

PowerPort[®] IMPLANTABLE PORT

PowerLoc[®] Safety Infusion Set Family



Guidelines for CT Technologist

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IDENTIFYING A PATIENT WITH THE POWERPORT[®] IMPLANTABLE PORT

Check patient's chart for a PowerPort[®] device **patient record sticker**.

For all PowerPort[®] devices:

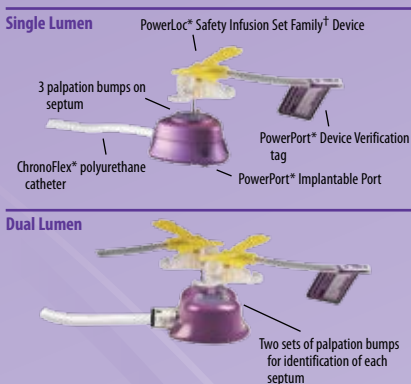
- Ask the patient. Patients with a PowerPort[®] Implantable Port should have a patient identification card, ID bracelet or key ring to help remind them they have a PowerPort[®] device.
- Always verify the patient has a PowerPort[®] device by at least two means, and ensure it is accessed with a PowerLoc[®] Safety Infusion Set Family[†] device, prior to power injection.

For single lumen PowerPort[®] devices:

- Palpate top of port to identify three palpation bumps on the septum, arranged in a triangle.
- Palpate the sides of the port to identify triangular port housing.

For dual lumen PowerPort[®] devices:

- Palpate top of each septum to identify three palpation bumps on the septum, arranged in a triangle.



Check patient chart



Ask your patient



Feel for bumps on septum



Feel for triangle shape



Double Check



Indications For Use

The PowerPort[®] Implantable Port is indicated for patient therapies requiring repeated access to the vascular system. The port system can be used for infusion of medications, I.V. fluids, parenteral nutrition solutions, blood products, and for the withdrawal of blood samples.

When used with the PowerLoc[®] Safety Infusion Set Family[†] device, the PowerPort[®] device is indicated for power injection of contrast media. For power injection of contrast media, the maximum recommended infusion rate is 5 mL/s.

This device is contraindicated for catheter insertion in the subclavian vein medial to the border of the first rib, an area which is associated with higher rates of pinch-off.

All materials are biocompatible, can be used with virtually all injectable solutions and are safe with CECT.

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POWER INJECTION

Power Injection Procedure:

1. Access the port with a PowerLoc[®] Safety Infusion Set Family[†] device. Make certain that needle tip is inserted fully within the port. **Warning:** The PowerPort[®] system is only power injectable when accessed with a PowerLoc[®] Safety Infusion Set Family[†] device. Note: Follow institutional protocol to verify correct catheter tip position prior to power injection.
2. Attach a syringe filled with sterile normal saline.
3. Instruct the patient to assume the position they will be in during the power injection procedure, before checking for patency. If possible, the patient should receive power injection with his or her arm vertically above the shoulder with the palm of the hand on the face of the gantry during injection. This allows for uninterrupted passage of injected contrast through the axillary and subclavian veins at the thoracic outlet.
4. Aspirate for adequate blood return and vigorously flush the port with at least 10 mL of sterile normal saline. **Warning:** Failure to ensure patency of the catheter prior to power injection studies may result in port system failure.
5. Detach syringe.
6. Warm contrast media to body temperature.
7. Attach the power injection device to the PowerLoc[®] Safety Infusion Set Family[†] device ensuring connection is secure. Check indicated flow rate of safety infusion set and confirm CT settings.

Warning: Do not exceed a 300 psi pressure limit setting, or the maximum flow rate setting shown in table below, on the power injection machine if power injecting through the PowerPort[®] device.

PowerLoc [®] Safety Infusion Set Family [†] Device Gauge Size	19 Ga.	20 Ga.	22 Ga.
PowerLoc [®] Safety Infusion Set Family [†] Device Gauge Color	Cream	Yellow	Black
Maximum Flow Rate Setting	5 mL/sec	5 mL/sec	2 mL/sec

8. Instruct the patient to communicate immediately any pain or change in feeling during the injection.
9. Inject warmed contrast, taking care not to exceed the flow rate limits. **Warning:** If local pain, swelling or signs of extravasation are noted, the injection should be stopped immediately. **Warning:** Exceeding the maximum flow rate may result in port system failure and/or catheter tip displacement.
10. Disconnect the power injection device.
11. Flush the PowerPort[®] device with 10 mL of sterile normal saline. For dual lumen PowerPort[®] devices flush each septum separately.
12. Perform heparin lock procedure for open-ended catheters. **For implantable ports with Groshong[®] catheters, a sterile normal saline lock may be used.** For dual lumen PowerPort[®] devices perform locking procedures on each septum. **Caution:** Remember that some patients may be hypersensitive to heparin or suffer from heparin induced

thrombocytopenia (HIT) and these patients must not have their port locked with heparinized saline.

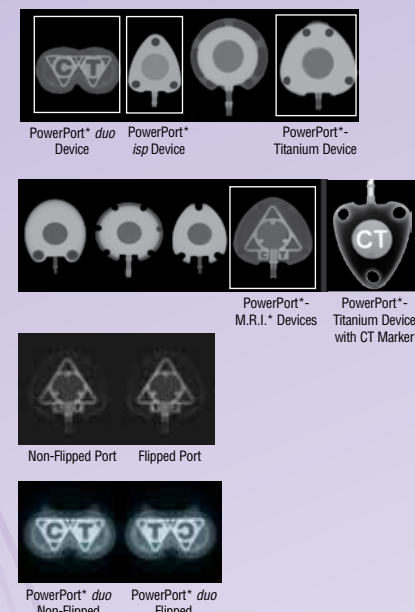
13. After therapy completion, flush port per institutional protocol. Close clamp while injecting last 0.5 mL of flush solution.

Important Information:

A PowerLoc[®] Safety Infusion Set Family[†] device **MUST** always be used to access the PowerPort[®] implantable port for power injecting contrast media.

- Contrast media should be warmed to body temperature prior to power injection. **Warning:** Failure to warm contrast media to body temperature prior to power injection may result in port system failure.
- Check for blood return, then flush the PowerPort[®] device using at least 10 mL of sterile normal saline prior to and immediately following the completion of power injection studies. Always ensure the patency of the PowerPort[®] device to prevent damage to the port system. Resistance to flushing may indicate catheter occlusion. Do not proceed with power injection study until occlusion has been cleared. **Warning:** Failure to ensure patency of the catheter prior to power injection studies may result in port system failure.
- **For implantable ports with Groshong[®] catheters, heparin lock procedures are not necessary. Sterile normal saline may be used.**

PowerPort[®] Devices Under X-ray:



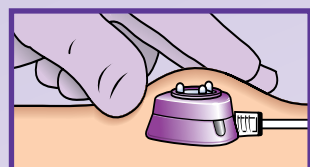
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USE AND MAINTENANCE

Accessing Implantable Ports

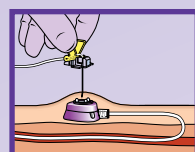
Procedure:

1. Perform aseptic site preparation.
2. Locate port septum by palpation.
 - a. Locate base of port with non-dominant hand.
 - b. Triangulate port between thumb and first two fingers of non-dominant hand. Aim for center point of these three fingers.



Note: For dual lumen PowerPort[®] devices: locate center by palpating Septum-Finder[®] Ridge on top of port and place index finger of dominant hand to mark.

3. Insert PowerLoc[®] Safety Infusion Set Family[†] device perpendicular to port septum. Advance needle through the skin and port septum until reaching bottom of reservoir.



4. Confirm correct positioning of the needle within the port reservoir by aspiration of blood ("flashback"). If there is doubt regarding proper needle placement, have a radiographic dye procedure done to confirm placement.
5. Always flush the port following injection.
6. Perform heparin lock procedure for open-ended catheters. **For implantable ports with Groshong[®] catheters, a sterile normal saline lock may be used.** For dual lumen PowerPort[®] devices, perform locking procedures on each septum. **Caution:** Remember that some patients may be hypersensitive to heparin or suffer from heparin induced thrombocytopenia (HIT) and these patients must not have their port locked with heparinized saline.
7. After therapy completion, flush port per institutional protocol. Close clamp while injecting the last 0.5 mL of flush solution. Use positive pressure technique.

Lock Procedures for Catheters

To help prevent clot formation and catheter blockage, implantable ports with open-ended catheters should be flushed per institutional protocol using a turbulent push-pause flushing method after each use. Clamp the tubing while infusing the last 0.5 mL of fluid to reduce potential

for blood back-flow into the catheter tip, which could encourage catheter clotting. If the port remains unused for long periods of time, the 5 mL heparin solution or normal saline should be changed at least every four weeks for each septum. **Caution:** Remember that some patients may be hypersensitive to heparin or suffer from heparin induced thrombocytopenia (HIT) and these patients must not have their port locked with heparinized saline.

Determine Port Volume

To calculate a close approximation of port system volume for each individual patient, for PowerPort[®] implantable port catheters, use formula and tables below:

Port System Volume: Catheter length: _____ cm x
catheter volume _____ + reservoir volume.

CATHETER VOLUMES	Volume, cm (per lumen)
6F ChronoFlex [®] Catheter	0.014 mL
8F ChronoFlex [®] Catheter	0.02 mL
9.6F Silicone Catheter	0.02 mL
8F Groshong [®] Catheter	0.02 mL
9.5F ChronoFlex [®] Catheter (dual lumen)	0.02 mL

RESERVOIR VOLUMES	Reservoir Volume (per lumen)
PowerPort [®] , PowerPort [®] isp, PowerPort [®] Duo Implantable Port	0.6 mL
PowerPort [®] Slim Implantable Port	0.5 mL

Note: This calculated volume represents the port system volume for each port reservoir.

Recommended Flushing Volumes:

Open-Ended Catheter Flushing Volumes (per lumen)

FLUSHING VOLUMES	Volume (100 U/mL)
When port is not in use	5 mL heparinized saline every 4 weeks
After each infusion of medication or TPN	10 mL sterile normal saline, then 5 mL heparinized saline
After blood withdrawal	20 mL sterile normal saline, then 5 mL heparinized saline
After power injection of contrast media	10 mL sterile normal saline, then 5 mL heparinized saline

Groshong[®] Catheter Flushing Volumes (per lumen)

FLUSHING VOLUMES	Volume (100 U/mL)
When port is not in use	5 mL sterile normal saline every 4 weeks
After each infusion of medication or TPN	10 mL sterile normal saline
After blood withdrawal	20 mL sterile normal saline
After power injection of contrast media	10 mL sterile normal saline

Procedure:

Review Site Preparation in the PowerPort[®] device CT Guide, and Accessing Implantable Ports section before proceeding with the following:

1. Explain procedure to patient and prepare injection site.
2. Attach a 10 mL syringe filled with sterile normal saline to needle.
3. Aseptically locate and access port with PowerLoc[®] Safety Infusion Set Family[†] device, or other non-coring safety needle. Confirm correct positioning of the needle within the port reservoir by aspiration of blood ("flashback"). If there is doubt regarding proper needle placement, have a radiographic dye procedure done to confirm placement.
4. After therapy completion, flush port per institutional protocol, then repeat with 5 mL 100 U/mL heparinized saline, or with volume calculated above. Close clamp while injecting last 0.5 mL of flush solution.

Note: Alcohol should not be used to soak or decontaminate polyurethane catheters because alcohol is known to degrade the polyurethane catheters over time with repeated and prolonged exposure.

