

INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2015/010143

A. CLASSIFICATION OF SUBJECT MATTER

F16K 5/06(2006.01)i, F16K 5/08(2006.01)i, F16K 5/20(2006.01)i, F16K 27/06(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)

F16K 5/06; F16K 3/10; F16K 25/00; F16K 3/04; F16K 5/20; F16K 5/08; F16K 27/06

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 aboveElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS (KIPO internal) & Keywords: ball valve, seat ring, handle, spring washer, groove, sealing part, scraper part

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR 10-0449779 B1 (KIM, Kyo Sull et al.) 22 September 2004 See claims 1-2 and figures 1, 3.	1-2
Y	US 4890643 A (OLIVER, John P.) 02 January 1990 See column 3, line 4-column 4, line 35 and figure 1.	1-2
Y	KR 10-1445670 B1 (INSTITUTE FOR ADVANCED ENGINEERING) 01 October 2014 See paragraphs [0029], [0033] and figure 3.	2
A	US 8201574 B2 (BEASLEY, Marvin E.) 19 June 2012 See column 4, line 50-column 8, line 21 and figures 3A-3C.	1-2
A	KR 10-1062164 B1 (DONG SAN CERAMIC CO., LTD.) 05 September 2011 See paragraphs [0015]-[0019] and figure 2.	1-2

 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 application or patent 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

23 APRIL 2016 (23.04.2016)

Date of mailing of the international search report

25 APRIL 2016 (25.04.2016)

Name and mailing address of the ISA/KR

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/KR2015/010143

Patent document cited in search report	Publication date	Patent family member	Publication date
KR 10-0449779 B1	22/09/2004	KR 10-2003-0044349 A	09/06/2003
US 4890643 A	02/01/1990	NONE	
KR 10-1445670 B1	01/10/2014	NONE	
US 8201574 B2	19/06/2012	US 2011-140025 A1	16/06/2011
KR 10-1062164 B1	05/09/2011	NONE	