

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-K-19206-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 30.04.2020

Date of issue: 30.04.2020

Holder of certificate:

Vier Gas Services GmbH & Co. KG
pigsar
Halterner Straße 125, 46284 Dorsten

Calibration in the fields:

Fluid quantities

- **Gas flow rate**
- **Mass of flowing gases**
- **Volume of flowing gases**

Abbreviations used: see last page

*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>*

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Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement ¹⁾	Remarks
Fluid quantities	8 m ³ /h to < 9 m ³ /h	turbine gas meter G100 to G1000, rotary piston gas meter G160	0,16 %	
Volume flow rate Q _v respectively volume of flowing gases (high-pressure natural gas, 15 bar to 55 bar)	9 m ³ /h to < 12 m ³ /h		0,15 %	
	12 m ³ /h to < 19 m ³ /h		0,14 %	
	19 m ³ /h to < 1850 m ³ /h		0,13 %	
	1850 m ³ /h to 7200 m ³ /h		0,14 %	
Mass flow rate Q _M respectively mass of flowing gases (high-pressure natural gas, 15 bar to 55 bar)	100 kg/h to 3·10 ⁵ kg/h	turbine gas meter G100 to G1000, rotary piston gas meter G160 process gas chromatograph, at Q _v :		Mass flow rate depends on volume flow rate and density
		8 m ³ /h bis < 9 m ³ /h	0,26 %	
		9 m ³ /h bis < 12 m ³ /h	0,25 %	
		12 m ³ /h bis 7200 m ³ /h	0,24 %	
Discharge Coefficient C pressure differential device (high-pressure natural gas, 15 bar to 55 bar)	0,5 to 1,3	Turbine gas meter G100 to G1000, rotary piston gas meter G160 process gas chromatograph Q _v : 8 m ³ /h to 7200 m ³ /h Δp: 10 mbar to 2500 mbar	0,2 %	Discharge coefficient C determined according to ISO 5167:2003 Δp: differential pressure of pressure differential device

Abbreviations used:

CMC Calibration and measurement capabilities

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.