

Accuracy of Quadra4 with a 450µL head

The theoretical minimal volumetric displacement for 450uL head is 1µL. However, the 450µL pipette accuracy falls off for volumes less than 10µL. Hence, data is only presented for volumes from 100µL to 10µL.

The following aqueous pipetting data (Head1 – Head8), was acquired from eight (8) new Quadra4 - 450µL heads. All testing was done at 23°C – 50% Relative Humidity. The data presented was obtained by measuring individual well volumes via a colorimetric assay method. New pipettes were used for each run. The raw data is available upon request.

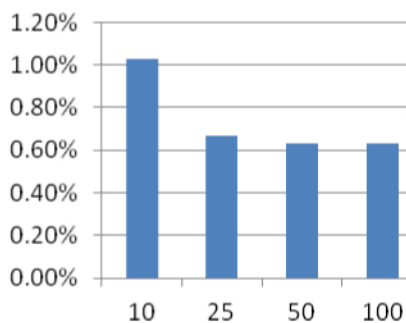
100µL	Average	Head1	Head2	Head3	Head4	Head5	Head6	Head7	Head8
CV%	0.63%	0.75%	0.47%	1.27%	0.57%	0.46%	0.48%	0.53%	0.47%
AE µL	0.62 µL	0.74	0.46	1.27	0.58	0.45	0.48	0.53	0.47
Average µL	99.63 µL	98.87	99.60	99.98	100.54	98.84	100.97	98.92	99.34
50µL	Average	Head1	Head2	Head3	Head4	Head5	Head6	Head7	Head8
CV%	0.64%	0.57%	0.67%	1.48%	0.46%	0.40%	0.70%	0.45%	0.37%
AE µL	0.32 µL	0.28	0.34	0.74	0.23	0.20	0.35	0.23	0.18
Average µL	49.81 µL	49.41	49.94	50.03	50.37	49.20	50.35	49.65	49.49
25µL	Average	Head1	Head2	Head3	Head4	Head5	Head6	Head7	Head8
CV%	0.67%	0.59%	0.60%	1.51%	0.57%	0.39%	0.54%	0.51%	0.66%
AE µL	0.17 µL	0.15	0.15	0.38	0.14	0.10	0.14	0.13	0.17
Average µL	25.10 µL	24.85	25.10	25.43	25.34	24.63	25.27	25.19	24.95
10µL	Average	Head1	Head2	Head3	Head4	Head5	Head6	Head7	Head8
CV%	1.03%	1.10%	1.16%	1.16%	0.72%	0.68%	1.78%	0.78%	0.83%
AE µL	0.11 µL	0.11	0.12	0.16	0.07	0.07	0.18	0.08	0.09
Average µL	10.01 µL	10.12	10.11	9.71	10.33	9.97	9.78	9.79	10.23

Maximum value Minimal value

Conclusion – 450µL Test

The “Average” data noted above is based on a simple average across the eight heads. As one might expect, the data shows that the coefficient of variation increases as the volume drops towards 10µL and conversely the absolute error decreases. Overall, the data shows that the 450µL head maintains extremely consistent results over the stated volumes. However, as expected the variation between wells increases to >1% as volumes drop below 10µL.

CV% for 450uL Head



AE µL for 450µL Head

