

Genomics

NGS TruSeq Library Pooling

The Lynx 96VVP Technology in combination with FlexTrough allows the independent dispensing of samples allowing high speed NGS pooling.

Next-Gen Sequencing (NGS)

Today's complex genomic research questions demand a depth of information beyond the capacity of traditional DNA sequencing technologies. Next-generation sequencing has filled that gap and become an everyday research tool to address these questions.

96 Channel Independent Dispensing

One of the most sought-after functionalities in liquid handling robotics is the ability to either aspirate or dispense using individual channels in a 96 head. This is especially important when building plates in a combinatorial fashion.

With VVP96, a complete 96 well plate may be aspirated and the head then increments over a destination well or vial to 'pool' all the samples into one or more wells. This alleviates the need for a spreadable 8 tip arm that needs to load and unload tips 12 times per plate. Using 8 tips would also require 12 different aspirate and 96 dispenses.

For example:, on an 8 tip system, each plate requires 12 passes to fill the entire plate and 96 individual dispenses to fill all rows as this can only happen one tip at a time.

Each plate would require 20 aspirate functions (12 columns sequences pick ups and 8 row sequences pick ups) and 108 dispenses (12 passes with columns, 96 with rows).

A non-VVP system that uses individual channels requires 128 pipette motions to make one plate of 96 unique mixes. This is only for buffers and not for samples.

10 plates would require 960 different formulations which would require up to 1,280 aspirates and/or dispenses.

What can FlexTrough offer?

It allows the use of traditional 96 heads. We can fill 2 plates of 96 unique mixes with duplicates using only 4 aspirates and 12 dispenses. This equates to roughly 1/10th the number of pipette motions as compared to an 8 tip system.

10 plates would again require 960 different formulations with duplicates. This would demand only 160 aspirate or dispenses motions.

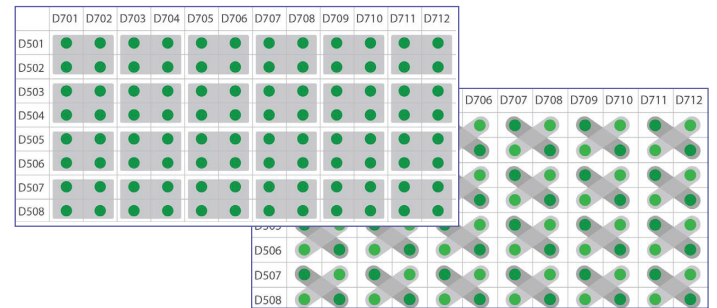
What can FlexTrough and a VVP96 offer?

We can fill 2 plates of 96 unique mixes with duplicates using only 2 aspirate 8 dispenses motions. This is 10 total compared to either 160 or 1280 motions.

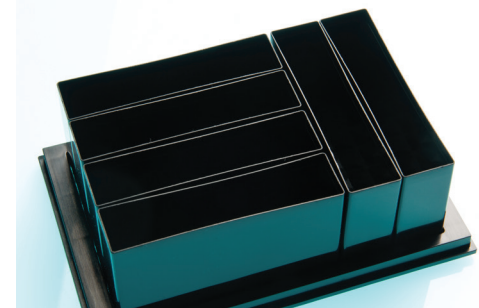
10 plates would again require 960 mixes with duplicates. However, a VVP 96 can do this in roughly 100 aspirate or dispense motions.

Figure 1 Adapter Plate Dual-Index Layout

	1	2	3	4	5	6	7	8	9	10	11	12
A	D701-D501	D702-D501	D703-D501	D704-D501	D705-D501	D706-D501	D707-D501	D708-D501	D709-D501	D710-D501	D711-D501	D712-D501
B	D701-D502	D702-D502	D703-D502	D704-D502	D705-D502	D706-D502	D707-D502	D708-D502	D709-D502	D710-D502	D711-D502	D712-D502
C	D701-D503	D702-D503	D703-D503	D704-D503	D705-D503	D706-D503	D707-D503	D708-D503	D709-D503	D710-D503	D711-D503	D712-D503
D	D701-D504	D702-D504	D703-D504	D704-D504	D705-D504	D706-D504	D707-D504	D708-D504	D709-D504	D710-D504	D711-D504	D712-D504
E	D701-D505	D702-D505	D703-D505	D704-D505	D705-D505	D706-D505	D707-D505	D708-D505	D709-D505	D710-D505	D711-D505	D712-D505
F	D701-D506	D702-D506	D703-D506	D704-D506	D705-D506	D706-D506	D707-D506	D708-D506	D709-D506	D710-D506	D711-D506	D712-D506
G	D701-D507	D702-D507	D703-D507	D704-D507	D705-D507	D706-D507	D707-D507	D708-D507	D709-D507	D710-D507	D711-D507	D712-D507
H	D701-D508	D702-D508	D703-D508	D704-D508	D705-D508	D706-D508	D707-D508	D708-D508	D709-D508	D710-D508	D711-D508	D712-D508



FlexTrough Sectionalized Reagent Trough



	MIXES	REP #	PIPET ACTIONS
Independent Channels	96	1	128
FlexTrough w 96 SV	96	2	16
FlexTrough w 96 VVP	96	2	10

Up to 12x faster and in duplicate...

