

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2018/014007

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl. C02F1/44 (2006.01) i, B01D61/58 (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)

Int.Cl. C02F1/44, B01D61/58

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

Published examined utility model applications of Japan	1922-1996
Published unexamined utility model applications of Japan	1971-2018
Registered utility model specifications of Japan	1996-2018
Published registered utility model applications of Japan	1994-2018

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

Japio-GPG/FX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2008-307487 A (MITSUBISHI HEAVY INDUSTRIES, LTD.) 25 December 2008, paragraphs [0001]-[0038], fig. 1-8 & US 2008/0308475 A1, paragraphs [0001]-[0093], fig. 1-8 & SG 148914 A1 & ES 2331398 A1 & AU 2008201763 A1	1-3, 5-12
Y	JP 59-228988 A (JGC CORPORATION) 22 December 1984, claims 1-2, page 2, upper left column to page 3, lower right column, fig. 1-3 (Family: none)	1-3, 5-12

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
20 June 2018 (20.06.2018)

Date of mailing of the international search report
03 July 2018 (03.07.2018)

Name and mailing address of the ISA/
Japan Patent Office
3-4-3, Kasumigaseki, Chiyoda-ku,
Tokyo 100-8915, Japan

Authorized officer

Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2018/014007

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2015-196113 A (KURITA WATER INDUSTRIES LTD.) 09 November 2015, paragraph [0029], fig. 1 & US 2017/0121190 A1, paragraph [0030], fig. 1 & WO 2015/151899 A1 & TW 201542468 A & CN 106163993 A & KR 10-2016-0138075 A	1-3, 5-12
Y	JP 2001-137672 A (TORAY INDUSTRIES, INC.) 22 May 2001, paragraphs [0001]-[0024], fig. 1-4 (Family: none)	1, 4-7, 13-16
Y	WO 2010/089912 A1 (MITSUBISHI HEAVY INDUSTRIES, LTD.) 12 August 2010, paragraphs [0001]-[0050], fig. 1-10 & US 2011/0309007 A1 & EP 2394964 A1 & AU 2009339547 A1	1, 4-7, 13-16
Y	WO 2012/086477 A1 (HITACHI PLANT TECHNOLOGIES, LTD.) 28 June 2012, paragraphs [0001]-[0041], fig. 1-10 (Family: none)	1, 4-7, 13-16
Y	WO 2014/129341 A1 (MITSUBISHI HEAVY INDUSTRIES, LTD.) 28 August 2014, paragraphs [0001]-[0048], fig. 1-6 & US 2016/0002071 A1 & EP 2959964 A1	1, 4-7, 13-16
Y	JP 2001-239134 A (TORAY INDUSTRIES, INC.) 04 September 2001, paragraphs [0007]-[0036], fig. 1-11 (Family: none)	5-7
Y	WO 2015/135545 A1 (GEA PROCESS ENGINEERING A/S) 17 September 2015, claims 1-21, fig. 1-5 (Family: none)	1-16
Y	WO 2003/039708 A1 (IONICS, INCORPORATED) 15 May 2003, claims 1-23, fig. 1-13 & US 2005/0029192 A1 & KR 10-2002-0017362 A & AU 2002354011 A1	1-16