



- (51) International Patent Classification:
F16K 99/00 (2006.01) *F16K 31/02* (2006.01)
H01L 41/09 (2006.01)
- (21) International Application Number:
PCT/DK2009/000097
- (22) International Filing Date:
30 April 2009 (30.04.2009)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
PA 2008 00621 30 April 2008 (30.04.2008) DK
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- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME,

[Continued on next page]

(54) Title: A POWER ACTUATED VALVE

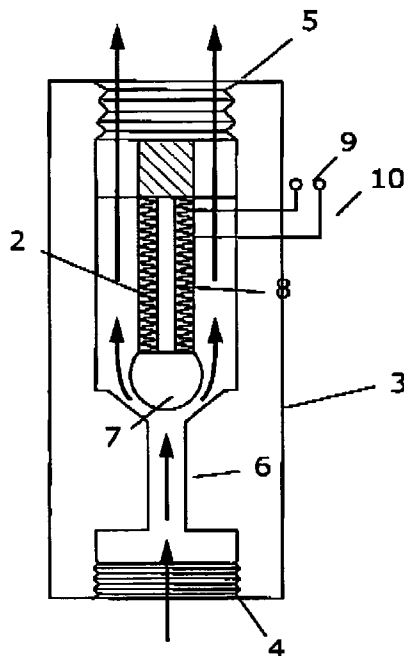


Fig. 1

(57) Abstract: The invention provides a power actuated valve (1) comprising a transducer (2) and a housing (3) which forms an inlet (4) for entering fluid into the valve, an exit (5) for exit of the fluid from the valve, and a path (6) between the inlet and the exit, the transducer comprising a laminate with a film of a dielectric polymer material arranged between first and second layers of an electrically conductive material. The film is elastically deformable in response to an electrical field applied between the layers, and the transducer is arranged relative to the path so that a ratio between deformation of the film and a flow condition in the path is established.



MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (*Art. 21(3)*)
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (*Rule 48.2(h)*)

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR),

(88) Date of publication of the international search report:
23 December 2009

INTERNATIONAL SEARCH REPORT

International application No
PCT/DK2009/000097

A. CLASSIFICATION OF SUBJECT MATTER
 INV. F16K99/00 H01L41/09 F16K31/02

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)
 F16K H01L

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)
 EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2007/116858 A1 (BENSLIMANE MOHAMED Y [DK] ET AL) 24 May 2007 (2007-05-24) paragraph [0057]; figures	1-23, 29-33
X	US 2006/155197 A1 (KISHIMOTO HIROSHI [JP] ET AL) 13 July 2006 (2006-07-13) the whole document	1, 2, 4, 24-33, 38, 39
X	US 2004/232807 A1 (PELRINE RONALD E [US] ET AL) 25 November 2004 (2004-11-25) paragraphs [0078], [0149]; figures	1-23, 29-31, 33
X	US 2003/214199 A1 (HEIM JONATHAN R [US] ET AL HEIM JONATHON R [US] ET AL) 20 November 2003 (2003-11-20) the whole document	1, 24-31, 34-37
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Further documents are listed in the continuation of Box C. See patent family annex.

* Special Categories of cited documents :

<p>*A* document defining the general state of the art which is not considered to be of particular relevance</p> <p>*E* earlier document but published on or after the international filing date</p> <p>*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)</p> <p>*O* document referring to an oral disclosure, use, exhibition or other means</p> <p>*P* document published prior to the international filing date but later than the priority date claimed</p>	<p>*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</p> <p>*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</p> <p>*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.</p> <p>* & * document member of the same patent family</p>
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Date of the actual completion of the international search 7 August 2009	Date of mailing of the international search report 05/11/2009
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Lanel, François
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INTERNATIONAL SEARCH REPORT

International application No
PCT/DK2009/000097

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>PELRINE R ET AL: "Applications of dielectric elastomer actuators" PROCEEDINGS OF THE SPIE - THE INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING, SPIE, PO BOX 10 BELLINGHAM WA 98227-0010 USA, vol. 4329, 1 January 2001 (2001-01-01), pages 335-349, XP002381626 ISSN: 0277-786X the whole document</p>	<p>1, 24, 25, 27, 29-31, 33</p>
X	<p>JP 2001 286162 A (RYU KEIWA) 12 October 2001 (2001-10-12) the whole document</p>	<p>1, 24-28</p>

INTERNATIONAL SEARCH REPORT

International application No.
PCT/DK2009/000097

Box No. 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 No. 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 fees, this Authority did not invite payment of additional fees.
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.:

1-39

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- 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: 1-39

Construction of the valve and the laminate

2. claims: 40-46

Control system of the valve

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/DK2009/000097

Patent document cited in search report	A1	Publication date	Patent family member(s)	Publication date
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