

## miniDiSC application note #5: On different inlet options

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This document lists your different options for the inlet of the miniDiSC. It is intended to teach you which inlet to use in which situation.

The miniDiSC comes with two standard inlets – a 6mm tube fitting with a steel mesh, and an impactor. You can use either of these, or you can use none of them (which is strongly discouraged), or you can add your own pre-separator (e.g. a cyclone) in front of the tube inlet.

The miniDiSC contains several internal parts that rely on electrical insulation. Because it is also a miniature instrument, we could not make the insulators as big as we would like to from an engineering point of view – this means that fibers / dust particles which are 2-3mm in size can produce short circuits in the instrument. Therefore, the tube inlet has a steel mesh to remove really coarse dust particles or small insects from entering the instrument, while the impactor is designed to remove all particles larger than ~0.8 micron diameter. If you do not use these inlets, you risk aspirating coarse dust that may result in a deteriorated instrument performance.

We recommend the use of the impactor if you are measuring in environments where a large number of coarse particles are present, and also when measuring in an unknown environment as a precaution. If you are certain that you have no coarse particles in your air, then you can also use the tube inlet.

The impactor has 6 nozzles which direct a jet of air on the impaction surface below. You will see the coarse dust accumulate in six small spots on the cylindrical impaction surface. Wipe the impaction surface regularly to avoid blow-off of impacted material and/or clogging of the nozzles if the dust spot grows too large. We recommend that you simply wipe the impactor surface with your fingers rather than that you wipe it with a piece of paper, because using paper might cause small fiber specks to remain on the impactor, which could subsequently be aspirated into the instrument, defeating the purpose of the impactor.

If you intend to perform longer unattended measurements with the miniDiSC, then the impactor is not suitable, because it has a rather low dust loading capacity. We recommend that you use the tube inlet and connect a cyclone to it to remove supermicron particles. For example, the SKC GS-3 cyclone would be useful for this purpose (at the time of writing: <http://www.skcinc.com/prod/225-100.asp>).