NEUROMEDEX®

NRFit®

Quick Guide
NRFit® VentrEX® Complete EVD-System

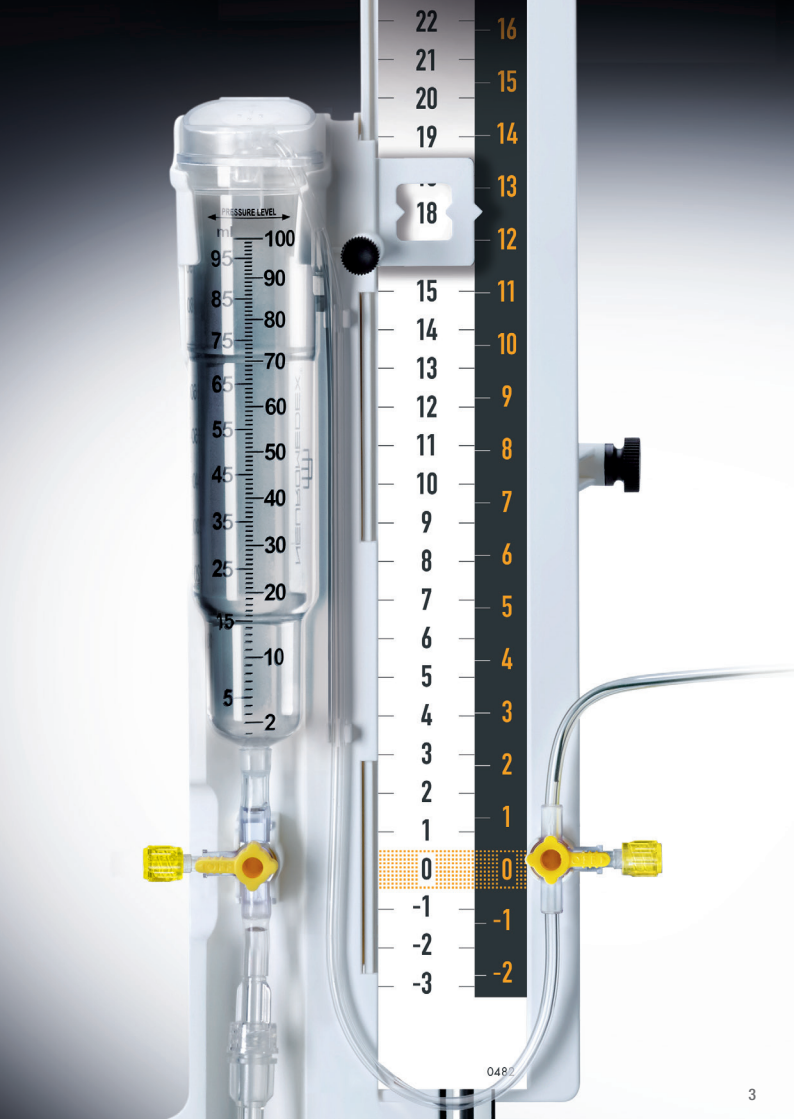
NRFit® VentrEX® Complete-EVD System
Improved safety and functionality on all levels

Transparent components
Everything is made of transparent materials, allowing users to easily monitor the system at all times.

Cerebrospinal fluid repellent chamber filter
Repels not only water, but also cerebrospinal fluid: even after being in horizontal position for an extended period of time, for example during transport, clogging is almost impossible.

Finely graduated scale
Allows measurement of the cerebrospinal fluid's amount and quality – even when dealing with small drainage volumes.

Color-coded NRFit® components
The possibility of system occlusion by bloody cerebrospinal fluid is minimized – as well as the danger of confusion between venous or arterial components in the vicinity of the patient.


PRESSURE LEVEL
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Reducing the misconnections with NRFit®

At Neuromedex, patient safety is our top priority. That's why we are proud to offer our innovative VentrEX® Complete EVD-System featuring the ISO 80369-6 standard NRFit® connectors for neuraxial applications in intensive care.

The International Organization for Standardization (ISO) developed the ISO 80369 series of standards for small-bore connectors to reduce the risk of dangerous misconnections and wrong route medication errors. ISO 80369-6 specifically defines the connector design for neuraxial devices used in neurosurgery and neurointensive care, such as external ventricular drains (EVDs) or lumbar drainages, intracranial pressure monitoring, and CSF sampling or drainage. Products that comply with this standard are identified with the NRFit® name.

Historically, the universal Luer connector has been a key factor enabling harmful "wrong route" medication errors. NRFit® connectors are engineered to be incompatible with Luer connectors, thereby mechanically preventing misconnections between neuraxial devices like EVDs and non-neuraxial devices.

User Benefits of NRFit® with Neuromedex

- Use of a small-bore connector designed according to ISO 80369-6 (NRFit) connectors and designed to reduce risks of dangerous misconnections in neurosurgical and neurointensive care procedures

- Yellow Cap and yellow color coding on connectors and packaging enables quick identification of neuraxial devices

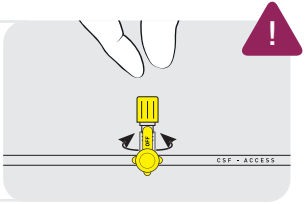
Trust Neuromedex to provide the advanced NRFit® devices you need to optimize both patient safety and clinical performance when managing critically ill neurosurgical and neurointensive care patients.

Before Removal from Packaging

Assemble all sterile components necessary.

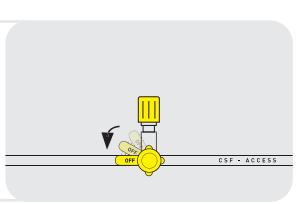
After Opening Packaging

1



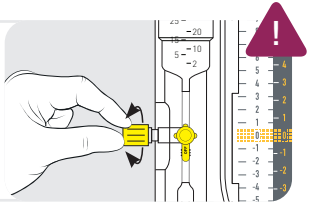
Check screwed components in patient line are tight

2



Close the system port 2 in the patient line

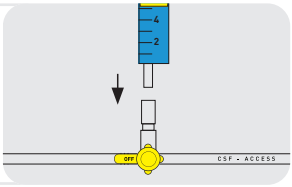
3



Check screwed components below measuring chamber 5 are tight

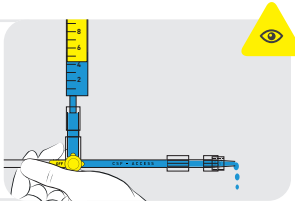
Before Start-Up – Filling the Patient Line

1



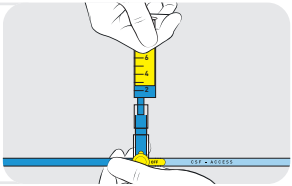
Fix NRFit® syringe onto the stopcock

2



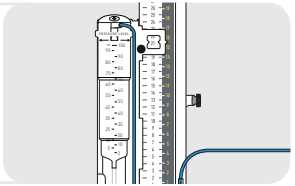
Fill patient line with sterile NaCl solution towards catheter connection 1

3



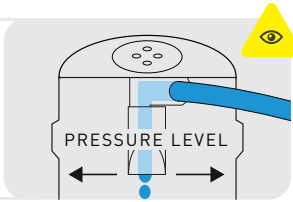
Fill patient line towards measuring chamber 5

4



Continue filling the patient line ...

5

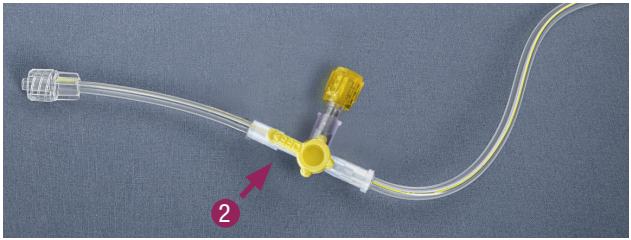


... until the solution drips into the chamber

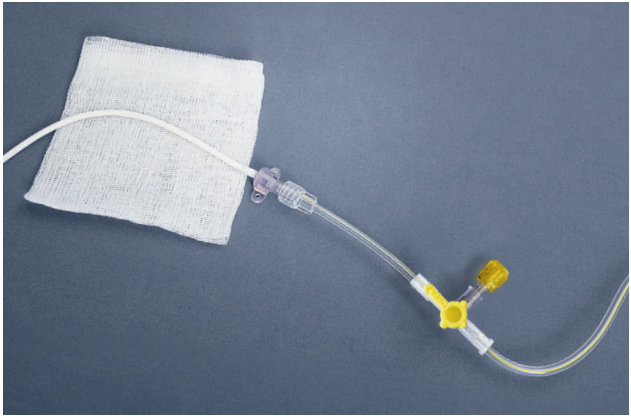
Installing & Adjusting the Support System

Connecting Drainage System to Ventricular Catheter

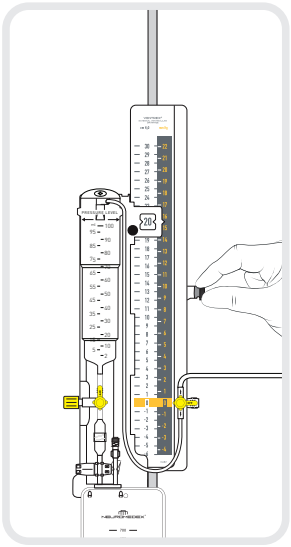
Put the system port 2 in the “off” position towards catheter connection.



Once the catheter is in place, the prepared EVD system is connected to the catheter under strict sterile conditions. Disinfect with a swab before connection. Air bubbles must be avoided.

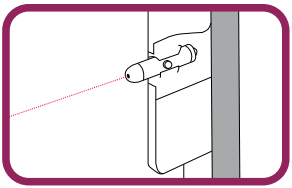


STEP 1: Mounting the support system to drip stand



Attach system to IV-pole with clamp

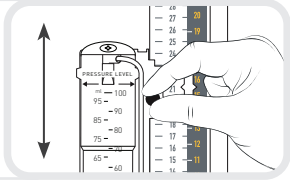
OPTIONAL



Optional laser pointer

STEP 2: Adjusting the Reference Point

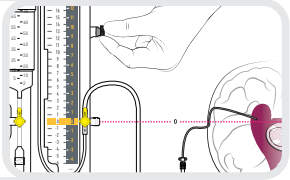
1



Adjust the intracranial pressure level

The marking “pressure level” 4 is adjusted to the desired intracranial pressure on the measuring scale C.

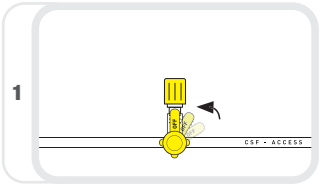
2



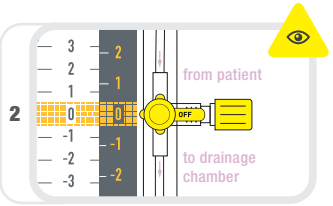
Adjust the reference point

With help of the laser pointer, the zero point of the measuring scale is adjusted to the height of the Foramen of Monro.

Step 3: Activating the Drainage System

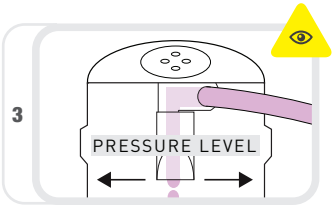


Put system port 2 into “OFF” position towards the non vented cap.

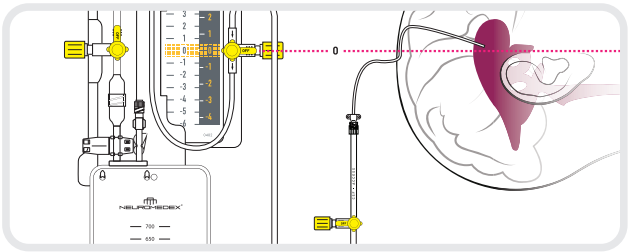


Check patient line

All stopcocks in the patient line must be open.



Check system

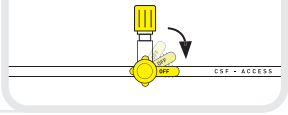


Check drainage height

Daily Handling of the System

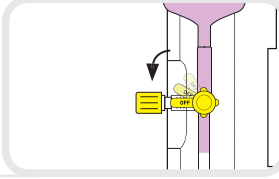
Emptying the Measuring Chamber

1



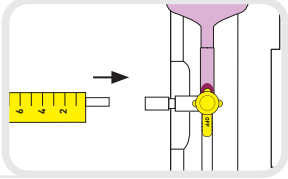
Put system port 2 **of the patient line in “OFF” position towards patient**

2



Empty measuring chamber by opening stopcock 6

3

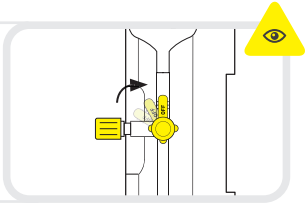


When drainage tube is blocked ...

flush with NaCl solution via stopcock 6

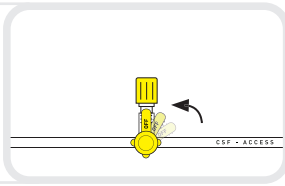
After Emptying the Measuring Chamber

1



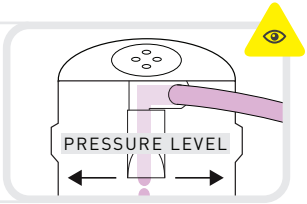
Close stopcock 6

2



Put system port 2 of the patient line into “OFF” position towards non vented cap.

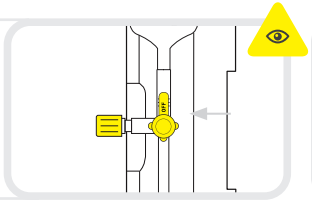
3



Check system

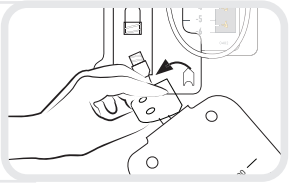
Change of Drainage Bag

1



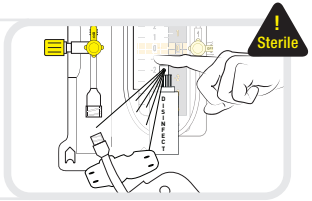
Close stopcock

2



Close clip and disconnect drainage bag 8 ...

3

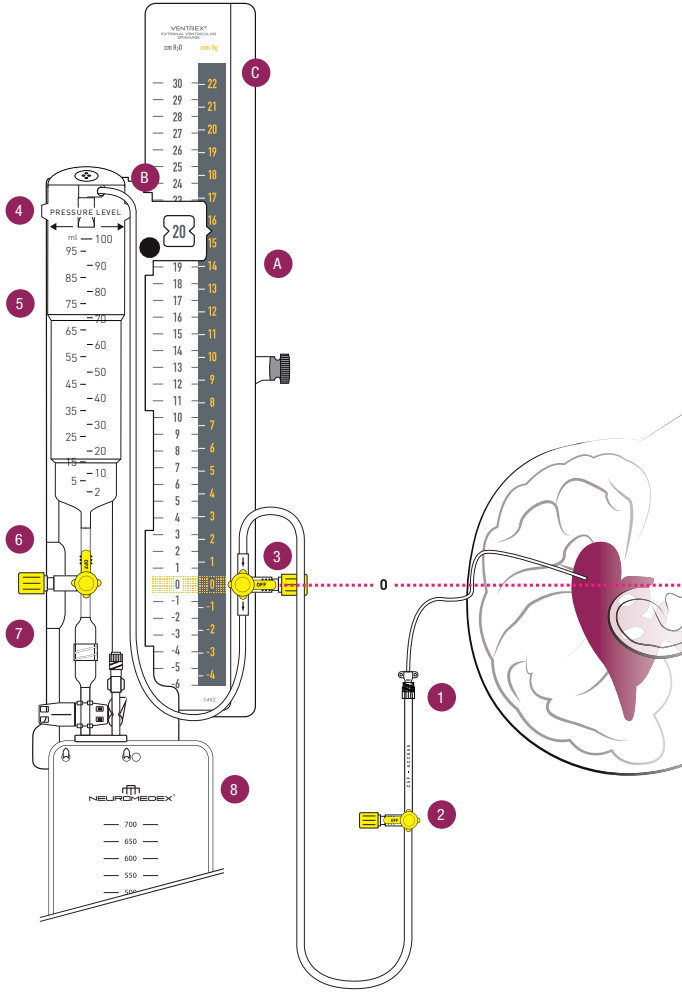


... Change drainage bag 8

Description of the System & Sources of Error

Problem	Possible Cause
Poor liquor drainage	Ventricular catheter kinked or blocked
	Patient line or check valve in measuring chamber blocked
Content of measuring chamber does not drain	Line below measuring chamber blocked
	Safety clip on drainage bag closed
	Drainage bag is swollen

	Measures
	- Remove kinking - Potential careful flushing of the catheter via system port with micro filter (0,2 µm) - Otherwise change catheter
	1. Close system port towards patient 2. Flushing of the system with isotonic NaCl solution through the system port via the micro filter (0,2 µm) 3. Stopcock back to former position
	1. Closing of patient line above system port 2. Flushing of patient line above stopcock with isotonic NaCl solution (☞ "Emptying of Measuring Chamber")
	- Change drainage bag (☞ "Changing of Drainage Bag")
	- Change drainage bag (☞ "Changing of Drainage Bag")


VENTREX
cm H2O
mm Hg
PRESSURE LEVEL
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NEUROMEDEX
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System Specifications

1. Catheter Connector
2. NRFit® System Port
3. NRFit® Stopcock
4. Pressure Level
5. Measuring Chamber
6. NRFit® Stopcock for Emptying Chamber
7. Outlet Tube to Drainage Bag
8. Drainage Bag

A. Mounting System
B. Measuring Chamber Holder
C. Measuring Scale

Legend

Check


Visual Check

Follow sterile precautions

30 seconds contact time

Do not use


Use

This guide does not replace the instructions for use of the VentrEX® Complete drainage system.

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