

# Performance Testing for Axygen® Automation Tip (VT-20-R)

## Application Note



### Method

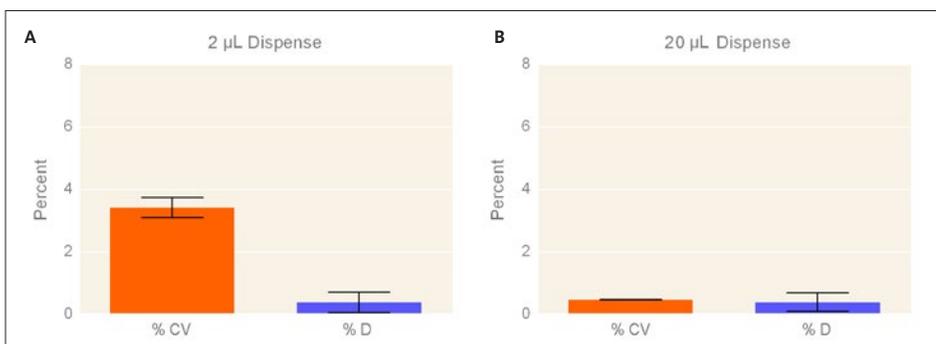
The Agilent Bravo/Velocity 11 liquid handling platform was used to assess precision as coefficient of variation (% CV), and accuracy as percent deviation (% D), for Axygen 20 µL tips.

To test the ability of the tip to dispense accurately and precisely at two dispense volumes, 2 µL and 20 µL, a rack of 96 tips aspirated from an Axygen low profile reservoir (Corning Cat. No. RES-SW96-LP) and dispensed into a Corning 96-well, black, clear bottom microplate (Corning Cat. No. 3631).

For the 2 µL test volume, each tip aspirated 2 µL of Range C solution (Artel Cat. No. MVS-205) or DMSO Range C solution

(Artel Cat. No. MVS-217) and dispensed 2 µL into 198 µL of diluent solution (Artel Cat. No. MVS-202) in each well. For the 20 µL test volume, each tip aspirated 20 µL of Range B solution (Artel Cat. No. MVS-204) and dispensed 20 µL into 180 µL of diluent solution in each well. To determine the volume of liquid dispensed in each well, absorbance readings for the solutions (diluted Range C solution for 2 µL dispense and Range B solution for 20 µL dispense) were measured using an Artel ELx800NB® plate reader (Artel Cat. No. 1311197). Each study was performed 3 independent times for a total of 288 tip dispenses. Evaluation criteria include % D from the set dispense volume and % CV of the measured dispense volume for the 288 tip dispenses.

### Results



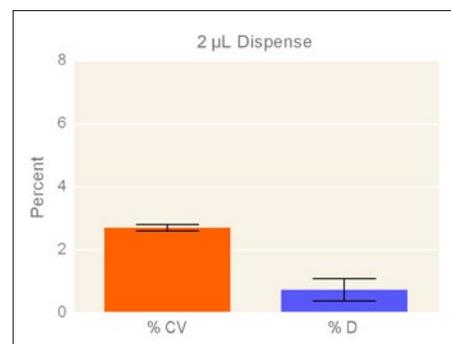
**Figure 1. Analysis of VT-20-R tip with aqueous dispense.** The precision (assessed by % CV) and accuracy (assessed by % D) of Axygen VT-20-R tips dispensing (A) 2 µL and (B) 20 µL volumes using the Agilent Bravo/Velocity 11 liquid handling platform were determined using the Artel MVS® system. The % CV and % D were below 4% for both 2 µL and 20 µL dispense, n = 288.

**Table 1. Aqueous Dispense Results**

Target Volume (µL)	2	20
n	288	288
% CV	3.43 ± 0.32	0.48 ± 0.00
% D	0.39 ± 0.33	0.40 ± 0.30
Outliers	0	0

### Conclusion

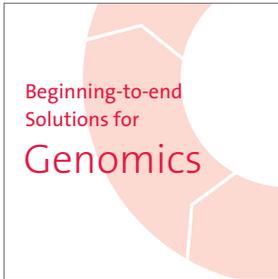
The % CV and % D for the Axygen automation VT-20-R tips dispensing 2 µL and 20 µL volumes were 5% or below. Therefore, Axygen automation VT-20-R tips can precisely and accurately dispense volumes as low as 2 µL and as high as 20 µL for aqueous and DMSO solutions using the Agilent Bravo/Velocity 11 liquid handling platform.



**Figure 2. Analysis of VT-20-R tip with DMSO dispense.** The precision (assessed by % CV) and accuracy (assessed by % D) of Axygen VT-20-R tips dispensing 2 µL volumes using the Agilent Bravo/Velocity 11 liquid handling platform were determined using the Artel MVS System. The % CV and % D were below 3% for 2 µL dispense, n = 288.

**Table 2. DMSO Dispense Results**

Target Volume (µL)	2
n	288
% CV	2.71 ± 0.10
% D	0.74 ± 0.35
Outliers	0



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