SARTORIUS

Product Datasheet

# Air Pressure Controller

## Enabling Pressurized Ultrafiltration for Sensitive or Viscous Samples




DOMINIQUE DUTSCHER SAS

### Benefits

- Quick and simple pressurization of Vivaspin® 20 and 100
- Convenient single sample processing on the bench
- Fast ultrafiltration of viscous and low temperature samples
- High recoveries of shear-sensitive target molecules

### Product Overview

The air pressure controller (APC) is a control unit to adapt an existing pressure source for use with any pressurizable concentrator. The APC can be used with any pressure source terminating in 6 mm (1/4 inch) pneumatic tubing, and having a maximum pressure of 10 bar.

For permanent installation, the APC is best positioned at eye level on a laboratory partition or wall. For intermittent use, it may be connected to a pressure source when required, placed flat on a bench and operated using the included extension line, fitted with the appropriate couplings (Fig. 1).

## Working Principle

Together with Vivaspin® 20 and 100 devices, the APC enables the use of pressurized air or inert gas to replace centrifugation as the driving force for ultrafiltration. This allows for simple and convenient processing of single samples without the need for a centrifuge. Pressurized ultrafiltration is also ideal for the concentration of target molecules which are sensitive to the more variable shear stresses exerted by centrifugal devices.

Agitation may be used in combination with pressurization to minimize membrane fouling and increase processing speed. Furthermore, with Vivaspin® 20, Sartorius offers a unique pressure-fuge method, combining pressure and centrifugation. This typically reduces processing time by 30 to 50% compared to centrifugation alone. Pressure-fugation is particularly well suited to increasing the speed of concentration for viscous or temperature-sensitive samples.

## Technical Specifications

| | |
|---|---|
| Max inlet pressure | 10 bar (150 psi) |
| Max outlet pressure | 5 bar (75 psi) |

## Materials of Construction

| | |
|---|---|
| Box | Acrylonitrile butadiene styrene (ABS) |
| Connectors | Polyoxymethylene (POM) and Aluminium (ALU) |
| Pneumatic tube | Polyurethane (PUR) |
| Dimensions (L \| W \| H) | 160 \| 155 \| 89 mm |

## Mounting Instructions

For your convenience, plugs and screws are included for wall mounting the APC. Please ensure that these are suitable for your wall type before using them.

Open the front panel by removing the 4 screws. Align the APC on the wall and mark mounting position through the recessed holes at the corners of the rear panel.

Use the plugs and screws provided to securely attach the regulator assembly to the wall. Refit the front panel. Link the laboratory gas supply to the pressure inlet on the side of the APC using 6 mm pneumatic tubing. Warning: Check that available pressure does not exceed 10 bar.

## Operation

Set the Controller to the desired pressure level. A relief valve, factory set at 5 bar does not allow operation above this pressure. Lift the regulator knob to unlock and turn, clockwise to increase pressure, counter clockwise to decrease pressure. When the desired pressure is set and stable, press the regulator knob to lock.

**Using Vivaspin® 100 Pressure Heads (VCA800)**
Vivaspin® 100 Pressure Heads can be connected directly to the female outlet coupling on the bottom of the APC. A single pressure charge should be sufficient to fully concentrate the sample. Alternatively, Vivaspin® 100 can be operated under constant pressure via the included 4 mm extension line fitted with a female coupling. To detach from the female coupling after pressurization, raise the outer locking sheath.

**Using Vivaspin® 20 Pressure-Fuge Heads (VCA200)**
Vivaspin® 20 Pressure Heads must be pressurized via a Charge Valve (Product No. VCA005), fitted to the 4 mm extension line. To remove the female coupling from the extension line, hold down the plastic retaining ring at the point where the tube enters the coupling and pull the tube free. Push the Charge Valve onto the extension line. To pressurize the concentrator, press the Charge Valve into the inlet on the Pressure Head firmly to ensure an airtight seal.

**Depressurizing**
Depressurize Vivaspin® 100 Pressure Heads by depressing the centre pin of the inlet connector. Depressurize Vivaspin® 20 Pressure Heads by unscrewing from the concentrator body.

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# Ordering Information

| Product | Pack Size | Product Number |
|---|---|---|
| Air pressure controller (APC) fitted with pressure gauge, regulator, over-pressure safety valve and female coupling. APC is supplied with extension line (4 mm pneumatic tubing, 1m) with male and female couplings, and inlet tubing (6 mm pneumatic tubing, 1 m) | 1 | VCA002 |
| Female coupling for pressure head VCA800 | 1 | VCA010 |
| Male coupling | 1 | VCA011 |
| Charge valve for pressure head VCA200 | 1 | VCA005 |
| Replacement extension line (4 mm pneumatic tubing, 3 m) | 1 | VCA012 |
| Vivaspin® 100 pressure head with seals (5x) | 1 | VCA800 |
| Vivaspin® 20 pressure head | 1 | VCA200 |

**Figure 1**

Male and Female Couplings are provided with the APC for pressurization of Vivaspin® 100 Pressure Heads (VCA800) via the 4 mm extension line. The female coupling may be replaced by a Charge Valve (VCA005) to pressurize Vivaspin® 20 Pressure-Fuge Heads (VCA200).




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