

INSTRUCTIONS FOR THE USE OF THE MODEL DR-PM10/2.5 IN-LINE IMPACTOR HEAD

1.0 DESCRIPTION

The Model DR-PM10/2.5 Inlet Head is an accessory designed for use with the MIE model DR-2000 DataRAM. The DR-PM10/2.5 is an in-line jet-to-plate type impactor designed to provide either a 10 µm cut point (aerodynamic equivalent particle diameter), or a 2.5 µm cut point. The 2.5 µm cut point is obtained when a small removable nozzle, provided with this accessory, is threaded onto the central flow tube. When that small nozzle is removed, the central flow tube becomes the 10µm impaction nozzle. These cut points are obtained at a flowrate of 2 liters/minute. The impaction surface consists of a 25 mm diameter glass fiber filter supported by one section a standard plastic filter holder.

The DR-PM10/2.5 is shipped for PM-10 operation, i.e. with the 2.5 µm conversion nozzle provided separately (not installed). If PM2.5 operation is desired, that nozzle needs to be installed (see below). Normally, especially for ambient air monitoring, the DR-PM10/2.5 Inlet Head is used in combination with the DR-OSI Omnidirectional Sampling Inlet. In that case, the DR-OSI precedes the DR-PM10/2.5 which, in turn, can either be connected directly to the DataRAM inlet, or to a DR-TCH Temperature Conditioning Heater followed by the DataRAM, as shown in Figure 1. Alternatively the DR-PM10/2.5 can be used alone with the DataRAM.

2.0 INSTALLATION

Whether the DR-PM10/2.5 is used alone with a DataRAM, or in combination with other ambient sampling accessories, as described above, the quick-connect fittings of the DR-PM10/2.5 can be used with any of these devices or to connect directly to the DataRAM inlet. To do so, align quick-connect fitting with knurled sleeve with the corresponding male fitting stem (either of DR-TCH or the DataRAM) and slide the spring-loaded knurled sleeve back (upwards), pushing flow connector down on stem until it bottoms, and release knurled sleeve. Ensure that quick-connect fitting is seated properly. If a DR-OSI is used, connect that accessory to the DR-PM10/2.5 following the same procedure.

Figure 1 illustrates the case where all three ambient monitoring accessories are interconnected. Alternatively, the DR-PM10/2.5 (usually in combination with a DR-OSI) can be mounted separately from the DataRAM (e.g. roof mounting) with a connection to that instrument's inlet using the tubing adapter set provided with the DR-OSI.

For installation with a RAM-1, refer to NOTE 1.

3.0 DISASSEMBLY

In order to either replace the impaction substrate (25 mm glass fiber filter), or to install or remove the 2.5 µm nozzle, the

DR-PM10/2.5 must be opened. Proceed as follows:

Ø Using the Allen-wrench supplied with the DR-PM10/2.5, remove the 3 small socket-head screws on the outside of the body (see Figure 2)

Ø Separate the lower body section from the upper cover section, exposing the transparent plastic filter holder. The small colored plastic plug on its back side should be left in place at all times.

Ø To either replace the impaction substrate, or to install or remove the 2.5 µm nozzle, pull the plastic filter holder away from the metal cover section.

Ø To replace the glass fiber filter impaction substrate pry it out of the plastic holder and install a fresh filter making sure that the "fluffy" side faces upwards. Firmly reinsert plastic holder onto cover section.

Ø To install the 2.5 µm nozzle, thread it onto the central stainless steel stem of the cover section, as far as it will turn. Use a pair of pliers or a wrench. Do not over tighten. To remove 2.5 µm nozzle, reverse this procedure. Without this nozzle the device is designed to provide a 10 µm cut.

Ø Reassemble cover section and body section carefully aligning the 3 screw openings on those two sections and reinstall the 3 screws tightening them with the Allen-wrench.

4.0 MAINTENANCE

The only routine maintenance required is the replacement of the impaction substrate. This substrate is a 2.5 mm glass fiber filter (for example Type A/E, 25 mm from Gelman Sciences, Ann Arbor, Michigan). This filter will require replacement on a monthly basis for typical ambient conditions when sampling continuously. Otherwise, replacement is advisable when that filter appears obviously soiled.

When using the 2.5 μm nozzle, inspect for any obstruction whenever the filter is being replaced. Clean this nozzle, if necessary.

NOTE 1: Installation of PM-10/2.5 with a RAM-1

Remove plastic adapter from RAM-1 inlet keeping inlet orifice in place for PM-10 application only. For PM-2.5 operation with a RAM-1, remove the inlet orifice from the RAM-1 prior to installation. Do not use the PM-10/2.5 with other ambient monitoring accessories directly interconnected to it as shown with the DataRAM in Figure 1. This stacking feature of ambient accessories is not recommended when used in conjunction with a RAM-1. The PM-10/2.5 can be used in combination with another ambient monitoring accessory by interconnecting these accessories with flexible tubing (e.g. Tygon).

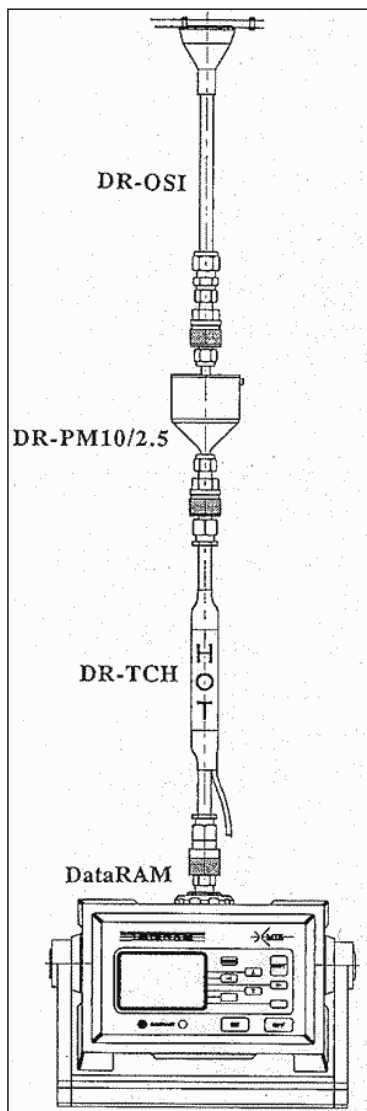


Figure 1

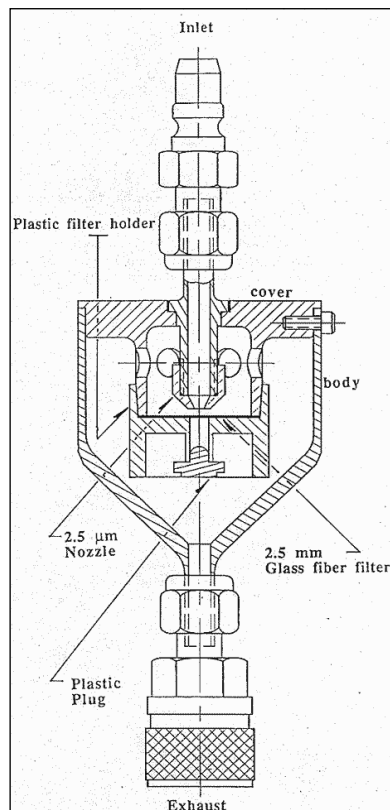


Figure 2

About Thermo

A world leader in high-tech instruments, Thermo Electron Corporation helps life science, laboratory, and industrial customers advance scientific knowledge, enable drug discovery, improve manufacturing processes, and protect people and the environment with instruments, scientific equipment and integrated software solutions.

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