

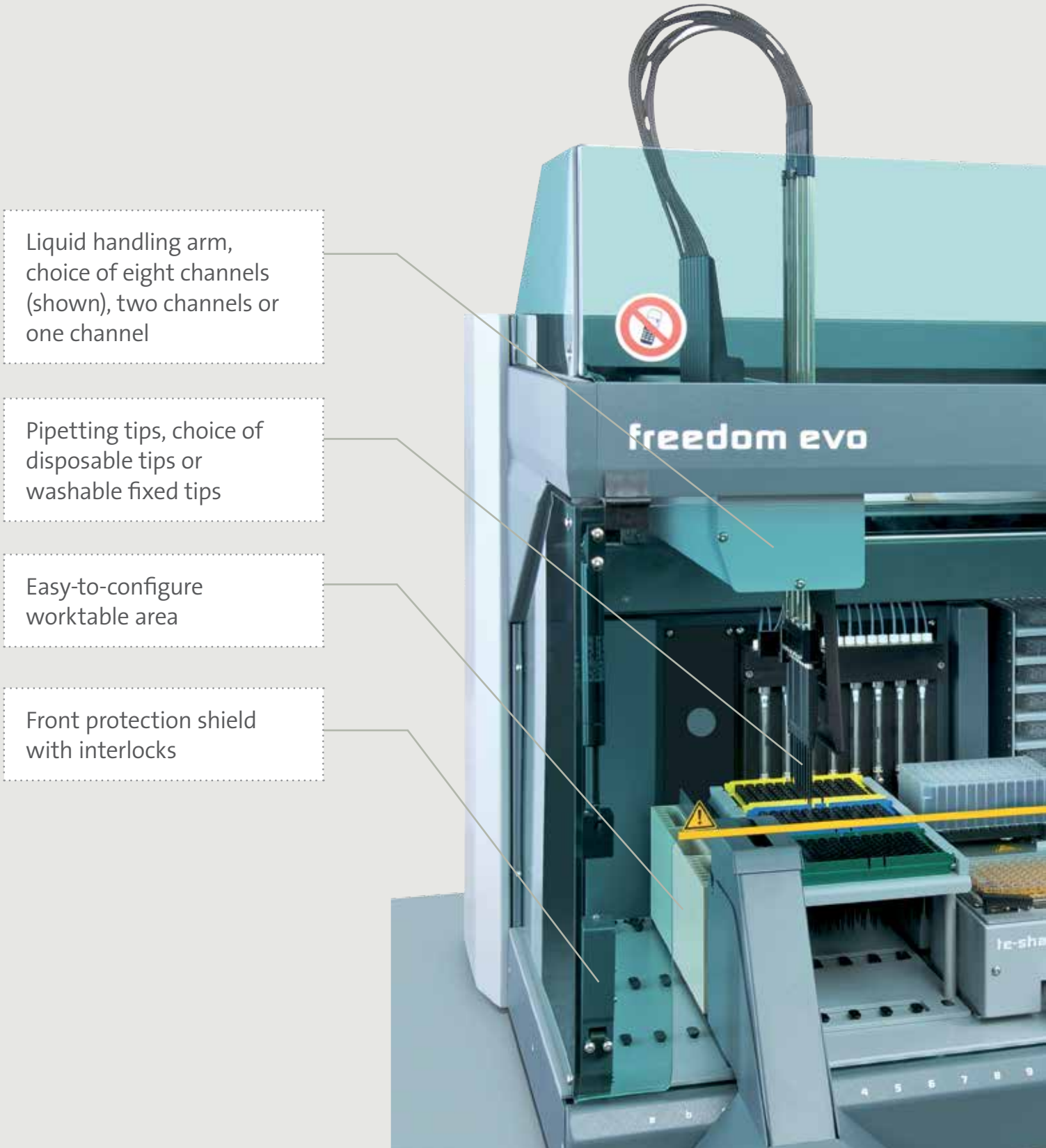


## Freedom EVO<sup>®</sup> 75

State-of-the-art compact pipetting robot

Ease of use and precision which-ever way you configure it

The Freedom EVO 75 is a compact pipetting robot for low to medium throughput applications. The smallest of a family of four, it shares the same high modularity, liquid handling performance and reliability that you would usually expect from larger systems.



Liquid handling arm, choice of eight channels (shown), two channels or one channel

Pipetting tips, choice of disposable tips or washable fixed tips

Easy-to-configure worktable area

Front protection shield with interlocks

Designed to handle your repetitive liquid handling tasks, the Freedom EVO 75 is either used as a stand-alone instrument or integrated with an analytical system. As a truly open platform, it allows you to carry out your experiments and tests using your favourite chemistry whatever the brand. It can execute multiple protocols for the different steps of a method or even for different teams sharing the instrument.



Optional robotic manipulator arm

Space in the back for plate storage, an incubator or a washer





## Excellence in liquid handling

### Flow-Thru™ Technology

The liquid system is the central component of the pipetting function. Pipetting is not only precise, but the channels flushed with system liquid remain clean at all times.

### Choice of one, two or eight tips

From the dedicated single tip arm to the eight-tip parallel action of the 8 Plus 1 Access™, the Freedom EVO 75 delivers a choice of pipetting solutions to meet your application needs.

## Arm choices

### Precise liquid handling

#### Single-channel arm

The single-channel arm is well suited to handling a small number of samples or running protocols which are not time dependant.

- Single-channel syringe pump
- Choice of disposable tips or washable fixed tips
- Capacitive liquid level detection
- Volume range: 0.5 to 500 µl, 1 to 1000 µl or 10 to 5000 µl, depending on your choice of syringe



#### Dual channel arm

The versatile dual-channel arm is ideal for tube-to-plate transfers and reagent distribution, with an outstanding throughput/price ratio.

- Two independent single-channel syringe pumps
- Fixed 18 mm tip spacing
- Independent vertical motion of the two tips
- Choice of disposable tips or washable fixed tips
- Capacitive liquid level detection with each tip
- Volume range: 0.5 to 500 µl, 1 to 1000 µl or 10 to 5000 µl, depending on your choice of syringe



#### 8 Plus 1 Access

The 8 Plus 1 Access eight channel arm brings speed to your reagent distribution, serial dilution, plate reformatting and plate replication tasks. This unique arm combines two tools in one; it has the ability to pipette across a 96- or 384-well plate with eight tips simultaneously, and can also access individual samples with a single tip.

- Eight-channel syringe pump
- Equal parallel aspiration and dispensing for all channels
- Fixed 9 mm tip spacing
- Capacitive liquid level detection with first tip
- First tip with independent vertical motion
- Option available with disposable tips only
- Volume range: 0.5 to 500 µl or 1 to 1000 µl, depending on your choice of syringe



### Efficient labware transport

#### Robotic manipulator arm

This optional arm extends the capabilities of the Freedom EVO 75 by transporting plates and other labware between worktable sites, storage sites and peripheral devices. It can also handle plate lids or move away a filter plate for pipetting access into the collection plate.

- Grip sensor for detection of gripped object
- Device access at the periphery of the worktable area
- Access in landscape and portrait orientation with ability to switch from one to the other





## On-line process security

### Quality management methods

In every aspect of your applications, on-line process security features play a significant role in ensuring reliable and consistent results. Tecan offers quality management methods to quickly identify unexpected events in the pipetting process, enabling you to implement corrective actions sooner for optimal process efficiency.

- Capacitive liquid level detection identifies insufficient liquid volume and tip occlusion
- Disposable tip sensor controls presence and release of tip\*
- Grip sensor controls presence and release of object

\* feature available on single-channel arm, dual-channel arm and on the first tip of the 8 Plus 1 Access arm



Tip occlusion alert by capacitive liquid level detection

### Process traceability and audit trail

- FDA 21 CFR part 11 support (audit trail, user management, electronic signatures)
- Recovery wizard allows interrupted runs to be continued
- Freedom EVOware® Sample Tracking tracks and logs all activities performed on each sample throughout the entire process, including
  - Tracking of barcodes or automatically assigned unique identifiers
  - Safe data exchange with Laboratory Information Systems (LIS/LIMS)
  - Tracking of liquid volume, dilution and concentration
  - Merging of pipetting and plate reader data



Barcode scanning before loading sample tubes onto the worktable

## Easy touchscreen interface

### Intuitive real-time control and convenient daily set-up

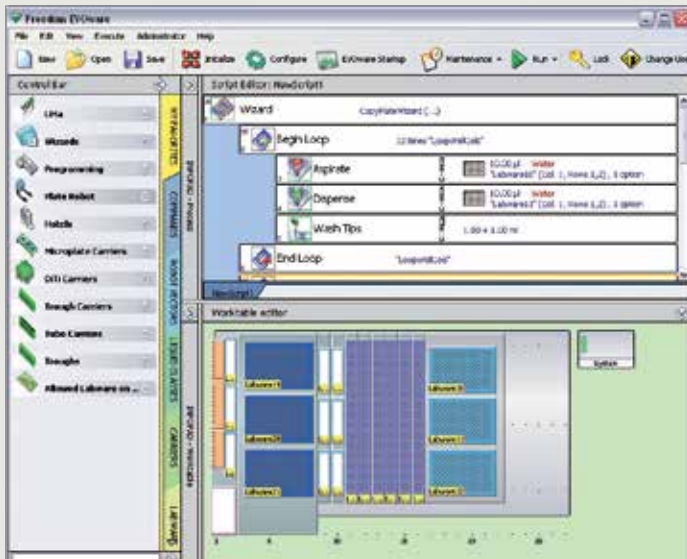
For even greater ease of use, opt for the innovative TouchTools Suite™. The simple and appealing graphical interface is particularly adapted for operators who are not familiar with developing automation protocols.

- Instant Pipetting™ allows real-time pipetting control of the Freedom EVO 75 robot at your finger-tips
- Application Starter guides you through the start procedure of chosen methods with on-screen instructions for loading the worktable
- QuickStart initiates any chosen method literally at the touch of a button



Instant Pipetting with TouchTools Suite

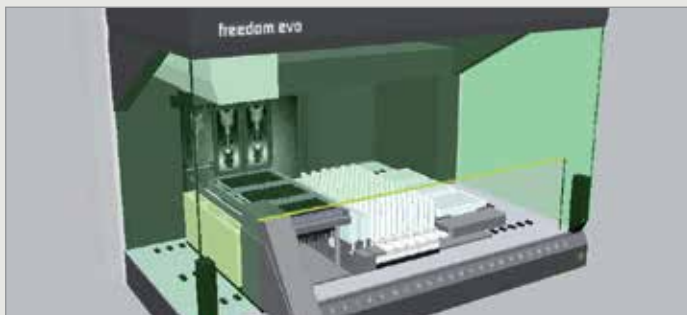
## Revolutionary software



### Freedom EVOware software: simple, intuitive and flexible

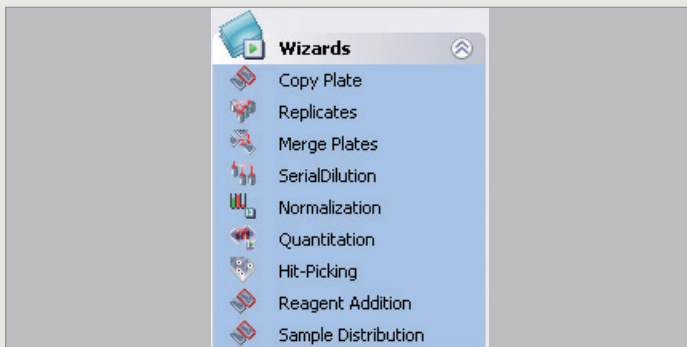
The Freedom EVOware software brings the best of Tecan's know-how and over 30 years of experience in liquid handling automation to your fingertips.

- Drag-and-drop worktable layout creation
- Build your method from a library of actions
- Rely on predefined liquid handling parameters to deliver the finest pipetting precision or adjust parameters to meet your particular needs
- Dynamic scheduling of multiple assays with Freedom EVOware Plus software
- Compatibility with LIMS generated worklists



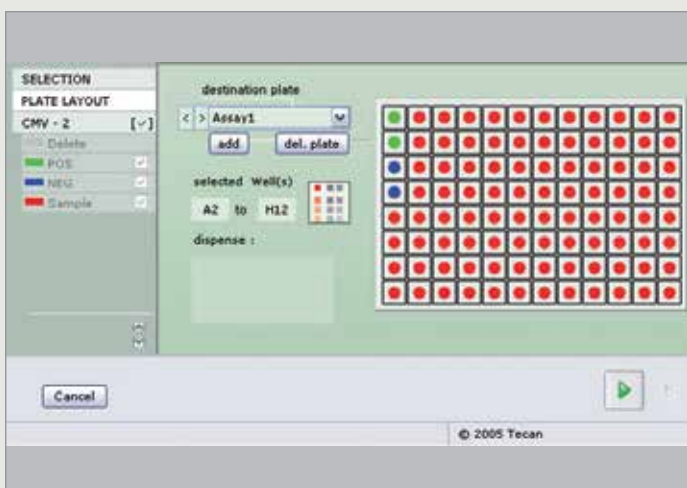
### 3D simulation

The Freedom EVOsim™ 3D simulation tool allows you to check your method before running it on the robot. This way, you do not tie up your instrument when developing a new method. You can also use the Freedom EVOsim for throughput studies and to record your assay running as a 3D simulation.



### Pipetting wizards and application templates

Freedom EVOware wizards allow fast creation of standard pipetting patterns, with the flexibility of individual step changes when required. In addition, numerous application templates are available to assist first-time users in bringing their Freedom EVO 75 into routine use more quickly than ever.



### Freedom EVOware Sample Oriented

The Sample Oriented wizard allows the easy set-up of pipetting sequences involving a variable number of samples and assays. It guides you through defining the plate pattern for sample calibrators and controls, and through reagent addition steps.

- Flexible assay set-up with graphical interface
- Wide range of pre-dilution options
- Ability to run different tests on different samples with job lists
- Output file LGC, TPL and ASTM

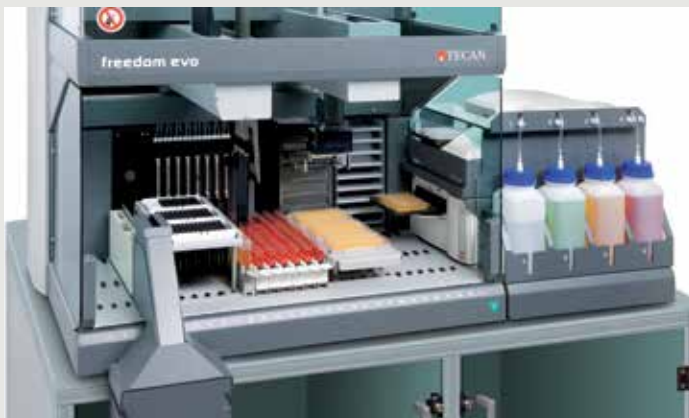
## Popular applications on the Freedom EVO 75

- Serial dilutions
- ELISAs
- MALDI spotting
- Immunostaining protocols and *in situ* hybridization (ISH)
- Nucleic acid extraction
- PCR set-up and sequencing reactions
- Capillary electrophoresis set-up for forensics
- Sample preparation for next generation sequencing and many more...





## Increased productivity and peace of mind for your applications



### Economical ELISA automation

A Freedom EVO 75 liquid handling system supplemented with a HydroFlex™ plate washer and a Sunrise™ plate reader on a side extension becomes a fully automated plate processor.

In fact, the 8 Plus 1 Access pipetting arm can make semi or full automation of an ELISA very economical. The time consuming reagent addition steps are reduced by more than 80 % when compared to those of a single-tip instrument.



### Robust and efficient PCR and qPCR set-up

The reagents, template DNA and DNA primers can be transferred from a variety of labware options, including tubes, vials and plates. Precise delivery of your reagents can be performed using free dispense as well as contact dispense for low volume pipetting. The system performs with remarkable repeatability even for a 1 µl volume.



### Scalable nucleic acid sample preparation

The Freedom EVO 75 allows you to automate all major nucleic acid purification techniques, for a wide range of downstream applications. Extraction protocols can be run using magnetic bead separation or solid phase extraction. The open platform concept gives you the flexibility to add new chemistries at a later time, without needing to invest in a new instrument. In addition, a series of automated methods for preparation of fragment libraries have been developed in collaboration with leaders in next generation sequencing.



### Automated *in situ* hybridization (ISH)

One key step in the study of gene expression is the validation of results obtained by *in vitro* gene expression methods with ISH. GenePaint™ alleviates the throughput bottleneck of conventional ISH, FISH or IHC analysis. All fixing, staining, washing and hybridization processes of the slides are handled by the GenePaint system. The Freedom EVO 75 ensures reproducible and fast liquid transfer from reagent troughs to flow-through chambers.



## Three good reasons to adopt the Freedom EVO 75

### Unique pipetting flexibility

- Uncomplicated: the **large dynamic volume range** comes without the need to switch pipetting tools
- Choice between disposable tips or cost-saving, multi-use washable fixed tips

### Ready to meet your current application needs and to adapt to future ones

- Safe automation investment: the **modular and open architecture** allows your instrument to evolve. Options and accessories can be added, exchanged and rearranged with minimal effort
- Seamless **integration of devices such as washers, readers and incubators** on or around the worktable

### Developing a method has never been easier

- Simple **assay set-up** with the Freedom EVOware Sample Oriented wizard
- Real-time control with the optional **TouchTools Suite** and **Instant Pipetting** interfaces
- Exceptional software extensibility: optional Freedom EVOware Plus **dynamic scheduler** for running multiple methods in parallel

## Specifications

<b>Liquid handling arm</b>	<b>1 tip</b>	<b>2 tip</b>	<b>8 Plus 1 Access</b>
Tip movement	Single independent tip	2 tips with independent z-movement and fixed 18 mm y-spacing	<ul style="list-style-type: none"> <li>• First tip with independent z-movement for tube-to-plate operations</li> <li>• Eight-tip array with 9 mm tip spacing for plate-to-plate operations</li> </ul>
Tip variety	Washable (PTFE-coated stainless steel) and disposable tips (10/50/200/1000 µl)	Washable (PTFE-coated stainless steel) and disposable tips (10/50/200/1000 µl)	Disposable tips (10/50/200/1000 µl)
Syringe pump	Cavro® XP Smart	Cavro XP Smart	Cavro XMP
Liquid handling volume range			
Standard volume/ washable tips	3 µl – >5000 µl	3 µl – >5000 µl	n.a.
Low volume/ washable tips	1 µl – >500 µl	1 µl – >500 µl	n.a.
Standard volume/ disposable tips	3 µl – >1000 µl	3 µl – >1000 µl	1 µl – >1000 µl
Low volume/ disposable tips	1 µl – >500 µl	1 µl – >500 µl	1 µl – >500 µl
Liquid level detection	Single-tip liquid level detection	Independent liquid level detection by each of the 2 tips	Liquid level detection by the first tip
Plate compatibility	96- and 384-well plates		
Pipetting precision (CV)		<b>Standard washable tips</b>	<b>200µl disposable tips</b>
Standard volume*	10 µl	< 1.75 %	< 2.25 %
	100 µl	< 0.4 %	< 0.4 %
	Typical results using deionized water in single pipetting mode under optimized conditions with 1000 µl syringe.		
Pipetting precision (CV)		<b>Low-volume washable tips</b>	<b>50 µl disposable tips</b>
Low volume**	1 µl	< 6 % (contact dispense)	< 6 % (contact dispense)
	1 µl	< 6 % (non-contact Te-PS™ tip)	
	Typical results using deionized water in single pipetting mode under optimized conditions with 500 µl syringe.		
Fast wash pump option	Ultra-fast delivery of wash solution by diaphragm pump. Efficient wash of the inside of the tips.		
Low disposable tip eject	Ejection of disposable tips in a contained environment to prevent aerosol dispersion. Also used for tip re-racking.		
<b>Robotic manipulator arm</b>			
Rotation angle	270° rotation for plate orientation changes		
Maximum load	400 g		
<b>Process control features</b>			
Password protection	Three password levels: operator, application specialist and administrator		
Liquid level detection technology	Detection by capacitance change down to 50 µl of conductive liquid in round bottom 96-well plate. Liquid level monitoring possible before aspiration, after aspiration, before and after dispense		
Tip occlusion detection	Function of the capacitive liquid level detection, liquid level comparison before and after aspiration		
Liquid waste level monitoring	Optional active monitoring of liquid level in waste container		
Plate grip sensing	Confirmation of robotic manipulator plate pick-up and plate release		
Safety screens with interlocks	Interlocked screens prevent non-intentional access to the work area or non-intentional system halt		
<b>Instrument dimensions</b>	Width 881 mm x depth 696 mm x height 795 mm (height 930 mm with top cover)		
<b>Instrument weight</b>	84 kg		
<b>Power requirements</b>	Power: 570 VA, Voltage: 100 – 240 VAC, Frequency: 50/60 HZ		
<b>Operating conditions</b>	Temperature 15 – 35 °C, Relative humidity 5 – 80 % at 35 °C or below, non-condensing		
<b>Regulatory compliance</b>	CE marked for compliance with 2006/95/EC and 2004/108/EC CSA compliance		

\*Manufacturer's field guarantee for standard volume: 10 µl < 3.5 %, 1000 µl < 0.75 %

\*\*Manufacturer's field guarantee for low volume: 1 µl < 10 %, 10 µl < 3 %



## Tip quality matters

Tecan disposable tips are carefully designed, produced and validated to maintain stringent pipetting reproducibility. Three purity levels are available, each tailored for specific application needs.

	Tecan Standard	Tecan Pure	Tecan Sterile
Application examples/ customer segments	ELISA Sample handling Biochemical screening	Genomics research Forensics Molecular diagnostics	Cell biology Microbiology Cell-based screening
Tecan Standard purity	✓	✓	✓
Human DNA free	–	✓	✓
PCR inhibitor free	–	✓	–
RNase/DNase free	–	✓	✓
Pyrogen/endotoxin free	–	–	✓
Sterile	–	–	✓

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