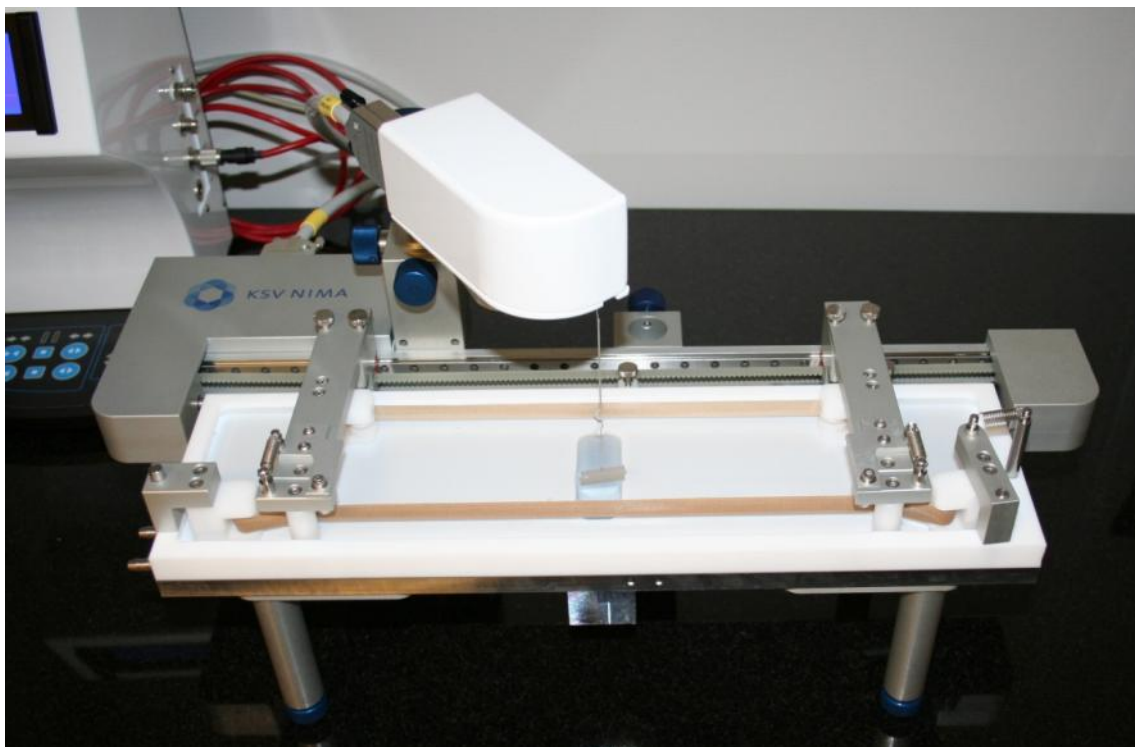




KSV NIMA

Ribbon Barrier Manual



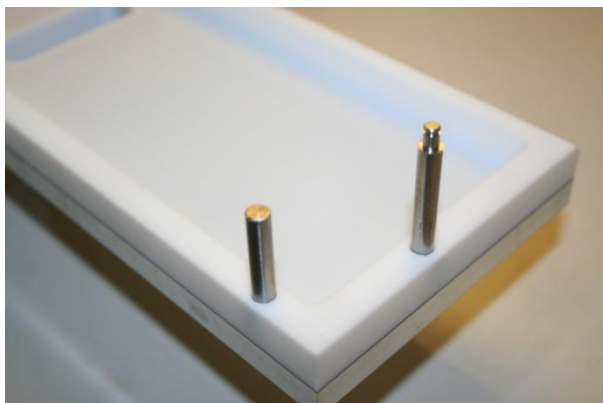
Langmuir and Langmuir-Blodgett devices

Revision 1.2

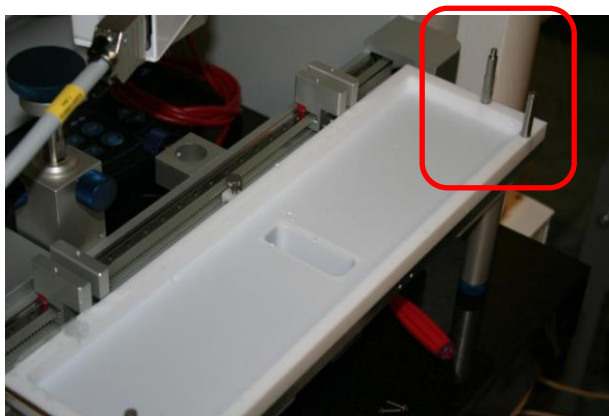


Cleaning and assembling the trough

Start by mounting the ribbon holder alignment poles are mounted on the trough. Screw them in so that the pole with rail is on the right side end and the two plain poles are in the corners of the front end.



Start cleaning of the trough by brushing it gently with paint brush soaked in ethanol (brush is provided with monolayer kit). Keep the trough tilted when brushing and start from top to down. Then rinse the trough carefully with deionised water. Once the trough has been rinsed thoroughly place it on top of the frame. (Note: Additional cleaning step is to wipe the trough with dust free Kimwipe which is soaked in chloroform). Use the alignment pins at the back to position the trough. When the trough is placed correctly the two poles are in the right front corner and single pole is in the left front corner.





Once the trough is in place clean the ribbon holder same way as the trough. Then set the left side ribbon holder on the trough top as shown in image below. The locating pole slides in and the ribbon holder touches the bottom of the trough. Then proceed the same way with the right side ribbon holder.

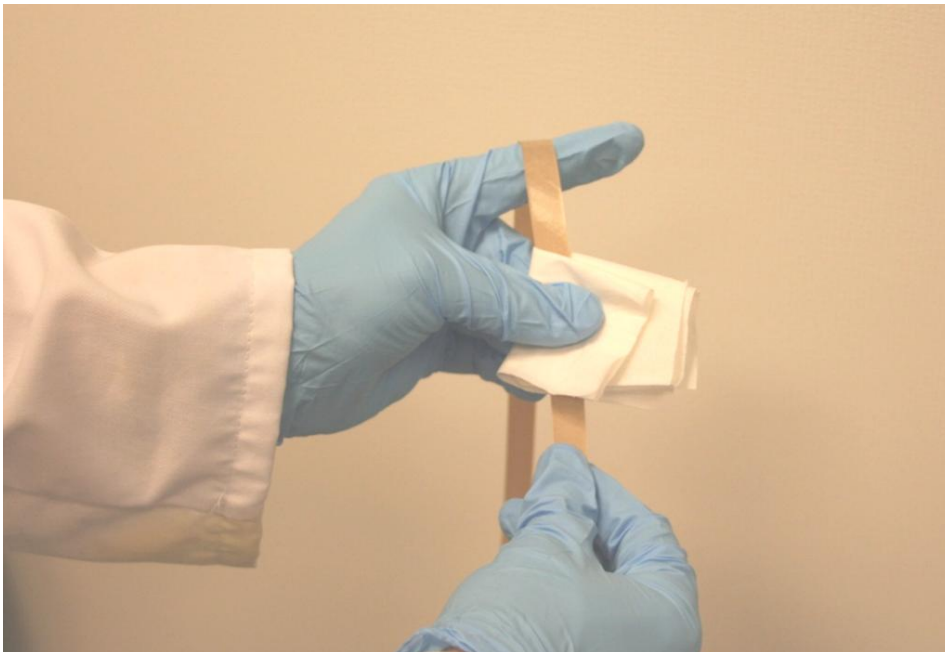


Once the right side ribbon holder is in place add the tightening spring on top of the pole mounted on the right side of the trough.

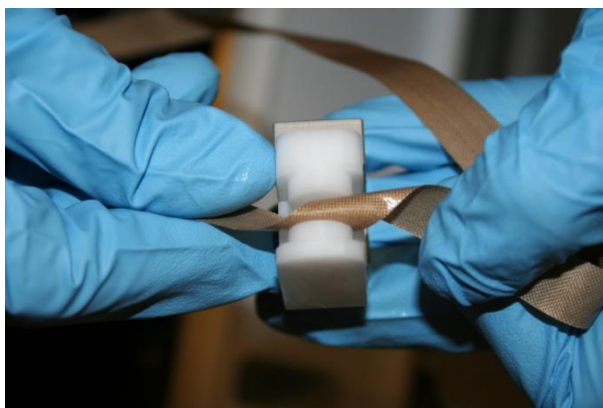




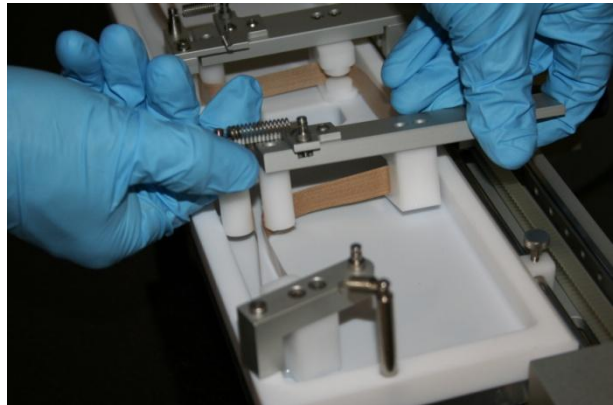
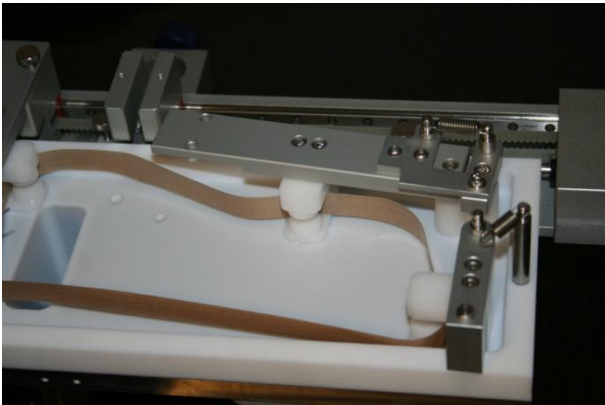
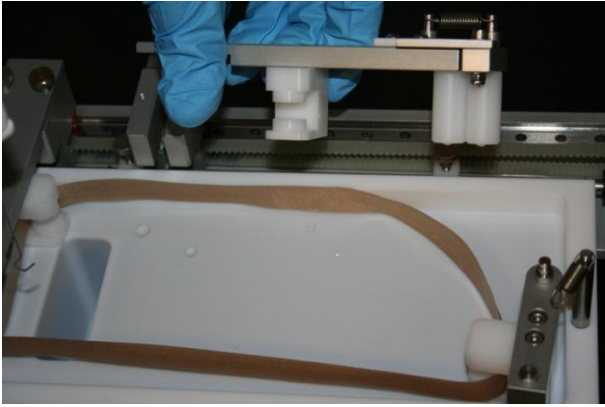
Then clean the ribbon by using Kimwipe and chloroform.



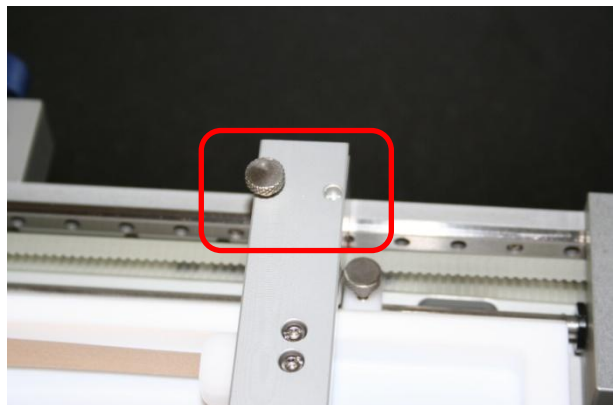
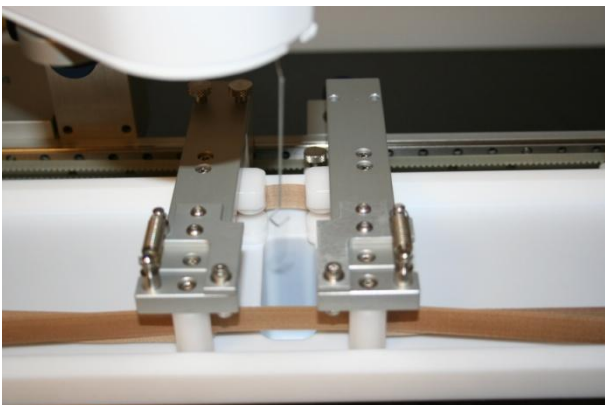
Then mount the ribbon gently on both of the ribbon holders on the trough top. Note that gently twisting the ribbon helps on placing it in the holders. Try to prevent the ribbon from touching any other surface than the clean trough top.



Once the corner holder are in place clean the barriers same way as the holders. After that mount the barriers on the ribbon as shown below. Note that it is easier to mount them when barrier holders are compressed to the center.

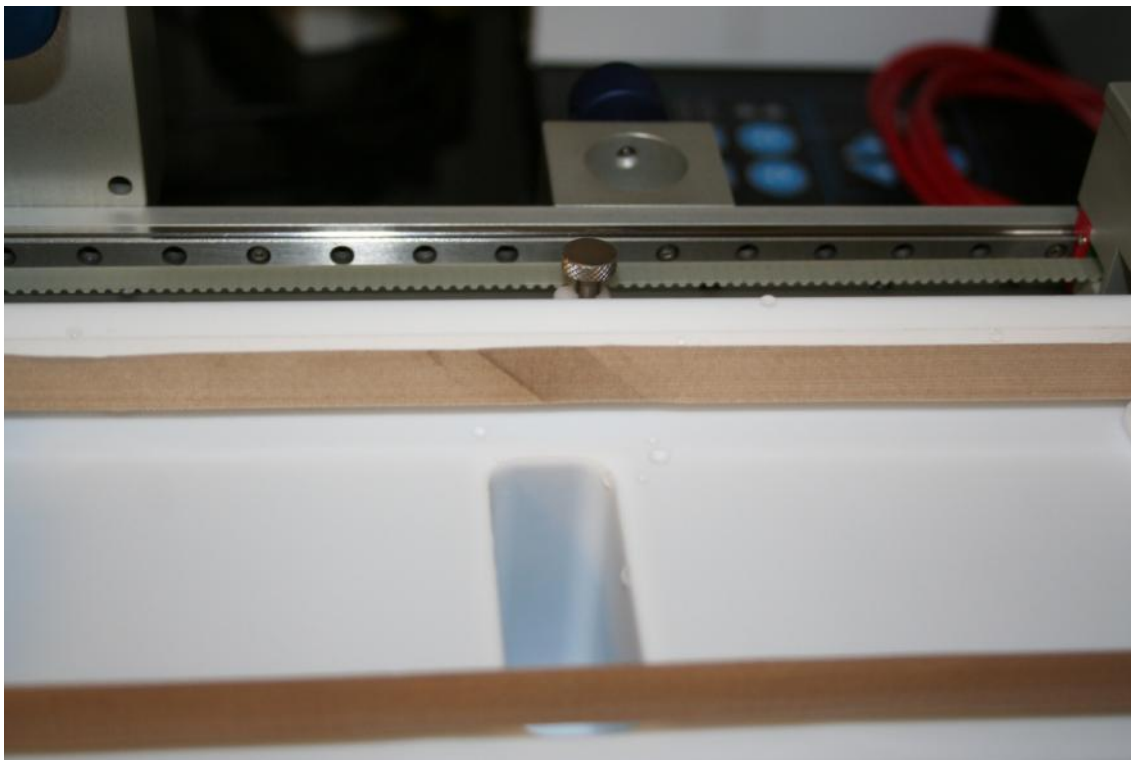


Once the ribbons are mounted on the barriers lock the barriers on the holder by using the finger screws as shown below. Make sure to align the barrier with the barrier drive. Note that the ribbon can be slid through the barrier in order to align the mounting screw holes.

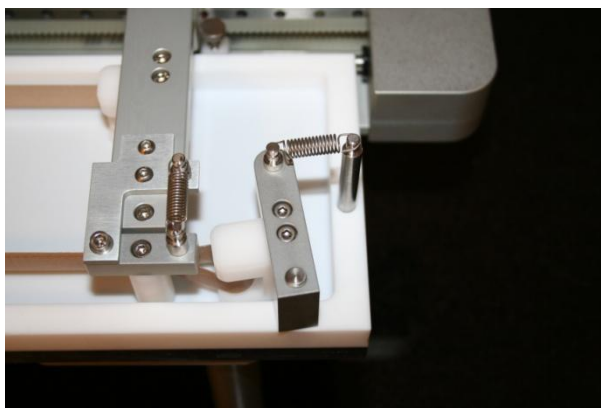
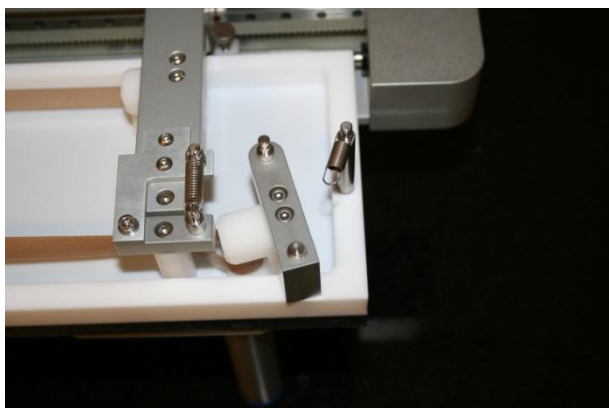




The ribbon seam could be place in the center or on either side of the corner ribbon holders. Main thing is that the seam does not go through the PTFE sealing rolls. That could potentially cause a leakage of the monolayer.

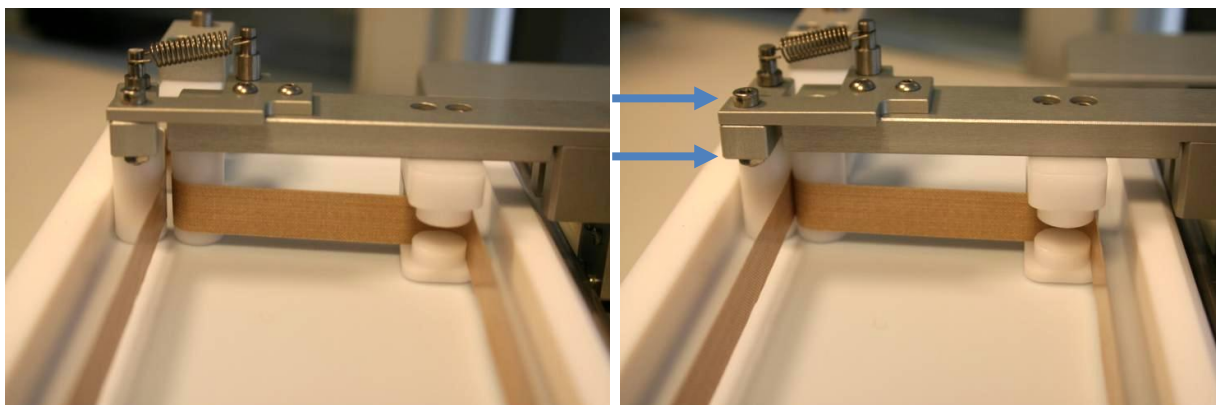


Then tighten the ribbon by mounting the spring from the end pole to the right side ribbon holder.

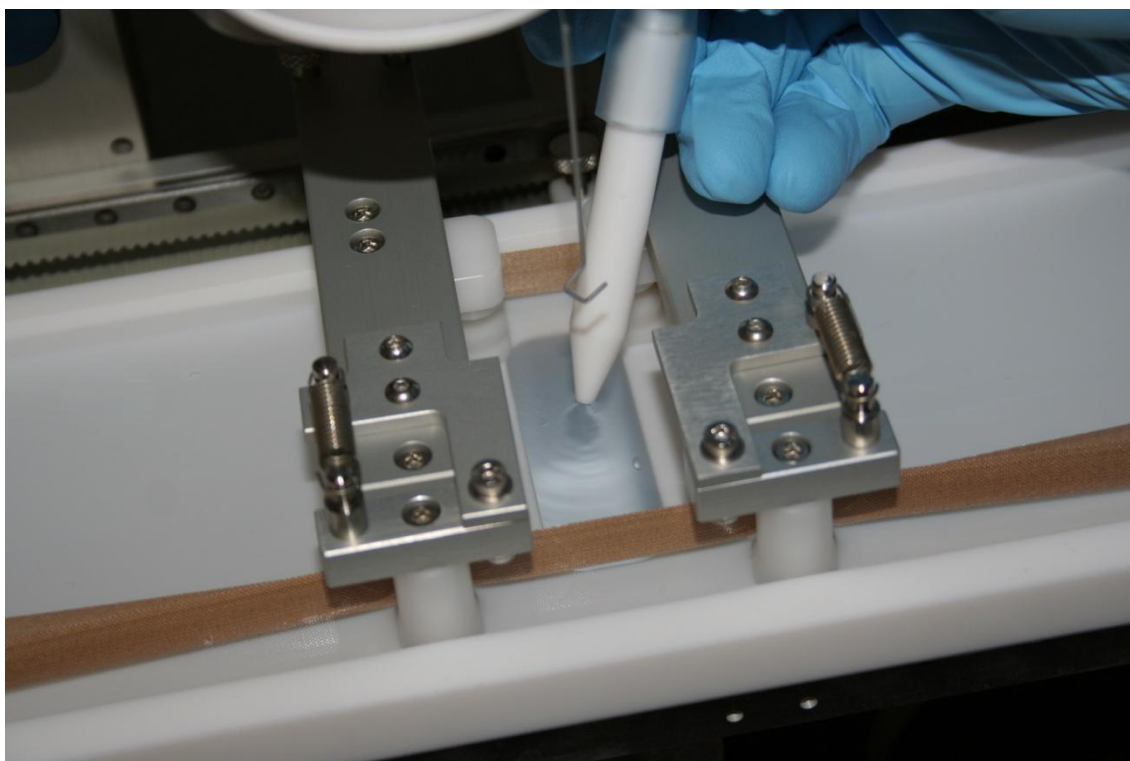




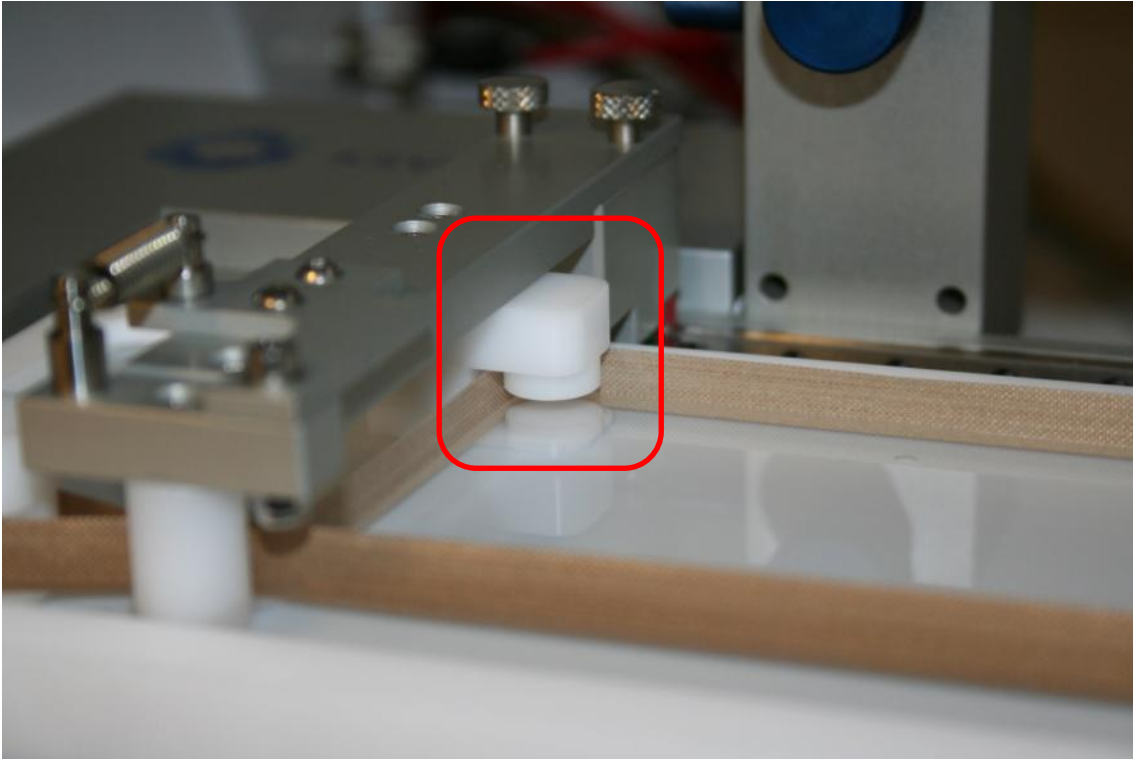
Once the ribbon is tightened confirm that the PTFE rolls press firmly against each other. In case a small gap is seen between the rolls tighten gently the screw indicated below. Hold counter bolt in place if it rotates with the screw.



After that the system is ready to be used. Open the barriers, fill in the subphase so that it is roughly half way of the ribbon and compress the barriers to the center. Then perform suction on surface and make sure the water level is at least 2mm above the ribbon edge.



Make sure that the top part of the ribbon holders is not touching the subphase and the subphase level is between the empty area of the holders.

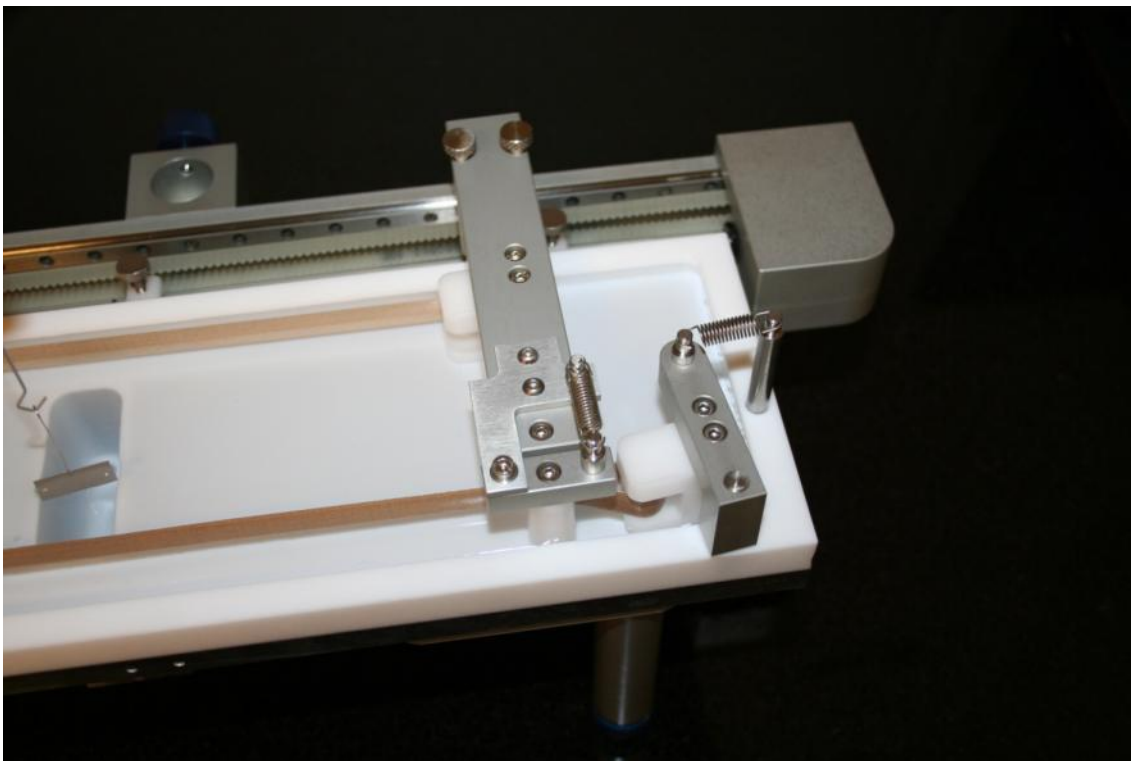
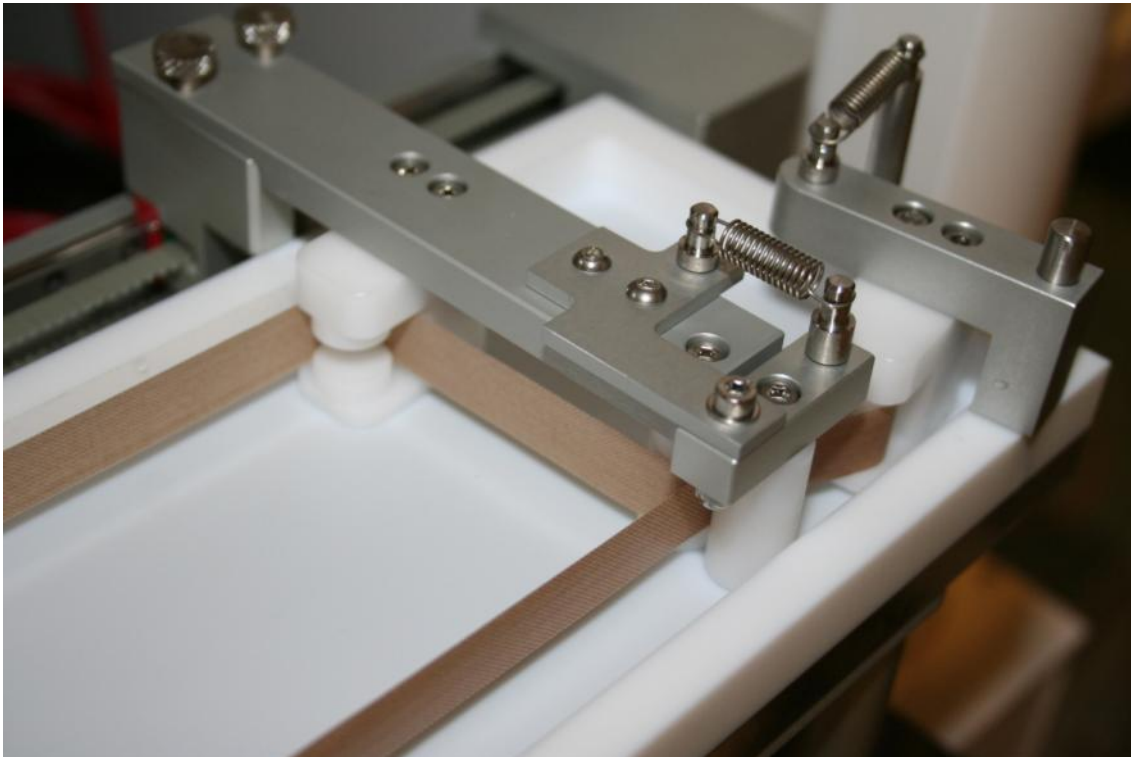




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Additional images of the ribbon barriers system.

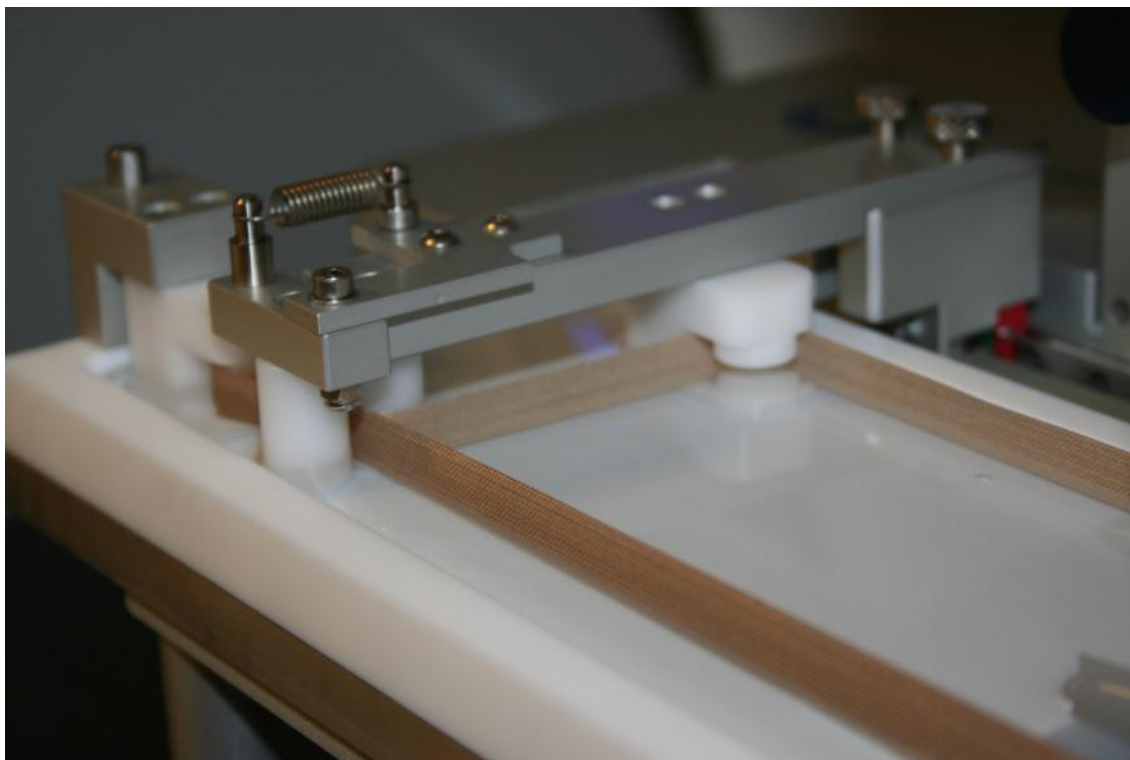
Right side ribbon barrier holder.





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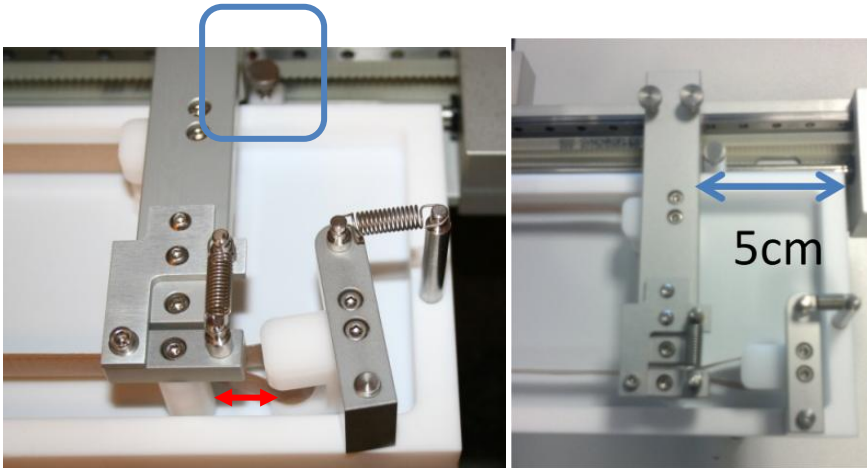
Left side ribbon barrier holder.



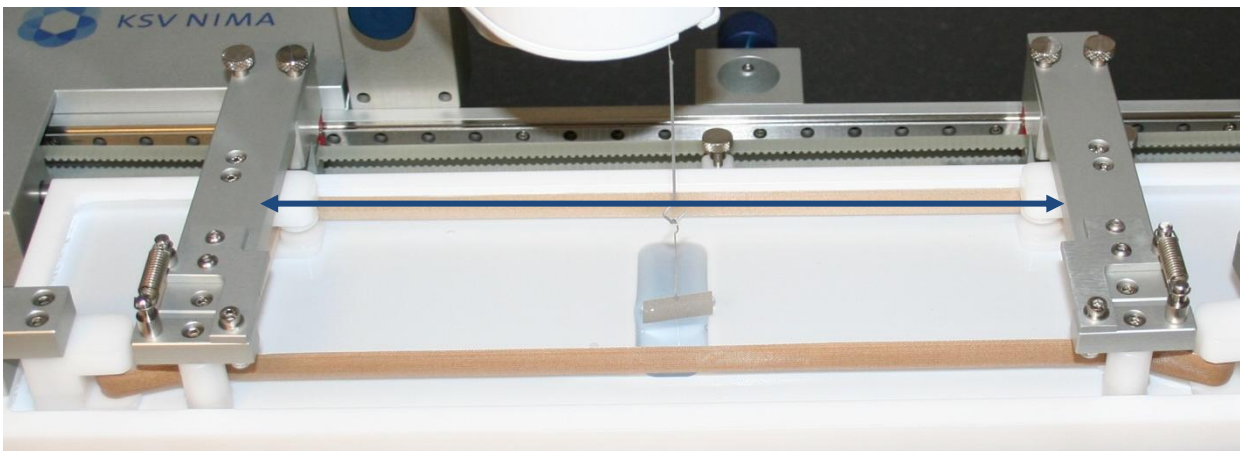


Calculating active area and adding Ribbon Trough Top to LB software

First move the right side limit switch to same positions as shown on the image below (inside blue square). If you are unsure of the position start first placing the limit switch closer to the trough centre. This way you can avoid the ribbon barrier holders from hitting each other and possibly damaging the parts (space between the red arrow heads). Typically 5cm from the trough end is sufficient.



Once the limit switch is set in place open the barriers until they stop. Then measure the distance between the inner sides of the metal ribbon holders as indicated below.



Once you know the distance you can use the table on the next page to define your ribbon barrier trough top active area.



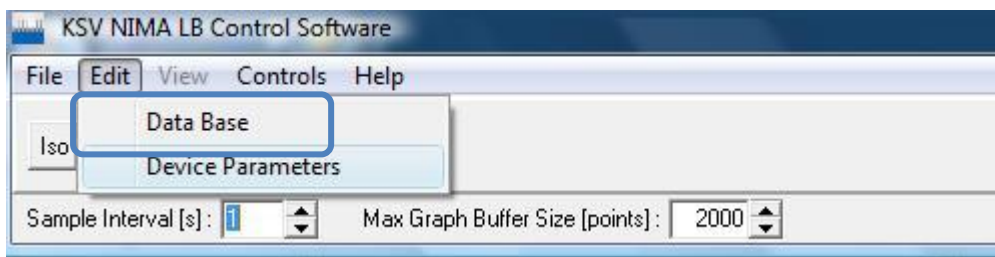
Barrier distance (mm)	Trough area (mm^2)
140	9946
141	10013
142	10080
143	10147
144	10214
145	10281
146	10348
147	10415
148	10482
149	10549
150	10616
151	10683
152	10750
153	10817
154	10884
155	10951
156	11018
157	11085
158	11152
159	11219
160	11286
161	11353
162	11420
163	11487
164	11554
165	11621
166	11688
167	11755
168	11822
169	11889
170	11956
171	12023
172	12090
173	12157

174	12224
175	12291
176	12358
177	12425
178	12492
179	12559
180	12626
181	12693
182	12760
183	12827
184	12894
185	12961
186	13028
187	13095
188	13162
189	13229
190	13296
191	13363
192	13430
193	13497
194	13564
195	13631
196	13698
197	13765
198	13832
199	13899
200	13966
201	14033
202	14100
203	14167
204	14234
205	14301
206	14368
207	14435
208	14502
209	14569

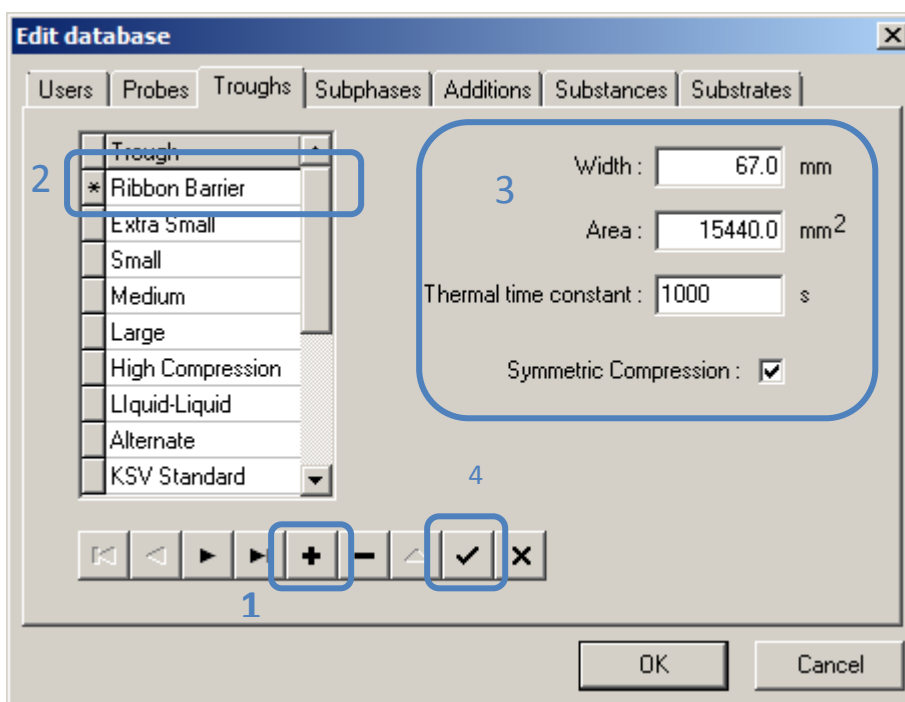
210	14636
211	14703
212	14770
213	14837
214	14904
215	14971
216	15038
217	15105
218	15172
219	15239
220	15306
221	15373
222	15440
223	15507
224	15574
225	15641
226	15708
227	15775
228	15842
229	15909
230	15976
231	16043
232	16110
233	16177
234	16244
235	16311
236	16378
237	16445
238	16512
239	16579
240	16646



After you have select the proper area open the "Data Base" window on your KSV NIMA LB software. It can be found under the "Edit" menu on the Measurement window(for more detailed instruction see KSV NIMA Software Manual).



Then select "Troughs" menu and add a new trough by following the numbered items shown below. The Ribbon trough width is fixed the area value has to be filled according to your barrier distance. For the thermal constant a value of 1000 can be added. To finalize addition of a new trough top select the check mark button.





Lifting balance holder

With some KSV NIMA frames the balance holder will have to be lifted in order to allow the barriers to move with the higher finger screws. Below are two images showing which screws to remove. The holder stays nicely in place with just two screws.

