



**UNIT TEST SCIENTIFIC SDN. BHD.**  
CO. REG. NO. 198301000261 (95494-A)  
**CALIBRATION CERTIFICATE**



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CERTIFICATE NUMBER : 15635  
CALIBRATION STICKER NO : 15192  
HEAD OF LABORATORY : Ip Kok Choy  
APPROVED SIGNATORY : Ip Kok Choy ( ✓ ) / Yogeshwaran ( )  
ISSUED BY : Unit Test Scientific Sdn Bhd

DATE OF ISSUE : 6 November 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, UNIT TEST, ADS 200/EL, 2000 kN, Motorised Hydraulic Compression Testing Machine Electrical Operated In Compression Mode.

Method of calibration : **BS EN 12390-4:2019**  
Machine serial no. : C214/W20DS-A240501  
Display type : AUTOCON 2000 (DIGITAL)  
Capacity : 2000 kN  
Calibration range : 50 kN - 500 kN  
Calibration device : **VLC-B120 Digital Load Cell 500 kN Serial Number F4000376**  
Due On 16-08-2025 With Certificate Number NMIM -3913-M-23 Traceable To NMIM, Malaysia

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

Date of calibration : 4 November 2024

Calibration due date : -

(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 : 29.7 °C 62 %RH  
Room Temp./ RH % After : 29.1 °C 65 %RH

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

Approved Signatory

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

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### CALIBRATION RESULT

The result of the readings are given in following table:

| Force<br>kN | Before<br>Adjustment<br>(kN) | Device Reading<br>(kN) |       |       |       | NMIM<br>certificate<br>kN | Difference<br>(kN) | Error<br>% | Repeatability<br>% |
|-------------|------------------------------|------------------------|-------|-------|-------|---------------------------|--------------------|------------|--------------------|
|             |                              | 1                      | 2     | 3     | Mean  |                           |                    |            |                    |
| 50          | 48.1                         | 50.3                   | 50.2  | 50.1  | 50.2  | 50.2                      | 0.2                | 0.40       | 0.40               |
| 100         | 97.3                         | 100.1                  | 100.3 | 100.0 | 100.1 | 100.4                     | 0.1                | 0.13       | 0.30               |
| 200         | 195.4                        | 200.2                  | 200.4 | 200.1 | 200.2 | 200.9                     | 0.2                | 0.12       | 0.15               |
| 300         | 289.0                        | 300.4                  | 300.6 | 300.2 | 300.4 | 301.4                     | 0.4                | 0.13       | 0.13               |
| 400         | 397.6                        | 400.6                  | 400.3 | 400.1 | 400.3 | 401.8                     | 0.3                | 0.08       | 0.12               |
| 500         | 493.7                        | 500.5                  | 500.2 | 500.6 | 500.4 | 502.1                     | 0.4                | 0.09       | 0.08               |
| 0           | 0.0                          | 0.0                    | 0.0   | 0.0   | 0.0   | 0                         | 0.0                | 0.00       |                    |

\*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 range (50kN-500kN)
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 Binti Yasip

Calibrated by

Muhd Khairul Nizam

Approved By

Ip Kok Choy

The expanded uncertainty of the calibration results =  $\pm 0.6$  kN with coverage factor,  $k = 2$ .

**ACCEPTABLE TO USE**  
Izatul Azira Binti Yasip  
Lab Manager

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

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