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CERTIFICATE NUMBER : IHER-24-057
CALIBRATION STICKER NO : IHER
HEAD OF LABORATORY : Ip Kok Choy
APPROVED SIGNATORY : Ip Kok Choy (v) / Yogeshwaran ()
ISSUED BY : Unit Test Scientific Sdn Bhd

DATE OF ISSUE : 12 June 2024
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PRO LAB ENGINEERING SERVICES SDN BHD

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Attention : MS IZATUL AZIRA BT YASIP (011-1077 5216)

Calibration Of One Unit, PUSHTON, PSD-S1, Load Cell 3 kN in compression mode.

Method of calibration : BS EN 12390-4:2019 Annex B Method (A) Indicated Force
Machine serial no. : -
Display type : TOUCH SCREEN (DIGITAL)
Capacity : 3 kN
Calibration range : 0.3 kN - 3.0 kN
Calibration device : **Impact Proving Ring (MASTER) 10 kN Serial Number PR 99133**
Due On 11-09-2025 With Certificate Number SST/SA/R/2023I/872 Traceable To SIRIM
CAL, Malaysia

Item's condition when received : Physically in good condition
Item's condition when returned : Serviceable and calibrated

Date of calibration : 11 June 2024
Calibration due date : 11 June 2025
(Requested by customer) The user should be aware that any number of factors may cause this instrument to drift out of calibration before the specified calibration interval has expired.

Room Temp./ RH % Before : 22.2 °C 60 %RH
Room Temp./ RH % After : 21.5 °C 59 %RH

Accordance With Requirement Of BS EN 12390-4:2019 Annex B Load Verification Only.

Approved Signatory



The uncertainties are for a confidence probability of not less than 95%

This certificate is issued in accordance with the conditions of accreditation granted by the Department of Standards Malaysia which has assessed the measurement capability of the laboratory and traceability to recognised national standards and to the units of measurement realised at the corresponding national standards laboratory. Copyright of this certificate is owned by the issuing laboratory and may not be reproduced other than in full except with the prior written approval of the Head of the issuing laboratory.



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CALIBRATION RESULT

The result of the readings are given in following table:

Force kN	Load Cell Reading				Mean kN	SIRIM CAL certificate Div	Difference (kN)	Error %	Repeatability %
	Before Adjustment (kN)	1 kN	2 kN	3 kN					
0.3	0.301	0.301	0.302	0.301	0.301	32.7	0.001	0.004	0.003
0.6	0.601	0.601	0.601	0.602	0.601	65.4	0.001	0.002	0.002
0.9	0.903	0.902	0.902	0.903	0.902	98.1	0.002	0.002	0.001
1.2	1.203	1.201	1.203	1.202	1.202	130.8	0.002	0.002	0.002
1.5	1.503	1.503	1.500	1.501	1.501	163.5	0.001	0.001	0.002
1.8	1.802	1.801	1.803	1.800	1.801	196.2	0.001	0.001	0.002
2.1	2.104	2.102	2.100	2.103	2.102	228.8	0.002	0.001	0.001
2.4	2.403	2.403	2.404	2.401	2.403	261.5	0.003	0.001	0.001
2.7	2.703	2.703	2.704	2.700	2.702	294.2	0.002	0.001	0.001
3.0	3.003	3.003	3.005	3.002	3.003	326.9	0.003	0.001	0.001
0	0.000	0.000	0.000	0.000	0.000	0.0	0.0	0.000	


*All readings of zero force are in kN as observed from the machine.

Notes :

1. BS EN 12390-4:2019 recommends that re-calibration shall be done annually and after relocating the machine, major repair or replacement of any part likely to affect the characteristics of the machine.
2. This machine is classified under Class 1 as it meets the tolerance of percentage error $\pm 1.0\%$ as in BS EN 12390-4:2019 of Table 1.
3. The testing machine are calibrated and valid for the higher range (0.3 kN-3.0 kN)
4. The result stated in the certificates only relate to the value measured at the time of calibration. Any quoted measurement uncertainties will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation and defects in the equipment.
5. The user should determine the suitability of the machine for its intended use.

Witnessed by
Ms Izatul Azira Bt Yasip

Calibrated by


Muhd Khairul Nizam

Approved By


Ip Kok Choy

The expanded uncertainty of the calibration results =

\pm

0.01 kN with coverage factor, $k = 2$.

ACCEPTABLE TO USE



Izatul Azira

**Lab Manager/Approved Signatory
PRO LAB ENGINEERING SERVICES SDN BHD**