

Ultra-Low Volume Back Pressure Regulators (BPR)

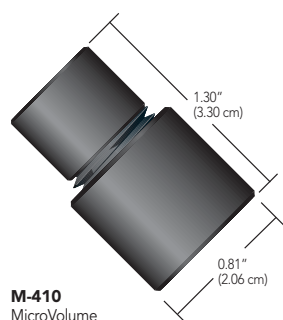
- ▶ Wetted flow path materials: PEEK, perfluoroelastomer, and ETFE
- ▶ Available pressure settings of 100 or 500 psi (7 or 34 bar)
- ▶ Low swept volume of only 6 μL

Ultra-Low Volume Back Pressure Regulators (BPRs) were developed to minimize swept volume, which is especially important for multi-detector applications. With a maximum swept volume of only 6 μL ^{*}, it is nearly impossible to detect these BPRs as part of your fluid pathway. To minimize the swept volume added to your flow path, we recommend trimming the length of the attached tubing. And because the flow path is completely polymeric, you are assured of biocompatibility.



Please Note: Our Ultra-Low Volume Back Pressure Regulators cannot be used as check valves due to their unique internal design. Try our Micro-Volume Inline Check Valve on page 149.

* The maximum internal swept volume listed above is for the back pressure regulator only and does not include the volume of the attached tubing lines.



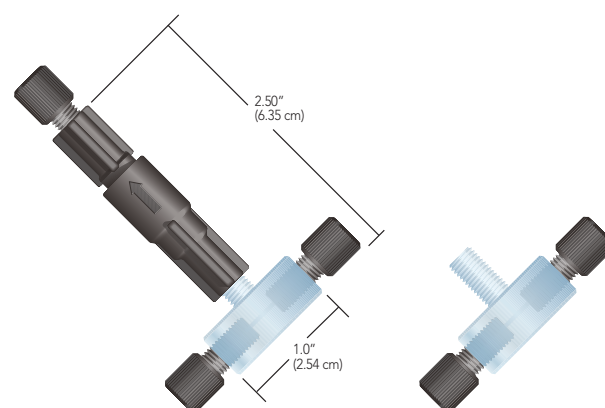
M-410
MicroVolume
BPR Assembly
Attached tubing not shown

Pressure Relief Valves

- ▶ Prevent system over-pressurization

Upchurch Scientific® Pressure Relief Valves are ideal for preventing system over-pressurization. These products protect system components by diverting fluid flow automatically when inline pressure exceeds the set limit. Choose between preset 100 psi (7 bar) and 5 psi (0.3 bar) assemblies, both shipped with Flangeless Fittings. The 100 psi version is a good, general purpose valve, while the 5 psi version is perfect for protecting syringe and peristaltic pump systems (see pages 93–108). The void volume of both relief valves is low due to the small 0.020" (0.50 mm) thru-holes in the valve tee body.

If you wish to have the Pressure Relief Valve open at a different pressure than 5 or 100 psi, simply combine one of the other replacement Back Pressure Regulator Assemblies listed on page 152 with the P-612 Pressure Relief Valve Tee. Choose the P-612S for larger bore tubing and higher flow applications.



U-455
Pressure Relief Valve
Includes Flangeless Fittings
for 1/16" OD tubing
(Drawing is not actual size)

P-612
Pressure Relief Valve Tee
Includes Flangeless Fittings
for 1/16" OD tubing
(Drawing is not actual size)

SPECIFICATIONS & DETAILS

	Back Pressure Setting psi (bar)	Flow Rate Recommendations	Recommended Pressure Range psi (bar)	1/16" OD Tubing
M-410	100 ² (7) ²	Optimal: 100 μL –1 mL/min Max.: 4 mL/min	40–150 (3–10)	PEEK, 0.010" ID
M-412	500 ² (34) ²	Optimal: 100 μL –1 mL/min Max.: 4 mL/min	250–525 (17–36)	PEEK, 0.010" ID
M-420	100 ³ (7) ³	Optimal: 3–8 mL/min Max.: 10 mL/min	40–150 (3–10)	PEEK, 0.020" ID

¹ All data generated using water at room temperature.

² Set at a flow rate of 0.5 mL/min.

³ Set at a flow rate of 5 mL/min.

Part No.	Description	Pressure Setting	Tubing OD	Includes	Swept Volume
ULTRA-LOW VOLUME BPRs					
M-410	Low Flow	100 psi (7 bar)	1/16"	XP-230	6 μL
★ M-412	Low Flow	500 psi (34 bar)	1/16"	XP-230	6 μL
M-420	High Flow	100 psi (7 bar)	1/16"	XP-230	6 μL
PRESSURE RELIEF VALVES					
U-455	Pressure Relief Assembly	5 psi (0.3 bar)	1/16"	XP-201	148 μL
★ U-456	Pressure Relief Assembly	100 psi (7 bar)	1/16"	XP-201, wrenches	139 μL
★ P-612	Pressure Relief Tee		1/16"	XP-201	14 μL
P-612S	Pressure Relief Tee		3/16"	XP-201	348 μL