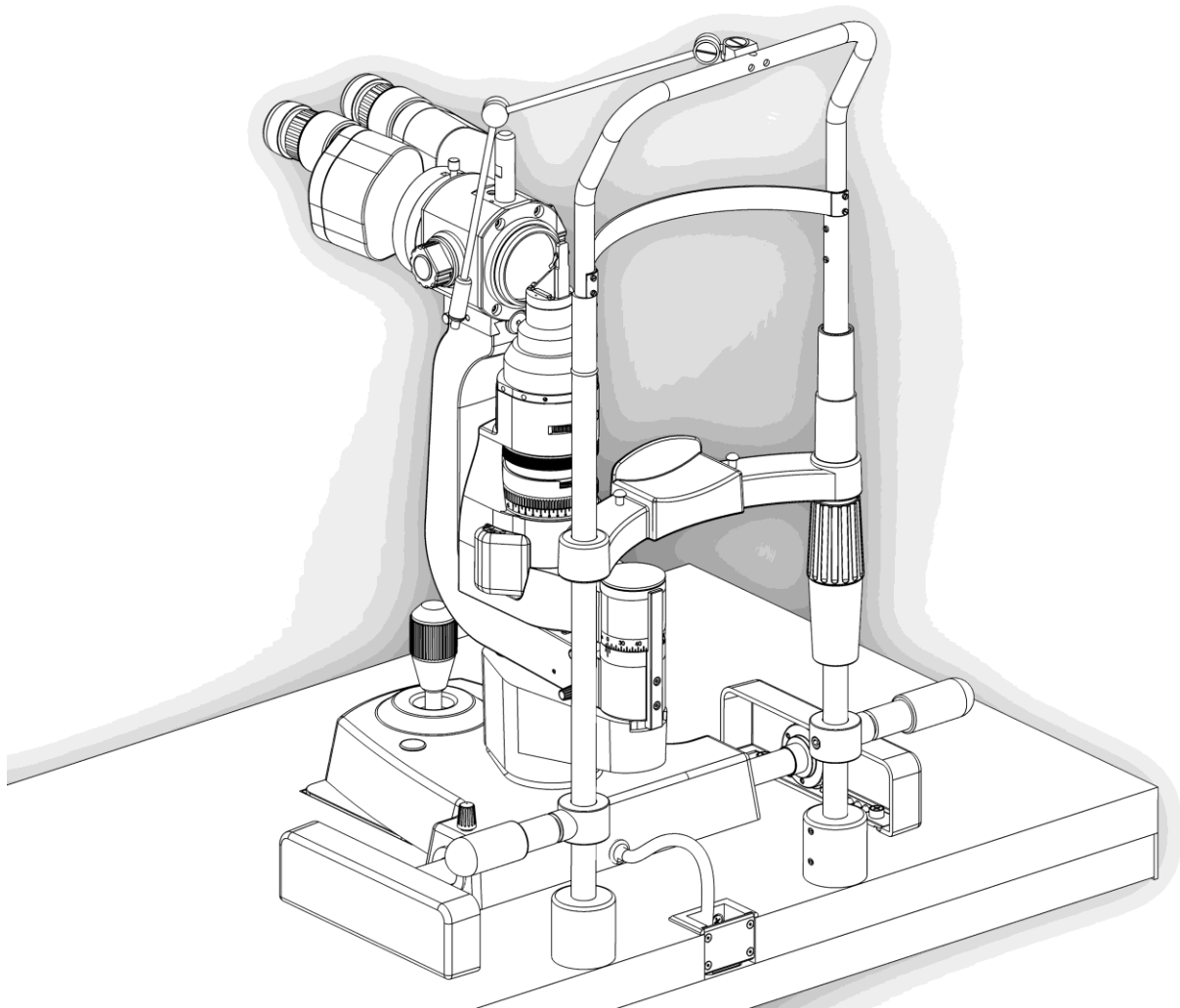


Instruction Manual
PCL5[®]ZD

Slit lamp





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Slit lamp PCL5[®] ZD

Instruction Manual

Introduction

We would like to thank you for your decision to purchase this PCL5[®] slit lamp. If the instructions in this manual are carefully followed we are confident that this product will give you reliable and smooth usage.

Purpose of use

The PCL5[®] is intended for use in eye examination of the anterior eye segment, from the cornea epithelium to the posterior capsule. With lenses or contact glasses the examination area can be extended right up to the retina. It is used to aid in the diagnosis of diseases or trauma which affects those areas of the eye.

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1 Safety

Ambient conditions

- Transportation temperature -40 °C to +70 °C
- Air pressure 500 hPa to 1060 hPa
- Relative humidity 10% to 95%
- Storage temperature -10 °C to +55 °C
- Air pressure 700 hPa to 1060 hPa
- Relative humidity 10% to 95%
- Working temperature +10 °C to +35 °C
- Air pressure 800 hPa to 1060 hPa
- Relative humidity 30% to 75%

Installation

- The rail cover is to avoid a fall over of the slit lamp
- Please make sure that every connection piece fits tightly, especially after installation of accessories
- Always mount the slit lamp and the headrest on an electric insulated and fire resistant table top

Operation, Surrounding

- Only qualified and trained personnel should operate the equipment
- Only use original A.R.C. Laser accessories
- After every use the device has to be shut down
- Allow the device to cool down
- Never use the ocular to look at the sun
- The slit lamp must not be used in explosion endangered areas
- Do not use combustible gases (alcohol, fuel) or flammable liquids
- Avoid humidity

Changing the light bulbs

- Switch off the mains and disconnect the main connector
- Allow the bulb to cool down
- Only open the slit lamp if you wish to change the light bulb

Electrical safety

- Only a hospital grade 3-conductor electrical power supply cable must be used
- Operating the device in the USA and Canada UL Listed cable are indispensable
- Plug, cable and ground lead connection of the socket have to be in perfect condition

Cleaning

- The slit lamp housing should only be cleaned with a slightly water dampened cloth
- Do not use any liquids like alcohol or corrosive agents for cleaning
- Do not clean anything inside the slit lamp
- Use paper for the chin rest with *Order No.: SL01115*
- Clean the forehead band with an alcohol dampened cloth

General information

- Expose patient eye only as long as necessary to the light of the slit lamp
- Only select the maximal brightness necessary for your examination

Warranty / product liability

- The device should be operated in accordance with the chapter „[Safety](#)“
- Incorrect operation can damage the device and no warranty claims can be accepted
- The manufacturer cannot be held liable in the case of wrong handling of the device
- Repairs, maintenance and alterations on this equipment should only be carried out by service technicians

Statutory requirements

- The device has been designed and constructed to conform with the IEC/ EN 60601-1-2 and EN ISO 15004-2 standards
- Manufacturing procedures, testing, commissioning, maintenance and repair are conducted under the observance of valid regulations
- When combining different electrical devices standard
- IEC / EN 60601-1 applies
- The „CE“ marking confirms compliance of the slit lamp with the directive 93/42/EEG
- The device meets the electromagnetic compatibility requirements of IEC / EN 60601-1-2.
- All statutory accident prevention regulations are to be observed.
- Classification IEC / EN 60601-1 slit lamp PCL5® according to safety class I.
- Application part Type B.
- Operation mode: continuous operation
- CE regulation 93/42 EEG class I
- FDA class II

2 Device overview

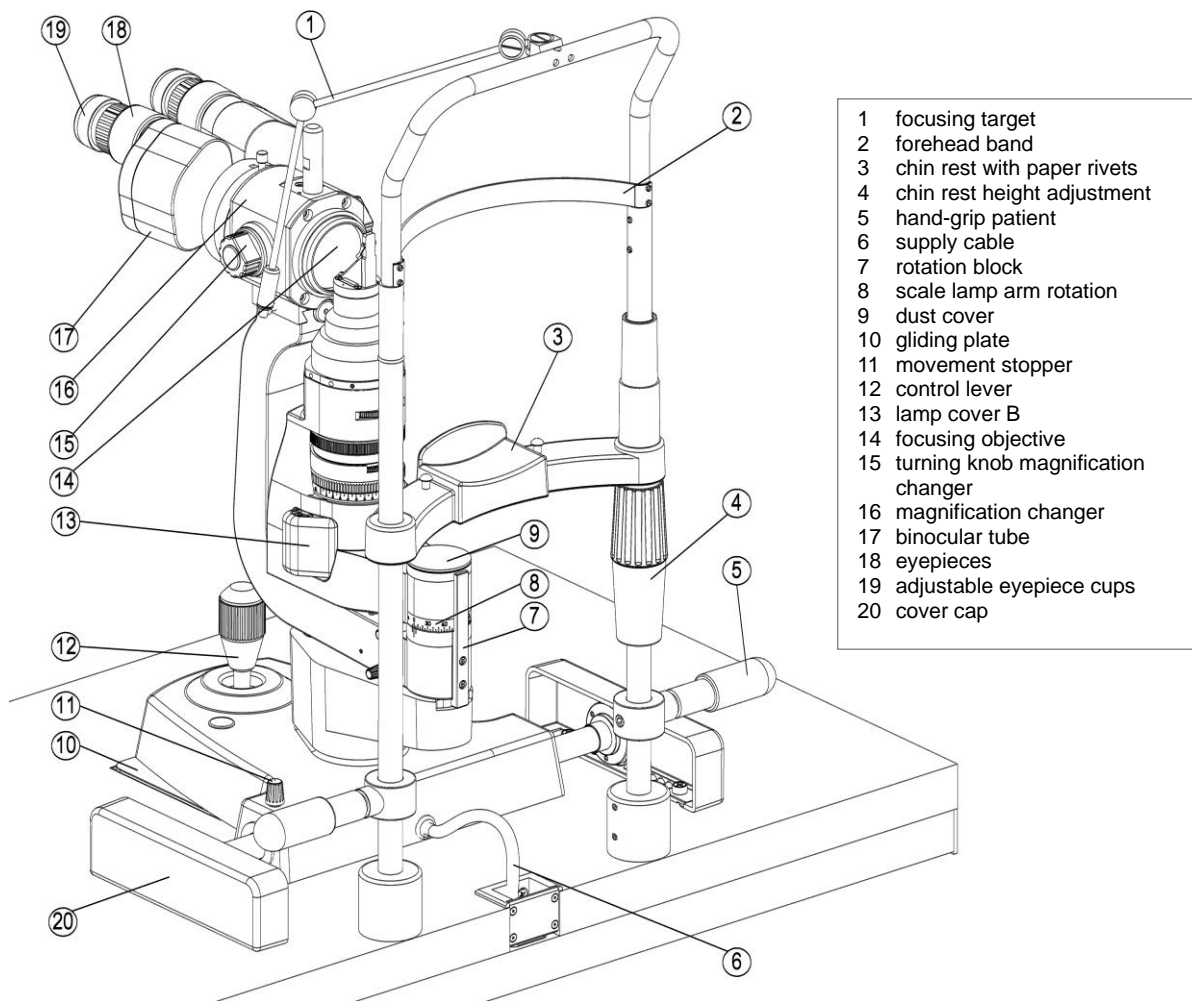


Image 1: Overview 1 Slit lamp

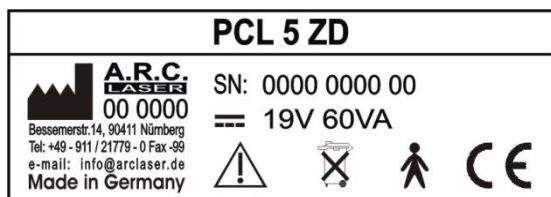


Image 2: device label

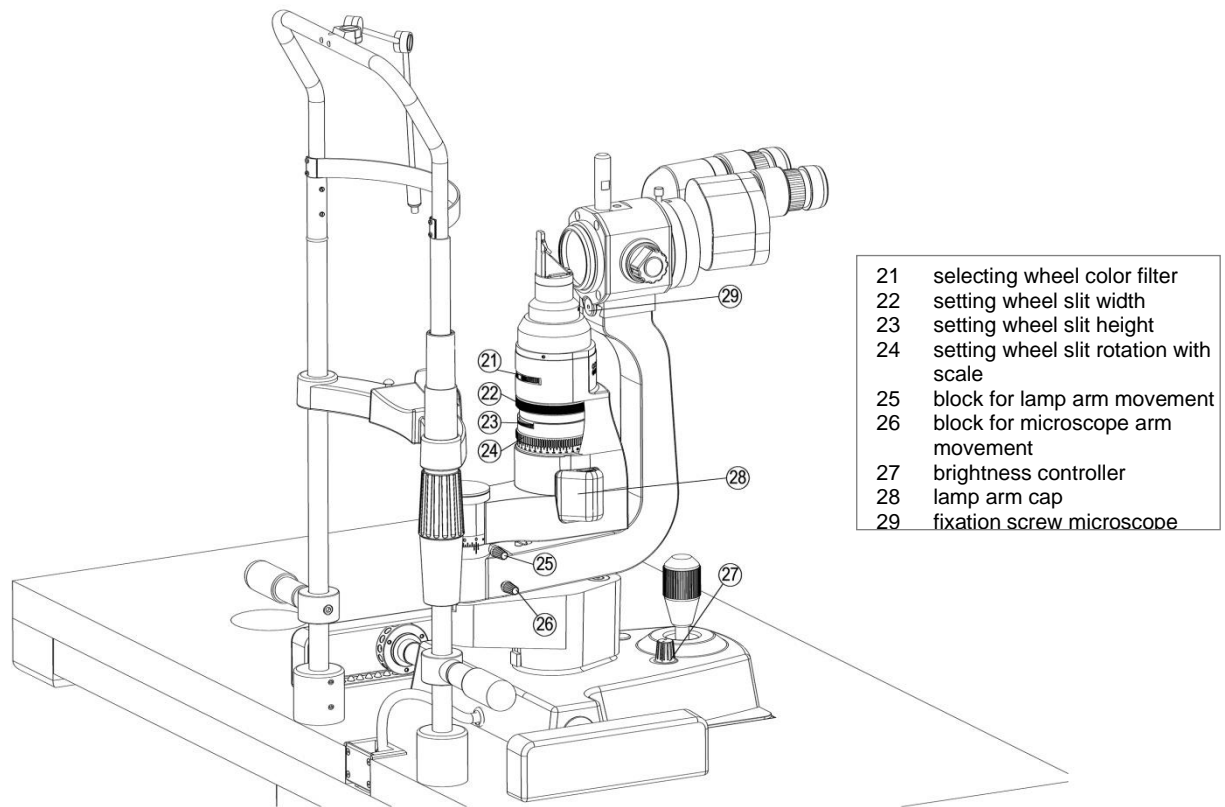


Image 3: Overview slit lamp 2

NOTICE: Using an already existent slit lamp power supply, the knobs for brightness (27) has to be exchanged with a switch. The immediate usage of a LED module (accessories, Order no. BG06503) is thereof not possible. A modification, however, is anticipated and can be carried out by trained service technicians.

3 Installation

Preparation of slit lamp table – OEM Version

- Take out the chin rest from the package.
- Transfer with the chin rest angle (31) the position of the mounting holes on the table base and drill with a 1.5 mm drill six holes about 15mm deep. Fasten the chin rest, then use the attached screws (30)
- Drill as displayed in picture 3 with a 1,5 mm drill four approx. 15 mm deep holes into the table base and attach it to the power supply (32) using the attached screws. Take care during positioning of the power supply the available cable lengths for in- and output. If a power supply for direct connection of the bulb already exists you can skip this step.

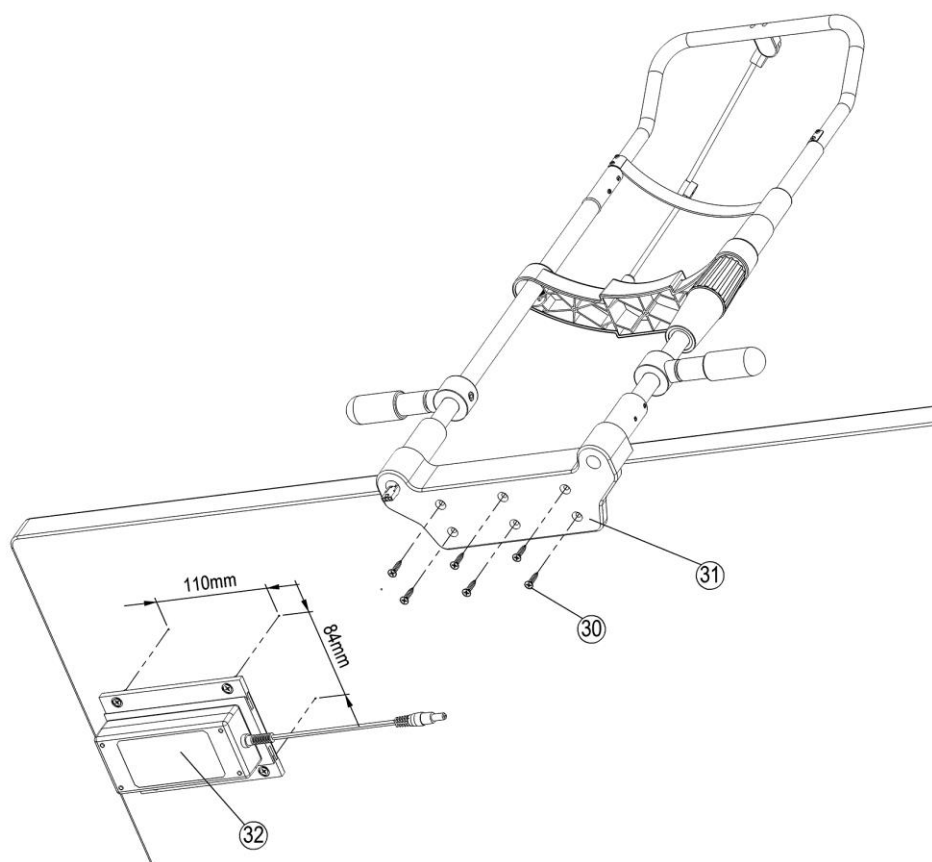


Image 4: Mounting of power supply and chin rest

- Drill with the help of attached mounting template with a 1.5 mm drill four 15 mm deep holes into the table top and fasten the two racks (33). Ensure that the spacers (34) are not forgotten.
- Stick to the gliding plate (10) using the mounting template on the table top. Please make sure that the table top is clean and free of grease.

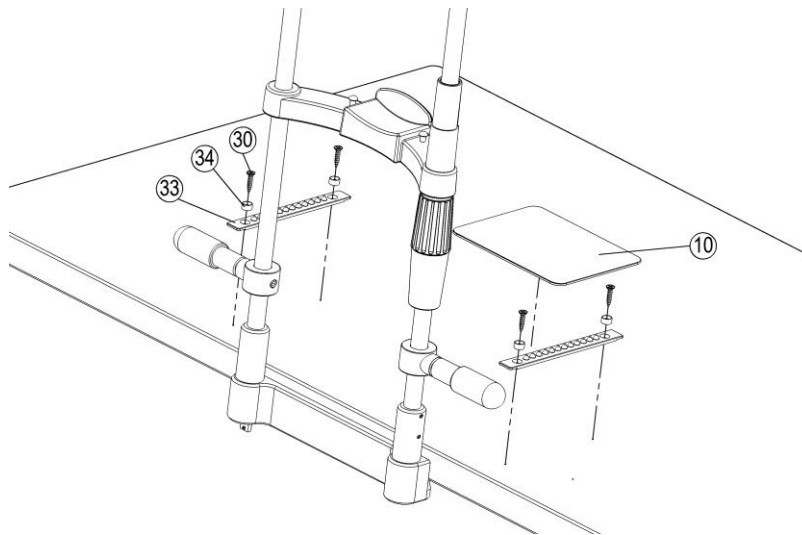


Image 5: Mounting of racks and gliding plate

3.1 Preparation of slit lamp table

- Remove the chin rest from the package
- Fasten the chin rest with the attached discs (35) preinstalled at the slit lamp table using the mounting screws (36).
- Pay attention while inserting the chin rest that the electrical connection cable for the fixation lamp will not be damaged during feed through at the fixation hole (35).

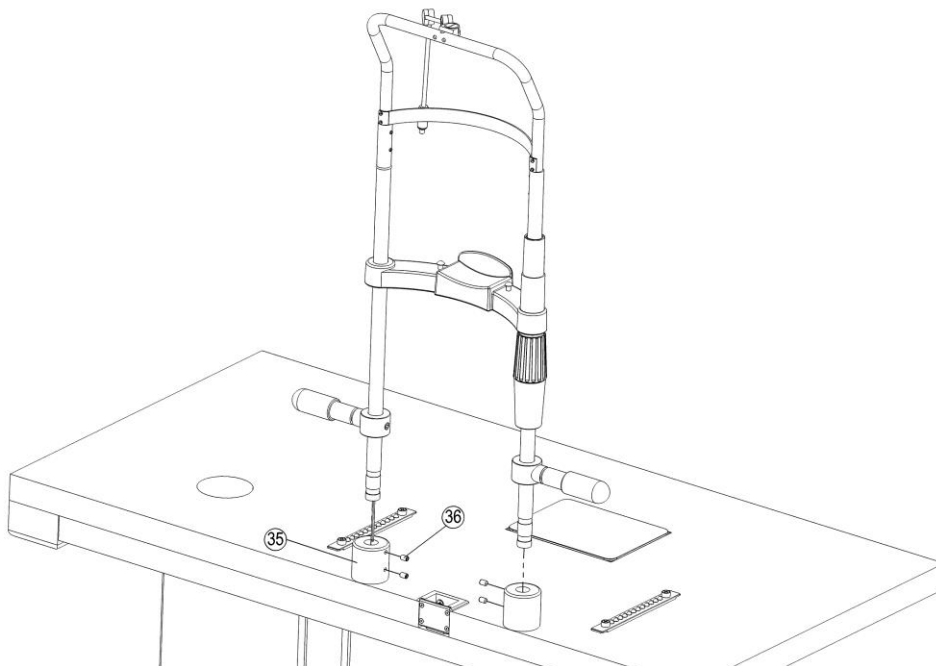


Image 6: Mounting of chin rest on prefabricated slit lamp table

3.2 Installation basic device

- Pull out the main device and put it on the rails
- Fix the cap (20) to the left and right rack

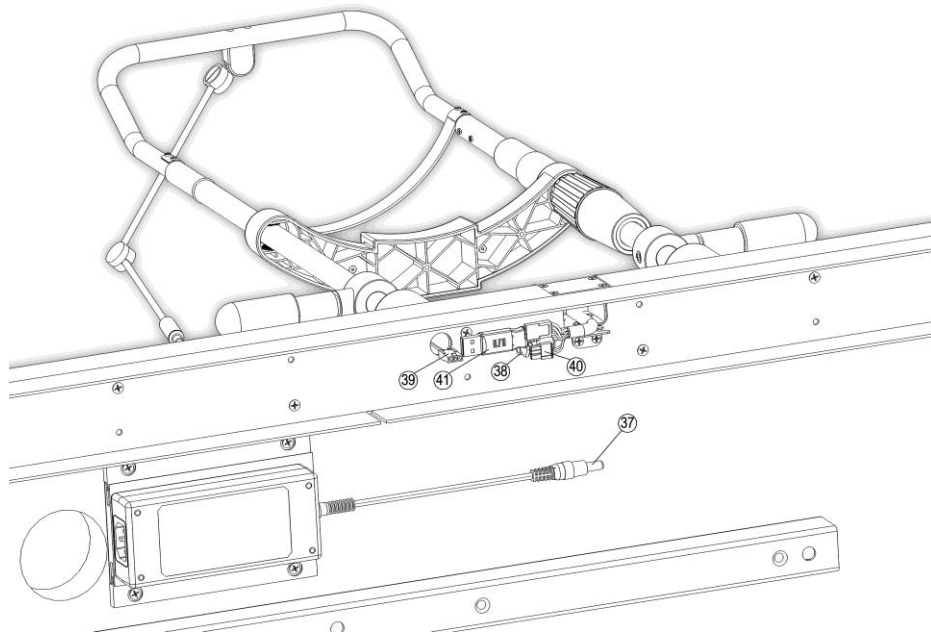


Image 7: Connection of supply cable

- Connect the main plug (37) with the socket (38)
- Connect the plug from the chin rest (39) with the socket (40)
- The plug (41) is only to be used with a Camera adapter (accessory) The Plug 55 is used only for operating the PCL5 SH. It is not necessary for the slit lamp described here.
- Connect the power supply with the socket using the power connection cable

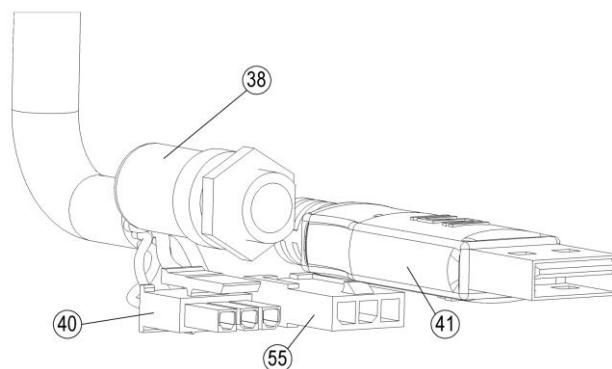


Image 7: Connection of supply cable

3.3 Installation of slit lamp microscope

To install the slit lamp microscope put the oculars (18) into the binocular tube (17)

- Mount the binocular (17) with the clamping screw (42) on the microscope coupler (16)
- Slide the microscope until it stops at the screw on the microscope arm and attach it with the help of the clamping screw (43)

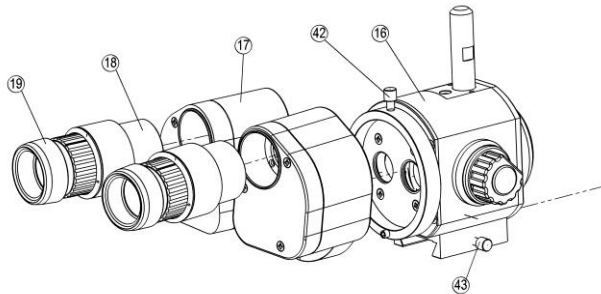


Image 8: Installation of slit lamp microscope

3.4 Installation of diffuser attachment and adjustment of eyepieces

If the provided diffuser (44) is to be used, fix this with the screws as shown in Figure 8

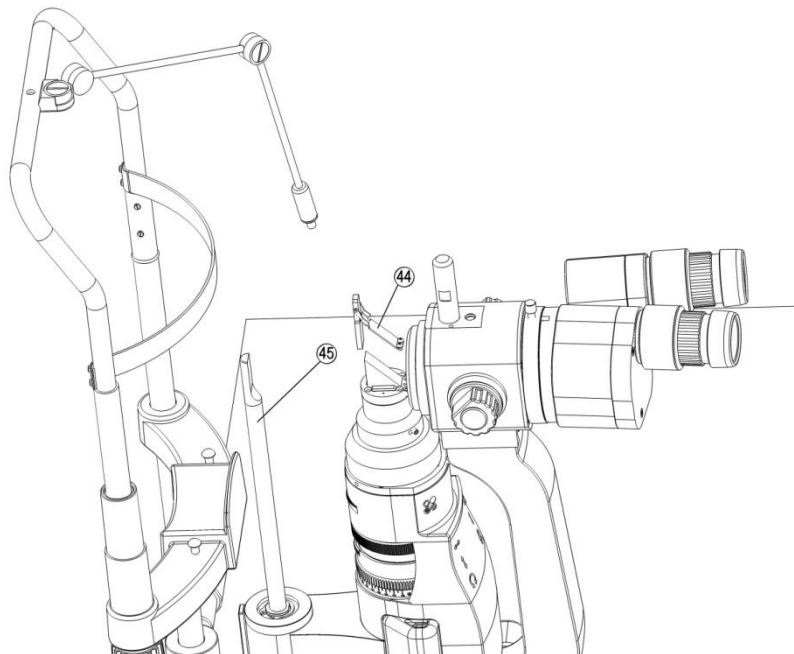


Image 9: Mounting of diffuser attachment; adjustment of eyepieces

- Remove the cover (9) and put the pin (45) into the hole
- Turn on the slit lamp with the brightness controller (27) and view the pin (45) through the slit lamp
- For examiners without spectacles: pull out the eyecup (19) fully to the extended position. Examiners wearing spectacles: push in the eyecup (19) fully to the retracted position
- Adjust each eyepiece separately, by turning the knurled ring with the diopter scale separately, until the projected slit is seen in focus. Adjust from (+) to (-) at low magnification.

4 Operation

4.1 Prepare the patient

- For the comfort of your patient please adjust the height of the table to enable a firm rest for the forehead and chin.
- In order to ensure that only that part of the eye to be examined is illuminated and to avoid disturbing glare, the height of the light beam should be appropriately adjusted.
- Those parts of the equipment coming into contact with patients should be cleaned with a dry cloth before each examination.
- Move the chin rest up or down with the adjustment screw (4) until the eyes of the patient are on the level with the black mark (46) on the headrest column.

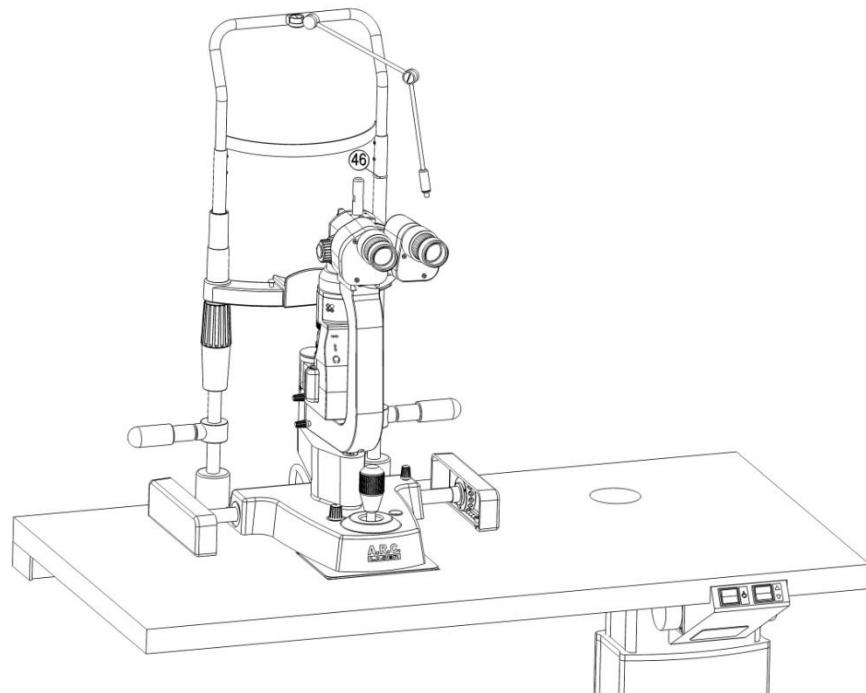


Image 10: Adjustment of the chin rest

4.2 Operating the instrument

Turn on the slit lamp with the brightness controller and focus the light beam with the control lever on eye level.

We recommend setting the height position of the light beam first by rotating the control lever. Thereafter move the light beam sideways in order to aim the beam onto the eye which is to be examined. For coarse adjustment the control lever can be used to move the level of the slit lamp base without tilting or rotating.

By means of tilting the control lever a fine adjustment can be done.

Repeat this procedure for the distance between the slit lamp and patient's eye.

In case that you wish to keep that particular position, turn the movement stopper (11) clockwise.

The magnification of the microscope can be adjusted by the knobs at the side. The slit can be swiveled by $\pm 90^\circ$ around the vertical axis.

The fixation of that direction of motion is possible with the thumb wheels (25). The slit height and width can be adjusted with the setting wheels 22 and 23. A rotation of the slit

around the optical axis can be done by means of setting wheel 24. If an illumination with reduced brightness but with constant color temperature of the slit image should be necessary, a grey filter can be swiveled in with the setting wheel (21). Parallel to this, a green respectively a grey filter can be swiveled in. The microscope can be swiveled by $\pm 30^\circ$ around the vertical axis. The fixation of that direction of motion is possible with the thumb wheel (26).

As long as the device is idle a dust cover is advisable. The instrument is delivered for a LED module. The provided power supply can be used for both illuminants.

4.3 Changing the light bulbs

Before changing the light bulbs, switch off the slit lamp and disconnect the supply cable from the socket. Allow the slit lamp to cool down for 30 minutes, if it was used before.

Avoid touching the glass bulb of the illuminant (47) with your fingers!

- Loose the lamp cover (28) by pressing vertically
- Remove the lamp socket (48) from the illuminant (47) and pull out the bulb thereafter as well
- Unpack the new bulb and put it into the light arm. Please make sure that the notch of the bulb at the side shows to the left. The bulb has to lock into place at the upper and underside.
- Push the socket (48) back onto the contact up to the stop and close the lamp arm with the lamp cover (28).

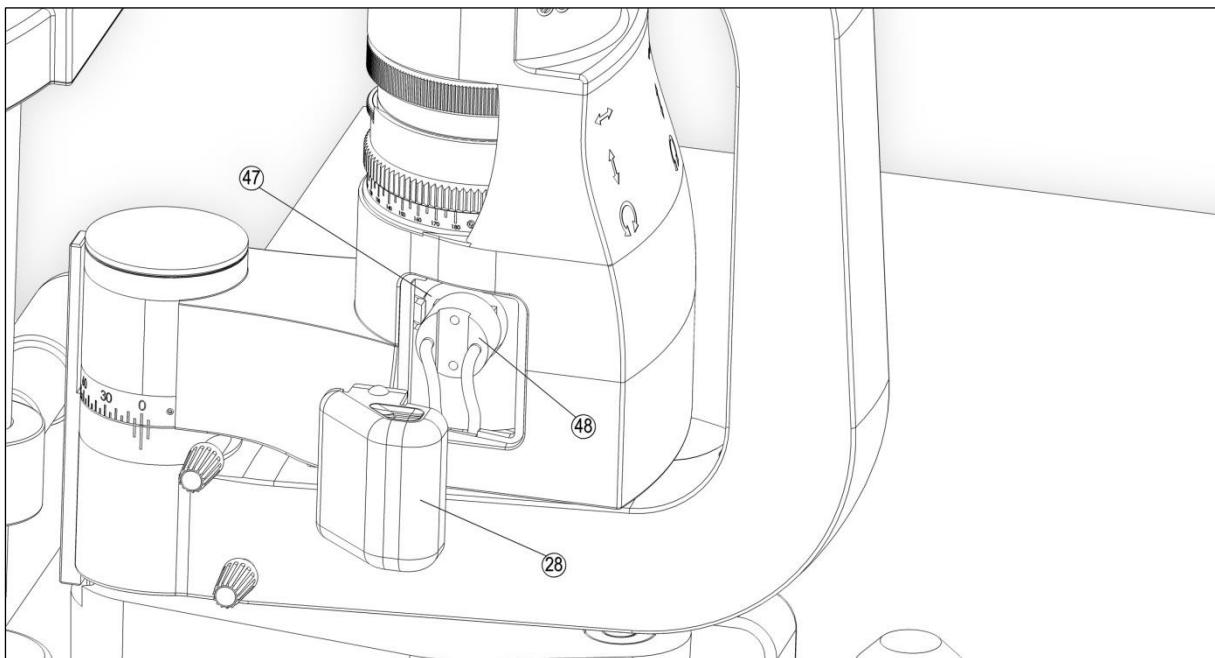


Image 11: Changing of light bulbs

Changing the light bulbs

Before changing the light bulbs switch off the slit lamp and disconnect the supply cable from the socket. Allow the slit lamp to cool down for 30 minutes, if it was used before.

Avoid touching the glass bulb of the illuminant (47) with your fingers!

- Loose the lamp cover (13) by pressing vertically
- Pull out the dummy plugs (49) from the lamp housing and store them for possible re-use
- Now remove the dongle (51) from the connector (50) and store it for possible re-use.
- Loose the lamp cover (28) by pressing vertically
- Remove the lamp socket (48) from the illuminant (47) and pull out the bulb thereafter as well. In case that the illuminant (47) is still functional store it for possible re-use.
- Push the LED module into the lamp housing and mind the alignment of the bulb. Make sure that the bulb locks into place at the underside.
- Connect the jack (52) of the LED module with the connector (50)
- Reinsert the lamp cover (13) by pressing vertically
- Put the alignment for the new LED module (48) into the foreseen place
- Reinsert the lamp cover (28) by pressing vertically

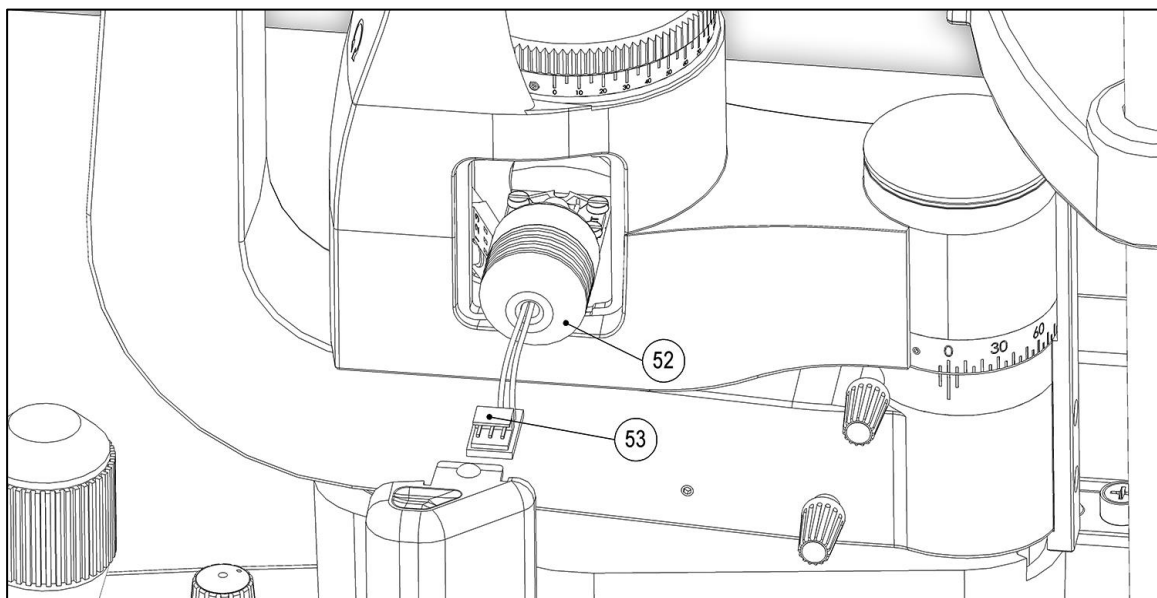


Image 12: Changing of light bulbs

Technical specifications

Slit illumination

- Slit image width 0 - 16 mm
- Continuous slit image length 1 - 16 mm
- Illumination fields \varnothing : 1 mm
- Slit image radial range $\pm 90^\circ$
- Radial movement of the slit illumination relative to the microscope horizontal $\pm 90^\circ$
- Filters blue, red-free (green), grey (10%)
- LED 14V, 5W

ATTENTION – Please observe the maximum examination times according to ISO 15004-2 and ISO 10939. The light emitted from this instrument is potentially hazardous. The longer the duration of exposure, the greater the risk of eye damage. Exposure to light from this instrument when operated at maximum output will exceed the safety guideline after 5.5 minutes with slit illumination or 3.5 minutes with both slit and peripheral illumination.

Stereo-microscope

- Stereo angle 10°
- Magnification changer 6.3x / 10x / 16x / 25x / 40x
- Eyepiece magnification 12.5x
- Range of adjusting eyepieces + 8 to - 8 diopters
- Inter pupillary distance 52 - 78 mm
- Horizontal rotation of microscope axis $\pm 30^\circ$

Instrument base

- Adjustment of the instrument base 87 mm (side), 80 mm (length), 30 mm (height)
- Brightness controller – integrated in instrument base
- Weight 12.7 kg
- Classification against electric shock Class I, type B; against water IPX0
- Sterilization and disinfection for the slit lamp is not necessary, use chin paper for the chin rest
- Operation mode continuous

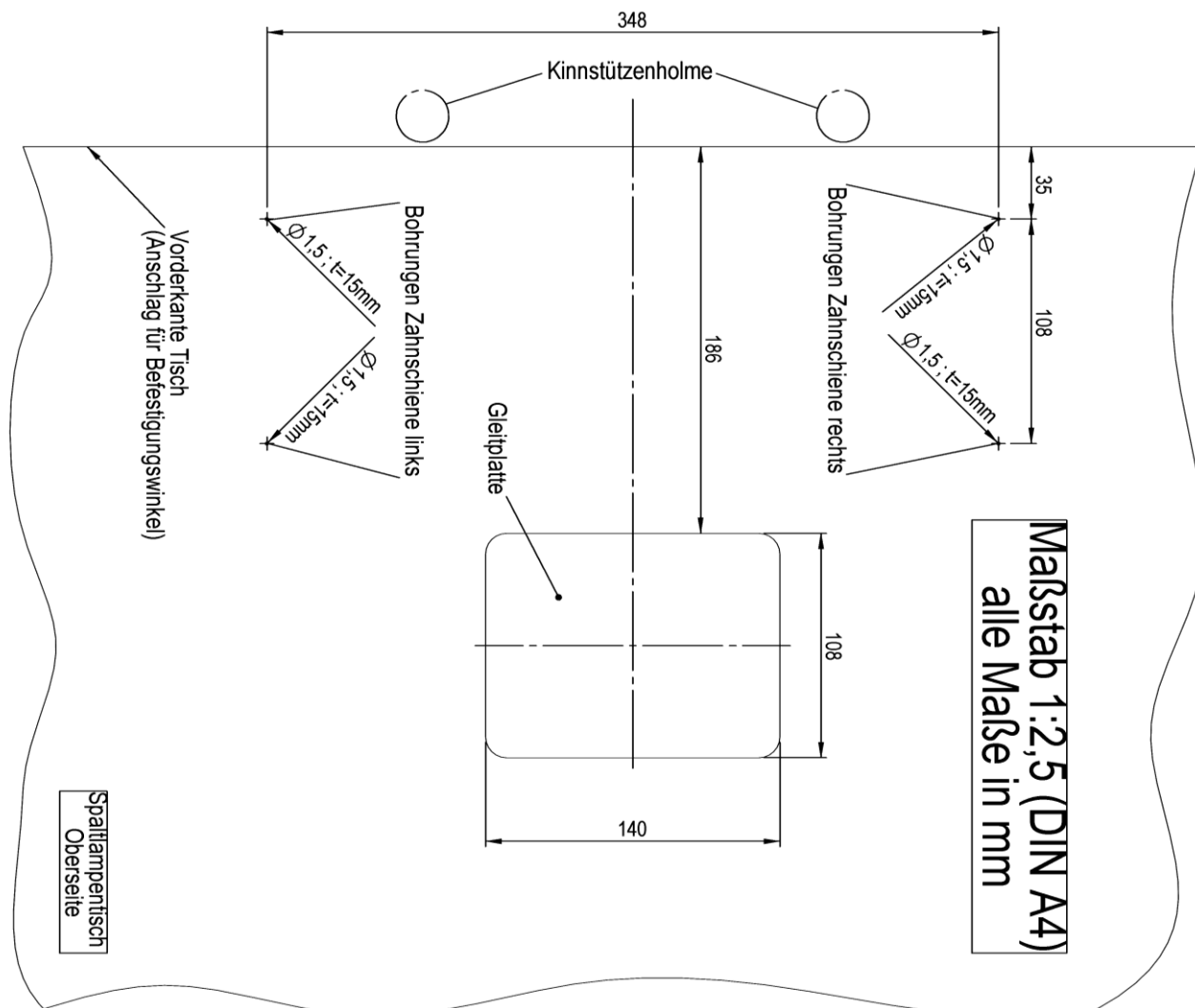
5 Accessories

Following accessories are available:

- LED module (14V, 5W)
- Chin rest paper
- Yellow filter
- Swivel arm tonometer with adapter plate
- Camera module with backlight

6 Appendix

Drilling template PCL 5





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