



# CALIBRATION CERTIFICATE

Number VG 230212

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**Mettler-Toledo S.A.E.**  
Laboratorio de Calibración



## METTLER TOLEDO

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ITEM Piston operated burette

MANUFACTURER Mettler Toledo

MODEL DV 1020

NOMINAL VOLUME 20 ml

IDENTIFICATION B435972442

APPLICANT **METTLER-TOLEDO PAC RIM AG-TAIWAN**  
2F., No 17, Lane 171, Sec. 2 , Jiuzong Rd  
11494 Taipei City Taiwan

Calibration date 23 May 2023

Authorized Signatory

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**Instrument information**

Burette DV 1020  
 Serial number B435972442  
 Nominal volume 20 ml

**Calibration procedure**

Procedure PEC/MTE/22 based to the ISO 8655 norm and the METTLER TOLEDO manuals.  
 The measured volume corresponds with delivered volume (Ex) at the reference temperature of 20 °C.

**Calibration conditions**

Ambient temperature Min. 20,1 °C Max. 20,1 °C  
 Relative humidity 60,2 % Hr  
 Pressure 1010,9 mbar

Maintenance: Before calibration, seals (references 101003 and 25737) and piston have been replaced, and burette glass has been cleaned.

**Traceability**

Standard equipment used  
 Balance BAL01 AT201 - 5 decimal places balance  
 Burette drive VAL-T50 T50  
 Water temperature TER128 0,1 °C resolution  
 Ambient conditions REG02 (air Temp, rH)  
 Class III water 2307309810

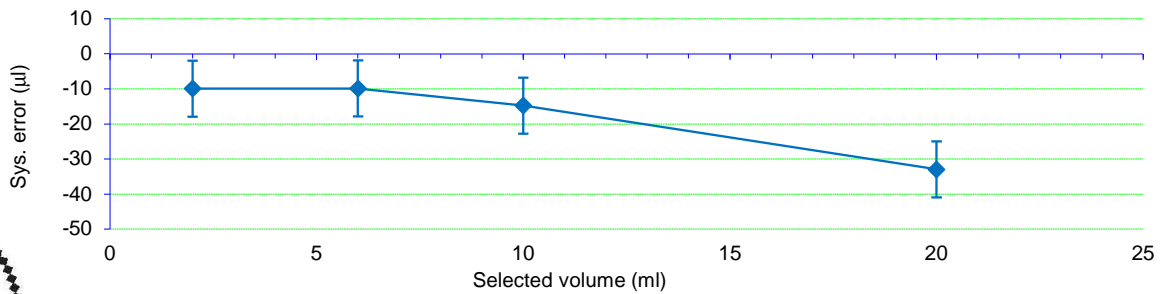
The measured volume has been calculated conform to ISO/TR 20461:2023.  
 The traceability of measurements are referred to laboratories accredited by ILAC signatories accreditation bodies or national laboratories EURAMET signatories.

**Uncertainty**

The reported expanded uncertainty of measurement is stated as the Standard uncertainty of measurement multiplied by the coverage factor k = 2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with document EA-4/02 M: 2022.

**Calibration results (after maintenance)**

Burette stroke	10%	30%	50%	100%	
<b>Selected volume</b>	<b>2</b>	<b>6</b>	<b>10</b>	<b>20</b>	<b>ml</b>
Water temperature	20,5	20,5	20,5	20,5	°C
Measured volume	1990,1	5990,1	9985,2	19967,1	µl
<b>Systematic error</b>	<b>-9,9</b>	<b>-9,9</b>	<b>-14,8</b>	<b>-32,9</b>	<b>µl</b>
Measurement uncertainty	8,0	8,0	8,0	8,0	µl
Random error	0,60	0,61	0,92	0,39	µl
Max. Permissible Sys. Error	40	40	40	40	µl
Max. Permissible Random Error	14	14	14	14	µl
<b>Evaluation*</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	



\* Evaluation and permissible errors from ISO 8655-3:2022. According with this norm, uncertainty is not taken into account.

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Technician: D. Gallardo  
 Remarks: ---