

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/EP2019/080986

International filing date (day/month/year)
12.11.2019

Priority date (day/month/year)
12.11.2018

International Patent Classification (IPC) or both national classification and IPC
INV. F24D19/10 F16K1/14 F16K43/00

Applicant
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1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:



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Date of completion of
this opinion

see form
PCT/ISA/210

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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - ☒ the international application in the language in which it was filed.
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
 - a. ☐ forming part of the international application as filed:
 - ☐ in the form of an Annex C/ST.25 text file.
 - ☐ on paper or in the form of an image file.
 - b. ☐ furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
 - c. ☐ furnished subsequent to the international filing date for the purposes of international search only:
 - ☐ in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
 - ☐ on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>5, 8, 9, 11-14</u>
	No: Claims	<u>1-4, 6, 7, 10, 15-17</u>
Inventive step (IS)	Yes: Claims	<u>12</u>
	No: Claims	<u>1-11, 13-17</u>
Industrial applicability (IA)	Yes: Claims	<u>1-17</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

- D1 US 4 187 872 A (FREEMAN MURRAY E [US] ET AL) 12 February 1980
(1980-02-12)
- D2 US 4 624 281 A (VIDAL JEAN E [FR] ET AL) 25 November 1986
(1986-11-25)
- D3 CH 188 383 A (SULZER AG [CH]) 31 December 1936 (1936-12-31)

a) The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1 and 16 is not new in the sense of Article 33(2) PCT.

Independent apparatus claim 1:

Document D1 discloses (columns 2 to 16; figures 1 to 7)

a balancing valve (A) comprising
a housing (H) having a main fluid passage (10) extending along a main flow axis (see the figures),
a valve body (B, F, R, 30, 40) disposed within the housing (H) in the fluid passage (10), wherein the valve body has a first through hole forming a first fluid passage (20) with a variable first fluid passage cross section (V),
and wherein the valve body has a second through hole distinct from the first through hole and forming a second fluid passage (24) in the valve body,
wherein the first fluid passage (20) is a main fluid passage and the second fluid passage (24) is a by-pass passage (column 2, line 62 to column 3, line 6),
wherein the valve body (B, F, R, 30, 40) is movably mounted to the housing (H) to select one of the first through hole and of the second through hole, between a working position in which the first through hole extends along the main flow axis, and a by-pass position in which the second through hole extends along the main flow axis (column 3, lines 7 to 22; column 7, line 64 to column 9, line 28),
and the balancing valve comprises a control element (C, V), wherein the variable first fluid passage cross section is adjustable by said control element inserted within the valve body (column 8, lines 21 to 46), wherein the control element (C, V) can be removed from the valve body when the balancing valve is in the by-pass position (column 9, line 29 to column 10, line 2; column 10, line 45 to column 12, line 6).

Accordingly, all the features of claim 1 are already known from document D1.

Documents D2 (columns 1 to 4; figures 1 to 8) and D3 (pages 1 to 3; figures 1 to 3) also disclose all the features of claim 1.

Independent method claim 16:

Document D1 discloses (columns 2 to 16; figures 1 to 7)

a method of maintaining a balancing valve (A) installed in a hydraulic network, the hydraulic network comprising a first pipe element (10a), a second pipe element (10b) and a balancing valve (A) according to claim 1, the balancing valve (A) being disposed between the first pipe element (10a) and the second pipe element (10b) along a main flow axis (10; e.g. figure 1), wherein the balancing valve (A) can be rotated from a working position in which the first through hole extends along the main flow axis, to a by-pass position in which the second through hole extends along the main flow axis (column 3, lines 7 to 22; column 7, line 64 to column 9, line 28),

the method comprising removing the control element (C, V) from the valve body (B, F, R, 30, 40) for maintenance or cleaning, without interrupting the fluid flow through the hydraulic network (column 9, line 29 to column 10, line 2; column 10, line 45 to column 12, line 6).

Accordingly, all the features of claim 16 are already known from document D1.

Document D2 (columns 1 to 4; figures 1 to 8) also discloses all the features of claim 16.

b) Dependent claims 2 to 4, 6, 7, 10, 15 and 17 relate to features, which are already known from the documents of the prior art, see D1 for claims 2 to 4, 6, 7, 10, 15 and 17, D2 for claims 3, 6, 10 and 15, and D3 for claims 3 and 6. In particular, considering document D1, for claims 2 and 4 see column 9, line 41 to column 10, line 2, and column 10, lines 45 to 65, for claim 3 see column 8, lines 21 to 46, for claims 6, 7 and 10 see figures 1 to 7 and column 16, line 17 to 24 (concerning the ball valve), for claim 15 see column 2, lines 17 to 32, and for claim 17 see column 9, line 29 to column 10, line 2 and column 10, line 45 to column 12, line 6.

The features of dependent claims 5, 8, 9 and 11 relate to slight constructional changes and/or well known design options when starting from the teaching of D1 (in particular, for claim 5 see column 11, lines 24 to 39) which comes within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can be readily contemplated in advance.

Moreover, adding sensors for measuring the flow rates and/or pressures across the valve as proposed in claim 13 also comes within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can be readily contemplated in advance.

The features of dependent claim 14 relate to a choice of a suitable material which also comes within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can be readily contemplated in advance.

Therefore the subject-matter of said claims do not appear to contain any additional features which meet the requirements of the PCT with respect to novelty (claims 2 to 4, 6, 7, 10, 15 and 17) or inventive step (claims 5, 8, 9, 11, 13 and 14).

c) The combination of the features of dependent claim 12 is neither known from, nor rendered obvious by, the available prior art.

Re Item VII

Certain defects in the international application

a) Independent claims 1 and 16 are not in the two-part form in accordance with Rule 6.3(b) PCT, with those features known in combination from the prior art being placed in the preamble (Rule 6.3(b)(i) PCT) and the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).

b) The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

c) Contrary to the requirements of Rule 5.1(a)(ii) PCT, document D1 which discloses the relevant background art is not identified in the description.

Re Item VIII

Certain observations on the international application

a) The reference to the document in the description on page 1, lines 5 to 9 should have been deleted, since the content of said document is not essential for carrying out the invention (Article 6 PCT).

b) The pages 2 to 4 of the description should have been adapted to the claims (Article 6 PCT).

c) In the description on the last page, last line the statement "and their equivalents" should have been deleted (Article 6 PCT).