

# Liquid Charging Systems

## Liquid Metering Pumps

Liquid metering pumps are commonly used to introduce liquids into a reactor or vessel at elevated pressures on a continuous basis. A wide variety of pumps are available to meet various pressure, flow, and control requirements. The pumps listed here cover some of the more common pressure and flow requirements associated with Parr reactors and pressure vessels. The pumps described under these catalog numbers include an inlet filter, a reverse-flow check valve and the outlet tubing to the reactor. Special pumps can be furnished to meet requirements outside the range of these pumps. All pumps can be operated from their faceplates and all except the 2312E can also be remotely controlled with a 0-10VDC analog signal, such as from the Model 4871 Process Controller.

### Liquid Metering Pumps

Part No.	Flow Rate, mL/min	Pressure, Max. psi	Wetted Material	Digital Pressure Alarm / Shut-off
2312E	0.01-10	2000	PEEK	No
2313E	0.01-10	5000	Stainless	No
2314E	0.04-40	1500	Stainless	No
2315E	0.01-10	5000	Stainless	Yes
2316E	0.04-40	1500	Stainless	Yes

## Liquid Charging Pipettes

To introduce liquids into reactors or vessels at elevated pressures, the most economical way is to use a pressure pipette as a secondary vessel. These are often used for liquid addition to a batch process. Liquid is forced into the reactor from the pipette by applying gas pressure to the pipette greater than the pressure within the vessel. If the passages in the connecting line are large enough, slurries or catalyst suspensions can also be charged into the reactor in this manner.

The pipettes listed below offer a choice of volumes and are rated for pressures to 1800 psi. They include a nitrogen filling connection for attachment to a nitrogen tank. More elaborate pipette systems can be assembled to special order to include additional fittings, such as a pressure gage for the pipette, a pressure relief valve or a large opening ball valve. Special pipettes can also be furnished for higher pressures to 5000 psi.

### Liquid Charging Pipettes

Part No.	Pipette Volume, mL	Pressure Rating, psi
A2113HC3	50	1800
A2113HC4	150	1800
A2113HC	300	1800
A2113HC2	1000	1800



**A2113HC  
Liquid  
Charging  
Pipette**