

Laparoscopic Training Station

Abc-lap Full HD



Operating Manual
Warranty Sheet

Instructions for Use

1. Introduction

Thank you for purchasing the laparoscopic training station Abc-lap. The training station is intended for training of skills required for laparoscopic surgery.

2. Technical Specification

The laparoscopic training station Abc-lap is composed of the laparoscopic torso and the display unit with an integrated trolley.

The laparoscopic torso consists of the trainer desktop with a fixation mechanism for training objects and the transparent top with a camera and ports for laparoscopic instruments.

The display unit consists of the trolley with four swivel wheels with breaks. The telescopic central column of the trolley holds an LCD monitor and a movable spring arm for the laparoscopic torso. The image processing unit is located on the right-hand side of the column. The camera connects to the display unit by means of the connectors on the mounting box front panel.

Weight

Laparoscopic torso: 7 kg Display unit: 21 kg

Dimensions (l x w x h)

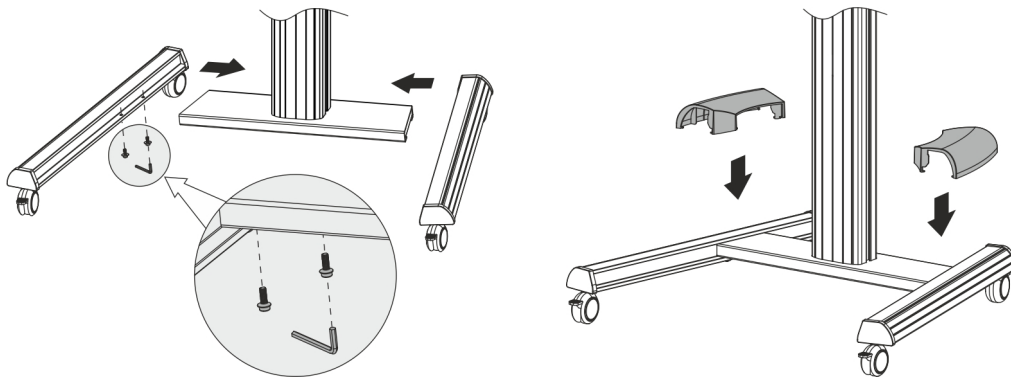
Laparoscopic torso: 500 x 400 x 300 mm Display unit: 950 x 760 x 1760 (max.)

| | |
|--|-------------------------|
| Power supply | 100-240V/50-60Hz |
| Input | 40W |
| Tolerable environment temperature | 5-40°C |

3. Commissioning

The training station is supplied partially assembled. Take the following steps to complete commissioning.

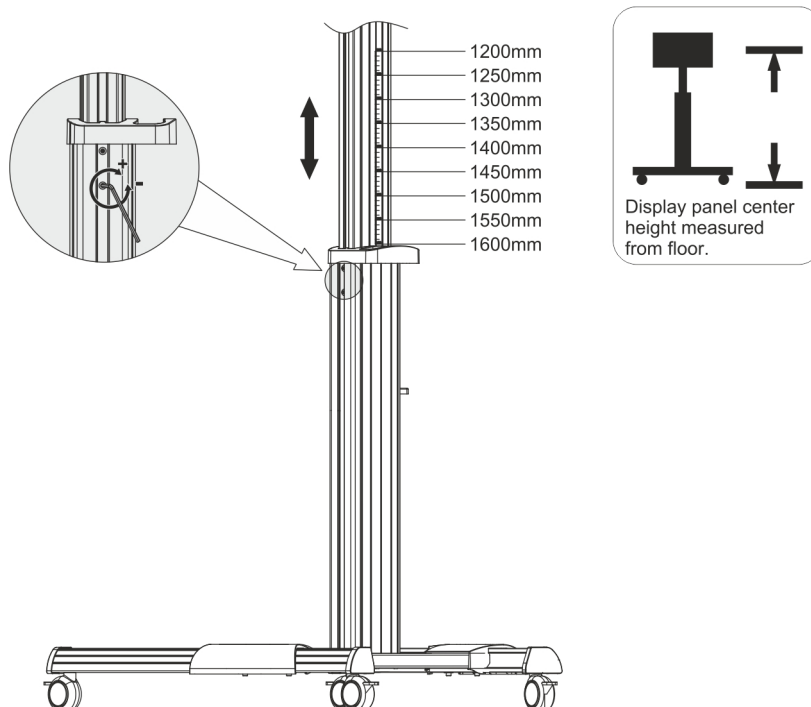
I. Assembling the base



Insert the right leg into the base. Align the holes in the leg to the holes in the base. Secure with screws (M6 x 16 with washer). Repeat this step for the left leg.

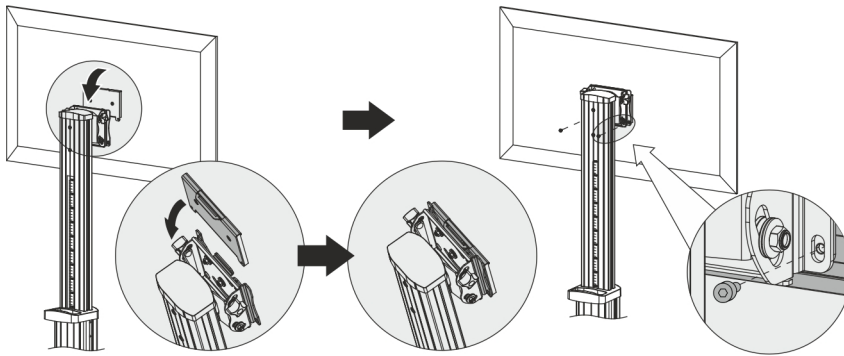
Place the plastic covers according to the scheme.

II. Adjusting the column height



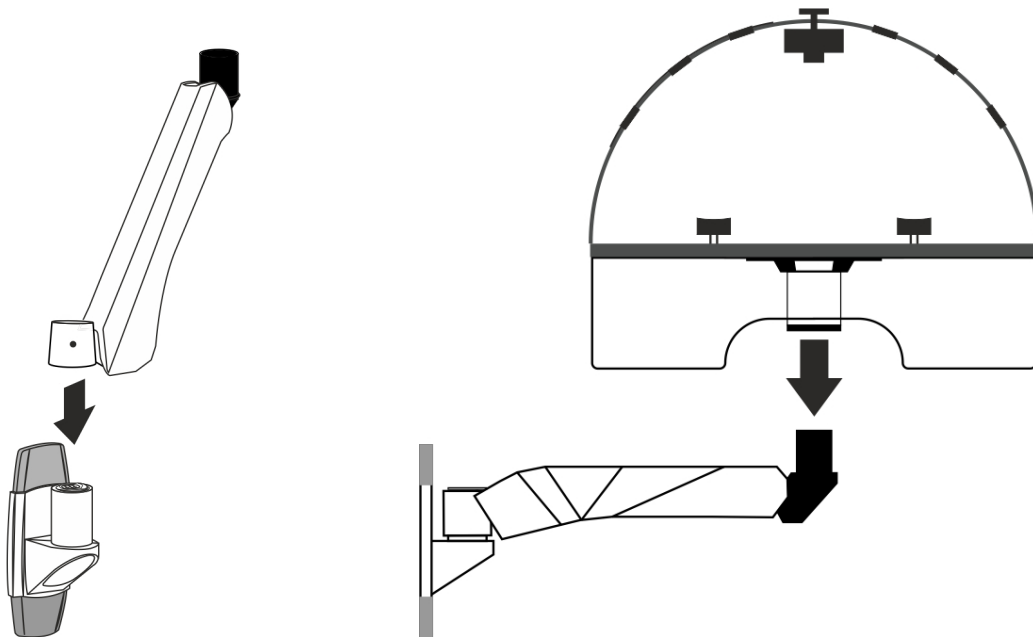
Please hold the inner column while loosening the screws. Adjust to the desired height, then tighten all screws. Note: The upper edge of the monitor should be at the level of your eyes.

III. Hooking the monitor



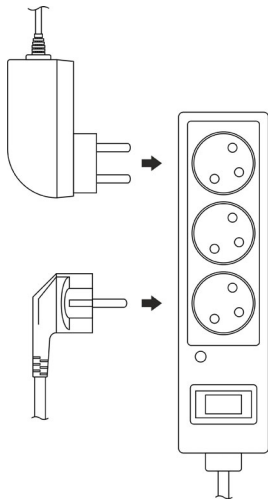
Hook the metal plate mounted on the rear side of the monitor onto the bracket. Fixate the position by means of two screws M5 x 12 mm.

IV. Assembling the spring arm and fitting the laparoscopic torso

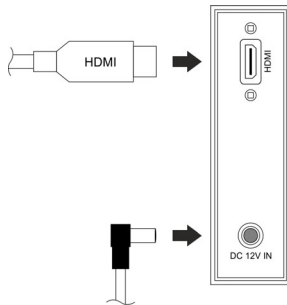


Assemble the spring arm with the bracket on the central column of the trolley.

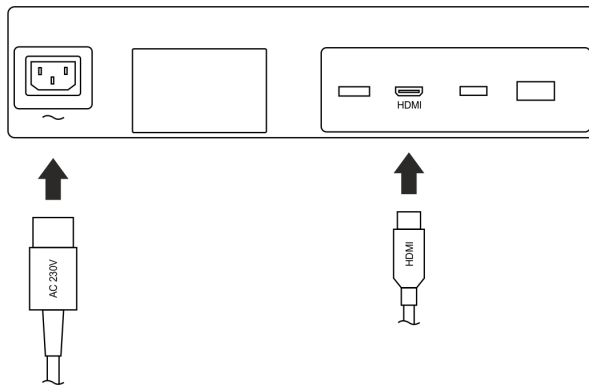
Place the laparoscopic torso onto the spring arm while pushing the arm downwards. It is advisable to use an assistant.



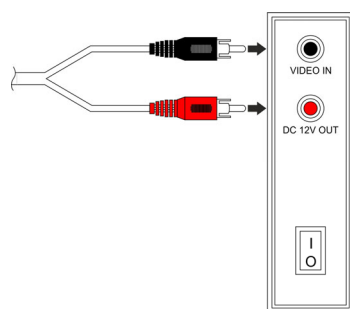
On the rear side of the trolley, you will find the socket panel with the central ON/OFF switch and three standard outlets. Plug in the adapter 12V/2A and the monitor power cord which passes through the central column of the trolley together with the HDMI cable.



Connect the adapter 12V/2A and the HDMI cable to corresponding connectors on the rear panel of the image processing unit. The connectors are marked DC 12V IN and HDMI (1.6 Full HD Student) or HDMI 1. The adapter provides power supply to the image processing electronics and the camera. The HDMI cable transmits the video signal to the monitor.



Connect the monitor power cord and the HDMI cable to corresponding connectors on the rear panel of the monitor. Respect marking of the connectors. Both cables pass through the grommet behind the monitor.




Connect the camera to the display unit via the connecting cable with 2 cinch connectors. Colour marking of connectors must be respected. The red connector provides the camera with power supply (marked DC 12V OUT); the black connector conducts the video signal from the camera (marked VIDEO IN).

Plug in the central power cord leading to the surge protector to a 100-240V/50-60Hz power socket in the room.

The initial installation and commissioning of the trainer should be carried out by the dealer, who also performs an introduction to operation and use of the training station. Thorough familiarization with the device operation and use is confirmed by certifying the warranty sheet by the dealer.

4. Off/On Switch

Use the I/O switch on the front panel of the mounting box to switch ON or OFF the training station. The monitor has its own power switch which is marked with the symbol .

5. Practising with Training Station

Fixation of the Training Object

To fixate the training object in the trainer, four bolts M6 with fly nuts are used, sliding in the parallel slots in the trainer desktop. You may change the position of bolts according to the size of the training object by sliding them in the slots. The training station is supplied with a squared acrylic glass tray. Four sucking discs with crocodile clips enable to fixate any kind of training material in the tray. The tray can be washed separately if needed.

Camera Operating

The training station is equipped with a colour camera with a microlens with the focal lengths of 3,6 mm. The lens is connected to the camera via fine thread. The camera is delivered properly focused. If focusing adjustment is needed, turn the lens in the thread. Screwing the lens fully out is not recommended. It could lead to soiling of the sensor chip which is located directly under the lens. The fine thread may be damaged while mounting the lens back. The warranty does not cover such damage.

Floating connection of the camera to the top of the laparoscopic torso enables to change the vision angle by changing the position of the camera. To change the camera position, loosen the camera fixation nut M6 with the plastic rose and move

the camera by sliding it in the slot in the perimeter of the top of the torso. Once you have reached the required position, fixate the camera by tightening the nut.

Working with Uncovered/Covered Operating Field


The revolving laparoscopic torso enables to adapt the training difficulty to the trainee's skills. The ports for instruments are located symmetrically along both sides of the top of the torso. On one side, the top is covered by non-transparent foil. If the torso is facing the trainee with the uncovered side, it is possible to perform the training of control of laparoscopic instruments under the direct eyesight. This is suitable for beginners. When the torso is facing the trainee with its side with the top covered by non-transparent foil, the operating field may only be controlled via the monitor display, exactly as in the actual laparoscopic operation.

6. Connecting of External Display (except 1.6s Full HD Student)

Use the provided HDMI cable 2 m for connecting an external display or a projector to the training station. Connect one end of the cable to the connector HDMI 2 on the rear panel of the image processing unit and then connect the reverse cable end to the connector HDMI on the connector panel of the display. Select the appropriate video source in the user menu of the display.

7. Performance ASsessment Software (1.8s Full HD Professor)

The Performance ASsessment Software (PASS) provides the trainee with objective feedback by means of eight metrics which are presented both in form of figures and graphs.

To download the latest version of the software, please go to <http://lap-trainer.com/PASS.html>. After downloading, please unpack the file and then double-click on item **setup.exe**. Next, follow the instructions of MS Windows. When the installation is complete, you can connect your computer to the training station using supplied USB cable. Use the USB connectors on your PC and the image processing unit rear side. Both connectors are marked with symbol . After that, please follow the instructions of the manual for PASS, which is part of the downloaded package.

8. Training Station Maintenance

When the training station is not in use, protect it from any dust and soiling by applying a suitable cover. The training station is to be cleaned by a dry cloth, or a cloth dampened in clear water, or in a soap solution. Disconnect the training station from the power supply prior to wet cleaning. Prevent the moisture entering the electrical parts of the training station! This could lead to an electrical shock or cause a damage of the device. Never clean the laparoscopic torso with alcoholic solutions. Parts of the torso are made of acrylic glass, which may be fractured by application of alcoholic solutions. The warranty does not cover any damage due to improper maintenance at variance with the operating manual.

9. Conclusion

We wish you many trouble-free hours of practising with your laparoscopic training station Abc-lap. We hope it will facilitate gaining and improving of skills required in real laparoscopic surgery.

For further information, please visit us at www.lap-trainer.com.