

Patent Claims

1. Retrievable measuring cell for optical measurements in gas, the cell
being defined by a gas conducting pipe having an input end adapted
5 to be connected to a gas flow input intruding gas into the cell and an
output end adapted to be connected to a gas flow output,

the pipe ends also being adapted to be coupled to optical
components including an optical transmitter transmitting light into said
cell and an optical receiver adapted to receive light having passed
10 through said cell, the optical beam in said cell having a predetermined
shape, the optical components including a light source, at least two
mirrors and a light receiver being mounted in known positions on an
external frame covered by the pipe ends,

wherein a first of said pipe ends is adapted to be connected to a
15 transmitter and at least one mirror and the second of said pipe ends is
adapted to be connected to a receiver and the same number of
mirrors as the first end, the light beam thus travelling at least 3 times
through said cell, and wherein the cell has an elongated shape
corresponding to the optical beam shape, and

20 wherein the cell at the pipe input end is adapted to force a rotating
gas flow or a turbulence in the gas flow through said pipe.
2. Measuring cell according to claim 1, wherein the cell at the pipe input
end has an asymmetric shape providing said rotating gas flow
through said pipe.
- 25 3. Measuring cell according to claim 1, wherein the pipe includes sealing
means for connecting to a measuring instrument comprising said flow
input and output as well as said optical transmitter, receiver and
mirrors.
- 30 4. Measuring instrument including a space for receiving the retrievable
measuring cell according to any one of the previous claims,

comprising a flow input section adapted to provide a sealed connection to the flow input pipe end at a first end of said space and a flow output adapted to provide a sealed flow output connection to the output end of said pipe at the flow output, the measuring instrument also comprises said optical components at said sealed connections transmitting and receiving the light in said cell.

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5. Measuring instrument according to claim 5, wherein all optical components being mounted in known positions covered by the pipe ends are aligned and fixtured on an external frame constituted by the measuring instrument and in predetermined positions, in such a way
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- that the optics are fully functional with or without the cell,