

Notes prior to treatment start

- The preparation and use of CytoSorb® must always be carried out under hygienic conditions.
- Before connecting CytoSorb®, the feeding tube system must be prefilled with sterile isotonic saline solution and completely free of air.
- **Under no circumstances should air enter the CytoSorb® adsorber or the ECMO system.**
- Always pay attention to the running direction indicated on the label when flushing or installing CytoSorb®.

Anticoagulation

- Anticoagulation must be effective at the start of treatment.
- In general, no special adaptations of the protocols for CytoSorb® are necessary. The specifications of the device manufacturer must be observed.
- Systemic heparinization
 - An aPTT of 60-80 s or an ACT of 160-210 s is usually sufficient for CytoSorb. The aPTT or ACT should be checked regularly.
- Any decision on dosage and target values is the responsibility of the treating physician.

Notes during treatment

- The recommended blood flow rate should be between 150 - 700 mL/min, with a minimum rate of at least 100 mL/min
- The maximum running time of a CytoSorb® adsorber should not exceed 24 hours.
- It may be useful to replace the adsorber earlier if there are indications of an exhausted elimination capacity.
- Check the extracorporeal circuit at regular intervals for signs of blood clots, secure seating of the connections and for air within the circuit.

Materials required

Mounting option for CytoSorb®



Normal saline
NaCl 0.9%, 2 liters, sterile



Plastic scissor clamps, x 4

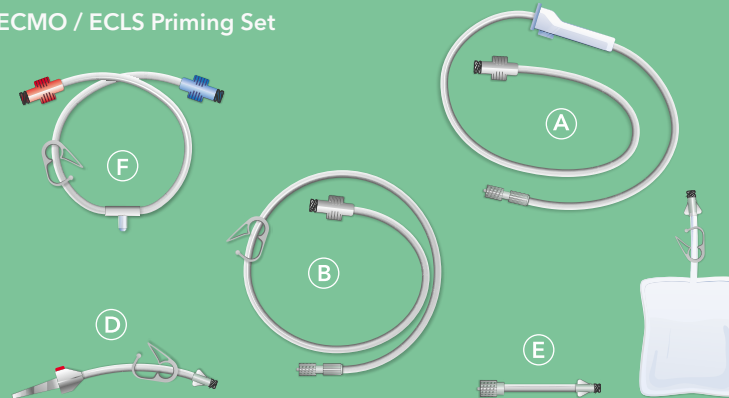


Adsorber



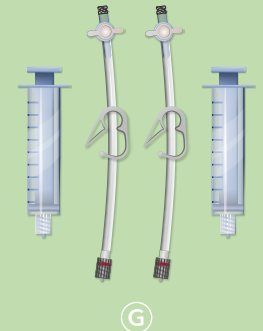
H CytoSorb®
Adsorber

ECMO / ECLS Priming Set



- A** DIN Lock female - Luer Lock Male - Roller clamp
- B** DIN Lock female - Luer Lock Male - Pinch clamp
- C** 2 liter disposal bag
- D** Adapter DIN Lock female - Spike
- E** Adapter DIN Lock male - Luer Lock female
- F** DIN Lock female - DIN Lock female

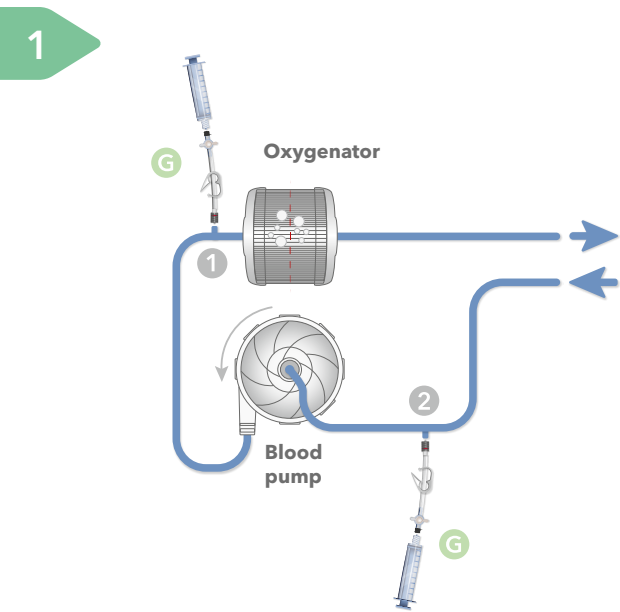
CytoSorb® ECMO -
Connector Set



- G** 2x ECMO connector
(high flow adapter for
ECMO bypass with
safety functions)
2x Luer-Lock syringe 10 ml

ECMO with CytoSorb®

Quick Setup Guide - preparation of ECMO system and CytoSorb® adsorber



Preparation of the ECMO system

- Set up the ECMO system dry, according to manufacturer's instructions.
- Connect the first ECMO connector **G** with Luer-Lock of ECMO mainstream **1** in front of oxygenator membrane.
Note: Adapter **E** can be used to connect ECMO connector **G** alternatively to DIN-Lock port on the oxygenator.
- Connect second ECMO connector **G** with blood return port (Luer-Lock connector) to ECMO mainstream **2** in front of the pump.

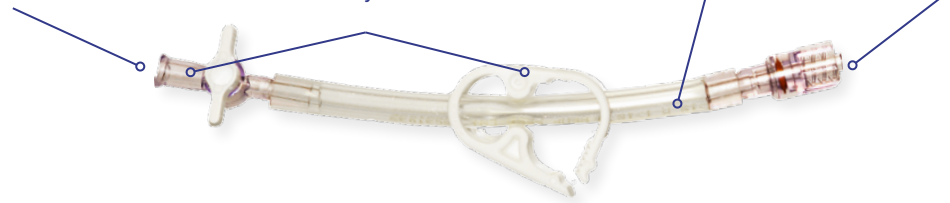
*CytoSorb® ECMO-Connector - Simple and safe connection

No open ports:
No air can enter the system

Redundant safety mechanisms to prevent unintended air intake into the ECMO system

Kinking not possible

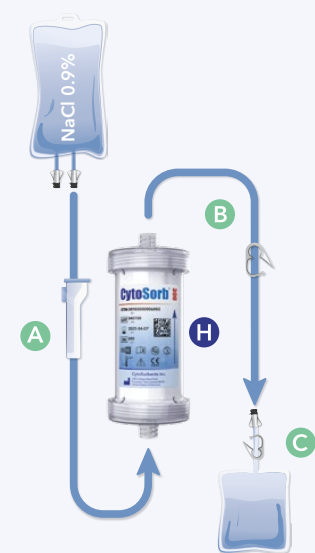
360° rotatable torsion-free line.



- Prime the ECMO system according to the manufacturer's instructions. Flush and deaerate **G** at **1** and **2** and close their clamps and stopcocks. Place a sterile, saline-filled 10 mL Luer-Lock syringe on the Luer-Lock connections of **G** at **1** and **2**.
- Connect the ECMO system to the patient according to the instructions of the attending physician if indicated.
- According to the doctor's prescription, CytoSorb® **H** can be installed into the ECMO system. Please follow **2** and **3**.
Note: Never use a connection on the ECMO mainline after the oxygenator for CytoSorb® blood return.

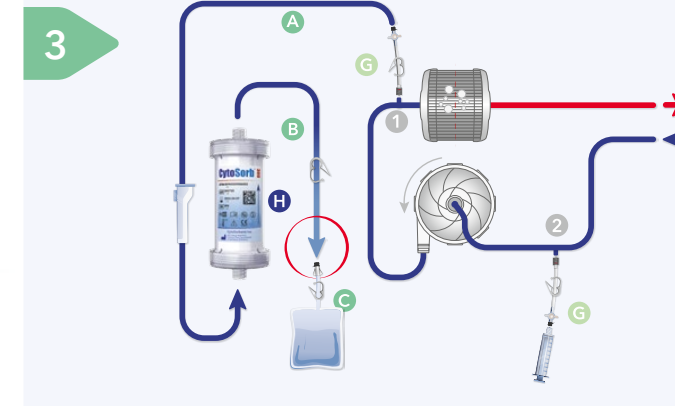
CytoSorb® rinsing procedure

- Connect line **A** with saline solution, deaerate it and disconnect it with the **clamp**.
Note: Use spike adapter **D** if necessary.
- Remove the port plug only at the **bottom** of the CytoSorb® blood inlet **H** and connect the bubble-free, vented line **A**.
Observe flow direction (indicated by the arrow on the label).
- Remove the port plug from the **top** of the CytoSorb® blood outlet **H**. Connect tube **B** and irrigation bag **C**.
Note: If CytoSorb® is used in series with a hemoconcentrator (HC), use adapter **F**, connect the HC to the blood outlet of **H**.
- Open the **clamp** on line **A** and rinse CytoSorb® with gravity and vent it by tapping with the palm of your hand. In total 2 liters of isotonic saline solution are required for filling the lines and flushing CytoSorb®.
- Close the **clamps** on lines **A** and **B** to prevent CytoSorb® **H**, **A** and **B** from running empty.
- Close the **clamp** on the rinsing bag **C**.



ECMO with CytoSorb®

Quick Setup Guide - Integration and exchange of CytoSorb® adsorber in ECMO system

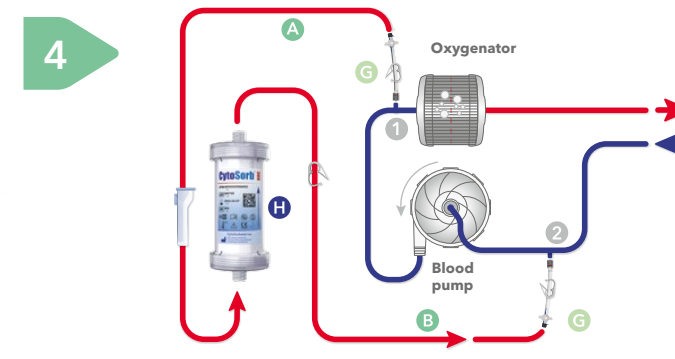


Fill rinsed CytoSorb® with blood

- Attach the CytoSorb® adsorber **H**, prepared according to **2**, vertically to the ECMO device using the holder.
- Detach line **A** from the saline bag and connect it bubble-free to the ECMO connector at **G** on **1** before Oxygenator membrane.
- Open **clamp** and **stopcock** from **G** at **1**. Open **clamp** at **A**, **B** and **C**.
- Fill CytoSorb® bypass with blood and let saline solution flow into the rinsebag bag **C**.
- As soon as blood becomes visible in tube **B** after CytoSorb®, close the **clamp** on **B**.

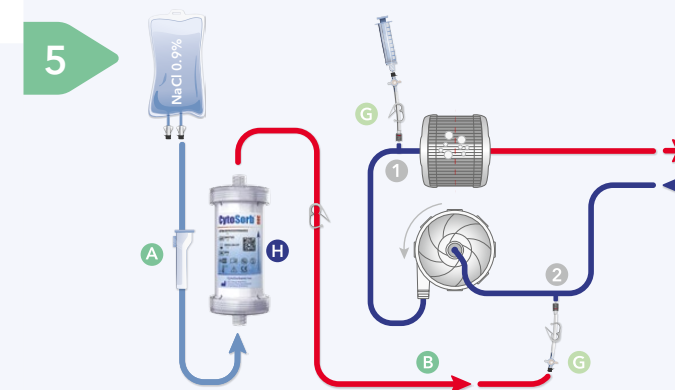
Complete CytoSorb® Bypass

- Connect the completely vented line **B** (from CytoSorb®) with the completely vented ECMO-Connector **G** to **2**.
Under no circumstances should air enter the system.
- Open **clamp** on line **B**. Open **clamp** and **stopcock** from **G** at **2** (upstream of pump).
- The blood flow through CytoSorb® can be monitored with the aid of an ultrasound Doppler probe (on line **A** or **B**) if necessary.
- If necessary, the blood flow can be regulated by the **roll clamp** on line **A**. The recommended blood flow rate should be between 150 - 700 mL/min, with a minimum rate of at least 100 mL/min



Removal of used adsorbers before installation of fresh adsorbers / Termination of CytoSorb® Therapy

- Prepare a fresh bag of saline solution (2 liters, sterile, no bottle to reduce the risk of air aspiration into the system). Fill 2x10 mL Luer-Lock syringes with saline solution (air-free). Close **clamp** and **stopcock** from **G** on **1** and **2** and **clamp** on line **A**.
- Release line **A** from **G** on **1** and connect it bubble-free to the fresh saline bag.
- Place 10 mL Luer-Lock syringe filled with saline bubble-free on **G** on **1**. Open **clamp** and **stopcock** and rinse **G** on **1**. Then close **clamp** and **stopcock** **G** on **1**. **Under no circumstances should air enter the system.** Leave Luer-Lock syringe on ECMO connector **G** (on **1**).
- Open **clamp** and **stopcock** from **G** on **2**. Blood is returned from the CytoSorb® **H** into the ECMO system by flushing with saline solution. As soon as saline solution is visible in tube **B**, close **clamp** and **stopcock** from **G** on **2**.
- Disconnect line **B**. Place 10 mL Luer-Lock syringe filled with saline solution bubble-free on **G** on **2**. Open **clamp** and **stopcock** and rinse **G** on **2**.
- Close clamp and stopcock from **G** on **2** again. **Under no circumstances should air enter the system.** Leave the Luer-Lock syringe on **G** on **2**.
- Discard used CytoSorb® **H**, lines **A** and **B**.

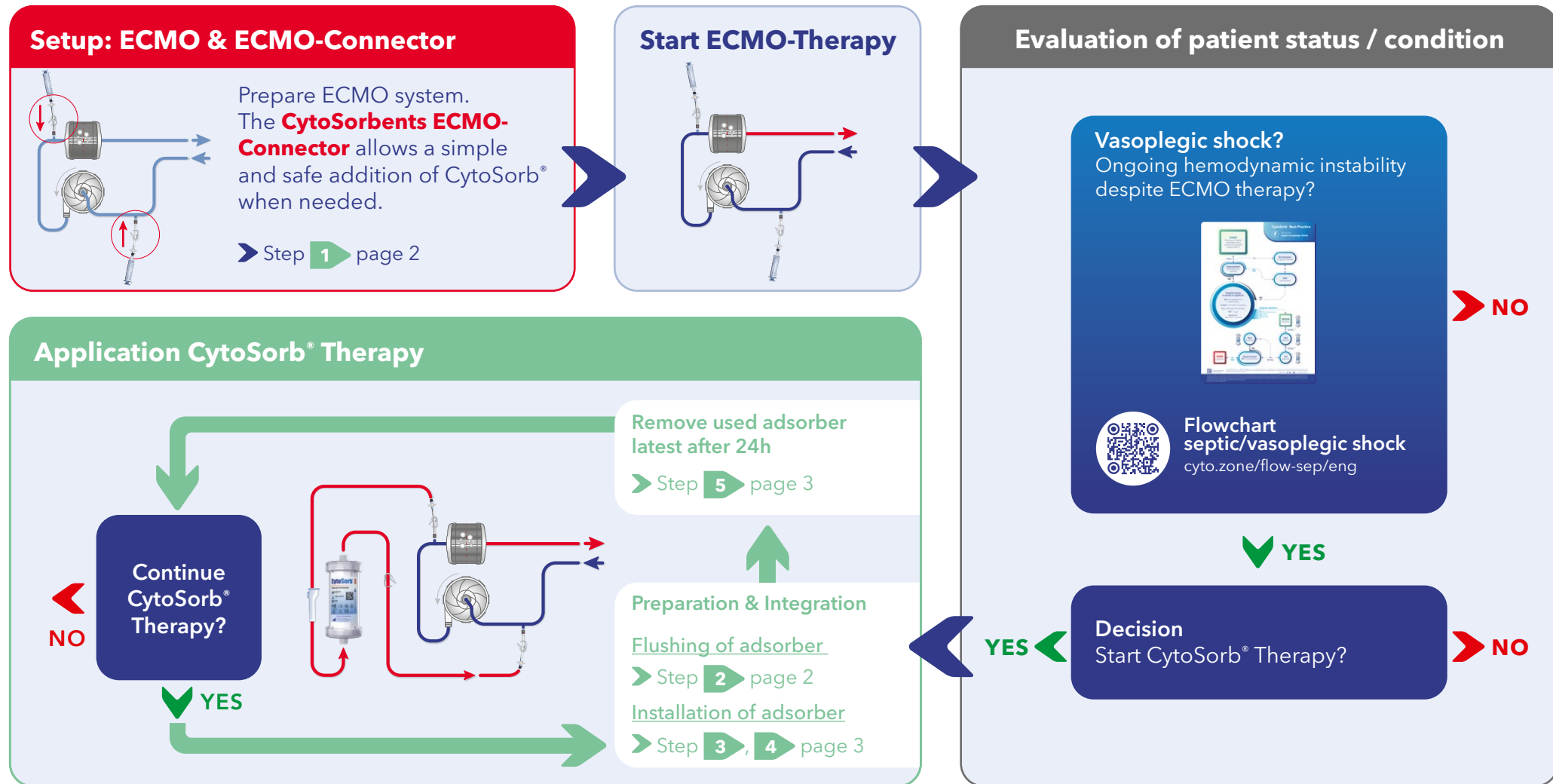


To continue the CytoSorb® Therapy, please follow steps **3** & **4** to insert a new CytoSorb® adsorber into the ECMO system.

If it is foreseeable that no further CytoSorb® Therapy will be carried out, the ECMO connectors **G** together with **1** and **2** should be removed from the ECMO system.

ECMO with CytoSorb®

Strategy - CytoSorb® Therapy and ECMO patients



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Watch the complete set-up video: cyto.zone/setup

The clinical and preclinical data and results obtained with the CytoSorb® adsorber are not transferable to other products. CytoSorb® should only be administered by personnel who have been properly trained in administration of extracorporeal therapies. CytoSorb® is not available for commercial sale in USA.

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