

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-K-17720-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 13.07.2020

Date of issue: 13.07.2020

Holder of certificate:

ROTA YOKOGAWA GmbH & Co KG
Rheinstraße 8, 79664 Wehr

Calibration in the fields:

Mechanical quantities

Fluid quantities

- **Liquid flow rate**
- **Volume of flowing liquids**
- **Mass of flowing liquids**

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>*

Annex to the accreditation certificate D-K-17720-01-00

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement ¹⁾	Remarks	
Mass <i>m</i> of flowing liquids	0.5 kg to 1 kg	static weighing method with standing start/stop	0.05 %	Liquid to be measured: Water with a temperature of $\theta = 10\text{ °C}$ to 40 °C	
	8 kg to 16 kg				
	2.2 kg to 2.5 t	dynamic weighing method with flying start/stop	0.05 %		
	0.02 kg to 250 kg	Master meter method	0.5 %		Liquid to be measured: See above Master meter: Coriolis flowmeter
	0.2 kg to 450 t	Master meter method	0.5 %		Liquid to be measured: See above Master meter: Electromagnetic flowmeter Conversion by using density
	6 kg to 15000 kg	static weighing method with standing start/stop	0.025 %		Liquid to be measured: Water with a temperature of $\theta = 18\text{ °C}$ to 28 °C
	2 kg to 166 t	Master meter method	0.06 %		Master meter: Coriolis flowmeter
Liquid flow rate Mass flow rate dm/dt	2 kg/h to 1 t/h	static weighing method with standing start/stop	0.05 %	Liquid to be measured: Water with a temperature of $\theta = 10\text{ °C}$ to 40 °C	
	4 kg/h to 300 t/h	dynamic weighing method with flying start/stop	0.05 %		
	2 kg/h to 1 t/h	Master meter method	0.5 %	Liquid to be measured: See above Master meter: Coriolis flowmeter	
	20 kg/h to 900 t/h	Master meter method	0.5 %	Liquid to be measured: See above Master meter: Electromagnetic flowmeter Conversion by using density	

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.

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Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement ¹⁾	Remarks
Liquid flow rate Mass flow rate dm/dt	24 kg/h to 1200 t/h	static weighing method with standing start/stop	0.025 %	Liquid to be measured: Water with a temperature of $\theta = 18\text{ °C}$ to 28 °C
	60 kg/h to 1200 t/h	Master meter method	0.06 %	Master meter: Coriolis flowmeter
Volume V of flowing liquids	0.5 L to 1 L	static weighing method with standing start/stop	0.07 %	Liquid to be measured: Water with a temperature of $\theta = 10\text{ °C}$ to 40 °C ; Conversion by using density
	8 L to 16 L			
	2.2 L to 2.5 m ³	dynamic weighing method with flying start/stop	0.07 %	
	0.02 L to 250 l	Master meter method	0.5 %	Liquid to be measured: See above Master meter: Coriolis flowmeter Conversion by using density
	0.2 L to 450 m ³	Master meter method	0.5 %	Liquid to be measured: See above Master meter: Electromagnetic flowmeter
	6 L to 15000 L	static weighing method with standing start/stop	0.03 %	Liquid to be measured: Water with a temperature of $\theta = 18\text{ °C}$ to 28 °C
	2 L to 166 m ³	Master meter method	0.06 %	Master meter: Coriolis flowmeter Conversion by using density

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Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement ¹⁾	Remarks
Volume flow rate dV/dt of flowing liquids	2 L/h to 1 m ³ /h	static weighing method with standing start/stop	0.07 %	Liquid to be measured: Water with a temperature of $\theta = 10\text{ °C}$ to 40 °C
	4 L/h to 300 m ³ /h	dynamic weighing method with flying start/stop	0.07 %	
	2 L/h to 1 m ³ /h	Master meter method	0,5 %	Liquid to be measured: See above Master meter: Coriolis flowmeter Conversion by using density
	20 L/h to 900 m ³ /h	Master meter method	0.5 %	Liquid to be measured: See above Master meter: Electromagnetic flowmeter
	24 L/h to 1200 m ³ /h	static weighing method with standing start/stop	0.03 %	Liquid to be measured: Water with a temperature of $\theta = 18\text{ °C}$ to 28 °C Master meter: Coriolis flowmeter Conversion by using density
	60 L/h to 1200 m ³ /h	Master meter method	0.06 %	

Abbreviations used:

CMC Calibration and measurement capabilities (Kalibrier- und Messmöglichkeiten)

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.