

Multi Corer, 6 x Ø110 mm

Model 70.000

Manual

**KC** Denmark A/S

Research Equipment  
Limnology • Oceanography • Hydrobiology

## Multi Corer – 6 x Ø110 mm



This multi corer is very dangerous in unskilled hands and serious precautions must be taken to avoid accidents.

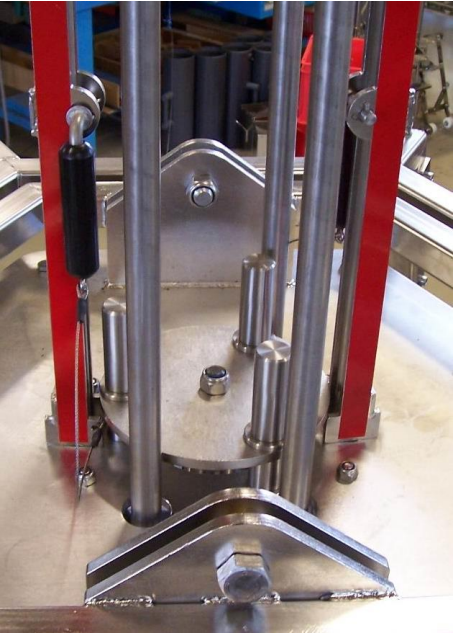

The safety clamps must always be in the secured position and must be released only, when the multi corer is outside the rail of the boat.



KC Denmark A/S is not, and cannot be held, responsible for any damage(s) made to equipment or to operators who ignore safety precautions or because of misuse or wrong operation.


For security reasons, never walk under the multi corer, when lifted by the winch.

### Table of Contents

| Item  | Description                           | Page  |
|-------|---------------------------------------|-------|
| 1-5   | Preparation                           | 3-4   |
| 6     | The hydraulic damper                  | 4     |
| 7-14  | Mounting the sample tubes             | 5-7   |
| 15    | Adding lead weights                   | 7     |
| 16-17 | Deployment                            | 8     |
| 18-20 | Protection net                        | 8-9   |
| 21    | Securing the multi corer              | 9     |
| 22-26 | Securing and ejecting the sample      | 10-11 |
| 27-28 | Transportation                        | 12    |
| 29    | Cleaning the multi corer              | 12    |
| 30    | Brief characteristics of the function | 13    |
| 31    | Troubleshooting and maintenance       | 13    |
| 32    | Storing the multi corer               | 14    |
| 33    | Safety Regulations                    | 14    |

| Item  | Description   |   |
|---|---|---|
| <p data-bbox="235 304 357 441"> <br/> <b>Caution</b> </p> <p data-bbox="154 462 982 661">           1 Check that both safety clamps are placed correctly.<br/><br/>           The sample unit itself is mounted at a universal joint at the top, allowing a tilt of 10° (approx.)<br/><br/> <u>See video "1 - Attach Mounting Clamps"</u> </p> |   |    |
| <p data-bbox="154 1123 966 1291">           2 <u>If you don't use this rack</u>, the upper part of the multi corer has to be hitched on the lifting hook from the winch. Remove the multi corer from the transport pallet and ensure you have workspace for attaching the legs, etc.         </p>   | <p data-bbox="235 997 966 1102">           The photo shows the multi corer with a transportation rack (optional). The rack will also be used during the preparation.         </p> |   |
| <p data-bbox="154 1659 966 1701">           3 Fasten all legs at the top, using 4 bolts/nuts each leg.         </p>   |   |  |

|   |  |   |
|---|--|---|
| 4 | Attach the spacers between the legs and make sure to tension the bolts tightly.    |  |
| 5 | The multi corer with legs and spacers. The photo shows a smaller rack for 6 tubes. |  |

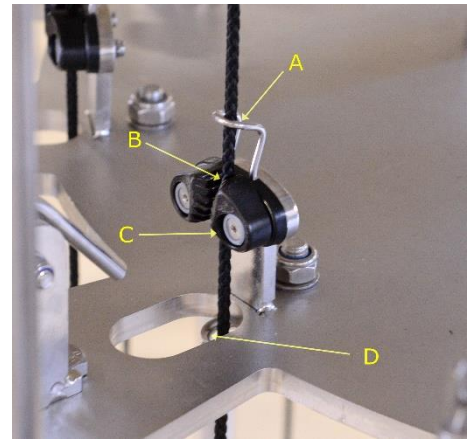
| <b>The Hydraulic Damper</b> |   |   |
|-----------------------------|---|---|
| 6                           | <p>The multi corer has an automatic, hydraulic damper located at the centre.</p> <p>Upon lowering to the sea, the damper is filled up with water through the inlet.</p> <p>When the multi corer hits the seabed, the water is forced through the outlet, causing a delay before the tubes penetrate the sediment.</p> |  |

## Mounting the Sample Tubes

7

The black lines holds the bottom drawer in open position during deployment. Make sure the line is inserted into "A", tilt one of the black knobs "C" allowing you to insert the line "B". Make sure the line is taut and forced towards the bottom of the lock. The line must pass through the eye "D".

See video "2- Release Lines"



8

Force the spring-loaded bottom drawer "A" toward "B" at the centre of the sampler; the back side of "A" has an eye to be aligned beneath "B"

While holding "A" in position, insert security pin into "B", so the bottom drawer remains locked in open position.

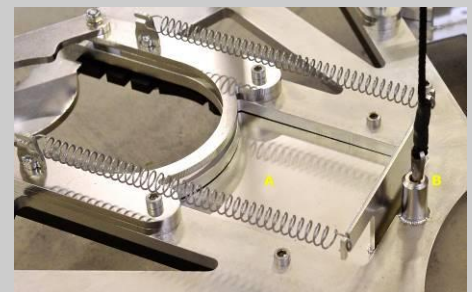
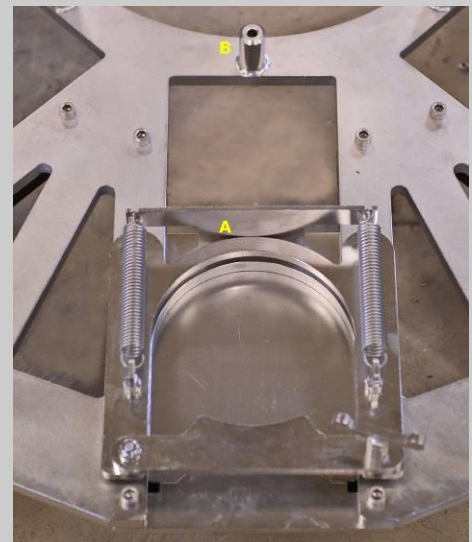


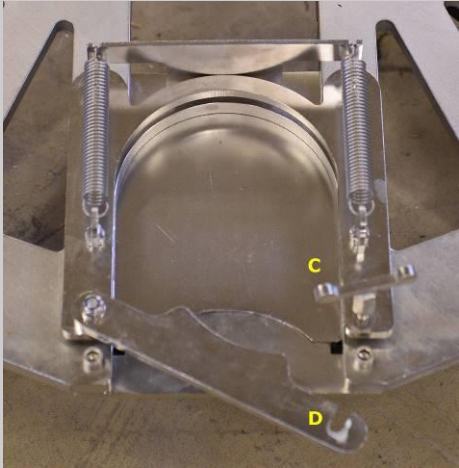
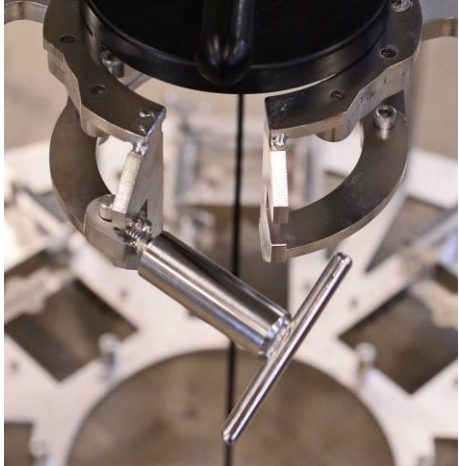
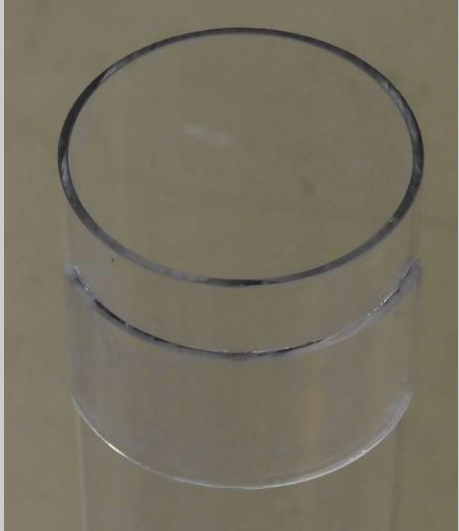
Once loaded you must avoid an unattended release as the mechanism may cause injury to body parts.

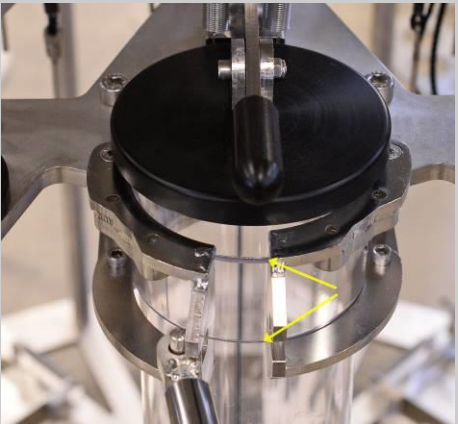

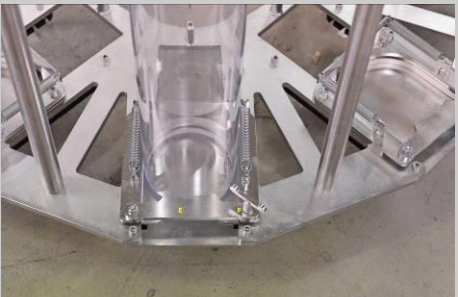
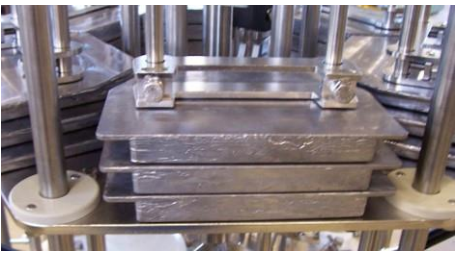
We strongly recommend to mount the sample tubes BEFORE loading the drawers; in this way you achieve much better safety against injury.


Lower photo: The drawer is loaded in correct position.



See video "2 - Release Lines"



|    |  |   |
|----|--|---|
| 9  | Loosen the handle "C" and open "D".  |    |
| 10 | Turning the T-handle anticlockwise allows you to open up the clamp.                              |   |
| 11 | Sample tube with reinforcement.<br>The multi corer also supports stainless steel tubes (73.100). |  |



|    |  |   |
|----|--|---|
| 12 | Insert the sample tube and align the reinforcement so it fits into the clamp.  |    |
| 13 | Turn the T-handle clockwise to fasten the sample tube. Do not overtighten as you may damage the tube. You may open the black lid to ensure it can open freely once the sampler is deployed.  |   |
| 14 | Close the lower bracket "E" and tighten "F".   |  |
| 15 | <p>Add the necessary lead weights to the platform and do not forget to secure the position by fastening the bolts on the brackets.</p> <p>The amount of weights must be equal to all weight stations to ensure a properly lowering and penetration of the seabed.</p> <p><u>See video "3 – Mount Lead Weights"</u></p> |  |



|    |  |   |
|----|--|---|
| 16 | <p>Now the multi-corer is ready for deployment.</p> <p>As far as possible, remove the safety clamps when the multi corer is outside the rail of the boat.</p> <p><u>See video "4 – Remove the Safety Clamps"</u></p> <p>Lower the rack to the seabed.</p> <p>When the multi corer hits the sea bottom, the damper activates the tubes and the samples will be taken.</p> <p>Wait 1-2 minutes before raising the multi corer to the deck.</p> <p><u>See video "5 – Deployment"</u>. It simulates the deployment and release of the multi corer.</p> |   |
| 17 | <p>When hoisting the sampler, the sediment tubes are withdrawn from the sediment, and the drawers close to protect the samples from exit.</p> <p>The photo shows the closed drawers.</p>   |  |

| <b>Protection Net</b> |  |   |
|-----------------------|--|---|
| 18                    | <p>A protection net (optional) can be attached to the frame to avoid infiltration from the main wire.</p> <p>The photo shows a smaller rack for 6 tubes.</p>     |  |
| 19                    | <p>Align the net, so the white reinforcements will rest on the legs to reduce wear and tear for the green net.</p> <p>The net is secured to the ring at top.</p> |  |



|    |                                   |   |
|----|-----------------------------------|---|
| 20 | Fasten the lower part of the net. |  |
|----|-----------------------------------|---|

| <b>Securing the Sampler</b> |   |  |
|-----------------------------|---|--|
| 21                          | <div style="text-align: center;">  <p><b>Caution</b></p> </div> <p>After the sample has been taken and you raise the multi corer, it is very important to mount the safety clamps before doing any job on the sampler.</p> <p><u>See video "1 – Attach Safety Clamps".</u></p> |  |

| <b>Securing and Ejecting the Sample</b> |  |   |
|---|--|---|
|   | <p>For emptying the sample tube, you must have a thin plate at the end of the tube to keep the sample while removing the tube.</p> |   |
| <p>22</p>                               | <p>The extruder.<br/> <u>See video "7- Extruder".</u></p>  |   |
| <p>23</p>                               | <p>Turn the T-handle anticlockwise to open the bracket.</p>  |  |

|           |   |   |
|-----------|---|---|
| <p>24</p> | <p>Insert the sample tube and turn the T-handle for fastening the tube. Do not overtighten as you may damage the tube or hinder the extruding.</p> <p>Turn the black handle to extrude the sediment sample.</p> |    |
| <p>25</p> | <p>The fraction tray 70.420 (optional) is used for slicing the sediment sample. Add the tray on top of the sample tube and secure it with the wing nut.</p>   |   |
| <p>26</p> | <p>Once the sample is extruded, you can lower the piston inside the sample tube. Press the pawl and turn the black handle simultaneously.</p>   |  |

## Transportation

27



Always remember to mount the safety clamps during transport or work with the multi corer.

See video "1 - Attach Safety Clamps".



28



The sample unit itself has a universal joint at the top of the rack and all top lids must be secured by mounting the white plastic line to avoid damage to the handles.



## Cleaning the Multi Corer

29

Before transportation or storing the sampler all parts must be rinsed carefully with fresh water.



| <b>Brief Characteristic of the Function</b> |  |
|---|--|
| 30  | <p>While the multi corer is lowered into the water, there is a full flow through the sample tubes in order to obtain an undisturbed sample.</p> <p>The top of each sample tube has a spring-loaded lid, which is in open position during the sample taken. For each core a spring-loaded horizontally placed drawer is mounted at the bottom plate and when the sampling is completed, they are pressed in position under the sample tubes. At the same time the 12 top lids will close. Both functions will secure the samples.</p> |

| <b>Troubleshooting and Maintenance</b> |   |
|--|---|
| 31                                     | <p>When using the corer, you might encounter problems with the sampling.</p> <p>If the sediment is too soft, it will not be able to take a correct sample, as you will need a "bung" of hard(er) sediment to hold the sample inside the core tube. Otherwise, the soft sample will seep away because of the small space of app. 1 - 2 mm between the bottom of the sample tube and the moveable closing mechanism. (It will depend on the change of temperature from sea deck to bottom of the sea).</p> <p>If the depth of penetration is too low, it will be necessary to add more weights to the weight station (the moving part of the corer) and to the top of the rack.</p> <p>When you raise the sampler, it is important to have a reasonable weight on the rack to ensure the closing mechanism will work correctly. If the weight of the rack is too small and you raise the sampler, the rack will begin to rise before the closing mechanism has locked and secured the sample. Please add more weights to the rack.</p> <p>For a smoother operation we recommend regularly use of silicone grease on the vertical bars, where the parts move up and down.</p> <p>In case you need a faster penetration, you can make a small modification to the hydraulic damper. Disassemble the valve in the hydraulic damper, and you will see a small plastic orifice with a hole. The hole herein might be enlarged to increase the flow for a faster penetration.</p> |

| <b>Storing the Multi Corer</b> |  |
|--------------------------------|--|
| 32                             | <p>Before storing the sampler:</p> <ol style="list-style-type: none"> <li>1. Remove all sample tubes.</li> <li>2. All closing drawers must be released to keep the strength of the springs.</li> <li>3. Rinse all parts of the sampler carefully with fresh water to avoid rust and corrosion.</li> </ol> <p>You can store the sampler in two ways:</p> <ol style="list-style-type: none"> <li>1. In loaded position, having the safety clamp attached.</li> <li>2. You may remove the safety clamp and the sample tubes. By use of the winch, lower the multi corer slowly, so it will empty the hydraulic damper.</li> </ol> |

## Safety Regulations



KC Denmark A/S is not, and cannot be held, responsible for any damage(s) made to equipment or to operators who ignore safety precautions or because of misuse or wrong operation.

An expert maintenance technician fully familiar with the attendant hazards must only do all maintenance, inspection and repairs.

Persons charged with working with the multi corer and the accessories must be trained specially for the purpose with special abilities and experience in this area as well as being equipped with the appropriate tools and individual safety equipment. Failure to meet these requirements constitutes a risk to personal health and safety and economic damages.

When working on the unit in areas, which are difficult to access or hazardous, ensure to take adequate safety precautions for the operator and others in compliance with the provisions of law on health and safety at work.

Replace worn component with original spare parts. Use the lubricants (oil and grease) recommended by the manufacturer.

Rev.: October 25, 2021 - lkj

# KC Denmark A/S

Research Equipment  
Limnology • Oceanography • Hydrobiology

E-mail: [sales@kc-denmark.dk](mailto:sales@kc-denmark.dk) website: <http://www.kc-denmark.dk/>

Holmbladsvej 17-19, DK 8600 Silkeborg, Denmark. Tel. +45 86 82 83 47

Bank: Sydbank. SWIFT: SYBKDK22 - IBAN DK5070460000104832

VAT no. DK 29 61 96 62