

Certificate **Alpha Smartware - 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 (underfloor heating) for heating four real rooms. The heating system was not hydraulically balanced at the beginning of the test.

Registration no. **268424846**

Certificate holder **Möhlenhoff GmbH
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TÜV Rheinland confirms that the control algorithm "A2_PWM_0210" of the individual room control system Alpha Smartware by Möhlenhoff is capable of performing an automatic hydraulic balancing on an unbalanced heating system with floor heating. Thus, the control algorithm A2_PWM_0210 integrated in the Alpha Smartware system by Möhlenhoff is 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 Smartware from 03.01.2022, with the summarized results

- Optimized adapted controller behavior
- Transition to heating after night setback at least as even as with conventional hydraulic balancing and actuators
- Automatic adaptation of the system conditions with regard to heating

Validation of the method was performed using a supervised field test in an arrangement of four heated rooms for an existing hydraulic network in an existing building.

System used Möhlenhoff Alpha 2 for recording the actual and setpoint temperatures
Test configuration Alpha Smartware System:

- RDS 61011-N7 Alpha Smartware room control unit display, neutral with FW 2.10
- BSS 21001-10N2 Alpha Smartware base station 230 V with 10 zones, neutral with FW 2.17 a (control algorithm A2_PWM_0210)
- Thermal actuator A5

Test basis Measurements under real conditions in a residential building

Valid from 03.01.2022

Valid until 02.01.2023

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

Nuremberg, 03.01.2022 Kai Zitzmann

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