

Prepare Catheter and Insertion Supplies:

- Fill three(3) 20 mL syringes with 20 mL each of sterile saline for injection.
- Fill one (1) 10 mL syringe with 3 mL of sterile saline for injection.

- 1 Insert stylet with Priming Adapter into Red Infusion Lumen. Slide Priming Adapter completely over the barb connector.



- 2 Unscrew stylet from the Red Priming Adapter and remove it from the Catheter.



- 3 Flush Red Infusion Lumen with 20 mL syringe.



Do not attempt to clamp Red Lumen when stylet is inserted.

- 4 Remove syringe and replace stylet into the Red Infusion Lumen.



- 5 Flush Blue Drainage Lumen with 20 mL syringe. Clamp Blue Drainage Lumen using attached slide clamp then remove syringe.



- 6 Prepare insertion site according to your institution's protocol. Ensure proper sterile precautions are taken to prevent infections.



- Always follow your standard clinical procedure for placement of large-bore central venous catheters.
- Reference Seldinger Technique



Reference Hemolung RAS Instructions for Use section 3 Anticoagulation.

- 7 Puncture Vessel

- With a sterile scalpel blade, nick the skin over the target vessel.
- Attach a 10 mL syringe to the introducer needle and insert the needle into the target vessel using appropriate imaging technology. Aspirate to ensure proper placement.
- Remove syringe and place thumb over the end of the introducer needle to prevent blood loss or air embolism.
- Once blood has been aspirated, slide the flexible "J" tip end of the guidewire back into the advancer so that only the tip of the guidewire is visible.
- Insert the advancer's distal end into the needle hub.
- Advance the guidewire with a forward motion into and past the needle hub so that it reaches the target vessel. Insertion length depends on the patient's size. Do not allow the guidewire to enter the right atrium.
- Securely holding the guidewire, remove the needle.

8 Anticoagulate Patient

- After guidewire is placed, anticoagulate the patient per doctor's orders. 80 U/kg heparin bolus is suggested. Allow to circulate then insert Catheter.

ACT PROTOCOL

Initial bolus: 80 U/kg
Initial maintenance drip: 18 U/kg/hr
Target ACT: 150–180 sec

ACT (sec)	Bolus	Infusion Titration
< 90	30 U/kg	Increase infusion by 4 U/kg/hr
90–100	15 U/kg	Increase infusion by 3 U/kg/hr
100–126	10 U/kg	Increase infusion by 2 U/kg/hr
126–150	5 U/kg	Increase infusion by 1 U/kg/hr
151–180	None	No change
181–200	None	Decrease infusion by 1 U/kg/hr

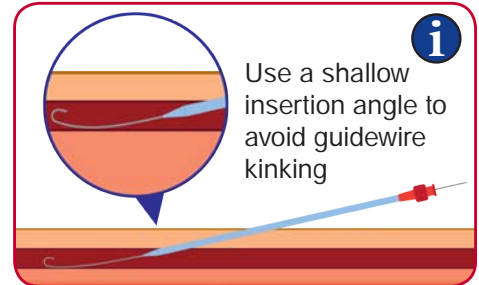
aPTT PROTOCOL

Initial bolus: 80 U/kg
Initial maintenance drip: 18 U/kg/hr
Target aPTT: 1.5 to 2.3 x baseline

aPTT (sec)	Bolus	Infusion Titration
< 1.2 x baseline	80 U/kg	Increase infusion by 4 U/kg/hr
1.2 to 1.5 x baseline	40 U/kg	Increase infusion by 2 U/kg/hr
1.5 to 2.3 x baseline	None	No change
2.3 to 3 x baseline	None	Decrease infusion by 2 U/kg/hr
> 3 x baseline	None	Interrupt infusion for 1 hr, then decrease infusion by 3 U/kg/hr

9 Dilate vessel using serial dilators

- Slide vessel dilator onto the guidewire then advance it through the skin and into the vessel. Use a shallow angle approach to reduce the potential risk of guidewire kinks or a vessel puncture.
- Next, remove dilator, leaving the guidewire in place.



CAUTION: Inserting the dilator at a different angle than the guidewire could result in guidewire kinking in the subcutaneous tissue.

10 Insert Catheter

- Feed distal section of the stylet over the guidewire. Proper Catheter location will be indicated by free blood flow. Verify advancement, positioning, and placement of the Catheter using appropriate imaging guidance.
- For JUGULAR insertion, advance Catheter tip to the junction of the superior vena cava and right atrium.
- For FEMORAL insertion, advance Catheter tip into the inferior vena cava.
- After Catheter placement verification, withdraw guidewire from stylet. Remove stylet from the Catheter by unscrewing it from the priming adaptor and withdrawing.

11 Check Catheter Patency and Remove Any Air

- Attach 10 mL syringe filled with 3 mL sterile saline to priming adaptor of each Catheter lumen.
- Release clamp and aspirate blood through each lumen. Blood should aspirate easily through both lumens. If either lumen exhibits excessive resistance to blood aspiration, rotate or reposition Catheter to obtain adequate blood flow.

12 Irrigate Both Lumens Using a Quick Bolus Technique

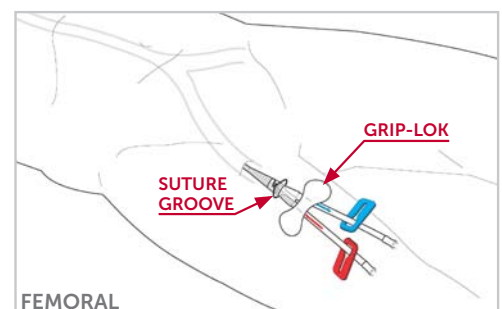
- Open clamps to irrigate lumens with saline-filled 20 mL syringes. Then clamp both lumens after flushing.
- Remove priming adapters before immediately connecting the blood tubing. Then unclamp lumens and blood tubing to start extracorporeal blood flow.



If delay occurs in establishing extracorporeal blood flow, the Catheter lumens should be flushed continuously with a saline infusion to prevent clotting. It is not recommended to heparin lock the lumens.

Femoral Catheter Securement

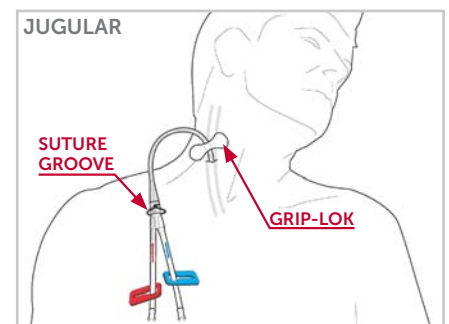
- Secure Catheter hub to the skin using a strong suture that sits in the groove of the Catheter hub and is securely tightened.
- Place lumens in the Grip-Lok device and secure it to the skin per the Grip-Lok IFU.



Grip-Lok devices are provided in Catheter kits. Refer to Grip-Lok IFU for Instructions.

Jugular Catheter Securement

- Place Catheter body in Grip-Lok device at the point where it exits the skin. Secure Grip-Lok to skin.
- Secure Catheter hub to skin using a strong suture that sits in the groove of the Catheter hub and is securely tightened.



Jugular Catheters must be secured at both the exit site and Catheter hub for maximum stability.