

Annex to declaration of accreditation (scope of accreditation)
 Normative document: EN ISO/IEC 17025:2017
 Registration number: **K 149**

of **TPF Control B.V.**

This annex is valid from: **22-07-2020 to 01-12-2021** Replaces annex dated: **08-01-2020**
Prolonged until 01-03-2022

Location(s) where activities are performed under accreditation

Head Office

Van Heemstraweg 19
 6657 KD
 Boven-Leeuwen
 The Netherlands

| Location | Abbreviation/ location code |
|---|-----------------------------|
| Van Heemstraweg 19 6657 KD Boven-Leeuwen The Netherlands | BL |
| On-site at the customer | CU |

| HCS code | Measured quantity, Instrument, Measure | Range | CMC ¹ | Remarks | Location |
|----------|--|-------------------------------|------------------|---------|----------|
| FG 1 0 | FLOW OF GAS | | | | |
| FG 1 0 | Gas flow rate | 0.5 – 5 ml/min | 0.60 % | | BL |
| | | 5 – 50 000 ml/min | 0.18 % | | |
| | | 0.5 – 2 500 m ³ /h | 0.25% | | |
| FG 1 0 | Gas flow rate | 5 – 50 000 ml/min | 0.27% | | CU |
| | | 3 – 1 000 m ³ /h | 0.35% | | |

¹ Calibration and Measurement Capability (CMC): Demonstrated measurement uncertainty, with coverage probability of 95%, in a given measurement point or measurement range. Measurement uncertainty, *U*, is calculated according to EA-4/02 "Evaluation of the Uncertainty of Measurement in Calibration".

This annex has been approved by the Board of the Dutch Accreditation Council, on its behalf,

J.A.W.M. de Haas

of **TPF Control B.V.**

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| HCS code | Measured quantity, Instrument, Measure | Range | CMC ¹ | Remarks | Location |
|----------|--|--|---|-----------------------------|----------|
| FG 1 1 | Gas mass flow rate | 0.5 – 5 ml _n /min | 0.60 % | | BL |
| | | 5 – 50 000 ml _n /min | 0.18 % | | |
| | | 0.5 – 2 500 m ³ _n /h | 0.25 % | | |
| FG 1 1 | Gas mass flow rate | 5 – 100 000 ml _n /min | 0.15% | Viscous seal piston provers | BL |
| FG 1 1 | Gas mass flow rate | 5 – 50 000 ml _n /min | 0.27% | | CU |
| | | 3 – 1 000 m ³ _n /h | 0.35% | | |
| TE 0 0 | TEMPERATURE | | | | |
| TE 4 0 | Self-indicating thermometers | -80 °C to -40 °C | 0.1 °C | Using dry block furnace | BL |
| | | 140 °C to 400 °C | 0.2 °C | Using dry block furnace | |
| | | -40 °C to 140 °C | 0.015 °C | Using oil bath | |
| | | 0 °C to 50 °C | 0.2 °C | In air | |
| RH 0 0 | HUMIDITY | | | | |
| RH 1 0 | Hygrometers | 10 %rh to 95 %rh | 1.7 %rh | 20 °C – 55 °C | BL |
| PV 0 0 | PRESSURE AND VACUUM | | | | |
| PV 1 0 | GAS PRESSURE | | | | |
| PV 1 1 | Absolute pressure | 0.2 kPa to 1 000 kPa | $0.7 \cdot 10^{-3} \cdot p + 25 \text{ Pa}$ | | BL |
| PV 1 1 | Absolute pressure | 50 to 115 kPa | $1.7 \cdot 10^{-4} \cdot p$ | | BL |
| PV 1 2 | Gauge pressure | -95 kPa to 1 000 kPa | $0.7 \cdot 10^{-3} \cdot p_e + 25 \text{ Pa}$ | | BL |

Remarks:

- Calibration and Measurement Capability (CMC): Demonstrated measurement uncertainty, with coverage probability of 95%, in a given measurement point or measurement range
- Measurement uncertainty, U, is calculated according to EA-4/02 "Evaluation of the Uncertainty of Measurement in Calibration".
- The flow units ml_n/min and m³_n/h refer to gases under normal (n) conditions of 1013.25 mbar and 0 °C.
- The flow units ml/min and m³/h refer to gases under actual (flowing or line) conditions.
- Fixed normal densities ρ_n [kg/m³] are used to convert from the flow unit [l_n/min] to the mass flow unit [g/h].
- Densities according to NEN-EN-ISO 6976-2016.