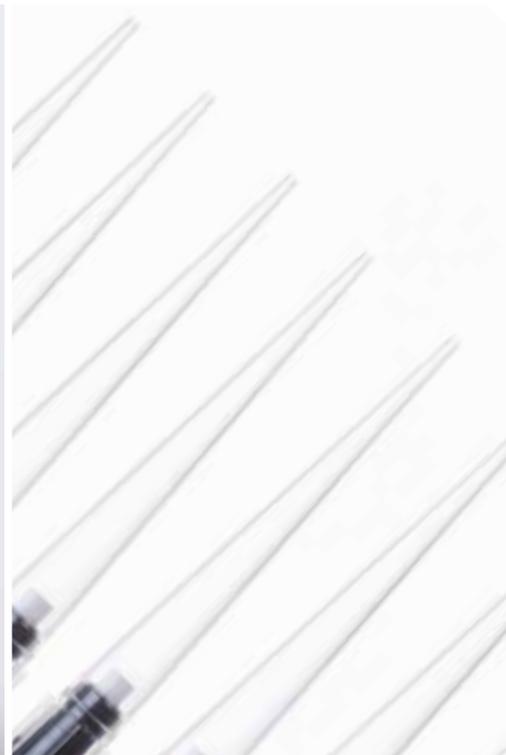


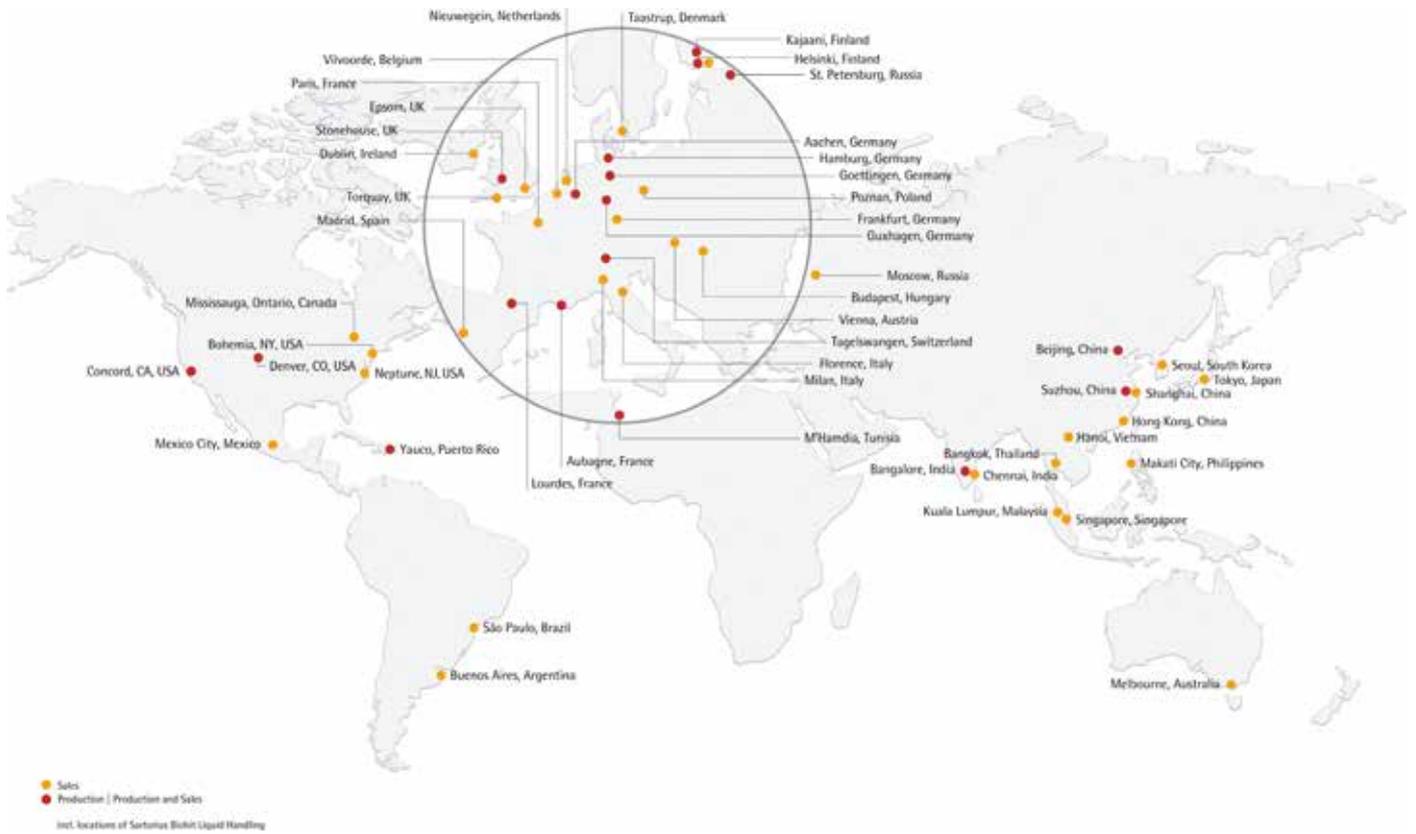
BIOHIT Liquid Handling
Product Catalog 2012-2013



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

Table of Contents

About Sartorius Biohit	7
Responsible manufacturing	9
Outstanding product quality	10
Ergonomics, reliability and design	12
Pipette selection guide	15
Electronic pipettes	16
Picus	18
eLINE	24
Mechanical pipettes	30
mLINE	32
Proline Plus	38
Proline	44
Pipette Tips	48
Optifit Tips and SafetySpace Filter Tips	50
SafetySpace Filter Tips	52
Packaging options	54
Ordering details	56
Tip compatibility charts	58
Dispensers and tips	62
eLINE Lite and Pro Dispenser	64
Dispenser Tips	66
Mechanical Stepper	68
Accessories	70
Pipette stands	72
Safe-Cone Filters	74
Ergomate	76
Elbow Pad	76
Reagent Vessel	77
Maxi-volume liquid handling	78
Midi Plus	80
Biofiller	82
Proline Prospenser	84
Prospenser	85
Biotrate digital burette	86
OEM solutions	88
Roboline	90
rLINE	92
Pipetting Academy	94
Pipetting recommendations	98
Pipette calibration and maintenance services	100
Pipette decontamination procedure	110
Autoclaving instructions	111
Troubleshooting guide	112



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 centers.

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

E.ON Clean



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 minimize 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 tip racks that are made from 100% polypropylene (PP) can be reused, as well as the cardboard used for packaging.

In practice

- Package materials are suitable for recycling either for reuse or as energy waste
- Package sizes are minimized in order to use less material and to render logistics more efficiently
- 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 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 clean room conditions. Our accredited pipette calibration follows the ISO 17025 standard. Our products are supplied with individual Quality Control 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.



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 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 emphasize an ergonomic design in every product we make. 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. 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? 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	•	•

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	•	•	•

1) Picus only

2) 300 µl 1-channel models

3) Include mode additions

4) 1000 µl 1-channel models



Electronic pipettes

Picus electronic pipettes

Revolutionize 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 revolutionize 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 μ l and in multichannel models from 0.2 μ l to 1200 μ l.

- 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 guarantees 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





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



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 program, 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

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 (included with the pipette)

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.

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)



Charging Stand



Charging Carousel



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	0.90	0.40	-	-	10	10
				5	1.00	0.70				
				1	2.50	1.50				
735041	1	● 5-120	0.10	120	0.40	0.15	721008	721018	200 350	120
				60	0.60	0.20				
				12	2.00	1.00				
735061	1	● 10-300	0.20	300	0.40	0.15	721007	721017	350	300
				150	0.60	0.20				
				30	1.50	0.80				
735081	1	● 50-1000	1.00	1000	0.40	0.15	721006	721016	1000	1000
				500	0.60	0.20				
				100	1.50	0.50				
735101	1	● 100-5000	5.00	5000	0.50	0.15	721005	721015	5000	-
				2500	0.80	0.20				
				500	1.00	0.40				
735111	1	● 500-10000	10.00	10000	0.60	0.20	721005	721015	10000	-
				5000	1.20	0.30				
				1000	3.00	0.60				
735321	8	● 0.2-10	0.02	10	0.90	0.50	-	-	10	10
				5	1.50	0.80				
				1	4.00	3.00				
735341	8	● 5-120	0.10	120	0.50	0.20	721008	721018	200 350	120
				60	0.70	0.30				
				12	2.00	1.50				
735361	8	● 10-300	0.20	300	0.50	0.20	721007	721017	350	300
				150	0.70	0.30				
				30	2.00	1.00				
735391	8	● 50-1200	1.00	1200	0.50	0.20	721006	721016	1200	1200
				600	1.00	0.30				
				120	2.50	1.00				
735421	12	● 0.2-10	0.02	10	0.90	0.50	-	-	10	10
				5	1.50	0.80				
				1	4.00	3.00				
735441	12	● 5-120	0.10	120	0.50	0.20	721008	721018	200 350	120
				60	0.70	0.30				
				12	2.00	1.50				
735461	12	● 10-300	0.20	300	0.50	0.20	721007	721017	350	300
				150	0.70	0.30				
				30	2.00	1.00				
735491	12	● 50-1200	1.00	1200	0.50	0.20	721006	721016	1200	1200
				600	1.00	0.30				
				120	2.50	1.00				

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

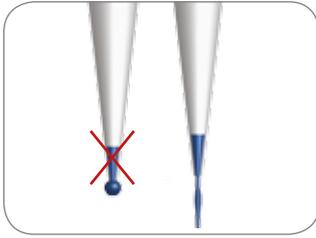
Safe-Cone Filters

- In all models > 10 µl to prevent contamination



Features and benefits





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		
730010 730011	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
730020 730021	1	● 0.2-10	0.05	10 5 1	0.90 1.00 3.50	0.40 0.70 2.30	-	-	10	10
730040 730041	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
730060 730061	1	● 10-300	1.00	300 150 30	0.40 0.60 1.50	0.15 0.20 0.80	721007	721017	350	300
730080 730081	1	● 50-1000	5.00	1000 500 100	0.40 0.60 1.50	0.15 0.20 0.50	721006	721016	1000	1000
730100* 730101*	1	● 100-5000	10.0	5000 2500 500	0.50 0.80 1.00	0.15 0.20 0.40	721006	721016	5000	-
730320 730320	8	● 0.2-10	0.05	10 5 1	0.90 1.50 4.00	0.50 0.80 3.00	-	-	10	10
730340 730341	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
730360 730361	8	● 10-300	1.00	300 150 30	0.50 0.70 2.00	0.20 0.30 1.00	721007	721017	350	300
730390 730391	8	● 50-1200	5.00	1200 600 120	0.50 1.00 2.50	0.20 0.30 1.00	721006	721016	1200	1200
730420 730421	12	● 0.2-10	0.05	10 5 1	0.90 1.50 4.00	0.50 0.80 3.00	-	-	10	10
730440 730441	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
730460 730461	12	● 10-300	1.00	300 150 30	0.50 0.70 2.00	0.20 0.30 1.00	721007	721017	350	300
730490 730490	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
731001	eLINE replacement battery

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



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





1000
BIOHT
100-1000-001
m21000

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
- Minimized 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



Fully autoclavable

Fully autoclavable without disassembling

- Easy to steam sterilize, 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



Features and benefits

Color-coded caps

- Possibility to individualize the pipette or mark to be used for certain application

Smooth and light volume setting

- Prevents hand injuries, 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 minimizes risk of volume-setting errors

Materials have high chemical and UV-resistance

- Highly durable and long lasting pipette

Volume color-coding

- Eases correct Biohit tip selection, through matching color 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 μ l. These filters must be replaced regularly, and in every case of overaspiration.



Unique Safe-Cone filter ejection mechanism

Safe-Cone filters can be removed easily and safely by removing the color 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	1.30	0.80	-	-	10	10	
				1.5	2.40	1.60					
				0.3	10.00	6.00					
725020	1	● 0.5-10	0.01	10	1.00	0.60	-	-	10	10	
				5	1.50	1.00					
				1	2.50	1.50					
725030	1	● 2-20	0.02	20	0.90	0.40	721014	-	200	20	
				10	1.20	1.00					
				2	3.00	2.00					
725050	1	● 10-100	0.10	100	0.80	0.15	721008	721018	200	120	
				50	1.00	0.40			350		
				10	2.00	1.00					
725060	1	● 20-200	0.20	200	0.60	0.15	721007	721017	200	200	
				100	0.80	0.30			350		300
				20	2.00	0.80					
725070	1	● 100-1000	1.00	1000	0.60	0.20	721006	721016	1000	1000	
				500	0.60	0.20					
				100	1.00	0.40					
725080	1	● 500-5000	10.0	5000	0.50	0.20	721005	721015	5000	-	
				2500	0.60	0.30					
				500	2.00	0.60					
725090	1	● 1-10 ml	20.0	10000	0.60	0.20	721005	721015	10 000	-	
				5000	1.20	0.30					
				1000	3.00	0.60					
725120	8	● 0.5-10	0.01	10	1.50	1.00	-	-	10	10	
				5	2.50	2.50					
				1	4.00	4.00					
725130	8	● 5-100	0.10	100	0.70	0.25	721008	721018	200	120	
				50	1.00	0.70			350		
				10	3.00	1.50					
725140	8	● 30-300	0.20	300	0.60	0.25	721007	721017	350	300	
				150	1.00	0.50					
				30	2.00	1.00					
725220	12	● 0.5-10	0.01	10	1.50	1.00	-	-	10	10	
				5	2.50	2.50					
				1	4.00	4.00					
725230	12	● 5-100	0.10	100	0.70	0.25	721008	721018	200	120	
				50	1.00	0.70			350		
				10	3.00	1.50					
725240	12	● 30-300	0.20	300	0.60	0.25	721007	721017	350	300	
				150	1.00	0.50					
				30	2.00	1.00					

Pipette stands and accessories - Ordering details

Cat. No.	Item
725600	Carousel Stand for six pipettes
725610	Pipette Holder for one pipette
725620	Linear Stand
726203	Calibration tool/Tube opener
726001	Color-coding caps, 5 pieces



Calibration tool



Pipette Holder



Linear Stand



Carousel Stand

mLINE® 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 color-coded tip racks for every pipette and many useful accessories such as a pipette holder, color-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 reliably. 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
Color-coding Caps
Calibration Tool/Tube Opener
Pen
Literature

mLINE® Starter Kit 4 – Cat. No. 725654

mLINE pipette 0.5-10 µl
mLINE pipette 2-20 µl
mLINE pipette 20-200 µl
mLINE pipette 100-1000 µl
Pipette Holder x 4
Color Coding Caps
Biohit Pen
Biohit Optifit Tip 0.2-10 µl, Single Tray
Biohit Optifit Tip 0.5 - 200 µl, Single Tray x 2
Biohit Optifit Tip 10-1000 µl, Single Tray
Calibration Tool/Tube Opener
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
Color-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
Color 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
- Minimized 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

Fully autoclavable without disassembling

- Easy to steam sterilize, 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



Features and benefits





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. It is also ready-set to avoid errors.



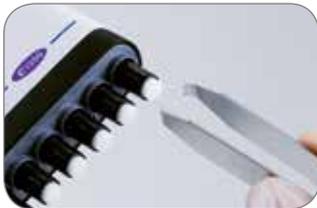
Ergonomic design

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 overaspiration.



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 pipettes 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	1.30	0.80	-	-	10	10
				1.5	2.40	1.60				
				0.3	10.00	6.00				
728020	1	● 0.5-10	0.01	10	1.00	0.60	-	-	10	10
				5	1.50	1.00				
				1	2.50	1.50				
728030	1	● 2-20	0.02	20	0.90	0.40	721014	-	200	20
				10	1.20	1.00				
				2	3.00	2.00				
728040	1	● 5-50	0.10	50	1.00	0.30	721008	721018	200	120
				25	1.40	0.50				
				5	3.00	1.50				
728050	1	● 10-100	0.10	100	0.80	0.15	721008	721018	200	120
				50	1.00	0.40			350	
				10	2.00	1.00				
728060	1	● 20-200	0.20	200	0.60	0.15	721007	721017	200	200
				100	0.80	0.30			350	
				20	2.00	0.80				
728070	1	● 100-1000	1.00	1000	0.60	0.20	721006	721016	1000	1000
				500	0.60	0.20				
				100	1.00	0.40				
728080	1	● 500-5000	10.0	5000	0.50	0.20	721005	721015	5000	-
				2500	0.60	0.30				
				500	2.00	0.60				
728090	1	● 1-10 ml	20.0	10000	0.60	0.20	721005	721015	10 000	-
				5000	1.20	0.30				
				1000	3.00	0.60				
728120	8	● 0.5-10	0.01	10	1.50	1.00	-	-	10	10
				5	2.50	2.50				
				1	4.00	4.00				
728130	8	● 10-100	0.10	100	0.70	0.25	721008	721018	200	120
				50	1.00	0.70			350	
				10	3.00	1.50				
728140	8	● 30-300	0.20	300	0.60	0.25	721007	721017	350	300
				150	1.00	0.50				
				30	2.00	1.00				
728220	12	● 0.5-10	0.01	10	1.50	1.00	-	-	10	10
				5	2.50	2.50				
				1	4.00	4.00				
728230	12	● 10-100	0.10	100	0.70	0.25	721008	721018	200	120
				50	1.00	0.70			350	
				10	3.00	1.50				
728240	12	● 30-300	0.20	300	0.60	0.25	721007	721017	350	300
				150	1.00	0.50				
				30	2.00	1.00				

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 six pipettes
725610	Pipette Holder for one pipette
725620	Linear Stand
726203	Calibration Tool/Tube opener



Calibration Tool



Pipette Holder



Carousel Stand



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 3 – Cat. No. 728654

Proline Plus 0.5 - 10 µl

Proline Plus 2 - 20 µl

Proline Plus 20 - 200 µl

Proline Plus 100 - 1000 µl

Pipette Holder x 4

Optifit Single-tray tip boxes

Biohit Optifit Tip 0.2-10 µl, Single Tray

Biohit Optifit Tip 0.5-200 µl, Single Tray x 2

Biohit Optifit Tip 10-1000 µl, Single Tray

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.

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 minimizes the risk of volume setting errors

"Do-it-yourself" calibration

- Re-calibration possible for different liquids

Tip cone material highly chemically resistant

- Highly durable tip cone

Safe-Cone Filters available for models > 10 µl

- Contamination-free pipetting

Volume setting with click stop

- Easy-to-use volume setting



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	2.50	2.00	-	-	10	10
				1.25	3.00	3.00				
				0.25	12.00	6.00				
720015	1	● 0.5-10	0.10	10	1.00	0.80	-	-	10	10
				5	1.50	1.50			200	20
				1	2.50	1.50				
720080	1	● 2-20	0.50	20	0.90	0.40	721008	721018	200	20
				10	1.20	1.00				120
				2	3.00	2.00				
720025	1	● 5-50	0.50	50	0.60	0.30	721008	721018	200	120
				25	0.90	0.60			350	
				5	2.00	2.00				
720050	1	● 10-100	1.00	100	0.80	0.20	721007	721017	200	120
				50	1.00	0.40			350	200
				10	3.00	1.00				300
720070	1	● 20-200	1.00	200	0.60	0.20	721007	721017	200	200
				100	0.80	0.30			350	300
				20	2.50	0.80				
720060	1	● 100-1000	5.00	1000	0.60	0.20	721006	721016	1000	1000
				500	0.70	0.25				
				100	2.00	0.70				
720110	1	● 1000-5000	50.0	5000	0.50	0.20	721005	721015	5000	-
				2500	0.60	0.30				
				1000	0.70	0.30				
720210	8	● 0.5-10	0.10	10	1.50	1.50	-	-	10	10
				5	2.50	2.50				
				1	4.00	4.00				
720220	8	● 5-50	0.50	50	1.00	0.50	721014	-	200	120
				25	1.50	1.00			350	200
				5	3.00	2.00				300
720240	8	● 50-300	5.00	300	0.70	0.25	721014	-	350	300
				150	1.00	0.50				
				50	1.50	0.80				
720310	12	● 0.5-10	0.10	10	1.50	1.50	-	-	10	10
				5	2.50	2.50				
				1	4.00	4.00				
720320	12	● 5-50	0.50	50	1.00	0.50	721014	-	200	120
				25	1.50	1.00			350	200
				5	3.00	2.00				300
720340	12	● 50-300	5.00	300	0.70	0.25	721014	-	350	300
				150	1.00	0.50				
				50	1.50	0.80				

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 six pipettes
725620	Linear Stand
721259	Pipette Holder for one pipette
721234	Color-coding caps, 6 pcs



Linear Stand



Pipette Holder



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 maximum 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. Tip production also abides by the ISO 14644-1 standard, in order to fulfil ISO Class 8 cleanroom conditions for secured tip purity.

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 molding machines. Molding 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.





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
- Color-coding of the tip trays allows easy matching with a suitable color-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
- 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-sterilized 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 color-coded Single Tray racks. They are certified DNase, RNase and endotoxin-free and are e-beam pre-sterilized. 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

- Ten racks of 96 tips
- Pre-sterilized (e-beam) and DNase, RNase and endotoxin-free certified
- Informative rack labeling 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 color-coded to indicate the matching, color-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

- Ten racks of 96 tips
- DNase, RNase and endotoxin-free certified
- Available as e-beam pre-sterilized or non-sterilized
- Informative rack labeling 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 color-coded to indicate the matching, color-coded Biohit pipette
- Covers a large range of tip volumes from 10 µl to 5 ml
- Fully autoclavable at 121°C for 20 minutes



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 color-coded to indicate the matching, color-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 resealable 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-sterilized or non-sterilized
- 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 color-coded to indicate the matching, color-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		Qty/unit	Cat. No.
			RNase, DNase, endotoxin-free	Pre-sterilized		
 ● 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		
 ● 1-10 ml	161 mm	Bulk in Box			250	780315

SafetySpace™ Filter Tips – Ordering details

Volume Range	Length	Packaging	Purity level		Qty/unit	Cat. No.
			RNase, DNase, Pre-endotoxin-free	sterilized		
 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		Qty/unit	Cat. No.
			RNase, DNase, Pre-endotoxin-free	sterilized		
 0.1-10 µl	46 mm	Single Tray	•	•	10x96	783201
 10-500 µl	78 mm	Single Tray	•	•	10x100	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

		Optifit Tips, non-filtered							SafetySpace™ Filter Tips								
Mechanical pipettes		10*	10 Ext	200	350	1000	1000 WB	5000	10 000	10*	10 Ext**	20	120	200	300	500**	1000
Cat. No.	µl																
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

		Optifit Tips, non-filtered							SafetySpace™ Filter Tips								
Mechanical pipettes		10*	10 Ext	200	350	1000	1000 WB	5000	10 000	10*	10 Ext**	20	120	200	300	500**	1000
Cat. No.	µl																
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										
		10*	10 Ext	200	350	1000	1000 WB	1200	1200 Ext	5000	10 000	10*	10 Ext**	20	120	200	300	500**	1000	1200
Cat. No.	µl																			
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





Dispensers and tips

eLINE® Lite and Pro Dispenser

A single innovation for repetitive dispensing

eLINE Pro and Lite 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 vapor 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 workload in long pipetting series
- High accuracy in dispensing viscous or infectious liquids or liquids with high vapor 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

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

Direct charging option with AC-adaptor with immediate dispensing possibility

Clear LCD-display with charging indicator





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

730700	eLINE Pro Dispenser
730701	
730800	eLINE Lite Dispenser
730801	
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-sterilized 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-sterilized	100
792018	0.2	Non sterile	100
792027		Pre-sterilized	100
792019	0.5	Non sterile	100
792028		Pre-sterilized	100
792020	1.0	Non sterile	100
792029		Pre-sterilized	100
792021	2.5	Non sterile	100
792030		Pre-sterilized	100
792022	5.0	Non sterile	100
792031		Pre-sterilized	100
792023	10	Non sterile	100
792032		Pre-sterilized	100
792024	25	Non sterile*	25
792033		Pre-sterilized	25
792025	50	Non sterile*	25
792034		Pre-sterilized	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



Performance specifications, Mechanical Stepper and Dispenser Tips

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



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. The 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



Pipette 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 vapors 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?

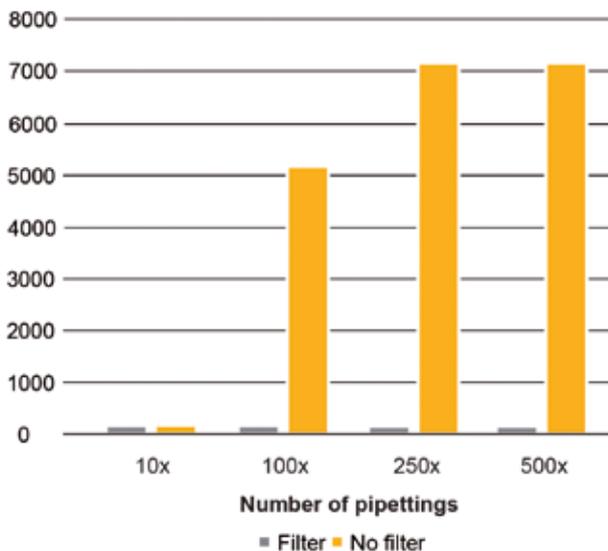
To ensure the safety of the user, forceps should be used to avoid touching the contaminated filters by hand. The mLINE also features a built-in filter ejector. In addition, clean the tip cone with ethanol (70%) prior to the assembly of a new filter.



Forceps included with each pipette (excl. mLINE with built-in Safe-Cone Filter ejection)



Built-in filter ejector in mLINE



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

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

When pipetting, ISO 8655 recommends touching off samples on the wall of receiving vessels, especially with small volumes. The new Biohit Ergomate removes the need to hold the plate at any specific angle and allows for safe dispensing, resulting in easier, safer, and more precise pipetting.

Features and benefits

- Microplate grids for quick identification and sample management
- Double-sided. Reverse side featuring numbering from 1-12.
- When reversed, plate holder creates an ideal aerosol barrier for use in hoods or on bench top surfaces
- Micro Plate Grids
- Plate holder can be reversed and used for flat surface pipetting or as an incubation station with lid. Ideal for safe transporting of plates



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

Biohit Reagent Vessels for use especially with all multichannel pipettes. Chemically resistant vessels are made of polypropylene for cost-effective reuse and autoclavability.

Accessories – Ordering details

Cat. No.	Item	Qty
MK1001	Ergomate Starter Kit, includes 1 Ergo-Mate Plate holder, PK/30 grids & 1 Anti-Skid mouse pad	1
MK1020B	Ergomate Plate Holders	3
MK2001	Ergomate Micro Plate Grids	30
MK2002	Ergomate Micro Plate Grids	120
MK3001	Ergomate Micro Plate Grids double-sided	50
723103	Elbow Pad	1
783500	Reagent Vessel (capacity 120 ml)	16



Note: Bench-stand handle feature not available in U.S.

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
- Linear speed control
- Low battery warning
- CE marked
- 2-year warranty

Stepless speed control

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



Note: Bench-stand handle feature not available in U.S.



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 control	Stepless adjustable control
Gravity dispensing	Yes
Weight	207 g
Low battery indicator	Yes
Autoclavable parts	Nose cone, pipette holder and filter

Midi Plus™ - Ordering details

Cat. No.	Item	Qty/Unit
710929	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 with precise pipetting control
- Robust and lightweight
- Large capacity bulb , simple thumb button operation
- Compatible with blow-out pipettes
- The integral 0.45 μ m filter ensures liquid is not drawn into unit, filters are replaceable
- Autoclavable silicone pipette holder



Biofiller - Ordering details

Cat. No.	Item	Qty/Unit
723039	Biofiller pipette filler with integral 0.45 μ m filter	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 $\pm 0.5\%$ 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

Volume setting easy to adjust

Borosilicate glass barrel protected with a transparent polypropylene sleeve

Anti-drip closure cap

Wide range of bottle adapters included

Chemically resistant liquid pathway



Optional flexible dispense tube extension

- Coiled
- Length 800 mm



Prospenser bottle-top dispenser with anti-drip valve

The Prospenser bottle-top dispenser delivers safe and precise liquid dispensing, including 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 $\pm 0.3\%$ 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 adaptors 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



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 lifetime 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



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.

Small footprint

Full housing to protect samples

High-precision pipetting

Use of any SBS standard plastics

Multiple adapters for various tubes

Easy-to-load removable tray





Roboliner™ is ideal for the following applications:

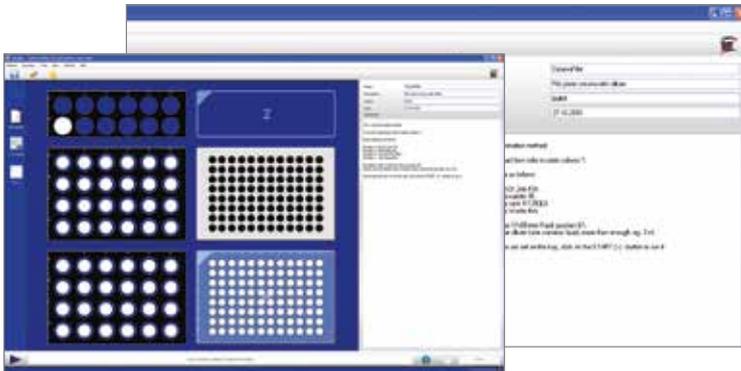
- Aliquoting
- Serial dilution
- Mixing
- Complex cherry picking
- Copying plates
- Pooling
- Sample transfer from tubes to plates

Safe and ergonomic

- Protects from Repetitive Strain Injury (RSI)
- Decreases exposure to toxic or contaminating solutions
- Fits into 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. In order to improve the high quality performance, functionality of sample processors, and automated instrumentation features such as electronic tip ejection and Optiload tip pick-up are used.

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 supplies 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.







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?

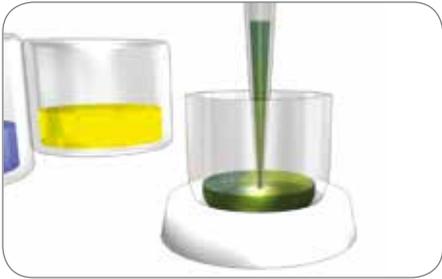
Do your results vary between users?

The Pipetting Academy seminar offers a comprehensive tutorial package, developed to answer these questions together with you. During the seminars, you will learn to recognize 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 to make work more efficient and enjoyable





Seminars include both theory and practice!

Videos and animations support learning!

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.

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 participant 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 to service. Decontaminating the pipette with 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 program 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. North American in-house calibrations and repairs are solely performed at our new state of the art Pipette calibration lab located in Bohemia, New York.

Pipette MD – pipette service for all makes and models

The Pipette MD service center staff has the expertise to maintain, repair, and calibrate any make or model of pipettes.

Why Calibrate Your Pipette?

- Liquid handling devices, such as piston-operated pipettes, are precision instruments that require testing at regular intervals to insure conformity to established maximum permissible systematic and random errors. (ISO 8655 Section 7.3)
- Regular scheduled calibration intervals ensure the continuous accuracy and precision of your liquid handling device.

Why Choose Pipette MD?

Pipette MD has the knowledge and experience to service and calibrate most makes, models, and volume ranges of pipettes from 0.1ul to 50ml.

- The Pipette MD Staff consists of a group of factory trained technicians with the knowledge and skill to calibrate, diagnose, repair, and perform preventative maintenance on most makes and models
- Professional one-stop pipette service for most makes and models
- Cost savings through a single service contact
- In-house and on-site service for your convenience

Visit www.pipetتمد.com for more information.





Preventive maintenance, repair, and calibration services

Pipettes and other liquid handling instruments are like any laboratory or other instruments, they 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

Service Levels

Calibration with Cleaning and Lubrication

	A	A+	B	B+	C	C+	D	Calibration Only	PM Package
"AS FOUND" DATA	•	•	•	•				•	•
"AFTER SERVICE" DATA	•	•	•	•	•	•	•		•
MEASUREMENTS PER VOLUME	6	10	4	4	4	4	3	3	3
TESTED AT 100, 50, AND 10% OF NOMINAL VOLUME	•	•	•	•	•	•			
TESTED AT 100 AND 10% OF NOMINAL VOLUME	•	•	•				•	•	•
PERFORMANCE TESTED ON CENTER CHANNEL ONLY							•	•	•
PERFORMANCE TESTED AT FIRST, MIDDLE, AND LAST CHANNELS	•		•		•				
PERFORMANCE TESTED ON ALL CHANNELS		•		•		•			
CLEANING AND LUBRICATION OF THE TIP CONE(S) AND PISTON(S)	•	•	•	•	•	•	•		
VISUAL LINEARITY AND LEAK TEST	•	•	•	•	•	•	•	•	•
REPLACEMENT OF THE TIP CONE(S) AND PISTON(S)									•
ISO 17025, GLP & GMP COMPLIANT	•	•							
ISO 8566 COMPLIANT	•	•	•	•	•	•	•	•	•
CALIBRATION CERTIFICATE	•	•	•	•	•	•	•	•	•
CALIBRATION STICKER	•	•	•	•	•	•	•	•	•

Biohit Preventive Maintenance Programmes

Preventative Maintenance vs. Basic Calibration?

Pipette MD Preventative Maintenance Packages are designed for Biohit-brand pipettes only. A typical Preventative Maintenance Package includes the replacement of the unit's critical parts (piston(s), tip cone(s), and battery on electronic models) and basic calibration.

Liquid handling devices, such as pipettes, are precision instruments that are comprised of a variety of mechanical and electronic parts. These parts are subject to wear and damage over time. Basic calibration procedures do not include the inspection of the pipette's critical parts, such as the pistons, tip cones, and batteries for electronic units. The wear-and-tear that afflicts all pipettes, as well as pipette failure rates, can be overcome by implementing regular and periodic maintenance programs with calibration.

Most manufacturers and Service Providers define pipette preventative maintenance as the inspection, cleaning, and lubrication of the critical parts. We at Pipette MD define preventative maintenance as the replacement of the pipette's critical parts to stay ahead of the wear-and-tear curve.



Repair Service

Procedure	Benefits	Suitable for
<ul style="list-style-type: none"> - 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 - 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 - 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 	<ul style="list-style-type: none"> - 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 - Detailed service documentation: service repair and calibration report - Fully repaired and functional pipette - Original spare parts - In-house knowledge of service and test pipettes - Original spare parts - Cost-effective - Easy with preventive maintenance packages 	<ul style="list-style-type: none"> - 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 - Any customers with Biohit pipettes with damaged components or improper function and that need repair and calibration by qualified specialists - 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. 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. 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.





FLUORIMETER

BCHT

Wavelength (nm)	Intensity (AU)
280	0.15
300	0.25
320	0.45
340	0.75
360	1.20
380	1.80
400	2.50
420	3.20
440	4.00
460	4.80
480	5.50
500	6.20
520	6.80
540	7.30
560	7.70
580	8.00
600	8.20
620	8.30
640	8.30
660	8.20
680	8.00
700	7.70
720	7.30
740	6.80
760	6.20
780	5.50
800	4.80

LABOREXIN OY

BRUNNEN PRODUKT
K113
AC 5
0.1g

Accredited calibration services

Today many laboratories are becoming accredited and work with 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.

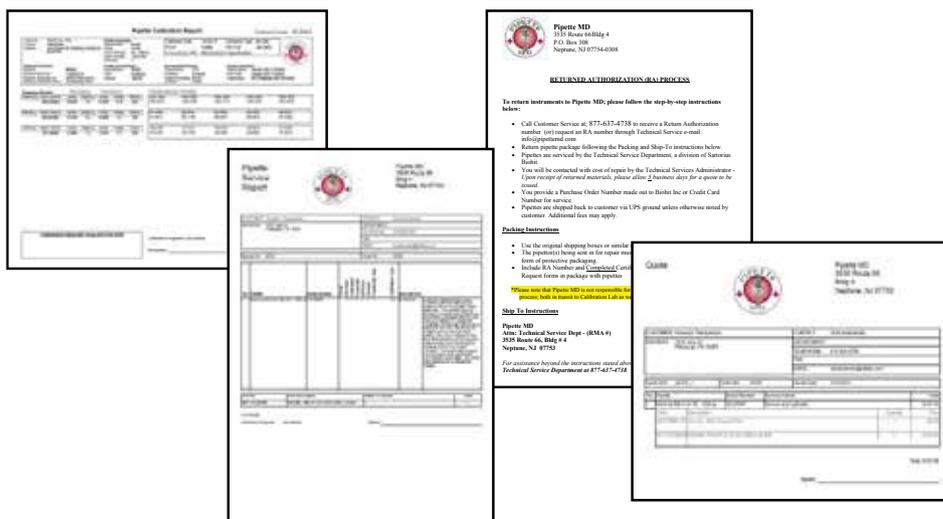
Sartorius maintains an expanding network of calibration centers accredited in accordance with ISO 17025. Accredited calibration means that measurements are traceable to national and international standards and that the certainty of measurement is known.

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

Procedure	Benefits	Suitable for
<p>Accredited Calibration Certificate (FINAS, ISO 17025) together with your</p> <ul style="list-style-type: none"> - new - serviced <p>Biohit pipettes.</p>	<p>Accredited Calibration Certificate supplied with your new or serviced Biohit pipette includes the Uncertainty Budget defining the uncertainties for the measurement involved.</p> <p>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.</p>	<p>Laboratories that are working with accredited laboratories or laboratories following ISO 17025, – i.e. accredited laboratories.</p> <p>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.</p>

Documentations

- Pipette Calibration Report
- Pipette Service Report
- Completed Forms
- Quote



Questions?

Please contact: Pipette MD
 1-877-637-4738
 info@pipettemd.com
 www.pipettemd.com



SELECT

ENTER




BIOHIT
eLINE
Pro

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 70% ethanol 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 70% ethanol 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.



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

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 sterilization 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
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
Tip ejector jammed or moves erratically	Internal error has occurred	Check error messages and proceed accordingly
	Ejector mechanism contaminated	Clean lower parts of pipette
Tip ejector feels slack	Ejector mechanism damaged	Replace damaged parts
	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
Reduced operating time with fully charged batteries	Battery damaged	Replace battery

Sales and Service Contacts

For further contacts, visit www.sartorius.com

Europe

Germany

Sartorius Weighing Technology GmbH
Weender Landstrasse 94-108
37075 Goettingen

Phone +49.551.308.0
Fax +49.551.308.3289

info.mechatronics@sartorius.com
www.sartorius.com

Austria

Sartorius Mechatronics Austria GmbH
Franzosengraben 12
1030 Wien

Phone +43.1.7965760.0
Fax +43.1.7965760.24

info.austria@sartorius.com

France Et Suisse Romande

Biohit France SAS
2, rue Antoine Laurent de Lavoisier
ZA de la Gaudrée
91410 Dourdan

Phone +33 (0) 1 70 62 50 00
Fax +33 (0) 1 64 59 76 39

commercial.france@biohit.com
service.france@biohit.com

Belgium

Sartorius Mechatronics
Belgium N.V.
Leuvensesteenweg, 248/B
1800 Vilvoorde

Phone +32.2.756.06.71
Fax +32.2.253.45.95

info.belgium@sartorius.com

Hungary

Sartorius Mechatronics Hungária Kft.
Kagyló u. 5.
2092 Budakeszi

Phone +3623.457.227, 457.228, 457.148
Fax +3623.457.147

mechatronika@sartorius.hu

Ireland

Sartorius Mechatronics Ireland Limited
Unit 41, The Business Centre
Stadium Business Park
Ballycoolin Road
Dublin 11

Phone +353-(0)1-8089050
Fax +353-(0)1-8089388

info.ireland@sartorius.com

Italy

Sartorius Mechatronics Italy S.r.l.
Uffici di Milano
Viale A. Casati, 4
20053 Muggiò (Milan)

Phone +39.039.46591
Fax +39.039.465988

info@sartorius.it

Netherlands

Sartorius Mechatronics
Netherlands B.V.
Edisonbaan 24
3439 MN Nieuwegein

Phone +31.30.6053001
Fax +31.30.6052917

weegtechnik.nl@sartorius.com

Poland

Sartorius Mechatronics
Poland Sp. z o.o.
ul. Wrzesinska 70
62-025 Kostrzyn

Phone +48.61.6473830
Fax +48.61.6473839

info.pl@sartorius.com

Spain

Sartorius Mechatronics Spain S.A.U.
Offices in Madrid:
c/ Isabel Colbrand, 10-12, of. 70
28050 Madrid

Phone +34.91.358.60.94
Fax +34.91.358.84.85

Sartorius Mechatronics Spain S.A.U.
Offices in Barcelona:
C/Marcus Porcius, 1 (Edificio BCIN)
Poligon Les Guixeres s/n
08915 - Badalona
Barcelona - Spain

Phone +34.902.123.367
Fax +34.91.358.96.23

spain.weighing@sartorius.com

Russian Federation

Biohit 000, Saint-Petersburg
57 "6 Liniya" street
St. Petersburg, 199048
Russia

Phone +7.812.3275327
Fax +7.812.3275323

main@biohit.ru

Biohit 000, Moscow
Petrovsko-Razumovsky av. 29,
building 2
127287 Moscow

Phone +7.495.7481613
Fax +7.495.6135577

main.moscow@biohit.ru

Switzerland

Sartorius Mechatronics Switzerland AG
Ringstrasse 24a
8317 Tagelswangen (ZH)

Phone +41.44.746.50.00
Fax +41.44.746.50.50

mechatronics.switzerland@sartorius.com

U.K.

Sartorius Mechatronics UK Ltd.
Longmead Business Centre
Blenheim Road, Epsom
Surrey. KT19 9QQ

Phone +44.1372.737102
Fax +44.1372.729927

uk.customerservice@sartorius.com

America

Argentina

Sartorius Argentina S.A.
Int. A. Avalos 4251
B1605ECS Munro
Buenos Aires

Phone +54.11.4721.0505
Fax +54.11.4762.2333

sartorius@sartorius.com.ar

Brazil

Sartorius do Brasil Ltda.
Av. D. Pedro I, 241
Vila Pires - Santo André
São Paulo
09110-001

Phone +55.11.4451.6226
Fax +55.11.4451.4369

sartorius@sartorius.com.br

Canada

Sartorius Mechatronics Canada
2179 Dunwin Drive #4
Mississauga, ON L5L 1X2

Phone +1.905.569.7977
Toll-Free +1.800.668.4234
Fax +1.905.569.7021

sales.canada@sartorius.com

Mexico

Sartorius de México S.A. de C.V.
Circuito Circunvalación Poniente
No. 149
53100, Satélite Estado de México,
México

Phone +5255.5562.1102
Fax +5255.5562.2942

sartorius@sartomex.com.mx

USA

Sartorius Mechatronics
Corporation
5 Orville Drive
Bohemia, NY 11716

Phone +1.631.254.4249
Toll-free +1.800.635.2906
Fax +1.631.254.4253

wt.sales@sartorius.com

Asia | Pacific

China

Biohit Biotech (Suzhou) Co Ltd.
Room 501, Office Block
Hotel Equatorial
65 Yan An Xi Lu
200040 Shanghai

Phone +86.21.6248.5589
Fax +86.21.6248.7786

info@biohitchina.com
www.biohitchina.com

Hong Kong

Sartorius Mechatronics
Hong Kong Ltd.
Unit 1012, Lu Plaza
2 Wing Yip Street
Kwung Tong
Kowloon, Hong Kong

Phone +852.2774.2678
Fax +852.2766.3526

enquiry.hongkong@sartorius.com

India

Sartorius Mechatronics India Pvt Ltd.
69/2 Et 69/3, Jakkasandra,
Kunigal Road, Nelamangala Tq
Bangalore-562 123

Phone +91.80.4350.5250/51/52
mechatronics-india@sartorius.com

Japan

Sartorius Mechatronics Japan K.K.
8-11, Kita-Shinagawa 1-chome
Shinagawa-ku
Tokyo 140-0001

Phone +81.3.3740.5408
Fax +81.3.3740.5406

info@sartorius.co.jp

Philippines

Sartorius Mechatronics Philippines,
Incorporated
Unit 20-A The World Centre Building
330 Senator Gil Puyat Avenue Makati
City Philippines 1209

Phone +632.8640929
Fax +632.8640932

enquiry.philippines@sartorius.com

Singapore

Sartorius Mechatronics
Singapore Pte. Ltd.
1 Science Park Road #05-08A
The Capricorn
Singapore Science Park II
Singapore 117528

Phone +65.6872.3966
Fax +65.6778.2494

enquiry.singapore@sartorius.com

South Korea

Sartorius Mechatronics
Korea Ltd.
Yangjae B/D 4, 5F
209-3, Yangjae-Dong, Seocho-Ku
137-893 Seoul, Korea

Phone +82.2.575.6945
Fax +82.2.575.6949

enquiry.korea@sartorius.com

Thailand

Sartorius Mechatronics
Thailand Co. Ltd.
No. 129 Rama IX Road
Huaykwang
Bangkok 10310

Phone +66 2643.8361
Fax +66 2643.8367

enquiry.thailand@sartorius.com

Australia

Sartorius Mechatronics
Australia Pty Ltd.
Unit 5, 7-11 Rodeo Drive
Dandenong South Vic 3175

Phone +61.3.8762.1800
Fax +61.3.8762.1828

Info.Australia@Sartorius-Stedim.com

Contact details

Sartorius Biohit Liquid Handling Oy
Laippatie 1
FI-00880 Helsinki
Finland

Phone +358.9.755.951
info@biohit.com
www.biohit.com

Headquarter

Sartorius Corporate
Administration GmbH
Weender Landstrasse 94-108
37075 Goettingen, Germany

Phone +49.551.308.0
Fax +49.551.308.3289
www.sartorius.com

The status of the information,
specifications and illustrations in
this catalogue is indicated by the
date given below.

Sartorius Biohit reserves the right
to make changes to the technol-
ogy, features, specifications and
design of the equipment without
notice.

All trademarks are Sartorius Biohit
property unless otherwise stated.
Patents granted or pending.