

## APPLICATION NOTE

### Making Provision for Testing of HEPA Filters

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Filter Integrity testing of installed HEPA filters is required in virtually all applications. It is specified in AS1386 Cleanrooms and clean workstations and in other international cleanroom standards.

AS1807.6 and AS1807 are standard test methods for field testing of HEPA filters in terminally mounted and non-terminal installations. These test methods are almost identical to other international test methods.

The test principle as stated in AS1807.6 and AS1807.7 is as follows:

*A polydisperse aerosol at room temperature is fed into the upstream side of the HEPA filter installation at a specified flow rate, and the downstream surface of the entire filter bank is scanned with an aerosol photometer to determine percentage penetration.*

To facilitate testing, HEPA filter installations should be designed and constructed to provide the following:

1. A means of introducing the filter test aerosol upstream of the installation.
2. A means of obtaining a sample of the upstream aerosol concentration and of obtaining a manometer reading of the pressure differential across the filter.
3. Access to the downstream side of the filter for testing and leak repair in the case of non-terminally mounted filters.

These provisions for testing are generally made as follows:

1. A special port is the preferred method of making provision for introduction of test aerosol upstream of the HEPA filter. The simplest method is to install a single port upstream of the filter. For better accessibility, it may be preferable to run tube from that port to another port located on the wall or ceiling of the cleanroom or anteroom to minimise ongoing testing cost. Air Care Technology can provide ports designed for fitting to ducting as well as ports designed for installation in rooms.
2. Well designed HEPA filter modules include provision for pressure measurements and aerosol concentration sampling as part of the module. If the modules are not equipped with this feature, or if access is inconvenient, test points need to be fitted. Kits for this purpose are available from Air Care Technology.
3. For in-line HEPA modules in a positive pressure duct system, a standard access port downstream of the HEPA is usually sufficient to allow for scanning and repairing the filter. If the ducting is at negative pressure, a specially designed access port is required. A suitable port is available from Air Care Technology.