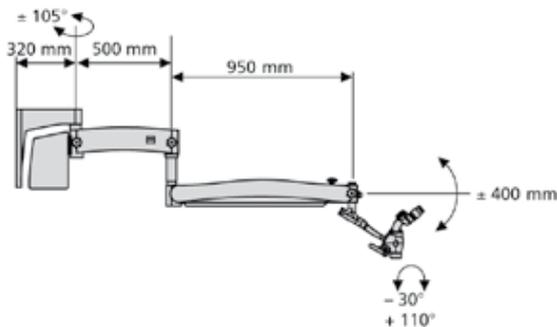
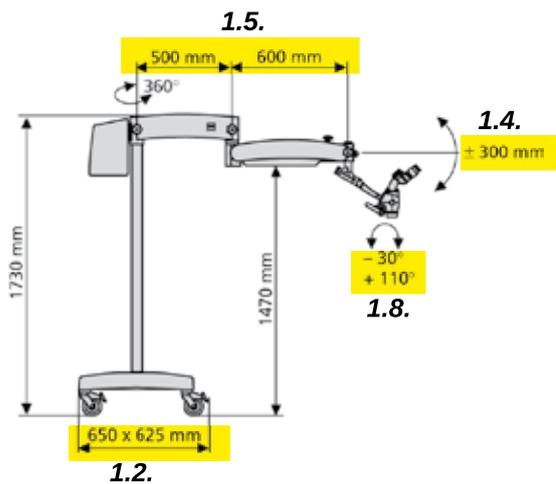
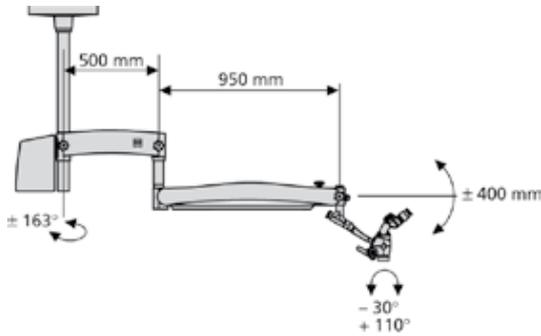


OPMI pico by the numbers.



OPMI pico microscope

1.7. Magnification system

- Manual apochromatic magnification changer
- Five click stop positions:
 $y = 0.4x, 0.6x, 1.0x, 1.6x, 2.5x$

Tubes

- 45° inclined binocular tube, $f = 170 \text{ mm}$

1.10. - 0° - 180° tiltable binocular tube; $f = 170$ or $f = 200 \text{ mm}$

Eyepieces

1.11. - 12.5x and 10x widefield eyepieces, also suitable for eyeglass wearers

Magnification range

example with $f = 250 \text{ mm}$ lens and 12.5x eyepiece:

Magnification/Field-of-view diameter:

1.12. 3.4x 5.1x 8.5x 13.6x 21.3x

1.13. 65 mm 43 mm 26 mm 16 mm 10 mm

Focusing

1.15. - Manual focusing, focusing range 13 mm

1.14. - 3 focusing lenses available: $f = 200 \text{ mm}$, $f = 250 \text{ mm}$, $f = 300 \text{ mm}$, interchangeable

Microscope mount, mobility

Microscope body adapted to S100 suspension systems via

- 120° coupler
- MORA Interface (optional)
- Mechanical Optical Rotating Assembly
- Rotatable coupling for OPMI pico with +/-25° rotational range
- Integrated, swing-in angular stop to increase depth of field
- Patented, n. Dr. Assad F. Mora
- Protected by EP Patent No. 1420280

Handgrips: 4 versions

Additional optics

- Angled optics with tube dovetail (optional)
- Double iris diaphragm to increase the depth of field (optional)

System overview

Surgical microscope The surgical microscope (4) enables the illumination and visual magnification of the field of view. For visual magnification, the surgical microscope can be equipped with different tubes, eyepieces and objective lenses.

S100 suspension system The S100 comes as a floor stand, ceiling mount or wall mount. It is also available as a support unit and for adaptation to a Centro stand.

The S100 is used to control and supply the functions of the surgical microscope. It consists of a carrier arm (2), suspension arm (3) and supply unit (1) with light source. The suspension arm allows rough positioning of the surgical microscope and moving into standby position.

The S100 floor stand can be positioned in the OR by four controllable casters (5). The locking tabs of the casters prevent the system from being moved or rolling away unintentionally.

1.3.

Light source Depending on the order, the device may be equipped with a halogen, xenon or LED light source. The halogen, xenon or LED light source is used to illuminate the surgical area. It has a fiber illumination in the surgical microscope, i. e. the light is directed from the light source via a light guide to the surgical microscope. The halogen, xenon or LED light source is situated in the lamp housing of the supply unit (1).

1.17.

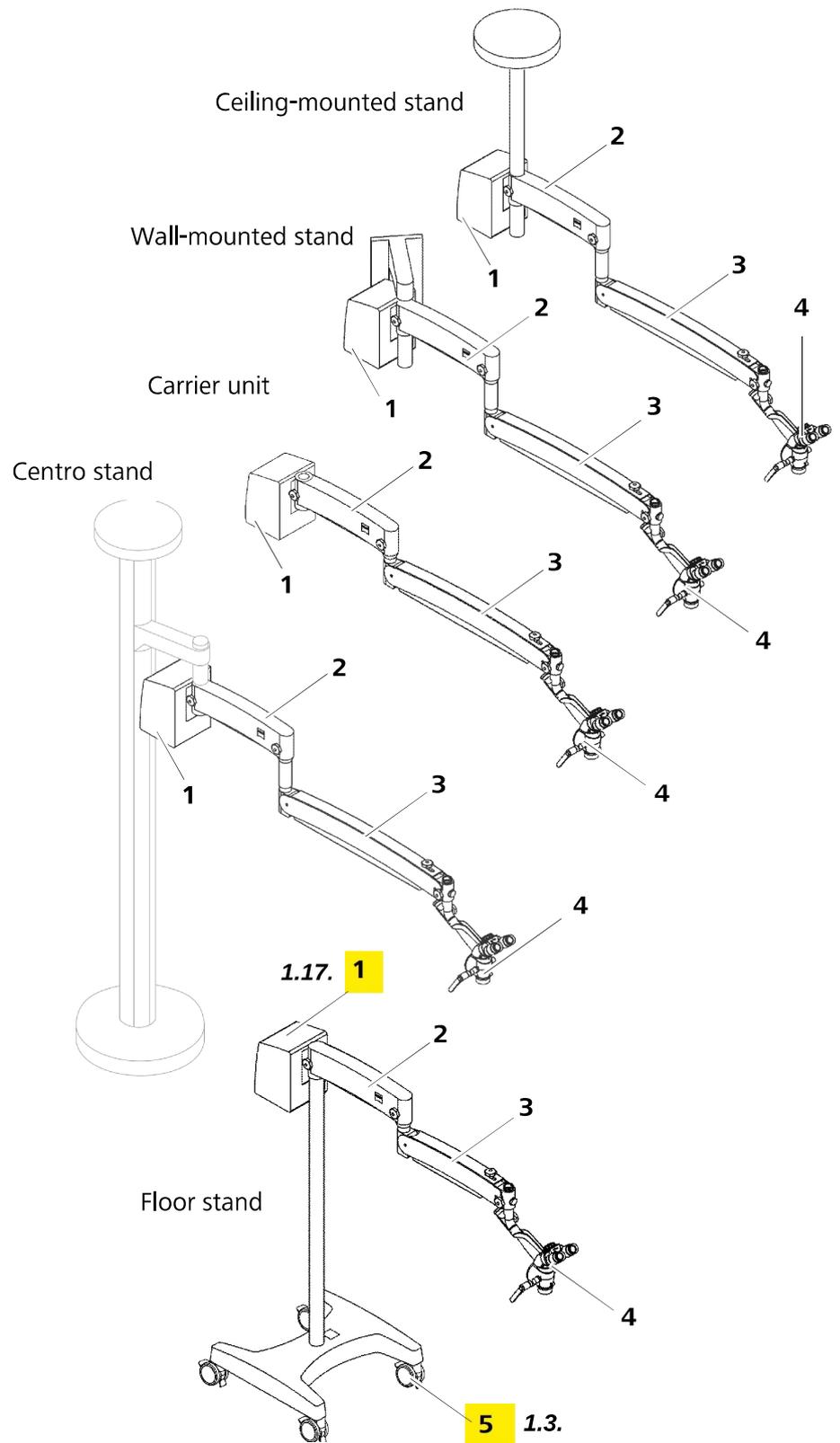
The halogen light source contains two halogen lamps. The second lamp is used as backup lamp.

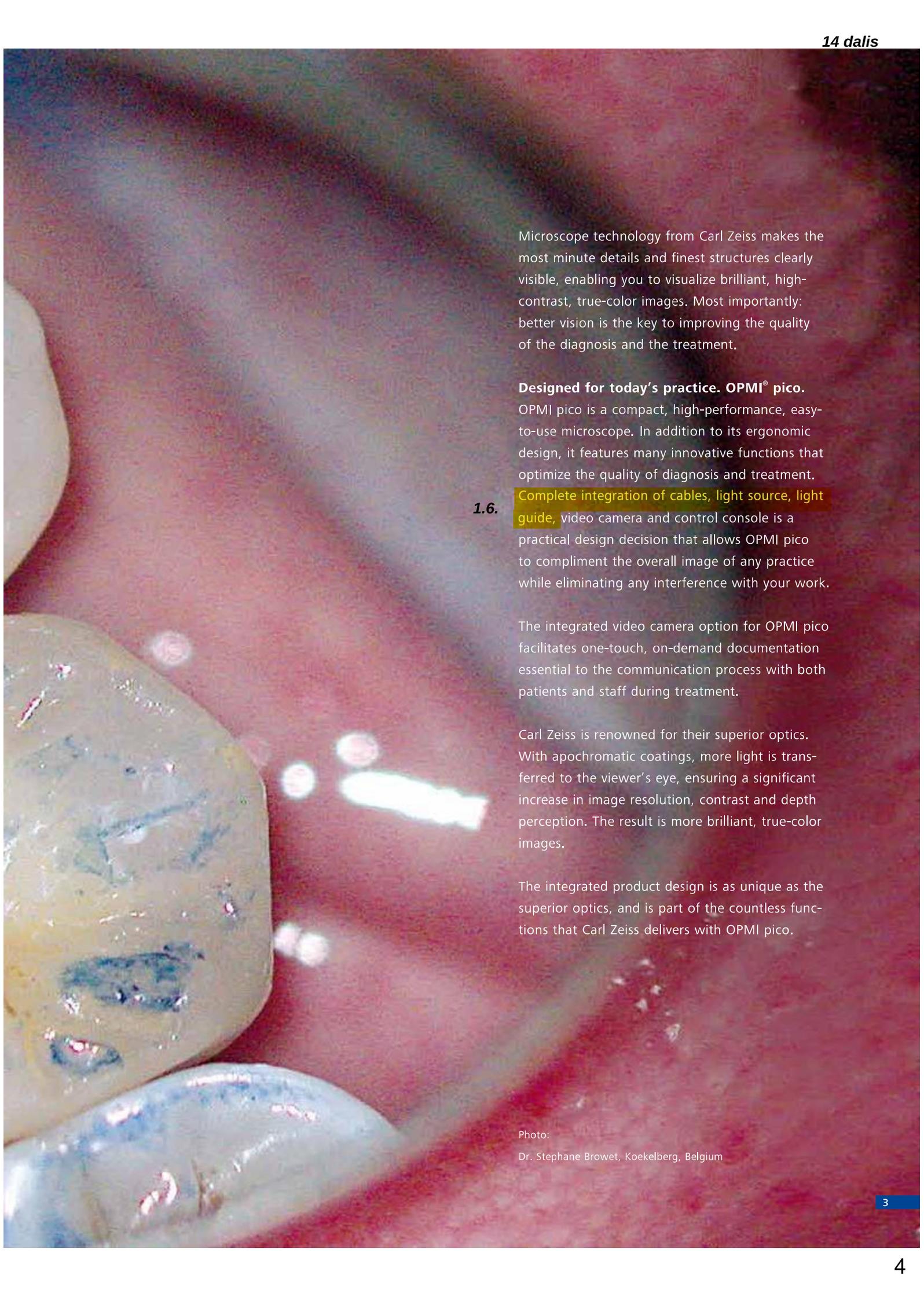
The xenon light source produces light whose spectrum is similar to daylight. Regardless of the brightness setting, the color temperature of the light always remains the same. Normal daylight film without any additional conversion filters can therefore be used for photographic documentation.

The xenon light source contains a lamp module with two xenon lamps. The second lamp is used as backup lamp.

The LED light source has an integrated failure concept. In the event of a defect in the LED light source, the light intensity drops to 50% and the control lamp on the lamp housing lights up.

Fig. 25: System overview
OPMI pico on S100 stand



A high-magnification microscopic image of a dental procedure. The background is a deep red, likely representing the oral mucosa. In the foreground, there are several teeth with dental restorations. One prominent restoration is a large, light-colored crown with a blueish-grey stain on its surface. Other smaller restorations are visible on adjacent teeth. The image is sharp and detailed, showcasing the precision of the microscope technology.

Microscope technology from Carl Zeiss makes the most minute details and finest structures clearly visible, enabling you to visualize brilliant, high-contrast, true-color images. Most importantly: better vision is the key to improving the quality of the diagnosis and the treatment.

Designed for today's practice. OPMI® pico.

OPMI pico is a compact, high-performance, easy-to-use microscope. In addition to its ergonomic design, it features many innovative functions that optimize the quality of diagnosis and treatment.

1.6.

Complete integration of cables, light source, light guide, video camera and control console is a practical design decision that allows OPMI pico to compliment the overall image of any practice while eliminating any interference with your work.

The integrated video camera option for OPMI pico facilitates one-touch, on-demand documentation essential to the communication process with both patients and staff during treatment.

Carl Zeiss is renowned for their superior optics. With apochromatic coatings, more light is transferred to the viewer's eye, ensuring a significant increase in image resolution, contrast and depth perception. The result is more brilliant, true-color images.

The integrated product design is as unique as the superior optics, and is part of the countless functions that Carl Zeiss delivers with OPMI pico.

Photo:

Dr. Stephane Browet, Koekelberg, Belgium

For more integration.

OPMI pico is a compact microscope that optimally fits into your practice workflow. It is characterized by its elegant form, which was honored with the red dot award for its design quality and very easy-to-use functions. Simply plug in the cable and OPMI pico is ready for use. There are no exposed cables or external components to interfere with

- 1.6. your work. All functional elements such as the video control console, video camera, cables, light sources, and light guides have been completely integrated into the microscope.

Integrated light source with swing-in backup lamp module.

You have the choice of halogen or xenon illumination. Xenon has a light temperature characteristic of natural daylight.

1.6.

The light guide and the power cable are integrated.

No hanging cables to interfere with your work.

Integrated video control console.

Intuitive system adjustments allow you to fine tune the video image.

Integrated Full HD 1080p video camera (optional). Full HD video camera with 1920x1080 pixels for outstanding image definition and differentiation of even the finest details. Excellent color fidelity ensures natural color rendition. The integrated HD camera is immediately ready for action after the microscope has been switched on. Full HD technology guarantees perfect coobservation and documentation. Camera integration supports hygiene through simple surface cleaning of the microscope housing.



reddot

We would like to thank Dr. Mohr in Neu-Isenburg for kindly allowing us to take photographs in his practice.

Continuous brightness regulation at your fingertips.

Allows you to easily adjust the light intensity for any clinical situation.

The 180° tiltable tube.

Allows you to work in maximum comfort in a variety of positions and on difficult-to-reach areas. Your back will thank you – particularly during longer procedures.

Widefield eyepieces (12.5x or 10x).

Large visual field with 3-D, stereoscopic image. Special diopter settings also make them suitable for eyeglass wearers.

5-step magnification changer.

Optimally matched magnifications for brilliant images – from an overview of the working field to ultra-fine details.

Fine focusing

Adjust the focus to your personal needs.

1.9.

Focusing objective lens.

Easy operation for both left and right-handed users. A variety of working distances are available.

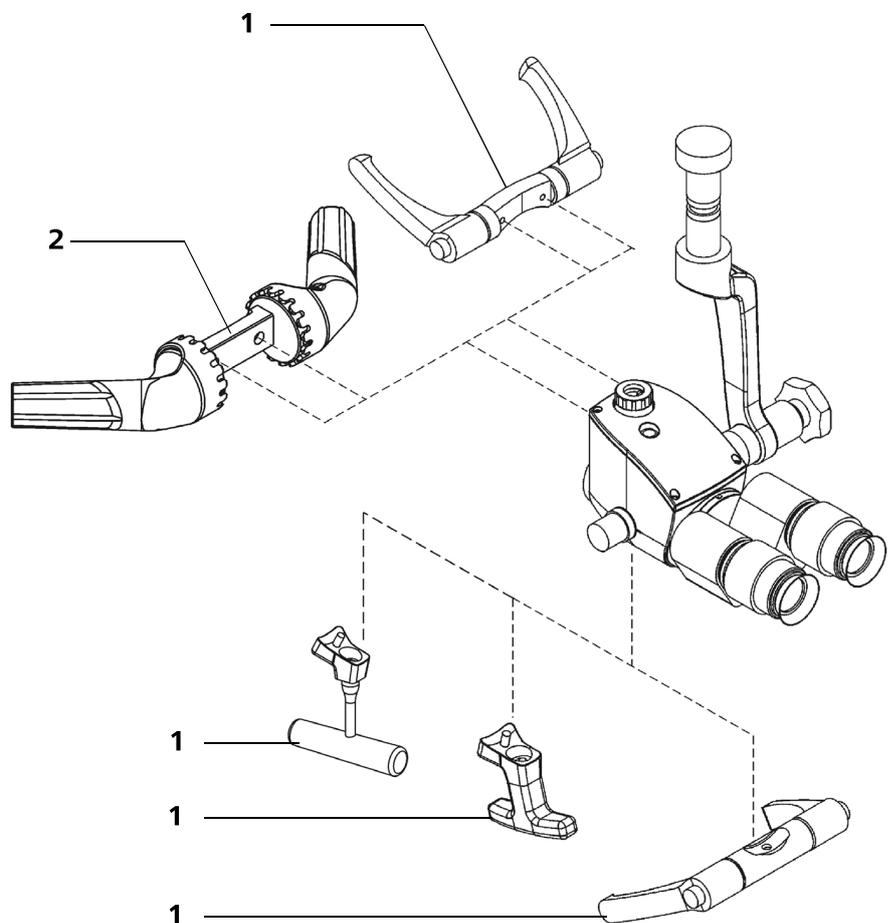
Mounting the hand grips

Five handgrips are available for the OPMI pico surgical microscope (see Page 60).

1.9. The handgrips can be positioned as required by reinserting (2) or pressing them together (1).

- Select the handgrip suitable for your application.
- Mount the handgrip supplied with the instrument. Firmly tighten the screw(s).

Fig. 53: Handgrips on the OPMI pico



Enhance your OPMI pico performance

LED illumination. Varioskop® optics. Integrated full HD video recording technology. Three new advancements that further enhance the performance of a true dental workhorse: the OPMI® pico.

You can upgrade your OPMI pico with any of the premium features or all three at once. The choice is yours.

1.16. LED illumination

Visualize fine structures and details with consistently distributed, high-intensity, true-to-color light that strongly resembles natural daylight.



Full HD video

High-definition quality for patient education and documentation with the integrated full HD 1080p video camera.

Varioskop optics

Adjust the focal length (range 100 mm) to focus on any image detail – large or small – while maintaining a comfortable, ergonomic working posture.

Suspension systems

S100 carrier system for user-friendly operation of OPMI pico

- Matched to a weight capacity of 2.5 to 7 kg

S 100 floor stand

- Mobile solutions for the practice
- Dimensions base: 650 x 625 mm
- Weight: approx. 90 kg

S100 wall mount

- The space-saving alternative for small rooms
- Weight: approx. 43 kg

S100 ceiling mount

- Creates free space around the treatment chair
- Weight: approx. 54 kg

S100 Centro mount for support system KaVo Centro

- For space-saving integration into the office
- Weight: approx. 35 kg

Illumination systems

- Integrated coaxial cold-light illumination

1.18. - Control knob to adjust brightness directly above the viewing tube

1.19. - Easy-to-reach, swing-in orange filter for composite materials

- Integrated 12V 100W halogen illumination with 2 halogen reflector lamps in the quick-change module
- Integrated 12V 180W xenon illumination with daylight characteristic including 2 xenon lamps in the quick-change module (optional)

Camera systems (optional)

Integrated HD video camera

- Full HD (1080p) or HD (720p)
- Application-specific image optimization
- Immediately ready for action
- Integrated electrical zoom function
- Outputs:
 - HDMI, DVI via adapter cable (1080p/720p)
 - YPbPr (analog component output 720p /1080i)
 - CVBS (composite)
 - Video standard: PAL/NTSC

Integrated 1 CCD video camera

- Functioning and ready for use at any time
- Freeze function for capturing still shots
- Image rotate
- Customizable user settings
- Video standard: PAL/NTSC
- Ports: Y/C (S-Video) and VBS (composite)

In addition to the above-mentioned functions of the 1 CCD video camera, Integrated MediLive Primo Digital Interface also offers:

- Connected storage media: USB 2.0
- Digital video port: DV (IEEE 1394)

External MediLive Trio Dent 3 CCD video camera

- Customizable user-specific settings
- Video standard: PAL/NTSC
- Ports: Y/C (S-Video) and VBS (composite) RGB, Progressive Scan DV, DVI

Accessories to attach external cameras

- Splitter:
 - Angled optics with left and right documentation ports, optional with tube dovetail
 - Beam Splitter 20 with documentation ports
 - Beam Splitter 50 with documentation ports
 - MORA Interface with documentation port
- Adapters:
 - Video lens with C-mount interface for the attachment of external video cameras
 - Lens to attach external digital cameras

Accessories

- Splash protection for the objective lens
- VisionGuard drapes for sterile work

Electrical data

- Rated voltage:
 - 115 VAC (100...120 VAC \pm 10%);
 - 230 VAC (220...240 VAC \pm 10%)
- Power consumption Halogen illumination:
 - 115 VAC max. 2.0 A; 230 VAC max. 1.0 A
- Power consumption Xenon illumination:
 - 115 VAC max. 5.0 A; 230 VAC max. 2.5 A
- Rated frequency: 50...60 Hz
- Fuses Halogen illumination:
 - 115 VAC T 6.3 A/H 250 V;
 - 230 VAC T 3.15 A/H 250 V
- Xenon illumination: automatic circuit breaker
- Electrical standard Protection class I, Degree of protection IPX0, Product classification I in acc. with 93/42/EEC Annex IX

Compliance

- DIN EN ISO 9001, DIN EN ISO 13485
- DIN EN 60601-1, IEC 601-1
- UL 60601-1, CAN/CSA-C22.2 No. 601.1

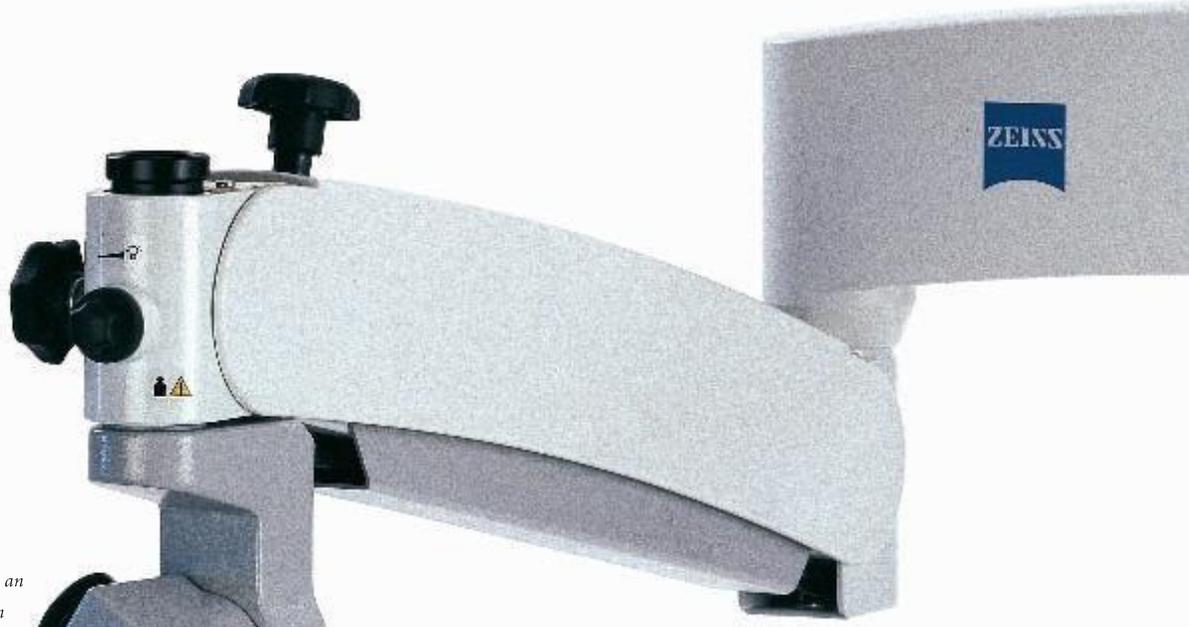


Controls and connections

OPMI pico

- 1 Friction adjustment button
For the fixation of the surgical microscope on the carrier arm in the desired position.
 - 2 Dust cover
 - 3 Magnification changer
Use this button to manually set/adjust the magnification to one of the five positions ($\gamma = 0.4x$, $\gamma = 0.6x$, $\gamma = 1.0x$, $\gamma = 1.6x$, $\gamma = 2.5x$).
 - 4 Video connection socket (optional)
 - a. For the system cable to the SD video camera.
 - b. For the system cable to the HD video camera.
 - 5 Light guide connection socket
This socket is used to direct the light from the light source to the surgical microscope.
 - 6 Filter selection
Turn this selector to swing filters into the illumination beam path. The selector has three positions: no filter, green filter and orange filter.
 - The green filter enhances contrast.
 - The orange filter prevents premature curing of composite fillings.
- 1.19.

OPMI pico. Perfection in optics, technology and application.



A tilt coupling allows an optimal configuration of the OPMI pico in the various situations required for surgery.

The following images show the OPMI pico in the Posterior Fossa (semi-seated, top) and the common cranial (below) positions.



2.1. Four eyes see more than two. Optional stereo coobservation.



Connect the stereo co-observer 2.1.

Mounting the beam splitter

- Unscrew securing screw (3) by a few turns.
- Remove the inclined tube (1).
- Position the beam splitter (2) on the surgical microscope.
- Firmly tighten securing screw (5).
- Position the inclined tube (1) on the beam splitter (2) and tighten the securing screw (3) firmly.

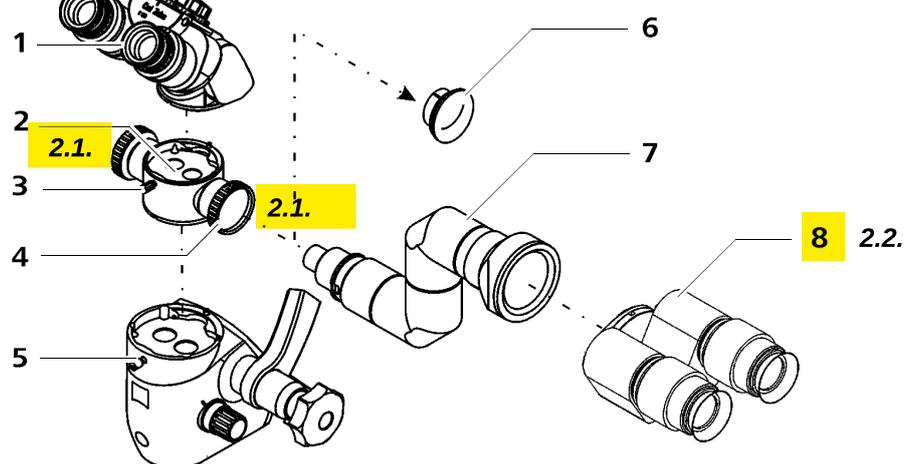
Mounting the co-observation module

- Loosen knurled ring (4).
- Remove the dust cover (6) from the holding fixture of the beam splitter (2) and store it in a safe place.
- Slide the stereo co-observation module (7) into the holding fixture. Make sure that the locating block is fed into the counterpart of knurled ring (4).
- Firmly tighten knurled ring (4).
- Mount a tube (8) on the stereo co-observation module (7).



After having mounted the accessories, you must perform a weight compensation procedure (see Page 109).

Fig. 56: Stereo co-observation module



Controls for the tubes



CAUTION

Injury to the eye due to light radiation!

Looking into a light source through a tube, an objective lens or an eyepiece may cause eye injury.

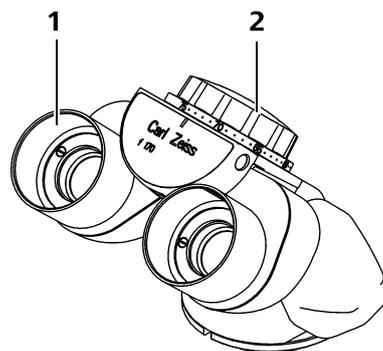
- Never look into a light source or the sun with a tube, an objective lens or an eyepiece.

The tubes have the following controls:

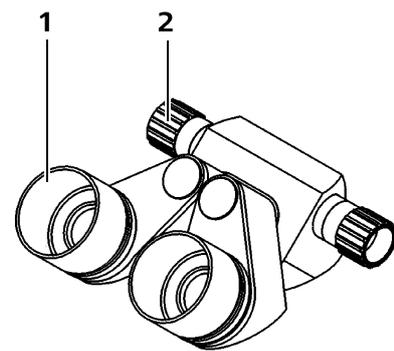
- 1 Eyepiece mount
- 2 Pupillary distance (PD) adjustment knob
The correct position has been reached when the two eyepiece images merge into one. You can read off the PD setting on the adjustment knob.

Fig. 30: Controls for the tubes

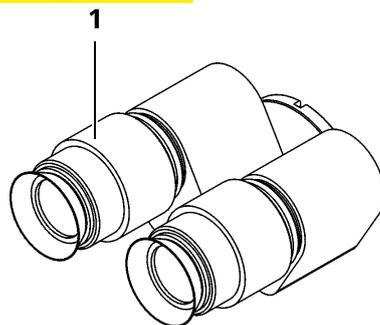
180° tiltable tube



45° inclined tube



2.2. Straight tube



Illumination

Description	Order number
Tinted UV protective eyewear	000000-0480-028
N-xenon lamp module incl. 2 xenon lamps in transport case for Superlux 180	304977-9036-700

Couplings

Description	Order number
120° coupling for S100 suspension system	000000-1080-351
K 0/120 coupling for use during gynecological examinations	305256-9903-000

Tubes

Description	Order number
Sleeve for inclined and straight tubes	305542-0107-000
2.2. Straight binocular tube, f = 170 mm	303765-0000-000
45° inclined binocular tube	303784-0000-000
180° swiveling binocular tube	303791-0000-000
180° swiveling binocular tube, f = 200 mm	303792-0000-000
Foldable tube f170/f260 incl. rotators and PROMAG (not for use with a mouth switch)	303771-9020-000

Eyepieces

Description	Order number
2.2. 10x push-in widefield eyepiece	305542-0000-000
12.5x push-in widefield eyepiece, asph.	305543-9901-000

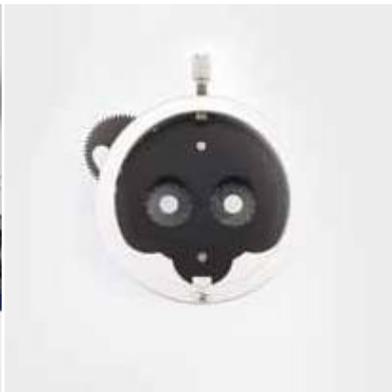
Objective lens

Description	Order number
Focusing objective lens, f = 200 mm	000000-1159-867
Focusing objective lens, f = 250 mm	000000-1160-302
Focusing objective lens, f = 300 mm	000000-1176-319
Objective lens with fixed focal distance, f = 200 mm	305132-0000-000

Optics and illumination



Orange filter. Prevents premature curing of composite materials.



Double iris diaphragm. For optimum depth of field.



Xenon or halogen illumination. Includes integrated backup lamp module.



Continuous brightness control. Adjustment at your fingertips.



Foot control panel. For convenient navigation and storage of images.



VisionGuard® Drape. For sterile working environments.



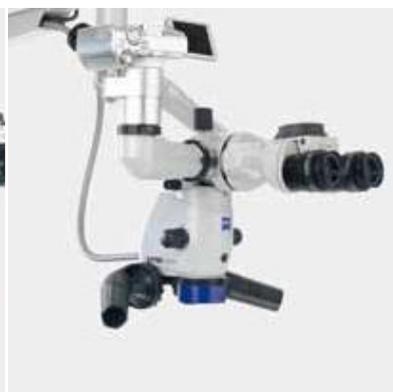
Sterilizable caps and handgrip drapes. For asepsis.



MediLive Trio Dent 3 CCD video camera.



Adapter for a SLR (single lens reflex) camera.



Adapter FlexioStill for digital cameras.



Adapter FlexioMotion for camcorders.

2.3.



EC Declaration of Conformity

in accordance with EC Directive 93/42/EEC on Medical Devices

Manufacturer Carl Zeiss Meditec AG, Goeschwitzer Strasse 51-52, 07745 Jena, Germany

We Carl Zeiss Meditec AG herewith declare with sole responsibility that the following Medical Device meets the Requirements of the European Directive 93/42/EEC. The Device is provided with CE Marking.

Product identification: *Surgical Microscope*

Medical Device Trade Name: *S100 / OPMI pico*

Models/Reference: *000000-1403-542*

Accessories: *Foot Control Panel, MEDIALINK 100, TRIO 600, Monitor, Asepsis Caps*

Medical Device Class:
MDD 93/42/EEC *Class I*

Conformity Assessment Procedure : *Annex VII of MDD 93/42/EEC*

Scope of Application: This Declaration of Conformity is valid for all products manufactured until 2020-06-11.

UMDNS code: *12-539*

GMDN code: *35191*

We established and maintain a Quality Management System in accordance to EN ISO 13485:2012+AC:2012 which has been audited by DQS Medizinprodukte GmbH, August-Schanz-Straße 21, 60433 Frankfurt.

Any Modification to the product not authorized by Carl Zeiss Meditec AG will invalidate this Declaration.


i. V. Alexandre Mariet
Vice President Competence Center
Surgical Devices & Systems


i.V. Dr. Christian Münster
Director Regulatory Affairs

Oberkochen, 2017-06-12

CG-GB 050