

Specifications

SDS-270

Sample Options

Three sample racks, containing:

3 x 60 position x 16 mm OD (20 mL)
(default configuration)

or optionally:

3 x 90 position x 13 mm OD (13 mL)

3 x 40 position x 20 mm OD (30 mL)

3 x 24 position x 25 mm OD (50 mL)

3 x 21 position x 30 mm OD (80 mL)

Rack types can be mixed.

Standards Capacity

Ten position x 25.6 mm OD (50 mL)

IO Ports

Four programmable relays

One multi-function IO port

Two RS-232 ports

Host Computer

External PC (needs at least two RS232 ports).

Software control from GBC AAS, Cintra UV-Vis, or ICP-OES software.

Dimensions

405 x 375 x 390 (WxDxH, mm)

Extended height 600 mm

Weight

Unpacked: 13 kg

Electrical Requirements

100–260 volts ac, 47–440 Hz, 30 VA.

PS-270

Accuracy and Precision

Dilution Factor	Error in Accuracy	Error in Precision
£ 50	<1%	<1%
£ 200	<2%	<2%

Syringe

10 mL and 25 mL capacity.

Borosilicate glass barrel, stainless steel plunger, virgin PTFE seal.

Speed

Solution pick-up:

100 m L/sec to 10,000 m L/sec

Solution dispersion rate:

100 m L/sec to 10,000 m L/sec

Volume Transfer Range

10 mL syringe 20 m L to 10,000 m L

25 mL syringe 50 m L to 25,000 m L

Plunger Drive

Stepper motor driven leadscrew with optical feedback.

High resolution 24,000 step drive.

IO Port

One serial RS-232C port.

Host Computer

External PC (needs at least two RS232 ports). Software control from GBC AAS software.

Dimensions

220 x 170 x 320 mm (WxDxH)

Weight

Unpacked: 5.2 kg

Electrical Requirements

100–260 volts AC, 47–440 Hz, 30 VA.

HSA3000

Pump

Ten roller peristaltic

Switching Valve

Six port, four way

Sample Loop Volume

100 m L nominal

Power Requirements

110/220 Vac, 50/60 Hz

Dimensions

300 x 200 x 370 (WxHxD, mm)

Control System

GBC AAS models:

932/933, Avanta, Avanta S

Weight

Unpacked 5 kg, packed 11 kg

Ordering Information

SDS-270 Sample Delivery System

SDS-270 99-0326-x1
x- varies with local voltage requirement.
Consult your agent for the correct suffix.

Sample Racks	
90 positions	81-1111-00
60 positions	81-1112-00
40 positions	81-1113-00
24 positions	81-1114-00
21 positions	81-1115-00
Standards rack (10 positions)	81-1116-00



PS-270 Prep Station

PS-270 99-3533-00

Syringe Kits	
10 mL syringe	95-0385-00
25 mL syringe	95-0386-00



HSA3000 High Solids Analyzer

HSA3000, 220 V	99-0155-00
HSA3000, 110 V	99-0155-01
Supplied complete with rinse bottle, all tubing, cables and spare pump tubing (four pieces)	
Pump tubing and capillary tubing replacement kit	95-0120-00



GBC Scientific Equipment Pty Ltd

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sds270 flame
ps270
hsa3000 sampling
accessories

AAS Flame Sampling
Accessories



The manual preparation of samples and standards can be a time-consuming, error-prone and costly exercise.

Boost the productivity of your laboratory and the accuracy of your analysis with these robust, simple-to-operate sampling accessories for your GBC AAS.

All are controlled by software functions which form an integrated part of GBC's AAS software, using the versatile Windows®95 platform. Operation could not be simpler. Accuracy is guaranteed. And so is peace of mind.

High capacity x,y,z autosampler

The GBC Sample Delivery System 270 complements the range of GBC atomic absorption, ICP-OES and UV-Vis spectrometers. Samples are contained in three separate test tube racks, allowing different tube sizes within a batch. With a maximum capacity of 270 samples, extensive unattended operation is possible. You can use existing standard lab racks for additional versatility.

Automated functions

Analyze the sample you want, when you want to. GBC software provides for fully automated or true random access operation. The SDS-270 supports standard addition analysis for complex matrices, and also has a micro-sampling mode for analysis when low sample volume would normally preclude autosampling.

Sample integrity

Sample integrity is assured, with a chemically inert PTFE coated and lined stainless steel sampling probe. Sample carry-over is further minimised by the provision of an efficient continuous flow probe wash with a turbulent fast-flowing action.





Fast and efficient pre-treatment

The GBC Prep Station 270 offers simple, fast and efficient pre-treatment for samples, standards, diluents, modifiers and rinse solutions for all flame and hydride atomic absorption methods.

Reduce the cost of analysis

The true cost of analysis can be hidden in long analysis times, tedious standards preparation, matrix modification, sample dilution, and inaccuracies introduced by manual solutions handling.

In combination with the SDS-270 autosampler, the GBC PS-270 provides an effective alternative to high laboratory costs and difficulties by automating standards preparation, matrix modification, spike recovery and sample dilution.

Save time and simplify laboratory tasks

The benefits of faster analysis, lower maintenance and more effective use of laboratory staff time are just the beginning. Avoid the problems of peristaltic pump-based systems, with their inherent liabilities of tubing wear, mixing loops, "dead time" and solution carry-over.

Improve turn-around time

Minimizing the labour component of solution treatment before the presentation of samples to your AAS will boost the productivity and profitability of your laboratory.

Enable the addition of up to two separate chemical modifier solutions

These might be ionization suppressants, release agents, an acid, or an anti-foaming agent for hydride analysis.

Prepare working standards and standard additions

However many calibration standards or additions you choose, this system will guarantee accurate and reproducible calibrations every time. This includes all calibration standards for use in Automatic Burner Rotation methods. The software is written in such a way as to prepare only those calibration standards which are required by the method. You can present a commercially available 1000 mg/mL elemental standard as, unlike other systems, there is no need to prepare the bulk standard.

Dilute samples before measurement

Samples can be diluted before being measured for the first time. This is ideal for digested solutions. Simply specify a dilution factor and start the analysis.

Automatically dilute over-range samples

If a sample gives an absorbance greater than that of the calibration standards, the sample is automatically diluted. Simply specify a dilution factor for the "over-range" samples.

Perform a spike recovery

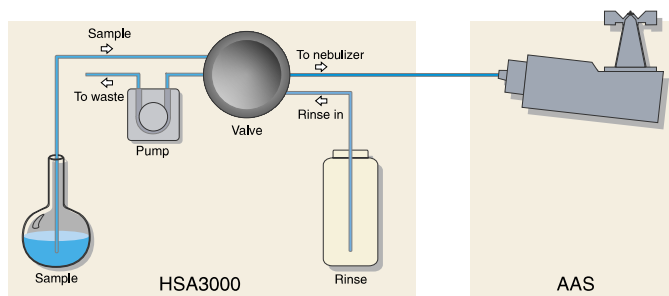
Automatically prepare spike recovery samples, used as a check for possible interferences. If the spiked sample fails a pre-determined recovery range then the analysis will proceed according to the procedure specified by the operator.

Use ABR and auto-dilution for over-range samples

Automated Burner Rotation (ABR) is a technique applied on GBC AAS systems to provide fast and accurate compensation for over-range samples, improving the measurement range by a factor of forty, without operator intervention. Automated on-line dilution extends the capability still further, offering the widest dynamic range available in AA spectroscopy today.

Preference is given to Automatic Burner Rotation. However, if the sample is still over-range after the last calibration burner angle, the system can be set to automatically dilute the sample. Dynamic range is extended by at least two orders of magnitude and samples never need to be manually diluted or re-analyzed, providing substantial gains in productivity.





The analysis of samples with a high dissolved solids content has always been a problem in flame AAS. There is a strong tendency for salts to crystallize and cause blockages in the nebulizer or burner system. Historically, the only way to avoid this problem has been to dilute the sample until the concentration of dissolved salts is about 2% or less. This is a tedious and time consuming process.

Sample dilution does not solve the problem if the analyte element is present at low concentrations. In this case, sample dilution could reduce the concentration of the analyte to below the detection limit.

With the GBC HSA3000 High Solids Analyzer, all of these problems are solved, while retaining sensitivity.

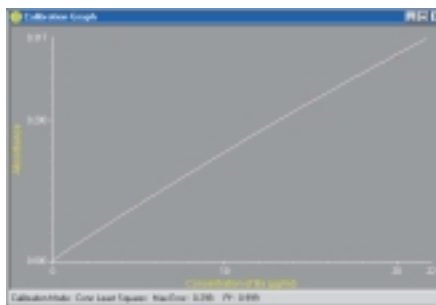
The HSA3000 can be fitted in a few moments to the sample compartment of any GBC AAS without using additional bench space.

Choice of flame types

The HSA3000 can be used for AA measurements with either air-acetylene or nitrous oxide-acetylene flames.

Excellent reproducibility was obtained with samples of Ba in 30% NaCl solution using the nitrous oxide-acetylene flame.

Analysis						
Filename	C:\Program Files\GBC Avanta Ver 1.31\Analysis1 anl					
Element	Ba					
Date	Mon Jun 22 15:23:57 1998					
Full Calibration						
Calibration Mode	Conc	Least Squares	Max Error	: 0.119	R=	: 1.000
Full Calibration						
Sample Label	Conc. (µg/ml)	%RSD	Mean Abs.	Replicates		
Cal Blank	-----	0.00	0.0000	0.0000	0.0000	0.0000
Standard 1	5.000	1.95	0.0783	0.0800	0.0780	0.0770
Standard 2	10.000	3.26	0.1543	0.1550	0.1590	0.1490
Standard 3	15.000	1.61	0.2240	0.2280	0.2210	0.2230
Standard 4	20.000	1.39	0.2880	0.2880	0.2920	0.2840



Simple operation

The HSA3000 introduces the sample to the AAS nebulizer by injecting a small amount of undiluted sample into a continuous flow of rinse solution. The rinse solution ensures that the nebulizer is continually washed, and that nebulizer and burner do not become blocked with salt. A transient peak is generated by the trapped sample, and measured using either peak height or peak area mode. The operator simply places the sample capillary tube in the sample and initiates the reading. The HSA3000 does the rest.

Computer control and automation

All functions of the HSA3000 are fully controlled from the AAS computer. Timer settings and control of the valve and pump are implemented by simple menu selections. The HSA3000 is compatible with all GBC AA spectrometers.

Rapid sample throughput

The typical cycle time is 45–50 seconds per sample, with two readings on each sample. Allowing for calibrations, this gives a throughput of 60–80 samples per hour.

Outstanding performance

With conventional AA analysis, the maximum concentration of dissolved solids which can be tolerated is about 2%. With the HSA3000 it is possible to work with salt concentrations as high as 30%. In the experiment shown below, the analysis of a sample of Cu in 30% NaCl solution was repeated 50 times. There was no change in absorbance over the 50 readings, and the precision over the entire run was 2.4%.

