

# US

## Drainage Set *LiquoGuard*<sup>®</sup> 7

REF	Length	MRI use	Shelf life	Duration of application
0000 3501 2351	2000 mm	Max. 3 Tesla	3 years	Max. 5 days
0000 3501 2371	2000 mm	Max. 3 Tesla	3 years	Max. 7 days
0000 3501 2311	2000 mm	Max. 3 Tesla	3 years	Max. 10 days
0000 3501 2471	2000 mm	Max. 3 Tesla	4 years	Max. 7 days
0000 3501 2411	2000 mm	Max. 3 Tesla	4 years	Max. 10 days

**REF** Catalog number

**QTY** Quantity

 Total length

 Use by  
YYYY-MM-DD

 Manufacturer

 Date of manufacture  
(YYYY-MM-DD)

**LOT** Batch code

**STERILE EO** Sterilized using ethylene oxide

 Do not reuse

 Consult instructions for use

 Temperature limitation  
-10°C (+14°F) to +50°C (+122°F)

 Not suitable for use with MRI

 Suitable for use with MRI, condition below

 Do not resterilise

 Do not use if packaging is damaged

 Keep dry

 Keep away from sunlight

**Rx ONLY**  
Attention: Under US Federal law, this device may be only sold to a physician or ordered by a physician.

CE 0482

For further information about symbols used please refer to our homepage:  
[www.moeller-medical.com/glossary-symbols](http://www.moeller-medical.com/glossary-symbols).

### **CAUTION:**

- Safe to use with the CSF drainage pump *LiquoGuard*<sup>®</sup>7.
- Do not use the product if the packaging is damaged.
- Observe MRI instructions when using the products with MRI.
- Always observe the instructions on the *LiquoGuard*<sup>®</sup>7 display as well as the *LiquoGuard*<sup>®</sup>7 instruction for use (IFU).
- Before the tubing set is removed from the pump or replaced, always first close the four-way stopcock between the tubing set and the catheter.
- Reusing disposable products poses a potential risk of infection for patients or operators. Contaminated products can damage health and cause illness or even death of the patient. Cleaning, disinfection or sterilisation can adversely affect essential material properties and product parameters and thus result in product failure.
- Ensure additional fixation and strain relief of the pressure sensor, the tubes and the catheter between the patient and the pressure sensor for mobile patients or children.

### **Short drainage guide:**

1. Remove the tubing set from the packaging and attach the adhesive electrode to the pressure sensor housing.
2. Connect the drainage bag to the tubing set and hang it on the holder on the side of the *LiquoGuard*<sup>®</sup>7.
3. Connect the sensor cable to the *LiquoGuard*<sup>®</sup>7. In the green message window, press the button *Start application* or *New application*.
4. Open the front panel of the pump on the top of the *LiquoGuard*<sup>®</sup>7. For easy inserting of the tube, the *Turn rotor* button will appear on the display. Using this button, insert the tube segment into the pump between the arrow-shaped connectors.
5. Ensure that the connectors fit and are correctly positioned in the guides to the left and right at the bottom of the pump module. Check that the tube has been correctly inserted. Close the front panel of the pump.
6. Turn the T-handle of the four-way stopcock (usually by 180°) so that the CSF can flow only between the catheter and pump. Remove the protective cap on the catheter side of the four-way stopcock and connect the catheter to the tubing set. Recheck the position of the T-handle. CSF must be able to flow from the patient to the device.
7. Attach the pressure sensor housing to the patient using the adhesive electrode that was attached in step 1.



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## **Short guide for use in an MRI environment:**

Leave the tubing set attached to the catheter during MRI to reduce the risk of infection. Avoid unnecessary disconnection or opening of the tubing set against atmosphere.

Do not leave the **LiquoGuard®7** monitor connected to the **LiquoGuard®7** tubing set during MRI.

Close the **LiquoGuard®7** tubing set during MRI. No intracranial pressure reading during MRI.

## **CAUTION**

- The **LiquoGuard®7** devices (monitors) may not be used in an MRI environment.
- All **LiquoGuard®7** tubing sets given in the table on the previous page may be used in an MRI environment.
- Observe the maximum magnetic field strength limit of 3 Tesla.
- No CSF drainage, infiltration or pressure measurements during MRI imaging.
- Tubing sets may remain connected to the catheter (lumbar or ventricular) during MRI, but the four-way stopcock between the tubing set and the catheter must remain closed in order to avoid unintentional drainage, for example.

## **MR imaging scan**

Tubing sets may not be connected to the **LiquoGuard®7** device (monitor) during MRI scan.

**LiquoGuard®7** devices (monitors) must be located outside the MRI room. They may remain switched on so the settings are not changed (the maximum permissible time that the tubing set may be separated from the device is 3 hours), but may not be exposed at any time to the MRI's magnetic field.

- 1) Remove the tubing set connector from the device.
- 2) Press the *Interrupt application* button (Pause mode).
- 3) Close the four-way stopcock between the patient and the **LiquoGuard®7** tubing set (protection of patient).
- 4) Open the front panel on the pump housing.
- 5) Remove Adapter 1 out of the pump.
- 6) Press the softkey *Turn rotor* on the display.
- 7) Wait until the tubing set is completely out of the rotor.
- 8) Remove Adapter 2 out of the pump.
- 9) Remove the CSF drainage bag from the bag holder but do not disconnect it from the tubing set. Do not close the valve.
- 10) Lay the tubing set and the drainage bag next to the patient. Do not separate the tubing set from the drainage catheter.
- 11) Disconnect the pressure sensor from the adhesive electrode.
- 12) Remove the adhesive electrodes from the patient.
- 13) Reconnect the tubing set within three hours.

## **Avoiding image artefacts in MRI**

- Do not attach the pressure sensor housing to the patient.
- Do not place the tubing set and the CSF drainage bag on, under or directly next to the patient.
- Remove the adhesive electrode (used for attaching the pressure sensor housing to the patient).

## **After MRI imaging**

1. Reconnect the tubing set to the **LiquoGuard®7** (**LiquoGuard®7** is still in Pause mode).
2. Insert the tubing set in the pump.
  - a. Open the front panel of the pump.
  - b. Insert Adapter 1.
  - c. Press the *Turn rotor* softkey on the display.
  - d. Wait until the tubing set has been fed in.
  - e. Insert Adapter 2.
3. Hang the CSF drainage bag to the bag holder.
4. Attach the pressure sensor to the adhesive electrode.
5. Attach the adhesive electrode to the patient.
6. Open the four-way stopcock between the patient (drainage catheter) and the **LiquoGuard®7**, but not to the atmosphere!
7. Check if there is any air in the tubing set. If there is, vent the tubing set. To do so, press the softkey *Turn rotor* to fill the tube with CSF.
8. Close the front panel of the pump.
9. Press the Pause/Start softkey on the display (exit Pause mode).
10. Check the **LiquoGuard®7** display:
  - a. Slight head movements of the patient create pressure changes, see display (ensures communicating liquid columns).
  - b. CSF pulsation of the patient is indicated by a pulsation of the pressure curve (small amplitudes for lumbar pressure measurement).
11. Check the device settings.
12. Always make sure that all valves are set correctly (especially between the tube and drainage bag).