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**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

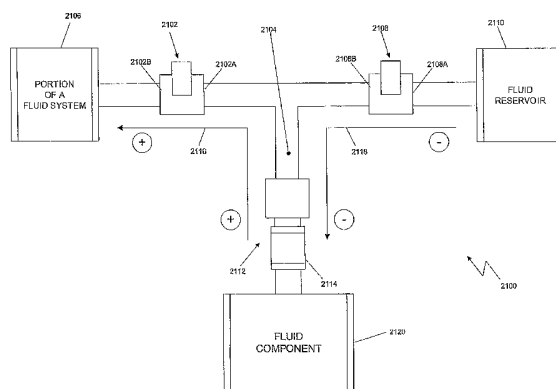
**Published:**

- with international search report

(88) Date of publication of the international search report:  
1 June 2006

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.

(54) Title: METHODS AND SYSTEMS FOR PERFORMING, MONITORING AND ANALYZING MULTIPLE MACHINE FLUID PROCESSES



(57) Abstract: Various fluid system and fluid operation embodiments include a first valve structured to permit fluid flow therethrough in response to application of positive pressure at an inlet of the first valve with an outlet of the first valve in fluid communication with a portion of a fluid system; a second valve has an outlet in fluid communication with the inlet of the first valve, and the second valve is structured to permit fluid flow therethrough in response to application of negative pressure at the outlet of the second valve; and, an inlet/outlet port in fluid communication with the inlet of the first valve and the outlet of the second valve at a common refill/evacuation location. Systems and methods incorporating electronic valves, configurations to multiple check valve assemblies, and modules of valve assemblies are also provided herein. It is emphasized that this abstract is provided to comply with the rules requiring an abstract that will allow a searcher or other reader to quickly ascertain the subject matter of the technical disclosure. It is submitted with the understanding that it will not be used to interpret or limit the scope or meaning of the claims.



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## INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2005/011403

A. CLASSIFICATION OF SUBJECT MATTER  
F01M11/04 B67D5/04

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)  
F01M B67D

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 practical, search terms used)

EP0-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No.         |
|-----------|--|-------------------------------|
| A         | US 2002/023691 A1 (CAPSTRAN RICHARD E)<br>28 February 2002 (2002-02-28)<br><br>paragraphs [0007], [0014] - [0017];<br>figure 1<br><br>-----                                  | 1,7,19,<br>28,37,<br>45,55,68 |
| A         | EP 0 651 143 A (FLO-DYNAMICS, INC. PARKER,<br>ZACHARY T; FLO-DYNAMICS, INC)<br>3 May 1995 (1995-05-03)<br>column 2, line 21 - column 4, line 40;<br>figures 3,5<br><br>----- | 1,7,19,<br>28,37,<br>45,55,68 |
| A         | US 5 685 396 A (ELKIN ET AL)<br>11 November 1997 (1997-11-11)<br><br>column 2, line 36 - column 3, line 46;<br>figure 1<br><br>-----<br><br>-/--                             | 1,7,19,<br>28,37,<br>45,55,68 |

☒ 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  
"E" earlier document but 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 referring to 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 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

11 July 2005

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# INTERNATIONAL SEARCH REPORT

Internal application No  
PCT/US2005/011403

| C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT |  |                       |
|--|--|-----------------------|
| Category*  | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No. |
| A  | CA 2 207 595 A1 (BELANGER, GAETAN N)<br>26 December 1998 (1998-12-26)<br>claims; figure 1<br>-----                           | 1                     |
| A  | US 5 522 475 A (THOMPSON ET AL)<br>4 June 1996 (1996-06-04)<br>column 3, line 28 - column 5, line 5;<br>figures 1,2<br>----- | 1                     |

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2005/011403

### Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

### Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-69

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-69

valve assembly

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2. claims: 70-73

Power supply system

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3. claims: 74-80

Connection/disconnection detection system

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No  
PCT/US2005/011403

| Patent document<br>cited in search report |    | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|---|----|---------------------|----------------------------|---------------------|
| US 2002023691                             | A1 | 28-02-2002          | NONE                       |                     |
| EP 0651143                                | A  | 03-05-1995          | AT 179241 T                | 15-05-1999          |
|   |    |                     | AU 673108 B2               | 24-10-1996          |
|   |    |                     | AU 7750594 A               | 08-06-1995          |
|   |    |                     | DE 69417984 D1             | 27-05-1999          |
|   |    |                     | DE 69417984 T2             | 12-08-1999          |
| US 5685396                                | A  | 11-11-1997          | US 5562181 A               | 08-10-1996          |
| CA 2207595                                | A1 | 26-12-1998          | NONE                       |                     |
| US 5522475                                | A  | 04-06-1996          | NONE                       |                     |