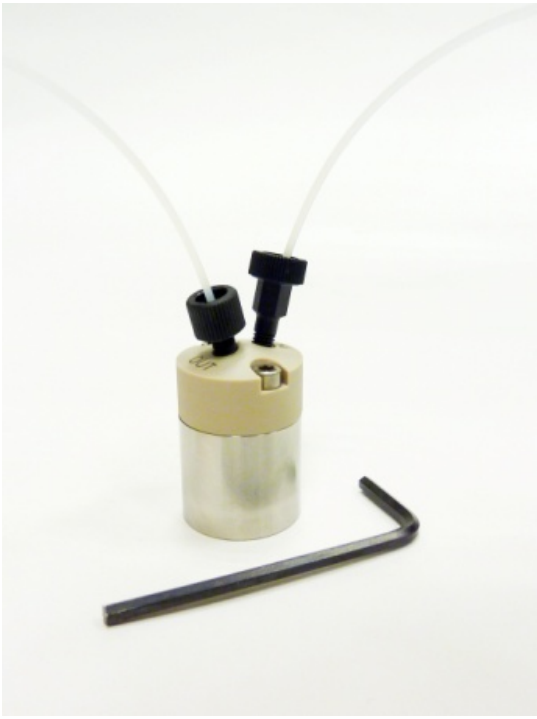
Future Chemistry

Smart, safe and clean chemistry

Backpressure Regulator



User Manual

Revision: 1.00
Date: December, 2011

1. User manual

In this manual, the operation of the Backpressure Regulator will be discussed step by step. Keep these installation instructions at hand for future reference.

The low volume back-pressure regulator (BPR) is designed to apply a constant pressure in a microreactor. The unique mechanism ensures constant pressure over a wide range of solvents with different viscosities. The BPR has a void volume of 5 µL and is chemically resistant towards most general applicable organic solvent (see: Wetted parts). The back-pressure regulator may be adjusted from 0.3 to 5 atmospheres (5-75 PSI). The BPR is factory set to approximately 4 atm (60 PSI).

1.1 Hardware installation

The inlet and outlet of the BPR are marked “IN” and “OUT.” The microreactor is connected to the inlet of the BPR with connect-tubing (order number **B-447**). The outlet-tubing (also part of **B-447**) of the BPR is placed in a collection vial.

- WARNING -

NEVER turn the bottom screw, unless you want to change the back-pressure!

Mounting of the BPR to the FlowStart Evo arm is shown in Figure 1.1. First, loosen the screw on the back-side of the arm, insert the BPR (outlet top, inlet bottom) and fasten the screw.

Figure 1.1: Mounting the BPR.

Then, attach both inlet and outlet tubing to the BPR using the appropriate outlet module according to figure 1.2. Installation of the outlet tubing into the FlowStart Evo arm is shown in the FlowStart Evo manual.

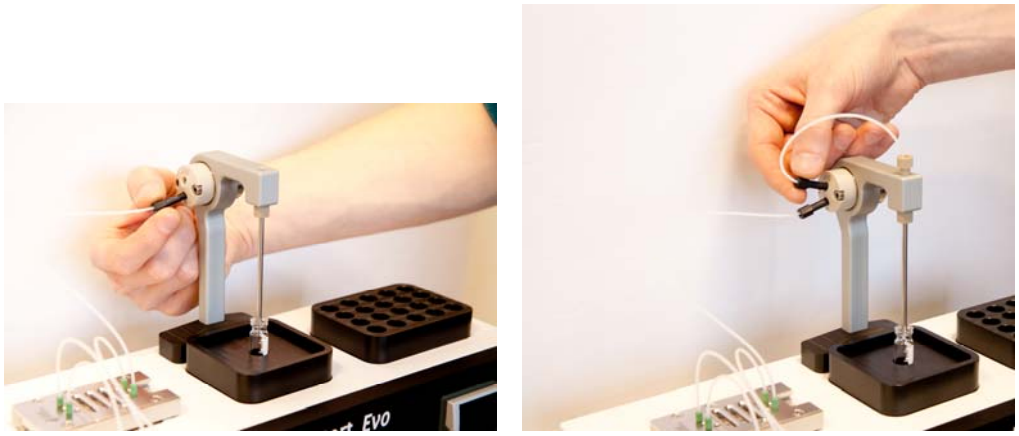


Figure 1.2: Connecting the BPR to the fluidic system.

1.2 Adjusting the back-pressure

The back-pressure regulator is factory pre-set at 60 PSI. Optionally, the back-pressure can be adjusted to a maximum of about 75 PSI by turning the bottom screw clockwise, and to a minimum of about 5 PSI by turning it counter clockwise. A stop prevents the setting of pressures greater than 100 PSI. Excess screw tightening at the stop position could damage the unit.

To adjust the backpressure, first turn the bottom screw fully clockwise. The BPR is now set at 75 PSI (5 atm). Next, turn the bottom screw anti-clockwise for the desired rotation according to table 1.1.

Table 1.1: Bottom screw rotation *versus* BPR back-pressure.

Rotation (^{0})	Pressure (PSI)	Pressure (atm)
0	75	5.1
650	50	3.4
1000	40	2.7
1450	25	1.7

1.3 Cleaning

Use any conventional detergents or cleaners and, if available, an ultrasonic bath. Do not subject BPR components to temperatures above 70°C in order to prevent possible distortion of fluorocarbon components.

1.4 Wetted parts

Wetted surfaces are Kalrez® and PEEK.

- WARNING -

PEEK is not compatible with sulphuric acid. Using sulphuric acid *will* damage the back-pressure regulator!

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