



Operating Instructions

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BioStage® Impactors

The SKC BioStage single-stage impactors operate on the principle of inertial impaction and meet NIOSH Method 0800 and 0801 requirements and ACGIH recommendations for sampling viable microorganisms including bacteria and fungi. Made of precision-tooled autoclavable aluminum, sampler components are precision-threaded together for a positive seal. Air is drawn through the impactor where particles are impacted onto an agar collection medium. Two models of the BioStage Impactor are available as follows:

Standard BioStage contains a 400-hole jet classification stage and is operated at 28.3 L/min

BioStage 200 contains a 200-hole jet classification stage and is operated at 14.15 L/min

Specifications

Flow Rate:	Standard BioStage: 28.3 L/min
	BioStage 200: 14.15 L/min
Material:	Precision-tooled autoclavable aluminum
Jet Classification Stage:	Standard BioStage: 400 holes
	BioStage 200: 200 holes
Sample Media:	90- to 100-mm agar plate*
Analysis:	Colony culture [†]

* Consult laboratory for information on appropriate agar choice.

† In situations where spore counts are high, positive hole correction should be used. See Macher, J., "Positive Hole Correction of Multiple-jet Impactors for Collecting Viable Microorganisms," *American Industrial Hygiene Journal*, 50 (11), 1989, pp. 561-568. Abstract available at <http://taylorandfrancis.metapress.com/>. Search on "positive hole correction."

Sample Media

Use appropriate agar in a 90- to 100-mm agar plate with the Standard BioStage or the BioStage 200. Plastic or glass agar plates can be used. Verify with your agar supplier that the plates contain the proper volume of agar to achieve the appropriate agar height to maintain impactor cut-points.

Suggested Media

For bacteria: Tryptic Soy Agar (TSA) or Blood Agar Plates (BAP)

For Fungi: Potato Dextrose Agar (PDA), Malt Extract Agar (MEA), Dichloran Glycerol 18 Agar (DG-18), or Corn Meal Agar (CMA).

For information on laboratories that can provide agar plates and analyze samples, see Laboratories at www.skinc.com.



Caution: Sanitize hands and impactor any time contamination from handling is possible. Do not touch holes in jet classification stage.

Assembly

1. Remove the inlet cone by lifting it up and off.
2. Remove the jet classification stage by gently unscrewing it and lifting it up and off.
3. Remove the lid from an agar plate and place it on the three raised metal pins in the base plate of the impactor.



Caution: Do not operate without an agar plate in place.

4. Gently screw the jet classification stage back onto the base plate. Align and press the inlet cone onto the jet classification stage until a secure seal is established.
5. Connect the BioStage outlet to a sample pump with tubing.

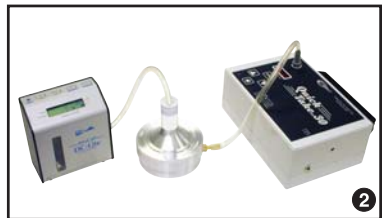


Calibration

1. Insert the calibration adapter* into the inlet cone. Use flexible tubing to connect the inlet of the calibration adapter to a primary flowmeter. See *sample pump and calibrator operating instructions for further calibration information*.
2. Calibrate sample pump to 28.3 L/min when using the Standard BioStage or 14.15 L/min if using the BioStage 200. Use the rotameter* accessory to check flow in the field.



* Calibration adapter and rotameter are for use with both models of BioStage (see *Accessories*).



Sampling



Caution: When sampling indoors, close all doors and windows that could affect airflow in the sampling area.

1. Calibrate the flow rate (see Assembly).
2. Remove calibration adapter, tubing, and flowmeter.
3. Clean all surfaces of the impactor (see Cleaning).
4. Place a new, unexposed agar plate into the base plate (see Assembly). Remove the lid from the agar plate. Reassemble the impactor.
5. Mount impactor on a tripod, if desired, by screwing the threaded hole on the bottom of the impactor onto the threaded top of the tripod accessory (see Accessories).
6. Turn on the vacuum pump and sample for 2 to 5 minutes.



Caution: Sampling too long can cause overgrowth of sample. Sampling times that are too short can cause false negatives.



BioStage mounted on QuickTake 30

7. After sampling is complete, turn off the pump and disconnect the flexible tubing.

Removing the Agar Plate (Sample)

1. Remove the inlet cone and jet classification stage (see Assembly, Steps 1 and 2).
2. Remove the agar plate containing the sample and **replace its cover immediately**.
3. Label the bottom of the agar plate with all pertinent sampling information. Secure agar plate lid with tape and place in a sealable bag.
4. Place agar plate containing the sample in an ice chest with blue ice.
5. Send the agar plate containing the sample and a blank unexposed agar plate to a laboratory according to laboratory instructions.



Note: Outdoor samples should be collected for comparison to indoor samples. An indoor control sample should be taken also for non-complaint areas. Clearly mark each sample.



Caution: Sanitize hands and the BioStage Impactor in between samples.



Caution: Never use agar that has expired, displays visible cracks, or has been contaminated.

Cleaning

Disassemble and place parts in an ultrasonic bath with a mild detergent-water solution. Thoroughly rinse and air dry in a dust-free space.

Sterilizing

Autoclave or immerse in ethyl alcohol and air dry. In the field, parts can be swabbed with alcohol on a sterile gauze pad and air dried.

Ordering Information

BioStage	Cat. No.
Standard BioStage[‡] single-stage bioaerosol impactor (400 holes, 28.3 L/min)	225-9611
BioStage 200[‡] single-stage bioaerosol impactor (200 holes, 14.15 L/min)	225-9610
BioStage Pump Kit[‡] - AC includes Standard BioStage Sampler, vacuum pump (Gast 1532) with rotameter, tubing, tripod stand, and carry case	225-9535K
BioStage Pump Kit[‡] - DC includes Standard BioStage Sampler, QuickTake 30 pump with battery, AC charger/ adapter, mounting bracket with inlet adapter, field rotameter, and deluxe carry case.	228-9530K
BioStage 200 Pump Kit[‡] includes BioStage 200 [‡] , QuickTake 15 pump, rotameter, tripod stand, tubing, and carry case	225-9610K

Accessories	Cat. No.
Calibration Adapter for BioStage , allows tubing to connect to BioStage inlet <i>Suitable for both BioStage models</i>	225-9537
Tripod Stand , telescopes to 5 ft. to hold BioStage in breathing area (does not hold pump)	225-9536
Mounting Bracket for QuickTake 30 , holds BioStage in place on pump during sampling	228-9531

[‡] Requires microbiological media supplied by analytical laboratories. For lab list, go to www.skcinc.com.

*BioStage on
Tripod Stand with pump
Pump Kit #225-9535K*



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Notice: This operating instruction may not address all safety concerns (if any) associated with this product and its use. The user is responsible for determining and following the appropriate safety and health practices and regulatory limitations (if any) before using the product. The information contained in this document should not be construed as legal advice, opinion, or as a final authority on legal or regulatory procedures.

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