Title: BACKFLOW PREVENTION SYSTEM

Abstract: The present invention relates to a backflow prevention system, and more particularly, to a backflow prevention system installed between a vacuum chamber and a vacuum pump to quickly prevent a backflow of gas using a power abnormality signal of the vacuum pump. The backflow prevention system of the present invention is interposed between the vacuum chamber and the vacuum pump to prevent the air in the vacuum pump from flowing backwards into the vacuum chamber, and comprises: a cutoff valve installed on the pipeline between the vacuum chamber and the vacuum pump to cut off the pipeline; and a valve control unit which controls the cutoff valve in accordance with the normality or abnormality of the power of the vacuum pump.

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청구범위 보정 기한 만료 전의 공개이며, 보정서를 접수하는 경우 그에 관하여 별도 공개함 (규칙 48.2(h))
# INTERNATIONAL SEARCH REPORT

**A. CLASSIFICATION OF SUBJECT MATTER**

**H01L 21/02 (2006.01)i**

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)

**H01L 21/02**

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

- Korean Utility models and applications for Utility models: IPC as above
- Japanese Utility models and applications for Utility models: IPC as above

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

eKOMPASS (KIPO internal) & Keywords: prevention of backward flow, vacuum pump, valve

# C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<td>Y</td>
<td>KR 10-2007-0000053 A (SAMSUNG ELECTRONICS CO., LTD.) 02 January 2007&lt;br&gt;See pages 4-5 and figure 3.</td>
<td>Y-3-7-10</td>
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<td>Y</td>
<td>KR 10-2006-0102447 A (SAMSUNG ELECTRONICS CO., LTD.) 27 September 2006&lt;br&gt;See page 3 and figure 2.</td>
<td>Y-3-7-10</td>
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* Special categories of cited documents:
  - **"A"** document defining the general state of the art which is not considered to be of particular relevance
  - **"E"** earlier application or patent published on or after the international filing date
  - **"L"** document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
  - **"O"** document referred to in an oral disclosure, use, exhibition or other means
  - **"P"** document published prior to the international filing date but later than the priority date claimed
  - **"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
  - **"X"** document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
  - **"Y"** document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
  - **"&"** document member of the same patent family

Date of the actual completion of the international search: 30 AUGUST 2010 (30.08.2010)

Date of mailing of the international search report: 30 AUGUST 2010 (30.08.2010)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office<br>Government Complex-Daejeon, 139 Seocho-ro, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer: Telephone No.

Ferm PCT/ISA/210 (second sheet) (July 2009)
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<th>Publication date</th>
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<td>KR 10-2007-0000063 A</td>
<td>02.01.2007</td>
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<td>KR 10-2006-0102447 A</td>
<td>27.09.2006</td>
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A. 발명이 속하는 기술분야 (국제특허분류 (IPC))

H01L 21/02 (2006.01)

B. 조사된 분야
조사된 최소문헌 (국제특허분류 기재)
H01L 21/02

조사된 기술분야에 속하는 최소문헌 이외의 문헌
한국특허출원신고 및 한국공개출원신고: 조사된 최소문헌단위 기재된 IPC
일본특허출원신고 및 일본공개출원신고: 조사된 최소문헌단위 기재된 IPC

국제발명에 이용된 건설 데이터베이스 데이터베이스의 명칭 및 검색어 (해당하는 경우)
cKOMPASS (특허청 내부 검색시스템) & 기획단 역량평가, 진공펌프, 벨브

C. 관련문헌

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<tr>
<th>카테고리</th>
<th>인용문헌명 및 관련 구절 (해당하는 경우)의 기재</th>
<th>관련청구항</th>
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<td>Y</td>
<td>K3 10-2007-0000063 A (삼성전자주식회사) 2007.01.02 페이지 4-5 및 도면 3 장조.</td>
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<td>A</td>
<td>K3 10-2005-0111818 A (삼성전자주식회사) 2005.11.29 페이지 2-3 및 도면 2 장조.</td>
<td>1-10</td>
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* 인용된 문헌의 특별 카테고리:
  "A" 특별히 관련이 없는 것으로 보이는 일반적인 기술수준을 정의한 문헌
  "E" 국제출원일보다 훨씬 출원일 또는 우선일을 가져나 국제출원일 이후에 공개된 성적물 또는 특허 문헌
  "L" 우선권 주장에 의문을 제기하는 문헌 또는 다른 인용문헌의 공개일 또는 다른 특별한 이유(다수출원)를 밝히기 위하여 인용된 문헌
  "O" 구두가시, 사용, 전시 또는 기타 수단을 연결하고 있는 문헌
  "P" 우선일 이후에 공개되었으나 국제출원일 이전에 공개된 문헌

"I" 국제출원일 또는 우선일 주위 공개된 문헌으로, 출원과 상충하지 않으며 발명의 기초가 되는 원리나 이론을 이해하기 위해 인용된 문헌
"X" 특별한 관련이 없는 문헌, 예를 들어 하나의 특허 또는 청구된 발명의 성 문헌 또는 전보상이 있는 것으로 보는 경우
"Y" 특별한 관련이 없는 문헌, 해당 문헌이 하나 이상의 다른 문헌과 조합하는 경우, 그 조합이 발명자에게 자명한 경우 청구된 발명은 전보상이 없는 것으로 본다
"&" 동일한 항목상 문헌에 속하는 문헌

국제조사의 설치 안내일
2020년 08월 30일 (30.08.2010)

국제조사보고서 발송일
2020년 08월 30일 (30.08.2010)

ISAKR의 명칭 및 우편주소
대한민국 특허청
(302-701) 대전광역시 서구 선사로 139, 검무대전청장
전자번호 82-42-472-7140

심사관
부경호
전화번호 82-42-481-5665

서식 PCT/ISA/210 (두 번째 용지) (2009년 7월)
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서식: PCT/ISA/210 (대응특허 추가보고) (2009년 7월)