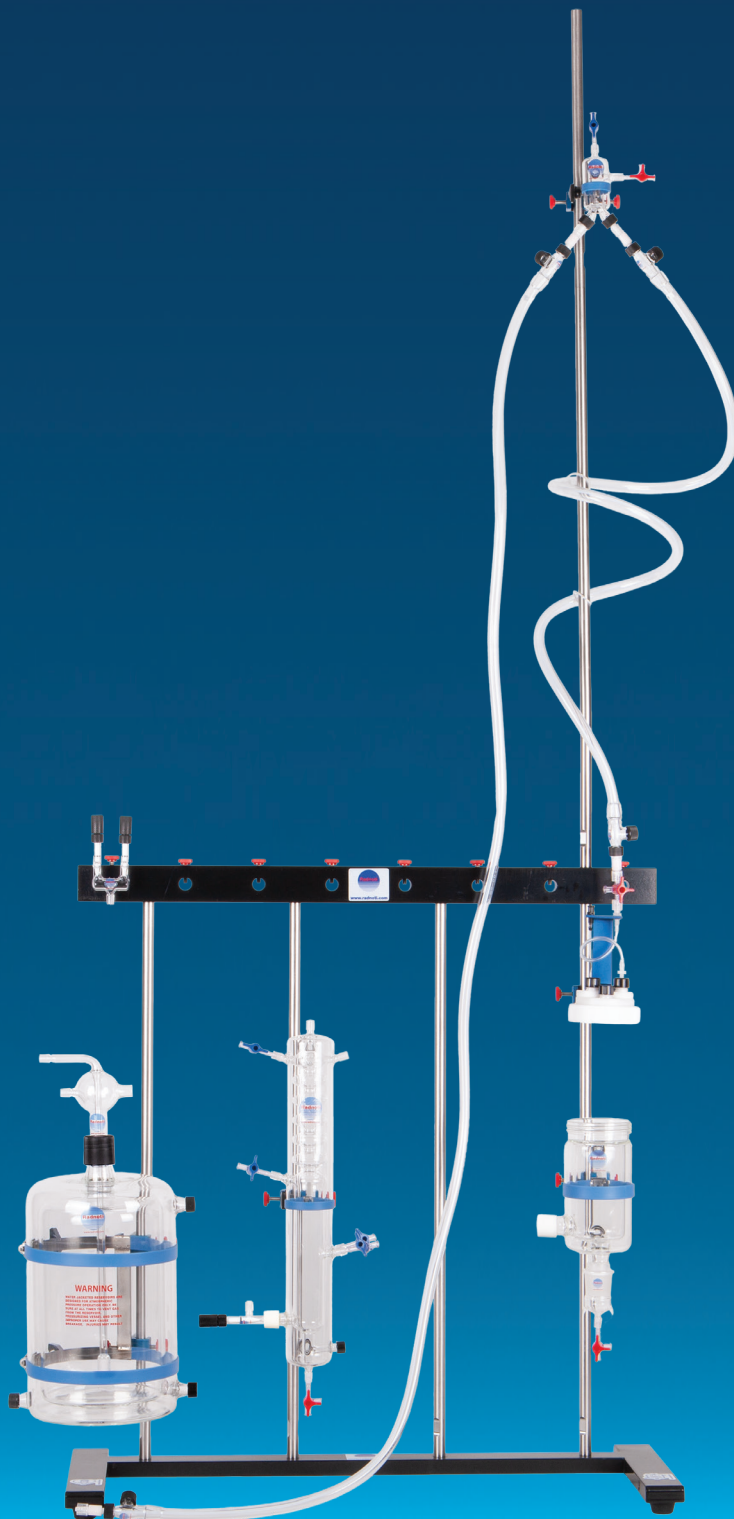


ADInstruments Rat Recirculating Langendorff Apparatus

Quick Start Guide

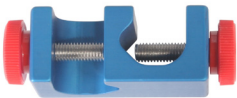


Overview

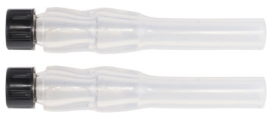
Apparatus Components

Table 1–1

The components supplied to complete the assembly of the Langendorff apparatus. Note that the required heated water circulator, peristaltic pump or any measurement hardware are not included.

Part No.	Description	Qty	Image
159950-B4	Steel Base for 4-Rod Lab Stand	1	
159950-C4	Stabilizer Bar for 4 Rod Lab Stand	1	
159950-24	Stainless Steel Support Rod (24")	5	
159950-12	Stainless Steel Support Rod (12")	1	
120141-2	Double Ring Clamp for 2 L Reservoir	1	
159953-MEM	Single Ring Clamp for Radnoti Hi-Tech Heart Chamber (Small)	1	
159953-25	Single Ring Clamp for 25 ml Bath (Diameter 40-58 mm)	1	
120149RC	Single Ring Clamp for Compliance Bubble Trap (5 mL)	1	
159952	Radnoti Universal Stand Clamp (SSteel)	6	

Part No.	Description	Qty	Image
120142-2	Radnoti 2.0 L Water Jacketed Reservoir	1	
140143-2	Oxygenating Bubbler with Inlet for 2 L Reservoir	1	
140150	Radnoti Hi-Tech Heart Chamber (Small) - 1x Heart Chamber Lid - 1x 140150-002 Apical Force Pulley Assembly - 1x Heart Chamber Pulley Assembly Wire (1m) - 1x Ball End Hex Screwdriver - 1x Allen Key	1	
120153-0	Radnoti Aortic Glass Cannulas (Assorted, 100mm, 5pk)	1	
140132	Radnoti Female (24 mm) Port to Luer Adapter	1	
130149	Compliance Bubble Trap (5 mL)	1	
120144	Radnoti Oxygenating Chamber (Sheet Flow) - 1x Oxygenating Tube with TNV	1	

Part No.	Description	Qty	Image
120140-A	Radnoti Reservoir Filling Funnel	1	
120168	Radnoti 2-Way TNV "Y" Manifold	1	
120151	In-Line Injection Port (7.84 mm Septa, 2 pk)	1	
120169-2	Hose Barb Adapter (Pump to Q.D. Water Jacketed Tubing, 2pk)	2	
120162	Radnoti "Y" Quick Disconnect Adapter/Manifold (4 pk)	1	
120140-B	Radnoti Tubing Adapter Kit	1	
	20 mL Damping Syringe - 1x Pin	1	
	In-line Polypropylene Filter with Glass Fiber Membrane (1.0um, 25mm)	5	

Note: Replacement filters can be purchased as SP7305 In-line Polypropylene Filter with Glass Fiber Membrane (1.0um, 25mm, 100pk).

Part No.	Description	Qty	Image
130155-12	Water Jacketed Flex Tube Assembly (12")	1	
130155-48	Water Jacketed Flex Tube Assembly (48")	1	
130155-60	Water Jacketed Flex Tube Assembly (60")	1	
120159-10	Radnoti Q.D. Water Jacketed Tubing Assembly (10")	3	
120159-20	Radnoti Q.D. Water Jacketed Tubing Assembly (20")	1	
120159-25	Radnoti Q.D. Water Jacketed Tubing Assembly (25")	1	
120159-30	Radnoti Q.D. Water Jacketed Tubing Assembly (30")	3	
120159-60	Radnoti Q.D. Water Jacketed Tubing Assembly (60")	1	
120159-120	Radnoti Q.D. Water Jacketed Tubing Assembly (120")	1	

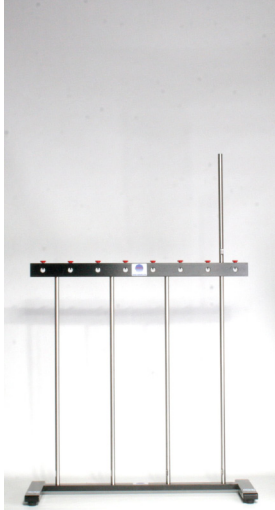
Part No.	Description	Qty	Image
120157-15	Radnoti Tygon Perfusate/Gas Tubing (0.093" x 0.156", 15")	1	
120157-25	Radnoti Tygon Perfusate/Gas Tubing (0.093" x 0.156", 25")	3	
120157-36	Radnoti Tygon Perfusate/Gas Tubing (0.093" x 0.156", 36")	2	
120157-50	Radnoti Tygon Perfusate/Gas Tubing (0.093" x 0.156", 50")	1	
120157-60	Radnoti Tygon Perfusate/Gas Tubing (0.093" x 0.156", 60")	1	
	Radnoti Silicone Tubing (0.188" x 0.375") Set for Drain/Overflow - 2x 50" - 1x 60" - 1x 75"	1	
	Spare Tubing - 1x 120" of Radnoti Q.D. Water Jacketed Tubing - 1x 120" of Radnoti Tygon Perfusate/Gas Tubing (0.093" x 0.156")	1	

Installation

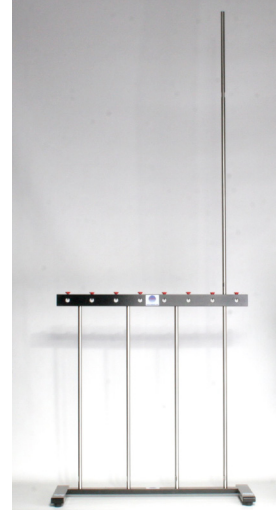
The apparatus can be installed to perfuse the heart for either under constant perfusion flow or perfusion pressure. Firstly assemble the Lab Stand Assembly by attaching four Stainless Steel Support Rods (24") to the Steel Base, then insert the Stabilizer Bar and secure it at the top.

Constant Perfusion Flow

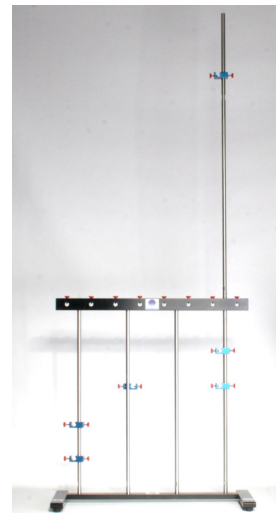
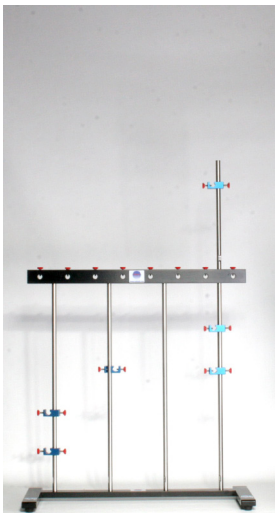
1) Attach the corresponding Stainless Steel Support Rod length to the Lab Stand Assembly.



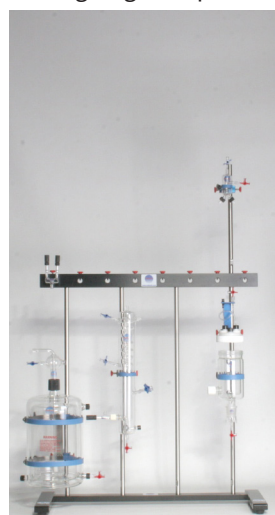
Constant Perfusion Pressure



2) Attach the Radnoti Universal Stand Clamps (SSteel) to the Lab Stand Assembly

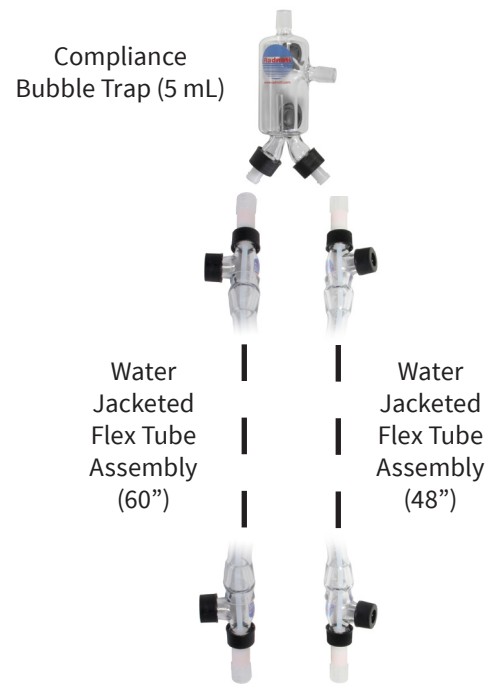
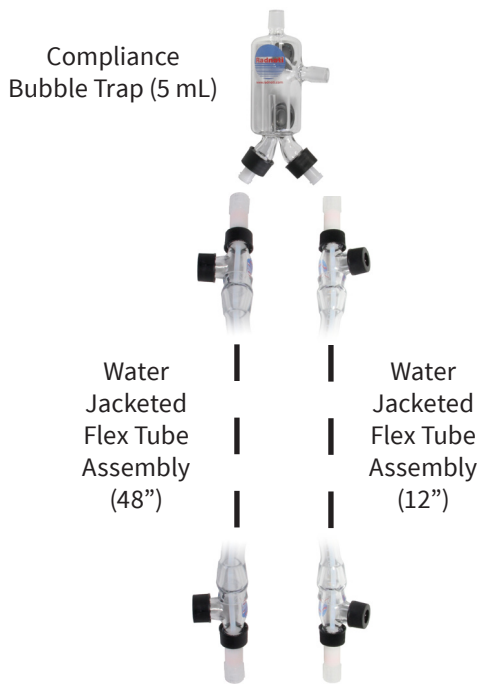


2) Attach corresponding ring clamps to their glassware, which are then attached to the Lab Stand Assembly via the stand clamps.

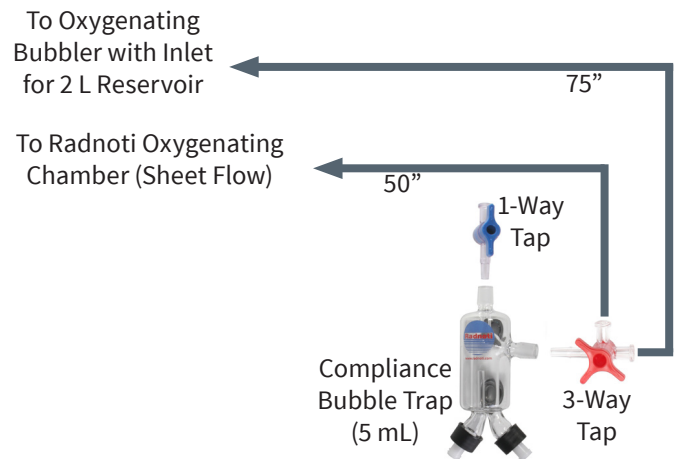
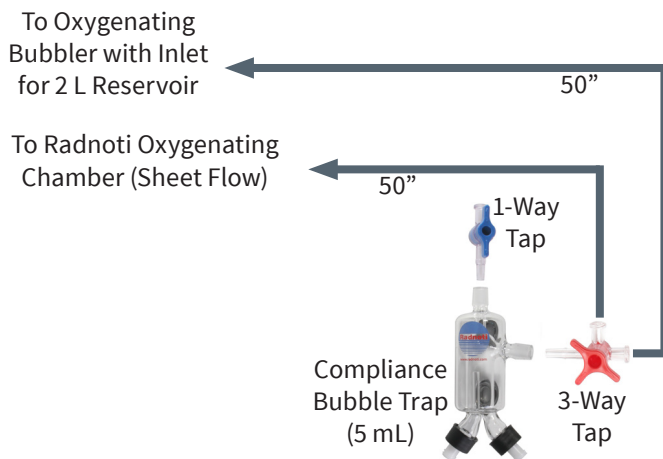


Constant Perfusion Flow

- 4) Attach the corresponding Water Jacketed Flex Tube Assembly lengths that correspond to each respective constant perfusion setup.

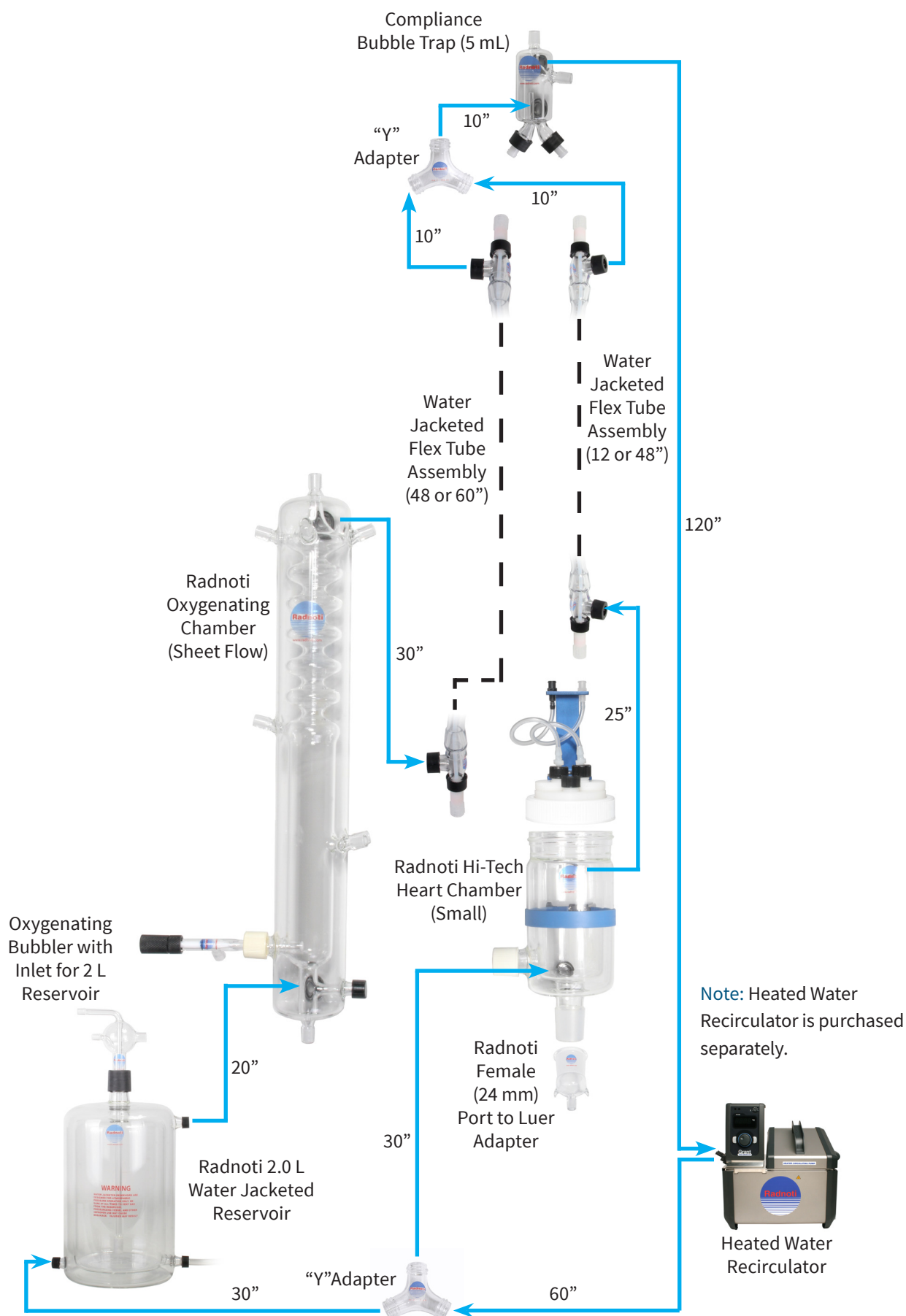


- 5) Attach the corresponding Radnoti Silicone Tubing (0.188" x 0.375") length for one of the overflow line that corresponds to its respective constant perfusion setup.



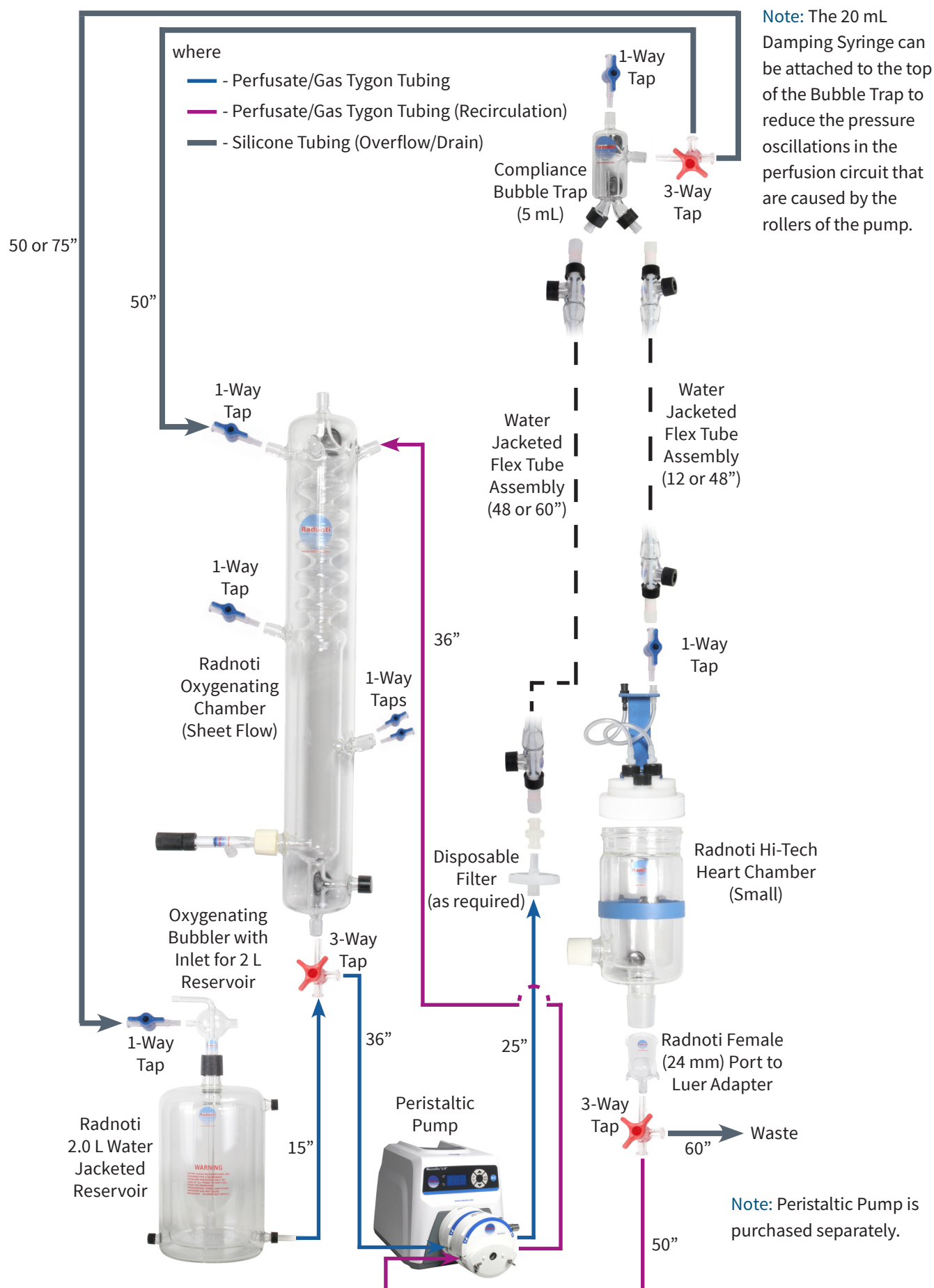
Heated Water Circulation (Temperature Maintenance)

- Radnoti Q.D. Water Jacketed Tubing Assemblies are used in this circuit.



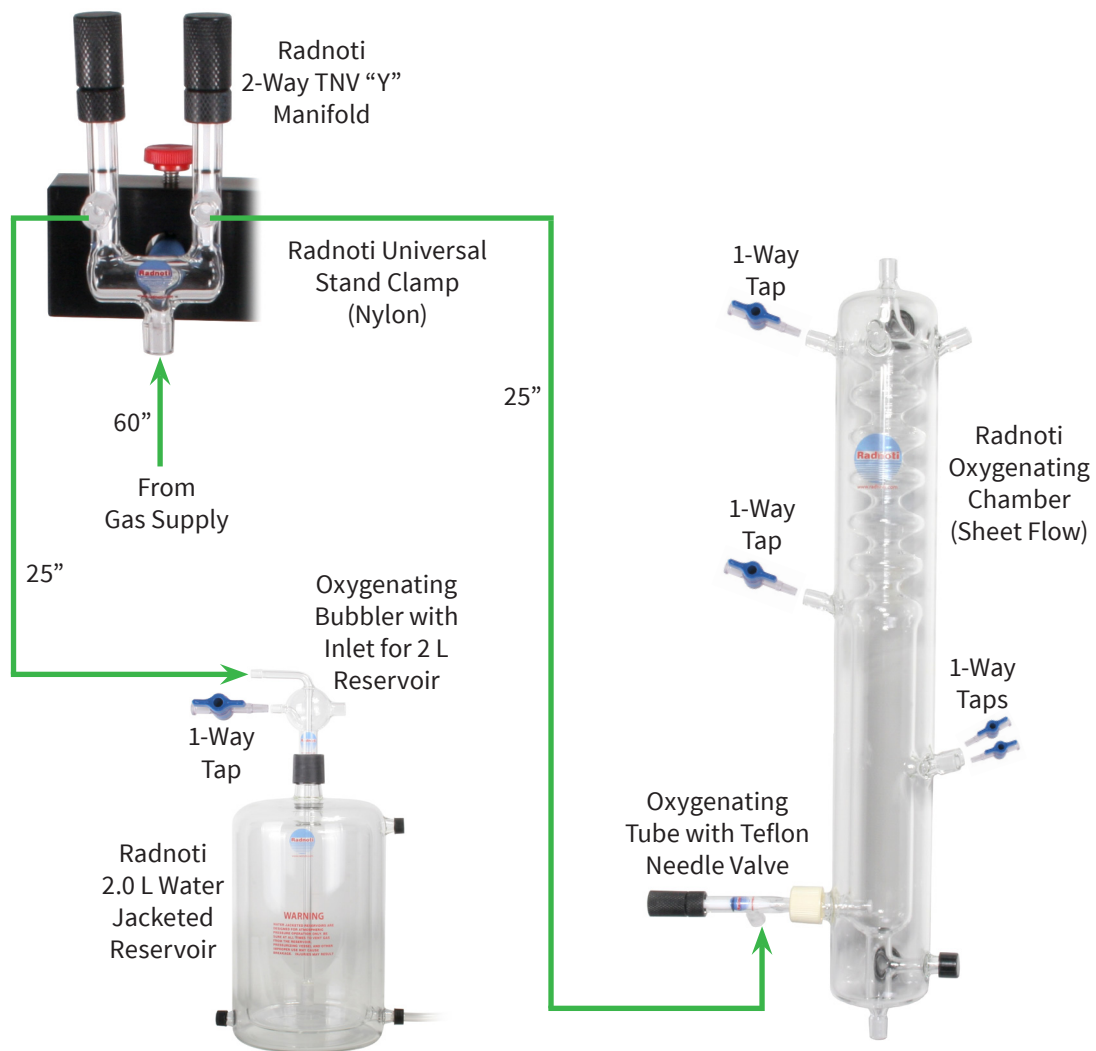
Perfusate Circulation

- Radnoti Tygon Perfusate/Gas Tubings (0.093" x 0.156") and Radnoti Silicone Tubing (0.188" x 0.375") are used in this circuit.



Gas Tubing Connections

- Radnoti Tygon Perfusate/Gas Tubings (0.093" x 0.156") are used.



Note: Additional gas accessories might be required to connect to the gas supply, which can include gas regulators, inlet and outlet fittings (i.e. 3/8" NPT to Gas Hose Barb Fitting, Tubing Reducer etc.). They should be separately and locally sourced according to the laboratory requirements.

Apparatus Priming

- Ensure that the entire apparatus is clean and free of debris.
- Ensure that the 3-Way Tap at the outlet of the Radnoti 2.0 L Water Jacketed Reservoir is closed.
- First fill the reservoir with the required buffer and provide sufficient gassing rate and duration.
- Ensure that the 1-Way on top of the Compliance Bubble Trap (5 mL) is open, while the 1-Way Tap above the chamber lid is closed.
- Turn the 3-Way Tap at the side port of the Compliance Bubble Trap (5 mL) so that it is open to Radnoti Oxygenating Chamber (Sheet Flow).
- Open the 3-Way Tap at the reservoir's outlet, so that it is closed to the outlet of the Radnoti Oxygenating Chamber (Sheet Flow), but open to the inlet of the Compliance Bubble Trap (5 mL).
- Pump the buffer up to the Compliance Bubble Trap (5 mL), filling it until it reaches the overflow port and goes to the Radnoti Oxygenating Chamber (Sheet Flow).
- Fill the Radnoti Oxygenating Chamber (Sheet Flow) with sufficient secondary buffer and ensure that it is suitably gassed.
- Once the Oxygenating Chamber is sufficiently filled, turn the 3-Way Tap at the Compliance Bubble Trap so that the buffer returns to the reservoir.
- Slowly open 1-Way Tap above the chamber lid to prime the line and the aortic cannula attached to the lid.
- Turn off 1-Way Tap once the aortic line is primed. The apparatus is now ready.



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