Pipette Accuracy Testers



Are you sure your pipettes are still accurate?



...Clearly a Better Value

A&D Company, Limited

http://www.aandd.jp



With a balance, software, and accessories all in one carrying case, A&D's pipette accuracy tester provides everything you need for easy verification of the accuracies of your pipettes.



- Compliance with ISO8655 or any other specifications based on the "gravimetric method"* *See the last page
- Select from three models covering a wide volumetric range
- Easy test and data management using special WinCT-Pipette software
- Standard liquid thermometer and evaporation trap to ensure as precise measurements as possible
- Includes a calibration weight and tweezers for the balance

Evaporation Trap

One of the difficulties in weighing a small quantity of liquid (e.g. 50 µL or less) is controlling the environment to minimize errors due to loss of evaporation. The evaporation trap maintains high humidity inside and prevents evaporation of the test liquid. It is no longer necessary to set up and adjust the humidity of an entire room.



Carrying Case

The pipette accuracy tester comes packed neatly in a portable carrying case, which is useful when performing on-site tests at distant places.





AD-4212B-PT/AD-4212A-PT

FX-300i-PT

WinCT-Pipette

Setting Specifications

Enter the pipette volume and accuracy and repeatability specifications

		Specifica	tions
Pipette Volume		50 (UL)
Accuracy (+/-)	Absolute Error	1.6 (uL)
	Relative Error	3.2 (%)
Repeat- ability	S.D.	0.6 (uL)
	C.V.	1.2 (%)

Measured Values

Displays the mass values transmitted from the balance and the volumetric values obtained using the Z (conversion) factor

	Measured Values			
No.	(uL)	(mg)		
1	49.72	49.55		
2	49.74	49.57		
3	49.60	49.43		
4	49.88	49.71		
5	49.74	49.57		
6	49.72	49.55		
7	49.64	49.47		
8	49.80	49.63		
9	49.88	49.71		
10	49.80	49.63		

					100			Manufacturer	ABC Model-200
Service Co.		Specific		Specific		Specific		Serge No.	P-1234
Past	le Visiume		(4)		(4)		(4)	Number of Mean	
Accuracy	Absolute Error	1.6	643	1.6	643	1.6	643	Number of Mean	
(4)	Relative Error	3.2	(%)	1.5	(%)	. 0.8	(%)	Dalarca Internal	
Flepesh-	8.0		(A)		043		043		AED Campany Limite
sole	C.V.	1.2	(%)	0.6	(%)	0.3	CNI	Manufacturer Model	AD42129-101
		Measure	d Valore	Measure	dValues	Measure	d Values	Serial No.	T0100001
	No.	043	(Mg)	043	(mg)	043	(fig)	Westurement En	or a second
	(F)	49.72	49.55	99.40	98.13	199.74	198.04	Humidle	29 (%)
	1 7	49.74	49.57	99.25	96.90	199.54	195.54	Temperature	22.0
		49.60	40.00	99.11	98.76	199.76	196.66	(Water Tempera	dure)
	- 3	49.00	49.71	99.22	98.67	109.60	196.90	Barometric Press	
	- 1	49.74		09.40	99.05	199.46	198.76	Conversion Facts of Factors	1.0035 DAM
	- 4	49.72	49.55	99.73	98.96	199.55	198.86	Evaporation Trap	F
		49.54		99.56	99.00	199.36	190.66	Contract out	- 23
	4	49.00	49.63	99.42	99.07	199.50	198.80		
		49.00	49.71	99.26	98.90	199.64	190.54	Testintenatur	
		49.00	49.65	99.36	99.03	199.06	199.16	Testition	QV-001
								Test Date	2/4/2009
$\overline{}$							$\overline{}$	Operator	Mr.P
			Clear		Clear		Clear	Twet Administrati	DR.
		Measurem	est Flessifts	Measurem	eed Fleendin	Measurem	ed Frends	Calibration room	N
Number of	Measurements	11	(ames)	0.31	(Simes)	12	(8mes)		
	Mean	46.752	043	99.325	043	799,562	043	Remarks	
Accuracy	Absolute Error	-0.248	043	-0.675	943	-0.437	0A3	Used Distillated	wager.
Accuracy	Fraistive Error	-0.496	(%)	-0.675	(%)	-0.218	(%)		
	Judgment	Pass		Pless'	100	Pass		Stat	1
	8.D.	0.092	043	0.110	043	0.155	(04.)	Land Street	
Repeal-	0.9	0.184	(%)	0.111	(%)	0.079	(%)	Print	
and .	Judgment.	Piere		Pass		Pass		All Clear	2
$\overline{}$							_		
									1

Measurement Results

Displays the test results and judgment results

		Measurem	Measurement Results		
Number of	Measurements	10	(times)		
Accuracy	Mean	49.752	(uL)		
	Absolute Error	-0.248	(uL)		
	Relative Error	-0.496	(%)		
	Judgment	Pass			
Repeat- ability	S.D.	0.092	(uL)		
	C.V.	0.184	(%)		
	Judgment	Pass			

29 (%) 22.9 (C) Barometric Pressure 1017.6 (hPa) 1.0035 (uL/mg)

Humidity

Testing Environment

Enter the distilled water temperature and the barometric pressure to determine the Z (conversion) factor

Printing Image

For recording purposes, test results can be output to a printer and printed in an A4 or letter-size report format.

t. Pipette Information Manufacturer ABC Model Model-200 Senal No. P-1234		2. Balance Information Manufacturer: ASD Campany Limited Model: AD42128-101 Senal No. T0100001			
(Water Temperature)	29 (%) 22.9 (C) 17.6 (NPs)	Conversion Factor (2 factor) Evaporation Trap	1.0035 (st/mg) Used		
Specifications Pipette Volume Accuracy	Measuring Point (1) 50 (s4.) 1.6 (s4.) 3.2 (%) 0.6 (s4.) 1.2 (%)	Measuring Point (2) 100 (MJ) 1.6 (MJ) 1.6 (MJ) 0.6 (MJ) 0.6 (MJ)	Measuring Point (3) 200 (xL) 1.6 (xL) 0.8 (%) 0.6 (xL) 0.3 (%)		
5. Measured Values No. 1 2 3 4 5 6 7 7 8 9 10	Measuring Point (1) (mg) (4) (mg) (4) 72 (4) 56 49 74 49 57 49 60 49 71 49 74 49 57 49 72 49 55 40 54 40 40 71 40 80 40 51 40 80 40 51 40 80 40 51 40 80 40 51	Measuring Point (2) (AL) (mg) 95-46 98 13 99-25 98 30 99-11 98-76 99-22 98-27 99-23 99-26 99-33 98-96 96-38 98-23 98-28 98-33 98-28 98-33 99-38 98-33 99-38 98-33	Measuring Point (3) (x4.3) (ing) 190.74 199.04 199.54 198.84 199.30 198.85 199.60 198.95 199.46 198.75 199.35 199.85 199.36 199.85 199.36 199.95 199.36 199.96		
6. Measurement Results Number of Measurements Accuracy Mean Absolute Error Relative Error Judgment	Measuring Point (1) 10 (times) 49.752 (4.1) -0.248 (4.1) -0.496 (%) Pass	Measuring Point (2) 10 (times) 99.325 (st.) -0.675 (st.) -0.675 (%) Pass	Measuring Point (3) 10 (firmes) 199.563 (st.) -0.437 (st.) -0.218 (%) Pass		
Repeatability S.D. C.V. Judgment	0.092 (uL) 0.184 (%) Pass	0.110 (sL) 0.111 (%) Pass	0.155 (ut.) 0.078 (%) Pass		
7. Test information Test No. QV-/ Test Date 2940 Operator Mr F Test Administration Calif.	1009	Signature :			
Remarks Used	Distillated water				

As a Training Kit...

It is a known fact that human factors often contribute more to erroneous measurements than the pipette accuracy itself. By visualizing the dispensed volumes and repeatability, pipette accuracy testers can be used as a good training tool for a novice to become a skilled pipette user.

Specifications	AD-4212B-PT	AD-4212A-PT	FX-300i-PT			
Weighing Capacity *1	110 g / 31 g * ²	110 g	320 g			
Minimum Weighing Value	0.1 mg / 0.01 mg	0.1 mg	1 mg			
Linearity	±0.2 mg / ±0.05 mg	±0.3 mg	±2 mg			
Repeatability (Standard Deviation)	0.1 mg / 0.05 mg	0.15 mg	1 mg			
Dimensions	Weighing unit : 80 (W) Display (with a stand) : 237	193 (W) x 262.5 (D) x 190 (H) mm				
Standard Accessories *3	Instruction manual					
	Balance including the weighing pan unit, breeze break, AC adaptor and AC adaptor ID label					
	Calibration weight with a pair of tweezers					
	• Evaporation trap					
	• Sample cup with a holder (30 mL x 2 / 5 mL x 2)					
	• Liquid thermometer					
	USB communications kit (USB converter, RS-232C cable, Instruction manual)					
	WinCT-Pipette (CD-ROM)					
	Carrying case with a shoulder belt and a key					
AC Adaptor	Please confirm that the AC a	adaptor type is correct for your local voltage	e and power receptacle type.			
Power Consumption		Approx. 11VA (supplied to the AC adaptor)				
Carrying Case Dimensions		470 (W) x 150 (D) x 355 (H) mm				
Weight (With All Accessories in a Case)	Approx. 7.6 kg	Approx. 7.2 kg	Approx. 6.4 kg			

^{*1} When the balance weighing pan is used.

Pipette Specifications in accordance with ISO8655

Pipette Nominal Volume*4	ISO8655 Requirements (Gravimetric Method)					_
	Maximum Permissible Error				Balance Minimum	
volume".	Accuracy		Repeatability		Weighing Value	
	(Systema	itic Error)	(Rando	m Error)		
(µL)	±%	±μL	%	μL	mg	
20	1.0	0.2	0.5	0.1		
50	1.0	0.5	0.4	0.2	0.01	_
100	8.0	8.0	0.3	0.3		
200	8.0	1.6	0.3	0.6		
500	8.0	4.0	0.3	1.5		_
1000	8.0	8.0	0.3	3.0		
2000	8.0	16	0.3	6.0		_
5000	8.0	40	0.3	15.0		
10000	0.6	60	0.3	30.0		
Daily inspection, simplified verification					1* ⁶	_

- *4 The maximum volume selectable for variable volume pipettes
- *5 The AD-4212B-PT can be used for the pipette volume range from 20 μL to 10000 μL
- *6 The minimum weighing value, 1mg, corresponds to approximately 1 μ L. If a pipette volume is 1000 μ L, a test can be performed with a resolution of 0.1%. If 200 μ L, 0.5%.

Note) Make sure that the measurement environment is free from vibration, drafts and air from air conditioners.

Corresponding Models =000000 AD-4212B-PT *5 — [[[[]]] FX-300i-PT

Gravimetric Method

The gravimetric method is the most common of knowing the performance of way variable-volume pipettes, in which pipette volume is determined based on the mass value of distilled water dispensed from the pipette.

A&D RUS CO., LTD.



A&D Company, Limited

3-23-14 Higashi-Ikebukuro, Toshima-ku,Tokyo 170-0013 JAPAN Telephone:[81](3) 5391-6132 Fax:[81](3) 5391-6148 http://www.aandd.jp

A&D ENGINEERING, INC.

1756 Automation Parkway, San Jose, CA 95131 U.S.A. Telephone:[1](408) 263-5333 Fax:[1](408) 263-0119

A&D MERCURY PTY, LTD.
32 Dew Street, Thebarton, South Australia 5031 AUSTRALIA Telephone:[61](8) 8301-8100 Fax:[61](8) 8352-7409

A&D INSTRUMENTS LTD.

Unit 24/26 Blacklands Way Abingdon Business Park, Abingdon, Oxon OX14 1DY UNITED KINGDOM Telephone:[44](1235) 550420 Fax:[44](1235) 550485

German Sales Office>
Große Straße 13 b 22926 Ahrensburg GERMANY
Telephone:[49](0) 4102 459230 Fax:[49](0) 4102 459231

A&D KOREA Limited

509 Udyog Vihar Phase V, Gurgaon-122 016, Haryana, INDIA Telephone: [91](124) 471-5555 Fax: [91](124) 471-5599

Vereyskaya str.112 Kuntsevo Block, 121357, Moscow, RUSSIA Telephone: [7] (495) 937-33-44 Fax: [7] (495) 937-55-66

A&D Instruments India Private Limited

Manhattan Bldg. 8F, 36-2 Yoido-dong, Youngdeungpo-gu, Seoul, KOREA Telephone:[82](2) 780-4101 Fax:[82](2) 782-4280

^{*2} The AD-4212B-PT is equipped with a smart range function. The minimum weighing value will switch to 0.1 mg automatically when the mass value exceeds 31 g but returns to 0.01 mg by pressing the RE-ZERO (tare) key.

^{*3} The standard accessories for the AD-4212B-PT / AD-4212A-PT / FX-300i-PT are different from those for the AD-4212B / AD-4212A / FX-300i.