

FLUID DISPENSING SYRINGE



The Syringe fluid dispensing system is effectively used when repetitious filling of a syringe to the same volume is needed. It is a manual, sterile device that has a two-way valve that attaches to both the syringe and the solution to be drawn into the syringe. Each time the grip is released, the syringe fills with solution. Each time the grip is compressed, the syringe volume is expelled. The Cornwall Syringe System is a sterile, disposable system that includes spring-loaded syringe, valve system, spike and tubing set for repetitive fluid dispensing. 10cc capacity.

CAN BE USED IN CONJUNCTION WITH SYRINGE FILTERS.

Syringe Fluid Dispensing System

10mL, Sterile, Disposable

Item No.

CT-FDS-10

Price Each:

Aud 55.00

HROMalytic +61(0)3 9762 2034
ECHnology Pty Ltd
Australian Distributors; Importers & Manufacturers

Liquid Handling Products

Diluter/Dispensers, M Series

- Full liquid handling functionality
- Self-priming
- No syringes
- Largest volume range available
- Easy to use Wizard format does away with math problems and charts

Cheminert M Series diluter/dispensers simplify the sample preparation process for dispensing and diluting liquids. The user-friendly Wizard format eliminates all the math calculations and charts usually associated with diluting and dispensing applications. Just enter the dilution ratio and the final volume, and the correct volume is calculated and automatically dispensed for each ratio.

For multiple dispenses, you simply enter the volume and the number of dispense repetitions, and the Wizard calculates the total volume to be aspirated. It's that easy!

The diluter/dispenser is built around a patented syringe-free, bi-directional, positive displacement pump. This design approach gives the largest volume range available, and eliminates the inconvenience of having to change and refill syringes.



Additional Features

"Smart" hand probe

The hand probe signals the operator when an aspirate or dispense step is completed. The unique design also allows the use of fixed or disposable probe tips, as well as other accessories.

Program memory

Up to 100 programs can be permanently stored.

Multi-solvent option

A multiposition stream selection valve can be easily integrated with the pump for multi-solvent applications.

Printer option

Print out methods, sequential steps, time/date/operator stamp, titration and tubing volume values.

Patents pending

M10 Diluter/Dispensers

	Prod No	Price
10 nl - 10 ml - M10 diluter/dispenser	CD10-4841-M1A	

M50 Diluter/Dispensers

	Prod No
50 µl - 50 ml - M50 diluter/dispenser	CD50-8182-M2A

Applications

- Simple dispensing of reagents using the manual dispense mode
- Micro dispensing in microplates and genomic arrays
- Dilutions for AA, ICP, GC, and HPLC samples
- Serial dilutions for all samples
- Multi-sample and reagent additions, micro-plates, tube to plate, tube to tube
- Small and large volume dispensing of reagents
- Titrations

CHROMalytic TECHNOlogy Pty Ltd AUSTRALIAN Distributors e-mail: sales@chromtech.net.au Tel: 03 9762 2034



Liquid Handling Pumps, M Series

CE

The Cheminert® M Series liquid handling pump* is a syringe-free pump capable of delivering a bidirectional flow over six orders of magnitude.

The M Series is a positive displacement pump, which means that it is self-priming and tolerant of any gas which may find its way into the fluid lines. There is no separate fill cycle, and the capacity is unlimited.

RS-232 and RS-485 communication protocols are incorporated into the microprocessor-driven controller. (USB interface requires an adapter.) The included software package controls flow rates, flow direction, and metered volumes.

Operating principle

At the core of the pump is a polymeric rotor housing four 1/8" diameter pistons in sapphire cylinders. As the microstepper motor turns the rotor, the pistons float on a stationary cam; at any given moment, one piston is filling, one is dispensing, and the other two are in transit between the fill and dispense positions.

M6 pumps

10 nl - 10 ml

	<i>Prod No</i>
M6 pump with:	
Controller and stepper motor	CP2-4841-100M1
Stepper motor (no controller)	CP2-4841-100SM
M6 pump only	CP2-4841-100D

M50 pumps

50 µl - 50 ml

	<i>Prod No</i>
M50 pump with:	
Controller and stepper motor	CP3-8182-625M2
Stepper motor (no controller)	CP3-8182-625SM2
M50 pump only	CP3-8182-625D

Accessories and replacement parts

	<i>Prod No</i>
Pump motor	
M6	CP-DSM
M50	CP-DSM2
Controller, MicroLynx-4	CP-CM1-P

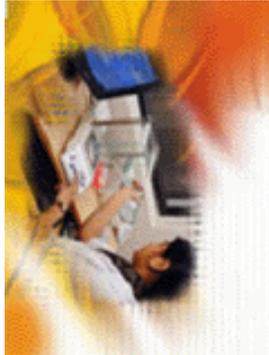
SPECS

	M6	M50
Continuous minimum dispense	100 nl	50 µl
Continuous maximum dispense	5 ml/min	25 ml/min
Maximum back pressure	100 psi	100 psi
Gravimetric precision for 125 µl	0.5%	0.8%
for 1.25 ml	0.05%	0.1%
Pump internal volume (µl)	100 ± 2 µl	625 ± 10 µl

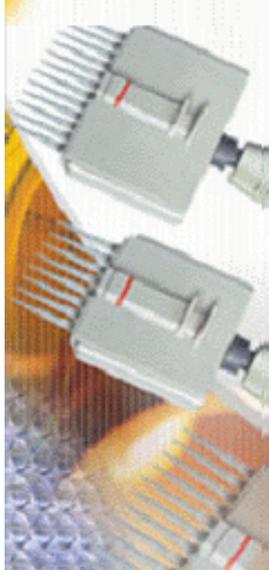
Applications

- Flow cytometry, cell and drug perfusion
- HTS and robotic systems
- Infusion and micro-dialysis
- Micro diluters/dispensers for nl to ml range applications
- Micro liquid transfers (nl) for micro arrays
- Microtiter plate dispensing using multiposition valves

* Patent No. 6,079,313



Microlit



PRODUCTS

- Bottle Top Dispenser
 - Electronic Micropipettes
 - Multichannel
 - Single Channel
 - E-Fill
 - Li'lpet
 - Tips
 - Stands
-

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WELCOME TO THE WORLD OF MICROLIT PIPETTES

Microлит is professionally managed liquid handling products manufacturing company. The factory is setup in an area of 100,000 sq.ft. with complete in-house facilities including Tool room, Moulding, Assembly, Calibration, Q-C etc. Microлит has full control over quality of it's high precision products.

[Click here for Details...](#)

PRODUCT GALLERY



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PRODUCTS

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- [Electronic Micropipettes](#)
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- [Single Channel](#)
- [E-Fill](#)
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Bottle Top Dispenser

Microlit Bottle top dispenser is another genius of its strong R&D base. Responding to the needs of the present generation, Microlit is proud to offer its NEW BOTTLE TOP DISPENSERS which is a unique combination of affordable pricing and high performance.

Simple design clubbed with variety of useful features makes Microlit Bottle top Dispensers an obvious choice for all routine dispensing needs.

High precision and accuracy is ensured through several stages of strict quality checks during manufacturing process. Each instrument is individually calibrated in accordance with ISO 8655 standards and comes with Individual Calibration certificate.



Specifications & Ordering Information

Bottle Top Dispenser

Model No.	Vol. Range	Increment	Accuracy		CV	
			± %	± ml	± %	± ml
BTD-1	0.25-2.5 ml	0.05ml	0.6	0.012	0.2	0.004
BTD-2	0.5-5 ml	0.1ml	0.6	0.030	0.2	0.010
BTD-3	1-10 ml	0.2 ml	0.6	0.060	0.2	0.020
BTD-4	2.5-30 ml	0.1 ml	0.6	0.180	0.2	0.060
BTD-5	5-60 ml	0.2 ml	0.6	0.360	0.2	0.120

FEATURES

Five models with adjustable volume

- (a) 0.25-2.5ml
- (b) 0.5-5ml
- (c) 1-10.0ml
- (d) 2.5-30ml
- (e) 5-60ml

Easy to use, simple construction and a good chemical compatibility.

Smooth, effortless plunger movement.

Each instrument comes with four adapters to fit in most of the laboratory reagent bottles. Standard threads : 30mm
Adapters: 25mm, 36mm, and 45mm

Safety discharge system reduces the risk of accidental dispensing.

Nozzle cap prevents any unwanted drop on the work space.

Instrument is fully autoclavable at 121 °C , 15psi. No Need for dis-assembling the instrument for autoclaving.

Easy to dis-assemble for cleaning and servicing.

In-lab, user re-calibration is possible in compliance with GLO/ISO Norms.



PRODUCT SPECIFICATIONS

Piston	Polypropylene
Cylinder	Glass
Housing	Polypropylene
Volume adjustment	Locking rocker switch
Valve assembly	Glass Ball & Seat
Discharge Assembly	Teflon
Delivery tube	Polypropylene
Calibration	Individually calibrated and certified
Accuracy & Reproducibility	In accordance with ISO 8655 standards
Compatibility	Excellent- Suitable for most reagents except HF
Bottle Thread Size	30mm
Additional Adaptors	25mm, 36mm, 45mm



Performance Data & Ordering Information Adjustable Volume Micropipettes

Model	Description	Vol. (μ l)	Inaccuracy (%)	C.V. (%)
VVCS - 10	0.5 - 10 μ l	0.5	\pm 5.0	\leq 2.8
		5.0	\pm 1.5	\leq 0.8
		10.0	\pm 1.0	\leq 0.4
VVCS - 20	2 - 20 μ l	2.0	\pm 5.0	\leq 1.5
		10.0	\pm 1.0	\leq 0.6
		20.0	\pm 1.0	\leq 0.3
VVCS - 50	5 - 50 μ l	5.0	\pm 2.5	\leq 1.5
		25.0	\pm 0.7	\leq 0.3
		50.0	\pm 0.7	\leq 0.3
VVCS - 100	20 - 100 μ l	20.0	\pm 2.0	\leq 0.7
		50.0	\pm 0.7	\leq 0.3
		100.0	\pm 0.8	\leq 0.2
VVCS - 200	40 - 200 μ l	40.0	\pm 1.5	\leq 0.3
		100.0	\pm 0.6	\leq 0.3
		200.0	\pm 0.6	\leq 0.2
VVCS - 1000	200 - 1000 μ l	200.0	\pm 1.2	\leq 0.3
		500.0	\pm 0.6	\leq 0.2
		1000.0	\pm 0.5	\leq 0.2
VVCS - 5000	1-5 ml	1000.0	\pm 0.8	\leq 0.2
		2500.0	\pm 0.6	\leq 0.2
		5000.0	\pm 0.6	\leq 0.2

VVCS - 10000	2 - 10 ml	2000.0	± 1.2	≤0.2
		5000.0	± 0.6	≤0.2
		10000.0	± 0.6	≤0.2
Extended volume ranges, 10-100 µl, 20-200 µl, 100-1000 µl are also available on request.				

Fixed Volume Micropipettes

FV	Capacity Required (Example : To order for 50 ml Fixed Volume Pipettes write FV-50 And indicate quantity)	1.0	± 2.5	≤ 1.8
		2.0 5.0	± 2.0	≤ 1.2
		10.0	± 1.5	≤ 0.8
		15.0	± 1.0	≤ 0.5
		20.0-40.0	± 0.5	≤ 0.3
		50.0-90.0	± 0.3	≤ 0.3
		100.0-10000.0	± 0.3	≤ 0.2

Fully Autoclavable Adjustable Volume

Model	Vol. Range	Increment	Vol.	Accuracy		Precision	
				±%	±µl	%	µl
FAA - 2	0.2 - 2.0 µl	0.01	0.2	12.0	0.024	6.0	0.012
			1.0	2.5	0.025	1.5	0.015
			2.0	1.5	0.03	0.7	0.014
FAA - 10	0.5 - 10 µl	0.1	0.5	5.0	0.025	2.8	0.14
			5.0	1.5	0.075	0.8	0.04
			10.0	1.0	0.1	0.4	0.04
FAA - 20	2 - 20 µl	0.1	2.0	5.0	0.1	1.5	0.03
			10.0	1.0	0.1	0.6	0.06
			20.0	1.0	0.2	0.3	0.06
FAA - 50	5 - 50 µl	1.0	5.0	2.5	0.125	1.5	0.075
			25.0	0.7	0.175	0.3	0.075
			50.0	0.7	0.35	0.3	0.15
FAA - 100	10 -100 µl	1.0	10.0	2.5	0.25	0.7	0.07
			50.0	0.8	0.4	0.15	0.15
			100.0	0.8	0.8	0.15	0.15
FAA - 200	20 -200 µl	1.0	20.	2.5	0.5	0.7	0.14
			100.0	1.0	1.0	0.3	0.3
			200.0	0.6	1.2	0.2	0.2
FAA - 1000	100 -1000 µl	10.0	100.0	1.6	1.6	0.3	0.3
			500.	0.6	3.0	0.2	1.0
			1000.0	0.5	5.0	0.2	2.0
FAA - 5000	0.5 - 5 ml	100.0	500.0	1.5	7.5	0.3	1.5
			2500.0	0.6	15.0	0.2	5.0
			5000.0	0.6	30.0	0.2	10.0

FAA - 10000	1 -10 ml	100.0	1000.0	1.5	15.0	0.3	3.0
			5000.0	0.6	30.0	0.2	15.0
			10000.0	0.6	60.0	0.2	30.0

Fully Autoclavable Fixed Volume

Fully Autoclavable Fixed	Volume μ l	Inaccuracy (%)	C.V(%)
Model FAF Capacity Required (To order for 50 Fully Autoclavable Fixed Volume Pipettes, write FAF - 50 and Indicate quantity)	1.0	± 2.5	≤ 1.8
	2.0	± 2.0	≤ 1.2
	5.0	± 1.5	≤ 0.8
	10.0	± 1.0	≤ 0.5
	15.0	± 1.0	≤ 0.5
	20.0-40.0	± 0.5	≤ 0.3
	50.0-90.0	± 0.3	≤ 0.3
	100.0-10000.0	± 0.3	≤ 0.2

Multichannel Micropipettes

Non Autoclavable (8 Channel)

Model	Vol. Range	Increments	Test Vol.	Inaccuracy	Imprecision
MC-8/10	0.5-10	0.1 μ l	1 μ l	4.00%	4.00%
			5 μ l	2.50%	2.50%
			10 μ l	1.50%	1.50%
MC-8/20	2-20	0.1 μ l	2 μ l	4%	4.00%
			10 μ l	1.50%	1.50%
			20 μ l	1.50%	1.00%
MC-8/50	5-50	1 μ l	5 μ l	3.00%	2.00%
			25 μ l	1.50%	1.00%
			50 μ l	0.50%	0.50%
MC-8/100	10-100	1 μ l	10 μ l	1.50%	1.50%
			50 μ l	1.00%	0.50%
			100 μ l	1.00%	0.50%
MC-8/300	40-300	1 μ l	40 μ l	1.50%	0.80%
			150 μ l	1.00%	0.50%
			300 μ l	0.70%	0.25%

Non Autoclavable (12 Channel)

Model	Vol. Range	Increments	Test Vol.	Inaccuracy	Imprecision
MC-12/10	0.5-10	0.1 μ l	1 μ l	4.00%	4.00%
			5 μ l	2.50%	2.50%
			10 μ l	1.50%	1.50%
MC-12/20	2-20	0.1 μ l	2 μ l	4.00%	4.00%
			10 μ l	1.50%	1.50%
			20 μ l	1.50%	1.00%

MC-12/50	5-50	1 μ l	5 μ l 25 μ l 50 μ l	3.00% 1.50% 0.50%	2.00% 1.00% 0.50%
MC-12/100	10-100	1 μ l	10 μ l 50 μ l 100 μ l	1.50% 1.00% 1.00%	1.50% 0.50% 0.50%
MC-12/300	40-300	1 μ l	40 μ l 150 μ l 300 μ l	1.50% 1.00% 0.70%	0.80% 0.50% 0.25%

Fully Autoclavable (8 Channel)

Model	Vol. Range	Increments	Test Vol.	Inaccuracy	Imprecision
MCA-8/10	0.5-10	0.1 μ l	1 μ l 5 μ l 10 μ l	4.00% 2.50% 1.50%	4.00% 2.50% 1.50%
MCA-8/20	2-20	0.1 μ l	2 μ l 10 μ l 20 μ l	4% 1.50% 1.50%	4% 1.50% 1.00%
MCA-8/50	5-50	1 μ l	5 μ l 25 μ l 50 μ l	3.00% 1.50% 0.50%	2.00% 1.00% 0.50%
MCA-8/100	10-100	1 μ l	10 μ l 50 μ l 100 μ l	1.50% 1.00% 1.00%	1.50% 0.50% 0.50%
MCA-8/300	40-300	1 μ l	40 μ l 150 μ l 300 μ l	1.50% 1.00% 0.70%	0.80% 0.50% 0.25%

Fully Autoclavable (12 Channel)

Model	Vol. Range	Increments	Test Vol.	Inaccuracy	Imprecision
MCA-12/10	0.5-10	0.1 μ l	1 μ l 5 μ l 10 μ l	4.00% 2.50% 1.50%	4.00% 2.50% 1.50%
MCA-12/20	2-20	0.1 μ l	2 μ l 10 μ l 20 μ l	4% 1.50% 1.50%	4% 1.50% 1.00%
MCA-12/50	5-50	1 μ l	5 μ l 25 μ l 50 μ l	3.00% 1.50% 0.50%	2.00% 1.00% 0.50%
MCA-12/100	10-100	1 μ l	10 μ l 50 μ l 100 μ l	1.50% 1.00% 1.00%	1.50% 0.50% 0.50%

MCA-12/300	40-300	1 µl	40µl	1.50%	0.80%
			150µl	1.00%	0.50%
			300µl	0.70%	0.25%

Electronic Micropipettes

Model	Vol. Range	Increments	Tip Style
ME - 10	0.2-10 µl	0.05µl	10µl
ME - 120	5-120µl	0.5µl	200µl
ME - 300	20-300µl	1.0µl	300µl
ME - 1000	50-1000µl	5.0µl	1000µl
ME - 5000	100-5000µl	10.0µl	5000µl
ME - 10000	500-10000µl	50.0µl	10000µl

E-fill

Model No.	Description
MPF - GY - 220V	Grey body/ yellow collet and plungers
MPF - GY - 110V	Grey body/ yellow collet and plungers
MPF - GR - 220V	Grey body/ red collet and plungers
MPF - GR - 110V	Grey body/ red collet and plungers
MPF - GV - 220V	Grey body/ Violet collet and plungers
MPF - GV - 110V	Grey body/ Violet collet and plungers

Li'lpet

Model	Capacity	Accuracy	CV
MM-5	5 µl	1.5%	1.0%
MM-10	10 µl	1.0%	1.0%
MM-20	20 µl	0.5%	0.5%
MM-25	25 µl	0.5%	0.5%
MM-50	50 µl	0.4%	0.3%
MM-100	100 µl	0.3%	0.3%

Model	Capacity	Accuracy	CV
MM-200	200 µl	0.5%	0.5%
MM-250	250 µl	0.5%	0.5%
MM-500	500 µl	0.5%	0.5%
MM-1000	1000 µl	0.5%	0.5%

Tips for Micropipettes

Model	Description
MTSP	Capacity upto 10 µl Pkt. of 100 Nos.
MT - I	Capacity upto 200 µl Pkt. of 500 Nos.
MT - II	Capacity upto 1000 µl Pkt. of 500 Nos.
MT - V	Capacity upto 5000 µl Pkt. of 100 Nos.
MT - IV	Capacity upto 10000 µl Pkt. of 100 Nos.

Bottle Top Dispenser

Model No.	Vol. Range	Increment	Accuracy		CV	
			± %	± ml	± %	± ml
BTD-1	0.25-2.5 ml	0.05ml	0.6	0.012	0.2	0.004
BTD-2	0.5-5 ml	0.1ml	0.6	0.030	0.2	0.010
BTD-3	1-10 ml	0.2 ml	0.6	0.060	0.2	0.020

Micropipette-Stands

Model	Description
MS - I	Acrylic stand for 3 pipettes
MS -II	Acrylic stand for 6 pipettes
MS -III	Acrylic stand for 8-Channel pipettes
MS -IV	Acrylic stand for 12-Channel pipettes



CE Certificate



CE Certificate



Electronic Micropipettes

FEATURES

- Based on Stepper Motor Technology.
- User friendly software.
- Recharging during operation.
- Optimized ergonomics and working comfort.
- Built-in tip ejector.
- Six models cover the complete Pipetting range from 0.2 μ l to 10000 μ l .

Mode (Easy selection of modes from single key)

- Stepper mode
- Dilution mode
- Standard mode
- Calibration mode

Variable Working Speed can be selected on a scale of 1-5
Easy volume selection from 'UP' & 'DOWN' keys.

Large Fire Button
Single 'FIRE BUTTON' for filling and dispensing.

Large Liquid Crystal Display



Two line Alphanumeric LCD.

Calibration

User friendly calibration mode facilitates easy calibration by the user.

Ordering Information and Specifications

Model	Vol. Range	Increments	Tip Style
ME - 10	0.2-10 μ l	0.05 μ l	10 μ l
ME - 120	5-120 μ l	0.5 μ l	200 μ l
ME - 300	20-300 μ l	1.0 μ l	300 μ l
ME - 1000	50-1000 μ l	5.0 μ l	1000 μ l
ME - 5000	100-5000 μ l	10.0 μ l	5000 μ l
ME - 10000	500-10000 μ l	50.0 μ l	10000 μ l



Multichannel Micropipettes

- [Non Autoclavable](#)
- [Fully Autoclavable](#)

Features

High accuracy and precision for 96-well microtitre plates.

Extended volume range upto 300µl.

Comfortable, light weight and soft plunger movement.

Seperate tip ejector allows easy tip ejection.

Recommended for ELISA, Molecule screening, Kinetic studies, DNA amplifications etc.



8 - Channel

12 - Channel

Non Autoclavable

Ordering Information and Specifications

- 8 - Channel

Model	Vol. Range	Increments	Test Vol.	Inaccuracy	Imprecision
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MC-8/10	0.5-10	0.1 µl	1µl 5µl 10µl	4.00% 2.50% 1.50%	4.00% 2.50% 1.50%
MC-8/20	2-20	0.1 µl	2µl 10µl 20µl	4% 1.50% 1.50%	4% 1.50% 1.00%
MC-8/50	5-50	1 µl	5µl 25µl 50µl	3.00% 1.50% 0.50%	2.00% 1.00% 0.50%
MC-8/100	10-100	1 µl	10µl 50µl 100µl	1.50% 1.00% 1.00%	1.50% 0.50% 0.50%
MC-8/300	40-300	1 µl	40µl 150µl 300µl	1.50% 1.00% 0.70%	0.80% 0.50% 0.25%

- 12 - Channel

Model	Vol. Range	Increments	Test Vol.	Inaccuracy	Imprecision
MC-12/10	0.5-10	0.1 µl	1µl 5µl 10µl	4.00% 2.50% 1.50%	4.00% 2.50% 1.50%
MC-12/20	2-20	0.1 µl	2 µl 10 µl 20 µl	4% 1.50% 1.50%	4% 1.50% 1.00%
MC-12/50	5-50	1 µl	5µl 25µl 50µl	3.00% 1.50% 0.50%	2.00% 1.00% 0.50%
MC-12/100	10-100	1 µl	10 µl 50 µl 100 µl	1.50% 1.00% 1.00%	1.50% 0.50% 0.50%
MC-12/300	40-300	1 µl	40µl 150µl 300µl	1.50% 1.00% 0.70%	0.80% 0.50% 0.25%

Fully Autoclavable



Ordering Information and Specifications

- 8 - Channel

Model	Vol. Range	Increments	Test Vol.	Inaccuracy	Imprecision
MCA-8/10	0.5-10	0.1 µl	1µl	4.00%	4.00%
			5µl	2.50%	2.50%
			10µl	1.50%	1.50%
MCA-8/20	2-20	0.1 µl	2µl	4%	4%
			10µl	1.50%	1.50%
			20µl	1.50%	1.00%
MCA-8/50	5-50	1 µl	5µl	3.00%	2.00%
			25µl	1.50%	1.00%
			50µl	0.50%	0.50%
MCA-8/100	10-100	1 µl	10µl	1.50%	1.50%
			50µl	1.00%	0.50%
			100µl	1.00%	0.50%
MCA-8/300	40-300	1 µl	40µl	1.50%	0.80%
			150µl	1.00%	0.50%
			300µl	0.70%	0.25%

8 - Channel



12 - Channel



- 12 - Channel

Model	Vol. Range	Increments	Test Vol.	Inaccuracy	Imprecision
MCA-12/10	0.5-10	0.1 µl	1µl	4.00%	4.00%
			5µl	2.50%	2.50%
			10µl	1.50%	1.50%
MCA-12/20	2-20	0.1 µl	2 µl	4%	4%
			10 µl	1.50%	1.50%
			20 µl	1.50%	1.00%
MCA-12/50	5-50	1 µl	5µl	3.00%	2.00%
			25µl	1.50%	1.00%

MCA-12/100	10-100	1 μ l	10 μ l 50 μ l 100 μ l	1.50% 1.00% 1.00%	1.50% 0.50% 0.50%
MCA-12/300	40-300	1 μ l	40 μ l 150 μ l 300 μ l	1.50% 1.00% 0.70%	0.80% 0.50% 0.25%



Single Channel Micropipettes

- Semi Autoclavable
 - Fixed Volume
 - Variable Volume
- Fully Autoclavable
 - Fixed Volume
 - Variable Volume



Semi Autoclavable

Fully Autoclavable



E-Fill

E-FILL : Electronic Pipette Filling Device

Easy
Efficient
Electronic
Economical

Features

Two LEDs to show charging status and low battery.

Continuous adjustment of pump speed during operations.

An universal Silicon collet is provided to accept all standard pipettes up to 100ml.

Internal knurling on the collet holds the pipette firmly.

Comfortable grip.

Line membrane filter of 0.2 micron prevents Aerosol contamination and liquid from entering the equipment by accident.

Ni-MH 3.6 rechargeable battery allows eight hours of continuous working.



Ordering Information and Specifications

Model No.	Description
-----------	-------------

MPF - GY - 220V	Grey body/ yellow collet and plungers
MPF - GY - 110V	Grey body/ yellow collet and plungers
MPF - GR - 220V	Grey body/ red collet and plungers
MPF - GR - 110V	Grey body/ red collet and plungers
MPF - GV - 220V	Grey body/ Violet collet and plungers
MPF - GV - 110V	Grey body/ Violet collet and plungers



Li'lpet

Microlit Li'lpet is 130mm in length which is optimum size to facilitate the user in handling the Microlit Li'lpet like a standard pipette and not like a syringe.

Unique Tip-Cone design to accept both micro tip (200 μ l) and ultra micro tip (25 μ l).

Two stage plunger movement ensures high accuracy and precision in pipetting technique. This also facilitates last drop dispensing.

Microlit Li'lpet is FULLY AUTOCLAVABLE at 121°C and 15 psi for sensitive applications.

Colour coded for various capacities for easy identification in laboratory environment.



Ordering Information and Specifications

Model	Capacity	Accuracy	CV
MM-5	5 μ l	1.5%	1.0%
MM-10	10 μ l	1.0%	1.0%
MM-20	20 μ l	0.5%	0.5%

MM-25	25 μ l	0.5%	0.5%
MM-50	50 μ l	0.4%	0.3%
MM-100	100 μ l	0.3%	0.3%
Model	Capacity	Accuracy	CV
MM-200	200 μ l	0.5%	0.5%
MM-250	250 μ l	0.5%	0.5%
MM-500	500 μ l	0.5%	0.5%
MM-1000	1000 μ l	0.5%	0.5%



* Please contact our customer service for any tailor made pipette between 0.5 μ l to 1000 μ l



Fixed Volume Micropipettes

With Autoclavable tip cone

Fixed volume pipettes are available in all capacities from 0.5 μl to 10000 μl (10 ml).

Call our customer service for any custom-made Fixed Volume Micropipette.

Low cost and very high accuracy.

Ideal for Clinical diagnostics, Routine tests, Control analysis etc.



Ordering Information and Specifications

Model	Vol.	Accuracy		Precision	
		$\pm\%$	$\pm\mu\text{l}$	$\pm\%$	$\pm\mu\text{l}$
FV - 1	1.0	2.5	0.025	1.8	0.018
FV - 2	2.0	2.5	0.04	1.2	0.024
FV - 5	5.0	1.5	0.075	0.8	0.04

Fixed Volume

FV - 10	10.0	1.0	0.1	0.5	0.05
FV - 20	20.0	0.5	0.1	0.3	0.06
FV - 25	25.0	0.5	0.125	0.3	0.075
FV - 50	50.0	0.3	0.15	0.3	0.15
FV - 100	100.0	0.3	0.3	0.2	0.2
FV - 200	200.0	0.3	0.6	0.2	0.4
FV - 250	250.0	0.3	0.75	0.2	0.5
FV - 500	500.0	0.3	1.5	0.2	1.0
FV - 1000	1000.0	0.3	3.0	0.2	2.0
FV - 2000	2000.0	0.3	6.0	0.2	4.0
FV - 5000	5000.0	0.3	15.0	0.2	10.0
FV - 10000	10000.0	0.3	30.0	0.2	20.0

* Please contact our customer service for any tailor made Fixed Volume pipette between 0.5 μ l to 10000 μ l.



Adjustable Volume Micropipettes

With Autoclavable tip cone

Models

VVCS -10 (0.5 -10 μ l) [Ultra Low Volume]

VVCS -20 (2 -20 μ l)

VVCS -50 (5 -50 μ l)

VVCS -100 (20 -100 μ l)

VVCS -200 (40 -200 μ l)

VVCS -1000 (200 -1000 μ l)

VVCS -5000 (1 -5 ml) [High Volume]

VVCS -10000 (2 -10 ml) [High volume]

Following Extended Volume ranges are also available on request.

VVCS 100 EX (10-100 μ l)

VVCS 200 EX (20-200 μ l)

VVCS 1000 EX (100-1000 μ l)

Eight volume ranges from 0.5 μ l to 10000 μ l let you select the right pipette for your application.

Easy volume setting by simply turning the plunger. Does not snag gloves.

Click stop digital system -click sound at each increment during volume setting ensures no unwanted volume alterations during pipetting.



Variable Volume

Separate, streamlined tip ejector designed for access to narrow necked containers and tubes.

Easy to calibrate and service.

Autoclavable tip cone and lower section assembly.

Ergonomy, light weight and soft plunger movement provides added comforts and minimizes hand fatigue.

Two step plunger operation allows "reverse pipetting technique" during pipetting from the same tip.

While dealing with detergent solutions. This also facilitates last drop dispensing.

High accuracy and precision guaranteed. Specifications conform to ISO 8655 Standards.

Ordering Information and Specifications

Model	Vol. Range	Increment	Vol.	Accuracy		Precision	
				±%	±µl	%	µl
VVCS - 10	0.5-10 µl	0.1	0.5	5.0	0.025	2.8	0.14
			5.0	1.5	0.075	0.8	0.04
			10.0	1.0	0.1	0.4	0.04
VVCS - 20	2-20 µl	0.1	2.0	5.0	0.1	1.5	0.03
			10.0	1.0	0.1	0.6	0.06
			20.0	1.0	0.2	0.3	0.06
VVCS - 50	5-50 µl	1.0	5.0	2.5	0.125	1.5	0.075
			25.0	0.7	0.175	0.3	0.075
			50.0	0.7	0.35	0.3	0.15
VVCS - 100	20 -100 µl	1.0	20.0	2.5	0.25	0.7	0.07
			50.0	0.8	0.4	0.15	0.15
			100.0	0.8	0.8	0.15	0.15
VVCS - 200	40 -200 µl	1.0	40.0	2.5	0.5	0.7	0.14
			100.0	1.0	1.0	0.3	0.3
			200.0	0.6	1.2	0.2	0.2
VVCS - 1000	200-1000 µl	10.0	200.0	1.6	1.6	0.3	0.3
			500.0	0.6	3.0	0.2	1.0
			1000.0	0.5	5.0	0.2	2.0
VVCS - 5000	1-5 ml	100.0	1000.0	1.5	7.5	0.3	1.5
			2500.0	0.6	15.0	0.2	5.0
			5000.0	0.6	30.0	0.2	10.0
VVCS - 10000	2-10 ml	100.0	2000.0	1.5	15.0	0.3	3.0
			5000.0	0.6	30.0	0.2	15.0
			10000.0	0.6	60.0	0.2	30.0



Fully Autoclavable Micropipette

- Fixed Volume

In order to keep pace with the rapid progress made in research sector, in recent years.

MICROLIT has made one logical step further and proudly presents the new, fully autoclavable micropipette series for today's sophisticated user in the field of Molecular biology, Microbiology, Immunology, Cell culture, Analytical Chemistry, Biochemistry, Genetics etc.

Features

- Constructed of fully autoclavable plastic and combined with stainless steel piston for many years of dependable service.
- Individually Calibrate as per procedure laid down in ISO 8655 Standards; a calibration report is included with each pipette.
- Micropipettes (available in both adjustable and fixed volume types)
- Nine volume ranges in the adjustable volume type cover the complete pipette range from 0.2 μ l to 10ml offering a wide choice to choose the most suited model for your application.
- New body design provide improved ergonomoy for more comfort and less fatigue during operation.
- User adjustment (re-calibration) can be performed easily.



Fixed Volume

- Easy volume adjustment by turning the plunger even when wearing the gloves, plunger does not snag gloves.
- Built-in, streamlined tip ejector facilitates easy tip ejection and access to narrow necked bottles and tube.
- Accuracy and Precision volume provided are better than those laid down in the ISO 8655 Standards.

Ordering Information and Specifications

- Fixed Volume

Fully Autoclavable Fixed	Volume μ l	Inaccuracy (%)	C.V(%)
Model FAF	1.0	± 2.5	≤ 1.8
	2.0	± 2.0	≤ 1.2
Capacity Required (To order for 50 Fully Autoclavable Fixed Volume Pipettes, write FAF - 50 and Indicate quantity)	5.0	± 1.5	≤ 0.8
	10.0	± 1.0	≤ 0.5
	15.0	± 1.0	≤ 0.5
	20.0-40.0	± 0.5	≤ 0.3
	50.0-90.0	± 0.3	≤ 0.3
	100.0-10000.0	± 0.3	≤ 0.2



Fully Autoclavable Micropipette

- Variable Volume

In order to keep pace with the rapid progress made in research sector, in recent years,

MICROLIT has made one logical step further and proudly presents the new, fully autoclavable micropipette series for today's sophisticated user in the field of Molecular Biology, Microbiology, Immunology, Cell Culture, Analytical Chemistry, Biochemistry, Genetics etc.

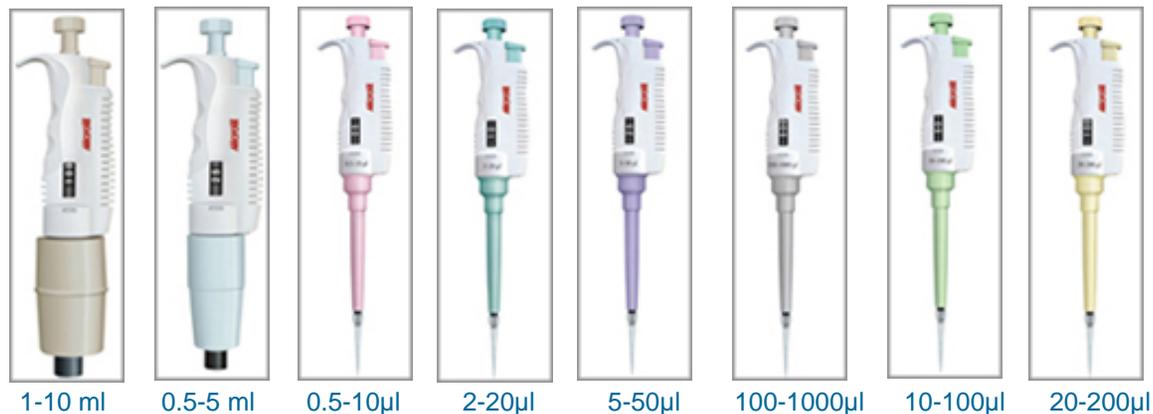
Features

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Variable Volume

- Easy volume adjustment by turning the plunger even when wearing the gloves, plunger does not snag gloves.
- Built-in, streamlined tip ejector facilitates easy tip ejection and access to narrow necked bottles and tubes.
- Accuracy and Precision volume provided are better than those laid down in the ISO 8655 Standards.



Ordering Information and Specifications

- Variable Volume

Model	Vol. Range	Increment	Vol.	Accuracy		Precision	
				±%	±µl	%	µl
FAA - 2	0.2 - 2.0 µl	0.01	0.2	12.0	0.024	6.0	0.012
			1.0	2.5	0.025	1.5	0.015
			2.0	1.5	0.03	0.7	0.014
FAA - 10	0.5 - 10 µl	0.1	0.5	5.0	0.025	2.8	0.14
			5.0	1.5	0.075	0.8	0.04
			10.0	1.0	0.1	0.4	0.04
FAA - 20	2 - 20 µl	0.1	2.0	5.0	0.1	1.5	0.03
			10.0	1.0	0.1	0.6	0.06
			20.0	1.0	0.2	0.3	0.06
FAA - 50	5 - 50 µl	1.0	5.0	2.5	0.125	1.5	0.075
			25.0	0.7	0.175	0.3	0.075
			50.0	0.7	0.35	0.3	0.15
FAA - 100	10 -100 µl	1.0	10.0	2.5	0.25	0.7	0.07
			50.0	0.8	0.4	0.15	0.15
			100.0	0.8	0.8	0.15	0.15

FAA - 200	20 -200 μ l	1.0	20. 100.0 200.0	2.5 1.0 0.6	0.5 1.0 1.2	0.7 0.3 0.2	0.14 0.3 0.2
FAA - 1000	100 -1000 μ l	10.0	100.0 500. 1000.0	1.6 0.6 0.5	1.6 3.0 5.0	0.3 0.2 0.2	0.3 1.0 2.0
FAA - 5000	0.5 - 5 ml	100.0	500.0 2500.0 5000.0	1.5 0.6 0.6	7.5 15.0 30.0	0.3 0.2 0.2	1.5 5.0 10.0
FAA - 10000	1 -10 ml	100.0	1000.0 5000.0 10000.0	1.5 0.6 0.6	15.0 30.0 60.0	0.3 0.2 0.2	3.0 15.0 30.0



Tips for Micropipettes

Model	Description
MTSP	Capacity upto 10 μ l Pkt. of 100 Nos.
MT-I	Capacity upto 200 μ l Pkt. of 500 Nos.
MT-II	Capacity upto 1000 μ l Pkt. of 500 Nos.
MT-V	Capacity upto 5000 μ l Pkt. of 100 Nos.
MT-IV	Capacity upto 10000 μ l Pkt. of 100 Nos.





Stand for Micropipettes

- Stand for 3 pipette

Model	Description
MS - I	Acrylic stand for 3 pipettes



- Stand for 6 pipettes

Model	Description
MS - II	Acrylic stand for 6 pipettes

MS-11





VIALS &

SYRINGES

VIALS Restek Catalog 2009/10 pg 268-289

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Top: Marcia Fulton, Assembly Technician
 Bottom: Stephanie Sunner, International Customer Service





Hamilton 10µL,
Autosampler
Cemented Needle for
Agilent 7673, 7683,
6850 Autosamplers
20167

SGE Removable
Needle for Agilent
7673, 7683, 6850
Autosamplers
24793

Guide to Needle Termination Codes

Hamilton:

- (N) Cemented Needle
- (RN) Removable Needle
- (ASN) Autosampler Cemented Needle
- (ASRN) Autosampler Removable Needle
- (TLL) Teflon® Luer Lock
- (KH) Knurled Hub
- (LT) Luer Tip
- (LTN) Luer Tip Cemented Needle

SGE:

- (F) Fixed Needle
- (R) Removable Needle
- (LL) Luer Lock
- (LT) Luer Tip

Standard Microliter Syringes for Agilent 7673, 7683, and 6850 Autosamplers

- Hamilton and SGE syringes are designed and tested to meet critical autosampler performance needs.
- Needle point styles are designed to withstand multiple, rapid injections through a septum.

Hamilton Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	Hamilton		Restek cat.#	price
					Model	cat.#		
0.5µL	ASRN	23s	1.71"	Agilent	7000.5	86276	ea.	24895
0.5µL	ASRN	26s	1.71"	Agilent	7000.5	86274	ea.	21221
5µL	ASRN	23s	1.71"	Agilent	75	87957	ea.	20172
5µL	ASN	23s	1.71"	Agilent	75	87987	ea.	20168
5µL	ASN	23s	1.71"	Agilent	75	87990	6-pk.	20170
5µL	ASN	26s	1.71"	Agilent	75	87988	ea.	24592
5µL	ASN	26s	1.71"	Agilent	75	87989	6-pk.	21230
5µL	ASRN	23s-26s	1.71"	Agilent	75	87959	ea.	21223
5µL	ASN	23s-26s	1.71"	Agilent	75	87993	ea.	24593
5µL	ASN	23s-26s	1.71"	Agilent	75	87994	6-pk.	24594
10µL	ASRN	23s	1.71"	Agilent	701	80357	ea.	20171
10µL	ASN	23s	1.71"	Agilent	701	80387	ea.	20167
10µL	ASN	23s	1.71"	Agilent	701	80390	6-pk.	20169
10µL	ASRN	26s	1.71"	Agilent	701	80358	ea.	24597
10µL	ASN	26s	1.71"	Agilent	701	80388	ea.	24595
10µL	ASN	26s	1.71"	Agilent	701	80389	6-pk.	24599
10µL	ASRN	23s-26s	1.71"	Agilent	701	80359	ea.	24598
10µL	ASN	23s-26s	1.71"	Agilent	701	80393	ea.	24596
10µL	ASN	23s-26s	1.71"	Agilent	701	80391	6-pk.	24600

SGE Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE		Restek cat.#	price
					Model	cat.#		
0.5µL	R	23	42mm	Cone	0.5BR-HP-0.63	000410	ea.	24791
0.5µL	R	26	42mm	Cone	0.5BR-HP-0.47	000400	ea.	24790
5µL	R	23	42mm	Cone	5R-HP-0.63	001815	ea.	24793
5µL	F	23	42mm	Cone	5F-HP-0.63	001810	ea.	24781
5µL	F	23	42mm	Cone	SK-5F-HP-0.63	001814	6-pk.	24783
5µL	F	26	42mm	Cone	5F-HP-0.47	001800	ea.	24780
5µL	F	26	42mm	Cone	SK-5F-HP-0.47	001804	6-pk.	24782
5µL	R	23-26s	42mm	Cone	5R-HP-0.63/0.47	001825	ea.	21211
5µL	F	23-26s	42mm	Cone	5F-HP-0.63/0.47	001821	ea.	21210
5µL	F	23-26s	42mm	Cone	SK-5F-HP-0.63/0.47	001822	6-pk.	21214
10µL	R	23	42mm	Cone	10R-HP-0.63	002815	ea.	24795
10µL	F	23	42mm	Cone	10F-HP-0.63	002810	ea.	24785
10µL	F	23	42mm	Cone	SK-10F-HP-0.63	002814	6-pk.	24787
10µL	R	26	42mm	Cone	10R-HP-0.47	002805	ea.	24794
10µL	F	26	42mm	Cone	10F-HP-0.47	002800	ea.	24784
10µL	F	26	42mm	Cone	SK-10F-HP-0.47	002804	6-pk.	24786
10µL	R	23-26s	42mm	Cone	10R-HP-0.63/0.47	002825	ea.	21213
10µL	F	23-26s	42mm	Cone	10F-HP-0.63/0.47	002821	ea.	21212
10µL	F	23-26s	42mm	Cone	SK-10F-HP-0.63/0.47	002822	6-pk.	21215



also available

Looking for Restek Genuine Replacement Parts for Agilent Instruments?
See pages 146-172.

Gas-Tight Teflon®-Tipped Syringes for Agilent 7673, 7683, and 6850 Autosamplers

Hamilton Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	Hamilton Model	Hamilton cat.#	qty.	Restek cat.#	price
5µL	ASN	23s	1.71"	Agilent	175	80074	ea.	24893	
10µL	ASN	23s	1.71"	Agilent	1701	80080	ea.	24894	
10µL	ASRN	23s	1.71"	Agilent	1701	80087	ea.	21224	
10µL	ASRN	26s	1.71"	Agilent	1701	80088	ea.	21228	
10µL	ASRN	23s-26s	1.71"	Agilent	1701	80089	ea.	21229	

SGE Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE Model	SGE cat.#	qty.	Restek cat.#	price
10µL	F	23	42mm	Cone	10F-HP-GT-0.63	002812	ea.	24789	
10µL	R	23	42mm	Cone	10R-HP-GT-0.63	002818	ea.	24797	
10µL	R	23-26	42mm	Cone	10R-HP-GT-0.63/0.47	002829	ea.	21220	

Large Volume Syringes for Agilent 7673, 7683, and 6850 Autosamplers

SGE Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE Model	SGE cat.#	qty.	Restek cat.#	price
25µL	R	23	42mm	Cone	25R-HP-0.63	003665	ea.	24798	
50µL	R	23	42mm	Cone	50R-HP-0.63	004665	ea.	24799	
100µL	R	23	42mm	Cone	100R-HP-0.63	005665	ea.	24800	
250µL	R	23	42mm	Cone	250R-HP-0.63	006665	ea.	24801	

Replacement Needles for Agilent 7673, 7683, and 6850 Autosampler Syringes

Needles for Hamilton Syringes

Syringe Volume	Needle Gauge	Needle Length	Point Style	Hamilton cat.#	qty.	Restek cat.#	price
5-10µL	23s	1.71"	Agilent	7786-01	6-pk.	20164	
5-10µL	26s	1.71"	Agilent	7786-02	6-pk.	20165	
5-10µL	23s-26s	1.71"	Agilent	7785-01	6-pk.	20166	

Needles for SGE Syringes

Syringe Volume	Needle Gauge	Needle Length	Point Style	SGE cat.#	qty.	Restek cat.#	price
0.5µL	23	42mm	Cone	033715	ea.	24821	
0.5µL	26	42mm	Cone	033708	ea.	24820	
5µL	23	42mm	Cone	036720	2-pk.	24823	
10µL	23	42mm	Cone	037717	2-pk.	24825	
10µL	26	42mm	Cone	037715	2-pk.	24824	
25-250µL	23	42mm	Cone	038717	2-pk.	24826	



Hamilton 10µL Gas-Tight Syringe
24894

also **available**

Looking for an Agilent Syringe Cross-Reference?
See page 272.





21218

Replacement Teflon®-Tipped Plunger Assembly for Agilent 7673, 7683, and 6850 Autosampler Syringes

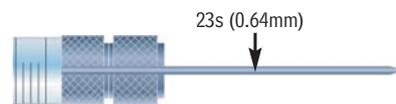
SGE

Syringe Volume	Needle Term.	SGE cat.#	qty.	Restek cat.#	price
10µL	F	031808	2-pk.	21218	
10µL	R	031809	2-pk.	21284	

Needle Gauge for Agilent 7673, 7683, 6850 Syringes

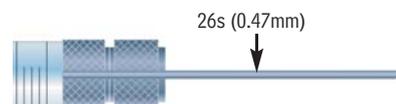
Single Gauge Needle (23s)

- The most popular gauge for Agilent 7673.
- Best for Merlin Microseal septum and standard septum-equipped GCs.
- Packed column injection ports.
- Split/splitless injection ports.



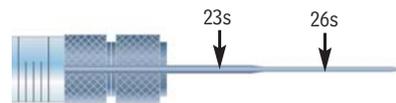
Single Gauge Needle (26s)

- On-column injection ports.
- Split/splitless injection ports.



23s-26s—Dual Gauge (tapered)

- Durability of a 23s gauge needle.
- Ability of a 26s gauge needle to perform split/splitless and on-column injections.



Cross-reference

For Agilent Syringes

Listed below are some Hamilton and SGE syringes, cross-referenced to Agilent part numbers for your convenience. For further information or questions, contact your Restek sales representative or technical service.

Similar to Agilent Part #	Restek Part #	Description	Page
5181-1267	21212, 24596	10µL Standard Syringe, Fixed Needle, 23-26 Gauge	270
5181-1273	21210, 24593	5µL Standard Syringe, Fixed Needle, 23-26 Gauge	270
5181-3319	20166	Needle for 10µL Standard Syringe, 23-26 Gauge	271
5181-3321	21213, 24598	10µL Standard Syringe, Removable Needle, 23-26 Gauge	270
5181-3356	21218	Replacement Teflon-Tipped Plunger for 10µL Fixed Needle Syringe	272
5181-3358	24919	Teflon-Tipped Plunger for 10µL Standard Syringe, Removable Needle	282
5181-3360	21215, 24600	10µL Standard Syringe, Fixed Needle, 23-26 Gauge (6-pk.)	270
5181-3365	21218	Teflon-Tipped Plunger for 10µL Standard Syringe, Fixed Needle	272
5181-8809	24894, 24789	10µL Gas-tight Syringe, Fixed Needle, 23 Gauge	271
5181-8811	20164, 24825	Needle for 10µL Gas-tight Syringe, 23 Gauge	271
5181-8813	21224, 24797	10µL Gas-tight Syringe, Removable Needle, 23 Gauge	271
5182-0830	24821	Needle for 0.5µL Standard Syringe, 23 Gauge	271
5182-0832	20166	Needle for 5-10µL Autosampler Syringe, 23-26 Gauge	271
5182-0834	20172, 24793	5µL Standard Syringe, Removable Needle, 23 Gauge	270
5182-0835	21223, 21211	5µL Standard Syringe, Removable Needle, 23-26 Gauge	270
5182-0875	20170, 24783	5µL Standard Syringe, Fixed Needle, 23 Gauge (6-pk.)	270
9301-0713	20167, 24785	10µL Standard Syringe, Fixed Needle, 23 Gauge	270
9301-0714	24595, 24784	10µL Standard Syringe, Fixed Needle, 26 Gauge	270
9301-0725	20169, 24787	10µL Standard Syringe, Fixed Needle, 23 Gauge (6-pk.)	270
9301-0891	24592, 24780	5µL Standard Syringe, Fixed Needle, 26 Gauge	270
9301-0892	20168, 24781	5µL Standard Syringe, Fixed Needle, 23 Gauge	270

Autosampler Syringes for PerkinElmer Autosystem and Clarus 500 GCs

- Hamilton and SGE syringes are designed and tested to meet critical autosampler performance needs.
- Needle point styles are developed to withstand multiple and rapid injections through a septum.

Hamilton Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	Hamilton Model	Hamilton cat.#	qty.	Restek cat.#	price
5µL	ASN	23	2.756"	3	75ASN/PE	88035	ea.	24953	
5µL	ASN	26	2.756"	3	75ASN/PE	88040	ea.	24952	

SGE Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE Model	SGE cat.#	qty.	Restek cat.#	price
0.5µL	R	23	70mm	Cone	0.5BR-PE-0.63	000478	ea.	24811	
0.5µL	R	26	70mm	Cone	0.5BR-PE-0.47	000475	ea.	24810	
5µL	F	23	70mm	Cone	5F-PE-0.63	001954	ea.	24813	
5µL*	F	23	70mm	Cone	5F-PE-GT-0.63	001957	ea.	24815	
5µL	F	26	70mm	Cone	5F-PE-0.47	001953	ea.	24812	
5µL*	F	26	70mm	Cone	5F-PE-GT-0.47	001955	ea.	24814	
50µL	F	23	70mm	Cone	50F-PE-0.63	004670	ea.	24816	

*Gas-tight.

Replacement Needle and Plunger Kit for PerkinElmer Autosampler Syringes

SGE Needle and Plunger Kit

Syringe Volume	Needle Gauge	Needle Length	Point Style	SGE cat.#	qty.	Restek cat.#	price
0.5µL	23	70mm	Cone	033765	kit	24818	

Hamilton 5µL Autosampler Syringe

SGE 5µL Autosampler Syringe 24812

24818

Guide to Needle Termination Codes

Hamilton:

- (N) Cemented Needle
- (RN) Removable Needle
- (ASN) Autosampler Cemented Needle
- (ASRN) Autosampler Removable Needle
- (TLL) Teflon® Luer Lock
- (KH) Knurled Hub
- (LT) Luer Tip
- (LTN) Luer Tip Cemented Needle

SGE:

- (F) Fixed Needle
- (R) Removable Needle
- (LL) Luer Lock
- (LT) Luer Tip



also **available**

Looking for Restek Genuine Replacement Parts for PerkinElmer Instruments? See pages 182-185.



Hamilton 10µL
Autosampler Syringe
24956

SGE 10µL
Autosampler Syringe
24851

Autosampler Syringes for Varian 8000 Series GCs

- Hamilton and SGE syringes are designed and tested to meet critical autosampler performance needs.
- Needle point styles are developed to withstand multiple and rapid injections through a septum.

Hamilton Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	Hamilton Model	Hamilton cat.#	Restek cat.#	price
Varian 8100/8200 Syringes								
10µL	RN	26s	1.99"	5	701 Varian	202880	ea.	24956

SGE Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE Model	SGE cat.#	Restek cat.#	price
Varian 8000 Syringes								
10µL	R	25	50mm	Dome	10R-VA80-II	002926	ea.	24850

Varian 8035, 8100, & 8200 Syringes

10µL*	F	25	53mm	S/Hole	10F-VA8X-11	002923	ea.	24851
10µL*	R	25	53mm	S/Hole	10R-VA8X-II	002924	ea.	24852
100µL	R	25	53mm	S/Hole	100R-VA8X	005921	ea.	24853

Varian CP 8400, CP8410 Syringes

10µL	F	26	50mm	Cone	10F-C/F-5/0.47C	002980	ea.	24922
10µL	F	26	50mm	Bevel	10F-VA8400-5/0.47	002950	ea.	21202

*Gas-tight syringe.



also available

Looking for Restek Genuine Replacement Parts for Varian Instruments?
See pages 173-177.

Guide to Needle Termination Codes

Hamilton:

- (N) Cemented Needle
- (RN) Removable Needle
- (ASN) Autosampler Cemented Needle
- (ASRN) Autosampler Removable Needle
- (TLL) Teflon® Luer Lock
- (KH) Knurled Hub
- (LT) Luer Tip
- (LTN) Luer Tip Cemented Needle

SGE:

- (F) Fixed Needle
- (R) Removable Needle
- (LL) Luer Lock
- (LT) Luer Tip



Replacement Needles for Varian 8000 Series Autosampler Syringes

Needles for SGE Syringes

Syringe Volume	Needle Gauge	Needle Length	Point Style	SGE cat.#	Restek cat.#	price
10µL	23	53mm	S/Hole	037779	2-pk.	24857
10µL*	25	53mm	S/Hole	037780	ea.	24858
10µL**	25	53mm	S/Hole	037777	ea.	24854
10µL	25	53mm	2	037776	2-pk.	24855

*straight needle shaft, 0.20mm ID needle, for use with viscous samples

**tapered needle shaft, 0.12mm ID needle

Autosampler Syringes for Shimadzu GCs

- Hamilton and SGE syringes are designed and tested to meet critical autosampler performance needs.
- Needle point styles are developed to withstand multiple and rapid injections through a septum.

Hamilton Syringes for Shimadzu AOC 9 GCs

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	Hamilton		qty.	Restek cat.#	price
					Model	cat.#			
5µL	RN	26s	2"/51mm	2	75RN	87930	ea.	24617	
5µL	N	26s	2"/51mm	2	75N	87900	ea.	24938	
10µL	RN	26s	2"/51mm	2	701RN	80330	ea.	24530	

SGE Syringes for Shimadzu AOC 14, 17, 20, and 20i GCs

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE		qty.	Restek cat.#	price
					Model	cat.#			
0.5µL	R	23	42mm	Cone	0.5BR-S-0.63	000445	ea.	24841	
0.5µL	R	26	42mm	Cone	0.5BR-S-0.47	000440	ea.	24840	
5µL	F	23	42mm	Cone	5F-S-0.63	001988	ea.	24843	
5µL	F	26	42mm	Cone	5F-S-0.47	001987	ea.	24842	
10µL	R	23	42mm	Cone	10R-S-0.63	002898	ea.	24845	
10µL*	R	23	42mm	Cone	10R-S-GT-0.63	002902	ea.	24846	
10µL	R	26	42mm	Cone	10R-S-0.47	002897	ea.	24844	
250µL*	F	23	42mm	Cone	250F-S-GT-0.63	006682	ea.	24847	

*Gas-tight syringe.



Hamilton 10µL Autosampler Syringe

SGE 5µL Autosampler Syringe 24843

Replacement Needles for Shimadzu Autosampler Syringes

Needles for SGE Syringes

Syringe Volume	Needle Gauge	Needle Length	Point Style	SGE cat.#	qty.	Restek cat.#	price
0.5µL	23	42mm	Cone	033745	ea.	24747	
0.5µL	26	42mm	Cone	033738	ea.	24746	
10µL	23	42mm	Cone	037747	2-pk.	24749	
10µL	26	42mm	Cone	037745	2-pk.	24748	



Syringe Termination Types

From cemented to removable needles and from Teflon® luer-lock to special syringe fittings, syringe barrel terminations create the interface between a syringe and its mating connection. For your reference, we describe the most common Hamilton/SGE terminations below.



N, Cemented Needle / F, Fixed:

Needle cemented into the glass syringe barrel at a point corresponding to the zero graduation mark. Not autoclavable.



KH, Knurled Hub / R, Removable:

Used on 7000 Series Hamilton syringes, exclusively. Knurled hub enables 6,000 psig maximum injection pressures and the attachment of a spacer for repeatable-depth injections. Autoclavable when disassembled.



RN, Removable Needle / R, Removable:

Needle seats precisely to the zero graduation mark of the syringe. Allows the use of different specification needles on the same syringe barrel. Autoclavable when disassembled.



TLL, Teflon® Luer-Lock / LL, Luer Lock / LT, Luer Tip:

Male luer taper with nickel-plated brass hub accepts and locks into place luer hub needles and connectors. Autoclavable when disassembled.



also available

Looking for Restek Genuine Replacement Parts for Shimadzu Instruments?
See pages 178-181.



Hamilton 10µL Autosampler Syringe
24962

SGE 10µL Autosampler Syringe

Autosampler Syringes for Thermo Scientific GCs

- Hamilton and SGE syringes are designed and tested to meet critical autosampler performance needs.
- Needle point styles are developed to withstand multiple and rapid injections through a septum.

Hamilton Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	Hamilton Model	Hamilton cat.#	Restek cat.#	price
10µL	N	26s	3.15"	AS	701SN	80318	24962	ea.

SGE Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE Model	SGE cat.#	Restek cat.#	price
10µL	F	26	80mm	Cone	10F-C/F-8/0.47C	002992	24924	ea.
10µL	R	26	80mm	Cone	10R-C/F-8/0-0.47C	002993	24934	ea.

Replacement Needles for Thermo Scientific Autosampler Syringes



Needles for SGE Syringes

Syringe Volume	Needle Gauge	Needle Length	Point Style	SGE cat.#	Restek cat.#	price
10µL	26	80mm	Cone	033770	24927	ea.
10µL	26	80mm	Cone	031535	24935	3-pk.

perfluoro acids



also available

Looking for Restek Genuine Replacement Parts for Thermo Scientific Instruments? See pages 186-191.

Autosampler Syringes for Thermo Scientific GCs

Autosampler syringes for TriPlus, AS3000, AS2000, AS200/800 GCs. The following autosamplers are compatible with the respective SGE and Hamilton syringes. For further information or questions, contact your Restek sales representative or technical service.

SGE Syringes

TriPlus	AS3000	AS2000	AS200/800	Restek cat.#	Page
•	•			24928	277
•	•			24926	277
•	•	•	•	24923	277
•	•	•	•	24932	277
•	•	•		24924	276
•	•	•	•	24934	276
•	•	•	•	24922	277
•	•	•		24930	277

Replacement Needles for SGE Syringes for Thermo Scientific GCs

TriPlus	AS3000	AS2000	AS200/800	Restek cat.#	Page
•	•			24929	277
•	•			24927	276
•	•	•	•	24933	277
•	•	•		24931	277
•	•	•	•	24935	276

Hamilton Syringes

TriPlus	AS3000	AS2000	AS200/800	Restek cat.#	Page
			•	24962	276

Guide to Needle Termination Codes

Hamilton:

- (N) Cemented Needle
- (RN) Removable Needle
- (ASN) Autosampler Cemented Needle
- (ASRN) Autosampler Removable Needle
- (TLL) Teflon® Luer Lock
- (KH) Knurled Hub
- (LT) Luer Tip
- (LTN) Luer Tip Cemented Needle

SGE:

- (F) Fixed Needle
- (R) Removable Needle
- (LL) Luer Lock
- (LT) Luer Tip

Autosampler Syringes for CTC/LEAP GCs

- Hamilton and SGE syringes are designed and tested to meet critical autosampler performance needs.
- Needle point styles are developed to withstand multiple and rapid injections through a septum.

Hamilton Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	Hamilton		Restek	price
					Model	cat.#		
1.2µL	N	26	2"/51mm	AS	7701.2N	203185	ea.	22755
5µL	N	26s	2"/51mm	AS	75N	203189	ea.	22756
10µL	N	23s	2"/51mm	AS	701N	203361	ea.	22757
10µL	N	23s-26s	2"/51mm	AS	701N	203362	ea.	22758
10µL	N	23s	2"/51mm	2	701N	203363	ea.	22759
10µL	N	26s	2"/51mm	2	701N Slim Line	203072	ea.	22760
10µL	N	26s	2"/51mm	AS	701N	203205	ea.	22761
10µL	N	26s	2"/51mm	2	701N	203269	6-pk.	22762
25µL*	N	26s	2"/51mm	AS	1702N	203043	ea.	22763
25µL*	N	26s	2"/51mm	AS	1702N Slim Line**	203074	ea.	22764
100µL*	N	26s	2"/51mm	AS	1710N Slim Line**	203076	ea.	22765

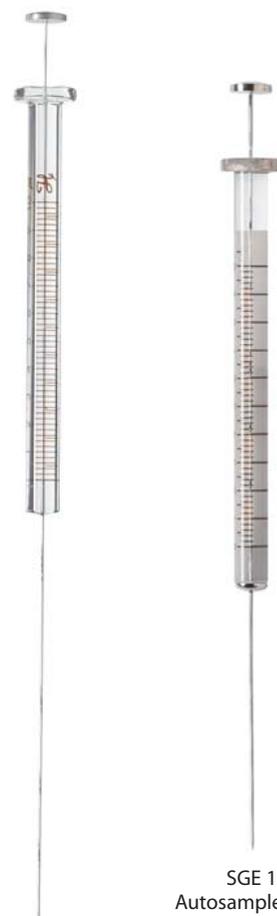
*Gas-tight syringe.

**Barrel OD = 6.7mm; all other 25µL and 100µL syringes have a 7.9mm barrel OD.

SGE Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE		Restek	price
					Model	cat.#		
0.5µL	R	23	50mm	Cone	0.5BNR-C/F-0.63	000492	ea.	24928
0.5µL	R	26	50mm	Cone	0.5BNR-C/F-0.47	000490	ea.	24926
5µL	F	23	50mm	Cone	5F-C/F-5/0.63	001981	ea.	24921
5µL	F	26	50mm	Cone	5F-C/F-5/0.47	001982	ea.	24920
10µL	F	23	50mm	Cone	10F-C/F-0.63	002981	ea.	24923
10µL	R	23	50mm	Cone	10R-C/F-0.63	002984	ea.	24932
10µL	F	26	50mm	Cone	10F-C/F-5/0.47C	002980	ea.	24922
10µL	F	26	50mm	Cone	SK10F-C/F-5/0.47C	002986	6-pk.	24925
10µL	R	26	50mm	Cone	10R-C/F-5/0-0.47C	002982	ea.	24930
10µL*	F	23	50mm	Cone	10F-C/T-GT5/0.63C	002987	ea.	22749
25µL	F	26	50mm	Cone	25F-C/F-5/0.47C	003980	ea.	22750
25µL*	F	23	50mm	Cone	25F-C/T-GT5/0.63C	003987	ea.	22751
100µL*	F	23	50mm	Cone	100F-C/T-GT5/0.63C	005335	ea.	22753
100µL*	R	26	50mm	Cone	100R-C/T-GT5/0.47C	005333	ea.	22754

*Gas-tight syringe.



Hamilton 10µL Autosampler Syringe

SGE 10µL Autosampler Syringe

also **available**

Replacement plunger assemblies for these syringes are available on request.

Replacement Needles for CTC/LEAP Autosampler Syringes



Needles for SGE Syringes

Syringe Volume	Needle Gauge	Needle Length	Point Style	SGE cat.#	Restek cat.#	price
0.5µL	23	50mm	Cone	033772	24929	ea.
10µL	23	50mm	Cone	037787	24933	2-pk.
10µL	26	50mm	Cone	037785	24931	2-pk.



Hamilton 700 Series Manual
 Microliter Syringes

Manual Microliter Syringes

- Economical.
- Available with cemented needles (N/F) or removable needles (RN/R).
- Each syringe plunger and barrel assembly is manufactured as one working unit; components are not interchangeable or individually replaceable.

Hamilton 700 Series Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	Hamilton Model	Hamilton cat.#	Restek qty.	Restek cat.#	price
5µL	N	26s	2"/51mm	2	75N	87900	ea.	24938	
5µL	RN	26s	2"/51mm	2	75RN	87930	ea.	24617	
10µL	N	26s	2"/51mm	2	701N	80300	ea.	20174	
10µL	N	26s	2"/51mm	2	701N	80366	6-pk.	20175	
10µL	RN	26s	2"/51mm	2	701RN	80330	ea.	24530	
25µL	N	22s	2"/51mm	2	702N	80400	ea.	24531	
10µL	N	26s	2"/51mm	5	701NPT5	80339	ea.	24967	
25µL*	RN	22s	2"/51mm	2	702RN	80430	ea.	24532	
50µL	N	22s	2"/51mm	2	705N	80500	ea.	24533	
50µL*	RN	22s	2"/51mm	2	705RN	80530	ea.	24534	
100µL	N	22s	2"/51mm	2	710N	80600	ea.	24535	
100µL*	RN	22s	2"/51mm	2	710RN	80630	ea.	24536	
250µL	N	22s	2"/51mm	2	725N	80700	ea.	24537	
250µL*	RN	22s	2"/51mm	2	725RN	80730	ea.	24538	
500µL	N	22	2"/51mm	2	750N	80800	ea.	24539	
500µL*	RN	22	2"/51mm	2	750RN	80830	ea.	24540	



SGE Standard Manual
 Microliter Syringes

SGE Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE Model	SGE cat.#	Restek qty.	Restek cat.#	price
5µL	F	26	50mm	2	5F**	001000	ea.	24700	
5µL*	R	26	50mm	2	5R**	001050	ea.	24701	
10µL	F	26	50mm	2	10F**	002000	ea.	24702	
10µL	F	26	50mm	2	SK-10F**	002030	6-pk.	24715	
10µL*	R	26	50mm	2	10R**	002050	ea.	24703	
10µL*	R	26	50mm	2	SK-10R**	002080	6-pk.	24716	
25µL	F	25	50mm	2	25F	003000	ea.	24704	
25µL*	R	25	50mm	2	25R	003050	ea.	24705	
50µL	F	25	50mm	2	50F	004000	ea.	24706	
50µL*	R	25	50mm	2	50R	004050	ea.	24707	
100µL	F	25	50mm	2	100F	005000	ea.	24708	
100µL*	R	25	50mm	2	100R	005050	ea.	24709	
250µL	F	25	50mm	2	250F	006000	ea.	24710	
250µL*	R	25	50mm	2	250R	006050	ea.	24711	
500µL	F	25	50mm	2	500F	007000	ea.	24712	
500µL*	R	25	50mm	2	500R	007050	ea.	24713	

*For replacement RN/R needles, see page 282.

**With plunger protection.



Restek's Learning Network

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SuperfleX Flexible Plunger Microliter Syringes

- The SuperfleX syringe features a super-elastic plunger that returns to its original shape if twisted or bent.

SGE Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE			Restek		price
					Model	cat.#	qty.	cat.#		
5µL	F	26	50mm	2	5FX	001100	ea.	24720		
5µL	R	26	50mm	2	5RX	001150	ea.	24721		
10µL	F	26	50mm	2	10FX	002100	ea.	24722		
10µL	F	26	50mm	2	SK-10FX	002130	6-pk.	24718		
10µL	R	26	50mm	2	10RX	002150	ea.	24723		
10µL*	R	26	50mm	2	SK-10RX	002180	6-pk.	24719		

Reinforced Plunger Microliter Syringes

- Reinforcing extends the life of fragile, small diameter plungers.
- Economical because of longer life—even in rugged applications.
- Hand-lapped plunger ensures a perfect seal with the barrel.

Hamilton Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	Hamilton			Restek		price
					Model	cat.#	qty.	cat.#		
5µL	N	26s	2"/51mm	2	95	87920	ea.	24541		
5µL*	RN	26s	2"/51mm	2	95	87925	ea.	24542		
10µL	N	26s	2"/51mm	2	901	80360	ea.	24543		
10µL*	RN	26s	2"/51mm	2	901	80370	ea.	24544		

SGE Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE			Restek		price
					Model	cat.#	qty.	cat.#		
5µL	F	26	50mm	2	5F-GP	001400	ea.	24769		
5µL*	R	26	50mm	2	5R-GP	001450	ea.	24766		
10µL	F	26	50mm	2	10F-GP	002400	ea.	24767		
10µL*	R	26	50mm	2	10R-GP	002450	ea.	24768		

*For replacement RN/R needles, see page 282.



SGE SuperfleX Syringe

Hamilton 900 Series Microliter Syringe

SGE Guided Plunger Syringe

Guide to Needle Termination Codes

Hamilton:

- (N) Cemented Needle
- (RN) Removable Needle
- (ASN) Autosampler Cemented Needle
- (ASRN) Autosampler Removable Needle
- (TLL) Teflon® Luer Lock
- (KH) Knurled Hub
- (LT) Luer Tip
- (LTN) Luer Tip Cemented Needle

SGE:

- (F) Fixed Needle
- (R) Removable Needle
- (LL) Luer Lock
- (LT) Luer Tip



Hamilton 7001 Series
Micro-Volume
Syringe

SGE Micro-Volume
Plunger-in-Needle
Syringe

Micro-Volume, Positive Displacement Syringes

- Sample is contained in the needle with full plunger displacement, ensuring no dead volume.
- High precision and accuracy down to 0.1µL.
- Seal between the plunger and the needle can be tightened for high-pressure injection.
- Replaceable needle/plunger kits and barrels (available on request).

Hamilton Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	Hamilton Model	Hamilton cat.#	qty.	Restek cat.#	price
0.5µL	KH	25	2.75"/70mm	2	7000.5	86259	ea.	24545	
0.5µL	KH	25	2.75"/70mm	3	7000.5	86250	ea.	24546	
1.0µL	KH	22s	2.75"/70mm	2	7101	86211	ea.	24549	
1.0µL	KH	25s	2.75"/70mm	2	7001	80135	ea.	24547	
1.0µL	KH	25s	2.75"/70mm	3	7001	80100	ea.	24548	
2.0µL	KH	25	2.75"/70mm	2	7002	88411	ea.	24551	
5.0µL	KH	24	2.75"/70mm	2	7105	88011	ea.	24555	
5.0µL	KH	24	2.75"/70mm	3	7105	88000	ea.	24556	

SGE Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE Model	SGE cat.#	qty.	Restek cat.#	price
0.5µL	R	23	70mm	2	0.5BR-7BV	000311	ea.	24771	
0.5µL	R	23	70mm	Cone	0.5BR-7	000310	ea.	24772	
0.5µL	R	26	70mm	Cone	0.5BR-OC-7/0.47*	000376	ea.	24770	
1.0µL	R	23	70mm	2	1BR-7BV	000506	ea.	24775	
1.0µL	R	23	70mm	Cone	1BR-7	000505	ea.	24774	
1.0µL	R	23	50mm	Cone	1BR-5	000500	ea.	24773	
1.0µL	R	26	70mm	Cone	1BR-7/0.47*	000570	ea.	24776	
5.0µL	R	23	70mm	2	5BR-7BV	000803	ea.	24779	
5.0µL	R	23	70mm	Cone	5BR-7	000802	ea.	24778	
5.0µL	R	23	50mm	Cone	5BR-5	000800	ea.	24777	

*70mm needle length, 0.47mm OD, on-column syringe.

SGE Replacement Plunger-in-Needle Kits

- Kits are supplied with both a plunger and a needle.
- Plunger and needle must be replaced together.

Volume	Needle Gauge	Needle Length	Point Style	SGE Model	SGE cat.#	For Syringe cat.#	qty.	Restek cat.#	price
0.5µL	23	70mm	2	NP0.5B-7BV	033060	24771	kit	24831	
0.5µL	23	70mm	Cone	NP0.5B-7C	033057	24772	kit	24830	
0.5µL	26	70mm	Cone	NP0.5B-OC-7	033630	24770	kit	24832	
1.0µL	23	70mm	2	NP1B-7BV	034060	24775	kit	24835	
1.0µL	23	70mm	Cone	NP1B-7C	034057	24774	kit	24834	
1.0µL	23	50mm	Cone	NP1B-5C	034055	24773	kit	24833	
1.0µL	26	70mm	Cone	NP1B-OC-7/0.47	034610	24776	kit	24836	
5.0µL	23	70mm	2	NP5B-7BV	035058	24779	kit	24839	
5.0µL	23	70mm	Cone	NP5B-7C	035057	24778	kit	24838	
5.0µL	23	50mm	Cone	NP5B-5C	035055	24777	kit	24837	

tech tip

Reinserting Teflon®-tipped Plungers

After disassembling and cleaning a syringe with a Teflon®-tipped plunger, wet the Teflon® plunger tip prior to reinserting it into the barrel. Always avoid touching the plunger—any abrasions, scratches or oil from fingers could interfere with proper plunger operation.

Teflon® Tip, Gas-Tight Syringes

- Suitable for gases or liquids, for maximum inertness.
- High accuracy of dispensed volumes.
- Interchangeable barrels, plungers, and tips extend performance and increase cost-effectiveness.

Hamilton Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	Hamilton		qty.	Restek cat.#	price
					Model	cat.#			
10µL	N	26s	2"/51mm	2	1701	80000	ea.	24557	
10µL	RN	26s	2"/51mm	2	1701	80030	ea.	24558	
25µL	N	22s	2"/51mm	2	1702	80200	ea.	24559	
25µL	RN	22s	2"/51mm	2	1702	80230	ea.	24560	
50µL	N	22s	2"/51mm	2	1705	80900	ea.	24561	
50µL	RN	22s	2"/51mm	2	1705	80930	ea.	24562	
100µL	N	22s	2"/51mm	2	1710	81000	ea.	24563	
100µL	RN	22s	2"/51mm	2	1710	81030	ea.	24564	
250µL	N	22s	2"/51mm	2	1725	81100	ea.	24567	
250µL	RN	22s	2"/51mm	2	1725	81130	ea.	24568	
500µL	LTN	22	2"/51mm	2	1750	81217	ea.	24571	
500µL	RN	22	2"/51mm	2	1750	81230	ea.	24572	
1mL	LTN	22	2"/51mm	2	1001	81317	ea.	24575	
1mL	RN	22	2"/51mm	2	1001	81330	ea.	24576	
1mL	TLL	*	—	w/out slots	1001	81320	ea.	24578	
2.5mL	TLL	*	—	w/out slots	1002	81420	ea.	24584	
2.5mL	RN	22	2"/51mm	2	1002	81430	ea.	24582	
2.5mL	N	22	2"/51mm	2	1002	81417	ea.	24581	
5mL	TLL	*	—	w/out slots	1005	81520	ea.	20178	
10mL	TLL	*	—	w/out slots	1010	81620	ea.	20179	
25mL	TLL	*	—	w/out slots	1025	82520	ea.	24591	
50mL	TLL	*	—	w/out slots	1050	85020	ea.	24717	

SGE Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE		qty.	Restek cat.#	price
					Model	cat.#			
10µL	F	26	50mm	2	10F-GT	002200	ea.	24725	
10µL	R	26	50mm	2	10R-GT	002250	ea.	24726	
25µL	F	25	50mm	2	25F-GT	003200	ea.	24727	
25µL	R	25	50mm	2	25R-GT	003250	ea.	24728	
50µL	F	25	50mm	2	50F-GT	004200	ea.	24729	
50µL	R	25	50mm	2	50R-GT	004250	ea.	24730	
100µL	F	25	50mm	2	100F-GT	005200	ea.	24734	
100µL	R	25	50mm	2	100R-GT	005250	ea.	24735	
100µL	LL	*	—	—	100F-LL-GT	005230	ea.	24737	
250µL	F	25	50mm	2	250F-GT	006200	ea.	24738	
250µL	R	25	50mm	2	250R-GT	006250	ea.	24739	
250µL	LL	*	—	—	250F-LL-GT	006230	ea.	24741	
500µL	F	25	50mm	2	500F-GT	007200	ea.	24742	
500µL	R	25	50mm	2	500R-GT	007250	ea.	24743	
1mL	R	23	50mm	2	1MR-GT	008100	ea.	24750	
1mL	LL	*	—	—	1MDF-LL-GT	008025	ea.	24752	
2.5mL	LL	*	—	—	2.5MDF-LL-GT	008425	ea.	24755	
5mL	LL	*	—	—	5MDR-LL-GT	008760	ea.	24757	
10mL	LL	*	—	—	10MDR-LL-GT	008960	ea.	24759	
25mL	LL	*	—	—	25MDR-LL-GT	009462	ea.	24760	
50mL	LL	*	—	—	50MR-LL-GT	009660	ea.	24761	
100mL	LL	*	—	—	100MR-LL-GT	009760	ea.	24762	

*Needles sold separately. See page 282.



Hamilton 1700/1000 Series Gas-Tight Syringe

SGE Gas-Tight Syringe

Guide to Needle Termination Codes

Hamilton:

- (N) Cemented Needle
- (RN) Removable Needle
- (ASN) Autosampler Cemented Needle
- (ASRN) Autosampler Removable Needle
- (TLL) Teflon® Luer Lock
- (KH) Knurled Hub
- (LT) Luer Tip
- (LTN) Luer Tip Cemented Needle

SGE:

- (F) Fixed Needle
- (R) Removable Needle
- (LL) Luer Lock
- (LT) Luer Tip



Teflon® Tip, Gas-Tight Syringe Replacement Needles for Removable Needle Syringes

Materials: stainless steel needle, nickel-plated brass hub



Needles for Hamilton Syringes

Syringe Volume	Needle Gauge	Needle Length	Point Style	Hamilton cat.#	Restek cat.#	price
5-100µL	26s	2"	2	7758-02	6-pk. 24939	
5-100µL	22s	2"	2	7758-03	6-pk. 24940	
250µL-10mL	22	2"	2	7779-01	6-pk. 24942	
250µL-10mL	26s	2"	2	7779-02	6-pk. 24943	
250µL-10mL	22s	2"	2	7779-03	6-pk. 24944	

Needles for SGE Syringes

Syringe Volume	Needle Gauge	Needle Length	Point Style	SGE cat.#	Restek cat.#	price
5µL	26	50mm	2	036110	5-pk. 24802	
10µL	23	50mm	2	037111	5-pk. 24804	
10µL	26	50mm	2	037110	5-pk. 24803	
25-500µL	23	50mm	2	038111	5-pk. 24806	
25-500µL	25	50mm	2	038110	5-pk. 24805	
1-2.5mL	23	50mm	2	039110	5-pk. 24807	

Replacement Teflon®-Tipped Plunger Assembly

Hamilton

Syringe Volume	Needle Term.	Hamilton cat.#	Restek cat.#	price
10µL	N, RN, LT/LTN	13205	24919	ea.

Gas-Tight Syringe Replacement Needles for Luer-Lock Syringes

Needles for Hamilton Syringes

Hub Material	Needle Gauge	Needle Length	Point Style	Hamilton cat.#	Restek cat.#	price
metal	26s	2"/51mm	2	90053	6-pk. 20133	
metal	25s	1.97"	3	90049*	6-pk. 24605	
metal	22s	2"/51mm	2	90051	6-pk. 24606	
Kel-F (Teflon tip)	26s	2"/51mm	2	90153	6-pk. 24607	
Kel-F (Teflon tip)	25s	1.97"	3	90149*	6-pk. 24608	
Kel-F (Teflon tip)	22s	2"/51mm	2	90151	6-pk. 24609	

*For Waters U6K injection valve.

Needles for SGE Syringes

Hub Material	Needle Gauge	Needle Length	Point Style	SGE cat.#	Restek cat.#	price
metal	23	50mm	2	039802	5-pk. 24763	
metal	22	2"/51mm	3	039895**	2-pk. 24765	
metal	18	50mm	2	039842	5-pk. 24764	

**For Rheodyne/Valco valves.



SGE Gas-Tight Syringes with Shut-off Valves

- Ideal for sample storage and transportation.
- Push-pull shut-off valve.

Syringe Fitted with Removable Needle and Valve

Volume	Model	SGE		Restek cat.#	price
		cat.#	qty.		
50µL	50R-V-GT	004279	ea.	24880	
100µL	100R-V-GT	005279	ea.	24881	
250µL	250R-V-GT	006279	ea.	24882	
500µL	500R-V-GT	007279	ea.	24883	
1mL	1MDR-V-GT	008110	ea.	24884	
2.5mL	2.5MDR-V-GT	008510	ea.	24885	

Syringe Fitted with Luer-Lock Valve*

Volume	Model	SGE		Restek cat.#	price
		cat.#	qty.		
1mL	1MR-VLL-GT	008160	ea.	24886	
2.5mL	2.5MDR-VLL-GT	008560	ea.	24887	
5mL	5MDR-VLLMA-GT	008770	ea.	24888	
10mL	10MDR-VLLMA-GT	008970	ea.	24889	
25mL	25MDR-VLLMA-GT	009472	ea.	24890	
50mL	50MR-VLLMA-GT	009670	ea.	24891	
100mL	100MR-VLLMA-GT	009770	ea.	24892	

*Order needles separately.



Replacement Needles for SGE Gas-Tight Syringes with Shut-off Valves

Model V Syringe Valve: fits any SGE removable needle syringe, 25µL-2.5mL

Syringe Volume	Needle Gauge	Needle Length	Point Style	SGE		Restek cat.#	price
				Model	cat.#		
25µL-2.5mL	23	50mm	Cone	V	031905	ea.	24898



Luer-Lock Needles

Syringe Volume	Needle Gauge	Needle Length	Point Style	SGE		Restek cat.#	price
				Model	cat.#		
1mL-100mL	23	50mm	2	NLL-5/23	039802	5-pk.	24763
1mL-100mL	18	50mm	2	NLL-5/18	039842	5-pk.	24764
1mL-100mL	22	2"/51mm	3	NLL-LC	039895**	2-pk.	24765

**Fits Rheodyne & Valco injection valves

Economical Hamilton Syringe Guide***

- Prevents syringe plunger from bending.
- Adjustable stop prevents plunger damage.
- Easily installed.

Syringe Volume	Used with Syringe Series	Hamilton cat.#	Restek cat.#	price
25-500µL	700/1700/1000	14906	ea.	24615
5-10µL	700/1700/1000	14806	ea.	24616

***Syringe not included.





20162

A-2 Luer Gas-Tight Syringes*

- For use with VOA-CYL 4 standards.
- Push-style on-off button valve.

Use to withdraw a gas sample from a high-pressure cylinder through a high-purity VOC single-stage regulator after attaching the appropriate adaptor to the regulator. Use with luer syringe needles listed.

Description	qty.	cat.#	price
100µL Luer Syringe	ea.	20162	
500µL Luer Syringe	ea.	20163	
Luer Syringe Needles (26s gauge)	6-pk.	20133	

*Restek's A-2 syringes have a luer tip.



21208

Heavy Duty Purge & Trap Syringe (Dynatech Precision Sampling)

- Heavy-duty glass barrel with metal front and rear flanges.
- Teflon® luer-lock tip.
- Can fill and empty sparge tubes.
- Sample-Lok valve accepts standard luer-lock needles.
- Suitable for purge & trap applications.

Syringe	2mL		5mL		10mL	
	cat.#	price	cat.#	price	cat.#	price
without Sample-Lok	21205		21206		21209	
with Sample-Lok	—	—	21208		21207	



Luer-Lock Valve Adaptors

Description	SGE		Restek	
	cat.#	qty.	cat.#	price
Luer-Lock Valve Adaptors	200010	2-pk.	21283	

also available

Restek carries purge & trap vessels.
See page 199 for more information.



21276

Jumbo Syringe

Clear acrylic syringes, ideal for holding and dispensing large volumes of gas. An adjustable plunger on the O-ring ensures that the syringe is gas-tight over a long period of time. The central port is supplied with a luer-lock fitting; the secondary port is supplied with a septum nut. This enables access to the gas sample for adding standards or removing a sub-sample. The plunger stem is detachable, making sample storage easy.



21279

21278

Jumbo Syringe

Volume	Model	SGE		Restek	
		cat.#	qty.	cat.#	price
500mL	500MAR-LL-GT	009910	ea.	21275	
1000mL	1000MAR-LL-GT	009920	ea.	21276	
2000mL	2000MAR-LL-GT	009930	ea.	21277	

Syringe O-Rings

Syringe Volume	SGE		Restek	
	cat.#	qty.	cat.#	price
500mL	032527	ea.	21278	
1000mL	032532	ea.	21279	

Syringes for Waters U6K Valves

- Reinforced plungers.
- Removable needles.
- Replaceable plunger/barrel assemblies.
- Barrel stop prevents plunger blowout.

Hamilton Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	Hamilton		Restek	price
					Model	cat.#	qty.	cat.#
10µL	RN	25s	1.97"	3	801	84815	ea.	21255
25µL	RN	25s	1.97"	3	802	84816	ea.	21256
50µL	RN	25s	1.97"	3	805	84817	ea.	21257
100µL	RN	25s	1.97"	3	810	84818	ea.	21258
250µL	RN	25s	1.97"	3	825	84819	ea.	21259

SGE Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE		Restek	price
					Model	cat.#	qty.	cat.#
25µL	R	25	50mm	3	25R-WLC-RA8	003375	ea.	24873
50µL	R	25	50mm	3	50R-WLC-RA8	004375	ea.	24874
100µL	R	25	50mm	3	100R-WLC-RA8	005375	ea.	24875
250µL	R	25	50mm	3	250R-WLC-RA8	006375	ea.	24876
500µL	R	25	50mm	3	500R-WLC-RA8	007375	ea.	24877



Hamilton 50µL Syringe for Waters U6K Valves
21257

SGE 50µL Syringe for Waters U6K Valves
24874

Replacement Needles for Syringes for Waters U6K Valves

Needles for Hamilton Syringes

Syringe Volume	Needle Gauge	Needle Length	Point Style	Hamilton cat.#	Restek cat.#	price
10-100µL	25s	1.97"	3	8647-01	6-pk. 21270	
250µL-10mL	25s	1.97"	3	8648-01	6-pk. 21271	



Technical Service

Do you have a technical question? Restek's Technical Service group has answers!

Contact us:

For quick answers to commonly asked questions any time of the day, visit www.restek.com/answers or contact us directly:

In the U.S.

Phone: 1-800-356-1688, ext. 4
Fax: 814-353-1568
e-mail: support@restek.com

Outside the U.S.

Contact your Restek representative.



Tim Herring, Technical Service



Hamilton 10µL
Gas-Tight Syringe
for Rheodyne® and
Valco® Valves
21260



SGE 50µL Gas-Tight
Syringe for
Rheodyne® and
Valco® Valves
24868

Gas-Tight Syringes for Rheodyne® & Valco® Valves

- Teflon®-tipped plungers.
- Removable needles.
- Replaceable syringe barrels, plungers, and plunger tips.

Hamilton Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	Hamilton Model	Hamilton cat.#	Restek qty.	Restek cat.#	price
10µL	RN	26s	2"/51mm	3	1701	80065	ea.	21260	
25µL	RN	22s	2"/51mm	3	1702	80265	ea.	21261	
50µL	RN	22s	2"/51mm	3	1705	80965	ea.	21262	
100µL	RN	22s	2"/51mm	3	1710	81065	ea.	21263	
250µL	RN	22s	2"/51mm	3	1725	81165	ea.	21264	

SGE Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE Model	SGE cat.#	Restek qty.	Restek cat.#	price
10µL	R	22	2"	3	10R-GT-LC	002313	ea.	24866	
25µL	R	22	2"	3	25R-GT-LC	003312	ea.	24867	
50µL	R	22	2"	3	50R-GT-LC	004312	ea.	24868	
100µL	R	22	2"	3	100R-GT-LC	005312	ea.	24869	
250µL	R	22	2"	3	250R-GT-LC	006312	ea.	24870	
500µL	R	22	2"	3	500R-GT-LC	007312	ea.	24871	



Replacement Needles for Gas-Tight Syringes for Rheodyne® & Valco® Valves

Needles for Hamilton Syringes

Syringe Volume	Needle Gauge	Needle Length	Point Style	Hamilton cat.#	Restek qty.	Restek cat.#	price
5-100µL	22s	2"	3	7770-01	6-pk.	24941	
250µL-10mL	22	2"	3	7780-04	6-pk.	24945	

Needles for SGE Syringes

Syringe Volume	Needle Gauge	Needle Length	Point Style	SGE cat.#	Restek qty.	Restek cat.#	price
10µL	22	2"	3	037250	5-pk.	24808	
25-500µL	22	2"	3	038250	5-pk.	24809	



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Economical Microliter Liquid-Type Syringes for Rheodyne® & Valco® Valves

- Cemented/fixed needles.
- Plungers and barrels are not interchangeable or replaceable.

Hamilton Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	Hamilton Model	Hamilton cat.#	qty.	Restek cat.#	price
10µL	N	22s	2"	3	701	80365	ea.	21250	
25µL	N	22s	2"	3	702	80465	ea.	21251	
50µL	N	22s	2"	3	705	80565	ea.	21252	
100µL	N	22s	2"	3	710	80665	ea.	21253	
250µL	N	22s	2"	3	725	80765	ea.	21254	

SGE Syringes

Volume	Needle Term.	Needle Gauge	Needle Length	Point Style	SGE Model	SGE cat.#	qty.	Restek cat.#	price
10µL	F	22	2"	3	10F-LC	002301	ea.	24860	
25µL	F	22	2"	3	25F-LC	003300	ea.	24861	
50µL	F	22	2"	3	50F-LC	004300	ea.	24862	
100µL	F	22	2"	3	100F-LC	005300	ea.	24863	
250µL	F	22	2"	3	250F-LC	006300	ea.	24864	
500µL	F	22	2"	3	500F-LC	007300	ea.	24865	



Hamilton 50µL Microliter Syringe for Rheodyne® and Valco® Valves
21252

SGE 50µL Microliter Syringe for Rheodyne® and Valco® Valves
24860

Priming Syringes for Waters 6000, 6000A, 501, 510, 590, 610 and 610E HPLC Pumps

- Designed for maximum safety with metal flange and luer-lock (LL) hub.
- Teflon®-tipped plunger.

Hamilton Syringe

Volume	Needle Term.	Hamilton Model	Hamilton cat.#	Pressure Tested to	qty.	Restek cat.#	price
10mL	TLL	1010W	81610	700 psig	ea.	21265	

SGE Syringe

Volume	Needle Term.	SGE Model	SGE cat.#	Pressure Tested to	qty.	Restek cat.#	price
10mL	LL	10MDR-LL-GT	008960	100 psig	ea.	24759	



21265

Guide to Needle Termination Codes

Hamilton:

- (N) Cemented Needle
- (RN) Removable Needle
- (ASN) Autosampler Cemented Needle
- (ASRN) Autosampler Removable Needle
- (TLL) Teflon® Luer Lock
- (KH) Knurled Hub
- (LT) Luer Tip
- (LTN) Luer Tip Cemented Needle

SGE:

- (F) Fixed Needle
- (R) Removable Needle
- (LL) Luer Lock
- (LT) Luer Tip

also **available**

We can supply many additional sizes. Call us if you don't see exactly what you need.



22290



22292

Syringes for Agilent 1090 & 1100 LC Autosamplers

1/4-32 UNEF Thread

SGE Syringes

Volume	SGE			Restek	
	Model	cat.#	qty.	cat.#	price
25µL	25D-HP1090-GT	003670	ea.	22290	

Syringe for Hitachi LC Autosamplers

M10 X1 Thread

SGE Syringe

Volume	SGE			Restek	
	Model	cat.#	qty.	cat.#	price
500µL	500C-HITACH1	007660	ea.	22292	

Syringes for PerkinElmer LC Autosamplers

1/4-28 UNF Thread



22297

SGE Syringes

Volume	SGE			Restek	
	Model	cat.#	qty.	cat.#	price
100µL	100D-CX-GT	005990	ea.	22296	
250µL	250D-CX-GT	006995	ea.	22297	
500µL	500D-CX-GT	007995	ea.	22298	
1mL	1MD-C-GT	008185	ea.	22299	

Syringes for Waters WISP LC Autosamplers

1/4-28 UNF Thread

SGE Syringes

Volume	SGE			Restek	
	Model	cat.#	qty.	cat.#	price
25µL	25D-WISP	003990	ea.	22293	
250µL	250D-WISP	006690	ea.	22294	

Hamilton Syringes

- Teflon® PTFE-tipped plungers

Volume	Hamilton		Restek	
	Model	cat.#	qty.	cat.#
250µL	1725	80024	ea.	24529



22294



24529

Guide to Needle Termination Codes

Hamilton:

- (N) Cemented Needle
- (RN) Removable Needle
- (ASN) Autosampler Cemented Needle
- (ASRN) Autosampler Removable Needle
- (TLL) Teflon® Luer Lock
- (KH) Knurled Hub
- (LT) Luer Tip
- (LTN) Luer Tip Cemented Needle

SGE:

- (F) Fixed Needle
- (R) Removable Needle
- (LL) Luer Lock
- (LT) Luer Tip

Syringe Basics

Needle Gauge Chart

Gauge	Nominal OD		Nominal ID	
26s	0.019 in.	0.47mm	0.0050 in.	0.13mm
26	0.018 in.	0.46mm	0.0102 in.	0.26mm
25	0.021 in.	0.51mm	0.0102 in.	0.26mm
23s	0.025 in.	0.64mm	0.0060 in.	0.15mm
23	0.025 in.	0.64mm	0.0132 in.	0.34mm
22s	0.028 in.	0.72mm	0.0060 in.	0.15mm
22	0.028 in.	0.72mm	0.0162 in.	0.41mm

s (after gauge) = smaller ID with thicker walls

Needle Point Style

Restek offers several different point styles on syringe and needle products. Choose one based on your application.



Point Style 2, BV: beveled needle tip. Recommended for optimum septum penetration and prevention of septum coring.



Point Style 3, LC: square/blunt needle tip. For use with HPLC injection valves and for sample pipetting.



Point Style 5: conical needle with side hole. Liquid samples are filled and dispensed through the side hole.



Point Style H: domed needle tip with side hole. Liquid samples are filled and dispensed through the side hole. The solid tip minimizes septum damage.



Point Style Agilent/Cone: special conical style needle point used exclusively on syringes for autosamplers.

did you know?

Syringes and needles manufactured by Hamilton Company and SGE are intended for scientific research and laboratory use only and are not intended for human *in vivo* use.

also available

We can supply many additional sizes. Call us if you don't see exactly what you need.

Guide to Needle Termination Codes

Hamilton:

- (N) Cemented Needle
- (RN) Removable Needle
- (ASN) Autosampler Cemented Needle
- (ASRN) Autosampler Removable Needle
- (TLL) Teflon® Luer Lock
- (KH) Knurled Hub
- (LT) Luer Tip
- (LTN) Luer Tip Cemented Needle

SGE:

- (F) Fixed Needle
- (R) Removable Needle
- (LL) Luer Lock
- (LT) Luer Tip

NORM-JECT® Syringes

NORM-JECT® syringes are latex-free, contain no rubber, no silicone oil, styrene or DEHP and are DNA-free. These syringes are the choice for any situation needing an inert, nonreactive syringe. Because of their composition, they are indicated for chromatography and many other laboratory procedures. They are more chemically resistant than rubber-tipped syringes and are manufactured from only laboratory grade polypropylene and polyethylene. These unique plastic syringes have a positive safety stop to prevent accidental spills. NORM-JECT® syringes are individually sterile strip packed.



Description	qty.	cat.#	price
1mL Tuberculin ¹	100-pk.	22766	
3mL Luer Slip Centric Tip	100-pk.	22767	
5mL Luer Slip Centric Tip ²	100-pk.	22768	
10mL Luer Slip Eccentric Tip ²	100-pk.	22769	
20mL Luer Slip Eccentric Tip ²	100-pk.	22770	
30mL Luer Slip Eccentric Tip	50-pk.	22771	
50mL Luer Slip Eccentric Tip ²	30-pk.	22772	
3mL Luer Lock Tip	100-pk.	22773	
5mL Luer Lock Tip ²	100-pk.	22774	
10mL Luer Lock Tip ²	100-pk.	22775	
20mL Luer Lock Tip ²	100-pk.	22776	
30mL Luer Lock Tip	50-pk.	22777	
50mL Luer Lock Tip ²	30-pk.	22778	



NEW!

Great for use with Restek syringe filters! See [page 363](#).

Barrel - Polypropylene

Plunger - Polyethylene

CE

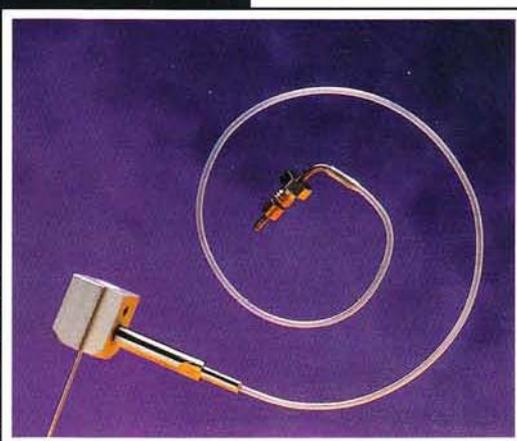
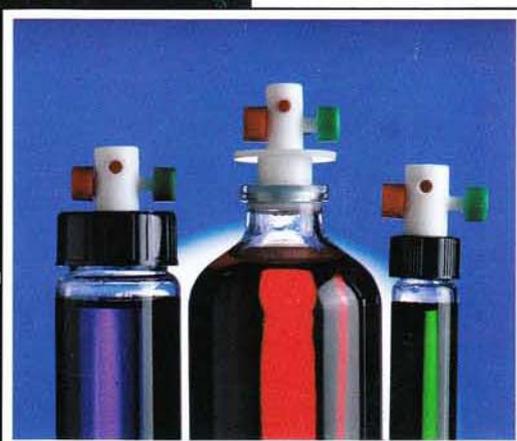
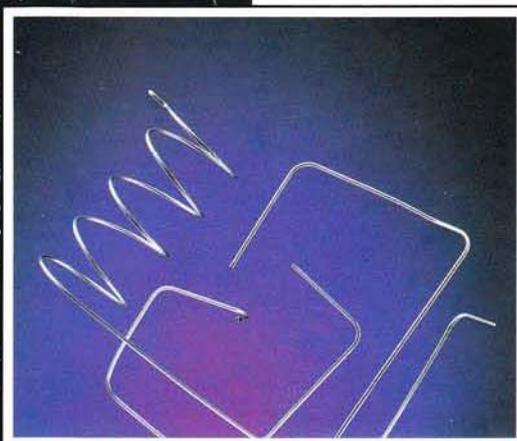
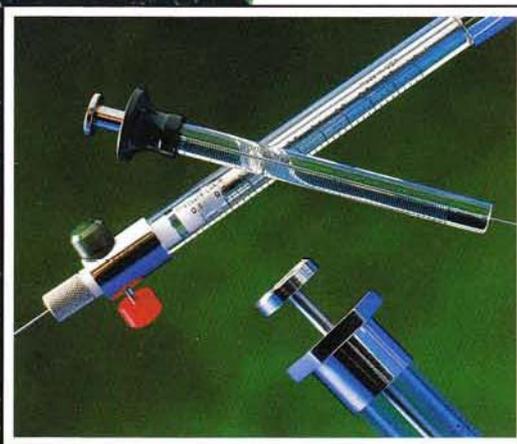
¹Dose saver design with low dead space plug on the piston to minimize waste.

²The 5mL has graduations to 6mL, 10mL has graduations to 12mL, 20mL has graduations to 24mL and 50mL has graduations to 60mL.

VICI

Precision Sampling

Analytical
Syringes
Valves
Probes
Accessories
Custom Tubing



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VICI Precision Sampling

Introduction

VICI (Valco Instruments Co. Inc.) acquired the syringe, Mininert™ valve, and probe business of Precision Sampling (formerly Dynatech Precision Sampling) in 1996. VICI specializes in the research, design, and manufacturing of components for the instrumentation market, and is the world's largest manufacturer of specialized fittings and valves for instrumentation. The alliance with VICI, along with Precision Sampling employees' combined tenure of two hundred years of manufacturing experience, strengthens our position of leadership in the high performance analytical syringe market.

We are a committed group of talented experts dedicated to providing cost-effective, high value, precision products. Customer satisfaction is our primary objective. We continually strive to provide our customers with high quality, reliable products and responsive service.

The VICI Family of Companies

VICI

Our parent company is the world's leading designer and manufacturer of valves, fittings, and detectors for analytical, biomedical, and biocompatible instrumentation. The VICI product line includes a wide range of related products such as pneumatic and electric actuators, tubing and sample loops, heated enclosures, valve sequence and temperature controllers, gas purifiers, and digital interfaces. You may not be aware of the VICI components in your detector, pump, nebulizer, column, or autosampler, but it is a rare analytical instrument that does not incorporate some product from VICI in its design.

VICI AG

International business is handled through VICI AG (Valco Europe), located in Schenkon, Switzerland. As a second location for the manufacturing of Valco and Cheminert valves, VICI AG also offers support for all products made by any VICI company, and expedites shipments to Europe, the Middle East, the Far East, and points beyond.

VICI Metronics and Condyne

VICI Metronics, Inc., located in the beautiful San Francisco Bay Area, is a leading manufacturer of devices and instruments that are used in the generation of test atmospheres containing very low concentrations of gases. The primary use of these devices is in the calibration of gas analyzers used to monitor air pollution. The Condyne division of Metronics provides quality gas flow control components for analytical instruments, supplying major instrument manufacturers worldwide.

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Syringe Features

Pressure-Lok[®] Syringe Features

PTFE Plunger Tip

Plunger tips are fabricated of PTFE, stress-formed by our own special process to insure a leak-tight seal. The self-lubricating plunger tip stays smooth for the life of the syringe, with none of the freezing up or residue build-up associated with conventional all-metal plungers.



PTFE-Sealed Needle

Standard needle attachment includes a barrier sleeve or packing of PTFE on the rear of the needle at the zero point. This isolates the sample from the needle cement, preventing possible dissolution of the adhesive or contamination of the sample. Many of our models are also available in a luer-tip version.



Ultra-Smooth Bore

Syringe barrels up to 100 μ l are hand-fabricated from high quality borosilicate glass, manufactured to our specifications. The extremely smooth bore prevents undue wear of the plunger tip and insures a smooth, durable seal.

Hand Calibration

Each barrel undergoes a series of quality checks, including hand-calibration of consistent volume delivery. After final assembly of each lot, volume delivery is checked again with an electronic microbalance. These careful steps in quality control insure that every Pressure-Lok microsyringe measures up to today's stringent requirements for precision and accuracy.

Easily Replaceable Parts

Depending on the specific model, some or all of the wear parts can be easily replaced, optimizing your equipment investment.

Shaped Rear Flange

All of our syringes have a rear flange to provide a secure grip and keep the syringe from rolling.

Low Dead Volume

Every syringe design takes advantage of every opportunity to minimize or eliminate dead volume.

Crisp, Clean Graduations

Our methods insure easy reading of the sampled amount.

*PTFE is the generic name for polytetrafluoroethylene polymer, commonly sold as Teflon[®] by E.I. duPont de Nemours

Innovations which make Pressure-Lok syringes a standard in today's laboratories

Special Features of Select Models

Pressurized Sample Storage

Several of our syringes have a built-in valve to allow sample storage at up to 250 psi. This feature also allows pre-pressurization of the sample before injection so that the sample is flushed into the column instantaneously, providing better resolution. For conventional syringes, our Mininert syringe valve adds this capacity.

Gas p. 6-7, 10
High pressure p. 26-27

Removable Needles

Many models offer a special pressure-tight, low dead volume connection to facilitate easy removal and replacement of needles.

Gas p. 6-10
Liquid p. 14, 16, 18

Optional Luer Tip for Convenience

Although our standard PTFE-sealed needle offers superior performance, we also offer the added convenience of luer-tip models.

Gas p. 7-10
Liquid p. 22

Positive Rear Plunger Stop

If plunger damage from accidental plunger removal has been a problem, select one of our syringes with this feature.

Gas p. 6-8, 10
Liquid p. 18, 19
High pressure p. 26-27

Reinforced Plunger

If plunger-bending is a problem that contributes to excessive syringe repair bills in your lab, this feature offers a solution.

Liquid p. 16-19

Side Vent

We offer a unique model with a side vent, allowing easy syringe filling and cleaning.

Liquid p. 17

Safety Note

To prevent possible injury, proper safety precautions should always be observed when pressurizing glass cylinders such as syringes.

Ordering Guides

Gas Syringes

Features

Precision Sampling gas syringes have all the standard features on page 2, with special features delineated in the chart below.

	Pressure rating	Removable needle	Luer needle	Sample-Lok valve type	Plunger stop	Page number
Series A:	250 psi	✓		twist-lock	✓	6
Series A-2:	250 psi	✓	✓	push-button	✓	7
Series C:	250 psi	✓	✓	*	✓	8
Series D:	250 psi	✓	✓	*		9
Magnum:	30 psi	✓	✓	twist-lock	✓	10

*Order a Mininert syringe valve on page 9.

Sizes Available

	Series A	Series A-2	Series C	Series D	Magnum
Page no:	6	7	8	9	10
25 µl:		✓			
50 µl:		✓			
100 µl:	✓	✓	✓		
250 µl:	✓	✓	✓		
500 µl:	✓	✓	✓		
1 ml:	✓	✓	✓	✓	
2 ml:	✓	✓	✓	✓	
5 ml:	✓	✓	✓		
10 ml:	✓	✓	✓		
20 ml:					✓
50 ml:					✓
100 ml:					✓
250 ml:					✓
500 ml:					✓

Liquid Syringes

Features

Precision Sampling liquid syringes have all the standard features on page 2, with special features delineated in the chart below.

	Pressure rating	Removable needle	Fixed needle	Reinforced plunger	Plunger stop	Side Vent	Page number
Series C-160:	250 psi	✓	✓				14
Series C-120:	250 psi		✓				15
Series CG-130:	250 psi	✓	✓	✓			16
Series CGV-130:	250 psi		✓	✓		✓	17
Series D-140:	30 psi	✓		✓	✓		18
Mini-injector:			✓	✓	✓		19
Purge and Trap:		luer					22

Sizes Available

	Series C-160	Series C-120	Series CG-130	Series CGV-130	Series D-140	Mini-injector	Purge & trap
Page no:	14	15	16	17	18	19	22
.01 µl:						✓	
.10 µl:						✓	
1 µl:					✓		
2 µl:					✓		
5 µl:	✓	✓	✓		✓		
10 µl:	✓	✓	✓	✓	✓		
25 µl:	✓	✓		✓			
50 µl:	✓	✓		✓			
100 µl:	✓	✓		✓			
5 ml:							✓
10 ml:							✓

Gas Syringes

Series A

Removable needle: .029" x .012" x 2.25", bevel, open end

- ▶ **Integral sample storage valve** – actuated by turning the nose piece
- ▶ **Positive rear flange plunger stop** – prevents plunger from blowing out of barrel at elevated pressure
- ▶ **Modular construction** – all components may be quickly disassembled for easy cleaning or replacement
- ▶ **Leak-tight to 250 psi** – liquids and gases



Turn the nosepiece counterclockwise two turns and the valve is closed. Insert the needle through the septum, then start pushing the plunger as you turn the nosepiece clockwise. Carrier backflushing is eliminated, resulting in sharper peaks and better separations. When the plunger is fully depressed, the plunger face comes into firm, flush contact with the bottom of the front packing, forcing essentially all of the sample out – there is virtually no compressable dead volume remaining. The very small internal diameter of the needle also contributes to the dead volume minimization.

In addition to the characteristics which make it unique, the Series A gas syringe has all the standard Pressure-Lok features such as a PTFE plunger tip, PTFE-sealed needle, and ultrasmooth bore.

100 µl	250 µl	500 µl	1 ml	2 ml	5 ml	10 ml
010025	010031	010032	010033	010034	010035	010036

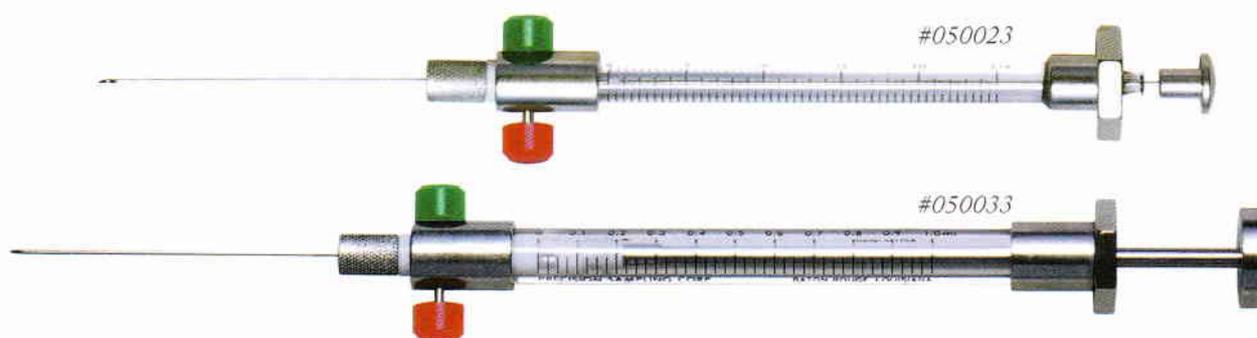
Replacement needles (special needles available on request)		
Size:	.029" x .012" x 2.25"	.029" x .012" x 2.25"
Type:	Bevel, open end	Side port, taper
Pkg. of 3:	913050	913052

Series A-2

Removable needles: .028" x .005" x 2", bevel, open end on 25, 50, and 100 μ l
.029" x .012" x 2", bevel, open end on all others

All the advantages of the Series A syringe plus:

- ▶ **Push-button valve** – allows instantaneous injection
- ▶ **Smaller volumes** – great for small volatile samples



The A-2 features a push-button valve, which allows sample storage to 250 psi in syringes as small as 25 μ l. This is useful with small liquid samples containing low-boiling components which would be lost through evaporation using ordinary syringes.

The positive rear stop (in 250 μ l and larger sizes) prevents plunger blowout at elevated pressures, protecting against sample loss or operator injury. Like the Series A gas syringe, the A-2 has all the standard Pressure-Lok features such as a PTFE plunger tip, PTFE-sealed needle, and ultrasmooth bore. Replacement components (page 12) are available for easy repair.

	25 μ l	50 μ l	100 μ l	250 μ l	500 μ l
Standard:	050023	050024	050025	050031	050032
Luer:	050043	050044	050045	050051	050052

	1 ml	2 ml	5 ml	10 ml
Standard:	050033	050034	050035	050036
Luer:	050053	050054	050055	050056

Replacement needles for standard syringes (Luer needles on page 11)			
Size:	.028" x .005" x 2"	.029" x .012" x 2"	.029" x .012" x 2"
Type:	Bevel, open end	Bevel, open end	Side port, taper
Pkg. of 3:	943050	943051	943052

Gas Syringes

Series C

- ▶ **Optional Chaney adapter** – much lower dead volume than luer-style connectors
- ▶ **Perfect syringe for everyday use** – all our standard features, but without a valve for pressurized sample storage



	100 µl	250 µl	500 µl	1 ml	2 ml	5 ml	10 ml
Standard:	030025	030031	030032	030033	030034	030035	030036
Std. w/Chaney adapter:	101430	101440	101448	101455	101463	101470	101478
Luer:	030045	030051	030052	030053	030054	030055	030056

Replacement needles (Luer needles on page 11)

	Standard		Chaney adapter
Size:	.029" x .005" x 2"	.029" x .012" x 2"	.018" x .008" x .75"
Type:	Bevel, open end	Bevel, open end	Side port, taper
Pkg. of 3:	943050	943051	101935

Add sample storage capability to any syringe with a Mininert syringe valve

Gas Syringes

Magnum Series

- ▶ Removable needle: .035" x .023" x 2", bevel, open end
- ▶ **Built-in twist-lock valve** – seals the sample (up to 30 psi) during transportation to the analysis site
- ▶ **Up to 500 ml capacity** – for sampling low concentration levels
- ▶ **Positive rear plunger stop** – prevents plunger from blowing out when contents are pressurized

The detection of low levels of various environmental contaminants can require extraordinarily large samples. Magnum syringes facilitate the trapping of such samples in remote locations. A built-in valve allows the sample to be sealed within the syringe, maintaining sample integrity during transportation to the analysis site.

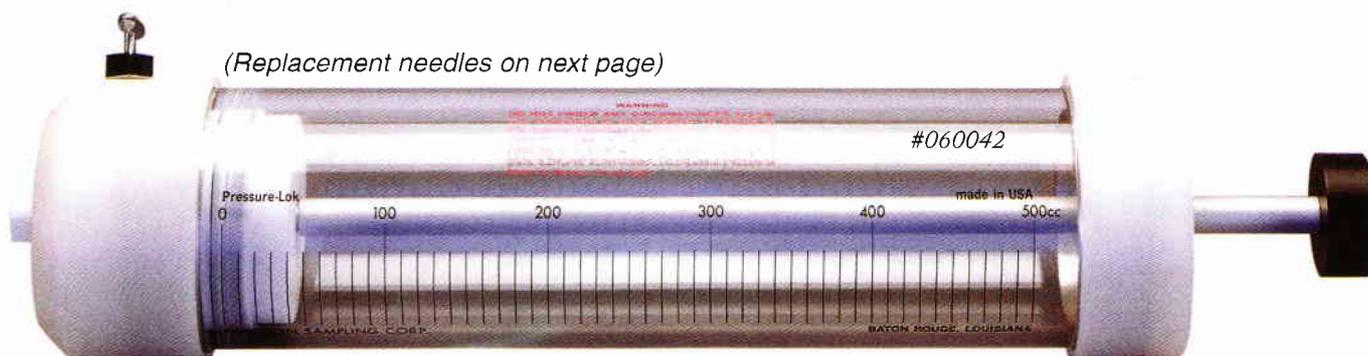
Magnums have been successfully used to sample atmospheric contaminants such as sulfur dioxide and oxides of nitrogen at distant points of the earth. The positive displacement capability of the durable PTFE plunger seal permits use in a variety of subsequent procedures involving extraction or concentration of trace components. (With a cryogenic enrichment apparatus, for example.)

The standard termination is a female threaded fitting (1/4-28), which accepts a variety of Cheminert® connectors or adapters.* Specially formed seals permit leak-tight operation to 30 psi (approximately 2 atmospheres). *Because of the obvious danger in overpressurizing any glass container, the internal pressure of a Magnum gas syringe should never exceed 2 atmospheres.*

* Call to request a copy of the Valco Instruments Co. Inc. catalog, with complete information about compatible Cheminert valves and fittings.

	20 ml	50 ml	100 ml	250 ml	500 ml
Standard:	060037	060044	060040	060041	060042
Luer:	060043		060045	060046	060047

(Replacement needles on next page)



Give us a call if you don't find
what you need in the table below

Replacement Needles for Gas Syringes

Slip-on needles for Series A-2, C, and D syringes feature a needle extension through the hub that fits inside the PTFE tip on the syringe. This design eliminates the dead volume inherent in conventional hubbed needles.

Needles are manufactured to exacting tolerances from high precision stainless steel tube stock. The point styles and lengths listed below are standard, but we are willing to supply others. Let us know your requirements.



1. Blunt tip, open end



2. Bevel, open end



3. Side port, taper

Pressure-Lok	OD	ID	Length	Type	Pkg. of 3
Series A	.029" x	.012" x	2.25"	2	913050
	.029" x	.012" x	2.25"	3	913052
Series A-2	.028" x	.005" x	2"	2	943050
	.029" x	.012" x	2"	2	943051
	.029" x	.012" x	2"	3	943052
Series C	.028" x	.005" x	2"	2	943050
	.029" x	.012" x	2"	2	943051
	.029" x	.012" x	2"	3	943052
Series D	.029" x	.012" x	2"	2	943051
	.029" x	.012" x	2"	3	943052
	Magnum	.035" x	.023" x	2"	2
.035" x		.023" x	2"	3	953052

Luer	OD	ID	Length	Type	Pkg. of 3
Series A-2	.028" x	.006" x	2"	2	943060
	.028" x	.016" x	2"	2	943061
	.028" x	.016" x	2"	3	943062
Series C	.028" x	.006" x	2"	2	943060
	.028" x	.016" x	2"	2	943061
	.028" x	.016" x	2"	3	943062
Series D	.028" x	.016" x	2"	2	943061
	.028" x	.016" x	2"	3	943062
Magnum	.028" x	.016" x	2"	2	943061
	.028" x	.016" x	2"	3	943062

Gas Syringes

Replacement Parts for Series A, A-2, C, and D

Series:	A	A-2	C	D
Plunger tips				
100 µl	100017	100017	100017	–
250 µl	100029	100029	100029	–
500 µl	013932	013932	013932	–
1 ml	013933	013933	013933	013933
2 ml	013934	013934	013934	013934
5 ml	013935	013935	013935	–
10 ml	013936	013936	013936	–
Front packing				
100 µl	100010	–	–	–
250 µl	100028	–	–	–
500 µl	100042	–	–	–
1 ml	100057	–	–	–
2 ml	100070	–	–	–
5 ml	100086	–	–	–
10 ml	100100	–	–	–
Plunger assemblies				
25 µl	–	054123	–	–
50 µl	–	054124	–	–
100 µl	–	014425	014425	–
250 µl	014431	014431	014431	–
500 µl	014432	014432	014432	–
1 ml	014433	014433	014433	044433
2 ml	014434	014434	014434	044434
5 ml	014435	014435	014435	–
10 ml	014436	014436	014436	–

Replacement Parts for Magnum Series

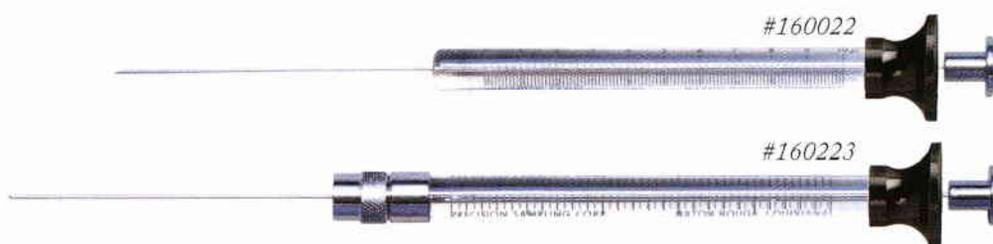
Magnum Series:	20 ml	50 ml	100 ml	250 ml	500 ml
Std. nosepiece:	065037	065037	065037	065041	065041
Luer nosepiece:	065042	065042	065042	065043	065043
Stem cap:	100298	100298	100343	100343	100343
Valve stem guide:	100297	100321	100342	100361	100361
Plunger rod:	065437	065439	065440	065441	065442
(with thumbpiece)					
Plunger tip:	065537	065539	065540	065541	065542
Barrel assembly:	065637	065639	065640	065641	065642
Front sleeve:	100288	100312	100333	100352	100372
Rear sleeve:	100289	100313	100334	100353	100373
Front packing:	065937	065939	065940	065941	065942
Valve stem:	100296	100320	100341	100360	100379

Liquid Syringes

Series C-160

Fixed needle: .019" x .005" x 2", bevel, open end
 Removable needle: .019" x .005" x 2.25", bevel, open end

- ▶ **PTFE needle seat at rear of needle** – prevents possible dissolution of needle cement or contamination of the sample
- ▶ **Replaceable needles** – complete with integral PTFE seal for a low dead volume connection and a leak-tight fit
- ▶ **Plunger tip of stress-formed virgin PTFE** – self-lubricating and durable
- ▶ **Leak-tight to 250 psi** – liquids and gases



The C-160 offers day-in, day-out dependability at an economical price. You also have the choice of fixed or removable needles.

	5 µl	10 µl	25 µl	50 µl	100 µl
Fixed needle:	160021	160022	160023	160024	160025
Removable needle:	160221	160222	160223	160224	160225

Replacement needles

Size: .019" x .005" x 2.25"
Type: Bevel, open end
Pkg. of 3: 123050

Series C-120

Fixed needle: .019" x .005" x 2", bevel, open end

- ▶ **Fixed needle** – zero dead volume connection
- ▶ **Leak-tight to 250 psi** – liquids and gases
- ▶ **Extended syringe barrel** – attach a bulb or suction line for easier cleaning and filling



In addition to standard Pressure-Lok features such as PTFE plunger tip and needle seat, the C-120 offers as standard equipment a barrel extension beyond the rear flange which permits attachment of a vacuum bulb or line for easier filling or cleaning.

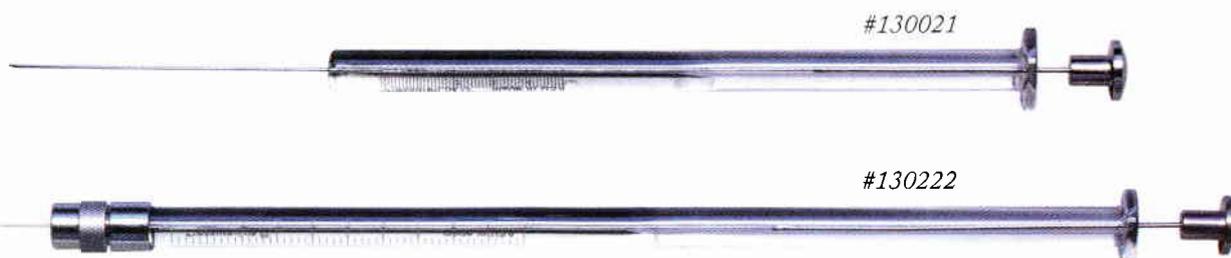
5 µl	10 µl	25 µl	50 µl	100 µl
120021	120022	120023	120024	120025

Liquid Syringes

Series CG-130

Fixed needle: .019" x .005" x 2", bevel, open end
 Removable needle: .019" x .005" x 2.25", bevel, open end

- ▶ **Reinforced plunger** – eliminates plunger bending
- ▶ **Plunger guide in barrel** – smaller front section of plunger is confined within guide section
- ▶ **Replaceable needles** – low dead volume connection for a leak-tight fit
- ▶ **Leak-tight to 250 psi** – liquids and gases



A heavy, reinforced plunger within an enlarged plunger guide section of the CG-130 barrel virtually eliminates plunger bending. The smaller front section of the plunger is confined within the guide section even when the plunger is retracted, while the sturdy upper section absorbs the force of a rapid downstroke.

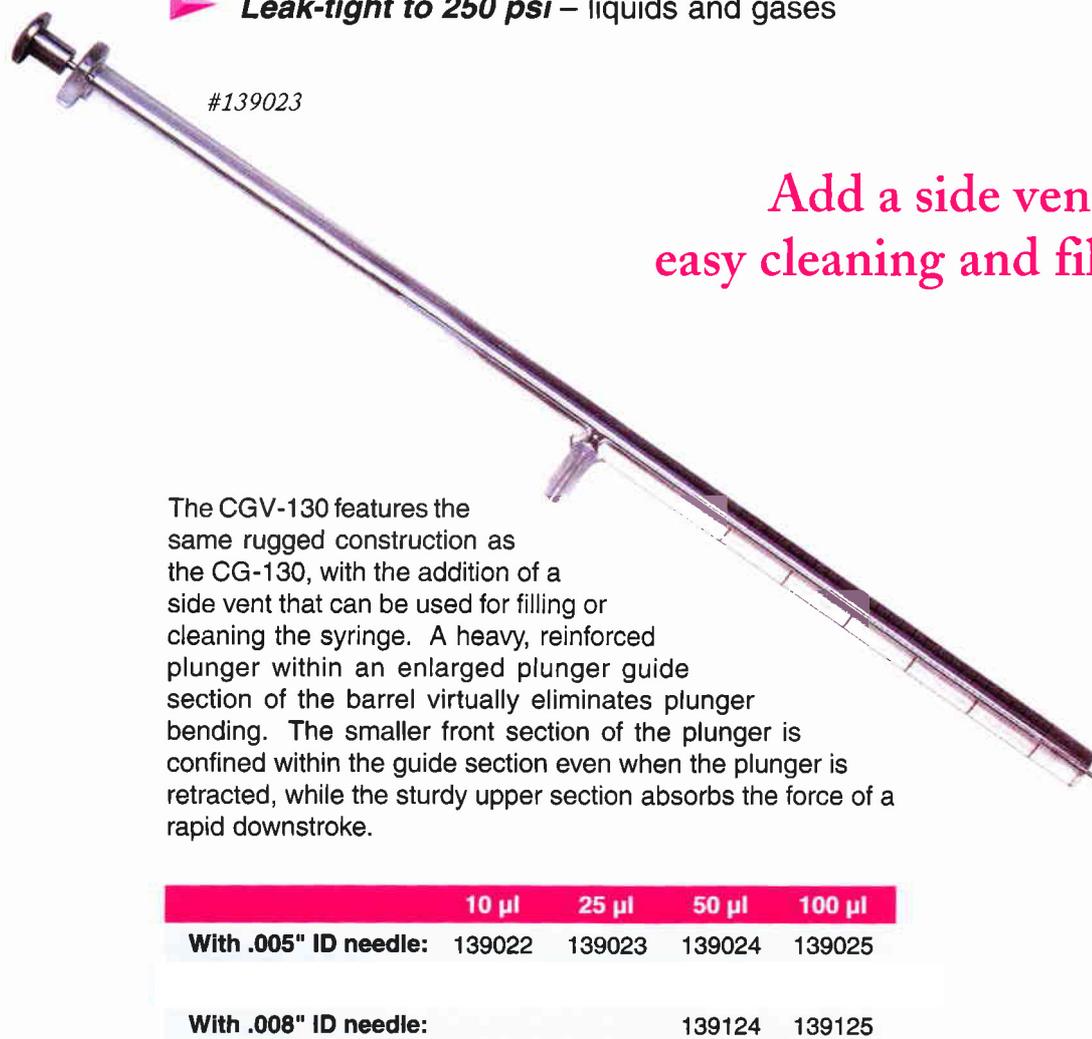
	5 µl	10 µl	Replacement needles
Fixed needle:	130021	130022	Size: .019" x .005" x 2.25"
			Type: Bevel, open end
Removable needle:	130221	130222	Pkg. of 3: 123050

With the Series CG-130
 you'll never bend another plunger

Series CGV-130

Fixed needle: .028" x .005" x 3.25", bevel, open end
or .028" x .008" x 3.25", bevel, open end

- ▶ **Side vent** – for easy cleaning and filling
- ▶ **Reinforced plunger** – eliminates plunger bending
- ▶ **Plunger guide in barrel** – smaller front section of plunger is confined within guide section
- ▶ **Leak-tight to 250 psi** – liquids and gases



**Add a side vent for
easy cleaning and filling**

The CGV-130 features the same rugged construction as the CG-130, with the addition of a side vent that can be used for filling or cleaning the syringe. A heavy, reinforced plunger within an enlarged plunger guide section of the barrel virtually eliminates plunger bending. The smaller front section of the plunger is confined within the guide section even when the plunger is retracted, while the sturdy upper section absorbs the force of a rapid downstroke.

	10 µl	25 µl	50 µl	100 µl
With .005" ID needle:	139022	139023	139024	139025
With .008" ID needle:			139124	139125

Liquid Syringes

Series D-140

Removable needle: Size and style vary with syringe size

- ▶ **Total sample displacement** – the entire sample is contained in the needle, so it is totally injected when the plunger is depressed
- ▶ **Positive rear plunger stop** – eliminates accidental plunger removal and resultant damage
- ▶ **Modular construction** – all parts are replaceable, with easy assembly and disassembly



The Series D-140 is designed for small volume injection into gas chromatographs. Since the sample is totally contained within the needle, it is totally displaced by the plunger. Any residual sample or variation in sample size are minimized. (This also means that each size syringe has a different needle design. When ordering extra needles, be careful to specify the correct one.)

The PTFE seals, needle, plunger, and barrel are all replaceable. (Replacement parts are on page 23.) Thanks to superior alignment, the D-140 can be assembled time after time without difficulty or damage.

0 - 1 μ l	0 - 2 μ l	0 - 5 μ l	0 - 10 μ l
140011	140012	140021	140022

Replacement needles (Other replacement parts on page 23)				
Size:	.019" x .005" x 2.5"	.019" x .008" x 2.5"	.028" x .012" x 2.5"	.028" x .018" x 2.5"
Type:	Blunt tip, open end	Blunt tip, open end	Bevel, open end	Side port, taper
Pkg. of 3:	923011	923012	923021	923022



Mini Injector

- ▶ **Reproducible sample injections down to 0.01 μ l** – without a splitter
- ▶ **Sample carried in the plunger itself** – the groove containing the sample is machined on the plunger, insuring repeatable results



The Mini Injector is ideal for capillary GC work, allowing reproducible injection of small samples (down to 0.01 μ l) without a splitter. This is possible through our unique use of a plunger-within-a-needle. The sample volume is carried in a precisely measureable groove ringing the wire plunger, with a durable PTFE packing to prevent leakage.

In use, the plunger is extended beyond the needle tip and dipped into the sample, where capillary action fills the groove. Then the plunger is drawn through a PTFE wiper and back into the needle for protection. When the needle is inserted into the inlet and the plunger is depressed, the sample carried on the plunger groove enters the heated zone, where it is flash-vaporized and swept into the column.

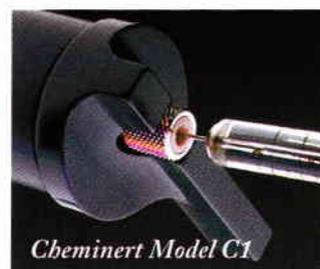
0.01 μ l	0.10 μ l
170091	170001

Liquid Syringes

Syringes for Valco, Cheminert[®], and Rheodyne[®] Valves

Fixed needle: 22 gauge x 2", blunt tip, open end
 Removable needle: 22 gauge x 2", blunt tip, open end

Syringes used to fill a loop on a sample injection valve have blunt smooth ends. The end of the needle must contact the bottom of the valve's fitting detail uniformly and seal on the outside of the tip to deliver sample with any repeatability. All Precision Sampling syringes for valve injections have smooth, burr-free ends that fit the valve fitting details perfectly. The standard HPLC syringe is our basic C-160 (described on page 14) with a 2" long 22 gauge needle.



	5 µl	10 µl	25 µl	50 µl	100 µl
Fixed needle:	160021R	160022R	160023R	160024R	160025R
Removable needle:	160221R	160222R	160223R	160224R	160225R
Needles (pkg. of 3):	123050R	123050R	123050R	123050R	123050R

Partial Loop Injections

Any percentage of a valve sample loop may be injected with Valco's fill ports for their Valco and Cheminert valve lines. The unique design places a small bubble in front of the sample when the needle is inserted, allowing partial loop injections for virtually any percentage of the loop.

Rheodyne recommends for their injectors that either a full loop or no more than 50% of the loop volume be syringe-loaded.

Valve fitting size:	1/32"	1/16"	1/8"
Fill port for Valco valves:			
for ≥ .75" needle	–	VISF-1	–
for 2" needle	VISF-AN	VISF-2	VISF-A
Fill port for Cheminert valves:			
for 2" needle		CVISF-1	

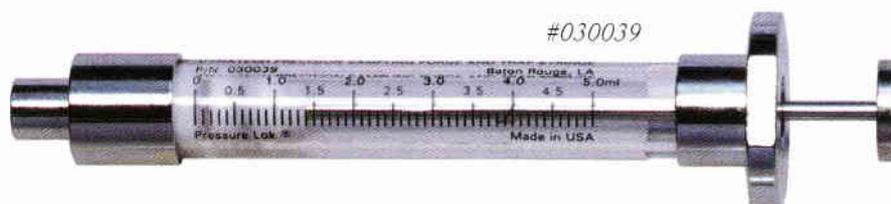


Liquid Syringes

Purge and Trap Syringe

Accept standard Luer hub needles

- ▶ **Luer lock** – for use with purge and trap analysis
- ▶ **Frosted glass on syringe barrel** – allows easy volume reading and accepts writing
- ▶ **Plunger tip of stress-formed virgin PTFE** – self-lubricating and durable
- ▶ **Heavy duty rear flange** – flat edges keep the syringe from rolling



The heavy duty construction of our purge and trap syringe helps eliminate costs of replacement and injuries due to breakage. All of our environmental syringes are repairable.

For this syringe, Luer needles must be ordered separately. (All of our other Luer syringes include a needle.)

5 ml **10 ml**

030039 030040

Luer needles

Size: .028" x .016" x 2"

Type: Bevel, open end

Pkg. of 3: 943061

Syringes for most HPLC injectors

Special Syringes for Rheodyne Valves

Fixed needle: 22 gauge x 2", blunt PEEK tip, open end
Removable needle: 22 gauge x 2", blunt PEEK tip, open end

Many Rheodyne valves allow the syringe needle to rub across the sealing surfaces – a tradeoff in a valve design which avoids having to machine small concentric holes. To prolong the lifetime of these valves, we now offer a syringe with a PEEK tip which extends beyond the end of the needle so that only PEEK contacts the valve sealing surfaces.

	5 µl	10 µl	25 µl	50 µl	100 µl
Fixed needle:	160021RT	160022RT	160023RT	160024RT	160025RT
Removable needle:	160221RT	160222RT	160223RT	160224RT	160225RT
Needles (pkg. of 3):	123050RT	123050RT	123050RT	123050RT	123050RT

Syringes for the Waters U6K Loop Injector

Fixed needle: 26 gauge x 5 cm, blunt tip, open end
Removable needle: 26 gauge x 5 cm, blunt tip, open end

The Waters U6K requires a 26 gauge, 5 cm long needle with a 90° blunt tip and open end. We recommend mounting the needle on our basic C-160 syringe. (The C-160 is described on page 14.)

	5 µl	10 µl	25 µl	50 µl	100 µl
Fixed needle:	160021WB	160022WB	160023WB	160024WB	160025WB
Removable needle:	160221WB	160222WB	160223WB	160224WB	160225WB
Needles (pkg. of 3):	123050WB	123050WB	123050WB	123050WB	123050WB

Replacement Needles for Liquid Syringes



1. Blunt tip, open end



2. Bevel, open end



3. Side port, taper

	OD	ID	Length	Type	Pkg. of 3
C-160	.019" x	.005" x	2.25"	2	123050
CG-130	.019" x	.005" x	2.25"	2	123050
D-140	.019" x	.005" x	2.5"	1	923011
	.019" x	.008" x	2.5"	1	923012
	.028" x	.012" x	2.5"	2	923021
	.028" x	.018" x	2.5"	3	923022

Replacement Parts for Liquid Syringes

	5 µl	10 µl	25 µl	50 µl	100 µl
Plunger assembly					
C-160	163721	163722	163723	163724	163725
C-120	123721	123722	054123	054124	054125
CG-130	133721	133722	-	-	-
	1 µl	2 µl	5 µl	10 µl	
Plunger assembly					
D-140	143711	143712	143721	143722	
Plunger packing					
D-140	144011	144012	144021	144022	

Autosampler and OEM Syringes

Autosampler Syringes

Hewlett Packard

This 10 µl syringe has a sturdy plunger to stand up to continuous automatic operation. The PTFE plunger tip prevents blow-back or freeze-up.



	OD	ID	Length	Type	Gauge	P/N
HP 7670	.028"	.005"	x 2.0"	Bevel, open end	22	136022
HP 7671	.028"	.005"	x 2.0"	Bevel, open end	22	136022
HP 7673A	.019"	.006"	x 1.75"	Blunt, open end	26	101986
HP 7673A	.024"	.005"	x 1.75"	Blunt, open end	23	101987
HP 7673A	.019"	.005"	x 2.0"	Bevel, open end	26	101988

Varian

We presently supply the syringes for the Varian GC 511, PTA30, PTA30WS, and Archon instruments.



	OD	ID	Length	Type	Gauge	P/N
511-5 µl	.024"	.006"	x 2"	Taper, blunt, & open end	23	102100
511-50 µl	.024"	.006"	x 2"	Taper, blunt, & open end	23	102102
511-1.5 µl	.028"	.008"	x 2"	Taper, blunt, & open end	22	102103
PTA				Luer fitting		030038
PTA30WS				Luer fitting		030038
Dynatrap				Luer fitting		030038
Archon				26 ml barrel with decal		502968

All our autosampler syringes conform to specifications supplied by the manufacturer

Perkin Elmer



	OD	ID	Length	Type	Gauge	P/N
5 µl GC Autosystem	.024"	x.006"	x 70 mm	Taper, blunt, & open end	23	102052
5 µl GC Autosystem	.022"	x.005"	x 70 mm	Taper, blunt, & open end	24	101989

250 µl Waters Wisp™



P/N	Price
102030	\$99

Central Instruments Co. (formerly the Dynatech autosampler line)

Replacement syringes and needles for models GC-311, GC-111, GC-411, and Perkin Elmer models AS100 and AS300.



3 µl			5 µl		10 µl	
standard	viscous	megabore	standard	viscous	standard	viscous
500076	501071	503188	500084	501072	500090	501073



3 µl			5 µl		10 µl	
standard	viscous	megabore	standard	viscous	standard	viscous
500081	500994	502743	500088	501040	501064	501092

High Pressure Syringes

Pressure-Flo™ Syringes

Special integral calibrated needle

- ▶ **Seals at 500 psi** – take high pressure samples from a cylinder or “bomb”
- ▶ **Sample contained in a calibrated needle** – injects directly through the GC septum inlet
- ▶ **Use with cylinder adapter** – lets syringe interface with gas cylinder



The Pressure-Flo high pressure syringe is a tried and true method of taking homogeneous high pressure samples from a cylinder or “bomb”. It contains the sample in a calibrated needle with a wire plunger to displace it and PTFE packing to seal it in, permitting injection of the sample directly through the GC septum inlet for convenience and simplicity.

The body of the syringe is lightweight for easy handling. It houses a special crimped PTFE packing which seals firmly at pressures in excess of 500 psi even under severe operating conditions. Threads allow the syringe to make up on a cylinder via the special adapters listed below. Once the syringe is screwed tight, the cylinder valve is opened and the plunger is depressed, extending the needle into the liquid zone. Once sample is drawn into the syringe, it is stored pressure-tight while the cylinder valve is closed and the syringe is removed from the adapter.

To inject the sample, the nose of the syringe is pressed very firmly against the septum to form a pressure-tight seal. (This requires a minimum 1/8" hole in the septum cap.) As this is done, the pointed tip of the needle punctures the septum. When the large handle is pushed in, the needle containing the sample is inserted into the injection port without any loss of contents.

0.5 µl	1 µl	2 µl	5 µl	10 µl
220005	220011	220012	220021	220022



Bomb Adapters

Fitting (NPT):	1/8" female	1/4" female	1/8" male	1/4" male
	240040	240041	240042	240043

Micro-Flo Syringes

Annular needle, .028" x .006" x 1.875", side port, tapered, open end

- ▶ **Metal-encased syringe with PTFE seals** – for hard-to-handle volatile liquids and liquified gases
- ▶ **Special locking cylinder adapter and yoke assembly** – the syringe contacts the sample liquid in its pure, undisturbed state
- ▶ **Sample Lok valve** – seals in volatile materials at pressures up to 500 psi
- ▶ **Variable volume** – 0.5 to 5.0 μ l



The Micro-Flo high pressure syringe prevents evaporation of lighter components under normal laboratory temperatures at atmospheric pressure. The syringe is encased in metal, with positive PTFE seals and positive plunger stops. The front end houses a special micro-volume annular needle with less than .05 μ l dead volume and a positive mechanical valve to seal in volatile materials (up to 500 psi).

Syringe	Adapter
230051	230250



Replacement Parts for High Pressure Syringes

Pressure-Flo Series:	0.5 μ l	1 μ l	2 μ l	5 μ l	10 μ l
Plunger assembly:	220315	220311	220312	220321	220322
Plunger packing:	100800	220347	220347	220347	220347
Front packing assembly:	220344	220344	220344	220344	220344
Needles:	220351	220352	220352	220352	220352

Micro-Flo Series	
Plunger assembly:	100854
Front packing:	100828
Barrel and decal:	100827
Rear washer:	100826
Spring:	100830
Needle:	100838

Cylinder Adapter and Yoke Assembly	
Syringe side packing:	100844
Plunger pin rod assembly:	100846
Plunger pin side packing:	100848

Mininert™ Valves

General Description

- ▶ **Leak-tight closure with syringe access** – take a sample with no exposure of vial contents to atmosphere
- ▶ **Models for virtually any laboratory glassware** – screw-cap and crimp-top vials, test tubes, flasks, reaction chambers, 1/4-28 or pipe thread
- ▶ **Economical** – save time and money through conservation of reagents, etc.
- ▶ **Replaceable septum** – easily replaced with no exposure of contents to atmosphere
- ▶ **Simple installation** – no tools required

Mininert push-button valves are highly dependable, leak-tight closures for screw-cap vials and other laboratory containers. When used with a glass vial, only PTFE and glass are in contact with the contents. Their unique features make Mininert valves the ideal closure for calibration standards, air- or moisture-sensitive fluids, derivatizing reagents, volatile chemicals, etc.

Operation is extremely simple – push the green button to open the valve, insert the needle through the septum and take a sample, withdraw the needle, and push the red button to close the valve.

Specifications

Temperature

Mininert valves can be used at temperature up to 105°F. However, after use at high temperatures, the valve may leak slightly when cooled to room temperature.

Pressure

The sealing ability of Mininert valves is more than adequate to contain most volatile liquids and gases at low pressures. Mininert valves have been used as high as 120 psi without leakage, but this is NOT a recommendation for pressurizing glass containers to these levels. Such pressurization of glass containers can be extremely dangerous.

Chemical Resistance

PTFE is highly inert and may be used with most common materials. It is particularly useful for working with most acids and organic solvents. Problems may be encountered when used with organometallics and some strong bases. We recommend actual exposure test before use with any material.

Mininert syringe valves are found on page 9

Valves for Vials

Models are available for screw-cap and crimp-top vials. The screw-cap Mininert is available in 13, 15, 18, 20, and 24 mm cap sizes. The crimp-top valve for 13 mm ID glassware slides into the neck of the vial and features a threaded flange which is turned to secure a tight fit.



Cap size:	13 mm	15 mm	18 mm	20 mm	24 mm	Crimp top
Thread size:	13 mm-425	15 mm-425	18 mm-400	20 mm-400	24 mm-400	
Pkg. of 12:	614158	614160	614161	614170	614163	614250

Valves with Standard Tapers

The laboratory taper model brings Mininert convenience and ease to a variety of applications using standard laboratory glassware, such as reaction chambers, test tubes, and other glass systems.

Taper:	14/20	19/22
	621102	621103

Valves with Threaded Fittings

Our threaded designs offer positive on/off fluid control as an in-line valve or syringe access as a termination valve at a sample point. In-line valves are 1/4-28 male to male or 1/4-28 female to female. Termination valves are offered in 1/4-28 male or female and 1/8" NPT male or female.

In-line valve:	1/4-28, male to male	1/4-28, female to female
	631205	631206



Termination valve:	1/4-28 male	1/4-28 female	1/8" male NPT	1/8" female NPT
	631201	631203	631202	631204

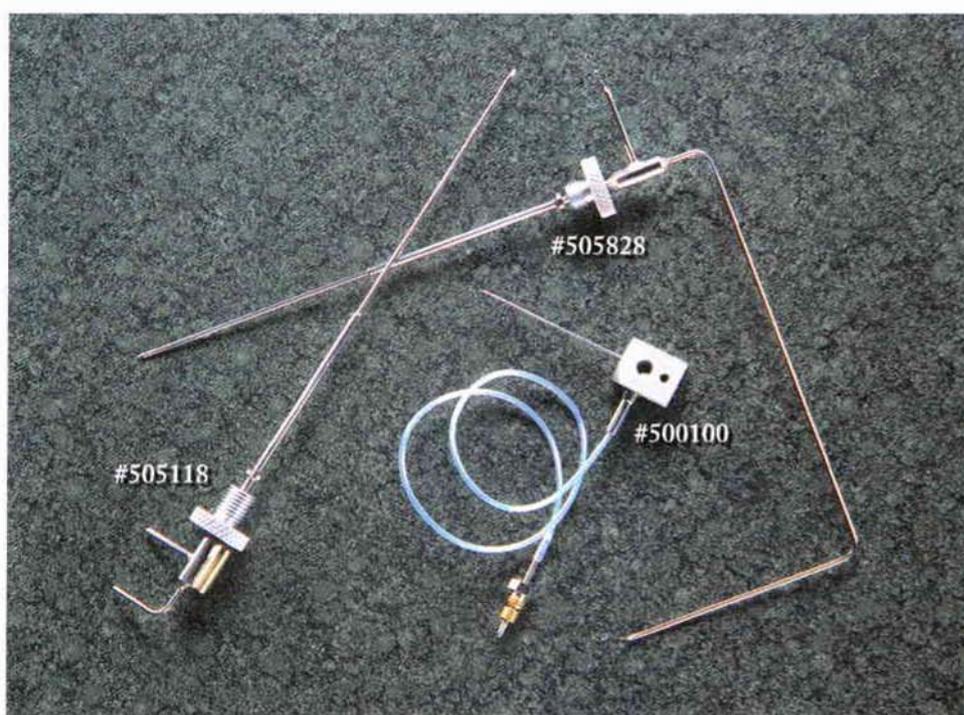
Replacement Septa and Septum Installation Tool

These silicone septa fit all Mininert valves. The installation tool is a handy device for quickly removing and replacing needle seal septa.

Pkg. of 50 septa	Installation tool
644350	644850



Probes



Probes are used to transfer liquid sample from a sample vial to the injection syringe by pressurizing the sample vial with helium.

GC and LC Probes

GC-111H	GC-111V	GC-311V	GC-411V	GC-311H	AS-300 (Perkin Elmer)
500031	500100	500100	500100	500441	500523
LC-241, 42 pos.		LC-241, 60 pos.			
500335		500301			

PTA-30, WS, and DynaTrap Instruments

#502971

Syringe probe assembly

502971

Needle purge upper probe

Upper soil probe assembly

with fittings

without fittings

with fittings

without fittings

505193

505118

505032

503840

Varian Archon Instruments

Water probe assembly

Water probe (old style)

with fittings

without fittings

with fittings

without fittings

505739

505828

505491

505831

Soil probe assembly

Needle purge probe assembly

with fittings

without fittings

with fittings

without fittings

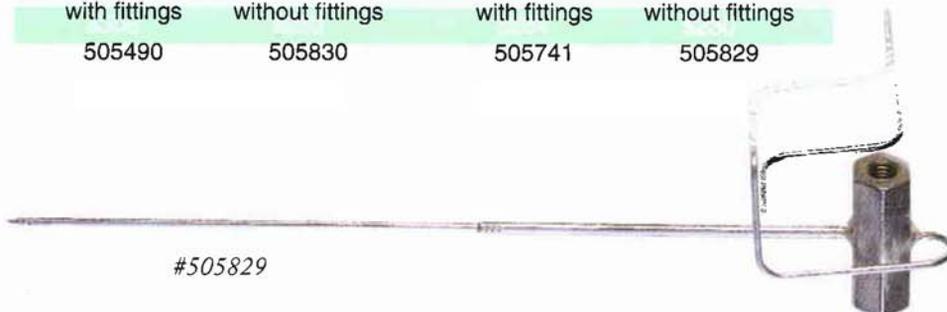
505490

505830

505741

505829

#505829





Analytical Syringes, Valves, Probes, and Custom Bent Tubing from VICI Precision Sampling

Micro Valves for GC and LC

- 200 psi, .060" bore
- Compact 1" design
- Convenient panel mount
- Variety of configurations

Simplify your liquid or gas handling application with a VICI Precision Sampling Micro valve. The unique design of the fitting detail allows a leak-free seal with no potential for rotor damage from overtightening. Internal parts are PEEK and PTFE.



(Fittings not included.
For example fittings, see page 68.)

Micro valves for GC and LC

1/4-28

	Prod No	3 PORT	4 PORT		SPECS	
"T" flow path	3 ports			"T"	200 psi .060" bore 1/4-28 fitting detail All polymer-based materials	
	4 ports					660100
180° flow path	2 ports			180°		
	4 ports					660200
90° flow path	2 ports			90°		
	3 ports				660300	660310
	4 ports				660320	660320

MORE INFORMATION
1/4-28 fittings . . . pp 68-78

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VICI Precision Sampling's patented Pressure-Lok® syringes feature a Teflon® (PTFE) plunger tip, stress-formed by a special process to assure a leak-tight seal. The self-lubricating plunger tip stays smooth for the life of the syringe, with none of the seizing or residue buildup associated with conventional all-metal plungers.

The needle is sealed by a PTFE sleeve or packing, which effectively isolates the sample from the needle cement, preventing any possible dissolution of the adhesive or contamination of the sample. All Pressure-Lok syringes feature ultra smooth bores, easily replaceable parts, low dead volume, crisp clean graduations, and precision calibration.

Series A-2

for GC

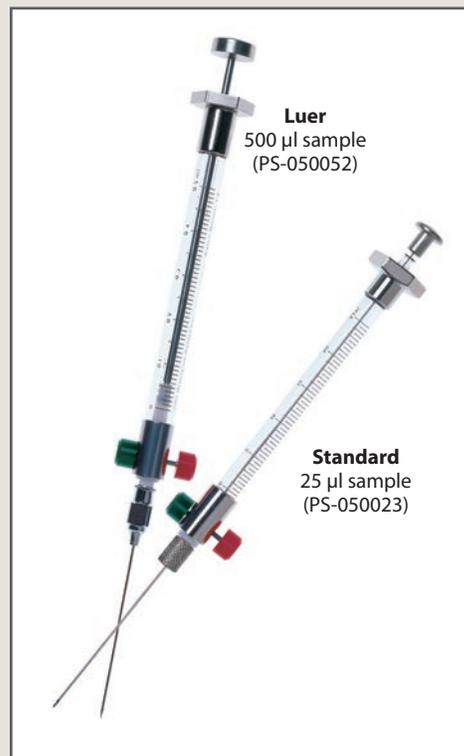
The A-2 features a push-button valve for 250 psi sample storage in syringes as small as 25 µl. Small liquid samples with low-boiling components are not lost through evaporation, as often occurs with ordinary syringes.

The positive rear stop (in 250 µl and larger sizes) prevents plunger blowout at elevated pressures. The Series A-2 syringe has all the standard Pressure-Lok features such as a PTFE plunger tip, PTFE-sealed needle, and ultrasmooth bore. Replacement components are available for easy repairs.

SPECS

Removable needles
Bevel, open end
Needle size:
.028" x .005" x 2"
(25, 50, and
100 µl)
.029" x .012" x 2"
(all other
sample sizes)
250 psi max,
gases and liquids

	Standard	Luer
Sample size	Prod No	Prod No
25 µl	PS-050023	PS-050043
50 µl	PS-050024	PS-050044
100 µl	PS-050025	PS-050045
250 µl	PS-050031	PS-050051
500 µl	PS-050032	PS-050052
1 ml	PS-050033	PS-050053
2 ml	PS-050034	PS-050054
5 ml	PS-050035	PS-050055
10 ml	PS-050036	PS-050056



SAFETY NOTE

To prevent possible injury, proper safety precautions should always be observed when pressurizing glass cylinders such as syringes.

Not for medical use.

Replacement needles (Pkg/3)	Bevel, open end	Side port, taper
Size	Prod No	Prod No
Pressure-Lok		
.028" x .005" x 2"	PS-943050	-
.029" x .012" x 2"	PS-943051	PS-943052
Luer		
.028" x .006" x 2"	PS-943060	-
.028" x .016" x 2"	PS-943061	PS-943062

NEEDLE TIPS



Blunt, open end



Bevel, open end



Side port, taper



Gas and Liquid Syringes

Series C-160

The C-160 offers day-in, day-out dependability at an economical price. A plunger tip of stress-formed virgin PTFE is self-lubricating and durable, and the PTFE needle seat at the rear of the needle prevents possible dissolution of the needle cement or contamination of the sample.

Choose between a fixed or removable needle version. Replacement needles are open end bevel type, sized .019" x .005" x 2.25", and come complete with an integral PTFE seal for a low dead volume connection and a leak-tight fit.

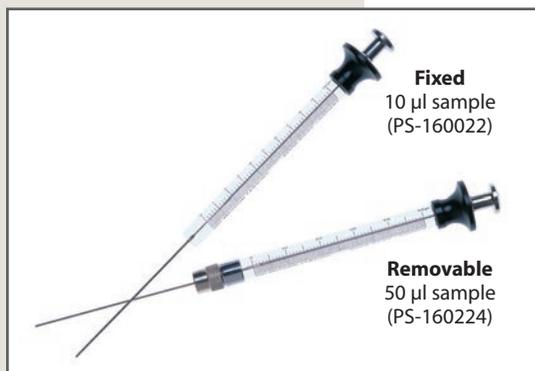
for GC

SPECS

Fixed and removable needles
 Bevel, open end
 Fixed needle size: .019" x .005" x 2"
 Removable needle size: .019" x .005" x 2.25"
 250 psi max, gases and liquids

Sample size	Fixed needle Prod No	Removable needle Prod No
5 µl	PS-160021	PS-160221
10 µl	PS-160022	PS-160222
25 µl	PS-160023	PS-160223
50 µl	PS-160024	PS-160224
100 µl	PS-160025	PS-160225

Replacement needles (Pkg/3)	Bevel, open end
Size	Prod No
.019" x .005" x 2.25"	PS-123050



Fixed
10 µl sample (PS-160022)

Removable
50 µl sample (PS-160224)

MORE INFORMATION
 Fill ports..... page 40
 Luer adapters 41

Syringes for Valco, Cheminert, and Rheodyne HPLC injectors

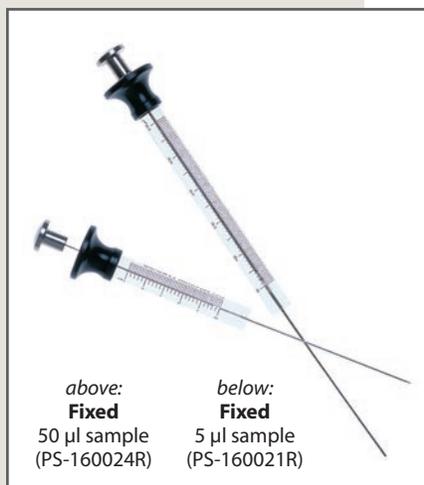
Syringes used to fill a loop on a sample injection valve have blunt, smooth ends. For a sample to be delivered with any repeatability, the end of the needle must contact the bottom of the valve's fitting detail uniformly and seal on the outside of the tip. All Precision Sampling syringes for valve injections have smooth, burr-free ends that fit the valve fitting details perfectly. The standard HPLC syringe is our basic C-160 with a 2" long 22 gauge blunt tip needle.

SPECS

Removable needles
 Blunt tip, open end
 Needle size: 22 gauge x 2"
 250 psi max

Sample size	Fixed needle Prod No	Removable needle Prod No
5 µl	PS-160021R	PS-160221R
10 µl	PS-160022R	PS-160222R
25 µl	PS-160023R	PS-160223R
50 µl	PS-160024R	PS-160224R
100 µl	PS-160025R	PS-160225R

Replacement needles (Pkg/3)	Prod No
	PS-123050R



above:
Fixed
50 µl sample (PS-160024R)

below:
Fixed
5 µl sample (PS-160021R)

NEEDLE TIPS



Blunt, open end



Bevel, open end



Side port, taper

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 Toll-free
 fax ...866-429-7741
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Mininert push-button valves are highly dependable, leak-tight closures for screw-cap vials and other laboratory containers. When used with a glass vial, only PTFE and glass are in contact with the contents. Their unique features make Mininert valves the ideal closure for

calibration standards, air- or moisture-sensitive fluids, derivatizing reagents, or volatile chemicals. Operation is extremely simple – push the green button to open the valve, insert the needle through the septum and take a sample, withdraw the needle, and push the red button to close the valve.



Valves for vials

The screw-cap Mininert is available in a variety of sizes. The crimp-top valve for 13 mm ID glassware slides into the neck of the vial and features a threaded flange which is turned to provide a leak-tight fit.

Pkg/12:	Cap / thread size	Prod No
	13 mm-425	PS-614158
	15 mm-425	PS-614160
	18 mm-400	PS-614161
	20 mm-400	PS-614170
	24 mm-400	PS-614163
	Crimp top	PS-614250

Valves with threaded fittings

Our threaded designs offer positive on/off fluid control as an in-line valve or syringe access as a termination valve at a sample point. In-line valves are 1/4-28 male to male or 1/4-28 female to female. Termination valves are offered in 1/4-28 male or female and 1/8" NPT male or female.

In-line valves	Prod No
1/4-28 male to male	PS-631205
1/4-28 female to female	PS-631206

Termination valves	Prod No
1/4-28 male	PS-631201
1/4-28 female	PS-631203
1/8" NPT male	PS-631202
1/8" NPT female	PS-631204

Replacement septa and septum installation tool

These silicone septa fit all Mininert valves. The installation tool is a handy device for quickly removing and replacing needle seal septa.

Septa, pkg/50	PS-644350
Installation tool	PS-644850

Mininert syringe valves

These convenient add-on valves allow our Series C and D syringes to store samples at up to 250 psi. The valve body is all PTFE, with a stainless steel stem. Also available to fit luer-tip syringes from any manufacturer. All accept traditional luer needles.

For C or D syringe	PS-654050
For Luer-tip syringe	PS-654051

SPECS

TEMPERATURES

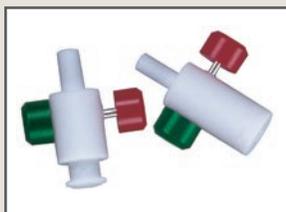
Mininert valves can be used at temperature up to 105°F. However, after use at high temperatures, the valve may leak slightly when cooled to room temperature.

MATERIALS

PTFE is highly inert and may be used with most common materials. It is particularly useful for working with most acids and organic solvents. However, problems may be encountered when used with organometallics and some strong bases. We recommend actual exposure tests before use with any material.

PRESSURE

The sealing ability of Mininert valves is more than adequate for containing most volatile liquids and gases at low pressures. Mininert valves have been used as high as 120 psi without leakage, but this is **not** a recommendation for pressurizing glass containers to these levels. Such pressurization of glass containers can be extremely dangerous.



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