

# Deutsche Akkreditierungsstelle

## Annex to the Partial Accreditation Certificate D-K-15118-01-02 according to DIN EN ISO/IEC 17025:2018

**Valid from:** 10.07.2023

**Date of issue:** 10.07.2023

This annex is a part of the accreditation certificate D-K-15118-01-00.

Holder of partial accreditation certificate:

**Kessler QMP GmbH**  
**Nisterberger Weg 16, 57520 Friedewald**

The calibration laboratory meets the requirements of DIN EN ISO/IEC 17025:2018 to carry out the conformity assessment activities listed in this annex. The calibration laboratory meets additional legal and normative requirements, if applicable, including those in relevant sectoral schemes, provided that these are explicitly confirmed below.

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

Calibrations in the fields:

### **Mechanical quantities**

- **Force**
- **Weighing instruments** <sup>a)</sup>
- **Torque** <sup>a), b)</sup>
- **Pressure** <sup>a), b)</sup>

### **Thermodynamic quantities**

#### **Temperature quantities**

- **Direct reading thermometers**

<sup>a)</sup> also on-site-calibration

<sup>b)</sup> also calibration in the mobile laboratory

*This certificate annex is only valid together with the written accreditation certificate and reflects the status as indicated by the date of issue. The current status of any given scope of accreditation can be found in the directory of accredited bodies maintained by Deutsche Akkreditierungsstelle GmbH at <https://www.dakks.de>.*

Abbreviations used: see last page

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**This document is a translation. The definitive version is the original German annex to the accreditation certificate.**

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**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.**

**Permanent Laboratory**

**Calibration and Measurement Capabilities (CMC)**

| Measurement quantity / Calibration item                         | Range                  | Measurement conditions / procedure                                    | Expanded uncertainty of measurement <sup>1</sup>     | Remarks  |
|---|------------------------|---|--|--|
| <b>Force</b><br>Force measuring devices                         | 0.1 kN to 50 kN        | DKD-R 3-3:2018  | $1 \cdot 10^{-3}$                                    | Compression and tension force  |
| <b>Torque</b><br>Hand torque tools setting and indicating types | 0.1 N·m to 3 kN·m      | DIN EN ISO 6789-2:2017  | $5 \cdot 10^{-3}$                                    |  |
| Torque measuring devices, torque measuring chain                | 0.1 N·m to 10 N·m      | DIN 51309:2022  | $2 \cdot 10^{-3}$                                    |  |
|   | > 10 N·m to 5 kN·m     |   | $8 \cdot 10^{-4}$                                    |  |
| Torque wrench calibration devices                               | 1 N·m to 10 N·m        | DKD-R 10-8:2020   | $6 \cdot 10^{-3}$                                    |  |
|   | > 10 N·m to 3 kN·m     |   | $2 \cdot 10^{-3}$                                    |  |
| <b>Pressure</b><br>Absolute pressure $p_{abs}$                  | 0.7 bar to 1.1 bar     | DKD-R 6-1:2014<br>Method of calibration:<br>$p_{abs} = p_e + p_{amb}$ | 1.5 mbar   | Pressure medium : gas<br>The measurement uncertainty of the barometer $U_{baro}$ is taken into account                                   |
|   | > 1.1 bar to 201 bar   |   | 10 mbar  |  |
| Positive gauge pressure $p_e$                                   | 0 bar to 200 bar       | DKD-R 6-1:2014  | 10 mbar  | Pressure medium : gas  |
| Absolute pressure $p_{abs}$                                     | 1 bar to 101 bar       | DKD-R 6-1:2014<br>Method of calibration:<br>$p_{abs} = p_e + p_{amb}$ | $3.1 \cdot 10^{-3} \cdot p_{abs} + 0.01 \text{ bar}$ | Pressure medium: oil<br>$p_{amb}$ = barometric pressure<br>The measurement uncertainty of the barometer $U_{baro}$ is taken into account |
|   | > 101 bar to 1001 bar  |   | $2.9 \cdot 10^{-3} \cdot p_{abs} + 0.07 \text{ bar}$ |  |
|   | > 1001 bar to 7001 bar |   | $2.7 \cdot 10^{-3} \cdot p_{abs} + 0.8 \text{ bar}$  |  |
| Positive gauge pressure $p_e$                                   | 0 bar to 100 bar       | DKD-R 6-1:2014  | $3.1 \cdot 10^{-3} \cdot p_e + 0.01 \text{ bar}$     | Pressure medium: oil   |
|   | > 100 bar to 1000 bar  |   | $2.9 \cdot 10^{-3} \cdot p_e + 0.07 \text{ bar}$     |  |
|   | > 1000 bar to 7000 bar |   | $2.7 \cdot 10^{-3} \cdot p_e + 0.8 \text{ bar}$      |  |

<sup>1</sup> Unless otherwise specified, the unit of a variable corresponds to the unit of the measuring range.

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**Permanent Laboratory**
**Calibration and Measurement Capabilities (CMC)**

| Measurement quantity / Calibration item                               | Range              | Measurement conditions / procedure | Expanded uncertainty of measurement <sup>1</sup> | Remarks  |
|---|--------------------|------------------------------------|--|--|
| <b>Weighing instruments</b><br>Non-automatic weighing instruments     | to 30 kg           | EURAMET cg 18 version 4.0          | $1.3 \cdot 10^{-6}$                              | with weights<br>OIML R 111-1:2004<br>according to class E2 |
|   | to 100 kg          |                                    | $6.6 \cdot 10^{-5}$                              | with weights<br>OIML R 111-1:2004<br>according to class M1 |
| <b>Temperature quantities</b><br>Direct reading thermometers with RTD | 0 °C to 200 °C     | DKD-R 5-1:2018                     | 0.25 K   |  |
|   | > 200 °C to 400 °C |                                    | 0.4 K  |  |
| Direct reading thermometers with thermocouple                         | 0 °C to 200 °C     | DKD-R 5-3:2018                     | 0.4 K  |  |
|   | > 200 °C to 400 °C |                                    | 0.5 K  |  |

**On-Site-Calibration**
**Calibration and Measurement Capabilities (CMC)**

| Measurement quantity / Calibration item            | Range                  | Measurement conditions / procedure                                    | Expanded uncertainty of measurement <sup>1</sup>     | Remarks  |
|--|------------------------|---|--|--|
| <b>Torque</b><br>Torque wrench calibration devices | 1 N·m to 10 N·m        | DKD-R 10-8:2020   | $6 \cdot 10^{-3}$                                    |  |
|  | > 10 N·m to 3 kN·m     |   | $2 \cdot 10^{-3}$                                    |  |
| Hand torque tools setting and indicating types     | 0.1 N·m to 1 kN·m      | DIN EN ISO 6789-2:2017  | $5 \cdot 10^{-3}$                                    |  |
| <b>Pressure</b><br>Absolute pressure $p_{abs}$     | 0.7 bar to 1.1 bar     | DKD-R 6-1:2014<br>Method of calibration:<br>$p_{abs} = p_e + p_{amb}$ | 1.5 mbar   | Pressure medium: gas<br>The measurement uncertainty of the barometer $U_{baro}$ is taken into account                                    |
|  | > 1.1 bar to 201 bar   |   | 10 mbar  |  |
| Positive gauge pressure $p_e$                      | 0 bar to 200 bar       | DKD-R 6-1:2014  | 10 mbar  | Pressure medium: gas   |
| Absolute pressure $p_{abs}$                        | 1 bar to 101 bar       | DKD-R 6-1:2014<br>Method of calibration:<br>$p_{abs} = p_e + p_{amb}$ | $3.1 \cdot 10^{-3} \cdot p_{abs} + 0.01 \text{ bar}$ | Pressure medium: oil<br>$p_{amb}$ = barometric pressure<br>The measurement uncertainty of the barometer $U_{baro}$ is taken into account |
|  | > 101 bar to 1001 bar  |   | $2.9 \cdot 10^{-3} \cdot p_{abs} + 0.07 \text{ bar}$ |  |
|  | > 1001 bar to 7001 bar |   | $2.7 \cdot 10^{-3} \cdot p_{abs} + 0.8 \text{ bar}$  |  |
| Positive gauge pressure $p_e$                      | 0 bar to 100 bar       | DKD-R 6-1:2014  | $3.1 \cdot 10^{-3} \cdot p_e + 0.01 \text{ bar}$     | Pressure medium: oil   |
|  | > 100 bar to 1000 bar  |   | $2.9 \cdot 10^{-3} \cdot p_e + 0.07 \text{ bar}$     |  |
|  | > 1000 bar to 7000 bar |   | $2.7 \cdot 10^{-3} \cdot p_e + 0.8 \text{ bar}$      |  |

<sup>1</sup> Unless otherwise specified, the unit of a variable corresponds to the unit of the measuring range.

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**On-Site-Calibration**

Calibration and Measurement Capabilities (CMC)

| Measurement quantity / Calibration item                               | Range     | Measurement conditions / procedure | Expanded uncertainty of measurement <sup>1</sup> | Remarks  |
|---|-----------|------------------------------------|--|--|
| <b>Weighing instruments</b><br><br>Non-automatic weighing instruments | to 30 kg  | EURAMET cg 18 version 4.0          | 1.3 · 10 <sup>-6</sup>                           | with weights<br>OIML R 111-1:2004<br>according to class E2 |
|   | to 100 kg |                                    | 6.6 · 10 <sup>-5</sup>                           | with weights<br>OIML R 111-1:2004<br>according to class M1 |

**Mobile Laboratory**

Calibration and Measurement Capabilities (CMC)

| Measurement quantity / Calibration item            | Range                  | Measurement conditions / procedure                                    | Expanded uncertainty of measurement <sup>1</sup> | Remarks  |
|--|------------------------|---|--|--|
| <b>Pressure</b><br>Absolute pressure $p_{abs}$     | 0.7 bar to 1.1 bar     | DKD-R 6-1:2014<br>Method of calibration:<br>$p_{abs} = p_e + p_{amb}$ | 1.5 mbar   | Pressure medium : gas<br>The measurement uncertainty of the barometer $U_{baro}$ is taken into account                                   |
|  | > 1.1 bar to 201 bar   |   | 10 mbar  |  |
| Positive gauge pressure $p_e$                      | 0 bar to 200 bar       | DKD-R 6-1:2014  | 10 mbar  | Pressure medium : gas  |
| Absolute pressure $p_{abs}$                        | 1 bar to 101 bar       | DKD-R 6-1:2014<br>Method of calibration:<br>$p_{abs} = p_e + p_{amb}$ | $3.1 \cdot 10^{-3} \cdot p_{abs} + 0.01$ bar     | Pressure medium: oil<br>$p_{amb}$ = barometric pressure<br>The measurement uncertainty of the barometer $U_{baro}$ is taken into account |
|  | > 101 bar to 1001 bar  |   | $2.9 \cdot 10^{-3} \cdot p_{abs} + 0.07$ bar     |  |
|  | > 1001 bar to 7001 bar |   | $2.7 \cdot 10^{-3} \cdot p_{abs} + 0.8$ bar      |  |
| Positive gauge pressure $p_e$                      | 0 bar to 100 bar       | DKD-R 6-1:2014  | $3.1 \cdot 10^{-3} \cdot p_e + 0.01$ bar         | Pressure medium: oil   |
|  | > 100 bar to 1000 bar  |   | $2.9 \cdot 10^{-3} \cdot p_e + 0.07$ bar         |  |
|  | > 1000 bar to 7000 bar |   | $2.7 \cdot 10^{-3} \cdot p_e + 0.8$ bar          |  |
| <b>Torque</b><br>Torque wrench calibration devices | 1 N·m to 10 N·m        | DKD-R 10-8:2020   | $6 \cdot 10^{-3}$                                |  |
|  | > 10 N·m to 3 kN·m     |   | $2 \cdot 10^{-3}$                                |  |
| Hand torque tools setting and indicating types     | 0.1 N·m to 1 kN·m      | DIN EN ISO 6789-2:2017  | $5 \cdot 10^{-3}$                                |  |

<sup>1</sup> Unless otherwise specified, the unit of a variable corresponds to the unit of the measuring range.

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**Abbreviations used:**

|         |   |
|---------|---|
| CMC     | Calibration and measurement capabilities  |
| DIN     | Deutsches Institut für Normung e.V.   |
| DKD-R   | Guideline of Deutscher Kalibrierdienst,<br>published by Physikalisch-Technische Bundesanstalt |
| EURAMET | European Association of National Metrology Institutes   |

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