

Certificate **Alpha 2 - Automatic hydraulic balancing of room heating systems by means of an electronic control system**

Additional explanation: Measurements and evaluation of the heating-up and operating behavior of a heating system (in each case underfloor heating) for heating four real rooms and one room in a climatic chamber. The heating system was not hydraulically balanced at the beginning of the test.

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TÜV Rheinland confirms that the Alpha 2 control unit from Möhlenhoff is capable of is able to perform an automatic hydraulic balancing of a heating system (underfloor balanced heating system (underfloor heating)). Alpha 2 by Möhlenhoff is thus at least equivalent to the conventional hydraulic balancing. The basis for this is the report Validation of the automatic hydraulic balancing with the individual room control system Alpha 2 from 18.12.2019 with the summarized results

- Optimized adapted controller behavior
- Transition heating to night setback
- disturbance variables
- Automatic adaptation of the system conditions regarding heating up

The validation of the method was carried out by means of a supervised practical test in an arrangement of four heated rooms for an existing hydraulic network in a laboratory situation. In addition, a supervised test was carried out under laboratory conditions in the climate room of the Möhlenhoff company.

System used Calibrated measuring device Greisinger GMH 3700 (4-P70-00-187) with sensor GTF 401 (4-P70-00-187-1)

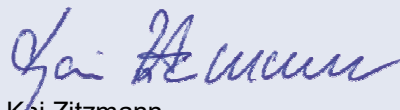
- Testconfiguration Alpha 2 system:
- Software environments DIAdem / IP-Symcon
- Room control unit RDF 64202-01 with FW 2.10
- Base station BSF 20120-04 with FW 2.17 (control algorithm A2_PWM_0210)
- Thermal actuator A5
- Further calibrated and adjusted devices and sensors

Test basis Measurements under real conditions in an office building
Laboratory building of the Möhlenhoff company

Valid from 18.12.2021

Valid until 17.12.2022

Changes to the control algorithm affecting the certification content require a new certification.



Nuremberg, 18.12.2021 Kai Zitzmann
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