



# Fluent<sup>®</sup> Laboratory

## Automation Solution.

CONFIDENCE COMES FROM AN INSTRUMENT THAT IS FASTER AND MORE PRECISE



# Enhancing productivity from the inside out.

**Fluent was designed and built to increase throughput and productivity, enabling laboratories to get more done in less time - and less space.**

## 1 MORE FUNCTIONALITY IN LESS SPACE

Fluent's patented **Dynamic Deck™** allows the high capacity worktable to be freely configured and easily reconfigured. Bench top is extended by in-deck access and the option to mount the instrument on a cabinet lets you take full advantage of the system's in-deck and below-deck access, expanding capacity and functionality without extending the instrument's footprint.

## 2 INTUITION BUILT RIGHT IN

Every Fluent comes with a dedicated **touchscreen interface** with a unique, run-only mode environment that can be individually tailored to specific applications and personalized for each user. Users require minimal training as the interface clearly defines every action for more straightforward, consistent operation.

## 3 DEVICE INTEGRATION FOR FULLY AUTOMATED WORKFLOW

Enjoy true walkaway operation with Fluent's seamless integration of complementary peripherals, all fully managed with **FluentControl™** software for maximum throughput and minimum operator input.

## 4 EXECUTE PROTOCOLS MORE QUICKLY, EFFICIENTLY AND RELIABLY

Perform multiple tasks simultaneously with fast, independent, task-specific arms that work in parallel. Tecan's patented **Path Finder™** technology automatically calculates the optimal route for each arm, every time, ensuring that runs are completed faster and more efficiently.





#### 5 GREATER PEACE OF MIND

Ensure the integrity of your results with a broad array of fully integrated technologies and capabilities:

- 1D/2D barcode reading for efficient sample tracking
- Liquid level detection for reliable pipetting performance
- Plate move confirmations
- User interaction logs

#### 6 FLEXIBILITY TO DEAL WITH THE UNEXPECTED

Fluent's **Active Stop and Resume** function enables the operator to instantly access the workdeck during a run – allowing set-up errors or omissions to be corrected – simply by opening the door. Once the action is finished simply close the door and resume the program, which will pick up where it left off.

#### 7 SAVE REAGENTS AND SAMPLE

For optimal liquid handling performance, Fluent is equipped with **Adaptive Signal Technology™**, a new generation of liquid level sensing. This technology provides real-time aspiration monitoring and liquid arrival checks, enabling the use of smaller sample volumes and reducing dead volumes, as well as providing exceptional automated error handling.

#### 8 FAST AND EASY METHOD TRANSFER BETWEEN INSTRUMENTS

Fluent's outstanding precision and unique Zero-G capability simplify the set-up of channel positions for 96, 384- and 1,536-well microplate formats. Methods can be easily transferred between platforms simply by exporting and importing scripts, without the need for time-consuming set-up of individual instruments.

# Be more productive and feel more confident with every run.

**Fluent delivers unmatched positional accuracy and pipetting precision for enhanced process security and peace of mind for walkaway processing.**



Piercing with fixed washable tips and liquid displacement Flexible Channel Arm

## **BEST OF BOTH WORLDS - ONLY TECAN OFFERS BOTH LIQUID AND AIR DISPLACEMENT TECHNOLOGIES ON ONE INSTRUMENT**

By offering both air and liquid displacement pipetting technologies, and the unique ability to apply both technologies in one instrument, the Flexible Channel Arm provides unrivalled flexibility to suit the needs of your laboratory workflow and increase productivity.

**Liquid displacement** offers a choice of washable fixed tips or disposable tips, with a large dynamic range and the option to use alternative system liquids, such as DMSO for priming and bulk dispensing in compound management workflows.

**Air displacement** eliminates the need for system liquids and associated maintenance operations. Ideal for genomics applications, this option uses inline filters for optimal channel protection and process security.

## **FROM NANOLITER TO MILLILITER VOLUMES**

Ideal for the preparation and distribution of samples and controls, the **Flexible Channel Arm** features interdependent pipetting channels that can access any tube or well configuration, with automatic adjustment of tip spacing between labware formats.



Flexible channel arm with Te-PS tips pipetting into 1,536 microplate

## SWITCH BETWEEN 96- AND 384-CHANNEL HEADS IN SECONDS

The **Multiple Channel Arm** brings higher productivity to automated liquid handling processes. Offering exceptional flexibility for walkaway processing, the Multiple Channel Arm can automatically switch between 96- and 384-channel formats, or washable fixed tips and disposable tips, in seconds during a run.



Multiple Channel Arm 384 picking up disposable tip adapter

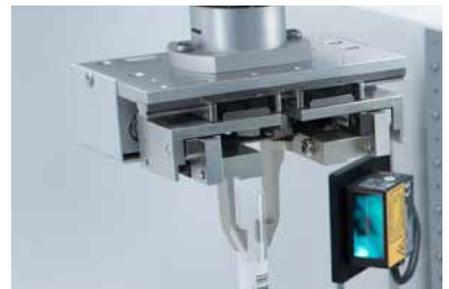
The **Multiple Channel Arm** can pipette virtually any combination of individual rows and/or columns – as well as custom arrangements – simplifying plate replication, sample reformatting and dilution series generation. A broad dynamic range, combined with a low volume head option, ensures optimal performance for 96-, 384- and 1,536-well formats, including deep-well plates.



Multiple Channel Arm 384 picking up one column of 50µl tips

## VERSATILE PLATE AND TUBE HANDLING

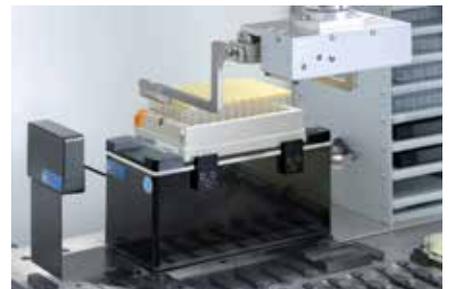
The **Robotic Gripper Arm** rapidly moves plates and tubes between logistical and processing devices without interrupting the pipetting process. Essential for long unattended runs, it smoothly and quickly delivers labware to pipetting arms and integrated devices, and simplifies the set-up of external devices using the Zero-G one-touch teaching function. The patented, proprietary **Finger Exchange System** automatically changes gripper configurations within seconds extending the boundaries of walk-away workflow automation.



Tube handling with Robotic Gripper Arm

## ENHANCE PROCESS SECURITY AND AUDIT TRAILS

The **Robotic Gripper Arm** directs tubes and plates between barcode scanning options. The gripper head can also be fitted with a barcode reader, mounting it either forward-facing – to allow for scanning of plates during transfer – or rear-facing to allow for rapid inventory scans of hotels or stacks on the workdeck.



Robotic Gripper Arm with eccentric grippers loading a 2-D bar code reader

## METHOD RECOVERY RESTORES PROTOCOLS TO ENSURE SUCCESS

Confidence in workflow automation is critical to success. FluentControl's **Method Recovery** is a powerful feature that minimizes the disruption caused by an unexpected event – such as a power loss or computer failure. Method Recovery guides the operator through the simple steps required to re-establish an interrupted protocol, minimizing potential loss of valuable samples and reagents.



Recover interrupted runs via simple touchscreen interactions

# Adding simplicity to every interaction.

**FluentControl provides a powerful set of tools to quickly and easily set up and run even the most challenging assays.**



Operation at a touch of your finger

## **A PERFECT FIT FOR OPERATORS AND PROGRAMMERS**

FluentControl software was developed to meet the needs of both day-to-day operators and system programmers without compromise. Assay development and configuration is quick and easy using a dedicated programming environment. A special run-time environment presents a clear and simple interface on the built in touchscreen, which guides users through daily tasks for fast, consistent and efficient operation.



Use pictures or movies to support the operator preparing a run

## **CONSISTENT, REPRODUCIBLE AND RELIABLE OPERATION**

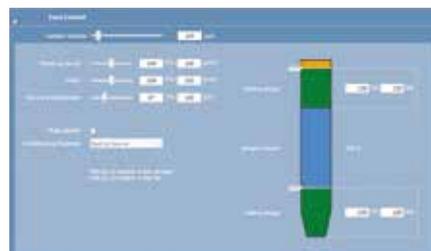
Fluent has a unique touchscreen interface that simplifies daily activities by guiding scientists through routine set-up and performance of the system for consistent, reproducible performance. It can provide graphical instructions and prompts for every step of the set-up process.

- Visual guides for complex tasks
- Easier compliance with standard operating procedures
- User-specific assay permissions
- Faster start-up for new operators
- Status and runtime progress indicators
- Method Recovery allows a process to be recovered even after a fatal error such as a power outage

**SCRIPTING HAS NEVER BEEN FASTER AND EASIER**

Configuring assays in FluentControl is straightforward, with drag and drop command editors and an intuitive 3D worktable. It automatically checks for errors while editing to ensure rapid, easy scripting. Highlights include:

- **Liquid class editor** – use predefined parameters for a wide range of liquids, or quickly define custom liquid classes to suit individual applications
- **Advanced undo/redo features** – undo or redo changes, even after saving or rebooting
- **3D simulations** – create and visualize new scripts without a real instrument, improving laboratory productivity
- **Method approval** – prevent unauthorized changes to validated protocols



Liquid class editor

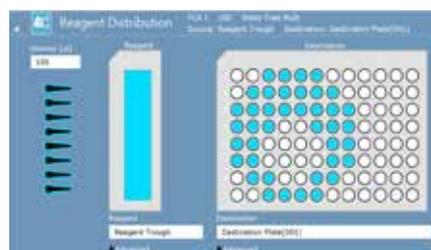


Elegant labware definition enables accurate calculation of detected liquid volumes

**SMART COMMANDS**

These simple, one-line programming tools manage common activities, making it faster and easier to generate basic protocols. Functions include:

- Fill a plate, or series of plates, with a reagent from a tube or trough
- Transfer samples and aliquot replicates from tubes to plates
- Dilute samples based on imported files, run information (e.g., concentrations calculated during the run), or predefined factors
- Create simple standard curves



Smart Commands – Spend less time setting up common pipetting tasks

**CREATE WIZARD-LIKE INTERFACES**

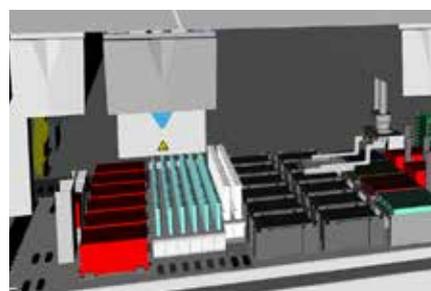
The Application Toolkit provides a collection of commands allowing programmers to create “wizard-like” interfaces to further simplify everyday operation of the system. This powerful protocol development toolkit also includes special commands for embedding rich user prompts.

**RAPID SCRIPT DEVELOPMENT FOR QUANTIFICATION AND NORMALIZATION WORKFLOWS**

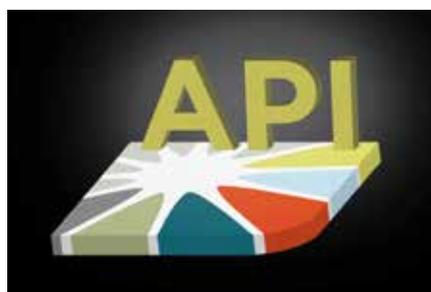
Rapidly develop scripts for common tasks, such as quantification and normalization workflows. By embedding these functions into FluentControl as standard commands, application specialists can save several hours of programming per script.

**CONTROL FLUENT FROM ANOTHER APPLICATION**

For those looking to “automate their automation”, the Application Programming Interface allows external programs to start and stop FluentControl protocols, query the status of runs, and upload variables.



3D simulations



Build custom software solutions using the API to take control of FluentControl

# Do more in less time and less space.

**Fluent is designed to simplify your daily tasks by bringing together all the modules and devices required for complete workflow automation.**



Fluent 780 with carousel (right side) and stacker (left side) maximizes walkaway time

## **DEVICE INTEGRATION FOR FULLY AUTOMATED WORKFLOWS**

Fluent's patented Dynamic Deck ensures exceptional capacity in a compact footprint. This allows integration of peripheral devices on, around or below the workdeck without compromising on instrument throughput – making it easier to get more done, more quickly.



Below deck integration of a centrifuge

### **Stacker**

A high-capacity stacker can be mounted adjacent to the Fluent, allowing rapid transfer of microplates or tip racks to the worktable. Each stacker can accommodate up to four stacks of 50 microplates or 40 multichannel tip racks, extending walkaway times by ensuring availability of consumables.

### **Carousel**

This option provides random access storage for SLAS-format microplates, labware or disposable tips (maximum 210 standard microplates), which can be easily accessed by the Robotic Gripper Arm. A built-in barcode reader ensures complete process security and makes this an ideal solution for sample, compound library or growth medium storage, allowing hands-free generation of assay plates.



Side integration of Tecan Spark 10M multimode reader

### **Readers and washers**

Tecan offers a range of multimode readers – including the Infinite® and Spark® series – designed specifically with complete automation in mind. From rapid absorbance measurements for DNA quantification to advanced cell-based and biochemical assays, there is a Tecan reader to suit almost any assay requirements.



Fluent 480 with integrated HEPA hood

### HEPA Hood

An integrated HEPA hood maintains a clean environment throughout the workdeck, ensuring environmental protection for cell biology applications.

### Incubators

A range of on-deck and peripheral incubator options are available, from the compact Monitored Incubator Option (MIO™) for up to six microplates, to large robotic units for up to several hundred cell plates.

### Magnetic separation

Fluent supports magnetic bead-based separation workflows. Offering fully-automated separation in multi-well formats, this option is ideally suited to nucleic acid extraction and genomic sample clean-up activities.

### Third-party devices

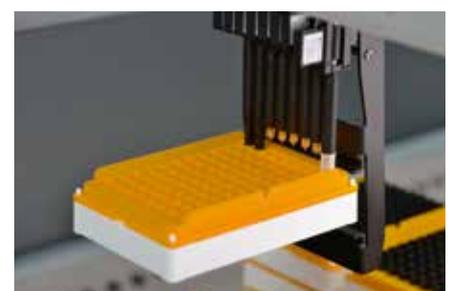
FluentControl offers straightforward integration of third-party devices, with an ever-increasing library of drivers – including support of SiLA devices – and simplified Zero-G one-touch protocol set-up.

### ENHANCED PRODUCTIVITY WITH TECAN CONSUMABLES

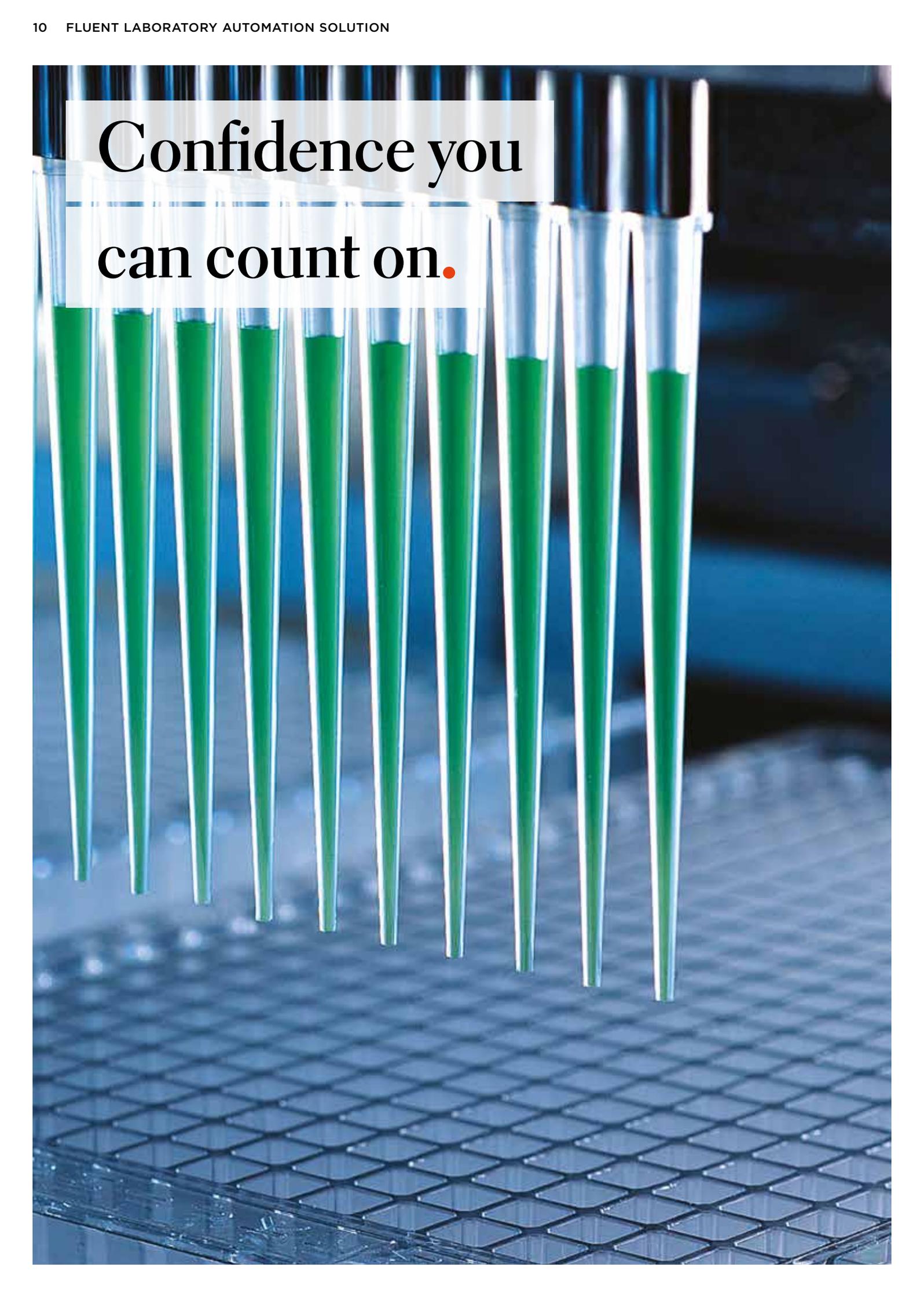
Tecan offers a broad portfolio of high quality consumables – from disposable tips to troughs – in Tecan Standard, Tecan Pure and Tecan Sterile purity levels. Every product undergoes stringent testing to ensure reliable automation. Nested disposable tips are also available for both the Multiple Channel Arm and Flexible Channel Arm to further increase efficiency, productivity and walkaway times.



Exchange deck segments for flexible assay set-up, device integration and reconfiguration



Maximize your deck capacity with the Tecan nested tips and unique transfer tool for the tip racks



**Confidence you  
can count on.**

**Tecan has re-invented laboratory automation with the Fluent automation solution, a unique concept built around the application-specific needs of laboratories.**



Pipetting directly into thermocycler

#### **YOUR APPLICATIONS ARE OUR INSPIRATION**

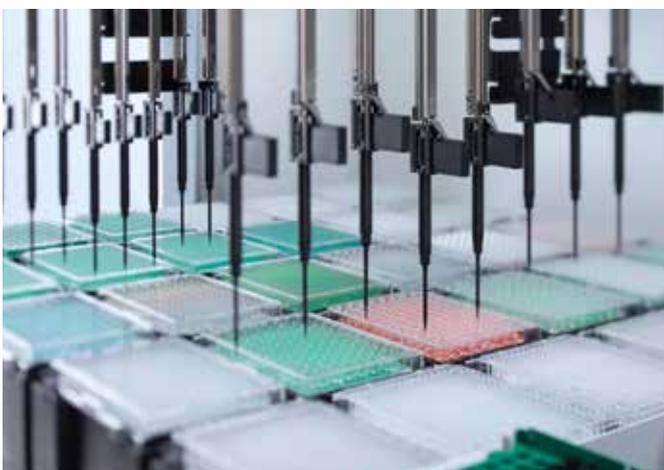
Fluent was designed to meet the needs of various life science workflows, such as high throughput genomics, by combining high precision liquid handling – down to 200 nL – with straightforward set-up of normalization, sample transfer and reagent distribution using Smart Commands. Its freely configurable architecture allows rapid integration of devices for DNA quantification and processing, and offers exceptional storage capacity for plates and tips.



Incubation and environmental control for automated, high-throughput, cell-based assay workflows

#### **TAKING THE COMPLEXITY OUT OF CELL BIOLOGY**

The Fluent laboratory automation solution for cell-based assays offers walkaway processing for cell biology workflows. By seamlessly integrating all the complementary devices required for cell-based research – including incubators, washers and readers – into a single platform, Fluent offers researchers the freedom and flexibility to focus on other tasks around the lab as the instrument runs unattended.



Up to sixteen separate pipetting channels extend throughput in applications such as hit-picking

#### **SPEED UP EFFICIENCY WITHIN DRUG DISCOVERY PROCESSES**

Compound management is a key activity in the drug discovery process, and the Fluent laboratory automation solution for compound management has been developed specifically to meet the needs of this sector. It provides more capacity and increased speed – ensuring superior throughput and walkaway times – and uniquely offers both liquid and air displacement pipetting to ensure optimal process security, while still allowing rapid bulk dispensing of DMSO.

# Optimal capacity. Optimal throughput. Optimal results.

## FLUENT 480



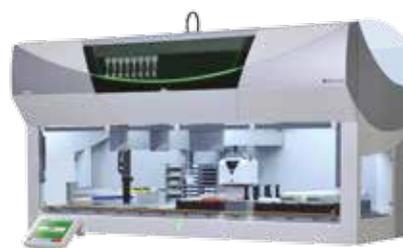
30 plate positions

## FLUENT 780



48 plate positions

## FLUENT 1080



72 plate positions

### DISCOVER THE FLUENT LABORATORY AUTOMATION SOLUTION

To see Fluent in action and learn how it can improve the productivity of your laboratory, contact your nearest Tecan office or visit [www.tecan.com/fluent](http://www.tecan.com/fluent)

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