

**TRANSLATION**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>PCT57-vtec</b>	<b>FOR FURTHER ACTION</b>	See Form PCT/IPEA/416
International application No. <b>PCT/KR2017/007005</b>	International filing date ( <i>day/month/year</i> ) <b>03.07.2017</b>	Priority date ( <i>day/month/year</i> ) <b>01.09.2016</b>
International Patent Classification (IPC) or national classification and IPC <b>F04F5/20 (2006.01) i, F04F5/44 (2006.01) i, B01D46/42 (2006.01) i</b>		
Applicant <b>VTEC CO., LTD.</b>		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a.  (*sent to the applicant and to the International Bureau*) a total of 3 sheets, as follows:

- sheets of the description, claims and/or drawings which have been amended and/or sheets containing rectifications authorized by this Authority, unless those sheets were superseded or cancelled, and any accompanying letters (see Rules 46.5, 66.8, 70.16, 91.2, and Section 607 of the Administrative Instructions).
- sheets containing rectifications, where the decision was made by this Authority not to take them into account because they were not authorized by or notified to this Authority at the time when this Authority began to draw up this report, and any accompanying letters (Rules 66.4bis, 70.2(e), 70.16 and 91.2).
- superseded sheets and any accompanying letters, where this Authority either considers that the superseding sheets contain an amendment that goes beyond the disclosure in the international application as filed, or the superseding sheets were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in item 4 of Box No. I and the Supplemental Box (see Rule 70.16(b)).

b.  (*sent to the International Bureau only*) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing, in the form of an Annex C/ST.25 text file, as indicated in the Supplemental Box Relating to Sequence Listing (see paragraph 3ter of Annex C of the Administrative Instructions).

4. This report contains indications relating to the following items:

- Box No. I Basis of the report
- 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 Article 35(2) with regard to novelty, inventive step or 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

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/KR	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/KR2017/007005

Box No. I	Basis of the report
1.	<p>With regard to the <b>language</b>, this report is based on:</p> <p><input checked="" type="checkbox"/> the international application in the language in which it was filed</p> <p><input type="checkbox"/> a translation of the international application into _____, which is the language of a translation furnished for the purposes of:</p> <p><input type="checkbox"/> international search (Rules 12.3(a) and 23.1(b))</p> <p><input type="checkbox"/> publication of the international application (Rule 12.4(a))</p> <p><input type="checkbox"/> international preliminary examination (Rule 55.2(a) and/or 55.3(a))</p> <p>2. With regard to the <b>elements</b> of the international application, this report is based on (<i>replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report</i>):</p> <p><input type="checkbox"/> the international application as originally filed/furnished</p> <p><input checked="" type="checkbox"/> the description:</p> <p>pages <u>1-9</u> as originally filed/furnished.</p> <p>pages* _____ received by this Authority on _____</p> <p>pages* _____ received by this Authority on _____</p> <p><input checked="" type="checkbox"/> the claims:</p> <p>Nos. _____ as originally filed/furnished.</p> <p>Nos.* _____ as amended (together with any statement) under Article 19</p> <p>Nos.* <u>1-7</u> received by this Authority on <u>10.09.2018</u></p> <p><input checked="" type="checkbox"/> the drawings:</p> <p>pages <u>1/5-5/5</u> as originally filed/furnished.</p> <p>pages* _____ received by this Authority on _____</p> <p>pages* _____ received by this Authority on _____</p> <p><input type="checkbox"/> a sequence listing – see Supplemental Box Relating to Sequence Listing.</p> <p>3. <input checked="" type="checkbox"/> The amendments have resulted in the cancellation of:</p> <p><input type="checkbox"/> the description, pages _____</p> <p><input checked="" type="checkbox"/> the claims, Nos. <u>8</u></p> <p><input type="checkbox"/> the drawings, sheets/figs _____</p> <p><input type="checkbox"/> the sequence listing (<i>specify</i>): _____</p> <p>4. <input type="checkbox"/> This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since either they are considered to go beyond the disclosure as filed, or they were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in the Supplemental Box (Rule 70.2(c) and (c-bis)):</p> <p><input type="checkbox"/> the description, pages _____</p> <p><input type="checkbox"/> the claims, Nos. _____</p> <p><input type="checkbox"/> the drawings, sheets/figs _____</p> <p><input type="checkbox"/> the sequence listing (<i>specify</i>): _____</p> <p>5. <input type="checkbox"/> This report has been established:</p> <p><input type="checkbox"/> taking into account <b>the rectification of an obvious mistake</b> authorized by or notified to this Authority under Rule 91 (Rules 66.1(d-bis) and 70.2(e)).</p> <p><input type="checkbox"/> without taking into account <b>the rectification of an obvious mistake</b> authorized by or notified to this Authority under Rule 91 (Rules 66.1bis and 70.2(e)).</p> <p>6. With regard to top-up searches (Rules 66.1ter and 70.2(f)):</p> <p><input checked="" type="checkbox"/> A top-up search was carried out by this Authority on <u>06.09.2018</u></p> <p><input checked="" type="checkbox"/> Additional relevant documents have been discovered during the top-up search.</p> <p><input type="checkbox"/> No top-up search was carried out by this Authority because it would serve no useful purpose.</p> <p>7. <input type="checkbox"/> Supplementary international search report(s) from Authority(ies) _____</p> <p><input type="checkbox"/> has/have been received and taken into account in establishing this report (Rule 45bis.8(b) and (c)).</p> <p>* If item 4 applies, some or all of those sheets may be marked "superseded."</p>

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/KR2017/007005

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	<u>1-7</u>	YES
	Claims	<u>None</u>	NO
Inventive step (IS)	Claims	<u>1-7</u>	YES
	Claims	<u>None</u>	NO
Industrial applicability (IA)	Claims	<u>1-7</u>	YES
	Claims	<u>None</u>	NO
2. Citations and explanations (Rule 70.7)			
<p>Reference is made to the following documents:</p> <p>D1: KR 10-1610491 B1 (LEE, Woo Seung) 08 April 2016</p> <p>D2: KR 10-0645273 B1 (XEREX AB) 13 November 2006</p> <p>D3: KR 10-0730323 B1 (KOREA PNEUMATIC SYSTEM CO., LTD.) 19 June 2007</p> <p>1. Novelty and Inventive Step</p> <p>The features set forth in claim 1 are that an air filter comprises a tubular filter main body and a rib-connected shape-preserving instrument which supports the main body from the outside, that the shape-preserving instrument comprises an annular inner protrusion, which protrudes towards the inlet-side outer surface of an ejector pump, and a hole which is formed so as to penetrate the inner protrusion, and that a break line extends from a second supply route to a gap via the hole. Said features are not disclosed in the cited documents and would not be obvious to a person skilled in the art. Therefore, claim 1 is novel and involves an inventive step under PCT Article 33(2) and (3).</p>			

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
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Claims 2 to 7 refer to claim 1 and thus are novel and involve an inventive step under PCT Article 33(2) and (3).

## 2. Industrial Applicability

The invention as set forth in claims 1 to 7 is industrially applicable under PCT Article 33(4).