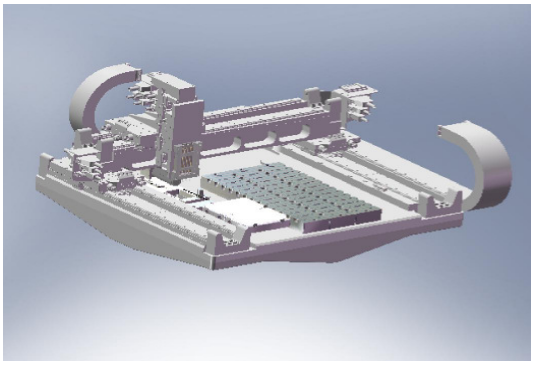
Scaleable Robotic Dispensing Platforms

Ralf Elben

Scienion AG, Volmerstr. 7b, 12489 Berlin, Germany

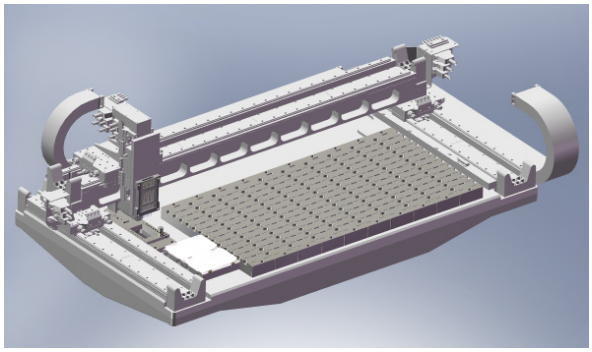
Introduction

Manufacturers of robotic dispensing platforms have to deal with a variety of requirements. Although a lot of applications are using standard formats as MTP or slides there are still lots of different substrate formats that do not have standard dimensions. Besides size and shape of the target substrates the batch sizes are also quite different. Depending on the process steps or quality control procedures the time of the substrate being within the machine needs to be longer or shorter, which leads to bigger or smaller batch sizes respectively.



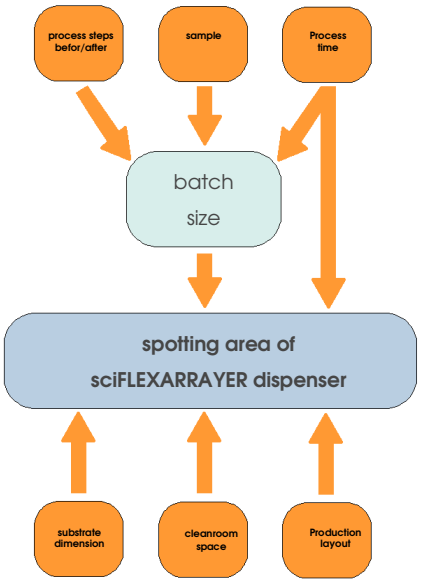
sciFLEXARRAYER SX (small Version with 1400cm^2)

Built for miniaturised volume handling Scienion invented a product line of scalable robotic dispensing platforms that enable users to choose working areas from 1400cm^2 to 3375cm^2.



sciFLEXARRAYER SX (large Version with 3375cm^2)

Determining factors for the optimized working area of the sciFLEXARRAYER dispenser



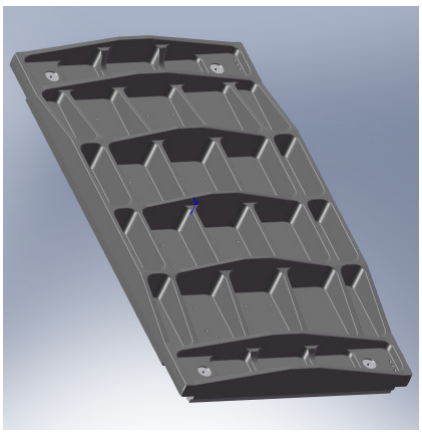
If you are looking for a production machine for whatever application, there are some determining factors that will lead you either to a bigger or smaller machine.

Batch size is always the most important factor for a production machine. From the first view you want to have a batch as large as possible and a short production time to keep machine time low.

Due to process steps for and after the machine your batch size might be limited. When using very small volumes it could be necessary to limit the time of your substrates on the machine. In same cases the spotting process itself works better with small batch sizes. -- You can see that a bigger machine is not always the better choice.

Optimized design for a better relation of footprint to working area, reduced weight and better performance

The robot base plate has been designed to allow different sizes with different working areas. Therefore Scienion is using a cast aluminum plate which can be made in various lengths. The plate itself has been FEM optimized to get maximum performance with a minimum of weight.

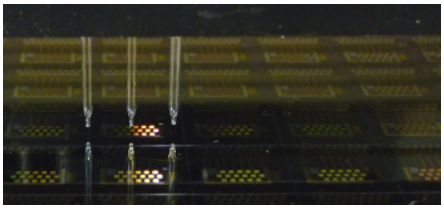


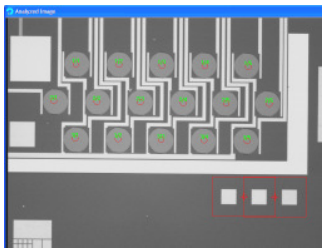
The system is designed for optimised batch size, size of substrates and the accompagnying protocols, while keeping running costs for the assays used in the systems to a minimum.

In addition the optimised footprint helps saving expensive labroom or cleanroom floor space. The ergonomically improved layout helps avoiding incidents and makes working with a complex system like a microarrayer a lot easier.

Additional features and customization

As with any other sciFLEXARRAYER there are lots of optional features like camera controls, cooling units, humidity control etc.





A big improvement has been made with the new integrated design and the improved hood. An almost full environmental control is possible if required and helps optimising the environment for the printing process.