LT-310: How to assemble

On arrival, unpack the box, carefully take unmounted parts, units, cables and packages out the box. Then unscrew four M6 screws from the bottom to release the trough and then take the trough out the box (it is recommended to hold it at long sides to allow more space for hands). Take care: there are installed nozzles on the trough bottom.

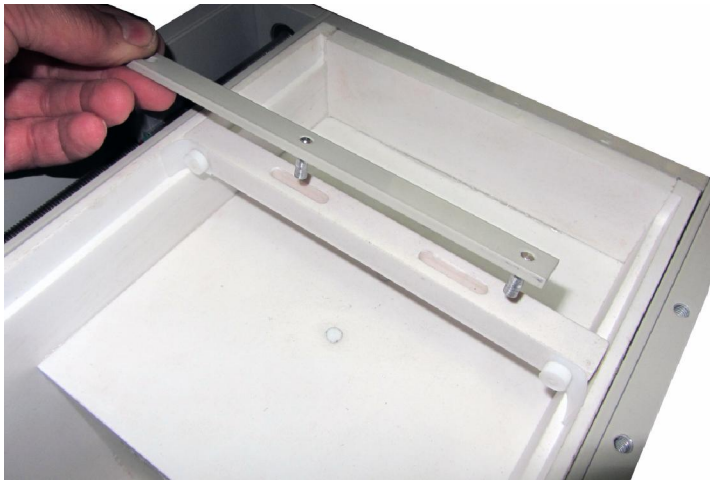
After releasing the trough from the box, mount 4 feet to the trough: screw them from bottom into the side walls. That allows space for tubes and will give opportunity to adjust the trough horizontal position.

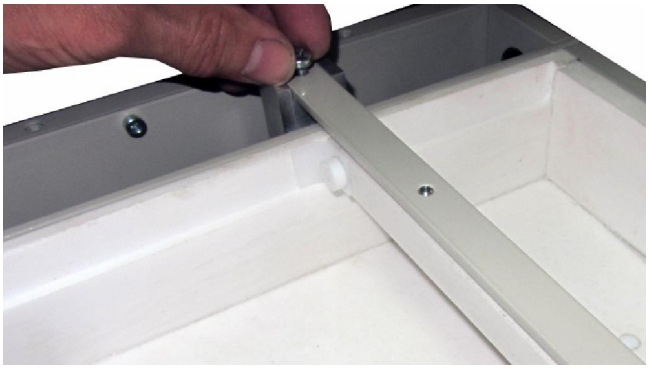
1. Standard configuration of conventional LB trough.

To use LT-310 as a conventional LB trough, it should be equipped with horizontal barrier, surface tension sensor and dipper unit. Other accessories may be mounted if they do not hinder the operation.

1.1. Connect the draining hoses to the nozzles on the trough bottom. Check that clamps on them squeeze the hoses to avoid unauthorized draining.

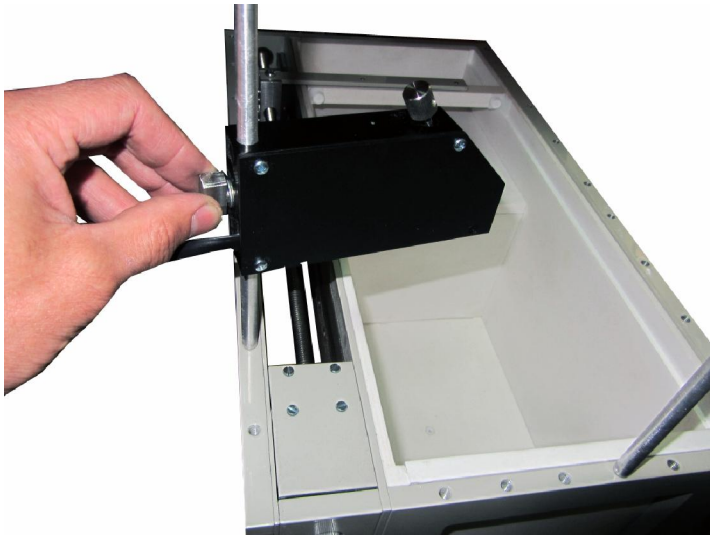
1.2. Insert the PTFE barrier with sealing leaves inside the working area. Slots for leading arm should be on top. Insert the leading arm with the teeth into the PTFE barrier and fix one end of the arm in top slot of carriage of horizontal translation mechanism using M5x8 screw.





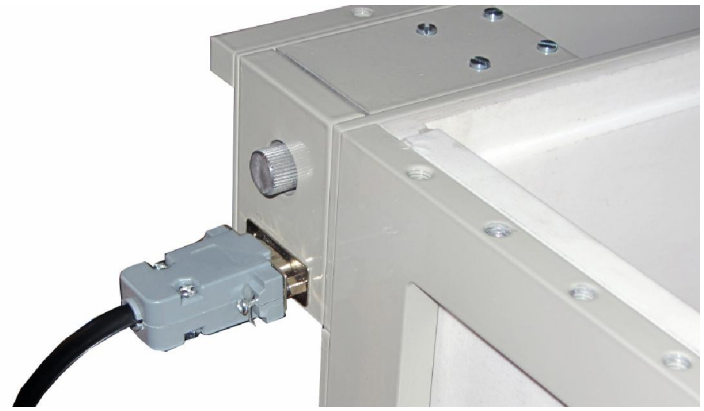
1.3. Fix two vertical rods for further mounting of a surface tension sensor and a dipper unit in suitable holes on the trough walls.

1.4. Mount the surface tension sensor on one vertical rod and the dipper unit on another one. Adjust vertical position of the surface pressure sensor and the dipper unit and fix them with their clamping screws on the mounting rods.



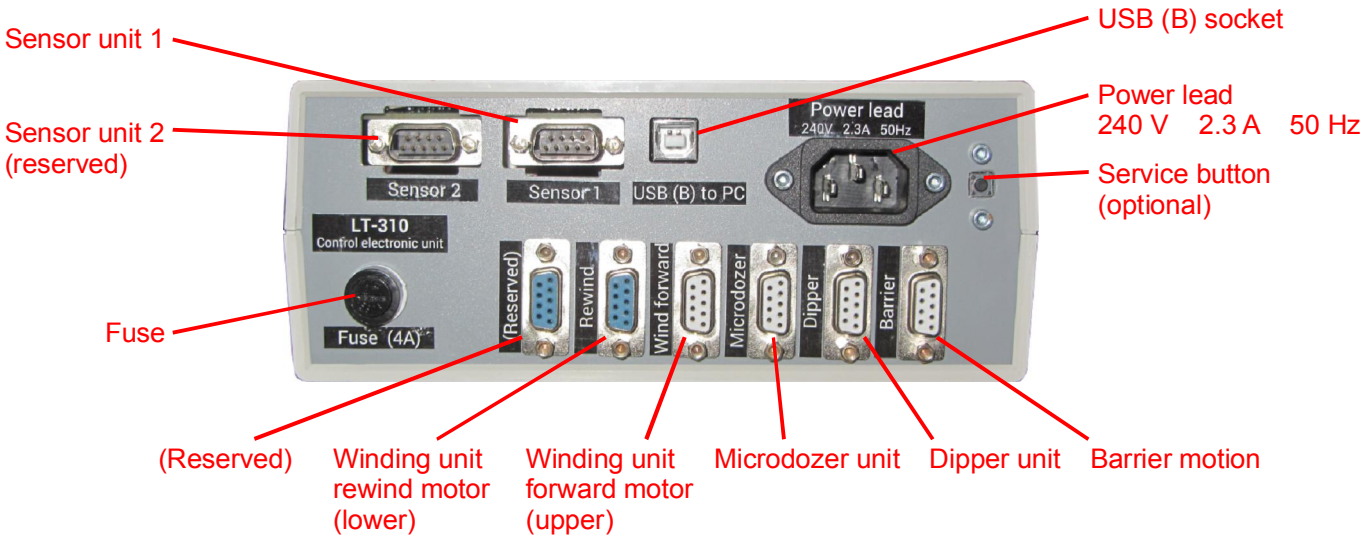
1.5. Attach the substrate holding lever to carriage of the dipper unit. Use two M3x10 screws. (Or attach it with the adapting block using two M4x20 screws)

1.6. Connect the units with corresponding sockets on the control electronic unit. For connecting barrier motor in the trough, use separate cable from the set. Connector of the barrier motor is located on left wall of the trough under the barrier mechanism.



Allocation of connectors on rear panel of the LT-310 control electronic unit is presented below.

Connectors on rear side



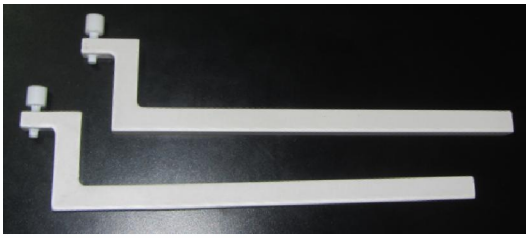
Front view of the control electronic unit is shown below. Main switch is located on the front panel of the unit.

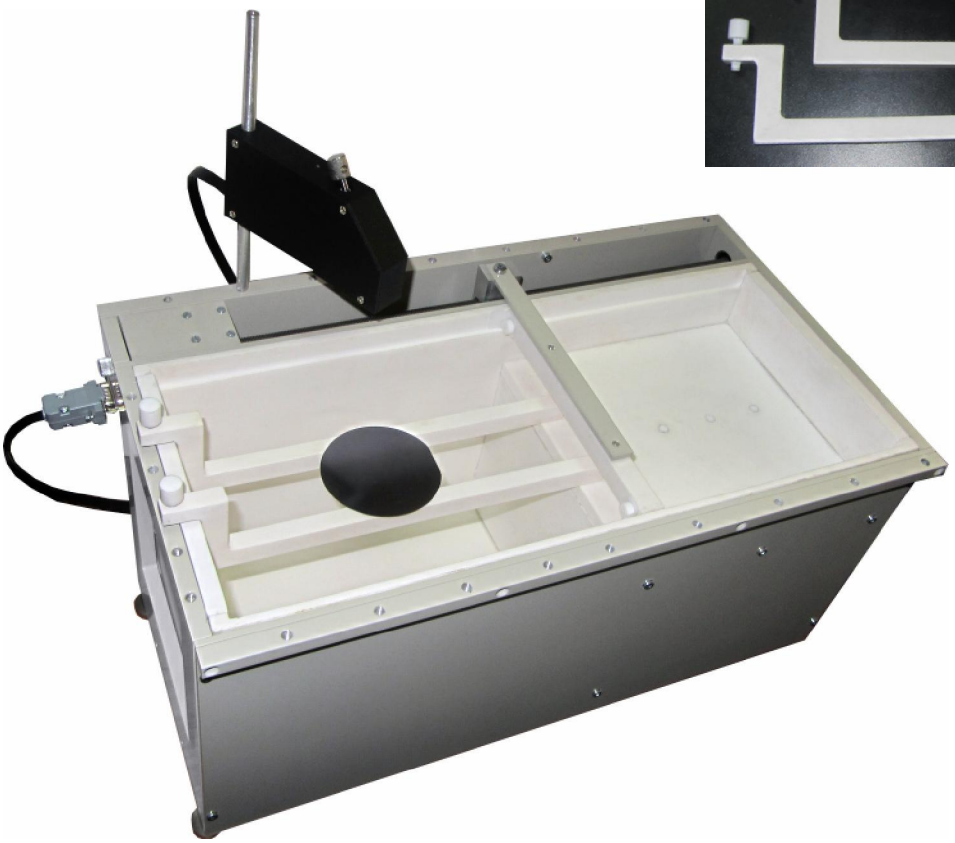
2. Configuration of the trough for horizontal precipitation.

To use LT-310 for horizontal precipitation, it should be equipped with horizontal barrier, surface tension sensor and specialized rig – two Z-shaped PTFE bars with adjusting screw on one end. The procedure also provides for draining of liquid medium from the trough that means that draining hose(s) will be actively employed.

2.1. Install horizontal barrier and surface tension unit onto the trough as it was described in 1.2–1.4. Also check if the draining hoses are attached to the nozzles on bottom and they are closed. Dipper unit if installed should be lifted up of the working zone. All necessary units should be connected to the control electronic unit.

2.2. Using two Z-shaped bars from the set, place them above the dipping well of the trough with adjustable ends resting on the trough left wall and other ends resting on shallow part of the trough. The adjusting screws serve to change inclination angle of the substrate to be used for the horizontal precipitation. Example of the substrate placement on the rig for horizontal precipitation is shown below.



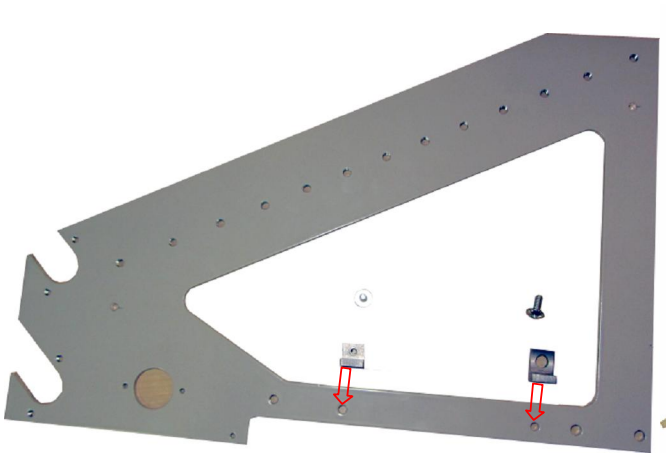


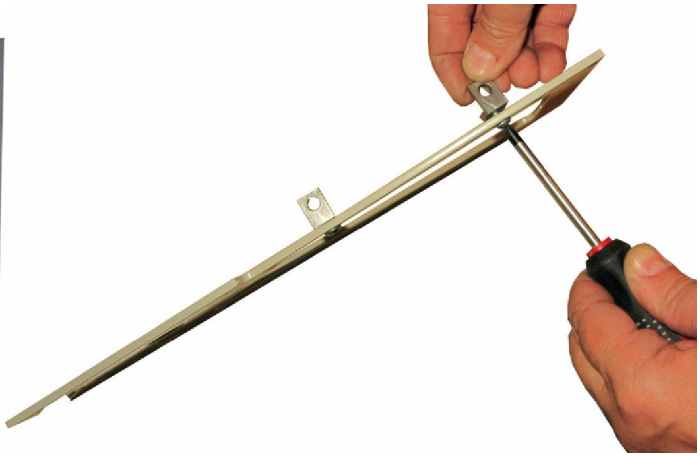
3. Configuration of the trough for deposition on tape substrate.

To use LT-310 for deposition on tape substrate, it should be equipped with horizontal barrier, surface tension sensor and specialized rig for tape winding (see figure below). Additionally, a microdozer may be also involved to automate replenishment of active substance in the liquid interface. Note, the microdozing unit may be either of syringe-type or a peristaltic pump. The peristaltic pump may be installed directly in the right wall of the trough (shown below)/

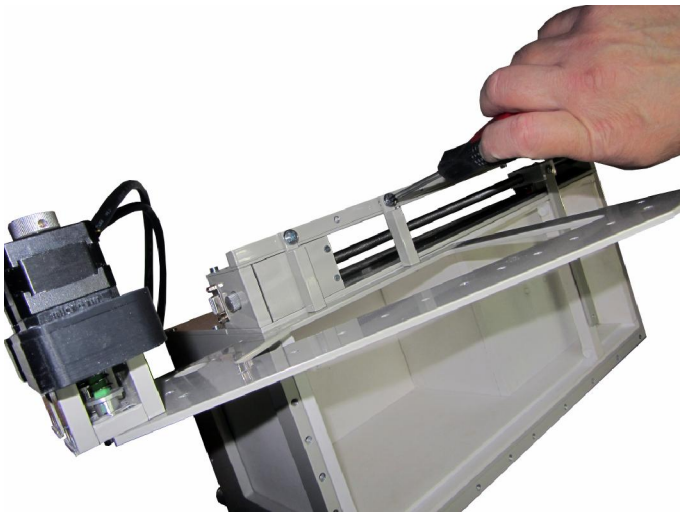
3.1. Attach two extending mounting bars (in the center of left figure below) to rear frame (with two installed stepper motors) as shown in right figure below. Use two M4x10 screws.

3.2. Attach two L-shaped parts (in the center of left figure below) to front frame as shown in right figure below. Use two M4x10 screws.

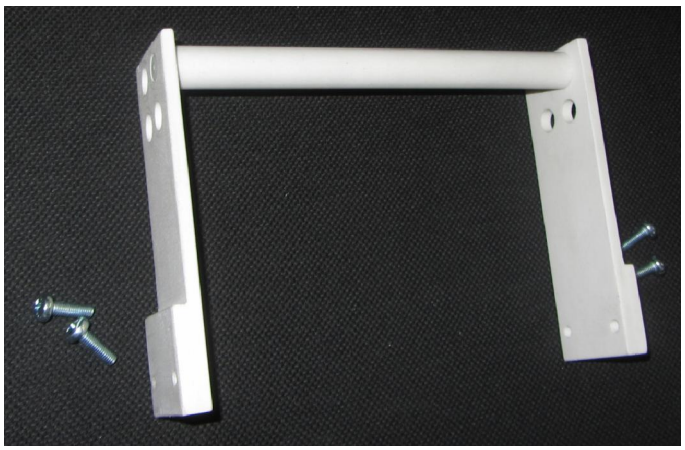




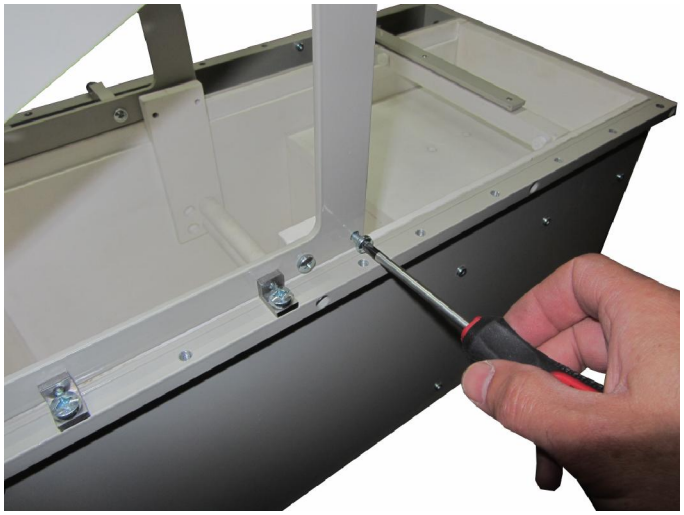
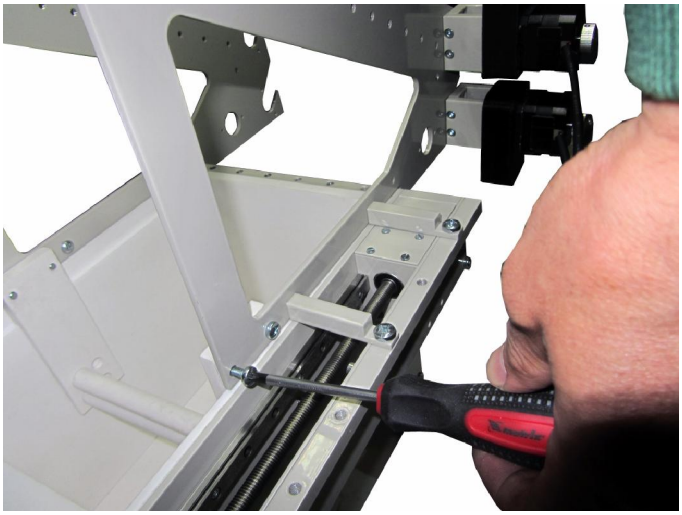
3.3. Mount rear and front frames of the tape winding set on the trough using M6x12 screws.



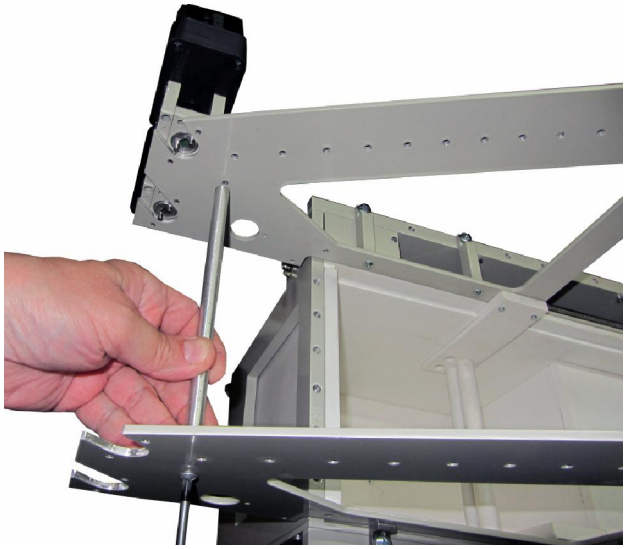
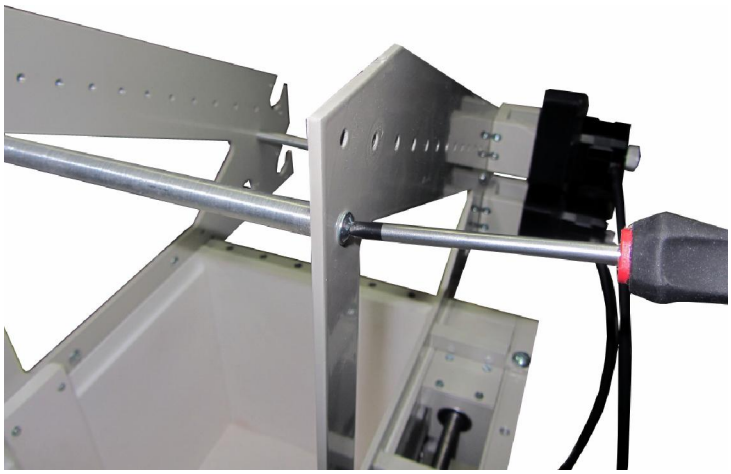
3.4. Insert one or two PTFE guides to the PTFE holders and insert all them into dipping well. The guide(s) will organize motion of the submerged portion of the tape substrate



3.5. Fix the holders with guide(s) at the frames with M5x16 screws.

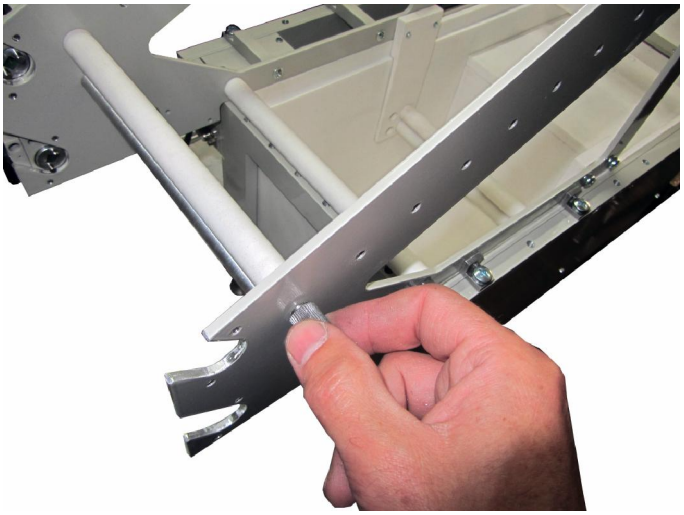



3.6. Install two aluminum spacing bars between front and rear frames using M4x10 screws.

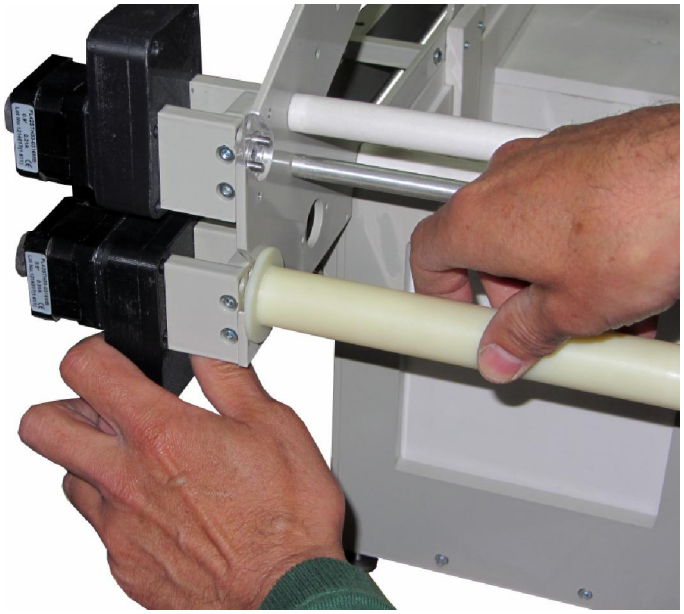



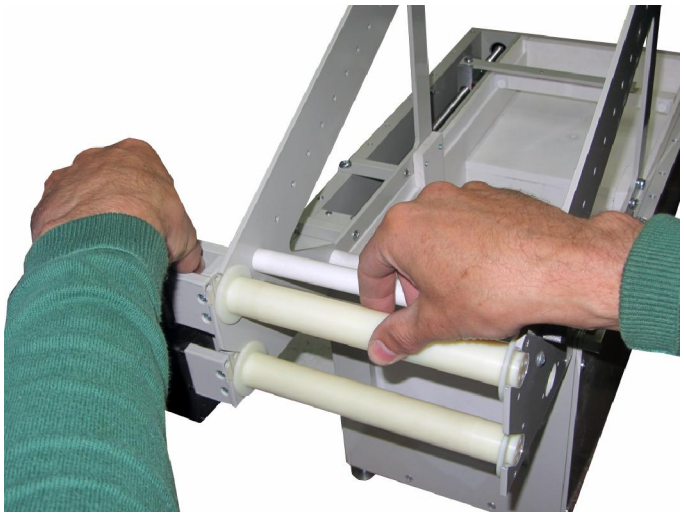
3.7. Install between the frames above left wall of the trough one PTFE bar with bearings at its ends as permanent lower roll. To fix the roll in the frames, use specialized screws with centering point.

3.8. Install between the frames a PTFE bar with bearings at its ends as upper roll. To fix the roll in the frames, use specialized screws with centering point. The bar may be installed in any of 13 positions providing different extraction angles of the winded tape: from 30° to 90° with step 5°. In the figure below, the bar is installed into position of 30° extraction angle.



3.9. To install feeding spool into the winding mechanism, shift toward the motor the coupling muff and insert the spool into lower pair of the inclined slots. Then release the coupling muff and spin a little the spool or the motor shaft so that the fork on the muff couple with the spool. Similarly, install upper spool.





3.10. Mount vertical rod for surface tension sensor unit in the suitable hole on the trough walls. Install the surface tension sensor unit and adjust its vertical position.