SCANER®
Science & Engineering Center

MICROSCOPE MD-500 CALIPSO

Operation manual

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Science & Engineering Center

MICROSCOPE MD-500
CALIPSO

CE

Operation manual

Contents

1. Safe handling recommendations

ATTENTION. Please carefully read this operation manual prior to the use of the product.

This operation manual contains important instructions for safe handling and maintenance of the MD-500 diagnostic microscope (hereinafter – microscope). To guarantee safety during exploitation and maintain the microscope's efficiency, all instructions and precautions given in this operation manual are to be observed.

WARNING. In case of use of the microscope for the purposes that differ from the purposes mentioned in this manual there is a risk of injuries and material damage.

This manual does not give explanation for microscopy technical procedures. The microscope must be used by the personnel with appropriate qualifications and training, or under supervision of a doctor with appropriate qualification.

This operation manual must be safely stored an always be available for the personnel using the microscope.

Please contact us if you have any questions about operation, adjustment and maintenance of the microscope.

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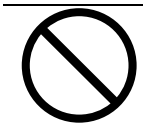
1.1. Signs used in the operation manual

The text with warnings and obligatory safety requirements is marked with respective words: WARNING, ATTENTION and PROHIBITED and respective graphic symbols. The list of signs is given below.

WARNING. Warns about actions that represent real danger for health of risk of product damage.

ATTENTION. Important information. Special attention needed for these guidelines in order to avoid errors during operation.

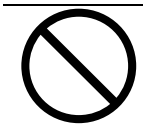


PROHIBITED. Actions that are strictly prohibited and are dangerous for human's health or can damage the product.

1.2. Operating conditions

The microscope is designed for use in medical institutions. According to the operating conditions the microscope is designed for operation at the temperatures ranging from +10ºC to +40ºC, relative air humidity of 30 % - 75 % and atmospheric pressure of 700 hPa till 1060 hPa.

WARNING. Prevent from liquids penetration inside the microscope.



PROHIBITED. Store and use the microscope at places exposed to continuous effect of direct sunlight, roentgen or strong electromagnetic radiation.

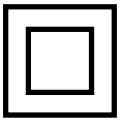
1.3. Labeling and symbols

The list of signs and symbols used for the labeling of the microscope, stating its compliance with the quality and safety standards is given below.

Conformity marking that confirms that the labeled products comply with the requirements of EU Directives and harmonized standards.

RCT conformity marking for declaration of products' conformity.

Symbol "Warning! Please refer to the supporting documentation" (operation manual). In accordance with DSTU (State Standard of Ukraine) 3798 (IEC 601-1) and DSTU EN 980.

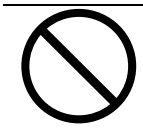


Class II product symbol. The product has double reinforced insulation – the live parts are provided with additional insulation (to the working one). Grounding is prohibited. In accordance with DSTU 3798 (IEC 601-1).

	Type B product symbol B. Product that provides certain protection from electric injuries relating to allowed leakage current in case of absent grounding. In accordance with DSTU 3798 (IEC 601-1).
IP30	Marking of degree of protection of electrotechnical products. Protection from penetration of tools, wires, etc. with the diameter or thickness of >2.5 mm and solids with the dimensions of >2.5 mm into the casing of the instrument. According to GOST 14254 (MEC 529).
	Symbol of the manufacturing date of the product. In accordance with DSTU EN 980.
	Symbol of the name and address of the manufacturer responsible for the product. In accordance with DSTU EN 980.
EC REP	Symbol of the name and address of the authorized representative in the European Community. In accordance with DSTU EN 980.
SN	Serial (factory) number of the product.
CP 13764/2014 07.04.2014	No. Of the State Registration Certificate of the medicinal product in Ukraine.

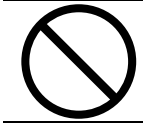
1.4. Warnings and precautions

Follow the warnings and precautions described below during installation, adjustment, operation and maintenance of the microscope. This information must be supplemented with the warnings and precautions given in every section.

	ATTENTION. Connection of the microscope to 220 V single-phase alternating current network is made only with the cable of the power supply unit with wall plug that are supplied with the product. The microscope has no open live contacts and is safe during operation.
	PROHIBITED. Switching the PSU on without PSU casing.
	PROHIBITED. Detaching or disassembling of any parts of the microscope except for those that are mentioned in this manual.

WARNING. Repair of electronic details of the microscope must be carried out only by qualified personnel allowed to work with electrical voltage up to 1000 V.

ATTENTION. Prior to the start of the use of the microscope ensure that all fixing and regulating handles are securely fixed and safely locked.



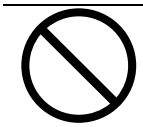
PROHIBITED. Complete removal or putting off of regulating and fixing handles of moving force of the microscope's movable parts during its operation.

WARNING. Each component of the microscope possesses its own range of movement which is limited by a locker. Do not try to widen this range moving the microscope over these limits.

ATTENTION. The microscope must be disconnected before it is moved.

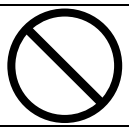
ATTENTION. Before moving the microscope ensure that there is no one in the immediate vicinity and there are no objects in its way that are able to impede its movement.

ATTENTION. Ensure that all plugs of all cables are plugged in into respective sockets during operation of the microscope, and that cables o not get between its movable parts and do not wrap themselves around them during operation and movement.



PROHIBITED. Looking into the microscope's objective when the microscope lamp is turned on because it can lead to retina damage.

ATTENTION. Turn the microscope off before cleaning optical surfaces and the microscope.



PROHIBITED. Connection and use of the microscope mounted onto the floor stand without ensuring that the wheels are blocked with respective pedals.

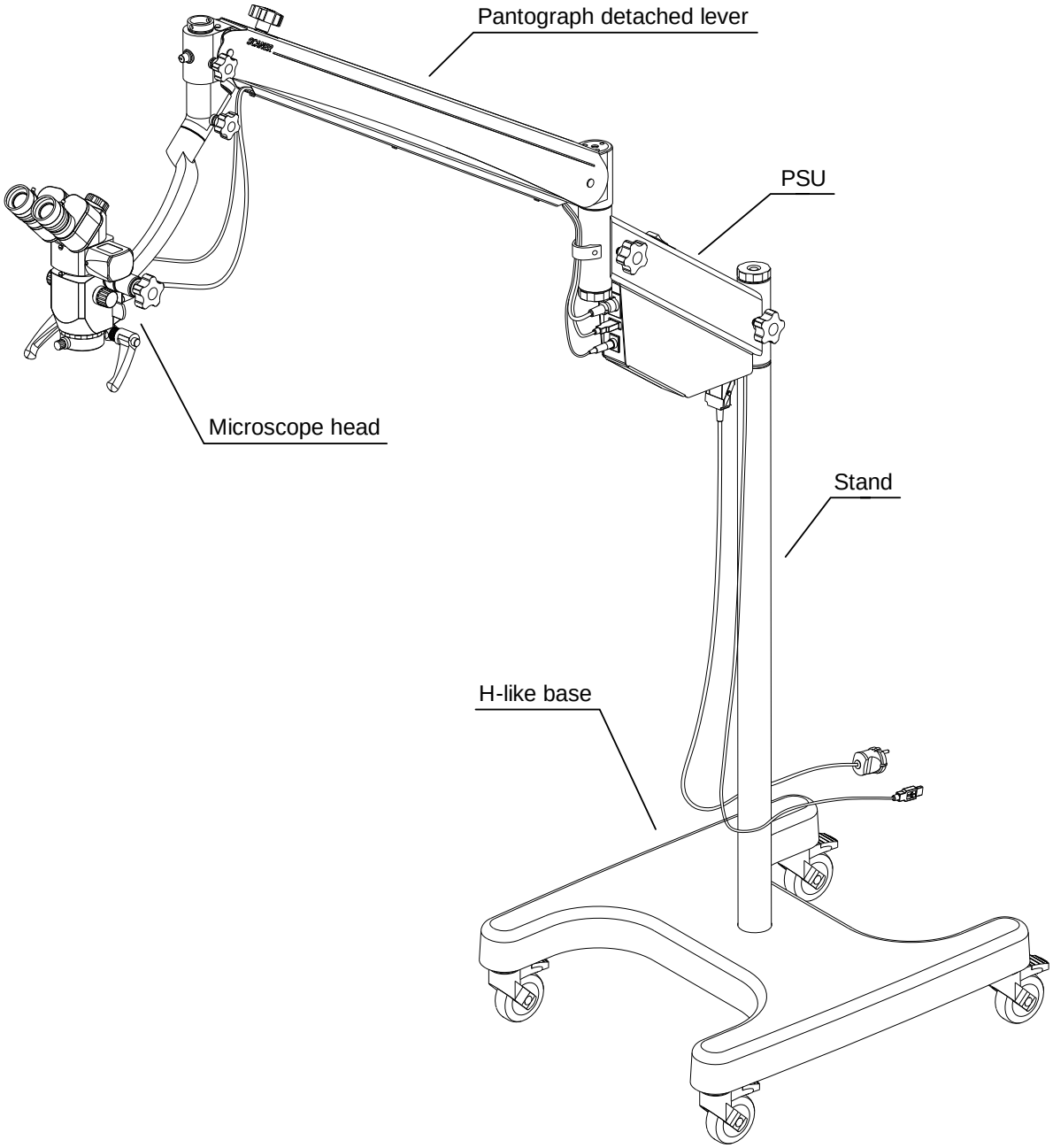
2. Purpose, range of application, construction and accessories

MD-500 diagnostic microscope (hereinafter – microscope) is a medical device designed for stereoscopic observation with non-contact magnification during diagnostic and minor surgeries, postoperative examinations, preparation during medical investigations, study, etc. Its range of application includes: stomatology, otolaryngology, all fields of surgery, veterinary medicine, it is also possible to use the microscope as a colposcope in gynecology with upper feed of the optical system.

The microscope construction possesses a wide flexibility range which allows smooth focusing on the observed object without any effort, and friction handles allow fixing the optical head in the desired position.

The microscope is supplied as a basic kit and contains all details necessary for its operation. Optionally it is possible to replace some details of the microscope with other details with similar functionality, exclude them or include additional details during order processing. The availability of additional elements and accessories of the microscope allows its adjustment for easy use with all functional and ergonomic requirements of a specific user taken into account.

The exterior view of the microscope in a basic set mounted on the floor stand is given below.



2.1. Fastener system modifications

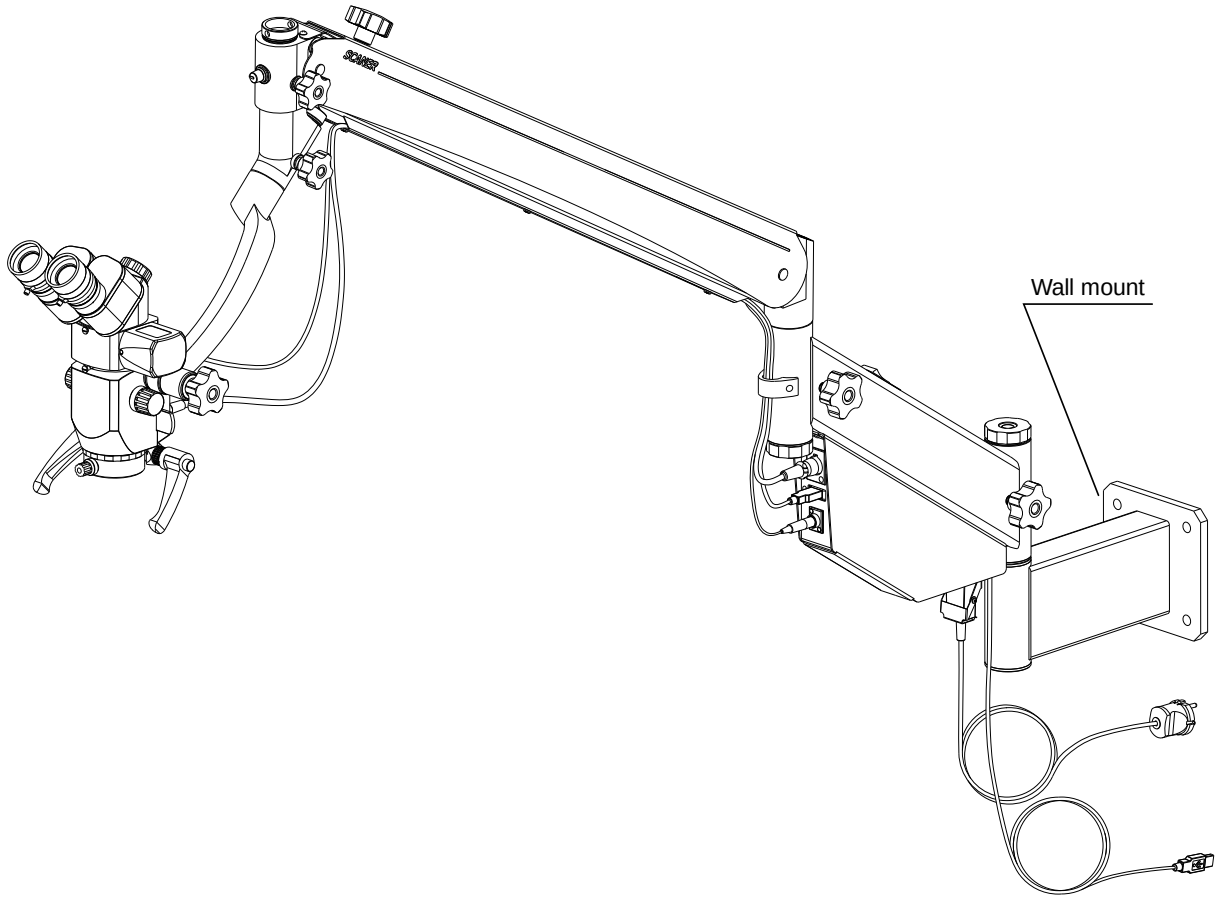
MD-500 microscope has several fastener system modifications: floor stand, wall mount and ceiling mount.

The floor stand has an H-like base on castor wheels with a mounted stand. The advantage of this system is its mobility, due to which the microscope can be moved on the floor without any limitations into every direction. The floor stand provides a rigid support and its wheels have blocking function to prevent spontaneous rolling. The rolling blocking is performed only by pushing wheel blocking pedal, which is provided for every wheel.

The wall mount has been designed especially for placement of the microscope in the rooms with limited area and working space. The advantage of this system is its mount stability and compactness. The system does not occupy any place on the floor

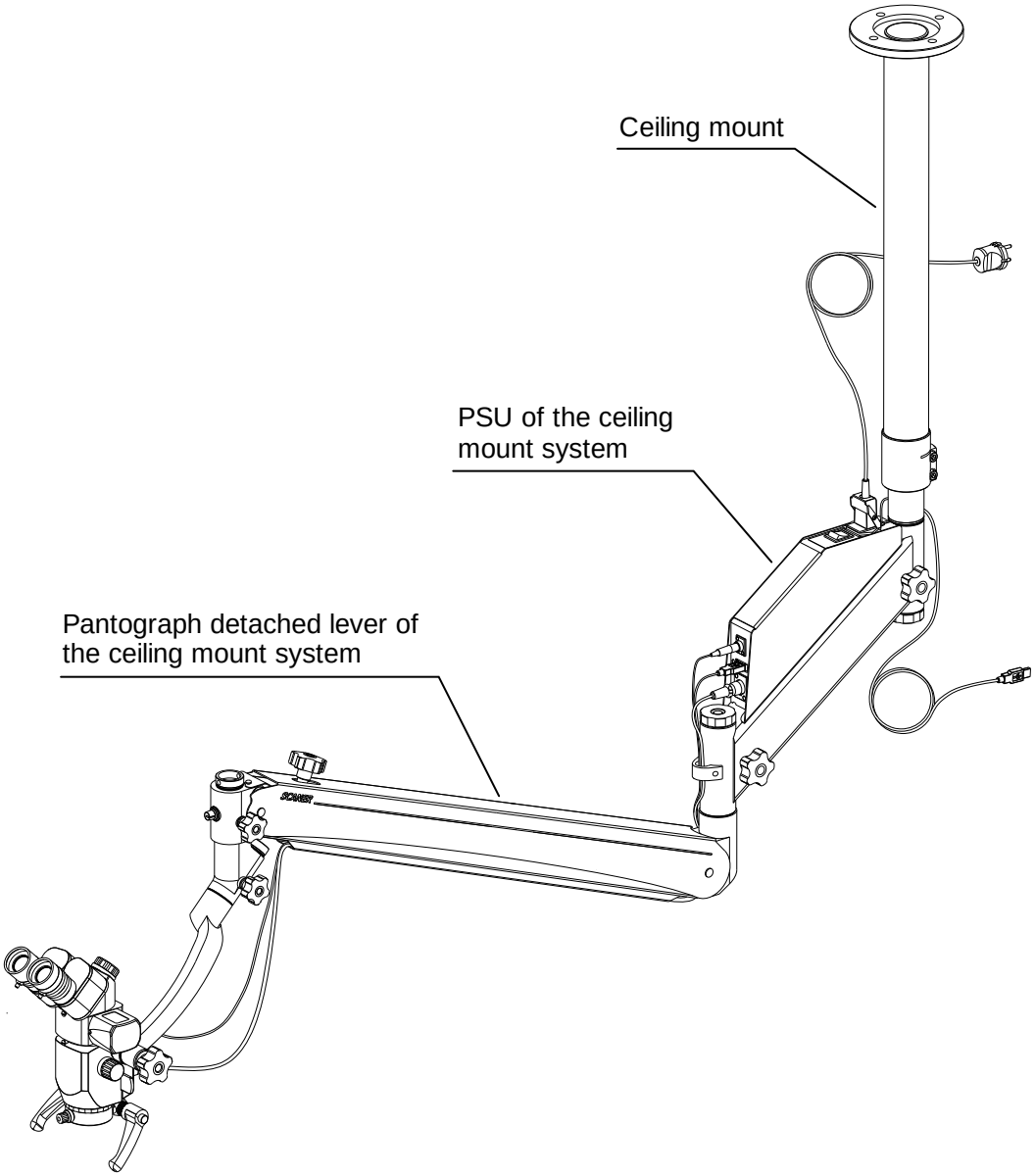
and provides a sufficient degree of flexibility allowing its folding and compact storing at the wall.

The exterior view of the microscope mounted on the wall mount is shown below.



The ceiling mount has been designed to provide maximal working space. The advantage of this system is stability of its base and rational use of space above the working area. The mount is statically made and allows compact folding of the microscope after finishing the work. The ceiling mount has a telescopic body which allows increasing its length up to +600 mm.

The exterior view of the microscope mounted on the ceiling mount is given below.



2.2. Microscope head

A microscope head in assembled state is an optical system with a stepwise switch with five zoom levels. The microscope head consists of differently configured plug-in optical units. Variation of optical units allows obtaining a necessary zooming, visual field diameter, output resolution, as well as additional functionality and comfortable use of the microscope.

The microscope head includes: an optical head, a objective, a video system (optional), binocular head with oculars, coaxial lighter unit, and a bearing arm.

The optical head is the main part of the microscope head where all its other parts are fixed. The optical head has a 5 stage zooming barrel with installed Galileo optical systems with 0.4x; 0.6x; 1x; 1.6x; 2.5x magnification ratio. The optic head is mounted on the retaining arm, with which it can be installed on the pantograph lever.

The objective is designed for focusing on the object and consists of glued lenses. The objective possesses a fine focus mechanism allowing adjusting of the

visible sharpness of the investigated object's image in the 12 mm range. At the customer's request the microscope can be supplied with several lenses with different focal length ranging from 200 mm to 400 mm.

The binocular head is designed for displaying of a stereoscopic image of the observed image onto the retina. The binocular head consists of lens and prism unit with oculars with oculars and possesses an interpupillary distance change mechanism within the range of 56-74 mm. The oculars have diopter rings for measuring of the diopter of each ocular within the range of +5 -5 diopter, due to which the microscope can be used by doctors with ametropia without necessity to wear glasses. At the customer's request the microscope can be supplied with several binocular heads with different sighting angles with installed oculars with 12x or 16x magnification (optional).

During the use of the binocular head with 0º ocular tilt angle (optional), the sighting angle is parallel to the microscope axis which is convenient for the use of the microscope in e.g. otolaryngology or gynecology as a colposcope.

A binocular head with 45º ocular tilt angle (optional) is convenient for the use of the microscope in the vertical position.

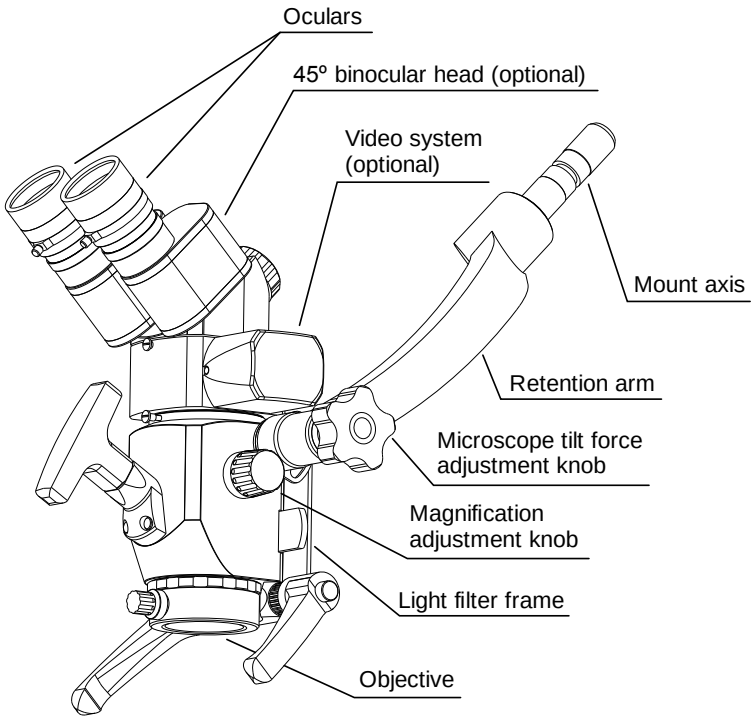
A binocular head with variable ±90º ocular tilt angle is designed for obtaining of regulated sighting angle relating to the microscope axis which is convenient for the use of the microscope in stomatology and different fields of surgery.

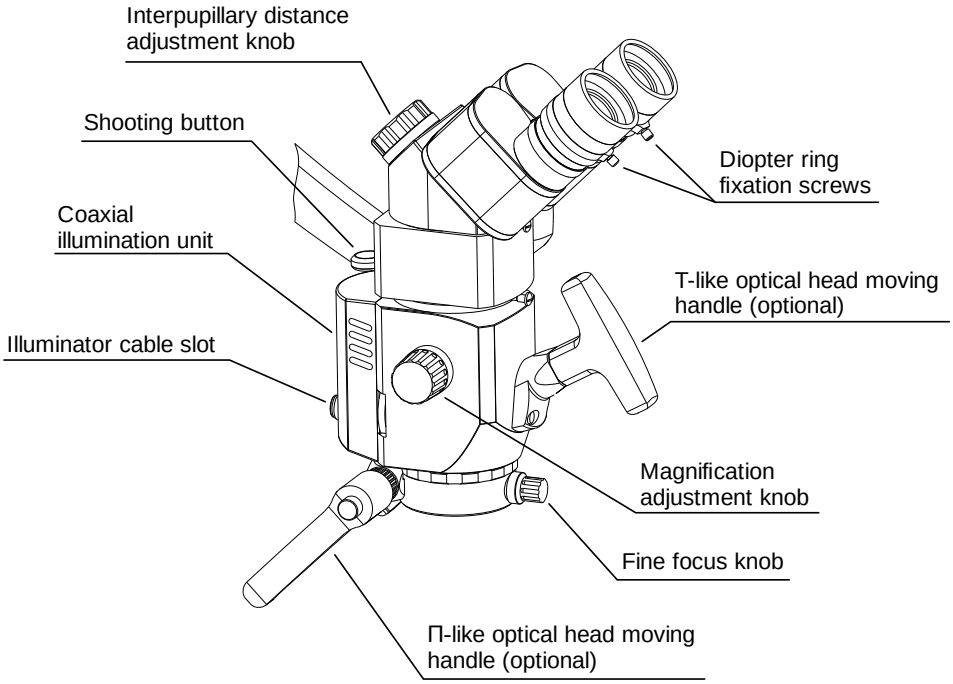
Coaxial illuminator is designed for uniform coaxial illumination of the investigated object and is a steady unit built into the optical head. The illuminator's optical system forms a homogenous, bright and not flickering light spot from the built-in LED light source in the observed field. The illuminator has a built-in light filter which is inserted into the light channel by filter mount shift. Depending on the sphere of application, the microscope can be supplied with light filters of different colors.

For the use of the microscope in stomatology, an orange filter is needed (optional) to prevent premature photopolymerization of the composite material. The cyan filter is intended for the use in surgery and colposcopy in order to intensify the blood vessels contrast.

The video system is made for obtaining of the real time view of colored image of the investigated region on the computer display and snapshots with the high resolution by pushing the button. The video system is installed between the optic head and the binocular head of the microscope and does not impair its optical characteristics, and the displayed image completely coincides with the image visible through the oculars of the microscope. The video system is an additional part of the microscope (optional) and is supplied at the customers' request together with the software.

The exterior view of the microscope head with only standard elements is given below.

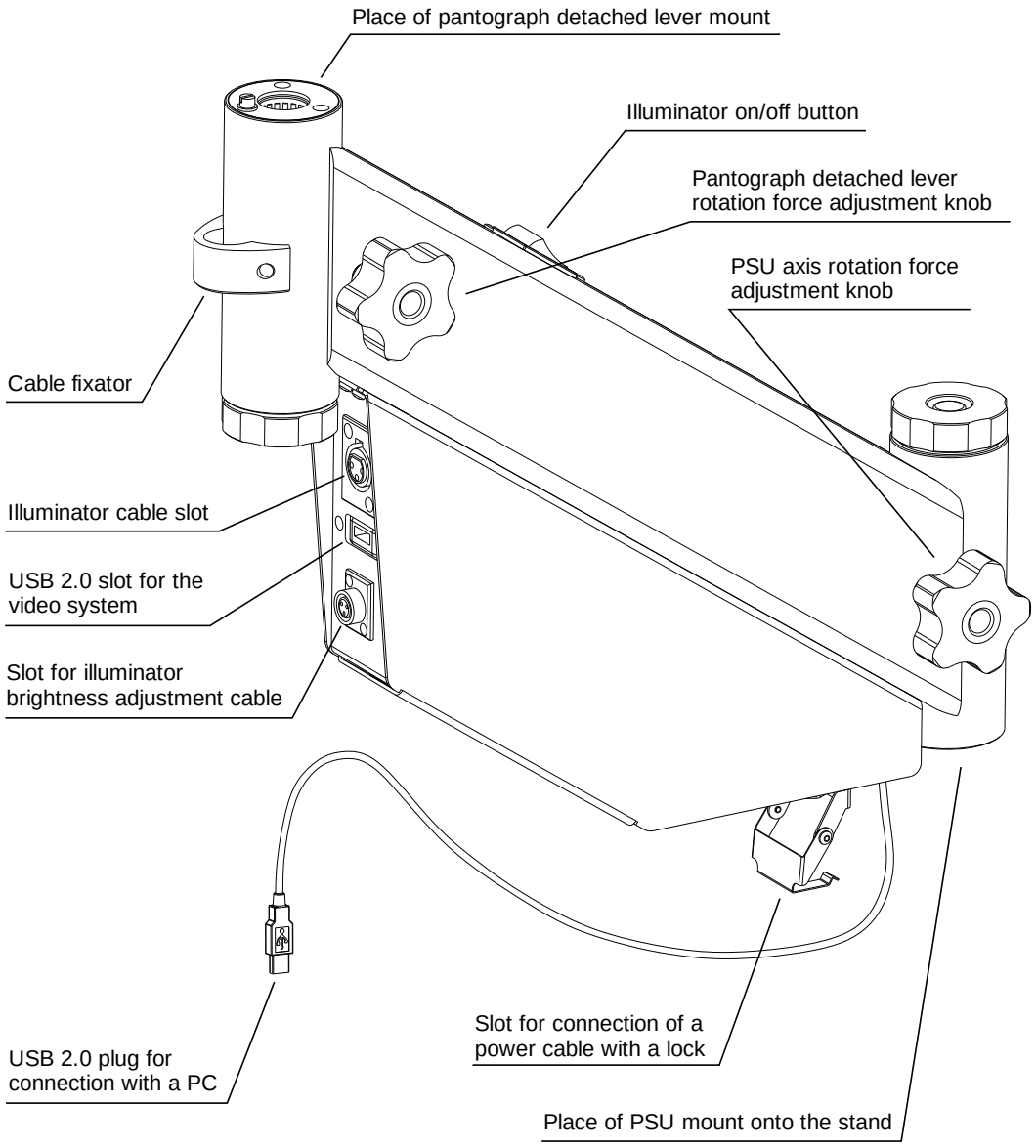




2.3. Power supply unit

The microscope's power supply unit provides the illuminator with direct current and constitutes a separate part of the microscope's construction mounted on its basis. The PSU case is used as a pivot arm and has pressure-adjusting and axis rotation adjusting knobs. In case of necessity there is a possibility to realign the PSU's pressure-adjusting and axis rotation adjusting knobs so that they turn into opposite direction. The casing of the PSU includes: network power socket with a lock and a network fuse-holder; a socket for a illuminator power cord; a socket for a brightness control cable of the illuminator; USB 2.0 socket for the video system; USB 2.0 plug for connection of the video system with the computer; an on/off button with a light indicator.

The exterior view of the microscope's PSU for the floor and wall mounts is given below.



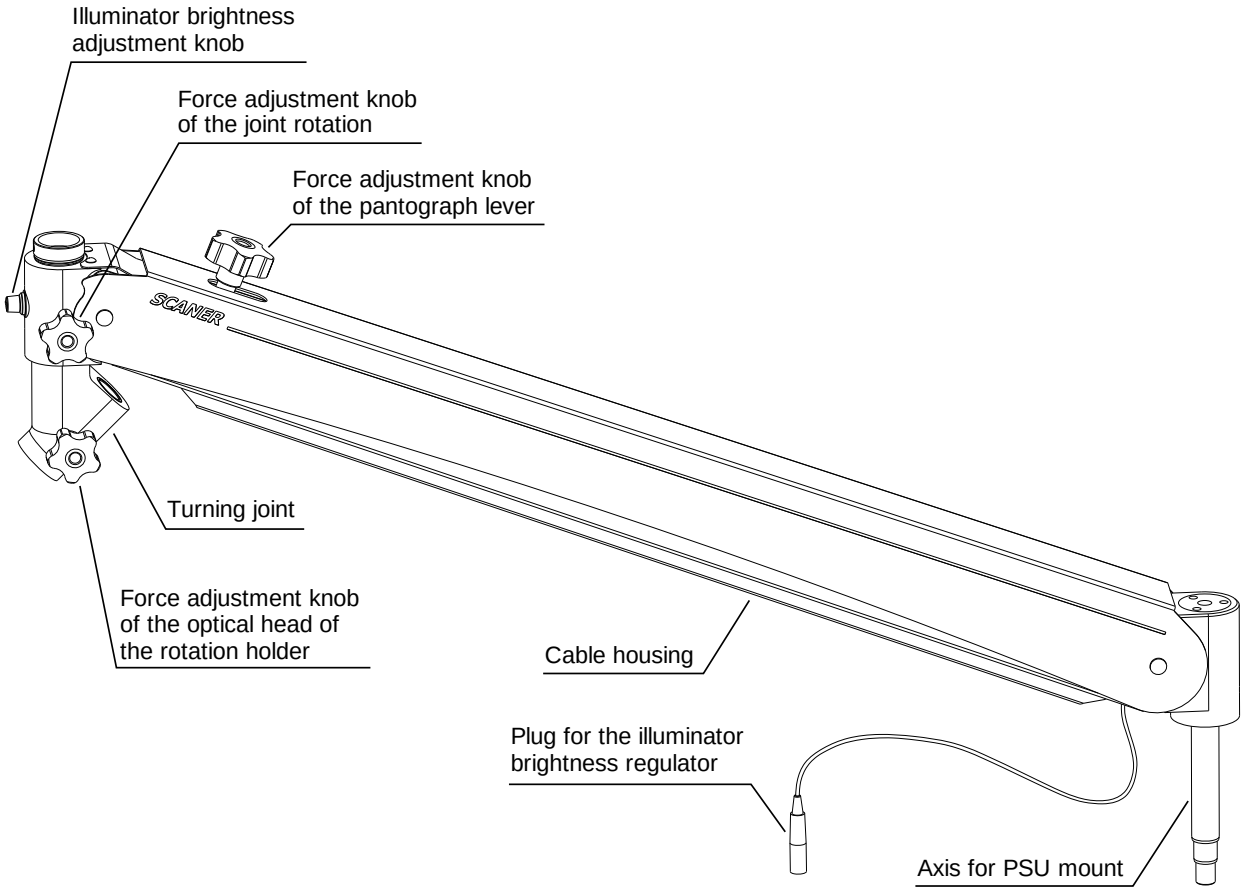
If a ceiling mount system is selected, the PSU construction differs from the abovementioned construction. The PSU for the ceiling mount system provides the same functions and has the same sockets and elements with their position being the only difference.

2.4. Pantograph detached lever

The pantograph pneumatic detached lever is designed for supporting and balancing of the microscope head, and its construction allows smooth shifting and reliable fixation of the microscope's optical head over the supervised object. The pantograph lever is mounted onto the PSU and forms two pivoted levers in connection with it. There is a turning joint in its casing for fixation of the microscope head, and a housing for cables of the illuminator and the video system. The casing of the pantograph lever includes all necessary rotation-adjusting, pressure-adjusting and axis rotation adjusting knobs. The pantograph lever has a handle for the illuminator brightness adjustment, which is connected to the PSU with an appropriate cable, the

brightness of the illuminator is adjusted by rotation of the handle. The pantograph lever of the main (basic) set has an automatic shutdown system for the illuminator power supply (limit switch) which is enabled when the microscope head is moved into the upper extreme position.

The exterior view of the pantograph pneumatic detached lever is given below.



At the customer's choice two pantograph levers of different length are available: basic and short.

If a ceiling mount system is selected, the pantograph lever construction differs from the abovementioned construction. The pantograph lever for the ceiling mount system provides the same functions and has the same characteristics with the position of the axis for mounting onto the PSU being the only difference.

3. The microscope's delivery set

In this section all microscope's elements included into the basic set and their number in the set, as well as description and characteristics of the basic components that are supplied separately are listed.

3.1. Basic set

The list of the microscope's basic elements and their number in the delivery set is given below.

Optical head on the arm	1
Objective f=250 mm *	1
Binocular head with variable ±90º ocular tilt*	1
12.5 x oculars (mounted onto the binocular head) *	2
П-like handle *	1
Turning joint (mounted onto the pantograph lever) **	1
Pantograph detached lever *	1
PSU	1
Floor stand: *	
Vertical stand	1
H-like stand on rollers	1
Power cable	1
Set of spare parts and accessories (SPA):	
Fusing element (safety device)	2
Screwdriver	1
Hex-nut wrench	2
Optical head case for dust protection	1
User manual. Passport	1
Packaging	1

* *At the customer's request, the spare parts can be replaced with the other parts with the similar functionality given in the list of additional spare parts.*

** *Some elements may be excluded from the kit at the customer's request.*

ATTENTION. Prior to installation and use of the microscope, please ensure that all selected elements are available in the supplied kit.
Please contact your supplier in case any elements are absent.

ATTENTION. Please ensure that there are no damages of the microscope's elements related to transportation: unusual deformities, damages from hitting, cracks, and breaking of the paint-and-lacquer coating.
Please contact your supplier in case any defects are detected.

3.2. Additional elements and accessories

The list of optional elements that are supplied at the customer's wish as a replacement of the basic elements or additionally as an option is given below.

Fastener system:

Wall mount with anchor bolts;

Ceiling mount with anchor bolts.

Objective:

f=200 mm; f=300 mm; f=350 mm; f=400 mm.

Binocular heads:

Microscope head with 45º ocular tilt angle;

Microscope head with 0º ocular tilt angle.

Optical units and accessories:

16x oculars; *

Digital video system with USB 2.0 and MedVisor EVA software;

Replaceable diaphragms unit;

Rotational binocular ring;

45º binocular adapter;

20/80 optical channel divisor;

Endoscopic camera adapter;

Digital camera adapter;

Orange light filter; *

Objective protection glass. *

Other components:

Pantograph detached lever, short;

Extension lever;

T-like handle.

** The components cannot be replaced or installed by the user. The availability of installed components of a certain configuration is discussed during the order processing. Upon the purchase of the microscope, its components can be replaced only at the manufacturer's site.*

Replaceable diaphragms unit is a constructional unit with diaphragms of different size which is installed between the optical and the binocular head and is designed for measuring of the depth of field of the image.

Rotational binocular ring is a constructional unit which is installed between the optical and the binocular head and is designed for the rotation of the binocular head within the range of ± 30º around the optical axis of the microscope head.

45º binocular adapter is an optical unit which is installed between the optical and the binocular head and is designed for tilting of the sight angle of 45º relative to the microscope's axis.

Along with the binocular rotation ring, a binocular adapter allows the doctor to maintain the oculars conveniently positioned even when the optical head is significantly tilted (it is especially important in stomatology and neurosurgery).

20/80 optical channel divisor is an optical unit which is installed between the optical and the binocular head and is designed for connection of photo and video documenting devices to the microscope's optical channel. The connection of such devices is carried out with the help of an adapter installed onto the divisor. The invariable ratio of optical channel light division amounts to 20 % for a side outlet.

Endoscopic camera adapter is a constructive unit which is installed onto the microscope's optical channel divisor and is designed for the connection of an endoscopic camera. This adapter functions as an endoscopic camera lens.

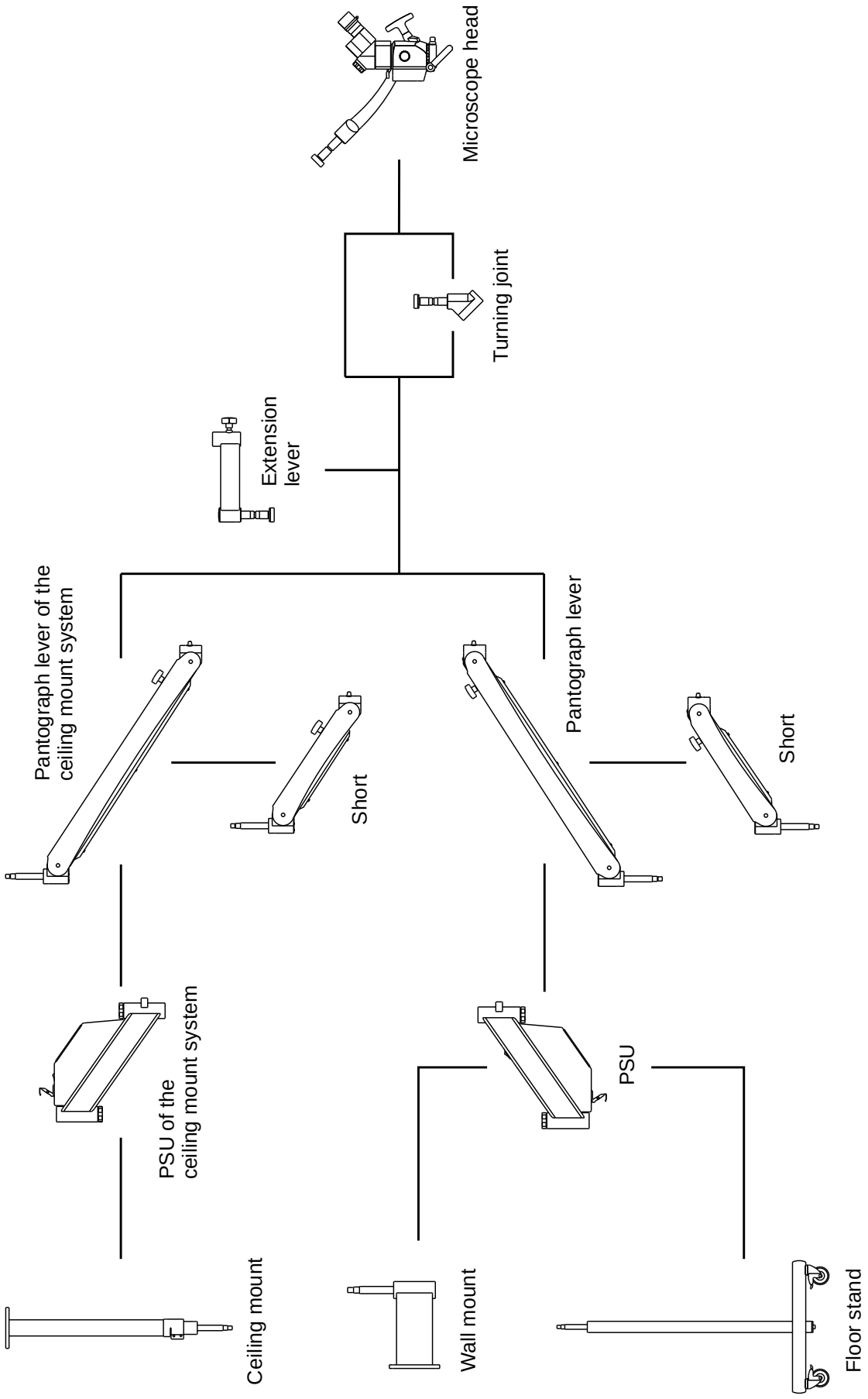
Digital camera adapter is a constructive unit which is installed onto the microscope's optical channel divisor and is designed for connection of SONY cameras (E-mount, maximum matrix size of 23.5 mm x 15.6 mm) and Canon cameras (EF or EF-S lens mount, maximum matrix size of 22.5 mm x 15 mm). The adapter functions as a camera lens.

Extension lever is placed between the pantograph detached lever (instead of or combined with a rotational joint) and the microscope head and is used as an additional lever for the lever system extension up to 200 mm and increase in the microscope flexibility.

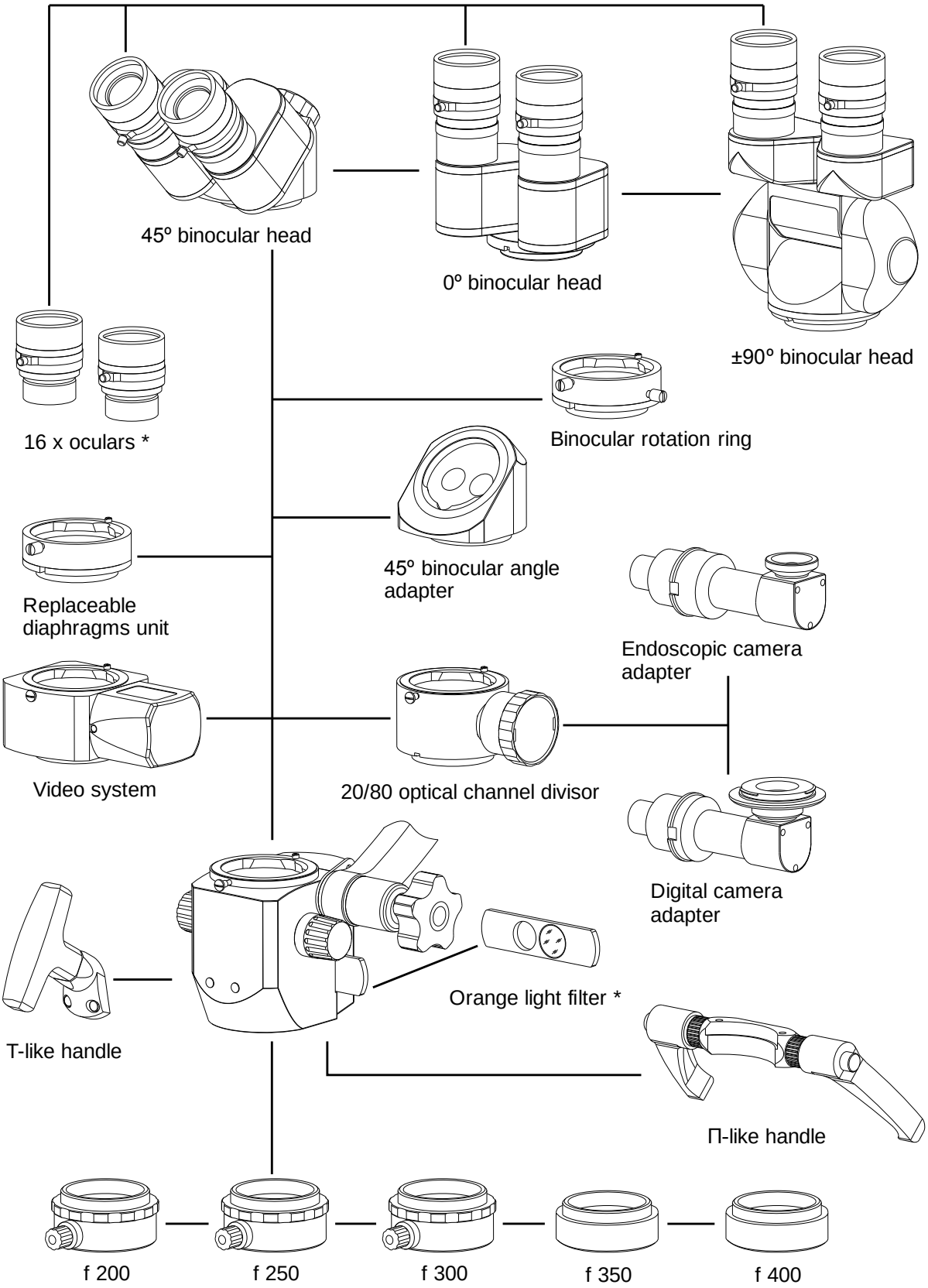
T-like handle is an additional ergonomic handle for moving of the optical head which is fixed onto the casing of the optical head between two screws.

3.3. Variants of placing of the microscope's elements

The scheme of combinations of assembly of the microscope's casing elements is given below.



The scheme of combinations of assembly of the elements of the microscope's optic head is given below.



* *The components cannot be replaced or installed by the user. The availability of installed components of a certain configuration is discussed during the order processing. Upon the purchase of the microscope, its components can be replaced only at the manufacturer's site.*

4. Technical features

4.1. Optical parameters

The optical parameters of the microscope with the parameters given depending on the objective and ocular type used are listed in the table below.

Ocular magnification, times	12.5					16				
Optical head magnification, times	0.4	0.6	1	1.6	2.5	0.4	0.6	1	1.6	2.5
f=200 objective										
Total magnification, times	4.1	6.6	10.5	16.9	27	4.9	7.9	12.6	20.3	32.4
Field of vision Ø, mm	53.6	33.3	21	13	8.1	44.9	27.8	17.5	10.8	6.8
Resolution, lines per mm	40	60	75	85	90	44	70	85	90	90
f=250 objective										
Total magnification, times	3.3	5.3	8.5	13.6	22	4	6.4	10.2	16.3	26
Field of vision Ø, mm	66	42	26	16	10	55	34	21.6	13.5	8.5
Resolution, lines per mm	32	50	70	85	90	35	55	75	85	90
f=300 objective										
Total magnification, times	2.8	4.5	7.1	11.4	18.3	3.3	5.3	8.5	13.6	22
Field of vision Ø, mm	78.6	48.9	31	19.3	12	66	42	26	16	10
Resolution, lines per mm	26	40	60	70	75	32	50	70	85	90
f=350 objective										
Total magnification, times	2.4	3.8	6.1	9.8	15.7	2.9	4.6	7.3	11.8	18.8
Field of vision Ø, mm	91.6	57.9	36	22.4	14	75.8	47.8	30.1	18.6	11.7
Resolution, lines per mm	23	36	50	60	65	26	40	60	70	75
f=400 objective										
Total magnification, times	2.1	3.4	5.4	8.6	13.8	2.5	4.1	6.5	10.3	16.6
Field of vision Ø, mm	104.8	64.7	40.7	25.6	15.6	88	53.6	33.8	21.4	13.2
Resolution, lines per mm	20	32	44	55	55	23	36	50	60	65

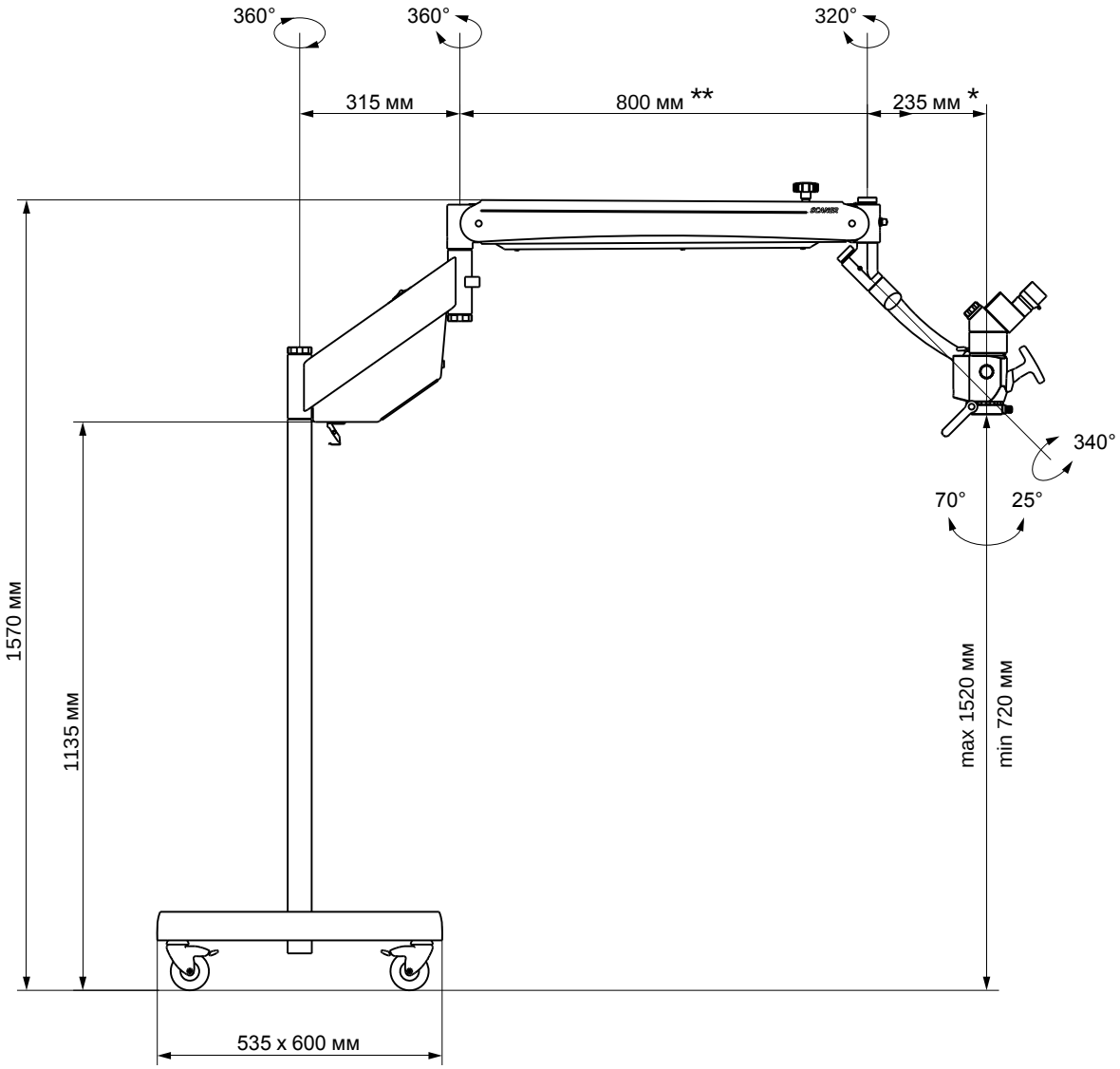
4.2. Technical parameters

The technical parameters of the microscope are given below.

Focal length, mm	f=200; f=250; f=300; f=350; f=400
Ocular diopter shift, diopter, NLT	+5 -5
Interpupillary distance range, mm	56 to 74
Diameter of illuminated field of vision, NLT	60
Max. Illumination of the object plane, lux, NLT:	
with f=200 objective	90 000
with f=250 objective	60 000
with f=300 objective	40 000
with f=350 objective	30 000
with f=400 objective	20 000
Supply voltage from a 50 Hz single-phase alternating current network, V	90 to 250
Microscope's power consumption, W, NMT	17
Weight of the microscope's elements, kg:	
H-like basis on castor wheels	55
vertical stand	5

PSU	6
pantograph detached lever with a rotational joint	9
microscope's head in a basic set mounted on the arm	4

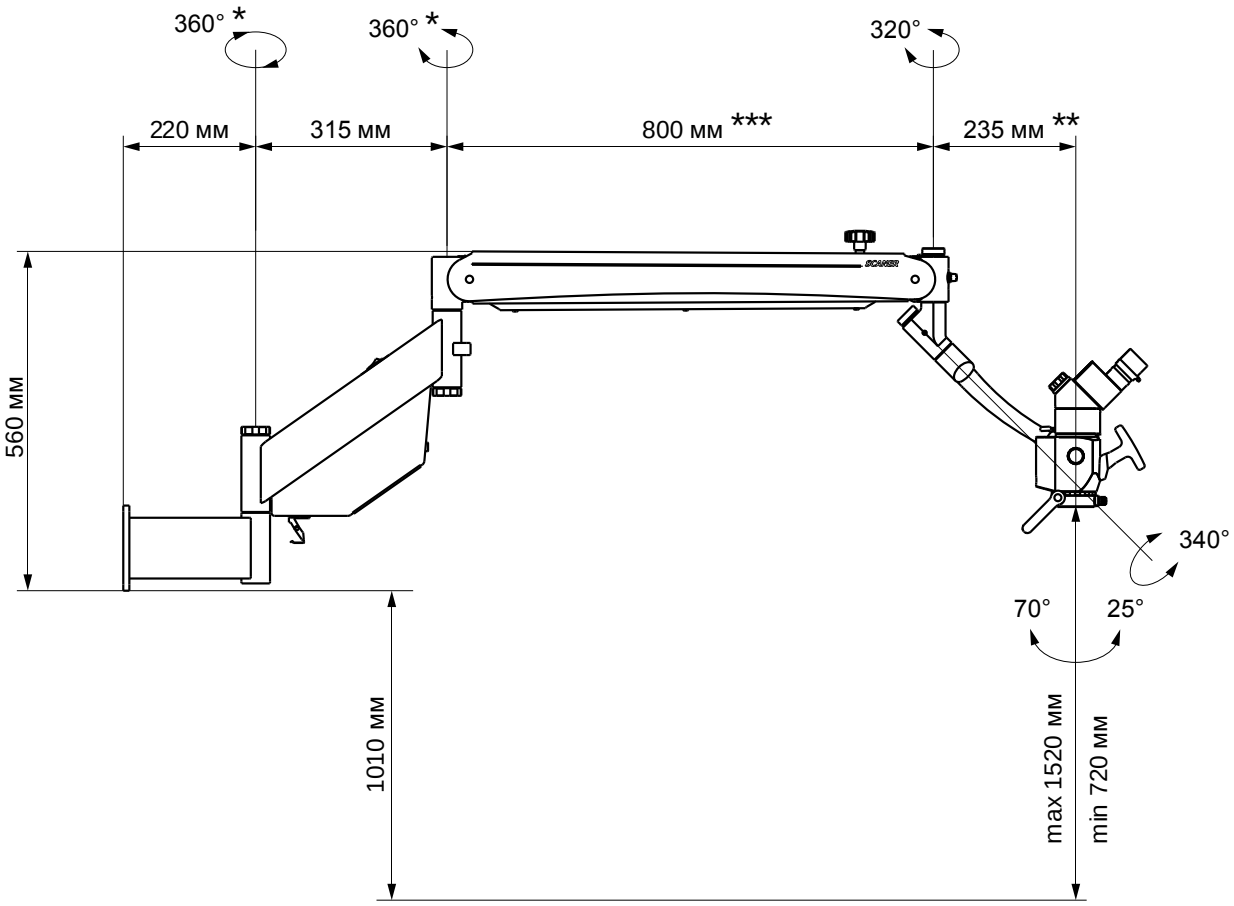
4.3. Floor stand parameters



* *If an extension lever is mounted (optional) the length is increased up to 200 mm.*

** *If a short pantograph level is used, the length amounts to 480 mm.*

4.4. Wall mount system parameters

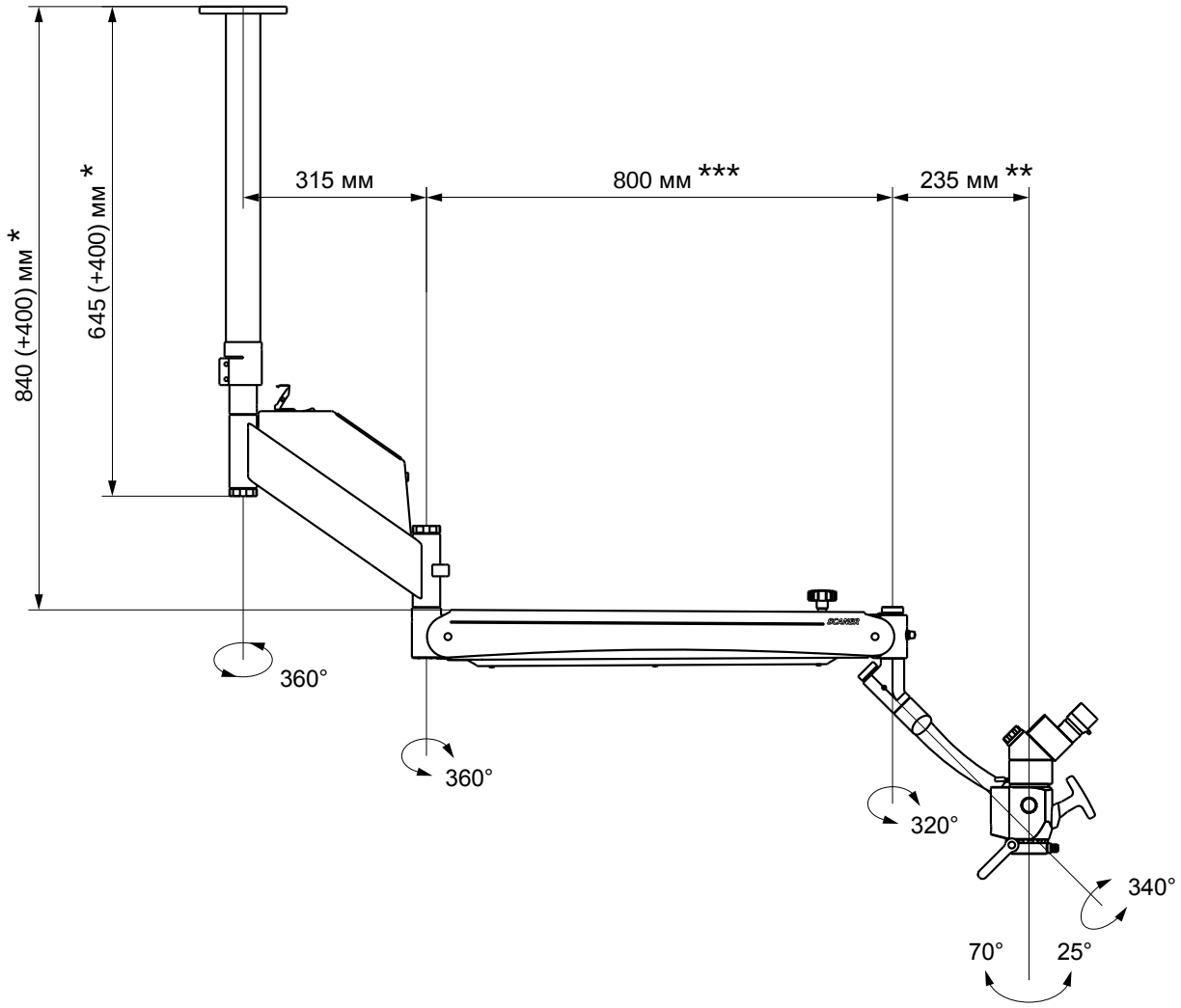


* *Movement of the units is limited by the wall on which the mount system is mounted.*

** *If an extension lever is mounted (optional) the length is increased up to 200 mm.*

*** *If a short pantograph level is used, the length amounts to 480 mm.*

4.5. Parameters of the ceiling mount system



* *There is a possibility of length adjustment of the ceiling mount bar. The image shows the dimensions of the bar assembled to obtain the minimal length. In case of necessity the bar length can be extended up to +600 mm from the length shown during mounting of the mount system.*

** *If an extension lever is mounted (optional) the length is increased up to 200 mm.*

*** *If a short pantograph level is used, the length amounts to 480 mm.*

5. Mounting and installation

MD-500 microscope in a standard set is supplied in a packaging with three places. The number of places in the packaging may differ from the mentioned depending on the ordered set.

Prior to installation of the product, all its elements must be taken from the shipping container, and packaging material must be removed.

For assembly and installation of the microscope use the instruments from the SPA supplied set.

ATTENTION. Prior to installation and use of the microscope, please ensure that all selected elements are available in the supplied kit.
Please contact your supplier in case any elements are absent

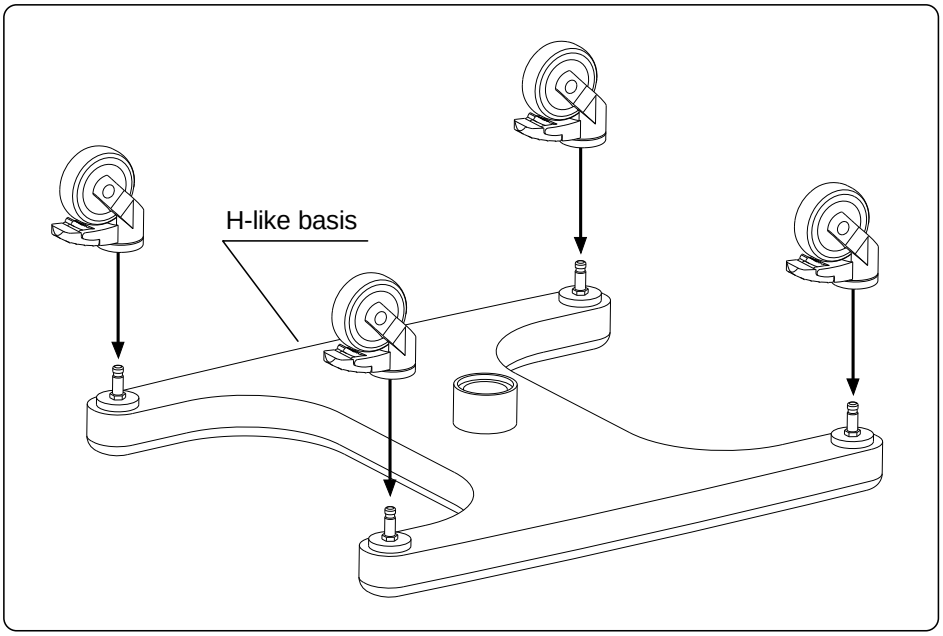
ATTENTION. Please ensure that there are no damages of the microscope's elements related to transportation: unusual deformities, damage from hitting, cracks, and breaking of the paint-and-lacquer coating.
Please contact your supplier in case any defects are detected.

ATTENTION. The mounting of the product must be performed with special caution, following all instructions given below.

ATTENTION. During mounting and installation of the microscope's components hold them firmly to prevent falling.

5.1. Floor stand mounting

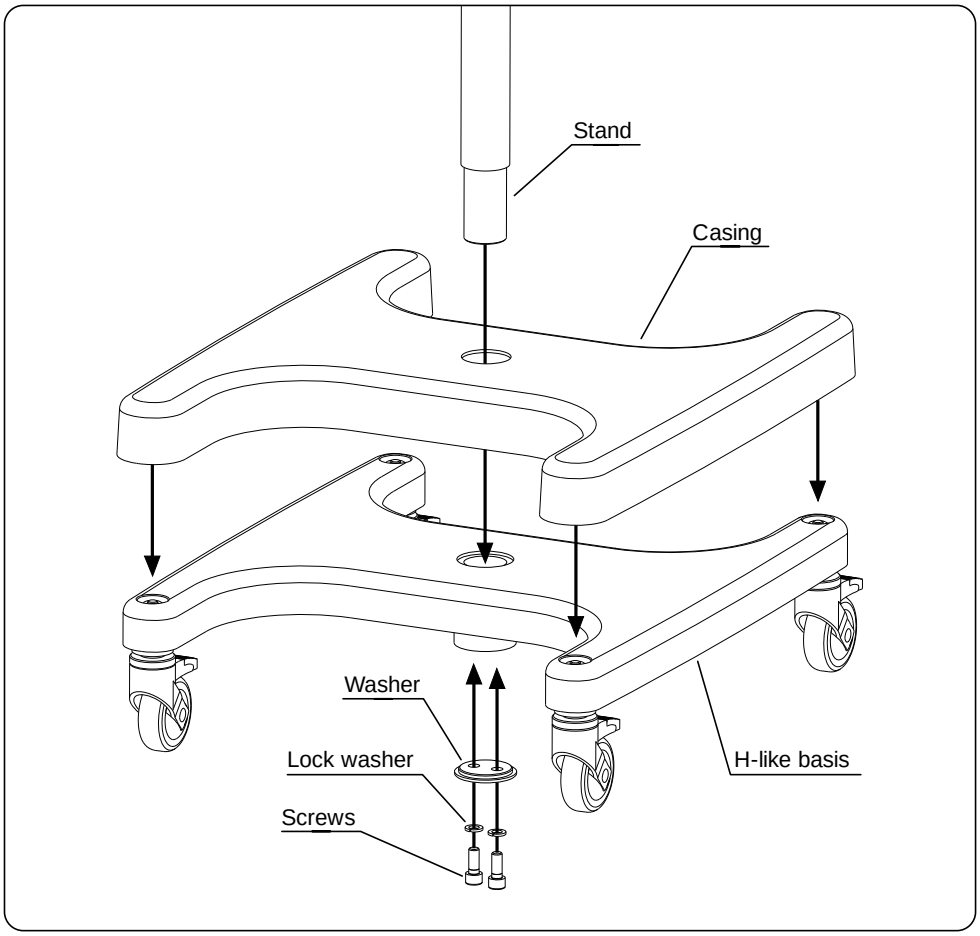
1. Mount the wheels onto the H-like basis by putting them onto locating pins until you hear a characteristic click, as shown on the figure below. Ensure that the wheels are fixed on their axes.



2. Insert the stand into the H-like basis avoiding inclinations simultaneously pressing the washer below so that the opening of the washer coincides with the openings of the basis.

3. Screw two bolts with lock washers into the threaded openings of the stand completely against the stop.

4. Put the housing onto the basis by putting it through the stand from above.



5.2. Wall mount mounting

Prior to the beginning of the mounting, please ensure that there is enough space for the maximal working area of the microscope. Define the place for the product on the wall with due consideration of the overall dimensions and wall system parameters given in the section 4.4. For the power supply of the microscope the socket must be situated no more than three meters away from the power supply unit which should be also taken into account during preparation of the place for mounting.

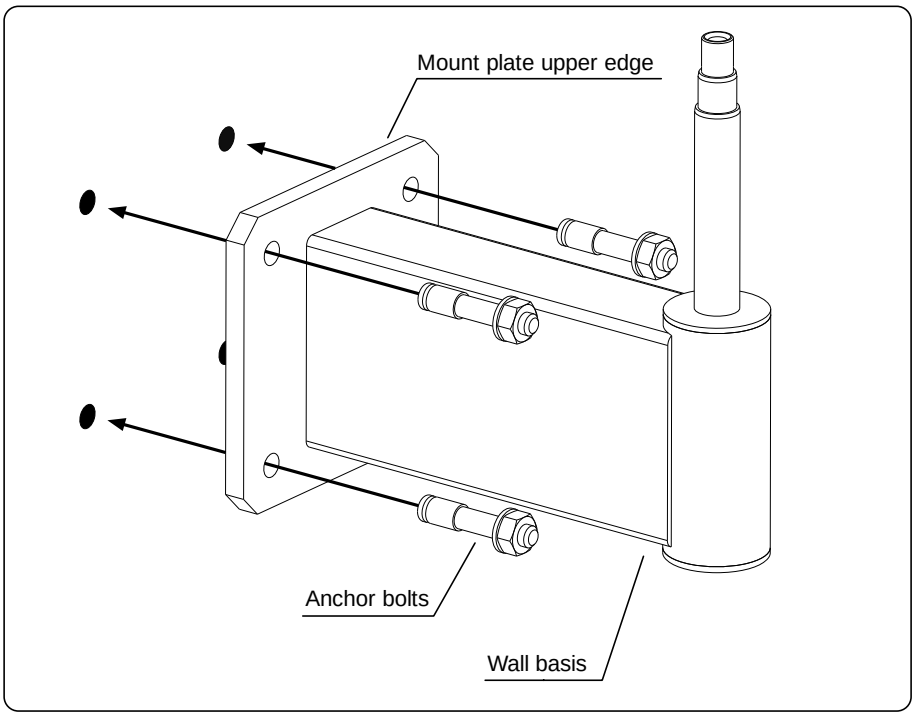
ATTENTION. The wall mount system can be mounted only onto solid brick or concrete walls.

1. Mark 4 places for mounting holes using the basis of the wall mount system as a stencil, preliminary having aligned the upper rim of the mounting plate with the horizon line using a hydraulic level.

2. Preparation of the hole in the wall.

3. Fix the mount system on the wall with the help of the anchor bolts supplied with the set.

4. Tighten the anchor bolts.

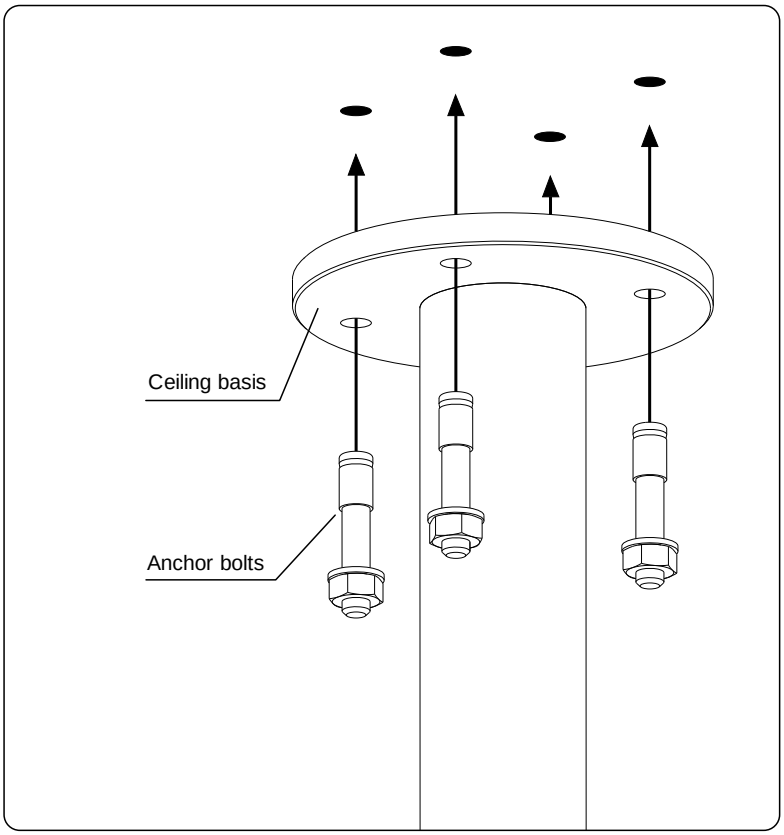


5.3. Mounting of the ceiling mount system

Prior to the beginning of the mounting, please ensure that there is enough space for the maximal working area of the microscope. Define the place for the product on the ceiling with due consideration of the overall dimensions and wall system parameters given in the section 4.5. For the power supply of the microscope the socket must be situated no more than three meters away from the power supply unit which should be also taken into account during preparation of the place for mounting.

ATTENTION. The ceiling mount can be mounted only onto the concrete ceiling grid.

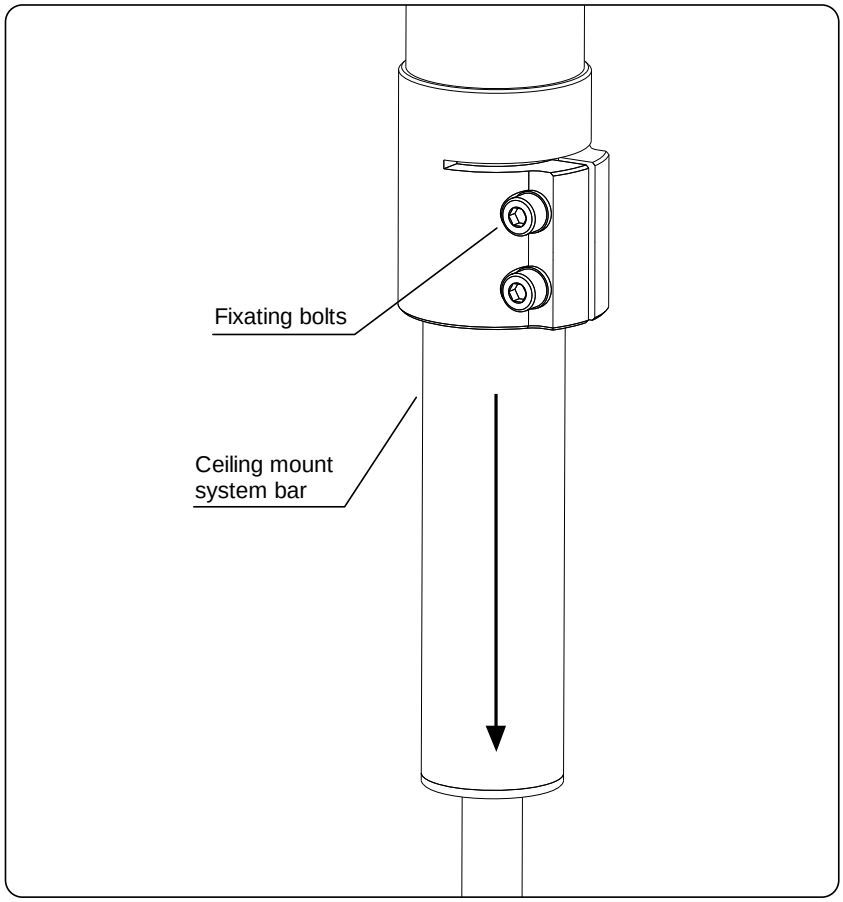
1. Mark 4 places for mounting holes using the basis of the ceiling mount system as a stencil, placing it onto the ceiling.
2. Preparation of the hole in the ceiling.
3. Fix the mount system onto the ceiling with the help of the anchor bolts supplied with the set.
4. Tighten the anchor bolts



The length of the ceiling mount bar can be adjusted. The length of the bar can be extended up to +600 mm, for which the following steps should be done:

1. Loosen (unscrew not completely) the screws that fix the bar position.
2. Extend the ceiling mount bar to obtain the necessary length.
3. Tighten the fixing screws against the stop.

ATTENTION. The length of the ceiling mount bar can be adjusted only if the PSU and other microscope's elements are disconnected and removed.



5.4. Installation of the PSU

In case of necessity there is a possibility to realign the PSU's pressure-adjusting and axis rotation adjusting knobs so that they turn into opposite direction.

ATTENTION. Reinstallation of pressure-adjusting and rotation adjusting knobs for turning into reverse direction can be performed only by qualified specialists during commissioning.

Mounting of the PSU of the floor stand and the wall mount system

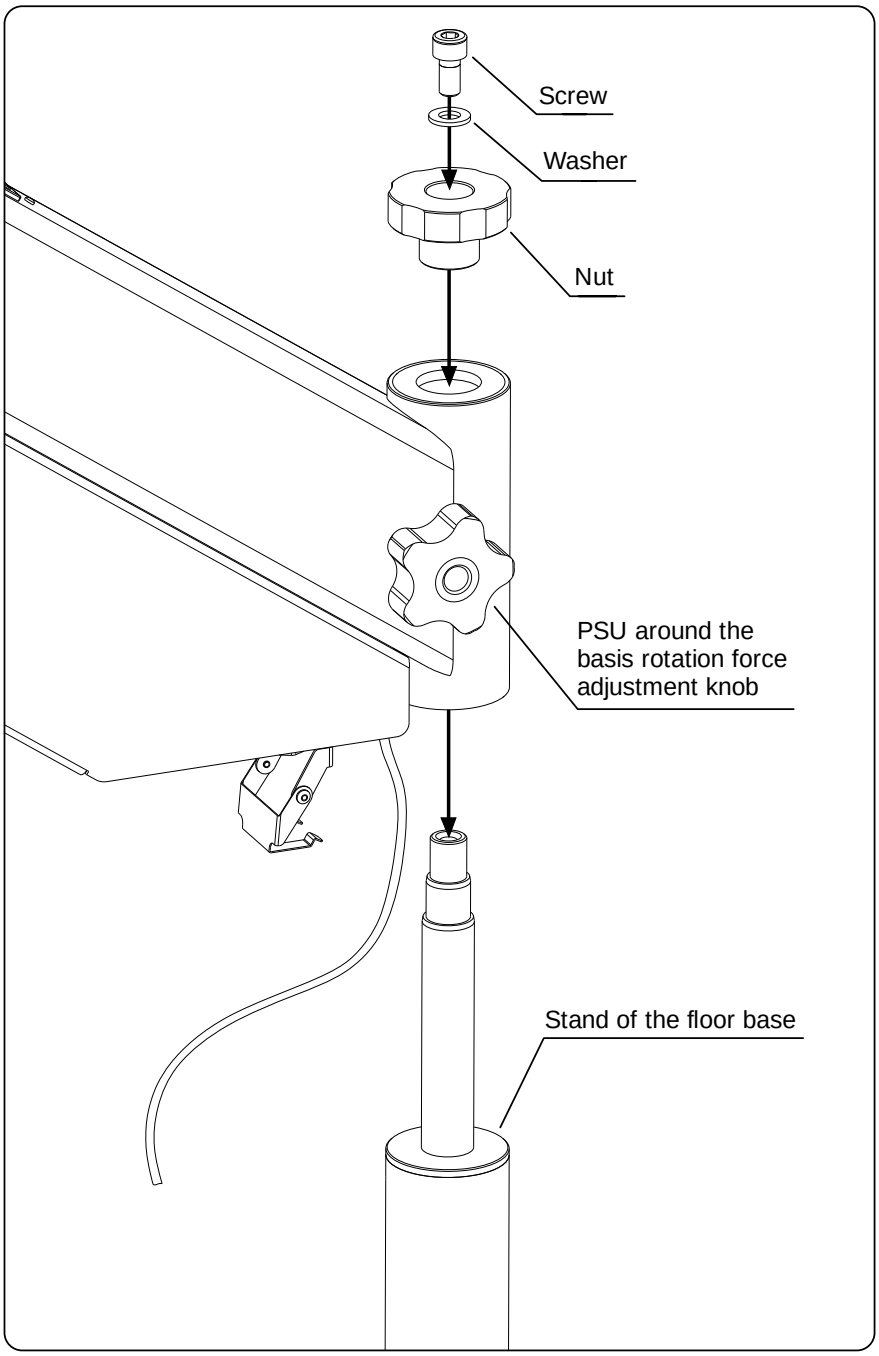
1. Completely unscrew and remove the bolt with the washer and unscrew the nut from the floor stand axis or wall mount systems.

2. Loosen (unscrew not completely) the handle of rotation force adjustment of the PSU situated on the PSU casing.

3. Vertically install the PSU cartridge onto the stand's axis from above avoiding inclinations.

4. Screw the nut, and then the bolt with the washer onto the stand axis against the stop.

5. Press and fix the rotation of the PSU with the help of an adjusting knob on its casing.



Mounting of the PSU of the ceiling mount system

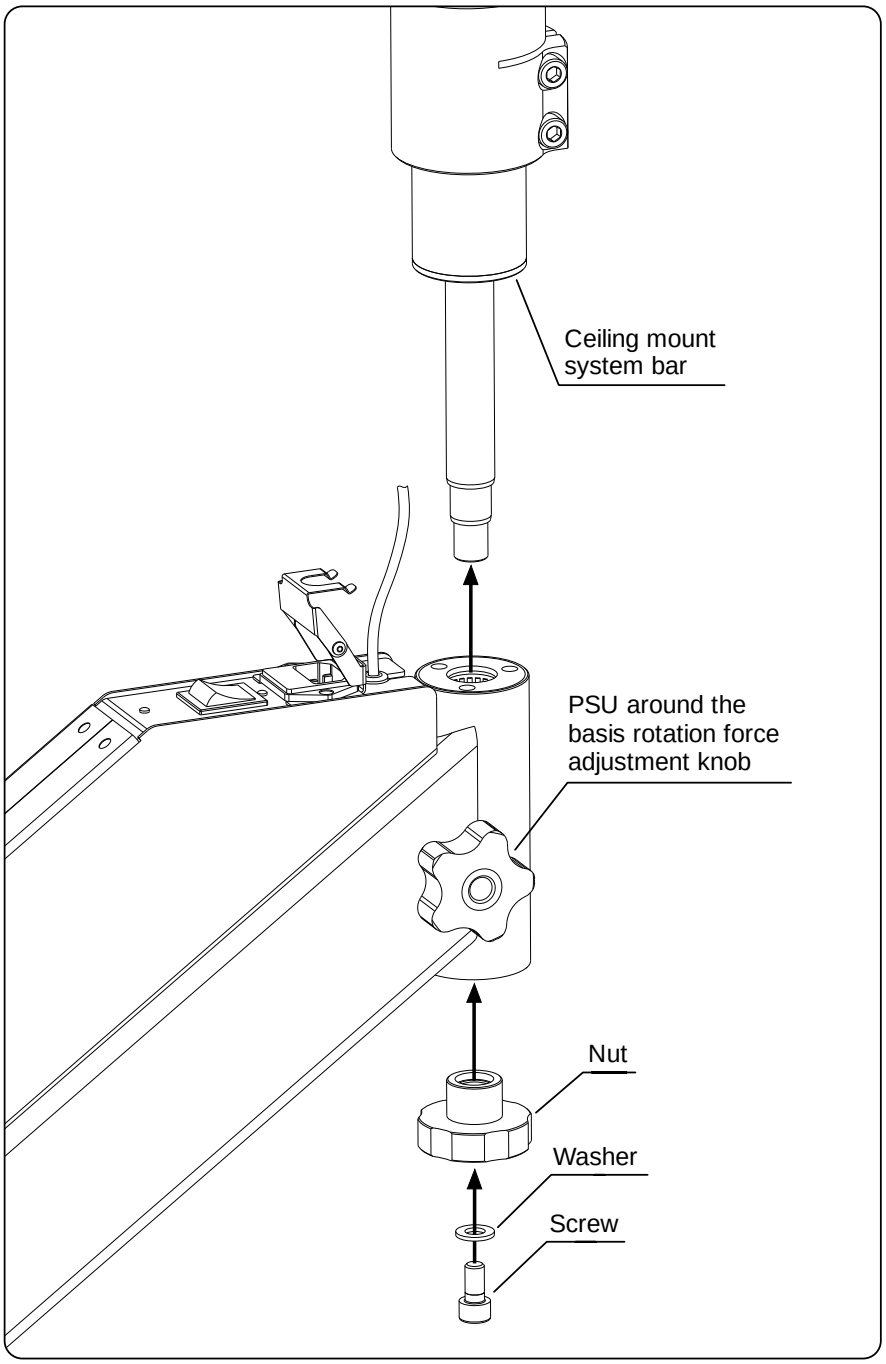
1. Completely unscrew and remove the bolt with the washer and unscrew the nut from the ceiling mount system.

2. Loosen (unscrew not completely) the around the stand rotation force adjusting knob of the PSU situated on the PSU casing.

3. Vertically install the PSU cartridge onto the ceiling mount stand axis from below avoiding inclinations.

4. Screw the nut, and then the bolt with the washer against the stop.

5. Press and fix the rotation of the PSU with the help of an adjusting knob on its casing.



5.5. Installation of the pantograph detached lever

Installation of the pantograph detached lever for the floor stand and wall mount system.

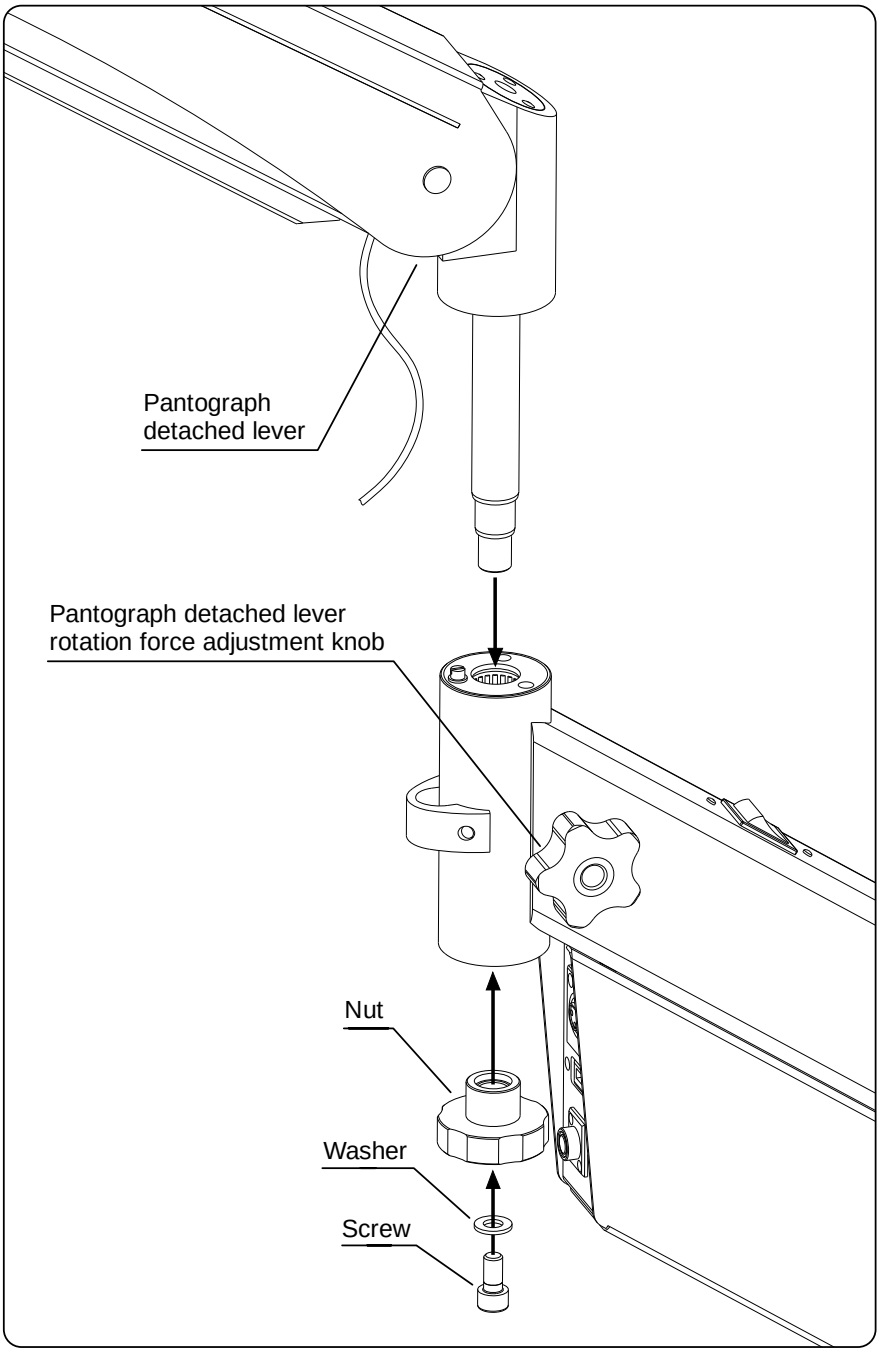
1. Completely unscrew and remove the bolt with the washer and unscrew the nut from the axis of the pantograph detached lever.

2. Loosen (unscrew not completely) the rotation force adjusting knob of the pantograph detached lever on the PSU casing.

3. Vertically install the axis of the pantograph detached lever into the PSU cartridge avoiding inclinations.

4. Screw the nut, and then the bolt with the washer of the axis of the pantograph detached lever against the stop.

5. Press and fix the rotation of the pantograph detached lever with the help of an adjusting knob on its casing.



Installation of the pantograph detached lever for the ceiling mount system.

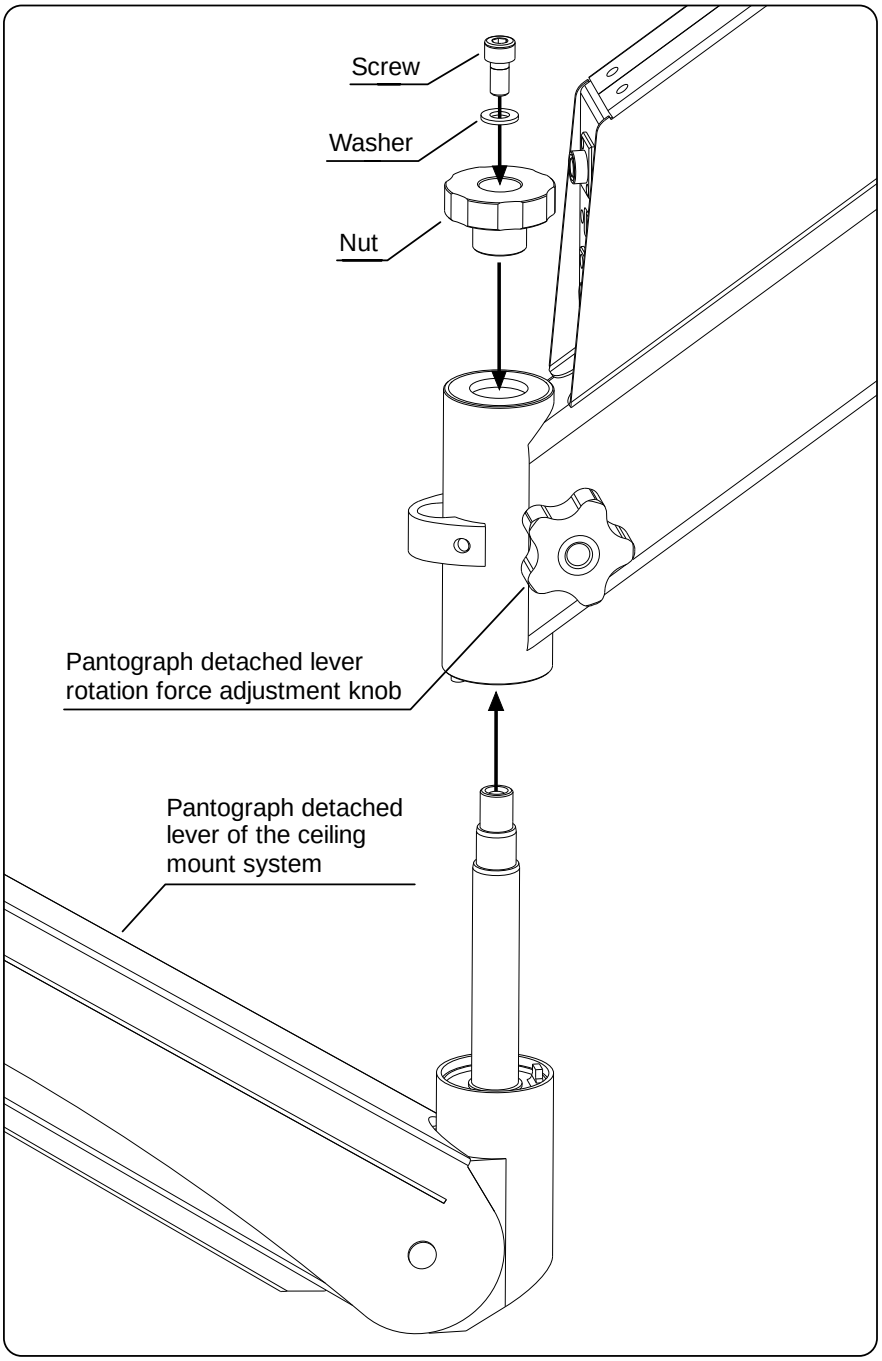
1. Completely unscrew and remove the bolt with the washer and unscrew the nut from the axis of the pantograph detached lever.

2. Completely unscrew and remove the bolt with the washer and unscrew the nut from the axis of the pantograph detached lever.

3. Vertically install the axis of the pantograph detached lever into the PSU cartridge from below avoiding inclinations.

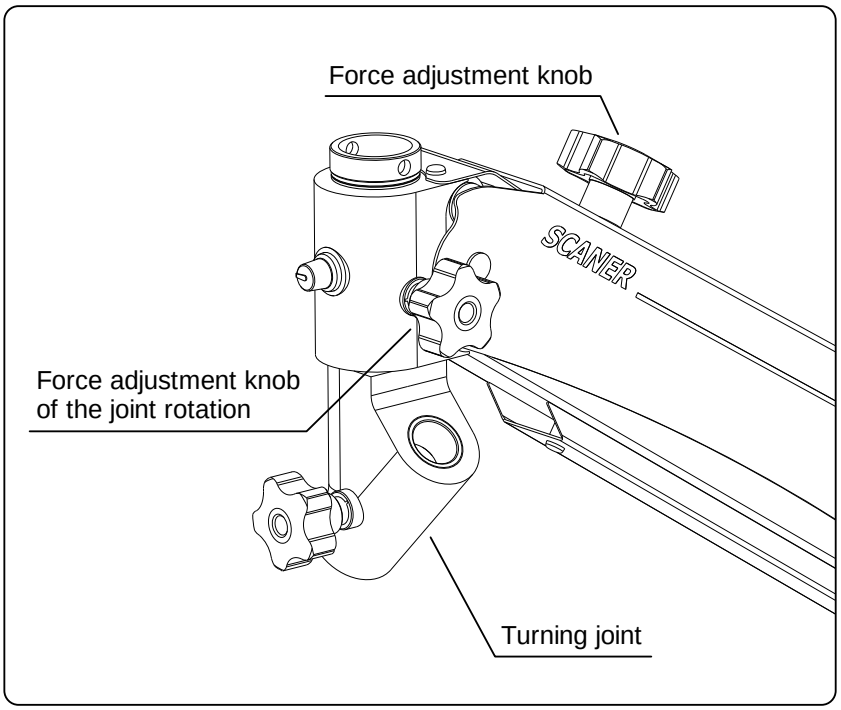
4. Screw the nut, and then the bolt with the washer of the axis of the pantograph detached lever against the stop.

5. Press and fix the rotation of the pantograph detached lever with the help of an adjusting knob on its casing.



5.6. Installation of the microscope head

1. Turn the turning joint relative to the pantograph detached lever as shown on the picture below and fix its position with the help of rotational force adjusting knob situated on the pantograph lever casing. Fix the pantograph handle in the vertical position with the motion force adjusting knob in order to avoid spontaneous shifting.



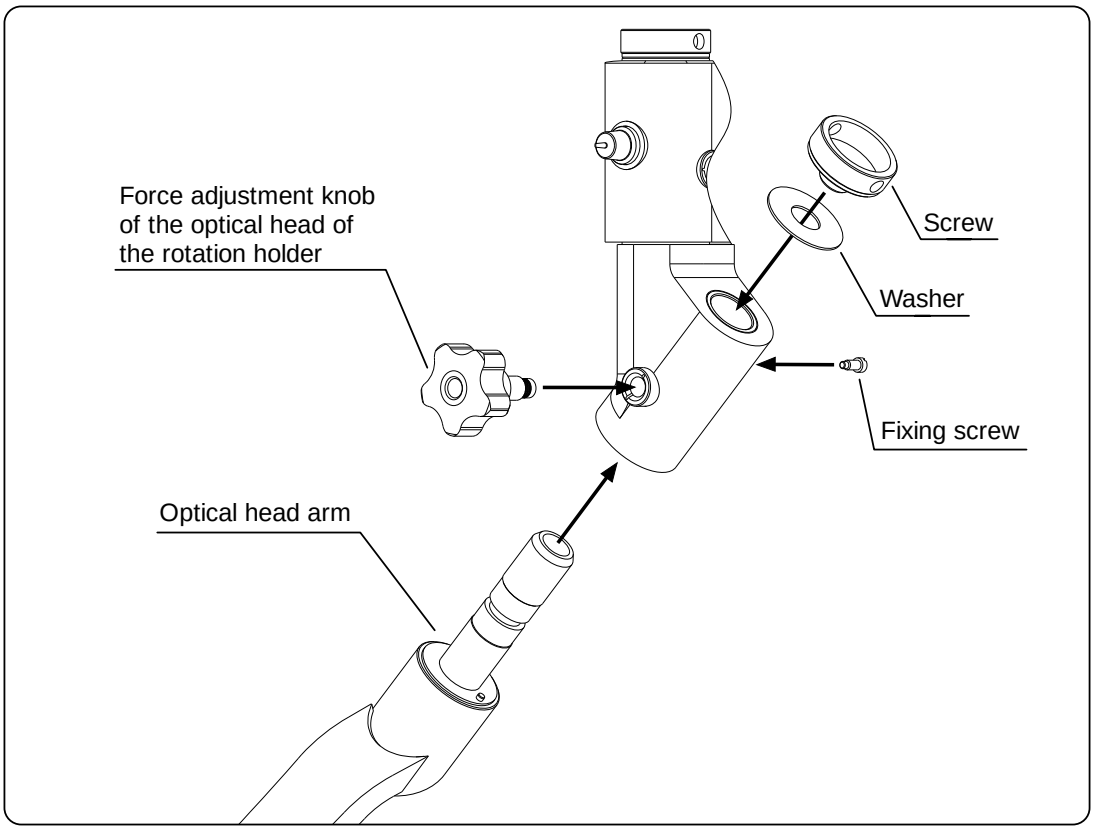
2. Completely unscrew the arm rotation force adjusting knob and unscrew the fixating bolt situated on the turning bolt casing.

3. Completely unscrew and remove the screw and the washer from the optic head arm using the screwdriver as a wrench inserted into the openings of the screw.

4. Hold the optical head arm firmly and put its axis uprightly into the turning joint cartridge avoiding inclination.

5. Put the washer on and screw the screw onto the axis of the optical head arm.

6. Tighten and press the arm rotation force adjusting knob of the optic head and the fixation bolt of the turning joint.



Installation of the microscope head in the set without the turning joint

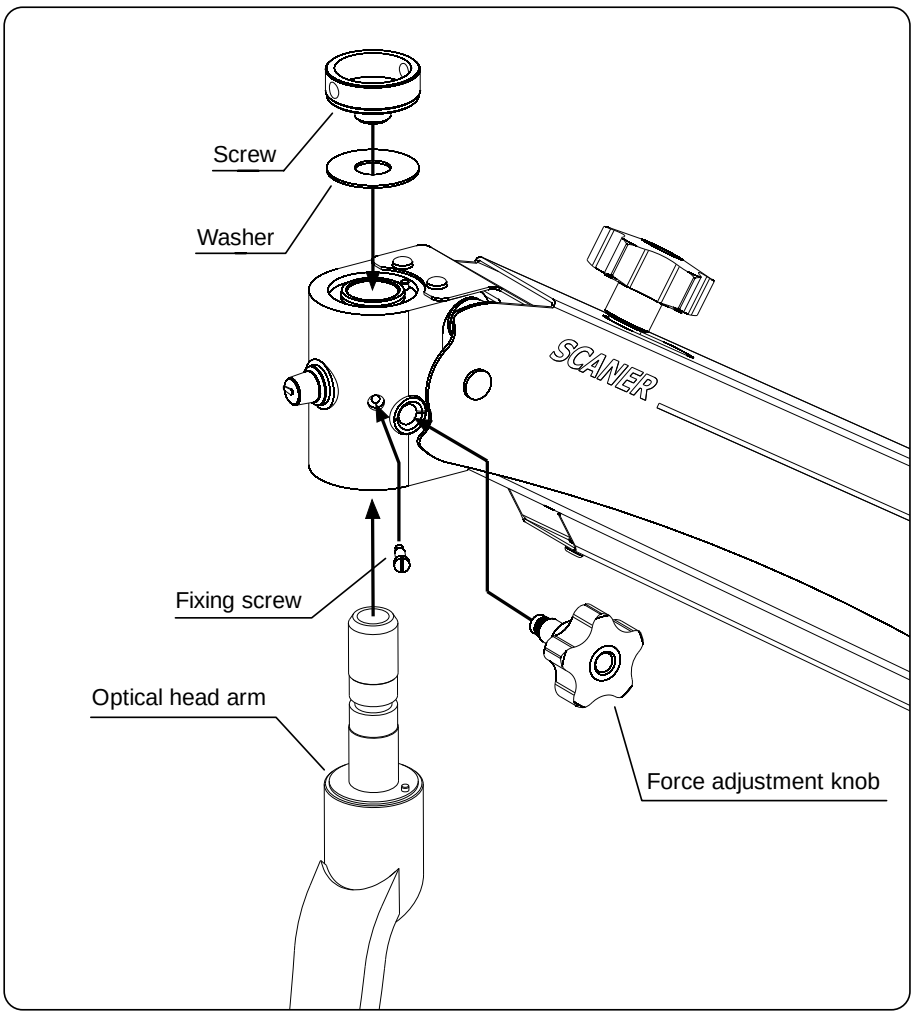
1. Completely unscrew the arm rotation force adjusting knob and unscrew the fixating bolt situated on the turning bolt casing.

2. Completely unscrew and remove the screw and the washer from the optic head arm using the screwdriver as a wrench inserted into the openings of the screw.

3. Hold the optical head arm firmly and put its axis uprightly into the turning joint cartridge avoiding inclination.

4. Put the washer on and screw the screw onto the axis of the optical head arm.

5. Tighten and press the arm rotation force adjusting knob of the optic head and the fixation bolt of the turning joint.



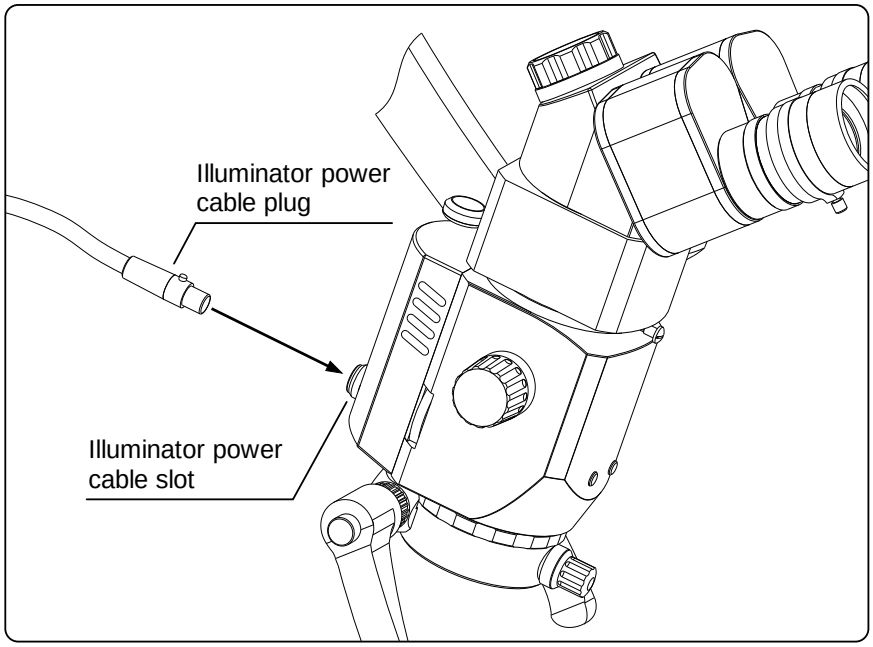
5.7. Cable connection

ATTENTION. Connection of the microscope to 220 V single-phase alternating current network is made only with the cable of the power supply unit with wall plug that are supplied with the product. The microscope has no open contacts and is safe during operation.

PROHIBITED. Switching the PSU on without PSU casing.

ATTENTION. Connection of the network power cable, illuminator power cable, illuminator luminance regulating cable, and video system cable can be carried out only when the microscope is completely assembled and ready for operation.

1. Put the illuminator power cable plug with the marking in into the socket on the coaxial illuminator of the microscope head. If you need to disconnect the illuminator power cable from the coaxial illuminator press the fixator button on the plug.

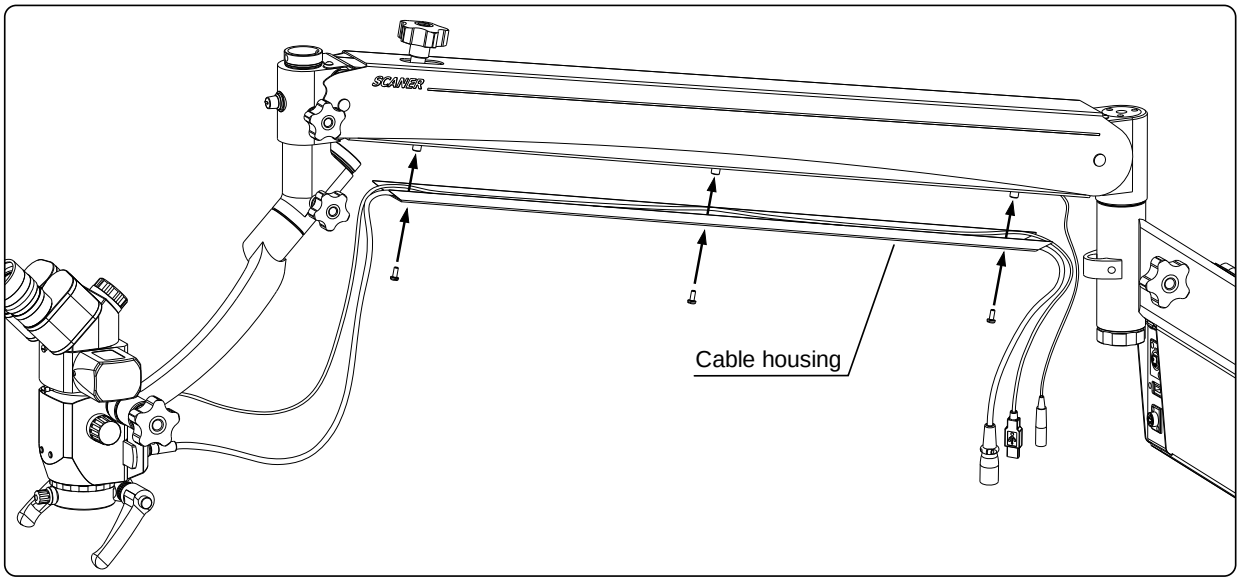


2. Remove the cable casing on the lower side of the pantograph detached lever by unscrewing respective screws.

3. Lay the illuminator power cable and, if applicable, the video system cable along the casing.

4. Put the cable casing back onto the pantograph lever by screwing respective screws.

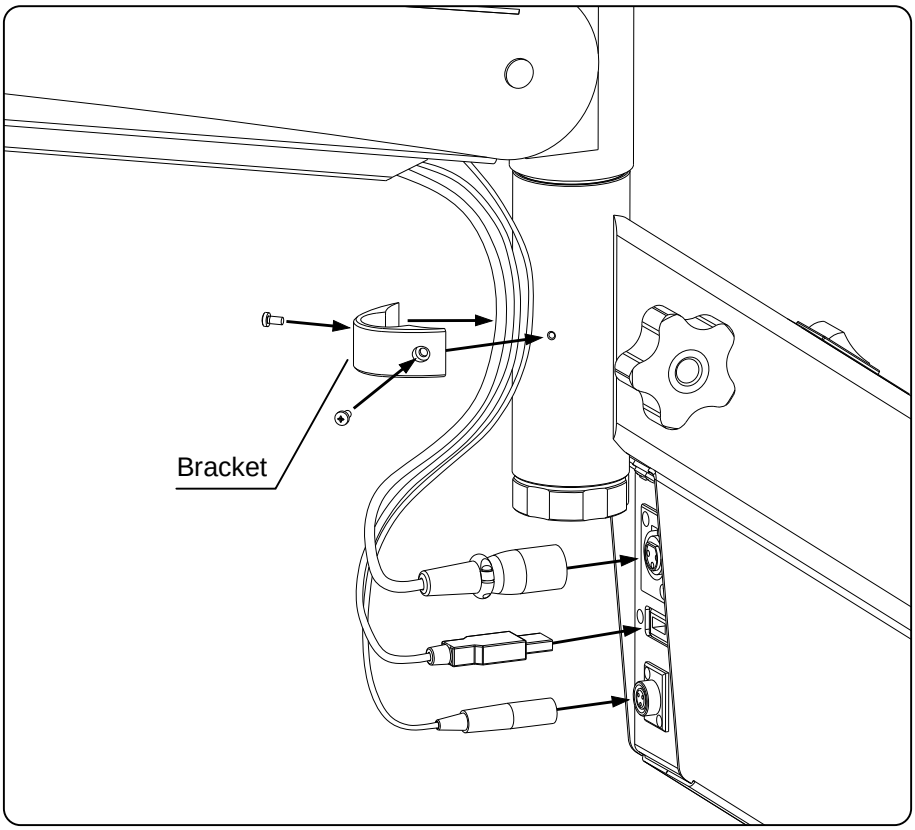
5. Ensure that the cables pressed by the casing have the sufficient length on the both sides in order to ensure free movement of the units.



6. Remove the brackets installed onto the PSU casing by unscrewing respective screws.

7. Put the illuminator power cable plug with the marking ☼ out, USB 2.0 plug of the video system cable, the illuminator luminance regulating system plug with the marking ☼ into respective sockets on the PSU.

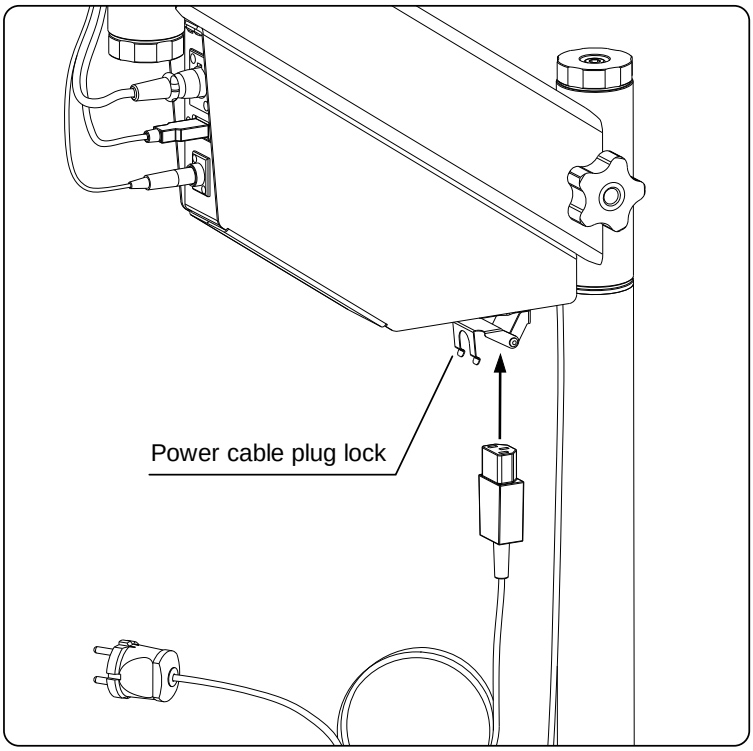
8. Put the bracket onto the PSU casing so that it can hold all cables from the PSU unit by screwing respective screws.



9. Put the microscope power cable plug into the socket of the PSU, fix the plug with a special lock.

ATTENTION. The power cable plug must be fixed by a special lock in order to avoid spontaneous disconnection.

PROHIBITED. Working with the microscope if the power cable plug is not fixed by a special lock.



10. If the video system is used connect the USB 2.0 plug of the PSU to a PC and install necessary software according to instructions.

11. Connect the microscope to the power network.

ATTENTION. If the microscope has already been put into operation and is connected to the network, its additional components are installed or its components are replaced after the cables are disconnected in reverse order.

6. Installation and replacement of additional components and accessories

ATTENTION. All additional components and accessories are installed onto the microscope casing in the order and sequence given un the section 3.3.

ATTENTION. Prior to installation and replacement of additional components ensure that all movable elements of the microscope are securely fixed.

ATTENTION. During installation and replacement of the optical units hold them firmly to prevent falling.

For installation and replacement of the microscope's components use the instruments from the SPA supplied set.

6.1. Objective replacement

1. Put the optical head into upright position as shown on the figure below in order to avoid possible damage of the optical components.

2. Remove the П-like handle by unscrewing respective screws.

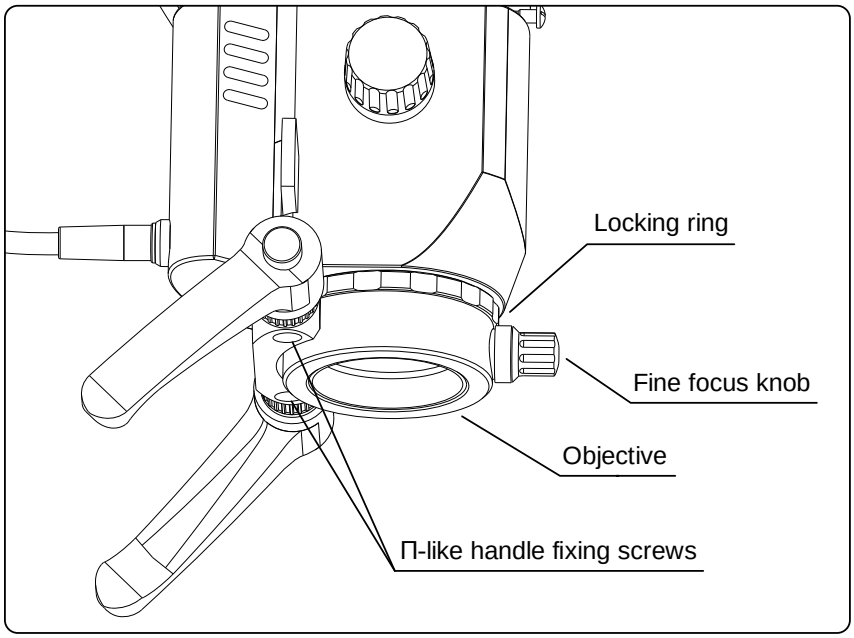
3. Unscrew the locking ring of the objective against the stop.

4. Carefully unscrew the objective and remove it from the optical head casing.

5. Mount any available objective with other focal length and put the smooth focus handle into the position convenient for work.

6. Screw the objective locking ring against the stop.

7. Mount the П-like handle by screwing respective screws.



6.2. Binocular head replacement

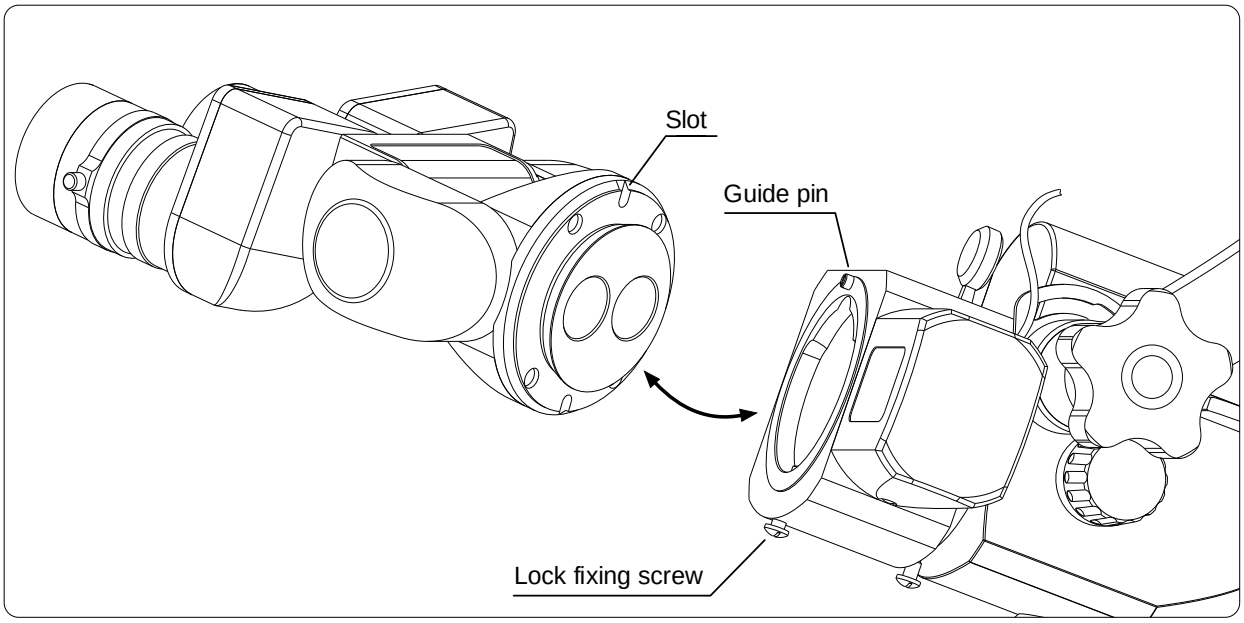
1. Put the optical head into upright position as shown on the figure below in order to avoid possible damage of the optical components.

2. Hold the binocular head and unscrew the lock fixation screw.

3. Carefully remove the binocular head.

4. Mount another binocular head by aligning the guide pin on the optical head casing or another unit mounted onto the optical head with the slot of the binocular head.

5. Tightly press the mating parts hold them together and fix them with the fixation screw.



6.3. Installation of the video system

1. Put the optical head into the maximal possible horizontal position as shown on the figure below in order to avoid possible damage of the optical components.

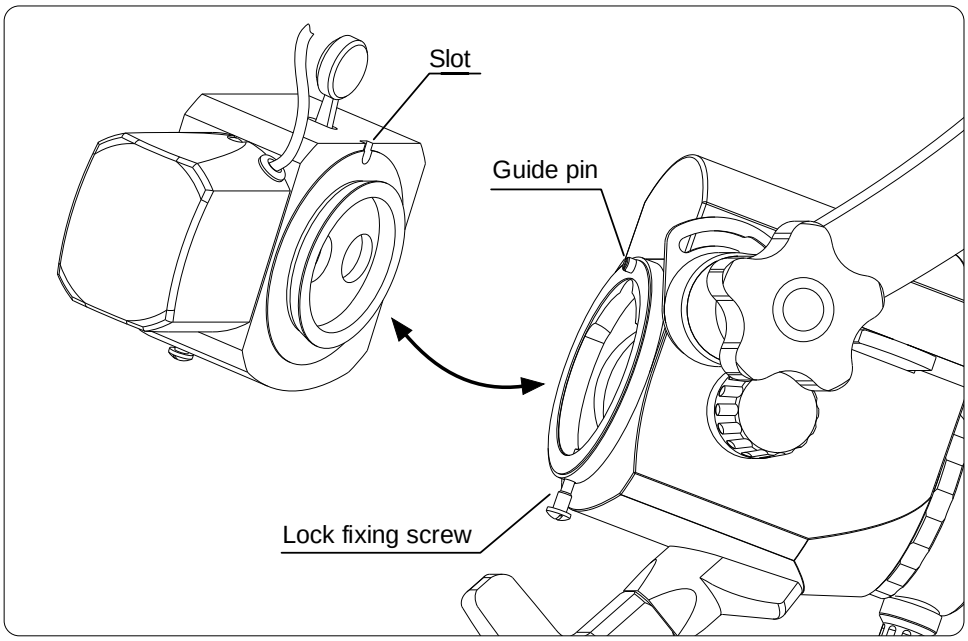
2. Remove the binocular head and (if applicable) other optical units from the optical head casing by unscrewing the fixation screws.

3. Align the guide pin on the optical head casing with the slot on the video system casing.

4. Tightly press the mating parts hold them together and fix them with the fixation screw.

5. Mount the binocular head and (if applicable) other optical units onto the video system casing using the same method.

6. Insert the USB 2.0 video system plug into the slot on the PSU as described in the section 5.7.



6.4. Mounting of optical units and accessories

All additional units and accessories, such as:

– 45º binocular adapter,

– binocular rotation ring;

– replaceable diaphragms unit;

– 20/80 optical channel divisor

are to be mounted onto the optical head casing in the order and sequence described in the section 3.3. They are mounted by the same principle as the video system (section 0).

1. Unscrew the lock fixation screw on the optical unit.

2. Align the guide pin of the respective unit with a slot on the casing of the mating unit.

3. Tightly press the mating parts hold them together and fix them with the fixation screw.

6.5. Mounting of adapters for digital and endoscopic cameras

The adapters for digital and endoscopic cameras are installed onto the 20/80 optical channel divisor casing mounted onto the microscope's head.

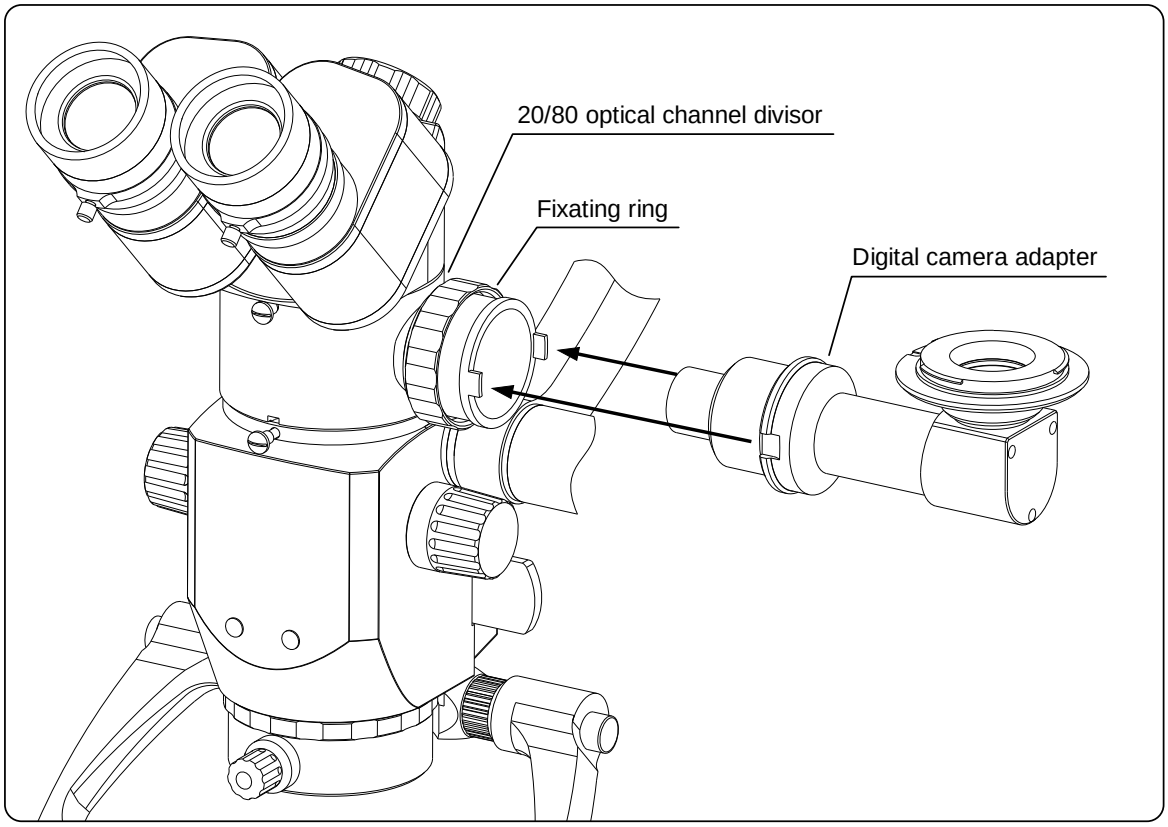
Only one adapter can be mounted at one time.

Guidelines for mounting of a digital camera adapter are given below.

1. Unscrew the fixating ring on the optical channel divisor casing and remove the plug closing the optical channel.

2. Mount the digital camera adapter aligning the lugs on the optical channel divisor with the slots on the adapter casing to obtain a lock as shown on the figure below.

3. Screw the fixation ring against the stop.



The endoscopic camera adapter has the same mounting mechanism and is mounted onto the optical channel divisor is performed by the same principle and in the same order.

6.6. Mounting of the extension lever

ATTENTION. If the microscope has already been put into operation and is connected to the network, its additional components are installed or its components are replaced after the cables are disconnected in reverse order (section 5.7).

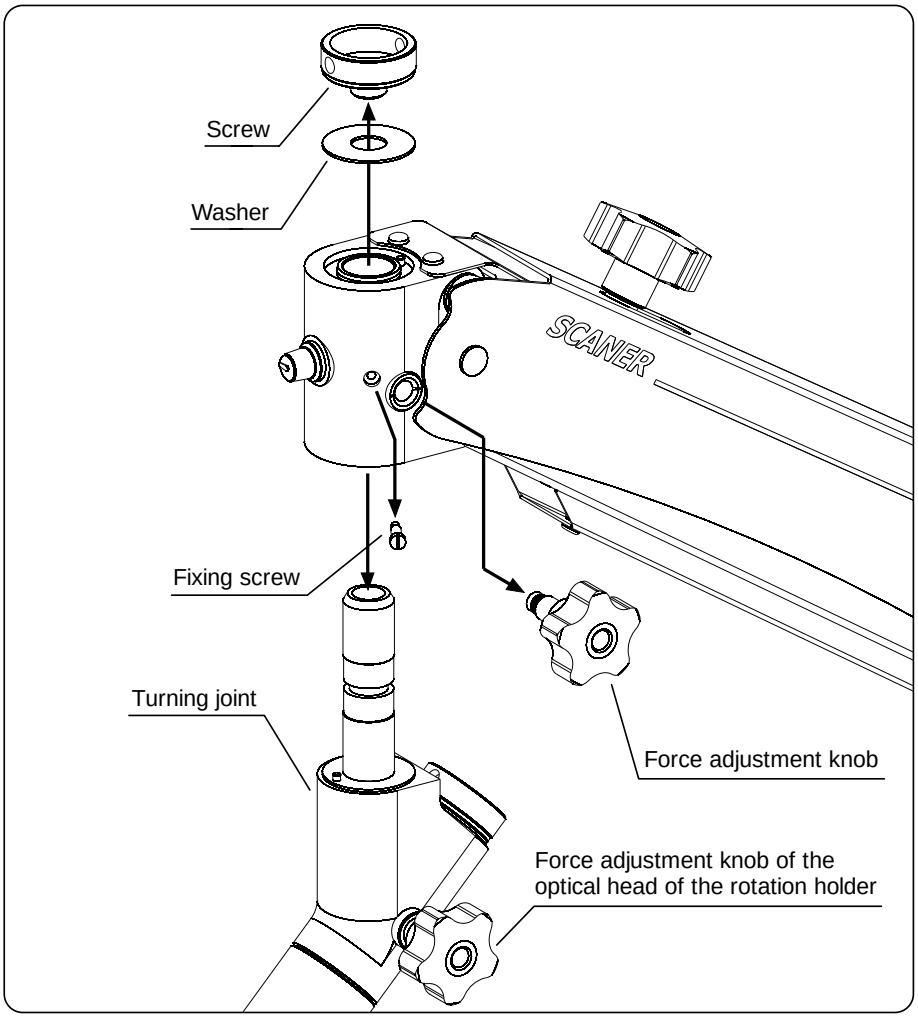
1. Remove the turning joint with the optical head mounted onto from the pantograph detached lever, performing the following steps:

a) Lock the rotation of the optical head arm using the handle on the turning joint casing in order to prevent spontaneous rotation;

b) Securely hold the optical head arm and completely unscrew the rotation force adjusting knob and then unscrew the fixation screw on the pantograph lever casing;

c) Completely unscrew and remove the screw and the washer from the turning joint axis using the screwdriver as a wrench inserted into the openings of the screw;

d) Remove the turning joint.



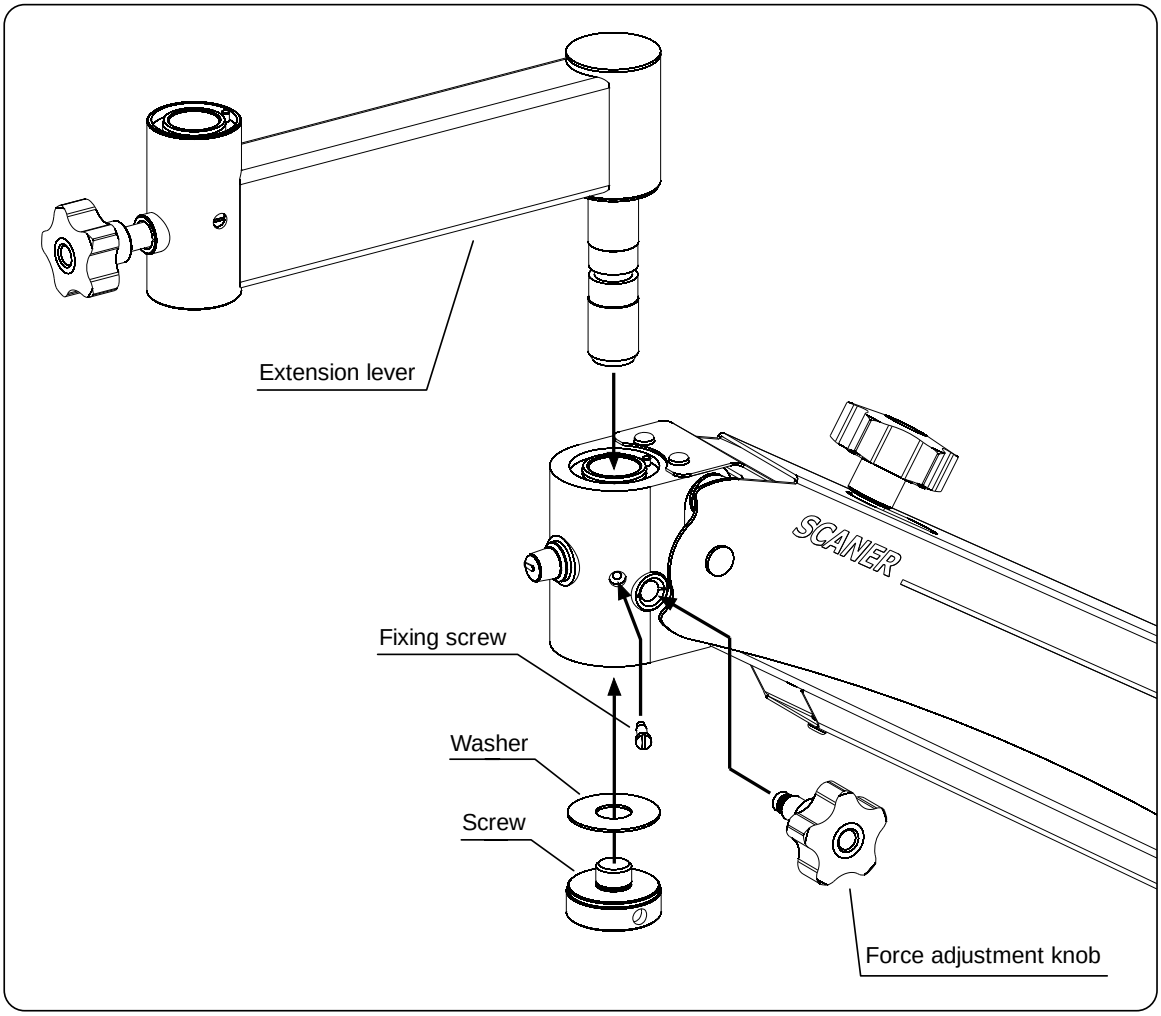
2. Mount the extension lever onto the pantograph detached lever, performing the following steps:

a) completely unscrew and remove the screw and the washer from the extension lever axis using the screwdriver as a wrench inserted into the openings of the screw;

b) put the axis of the extension lever uprightly into the pantograph lever cartridge avoiding inclination;

c) screw the rotation force adjusting knob and the fixation screw into the pantograph lever casing;

d) put the washer back screw the screw onto the extension lever axis.



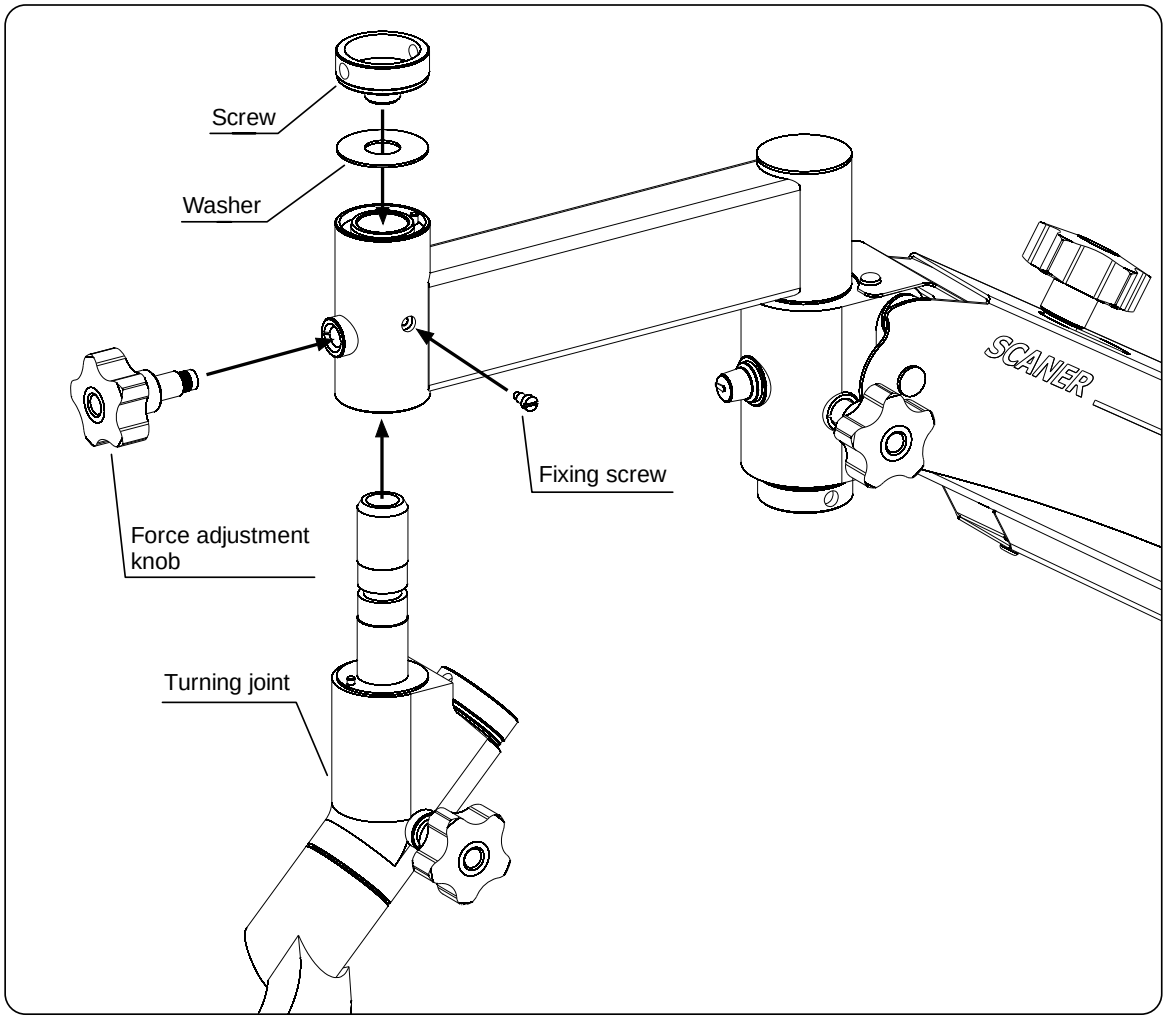
3. Mount the turning joint with an optical head onto the extension lever, performing the following steps:

a) completely unscrew the rotation force adjusting knob and fixation screw on the extension lever casing;

b) put the axis of the turning joint uprightly into the extension lever cartridge avoiding inclination;

c) put the washer and screw the screw onto the turning joint axis using the screwdriver as a wrench inserted into the openings of the screw;

d) screw the rotation force adjusting knob and fixation screw into the extension lever casing.



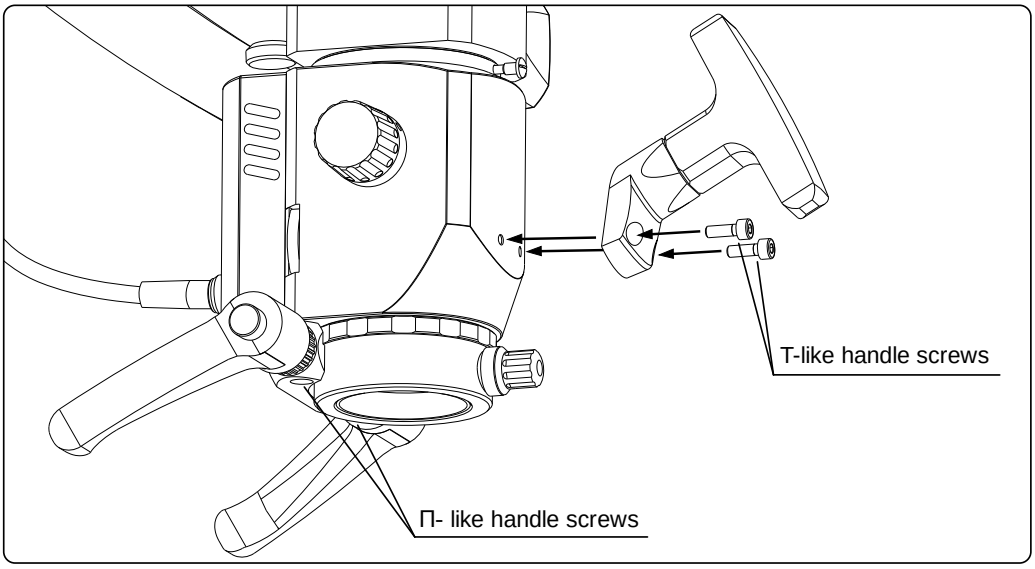
If the microscope is supplied without the turning joint, the optical head arm is mounted onto the extension lever as described in the section 5.6.

6.7. Mounting of the T-like handle

1. Remove the plugs on the optical head casing.

2. Place the handle on the optical head so that the openings in its casing coincide with the openings in the optical head casing.

3. Mount the handle using the screws from the delivery set.



If necessary remove unused basic П-like handle.

7. Operation

The instructions for the safe use and right exploitation of the microscope are given below.

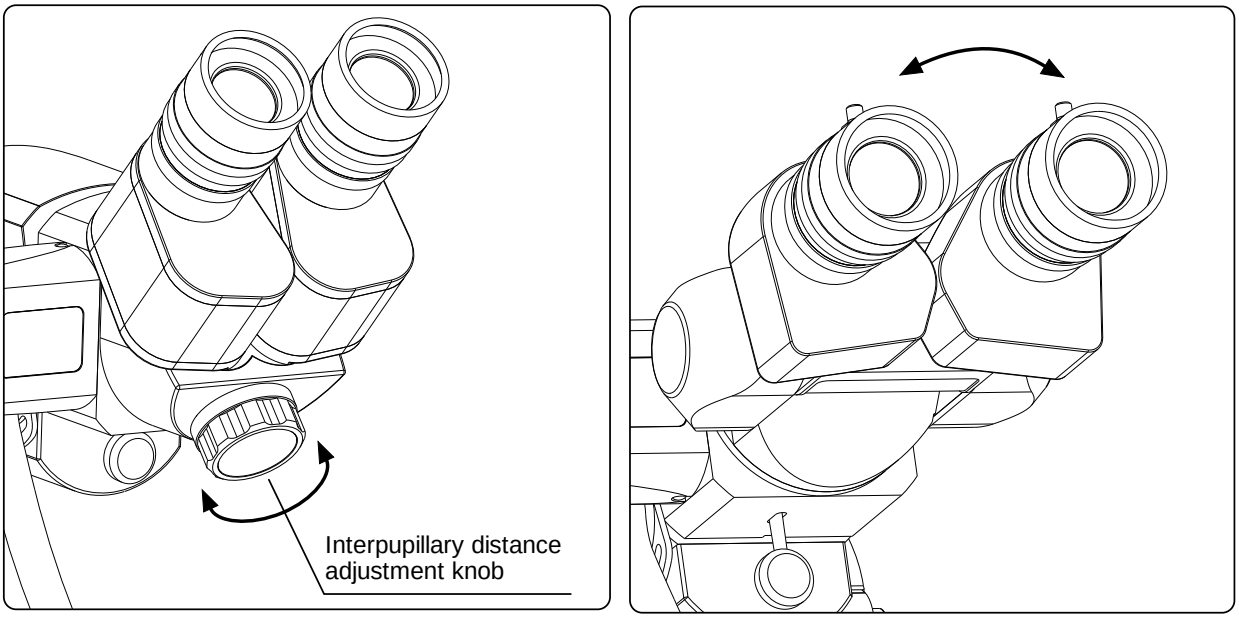
ATTENTION. Prior to the start of the use of the microscope ensure that all components of the microscope are correctly assembled and connected and that all locking and regulating handles are securely fixed and safely locked..

WARNING. Each component of the microscope possesses its own range of movement which is limited by a locker. Do not try to widen this range moving the microscope over these limits.

7.1. Interpupillary distance variation

To obtain a stereoscopic image, the distance between the oculars must be adjusted according to the interpupillary distance of the user. The interpupillary distance mm. In order to change this distance on the 45º binocular head look into the oculars and turn the adjusting knob until the images of the observed object of the right and left channel overlap completely. For the binocular head with variable ±90º ocular tilt angle and the head with 0º ocular tilt angle the interpupillary distance is changed by turning of the oculars with the both hands until the images of the observed object of the right and left channel overlap completely.

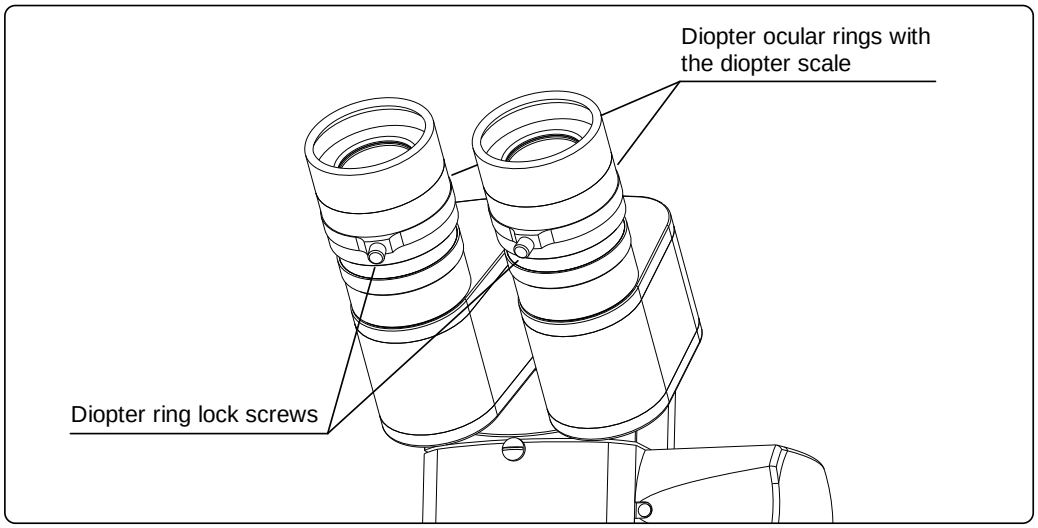
The figure below shows how to change the interpupillary distance for the binocular head with 45º ocular tilt angle and the binocular head with variable ±90º ocular tilt angle.



7.2. Ocular diopter adjustment

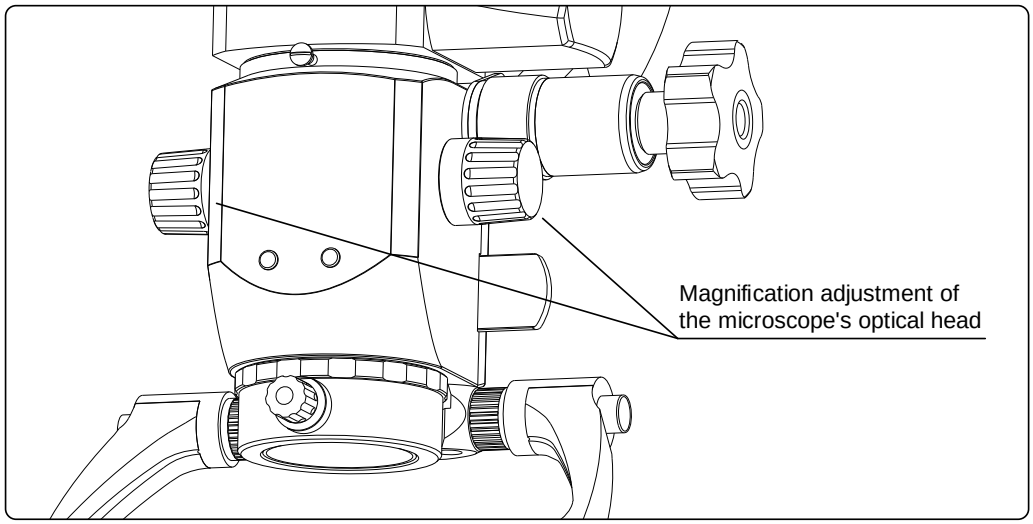
The oculars have a possibility of diopter correction within the range of +5 -5 diopter due to which the microscope can be used by doctors with ametropia without necessity to wear glasses.

1. Loosen fixation screws of the diopter rings.
2. Turn the diopter rings around the axis and adjust them in accordance with eye diopter parameters according to the diopter scale on the ocular casing.
3. Fix the diopter rings position with the help of fixation screws.



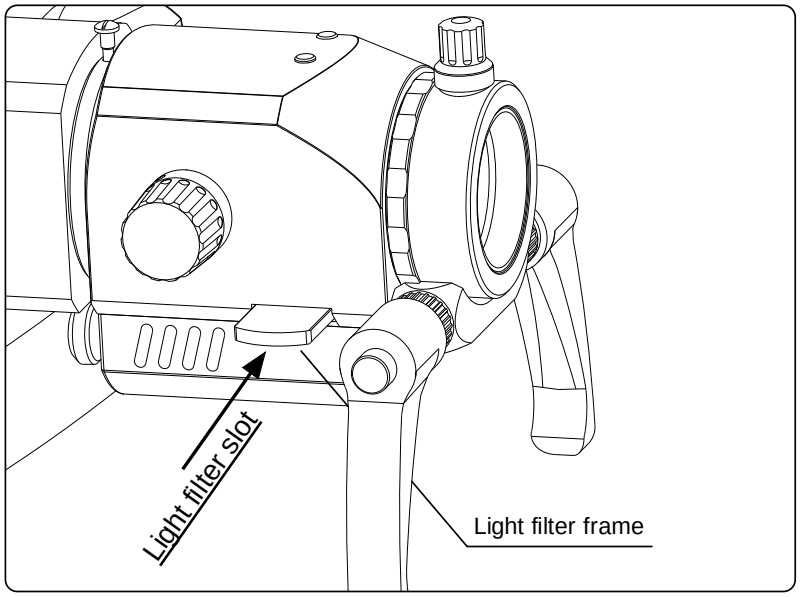
7.3. Changing of the optical system magnification

In order to change the magnification of the optical system of the microscope turn the magnification adjustment knobs (6 positions) which are situated on the both sides of the optical head. The knobs are marked with respective magnification rate of the optical head. Please note that the total magnification rate of the microscope's optical system depends on the mounted objective and oculars (section 4.1)



7.4. Light filter use

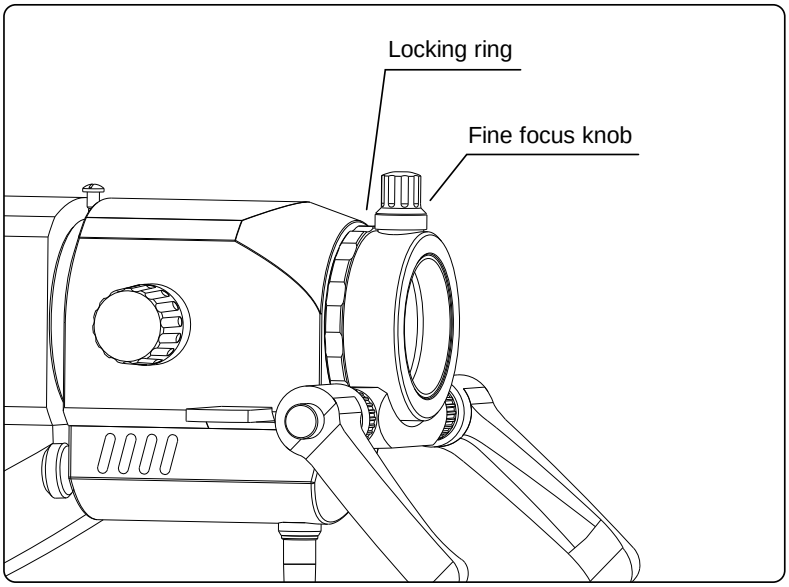
The coaxial illuminator has a built-in light filter inserted into the light channel by shifting of the light filter frame. To insert the light filter shift the frame to the right until you hear clicking. To remove the light filter shift the frame to the left until you hear clicking.



7.5. Fine focus of the objective

All mounted objectives have a fine focus mechanism that allow adjusting visible image sharpness within 12 mm range without moving of the microscope head. To adjust the image sharpness, rotate the fine focus knob of the objective placed on the objective casing.

By slightly unscrewing the stopper ring of the objective and rotating the objective, the fine focus knob can be put into convenient position. Then lock the objective with the stopper ring.



7.6. Video system use

The video system is intended for viewing of colored images of the investigated region in the real time mode and the images with the high resolution, which are saved in the database of the software supplied with the video system.

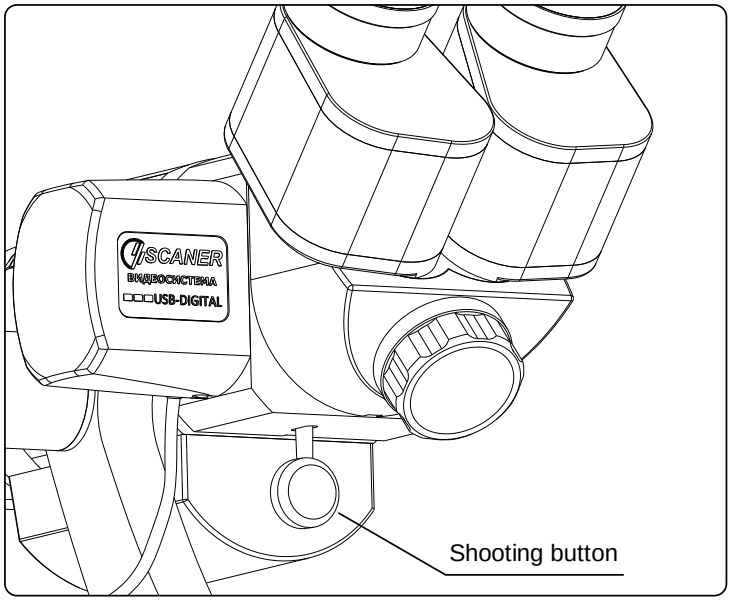
1. If the microscope is ordered with the video system it is supplied with the pre-installed video system. If the video system is ordered separately it should be connected to the microscope using the guidelines from the section 0.

2. Connect the video system to the computer.

3. Install the appropriate software (see software user guide).

4. Please read the software user guide for the video system.

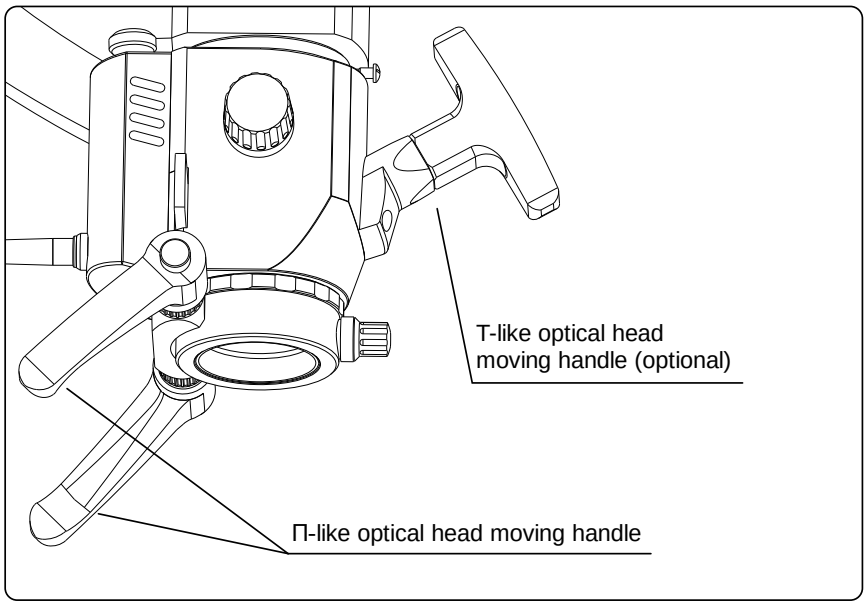
5. To get the photo of the investigated object press the shoot button on the video system casing (this function is available only if the corresponding software for this video system is used).



7.7. Moving of the optical head

The microscope's construction foresees all necessary movable elements for placing of the microscope's head into the position which is convenient for work. The optical head is moved with the help of Π-like handle with varying tilt angle or of the central T-like handle which is supplied additionally (optional).

To change the tilt angle of the Π-like handle, draw the handles to the opposite sides and after that rotate them to obtain the necessary angle and pull them down until you hear characteristic clicking. The tilt angle can be changed for every handle separately. Ensure that the handles are locked.



7.8. Rotation fixing and adjustment of smooth running

Rotation fixing and adjustment of smooth running of microscope moving elements are carried out by the knob rotation located on its enclosure.

PROHIBITED. To unscrew completely and remove knobs of adjustment and fixing of running force of microscope moving elements during microscope operation.

ATTENTION. The rules of adjustment of pantograph spring lever tilt force are not described in the manual. The tilt force is adjusted during microscope manufacture, separately for each configuration at the manufacturing plant. In case of need to adjust the tilt force, for example, after supplementary accessories installation, contact the manufacturer or its representative.

- The smooth rotation of power unit around the axis of the stand base and pantograph spring lever around the power unit are adjusted by the rotation of suitable knobs located on the power unit enclosure up to the maximum rotation fixing.

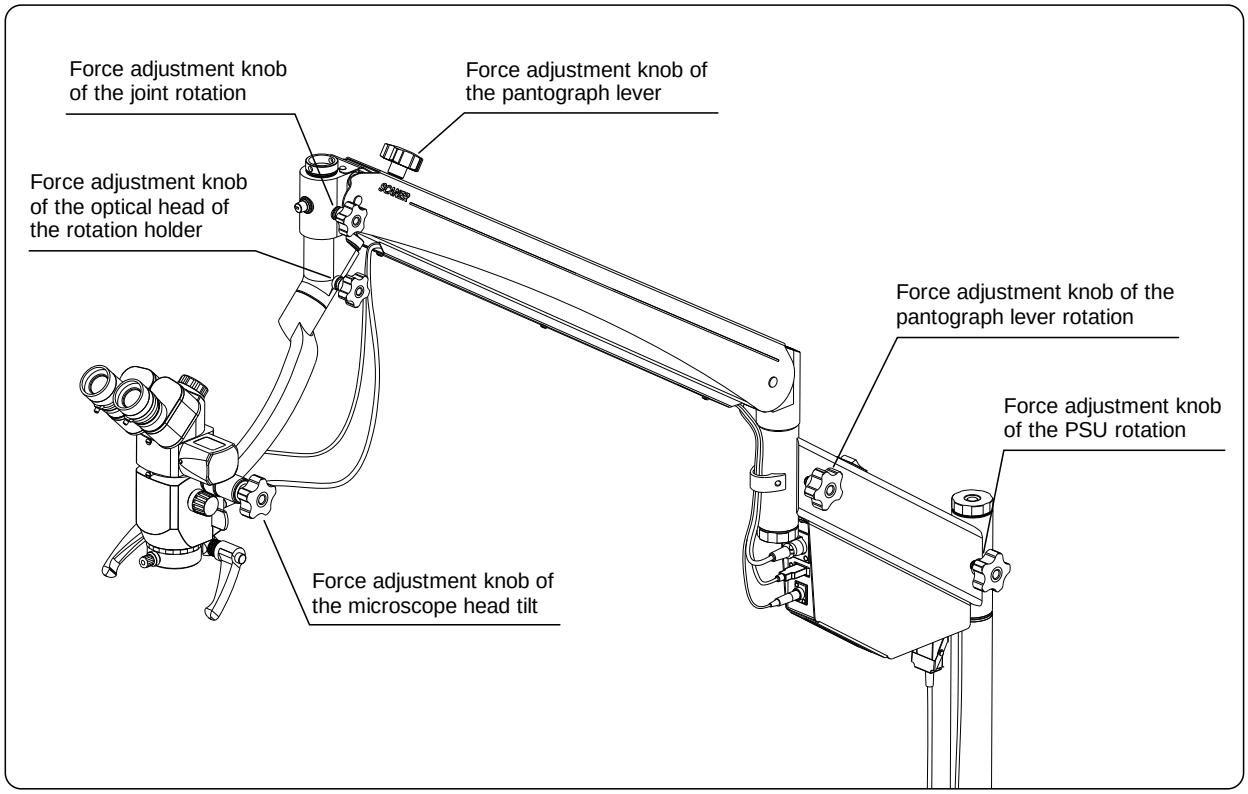
- The force applied to the vertical travel of pantograph spring lever is adjusted by the knob rotation located at the top part of the pantograph lever up to the maximum movement fixing.

- The smooth rotation of the rotary joint is adjusted by the knob rotation located on the pantograph lever up to the maximum rotation fixing.

- The smooth rotation of the holding carrier of the microscope head around the rotary joint is adjusted by the knob rotation located on the rotary joint up to the maximum rotation fixing.

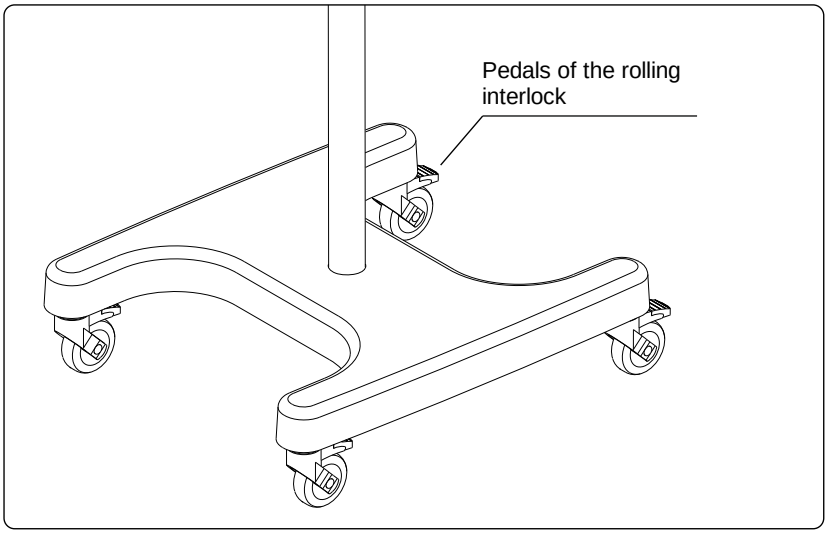
• The force applied to the microscope head tilt towards the holding carrier is adjusted by the knob rotation located on the carrier case up to the maximum fixing of the tilt angle.

• In case of extending lever use the smooth rotation of the rotary joint is adjusted by the knob rotation located on its enclosure up to the maximum rotation fixing.



7.9. Microscope moving

The moving of the microscope mounted on the floor stand at the castor wheels is carried out by holding the stand knob or the knob itself directly. For convenience the knob can serve as a hook for the winding of power cable when moving the microscope. The locking of castor wheels rolling is carried out by pressing the pedal interlock, separately for each wheel.



ATTENTION. Before the microscope displacement the power supply should be disconnected.

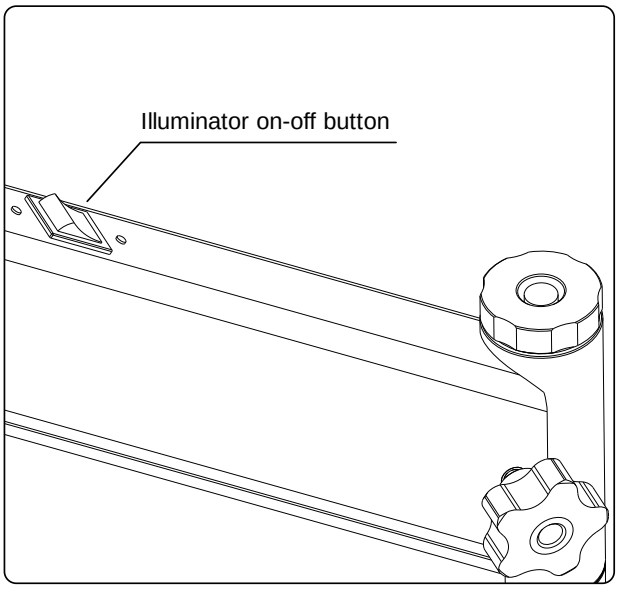
ATTENTION. Before the microscope displacement make sure that no one is in close proximity and there are no objects that could interfere with the displacement.

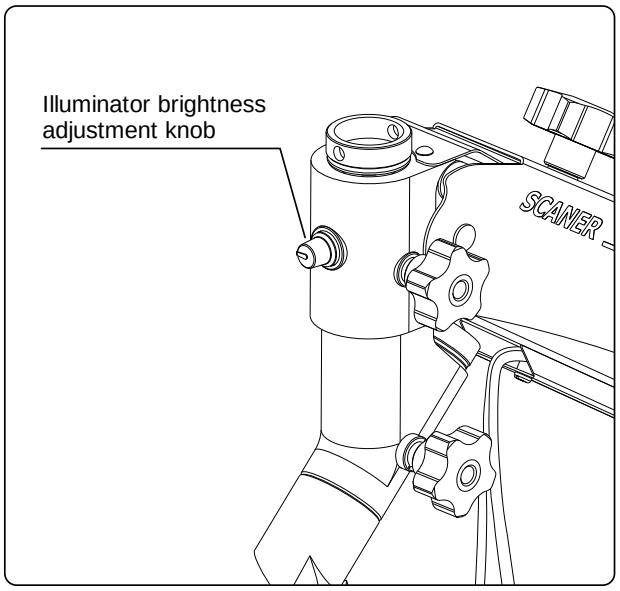
7.10. Switching and brightness adjustment of the illuminator

ATTENTION. Before switching the illuminator make sure that the power supply cable plug and brightness adjustment systems of the illuminator are connected to the suitable hubs and securely fastened.

The illuminator power supply is provided by the microscope power unit connected to the network of single-phase AC 220V. At the top of the power supply unit there is a power switch of the illuminator with the light indication of switching. Illumination brightness is adjusted by the knob rotation of light adjustment located on the enclosure of the pantograph spring lever.

The pantograph lever of the baseline has an automatic system of supply disconnection (end switch) of the illuminator during microscope head displacement n its uppermost position.





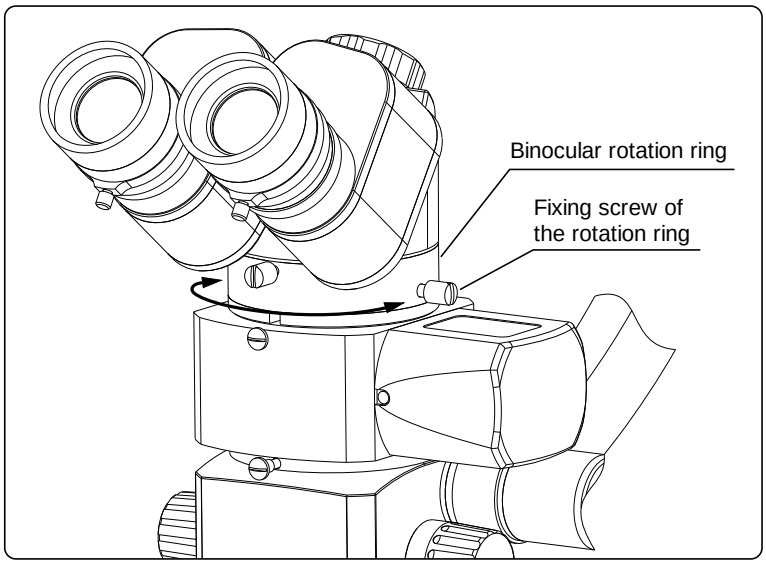
7.11. Turn of the binocular head

The turn of the binocular head 30º around the optical axis of the microscope is adjusted by the binocular rotary ring (optional) installed between the optical head and a binocular head.

1. Loosen (do not unscrew completely) screw of rotation fixing on the case of the rotary ring.

2. Turn the binocular head to the desired angle.

3. Fix the angle and hold the screw of rotation fixing until it stops.



8. Microscope care

To ensure safe and reliable operation of the microscope it is necessary to check the cleanliness of the external surfaces of the optical components each time you prepare microscope for work and after use. If the outer surfaces of the microscope or its optical parts are dirty, it is necessary to conduct cleaning and disinfection procedures described hereinafter.

ATTENTION. Before cleaning unplug the microscope from the power line..

ATTENTION. When operating the microscope there is a risk of getting the patient's tissues on its surface that can potentially contain the infection. In such cases it is necessary to carry out the cleaning and disinfection of the microscope using personal protective equipment.

8.1. Cleaning and disinfection of external surfaces

1. In case of dirtying of the microscope surfaces except for optical components it is necessary to wipe them with a clean cotton cloth soaked in a 3% solution of hydrogen peroxide with 0.5 % cleansing agent conforming to GOST 2972.

ATTENTION. Make sure that the hydrogen peroxide and cleansing agent do not get into the internal surface of the microscope and in the cavity between its moving nodes, otherwise it may lead to a breakdown.

2. After cleaning and disinfection the surfaces of the microscope must be completely dry before use.

8.2. Cleaning of the optical components

1. If the surfaces of the optical components are dirty, clean them with a cotton pellet or clean lint free cotton cloth soaked in 70% ethyl alcohol, then with a dry cotton pellet.

2. After cleaning the surface of optical components must be completely dry before working with a microscope.

3. For preventing the microscope getting dirty at a time when it is not in work, use the cover by sliding it onto the optical head.

9. Common troubles and remedies

This section lists the problems that you might encounter when working with a microscope, as well as their possible causes and remedies.

If a fault occurs, refer to recommendations for its removal. If the problem remains and there is no recommendation, contact the manufacturer or the authorized representative of the manufacturer.

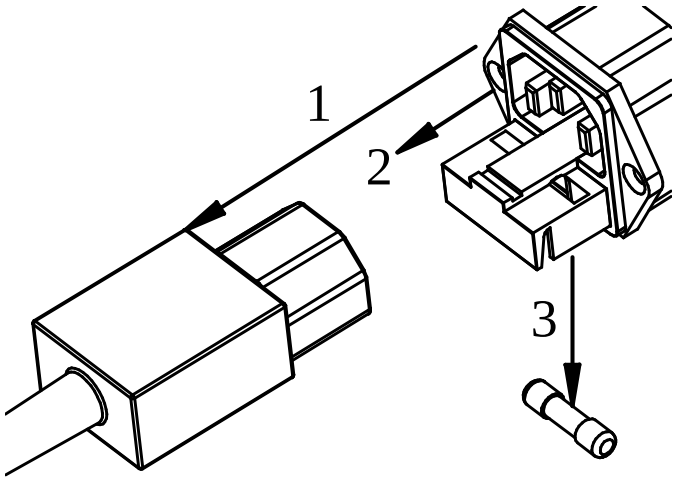
ATTENTION. When troubleshooting is related to the power supply and cleaning of optics, you must first disable the microscope from the mains.

Malfunction symptoms	Possible cause	Remedy
The indicator “Network” is not on at the power switch button	No supply voltage 220 V, 50 Hz	Connect the microscope to a working mains with a voltage of 220 V, 50 Hz
	No contact in the network connector of the power supply unit, the power cable is not plugged securely	Unplug the power cable from the power supply unit, check the cable for mechanical damage and in their absence, reconnect, make sure the setup is secure and fixing the network plugs
	The fusing element (fuse) is out of order	Replace the fusing element (fuse) to the new one from the delivery set (section 9.1)
No light of the illuminator diode, the indicator “Network” is on at the power switch button	No contact in the power cable connector of the illuminator	Disconnect the cable of the illuminator from the power supply unit and optical head, check the cable for mechanical damage and in their absence, reconnect, make sure the setup is secure and fixing plugs into the appropriate slots
The image of the object is blurred	The outer surface of the lens optics is dirty	Clean the outer surface of the optical components (section 8.2)
	The outer surface of the eyepiece optics is dirty	
Left and right visual fields do not match	The eyepiece interpupillary distance does not correspond to the distance between the pupils of the user's eye	Adjust the interpupillary distance (section 7.1)
The image of the object out of focus	The focal distance of the object is not properly preconditioned	Locate the lens of the microscope head away from the object of observation, according to its focal distance. Move the microscope head closer to or further from the object until the image is sharp
		Rotate the lever of the lens fine focus mechanism, until the image is sharp (Section 7.5).
Eyes get tired during the monitoring	Eyepiece diopter adjustment is exhibited wrong	Adjust the eyepiece diopters (Section 7.2)

9.1. The replacement of the fusing element (fuse)

The fusing element (fuse) is located inside a special compartment of the fuse holder in the case of the network connector on the power supply.

The following is a procedure under the replacement of the fusing element.



1. Disconnect the plug of the microscope power cable 1.

2. Pull the compartment of the fusing element 2.

3. Pull the fusing element 3, and replace it with a new set of spare parts.

4. Close the compartment of the fusing element and connect the plug of the power cable of the microscope.

ATTENTION. The plug of the power cable of the microscope must be fixed by a special holder to prevent inadvertent disconnection.

10. Manufacturer's warranty

All products manufactured by Scaner Scientific and Investigational Center Limited liability company (Scaner SEC) have been tested and have guarantees of the absence of defects in materials and assembly, as well as compliance with declared characteristics. If MD-500 microscope or its components or accessories that have been properly used in proper conditions fail to perform their functions due to defects in production process, assembly or materials, Scaner SEC shall repair them and replace them with the similar parts.

The warranty period for this product amounts to 5 years since the day of its purchase, and in case it must be put onto operation by an authorized representative the warranty term begins since the day of **commissioning but no later than 3 months after the date of purchase.**

The warranty term begins on the day the user receives the product in case of documented confirmation of the receipt date. If it is impossible to determine the receipt or commissioning date the warranty period begins on the day of signature of the purchase agreement.

Scaner SEC shall be responsible for repair and replacement of the faulty components during the warranty period at its own expense.

The product can be accepted for warranty service (repair) only in case it is given with the Operation manual (passport) with the appropriate records made by the manufacturer and the purchaser in a warranty card and if there are no damages of the product due to incorrect operation which could lead to the product failure. The warranty period of the product is extended for the repair period.

Products damaged as the result of an accident, casual handling, outside interference into the product's mechanism, natural disasters or power network failures are not covered by this warranty.

On the expiry of the warranty period the repair of the product which is out of order is performed at customer's costs by Scaner SEC.

ATTENTION. If you have any questions regarding commissioning of the microscope and its warranty service please contact the Service Center of Scaner SEC Ltd.

Phone/fax: +38(0472) 55-27-35(34) *E-mail: service@scaner.ck.ua*

Toll-free calls in Ukraine from landline phones.
Phone 0-800-30-10-19

11. Acceptance certificate

MD-500 Microscope – Medical devise

Factory (serial) No _____, complies with the specification TU U 32.5-14180968-008:2014 and is accepted as ready for operation.

Date _____ Signature _____

(year, month, day) *(inspector responsible for the acceptance)*

SEAL

Delivery set

Factory (serial) No. _____

Mount system:

- ☐ floor stand (stand – 1 pc, wheeled base – 1 pc);
- ☐ wall mount (mount – 1 pc, anchor bolts – 4 pcs);
- ☐ ceiling mount (mount – 1 pc, rod – 1, anchor bolts – 4 pcs).

☐ **PSU.**

Lever system:

- ☐ pantograph detached lever;
- ☐ rotating joint;
- ☐ extension lever.

☐ **Optical head.**

Objective:

- ☐ f=200 mm; ☐ f=250 mm; ☐ f=300 mm;
- ☐ f=350 mm (no fine focus); ☐ f=400 mm (no fine focus).

Binocular head:

- ☐ with ±90° variable ocular tilt angle;
- ☐ with 45° ocular tilt angle;
- ☐ with 0° ocular tilt angle.

Oculars:

- ☐ 12.5 x; ☐ 16 x.

Light filter:

- ☐ cyan; ☐ orange.

Optical head moving handle:

- ☐ П-like; ☐ T-like.

Additional components, accessories:

- ☐ Sony photosystem
(20/80 optical channel divisor – 1 pc, Sony camera adapter – 1 pc);
- ☐ Canon photosystem
(20/80 optical channel divisor – 1 pc, Canon camera adapter – 1 pc);
- ☐ USB 2.0 digital video system;
- ☐ binocular rotation ring;
- ☐ 45° binocular adapter.

Accessories:

- ☐ Sony digital camera _____;
- ☐ Canon digital camera _____;
- ☐ memory card _____ GB;
- ☐ photosystem cable kit.

☐ **SPA**

☐ **Documentation**

Checked by: _____

"SEC "Scaner" Ltd.
18019 Ukraine, Cherkasy,
122/1 Smelyanska St.
E-mail: sr@scaner.ck.ua *http://www.scaner.ck.ua*
Phone/fax: +38(0472) 55-27-35(34)
Toll-free calls in Ukraine from landline phones.
Phone. 0-800-30-10-19

Warranty card

for repair (replacement) during the warranty period

MD-500 Microscope – Medical devise

TU U 32.5-14180968-008:2014

(completed by the manufacturer)

Factory (serial) No. _____

Date of manufacture _____
(year, month, day)

S. V. Bereza _____ Seal
(surname and initials of the responsible person) *(signature)*

(completed by the seller)

Seller _____
(name of the selling company)

Date of sale _____
(year, month, day)

Seal and signature of the seller _____ Seal
(signature)

(completed by the performer in case when commissioning is necessary)

Performer _____
(organization of person responsible for commissioning)

Commissioning date _____
(year, month, day))

Seal and signature of the responsible person (performer) _____ М.П.
(signature)

Signature of the customer confirming completion of the commissioning works

_____
(signature)

Stub of detachable coupon No 1
For repairs (replacement) within the warranty period
Extracted _____ (year, month, day)
Signature of the responsible person _____ (signature)

"SEC "Scaner" Ltd.
122/1 Smelianskaya str., 18019, Cherkassy, Ukraine
Phone/fax: +38(0472) 55-2- 34(35), 0-800-30-10-19
E-mail: sr@scaner.ck.ua

DETACHABLE COUPON No. 1

For repairs (replacement) within the warranty period
Medical device – MD-500 Microscope
TU U 32.5-14180968-008:2014

(filled in by the manufacturer)

Factory (serial) No _____ Date of manufacture _____ *(year, month, day)*

S. V. Bereza _____ SEAL
(full name of the responsible person) *(signature)*

(filled in by a seller)

Seller _____ *(name of the selling organization)*

Date of sale _____ *(year, month, day)* Signature and seal of the seller _____ SEAL *(signature and seal)*

Stub of detachable coupon No 2
For repairs (replacement) within the warranty period
Extracted _____ (year, month, day)
Signature of the responsible person _____ (signature)

"SEC "Scaner" Ltd.
122/1 Smelianskaya str., 18019, Cherkassy, Ukraine
Phone/fax: +38(0472) 55-2- 34(35), 0-800-30-10-19
E-mail: sr@scaner.ck.ua

DETACHABLE COUPON No. 2

For repairs (replacement) within the warranty period
Medical device – MD-500 Microscope
TU U 32.5-14180968-008:2014

(filled in by the manufacturer)

Factory (serial) No _____ Date of manufacture _____ *(year, month, day)*

S. V. Bereza _____ SEAL
(full name of the responsible person) *(signature)*

(filled in by a seller)

Seller _____ *(name of the selling organization)*

Date of sale _____ *(year, month, day)* Signature and seal of the seller _____ SEAL *(signature and seal)*

Stub of detachable coupon No 3
For repairs (replacement) within the warranty period
Extracted _____ (year, month, day)
Signature of the responsible person _____ (signature)

"SEC "Scaner" Ltd.
122/1 Smelianskaya str., 18019, Cherkassy, Ukraine
Phone/fax: +38(0472) 55-2- 34(35), 0-800-30-10-19
E-mail: sr@scaner.ck.ua

DETACHABLE COUPON No. 3

For repairs (replacement) within the warranty period
Medical device – MD-500 Microscope
TU U 32.5-14180968-008:2014

(filled in by the manufacturer)

Factory (serial) No _____ Date of manufacture _____ *(year, month, day)*

S. V. Bereza _____ SEAL
(full name of the responsible person) *(signature)*

(filled in by a seller)

Seller _____ *(name of the selling organization)*

Date of sale _____ *(year, month, day)* Signature and seal of the seller _____ SEAL *(signature and seal)*

Performer ____
(name of the company, enterprise)

Reason for repairs	Type of repairs	Date of repairs	Signature of the performer

______________________________ (full name of the responsible person) ____________ (signature)

Signature of the customer to certify the warranty repairs

____________ (signature)

Performer ____
(name of the company, enterprise)

Reason for repairs	Type of repairs	Date of repairs	Signature of the performer

______________________________ (full name of the responsible person) ____________ (signature)

Signature of the customer to certify the warranty repairs

____________ (signature)

Performer ____
(name of the company, enterprise)

Reason for repairs	Type of repairs	Date of repairs	Signature of the performer

______________________________ (full name of the responsible person) ____________ (signature)

Signature of the customer to certify the warranty repairs

____________ (signature)