TECAN.

HydroFlex™ – 3-in-1 microplate strip washing

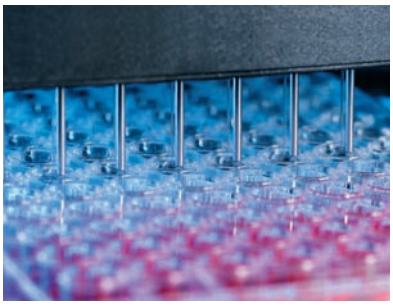
☑ 21 CFR Part 11*
☑ 98/79/EC IVD-D*

HydroFlex – the 3-in-1 microplate strip washer for 96-well plates

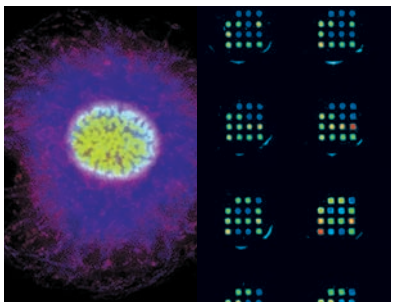
The HydroFlex plate washer is a truly flexible platform that provides excellent automated microplate strip washing and vacuum filtration performance for 96-well microplate formats.

This modular and upgradeable platform is ideal for a wide range of cell-, enzyme- and DNA-based applications in academia, biotech, pharma and clinical diagnostics, reflecting over 30 years of Tecan expertise in advanced liquid handling.

ELISA washing
The HydroFlex's offers both cell and ELISA washing, without the need for dedicated wash heads. The system provides consistent, high quality washing with very low residual volumes of less than 2 µl per well, and features multiple aspiration points for flat-bottom well geometries. In addition, the overflow function offers excellent washing efficiency in a single step, avoiding the need for tedious repositioning of the wash head for sequential aspiration and dispense steps.

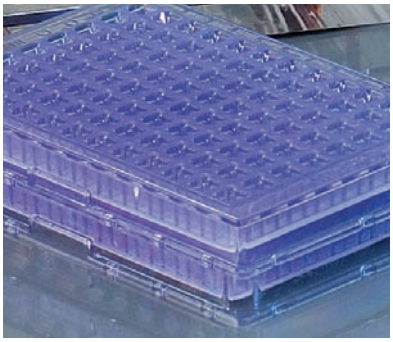


Cell and protein array washing
Individual software control of critical wash parameters, such as aspiration and dispense speeds and wash head positions, allows fine-tuning of the washer to suit your cell type or protein array, providing optimal wash results. In addition, a very gentle drop-wise dispense mode and move function ensure minimal cell detachment, even with weakly-adherent cell types.



Magnetic bead washing
The optional smart-2 MBS plate carrier allows the HydroFlex to be used for magnetic bead washing of Luminex-type of beads in the 96-well plate format. Its patent-pending design using two magnets per well efficiently settles the beads at the side of the well to protect them during aspiration, optimizing bead recovery and assay sensitivity.

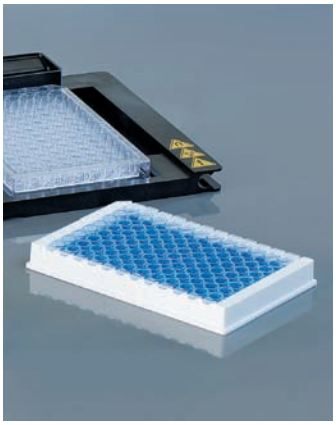
Vacuum filtration
The HydroFlex is available with both low and high level vacuum filtration options, ideally suited to applications such as non-magnetic Luminex® bead separation and PCR clean-up respectively. Vacuum filtration is simple to automate with the HydroFlex, with fully programmable filtration steps and wash buffer dispenses, and automated control of the vacuum level and filtration time for quick release of the plate after filtration. DNA purification by vacuum filtration effectively removes unwanted residues or reaction by-products, and the purified DNA can be easily re-suspended from the filtration membrane plates.



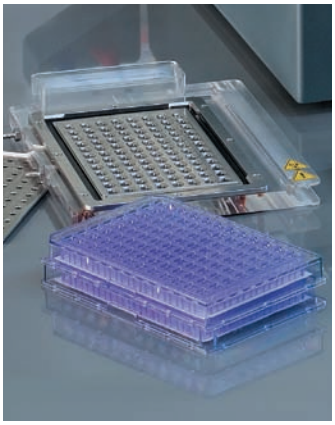
Modular and upgradeable to suit your application needs

The HydroFlex strip washer is capable of processing most 96-well format plates – including strip plates, half-area plates and full plates with a variety of well geometries – helping to reduce reagent consumption. This flexibility allows you to configure your instrument set-up according to your current application, with the option to upgrade your system with additional modules if your needs change.

Options available for the HydroFlex platform include:

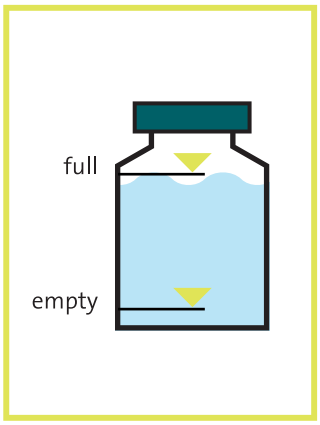


8- or 16-way manifold for ELISAs and cell-based assays, allowing simultaneous washing of 8 or 16 wells



Automated vacuum filtration system for non-magnetic bead separation and DNA purification

Patent pending plate carrier for magnetic bead separation (MBS) for washing bead-based assays



Liquid level detection (LLD) system to monitor bottle filling levels

A good fit for your laboratory

Reliable

The HydroFlex is designed to provide excellent long-term performance while minimizing maintenance and service costs. The system's advanced pump system offers a mean time to first failure (MTFF) of more than 40,000 plates, typically corresponding to several years of hassle-free operation.

*Regulatory compliant

The HydroFlex washer has been designed for general purpose use, and meets the IVD-directive 98/79/ EC for Europe when configured for ELISA washing. In combination with HydroControl™ software, it is also meets FDA's Title 21 CFR part 11 criteria.
To prepare the HydroFlex for the European directive for the Reduction of Hazardous Substances (ROHS), Tecan has minimized the use of hazardous material in the product.

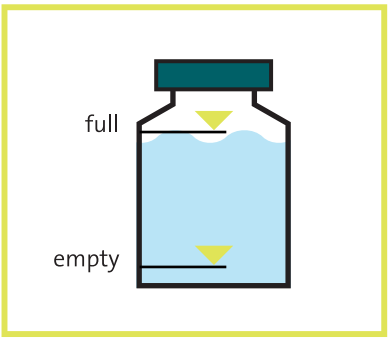
- ☑ 21 CFR Part 11
- ☑ 98/79/EC IVD-D

Advanced features

Advanced process control

The HydroFlex platform's outstanding online control features set new standards of reliability and safety for microplate washers. The instrument's liquid level detection (LLD) system monitors filling levels in wash buffers and waste bottles to avoid spillages and unnecessary downtime, as well as sieves in all wash bottles to prevent particles from entering the wash head.

The system also features a range of built-in sensors to guarantee reliable washing performance, including a bubble sensor which checks the wash buffer inlet line to ensure correct buffer flow and an online dispense pump diagnostic check.

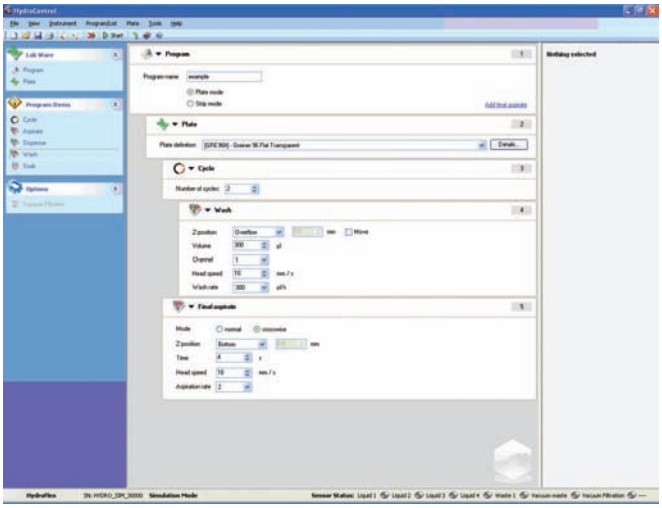


Ready for Automation

For complete automation of laboratory workflows, the HydroFlex washer can be easily integrated onto Tecan's Freedom EVO® or Freedom EVOlyzer® workstations, as well as other automated ELISA platforms, helping users to meet higher throughput requirements.

Intuitive controls

The HydroFlex washer can be fully programmed and operated as a stand-alone instrument using the built-in keypad. All critical wash parameters, including dispense and aspiration speeds and wash head positions can be controlled via the on-board interface, as well as the vacuum level and the filtration time for vacuum filtration applications.



In addition the system features a selection of predefined cleaning protocols for easy maintenance.

Further more, every HydroFlex system is supplied with Tecan's intuitive HydroControl software, providing example wash programs and a pre-defined plate library, as well as a simulation mode for offline operation. This easy-to-use software also provides a standardized interface for integration of the HydroFlex onto Tecan's Freedom EVO liquid handling workstations or Freedom EVOlyzer ELISA analyzer, offering complete workflow automation.

HydroControl can also be pre-programmed for specific assay kits, allowing assay manufacturers to provide kit-specific wash programs and plate parameters which can be quickly transferred onto the HydroFlex washer via a USB interface using the download function.

It also fulfills all common user administration requirements for electronic records and signatures, and has been designed to meet the FDA CFR 21 part 11 regulations.

Flexible design

The multifunctional HydroFlex washer offers far greater flexibility than a standard plate washer, and features user-interchangeable plate carriers for easy switching between washing and filtration applications to allow:

- **ELISA washing** for improved consistency and reliability
- **Gentle washing** of cell-based assays with adherent or weakly adherent cells
- **Microplate array washing** for protein and antibody arrays
- **Vacuum filtration** to waste for PCR cleanup after DNA amplification, etc.
- **Magnetic bead washing** with smart-2 MBS carrier using two magnets per well

Add some color to your lab

The HydroFlex is available in a range of special edition colors alongside the standard white color:

- Metallic orange
- Metallic red
- Metallic blue
- Metallic silver
- Bright green

HydroFlex features and benefits:

- Compact and modular design, suitable for a range of applications and laboratories
- Ready for automated washing of ELISAs, cells and protein arrays
- Automated system for vacuum filtration to waste
- Magnetic plate carrier for magnetic bead washing
- Advanced online process controls for safety and reliability
- Bubble sensor unit that ensures reliable buffer dispensing
- Multipoint aspiration for flat bottom plates to achieve minimal residual volumes
- Individual software control of speed settings and wash head positions
- Suitable for integration with Freedom EVO and Freedom EVOlyzer workstations
- Excellent reliability and low service costs

HydroFlex – Typical performance values

Parameters	Characteristics
General	
Display unit	Liquid crystal display with two rows of sixteen digits
Keyboard	Four key membrane keyboard
Number of dispensing channels	1-, 2- or 4-channels
Manifold types	8- or 16-way for parallel processing of 8- or 16-wells,
Variable	
Volume of solution dispensed	50 – 3000 µl in 50 µl steps for washing 50 – 400 µl in 50 µl steps for dispensing
Dispensing accuracy	≤ 1.2 % (300µl dispense volume, dispense rate: 3, 8-way manifold).
Dispensing uniformity CV	≤ 2.5 % over the plate (300µl dispense volume, dispense rate: 3, 8-way manifold).
Residual volume	Crosswise aspiration: ≤ 1.8 µl per well (96-well, flat-bottom Greiner® plate) (Asp. Rate: 3; Asp. time: 4 sec; Head speed: 10 mm/sec; 8-way manifold)
Vacuum range	High level vacuum filtration: -150 to -850 mBar absolute pressure Low level vacuum filtration: -50 to -150mBar absolute pressure
Interface	USB
Shaking	Linear shaking; high-, medium- and low-setting
Power	
Supply	Auto sensing for the settings 100 – 120 V or 220 – 240 V, 50/60 Hz
Consumption	65 VA
Physical	
Outside dimensions for plate washing	Width: 27.5 cm, Depth: 36.6 cm, Height: 18.1 cm
Weight	6.6 kg
Colour	

The instruments adhere to applicable safety standards to date.

Tecan – Who we are

Tecan is a leading global provider of life science laboratory instruments for the biopharmaceuticals, forensics, clinical diagnostics and academic sectors, specializing in the development and production of automation and detection solutions, including microplate readers, microarray products and washers.

Founded in Switzerland in 1980, Tecan has manufacturing, research and development sites in both North America and Europe, and maintains a sales and service network in 52 countries. To date, Tecan has distributed approximately 20,000 microplate readers worldwide, and is committed to continuous technological improvements and compliance with the highest global quality standards.

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