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(54) **HEATER BUNDLES HAVING VIRTUAL SENSING FOR THERMAL GRADIENT COMPENSATION**

(57) A system includes a heater bundle having at least one heater assembly (18) with a plurality of heater units. At least one of the heater units (52) defines at least one independently controlled heating zone, and a plurality of power conductors are electrically connected to the heater units. A power supply device (14) includes a controller (15) configured to modulate power to the at least one independently controlled heating zone through the power conductors, and the controller (15) is configured to calculate temperature within the at least one heater unit based on a predefined model and at least one input, and the controller (15) modulates power to the at least one heater unit based on the calculated temperature.

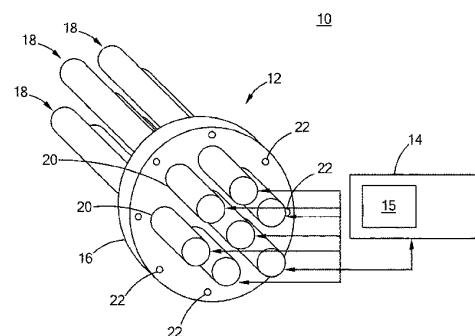


FIG. 1

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PARTIAL EUROPEAN SEARCH REPORT

Application Number

under Rule 62a and/or 63 of the European Patent Convention.
This report shall be considered, for the purposes of
subsequent proceedings, as the European search report

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DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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INCOMPLETE SEARCH

The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.

Claims searched completely :

Claims searched incompletely :

Claims not searched :

Reason for the limitation of the search:

see sheet C

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Place of search	Date of completion of the search	Examiner
Munich	9 November 2022	Gea Haupt, Martin
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document		



**INCOMPLETE SEARCH
SHEET C**

Application Number

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Claim(s) completely searchable:
1-14

Claim(s) not searched:
15-23

Reason for the limitation of the search:

The search has been restricted to the subject-matter indicated by the applicant in his letter of 05.09.2022 filed in reply to the invitation pursuant to Rule 62a(1) EPC, i.e. claims 1 to 14 have been searched.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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