

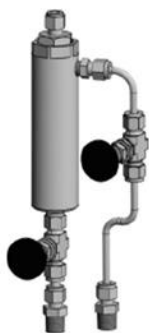
LIQUID INJECTION CYLINDERS

Product Solutions for High- and Low-Pressure Reactors

Liquid Injection Cylinder Overview

Liquid Injection Cylinder Types	Construction Material	Article Number	Application Type
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1- Liquid injection cylinder, 50 ml, 245 bar, 204 °C ^[1]



✓ Stainless steel 316Ti

5745955

- ✓ Enables liquid introduction to the reactor at elevated pressures without an injection pump
- ✓ Max. injection volume is 50 ml
- ✓ Compatible with reactors with 300 ml or greater volume

2- Liquid injection cylinder, 50 ml, 68 bar, 204 °C ^[1]



✓ Stainless steel 316Ti

5735410

- ✓ Enables liquid introduction to the reactor at elevated pressures with an injection pump
- ✓ Max. injection volume is 50 ml
- ✓ Compatible with reactors with 300 ml or greater volume

3- Liquid injection cylinder, 1000 ml, 77.8 bar at 204 °C, 69 bar at 315 °C

✓ Stainless steel 304L 10004481

- ✓ Enables liquid introduction to the reactor at elevated pressures with an injection pump
- ✓ Max. injection volume is 500 ml liquid can be injected once by using this cylinder
- ✓ This product is designed to be used in applications with oxygen gas; therefore, contains special cleaned parts ^[2]
- ✓ Compatible with reactors with 6000 ml or greater volume



Notes:

[1] Temperature and pressure are limited by the valves.

[2] This product can also be designed for applications without usage of oxygen or with various injection volumes.

How to use liquid injection cylinders

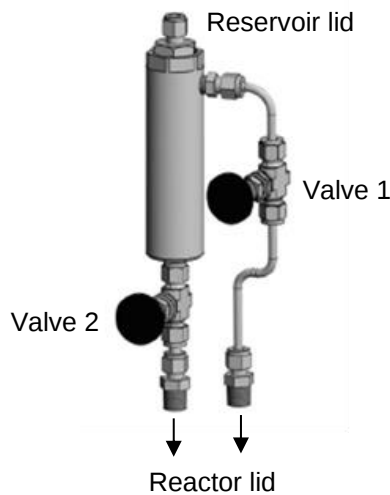


Figure 1. Liquid injection cylinder 1

Liquid injection cylinder 1

- 1- Pour the liquid into the reservoir after unscrewing its lid while valves 1 and 2 are closed. A graduated pipette and funnel should be used to pour the liquid properly.
- 2- Close the lid of the reservoir by screwing blind plug. Then make sure to close it tighter by using a wrench tool (1/4 rotation).
- 3- Open valve 1 to allow pressure equalization between the reactor and the reservoir.
- 4- Open valve 2 to add the liquid into the reactor.
- 5- Close the valve 2 and 1 after liquid injection is done.

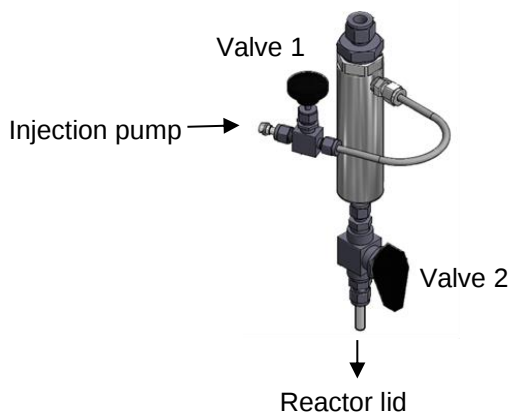


Figure 2. Liquid injection cylinder 2

Liquid injection cylinder 2

- 1- Pour the liquid into the reservoir by unscrewing its lid.
- 2- Close the lid of the reservoir.
- 3- Open the injection pump (e.g. HPLC pump) and valve 1 to allow increase in pressure inside the reservoir that is higher than the pressure inside the reactor.
- 4- Open valve 2 to add the liquid into the reactor.
- 5- Close the valve 2 after liquid injection is done.
- 6- Loose the connection with injection pump and release the pressure inside the reservoir.

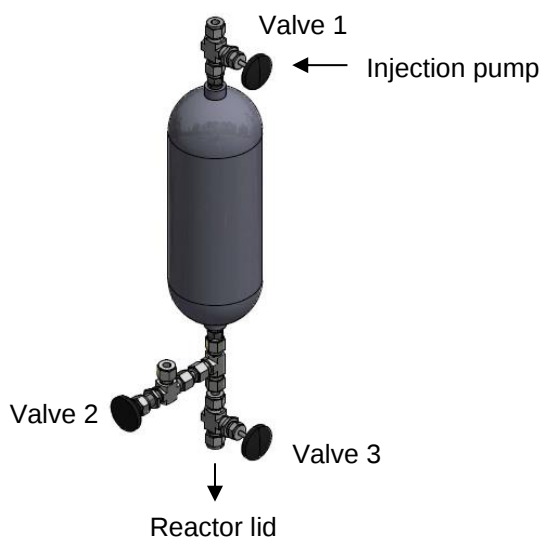


Figure 3. Liquid injection cylinder 3

Liquid injection cylinder 3

- 1- Connect an injection pump (e.g. HPLC pump) through valve 1.
- 2- Open the valve 2 to fill the cylinder with the liquid.
- 3- Close the valve 2 after the liquid is filled in.
- 4- Open the valve 1 and the pump to allow increase in pressure inside the cylinder that is higher than the pressure inside the reactor.
- 5- Open valve 3 to add the liquid into the reactor.
- 6- Close the valve 3 after liquid injection is done.
- 7- Release the pressure inside the cylinder after loosing the connection with the injection pump.

Please contact us to get the right configuration for your reactor applications.