

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-K-15082-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 20.10.2020

Date of issue: 20.10.2020

Holder of certificate:

Borgwaldt KC GmbH
Schnackenburgallee 15, 22525 Hamburg

Calibration in the fields:

Fluid Quantities

- **Gas flow rate**

The calibration laboratory is permitted, without being required to inform and obtain prior approval from DAkKS, to use calibration standards or equivalent calibration procedures listed here with different issue dates. The calibration laboratory maintains a current list of all calibration standards/ equivalent calibration procedures within the flexible scope of accreditation.

The management system requirements in DIN EN ISO/IEC 17025 are written in language relevant to operations of calibration laboratories and operate generally in accordance with the principles of DIN EN ISO 9001.

*The certificate together with its annex reflects the status at the time of the date of issue. The current status of the scope of accreditation can be found in the database of accredited bodies of Deutsche Akkreditierungsstelle GmbH.
<https://www.dakks.de/en/content/accredited-bodies-dakks>*

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

| Measurement quantity / Calibration item | Range | Measurement conditions / procedure | Expanded uncertainty of measurement ¹⁾ | Remarks |
|---|-----------------------------|------------------------------------|---|---|
| Fluid quantities Pressure drop transfer standards | 17 mL/s to 18 mL/s | ISO 6565:2015 Annex A | 0,1 % | Measuring medium: Ambient air as per ISO 3402 Pressure drop: 0,4 kPa to 13,0 kPa with measurement uncertainty of $U = 0,5$ % 0,1 kPa to 0,39 kPa with measurement uncertainty of $U = 0,6$ % |
| Air permeability standards | 5 mL/min to 14,9 mL/min | ISO 2965:2019 Annex B | 1,0 % | Measuring medium: Ambient air as per ISO 3402 |
| | 15,0 mL/min to 48000 mL/min | | 0,5 % | |
| Laminar flow elements (LFE) as per ISO 7210 paragraph 5.2.4 | 17 mL/min to 18 mL/min | ISO 6565:2015 Annex A | 0,1 % | Measuring medium: air as per ISO 3402 no compensation to standard ambient conditions Pressure drop of LFE: 80 Pa to 500 Pa with measurement uncertainty of $U = 1,0$ % For integrated pressure resistance of LFE refer to "Pressure drop transfer standards" |
| Pressure resistors (bubble-adapter) as per ISO 4387 paragraph 7.6.3.4 ISO 20778 paragraph 4.2 or 5.33 (2 kPa) ISO 20779 paragraph 7.7.3.4 ISO 20768 paragraph 4.2 or 5.3.3 (3 kPa) | 17 mL/s to 18 mL/s | ISO 6565:2015 Annex A | 0,1 % | Measuring medium: air as per ISO 3402 no compensation to standard ambient conditions Pressure drop of bubble-adapter: 0,1 kPa to 13,0 kPa with measurement uncertainty of $U = 1,0$ % |

¹⁾ The expanded uncertainties according to EA-4/02 M:2013 are part of CMC and are the best measurement uncertainties within accreditation. They have a coverage probability of approximately 95 % and have a coverage factor of $k = 2$ unless stated otherwise. Uncertainties without unit are relative uncertainties referring to the measurement value unless stated otherwise.

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

| Measurement quantity / Calibration item | Range | Measurement conditions / procedure | Expanded uncertainty of measurement ¹⁾ | Remarks |
|---|------------------------------|--|---|--|
| Pressure resistors (bubble-adapter) as per ISO/DIS 22486 paragraph 4.5 or paragraph 6.3.3 | 11600 mL/min to 13000 mL/min | ISO 6565:2015 Annex A (Exception flow velocity see range) | 0,5 % | Measuring medium: Ambient air as per ISO 3402 no compensation to standard ambient conditions Pressure drop of bubble-adapter: 0,1 kPa to 13,0 kPa with measurement uncertainty of $U= 1,0 \%$; |
| Ventilation standard as per ISO 9512 Anhang A | 2 mL/s to 20 mL/s | ISO 9512:2019 Annex A | 0,15 mL/s | Measuring medium: Ambient air as per ISO 3402 degree of ventilation 12 % to 100 % with measurement uncertainty $U= 1,0\%$ ventilation |

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