

3D-Printed Back Pressure Regulator

Vernalis Technology

BPR II

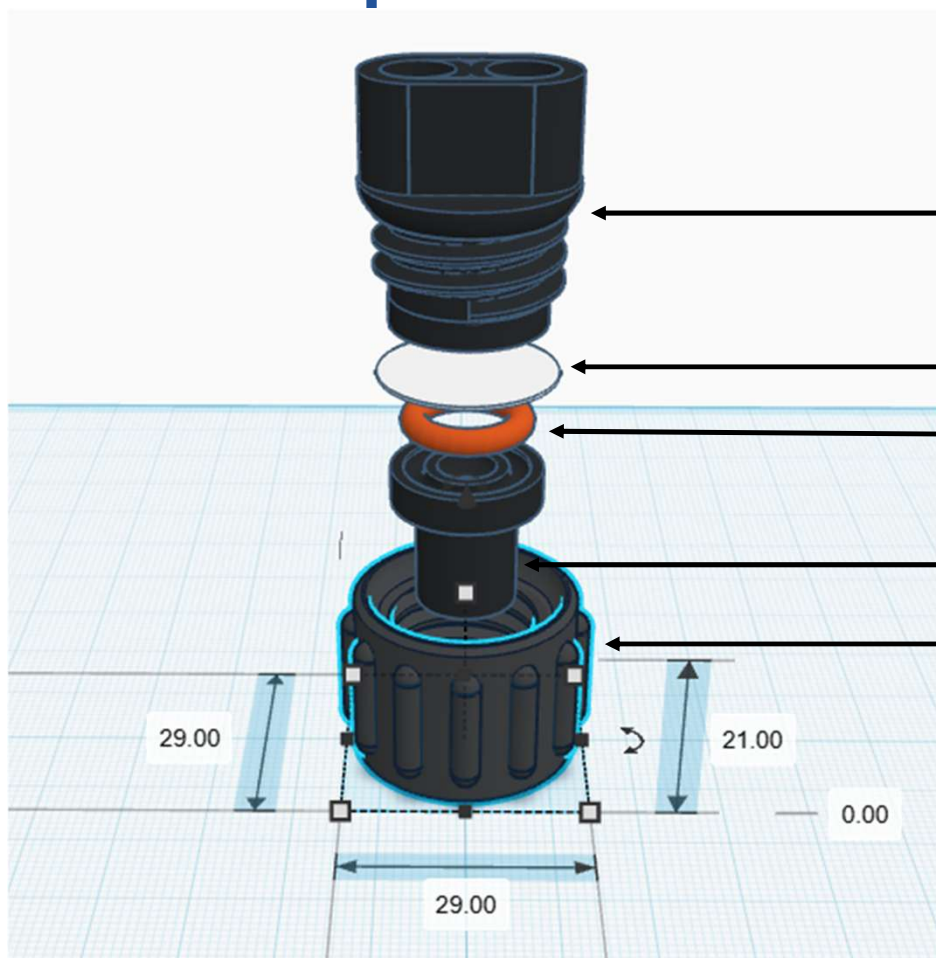


Operation Manual

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BPR II - Specifications



- CAD: Exploded View

- Liquid face – eluent input/output

- 14 mm O.D. x 0.1 mm PTFE diaphragm

- Ace Silicone O-ring: I.D. 9.2 mm wall 2.6 mm Merck Sigma Aldrich Z504157 (12 pack)

- Gas face – regulated pressure input

- Compression casing

- 3D printed parts: STRAND GF30-PP Glass fibre reinforced polypropylene

BPR II - Specifications

- Heated Plastic Insert Fittings
- BW4475 1/4"-28 UNF x 10.55 Push and Heat fit Thru

Thread size	1/4"-28 UNF
Range	Push and Heat fit
Style	Thru
Material	Brass
Profile	D
Overall insert length	10.55 mm
Measurement across flats	9.53mm



IDEX XP-201



IDEX P-624



- Supplier: <https://www.anchorinserts.co.uk/>

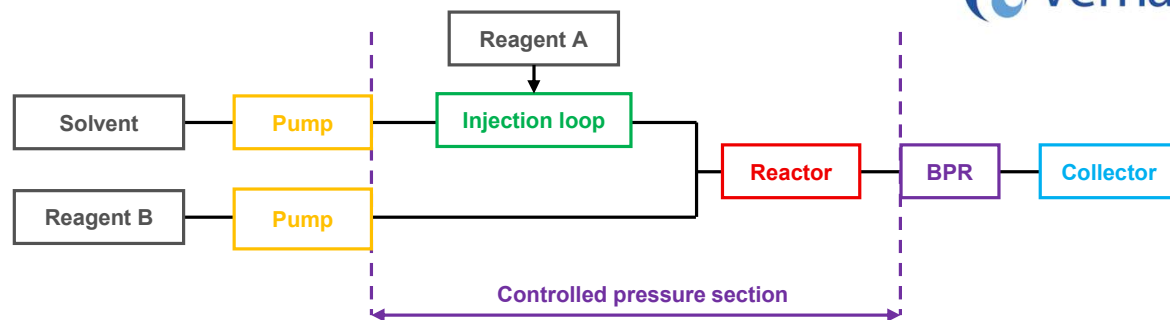


- Recommended compatible fittings

- Fluidic fittings: IDEX Part Number: **XP-201** 1/16" OD fitting, flangeless
- Gas fitting: IDEX Part Number: **P-624** Female Luer Adapter 1/4"-28 UNF

BPR II - Operation

- Typical flow-chemistry fluidic scheme



A BPR is the 'unsung hero' of flow chemistry. It maintains a constant pressure throughout the system.



Regulated supply of nitrogen or compressed air recommended pressure range 0.5 – 2 bar



← Input from the fluidic system just above the BPR pressure through the reactor from the pump

→ Output of the fluidic system to the collector at atmospheric pressure

Vernalis publications

www.vernalis.com/3d-printing/

https://github.com/vernalis/3Dprint_files

DOI: <https://doi.org/10.31224/osf.io/3t9bq>