ANALYT MESSTECHNIK



INSTRUCTIONS FOR USE

SKC GS-3 Cyclone

Assembly, flow-rate verification, sampling and cleaning for the SKC GS-3 multi-inlet respirable dust cyclone, 225-100 (37 mm) and 225-103 (25 mm).

AMTC-IN-0017

Rev. 2 · October 2026

About this document

These instructions cover the SKC GS-3 multi-inlet respirable dust cyclone in both versions: 225-100 for 37 mm filter cassettes and 225-103 for 25 mm filter cassettes. It takes you through building the cyclone into a filter cassette, verifying the flow rate, taking a respirable dust sample and cleaning the cyclone afterwards.

Read Safety (p. 4) and Product and supplied items (p. 5) first. Then follow Before use (p. 6), Flow-rate verification (p. 7) and Procedure (p. 9) in that order; After use and sample handling (p. 10) covers sealing and sending the sample and cleaning the cyclone. The sampling method you work to sets the filter, the flow rate and the analysis; these instructions do not replace it.

Keep these instructions for the lifetime of the product. The current revision is on the product page at analyt-mtc.com.

How these instructions mark information

NOTICE

Practices not related to personal injury — damage to the product, the process or the sample.

Note
Information that helps understanding; never a hazard.

Tip
A shortcut or recommendation; never a hazard.

Document information

Title	SKC GS-3 Cyclone — Instructions for use
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Rev.	Date	Change
2	October 2026	Quality programme: new document type, number and identity pages.
1	October 2026	First issue.

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CHAPTER 1

Safety

Read this chapter before you use the cyclone. It states what the cyclone is intended for and brings together the safety messages of these instructions.

Intended use

The SKC GS-3 cyclone collects respirable dust on the filter of a standard three-piece filter cassette, 25 mm or 37 mm, close to the breathing zone of a worker. Use it with a constant-flow sample pump at the flow rate your sampling method sets (see Flow rate and cut-point (p. 11)).

Safety messages

The messages in these instructions protect the sample and the cyclone. Each one is repeated at the step it concerns, in Before use (p. 6) and Procedure (p. 9).

NOTICE

Removing the grit pot changes the air path through the cyclone. The flow-rate verification and the sample are then invalid. Keep the grit pot on the cyclone body during flow-rate verification and during sampling.

NOTICE

Strong solvents can damage the cyclone. Do not clean the cyclone with strong solvents. Use mild soapy water or isopropyl alcohol.

CHAPTER 2

Product and supplied items

The SKC GS-3 is a 10 mm respirable dust cyclone in light, conductive plastic, with multiple inlets. It sits in front of a standard three-piece filter cassette, 25 mm or 37 mm, whose filter collects the sample.

Air drawn by the pump enters the inlets of the cyclone. Particles too large to be respirable drop out into the grit pot at the bottom; the respirable fraction travels on through the cassette adapter to the filter and leaves at the cassette outlet towards the pump (Figure 2-1 (p. 5)).

The cyclone arrives assembled, with the bowl adapter, cassette adapter and grit pot fitted. The grit pot stays on during flow-rate verification and sampling; what it collects is not part of the respirable sample and is discarded.

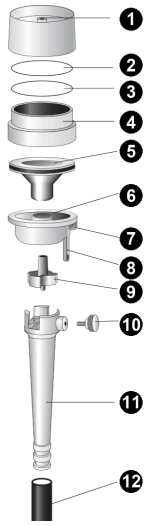


Figure 2-1. GS-3 cyclone and filter cassette, exploded. (1) Cassette outlet. (2) Support pad. (3) Filter. (4) Cassette ring (middle section). (5) Cassette adapter, 25 or 37 mm. (6) Bowl adapter. (7) Nodule for the holder. (8) Retaining tab. (9) Cyclone top. (10) Thumbscrew. (11) Cyclone body. (12) Grit pot.

Versions

Cyclone	Cassette adapter fitted	Order code
SKC GS-3 cyclone, 37 mm	for three-piece 37 mm cassettes	225-100
SKC GS-3 cyclone, 25 mm	for three-piece 25 mm cassettes	225-103

The versions differ only in the cassette adapter. For the other cassette size, fit the replacement cassette adapter 225-101 (25 mm) or 225-102 (37 mm).

The flow rate and the cut-point it gives are in Flow rate and cut-point (p. 11).

What you need

- the cyclone, with its grit pot;
- three-piece filter cassettes of the matching size (225 series), with the filter and support pad your method specifies;
- the filter cassette holder 225-1 and a sample pump that delivers the flow rate you need;
- for flow-rate verification: an electronic flowmeter, the calibration jar 225-111 and Tygon tubing, 1/4 in ID, 3/8 in OD. Catalogue numbers: Accessories and spare parts (p. 12).

CHAPTER 3

Before use

Build the cyclone into a filter cassette first. For flow-rate verification the assembly goes into the calibration jar without the holder; for sampling you mount it in the filter cassette holder.

Fit the cyclone to the cassette

NOTICE

Removing the grit pot changes the air path through the cyclone. The flow-rate verification and the sample are then invalid. Keep the grit pot on the cyclone body during flow-rate verification and during sampling.

1. Take a three-piece cassette apart. Put the inlet section aside (it is usually marked “inlet”); you need it to close the cassette after sampling.
2. Choose the filter and support pad that your sampling method specifies. Place the support pad in the cassette outlet and the filter on top of it. Push the cassette ring (the middle section) into the outlet so that it seals firmly (Figure 2-1 (p. 5)).
3. Turn the cyclone upside down, cassette adapter facing down. Push the cassette adapter into the cassette ring and press until it seals firmly.
4. Check that the thumbscrew of the cyclone is tight and that the grit pot is on the cyclone body.

Mount the assembly in the holder

1. Push the cyclone body through the large opening of the filter cassette holder 225-1 (Figure 3-1 (p. 6)).
2. Seat the assembly firmly: the small round nodule on the rim of the bowl adapter must sit in the notch of the holder.
3. Pull the plug out of the cassette outlet.
4. Stretch the spring-loaded hold-down plate of the holder over the cassette outlet to hold the assembly in place.
5. Push the Luer adapter at the end of the spring-supported rubber tubing into the cassette outlet.

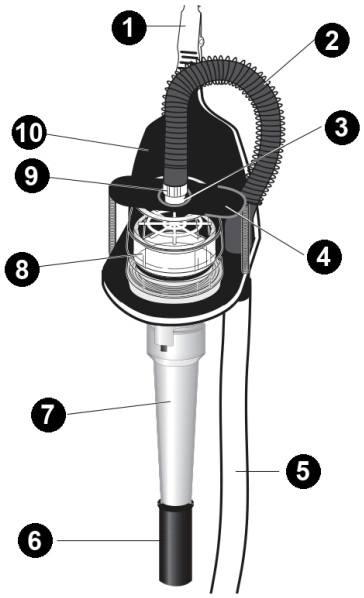


Figure 3-1. Assembly in the filter cassette holder 225-1. (1) Collar clip. (2) Rubber tubing. (3) Cassette outlet. (4) Spring-loaded hold-down plate. (5) Tygon tubing, to the pump. (6) Grit pot. (7) GS-3 cyclone. (8) Filter cassette. (9) Luer adapter. (10) Filter cassette holder.

Flow-rate verification

Verify the flow rate through the complete cyclone and cassette assembly before sampling. The assembly goes into an airtight calibration jar, so that the flowmeter sees the same air path as the sample. With an SKC chek-mate flowmeter you can do without the jar (Without a calibration jar (p. 8)).

> **Tip**
> **Use the smallest calibration jar possible.** Do not put the filter cassette holder 225-1 in the jar: verify the flow with the bare cyclone and cassette assembly.

With the calibration jar

1. Prepare a cyclone and filter cassette assembly as in Fit the cyclone to the cassette (p. 6). **The grit pot stays on the cyclone body during flow-rate verification.**
2. Place the assembly in an airtight calibration jar with an inlet and an outlet, such as the multi-purpose calibration jar 225-111 (Figure 3-2 (p. 7)).
3. Connect the outlet of the flowmeter to the inlet of the jar with flexible tubing.
4. Connect the cassette outlet, through the jar outlet, to the inlet of the sample pump. In the jar 225-111, push the Luer adapter inside the lid into the cassette outlet, then connect the jar outlet to the pump inlet with tubing.
5. Switch the pump on and set the flow through the sampling train to the rate you need, as the operating instructions of your pump and flowmeter describe. For a 4 µm cut-point, set **2.75 L/min**.
6. Open the jar and take the assembly out. Replace the cassette you used to set the flow with a fresh, unused cassette for the sample.

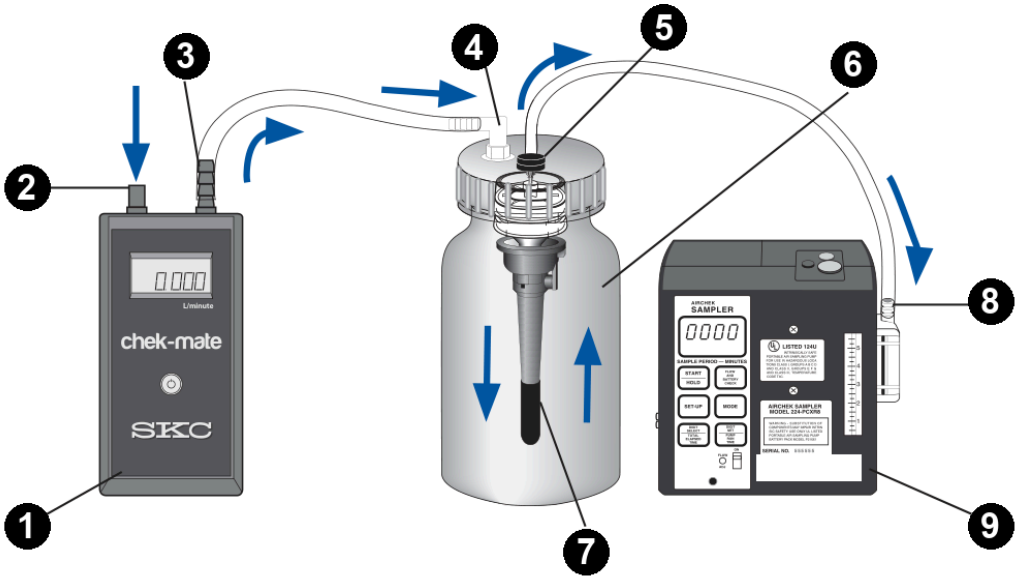


Figure 3-2. Verification train with the calibration jar. (1) Flowmeter. (2) Flowmeter inlet (pressure). (3) Flowmeter outlet (suction). (4) Jar inlet. (5) Jar outlet. (6) Multi-purpose calibration jar 225-111. (7) GS-3 cyclone and cassette assembly inside the jar. (8) Pump inlet. (9) Sample pump. The arrows show the direction of the air flow.

Without a calibration jar (chek-mate flowmeter only)

If the cyclone has no calibration adapter, you can also verify it without a jar with an SKC chek-mate flowmeter (Figure 3-3 (p. 8)):

1. Connect the pump inlet to the outlet (suction port) of the chek-mate, with the pulsation dampener 375-100 in the line between pump and flowmeter.
2. Connect the cyclone and cassette assembly to the inlet of the chek-mate with the shortest length of tubing possible. The grit pot stays on.
3. Carry on from step 5 of With the calibration jar (p. 7), following the operating instructions of your pump.

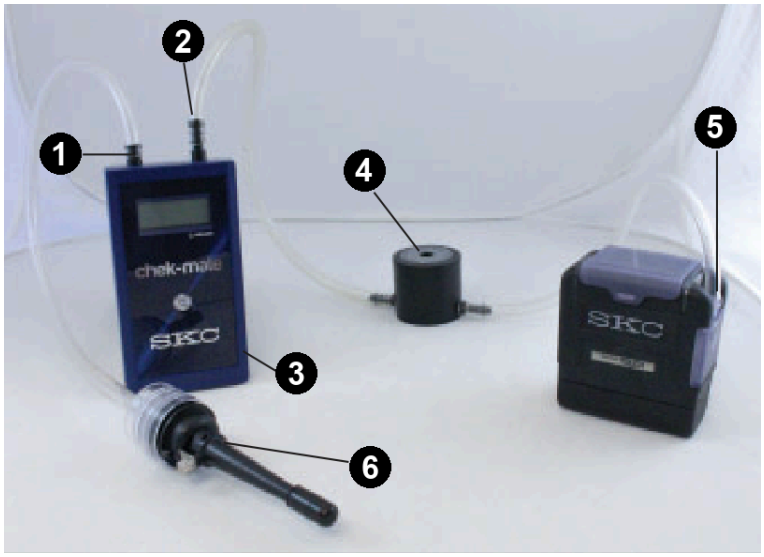


Figure 3-3. Flow-rate verification without a jar. (1) chek-mate inlet. (2) chek-mate outlet (suction). (3) chek-mate flowmeter. (4) Pulsation dampener 375-100. (5) Pump inlet. (6) GS-3 cyclone and cassette assembly.

CHAPTER 4

Procedure

NOTICE

Removing the grit pot changes the air path through the cyclone. The flow-rate verification and the sample are then invalid. Keep the grit pot on the cyclone body during flow-rate verification and during sampling.

Take the sample

1. Check that the flow rate has been set (Flow-rate verification (p. 7)).
2. Check that a fresh cassette is fitted to the cyclone and that the assembly is mounted in the filter cassette holder (Mount the assembly in the holder (p. 6)).
3. Connect the Tygon tubing of the holder to the inlet of the constant-flow personal sampling pump.
4. Clip the holder with the cyclone and cassette to the worker's collar or pocket, as close to the breathing zone as possible.
5. Clip the pump to the worker's belt or put it in a protective pouch.
6. Start the pump.
7. Write down the start time and the other sample details your method asks for.

End the sample

1. At the end of the sampling period, stop the pump.
2. Write down the finish time and sample details.

Then seal the cassette and send it to the laboratory (Seal and send the sample (p. 10)).

CHAPTER 5

After use and sample handling

Seal and send the sample

1. Take the cyclone and cassette assembly out of the holder.
2. Cap the cassette outlet straight away.
3. Pull the cyclone off the cassette.
4. Fit the inlet section back on the cassette at once.
5. Close the inlet with the plug supplied.
6. Pack the cassette and send it, with all the sample data, to a laboratory for analysis.

> **Note**
> Particles caught in the grit pot are not part of the respirable sample. Discard them.

Clean the cyclone

After sampling, clean all parts of the cyclone.

NOTICE

Strong solvents can damage the cyclone. Do not clean the cyclone with strong solvents. Use mild soapy water or isopropyl alcohol.

1. Wash every part of the cyclone, including the inside of the grit pot, in mild soapy water.
2. Dry it: wipe it with a clean, dust-free tissue, let it dry in air or blow it dry. Alternatively, wipe it with isopropyl alcohol.

Disposal

Dispose of the cyclone under local regulations; separate metal, glass and plastic parts for recycling where possible.

Further reading

- Gautam, M. and Sreenath, A.: Performance of a respirable multi-inlet cyclone sampler. Journal of Aerosol Science, Vol. 28, No. 7, pp. 1265–1281, 1997.
- Trakumas, S., et al.: Performance assessment of personal respirable cyclone samplers. AIHce presentation 191, 2003.
- OSHA final rule on respirable crystalline silica.

CHAPTER 6

Specifications

Cyclone

Property	Value
Size	10 mm
Material	Conductive plastic
Inlets	Multiple

Flow rate and cut-point

Run the cyclone at **2.75 L/min**. At this flow rate its 50 % cut-point is 4 µm, to the respirable criteria of ISO 7708 and CEN (calibrated at the UK Health and Safety Laboratories), with a bias low enough to meet the sampler performance criteria of the OSHA final rule on respirable crystalline silica. Other flow rates give other cut-points for other applications; take the flow rate from your sampling method.

CHAPTER 7

Ordering information

Order from Analyt-MTC with the order codes.

Accessories and spare parts

Description	Size or pack	Order code
Replacement cassette adapter	25 mm	225-101
Replacement cassette adapter	37 mm	225-102
Replacement bowl adapter	each	225-108
Replacement grit pots	pack of 25	P225012
Filter cassette/cyclone holder, for standard three-piece cassettes with or without a cyclone	25 or 37 mm	225-1
Multi-purpose calibration jar, standard size	each	225-111
Pulsation dampener, for flow-rate verification without a jar	each	375-100

Filter cassettes (225 series), filters and support pads: choose them to suit your sampling method; Analyt-MTC will help you find the matching catalogue numbers.

CHAPTER 8

Service and contacts

Contact and support

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www.analyt-mtc.com

Before you call

Have the following at hand so Analyt-MTC can help you quickly:

- the catalogue number of the cyclone (225-100 or 225-103);
- the sample pump, flowmeter and filter cassettes you use with it;
- the sampling method and flow rate you are working to.

Contact Analyt-MTC for spare parts, technical questions and warranty matters concerning your SKC GS-3 cyclone. Warranty is handled under Analyt-MTC's terms of sale. Analyt-MTC's contact details are above and on the back cover.

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