

**SINGAPORE LABORATORY
ACCREDITATION SCHEME**



Number : **LA-2002-0265-C-1**

Date of Issue : **23 March 2020**

Date of Expiry : **10 November 2022**

Certificate of Accreditation

This certifies that

**Cairnhill Metrology Sdn Bhd
18 Jalan Serendah 26/41, Sekitar 26
Seksyen 26, 40400 Shah Alam
Selangor Darul Ehsan, Malaysia**

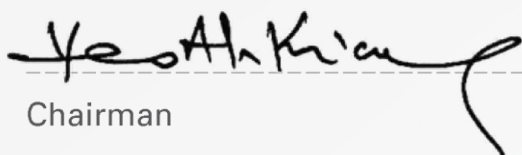
is accredited by the Singapore Accreditation Council to

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 Sdn Bhd
18 Jalan Serendah 26/41, Sekitar 26
Seksyen 26, 40400 Shah Alam
Selangor Darul Ehsan,
Malaysia

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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. Profile Projector Travel 300 mm x 200 mm Resolution: 1 to 5 μm</p> <p>(a) Starrett Measurement Projector</p> <p>(b) Generic Brands</p>	In-house Calibration Procedure (WI 15-10, V7)	2.0 μm
<p>2. Accretech TSK Roundness Measurement Machine Probing diameter up to 450 mm Resolution : 0.0001 μm <u>Features Examined</u> Roundness Parallelism</p>	In-house Calibration Procedure (WI 15-01, V7)	0.009 μm 0.2 μm
<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>	In-house Calibration Procedure (WI 15-02, V7)	0.5 μm 0.5 μm

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MEASURED QUANTITIES / RANGE INSTRUMENT TO BE CALIBRATED	METHOD OF CALIBRATION / INSTRUMENTS USED	CALIBRATION & MEASUREMENT CAPABILITY (CMC *)
4. Accretch TSK Surface Roughness Testing Machine (Contact Type) Measuring Range : 80 μm Resolution: 0.001 μm <u>Feature Examined</u> Roughness, Ra	In-house Calibration Procedure (WI 15-03, V7)	0.06 μm
5. Co-ordinate Measuring Machine (Contact Type)	In-house Calibration Procedure (WI 15-05, V7)	
5a. Accretch TSK Range : X \leq 800 mm Y \leq 1200 mm Z \leq 600 mm Resolution : 0.1 to 0.5 μm		1.3 μm
5b. Carl Zeiss Range : X \leq 1200 mm Y \leq 1200 mm Z \leq 1000 mm Resolution : 0.02 to 1 μm		1.3 μm
5c. Generic Brands Range : X \leq 1200 mm Y \leq 1200 mm Z \leq 1000 mm Resolution : 0.02 to 1 μm		1.3 μm
6. Universal Length Microscope ULM Calibration Range of Measuring Headstock : X \leq 100 mm Resolution : 0.01 μm	In-house Calibration Procedure (WI 15-08, V7)	0.21 μm

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MEASURED QUANTITIES / RANGE INSTRUMENT TO BE CALIBRATED	METHOD OF CALIBRATION / INSTRUMENTS USED	CALIBRATION & MEASUREMENT CAPABILITY (CMC *)																											
<p>7. Optical / Non-Contact Co-ordinate Measuring Machine</p> <p>Starrett Non-Contact CMM Range: X ≤ 350 mm Y ≤ 350 mm Z ≤ 200 mm</p> <p>Resolution: 0.1 to 0.5 μm X and Y- axes Z-axis (For Contact Probe)</p>	In-house Calibration Procedure (WI 15-11, V1)	2.0 μm 1.5 μm																											
<p>8. Weighing Scales</p> <p>Anritsu Checkweigher (Static, On-site)</p> <table border="0"> <thead> <tr> <th><u>Range</u></th> <th><u>Resolution</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>0 to 100 g</td> <td>0.001 g</td> <td>0.010g</td> </tr> <tr> <td>0 to 600 g</td> <td>0.01 g</td> <td>0.02 g</td> </tr> <tr> <td>0 to 3000 g</td> <td>0.1 g</td> <td>0.2 g</td> </tr> <tr> <td>0 to 6000 g</td> <td>0.5 g</td> <td>0.9 g</td> </tr> <tr> <td>0 to 15000 g</td> <td>1 g</td> <td>2 g</td> </tr> <tr> <td>0 to 25000 g</td> <td>2 g</td> <td>3 g</td> </tr> <tr> <td>0 to 35000 g</td> <td>2 g</td> <td>3 g</td> </tr> <tr> <td>0 to 60000 g</td> <td>2 g</td> <td>7 g</td> </tr> </tbody> </table>	<u>Range</u>	<u>Resolution</u>		0 to 100 g	0.001 g	0.010g	0 to 600 g	0.01 g	0.02 g	0 to 3000 g	0.1 g	0.2 g	0 to 6000 g	0.5 g	0.9 g	0 to 15000 g	1 g	2 g	0 to 25000 g	2 g	3 g	0 to 35000 g	2 g	3 g	0 to 60000 g	2 g	7 g	In-house Calibration Procedure (WI 15-16, V1)	
<u>Range</u>	<u>Resolution</u>																												
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* CMC is expressed as an expanded uncertainty estimated at a level of confidence of approximately 95%.

Approved signatories

Mr Lim Seng Hoo For items 1 to 6
 Mr Loh Kum Seng For items 1 to 7
 Mr Wong Kian Wah For items 1 to 6 & 8 only
 Mr Lim Chen Kee For all accredited calibrations

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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 results. 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.