Commonwealth of Australia

DECLARATION

Patents Act 1990

In the matter of: **Australian Patent Application Number 2017210650**
Applicant: LAA Industries Pty Ltd
Title: Motor starting and control system and method utilised by directly connected islanded reciprocating engine powered generators
-and-
Opposition thereto by: **Allied Pumps Pty Ltd**
Anderson IP
Taranis Power Group Pty Ltd

I, Philipp Jonas Voß ne Maibom of 2002/48 Rotherham Street, Kangaroo Point, Queensland 4169 Australia make the following declaration under the *Patents Act 1990:*

1. I have been retained by Armour IP to provide my independent expert opinion. I have been informed by Armour IP that my evidence will be used in connection with a dispute before the Australian Patents Office regarding an Australian Patent Application.
2. I have been provided with a copy of the Federal Court Expert Evidence Practice Note (GPN-EXPT) including Annexures A and B dated 25 October 2016. A copy of this Practice Note is annexed hereto as exhibit PJV-1. I confirm that I have read, understood, and complied with this Practice Note.
3. My current position is that of Engineering and Service Manager for Wilo Australia Pty Ltd. I have held this position since December 2021. For the preceding six years I worked as Product Manager for Wilo SE based in Germany, where I was the Wilo Group’s product manager for Borehole submersible pumps. A copy of my CV is annexed hereto as exhibit PJV-2.
4. Armour IP has provided me with a patent specification, annexed hereto as exhibit PJV-3. I have not been told what the relevance is of this patent specification to the proceedings, or to whom the patent specification belongs.

5. Armour IP has asked me to review Claim 1 of the patent specification, in light of the entire specification, and to consider whether I can understand it. I confirm that I can readily understand the claim.

6. Armour IP has asked me whether the term “borehole water sensor” is clear to me. I confirm that the term is clear. It means “a sensor to monitor the water level in a borehole”. I am very familiar with such sensors. Usually the sensor will be a pressure transducer, installed in the borehole being pumped or in a second borehole just next to the borehole being pumped.

7. Armour IP has asked me to consider whether the term “parameter set point of predetermined water level” is clear to me. I confirm that it is clear. Its practical meaning depends on the particular application.

    a. In applications where a certain water level in the borehole should be maintained this is the water level in the borehole

    b. In applications where a certain ground water level should be maintained, this is the ground water level (related but not equal to the water level in the borehole)

    c. In applications where the water level in an reservoir should be maintained (e.g. ground water being pumped into elevated tanks) this is the water level in the elevated tanks.

8. Armour IP has asked me whether or not I understand there to be any connection between the “borehole water sensor” and the “parameter set point of predetermined water level”. This depends on the application. In application (a) there is a direct connection; the water level is measured directly by the borehole water sensor. In application (b) there is an indirect connection, the water level is calculated from the borehole water sensor. In application (c) there is no relationship.

9. Armour IP has asked me whether or not the phrase “a controller receives sensor signals” is clear to me. I confirm that the phrase is clear. I understand that the controller needs to receive information from the sensors (e.g. water level, pressure,…) in order to interpret it and create an output information.

10. Armour IP has asked me whether or not I understand there to be any connection between the “borehole water level sensor” and the “sensor signals received by the controller”. It is clear to me that the borehole water level sensor creates one sensor signal to be sent to the controller.

11. Armour IP has asked my if I understand the reference to “type of control selected – selected from fluid flow, fluid pressure and fluid level”. I understand this reference. The pump speed can be controlled regarding either flow (e.g. constant output fluid flow), pressure (e.g. constant pressure) or fluid level (e.g. to keep the ground water level on a constant level). Constant flow and constant pressure are typical control modes for pumps, and constant level is a typical control mode for a pump used in dewatering. If one of these values should be constant, the other ones need to be variable.

12. Armour IP has asked me what I consider the relationship to be between the terms “predetermined water level” and “fluid level”. As described above, I consider that “predetermined water level” depends on the particular application. I consider that “fluid level” is the actual measurement, whereas “predetermined water level” is the “set point”. I consider that “water level” and “fluid level” in this context mean the same thing.

13. Armour IP has asked me the following: “If the system is operating using “fluid flow” or “fluid pressure” control, what would be the effect of the “borehole water level sensor” and the “parameter set point of predetermined water level”.” My response is that if the system is operating in “fluid flow” or “fluid pressure” mode, the signal from the borehole water level sensor would not be used to control the pump speed. The parameter set point of the predetermined water level would only be a secondary control parameter (e.g. operation limit).

14. I understand that if a bore is being pumped then only one primary control parameter can be set: flow, pressure or water level. Which control mode is most significant depends on the application. In mine dewatering “fluid level” is the most significant, in irrigation it might be “fluid pressure” and in municipal drinking water extraction “fluid flow”. This doesn’t mean that the other control parameters can be ignored. For instance, the borehole water level should always stay above the pump to avoid the pump running dry. For this reason a

borehole water level sensor is important even if flow or pressure are being used as the primary control parameter.

15. After I had answered the questions above, Armour IP asked me why I had described a “secondary control parameter” when the patent specification doesn’t refer to this. I assumed that there would be secondary control parameters to monitor boundary conditions (e.g. a min. water level to prevent the pump from sucking air or max. water level in a tank to prevent overflow) because such monitoring of boundary conditions is standard practice. The patent specification does refer to this monitoring in paragraph [0023].

And I make this solemn declaration conscientiously believing the same to be true under the provisions of the Patents Act 1990.

Digital unterschrieben
von Philipp Voß
Datum: 2022.10.20
18:57:22 +10'00'

Philipp Jonas Voß ne Maibom

Declared at Murrie, Qld on 20 October 2022