

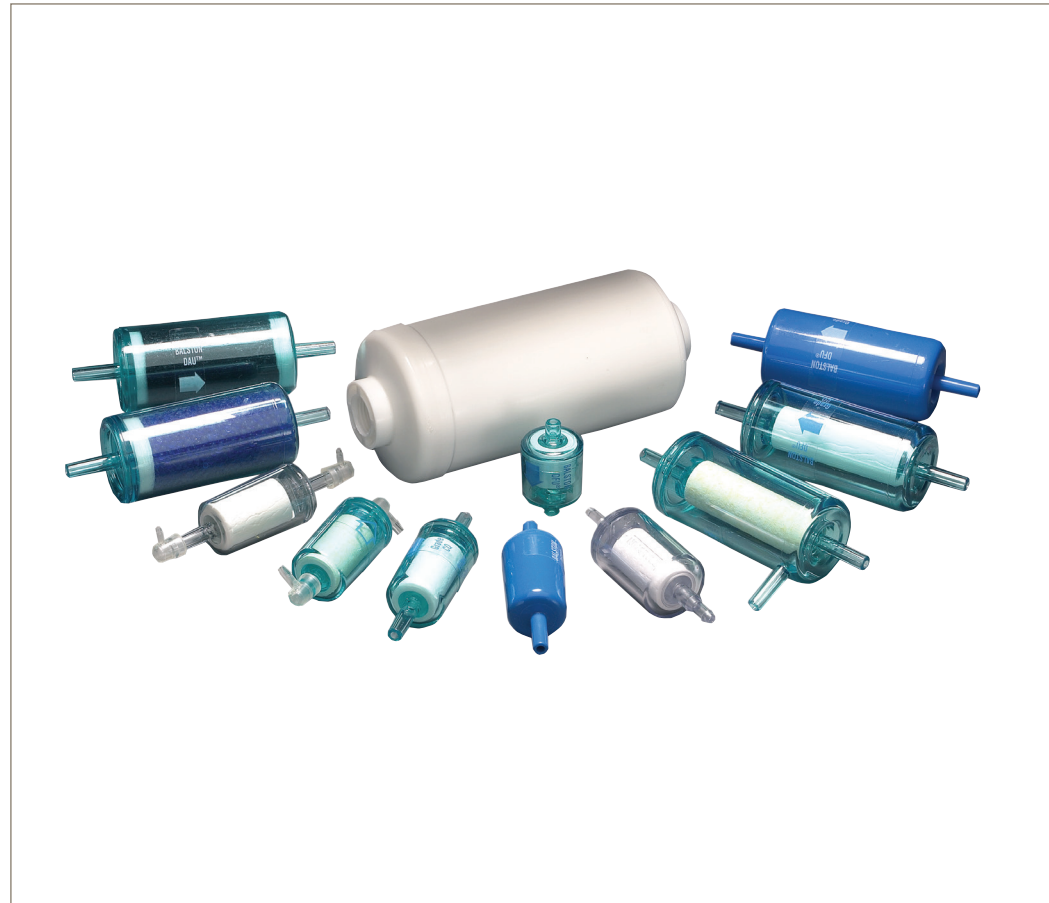
# Disposable Filter Units for Emissions Sampling

Market Application Publication



## Background:

There are many requirements throughout industry where sample analysis of emissions is critical for complying to EPA regulations. Sample analysis instrumentation or monitors are adversely effected by condensed contaminants and solid contaminants both of which can also skew the analysis output. Original equipment manufacturers are very concerned with ensuring efficient removal of undesirable contaminants and producing consistent, accurate analysis with trouble free operation of the instrumentation.



## Contact Information:

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## Features and benefits:

- Prevent cross-contamination of samples
- Pressure ratings up to 125 psig
- Temperature to 275°F (135°C)
- Completely disposable, constructed of recyclable pastics



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## Application:

Typical applications for monitoring devices include stack gas or emissions sampling, gas analysis and ambient air analysis. These monitoring applications all have specific and unique filtration requirements depending on the analysis to be performed. Quantitative measurement of solids (capture and retention of solids) is unique to stack and exhaust gas sampling. Coalescing filtration is used widely in most monitoring applications to protect sensitive components such as flow controllers and valves from condensables and long term corrosion.

Requirements for filtration range so widely that specifying a filter is best done on a case by case basis. Parker Balston has a wide range of standard catalog products that have been developed over time to accommodate most typical instrument monitoring applications. In the event standard catalog product is not adaptable to the specific instrument, Parker Balston has the ability to develop product that meets exactly the requirements for fit, form and function. With over 3000 product models and a team of highly experienced design engineers, Parker Balston can provide a solution to the most demanding instrumentation application.

## Case Study:

A manufacturer offers an array of ambient particulate monitoring instruments. This particular monitor is designed for a number of applications such as industrial and material handling sites, remediation projects (superfund and hazardous waste), indoor air, exposure chamber and industrial hygiene measurements and routine input for air quality index or pollutant standards index.

This monitor is designed to measure particulate mass concentrations continuously. It is marketed as a high end, top quality device with key benefits being high data quality, reliability, and accuracy.

Parker Balston worked closely with this manufacturer in developing a specialized disposable filter unit to protect sensitive flow

controllers and the internal vacuum pump from ambient contamination. Critical design features included quick disconnections, specific length and diameter parameters and high filtration efficiency coupled with long filter life.

In a very short period of time prototypes were produced, samples from production runs were tested and approved and now every monitor is shipped with two of these custom disposable filter units.

The manufacturer has not only realized trouble free operation (reduced service calls and warranty claims) but also enjoys significant aftermarket revenue and profits on the resale of the filter units.



## Specifications:

| Model                    | 9922-05                         | 9900-05                                   | 4433-05                            | 9933-05                         | 9922-11                         | 9933-11                         | 8833-11                         | 8800-12                               | 9953-11                             |
|--------------------------|---------------------------------|---|------------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------------|-------------------------------------|
| Inlet/Outlet Ports       | 1/4" Tubing                     | 1/4" Tubing<br>2nd Tier/Barb<br>3/8" Tube | 1st Tier/Barb                      | 1/4" Tube                       | 1/4" Tubing                     | 1/4" Tubing                     | 1/4" Tubing                     | 1/2" Tubing                           | 0.32" OD                            |
| Drain                    | None                            | None                                      | None                               | None                            | None                            | None                            | 1/4" Tubing                     | None                                  | None                                |
| Material of Construction | PVDF                            | Nylon                                     | Nylon                              | Nylon                           | PVDF                            | Nylon                           | Nylon                           | Nylon                                 | Polypropylene                       |
| Filter Cartridge Length  | 1.25" (3.2 cm)                  | 1.25" (3.2 cm)                            | 1.25" (3.2cm)                      | 1.25" (3.2 cm)                  | 2.25" (5.7 cm)                  | 2.25" (5.7 cm)                  | 2.25" (5.7 cm)                  | 2.25" (5.7 cm)                        | 2.28" (6.35 cm)                     |
| Max Temperature (1)      | 275°F (135°C)                   | 230°F (110°C)                             | 230°F (110°C)                      | 230°F (110°C)                   | 275°F (135°C)                   | 230°F (110°C)                   | 230°F (110°C)                   | 150°F (66°C)                          | 125°F (52°C)                        |
| Max Pressure (2)         | 125 psig                        | 125 psig                                  | 125 psig                           | 125 psig                        | 125 psig                        | 125 psig                        | 125 psig                        | 50 psi (5)                            | 2 psi                               |
| Dimensions               | 1.0"D x 3.25"L<br>(2.5cm x 8cm) | 1.0"D x 3.25"L<br>(2.5cm x 8cm)           | 1.0"D x 3.43"L<br>(2.5cm x 8.72cm) | 1.0"D x 3.25"L<br>(2.5cm x 8cm) | 1.4"D x 4.6"L<br>(3.6cm x 12cm) | 1.4"D x 4.6"L<br>(3.6cm x 12cm) | 1.4"D x 4.6"L<br>(3.6cm x 12cm) | 2.24"D x 6.24"L<br>(5.69cm x 15.85cm) | 1.22"D x 3.57"L<br>(3.1cm x 9.07cm) |

### Notes:

- 1 At 0 psig
- 2 At 110°F (43°C)

3 To designate adsorbent in the DAU, insert adsorbent numbers after DAU designation. For example, to obtain a miniature clear nylon DAU with carbon adsorbent, order 9933-05-000.

- 4 Available only in Q grades.
- 5 Available in Q or X media.
- 6 Available only in X media.

7 9953-11 is designed for maximum pressure of 2 psig.  
8 Pressure rating in liquid service is 70 psig maximum.

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