

HPD III (High Pressure Diffuser)

Aerosol Monitoring Accessory

Reduces the pressure of gases for particle counters operating at atmospheric pressure



Without measurement there is no control

The HPD III reduces the pressure of high purity, high pressure gas to near atmospheric pressures to allow for accurate sampling of aerosol particle size channels of $\geq 0.2 \mu\text{m}$ by PMS particle counters. The HPD works by diffusing some of the gas out of the system, allowing the particle counter's flow-metering system to function as designed. The PMS particle counters that the HPD III is compatible with includes AirNet, IsoAir, Lasair Pro, and Lasair III.

The HPD III will effectively reduce the pressure of a gas line from 120 psi to atmospheric pressure and is compatible with non-toxic, non-flammable gases such as Clean Dry Air (CDA), nitrogen (N_2), argon (Ar), and carbon dioxide (CO_2). See the table below for a visualization of what particle counters are compatible with which gases.

HPDIII is available in two configurations:

- HPD III-Low for gas lines pressures less than ~25 psi
- HPD III-High for gas lines pressures between ~20 and 150 psi

See the full table on the next page of gas pressure capabilities.

| Particle Counter | CDA | N ₂ | Ar | CO ₂ | O ₂ /He/ Ne/H ₂ |
|-------------------|-----|----------------|----|-----------------|--|
| Airnet | Y | Y | N | N | N |
| Lasair III 110 | Y | Y | N | N | N |
| Lasair III 310 | Y | Y | Y | N | N |
| NanoAir 10 | Y | Y | Y | N | N |
| IsoAir 310P | Y | Y | Y | N | N |
| IsoAir Pro-E/Plus | Y | Y | Y | Y | N |
| Lasair Pro | Y | Y | Y | Y | N |
| HPGP 101-C | Y | Y | Y | Y | Y |

BENEFITS

- Measures gases from 5 to 120 psi (range dependent on model and sample gas)
- Can be used with Clean Dry Air (CDA), argon (Ar), nitrogen (N_2), carbon dioxide (CO_2), or other non-toxic inert gases (see table for compatible gases)
- Seven different versions for 0.1 CFM, 1.0 CFM, 50 LPM, and 100 LPM flow rates
- No external flow meters needed
- Economical monitoring of pressurized gases with atmospheric pressure particle counters

FEATURES

- No moving parts to wear
- Connects via male 4-VCR fitting
- Exhaust filter prevents possible room contamination
- Mounting clamps supplied
- Stainless steel construction

APPLICATIONS

- NanoAir® 10 nanoparticle counter
- Lasair® III particle counter models 310, 350, and 5100
- Lasair® III particle counter models 310B, 310C, 350C, and 5100
- Airnet® II particle sensor models 201, 301, 310, 501, 510, and 510XR
- IsoAir® particle counter models 310P, Pro-E, and Pro-Plus

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Specifications

| | |
|-----------------------------|--|
| Pressure | See additional table below |
| Applicable Sample Flow Rate | 0.1 CFM, 1.0 CFM, 50 LPM, or 100 LPM |
| Particle size range | 10 nm – 25 µm |
| Environment | Temperature: 39 – 86 °F (4 – 30 °C). Humidity: Non-condensing. |
| Material | Enclosure: 316L stainless steel body, exhaust filter Gaskets: 316 stainless steel, Buna-N O-rings |
| Inlet fitting | Male 4-VCR fitting, #4 size, class 316L stainless steel with Ruby orifice |
| Exhaust fitting | Barb fitting for 0.75" ID, 0.5" ID, 0.375" ID, or 0.125" ID dependent upon configuration |
| ISO class | Less than 5% of ISO Class 5 |
| Tubing length | 1 m (39.4 in) maximum |
| Dimensions (h, w, d) | 15 x 2.75 x 5.5 in (38 x 7 x 14 cm) |
| Weight | 2.7 lb (1.25 kg) |
| Compatible instruments | See the Applications section on the previous page |

| | Flow Rate | CDA | Nitrogen | Argon | CO2 |
|---------------|-----------|--------------|-----------------|----------------|----------------|
| High Pressure | 0.1 CFM | 25 – 100 psi | 22.5 - 98 psi | 29 - 119 psi | 31 - 126 psi |
| | 1.0 CFM | 25 – 100 psi | 24 - 98 psi | 30 - 122 psi | 32 - 129 psi |
| | 50 LPM | 25 – 100 psi | 58 - 98 psi | 31.5 - 120 psi | 32.5 - 128 psi |
| | 100 LPM | 60 – 100 psi | 58 - 98 psi | 71 - 120 psi | 75 - 128 psi |
| Low Pressure | 1.0 CFM | 5 – 25 psi | 5 - 24.5 psi | 7.5 - 32 psi | 8.5 - 34 psi |
| | 50 LPM | 5 – 25 psi | 5 - 24.5 psi | 7.5 - 31.5 psi | 8.5 - 33.5 psi |
| | 100 LPM | 20 – 60 psi | 19.5 - 58.5 psi | 24.5 - 72 psi | 26.5 - 77 psi |

System components included: mounting brackets and exhaust tubing to particle counter

Not included: particle counter, ISPs sample tubing, communications cables, PC, FacilityNet or Pharmaceutical Net software

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