

The **Apex Instruments SGC-4000HG Stirling Gas Conditioner / Cooler** is specially designed for removing moisture and acid gases from flue gas samples. This gas cooler uses an industrial grade super efficient Free Piston Stirling Cooler (FPSC) for chilling the gas to a constant dew point.

The FPSC has several advantages over the conventional Rankine Compressor or Thermoelectric units. For example, the FPSC cooler module uses a small quantity of environmentally safe helium gas as a refrigerant. The module is hermetically sealed in stainless steel casing allowing for fast and easy installation and replacement when necessary.

### Rack Mount

**SGC-4000HG**

**SGC-4000HG-MS**

(with integrated moisture sensor)

*Available in Rack Mount  
or Portable Versions*

### Portable Unit

**SGC-4000HGP (110V)**

**SGC-4000HGP-V (240V)**

### Features:

- No additional tubing or pumps
- Digital temperature control
- Constant set temperature
- Free Piston Stirling Cooler (FPSC) has only two moving parts
- Optional Pre-Wired Water Slip Sensor (WSS-100, WSS-100E or WSS-100PC)

The Stirling system is available in 2 configurations for various applications. The portable version comes in a self-contained durable UHMW polyethylene case with top handle for easy transport or the permanent version can be rack mounted in a 19" cabinet.

Any of the 2 configurations described are suitable for use with the Apex Instruments Mercury Sorbent Trap Monitoring Systems. The Stirling will provide you with a robust, closed dual channel gas conditioning system that is required to deliver dry, acid free gas to the meter console.



### SGC-4000HGP

*Portable Version*

Shown with Durable Portable UHMW Polyethylene XC-6U Case with Handle.

### XC-6U Roto-Molded Case

19" 6U Black Polyethylene Rack Case

*SGC-4000HG Front View*



*SGC-4000HG Back View*



### SGC-4000HG

*Rack Mount Version*

Shown with XC-6000EM & Corrosion Resistant Aluminum CR-20U Cabinet



(Air Conditioner Optional)

### 20U Rack Mount Aluminum Cabinet

Heavy gauge aluminum with weather resistant powder coat paint (internal 19" rack mount) for mercury meter console and Stirling gas conditioner.

**CR-20U** H37" x W21" x D21", 125 lbs.

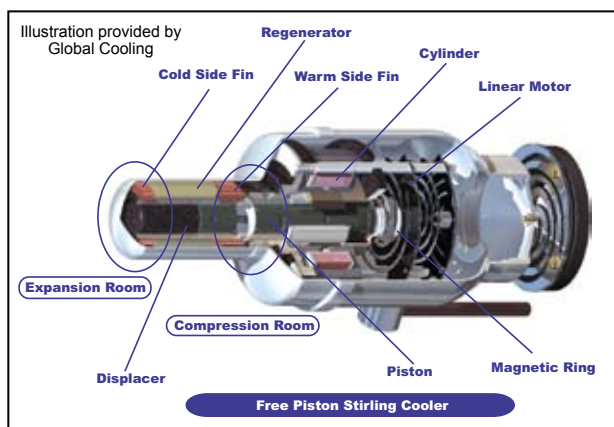
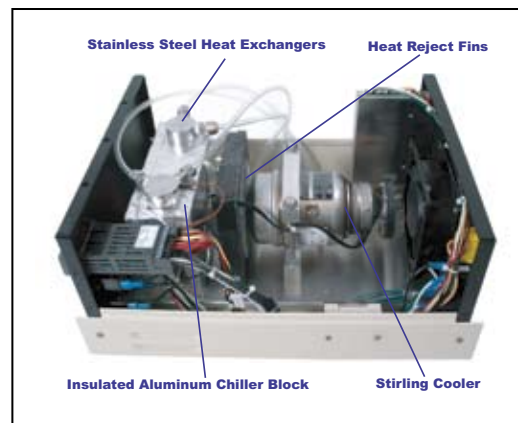
**CR-20U-AC** H41" x W31" x D25", 185 lbs.  
(CR-20U enclosure with AC Unit)

Free Piston Stirling Cooler (FPSC) has only two moving parts, the piston and displacer, which produce a linear motion along the same axis within the single cylinder. The cylinder is installed in the stainless steel casing, where it repeatedly compresses and expands the small quantity of Helium to cool a sample within minutes.

The cold end of the FPSC is inserted directly into a machined anodized aluminum chiller block. Alloy C276 tubing serves as the reverse flow condensate separators. The sample gases pass through the condensate separator where water is condensed and collected in plastic coated glass sample bottles with no additional tubing or pumps. The sample gas continues through an acid gas scrubber KDF cartridge for scrubbing acid gases. The SGC-4000HG has two separate flow channels, each rated for flow up to 2 liters per minute.

## Specifications:

Digital Temperature Control:	+/- 1 °C, LED Display
Inlet and Outlet Temperature:	Typical Inlet Temperature: 250-300° F (Heated Lines Set Point).
Cooling Capacity:	>40 watts
Dual Path Cooling Block:	Anodized Aluminum.
Condensate Bottle:	1000 ml (plastic coated glass)
Acid Scrubber Cartridge (AGS-KDF075):	Scrubbing Gas Column (Kinetic Degradation Fluxion Style) 2" X 10", 1/4" FNPT
Reverse Flow Condensate Separator:	Alloy C276, 1" OD x 4" Active Zone
Maximum Flow Rate:	2 lpm at 20% H <sub>2</sub> O Channel.
Freeze Protection:	80w Heater
Ambient Operating Temperature:	0 to 50° C
Power Requirements:	120V AC/2.5 amps. 220V Optional
Rack Mount Dimensions:	Without Bottles: (H) 17" x (W) 16" x (D) x7" (43.2 cm x 40.6 cm x 17.8 cm)
Rack Mount Weight:	25 lbs. (11.3 kg)
Portable Dimensions:	(H) 22" x (W) 13.5" x (D) 23.75" (55.88 cm x 34.29 cm x 60.325 cm)
Portable Weight:	32 lbs. (14.5) without sorbent



## Accessories and Replacement Parts

Model	Description
GSB-1000SCA	Sample Bottle Assembled, Clear Glass, GL-45 Threaded, 1000mL, Safety Coated for Condensate Collection. Assembly Includes Red GA-GL-45B Cap and GA-GL-25S Seal.
GSB-1000SC	Sample Bottle, Clear Glass, GL-45 Threaded, 1000mL, Safety Coated for Condensate Collection. Requires: GA-GL-45B Cap and GA-GL-25S Seal.
GSB-500SC	Safety Coated Sample Bottle, 500mL.
GSB-1000L	Bottle Sample, L-Shape, Clear Glass, GL-45 Thread, 1000mL (Not Safety Coated).
GA-GL-45S	Seal for 1000mL Bottles.
GA-GL-45B	Bored Cap, #45 Threads.
AGS-KDF075-A	Scrubbing Gas Column, 2" x 10", 1/4" FNPT. <b>Note:</b> Replaces Aluma-Sorb cartridge( <b>AH-610-A</b> ) & Alumina Sorb ( <b>ALUMA-SORB</b> ).



GSB-1000SC



GSB-500SC



GA-GL-45S  
and GA-GL-45B