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BIOHIT Liquid Handling
Product Catalogue 2012-2013

turning science into solutions

"The Sartorius Biohit liquid handling products are a perfect combination of ergonomics, reliability and design."

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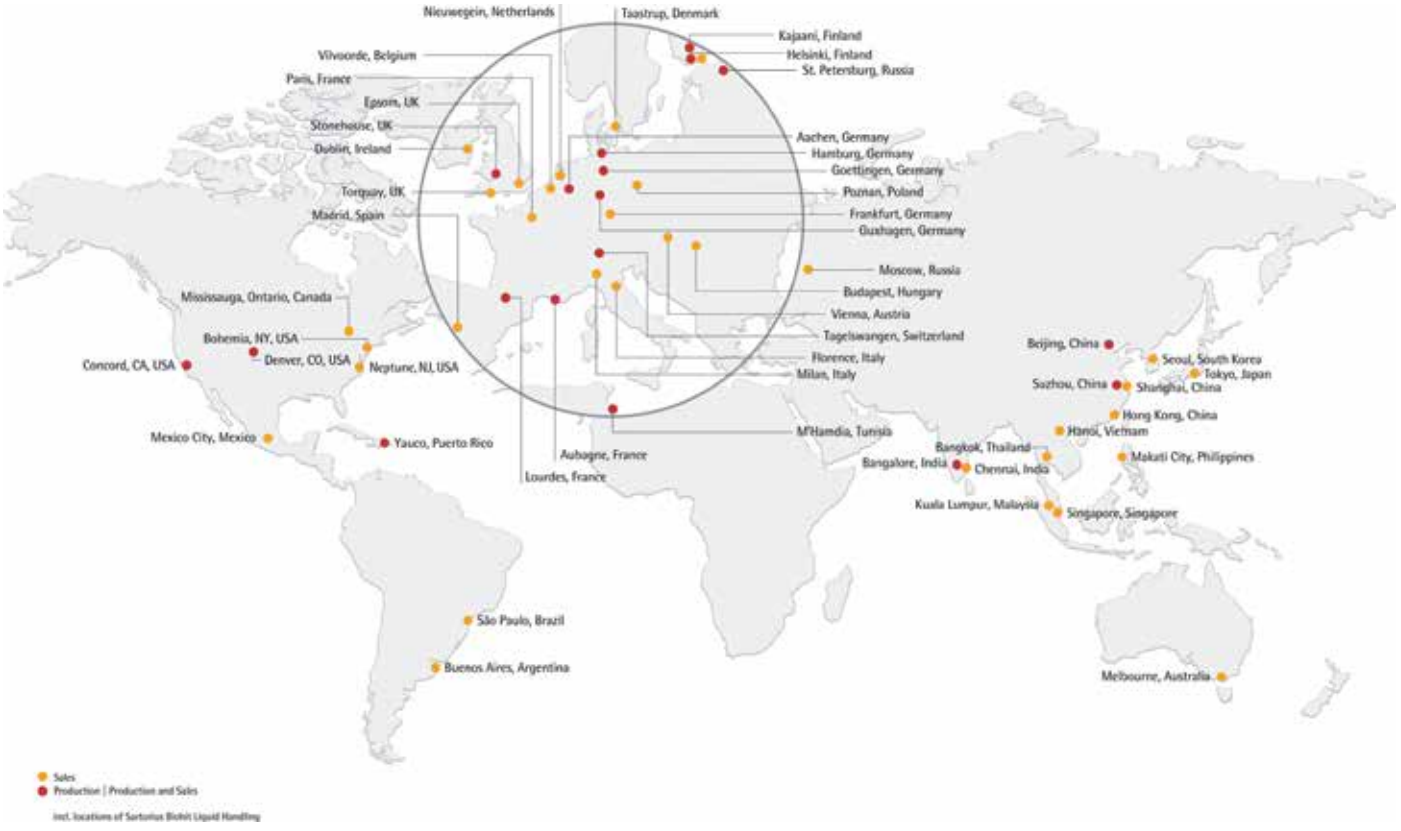
Nieuwegein, Netherlands
Taastrup, Denmark
Kajaani, Finland
Helsinki, Finland
St. Petersburg, Russia
Vilvoorde, Belgium
Paris, France
Epsom, UK
Stonehouse, UK
Dublin, Ireland
Aachen, Germany
Hamburg, Germany
Goettingen, Germany
Torquay, UK
Poznan, Poland
Madrid, Spain
Frankfurt, Germany
Guxhagen, Germany
Moscow, Russia
Mississauga, Ontario, Canada
Budapest, Hungary
Vienna, Austria
Bohemia, NY, USA
Tagelswangen, Switzerland
Beijing, China
Seoul, South Korea
Tokyo, Japan
Concord, CA, USA
Denver, CO, USA
Florence, Italy
Milan, Italy
Neptune, NJ, USA
Suzhou, China
Shanghai, China
Hong Kong, China
M'Hamdia, Tunisia
Hanoi, Vietnam
Mexico City, Mexico
Yauco, Puerto Rico
Bangkok, Thailand
Makati City, Philippines
Aubagne, France
Bangalore, India
Chennai, India
Lourdes, France
Kuala Lumpur, Malaysia
Singapore, Singapore
São Paulo, Brazil
Buenos Aires, Argentina
Melbourne, Australia
Sales
Production | Production and Sales
Incl. locations of Sartorius BioAnalytical Instruments


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About Sartorius Biohit

Sartorius Biohit Liquid Handling, a part of Sartorius Group, is a leading, global provider of electronic and mechanical pipettes, disposable pipette tips and related services, for pharmaceutical and chemical industry, clinical laboratories, research institutes and universities.

Known as the forerunner in developing ergonomic and light pipettes for years with the users comfort and health in mind, Sartorius Biohit is a trusted supplier to many laboratory professionals who want to reduce their risk of work-related injuries. Strong technical innovations and the use of the newest technologies both in design and manufacturing ensure the highest reliability and quality of Sartorius Biohit's liquid handling products. Sartorius Biohit offers pipette maintenance, repair and calibration services globally through its certified service centres.

Sartorius Biohit's headquarter as well as R&D is located in Helsinki, Finland. Its own manufacturing sites are both in Finland and in China and the sales network is global, shared with the Sartorius Group, in 110 countries.

Sartorius is one of the world's leading providers of laboratory and process technologies and equipment covering the segments of Bioprocess Solutions, Lab Products & Services and Industrial Weighing. Founded in 1870, the Gottingen, Germany, based company currently employs more than 5,000 people around the world. Sartorius has its own production facilities in Europe, Asia and America.

We are committed to our environmental policy that dictates the rules for our product development, manufacturing and logistics.

Responsible manufacturing

We pay particular attention to the environmental impact of our operations. We aim to develop and manufacture products that will cause the smallest possible environmental load throughout their lifecycles.

Environmentally friendly design and manufacturing
Sartorius Biohit complies with ISO 14001 environmental standards. Already at the design stage, we look into ways of reducing the usage of hazardous substances and materials. Our products are also designed to minimise waste during manufacturing and use. For example, the tip refill system can reduce waste by up to 61% compared to using racked tips in laboratories. In production, we have invested in technologies that generate less waste. We also use E.ON Clean green carbon-free electricity in our production facilities.

Recyclable materials
The plastic materials used for the products and their packaging are chosen to be suitable for use in waste-to-energy facilities as far as possible. For example the tips and the tip racks made of 100% polypropylene (PP) can be fully recycled as energy waste – PP could also be reused. The cardboard used for packaging can be recycled (reused).

In practice

- Package materials are suitable for recycling either for reuse or as energy waste
- Package sizes are minimised in order to use less material and to render logistics more efficient
- Pipette tips and racks are 100% recyclable as energy waste or for reuse
- Cadmium-free plastics have been used since 1994
- Cadmium-free batteries have been used since 1996
- mLINE and Proline Plus mechanical pipettes are more than 90% recyclable as energy waste
- Electronic pipettes are WEEE/RoHS compliant, which means controlled recycling by national authorities
- E.ON Clean green carbon-free electricity is used in our production facilities
- Minimum possible paper and energy use in our offices
- Environmentally friendly paper is used for printing

Outstanding product quality

Sartorius Biohit's products are developed and manufactured according to the requirements of the ISO 9001, ISO 13485 and ISO 14001 quality and environmental standards. The tip production also follows standard ISO 14644-1 in order to fulfil ISO class 8 cleanroom conditions. Our accredited pipette calibration follows the ISO 17025 standard. Our products are CE/IVD marked, and supplied with individual QC certificates.

We aim to continuously develop our products and processes in order to meet – and often exceed – the demands of regulatory authorities, environmental bodies, and most importantly, our customers.

Biohit's products are developed and manufactured according to the requirements of the ISO 9001, ISO 13485 and ISO 14001 quality and environmental standards. Tip production also abides by the ISO 14644-1 standard, in order to fulfil ISO class 8 cleanroom conditions. ISO 13485 is a specific standard for medical device quality systems, and supplementing the more generic ISO 9001 standard, which applies to many industries.

CE IVD

The In Vitro Diagnostic (IVD) Directive (98/79/EC) stipulates that IVD Devices must meet the essential requirements set out in Annex I, taking account of the intended purpose of the devices concerned.
Most Sartorius Biohit liquid handling devices are designed and manufactured for use with IVD-products as IVD-accessories or as general purpose laboratory equipment.

ilac-MRA FINAS Finnish Accreditation Service K041 (EN ISO/IEC 17025)

The Finnish national accreditation body operates independently as part of the Measurement Technology Centre (MIKES). Accredited pipette calibration laboratories in Finland, Germany, France, UK, China and Japan calibrate pipettes according to precise technical requirements. Our calibration laboratories in Finland, Germany, France, UK, China and Japan have been granted this status by their national accreditation bodies.

DNase • RNase • Endotoxin Free BIOHIT CERTIFIED

DNase, RNase and endotoxin free certification is issued for each lot of Biohit Single Tray and Refill Pack tips, in order to protect the sample from contamination. This certificate can be downloaded from www.biohit.com. Sartorius Biohit's tip production is ISO 8 cleanroom classified, in order to secure contamination free manufacturing environment and products.

Sartorius Biohit offers a 3-year warranty for all mechanical pipettes and a 2-year warranty for electronic pipettes. The low lifetime cost and environmental friendliness of our products, which have long warranty periods, give a high return on investment.

The ergonomic design label indicates products, which Sartorius Biohit has specifically designed to reduce the risk of work-related hand, arm and shoulder disorders, such as RSI (Repetitive Strain Injury).

The Optiload tip loading mechanism developed by Sartorius Biohit in mLINE, Proline Plus, eLINE and Picus pipettes allows tips to be loaded with constant force. In turn, this secures optimal tip sealing and minimum tip ejection force.

Most Sartorius Biohit liquid handling products are autoclavable. Please see details in product descriptions.

We follow these manufacturing quality standards

ISO 9001 • ISO 13485 • ISO 14001 • ISO 17025

Ergonomics, reliability and design

Three key factors – ergonomics, reliability and design – form the cornerstone of all of our R&D projects for new products. The newest family member, the Picus electronic pipette, is an excellent example of combining all of these aspects in one product: it is the lightest and smallest electronic pipette on the market. As well as winning a Red Dot design and a Fennia Prize award, this device is highly reliable, accurate and precise. All of Sartorius Biohit's products are designed in Finland, where our R&D team is constantly seeking solutions that make the pipetting experience even better.

> Designing products that people work with on a daily basis is always challenging. Many users are interviewed and multiple aspects need to be taken into account, to combine excellent ergonomics and easy usability with today's technology and features. To solve this puzzle and come up with a great product is an exciting, but sometimes tough, journey. However, it is always rewarding in the end.
>
> - Ville Hintikka, Chief Designer at Sartorius Biohit

Ergonomics

When designing a pipette, we always consider the shape and function of the human hand. Because we understand the risks of repetitive pipetting, we emphasise ergonomic design in every product we make. Simply put, this means products that you can use in a comfortable posture with minimum muscle power. Our pipettes and dispensers are designed for both right- and left-handed users. Their operating buttons are located sufficiently close together, within ergonomic reach of the thumb.

Reliability

For us, reliability has many aspects, the most important of which are the accuracy and precision of the results and the secured purity.

The core of a pipette lies in its **accuracy and precision. For this reason**, we have used the newest technologies together with in-house innovations, to achieve even more reliable pipetting results. Our electronic brake, piston control system and plate tracker for electronic pipettes are our newest innovations. They increase the devices' accuracy, precision and reliability. Another important factor in achieving reliable results is the optimal tip fit, which we can guarantee by designing and producing the tips ourselves, to perfectly match our pipettes.

Because purity is a key concern in many laboratories, we offer special Safe-Cone Filters for our pipettes, to keep them clean. Our products, both pipettes and tips, are as autoclavable as possible. Our pipette tips are manufactured in ISO 8 Class Cleanroom conditions and we test every certified tip lot, for DNase, RNase and endotoxins, in an external laboratory. We also offer an innovative SafetySpace™ filter tip range for safer and contamination-free pipetting.

Design

We aim to provide products with a timeless and light, yet practical, design, suitable for laboratory settings and pleasing to the eye of the user. The newest member of our product family, the Picus electronic pipette, won the Red Dot design award and the Fennia Prize Honorary Mention in 2012. Our other electronic pipette family member, eLINE, was given an honorary mention in the Pro Finnish Design competition at the time of its launch.

reddot design award
product design

fenniaprize 12
good design grows global
HONORARY MENTION

Pipette selection guide

Are you looking for a tool for sterile work, or for a pipette you could easily calibrate yourself? Or are you looking for a particularly comfortable solution, something really light and ergonomic? By consulting the tables below, you can choose the tool that best suits you and your work.

Electronic or mechanical pipette

Features	Electronic pipettes	Mechanical pipettes
Highest ergonomics	•	
Fastest pipetting	•	
User-independent results	•	
Multiple pipetting modes	•	
Fully autoclavable		•
Calibration by user	•[1]	•

Electronic pipettes

Features	Picus	eLINE
Most ergonomic	•	
Weight[2]	100 g	170 g
Multiple pipetting modes[3]	8+5	7+3
Microwell plate tracker	•	
Electronic tip ejection	•	•
Calibration by user	•	•
Information on service & calibration intervals	•	
Hot key for stored programs	•	
Memory places	10	6
Safe-Cone Filters	•	•
Autoclavable lower parts	•	•
Optiload in multichannels	•	•
Colour coding on pipette	•	•
Warranty for 2 years	•	•
CE/IVD marked		

Mechanical pipettes

Features	mLINE	Proline Plus	Proline
Most ergonomic	•		
Pipetting forces[4]	12 N	15 N	20 N
Fully autoclavable	•	•	
Optiload tip loading mechanism	all models	multichannels only	
Weight[4]	77 g	82 g	84 g
Safe-Cone Filters	•	•	•
Filter ejector	•		
Volume locking	•	click stops	click stops
Thermal insulation	•	•	
Colour coding on pipette	•	•	
Colour coding caps	•		•
ID tags	•		
Warranty for 3 years	•	•	•
CE/IVD marked	•	•	•

1) Picus only
2) 300 µl 1-channel models
3) Include mode additions
4) 1000 µl 1-channel models

Electronic pipettes

Picus electronic pipettes

Revolutionise Your Pipetting!

Picus, the winner of the Red Dot design award and Fennia Prize Honorary Mention in 2012, is Sartorius Biohit's newest, and most ergonomic, pipette family. Designed to revolutionise pipetting, it is the smallest and lightest electronic pipette on the market. This enables it to ease the user's workload and provides protection from repetitive strain injury (RSI). Its new generation technology, electronic brake and piston control system guarantee accurate and precise pipetting results. By guiding pipetting steps, the unique plate tracker increases reliability in microwell plate work. Picus is available in single-channel models, covering a volume range of 0.2-10 000 µl and in multichannel models from 0.2 µl to 1200 µl.

- New ergonomic design protects you from RSI (repetitive strain injury) and eases your workload in long pipetting series.
- Our lightest and smallest electronic pipette ensures an optimal working posture and offers comfortable pipetting.
- New generation technology – electronic brake and piston control system guarantee accurate and precise pipetting results.
- Intuitive user interface – learn main functions easily without a manual

reddot design award
product design

fenniaprize 12
good design grows global
HONORARY MENTION

Enjoy pipetting

- New ergonomic design protects you from RSI (repetitive strain injury) and eases your workload in long pipetting series
- Our lightest and smallest electronic pipette ensures an optimal working posture and comfortable pipetting
- Effortless, electronic tip ejection

Achieve reliable results

- New generation technology – the electronic brake and piston control system guarantee accurate and precise pipetting results
- A unique plate tracker increases reliability in microwell plate work, by guiding pipetting steps
- Fully electronic operation guarantees user-independent results

Learn to use it in a minute!

- Learn the main functions easily without a manual
- Fastest volume setting and easy menu navigation with unique adjustment wheel
- Hot key – fast access to your favourite programs, easing routine work

Intuitive user-interface

Ergonomics
- Lightest and smallest electronic pipette (only 100 g)
- Comfortable handle design and finger hook
- Unique electronic tip ejection
- Together with our highly regarded Pipetting Academy training programme, Picus will help you to improve your health and safety in the lab

Autoclavable lower parts

Autoclavable lower parts

Optiload for perfect tip sealing
- Allows tip loading with an equal constant force to every channel
- Enables perfect tip sealing to every individual tip cone

Safe-Cone Filters
in all models > 10 µl to prevent contamination

Technical features

- Calibration adjustment in 1, 2 or 3 points
- Information for service and calibration intervals
- Autoclavable lower parts (excl. 1200 µl models)
- Charging in charging stand or with micro USB cable
- Possible to continue working with USB charging on
- Li-Polymer battery enables charging time of approx. 1 hour

IVD

Features and benefits

Soft keys for programming

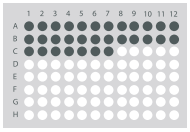
Hot key for fast access to up to 10 saved programs

Unique electronic tip ejection

Operating button

Adjustment wheel
- Offers extremely fast volume setting and easy menu navigation
- Enables ergonomic one-handed operation
- Controls accurately manual pipetting and titrating speed with just a light touch of the thumb

Microwell plate tracker
- Unique built-in tracker for 96 and 384 well plates guides the user to pipette into the correct wells
- Improves work efficiency and reliability of results
- Tracker is an optional feature used in conjunction with Pipetting, Reverse Pipetting and Multi Dispensing modes



New generation technology
- Enhanced DC-motor concept takes Picus a step beyond existing technological solutions, providing outstanding performance
- Electronic brake stops piston movement rapidly and precisely, ensuring high precision, especially in serial dispensing
- Optical sensor controls and monitors piston movement in real time, ensuring unbeatable accuracy and reliability

Pipetting modes

Main mode– available in all Picus models	**Additional functions –** to be used in conjunction with the main mode				
	Tracker	Mixing	Counter	Excess Volume Adjustment	Auto Dispensing
Pipetting ✓	•	•	•		
Reverse Pipetting ✓	•		•	•	
Manual Pipetting ✓					
Multi Dispensing ✓	•			•	•
Diluting ✓		•			
Sequential Dispensing ✓				•	
Multi Aspiration ✓					
Titrate ✓					

Picus charging options

- 1-Place Charging Stand
- 4-Place Charging Carousel
- USB cable

Picus electronic pipettes can be charged with a 1-place charging stand, a 4-place charging carousel or a direct charging USB cable. The variety of charging options has been designed for optimal utility. It is possible to continue pipetting while the Picus is being charged, using a USB cable. The compact design of the 4-pipette charging carousel is ideal for saving bench space in the laboratory. The 4-place rotating head provides easy access to the desired unit.

Charging Stand

Charging Carousel

Pipette stands – Ordering details

Cat. No.	Item
730981	Charging Stand for one pipette
730991	Charging Carousel for 4 pipettes
725620	Linear Stand

Charging stands include universal AC-adaptor
(EU, UK, US | JPN and CHN plugs)

Linear Stand

Picus – Ordering details

Cat. No.	Channels	Volume Range (µl)	Increment (µl)	Test Volume (µl)	Inacc. (%)	Impr. (%)	Safe-Cone Filters		Optifit Tips (µl)	SafetySpace™ Filter Tips (µl)
							Standard	Plus		
735021	1	0.2-10	0.02	10 5 1	0.90 1.00 2.50	0.40 0.70 1.50	-	-	10	10
735041	1	5-120	0.10	120 60 12	0.40 0.60 2.00	0.15 0.20 1.00	721008	721018	200 350	120
735061	1	10-300	0.20	300 150 30	0.40 0.60 1.50	0.15 0.20 0.80	721007	721017	350	300
735081	1	50-1000	1.00	1000 500 100	0.40 0.60 1.50	0.15 0.20 0.50	721006	721016	1000	1000
735101	1	100-5000	5.00	5000 2500 500	0.50 0.80 1.00	0.15 0.20 0.40	721005	721015	5000	–
735111	1	500-10000	10.00	10000 5000 1000	0.60 1.20 3.00	0.20 0.30 0.60	721005	721015	10000	–
735321	8	0.2-10	0.02	10 5 1	0.90 1.50 4.00	0.50 0.80 3.00	-	-	10	10
735341	8	5-120	0.10	120 60 12	0.50 0.70 2.00	0.20 0.30 1.50	721008	721018	200 350	120
735361	8	10-300	0.20	300 150 30	0.50 0.70 2.00	0.20 0.30 1.00	721007	721017	350	300
735391	8	50-1200	1.00	1200 600 120	0.50 1.00 2.50	0.20 0.30 1.00	721006	721016	1200	1200
735421	12	0.2-10	0.02	10 5 1	0.90 1.50 4.00	0.50 0.80 3.00	-	-	10	10
735441	12	5-120	0.10	120 60 12	0.50 0.70 2.00	0.20 0.30 1.50	721008	721018	200 350	120
735461	12	10-300	0.20	300 150 30	0.50 0.70 2.00	0.20 0.30 1.00	721007	721017	350	300
735491	12	50-1200	1.00	1200 600 120	0.50 1.00 2.50	0.20 0.30 1.00	721006	721016	1200	1200

All pipettes include universal AC-adaptor (EU, UK, US/JPN, AUS and CHN plugs)

eLINE® electronic pipettes

Proven performance and ergonomics

The electronic Biohit eLINE pipette family has been providing high precision and comfort for years. This award-winning (ProFinnish Design 2001) device is the first electronic pipette designed to take care of its user. The comprehensive range of pipetting modes in eLINE reduces the need for several work stages and enables liquid dispensing twice as fast as a mechanical pipette. Its unique DC-motor concept, with build-in error control, improves pipetting precision and allows more reliable results. eLINE is available as single-channel models, covering a volume range of 0.1 to 5000 µl and as multichannel models from 0.2 to 1200 µl.

- Proven accuracy and precision with DC-motor concept
- Fully electronic operations guarantee user-independent results and prevent RSI
- Effortless, electronic tip ejection
- Twice as fast as a mechanical pipette
- One eLINE covers the volume range of two mechanical pipettes – fewer pipettes needed
- Comprehensive range of pipetting modes (8)
- Several charging options
- Liquid dispensing from the air, without touching the vessel wall, with eLINE 0.1 – 5 µl model

Memory spaces for 6 saved programs

Unique electronic tip ejection

Attractive ergonomic design

Both left and right-handed operation

Autoclavable lower parts
(excl. 1200 µl multichannel pipettes)

Optiload for perfect tip sealing
- Allows tip loading with an equal constant force onto every channel
- Enables perfect tip sealing onto every individual tip cone

Safe-Cone Filters
- In all models > 10 µl to prevent contamination

IVD

Features and benefits

Warning when low battery

Direct charging option
– Immediate pipetting possibility while charging

Clear LCD-display with all the information you need

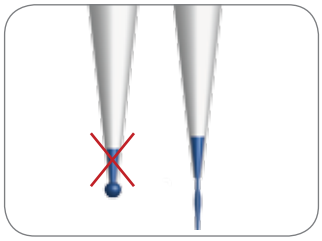
Easy-to-use keypad enables fast programming

Electronic start button for all pipetting operations

9 speeds for both aspiration and dispensing

Volume range colour coding for easy pipette and tip selection

Easy cleaning and maintenance
– Ejector collar, tip cone and piston can be unscrewed for easy cleaning, autoclaving and maintenance



The increased liquid dispensing speed of the eLINE 0.1-5µl pipette with Super Pipetting feature enables liquid dispensing from the air, emptying the tip completely, without hanging last drop.

Contamination free pipetting with Super Pipetting feature

It is now possible to dispense the very smallest volumes from the air – without needing to touch the receiving vessel wall or for dispensing under the liquid surface. The increased liquid dispensing force of the SP feature empties the tip completely, with no drops left hanging on to the tip. Using the SP feature, the user can also prevent droplets from clinging onto the electrically charged outer surface of a microplate well, since there is no need to touch the well wall. In both cases, the accuracy of the dispensed volume increases.

- Reduced risk of contamination
- Improved accuracy for small volumes
- Available in eLINE 0.1-5 µl model

Proven accuracy and precision

A unique DC-motor concept for 10 times more precise dispensing compared to a stepper-motor-driven system.

- Piston movement is halted using an extremely rapid solenoid brake
  - Major advantage in multi-dispensing where the liquid column has to be cut sharply to achieve even doses
- Error control with optical sensor
  - Controls and monitors the piston movement in real time
  - Notifies the user if the piston is in an incorrect position

Pipetting modes

Main mode	Additional functions		
	Mixing	Counter	Auto Dispensing (Timed)
Pipetting ✓	•	•	
Reverse Pipetting ✓			
Manual Pipetting[1] ✓			
Multi Dispensing ✓			•
Diluting ✓	•		
Sequential Dispensing[2] ✓			
Multi-Aspirating ✓			
Super Pipetting ✓	Only available in eLINE 0.1-5 µl		

1) Not available in eLINE multichannel pipettes
2) Not available in eLINE 0.1-5 µl

eLINE® – Ordering details

Cat. No.	Channels	Volume Range (µl)	Increment (µl)	Test Volume (µl)	Inacc. (%)	Impr. (%)	Safe-Cone Filters		Optifit Tips (µl)	SafetySpace™ Filter Tips (µl)
							Standard	Plus		
73001x	1	0.1-5	0.05	5 2.5 0.5	1.20 1.70 9.50	0.70 1.20 8.00	-	-	10	10
73002x	1	0.2-10	0.05	10 5 1	0.90 1.00 3.50	0.40 0.70 2.30	-	-	10	10
73004x	1	5-120	0.50	120 60 12	0.40 0.60 2.00	0.15 0.20 1.00	721008	721018	200 350	120
73006x	1	10-300	1.00	300 150 30	0.40 0.60 1.50	0.15 0.20 0.80	721007	721017	350	300
73008x	1	50-1000	5.00	1000 500 100	0.40 0.60 1.50	0.15 0.20 0.50	721006	721016	1000	1000
73010x*	1	100-5000	10.0	5000 2500 500	0.50 0.80 1.00	0.15 0.20 0.40	721006	721016	5000	-
73032x	8	0.2-10	0.05	10 5 1	0.90 1.50 4.00	0.50 0.80 3.00	-	-	10	10
73034x	8	5-120	0.50	120 60 12	0.80 0.70 3.00	0.20 0.30 1.50	721008	721018	200 350	120
73036x	8	10-300	1.00	300 150 30	0.50 0.70 2.00	0.20 0.30 1.00	721007	721017	350	300
73039x	8	50-1200	5.00	1200 600 120	0.50 1.00 2.50	0.20 0.30 1.00	721006	721016	1200	1200
73042x	12	0.2-10	0.05	10 5 1	0.90 1.50 4.00	0.50 0.80 3.00	-	-	10	10
73044x	12	5-120	0.50	120 60 12	0.80 0.70 3.00	0.20 0.30 1.50	721008	721018	200 350	300
73046x	12	10-300	1.00	300 150 30	0.50 0.70 2.00	0.20 0.30 1.00	721007	721017	350	300
73049x	12	50-1200	5.00	1200 600 120	0.50 1.00 2.50	0.20 0.30 1.00	721006	721016	1200	1200

x: 0=without AC-adaptor, 1=with AC-adaptor (EU, UK, US/JPN and CHN plugs)
* NOTE: Min. volume in P-mode is 500 µl. 100 µl is possible in d-mode

eLINE® charging options

- 1-Place Charging Stand
- 4-Place Charging Carousel
- AC-adaptor

The eLINE electronic pipettes can be charged with a 1-place charging stand, a 4-place charging carousel or a direct charging AC-adaptor. The variety of charging options has been designed for optimal utility. It is possible to continue pipetting while the eLINE is being charged through the AC-adaptor. The compact design of the 4-pipette charging carousel is ideal for saving bench space in a laboratory. The 4-place rotating head provides easy access to the desired unit.

Pipette stands and accessories – Ordering details

Cat. No.	Item
730981	Charging Stand for one pipette
730991	Charging Carousel for 4 pipettes
725620	Linear Stand
731009	eLINE replacement battery

Charging stands include universal AC-adaptor
(EU, UK, US | JPN and CHN plugs)

Charging Stand

Charging Carousel

Linear Stand

eLINE® PCR Starter Kit

eLINE PCR Starter Kit offers an easy start in PCR applications. Biohit eLINE electronic pipettes and dispensers speed up your work and guarantee user-independent results and excellent accuracy, even in small volumes. Sterile Biohit SafetySpace Filter Tips and Dispenser Tips ensure contamination-free pipetting.

eLINE® PCR Starter Kit 1 – Cat. No. 730820

eLINE 0.2-10 µl
eLINE 10-300 µl
eLINE Lite Dispenser
SafetySpace 10 µl Filter Tip rack, sterile
SafetySpace 300 µl Filter Tip rack, sterile
Dispenser Tip 0.5 ml (10 pcs), sterile
Dispenser Tip 1 ml (10 pcs), sterile
Charging Carousel for 4 pipettes
Cooling Rack for 12 micro tubes
Cryo pen
Literature


BIOHIT
1000
100-1000 µl
m1000

Mechanical pipettes

mLINE® mechanical pipettes

Effortless Accuracy

Sartorius Biohit's most advanced mechanical pipette family – the mLINE – offers excellent ergonomics, performance and safety in manual pipetting. It is particularly designed for repetitive and long-lasting pipetting in order to prevent work related hand, arm and shoulder disorders or Repetitive Strain Injury (RSI). mLINE is recommended by health and safety officers around the globe. It covers the full volume range of 0.1 µl to 10 ml and is available in single- and multichannel models.

- Excellent ergonomics to protect from injuries, with the exceptionally light pipetting and tip ejection forces
- High accuracy and precision, also in repetitive, long-lasting pipetting
- Minimised risk of contamination with Safe-Cone Filters and full autoclavability
- Increased safety with volume lock which prevents accidental volume changes while pipetting

Extremely light pipetting forces & ergonomic design
- Prevents repetitive strain injury (RSI)
- Better pipetting results in long pipetting series

Thermal insulation of internal components to improve accuracy

Volume lock
- Prevents accidental volume changes while pipetting

121°C
Fully autoclavable

Fully autoclavable without disassembling
- Easy to steam sterilise, improves purity

Optiload for perfect tip sealing
- Allows tip loading with an equal constant force onto every channel
- Enables perfect tip sealing onto every individual tip cone
- Makes tip ejection light and easy

Safe-Cone Filters available for models > 10 µl
- Contamination-free pipetting

IVD

Features and benefits

Colour coded caps
– Possibility to individualise the pipette or mark to be used for certain application

Smooth and light volume setting
– Prevents hand injures, can be adjusted with finger tips

Unique thumb activated light filter ejection mechanism

Ergonomic finger support
– No need to squeeze the pipette during pipetting, reduces the risk of RSI

Large numbers used on volume display
– Quick and easy-to-read volume minimises risk of volume-setting errors

Materials have high chemical and UV-resistance
– Highly durable and long lasting pipette

Volume colour coding
– Eases correct Biohit tip selection, through matching colour code

Only three parts to disassemble
– The easiest pipette to clean and maintain, improves purity

Easy to use "do-it-yourself" calibration
– Quick re-calibration possible e.g. for different liquids

Superior ergonomics
mLINE pipettes have a patented spring mechanism (plunger technology) resulting in exceptionally light pipetting forces. The tension spring mechanism makes the pipetting force almost 4 times lighter than conventional compression spring operated pipettes. Light pipetting force improves pipetting precision in long pipetting series. Thanks to the device's unique spring mechanism, the starting force is always constant, regardless of the set volume, which improves pipetting results especially for small volumes.

Perfect tip sealing with Optiload tip loading mechanism
All mLINE pipettes are equipped with spring loaded tip cones – the Optiload mechanism developed by Biohit, which secures even tip sealing and simultaneously allows tips to be loaded and ejected with minimum force. This is a particular advantage with multichannel models, where tip loading and ejecting generally requires more force. Using less force reduces the risk of hand injuries.

Prevent contamination with Safe-Cone Filters
Replaceable Safe-Cone Filters act as a barrier, preventing aerosols or fluids from reaching the internal components of the pipette. Safe-Cone Filters are available for all mLINE models greater than 10 µl. These filters must be replaced regularly, and in every case of over-aspiration.

Unique Safe-Cone filter ejection mechanism
After removing the colour cap, Safe-Cone filters can be removed easily and safely by removing the colour cap and pressing the operating button all the way down.

mLINE® – Ordering details

Cat. No.	Channels	Volume Range (µl)	Increment (µl)	Test Volume (µl)	Inacc. (%)	Impr. (%)	Safe-Cone Filters		Optifit Tips (µl)	SafetySpace™ Filter Tips (µl)
							Standard	Plus		
725010	1	0.1-3	0.002	3 1.5 0.3	1.30 2.40 10.00	0.80 1.60 6.00	-	-	10	10
725020	1	0.5-10	0.01	10 5 1	1.00 1.50 2.50	0.60 1.00 1.50	-	-	10	10
725030	1	2-20	0.02	20 10 2	0.90 1.20 3.00	0.40 1.00 2.00	721014	-	200	20
725050	1	10-100	0.10	100 50 10	0.80 1.00 2.00	0.15 0.40 1.00	721008	721018	200 350	120
725060	1	20-200	0.20	200 100 20	0.60 0.80 2.00	0.15 0.30 0.80	721007	721017	200 350	200 300
725070	1	100-1000	1.00	1000 500 100	0.60 0.60 1.00	0.20 0.20 0.40	721006	721016	1000	1000
725080	1	500-5000	10.0	5000 2500 500	0.50 0.60 2.00	0.20 0.30 0.60	721005	721015	5000	-
725090	1	1-10 ml	20.0	10000 5000 1000	0.60 1.20 3.00	0.20 0.30 0.60	721005	721015	10 000	-
725120	8	0.5-10	0.01	10 5 1	1.50 2.50 4.00	1.00 2.50 4.00	-	-	10	10
725130	8	5-100	0.10	100 50 10	0.70 1.00 3.00	0.25 0.70 1.50	721008	721018	200 350	120
725140	8	30-300	0.20	300 150 30	0.60 1.00 2.00	0.25 0.50 1.00	721007	721017	350	300
725220	12	0.5-10	0.01	10 5 1	1.50 2.50 4.00	1.00 2.50 4.00	-	-	10	10
725230	12	5-100	0.10	100 50 10	0.70 1.00 3.00	0.25 0.70 1.50	721008	721018	200 350	120
725240	12	30-300	0.20	300 150 30	0.60 1.00 2.00	0.25 0.50 1.00	721007	721017	350	300

Pipette stands and accessories – Ordering details

Cat. No.	Item
725600	Carousel Stand for 6 pipettes
725610	Pipette Holder for one pipette
725620	Linear Stand
726203	Calibration tool/Tube opener
726001	Colour coding caps, 5 pcs

Calibration tool

Pipette Holder

Carousel Stand

Linear Stand

mLINE® Starter Kit and mLINE® PCR Starter Kit

mLINE Starter Kit offers an opportunity to test and get started with mLINE pipettes. You can choose between two Starter Kits with three single-channel pipettes of different volumes. Both kits also include colour coded tip racks for every pipette and many useful accessories such as a pipette holder, colour coding caps and a calibration tool, which also acts as a tube opener. mLINE PCR Starter Kit includes all you need to make your PCR work fast and reliable. A cooling rack keeps valuable samples stable while working, thereby increasing reliability.

mLINE® Starter Kit 1 – Cat. No. 725651

mLINE 0.5-10 µl
mLINE 10-100 µl
mLINE 100-1000 µl
Optifit Tip 0.1-10 µl, Single Tray
Optifit Tip 0.5-200 µl, Single Tray
Optifit Tip 10-1000 µl, Single Tray
Pipette Holder x 3
Colour Coding Caps
Calibration Tool/Tube Opener
Pen
Literature

mLINE® Starter Kit 2 – Cat. No. 725652

mLINE 2-20 µl
mLINE 20-200 µl
mLINE 100-1000 µl
Optifit Tip 0.5-200 µl, Single Tray
Optifit Tip 10-1000 µl, Single Tray
Pipette Holder x 3
Colour Coding Caps
Calibration Tool/Tube Opener
Pen
Literature

mLINE® PCR Starter Kit 3 – Cat. No. 725660

mLINE 0.5-10 µl
mLINE 10-100 µl
mLINE 100-1000 µl
SafetySpace Filter Tip 0.1-10 µl, Single Tray, sterile
SafetySpace Filter Tip 2-120 µl, Single Tray, sterile
SafetySpace Filter Tip 50-1000 µl, Single Tray, sterile
Pipette Holder x 3
Colour Coding Caps
Calibration Tool/Tube Opener
Cryo Pen
Cooling Rack for Micro Tubes

Proline® Plus mechanical pipettes

Dependable durability

Sartorius Biohit's mechanical pipette family Proline Plus is designed to offer comfort and quality in every day manual pipetting. While it shares many of the excellent features of mLINE, it has a personal design and a robust feel for heavier use. In addition, it has the widest pipette range, including fixed volume pipettes, for when volumes need to be ready-set to avoid errors. Proline Plus pipettes are an excellent choice for both experienced laboratory professionals and students.

- The widest range of pipettes for various users and applications
- Ergonomic design with light pipetting forces, comfortable handle and finger support for reduced risk of strain injuries
- Minimised risk of contamination with Safe-Cone Filters and full autoclavability
- Highly durable with strengthened structure also for heavier use

Light pipetting forces & ergonomic design
- Prevents repetitive strain injury (RSI)

Widest range of pipettes, both adjustable and fixed volume, available
- adjustable volume pipettes for professionals
- fixed volume pipettes for specific applications to avoid volume errors

Fully autoclavable without disassembling
- Easy to steam sterilise, improves purity

Optiload tip loading mechanism in multichannel models
- Allows tip loading with an equal constant force onto every channel
- Enables perfect tip sealing onto every individual tip cone
- Makes tip ejection light and easy

Safe-Cone Filters available for models > 10 µl
- Contamination free pipetting

IVD

Features and benefits

Volume setting with click stop
– Easy to use volume setting

Ergonomic finger support
– No need to squeeze the pipette during pipetting, reduces the risk of RSI

Thermal insulation of internal components
– Improves accuracy

Large numbers used on volume display
– Quick and easy-to-read volume minimises risk of volume setting errors

Volume colour coding on display
– Eases correct tip volume selection through matching colour code

Materials have high chemical and UV-resistance
– Highly durable and long lasting pipette

Only three parts to disassemble
– The easiest pipette to clean and maintain, improves purity

Easy to use "do-it-yourself" calibration
– Quick re-calibration possible e.g. for different liquids

Widest range of pipettes
The Proline Plus family includes the widest range of pipettes, from 3 µl/5µl to 10 ml, as both adjustable and fixed volume devices. The fixed volume pipettes are particularly useful in student laboratories or in any laboratory where the application requires a constant volume, ready-set to avoid errors.

Ergonomic design
A comfortable handle and ergonomic finger support enable effortless pipetting. There is no need to squeeze the handle during pipetting, thereby reducing the risk of RSI.

Perfect tip sealing with Optiload tip loading mechanism in multichannel pipettes
All Proline Plus multichannel pipettes are equipped with spring loaded tip cones – the Optiload mechanism developed by Biohit, which secures even tip sealing and simultaneously allows tips to be loaded and ejected with minimum force. This is a particular advantage in multichannel models, where tip loading and ejecting generally require more force. Using less force reduces the risk of hand injuries.

Prevent contamination with Safe-Cone Filters
Replaceable Safe-Cone Filters act as a barrier, preventing aerosols or fluids from reaching the internal components of the pipette. Safe-Cone Filters are available for all Proline Plus models greater than 10 µl. These filters must be replaced regularly, and in every case of over-aspiration.

Maintenance and calibration made easy
No opening tools are needed when cleaning and maintaining Proline Plus pipettes, and only three parts need to be cleaned. These pipette can be easily calibrated using the tool provided with them.

Proline® Plus – Ordering details

Cat. No.	Channels	Volume Range (µl)	Increment (µl)	Test Volume (µl)	Inacc. (%)	Impr. (%)	Safe-Cone Filters		Optifit Tips (µl)	SafetySpace™ Filter Tips (µl)
							Standard	Plus		
728010	1	0.1-3	0.002	3 1.5 0.3	1.30 2.40 10.00	0.80 1.60 6.00	-	-	10	10
728020	1	0.5-10	0.01	10 5 1	1.00 1.50 2.50	0.60 1.00 1.50	-	-	10	10
728030	1	2-20	0.02	20 10 2	0.90 1.20 3.00	0.40 1.00 2.00	721014	-	200	20
728040	1	5-50	0.10	50 25 5	1.00 1.40 3.00	0.30 0.50 1.50	721008	721018	200	120
728050	1	10-100	0.10	100 50 10	0.80 1.00 2.00	0.15 0.40 1.00	721008	721018	200 350	120
728060	1	20-200	0.20	200 100 20	0.60 0.80 2.00	0.15 0.30 0.80	721007	721017	200 350	200 300
728070	1	100-1000	1.00	1000 500 100	0.60 0.60 1.00	0.20 0.20 0.40	721006	721016	1000	1000
728080	1	500-5000	10.0	5000 2500 500	0.50 0.60 2.00	0.20 0.30 0.60	721005	721015	5000	-
728090	1	1-10 ml	20.0	10000 5000 1000	0.60 1.20 3.00	0.20 0.30 0.60	721005	721015	10 000	-
728120	8	0.5-10	0.01	10 5 1	1.50 2.50 4.00	1.00 2.50 4.00	-	-	10	10
728130	8	10-100	0.10	100 50 10	0.70 1.00 3.00	0.25 0.70 1.50	721008	721018	200 350	120
728140	8	30-300	0.20	300 150 30	0.60 1.00 2.00	0.25 0.50 1.00	721007	721017	350	300
728220	12	0.5-10	0.01	10 5 1	1.50 2.50 4.00	1.00 2.50 4.00	-	-	10	10
728230	12	10-100	0.10	100 50 10	0.70 1.00 3.00	0.25 0.70 1.50	721008	721018	200 350	120
728240	12	30-300	0.20	300 150 30	0.60 1.00 2.00	0.25 0.50 1.00	721007	721017	350	300

Proline® Plus FIXED Volume, single-channel – Ordering details

Cat. No.	Channels	Volume Range (µl)	Increment (µl)	Test Volume (µl)	Inacc. (%)	Impr. (%)	Safe-Cone Filters		Optifit Tips (µl)	SafetySpace™ Filter Tips (µl)
							Standard	Plus		
728515	1	5	-	5	1.30	1.20	-	-	10	10
728520	1	10	-	10	0.80	0.80	-	-	10	10
728530	1	20	-	20	0.60	0.50	721014	-	200	20
728535	1	25	-	25	0.50	0.30	721008	721018	200	120
728545	1	50	-	50	0.50	0.30	721008	721018	200	120
728550	1	100	-	100	0.50	0.30	721008	721018	200 350	120
728560	1	200	-	200	0.40	0.20	721007	721017	200 350	200 300
728565	1	250	-	250	0.40	0.20	721006	721016	1000	500 1000
728567	1	500	-	500	0.30	0.20	721006	721016	1000	500 1000
728570	1	1000	-	1000	0.30	0.20	721006	721016	1000	1000
728575	1	2000	-	2000	0.30	0.15	721005	721015	5000	-
728580	1	5000	-	5000	0.30	0.15	721005	721015	5000	-
728590	1	10 ml	-	10000	0.60	0.20	721005	721015	10 000	-

Pipette stands and accessories – Ordering details

Cat. No.	Item
725600	Carousel Stand for 6 pipettes
725610	Pipette Holder for one pipette
725620	Linear Stand
726203	Calibration Tool/Tube opener

Calibration Tool

Carousel Stand

Pipette Holder

Linear Stand

Proline® Plus Starter Kit

Proline Plus Starter Kit offers an opportunity to test and get started with Proline Plus. You can choose between four Starter Kits, with two or three single-channel Proline Plus pipettes. All kits include a range of useful accessories, such as a pipette holder and a calibration tool that also acts as a tube opener, as well as the required instructions.

Proline® Plus Starter Kit 1 – Cat. No. 728650

- Proline Plus 0.1-3 µl
- Proline Plus 0.5-10 µl
- Optifit Tip 0.1-10 µl, Single Tray x 2
- Pipette Holder x 2
- Calibration Tool/Tube Opener
- Literature

Proline® Plus Starter Kit 3 – Cat. No. 728652

- Proline Plus 2-20 µl
- Proline Plus 20-200 µl
- Proline Plus 100-1000 µl
- Optifit Tip 0.5-200 µl, Single Tray x 2
- Optifit Tip 10-1000 µl, Single Tray
- Pipette Holder x 3
- Calibration Tool/Tube Opener
- Literature

Proline® Plus Starter Kit 2 – Cat. No. 728651

- Proline Plus 0.5-10 µl
- Proline Plus 10-100 µl
- Proline Plus 100-1000 µl
- Optifit Tip 0.1-10 µl, Single Tray
- Optifit Tip 0.5-200 µl, Single Tray
- Optifit Tip 10-1000 µl, Single Tray
- Pipette Holder x 3
- Calibration Tool/Tube Opener
- Literature

Proline® Plus Starter Kit 4 – Cat. No. 728653

- Proline Plus 500-5000 µl
- Proline Plus 1000-10000 µl
- Optifit Tip 100-5000 µl, Bulk
- Optifit Tip 1-10 ml, Bulk
- Pipette Holder x 2
- Calibration Tool/Tube Opener
- Literature

Proline® mechanical pipettes

Affordable reliability

The fact that the first Biohit mechanical pipette family, Proline, is still in use in many laboratories, testifies to its timeless, practical design and reliability. Being the most affordable pipette in Sartorius Biohit's range of mechanical pipettes, it is ideal for universities and colleges, or any laboratory seeking a cost-efficient liquid handling tool. Due to its relatively light weight, high accuracy and precision, it is also used by many professionals.

Volume setting with click stop
– Easy-to-use volume setting

Wide range of pipettes, both adjustable and fixed volume

Ergonomic finger support
– No need to squeeze the pipette during pipetting, reduces the risk of RSI

Clear volume display
– Easy to read volume minimises the risk of volume setting errors

"Do-it-yourself" calibration
– Re-calibration possible e.g. for different liquids

Tip cone material highly chemically resistant
– Highly durable tip cone

Safe-Cone Filters available for models > 10 µl
– Contamination-free pipetting

IVD

Proline® – Ordering details

Cat. No.	Channels	Volume Range (µl)	Increment (µl)	Test Volume (µl)	Inacc. (%)	Impr. (%)	Safe-Cone Filters		Optifit Tips (µl)	SafetySpace™ Filter Tips (µl)
							Standard	Plus		
720010	1	0.1-2.5	0.05	2.5 1.25 0.25	2.50 3.00 12.00	2.00 3.00 6.00	-	-	10	10
720015	1	0.5-10	0.10	10 5 1	1.00 1.50 2.50	0.80 1.50 1.50	-	-	10 200	10 20
720080	1	2-20	0.50	20 10 2	0.90 1.20 3.00	0.40 1.00 2.00	721008	721018	200	20 120
720025	1	5-50	0.50	50 25 5	0.60 0.90 2.00	0.30 0.60 2.00	721008	721018	200 350	120
720050	1	10-100	1.00	100 50 10	0.80 1.00 3.00	0.20 0.40 1.00	721007	721017	200 350	120 200 300
720070	1	20-200	1,00	200 100 20	0.60 0.80 2.50	0.20 0.30 0.80	721007	721017	200 350	200 300
720060	1	100-1000	5.00	1000 500 100	0.60 0.70 2.00	0.20 0.25 0.70	721006	721016	1000	1000
720110	1	1000-5000	50.0	5000 2500 1000	0.50 0.60 0.70	0.20 0.30 0.30	721005	721015	5000	-
720210	8	0.5-10	0.10	10 5 1	1.50 2.50 4.00	1.50 2.50 4.00	-	-	10	10
720220	8	5-50	0.50	50 25 5	1.00 1.50 3.00	0.50 1.00 2.00	721014	-	200 350	120 200 300
720240	8	50-300	5.00	300 150 50	0.70 1.00 1.50	0.25 0.50 0.80	721014	-	350	300
720310	12	0.5-10	0.10	10 5 1	1.50 2.50 4.00	1.50 2.50 4.00	-	-	10	10
720320	12	5-50	0.50	50 25 5	1.00 1.50 3.00	0.50 1.00 2.00	721014	-	200 350	120 200 300
720340	12	50-300	5.00	300 150 50	0.70 1.00 1.50	0.25 0.50 0.80	721014	-	350	300

Proline® FIXED Volume – Ordering details

Cat. No.	Channels	Volume Range (µl)	Increment (µl)	Test Volume (µl)	Inacc. (%)	Impr. (%)	Safe-Cone Filters		Optifit Tips (µl)	SafetySpace™ Filter Tips (µl)
							Standard	Plus		
722001	1	5	-	5	1.30	1.20	-	-	10 200	10 20
722004	1	10	-	10	0.80	0.80	-	-	10 200	10 20
722010	1	20	-	20	0.60	0.50	721008	721018	200 350	20 120
722015	1	25	-	25	0.50	0.30	721008	721018	200 350	120
722020	1	50	-	50	0.50	0.30	721008	721018	200 350	120
722025	1	100	-	100	0.50	0.30	721007	721017	200 350	120 200 300
722030	1	200	-	200	0.40	0.20	721007	721017	200 350	200 300
722035	1	250	-	250	0.40	0.20	721006	721016	1000	500 1000
722040	1	500	-	500	0.30	0.20	721006	721016	1000	500 1000
722045	1	1000	-	1000	0.30	0.20	721006	721016	1000	1000
722050	1	2000	-	2000	0.30	0.15	721005	721015	5000	5000
722055	1	5000	-	5000	0.30	0.15	721005	721015	5000	5000

Pipette stands and accessories – Ordering details

Cat. No.	Item
725600	Carousel Stand for 6 pipettes
725620	Linear Stand
721259	Pipette Holder for 1 pipette
721234	Colour coding caps, 6 pcs

Pipette Holder

Linear Stand

Carousel Stand

Pipette tips

Optifit Tips and SafetySpace™ Filter Tips

The perfect match for your pipette

In liquid handling, pipetting results are not dependent on the pipette or the tip alone, but a combination of these and the comfort of the user! Our Optifit Tips and SafetySpace Filter Tips are designed and manufactured as a perfect fit for our pipettes, enabling maximal accuracy, precision and ergonomics. The unique Optiload mechanism of our pipettes allows tip attachment and loading with reduced force, but with complete sealing. These tips' universal design also secures compatibility with the pipettes of most other manufacturers.

Manufacturing the tips in our own production facility allows us to maintain the highest quality and purity standards, by selecting the best plastic materials and controlling the manufacturing process from beginning to end. Our quality management system follows not only ISO 9001 and ISO 14001, but also ISO 13485, enabling us to issue CE/IVD certification for pipette tips and pipettes. Tip production also abides by the ISO 14644-1 standard, in order to fulfil ISO Class 8 cleanroom conditions for secured tip purity.


sartorius

Certificate of Quality

ISO 8 Clean Room manufacturing

Contamination free tips
To avoid contamination from human contact, we have automated the entire tip manufacturing process. Pure virgin polypropylene (PP) plastic is automatically fed from silos into moulding machines. Moulding machines and robots located in isolated clean cells load the tips automatically into tip trays and packaging. HEPA filters and higher air pressure are applied for purity within the cell. All Biohit Single Tray tip racks and Single Refill Packs are individually and automatically packed in air-tight plastic, in order to rule out any danger of contamination.

Additionally, our highly experienced and trained personnel are equipped with specially designed clothing, masks, hair nets and gloves, in order to further diminish contamination risks.

An independent laboratory checks each Single Tray and Refill Pack tip lot for RNase, DNase and endotoxins. Lot-specific purity certificates can be downloaded from **www.biohit.com/tipquality**.

BIOHIT • ISO 9001 / 13485 / 14001 CERTIFIED

DNase • RNase • Endotoxin Free BIOHIT CERTIFIED

121°C Fully autoclavable

CE IVD

Features and benefits

Best fit – highest possible accuracy
- Perfect fitting and sealing with Biohit pipettes secure the highest possible accuracy and precision
- Compatible with Optiload feature in Biohit Picus, eLINE, mLINE and Proline Plus pipettes enabling ergonomic and light tip attachment and ejection
- Colour coding of the tip trays allows easy matching with a suitable colour coded Biohit pipette
- Compatible with most other pipette makes (see compatibility with other manufacturers' pipettes at **www.biohit.com**)

Large variety of packaging options available:
- Single Tray racks
- Refill Towers
- Single Refill Packs
- Bulk in box

Premium quality and purity
- Strict quality standards, ISO 9001 and ISO 13485, followed from R&D to production and delivery
- CE/IVD certified for *in vitro* applications
- Manufactured in ISO 8 classified clean room conditions
- DNase, RNase and endotoxin free manufacturing process:
  - Single Trays and Refill Packs certified pure by lot number
- Pre-sterilised tips are e-beam irradiated
- All tip packages, including individual racks, are lot numbered for full traceability
- The highest quality virgin polypropylene used as raw material

SafetySpace™ Filter Tips

100% sample delivery for better accuracy

SafetySpace Filter Tips leave more space between the sample and the filter than conventional filter tips. This allows pipetting any type of liquid or using any pipetting technique without the risk of the precious sample wetting the filter. In turn, this secures 100% sample recovery and greater accuracy.

This feature is particularly useful in the following applications
- pipetting foaming liquids such as buffers and proteins
- pipetting solvents
- multiple dispensing functions of electronic pipettes
- reverse pipetting

The filter tips are made of virgin polypropylene and feature filter (PE) barriers, in order to prevent aerosol and liquid contamination. This helps protect against the risk of cross-contamination and reduces the pipette's maintenance requirements. The filter is made of polyethylene without "self-sealing" additives to avoid any interference with the sample and results.

SafetySpace Filter Tips are available in multiple volumes from 10 µl to 1200 µl and are packed in colour coded Single Tray racks. They are certified DNase, RNase and endotoxin-free and are e-beam pre-sterilised. Lot-specific purity certificates can be downloaded from **www.biohit.com**.

The SafetySpace™ Filter Tips are ideal for
- molecular biology
- microbiology
- cell culture applications
- radioactive work


BIOHIT
Picus
10

Packaging options

SafetySpace™ Filter Tips

Single Tray racks
- 10 racks of 96 tips
- Pre-sterilised (e-beam) and DNase, RNase and endotoxin-free certified
- Informative rack labelling improves tip identification and traceability: volume, product number, lot number
- Racks, trays and tips are 100% recyclable.
- Air-tight plastic wrapping around the rack secures purity during transport and storage (the plastic wrapping is regular waste)
- Tip trays are colour coded to indicate the matching, colour coded Biohit pipette
- Covers a large range of tip volumes from 10 µl to 1200 µl
- Trays and racks are fully autoclavable at 121°C for 20 minutes

Optifit Tips

Single Tray racks - for safer laboratory work
- 10 racks of 96 tips
- DNase, RNase and endotoxin-free certified
- Available as e-beam pre-sterilised or non sterilised
- Informative rack labelling improves tip identification and traceability: volume, product number, lot number
- Racks, trays and tips are 100% recyclable.
- Air-tight plastic wrapping around the rack secures purity during transport and storage (the plastic wrapping is regular waste)
- Tip trays are colour coded to indicate the matching, colour coded Biohit pipette
- Covers a large range of tip volumes from 10 µl to 5 ml
- Fully autoclavable at 121°C for 20 minutes

Bulk in Box

Optifit Tips

Refill Towers

- Space-saving with 10x96 tips in one tower.
- Ecological with cardboard packaging, 100% recyclable
- Tip trays to be transferred to Single Tray racks before use
- Trays are colour coded to indicate the matching, colour coded Sartorius Biohit pipette
- Covers the most used tip sizes: 10 µl, 200 µl and 350 µl
- Trays and tips are fully autoclavable at 121°C for 20 minutes

Bulk in Box

- Tips made to the Sartorius Biohit quality standard in economical packaging
- Packed in releasable bags in cardboard boxes (1000, 400, 250 or 100 pcs depending on tip volume)
- 100% recyclable
- Covers a large range of tip volumes from 10 µl to 10 ml
- Tips are fully autoclavable at 121°C for 20 minutes

Single Refill Packs

- 10, 15 or 20 trays of 96 tips depending on tip volume
- DNase, RNase, endotoxin-free certified
- Available as e-beam pre-sterilised or non-sterilised
- Individually packed air-tight tip trays for maximum purity with less packaging material compared to racked tips
- Trays to be transferred to Single Tray racks before use
- Container lid with informative tip identification markings including product and lot numbers
- Tip trays are colour coded to indicate the matching, colour coded Sartorius Biohit pipette
- Covers a large range of tip volumes from 10 µl to 1200 µl
- Trays and tips are fully autoclavable at 121°C for 20 minutes
- Apart from the container lid, material is recyclable

Optifit Tips – Ordering details

Volume Range		Length	Packaging	Purity level RNase, DNase, endotoxin-free	Pre-sterilised	Qty/unit	Cat. No.
0.1-10 µl		31.5 mm	Single Tray	•		10x96	790010
			Single Tray	•	•	10x96	790011
			Refill Tower			10x96	790012
			Refill Pack	•	•	20x96	790013
			Bulk in Box			1000	790014
0.1-10 µl	Extended	46 mm	Single Tray	•		10x96	783210
			Single Tray	•	•	10x96	783211
0.5-200 µl		51 mm	Single Tray	•		10x96	790200
			Single Tray	•	•	10x96	790201
			Refill Tower			10x96	790202
			Refill Pack	•	•	15x96	790203
			Bulk in Box			1000	790204
5-350 µl		54 mm	Single Tray	•		10x96	790350
			Single Tray	•	•	10x96	790351
			Refill Tower			10x96	790352
			Refill Pack	•	•	15x96	790353
			Bulk in Box			1000	790354
10-1000 µl		71.5 mm	Single Tray	•		10x96	791000
			Single Tray	•	•	10x96	791001
			Refill Pack	•		10x96	791002
			Refill Pack	•	•	10x96	791003
			Bulk in Box			1000	791004
			Bulk in Box			400	791005
10-1000 µl	Wide bore tip	68.5 mm	Single Tray	•		10x96	791020
			Single Tray	•	•	10x96	791021
			Bulk in Box			1000	791024
50-1200 µl		71.5 mm	Single Tray	•		10x96	791200
			Single Tray	•	•	10x96	791201
			Refill Pack	•		10x96	791202
			Refill Pack	•	•	10x96	791203
			Bulk in Box			1000	791204
50-1200 µl	Extended	90 mm	Single Tray	•		10x96	791210
			Single Tray	•	•	10x96	791211
			Refill Pack	•		10x96	791212
			Refill Pack	•	•	10x96	791213
100-5000 µl		150 mm	Single Tray	•		50	780304
			Single Tray	•	•	50	780305
			Bulk in Box			100	780300
			Bulk in Carton			1000	780308
0.5-10 ml	Extra long tip for MidiPlus	242 mm	Bulk in Box			100	780310
1-10 ml		161 mm	Bulk in Box			250	780315

SafetySpace™ Filter Tips – Ordering details

Volume Range	Length	Packaging	Purity level RNase, DNase, endotoxin-free	Purity level Pre-sterilised	Qty/unit	Cat. No.
0.1-10 µl 	32 mm	Single Tray	•	•	10x96	790011F
0.5-20 µl 	51 mm	Single Tray	•	•	10x96	790021F
2-120 µl 	51 mm	Single Tray	•	•	10x96	790101F
5-200 µl 	52.5 mm	Single Tray	•	•	10x96	790201F
5-300 µl 	52.5 mm	Single Tray	•	•	10x96	790301F
50-1000 µl 	78 mm	Single Tray	•	•	10x96	791001F
50-1200 µl 	90 mm	Single Tray	•	•	10x96	791211F

For your guidance the tips are illustrated in the actual size.
Filter tips are not recommended to be used simultaneously with Safe-Cone Filters

Filter Tips with regular air gap – Ordering details

Volume Range	Length	Packaging	Purity level RNase, DNase, endotoxin-free	Purity level Pre-sterilised	Qty/unit	Cat. No.
0.1-10 µl 	46 mm	Single Tray	•	•	10x96	783201
10-500 µl 	78 mm	Single Tray	•	•	10x96	783206

Empty Tip Boxes for Refill System – Ordering details (tips and trays are not included)

Item	Tip type (non-filtered tips)	Qty/Unit	Cat. No.
Empty Tip Box for Refill System	10, 200, 350 µl	10	790910
Empty Tip Box for Refill System	1000, 1200 µl	10	790920

Tip compatibility charts

	Mechanical pipettes		Optifit Tips, non-filtered								SafetySpace™ Filter Tips							
	Cat. No.	µl	10*	10 Ext	200	350	1000	1000 WB	5000	10 000	10*	10 Ext**	20	120	200	300	500**	1000
mLINE 1-channel	725010	0.1-3	•	•							•	•						
	725020	0.5-10	•	•							•	•						
	725030	2-20			•								•					
	725050	10-100			•	•								•				
	725060	20-200			•	•									•	•		
	725070	100-1000					•	•										•
	725080	500-5000							•									
	725090	1-10 ml								•								
mLINE 8-channel	725120	0.5-10	•	•							•	•						
	725130	5-100			•	•								•				
	725140	30-300				•										•		
mLINE 12-channel	725220	0.5-10	•	•							•	•						
	725230	5-100			•	•								•				
	725240	30-300				•										•		
Proline Plus 1-channel	728010	0.1-3	•	•							•	•						
	728020	0.5-10	•	•							•	•						
	728030	2-20			•								•					
	728040	5-50			•									•				
	728050	10-100			•	•								•				
	728060	20-200			•	•									•	•		
	728070	100-1000					•	•										•
	728080	500-5000							•									
	728090	1-10 ml								•								
Proline Plus 8-channel	728120	0.5-10	•	•							•	•						
	728130	10-100			•	•								•				
	728140	30-300				•										•		
Proline Plus 12-channel	728220	0.5-10	•	•							•	•						
	728230	10-100			•	•								•				
	728240	30-300				•										•		

* Extended inaccuracy and imprecision with pre-sterilized 10 µl tips
** Filter tips with regular air gap

	Mechanical pipettes		Optifit Tips, non-filtered								SafetySpace™ Filter Tips							
	Cat. No.	µl	10*	10 Ext	200	350	1000	1000 WB	5000	10 000	10*	10 Ext**	20	120	200	300	500**	1000
Proline Plus Fixed Volume 1-channel	728515	5	•	•							•	•						
	728520	10	•	•							•	•						
	728530	20			•								•					
	728535	25			•									•				
	728545	50			•									•				
	728550	100			•	•								•				
	728560	200			•	•									•	•		
	728565	250					•	•									•	•
	728567	500					•	•									•	•
	728570	1000					•	•										•
	728575	2000							•									
	728580	5000							•									
	728590	10 ml								•								
Proline 1-channel	720005	0.1-2.5	•	•							•	•						
	720000	0.5-10	•	•	•						•	•	•					
	720080	2-20			•								•	•				
	720020	5-50			•	•								•				
	720050	10-100			•	•								•	•	•		
	720070	20-200			•	•									•	•		
	720060	100-1000					•	•										•
	720110	1000-5000							•									
Proline 8-channel	720210	0.5-10	•	•							•	•						
	720220	5-50			•	•								•	•	•		
	720240	50-300				•										•		
Proline 12-channel	720310	0.5-10	•	•							•	•						
	720320	5-50			•	•								•	•	•		
	720340	50-300				•										•		
Proline Fixed Volume 1-channel	722001	5	•	•	•						•	•	•					
	722004	10	•	•	•						•	•	•					
	722010	20			•	•							•	•				
	722015	25			•	•								•				
	722020	50			•	•								•				
	722025	100			•	•								•	•	•		
	722030	200			•	•									•	•		
	722035	250					•	•									•	•
	722040	500					•	•									•	•
	722045	1000					•	•										•
	722050	2000							•									
	722055	5000							•									

* Extended inaccuracy and imprecision with pre-sterilized 10 µl tips
** Filter tips with regular air gap

	Electronic pipettes		Optifit Tips, non-filtered										SafetySpace™ Filter Tips								
	Cat. No.	µl	10*	10 Ext	200	350	1000	1000 WB	1200	1200 Ext	5000	10 000	10*	10 Ext**	20	120	200	300	500**	1000	1200
Picus 1-channel	735021	0.2-10	•	•									•	•							
	735041	5-120			•	•										•	•				
	735061	10-300				•												•			
	735081	50-1000					•	•												•	
	735101	100-5000									•										
	735111	500-10000										•									
Picus 8-channel	735321	0.2-10	•	•									•	•							
	735341	5-120			•	•										•					
	735361	10-300				•												•			
	735391	50-1200							•	•											•
Picus 12-channel	735421	0.2-10	•	•									•	•							
	735441	5-120			•	•										•					
	735461	10-300				•												•			
	735491	50-1200							•	•											•
eLINE 1-channel	73001X	0.1-5	•	•									•	•							
	73002X	0.2-10	•	•									•	•							
	73004X	5-120			•	•										•					
	73006X	10-300				•												•			
	73008X	50-1000					•	•												•	
	73010X	100-5000									•										
eLINE 8-channel	73032X	0.2-10	•	•									•	•							
	73034X	5-120			•	•										•					
	73036X	10-300				•												•			
	73039X	50-1200							•	•											•
eLINE 12-channel	73042X	0.2-10	•	•									•	•							
	73044X	5-120			•	•										•					
	73046X	10-300				•												•			
	73049X	50-1200							•	•											•

* EXtended inaccuracy and imprecision with pre-sterilized 10 µl tips
** Filter tips with regular air gap


SELECT
ENTER
eLINE
Pro
5.0 ml

Dispensers and tips

eLINE® Lite and Pro Dispenser

A single innovation for repetitive dispensing

eLINE Pro and Light electronic dispensers are specifically designed for convenient and ergonomic repetitive liquid dispensing. Together with dispenser tips, these dispensers operate according to the positive displacement principle. They are therefore excellent tools for dispensing viscous or infectious liquids, or liquids with high vapour pressure. Their unique TipGuide feature selects and displays the correct tip size saving time and eliminating the risk of choosing the incorrect tip. eLINE Dispensers also include the innovative electronic tip ejector feature, familiar from Biohit's range of electronic pipettes, for reducing strain on the user's hand.

- Eases the work load in long pipetting series
- High accuracy in dispensing viscous or infectious liquids or liquids with high vapour pressure
- Contamination-free dispensing based on positive displacement principle
- Quick and error-free tip selection with unique, built-in TipGuide, which suggests the correct tip size automatically
- Large volume range from 1 µl to 50 ml
- Compatible with Biohit electronic pipette charging stands
- Compatible with Biohit Dispenser Tips

Direct charging option with AC-adaptor with immediate dispensing possibility

Clear LCD-display with charging indicator

Easy-to-use keypad enables fast programming

Unique electronic one-touch tip ejection

Electronic start button for all pipetting operations

Attractive ergonomic design

Both left and right-handed operation

Easy and light tip insertion

Dispenser Tips
- Allow contamination free dispensing

IVD

Save your time, let the TipGuide make the tip choice for you
- No time-consuming volume calculations
- Just set the desired volume and number of dispensings, TipGuide selects and displays the suitable tip size

Operating modes and functions

	eLINE Pro	eLINE Lite
Multiple Dispensing with TipGuide	✓	✓
Multiple Dispensing	✓	
Pipetting	✓	
Diluting	✓	
Sequential Dispensing	✓	
Automatic Multiple Dispensing	✓	
Multi-Aspirating	✓	
Custom mode (CST) – GL (select service intervals) – Sr (select the desired tip range) – SET (returns default setting)	✓	
5 speeds for aspirating and dispensing	✓	✓

eLINE® Dispenser – Ordering details

Cat. No.	Item
73070x	eLINE Pro Dispenser
73080x	eLINE Lite Dispenser
730981	Charging Stand
730991	Charging Carousel for 4 pipettes
731001	eLINE replacement battery

x: 0=without AC-adaptor, 1=with AC-adaptor (EU, UK, US/JPN, AUS and CHN plugs)

Dispenser Tips

- Function according to positive displacement principle
- Contamination-free dispensing – no aerosols are formed
- Made of virgin polypropylene (tip) and polyethylene (plunger)
- 9 different tip sizes from 0.1 to 50 ml
- DNA, RNase, ATP and endotoxin-free
- Pre-sterilised tips are individually wrapped
- Suitable for use together with eLINE Pro and Lite Dispensers and Biohit Mechanical Stepper, as well as most other mechanical steppers (Ripette (Ritter), HandyStep (Brand), Minilab 100/101 (HTL), EasyStep)

Dispenser Tip – Ordering details

Cat. No.	Volume (ml)	Purity level	Qty/unit
792017	0.1	Non sterile	100
792026		Pre-sterilised	100
792018	0.2	Non sterile	100
792027		Pre-sterilised	100
792019	0.5	Non sterile	100
792028		Pre-sterilised	100
792020	1.0	Non sterile	100
792029		Pre-sterilised	100
792021	2.5	Non sterile	100
792030		Pre-sterilised	100
792022	5.0	Non sterile	100
792031		Pre-sterilised	100
792023	10	Non sterile	100
792032		Pre-sterilised	100
792024	25	Non sterile*	25
792033		Pre-sterilised	25
792025	50	Non sterile*	25
792034		Pre-sterilised	25
792038	Starter Kit	Includes: 20 * 0.5 ml 20 * 1.0 ml 20 * 2.5 ml 20 * 5.0 ml 20 * 10.0 ml	100
792036	Adapter for 25 and 50 ml tips, 3 pcs./unit		

* Includes 1 adapter/unit

eLINE® Pro and Lite Dispenser and Dispenser Tip system – Performance specifications

Tip volume (ml)	Volume min/max (µl)	Increment (µl)	Step size max (µl)	Test volume (µl)	Inacc. (%)	Impr. (%)	Number of dispensings min/max
0.1	1/100	0.2	100	100 10	1.00 1.00	0.50 2.00	1/100
0.2	2/200	0.4	200	200 20	1.00 1.70	0.50 2.50	1/100
0.5	5/500	1	500	500 50	0.80 1.00	0.60 3.00	1/100
1.0	10/1000	2	1000	1000 100	0.50 0.50	0.20 0.60	1/100
2.5	25/2500	5	2500	2500 250	0.60 0.60	0.20 0.40	1/100
5.0	50/5000	10	5000	5000 500	0.60 0.90	0.15 0.50	1/100
10.0	100/10000	20	10000	10000 1000	0.40 0.40	0.20 1.00	1/100
25.0	500/25000	50	25000	25000 2500	0.50 0.50	0.15 0.50	1/50
50.0	1000/50000	100	50000	50000 5000	0.30 0.30	0.15 0.70	1/50

The performance specifications apply to the eLINE Dispenser and Biohit Dispenser Tip System.
Due to Sartorius Biohit's continuous R&D, specifications may change without prior notice.

Mechanical Stepper

Biohit Mechanical Stepper is an easy-to-use positive displacement dispenser, which allows rapid multi-dispensing of pre-set volumes up to 48 times in succession, without refilling.

The unit comes complete with an adapter for 25 ml and 50 ml tips.

- Lightweight (105 g) yet robust construction
- Maintenance-free design
- Dispensing volumes from 1 µl to 5000 µl (min. volume with Biohit Dispenser Tip is 2 µl)
- Compatible with a wide range of dispenser tips
- Ideal for dispensing aqueous and viscous liquids
- Contamination-free dispensing based on positive displacement principle
- Its ergonomic design and positioning of the dosage button in the upper part of the device allows single-handed volume selection, loading and dispensing
- 48 dispensing steps at intervals of 1 second without the need to refill thus saving 90% of the working time required for the usual pipetting technique
- Tested according to ISO 8655-1 standard

CE

Performance specifications, Mechanical Stepper and Dispenser Tips

Tip volume (ml)	Dosage volume (µl)					Impr. (%)	Inacc. (%)
Adjustment on dispenser	1	2	3	4	5		
Number of steps	48	23	15	11	8		
0.10	2	4	6	8	10	< 1.6	< ± 3.0
0.20	4	8	12	16	20	< 1.3	< ± 2.0
0.50	10	20	30	40	50	< 0.5	< ± 0.8
1.00	20	40	60	80	100	< 0.9	< ± 0.9
2.50	50	100	150	200	250	< 0.4	< ± 0.8
5.00	100	200	300	400	500	< 0.3	< ± 0.4
10.00	200	400	600	800	1000	< 0.5	< ± 0.6
25.00	500	1000	1500	2000	2500	< 0.3	< ± 0.2
50.00	1000	2000	3000	4000	5000	< 0.2	< ± 0.2

Mechanical Stepper – Ordering details

Cat. No.	Item
725700	Mechanical Stepper with adapter for 25 ml and 50 ml syringe tips


1200

Accessories

Pipette stands

When the pipette is not in use, it should be stored in an upright position in order to avoid contamination from desks and benches. Sartorius Biohit provides stands for all of its pipettes. It is recommended that electronic pipettes be stored and charged on a charging stand whenever they are not in use. In this way, the batteries always remain charged when work begins. Linear Stand is designed for all Biohit mechanical and electronic pipettes, particularly for mLINE, Proline Plus and Proline mechanical devices. This stand is also compatible with a wide range of other pipette makes. Compact carousel stands are ideal for saving bench space and are available for mechanical pipettes, and for electronic pipettes for charging.

Charging Stand

Charging Carousel

Linear Stand

Pipette Stands - Ordering details

Cat. No.	Item
730981	Charging Stand for one pipette*
730991	Charging Carousel for 4 pipettes*
725620	Linear Stand for all Biohit pipettes
725600	Carousel Stand for 6 mechanical pipettes
725610	Holder for one mLINE/Proline Plus pipette
721259	Holder for Proline pipette

* Includes Universal AC-adaptor (with Euro, US/Jpn, UK and China plugs)

Carousel Stand

mLINE/Proline Plus Holder

Safe-Cone Filters

Why should you use Safe-Cone Filters?
These unique and replaceable polyethylene (PE) filters act as a final barrier to prevent any fluids and liquid vapours from reaching the internal components of the pipette.

- Protect the pipette and sample from contamination
- Prolong the pipette's lifetime
- Reduce maintenance intervals
- Cost-effective

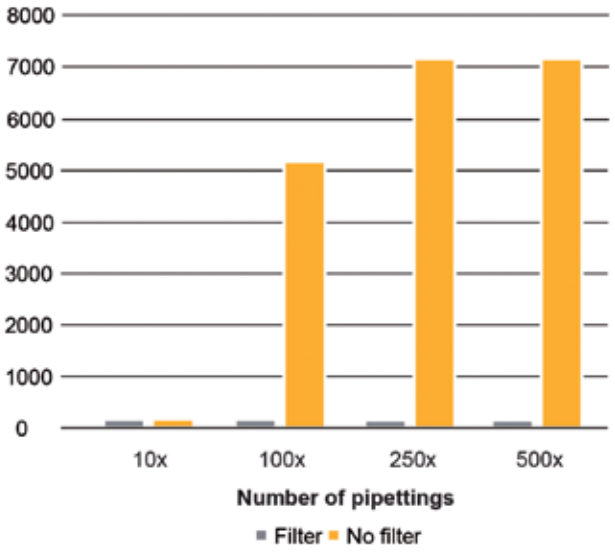
When should you use them?

The ultimate pipette protectors are available in two types:

- **Standard Filter**
  For general applications. Can be used in same type of work as the Plus filter is recommended for, but needs to be changed more frequently.
- **Plus Filter**
  For more demanding applications such as radioactive work, cell culture, bacterial and virological work and molecular biology.

How often should you change?
The interval of changing the filter depends completely on the application and the sample. However, according to studies the filter is recommended to be changed daily (after 50 to 250 pipettings) and immediately in case of over-aspiration.

How to change?
To ensure the safety of the user, forceps should be used to avoid touching the contaminated filters by hand. The mLINE also features a built-in filter ejector. In addition, clean the tip cone with ethanol (70%) prior to the assembly of a new filter.



Pipette contamination in pipette barrel when pipetting liquid culture of bacteria Micrococcus Luteus.

Pipette contamination in pipette barrel when pipetting liquid culture of bacteria Micrococcus Luteus.

Built-in filter ejector in mLINE

Contamination in pipette barrel

Number of pipettings	No filter	Safe-Cone Filter
50	-	-
100	+	-
250	++	-
500	+++	-

+: DNA (50 µl plasmid DNA 120 µg/ml) contamination in pipette barrel.

Safe-Cone Filters - Ordering details

Cat. No.	Item	Qty/Unit
721008	Standard ø 2.51 mm PE	50
721007	Standard ø 3.15 mm PE	50
721006	Standard ø 5.33 mm PE	50
721005	Standard ø 6.73 mm PE	50
721014	Standard ø 1.83 mm PE	50
721018	Plus ø 2.51 mm PE	50
721017	Plus ø 3.15 mm PE	50
721016	Plus ø 5.33 mm PE	50
721015	Plus ø 6.73 mm PE	50

PE=polyethylene

Ergomate

Ergomate keeps the microplate at a suitable angle, to help you hold your wrist and hand in a comfortable position during sample dispensing. As the ISO 8655 standard recommends, this is especially important when dispensing small volumes against the inside walls of microplate wells, in order to avoid twisting your wrist unnecessarily.

Features and benefits
- Improves pipetting ergonomy, allowing natural hand and wrist position
- Double-sided Microplate Grids with circular symbols or numbering from 1 to 12 help tracking the sample dispensing: circular symbols are magnified, when liquid is dispensed in the well on top of them
- Can be reversed to create an aerosol barrier
- Non-autoclavable

Elbow Pad

Elbow Pad helps you to feel more comfortable while pipetting. The visco elastic material of the pad relieves contact stress, pain and discomfort underneath your elbow.

The pad is ideal for
- long pipetting series
- work requiring high concentration, e.g. micro plate work
- any work where you need a cushion underneath your elbow or wrist

Features and benefits
- Improves pipetting ergonomics
- Forms according to any elbow size or shape
- Coating is pleasant to the skin
- The compact size takes up little desk space
- Very durable
- Easy to clean with washing up liquid, ethanol (70%) or Biohit Biocontrol decontamination solution
- Non-autoclavable

Reagent Vessel

Made from polypropylene, the autoclavable and durable reagent vessel is chemically resistant to all common reagents.

Cooling Rack

Cooling Rack keeps the reagents cool during pipetting and is especially suitable for applications in molecular biology. It is compatible with 1.5 ml and 2.0 ml conical and cylindrical microcentrifuge tubes.

See complete pipette decontamination procedure on page 110

Proline® Biocontrol

Decontamination solution
Proline Biocontrol is a safe solution for decontamination in a laboratory. It is specifically designed for decontaminating laboratory instruments.
The components of the pipette, which most often become contaminated, whether due to incorrect pipetting techniques or by accident, are in the tip cone area.

Daily safety maintenance
Lightly spray the outside of the pipette and wipe dry with a clean cloth. Clean surfaces, such as incubators and benches with no noticeable contamination such as blood stains may be dampened using Proline Biocontrol, which should be left on for 2 minutes and then wiped clean with an absorbent cloth.

Effective against:
- Viruses
  Hepatitis A, B, C, D and E, HIV, Parvovirus, Newcastle Disease
- Bacteria
  Pseudomonas sp., coli, Staph aureus, Proteus mirabilis, Proteus vulgaris, Streptococcus sp., Bacillus sp., Salmonellae, Klebsiella sp., Enterobacter sp., Serratia sp., Mycobacterium sp., Listeria sp., Legionella pneumophilia
- Fungi
  A. Niger, Penicillium sp., T. Mentagrophytes, Candida albicans

Proline® Biocontrol is:
- Non-toxic and non-irritating to humans and animals
- Ready to use
- Lethal to a broad spectrum of viruses, bacteria and fungi
- BS 6471 Approved
- Non-corrosive to metals
- Non-fuming
- Odourless and non-staining
- Non-mutagenic
- Alcohol, aldehyde, phenol and chlorine free
- Effective at removing odours
- Environmentally friendly (biodegradable)
- Stable for long periods

Accessories – Ordering details

Cat. No.	Item	Qty
723105	Ergomate, includes 1 Ergomate Plate holder and a grid	1
723101	Ergomate Micro Plate Grids, double-sided pack	10
723103	Elbow Pad	1
783500	Reagent Vessel (capacity 120 ml)	16
723102	Cooling Rack	1
724004	Proline Biocontrol, large container	5 litres


BIOHIT Midi Plus
T.D.20°C
Sterilin

Maxi-volume liquid handling

Midi Plus™

Excellent performance and ergonomics

The Midi Plus is a lightweight electronic cordless pipetting controller, which allows aspiration from bottles and tubes, without the arm and hand elevations required in the case of serological or volumetric pipettes. It fits all commonly used glass or plastic pipettes, but can also be used with Biohit 5 ml and 10 ml disposable tips. The speed can be fine-tuned by applying varying finger pressure to the operating buttons.

The Midi Plus is ideal, for example in microbiological work: dispensing into a culture media dish can be performed carefully, drop by drop, without breaking the fine surface of the media.

- Precise finger tip control of variable speed ranges
- Hydrophobic autoclavable filter prevents over-aspiration
- Convenient fold-out bench stand supports the unit and pipette when not in use*
- Linear speed control
- Low battery warning
- CE marked
- 2-year warranty

Hydrophobic autoclavable filter prevents over-aspiration

Stepless speed control
- Allows the aspiration and dispensing speed to be adjusted easily and precisely to suit either large or small volume pipettes.

Operating buttons

Fits all commonly used glass or plastic pipettes 1-100 ml

Autoclavable pipette adapter set

Fold-out stand*
- Prevents pipette contamination
- Saves space
- Allows the unit to be rested on a table with pipette attached

*Not available in units sold in the United States

Midi Plus™ Selection Guide

Feature	Midi Plus™
Pipette types	Plastic or glass 1-1000 ml Pasteur pipettes 5 ml and 10 ml Biohit pipette tips
Rechargeable during use	Yes
Speed contorl	Stepless adjustable control
Gravity dispensing	Yes
Stand	Attached support
Weight	207 g
Low battery indicator	Yes
Autoclavable parts	Nose cone, pipette holder and filter

Midi Plus™ - Ordering details

Cat. No.	Item	Qty/Unit
710931	Midi Plus Pipetting Controller with Universal AC-adaptor[1]	1
712912	Replacement filter, 0.45 µm, autoclavable	5
712913	Replacement filter, sterile, 0.45 µm	1
711015[2]	Adapter set for 5 ml tip, autoclavable	1
711016[2]	Adapter set for 10 ml tip, autoclavable	1
780300	Optifit Tip 5 ml	100
780310	Optifit Tip 10 ml	100

1) Universal AC-adaptor (incl. Euro, US/Jpn, UK and China plugs)
2) Adapter set including the nose cone and the silicon adapter

Biofiller

For smooth manual pipetting

Biofiller is a uniquely designed, lightweight and easy-to-use pipette filler with an ultra-squeezable bulb to provide smooth, manual pipetting control when both aspirating and dispensing, using 1 ml to 100 ml pipettes.

Simply squeeze the large silicone bulb, and the thumb lever controls both the aspirating and dispensing modes, with a button for blowing out residual contents if required.

- Comfortable and simple to use
- Precise pipetting control
- Robust and lightweight
- Compatible with blow-out pipettes
- Uses integral 0.45 µm, replaceable membrane filter to ensure liquid is not accidentally drawn into the unit
- Autoclavable silicone pipette holder

Biofiller - Ordering details

Cat. No.	Item	Qty/Unit
723039	Biofiller pipette filler with integral 0.45 µm filter	1
721963	Replacement silicone pipette holder	1
721962	Replacement filter, 0.45 µm	5
721965	Replacement filter, 0.20 µm	5
721966	Replacement filter, sterile, 0.45 µm	1

Proline® Prospenser easy-to-use bottle-top dispenser

Proline Prospenser has been designed for trouble-free and reliable bottle-top dispensing of liquids, including concentrated acids, bases, saline solutions, as well as many organic solvents.

- Dispensing directly from the supply bottle
- Fully autoclavable at 121˚C , 2 bar, 20 minutes
- Accuracy of delivery within ±0.5% on maximum delivery
- Chemically resistant fluid pathway
- Anti-drip closure cap included
- Easy-to-use volume adjustment for reproducible dispensings
- Easy to dismantle for cleaning and maintenance
- Wide range of adapters included to fit the most common bottle sizes
- Optional flexible dispense tube extension (max length 800 mm) with safety handle enables fast and precise dispensing even into narrow tubes
- Each unit is supplied with performance certificate and tested according to ISO 8655

Optional flexible dispense tube extension
- Coiled
- Length 800 mm

BIOHIT 2 YEARS WARRANTY

121°C
Fully autoclavable

Prospenser bottle-top dispenser with anti-drip valve

The Prospenser bottle-top dispenser delivers safe and precise liquid dispensing, including of strong acids, bases and solvents. Special features include an easy-to-adjust calibration mechanism and precision valve for enhanced accuracy and usability.

- Dispensing directly from the supply bottle
- Easy-to-adjust calibration mechanism
- Fully autoclavable at 121˚C , 2 bar, 20 minutes
- Accuracy of delivery within ±0.3% on maximum delivery
- Chemically resistant fluid pathway
- Anti-drip precision valve mechanism ensures easy priming and minimum waste with no leakage back into the reservoir
- Easy-to-use volume adjustment for reproducible dispensing
- Unlike other bottle-top dispensers, Prospenser's glass barrel can be disassembled from the pedestal for thorough cleaning
- Wide range of adapters included to fit the most common bottle sizes
- Optional dispense tube extension allows fast and safe dispensing even into narrow tubes
- Manufactured to ISO9002 standards, each unit is supplied with an individual calibration certificate

Easy-to-adjust calibration mechanism.

Borosilicate glass barrel protected with a transparent polypropylene sleeve

Easily removable PTFE piston for cleaning and smooth action

Chemically resistant liquid pathway

Precision valve mechanism
- Ensures that the Prospenser stays fully primed all day

Bubble free dispensing

Anti-drip tap valve

Set of Adaptors available

Optional dispense tube extension
- Allows fast and safe dispensing into narrow tubes

BIOHIT 2 YEARS WARRANTY

121°C Fully autoclavable

Biotrate digital burettes

Ranges 0–30 ml and 0–50 ml

The streamlined Biotrate digital burette and dispenser delivers accurate, precise and convenient bottle-top titration, as well as optimum operator safety. Due to its life-time battery concept, there is no need for an electrical outlet. This feature makes the Biotrate ideal for both laboratory and field-based analyses, where it can be easily moved from one place to another.

- Chemically resistant and autoclavable liquid-path construction is made of borosilicate glass, PTFE, PVDF, FEP and ceramic components
- Based on positive displacement principle for maximum accuracy
- An automatic low battery indication is shown on the large easy-to-read LCD display
- Simple for user to calibrate and restore factory calibration
- With a zero reset feature, it is easy to move from one titration to another

Rotating head and clear numbers in LCD-display increase working reliability

Chemically resistant and autoclavable liquid pathway

Simple user calibration and factory reset for ISO 9000 and GLP requirements

Visible borosilicate glass barrel protected with a transparent polypropylene sleeve allows inspection of liquid before dispensing

Bubble-free dispensing

Anti-drip tap

BIOHIT 2 YEARS WARRANTY

121°C
Autoclavable liquid pathway

Proline® Prospenser – Ordering details and performance specifications

Cat. No.	Item	Increment	Max Volume	Inacc. (%)	Impr. (%)
723045	Proline Prospenser 0.5-5 ml (with 25, 28, 32, 38 and 40 mm adaptors)	0.1 ml	5 ml	0.5	0.1
723046	Proline Prospenser 1-10 ml (with 25, 28, 32, 38 and 40 mm adaptors)	0.2 ml	10 ml	0.5	0.1
723047	Proline Prospenser 2.5-25 ml (with 32, 38 and 40 mm adaptors)	0.5 ml	25 ml	0.5	0.1
723048	Proline Prospenser 5-50 ml (with 32, 38 and 40 mm adaptors)	1.0 ml	50 ml	0.5	0.1
721633	Flexible tube extension for 5 and 10 ml Proline Prospensers				
721634	Flexible tube extension for 25 and 50 ml Proline Prospensers				

Prospenser – Ordering details and performance specifications

Cat. No.	Item	Increment	Max Volume	Inacc. (%)	Impr. (%)
723049	Prospenser 0.01–2.5 ml (with 38, 40 and 45 mm adaptors)	0.05 ml	2.5 ml	0.3	0.1
723050	Prospenser 0.1–5 ml (with 38, 40 and 45 mm adaptors)	0.1 ml	5 ml	0.3	0.1
723051	Prospenser 0.2–10 ml (with 38, 40 and 45 mm adaptors)	0.2 ml	10 ml	0.3	0.1
723052	Prospenser 1–30 ml (with 38, 40 and 45 mm adaptors)	1.0 ml	30 ml	0.3	0.1
723053	Prospenser 1–50 ml (with 38, 40 and 45mm adaptors)	1.0 ml	50 ml	0.3	0.1
721998	Dispense tube extension (see picture)				

Biotrate digital burettes 0–30 ml and 0–50 ml – Ordering details and performance specifications

Cat. No.	Item	Increment	Inacc. (%)	Impr. (%)
723054	Biotrate 0-30 ml (with 33, 38 and 45 mm adaptors)	0.01 ml	0.2	0.1
723055	Biotrate 0-50 ml (with 33, 38 and 45 mm adaptors)	0.01 ml	0.2	0.1
721998	Expandable delivery jet			

OEM solutions

OEM solutions

Tailored for customer specific systems

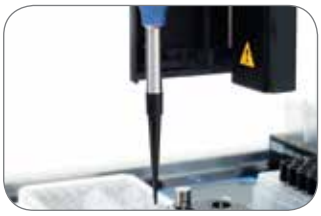
Sartorius Biohit provides tailor-made (OEM, Original Equipment Manufacture) solutions to customers who have specific needs for their liquid handling systems. Our highly experienced and inventive R&D team can take care of the whole process, from solution concept definition to final solution development, in close co-operation with the customer.

The OEM solutions can be based on multiple technical platforms, e.g. robotic dispenser modules (rLINE) or an entire pipetting automate (Roboline).

Roboline™

Automated pipetting solution for OEM applications

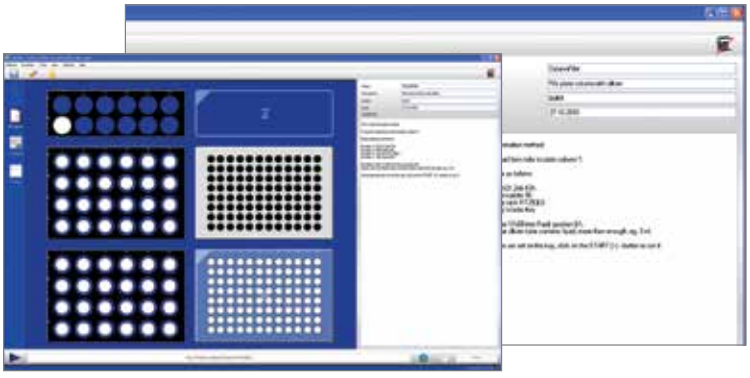
Roboline is the ideal OEM platform for automating routine pipetting, and is provided with an application interface (API) for integration with the customer's liquid handling systems. This small, quiet and compact bench top automate is easy to place anywhere in the lab, or on an office desk. Open programmability and a fast drag and drop function make the automate easy to use and suitable for a wide range of applications, or a single work stage. This robotic dispensing module guarantees accurate and precise results, free of human error.



Roboline™ is ideal for the following applications:
- Aliquoting
- Serial dilution
- Mixing
- Complex cherry picking
- Copying plates
- Pooling
- Sample transfer from tubes to plates

Safe and ergonomic
- Protects from Repetitive Strain Injury (RSI)
- Decreases exposure to toxic or contaminating solutions
- Fits in to laminar hood
- Low noise level secures quiet working environment

Sampler software
- Easy drag and drop function
- Save method as template and use it again just by clicking the template
- Control pipetting speed, volume, mode and mixing
- Application interface (API) for connecting to external software systems



rLINE®

The ultimate OEM dispenser module

The unique rLINE Robotic Dispenser Module has been developed as an ideal front-end liquid handling tool for robotic sample processing. This technology platform combines numerous unique and innovative features, such as electronic tip ejection and Optiload tip pick-up, in order to improve the high quality performance and functionality of sample processors and automated instrumentation.

The rLINE Robotic Dispenser Module is provided as an OEM platform for tailored products ranging from 10 µl to 1000 µl as single-channel modules, and from 10 µl to 120 µl as 8-channel modules. Additionally, demo versions are available for evaluation and feasibility purposes. A range of robotic tips is available on request.

The rLINE® integrator benefits

- Compact, space saving design concept for easy integration to automated systems
- Liquid level sensor option for improved accuracy or missing liquid error detection
- Integrated electronic tip ejector, no need for separate tip removal operation
- Simple pipetting module installation makes the module truly swappable
- Standard, robust and commonly used RS-232 serial interface for communication with the module
- Low voltage and current consumption add more flexibility to integration without a need for special power supplys or heat control management
- Wide range for volume options starting from micro volume dispensing
- Disposable filter tip option for controlled zero cross contamination risks

For more information on rLINE and other customer-specific solutions, please visit **www.biohit.com** or contact Sartorius Biohit at **info@biohit.com**.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Pipetting Academy™

Pipetting Academy™

Training for better performance, ergonomics and safety

Are you concerned about the results of your work due to poor pipetting practices or RSI (Repetitive Strain Injury)?

Have you considered that the pain in your hand or arm may be related to the instruments or techniques you use?

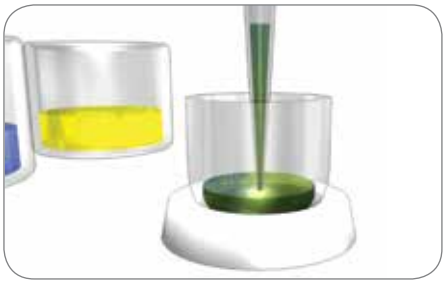
Do you know which pipetting technique to use with different types of liquids?

Do your results vary between users?

The Pipetting Academy seminar offers a comprehensive tutorial package, developed to answer these questions together with you. During the seminars, you will learn to recognise pipetting-related risk factors and increase your knowledge of ergonomics, safety and pipetting techniques, in order to avoid these risks in your daily work.

What will you learn?

- Get hands-on training in pipetting techniques that will help you and your co-workers to obtain more accurate and precise results in the lab
- Gain a better understanding of the influence of pipetting techniques and environmental factors on testing results
- Be guided through the essentials of laboratory ergonomics
- Gain a better understanding of the ergonomic risks in the laboratory environment and liquid handling in particular
- Learn how to avoid these risks by choosing the most appropriate working postures, liquid handling devices and accessories
- Appreciate how you can help make savings in both direct and indirect costs due to bad ergonomics
- Become able to instruct your employees on all of these issues, making work more efficient and enjoyable



Build your own seminar

Pipetting Academy offers you various seminars for different purposes.

You may choose from

Ergonomics
Learn about the optimal posture for pipetting and become familiar with tools that can help you work ergonomically and efficiently. Understand the risks and learn about the solutions.

Pipetting techniques
Master your working tool. Handle the pipette correctly. Be guided through the many techniques of which your pipette is capable.

Pipette calibration
Learn how to calibrate your pipette correctly to obtain the most accurate pipetting results.

ISO8655 quality standards
All you need to know about the standards you face in your everyday work.

Seminars include both theory and practice!

Videos and animations support learning

How to sign up for seminars?

- To sign up for the seminar, contact your local Sartorius representative
- The seminar will be held in the location most suitable to you and your colleagues
- The trainer will be certified to hold Pipetting Academy seminars
- Each participate will receive a certificate of participation after the seminar

Gain access to educational material, videos and animations
Once you have signed up and participated in the seminar, you will automatically gain access to educational videos, animations and presentations on ergonomics, pipetting techniques and calibration.

- Through these animations, you will be guided step by step in the correct handling of the pipette and through reverse pipetting, diluting and all other pipetting modes, to make your work easier and more efficient
- A Certified Professional Ergonomist will guide you through the essentials of ergonomics
- Presentations with explanations and illustrations on calibration and quality standards, are also available

See you at the Pipetting Academy™!

Pipetting recommendations

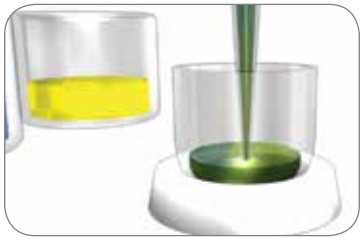
Preparations before pipetting

- Use the tip specified by the manufacturer.
- Ensure that the pipette and the tip have been tested according to ISO 8655 and the tip is seated correctly.
- Make sure pipettes have been correctly calibrated.
- Check that the pipette, tip and liquid are all at the same temperature.
- When pipetting liquids with temperatures different to the ambient temperature, do not pre-rinse the tip. Change the tip after each pipetting.
- Ensure that any fluid viscosity variations have been accounted for and the correct technique is employed, i.e. reverse pipetting.
- If handling infectious or radioactive agents make sure appropriate shielding and other precautions protect the operator.
- Use Safe-Cone Filter in the tip cone whenever possible.

While pipetting

- Hold the pipette in a vertical position. Tilting the pipette at an angle causes a volume greater than the set volume of liquid to enter the tip.
- In most cases, pre-rinsing of the tip is recommended, to achieve accurate results. Do not pre-rinse the tip, if the temperature of the liquid is different to the ambient temperature.
- When aspirating fluid, the pipette tip should normally be immersed to a depth of 2-3 mm.
- When using a mechanical pipette, operate the piston with a smooth and consistent thumb action, for repeated results without foaming or bubbles.
- You should pipette against the inside wall of the receiving vessel. Remove the tip by drawing it upwards against the inside wall.
- Ensure that the pipette blow out action is fully activated.
- Ensure that the volume is still set at the required position. A pipette with a volume locking mechanism is recommended, in order to avoid accidental volume change during pipetting.
- Avoid leaving the pipette on its side with liquid in the tip, which may seep back into the mechanism.

Hold the pipette in a vertical position when pipetting



Pre-rinsing the tip is recommended if the temperature of the liquid is the same as the ambient temperature

Avoid contamination with Safe-Cone Filters

mLINE volume lock prevents volume changes during pipetting

Charging while pipetting is possible with Biohit electronic pipettes

Load the tip into the pipette carefully and take advantage of the Optiload tip loading mechanism

Clean the pipette before sending it to service

Other precautions

- Store the pipette on a stand when not in use – see our product pages for more information on pipette stands. Electronic pipettes should be returned to their charging stands.
- Avoid dropping the pipette or allowing contact with dirt or grease.
- Change the Safe-Cone Filter regularly (recommendation after 50 to 250 pipetting cycles), and in every case of over-aspiration.
- Never strike the tip cone against the tip tray when loading the tip, as this can damage the pipette.
- Avoid exposing the unit to extreme temperature changes, humidity and dust (operating temperature from 15°C to 40°C).
- Service the pipette regularly.
- Clean the pipette thoroughly before sending it for servicing. Decontaminating the pipette with Biohit Proline Biocontrol or 70% ethanol is recommended. Notify the service personnel of the purpose for which the instrument has been used. Postal services may refuse to deliver instruments used for hazardous materials. Make sure that a qualified person services the pipette.

Pipette calibration and maintenance services

Pipette calibration and maintenance services

All liquid handling devices such as pipettes, dispensers and automates require the same care and maintenance as any precision instrument. Most quality and operating systems such as ISO 90001 or GLP (Good Laboratory Practice) require that a periodical maintenance and inspection programme is in place.

> Apparatus used in a study should be periodically inspected, cleaned, maintained, and calibrated according to Standard Operating Procedures (SOP). Records of these activities should be maintained. Calibration should, where appropriate, be traceable to national or international standards of measurement.
>
> - GLP, Good Laboratory Practice

Sartorius global service provider network offers varying levels of maintenance, repair, calibration and accredited calibration services. To help you fulfil the GLP or quality system requirements such as ISO 9001 and ISO 17025.

Pipette Doctor – pipette service for all makes and models
The Biohit Pipette Doctor service centres have the expertise to maintain, repair and calibrate any make or model of pipettes.

Pipette Doctor is the ultimate pipette service level, within Sartorius Biohit's after-sales services and around the world. Pipette Doctors are high-performance service centres with thorough technical knowledge and expertise in servicing and calibrating more than 800 pipettes. A Pipette Doctor will take care of any pipettes in your laboratory.

- Professional one-stop-service for all makes, models and volumes of pipettes
- Easy, simple and effortless service
- Cost savings from using a single service provider
- Most Pipette Doctors provide ISO 17025 accredited calibration services

Visit www.pipettedoctor.com for more information and to locate your nearest Pipette Doctor.

Biohit Certified Service Center
Biohit Certified Service Centers (BCSC) are highly qualified in technical service and calibration. These service centres are trained and authorised by Sartorius Biohit, to offer you service of the highest quality. Biohit Certified Service Centers use original Biohit spare parts and perform pipette calibration according to ISO 8655.

Technically trained distributor
All Sartorius distributors are given extensive training in maintaining and calibrating Sartorius Biohit liquid handling instruments.

Preventive maintenance, repair and calibration services

Pipettes and other liquid handling instruments are like any laboratory or other instruments, and are subject to wear and tear during their lifetime.

- The piston surface can deteriorate, wear or corrode over time
- Tip cones are subject to chemical corrosion and wear, especially in the tip sealing area
- Batteries of electronic pipettes do not last forever and must be replaced regularly

All of these problems can lead to loss of reliability (inaccuracy and imprecision) when using a pipette. Based on the extensive experience and research of Sartorius Biohit, failure rates can be significantly decreased, if a regular and scheduled preventive maintenance and recalibration program is carried out. In addition, the lifetime of these instruments can easily be extended through regular servicing and replacement of critical components.

Benefits

- Improved pipette functionality and reliability
- Detailed service documentation
- Constant pipette performance level (accuracy and precision)
- Decreased pipette downtime
- Longer lifespan for pipettes

The frequency of preventive maintenance and calibration depends on

- Accuracy requirements of the application
- Frequency of use of the pipette
- Number of operators using the pipette
- Nature of liquids dispensed
- Requirements from GLP or quality systems

Biohit preventive maintenance programmes

Procedure	Benefits	Suitable for
– Cleaning of the pipette – Cleaning of the lower parts (ejector collars, piston, seal/o-ring, tip cone) – Replacement of critical parts, so-called Preventive Maintenance Packages if needed – Re-greasing of the piston, seal or o-ring – Pressure leakage test – Calibration and performance testing according to the customer's requirements	– Detailed service documentation: service report and calibration report – Improved pipette reliability – Constant pipette performance level (inaccuracy and imprecision) – Fewer failures due to unexpected malfunctions of the pipette – Decreased pipette downtime as a result of preventive maintenance packages – Longer lasting pipettes – Lower number of pipettes that fail pre-calibration – Less waste of time and money on exception reports	– Laboratories that have a strict quality system such as ISO 9001, ISO 17025, GLP or any other quality system imposed by local legislation, international standards or product/service type – Laboratories that need to prove the quality of their services or products to their customers – Laboratories following ISO 17025, - i.e. accredited laboratories – Laboratories that are working with accredited laboratories but which are not necessarily accredited themselves

Repair Service

Procedure	Benefits	Suitable for
– Troubleshooting the problem – Disassembling the pipette: all parts are inspected for damage and wear – Components are cleaned or replaced, whenever necessary – Re-greasing of the piston, seal or o-ring – Pressure leakage test – Calibration and performance testing according to the customer's requirements	– Detailed service documentation: service repair and calibration report – Fully repaired and functional pipette – Original spare parts	– Any customers with Biohit pipettes with damaged components or improper function and that need repair and calibration by qualified specialists

Repair Service

Procedure	Benefits	Suitable for
– Product and technical service training is provided to customers who want to service and test their own pipettes in-house – Biohit provides so-called preventive maintenance packages that include the most frequently used components for pipette service – Your nearest Biohit distributor or Biohit Certified Service Center also provides the full range of original Biohit spare parts ensuring fast delivery. All spare parts are described and listed in instruction manuals and dedicated Technical Service Manuals	– In-house knowledge of service and test pipettes – Original spare parts – Cost-effective – Easy with preventive maintenance packages	– Customers who want to service and calibrate pipettes in-house: schools and universities, hospitals with technical maintenance departments etc. – Customers who do not require traceable calibration of international measurement standards

Calibration services

In pipette calibration, the inaccuracy and imprecision of the pipette is tested, any necessary adjustments are made and a certificate issued. The volume dispensed by the pipette is measured at set volumes and accuracy, and the precision of the pipette is calculated using formulas defined in ISO 8655. Calibration is performed according to customer requirements in terms of the number of measurements and volumes to be tested, and a detailed calibration certificate, conforming to ISO 8655 and quality system requirements, is issued for the pipette.

Benefits

- Improved reliability of your work
- Proven performance level of the pipette
- Detailed calibration documentation, with inaccuracy and imprecision of each volume-range tested

ISO 8655 level calibration (10.3)

Procedure	Benefits	Suitable for
Pipette is tested for inaccuracy, imprecision and linearity throughout its working range, including its mid-volume: 10 readings measured at its maximum, middle and 10% of the maximum volume (10x100%, 10x50% and 10x10%)	ISO 8655 Level Calibration Report detailing the inaccuracy and imprecision of each volume range tested	10 readings at each volume ensure a high level of confidence. This is suitable for customers working to GMP or laboratories where a higher level of confidence is required.

Accredited calibration services

Today many laboratories are becoming accredited and work to strict quality control guidelines and regulations. For this reason the calibration of laboratory instruments must be certified by an independent body competent and qualified to perform service and calibration activities.

Sartorius maintains an expanding network of calibration centers accredited in accordance with ISO 17025. Accredited calibration means that measurements are traceable to national and international standards and that the certainty of measurement is known.

Accredited calibration certificate (ISO 17025) provided for new pipettes or during calibration as an after-sales service

Procedure	Benefits	Suitable for
Accredited Calibration Certificate (FINAS, ISO 17025) together with your – new – serviced Biohit pipettes.	Accredited Calibration Certificate supplied with your new or serviced Biohit pipette includes the Uncertainty Budget defining the uncertainties for the measurement involved. As a result, you will know exactly what kind of uncertainty is due to the performance of the pipette and what is due for example, to the uncertainty of the balance.	Laboratories that are working with accredited laboratories or laboratories following ISO 17025, – i.e. accredited laboratories. Ask for an additional Accredited Calibration Certificate from your nearest dealer next time you order a new pipette from Biohit. Price varies depending on pipette model.

Scope of Accreditation (FINAS K041)

Quantity/method/object	Measurement ranges	CMC, Expressed as Expanded Uncertainty (k=2)
Dimensional quantities: Volume, calibration of liquid handling devices		
Single-channel pipettes	0.1-10 µl	20 nl
	10-100 µl	100 nl
	100-200 µl	300 nl
	200-1000 µl	630 nl
	1000-5000 µl	3200 nl
	5000-10000 µl	5800 nl
Multichannel pipettes	0.2-10 µl	90 nl
	10-100 µl	220 nl
	100-300 µl	440 nl
	300-1200 µl	2000 nl


LABOREXIN OY

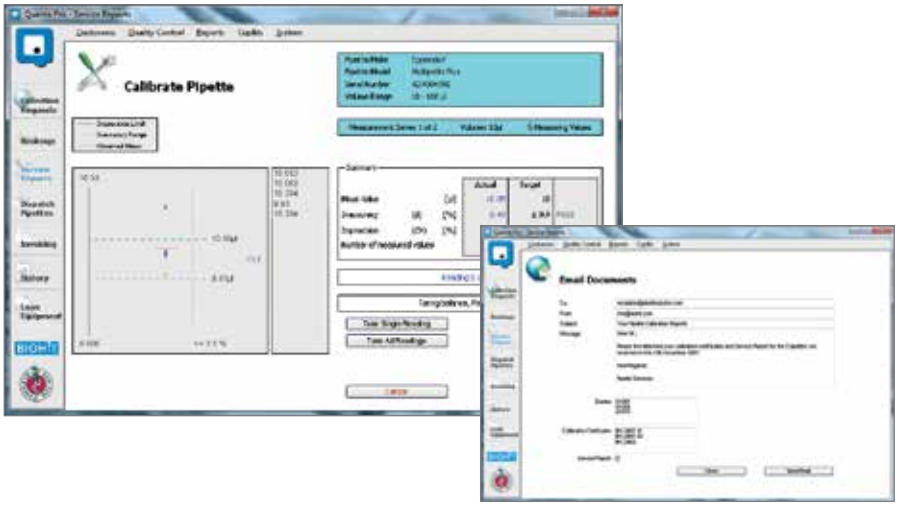
Quanta

Pipette Service and Calibration Software
Instruments and equipment used within a laboratory must be routinely tested, validated and calibrated by laboratory personnel or an external technically competent and authorised calibration company.

Quanta range of software
Sartorius Biohit provides anyone who needs to check and calibrate pipettes, from end users to pipette service companies, with a range of software to ensure the ongoing performance of their pipettes. Quanta schedules pipette calibrations, controls and captures data from balances automatically, performs all required calculations and produces reports such as calibration reports, service reports, overdue pipettes reports etc. Quanta software is suitable for both single and multi-channel pipettes of fixed and variable volumes, manual and automatic dispensers, burettes, dilutors and volumetric glassware.

The suite of Quanta software:

- Meets ISO 8655, DIN 12650, ISO 9000, ISO 17025 and GLP requirements
- Can be used with your current calibration protocols
- Connects to any balance supporting RS232 interface; controls and collects calibration data automatically from the balance
- Automatically converts mass into volume by using temperature and barometric pressure
- Provides automatic calculations on inaccuracy and imprecision
- Produces calibration reports and optional reports automatically
- Includes a database of 1500 pre-loaded test plans for all major manufacturers pipettes and liquid handling instruments
- Provides calibration specifications in accordance with manufacturers specifications, ISO 8655:2002 maximum permissible errors or user-defined specifications
- Maintains a complete service and calibration history, which can be easily accessed



quantaCal
Pipette calibration software
for the professional laboratory

QuantaCal – Our entry level software. QuantaCal is designed primarily for end users that simply need to maintain a database of their pipettes, in order to check them against the manufactures' specifications, ISO 8655 or end user specifications, and to produce detailed calibration report that will satisfy general GLP/GMP requirements.

quantaLab
Pipette service and calibration software
for the professional laboratory

QuantaLab – Our midrange software. QuantaLab is a unique menu-based software system, incorporating QuantaCal as its base module and seven additional options (see table). This software enables you to control the entire service and calibration process. It is ideally suited to smaller service companies or organisations that test and maintain their own pipettes in-house.

quantaPro
Pipette service and calibration software
for the professional engineer

QuantaPro – The most comprehensive service and calibration software on the market. Developed for professional, high output pipette service companies or large multi-site end user accounts, this can be used to improve all aspects of the service process, from receipt to dispatch.

Quanta software modules	QuantalCal	QuantaLab	Quanta Pro
Add/Edit Pipettes	•	•	•
Personalised Information	•	•	•
RS232 Balance Support	•	•	•
Calibrate Pipettes	•	•	•
Add/Edit Test Plans	•	•	•
Multiple Departments	•	•	•
Calibration Reports	•	•	•
Multiple Customer Entry	Optional	•	•
Booking In/Dispatch System	Optional	•	•
Pipette Collection Requests1	Optional	•	•
Service Module	Optional	•	•
Spare Part Management2	Optional	•	•
Due/Overdue Pipettes Report	Optional	•	•
Service/Calibration Recall	Optional	•	•
Email System	Optional	Optional	•
Quality Control	Optional	Optional	•
Report Editor	Optional	Optional	•
Management Reporting	Optional	Optional	•
Demo Equipment Management	Optional	Optional	•
Quote Generator	Optional	Optional	Optional
Mettler Multichannel Support	Optional	Optional	Optional
Accredited Certificates (ISO17025)	Optional	Optional	Optional
Multi-language Output	Optional	Optional	Optional

1) Pipette Collection Request is a sub-module of the Booking in/Dispatch system. The Booking/Dispatch system must be in place before installing Pipette Collection Request.
2) Spare Parts Management is a sub-module of the Service Module. The Service Module must be in place before installing Spare Parts Management

Evaluation version
Please download evaluation version from **www.quantapro.net**

Recommended system requirements

- 2GHz Pentium P4 Processor
- Windows: 2000/XP/Vista/Vista 64
- 256Mb RAM
- 100Mb Free Disk Space

How to order?

- Please contact your local Sartorius representative for ordering information or
- Log on to www.quantapro.net and complete a contact form which will be forwarded to your nearest Sartorius representative

Online support and additional information
Please visit **www.quantapro.net** for technical support and further information

Quanta software, developed by a professional pipette and service company, is truly the most comprehensive pipette service and calibration package available today.

Quanta – Ordering details

Cat. No.	Item
770020	QuantaCal
760005	QuantaLab
760002	QuantaPro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Pipette decontamination procedure

Mechanical pipettes (mLINE + Proline Plus)

1. Unscrew the tip ejector collar counter clockwise and remove it.

2. Unscrew the tip cone holder counter clockwise and carefully remove it along with the tip cone. Remove the Safe-Cone Filter if fitted.

3. Unscrew the piston counter clockwise from the pipette.

4. Place the tip ejector collar, tip cone holder, tip cone and tip cone cylinder into a beaker containing Biohit Proline Biocontrol and leave for at least 30 minutes.
5. After performing the procedure described above, remove the components from the beaker and rinse them with distilled water, then dry preferably with warm air, for at least an hour.
6. Re-grease the piston as described in the instruction manual. Replace all components including new filter if fitted.

Electronic pipettes (eLINE)

1. Unscrew the tip ejector collar counter clockwise and remove it.

2. Unscrew the tip cone holder counter clockwise and carefully remove the tip cone holder, tip cone and spring.Remove the Safe-Cone Filter if fitted.

3. Unscrew the piston counter clockwise from the pipette.

4. Place the tip cone, tip cone holder, tip ejector collar, piston and spring into a beaker containing Biohit Proline Biocontrol and leave for at least 30 minutes.
5. After performing the procedure described above, remove the components from the beaker and rinse them with distilled water, then dry preferably in warm air, for at least an hour.
6. Re-grease the piston as described in the instruction manual. Replace all components including the new filter if fitted.

Note: When performing the decontamination procedure, as a matter of routine the o-ring seal should be checked for possible wear on every sixth occasion, and replaced if necessary. Calibration should also be checked at the same time.

Autoclaving instructions

mLINE® and Proline Plus mechanical pipettes
The entire mLINE and Proline Plus mechanical pipette can be steam sterilized by autoclaving at 121°C (252°F), 1 bar (15 p.s.i.) for 20 minutes. The dispensing head of the multichannel pipettes must be unscrewed 360° counter clockwise before autoclaving.

Fully autoclavable

- Remove the Safe-Cone Filter (if fitted)
- Put the pipette into the sterilisation bag and place it into the autoclave
- After autoclaving the pipette must be cooled down and left to dry overnight before use

Autoclavable lower parts

It is recommended that you check the performance of the pipette after every autoclaving, and grease the piston/seal of the pipette after every 10th autoclaving.

Autoclavable liquid pathway

Picus and eLINE® electronic pipettes lower parts
The dispensing head (tip ejector collar, tip cone holder, tip cone, spring and piston) of the single-channel and multichannel models (except for multichannel 1200µl) can be autoclaved (121°C, 1 bar for 20 minutes). These parts can be autoclaved as one unit or separately as individual parts. It is also possible to clean the parts and grease the piston prior to autoclaving.

- Remove the Safe-Cone Filter (if fitted).
- Put the dispensing head into the sterilisation bag and place it into the autoclave
- After autoclaving the parts must be cooled down and left to dry before use

It is recommended that you check the performance of the pipette after every autoclaving, and grease the piston/seal of the pipette after every 10th autoclaving.

Tips and tip boxes
- Place the bulk tips into the sterilisation bag and the tip tray as such in the autoclave
- Autoclave for 20 minutes at a temperature of 121°C under 1 bar (15 p.s.i.)
- Cool before use

Note:
- Excessive heat or length of time may damage the products. Never place the handle part of the eLINE into the autoclave
- The lower ends of multichannel pipettes are not interchangeable between 8 and 12-channel pipettes
- The cover of the tip tray should be closed during autoclaving

Troubleshooting guide

Problem	Cause	Solution
Droplets left inside the tip	Unsuitable tip	Use original Biohit tips
	Non-uniform wetting of the tip plastic	Attach new tip and pre-wet it
	Optiload not fully utilised and thus tip does not fit very well (Only MC-models and 2 ml, 5 ml and 10 ml SC-models have optiload).	Pick up the tip so that it strikes the lower edge of the tip ejector collar
Leakage or pipetted volume too small	Tip incorrectly attached	Attach firmly
	Unsuitable tip	Use original Biohit tips
	Tip is leaking and/or Optiload not fully utilized	Replace a new tip or see above for Optiload
	Plunger movement not uniform, constant or balanced	It is very important that the plunger movement is slow and that this is always done in the same way during pipetting cycles. 2 ml, 5 ml and 10 ml: if plunger is released too quickly upon aspirating, it will affect the amount of liquid drawn.
Test results are incorrect and/or results are non-linear	Improper maintenance of lower parts	Clean and regrease lower parts as per instructions in this manual
	Piston or tip cone damaged/non-linear	Replace part with new one
	Dirt on stop surfaces/inside the machinery	Clean the stop surfaces/interior of the machinery as per instructions
	Uneven piston movement/inconsistent pipetting technique/rhythm	It is very important that the plunger movement is slow and that this is always done in the same way during pipetting cycles. 2 ml, 5 ml and 10 ml: if the plunger is released too quickly upon aspirating, it will affect the amount of liquid drawn.
Display not sitting properly (in particular the lower edge of the display does not fit)	Calibration wheel (726066) not properly in place	Remove display and push calibration wheel down
Counter reading does not make sense and/ or counter feels very slack	The wings on the lead screw have come out of the grooves on the machinery	Replace the wings to the grooves
	The wings on the lead screw have been broken	Replace machinery with new equipment
	There is something broken inside the machinery	Replace machinery with new equipment
Multichannel pipettes: tip cone(s) does not draw liquid	Tip cone (bajonet connection) has accidentally come off	Refit tip cone
	Piston(s) is not connected to the piston support plate	Refit piston(s) so that they connect to the piston support plate properly
	Piston/tip cone damaged	Replace parts with new ones
	Improper maintenance	Maintain lower parts as per instructions

Problem	Cause	Solution
Pipette does not draw liquid at all	Magnet holder/magnet is disconnected from the lower part	Remove the dispensing head and refit it so that the magnet holder/magnet is properly connected to the dispensing head
Multichannel pipettes: Tip ejection does not work/tip does not fit	Tip ejection bar has come off (the snap fit is disengaged)	Make sure that the tip ejection bar is properly connected
Electronic pipettes: Error in the display and motor is unable to start	Discharged battery/Defected battery	Recharge battery/replace battery
	Actuator rod jammed	Clean and lubricate actuator rod
	Penetration of solvent vapours and thus actuator rod/tip ejection mechanism jammed	Clean tip ejection mechanism and clean/ lubricate actuator rod
	Failure in the handle parts (upper body parts)	Check error messages
Electronic pipette can start but is unable to complete self test when switched on (error blinking on the display)	Discharged battery/Defected battery	Recharge battery/replace battery
	Tip ejector mechanism jammed/contaminated	Clean tip ejection mechanism and clean/ lubricate actuator rod
	Failure in the handle parts (upper body parts)	Check error messages
	Internal error has occurred	Check error messages and proceed accordingly
Tip ejector jammed or moves erratically	Ejector mechanism contaminated	Clean lower parts of pipette
	Ejector mechanism damaged	Replace damaged parts
Tip ejector feels slack	Ejector mechanism damaged	Replace damaged parts
Fading display and/or segment missing	Display damaged or incorrectly attached to the PCU-board/defected PCU board	Open handle cover and check the display
Autotest (a test programmed by service engineer) failed	Discharged battery/defected battery	Replace a battery
	Failure in the handle parts (upper body parts)	Check error counters and autotest counters and proceed accordingly
Pipette not charging	Pipette incorrectly positioned in the charging stand/carousel	Check the position of the pipette
	AC-adaptor damaged	Replace AC-adaptor
	Charging carousel/stand damaged	Open the bottom, check wires and replace the unit if needed
	Battery contacts inside the battery compartment damaged/oxidated/flattened	Clean battery contacts
	Battery damaged	Replace battery
Reduced operating time with fully charged batteries	Batteries damaged	Replace battery

Notes

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