



## HERRIOTT TYPE CELL

### CMP-30

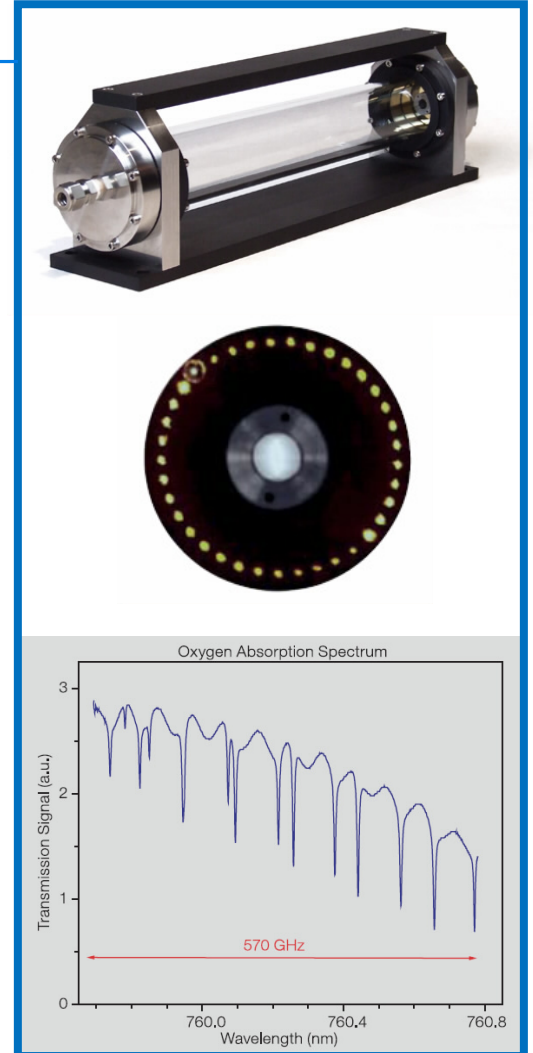
### APPLICATIONS

The CMP-30 multipass cell is a Herriott absorption cell with a total optical path length of 30m. It lends itself to applications which require a long interaction path length between an electromagnetic wave and a gaseous sample, e.g. for monitoring tasks in industrial environments, but also for infrared absorption spectroscopy in scientific research.

### DESCRIPTION

An incident beam enters the cell through a hole in one of the mirrors. The beam then undergoes 73 reflections, describing a circle of spots on each mirror surface, before exiting the cell again. The dimensions of mirrors, separation between adjacent spots and the diameter of the entrance/exit hole have been designed to avoid spot overlap and thus unwanted interference up to wavelengths of 3  $\mu\text{m}$ .

The beam enters the cell in the horizontal plane, whereas the output beam travels upwards. This ensures a clear separation between input and output beam, permitting accurate absorption measurements even in case of misalignment or incorrect focussing. The cell is resistant to the most common chemicals. Materials in contact with the gas are Pyrex and BK7 glass, stainless steel,  $\text{CaF}_2$ , Gold, Viton and Teflon. The cell can be operated at any pressure from  $10^{-3}$  Torr up to one atmosphere. Gas inlet and outlet ports at both ends of the cell allow for examining flowing gases. On the other hand, the Pyrex glass pipe can be removed in-situ without dismantling the cell, when "room air" measurements are to be performed.



### SPECIFICATIONS CMP-30

Optical path length	29.9 m
Volume	900 $\text{cm}^3$
Overall length	50.2 cm
Overall height	13.7 cm
Overall width	9.4 cm
Mirror reflectivity ( $\lambda > 1 \mu\text{m}$ )	>98.2 %
Transmission (window excluded, $\lambda > 1 \mu\text{m}$ )	>26.6 %
Operating pressure	$10^{-3}$ – 760 Torr
Window transmission ( $\text{CaF}_2$ )	0.2 – 9.5 $\mu\text{m}$