Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-K-20451-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: **04.12.2020**

Date of issue 04.12.2020

Holder of certificate:

Minebea Intec Bovenden GmbH & Co. KG
Leinetal 2, 37120 Bovenden

Calibration in the fields:

mechanical quantities
- Weighing instruments [a)]
- mass (weights) [b)]

[a)] only on-site-calibrations
[b)] also on-site-calibrations

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 of DIN EN ISO/IEC 17025 are written in the language relevant to the operations of calibration laboratories. Laboratories that conform to the requirements of this standard, operate generally in accordance with the principles of DIN EN ISO 9001.

The certificate together with the annex reflects the status as indicated by the date of issue.
The current status of any given scope of accreditation may be found respectively in the database of accredited bodies of Deutsche Akkreditierungsstelle GmbH https://www.dakks.de/en/content/accredited-bodies-dakks.

Abbreviations used: see last page

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement [1)]	Remarks
Masse Conventional mass / Mass standards	1 mg	OIML R 111-1: 2004	$6{,}0 \cdot 10^{-2}$ mg	**for fixed nominal values**
	2 mg		$6{,}0 \cdot 10^{-2}$ mg	
	5 mg		$6{,}0 \cdot 10^{-2}$ mg	
	10 mg		$8{,}0 \cdot 10^{-2}$ mg	
	20 mg		$1{,}0 \cdot 10^{-1}$ mg	for weight pieces according to OIML R 111-1: 2004 to the class M_1
	50 mg		$1{,}2 \cdot 10^{-1}$ mg	
	100 mg		$1{,}6 \cdot 10^{-1}$ mg	
	200 mg		$2{,}0 \cdot 10^{-1}$ mg	
	500 mg		$2{,}5 \cdot 10^{-1}$ mg	
	1 g		0,3 mg	
	2 g		0,4 mg	
	5 g		0,5 mg	
	10 g		0,6 mg	
	20 g		0,8 mg	
	50 g		1,0 mg	
	100 g		1,6 mg	
	200 g		3,0 mg	
	500 g		8,0 mg	
	1 kg		16 mg	
	2 kg		30 mg	
	5 kg		80 mg	
	10 kg		0,16 g	
	20 kg		0,3 g	
	50 kg		0,8 g	
	100 kg		1,6 g	
	200 kg		3,0 g	
	500 kg		8,0 g	
	1000 kg		16 g	

[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.

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range			Measurement conditions / procedure	Expanded uncertainty of measurement [1)]	Remarks
Masse Conventional mass / Mass standards	> 1 mg	to	5 mg	OIML R 111-1: 2004	$6{,}0 \cdot 10^{-2}$ mg	**For free nominal values**
	> 5 mg	to	10 mg		$8{,}0 \cdot 10^{-2}$ mg	
	> 10 mg	to	20 mg		$1{,}0 \cdot 10^{-1}$ mg	
	> 20 mg	to	50 mg		$1{,}2 \cdot 10^{-1}$ mg	
	> 50 mg	to	100 mg		$1{,}6 \cdot 10^{-1}$ mg	
	> 100 mg	to	200 mg		$2{,}0 \cdot 10^{-1}$ mg	
	> 200 mg	to	500 mg		$2{,}5 \cdot 10^{-1}$ mg	
	> 500 mg	to	1 g		0,3 mg	
	> 1g	to	2 g		0,4 mg	
	> 2 g	to	5 g		0,5 mg	
	> 5 g	to	10 g		0,6 mg	
	> 10 g	to	20 g		0,8 mg	
	> 20 g	to	50 g		1,0 mg	
	> 50 g	to	100 g		1,6 mg	
	> 100 g	to	200 g		3,0 mg	
	> 200 g	to	500 g		8,0 mg	
	> 500 g	to	1 kg		16 mg	
	> 1 kg	to	2 kg		30 mg	
	> 2 kg	to	5 kg		80 mg	
	> 5 kg	to	10 kg		0,16 g	
	> 10 kg	to	20 kg		0,3 g	
	> 20 kg	to	50 kg		0,8 g	
	> 50 kg	to	60 kg		0,96 g	
	> 60 kg	to	100 kg		1,6 g	
	> 100 kg	to	200 kg		3,0 g	
	> 200 kg	to	500 kg		8,0 g	
	> 500 kg	to	1000 kg		16 g	

On-site Calibration

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range			Measurement conditions / procedure	Expanded uncertainty of measurement [1)]	Remarks
Weighing instruments nonautomamatic weighing instruments	to	10 kg		EURAMET Calibration Guide No. 18 Version 4.0	$1 \cdot 10^{-6}$	with weights OIML R 111-1: 2004 according to the class E_2
	to	305 kg			$1 \cdot 10^{-5}$	with weights OIML R 111-1: 2004 according to the class F_1
	to	9 000 kg			$1 \cdot 10^{-4}$	with weights OIML R 111-1: 2004 according to the class M_1

[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.

Date of issue: 04.12.2020
Valid from: 04.12.2020

On-site Calibration

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement [1)]	Remarks
Masse Conventional mass / Mass standards	1 g	OIML R 111-1: 2004	0,3 mg	**for fixed nominal values** for weight pieces according to OIML R 111-1: 2004 to the class M_1
	2 g		0,4 mg	
	5 g		0,5 mg	
	10 g		0,6 mg	
	20 g		0,8 mg	
	50 g		1,0 mg	
	100 g		1,6 mg	
	200 g		3,0 mg	
	500 g		8,0 mg	
	1kg		16 mg	
	2 kg		30 mg	
	5 kg		80 mg	
	10 kg		0,16 g	
	20 kg		0,3 g	
	50 kg		0,8 g	
	100 kg		1,6 g	
	200 kg		3,0 g	
	500 kg		8,0 g	
	1 000 kg		16 g	
Masse Conventional mass / Mass standards	> 1 g to 2 g	OIML R 111-1: 2004	0,4 mg	**For free nominal values**
	> 2 g to 5 g		0,5 mg	
	> 5 g to 10 g		0,6 mg	
	> 10 g to 20 g		0,8 mg	
	> 20 g to 50 g		1,0 mg	
	> 50 g to 100 g		1,6 mg	
	> 100 g to 200 g		3,0 mg	
	> 200 g to 500 g		8,0 mg	
	> 500 g to 1 kg		16 mg	
	> 1kg to 2 kg		30 mg	
	> 2 kg to 5 kg		80 mg	
	> 5 kg to 10 kg		0,16 g	
	> 10 kg to 20 kg		0,3 g	
	> 20 kg to 50 kg		0,8 g	
	> 50 kg to 60 kg		0,96 g	
	> 60 kg to 100 kg		1,6 g	
	> 100 kg to 200 kg		3,0 g	
	> 200 kg to 500 kg		8,0 g	
	> 500 kg to 1 000 kg		16 g	

Abbreviations used:

CMC	Calibration and measurement capabilities (Calibration and measurement options)
EURAMET	European Association of National Metrology Institutes
OIML	International Organization of Legal Metrology

[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.

Date of issue: 04.12.2020
Valid from: 04.12.2020