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(54) Title: TWIN PUMP

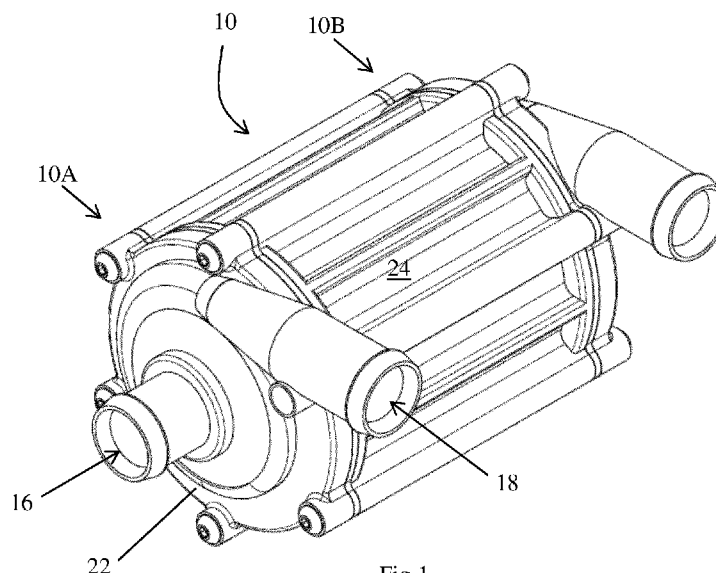


Fig. 1

(57) Abstract: Described is a twin ended pump apparatus comprising: a housing; a first pump at one end of the housing, said first pump comprising an impeller driven by a rotor of an electric motor, said impeller causing a fluid to flow out of a pump chamber, said electric motor including a stator for driving said rotor, wherein said rotor is arranged on a pump chamber side of a fluid-sealed boundary separating said pump chamber from the stator; and a second pump at an opposing end of the housing.



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- *with international search report (Art. 21(3))*
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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER INV. F04D13/06 F04D13/14 F04D15/00 F04D29/62 ADD.		
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) F04D		
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	JP S59 200092 A (SHARP KK) 13 November 1984 (1984-11-13)	1-8,11, 20, 22-26,29
A	abstract figures 3-5	12-19, 21,27,28
X	----- JP 2012 052506 A (JTEKT CORP) 15 March 2012 (2012-03-15)	1-5,11, 12,20, 22-26,29
A	abstract figures 2,3,5	6-8,27
----- -/-		
☒ 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	Date of mailing of the international search report	
16 June 2021	06/07/2021	
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 Gombert, Ralf	

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International application No

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2014/147588 A1 (MAGNA INT INC [CA]; MUIZELAAR RICHARD [CA] ET AL.) 25 September 2014 (2014-09-25)	1-8, 11-19, 21-26,29
Y	page 3, line 20 - page 4, line 6	27,28
A	page 5, lines 3-24	20
	page 6, lines 1-26	
	page 9, line 20 - page 11, line 14	
	figures 1-4,5B	

X	EP 3 438 555 A1 (GRUNDFOS HOLDING AS [DK]) 6 February 2019 (2019-02-06)	1,4,6, 11, 13-16, 19, 22-26,29
Y	paragraphs [0005], [0008], [0019], [0025] - [0030]	27,28
	figures 2,3,13,14	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2020/087008

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.:
1-8, 11-29
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.:

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: 2-8, 11, 20, 22-26, 29(completely); 1(partially)

Twin pump with sealed rotors

2. claims: 9, 10(completely); 1(partially)

Twin pump suitable for potable liquids

3. claims: 12-19, 21, 27, 28(completely); 1(partially)

Twin pump with pressure and/or temperature control

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2020/087008

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP S59200092	A	13-11-1984	NONE
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