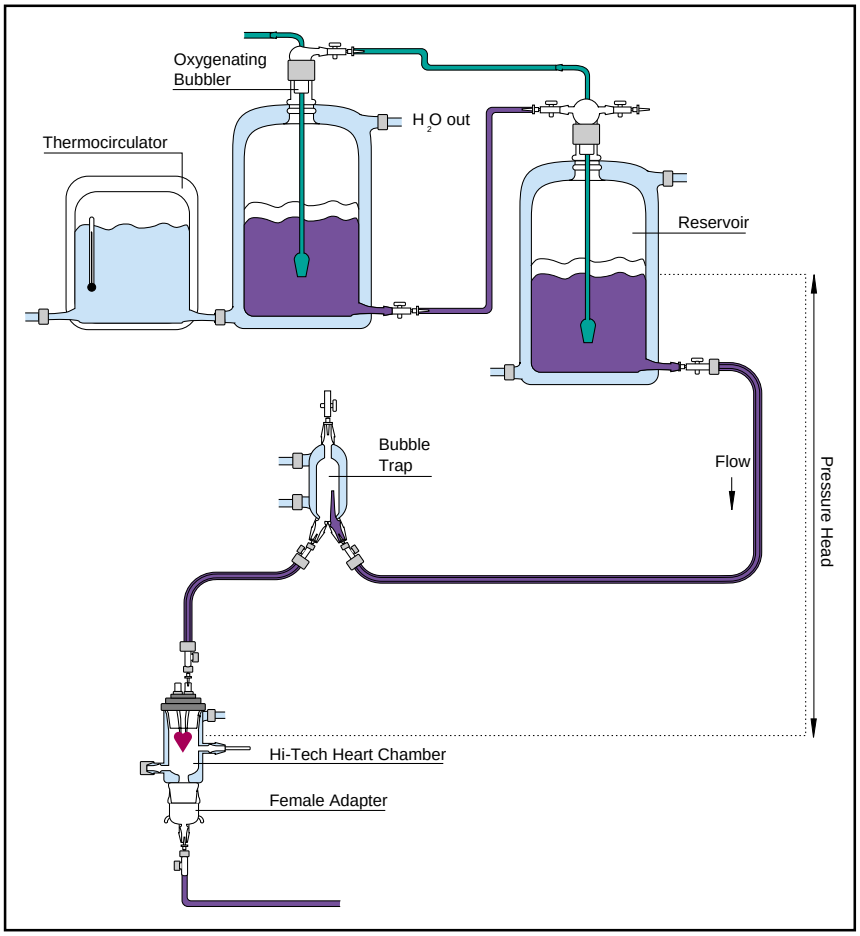
Radnoti Langendorff, Constant Pressure, Non-Recirculating System (Model IV)



- Complete with Harvard Constant Temperature Thermocirculator only (Peristaltic Pump not included or required)

Catalog No.	Product
CGS 8926.73	Radnoti Langendorff, Constant Pressure, Non-Recirculating System (Model IV), 115 VAC, 60 Hz
CGS 8927.73	Radnoti Langendorff, Constant Pressure, Non-Recirculating System (Model IV), 230 VAC, 50 Hz
System Components	
Descontinuado CGS 8928.73	Water-Jacketed 2 L Reservoir
CGS 8929.73	Standard Oxygenating Bubbler for 2 L Reservoir
Descontinuado CGS 8930.73	Oxygenating Bubbler with Fluid Inlet Port for 2 Liter Reservoir
CGS 8931.73	High-Tech Heart Chamber, Medium
CGS 8932.73	Bubble Trap
CGS 8933.73	In-Line Injection Ports with Septa
CGS 8934.73	Adapter, 24 mm, Female
Thermocirculator	
CGS 8935.73	115 VAC, 60 Hz
CGS 8936.73	230 VAC, 50 Hz
CGS 8937.73	Thermocirculator Tubing Adapters
CGS 8938.73	Four-Bar Stand Kit for Heart Perfusion System (Model IV)
CGS 8939.73	Hardware Kit for Heart Perfusion System (Model IV)

Application Note:

Heart Perfusion System — Measurement of Contractile Force

The simplest measurement of contractile force is made using a force transducer tied to the apex of the heart with a pulley in between the heart and the transducer. In this system a measurable amount of force is lost in a rotational motion as the heart contracts, which can be compensated with a three point mount[1]. Strain gauges may be sewn on the heart. A balloon catheter inserted into the left ventricle is often used to measure isovolumic work[2]. These balloons, which should be slightly larger than the expanded volume of the ventricle to avoid the effects of measuring the resistance of the balloon to stretch, may be made of flaps of plastic wrap or latex cast on models formed from the ventricle and are filled with saline. These balloons are secured to a stainless steel or polyethylene tube that is connected to a pressure transducer. The balloon may be inserted by passage through the left atria or by passing the catheter through the wall of the left ventricle. It is also possible to pass a catheter without a balloon through the wall of the left ventricle for pressure measurements. In this case, a one-way valve must be placed in the aortic cannula if the intraventricular pressure exceeds the perfusion pressure.

In the working heart model, contractile function can be assessed by the initial ejection pressure at the aorta and the concomitant ability to pump against an afterload as adjusted via the compliance chamber and/or reach a set ejection pressure with a preload set by adjusting the height of the atrial reservoir. Pressure-volume work is determined by the total volume of fluid ejected by the ventricle over time. In any of these cases, the experimenter should determine the appropriate amount of resisting force or pressure required to maintain the heart on the ascending limb of the Starling curve and avoid over-stretching the heart muscle. Other useful functions derived from contractile measurements include the first derivative, dP/dt, a determinant of the rate of change of developed pressure and the integral of pressure as an index of work. Heart rate can be monitored from force measurements or monitored independently with an ECG amplifier.