HealthyPhoton

Model：HPHC-A, HPHC-B

Herriott Multi-pass Gas Absorption Cell

Date	Note
2018/2/25	V1.0

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1. Introduction

HealthyPhoton's Herriott Multi-pass Gas Absorption Cell is suitable for the laser spectroscopic analysis of various gas molecular samples. The unique mirror design allows the laser beam to form multiple reflections in the absorption cell, allowing the effective optical path to reach tens of meters in a small space, enabling efficient absorption of photons in small volume gas samples. Compared to the White cell, Herriott cell features a more stable structure, better insensitiveness to heat deformation, smaller size, simpler installation, and easier operation. The cell is suitable for various application fields, such as laboratory trace gas analysis, processes gas spectrometer, environmental pollutant monitoring etc.

2. Product Description

- Switching between open-path or close-path modes without the need for beam re-alignment;
- With close-path mode, the air pressure can be as low as tens of Pascals;
- The laser entrance and exit holes can be designed on the same side or both sides of the mirrors based upon customer requirements.

There are currently two models, HPHC-A and HPHC-B. Detailed parameters are as follows.

2.1. HPHC-A Parameters

HPHC-A Parameters	
Effective pathlength	14.5m
Beam diameter	<3.5mm
Gas volume	0.84L (1 atm)
Dimension	0.35(L)×0.17(W)×0.15(H)m^3
Working pressure	10Pa - 102kPa
Lens coating	oxide coated metal (reflection rate up to 98%)
Wavelength	0.2 - 12μm
Window material	CaF_2/ZnSe with AR coating
Main material	aluminum alloy and stainless steel
Gas inlet/outlet	OD φ6mm quick connector

2.2. HPHC-B Parameters

HPHC-B Parameters	
Effective pathlength	3.3m
Beam diameter	<3.5mm
Gas volume	0.05L (1 atm)
Peripheral size	0.15(L)×0.08(W)×0.07(H)m^3
Working pressure	10Pa - 102kPa
Lens coating	oxide coated metal (reflection rate up to 98%)
Wavelength	0.2 - 12μm
Window material	CaF_2/ZnSe with AR coating
Main material	aluminum alloy and stainless steel
Gas inlet/outlet	OD φ6mm quick connector

Note: HealthyPhoton has optical design capabilities and can customize industrial or laboratory Herriott gas cells according to customer needs. Effective optical path ranges can be customized from several meters to tens of meters.

2.3. Optionl Parts

- Integrated fiber collimation and alignment module;
- Integrated photodetector;
- Cell pressure monitor;
- Cell temperature monitor;
- Cell window material upgrade (quartz, sapphire, BaF2, etc.);
- Customized high-temperature cell (with insulation sleeves, heating bands, thermostats, thermal sensors).