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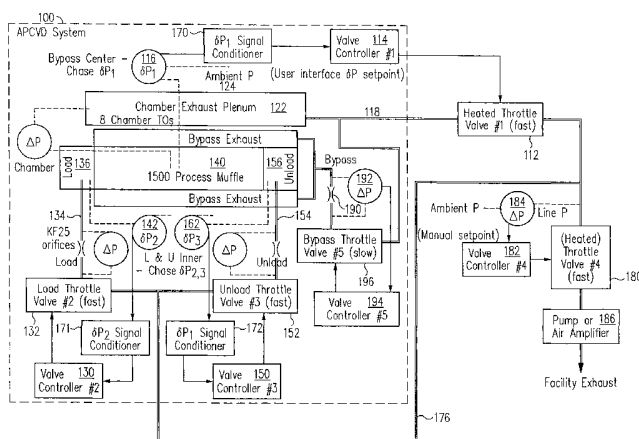
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(54) Title: ATMOSPHERIC PRESSURE WAFER PROCESSING REACTOR HAVING AN INTERNAL PRESSURE CONTROL SYSTEM AND METHOD



(57) Abstract: An atmospheric pressure wafer processing system (100) for delivering at least one gas, having an exhaust control feedback system that utilizes sensors (116, 142, 162, 182, 192) to measure the pressure within the system and adjusts control units (112, 132, 152, 180, 196) to maintain the desired set pressures within the system. The sensors measure the small differential pressures inside a muffler (140), and specifically the load (136), bypass center, and unload (156) sections of the muffler, relative to the chase ambient pressure. Controlling the muffler pressures directly within the atmospheric system yields a more stable pressure balance less subject to changes in the external environment and allows for compensation of varying input gas flows as occurs when the supply pressure to the system may vary. This system and method of pressure control is particularly advantageous for chemical vapor deposition application yielding improved process repeatability over an extended period of runtime.



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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/27372

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(7) : C23C 16/00
 US CL : 118/663, 708, 710, 712, 715; 427/248.1
 According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 U.S. : 118/663, 708, 710, 712, 715, 696; 427/248.1; 156/345.29

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,228,170 B1 (CHEN et al) 08 May 2001 (08.05.2002) entire document.	1-32
A	US 6,143,080 A (BARTHOLOMEW et al) 01 November 2000 (07.11.2000), entire document.	1-32
A	US 5,888,579 A (LUN) 30 March 1999 (30.03.1999) entire document.	1-32
A	US 5,849,088 A (DEDONTNEY et al) 15 December 1998 (15.12.1998), entire document.	1-32
A	US 6,187,092 B1 (WOLLESEN) 13 February 2001 (13.02.2001) entire document.	1-32

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

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INTERNATIONAL SEARCH REPORT

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Continuation of B. FIELDS SEARCHED Item 3:

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search terms: atmospheric pressure muffler, muffler, sensor, exhaust, pressure, sensor, ambient pressure, control, wafer, substrate, wafer, workpiece, throttle valve, flowmeter.