

Technical Bulletin

sciSTINGER – Spotting into any MTP well with any nozzle

Introduction:

The sciFLEXARRAYER systems dispense low volume liquids, through nozzles also called Piezo Dispense Capillaries (PDCs), which are arranged side by side in a fixed setup in a dispenser head (Fig. 1). This fixed PDC arrangement leads to some limitations. Spotting into microtiter plates (MTP) or similar 3D structures might become a challenge for several reasons. The polymer usually is charged statically. This can lead to drop deviation, leading to a misplaced spot. If the target well is very tiny (<1 mm) it will be difficult to insert the nozzle into these structures without running risk of damaging the nozzles. In case of spotting into 96 well plates which have a 9 mm well pitch, it is not possible to reach each well in an MTP with every PDC and use the full nozzle configuration which are arranged at a 4.5 mm pitch.

A PDC which is not totally fixed in the dispenser head would overcome the limitations mentioned above and improve the spotting flexibility and overall performance.



Figure 1. Dispenser head with 8 PDCs.

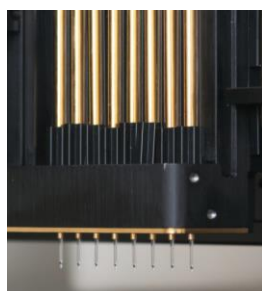


Figure 2. Dispenser head with 8 PDC and sciSTINGER option.

Setup:

The patent sciSTINGER device holds up to 8 PDC with a pitch of 9 mm (Fig. 2). Each PDC can be individual moved down by 20 mm. It can move only one PDC down or a multiple of dispensers at one time (Fig. 3). Once it has reached the down position it can be activated to dispense picoliter droplets (Fig. 4).

The down and up movement of each dispenser can be carried out by pneumatic cylinders or by motors.

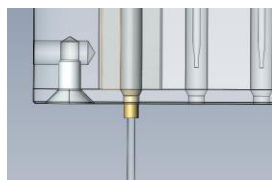


Figure 3. Schematic view of an ejected PDC and not ejected PDCs.

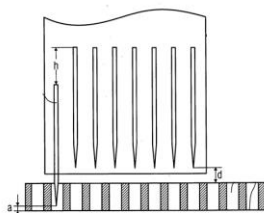
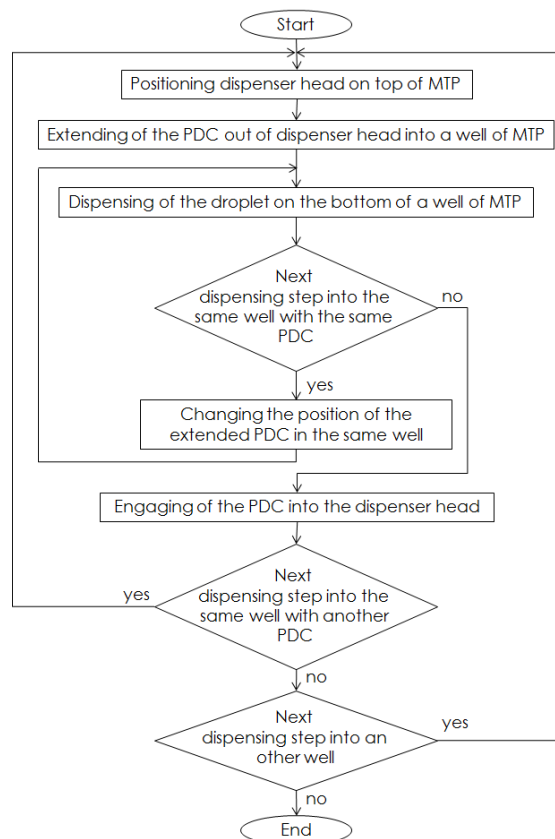


Figure 4. Schematic view of an ejected PDC into a MTP well.

Mode of action:



Product Features:

- Moving into vessels and dispensing with different PDCs
- No influence of static electricity charging on the flying droplet
- Down and up movement <1 s
- Move into vessel which have a diameter of >1 mm
- Dispensing into any kind of MTPs or other vessels

Conclusion:

The sciSTINGER permits to dispense up to 8 samples in a wide variety of containers without changing the samples in between. There is the flexibility to print as on flat surfaces.