

SINGAPORE LABORATORY
ACCREDITATION SCHEME



Number : **LA-2002-0265-C-3**

Date of Issue : **23 March 2020**

Date of Expiry : **10 November 2022**

Certificate of Accreditation

This certifies that

Cairnhill Metrology (Phils) Inc
Unit 1504, Prime Land, B6 L5
Market St, Madrigal Business Park
Ayala Alabang, Muntlupa City,
1780 Metro Manila

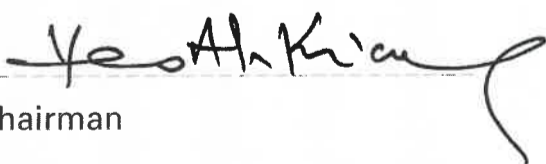
is accredited by the Singapore Accreditation Council to

ISO / IEC 17025 : 2017

for specific scope within the field of

Calibration & Measurement

as detailed in the attached schedule.


Chairman

This Certificate is awarded subject to the organisation's compliance with the stated criteria and terms and conditions laid down by the Singapore Accreditation Council.

This Certificate may not be reproduced except with the written permission of the Chairman.

Schedule

Cairnhill Metrology (Phils) Inc.
Unit 1504, Prime Land Building, B6 L5
Market St. Madrigal Business Park
Ayala Alabang, Muntinlupa City
1780 Philippines

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FIELD OF TESTING : Calibration and Measurement

MEASURED QUANTITIES / RANGE / INSTRUMENTS TO BE CALIBRATED	METHOD OF CALIBRATION / INSTRUMENTS USED	CALIBRATION & MEASUREMENT CAPABILITY (CMC *)
<p>1. Co-ordinate Measuring Machine (Contact Type)</p> <p>(a) Range : $X \leq 650$ mm $Y \leq 500$ mm $Z \leq 450$ mm Resolution : 0.1 to 0.5 μm</p> <p>(b) Range : $X \leq 1000$ mm $Y \leq 1500$ mm $Z \leq 800$ mm Resolution : 0.1 to 0.5 μm</p>	<p>In-house Calibration Procedure (WI 15-05, V7)</p>	<p>1.5 μm</p> <p>2.4 μm</p>
<p>2. Accretech TSK Roundness Measurement Machine Probing diameter up to 450 mm <u>Feature examined</u> Roundness Parallelism</p>	<p>In-house Calibration Procedure (WI 15-01, V7)</p>	<p>0.009 μm 0.2 μm</p>

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MEASURED QUANTITIES / RANGE INSTRUMENT TO BE CALIBRATED	METHOD OF CALIBRATION / INSTRUMENTS USED	CALIBRATION & MEASUREMENT CAPABILITY (CMC *)
<p>3. Accretech TSK Contour Testing Machine Tracing Range X and Z up to 200 mm and 50 mm respectively Resolution : 0.1 to 1 μm</p> <p><u>Feature Examined</u> Profile: Ball Diameter Step Height: Z-Axis</p>	<p>In-house Calibration Procedure (WI 15-02, V7)</p>	<p>0.7 μm 0.7 μm</p>
<p>4. Nikon Measuring Microscope Range X & Y: 300 x 200 mm Resolution : 0.1 μm</p>	<p>In-house Calibration Procedure (WI 15-12, V1)</p>	<p>1.2 μm</p>
<p>5. Nikon Measuring Profile Projector Range X & Y: 200 x 150mm Resolution : 0.1 μm Magnification</p>	<p>In-house Calibration Procedure (WI 15-12, V1)</p>	<p>1.0 μm 0.1%</p>
<p>6. Nikon Optical Non-Contact Coordinate Measuring Machine Range X, Y & Z: 1000 x 800 x 200 mm Resolution : 0.1 μm X & Y-axis Z-axis X-Y Squareness</p>	<p>In-house Calibration Procedure (WI 15-13, V1)</p>	<p>0.7 μm 0.9 μm 0.9 μm</p>
<p>7. Universal Length Microscope Zeiss Jena, OKM and EKM brands Resolution : 0.01 μm Range of Measuring Headstock: X \leq 100 mm</p>	<p>In-house Calibration Procedure (WI 15-08, V7)</p>	<p>0.10 μm</p>

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MEASURED QUANTITIES / RANGE INSTRUMENT TO BE CALIBRATED	METHOD OF CALIBRATION / INSTRUMENTS USED	CALIBRATION & MEASUREMENT CAPABILITY (CMC *)
8. Accretech TSK Surface Roughness Testing Machine (Contact Type) Measuring Range : 80 μm Resolution : 0.001 μm Roughness, Ra	In-house Calibration Procedure (WI 15-03, V7)	0.06 μm
9 Portable Co-ordinate (#) Measuring Machine (Hexagon Absolute RA7 and older) Resolution : 1 μm	In-house Calibration Procedure (WI 15-06, V1) ASME B89.4.22-2004 (R2014)	
(a) Error Indication of Single Point Articulated Test (SPAT) is determined using Steel Trihedral Length Bar		5 μm
(b) Error indication of Volumetric Performance Test is determined using Steel Trihedral Length bar: 1. 185, 390, 580 and 800 mm 2. 220, 410, 610, 805, 1005 and 1200 mm		5 μm
10 Portable Co-ordinate (#) Measuring Machine (Hexagon Absolute RA8 and newer) Resolution : 1 μm	In-house Calibration Procedure (WI 15-18, V1) ISO 10360-12 V2016	
(a) Length measurement error, E_{UNI} , is determined using Silicon Ceramic Cone Bar with the following location: 187, 387, 587, 787, 987, 1187, 1387, 1587, 1787, 1987, 2187, 2387, 2587, 2787 and 2974 mm		$5.0 + (0.0050 * L) \mu\text{m}$ (L in mm)

* CMC is expressed as an expanded uncertainty estimated at a level of confidence of approximately 95 %.

The calibration is performed at the in-house facility of Cairnhill Metrology (Phils) Inc. located at Unit 102, Blk 6, Lot 5, Prime Land, Market St., Madrigal Business Park, Ayala Alabang, Muntinlupa City, 1780 Philippines.

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Approved signatories

Mr Lim Chen Kee	For all accredited items
Mr Loh Kum Seng	For items 1 to 9 only
Mr Lim Seng Hoo	For items 1 to 8 only
Mr Louie B. Eustaquio	For items 2, 3 & 8 only

Note :

This laboratory is accredited in accordance with the recognised International Standard ISO/IEC 17025. A laboratory's fulfilment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and **management system requirements** that are necessary for it to consistently deliver technically valid calibration. The **management system requirements** in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001.