# Certificate of Calibration

| | | |
|---|---|---|
| EQUIPMENT | : | VENTILATORS, INTENSIVE CARE |
| ID CODE | : | PTP00261 |
| MANUFACTURER | : | PURITAN BENNETT |
| MODEL | : | 840 |
| SERIAL No. | : | 3512123690 |
| LOCATION | : | I.C.U |
| SUBMITTED BY | : | PHYATHAI PHAHOLYOTHIN HOSPITAL |
| | | 670/1 Phaholyothin Road, Samsen Nai, Phaya Thai, Bangkok 10400 |
| | | Tel : 02-271-7000 Fax : - |
| CALIBRATED DATE | : | 25 APRIL 2024 |
| ISSUE DATE | : | 3 MAY 2024 |

Performed by : Kanittha. Approved by : ภาวสิน

*KANITTHA SRIPRAPAD* *PHUWASIN YIWKIM*

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**CONDITION OF THIS RESULT OF TEST**

**1. REFERENCE STANDARD INSTRUMENT:**

| MASTER | MANUFACTURER | MODEL | SERIAL NO. | CERTIFICATE NO. | DUE DATE |
|---|---|---|---|---|---|
| Gas Flow Analyzer | Fluke Biomedical | VT650 | 6069725 | 23MD1158 | 27 Aug 2024 |

**2. THIS CERTIFICATION IS TRACEABLE TO :**

- Technology Promotion Association (Thai-Japan)

**3. THIS RESULT OF TEST WAS FOUND ACCURATE AS SHOW ON DATE AND PLACE OF TEST ONLY**

# Calibration Report

| | | | |
|---|---|---|---|
| EQUIPMENT | : | VENTILATORS, INTENSIVE CARE | |
| ID CODE | : | PTP00261 | |
| MANUFACTURER | : | PURITAN BENNETT | |
| MODEL | : | 840 | |
| SERIAL No. | : | 3512123690 | |
| DATE OF CALIBRATION | : | 25 APRIL 2024 | |
| ENVIRONMENT | : | TEMPERATURE | 25 °C |
| | | RELATIVE HUMIDITY | 55 % |

PROCEDURE USED:

This instrument was calibration by comparison with standard

MEASURMENT RESULT:

[/] Without Adjustment [ ] Before Adjustment [ ] After Adjustment

| **TIDAL VOLUME** | | | | |
|---|---|---|---|---|
| UUC* Setting (mL) | Standard Reading (mL) | Error (mL) | % Error (%) | Uncertainty (mL) |
| 400 | 396.70 | -3.30 | -0.83 | ± 14.4000 |
| 600 | 590.43 | -9.57 | -1.60 | ± 21.7874 |
| 800 | 785.78 | -14.23 | -1.78 | ± 28.9875 |

| **BREATH RATE** | | | | |
|---|---|---|---|---|
| UUC* Setting (BPM) | Standard Reading (BPM) | Error (BPM) | % Error (%) | Uncertainty (BPM) |
| 30 | 30.00 | 0.00 | 0.00 | ± 0.3464 |
| 20 | 20.00 | 0.00 | 0.00 | ± 0.2309 |
| 15 | 15.00 | 0.00 | 0.00 | ± 0.1732 |

| **I:E RATIO** | | | | |
|---|---|---|---|---|
| UUC* Setting ((1:x)) | Standard Reading ((1:x)) | Error ((1:x)) | % Error (%) | Uncertainty ((1:x)) |
| 1 | 1.02 | 0.02 | 2.00 | ± 0.0231 |
| 2 | 1.99 | -0.01 | -0.50 | ± 0.0462 |
| 3 | 2.98 | -0.02 | -0.67 | ± 0.0693 |

2301/2 New Petchburi Soi 47 (soonvijai), Bangkapi, Huaykwang, Bangkok 10310
Tel: (66) 2762 4000 Fax: (66) 2762 4072

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ID CODE : PTP00261

SERIAL No. : 3512123690

| **PIP** | | | | |
|---|---|---|---|---|
| UUC* Setting ($cmH_2O$) | Standard Reading ($cmH_2O$) | Error ($cmH_2O$) | % Error (%) | Uncertainty ($cmH_2O$) |
| 20 | 20.02 | 0.02 | 0.10 | ± 0.3200 |
| 30 | 30.19 | 0.19 | 0.63 | ± 0.3200 |
| 40 | 40.37 | 0.37 | 0.92 | ± 0.3200 |

| **PEEP** | | | | |
|---|---|---|---|---|
| UUC* Setting (cmH2O) | Standard Reading (cmH2O) | Error (cmH2O) | % Error (%) | Uncertainty (cmH2O) |
| 5 | 4.97 | -0.03 | -0.60 | ± 0.0577 |
| 10 | 10.06 | 0.06 | 0.60 | ± 0.1155 |
| 15 | 14.99 | -0.01 | -0.07 | ± 0.1732 |

| **% OXYGEN** | | | | |
|---|---|---|---|---|
| UUC* Setting ($\%O_2$) | Standard Reading ($\%O_2$) | Error ($\%O_2$) | % Error (%) | Uncertainty ($\%O_2$) |
| 21 | 21.40 | 0.40 | 1.90 | ± 0.4850 |
| 60 | 59.98 | -0.02 | -0.04 | ± 1.3866 |
| 100 | 99.30 | -0.70 | -0.70 | ± 2.3095 |

**UUC* : Unit Under Calibration**

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k = 2, providing a level of confidence of approximately 95%

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