

MANUAL



Niskin Water Bottles Serie 60.xxx



Centre Hanger for Niskin


KC Denmark A/S


Research Equipment
Limnology • Oceanography • Hydrobiology

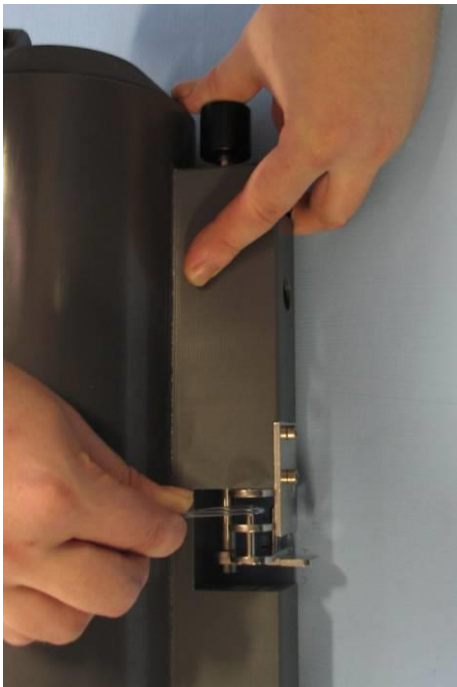


Niskin Bottles – 60.xxx Series


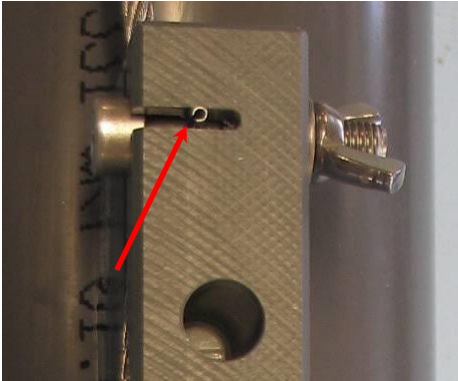
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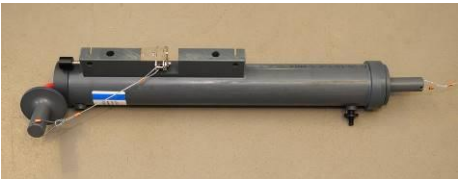
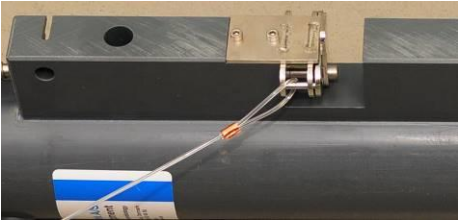


| Table of contents | Page |
|--------------------------------------|------|
| Preparation | 2 |
| Loading and releasing the bottle | 3 |
| Emptying the bottle | 6 |
| The centre hanger | 7 |
| Bottles in series (cascade) | 9 |
| Repair of valve for the water outlet | 9 |
| Maintenance and storing | 11 |

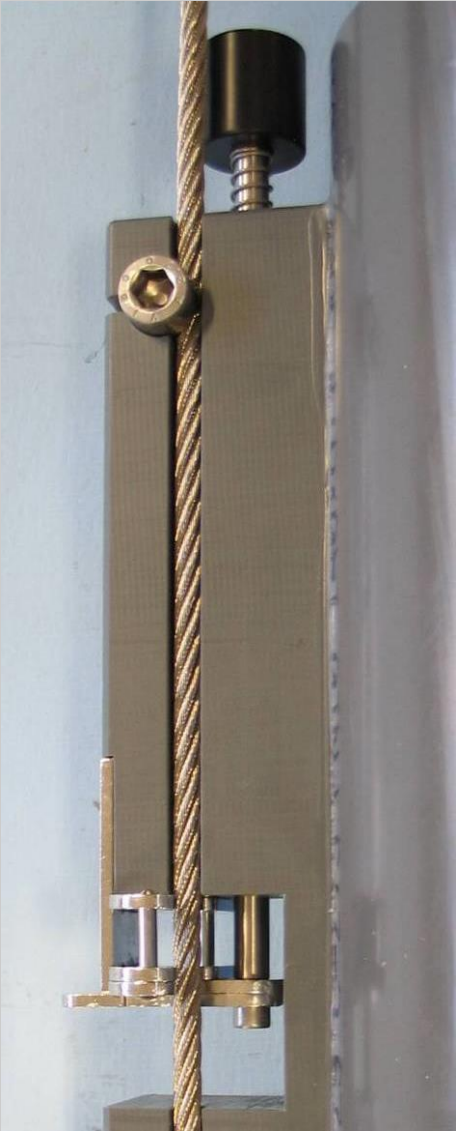
| Item | Preparation | |
|------|--|---|
| 1 | <p>Use a stainless steel wire or line with a diameter of 4-6 mm for the Niskin Water Sampler.</p> <p>The mechanism of the Niskin demands a vertical position of the sampler during release, and it can be obtained in 2 ways:</p> <ol style="list-style-type: none"> 1. Attach a weight (10 – 20 kg) to the end of the wire. The weight needed will depend of the current of the water. Use drop messenger of 400 g. (60.001). 2. Fasten a centre hanger (60.002) and the Niskin to the wire. You must use a drop messenger of 800 g (60.004). For the centre hanger you can use Niskin Bottles 61.xxx series (delivery comes without 400 g messenger and M10 mounting clamps). <p>Before every deployment, make sure that all moving parts are free to perform correctly.</p> | |
| 2 | <p>Close the drainage tap by pulling it towards you.</p> |  |


| | | |
|---|---|---|
| 3 | Close the valve at top of the bottle by turning it clockwise. |  |
|---|---|---|





| | Loading the sampler; 5 L and larger | |
|---|---|---|
| 4 | <p>To load the water sampler force the lids open at both ends, and while pushing the spring loaded black knob, insert the eye of the nylon line to the pin of the release mechanism. Releasing the knob will secure the nylon line and the lids remain in open position.</p> |  |
| 5 | <div>  <p>Caution</p> </div> <p>IMPORTANT</p> <p>Pass the second nylon line and secure it through the handle to keep the top lid in the correct position, so it will not be hit by the drop messenger during the release. Attach the snap hook as shown on the photo. Attaching the snap hook to the eye of the first line will cause malfunction of the release system.</p> <p>For loading the smaller 1,7 and 2,5 L bottles without the handle, please refer to items 8 and 9.</p> |  |



| | | |
|---|--|---|
| 6 | A correct loaded sampler. |  |
| 7 | <p>Fasten the sampler to the wire by securing the 2 mounting clamps to the wire – do not over tighten the clamps so the wire is damaged.</p> <p>Align the small pin of the mounting clamp to fit into the small slot in the bracket.</p> |  |

| Loading the sampler (only for 1,7 and 2,5 L) | | |
|---|---|---|
| 8 | The small Niskin bottles have no handle, and first you must secure the upper wire as shown. |   |
| 9 | Attach the other wire to the first wire. It is very important, that the lids have an offset as shown, 90 degrees, approx. Otherwise it may not release correctly. |   |

| | | |
|----|---|--|
| 10 | <p>The black knob must be in upside position for a correct release by the drop messenger.</p> <p>The wire must fit into the groove at the mounting bracket. Be sure the bottle is well secured to the line.</p> |  |
| 11 | <p>Lower the sampler to the desired depth. Slide an appropriate drop messenger along the line and the sampler is released.</p> | |



| | Releasing the sampler | |
|----|---|--|
| 12 | <p>Use a drop messenger for releasing the sampler.</p> <div>  <p>Caution</p> </div> <p>Always use the correct drop messenger (400 g) for the Niskin water sampler.</p> <p>Incorrect weight will damage the water sampler or cause malfunction.</p> | |

| | | | |
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| 13 | <p>A single bottle: A single Niskin requires a drop messenger of 400 g (60.001).</p> <p>Hold the lower part firmly, turn upper part clockwise, insert wire to the gap and release the handle. The spring-loaded mechanism will close the messenger.</p> |  |  |
| 14 | <p>Single bottle with centre hanger: Using a centre hanger for the Niskin demands a drop messenger of 800 g (60.004).</p> <p>Hold the lower part firmly, turn upper part clockwise, insert wire to the gap and turn back the top until the messenger is locked.</p> <p>Warning: 800 g drop messenger (60.004) must only be used in connection with the centre hanger, 60.002. Otherwise, it will cause serious damage to the water sampler.</p> |  |  |

| Emptying the bottle | | | |
|----------------------------|--|---|--|
| 15 | <p>When emptying the sampler, the amount of water through the lower drainage tap, you can adjust it by the upper air valve.</p> <p>Open the valve at top of the bottle by turning counter clockwise and adjust for a steady flow of water.</p> <p>For larger models (5 L and up) we recommend to keep the valve closed at the beginning to avoid a heavy flow at the drainage tap.</p> |  | |
| 16 | <p>Push the drainage tap towards the bottle</p> <p>The tap can be equipped with a plastic tube (inner diameter of 10 mm) for emptying the water into bottles, etc.</p> |  | |



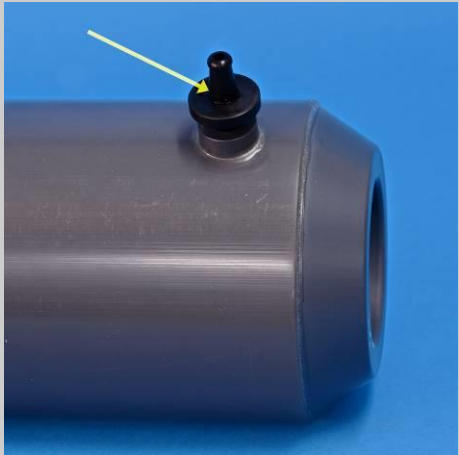
| | | |
|-----------|--|---|
| <p>17</p> | <div> </div> <p>Caution</p> <p>The latex rubber band inside the tube, for closing the lids, has a limited warranty and direct exposure to sunlight for a longer period will shorten durability. When used in salt water always wash with fresh water after use and before storage.</p> | <div> </div> |
|-----------|--|---|

| | Centre hanger | |
|-----------|--|---|
| <p>18</p> | <p>The centre hanger (optional) will keep the Niskin bottle in vertical position to ensure a proper release. You must use a drop messenger 60.004 (800 g) for the release.</p> <p>A: Guiding rail for the line B: Fastening for the line C/D: Bolts for the sliding mechanism E/F: Bolts for fastening the Niskin bottles</p> | <div> </div> |
| <p>19</p> | <p>Fasten the line properly at "B". Twist the line through the guiding rails at "A".</p> <div> </div> <p>Caution</p> <p>It is recommendable having a tight knot beneath the lock "B" to avoid losing the hanger and the Niskin bottle.</p> | <div> </div> |

| | | |
|----|--|--|
| 20 | The line is attached to the centre hanger. |  |
| 21 | Attach the Niskin bottle to bolts E/F, see item 16 and fasten the bolts. Now the bottle can be loaded for use. |  |

| Niskin bottles in series (cascade) | | |
|------------------------------------|---|--|
| 22 | <p>Adding more bottles to the line allows multiple samples with one deployment. To do this, you will need to tie a piece of nylon line to all drop messengers, except for the very first messenger. These lines loop around the trigger pin on the bottle and when the first messenger triggers the release mechanism, it closes the sample tube and releases the secondary messenger, which descends the line to trigger a sampler positioned lower down the line. Using this method, you can string together as many samplers along the line as you like.</p> | |

| Repairing the water outlet | | |
|----------------------------|---|---|
| 23 | <p>A repair set includes these parts.</p> |  |
| 24 | <p>Add two O-rings as shown.</p> |  |
| 25 | <p>Add the steel pin.</p> |  |

| | | |
|----|---|--|
| 26 | <p>From the inner side of the bottle, push the valve through the hole.</p> <p>With a lid and rubber being present, it may be difficult; if so, release the rubber band from the lid.</p> <p>Remounting the rubber band demands a simple hook as shown in the next item.</p> |  |
| 27 | <p>A simple hook for pulling out the rubber band so you can attach the lid.</p> |  |
| 28 | <p>Push down the black ring and secure it with an O-ring as shown.</p> |  |

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.

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.

Troubleshooting

- No release of the sampler: During release, hold the sampler in vertical position. See item #1.
- If the release mechanism does not work smoothly, you can add a very thin oil, WD-40 or similar.

Maintenance and storing

Wash all parts of the Niskin Water Sampler using fresh water. Regular clean with fresh water and move the release mechanism forth and back to ensure all dirt is washed out.

If any leakage occurs, you can adjust the length of the latex tubing. Cut the small wire strips, adjust the length and lock by adding new strips of same size and qty.

Before storing the Niskin bottles, all internal parts and seals must be dry. Store with the lids in closed position. For long term, storing you may remove the rubber band from the lids to keep the strength of the band.

For a repair or replacement of valves etc., you can use standard PVC glue.

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