REAGENT DISPENSER

The Reagent Dispensing system is STRATEC's click-on, compact solution for reliable bulk reagent loading and dispensation for your instrumentation. Unrivalled reagent stability is achieved through its bag-in-bottle approach that keeps harmful gases out and maximum reagent performance in. The Reagent Dispenser was designed with your reputation and your customer's small foot-print needs in mind.

Figure 1: Reagent Dispenser with the disposable reagent bottle

Figure 2: Drawing of the Reagent Dispenser combining the fixed mechanical actuator unit

THE BRIEF TO OUR ENGINEERS

- design a bulk reagent concept which minimized waste volumes for our customer's valuable reagents
- increase reliability by minimizing tubing and valves
- create a container which protects highly sensitive reagent from gases and light
- the device should be able to do real pipetting tasks
- the solution should be compact to ensure that designers can reduce instrument size
- the loading of the reagent packs must be simple, safe and error proof
- flexible filling concept with multiple fill and bottle volumes must be available

YOUR BENEFITS

- compact solution
- precise and accurate dispensing
- ease of use for end users
- small dead volumes
- optimally protected reagents
- ease of use for operators
- validated reagent handling system
- competitive pricing concepts

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STACKABLE CUVETTES

The STRATEC Stackable Cuvettes are designed for the 10 to 300 µ-liter range. Reliability, low complexity and a compact design for both the feed mechanism and the packaging were the key requirements we had in mind. This pack-and-stack solution is in our view the best use of material and space.

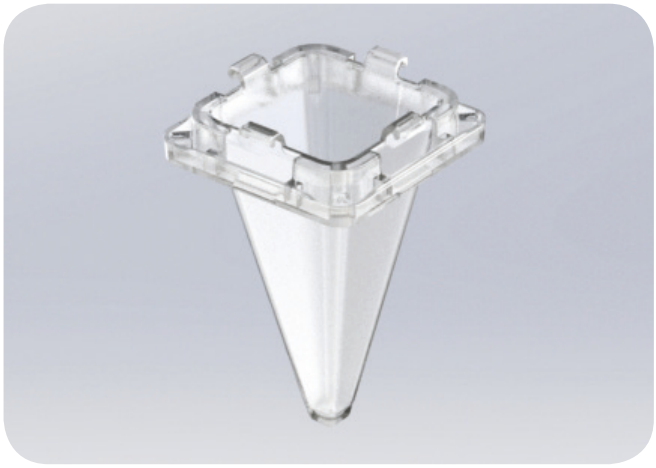

Figure 1: STRATEC Stackable Cuvette with the interlocking hook-and-eye design

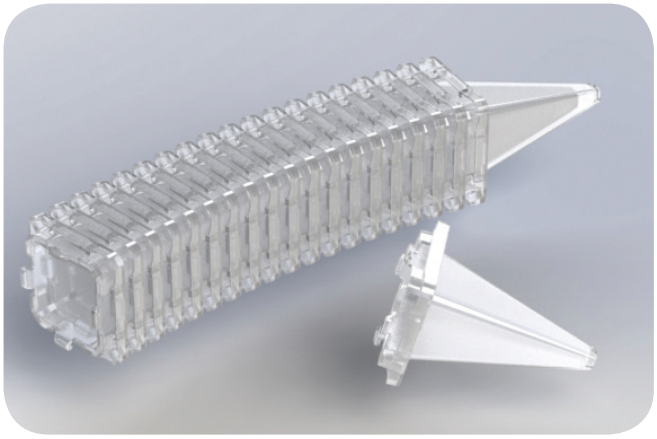

Figure 2: Cuvette stack

THE BRIEF TO OUR ENGINEERS

- cuvettes and the cuvette feeding system must have industry leading reliability in a compact design
- the storage and feeding system must not damage the cuvettes
- surface and optical requirements are always customer specific to ensure that various grades and different polymers can be employed
- service friendly – minimize complexity and maximize reliability
- optimize cost and performance
- cuvettes must be inert to reagents and show low binding capacity

YOUR BENEFITS

- validated and ready-to-integrate system
- multiple plastics other than polyprop can be made available
- lowest instrument foot print usage
- compact packaging concept
- proven low-maintenance cuvette handling system
- optimal wetting and mixing behaviour in the cuvette

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ANCHOR TIPS

The STRATEC Anchor Tip is our custom solution for all your automated pipetting needs. Our Anchor Tip combines ultimate positioning accuracy with a tight yet gentle tip pick-up and release process. This ensures an improved life time for all the mechanical systems and ensures that contamination through tip splashes are a thing of the past.

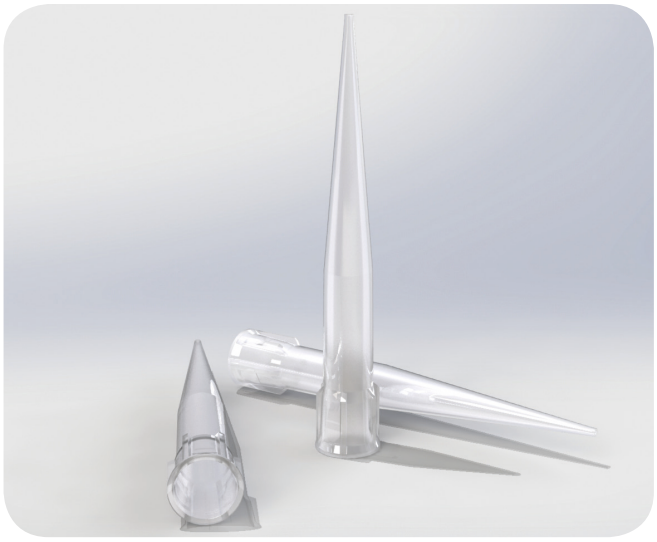

Figure 1: Anchor Tips

Figure 2: The figure shows the three pronged micro-grips in the tip colla. This ensures an accurate x,y,z positioning and constant force with which the tip is retained. During tip release the seal between collar and pickup is broken just prior to ejection, thus preventing splash backs during the tip removal.

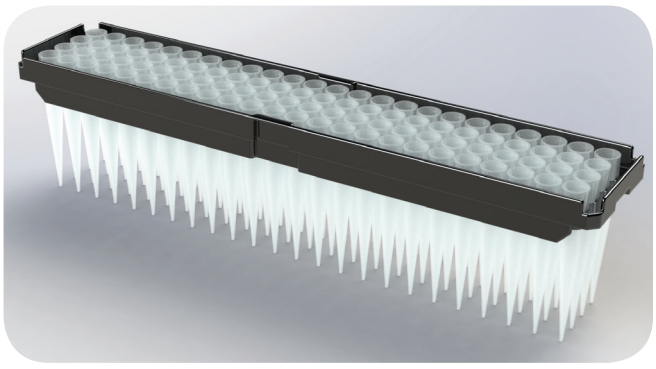

Figure 3: The unique 4 x 24 configuration of the tip rack ensures that deck space can be used best depending if walk-away time or foot print is a priority.

THE BRIEF TO OUR ENGINEERS

- positioning accuracy is a must for automation, develop a system which allows high accuracy z-positioning and lowest possible tolerances in the x-y plane
- tip ejection can cause both splash back to the pick-up cone and aerosol contamination, find a solution which reduces splashes
- tip pick-up should use a self-centering concept in the tip racks to ensure highest reliability
- tips must have a high and constant retention force
- develop a system which minimizes stresses during tip pick-up and ejection
- develop as system which ensures that our customers can control their consumable business

YOUR BENEFITS

- no tip loss due to controlled grip strength
- no back splash as tip is back vented during ejection
- three pronged grips cause less system stress during pick-up
- constant z-height allows faster and more reliable pipetting
- 4x24 rack concept saves allows flexible instrument deck designs
- self centering tip collars ensure constant pick-up
- STRATEC's proprietary technology protects your tip sales channel

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REAGENT CARTRIDGE

The STRATEC Reagent Cartridge is a flexible system to accommodate up to 5 reagent vials. It uses the same rack width as the STRATEC Reagent Dispenser system – these two units can be used as a modular system by the instrument designer. The reagent vials have customized functionalities such as externally actuated magnetic bead suspension system or the evaporation barrier which floats freely above the reagent meniscus and is adjusted with every pipetting step. Our goal is to give the instrument and reagent systems more freedom to reducing foot-print, providing flexible modules which decrease reagent waste and increase on-board shelf life.

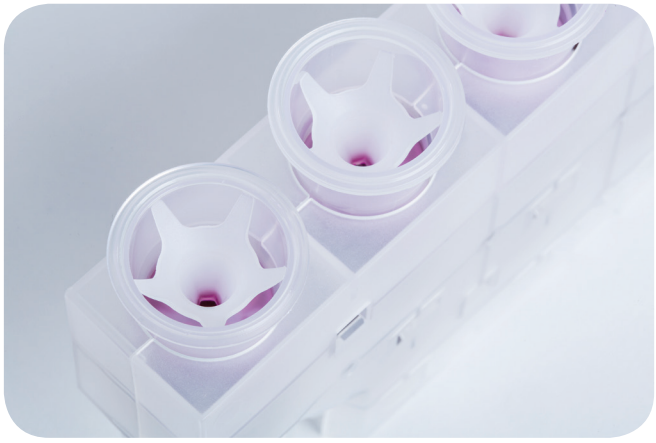

Figure 1: The Reagent Cartridge is a compact and flexible reagent vial system fitting into the adaptable STRATEC loading bay format. The cartridge contains RFID chips for reagent management. The individual vial types have features such as bead suspension technology or evaporation and contamination barriers.

Figure 2: Reagent Vials

THE BRIEF TO OUR ENGINEERS

- assuming instruments use different slot widths, design a reagent vial rack which can hold 2 cartridge and up to a maximum of 10 reagent vials
- ensure that the Reagent Cartridge can be used in a modular system with the STRATEC Reagent Dispenser
- reagent on-board stability is a critical issue, both for para-magnetic bead based assays and homogenious buffer systems
- design the reagent vials to minimize evaporation and sedimentation issues
- design reagent vials in such a fashion that dead volumes are minimized
- implement a superior reagent fill management using for example RFID tags
- provide a vial system which can be used in fully automated reagent filling lines

YOUR BENEFITS

- with the STRATEC Reagent Cartridge and the STRATEC Reagent Dispenser a modular system is in place to handle low and high volume reagents
- evaporation protection increases on board open vial reagent stability without implementing cooling
- external bead suspension insures low test interassay variability
- RFID chip based technology maximizes filling level management
- easily up-scalable reagent filling processes