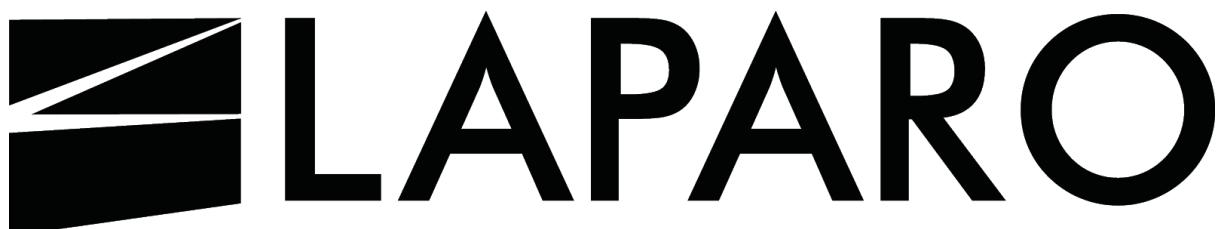


USER'S MANUAL OF
the laparoscopic trainer
LAPARO ADVANCE



Manufacturer's data

Laparo Sp. z o. o.

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CAUTION

Please get familiar with this manual. The product should be used in accordance with the manual. Incorrect use may damage the device or can be dangerous for the user.

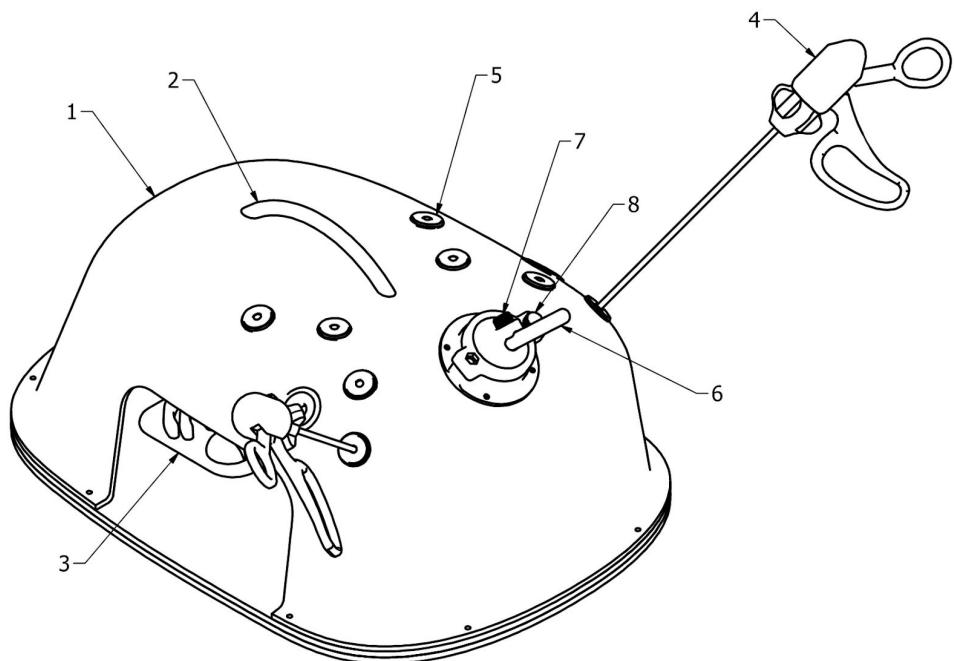
INTRODUCTION

LAPARO ADVANCE is a laparoscopic surgery trainer to be used for training purposes by resident and specialist doctors. The product is a device helping to obtain and to practice manual skills needed during laparoscopic surgeries. The structure of the device imitates the conditions during a surgery. Movement tracking is done on the screen of a computer. The device is compatible with training modules intended for diverse training.

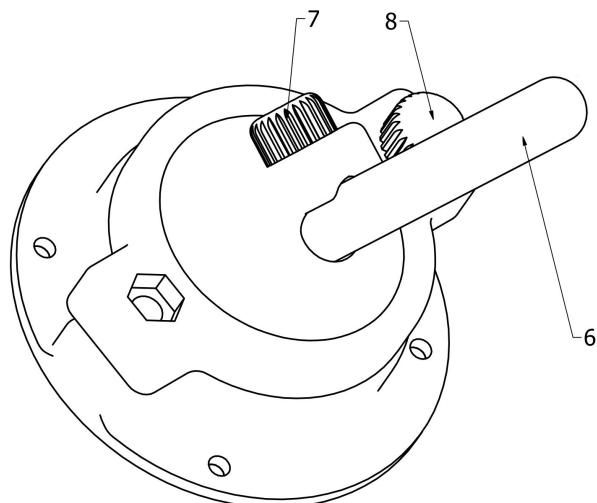
SAFETY

- The device is for the use of adults only.
- The device should be kept beyond the reach of children. This product is not a toy.
- Be careful when using laparoscopic devices, in particular the surgery needle and laparoscopic scissors. Unwary use of these devices and leaving them unsecured may result in bodily injuries.
- The device can be safely disconnected by removing the USB plug from the slot. The device does not use high voltage.
- After the service life of the device is finished, neither the device nor its parts can be disposed at the community waste.
- The producer is not responsible for the device which has been modified in any way by the user.

STRUCTURE OF THE DEVICE AND ITS PARTS



Drawing no. 1. Drawing of the device



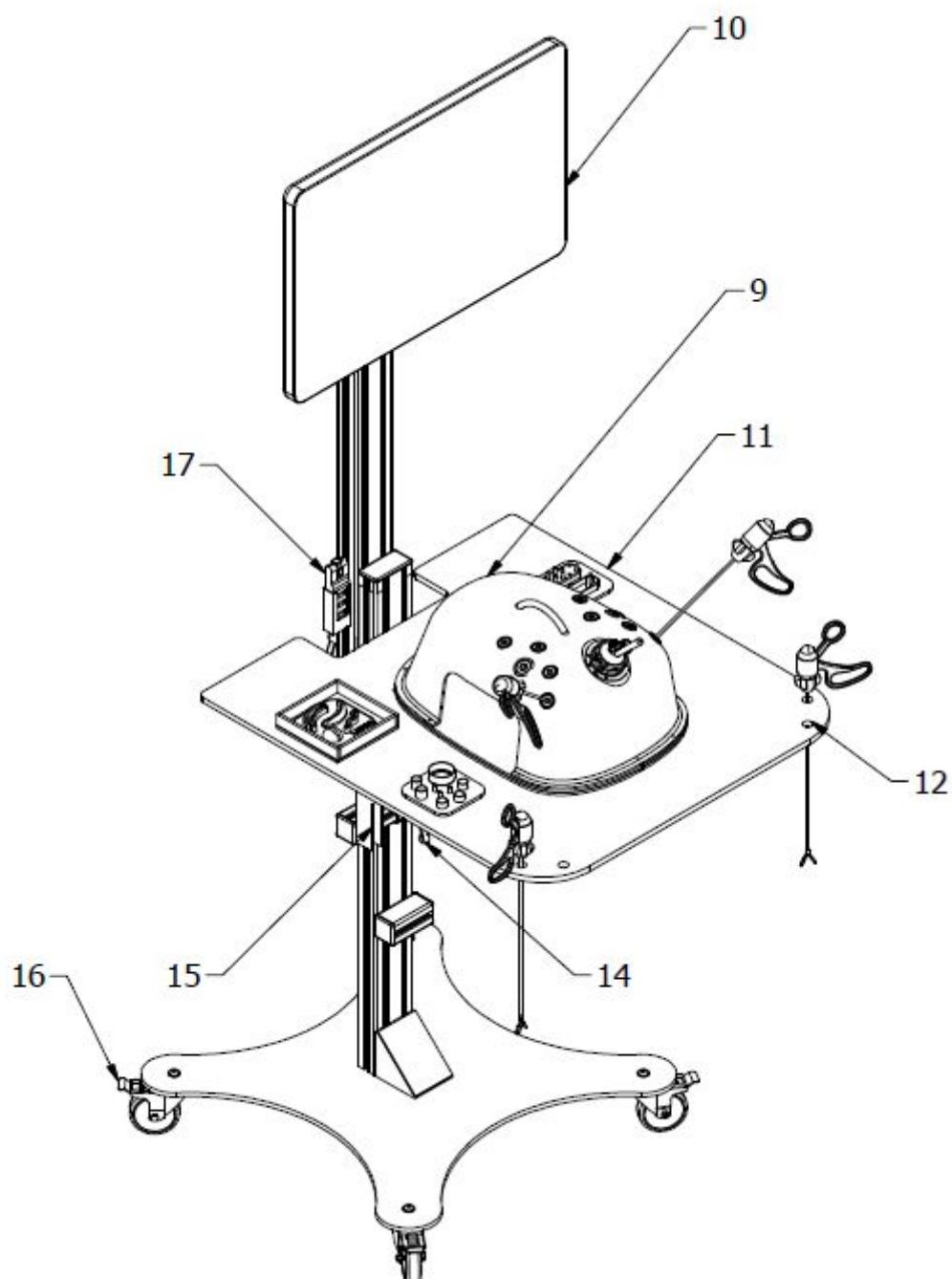
Drawing no. 2. Drawing of the ball joint

1. Casing
2. Transporting handle
3. Training module inside the device
4. Laparoscopic instrument
5. Trocar / pass-through which allows to insert the tip of the instrument inside the device
6. Camera handle
7. Adjusting screw - sliding the camera in / out
8. Adjusting screw - tilting the camera

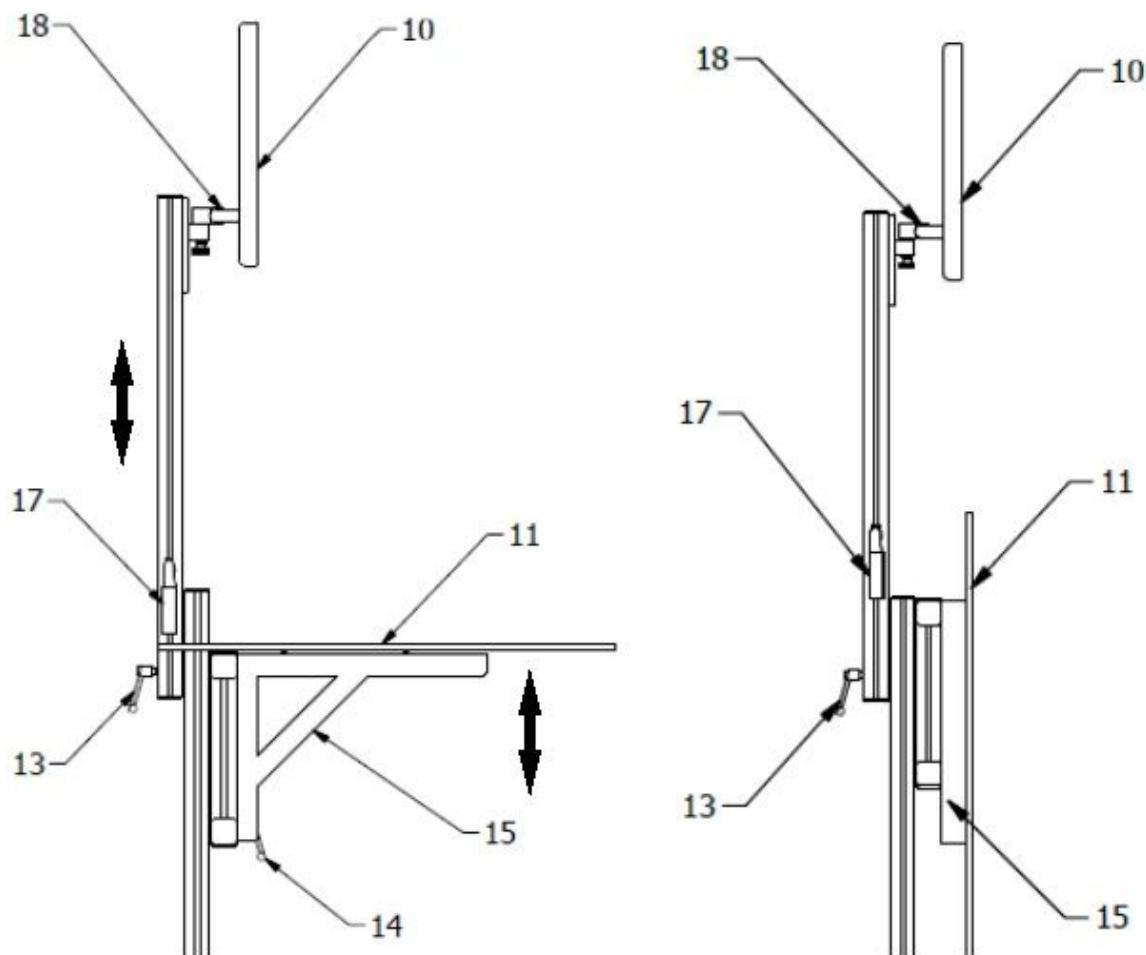
Parts of the device

- Casing of the trainer with a fixed camera and LED lighting
- Laparoscopic instruments
- Training modules with accessories
- CD with software and a license key (CD is not included with training station - the software is already installed on dedicated computer)

STRUCTURE OF THE TRAINING STATION AND ITS PARTS



Drawing no. 3. Drawing of the training station



Drawing no. 4. Drawing of the monitor height adjustment mechanism (13), worktop (14) and folding mechanism (15)

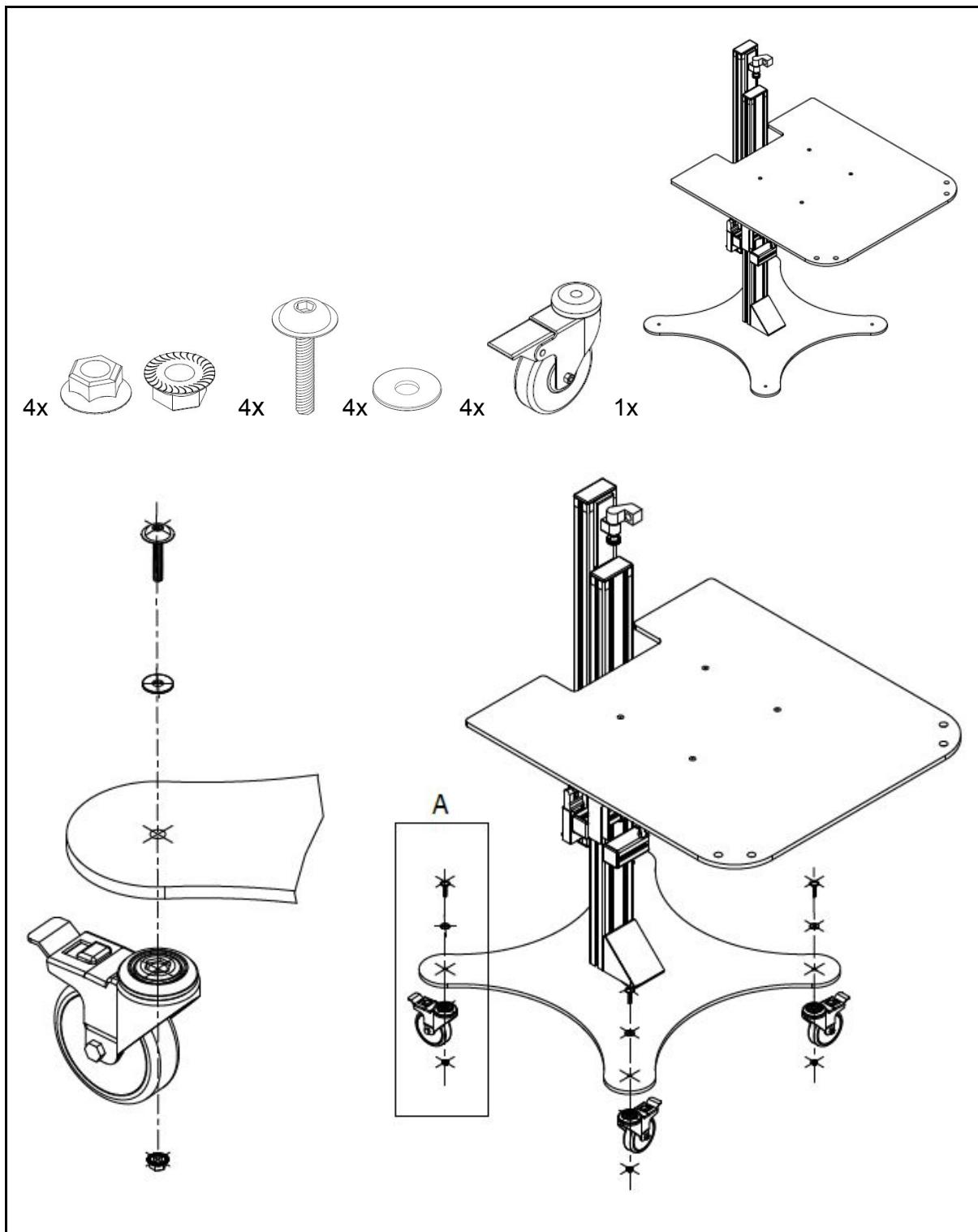
9. Trainer
10. Touch screen computer included LAPARO application
11. Worktop
12. Ports for placing instruments
13. Hand lever for positioning computer
14. Hand lever for positioning worktop
15. Folding angle bar
16. Caster wheels with brakes
17. HUB USB
18. Mount VESA

Components

- Trainer and its parts
- Training station
- Computer ALL IN ONE with touch screen

WORKSTATION SETUP PROCEDURE

If the workstation was delivered with disassembled wheels, please proceed as shown in the figure below. Two tools will be needed for the wheels assembly: hex key 5 and 13 mm open ended slogging wrench.

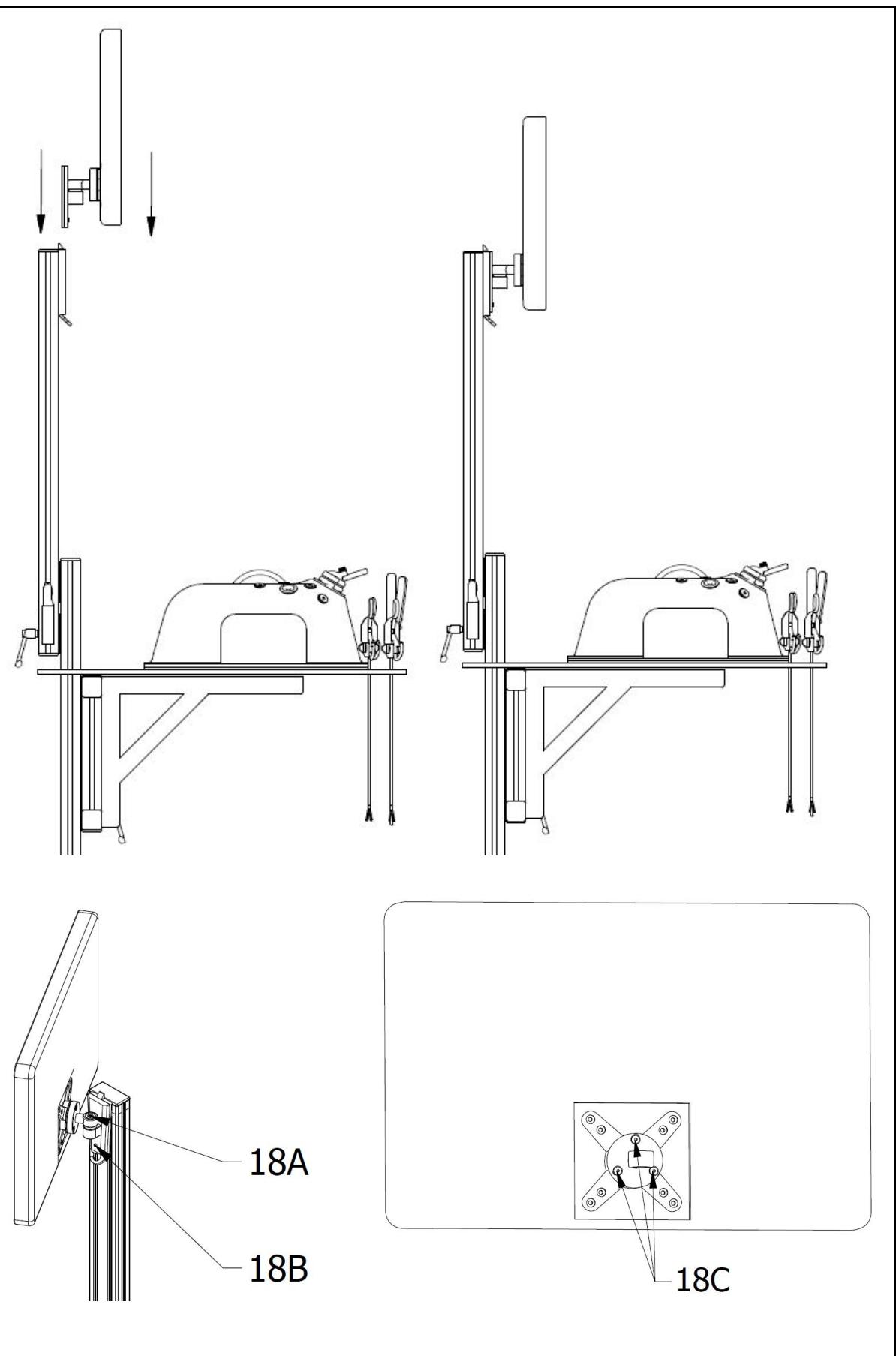


Drawing no. 5. Drawing of the wheels assembly

The independent workstation should be placed in a location with a free access to the power supply so that the computer (10) can be connected to it using the supplied power cord. After positioning the workstation, the brakes (16) should be clamped by pressing the lock on the caster wheels. Next, the worktop (11) should be spread which is mounted on two folding angle bars (15). To adjust the height of the worktop, use the front mounted hand lever (14). The hand lever (14) should be loosened by turning it counterclockwise and after setting the worktop at a convenient height, the hand lever should be locked. The computer should be mounted according to Drawing no. 6. To do this, slide the computer holder onto the corresponding element attached to the bar. To prevent the computer from sliding out, tighten the screw (18B) with a hex key. Then adjust the computer mount resistance (18). For this, loosen/tighten screws 18A and 18C with a hex key. The mount must be adjusted so that the monitor does not fall by itself.

The touch screen computer (10) should be set up at a user-friendly height by using the hand lever (13) located at the back of the station. The hand lever (13) should be loosened by turning it counterclockwise and then moving the profile on which the touch screen computer (10) is mounted to the appropriate height. The tilt angle of the touch screen computer (10) can be adjusted using the VESA mount (18). To do this, simply turn the monitor to the desired direction.

WARNING: Be careful when adjusting bolts 18A and 18C. Loosening the screws too much can cause the computer to fall by itself. Tightening the screws too much will block the mobility of the computer and may damage the mount (18). When adjusting the mount resistance, the computer must be secured at the same time. It is recommended that the adjustment is carried out by 2 persons – one holding the computer, the other loosening / tightening the screws.

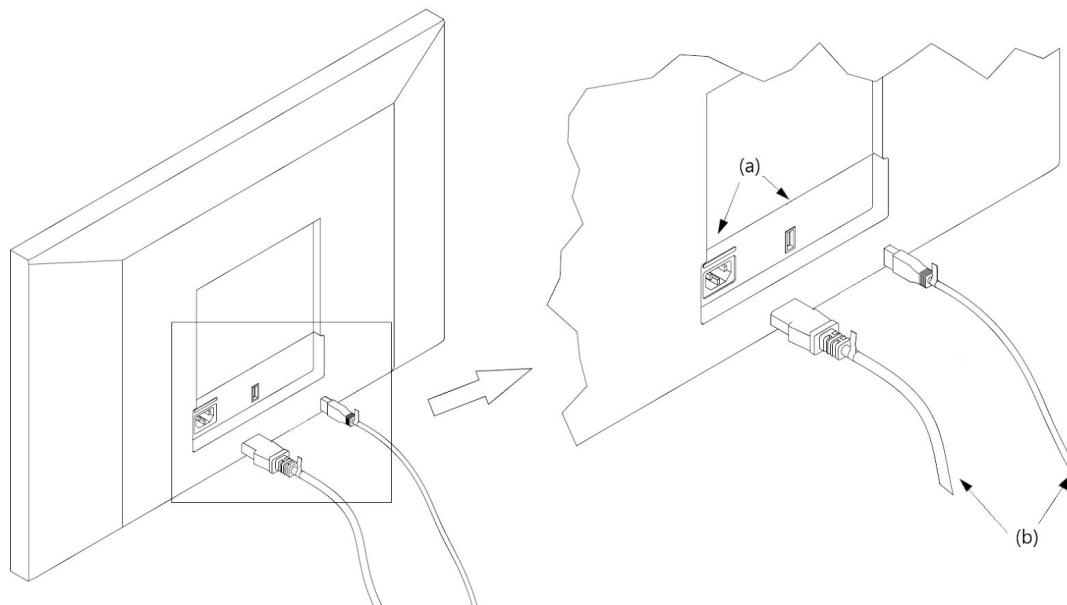


Drawing No. 6. Setting up the computer (10)

TRAINER SETUP PROCEDURE

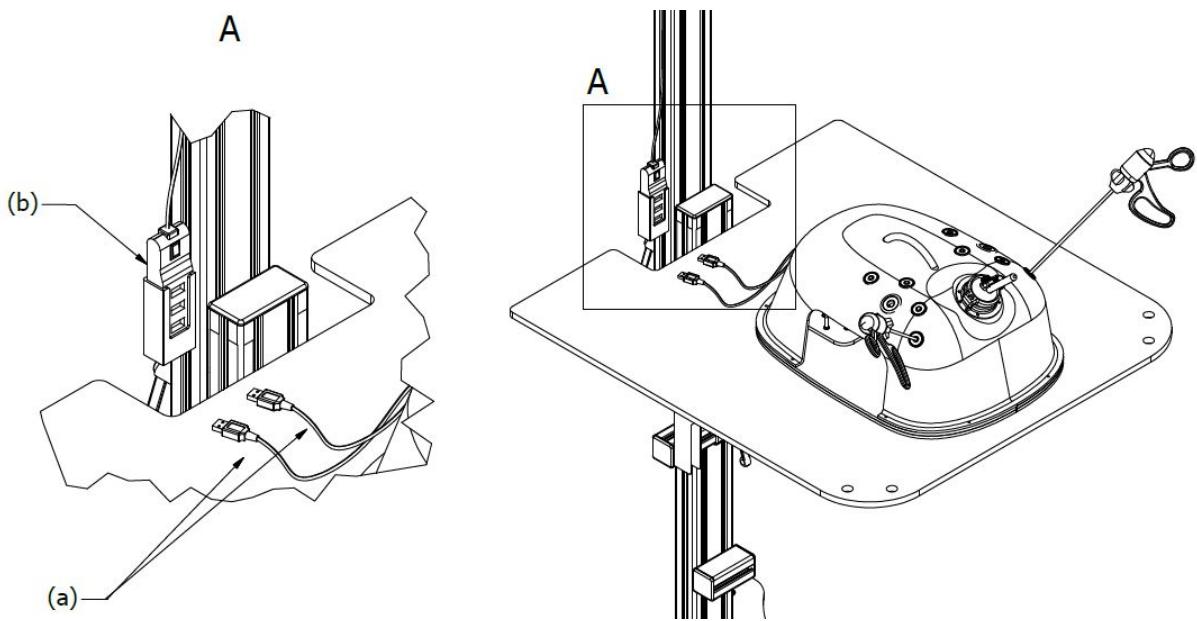
The trainer (9) should be placed on any clean and dry table or the worktop (11) so that it does not slip. Inside the device, place the selected training module (3) - it should be inserted through the cutout on the left side of the casing (1) and mounted to the center with the built-in magnets. The laparoscopic instruments (4) should be input inside the device through the trocars (5). The remaining instruments (4) should be input through the ports (12) or in a safe place. Lighting and camera should be connected to the computer or any other device where LAPARO software is installed.

When using the dedicated workstation, connect the USB cable from the HUB (17) and power cord to the ports on the back of the computer (10). Then connect the two USB cables from the trainer to the USB ports located in the HUB (17). The last two steps are shown in the drawings below. In the remaining USB HUB port, you can insert a pendrive and copy/transfer to it stored trainings from the “Records” folder (located on the desktop). After plugging all cords, connect the power cord to the power supply.



Drawing no. 7. Drawing of the connection of the USB cable from the HUB and power cord (b) to the computer sockets (a)

Power cord may vary depending on the computer.



Drawing no. 8. Drawing of the connection of the USB cables from the simulator (a) to the USB ports in the HUB (b)

If the trainer (9) has been bought independently (without the station), the software included on the CD should be installed on a computer. A version that corresponds to the operating system on the computer should be chosen. The software has been prepared for the following:

- macOS
- Windows
- Linux

The newest version of the software can be also found on our website – www.laparo.pl.

In order to install the software, run the installation file for the operating system you have and follow the instructions appearing on the screen.

Finally, connect the lighting and the camera of the device to the computer using the USB port. Two free ports in the computer are necessary.

USING THE DEVICE

Training

We perform the training by manipulating the laparoscopic instruments (4) within the trainer and tracking the image on the computer screen (10) thanks to the installed application. With the use of training modules (3) you can perform various exercises which will allow to develop specific manual skills. The trainer (9) has 10 trocars (5) into which you can insert various laparoscopic instruments (4).

Positioning the camera

It is possible to slide the camera in / out as well as change the viewing angle. This allows to introduce changes of the visual field depending on the preferences, difficulty and the position of the training module.

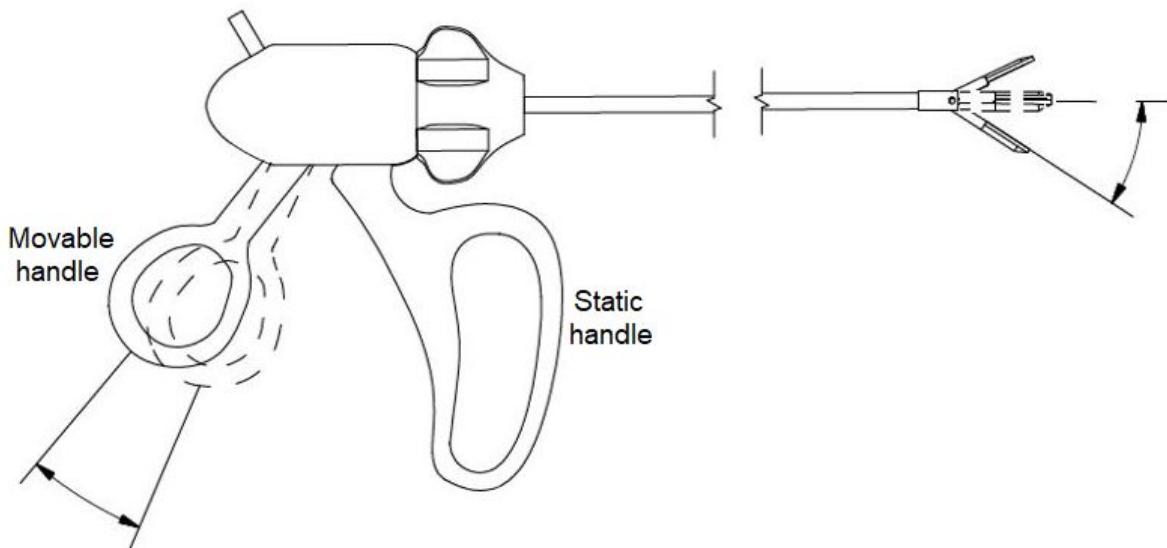
In order to change the position of the camera, use the camera handle (6) and the adjustment screws (7) and (8). If you want to slide the camera in / out, loosen the screw (7) turning it anti-clockwise and move the camera towards the demanded position using the handle (6). Next, readjust the screw (7) turning it in the opposite direction in order to lock the position. In order to change the camera viewing angle, loosen the screw (8) turning it anti-clockwise and adjust the demanded angle using the handle (6). Lock the position turning the screw (8) in the opposite direction.

CAUTION

Adjust the adjustment screws firmly enough to lock the position of the camera but do not do it with force nor with the use of any tools such as pliers, etc.

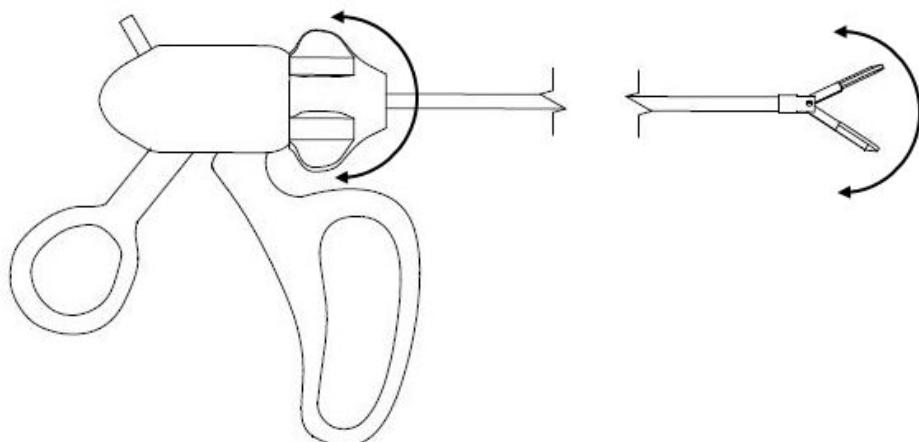
Manual of Laparoscopic Instruments

When using laparoscopic instruments (grasper, dissector, scissors), be careful not to damage them. Opening and closing with great force is not allowed. The movable part of the handle operates only in a small range (about 10°) - **do not forcefully try to close the handle when it is already in the closed position**. The handles do not reach each other when in the closed position (Drawing No. 9).



Drawing No. 9. The range of motion of the handle and the tip of laparoscopic instruments (grasper, dissector, scissors).

The rotation knob of the handle (grasper, dissector, scissors) allows the rotation of the tip of the instrument (grasper, dissector, scissors). The rotation knob should be operated with the index finger (Drawing No 10.).



Drawing No. 10. Rotation diagram of the tip of laparoscopic instruments (grasper, dissector, scissors).

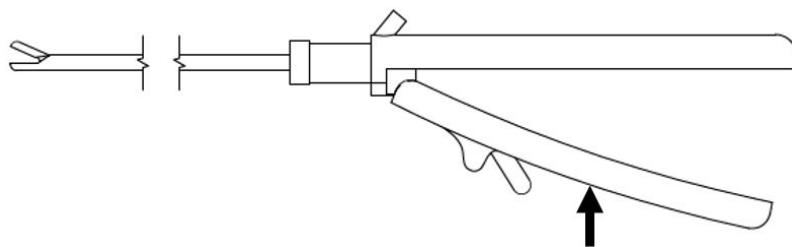
The laparoscopic needle holder should be used according to the instructions below. **Improper use can damage the locking mechanism.**



Drawing No. 11. Laparoscopic needle holder diagram (1 – needle release button, 2 – handle)

The needle holder should be held in a way that the index finger is next to the needle release button (1) - Drawing No. 11.

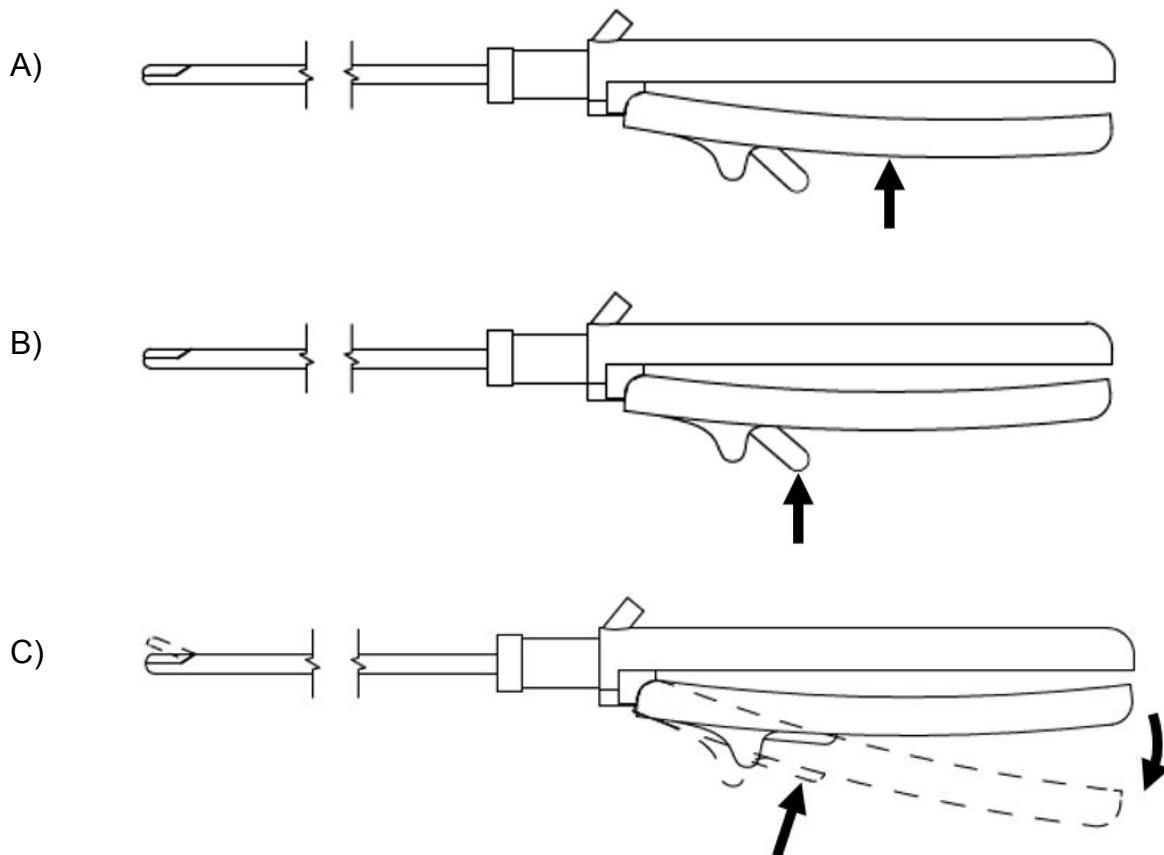
To clamp the instrument jaws, the two handles should join together (Drawing No. 12). The needle holder has an automatic locking mechanism that allows keeping the needle in the desired position. During the handle clamping, gradual snaps of the locking mechanism can be detectable.



Drawing No. 12. Manual of clamping the instrument jaws

The instruments jaws should be opened in the following order:

- lightly press the handle (2) – Drawing No. 13.A.
- as the release button (1) decreases its resistance - it should be pressed down (Drawing No. 13.B),
- while pressing the button, release the hand pressure (Drawing No. 13.C).



Drawing No. 13. Manual of opening the instrument's clamp jaws

CAUTION

Incorrect change of the advanced camera parameters may result in blurred image. If this occurs, please select the “Restore default” button.

PRECAUTIONS AND MAINTENANCE

- Always unplug the device from power supply before cleaning.
- Do not use solvent-based cleaning products (e.g. acetone). Chemical substances may cause permanent damage to the device.
- Always use a soft cloth for cleaning. If needed, use a damp microfibre cloth.
- In order to clean the silicone module if it gets dirty, you can use warm running water.
- When transporting or sliding the trainer always hold it by the bottom handles (2).
- The device cannot be exposed to weather conditions or damp environment.
- If the station is not being transported, tighten the brakes (16) on the caster wheels.
- Caution should be exercised when adjusting the height of the touch screen computer (10) and the worktop (11).
- Do not lean on the worktop (11) as it may cause to overturn.

WARRANTY CONDITIONS

1. The Producer (Guarantor) provides a warranty for the laparoscopic trainer Laparo Advance according to the defined rules.
2. The warranty is provided for 24 months starting from the date visible on the proof of sale (receipt, invoice).
3. The warranty covers all faults of the product resulting from production defects.
4. The warranty does not cover the faults of the product resulting from inappropriate use or regular wear.
5. Any self-modification results in the loss of the warranty.
6. Faults appearing within the warranty period will be repaired free of charge in the shortest possible time not exceeding 21 working days, starting from the day the device physically arrives to the service point.
7. The Claimant is obliged to report the fault to the producer by email or telephone.
8. The fault must be reported no later than 14 days after it occurs.
9. The Buyer is obliged to deliver the product in its original packaging, together with all accessories. The Buyer is responsible for any defects resulting from the use of a replacement packaging.
10. In case of an unjustified complaint (when the device is not damaged or the fault appeared due to the Customer's fault), the Claimant will be charged with the costs of expertise and transport.
11. This warranty does not cover the faults of the product resulting from:
 - using the product contrary to its purpose, i.e. using resulting in physical or aesthetical damage or damage to the surface of the product or its modifications;
 - computer virus infections or using the product with a software different from the one delivered with the product or a software incorrectly installed;
 - The compatibility of devices this product is used with or is a part of, excluding other products of the producer destined to use with this product;
 - products type, condition and standard different than recommended;
 - repairs done by persons other than employees of the producer;
 - negligence, in particular dirt;
 - accidents, fire, liquid or humidity, chemicals and other substances, floods, vibrations, overheating, incorrect ventilation, voltage fluctuations in power supply, connecting to too high or incorrect voltage, radiation, electrostatic discharge including lightnings and the influence of any external forces and impacts.
 - mechanical damages to the device.
12. The wear of modules and laparoscopic instruments is a normal material wear, hence the warranty does not cover these elements, unless the fault of the product is caused by the features of these elements.
13. The producer reserves the right to exchange the damaged parts, the whole product or its parts to the new or renewed ones.
14. The Buyer loses the warranty rights in case of removing the identification plate with the serial number or if the producer's technical service decides that some unauthorized repairs or system or construction changes have been made.
15. The Guarantor may avoid keeping the deadline of warranty service in case of unpredicted circumstances of force majeure, e.g.: natural disaster, social disturbances, etc.
16. The Guarantor is not responsible for damage and loss resulting from impossibility to use the device which is under repair.

17. Warranty rights do not cover the Buyer's right to demand the reimbursement of lost benefits related to the defects of the device.
18. The warranty does not exclude, limit or suspend the Buyer's rights resulting from the Act.
19. The legal relation between the Buyer of the device and the Guarantor is regulated only by the regulations of this warranty. Further damages claims are excluded, unless they result from mandatory legal provisions.

TECHNICAL DATA

Dimensions	444 x 322 x 170 mm
Power supply	2 x USB 5V Camera: 500 mA Lighting: 350 mA
Lighting	20 white LED
Camera	Max resolution: 1920 x 1080 px Interface: USB 2.0