

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CH2018/050020

A. CLASSIFICATION OF SUBJECT MATTER

F28F 13/18(2006.01)i; **F28D 7/16**(2006.01)i; **F24C 9/00**(2006.01)i; **F24S 80/20**(2018.01)i; **F23C 3/00**(2006.01)i;
F23D 14/66(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)

F28F; F28D; F24C; F24S; F23C; F23D

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 practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 3604400 A (SHARAN HARENDRA NATH) 14 September 1971 (1971-09-14) columns 2-3; figure 1	1-8,10-16 9,17-19
X A	NL 7703915 A (CONTINENTAL CARBON CO) 11 October 1977 (1977-10-11) figures 1-2	1-8,10-16 9,17-19
X A	WO 2016171164 A1 (KOKUBUN CO LTD [JP]; JOYO CHEMICAL CO LTD [JP]) 27 October 2016 (2016-10-27) figure 1	1-8,10-16 9,17-19
X A	FR 2381967 A1 (NAUDET HENRI [FR]) 22 September 1978 (1978-09-22) figure 2	1-8,10-16 9,17-19
X A	EP 1052461 A2 (STATE IND INC [US]) 15 November 2000 (2000-11-15) paragraphs [0007] - [0019]; figure 1	1-8,10-16 9,17-19
X A	DE 3743798 A1 (MARINETECHNIK GMBH [DE]) 13 July 1989 (1989-07-13) the whole document	1-8,10-16 9,17-19

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
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 “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

05 October 2018

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CH2018/050020

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
US 3604400 A	14 September 1971	BE 740509 A	01 April 1970
		CH 513359 A	30 September 1971
		DE 1950502 A1	22 April 1971
		FR 2060455 A5	18 June 1971
		GB 1291886 A	04 October 1972
		NL 6915469 A	30 March 1971
		US 3604400 A	14 September 1971
NL 7703915 A	11 October 1977	AU 501445 B2	21 June 1979
		GB 1579178 A	12 November 1980
		IN 143935 B	04 March 1978
		JP S52124782 A	20 October 1977
		NL 7703915 A	11 October 1977
WO 2016171164 A1	27 October 2016	JP WO2016171164 A1	01 March 2018
		WO 2016171164 A1	27 October 2016
FR 2381967 A1	22 September 1978	NONE	
EP 1052461 A2	15 November 2000	AT 272196 T	15 August 2004
		AU 767768 B2	20 November 2003
		CA 2303654 A1	12 November 2000
		DE 60012412 D1	02 September 2004
		DE 60012412 T2	02 December 2004
		EP 1052461 A2	15 November 2000
		HU 0001884 A2	28 April 2001
		JP 2000329337 A	30 November 2000
		SK 6932000 A3	11 December 2000
		US 2001027756 A1	11 October 2001
DE 3743798 A1	13 July 1989	NONE	