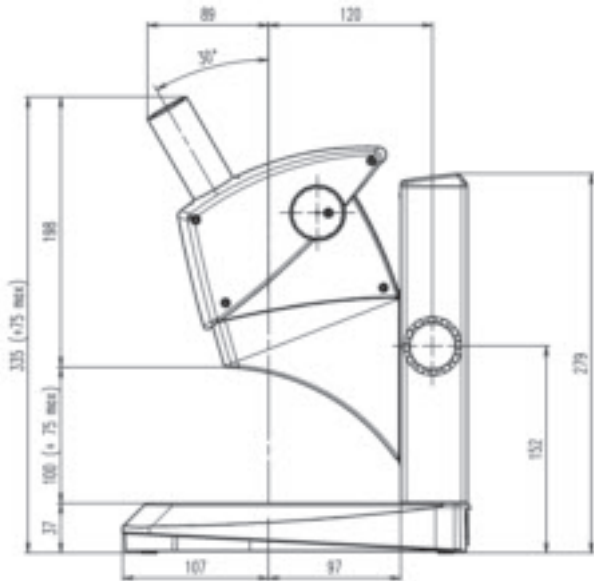


10 447 197 Leica EZ4 with 10x eyepieces

10 447 198 Leica EZ4 with 16x eyepieces

# Leica EZ4 D dimensions

Measurements in mm



10 447 199 Leica EZ4 without eyepieces

10 447 200 Leica EZ4 D (with 10x eyepieces and integrated digital camera)

# “With the user, for the user”

## Leica Microsystems

Leica Microsystems operates globally in four divisions, where we rank with the market leaders.

### • Life Science Division

The Leica Microsystems Life Science Division supports the imaging needs of the scientific community with advanced innovation and technical expertise for the visualization, measurement, and analysis of microstructures. Our strong focus on understanding scientific applications puts Leica Microsystems' customers at the leading edge of science.

### • Industry Division

The Leica Microsystems Industry Division's focus is to support customers' pursuit of the highest quality end result. Leica Microsystems provide the best and most innovative imaging systems to see, measure, and analyze the microstructures in routine and research industrial applications, materials science, quality control, forensic science investigation, and educational applications.

### • Biosystems Division

The Leica Microsystems Biosystems Division brings histopathology labs and researchers the highest-quality, most comprehensive product range. From patient to pathologist, the range includes the ideal product for each histology step and high-productivity workflow solutions for the entire lab. With complete histology systems featuring innovative automation and Novocastra™ reagents, Leica Microsystems creates better patient care through rapid turnaround, diagnostic confidence, and close customer collaboration.

### • Surgical Division

The Leica Microsystems Surgical Division's focus is to partner with and support surgeons and their care of patients with the highest-quality, most innovative surgical microscope technology today and into the future.

The statement by Ernst Leitz in 1907, “with the user, for the user,” describes the fruitful collaboration with end users and driving force of innovation at Leica Microsystems. We have developed five brand values to live up to this tradition: Pioneering, High-end Quality, Team Spirit, Dedication to Science, and Continuous Improvement. For us, living up to these values means: **Living up to Life.**

### Active worldwide

|                         |                       |                         |                        |
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| Canada:                 | Richmond Hill/Ontario | Tel. +1 905 762 2000    | Fax +1 905 762 8937    |
| Denmark:                | Herlev                | Tel. +45 4454 0101      | Fax +45 4454 0111      |
| France:                 | Nanterre Cedex        | Tel. +33 811 000 664    | Fax +33 1 56 05 23 23  |
| Germany:                | Wetzlar               | Tel. +49 64 41 29 40 00 | Fax +49 64 41 29 41 55 |
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| Japan:                  | Tokyo                 | Tel. +81 3 5421 2800    | Fax +81 3 5421 2896    |
| Korea:                  | Seoul                 | Tel. +82 2 514 65 43    | Fax +82 2 514 65 48    |
| Netherlands:            | Rijswijk              | Tel. +31 70 4132 100    | Fax +31 70 4132 109    |
| People's Rep. of China: | Hong Kong             | Tel. +852 2564 6699     | Fax +852 2564 4163     |
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| Singapore               |                       | Tel. +65 6779 7823      | Fax +65 6773 0628      |
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| USA:                    | Bannockburn/Illinois  | Tel. +1 847 405 0123    | Fax +1 847 405 0164    |

### and representatives in more than 100 countries

In accordance with the ISO 9001 certificate, Leica Microsystems (Switzerland) Ltd, Industry Division, has at its disposal a management system that meets the requirements of the international standard for quality management. In addition, production meets the requirements of the international standard ISO 14001 for environmental management.