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Annex to the Accreditation Certificate D-K-17127-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: **01.09.2021**

Date of issue 01.09.2021

Holder of certificate:

Decom Prüflabor GmbH & Co. KG
Barbarastraße 2a, 24376 Kappeln

Calibration in the fields:

Dimensional quantities
Length
– **Thread**

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 can be found in the directory of accredited bodies maintained by Deutsche Akkreditierungsstelle GmbH at https://www.dakks.de/en/accredited-bodies-search.html.

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
Length Thread gauges (single and multi-start cylindrical external and internal threads with straight flanks, symmetrical and asymmetrical profile)				
External thread	Nominal diameter 1 mm to 300 mm	EURAMET cg-10 v. 2.1, category 1 to 3 VDI/VDE/DGQ 2618 Sheet 4.8:2006-04, Option 1 to Option 5 Three-wire-method (perpendicular to thread axis)		l_F = flank length in mm
Pitch diameter			2.5 µm	
Major diameter			2 µm	
Minor diameter resp. recess diameter			5 µm	
Lead resp. pitch	0.25 mm to 12 mm		1 µm	
Flank angle	≥ 3°		(1.2 + 1 mm / l_F)'; but not smaller than 3'	
Internal thread	Nominal diameter 3 mm to 300 mm	EURAMET cg-10 v. 2.1, category 1 to 3 VDI/VDE/DGQ 2618 Sheet 4.9:2006-04, Option 1 to Option 5 Two-ball-method (perpendicular to thread axis)		
Pitch diameter			2.5 µm	
Major diameter resp. recess diameter			7 µm	
Minor diameter			3.5 µm	
Lead resp. pitch	0.5 mm to 12 mm		1 µm	
Flank angle	≥ 3°		(1.2 + 1 mm / l_F)'; but not smaller than 5'	

[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.

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement [1)]	Remarks
Thread gauges (single and multi-start tapered external and internal threads with straight flanks, symmetrical and asymmetrical profile)				
External thread	Nominal diameter	T.9:2019-08		
Pitch diameter	1 mm to 300 mm	Two-wire-method (inclined to the thread axis)	2.5 µm	
Major diameter			2 µm	
Minor diameter resp. recess diameter			5 µm	
Lead resp. pitch	0.25 mm to 12 mm		1 µm	
Flank angle	≥ 3°		(1.2 + 1 mm / l_F)'; but not smaller than 3'	l_F = flank length in mm
Internal thread	Nominal diameter	T.10:2019-08		
Pitch diameter	3 mm to 300 mm	Four-ball-method (perpendicular to thread generatrix)	2.5 µm	
Major diameter resp. recess diameter			7 µm	
Minor diameter			3.5 µm	
Lead resp. pitch	0.5 mm to 12 mm		1 µm	
Flank angle	≥ 3°		(1.2 + 1 mm / l_F)'; but not smaller than 5'	l_F = flank length in mm

[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.

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measurement quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement [1)]	Remarks
External and internal threads single- and multi-start (1 to 10 threads), cylindrical and tapered, symmetrical and asymmetrical threads within the axial section straight flanks)				
External thread and internal threads	Nominal diameter 3 mm to 450 mm	T.11:2021-01 Spatial Thread Measuring Method (single-ball- or multi-ball-method in respect to a setting mandrel or setting ring using the scanning method, self-centering with a three-coordinate measuring system and turntable).		The individual characteristics of the thread are recorded with a large number of measuring points and the quantities are computed from the measuring points using the "FUNKE" software.
Major diameter for External thread			2.0 µm	
Minor diameter resp. recess diameter for External thread			5.0 µm	
Minor diameter for internal thread			2.0 µm	
Major diameter resp. recess diameter for internal thread			5.0 µm	
Pitch diameter			2.5 µm	Evaluation with „FUNKE“
Lead *Ph*	0.35 mm to 100 mm		1.0 µm	
Total lead deviation *ΔPhΣ*	0.35 mm to 100 mm		1.0 µm	
Pitch *P*	0.70 mm to 50 mm		1.0 µm	
Flank angle *ß*	-15° to 80°		0.87 mrad (3´)	Evaluation with „FUNKE“
Flank angle *γ*	-15° to 80°		0.87 mrad (3´)	
Virtual pitch diameter	Nominal diameter 3 mm to 450 mm		3.5 µm	The virtual pitch diameter simulates a pairing test, similar to the test with Go Thread gauges
Stand-off measurement			10 µm	

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Annex to the accreditation certificate D-K-17127-01-00

Abbreviations used:

CMC	Calibration and measurement capabilities (Kalibrier- und Messmöglichkeiten)
DGQ	Deutsche Gesellschaft für Qualität e.V.
EURAMET	European Association of National Metrology Institutes
T	calibration instruction of the Decom Prüflabor GmbH & Co. KG
VDE	Verband der Elektrotechnik, Elektronik und Informationstechnik e.V.
VDI	Verein Deutscher Ingenieure e.V.

[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.