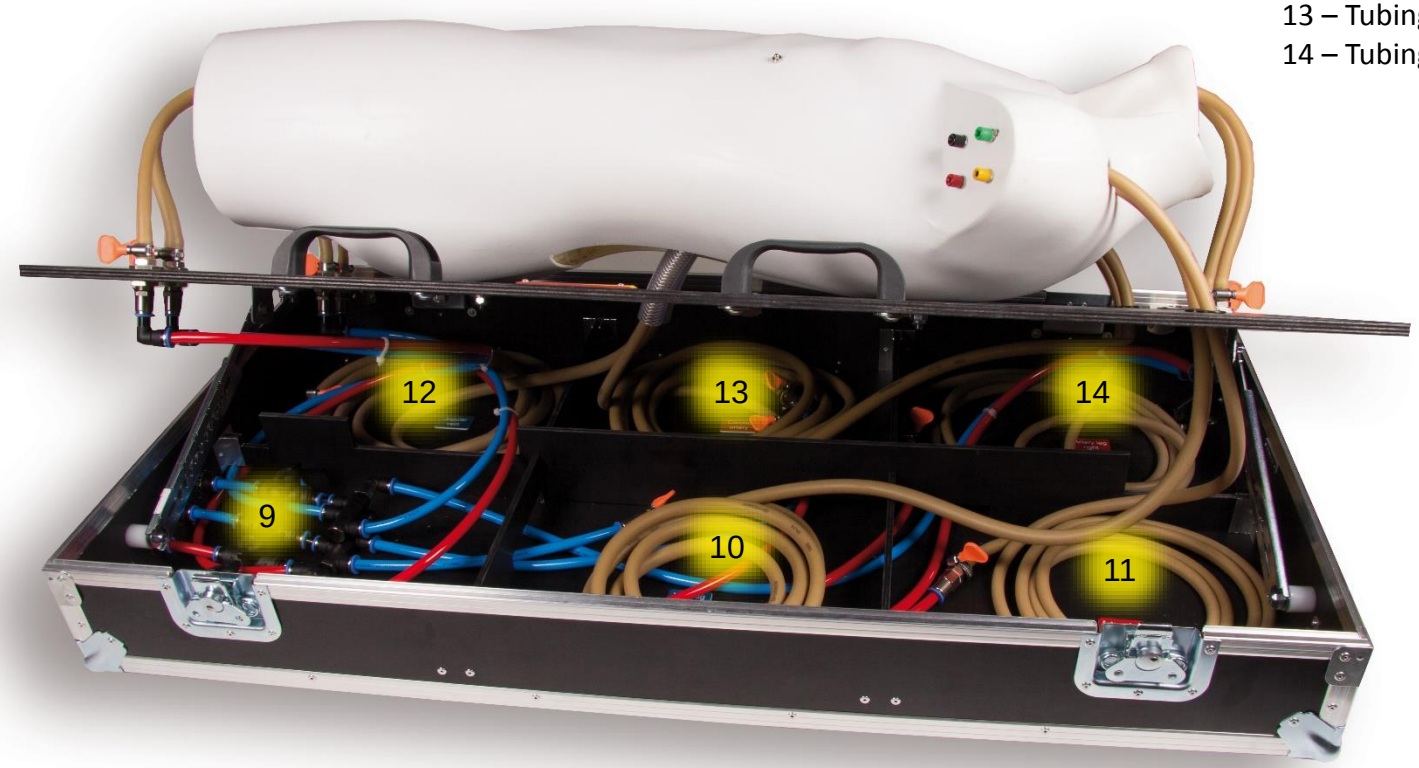
ECMO Trainer Professional, TF200

User Manual

1. Body module

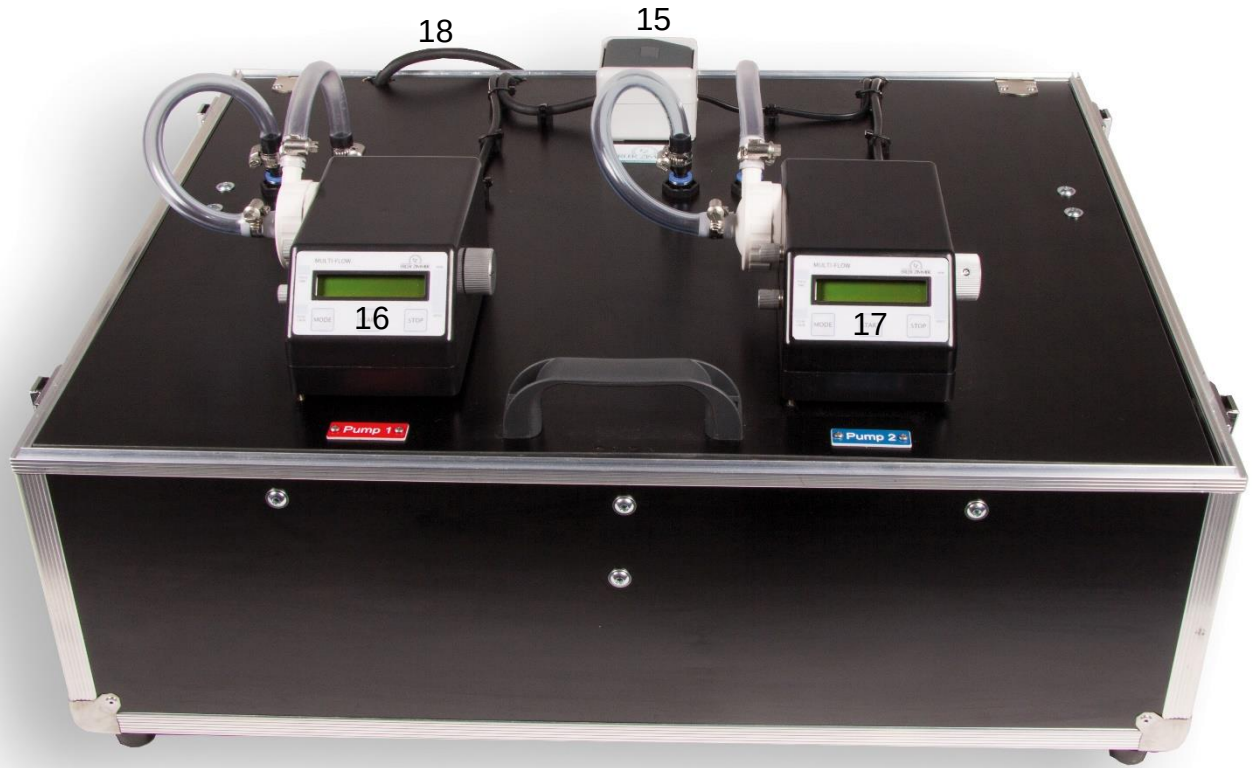
1 – Puncture pad femoral (2x)
2 – Punkture pad jugular
3 – Connection points ECG (4x)
4 – Input ECG Simulator (optional)
5 – Femoral vein (2x)
6 – Femoral artery (2x)
7 – Jugular vein
8 - Artery (Carotis)

9 – Shut-off valves tubing system
10 – Tubing roll femoral vein left
11 – Tubing roll femoral artery left
12 – Tubing roll Jugular vein
13 – Tubing roll femoral vein right
14 – Tubing roll femoral artery right

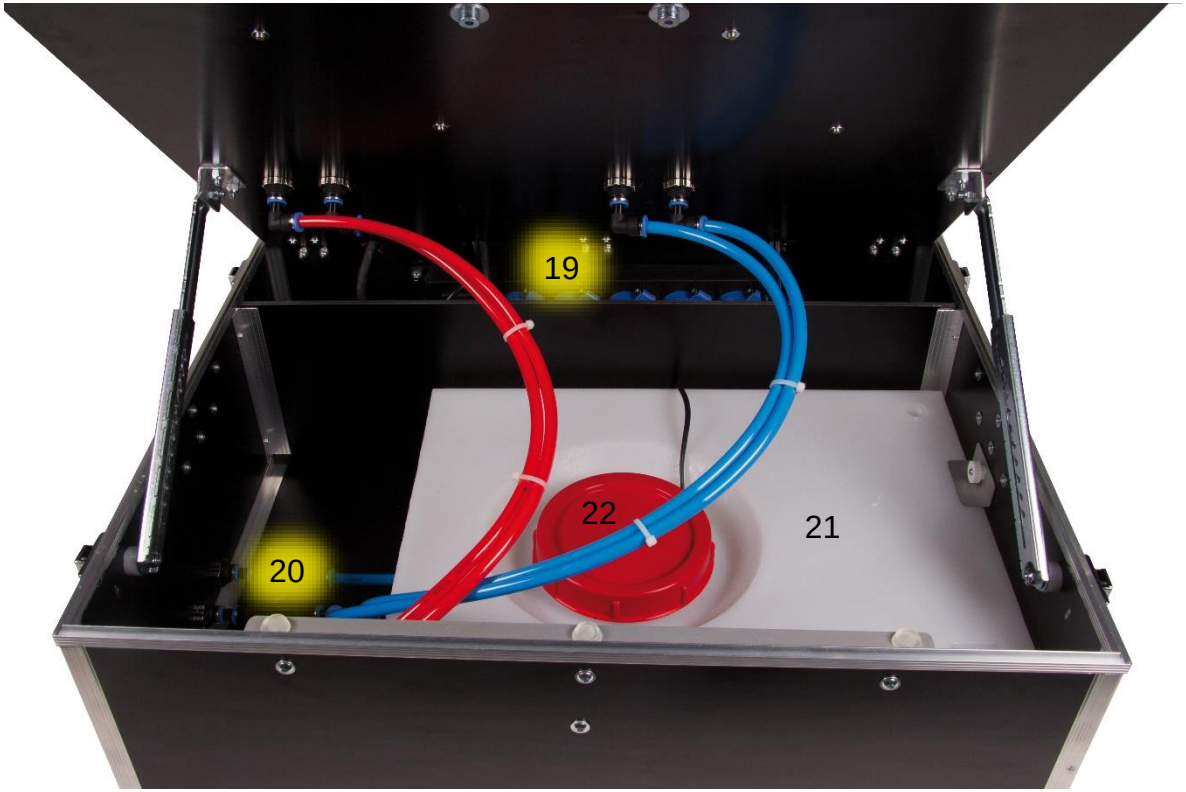


2. Control module

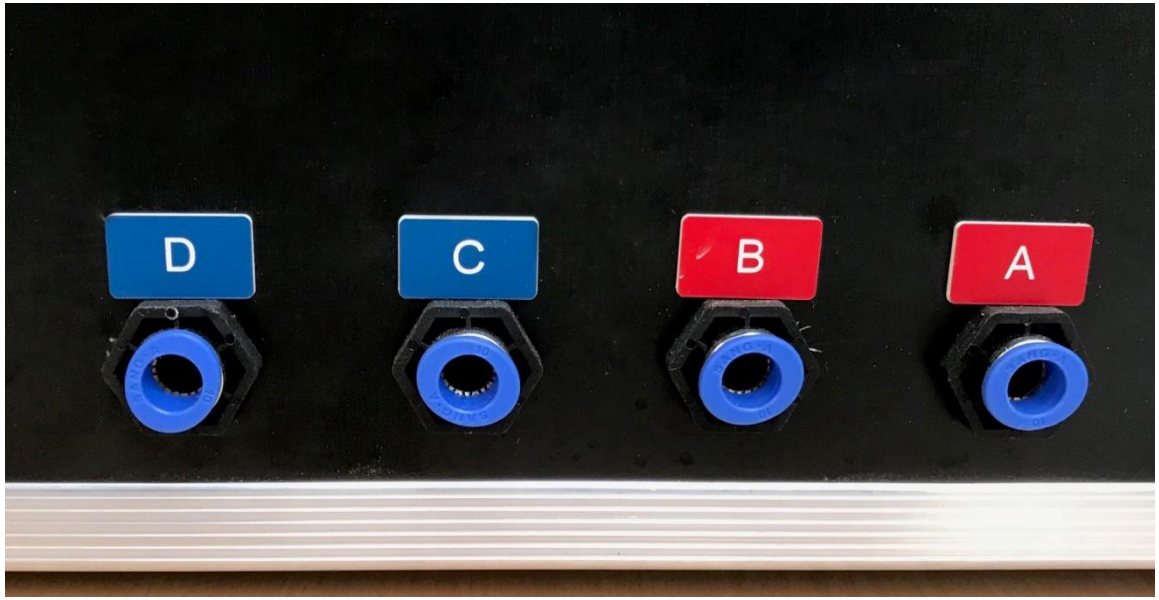
15 – Pushbutton filling pump
16 – Pump arterial circulation
17 – Pump venous circulation
18 – Power cord



19 – Central power distribution
20 – Shut-off valves tubing system
21 – Fluid reservoir
22 – Filling opening of reservoir



3. Connecting Body- and control module



Both cases do have 4 connections for the supplied connecting tubes.
The connections are marked „A-B-C-D“. Connect the connector pairs of the two Modules. Connection „A“ of the body module connects to connection „A“ of the control module. Connect B to D accordingly.

Push the tubing ends into the connectors until stop to connect them. To release the tubes, press the blue ring towards the Case and pull the tube out.

4. Filling the system

Security warning!
Disconnect the power cord while filling the water reservoir. Make sure the plug is removed from the socket!

- Check if all 4 connecting tubes are correctly attached.
- Open the shut-off valves (9, 20) on the body and control module.
- Open the control module to see the water reservoir (21).
- Open the filling opening (22)
- Fill the water reservoir completely (clear water recommended, if you want coloured fluid, please conatct our sales team since normal mock blood or food colors may cause non-removable stains.
- Close the water reservoir
- Connect the power cord
- Close the control module
- Press the pushbutton (15) of the filling pump, water is pumped into the tubing system.
- Switch both pumps (16, 17) to pulsation mode and highest pumping volume, release the pushbutton od the filling pump. (See section 5 for operation instruction of the pumps)

- The circulation transports the air out of the tubing system. If bigger parts of the tubing are empty, press the pushbutton (15) to fill them.
- After the tubing system is filled completely , dissconnect the power supply and fill the water reservoir again.
- Re-connect the power of the trainer and switch both pumps on. Remaining air can be released by moving the tubing inside the bodfy module and operate the pumps in pulse mode. It might take up to 10 or 15 minutes to remove all air from the system.

The trainer is ready for use.

5. Operation of pumps

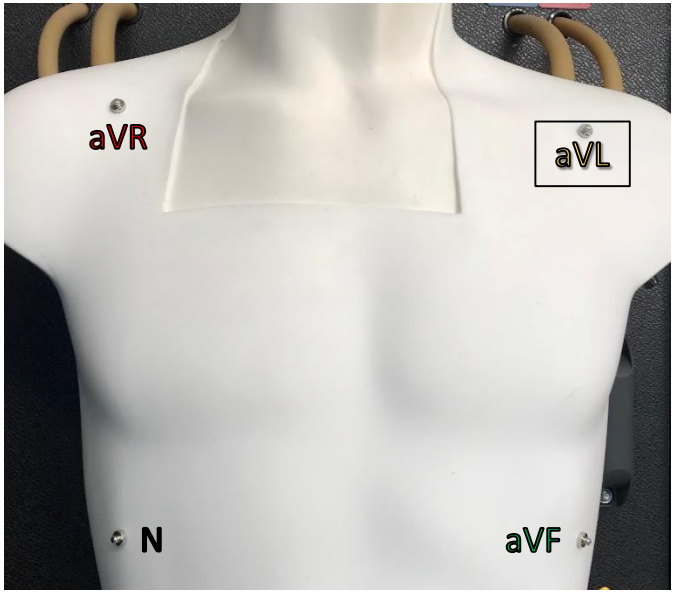
23 – Pulse time
24 – Flow volume
25 – Operation mode switch
26 – Start pump
27 – Stop pump
28 – not used

Operation mode (Button MODE)
M0 – not used
M1 – Continuous flow (venous)
M2 – Pulsatile flow (arterial)
M3 – not used
M4 – not used

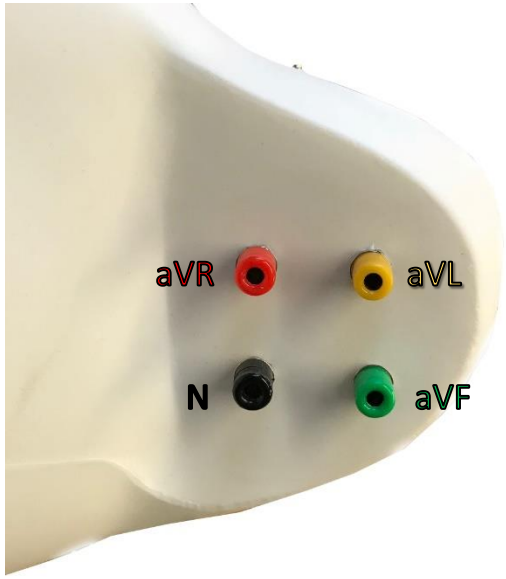
CAUTION !
The pumps are not made for continuous operation at maximum flow volume. Operation at maximum flow level should be limited to 30 minutes only.

- To operate the simulator set the arterial pump to mode 2 and adjust the desired pulse time (23) as well as the flow volume (24). Set the venous pump to mode 1 and adjust the flow volume.
- The blood flow and the pulse frequency can be modified during the training to simulate different patient conditions.
- Both femoral artery tubes do have luer connectors (directly at the connection of the tube inside the case), these are used for connecting a flow volume measuring device.

6. ECG – derivation *(ECG Simulator optional)*



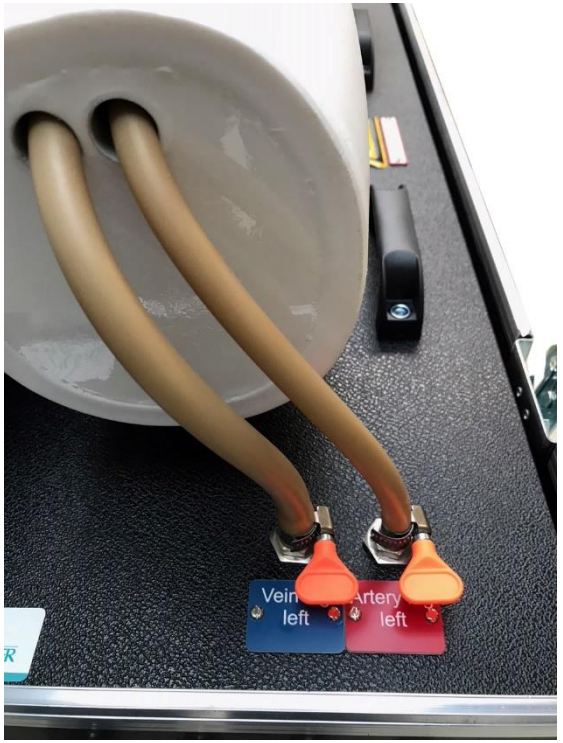
Derivation points



Connections for Simulator

7. Using the tubing system

- All tubes are wide enough to work with real catheters and long enough to insert the full lenght of the catheter.
- In principle the tubing has a self-sealing effect, however, after dilation and inserting the catheter the hole is such big that fluid will leak. Because of this the punctured part of the tube should be replaced after each puncture. The simulator has a tubing reservoir that allows the replacement of the punctured part within seconds.
- Switch off the pumps before working on the tubing.
- To replace the punctured part of the tubing clamp the tube with a hemostat.
- Open the tube connection (orange twist clamp) and remove the tube from the connector.
- Pull the tube out of the body until you can see the puncture point.
- Close the tube between body and punture point using a hemostat. Cut the tube directly behind the puncture point. Discard the punctured part of the tube.



- Pull the tube out of the body until it is long enough to fit the connector. Don‘t forget to put the orange twist clamp onto the tube before attaching it to the connector. Fix the twist clamp and remove the hemostat.
- The trainer is now ready for use.

8. Changing the tubing system

- The tubing reservoir allows to pull out and cut off the used part of the tube about 10 times. After that the tubing needs to be replaced.
- Replacement tubing can be ordered with the ref.no. TF228 as set.
- To repalce the tubing empty the circuits of the trainer and losen the orange twist clamps of the tube you want to replace. Pull the tube out of the body.
- Take a new tube and fix it on the connector inside the case.
- Insert the tube into the body. To insert the tube into the puncture sites, cover the tube with talcum powder (baby powder will also work).
- Connect the other end of the tube to the connector on the top of the case and fix it using the orange twist clamp.

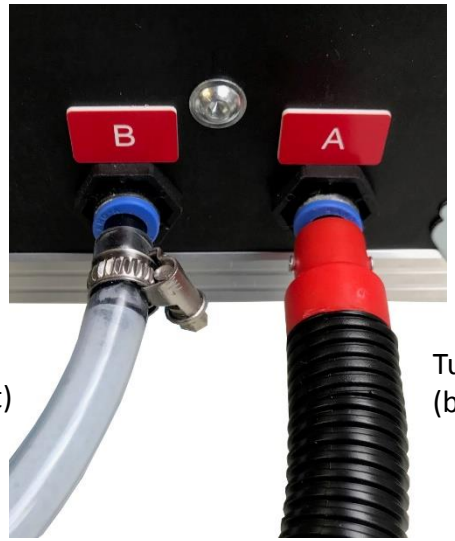
9. Changing the puncture sites

- To change the puncture sites simply take them out of the body.
- We recommend to change the puncture sites on replacement of the tubing latest.
- After inserting the tubes in the punture site, simply press it back in place.

10. Emptying the tubing system

- Close all shut-off valves (9 & 20). Get a large container (such as a bucket).
- Disconnect the tube from the control module and put the end into the bucket.
  Open the shut-off valves of the corresponding circuit (9). Disconnect the second tube of the same circuit and hold it up. Fluid will drain into the bucket. As soon as the tube you hold upwards is empty, disconnect it and donnect the supplied foot pump instead. Pump several times until no water drains from the tube. Repeat the procedure for the second circuit. The body module is empty now.

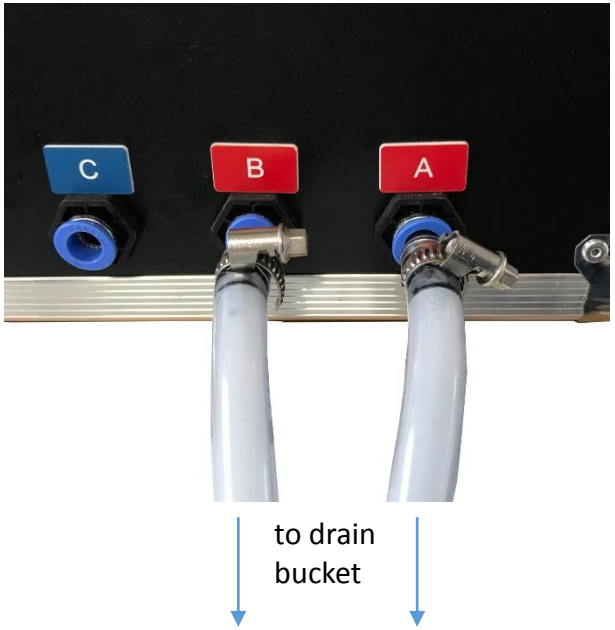
Connecting tube
(as drain tube to bucket)

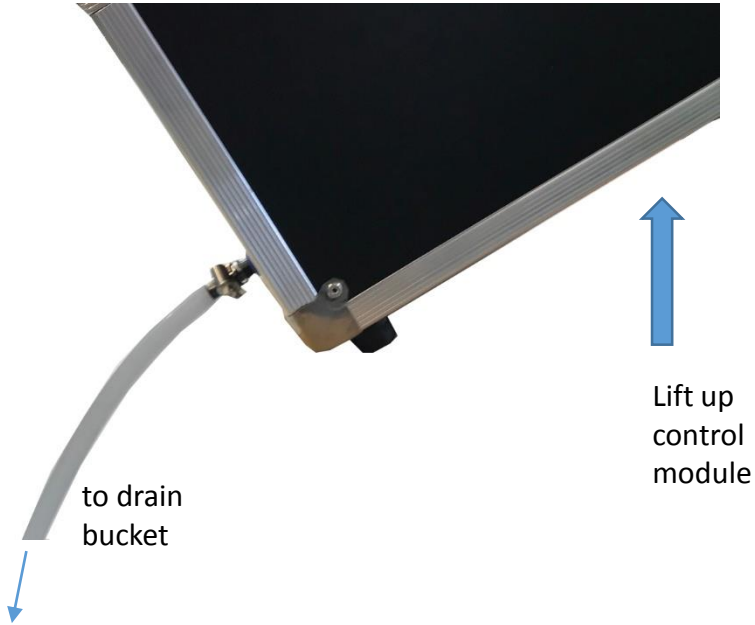


Tube of supplied pump
(blows air into the tube)

10. Emptying the tubing system - continuation

- Connect both connection tubes to the red circuit of the control module. Hang the ends of both tubes into the bucket. Open the two shut-off valves of the red circuit. Press the pushbutton of the filling pump (15). The pump is now emptying the tank through tube A.
- As soon as the pump has no water any more, release the pushbotton. Tilt the case towards the tubing side to drain the rest of the water trough tube B.
- If the trainer is not used for a longer period, we recommend to remove remaining fluid inside the tank using a dry cloth or sponge.





10. Consumables

Replacment puncture site femoral, pair
Ref.no. TF235

Replacement puncture site jugular
Ref.no. TF220

Tubing set, 5x5m
Ref.no. TF228

All other parts can be requested at our sales team, we are happy to assist you!

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