

PRECISION LIQUID HANDLING



Syringes & Valves



HAMILTON 
THE MEASURE OF EXCELLENCE™



Total Customer Satisfaction

Not just a slogan – it's how we operate.

A supplier can only satisfy you if he meets your day-to-day needs. That is the business we at Hamilton are in. You tell us what you want, we supply you with what you want. We promise to supply you the goods you order

- in the quality you expect,
- at the time you request,
- with the most convenient logistical approach.

It is our task to provide you with the best information resource for making your choice. Such a resource should inform you about

- our complete range of products,
- the intended use of those products,
- where you can get them, and
- their availability.

This catalogue is such an information resource. It presents our entire range of syringes and valves, along with accessories, spare parts and consumables. It includes full information about chromatography applications and instrument syringes in particular. The catalogue helps you to find the correct syringes for the various autosamplers on the market.

Of course, we have a lot of other useful information to tell you. That's exactly why we made this catalogue to be an easy-to-use tool. It will become your indispensable assistant in finding the right syringe.

Your Hamilton Liquid Handling Team



HAMILTON
THE MEASURE OF EXCELLENCE™

Table of Contents

The Measure of Excellence	4
Selecting the Right Syringe	6
Special Syringes	10
Syringe Accessories	12
Syringe Terminations	14
Needle Point Styles	17
700 Series MICROLITER™ Syringes	18
600 Series MICROLITER™ Syringes	20
7000 Series MODIFIED MICROLITER™ Syringes	21
800 Series MICROLITER™ Syringes	22
900 Series MICROLITER™ Syringes	23
1700 Series GASTIGHT® Syringes	24
1000 Series GASTIGHT® Syringes	26
1800 Series GASTIGHT® Syringes	28
GC Autosampler Syringes	29
GC Septa	33
HPLC Autosampler Syringes	34
HPLC Manual Injection Syringes	37
Special Syringes	38
Life Science Syringes	46
Syringe Graduations	49
Syringe Rack	50
Syringe Accessories	51
Needles	53
Needle Gauge Index	55
Tubing Assemblies	56
Valves and Fittings	57
Numerical Index	64
General Ordering Information	70
Standard Conditions of Sales	71

The Measure of Excellence

Highest Quality Materials. From our pioneering efforts in designing and producing the first precision MICROLITER™ syringe, we have crafted our products from the finest materials and have controlled them with the same meticulous care and attention to detail that have become the hallmark of Hamilton products.

Unsurpassed Accuracy and Precision. Every one of our syringes is subjected to extensive quality control procedures and tested to make sure we meet the high expectations of accuracy and precision that you have come to expect from all Hamilton products.

The design of our barrel and plunger dimensions assures high levels of accuracy and precision. Hamilton syringes are manufactured to be accurate within $\pm 1\%$ of nominal volume. The Hamilton Quality System is EN ISO 9001 / EN 46001 certified.



Quality
Accuracy
Precision



For more than 50 years, Hamilton has been satisfying customer needs in the field of precision fluid measuring. It all started with syringes. Not commercial, mass-produced medical syringes, but precision measuring instruments. We at Hamilton combine top quality materials with skilled workmanship, ensuring the highest possible performance level of every precision fluid device we manufacture. With proper care and handling, Hamilton syringes will provide unsurpassed performance in precision fluid handling year after year.

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

Selecting the Right Syringe

Choosing the Right Hamilton Syringe for Your Application



1.

**Is your sample
a gas or a liquid?**

For a gas sample, use a Gastight® syringe.

GASTIGHT® 1000, 1700 and 1800 Series

10 µL to 100 mL

This type of syringe, for use with liquids and gases, features a precision-machined PTFE plunger Tip.

1000/1700 Series

- 1700 Series 10 µL to 500 µL
- 1000 Series 1 mL to 100 mL
- Also available: ground glass tip (luer tip, LT) or PTFE luer lock (TLL) terminations



1800 Series

- 10 µL to 250 µL
- Reinforced plunger prevents plunger blow-out and plunger bending
- Replaceable syringe barrels and plungers



For a liquid sample, choose between a MICROLITER™, MODIFIED MICROLITER™, or a GASTIGHT® syringe.

MICROLITER™ 600, 700, 800 and 900 Series

2.5 µL to 500 µL

This type of syringe, for use with liquids, incorporates a stainless steel plunger that is individually fitted to its matching syringe barrel. The plunger is not interchangeable or replaceable.

600 Series

- 2.5 µL and 5 µL
- Reinforced plungers prevent plunger bending
- Rugged, durable and long lasting



700 Series

- 5 µL to 500 µL
- Economical; great for chromatography
- Also available: ground glass tip (luer tip, LT) termination



800 Series

- 5 µL to 250 µL
- Reinforced plungers
- Plunger stop prevents plunger blow-out



900 Series

- 5 µL to 10 µL
- Reinforced plungers
- Perfect for students: rugged and durable



MODIFIED MICROLITER™ 7000 Series

0.5 µL to 5 µL

- Positive displacement syringe has a tungsten plunger wire that travels inside the needle
- The needle essentially acts as the glass syringe barrel; no dead volume
- Replaceable plunger wire and needle



Selecting the Right Syringe

2.

What is your dispense or injection volume?



For a liquid sample:

Syringe size	600 Series	700 Series	800 Series	900 Series	7000 Series	1000 Series	1700 Series	1800 Series
0.5 µL - 5 µL					✓			
2.5 µL - 5 µL	✓							
5 µL - 10 µL				✓				
5 µL - 250 µL		✓	✓					
10 µL - 250 µL							✓	✓
10 µL - 500 µL		✓					✓	
1 mL - 100 mL						✓		

For a gas sample:

Syringe size	1000 Series	1700 Series	1800 Series
10 µL - 250 µL		✓	✓
10 µL - 500 µL		✓	
1 mL - 100 mL	✓		



3.

Which termination works best for your application?



- **Luer Tip Cemented** - ground glass tip with a cemented needle ; not recommended for use with halogenated solvents, such as MeCl₂
- **PTFE Luer Lock** - can be used with luer (Metal or Kel-F®) hub needles, PTFE tubing assemblies and connectors can be used, offer flexibility
- **Cemented** - not recommended for use with halogenated solvents, such as MeCl₂
- **Luer Tip** - ground glass tip can be used with most hypodermic needles; Kel-F® hub needles, PTFE tubing assemblies and connectors can also be used; offers flexibility
- **Removable** - advantageous for laboratories with multiple users; economical since you can replace the needle without having to purchase a new syringe
- **Knurled Hub** - replaceable needles; used only with the 7000 Series syringes



4.

Which needle point style works best?



Point Style AS: special conical style needle point designed to withstand the demands of multiple injections; exclusively used on autosampler syringes

Point Style 2: 10 - 12° bevelled non-coring needle point recommended for septum penetration; only needle gauges 26s - 22 are recommended for optimum septum penetration

Point Style 3: blunt needle point for use with HPLC injection valves and for sample pipetting

Point Style 4: 10 - 12° bevelled needle point recommended for life science applications; special point styles such as 12°, and 45° are available on request

Point Style 5: conical needle with side port for penetration of septa, thin-gauged vinyls and plastics without coring; minimizes septum damage

5.

Do you need a rugged syringe?



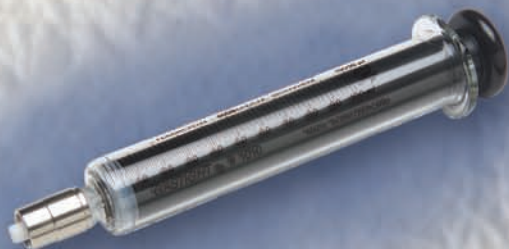
- **Syringe Guide** - easily installed on a syringe to prevent the plunger from bending or from being pulled out
- **Reproducibility (Chaney) Adapter** - easily installed on a syringe for consistent, reproducible injections; also prevents plunger damage
- **Reinforced Plungers** - Series 600, 800, 900 and 1800 syringes offer an extended barrel which prevents bent plungers



Special Syringes

SaltLine Syringes 250 μ L to 10 mL

Designed to be used with gases and liquids. These syringes incorporate a PE (Polyethylene) instead of a PTFE-tipped plunger for better durability when working with salty solutions up to 30 g/L.



Purge & Trap Syringes 5 mL and 25 mL

These syringes are designed for the analysis of drinking water samples according to EPA purge and trap concentration techniques.



Carbon Analyzer Syringes 50 μ L to 250 μ L

For water analysis with Total Organic Carbon (TOC) analyzers. Wetted parts are stainless steel and borosilicate glass. Syringes have a metal luer tapered hub cemented over a MICROLITER™ 700 Series N syringes. The luer hub fits precisely into the inlet of a total carbon analyzer.



PB600 Repeating Dispenser

Consistently dispense sample up to 50 times with the push of a button. The repeating dispenser works with MICROLITER™ or GASTIGHT® syringes from 10 μ L to 10 mL.

Use this Syringe Volume

25 μ L
50 μ L
100 μ L
250 μ L
500 μ L
1 mL
1.25 mL
2.5 mL

μ L Per Dispense

0.5 μ L
1 μ L
2 μ L
5 μ L
10 μ L
20 μ L
25 μ L
50 μ L





SampleLock™ Syringes 50 µL to 100 mL

Lock your sample in the SampleLock Syringe with the easy-to-use twist valve. An internal standard can be injected through the valve port into samples contained in the SampleLock syringe. Also, pre-pressurize gaseous samples prior to GC injection. The positive rear plunger stop prevents loss of sample and plunger blowout at elevated pressures.



Digital Syringe™ 0.5 µL to 500 µL

- The only N.I.S.T. traceable, calibrated syringe device available
- Comes completely calibrated with its own "Certificate of Calibration"
- Easy-to-read LCD screen displays volume dispensed within $\pm 0.5\%$ of the syringe volume
- Used with Hamilton syringes with total volumes of 0.5 to 500 µL

Get the best accuracy and precision data possible from a manually operated syringe with the Digital Syringe!

Unsurpassed Accuracy and Precision

Syringes operated manually require visual positioning of the plunger tip to the desired volume mark on the barrel of the syringe. Proper and consistent positioning of the plunger is often difficult due to subjective and personal mechanical errors. With the Digital Syringe, these problems are eliminated! Achieve accurate and precise injections or dispenses time after time.

Hamilton Certified

The easy-to-read LCD screen displays volumetric information in microliters within $\pm 0.5\%$ of the full scale volume of the syringe. That's at least twice as accurate and precise as compared to the normally published specifications of $\pm 1\%$ for manual syringes. And, Hamilton certifies the specification! The Digital Syringe is the only N.I.S.T. traceable, calibrated syringe device available. You receive a complete measuring instrument:

- A digital display device
- A serialized syringe of your choice
- A Certificate of Calibration



Optimized Plunger Movement

Not only is the Digital Syringe ergonomically pleasing and practical, the plunger movement is optimized for precise measuring.

- A "fine adjustment thumbwheel" allows you to easily dial-in specific syringe volumes.
- A "plunger drag adjustment" optimizes the rate of plunger movement to your personal preference.
- A "plunger brake" prevents premature dispensing of sample from the syringe.
- A built-in "plunger stop" assures you of repetitive, accurate volume displacements every time.

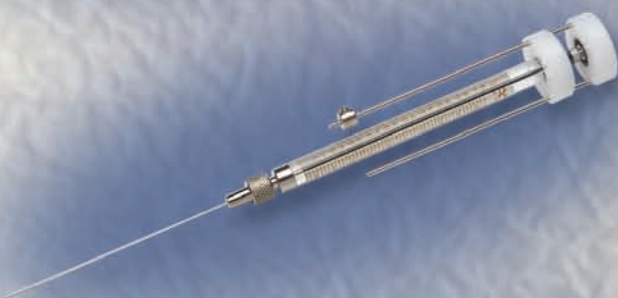
So to achieve unsurpassed accuracy and precision with manual syringe injections or dispenses, ask for a Digital Syringe!

Syringe Accessories



Reproducibility (Chaney) Adapter

For consistent, reproducible injections. It also prevents the plunger from bending. The adjustable stop prevents plunger damage. Easily installed. Available for the 700, 800, 900, 1700, 1800 and 7000 series.



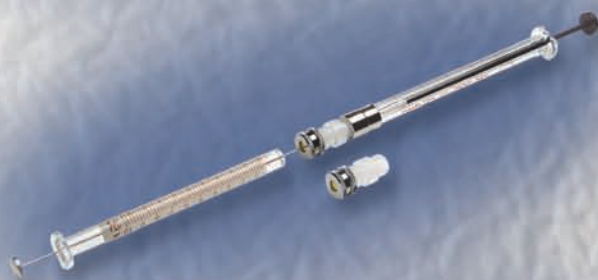
Syringe Guide

Prevents the plunger from bending. It also prevents the plunger from being pulled out. Easily installed. Available from the 700, 1700 and 7000 series.



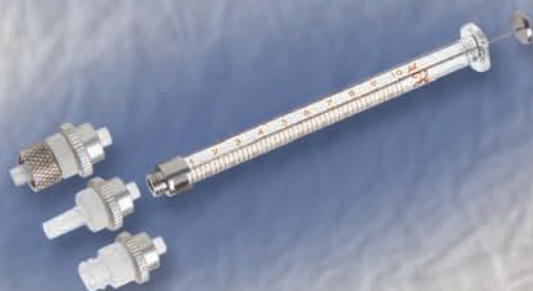
MTB Sampling Valve

This lever-actuated on/off valve is used for storing and transporting samples in any GASTIGHT® TLL syringe.



Septum Adapter

Store and sample syringe contents with this adapter. It attaches to any TLL syringe of luer lock fitting. The septum is replaceable.



Removable (RN) Adapters

There are three different removable (RN) adapters for 250 µl and larger removable needle (RN) syringes. The port I.D. of 0.029" (0.99 mm) allows sample spiking with a 701 N syringe. It provides connection to threaded fittings, tubing assemblies, tees, and crosses.

Syringe Calibration Service

Hamilton offers a calibration service for precision syringes and Digital Syringes. A Certificate of Calibration is provided with the product and the procedure is performed with an unbroken chain of calibrations traceable to N.I.S.T.

How to Order a Calibrated Syringe

Calibrated precision syringes are available only at the time of purchase.

To order a calibrated syringe, add the prefix "CAL" to the beginning of the syringe's part number.

For example, to order a 701 N, 10 μ l syringe (part # 80300), but calibrated, request part # CAL80300.

Digital Syringes are automatically calibrated prior to shipment. A recalibration service is available for the Digital Syringe. Simply return the digital unit including the syringe. Customer will be charged the calibration fee plus the cost of a new syringe if the original one cannot be recalibrated due to wear and tear.

Tips to Assure Accuracy and Precision

- When using a Hamilton syringe, grasp only the syringe flange and plunger button. By doing so, variations in liquid measurement due to body heat are avoided.
- Pump the plunger with the syringe needle immersed in the fluid to be transferred. This will expel any trapped air in the needle and syringe. Minimize the use of a dry syringe.
- If the plunger is accidentally removed from the syringe barrel wipe it carefully with a lint-free tissue. Reinsert the plunger into the barrel and pump deionized water or acetone through the needle and syringe. In the case of GASTIGHT® plunger, re-wet the PTFE plunger tip prior to reinserting it into the barrel. Avoid touching the plunger since any abrasions, scratches, or oil from one's fingers will often interfere with the proper plunger operation.

Syringe Lubrication

A clean syringe does not require any lubrication grease. Grease may cause a variety of problems including: sample cross contamination, seizing of the plunger in the barrel or barrel damage.

Syringe Terminations

Syringe terminations are offered in a number of different configurations designed to accommodate a broad range of applications. From cemented to removable needles, and luer taper /PTFE luer lock to special syringe fittings, syringe barrel terminations serve a key function at the interface of a syringe and its mating connection.



N, NR (Cemented Needle, Cemented Needle Rheodyne)

Needles are cemented into the glass syringe barrel at a point corresponding to the zero graduation mark. NR stands for syringes with Rheodyne specified needles.



LTN (Luer Tip Cemented Needle)

Needles are cemented into the conical glass luer tip of the barrel at a point corresponding to the zero graduation mark.



SN, LTSN (Special Needle, Luer Tip Special Needle)

Hamilton offers customized syringes with special needles. State the following details: needle length, gauge, point style, and whether electro-tapered. Example of a correct specification: 701 SN, 70 mm, gauge 25, point style 3, not electro-tapered. Without these details the corresponding standard syringe 701 N will be supplied.



LT (Luer Tip)

Ground glass syringe barrel with a male luer taper accepts most hypodermic needles. Use Kel-F® hub needles and connectors for a tight seal.



RN, RNR (Removable Needle, Removable Needle Rheodyne)

Removable needles seat precisely to the zero graduation mark of the syringe. Allows the use of different specification needles on the same syringe barrel. RNR stands for syringes with Rheodyne specified removable needles.



KH (Knurled Hub)

Removable needle, knurled hub is used on 7000 Series syringes, exclusively. The attachment of a spacer enables repeatable depth injections.



CA (Carbon Analyzer)

Special male luer tapered hub is cemented on the syringe barrel. Used with TOC (total organic carbon) analyzers.



CR (Constant Rate)

Special, male, luer tapered hub fits most popular TOC (total organic carbon) analyzers. Used for semi-automatic, TOC injections with a constant injection rate, injection depth and sample volume.



SL (SampleLock™)

On/Off syringe valve with RN needle is cemented to a syringe barrel. Used for headspace, environmental sample collection and storage, pre-pressurization of gaseous samples for GC analysis, and sample spiking.



TLL, TLLX (PTFE Luer Lock)

Male luer taper with nickel-plated brass hub accepts, and locks in place, luer hub needles and connectors. The X-style plunger stop incorporates a 6-32 UNC female thread on the end of the stop to allow attachment to drive arm mechanisms, such as on the MICROLAB 500 Series diluters/dispensers.



TLLXB (TLL With Stop & Backbushing)

Used in drive arm mechanisms, such as on MICROLAB 4000 or PSD2. Back-bushing syringes increase plunger tip life, maintain proper plunger alignment and reduce the particles generated by plunger to glass contact.



TLL-XL (60 mm TLL Syringe)

These 60 mm stroke TLL-style syringes are compatible with many liquid handling instruments, including XL-3000 modular digital syringe pump, Tecan, Rosys, Cavo IQ series sample processors and OEM liquid handling applications.



TLL/TLLX Short Stroke

These syringes are designed specifically for the PSD3 (half-height syringe pump).



C, CX (Cheminert)

1/4"-28 UNF, male fitting. Used in low volume applications where system dead volumes need to be minimized. The X-style plunger stop incorporates a 6-32 UNC female thread on the end of the stop to allow attachment to drive arm mechanisms, such as on the MICROLAB 500 Series diluters/dispensers.



C-XP (30 mm C Syringe)

These 30 mm stroke C-style syringes are compatible with many liquid handling instruments, including XL-3000 modular digital syringe pump, Tecan, Rosys, Cavo IQ series sample processors and OEM liquid handling applications.

Syringe Terminations



DX (Diluter)

TLL, PTFE Luer Lock, male fitting with M6 x 1 female, side port. The X-style plunger stop incorporates a 6-32 UNC female thread on the end of the stop to allow attachment to drive arm mechanisms, such as on the MICROLAB 500 Series diluters/dispensers.



AD (AccuDil®)

M8 x 0.75, male fitting. Used with MICROLAB 1000 PLUS diluter/dispenser.



DAD (Diluter AccuDil®)

M8 x 0.75 male fitting with M6 x 1 side port. Used with MICROLAB 1000 PLUS diluter/dispenser.

Syringe Problems and Solutions

Problem	Syringe Solution	Syringe Series
Bending plungers	Reinforced plunger syringes Use a reproducibility adapter or syringe guide	600, 800, 900, 1800 700, 800, 900, 7000 1000, 1700, 1800
Breaking syringe barrels	Replaceable barrel syringes	800, 1800
Bending needles	Removable needle (RN) syringes	600, 700, 800, 900, 1000, 1700, 1800, 7000
Syringe balance	Syringes with handles	800, 900, 1800
Plungers pulling or blowing-out of syringe barrel	Pull or blow-out prevention syringes	800, 1800, SampleLock™ syringes
Plungers slide too easily	Adjustable plunger drag syringes	800, 1000, 1700, 1800

DON'T FORGET: (for GASTIGHT® syringes)

Wet the PTFE plunger tip before inserting the plunger into the glass barrel.

Needle Point Styles

Several different needle point styles are offered on Hamilton syringe and needle products depending upon the application. Syringes and needles manufactured by Hamilton Company are intended for scientific research and laboratory use only and are not intended for human *in vivo* use.

Point Style 2:

10° - 12° Bevelled, non-coring needle point recommended for septum penetration.



Point Style 3:

Blunt needle point for use with HPLC injection valves and for sample pipetting.



Point Style 4:

10° - 12° bevelled needle point recommended for life science applications. Special point styles such as 12°, and 45° are available on request.



Point Style 5:

Conical needle with side port for penetration of septa, thin-gauged vinyls and plastics without coring.



Point Style AS:

Special conical style needle point used exclusively on autosampler syringes.



700 Series MICROLITER™ Syringes

5 µL - 500 µL

- For use with liquids
- Cemented needles (N), removable needles (RN), or luer tip (LT)
- Plungers and syringe barrels are not interchangeable or replaceable
- Tight tolerances between the plunger and the barrel



Ordering Information

		Volume	5 µL	10 µL	25 µL	50 µL	100 µL	250 µL	500 µL
		Model	75	701	702	705	710	725	750
		Gauge**	26s	26s	22s	22s	22s	22s	22
N (Cemented Needle) point style 2			87900	80300	80400	80500	80600	80700	80800
N (Cemented Needle) point style 2				80350					
N (Cemented Needle) point style 2				80384					
N (Cemented Needle) point style 3			87919	80383 80365 ²⁾	80465	80565	80665	80765 ¹⁾	80865
N (Cemented Needle) point style 5			87939	80339					80839
SN (Cemented Needle) Specify needle gauge, length, point style, and whether electro-tapered			87908	80308	80408	80508	80608	80708	80808
RN (Removable Needle) point style 2			87930	80330	80430	80530	80630	80730	80830
RN (Removable Needle) Syringe Needle not included			7634-01	7635-01	7636-01	7637-01	7638-01	7639-01	7640-01

Ordering Information

	Volume	5 µL	10 µL	25 µL	50 µL	100 µL	250 µL	500 µL
	Model	75	701	702	705	710	725	750
	Gauge**	26s	26s	22s	22s	22s	22s	22
LT (Luer Tip) Needle not included			80301	80401	80501	80601	80701	80801
Digital Syringe Base unit plus syringe of your choice								



Add the prefix "DS" to the beginning of the syringe's part number.
(Digital Syringes are automatically calibrated prior to shipment. Base unit not sold separately)



Syringe Calibration Service

Add the prefix "CAL" to the beginning of the syringe's part number.

PB600 Repeating Dispenser Syringe not included				83700	83700	83700	83700	83700
Reproducibility (Chaney) Adapter Syringe not included								
		14700	14700	14700	14700	14700	14700	14700
Syringe Guide Syringe not included								
		14806	14806	14906	14906	14906	14906	14906



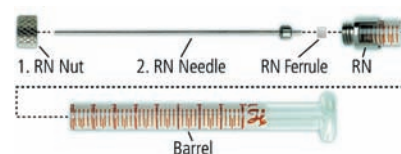
- 1) Needle gauge is 22
2) Needle gauge is 22s

Operating Parameters

- Maximum temperature for Cemented Needle is 50° C and all others 115° C.
- Maximum test pressure is 6 bar.

Replacement Parts

	Volume	5 µL	10 µL	25 µL	50 µL	100 µL	250 µL	500 µL
Description	Model	75	701	702	705	710	725	750
1. RN Nut		30902	30902	30902	30902	30902	30902	30902
2. RN Needle, see page 53								



700 Series MICROLITER™ Six Packs

- Savings! Syringes cost less in six packs
- Convenience! Packaging container lets you keep syringes close at hand

Ordering Information

	Volume	10 µL
	Model	701
	Gauge**	26s
N (Cemented Needle) point style 2		80366
RN (Removable Needle) point style 2		80336



600 Series MICROLITER™ Syringes

2.5 µL - 5 µL

- For use with liquids
- Removable needles (RN)
- Reinforced plungers
- Plungers and syringe barrels are not interchangeable or replaceable



Ordering Information

		Volume	2.5 µL	5 µL
		Model	62	65
		Gauge**	22s	22s
RN (Removable Needle)			87942	87943
point style 3		(**/51/3)		
RN (Removable Needle) Syringe			7632-01	7633-01
Needle not included				



Syringe Calibration Service

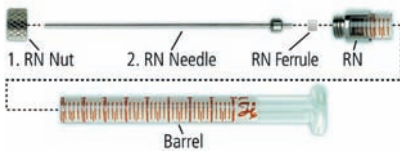
Add the prefix "CAL" to the beginning of the syringe's part number.

Operating Parameters

- Maximum temperature is 115°C.
- Maximum test pressure is 6 bar.

Replacement Parts

Description	Volume	2.5 µL	5 µL
	Model	62	65
1. RN Nut		30902	30902
2. RN Needle, see page 53			



7000 Series MODIFIED MICROLITER™ Syringes

0.5 µL - 5 µL

- For use with liquids
- Removable needles (KH)
- Positive displacement
- Sample contained in the needle
- No dead volume
- Replaceable syringe parts



Ordering Information

	Volume	0.5 µL	0.5 µL	1 µL	1 µL	2 µL	2 µL	5 µL
Model		7000.50C	7000.5	7001	7101	7002	7102	7105
O. D.**		0.23	0.50	0.47	0.70	0.50	0.63	0.56
KH (Knurled Hub) point style 2			86259	80135	86211	88411	88511	88011
KH (Knurled Hub) point style 3			86257 ¹⁾	86250	80100	86200	88400	88500
SN (Special Needle) Specify needle length, and point style			86251 ²⁾	80108 ²⁾	86208 ²⁾	88408 ²⁾	88508 ²⁾	200690 ²⁾
Digital Syringe Base unit plus syringe of your choice		Add the prefix "DS" to the beginning of the syringe's part number. (Digital Syringes are automatically calibrated prior to shipment. Base unit not sold separately)						



Syringe Calibration Service

Add the prefix "CAL" to the beginning of the syringe's part number.

Reproducibility (Chaney) Adapter Syringe not included		14700	14700	14700	14700	14700	14700	14700
Syringe Guide Syringe not included		200399	200399	200399	200399	200399	200399	200399

1) Needle length is 100 mm

2) Max. needle length is 130 mm

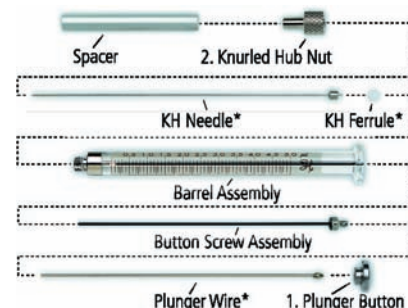
Operating Parameters

- Maximum temperature is 50° C.
- Maximum test pressure is 6 bar.

Replacement Parts

Description	Volume Model	0.5 µL	0.5 µL	1 µL	1 µL	2 µL	2 µL	5 µL
1. Plunger Button		17778	17778	17778	17778	17778	17778	17778
2. Knurled Hub Nut		17658	17789	17789	17789	17789	17789	17789
3. Repair Kit ¹⁾ Point Style 2			17887	17888	17890	17891	17892	17893
Repair Kit ¹⁾ Point Style 3		86258	17187	17188	17190	17191	17192	17193
Repair Kit ¹⁾ SN			17880	17881	17882	17883	17884	17885
4. Spacer 25 mm		86201	86201	86201	86201	86201	86201	86201
Spacer 38 mm		86202	86202	86202	86202	86202	86202	86202
Spacer 51 mm		86203	86203	86203	86203	86203	86203	86203

1) Repair kit includes KH needle, KH ferrule, and plunger wire.



*3. Repair kit includes KH needle, KH ferrule, plunger wire and instruction sheet.

800 Series MICROLITER™ Syringes

5 µL - 250 µL

- For use with liquids
- Removable needles (RN) or cemented needles (N)
- Reinforced plungers
- Barrel/plunger assemblies are replaceable
- Plunger stop prevents plunger blowout



Ordering Information

		Volume	5 µL	10 µL	25 µL	50 µL	100 µL	250 µL
		Model	85	801	802	805	810	825
		Gauge**	26s	26s	22s	22s	22s	22s
N (Cemented Needle) point style 2			84850	84852	84854	84856	84858	84860
SN (Cemented Needle) Specify needle gauge, length, point style, and whether electro-tapered			84801	84803	84865	84866	84867	84868
RN (Removable Needle) point style 2			84851	84853	84855	84857	84859	84861
RN (Removable Needle) Syringe Needle not included			7641-01	7642-01	7643-01	7644-01	7645-01	7646-01



Syringe Calibration Service

Add the prefix "CAL" to the beginning of the syringe's part number.

Reproducibility (Chaney) Adapter

Syringe not included



32146 32146 32146 32146 32146 32146

Operating Parameters

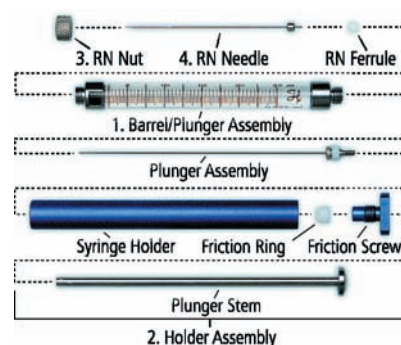
- Maximum temperature for Cemented Needle is 50°C and Removable Needle 115°C.
- Maximum test pressure is 6 bar.

Replacement Parts

Description	Volume Model	5 µL	10 µL	25 µL	50 µL	100 µL	250 µL
1. Barrel/Plunger Assembly N	85	801	802	805	810	825	
Barrel/Plunger Assembly SN ¹⁾	32150	32151	32152	32153	32154	32155	
Barrel/Plunger Assembly RN	32105	32158	32159	32160	32161	32162	
B/P Assembly RN Syringe ²⁾	32164	32165	32166	32167	32168	32169	
2. Holder Assembly	32134	32129	32117	32120	32123	32126	
3. RN Nut	32135	32135	32135	32135	32135	32135	
4. RN Needle, see page 53	30902	30902	30902	30902	30902	30902	

¹⁾ Specify needle gauge, length, point style, and whether electro-tapered

²⁾ Needle not included



900 Series MICROLITER™ Syringes

5 µL - 10 µL

- For use with liquids
- Removable needles (RN) or cemented needles (N)
- Reinforced plungers
- Plungers and syringe barrels are not interchangeable or replaceable



Ordering Information

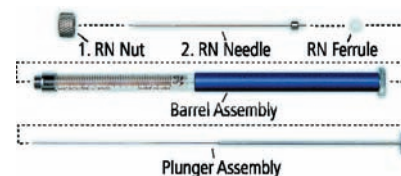
		Volume	5 µL	10 µL
		Model	95	901
		Gauge**	26s	26s
N (Cemented Needle) point style 2	 		87920	80360
RN (Removable Needle) point style 2	 		87925	80370
RN (Removable Needle) Syringe Needle not included			7647-01	7648-01
 Syringe Calibration Service		Add the prefix "CAL" to the beginning of the syringe's part number.		
Reproducibility (Chaney) Adapter Syringe not included			32148	32148

Operating Parameters

- Maximum temperature for Cemented Needle is 50° C and Removable Needle 115° C.
- Maximum test pressure is 6 bar.

Replacement Parts

Description	Volume	5 µL	10 µL
	Model	95	901
1. RN Nut		30902	30902
2. RN Needle, see page 53			



1700 Series GASTIGHT® Syringes

10 µL - 500 µL

- For use with gases and liquids
- Precision-machined PTFE-tipped plungers
- Replaceable plungers



Ordering Information

			Volume	10 µL	25 µL	50 µL	100 µL	250 µL	500 µL
			Model	1701	1702	1705	1710	1725	1750
			Gauge**	26s	22s	22s	22s	22s	22
N (Cemented Needle) point style 2				80000	80200	80900	81000	81100	81217 ¹⁾
N (Cemented Needle) point style 3				80075	80275	80975	81075	81175	81216 ¹⁾
N (Cemented Needle) point style 5				80039	80239	80939	81039	81139	81243 ¹⁾
SN (Cemented Needle) Specify needle gauge, length, point style, and whether electro-tapered				80008	80208	80908	81008	81108	81214 ¹⁾
RN (Removable Needle) point style 2				80030	80230	80930	81030	81130	81230
RN (Removable Needle) point style 3				80065 ²⁾	80265	80965	81065	81165 ²⁾	81265
RN (Removable Needle) Syringe Needle not included				7653-01	7654-01	7655-01	7656-01	7657-01	7658-01
LT (Luer Tip) Needle not included				80001	80201	80901	81001	81101	81201
SampleLock Syringe point style 2						80956	81056	81156	81256
TLL (PTFE Luer Lock) w/o slots Needle not included						80920	81020	81120	81220
TLL with slots Needle not included						80927	81027	81127	81227
TLLX, TLL with stop Needle not included					80222	80922	81022	81122	81222

Ordering Information

		Volume	10 µL	25 µL	50 µL	100 µL	250 µL	500 µL
		Model	1701	1702	1705	1710	1725	1750
		Gauge**	26s	22s	22s	22s	22s	22
TLL-XL					201790	201797	201802	201807
Needle not included								
TLLXB, TLL with stop & backbushing				80223	80947	81047	81147	81247
Needle not included								
DX, Diluter with stop				80226	80926	81026	81126	81226
Needle not included								
AD, AccuDil® with stop					201000	201050	201100	201150
Needle not included								
DAD, Diluter AccuDil® with stop					201500	201550	201600	201650
Needle not included								
CX, CHEM with stop			80062	80262	80962	81062	81162	81262
Needle not included								
C-XP					201720	201730	201740	201750
Needle not included								
Digital Syringe		Add the prefix "DS" to the beginning of the syringe's part number. (Digital Syringes are automatically calibrated prior to shipment. Base unit not sold separately)						
Base unit plus syringe of your choice								



Syringe Calibration Service

Add the prefix "CAL" to the beginning of the syringe's part number.

PB600 Repeating Dispenser		83700	83700	83700	83700	83700	83700
Syringe not included							
Reproducibility (Chaney) Adapter		14700	14725	14725	14725	14725	14725
Syringe not included							
Syringe Guide		14806	14906	14906	14906	14906	14906
Syringe not included							

1) LTN type syringe

2) Needle gauge is 22

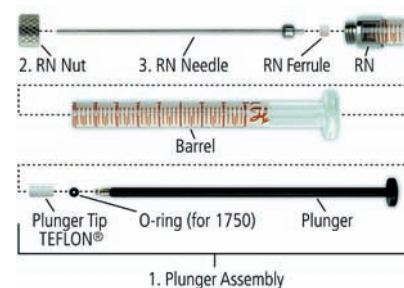
Operating Parameters

- Maximum temperature for Cemented Needle is 50° C and all others 115° C.
- Maximum test pressure is 6 bar.

Replacement Parts

	Volume	10 µL	25 µL	50 µL	100 µL	250 µL	500 µL
Description	Model	1701	1702	1705	1710	1725	1750
1. Plunger Assembly N		13205	1122-01	1162-01	1162-02	1162-03	1169-01
Plunger Assembly RN		13205	1122-01	1162-01	1162-02	1162-03	1169-01
Plunger Assembly LT/LTN		13205	1122-01	1162-01	1162-02	1162-03	13219
Plunger Assembly SampleLock				1162-01	1162-02	1320-01	1321-01
Pl. Assem. TLL w/ & w/o Slots			13269	1162-01	1162-02	1162-03	13219
Plunger Assembly TLLX/DX/CX		13200 ¹⁾	13269	1117-01	1117-02	1117-03	1120-01
Plunger Assembly TLL-XL				201793	201800	201805	201810
Plunger Assembly AD				201020	201070	201120	201170
Plunger Assembly DAD				201520	201570	201620	201670
Plunger Assembly C-XP				201725	201735	201745	201755
2. RN Nut		30902	30902	30902	30902	30902	30902
3. RN Needle, see page 53							

1) Only for CX syringes



1000 Series GASTIGHT® Syringes

1 mL - 100 mL

- For use with gases and liquids
- Precision-machined PTFE-tipped plungers
- Replaceable plungers



Ordering Information

		Volume	1 mL	1.25 mL	2.5 mL	5 mL	10 mL	25 mL	50 mL	100 mL
		Model	1001	1001.25	1002	1005	1010	1025 ¹⁾	1050 ¹⁾	1100 ¹⁾
		Gauge**	22	22	22	22	22	22	22	22
LTN (Cemented Needle) point style 2			81317	82017	81417	81517	81617			
LTN (Cemented Needle) point style 3			81316		81416	81516	81616			
LTN (Cemented Needle) point style 5			81343		81443	81543	81643			
LTSN (Cemented Needle) Specify needle gauge, length, point style, and whether electro-tapered			81314		81414	81514	81614			
RN (Removable Needle) point style 2			81330		81430	81530	81630			
RN (Removable Needle) point style 3			81365							
RN (Removable Needle) Syringe Needle not included			7649-01		7650-01	7651-01	7652-01			
LT (Luer Tip) Needle not included			81301	82001	81401	81501	81601			
SampleLock Syringe point style 2			81356		81456	81556	81656	86326	86336	86346
TLL (PTFE Luer Lock) w/o slots Needle not included			81320		81420	81520	81620	82520	85020	86020
TLL with slots Needle not included			81327		81427	81527	81627	82527	85027	
TLL w/o flange, w/o slots Needle not included								82521	85021	

Ordering Information

	Volume	1 mL	1.25 mL	2.5 mL	5 mL	10 mL	25 mL	50 mL	100 mL
Model	1001	1001.25	1002	1005	1010	1025 ¹⁾	1050 ¹⁾	1100 ¹⁾	
Gauge**	22	22	22	22	22	22	22	22	22
TLL w/o flange, with slots Needle not included							82525	85025	
TLL-XL Needle not included			201812		201817	201822	201827		
DX, Diluter with stop Needle not included			81326						
AD, AccuDil® with stop Needle not included			201200		201250	201300	201350	201400	
DAD, Diluter AccuDil® with stop Needle not included			201700						
C, CHEM Needle not included			81360		81460	81560	81660		
C-XP Needle not included			201760		201770	201780			
W Needle not included						81610			



Syringe Calibration Service

Add the prefix "CAL" to the beginning of the syringe's part number.

PB600 Repeating Dispenser

Syringe not included



83700 83700 83700

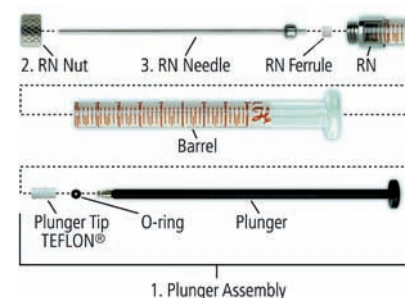
1) TLL male luer fitting is made of Kel-F® (CTFE) material instead of PTFE

Operating Parameters

- Maximum temperature for Cemented Needle is 50° C and all others 115° C.
- Maximum test pressure is 6 bar.

Replacement Parts

	Volume	1 mL	2.5 mL	5 mL	10 mL	25 mL	50 mL	100 mL
Description	Model	1001	1002	1005	1010	1025	1050	1100
1. Plunger Assembly LT/LTN/ TLL w/ & w/o Slots		1359-01	1360-01	13230	13231	13271 ¹⁾	13272	52343-01 ²⁾
Plunger Assembly RN		1359-01	1360-01	13230	13231			
Plunger Assembly SampleLock		1343-01					1615-02	1615-03
Plunger Assembly TLLX		200920						
Plunger Assembly TLL-XL		201815	201820	201825	201829			
Plunger Assembly DX		1578-01						
Plunger Assembly AD/DAD		201220	201270	201301	201370	13271		
Plunger Assembly C		1359-01	1360-01	13291	13292			
Plunger Assembly C-XP		201765	201775	201785				
2. RN Nut		30902	30902	30902	30902	30902	30902	30902
3. RN Needle, see page 53								



1) For P/N 82525 use Plunger assembly P/N 200980

2) Consists of a spindle/tip assembly

1800 Series GASTIGHT® Syringes

10 µL - 250 µL

- For use with gases and liquids
- Removable needles (RN) or cemented needles (N)
- Precision-machined PTFE-tipped plungers
- Reinforced plungers
- Plunger assemblies and glass barrels are replaceable



Ordering Information

		Volume	10 µL	25 µL	50 µL	100 µL	250 µL
		Model	1801	1802	1805	1810	1825
		Gauge**	26s	22s	22s	22s	22s
N (Cemented Needle) point style 2			84875	84878	84881	84884	84887
SN (Cemented Needle) Specify needle gauge, length, point style, and whether electro-tapered			84876	84879	84882	84885	84888
RN (Removable Needle) point style 2			84877	84880	84883	84886	84889
RN (Removable Needle) Syringe Needle not included			7659-01	7660-01	7661-01	7662-01	7663-01



Syringe Calibration Service

Add the prefix "CAL" to the beginning of the syringe's part number.

Reproducibility (Chaney) Adapter

Syringe not included



32146

32146

32146

32146

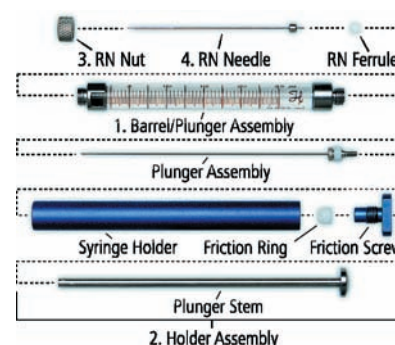
32146

Operating Parameters

- Maximum temperature for Cemented Needle is 50° C and Removable Needle 115° C.
- Maximum test pressure is 6 bar.

Replacement Parts

Description	Volume Model	10 µL	25 µL	50 µL	100 µL	250 µL
1. Plunger Assembly N		32193	1160-01	1161-01	1161-02	4871-01
Plunger Assembly RN		32193	1160-01	1161-01	1161-02	4871-01
Glass Barrel N		32175	32176	32177	32178	32179
Glass Barrel SN ¹⁾		32181	32182	32183	32184	32185
Glass Barrel RN ²⁾		32187	32188	32189	32190	32191
2. Holder Assembly		32135	32135	32135	32135	32135
3. RN Nut		30902	30902	30902	30902	30902
4. RN Needle, see page 53						

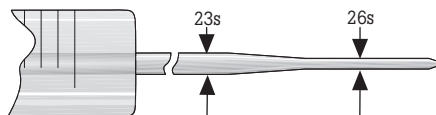


¹⁾ Specify needle gauge, length, point style, and whether electro-tapered

²⁾ Needle not included

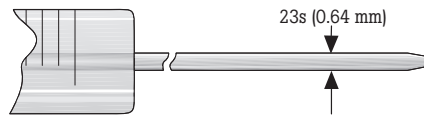
GC Autosampler Syringes

Syringes for Agilent GC Autosamplers



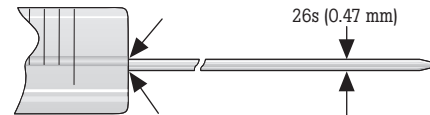
23s-26s Dual Gauge Tapered Needle

- Most popular needle
- Split/splitless or on-column injections
- Versatility without sacrificing durability



23s Gauge Needle

- Most durable needle
- Merlin Microseal™ and standard septum injections
- Packed column injections
- Split/splitless injections



26s Gauge Needle

- Fine gauge offers versatility
- On-column injections
- Split/splitless injections

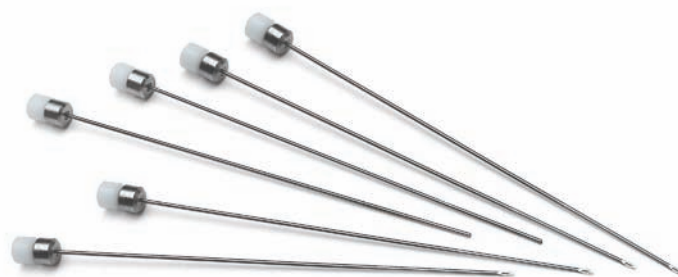
Ordering Information

Ordering Information			7683, 7673 ALS			7670, 7671, 7672 ALS				
										
			ASN			ASRN			N	RN
Model	Volume	Gauge**	23s	26s	23s-26s	23s	26s	23s-26s	26s	
MODIFIED MICROLITER™ Syringes										
7000.5	0.5 µL	(**/43/AS)				86276	86274			
7001	1 µL	(**/43/AS)				80176				
7701	1 µL	(**/43/AS)					202460			
7702	2 µL	(**/43/AS)					202980			
MICROLITER™ Syringes										
75	5 µL	(**/43/AS)	87987	87988	87993	87957	87958	87959		
75	5 µL 6/pk	(**/43/AS)	87990	87989	87994					
75	5 µL	(**/43/2)	87991	87992					87900 ¹⁾	
701	10 µL	(**/43/AS)	80387	80388	80393	80357	80358	80359		
701	10 µL 6/pk	(**/43/AS)	80390	80389	80391					
701	10 µL	(**/43/2)	80398	80399						
701	10 µL	(**/51/2)							80300	80338
701	10 µL 6/pk	(**/51/2)							80366	
GASTIGHT® Syringes										
175	5 µL	(**/43/AS)	80074		80076			80086		
175	5 µL 6/pk	(**/43/AS)	80090		80092					
1701	10 µL	(**/43/AS)	80080		80079	80087	80088	80089		
1701	10 µL 6/pk	(**/43/AS)	80094		80096					
1701	10 µL	(**/51/2)							80000	80011

1) Needle length is 51 mm

GC Autosampler Syringes

Six Pack Replacement (RN) Needles for Agilent GC Autosamplers



Ordering Information

		7683, 7673 ALS			7670, 7671, 7672 ALS
Volume	Gauge**	23s	26s	23s-26s	26s
0.5 µL	(**/43/AS)	38065 ¹⁾	38063 ¹⁾		
2 µL	(**/43/AS)		202981 ¹⁾		
5 µL & 10 µL	(**/43/AS)	7786-01	7786-02	7785-01	
10 µL	(**/51/2)				7758-02

¹⁾ Replacement needle offered as repair kit including needle, ferrule, and plunger wire (1/pk)

Syringes for Varian-Chrompack GC Autosamplers



Ordering Information

Part Number	Model	Volume	Gauge/Length/Point Style
CP-8400/8410			
CP-9010/9050			
87900	75 N	5 µL	(26s/51/2)
80300	701 N	10 µL	(26s/51/2)
80366	701 N	10 µL 6/pk	(26s/51/2)
202950	7701 N	1 µL	(.48/51/AS)
CP-9020/9025			
202660	1002 LT HS 22	2.5 mL	(22/51/5)

Syringes for Shimadzu GC Autosamplers



Ordering Information

Part Number	Model	Volume	Gauge/Length/Point Style	Removable Needles (RN), 6/pk
AOC-9				
87930	75 RN 26s	5 µL	(26s/51/2)	7758-02
80330	701 RN 26s	10 µL	(26s/51/2)	7758-02
AOC-14/17/20				
202630	75 RSN	5 µL	(22s/43/2)	202645
202640	701 RSN	10 µL	(22s/43/2)	202645

Syringes for ThermoFinnigan GC Autosamplers



Ordering Information

Part Number	Model	Volume	Gauge/Length/Point Style
HS 250/500/850			
202660	1002 LTN HS 22	2.5 mL	(22/51/5)
202670	1002 LT HS	2.5 mL	without needle
AS 800/2000			
202066	701 SN Fisons	10 µL	(26s/80/AS)
AI/AS 3000			
204000	75 SN	5 µL	(26s/50/2)
204001	701 SN	10 µL	(26s/50/2)
204051	75 SN	5 µL	(26s/50/AS)
204052	701 SN	10 µL	(26s/50/AS)
204922	1701 RN	10 µL	(26s/50/2)

Syringes for Perkin-Elmer™ AutoSystem™ and Clarus500 GC



Ordering Information

Part Number	Model	Volume	O.D./Length/Point Style
88040	75 ASN/PE	5 µL	(0.47/70/3)
88035	75 ASN/PE	5 µL	(0.63/70/3)

GC Autosampler Syringes

Syringes for CTC Combi PAL and GC PAL GC Autosamplers

Ordering Information

Part Number	Model	Volume	Gauge/Point Style	Plunger Assembly, 10/pk
203185	7701.2 CTC	1.2 µL	(0.48 mm O.D./AS)	
203189	75 N CTC (26s/AS)	5 µL	(26s/AS)	
203197 ¹⁾	75 SN CTC (*/*)	5 µL	(*/*)	
203361	701 N CTC (23s/AS)	10 µL	(23s/AS)	
203362	701 N CTC (23s-26s/AS)	10 µL	(23s-26s/AS)	
203363	701 N CTC (23s/2)	10 µL	(23s/2)	
203072	701 N CTC (26s/2)	10 µL	(26s/2)	
203205	701 N CTC (26s/AS)	10 µL	(26s/AS)	
203198 ¹⁾	701 SN CTC (*/*)	10 µL	(*/*)	
203206 ¹⁾	1701 SN CTC (*/*)	10 µL	(*/*)	
203043	1702 CTC (26s/AS)	25 µL	(26s/AS)	203245
203074	1702 CTC (26s/AS) Slim Line	25 µL	(26s/AS)	203245
203275	1702 CTC (*/*) Slim Line	25 µL	(*/*)	203245
203209 ¹⁾	1702 SN CTC (*/*)	25 µL	(*/*)	203245
203076	1710 CTC (26s/AS)	100 µL	(26s/AS)	203246
203226 ¹⁾	1710 SN CTC (*/*)	100 µL	(*/*)	203246
203078	1725 CTC (26/AS)	250 µL	(26s/AS)	203249
203219 ¹⁾	1725 SN CTC (*/*)	250 µL	(*/*)	203249
203080	1750 CTC (26/AS)	500 µL	(26s/AS)	203254
203225 ¹⁾	1750 CTC (*/*)	500 µL	(*/*)	203254

Syringes HEADSPACE Version

				Plunger Assembly, 1/pk
203082	1001 CTC (23/5)	1 mL	(23/5)	203255
203141	1001 CTC (26/5)	1 mL	(26/5)	203255
203084	1002 CTC (23/5)	2.5 mL	(23/5)	203256
203181	1002 CTC (26/5)	2.5 mL	(26/5)	203256
203086	1005 CTC (23/5)	5 mL	(23/5)	203259
203182	1005 CTC (26/5)	5 mL	(26/5)	203259

¹⁾ Specify needle gauge, point style, and whether electro-tapered

Syringes for On-Column Grob GC Injection

Ordering Information

Part Number	Model	Volume	O.D./Length/Point Style
200740	701 N Grob	10 µL	(0.23/85/45°)
200741	75 N Grob	5 µL	(0.23/85/45°)
200742	701 N Grob	10 µL	(0.23/75/45°)
200743	75 N Grob	5 µL	(0.23/75/45°)

High Temperature Septa

These new long life GC autosampler septa are designed to provide the longest life and lowest bleed possible when combined with Hamilton GC autosampler syringes.



Long Life GC Autosampler Septa

Long Life septa are designed for use with GC autosamplers. The 5, 9, 11 and 11.5 mm diameter Long Life septa are available with our unique prepierced center depression which guides the syringe needle to the same injection point, extending septa life and reducing needle bending. The 9.5, 12.7 and 17 mm diameter Long Life septa are supplied without the unique center depression but still provide outstanding longevity at inlet temperatures up to 400° C. Injection life of 400+ injections can be achieved with proper care and the use of Hamilton dual gauge needle GC autosampler syringes.



Low Bleed High Temperature Septa

Low Bleed High Temperature septa are designed for the lowest bleed possible at temperatures up to 400° C. They can be used in combination with Mass Spectrometers or in applications where septa bleed interferes with trace analysis. The 5, 9, 11 and 11.5 mm diameter septa are available with the center depression which guides the syringe needle to the same injection point, extending septa life and reducing needle bending. These septa are typically used for manual injection applications. All of the Low Bleed High Temperature Septa can be used at temperatures up to 400° C. While these septa will not last for as many injections as our Long Life septa, they do last longer than septa from other suppliers and have virtually no bleed.

Ordering Information

Part #	Description
75829	5 mm diameter septa for HP on-column injector port prepunctured center depression 25/pk
75831	9 mm diameter septa, prepunctured center depression 25/pk
75825	9.5 mm diameter septa 25/pk
75826	11 mm diameter septa, prepunctured center depression 25/pk
75832	11.5 mm diameter septa, prepunctured center depression 25/pk
75827	12.7 mm diameter septa 25/pk
75830	17 mm diameter septa 25/pk
75828	Plug style septa for Shimadzu instruments 25/pk

Ordering Information

Part #	Description
75840	5 mm diameter septa for HP on-column injector port prepunctured center depression 50/pk
75834	9 mm diameter septa, center depression 50/pk
75833	9.5 mm diameter septa 50/pk
75838	10 mm diameter septa 50/pk
75835	11 mm diameter septa, center depression 50/pk
75839	11.5 mm diameter septa, center depression 50/pk
75836	12.7 mm diameter septa 50/pk
75841	17 mm diameter septa 50/pk
75837	Plug style septa for Shimadzu instruments 50/pk

HPLC Autosampler Syringes

Syringes for Agilent 1090A LC Autosampler



Ordering Information

Part Number	Model	Volume
202315	1702 RN w/o Needle	25 µL
202325	1725 RN w/o Needle	250 µL

Syringes for Shimadzu SIL-6A LC Autosampler



Ordering Information

Part Number	Model	Volume
7656-01	1710 RN w/o Needle	100 µL

Syringes for Perkin-Elmer™ LC Autosamplers



Ordering Information

Part Number	Model	Volume
Series 200 Autosampler		
80962	1705 CX	50 µL
81162	1725 CX	250 µL
81262	1750 CX	500 µL
81360	1001 C	1 mL
81460	1002 C	2.5 mL

Syringes for Varian 9100 LC Autosampler

Ordering Information

Part Number	Model	Volume
0159902	1710C Special	100 µL

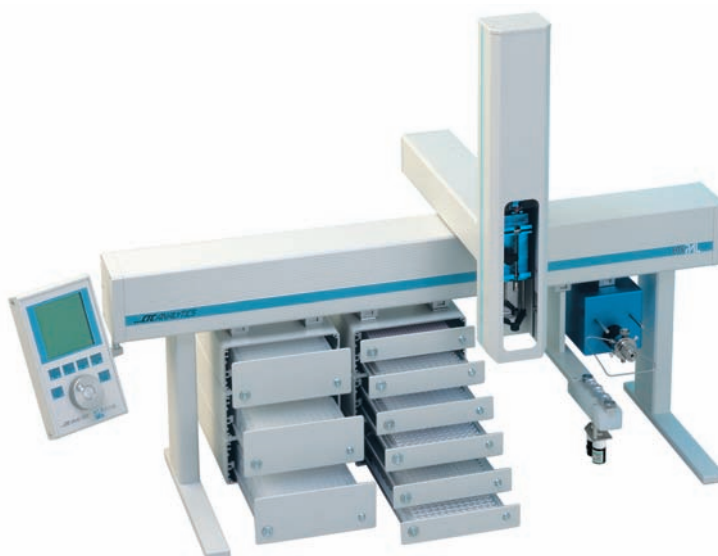
Syringes for WATERS® WISP™ LC Autosampler



Ordering Information

Part Number	Model	Volume	Use
80020	1702 WISP	25 µL	WISP Autosampler
80024	1725 WISP	250 µL	WISP Autosampler
81610	1010 W	10 mL	Manual Priming Syringe for WATERS® Pumps

Syringes for CTC LC Autosamplers



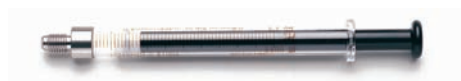
Ordering Information

Part Number	Model	Volume	Gauge/Point Style	Plunger Assembly, 10/pk
LC/HTC/HTS PAL				
203073	701 N CTC (22s/3)	10 µL	(22s/3)	
203194	1701 N CTC (22s/3)	10 µL	(22s/3)	203239
203075	1702 N CTC (22s/3)	25 µL	(22s/3)	203245
203274	1702 N CTC (22s/51/3) Slim Line	25 µL	(22s/3)	203245
203077	1710 N CTC (22s/3)	100 µL	(22s/3)	203246
203235	1710 N CTC (22/3)	100 µL	(22/3)	203246
203079	1725 N CTC (22/3)	250 µL	(22/3)	203249
203349	1750 N CTC (22/3)	500 µL	(22/3)	203254
203081	1001 CTC (22/3)	1 mL	(22/3)	203255 ¹⁾
203083	1002 CTC (22/3)	2.5 mL	(22/3)	203256 ¹⁾
203085	1005 CTC (22/3)	5 mL	(22/3)	203259 ¹⁾
A200S				
203560	1701 CTC (22s/3) A200S	10 µL	(22s/3)	203562
203563	1702 CTC (22s/3) A200S	25 µL	(22s/3)	203565
203566	1710 CTC (22s/3) A200S	100 µL	(22s/3)	203569

1) Plunger assembly 1/pk

HPLC Autosampler Syringes

Syringes for Spectra-Physics/ ThermoFinnigan LC Autosamplers



Ordering Information

Part Number	Model	Volume
SP8780/8875/8880		
202192	1750 C	500 µL
81460	1002 C	2.5 mL
AS100/300 AS1000/3000/3500		
202456	1725 CX	250 µL
202457	1750 CX	500 µL
81360	1001 C	1 mL
81460	1002 C	2.5 mL

Syringes for Kontron 360, 460, and 465 LC Autosamplers



Ordering Information

Part Number	Model	Volume
201050	1710 AD	100 µL

Syringes for Gynkotek Gina/ Dionex ASI-100 LC Autosampler



Ordering Information

Part Number	Model	Volume
7654-01	1702 RN w/o Needle	25 µL
7657-01	1725 RN w/o Needle	250 µL

Syringes for Hitachi L-7200/7250, AS1000/2000/42000, and LaChrom LC Autosamplers



Ordering Information

Part Number	Model	Volume
0160310	1750 Special	500 µL

HPLC Manual Injection Syringes

Syringes for Rheodyne, Valco™, Beckman®/Altex and SSI Injection Valves

Ordering Information

Rheodyne,
Valco VISF-2,
Beckman/Altex,
and SSI

MICROLITER™ Syringes



600 RNR



700 NR



1700 N



1700 RNR



RN 6/pk

Volume	Gauge/ Length	PSt 3	PSt 3	PSt 3	PSt 3	PSt 3
2.5 µL	(22s/51)	87942				7770-01
5 µL	(22s/51)	87943				7770-01
10 µL	(22s/51)		80365		80065	7770-01
25 µL	(22s/51)		80465	80275	80265	7770-01
50 µL	(22s/51)		80565	80975	80965	7770-01
100 µL	(22s/51)		80665	81075	81065	7770-01
250 µL	(22/51)		80765	81175	81165	7780-04
500 µL	(22/51)		80865	81216	81265	7780-04
1 mL	(22/51)				81365	7780-04

Valco VISF-1

GASTIGHT® Repl. Syringes Needles



1700 RNCP



RN 6/pk

Volume	Gauge/ Length	PSt 3	PSt 3
25 µL	(22s/19)	80231	7787-01
50 µL	(22s/19)	80931	7787-01
100 µL	(22s/19)	81031	7787-01
250 µL	(22s/19)	81131	
500 µL	(22/19)	81231	7787-02
1 mL	(22/19)	81331	7787-02
2.5 mL	(22/19)	81431	7787-02
5 mL	(22/19)	81531	7787-02
10 mL	(22/19)	81631	7787-02

Syringes for the WATERS® U6K Injection Valve

Ordering Information

MICROLITER™ Syringes



800 RNW

GASTIGHT® Syringes



1700 RNW



1800 RNW

Replacement Needles



RNW 6/pk

Volume	Gauge/ Length	PSt 3	PSt 3	PSt 3	PSt 3
10 µL	(25s/50)	84815	80038	84977	8647-01
25 µL	(25s/50)	84816	80238	84980	8647-01
50 µL	(25s/50)	84817	80938	84983	8647-01
100 µL	(25s/50)	84818	81038	84986	8647-01
250 µL	(25s/50)	84819	81138	84989	8648-01

Special Syringes

Super Syringes

0.5 L - 2 L

- For use with gases and liquids
- For air sampling, preparing gas standards, calibrating reservoirs, and pneumographs
- PTFE luer lock (TLL) or tracheal adapter (accepts 16 mm I.D. flexible tubing)
- Clear acrylic syringe barrels



Ordering Information

	Volume	0.5 L	1 L	1.5 L	2 L
	Model	S0500	S1000	S1500	S2000
TLL (PTFE luer lock)		86311	86312	86313	86314
Trachel Adapter		86301	86302		

Operating Parameters

- Maximum temperature is 80° C.
- Maximum test pressure is 2 bar.

Optional Accessories

- Septum Adapter, see page 51
- MTB Sampling Valve, see page 51

Replacement Parts

Description	Volume	0.5 L	1 L	1.5 L	2 L
1. Tracheal connector	Model	S0500	S1000	S1500	S2000
		18003	18003	18003	18003
TLL connector		18026	18026	18026	18026
2. Super Syringe Barrel		18050	18051	18052	18066
3. Needles, see page 54					

Constant Rate Syringes

20 µL - 200 µL

- For use with gases and liquids
- Incremental volumes are selected with micrometer precision
- Spring-driven plunger injects samples at a constant rate
- Field repairable with replacement parts



Ordering Information

	Volume	1 - 20 µL	2 - 50 µL	10 - 200 µL
	Model	CR 700-20	CR 700-50	CR 700-200
	µL per Graduation	0.05 µL	0.1 µL	0.5 µL
	Gauge**	22s	22	22
CR (Constant Rate) point style 3		84301	84303	84302

Operating Parameters

- Maximum temperature is 115° C.
- Maximum test pressure is 6 bar.

Replacement Parts

	Volume	1 - 20 µL	2 - 50 µL	10 - 200 µL
Description	Model	CR700-20	CR700-50	CR700-200
1. Plunger Assembly		15909	15944	15910
2. Glass Barrel		15927	15945	15928
3. Needle		15934	15936	15936
4. Spacer		86201	86201	86201

Special Syringes

Carbon Analyzer Syringes

50 μ L - 250 μ L

- Metal luer tapered hub cemented over a MICROLITER™ 700 Series N syringe
- Plunger are not interchangeable or replaceable



Ordering Information

Part Number	Model	Volume	Gauge/Length/Point Style
80550	705 CA	50 μ L	(24/51/3)
80551	705 CA	50 μ L	(26/64/3)
80660	710 CA	100 μ L	(24/51/3)
80770	725 CA	250 μ L	(24/51/3)

Operating Parameters

- Maximum temperature is 50° C.
- Maximum test pressure is 6 bar.

Purge and Trap Syringes

5 mL - 10 mL

- For the analysis of drinking water samples according to EPA purge and trap concentration techniques (see EPA method 502.1, 502.2, 503.1, 524.1, and 524.2)
- SampleLock Purge & Trap GASTIGHT® syringe with an easy-to-use twist valve



Ordering Information

Part Number	Model	Description
81570	1005 SLPT	5 mL Purge & Trap Syringe
82570	1025 SLPT	25 mL Purge & Trap Syringe
80300	701 N	10 μ L Syringe (26s/51/3) for adding an internal calibration standard or surrogate sample to the Purge & Trap syringe
86789	HVDP 2-5	Purge & Trap Valve with female luer fitting for use with Tekmar™ and O-I purge and trap concentrators

Operating Parameters

- Maximum temperature is 50° C.
- Maximum test pressure is 6 bar.



Easily remove the syringe plunger and load water sample into the syringe barrel



Add an internal standard or surrogate sample directly to your sample through the twist valve with a 10 µL syringe.



Connect the sample syringe directly to the purge and trap valve via the integral male luer fitting.

PTFE-coated Needle (TLC) Syringes

10 µL - 500 µL

- PTFE-coated needle tip (19 mm) for reproducible sample spotting
- Cemented Needle (NTLC) or removable needle (RNTLC)
- Replaceable syringe barrels, plungers, and needles



Ordering Information

		Volume	10 µL	25 µL	50 µL	100 µL	250 µL	500 µL
		Model	1701	1702	1705	1710	1725	1750
		Gauge**	26s	22s	22	22	22	22
NTLC (Cemented Needle) point style 3, PTFE needle			80050	80250	80950	81050	81150	81250 ¹⁾
		(**/51/31)						
RNTLC (Removable Needle) point style 3, PTFE needle			80055	80255	80955	81055	81155	81255
		(**/51/31)						
PB600 Repeating Dispenser Syringe not included			83700	83700	83700	83700	83700	83700
Reproducibility (Chaney) Adapter Syringe not included			14700	14725	14725	14725	14725	14725
Syringe Guide Syringe not included			14806	14906	14906	14906	14906	14906

1) LTN type syringe

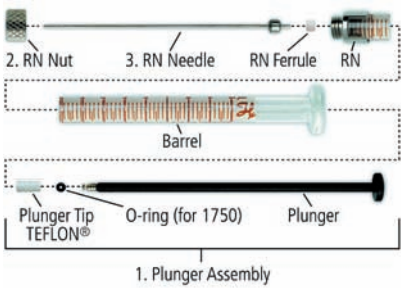
Special Syringes

Operating Parameters

- Maximum temperature for Cemented Needle is 50° C and Removable Needle 115° C
- Maximum test pressure is 6 bar.

Replacement Parts

	Volume	10 µL	25 µL	50 µL	100 µL	250 µL	500 µL
Description	Model	1701	1702	1705	1710	1725	1750
1. Plunger Assembly N		13205	1122-01	1162-01	1162-02	13209	13219
Plunger Assembly RN		13205	1122-01	1162-01	1162-02	1162-03	1169-01
2. RN Nut		30902	30902	30902	30902	30902	30902
3. RN Needle			30980	30981	30981	30983	30983



PB600-1 and Repeating Dispensers

25 µL - 2,5 mL

- Consistently dispense sample up to 50 times with the push of a button
- Works with MICROLITER™ and GASTIGHT® syringes from 25 µL to 2,5 mL
- Optional disposable tips eliminate sample cross-contamination



Ordering Information

Repeating Dispensers

Description	PB 600-1
Part Number ¹⁾	83700
Total Syringe Volume	25 µL - 2.5 mL
µL per Dispense	0.5 µL - 50 µL

1) Syringe not included

MICROLITER™ Syringes for PB 600-1

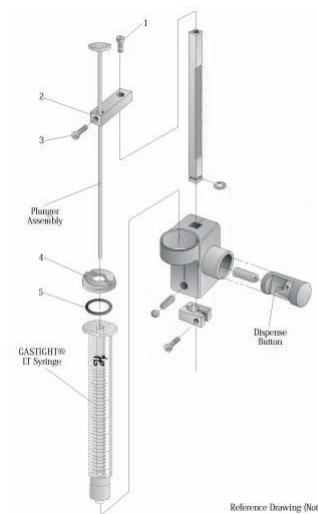
	Model	702	705	710	725	750
	Volume	25 µL	50 µL	100 µL	250 µL	500 µL
Description	µL per Dispense	0.5 µL	1 µL	2 µL	5 µL	10 µL
N (Cemented Needle), point style 3		80465	80565	80665	80765	80865
RN (Removable Needle), point style 2		80430	80530	80630	80730	80830
LT (Luer Tip)		80401	80501	80601	80701	80801

GASTIGHT® Syringes for PB 600-1

	Model	1702	1705	1710	1725	1750	1001	1001.25	1002
	Volume	25 µL	50 µL	100 µL	250 µL	500 µL	1 mL	1.25 mL	2.5 mL
Description	µL per Dispense	0.5 µL	1 µL	2 µL	5 µL	10 µL	20 µL	25 µL	50 µL
N (Cemented Needle), point style 3		80275	80975	81075	81175	81216			
RN (Removable Needle), point style 2		80230	80930	81030	81130	81230	81330		81430
LT (Luer Tip)		80201	80901	81001	81101	81201	81301	82001	81401
LTN (Luer Tip Needle), point style 2								82017	
LTN (Luer Tip Needle), point style 3							81316		81416
TLL (PTFE Luer Lock)							81320		81420

Replacement Parts

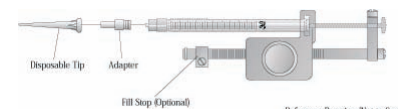
	Dispense Volume Range	0.2 to 50 µL
Description	Model	PB 600-1
1. Screw, 6-32 x 3/8		16204
2. Plunger Arm for 700/1700 Series Syringes		15144
Plunger Arm for 1001, 1001.25, and 1002 Syringes		15142
Plunger Arm for 1005 and 1010 Syringes		
3. Screw 6/32" x 5/16"		16203
4. Flange Screw PB 600-1		14704
Flange Screw for 1005 Syringe		
Flange Screw for 1010 Syringe		
5. O-ring, 0.364" x 0.070"		16102
O-ring, 0.489" x 0.070"		
O-ring, 0.676" x 0.070"		



Reference Drawing (Not to Scale)

Optional Accessories

Description	Volume	100 µL	1 mL
1. Disposable Tip		75700	75701
2. Luer Tip Adapter		31330	31331
3. Fill Stop		15125	15125



Reference Drawing (Not to Scale)

Special Syringes

SaltLine Syringes

250 µL - 10 mL

- For use with gases and liquids
- PE-tipped plungers for better durability when working with salty solutions up to 30 g/L
- Replaceable plungers



Ordering Information

			Volume	100 µL	250 µL	500 µL	1 mL	2.5 mL	5 mL	10 mL
			Model	1710	1725	1750	1001	1002	1005	1010
TLL-SAL			205620	203220	203230	203240	203250	203260	203270	
Needle not included										
TLL-XL-SAL				203500	203505	203510	203515	203520	203525	
Needle not included										
D-SAL				203450	203460	203470			203480	
Needle not included										
AD-SAL			205615	203310	203320	203330	203340	203350	203360	
Needle not included										
DAD-SAL				203400	203410	203420				
Needle not included										
C-XP-SAL				203530	203535	203540	203545	203550		
Needle not included										



Syringe Calibration Service

Add the prefix "CAL" to the beginning of the syringe's part number.

PB600 Repeating Dispenser

Syringe not included



83700 83700 83700 83700

Operating Parameters

- Maximum temperature is 50° C.
- Maximum test pressure is 6 bar.

Replacement Parts

	Volume	100 µL	250 µL	500 µL	1 mL	2.5 mL	5 mL	10 mL
Description	Model	1710	1725	1750	1001	1002	1005	1010
Plunger Assembly TLL-SAL		205619	203222	203232	203242	203252	203262	203272
Plunger Assembly TLL-XL-SAL			203571	203572	203573	203574	203575	203576
Plunger Assembly D-SAL			203222	203232	203472		203262	
Plunger Assembly AD-SAL	205616	203312	203322	203332	203342	203262	203272	
Plunger Assembly DAD-SAL			203402	203412	203332			
Plunger Assembly C-XP-SAL			203577	203578	203579	203580	203581	

Short Stroke Syringes

12.5 µL - 12.5 mL

- For use with "half-height" (4.5") precision syringe pump, PSD3
- Precision-machined PTFE-tipped plungers
- Available with TLL, and TLLX connectors



Ordering Information

		Volume	12.5 µL	25 µL	50 µL	125 µL	250 µL	500 µL	1.25 mL	2.5 mL	5 mL	12.5 mL
		Model	1702.5	1705.5	1710.5	1725.5	1750.5	1001.5	1002.5	1005.5	1010.5	1025.5
TLLX, TLL with stop			5495-10	5495-15	5495-20	5495-25	5495-30	5495-35				
TLL, PTFE Luer Lock									5495-40	5495-45	5495-50	5495-55

Operating Parameters

- Maximum temperature is 115° C.
- Maximum test pressure is 6 bar.

Life Science Syringes

Threaded Plunger Syringes

25 µL

- For applications requiring extremely precise plunger movement or minute fluid manipulation
- Dispense from 0.33 to 13.23 µL per plunger revolution
- Luer Tip (LT) syringe terminations for easy connection of Kel-F® hub stainless steel needles; Kel-F® hub PTFE tubing; and 6.4 mm O.D. x 3.2 mm I.D. Tygon® or rubber tubing



Operating Parameters

- Maximum temperature is 50° C.
- Maximum test pressure is 6 bar.

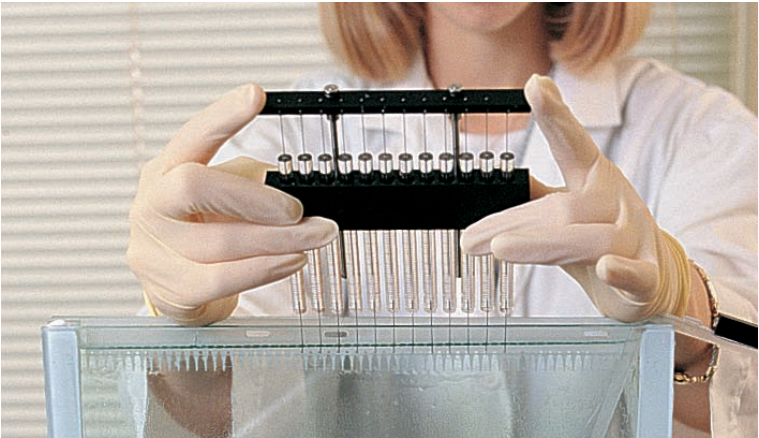
Ordering Information

Part Number	Model	Volume	Description	Volume per Rotation
80266	1702 TPLT	25 µL	Sleeve type	0.33 µL
81041	1710 TPLT	100 µL	Sleeve type	1.32 µL
81242	1750 TPLT	500 µL	Plunger type	5.29 µL
81341	1001 TPLT	1.0 mL	Plunger type	13.23 µL

Multi-Channel Gel Loading Syringes

10 µL

- Designed for multiplex DNA sequencing methodologies
- Rapidly transfer 4, 6, 8, or 12 samples to sequencing gels, MICROTITER® plates, or nylon membranes
- Accurately dispense from 0.2 to 10 µL of sample per syringe simultaneously
- 9 mm needle spacing and three needle diameters optimize sample transfers
- Adjustable volume stops allow faster, more accurate reloading and excellent reproducibility



Ordering Information

For best results, select the needle design which most closely matches your gel thickness

	Volume	10 µL	10 µL	10 µL
	Gauge	Special Sleeved	26.5s	27
	Use	For loading samples into or on 0.2 mm or thicker gel casting plates	For loading samples on 0.3 mm or thicker gel casting plates	For loading samples on 0.4 mm or thicker gel casting plates
8-Channel Gel Loading Syringe point style 3	(**/25/3)	84511	84503	84502
Single Channel DNA Syringe point style 3	(**/25/3)	80081	84505	84504

Replacement Parts

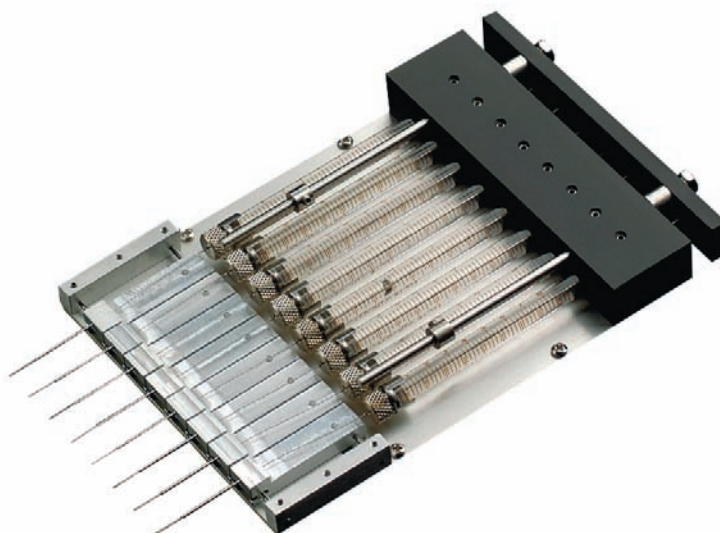
Description	Volume Gauge	10 µL Special	10 µL 26.5s	10 µL 27
1. Syringe(1/pk)		80023	80022	80021
2. Plunger Assembly(1/pk)		15948	15948	15948
3. Glass Barrel(1/pk)		10398	10396	10395
4. Stop Collar Kit ¹⁾		1993-01	1993-01	1993-01

1) Stop Collar Kit includes Stop Collars (2 each), Set Screws (2 each), and hex wrench (1 each)

Adjustable Gel Loading Syringes (AGLS)

10 µL

- Simplify and speed sample loading of 96-lane gels on ABI PRISM® 377 DNA sequencing instrument
- Rapidly transfer 8 samples at a time from a microwell plate with 9 mm spacing to 96-lane gel with 10.8 mm spacing
- Removable needles for complete interchangeability of needle designs, and clogged or damaged needles
- Accurately dispense from 0.2 to 10 µL



Operating Parameters

- Maximum temperature is 50° C.
- Maximum test pressure is 6 bar.

Ordering Information

For best results, select the needle design which most closely matches your gel thickness

	Volume	10 µL
	Gauge	Special Sleeved
	Use	For loading samples into or on 0.2 mm or thicker gel casting plates
8-Channel Gel Loading Syringe	(**/25/3)	84611

Replacement Parts

Description	Volume Gauge	10 µL Special
1. AGLS Needle (4/pk)		78633
2. Plunger Assembly (1/pk)		15948
3. Glass Barrel RN (1/pk) ¹⁾		10399
4. Stop Collar Kit ²⁾		1993-01

1) Needle not included

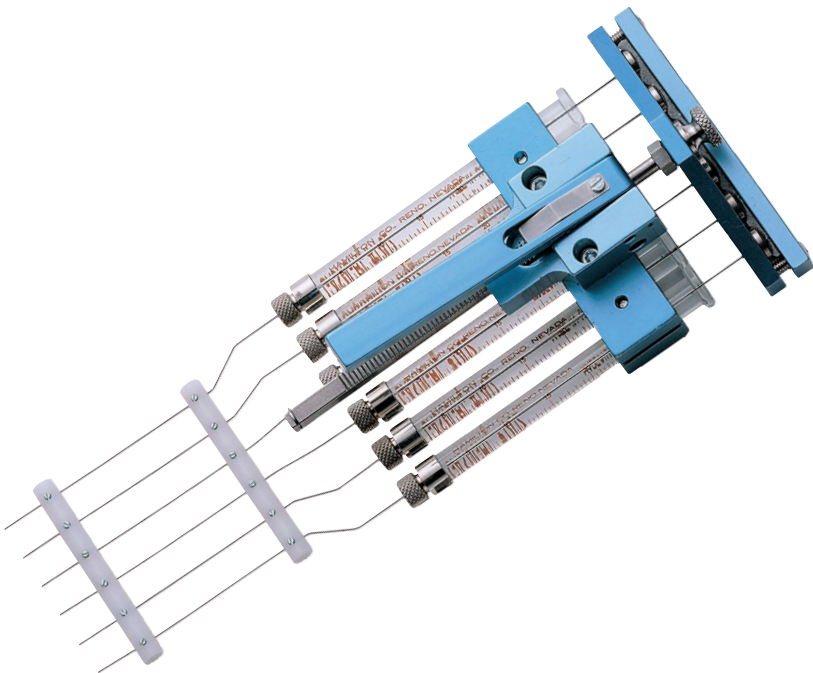
2) Stop Collar Kit includes Stop Collars (2 each), Set Screws (2 each), and hex wrench (1 each)

Life Science Syringes

HLA (Terasaki) Dispenser

25 µL - 500 µL

- Accurately dispense six samples simultaneously up to 50 times with the press of a lever
- Designed for rapid filling of 60 well HLA trays with 6.35 mm well spacing
- Removable needles (RN)
- Plunger assemblies and glass barrels are replaceable



Ordering Information

	Syringe Model	1702	1705	1710	1725	1750
	Volume	25 µL	50 µL	100 µL	250 µL	500 µL
Description	µL per Dispense	0.5 µL	1 µL	2 µL	5 µL	10 µL
HLA Dispenser Part Number		201900	201910	201920	201930	201940

Replacement Parts

Description	Model	1702	1705	1710	1725	1750
	Volume	25 µL	50 µL	100 µL	250 µL	500 µL
1. Plunger Assembly(1/pk)		1122-01	1162-01	1162-02	1162-03	1169-01
2. Glass Barrel(1/pk)		10372	10367	10368	10369	10370
3. Needles ¹⁾						

1) Needles can be replaced by Hamilton only. Please consult your local Hamilton dealer.

Syringe Cleaning Tips

- The life of your MICROLITER™, MODIFIED MICROLITER™ or GASTIGHT® syringe is directly related to its cleanliness!
- To clean syringes, it is best to use solvents know to be effective in solvating the sample and preferably are non-alkaline, non-phosphate and non-detergent based. A biodegradable, non-phosphate, organic Cleaning Concentrate is available form Hamilton; order part # 18311.
- High quality water and acetone prove to be good rinses.
- To clean the plunger, remove it from the syringe barrel and gently wipe with a lint-free tissue. Reinsert the plunger into the barrel and pump deionised water or acetone through the needle and syringe. Air dry the syringe for storage.

Note: When reinserting a PTFE-tipped plunger into a syringe barrel, wet (lubricate) the tip with deionised water or another solvent compatible with the sample.

Sterilizing Syringes

Sterilize your Hamilton syringe using an appropriate chemical sterilizer. Rinse the syringe thoroughly after sterilization. In general, Hamilton does not recommend autoclaving syringes. Stainless steel expands faster than glass upon heating. Heating a syringe with a cemented, stainless steel needle may cause the glass barrel to split. Heating a syringe with cemented stainless steel hubs may result in adhesive deterioration and leakage. It is the responsibility of the user to determine the suitability of application and material compatibility of the products based on published specifications.

Syringe Graduations

Syringe Graduations

100 line screens

7000 Series MODIFIED MICROLITER™ Syringes

	0.5 µL	1 µL	2 µL	5 µL
	7000.5	7001, 7101	7002, 7102	7105
Scale length, mm	60	60	60	60
Total scale divisions	100	100	100	100
Major graduations, µL	0.05	0.1	0.2	0.5
Minor graduations, µL	0.01	0.02	0.04	0.1
Sub-minor graduations, µL	0.005	0.01	0.02	0.05

600, 700, 800 & 900 Series MICROLITER™ Syringes

	2.5 µL	5 µL	5 µL	10 µL	25 µL	50 µL	100 µL	250 µL	500 µL
	62	65	75, 85, 95	701, 801, 901	702, 802	705, 805	710, 810	725, 825	750
Scale length, mm	27	27	54	54	60	60	60	60	60
Total scale divisions	50	50	100	100	100	100	100	100	100
Major graduations, µL	0.5	1	0.5	1	2.5	5	10	25	50
Minor graduations, µL	0.1	0.2	0.1	0.2	0.5	1	2	5	10
Sub-minor graduations, µL	0.05	0.1	0.05	0.1	0.25	0.5	1	2.5	5

1700 & 1800 Series GASTIGHT® Syringes

	10 µL	25 µL	50 µL	100 µL	250 µL	500 µL
	1701, 1801	1702, 1802	1705, 1805	1710, 1810	1725, 1825	1750
Scale length, mm	60	60	60	60	60	60
Total scale divisions	100	100	100	100	100	100
Major graduations, µL	1	2.5	5	10	25	50
Minor graduations, µL	0.2	0.5	1	2	5	10
Sub-minor graduations, µL	0.1	0.25	0.5	1	2.5	5

1000 Series GASTIGHT® Syringes

	1 mL	1.25 mL	2.5 mL	5 mL	10 mL	25 mL	50 mL	100 mL
	1001	1001.25	1002	1005	1010	1025	1050	1100
Scale length, mm	60	60	60	60	60	60	60	120
Total scale divisions	100	100	100	100	100	100	100	200
Major graduations, µL	0.1	0.125	0.25	0.5	1	2.5	5	5
Minor graduations, µL	0.02	0.025	0.05	0.1	0.2	0.5	1	1
Sub-minor graduations, µL	0.01	0.0125	0.025	0.05	0.1	0.25	0.5	0.5

Super Syringes

	500 mL	1000 mL	1500 mL	2000 mL
	S0500	S1000	S1500	S2000
Scale length, mm	65	66	99	131
Total scale divisions	25	50	75	100
Major graduations, µL	100	100	100	100
Minor graduations, µL	20	20	20	20

Syringe Rack

Safe Keeping for your HAMILTON Syringe

- Keep your workplace tidy
- Clean and safe storage
- Storage for 5 syringes of the series 700, 1700 or 7000
- Usable as free standing or wall model



- Safe storage of the syringes in a plastic holder.
- By means of a lip by the plastic holder the syringe is protected against accidental touching and falling down.
- The distance of the plastic holder prevents the syringes from getting in contact with the metal plate.



- A trough underneath prevents soiling of your workplace with liquids.
- Easy cleaning of the complete holder.



Ordering Information

Part Number	Description
204880	Syringe Rack

Syringe Accessories

MTB Sampling Valve

- Lever-actuated on/off valve for storing and transporting samples in any GASTIGHT® TLL syringe
- Kel-F® hub needles attach to the valve
- Pressure tested to 6 bar; autoclavable
- Bore I.D., 1 mm



Ordering Information

Part Number	Description
86580	MTB Sampling Valve

Septum Adapter

- Store and sample syringe contents through the Septum Adapter
- Attaches to any TLL syringe or luer lock fitting
- Replaceable septum

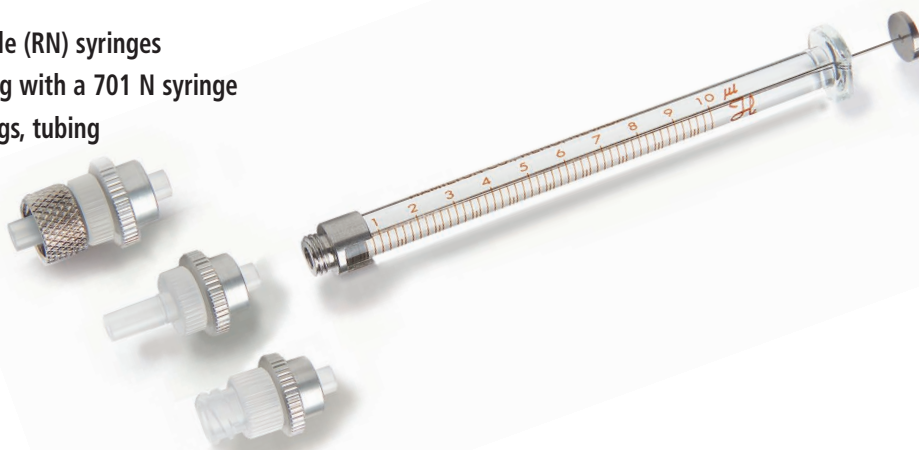


Ordering Information

Part Number	Description
31335	Septum Adapter (TLL), includes 12 septa
75810	Replacement Septa, 7 mm dia., 12/pk

Removable (RN) Adapters

- For 250 µL and larger removable needle (RN) syringes
- Port I.D. of 1 mm allows sample spiking with a 701 N syringe
- Provides connection to threaded fittings, tubing assemblies, tees and crosses



Ordering Information

Part Number	Description
35081	Female Luer/Removable Needle Hub (L)
35080	Male Luer/Removable Needle Hub (L)
35083	Male Luer Lock/Removable Needle Hub (L)

Syringe Accessories

Needle Cleaning Kit

- Contains a selection of various diameter tungsten wires for cleaning plugged needles
- Biodegradable cleaning concentrate helps to remove tenacious residues

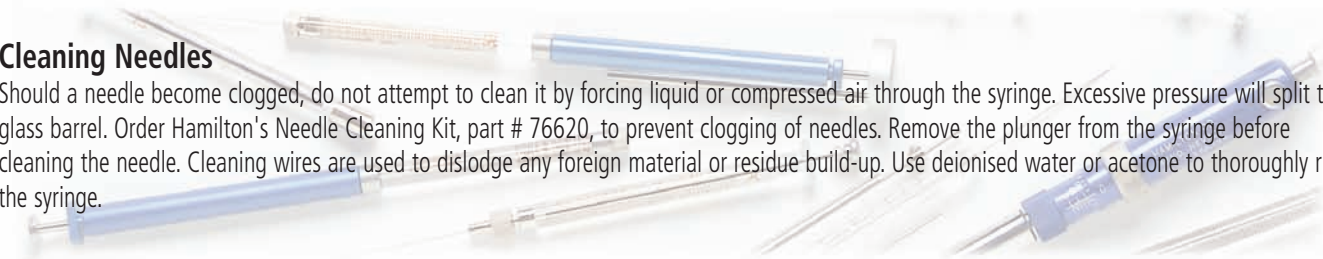


Ordering Information

Part Number	Description		
76620	Needle Cleaning Kit (includes cleaning wires and 70 mL of cleaning concentrate listed below)		
	Cleaning Wire Part #	Cleaning Wires (178 mm in length)	Use to Clean Needle Gauges
	18306	0.076 mm O.D., 10/pk	23s, 26s, 31-33
	18300	0.089 mm O.D., 10/pk	26s, 31-33
	18301	0.126 mm O.D., 10/pk	22s, 25s, 28-30
	18302	0.167 mm O.D., 10/pk	27
	18303	0.207 mm O.D., 10/pk	24-26
	18304	0.306 mm O.D., 10/pk	22, 23 (and larger)
18311	Cleaning Concentrate, 500 mL (not included in cleaning kit)		

Cleaning Needles

Should a needle become clogged, do not attempt to clean it by forcing liquid or compressed air through the syringe. Excessive pressure will split the glass barrel. Order Hamilton's Needle Cleaning Kit, part # 76620, to prevent clogging of needles. Remove the plunger from the syringe before cleaning the needle. Cleaning wires are used to dislodge any foreign material or residue build-up. Use deionised water or acetone to thoroughly rinse the syringe.

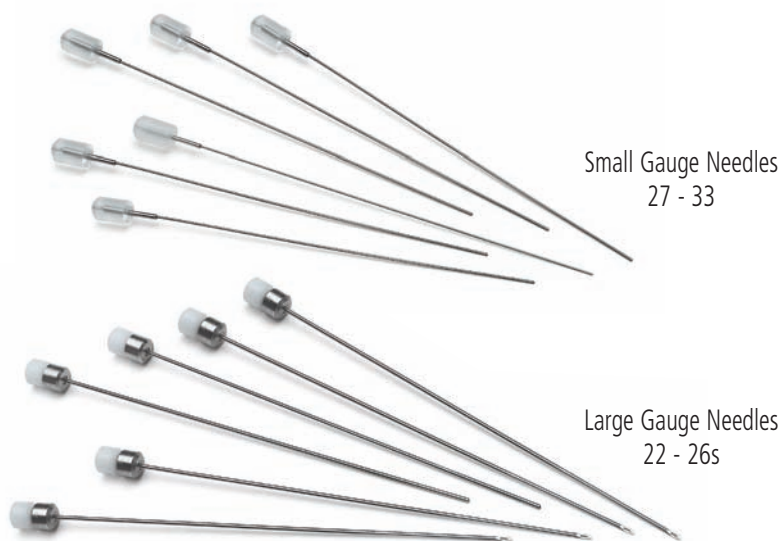


Needles

Removable Needles

(Needle Gauge Index on page 55)

- Convenient SIX PACKS
- For use with RN-style syringes and connectors
- 304 stainless steel (sst.) needle
- Standard needle length: 51 mm



Ordering Information

All needles sold in 6 packs.

For 2.5 - 100 µL Syringes

Gauge					Custom Needles ²⁾ Pt. Styles 2, 3, 4, AS
	Point Style 2	Point Style 3	Point Style 5	Custom Needles ¹⁾	
34					207434
33		7762-06			7803-05
32		7762-05			7803-04
31		7762-04			7803-03
30		7762-03			7803-07
28		7762-02			7803-02
27		7762-01			7803-01
23					207423
26s	7758-02	7768-01	7784-07	7731-02	7804-04
26	7758-04	7768-02	7784-08	7731-01	7804-03
22s	7758-03	7770-01	7784-05	7731-04	7804-02
22	7758-01	7770-02	7784-06	7731-03	7804-01
21					207421
20					
19					207419

For 250 µL - 10 mL Syringes

				Custom Needles ²⁾ Pt. Styles 2, 3, 4, AS
Point Style 2	Point Style 3	Point Style 5	Custom Needles ¹⁾	
7779-02	7780-01	7784-03	7732-04	7806-04
7779-04	7780-02	7784-04	7732-03	7806-03
7779-03	7780-03	7784-01	7732-02	7806-02
7779-01	7780-04	7784-02	7732-01	7806-01
				207720

1) Please specify length, and whether electro-tapered (Point style 5)

2) Please specify length, point style, and whether electro-tapered

PEEK RN and Kel-F® Hub Needles

- When contact with stainless steel must be avoided
- Standard 51 mm long needle, O.D. 1.52 mm, I.D. 0.76 mm

Ordering Information

Part Number	Description	Used with syringe
8650-01	Removable (RN) needle, 6/pk	250 µL - 10 mL RN syringes
8649-01	Kel-F® (KF) hub needle, 6/pk	All LT and TLL syringes

Needles

Hub Needles

(Needle Gauge Index on page 55)

- Metal hub (N) or Kel-F® hub (KF) needles in convenient SIX PACKS, SST tubing (no hub) in SINGLE PACKS
- Metal hub (nickel plated brass) for use with TLL syringes and LT or TLL connectors, Kel-F® hub for use with LT and TLL syringes and connectors
- 304 stainless steel (sst.) needle
- Standard needle length: 51 mm



Metal Hub Needles



Kel-F® Hub Needles

Ordering Information

All hub needles sold in 6 packs.

Metal Hub (N)					
					
Gauge	SST ²⁾ Tubing No Hub	Point Style 2	Point Style 3	Point Style 5	Custom Needles ¹⁾
33	21033	90033	91033		
32	21032	90032			
31	21031	90031	91031		7748-17
30	21030	90030	91030		7748-16
29	21029	90029			
28	21028	90028	91028		7748-14
27	21027	90027	91027		7748-13
26s	21039	90039	91039	7729-01	7751-19
26	21026	90026	91026	7729-03	7751-17
25	21025	90025	91025	7729-04	7751-16
24	21024	90024	91024	7729-05	7751-15
23	21023	90023	91023	7729-06	7751-14
22s	21038	90038	91038	7729-02	7751-18
22	21022	90022	91022	7729-07	7751-13
21	21021	90021	91021	7729-08	7751-12
20	21020	90020	91020	7729-09	7751-11
19	21019	90019			90319
18	21018	90018	91018	7729-10	7751-09
17	21017	90017	91017	7729-11	7751-08
16	21016	90016	91016	7729-12	7751-07
15	21015	90015			90315
14	21014	90014	91014		7749-05
13	21013	90013	91013		7749-04
12	21012	90012	91012		7749-03
11	21011	90011	91011		7749-02
10	21010	90010	91010		7749-01

Kel-F® Hub (KF)				
				
Point Style 2	Point Style 3	Point Style 5	Custom Needles ¹⁾	Custom Needles ²⁾ Pt. Styles 2, 3, 4, AS
90131	90531			7750-22
90130	90530			7750-21
90129				
90128	90528			7750-19
90127	90532			7750-18
90139	90539	7746-12	7752-19	7750-24
90126	90533	7746-10	7752-17	7750-17
90125	90525	7746-09	7752-16	7750-16
90124	90524	7746-08	7752-15	7750-15
90123	90523	7746-07	7752-14	7750-14
90138	90534	7746-11	7752-18	7750-23
90122	90134	7746-06	7752-13	7750-13
90121	90521	7746-05	7752-12	7750-12
90120	90520	7746-04	7752-11	7750-11
90119				90369
90118	90535	7746-03	7752-09	7750-09
90117	90517	7746-02	7752-08	7750-08
90116	90516	7746-01	7752-07	7750-07
90115				
90114			7752-05	7750-05
90113			7752-04	7750-04
90112			7752-03	7750-03
90111			7752-02	7750-02
90110			7752-01	7750-01

¹⁾ Please specify length, and whether electro-tapered (Point style 5)

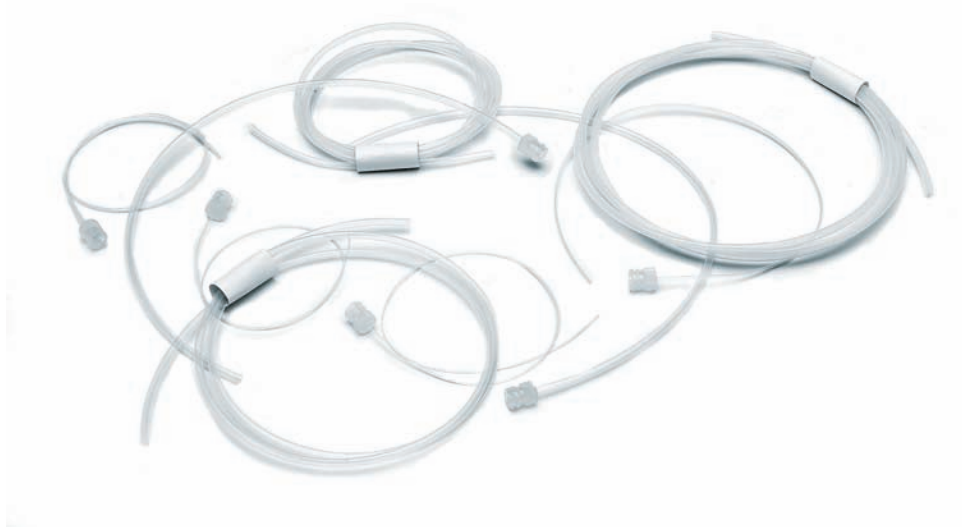
²⁾ Please specify length, point style, and whether electro-tapered

Needle Gauge Index

Gauge	I.D. [mm]	I.D. Tolerance [mm]	O.D. [mm]	O.D. Tolerance [mm]	Wall Thickness [mm]	Volume [μL/cm]
34	0.06	0.02	0.16	0.01	0.05	0.03
33	0.11	0.02	0.21	0.01	0.05	0.10
32	0.11	0.02	0.24	0.01	0.07	0.10
31	0.13	0.02	0.26	0.01	0.07	0.13
30	0.16	0.02	0.31	0.01	0.08	0.20
29	0.18	0.02	0.34	0.01	0.08	0.25
28	0.18	0.02	0.36	0.01	0.09	0.25
27	0.21	0.02	0.41	0.01	0.10	0.35
26s	0.13	0.015	0.47	0.01	0.17	0.13
26	0.26	0.02	0.46	0.01	0.10	0.53
25s	0.15	0.015	0.52	0.01	0.19	0.18
25	0.26	0.02	0.52	0.01	0.13	0.53
24	0.31	0.02	0.57	0.01	0.13	0.75
23s	0.09	0.02	0.64	0.03	0.28	0.06
23	0.34	0.02	0.64	0.01	0.15	0.91
22s	0.15	0.015	0.72	0.01	0.29	0.18
22	0.41	0.02	0.72	0.01	0.16	1.32
21	0.51	0.02	0.83	0.01	0.16	2.04
20	0.60	0.02	0.91	0.01	0.16	2.83
19	0.69	0.04	1.07	0.015	0.19	3.74
18	0.84	0.04	1.27	0.015	0.22	5.54
17	1.07	0.04	1.47	0.015	0.20	8.99
16	1.19	0.04	1.65	0.015	0.23	11.12
15	1.37	0.04	1.83	0.015	0.23	14.74
14	1.60	0.05	2.11	0.025	0.26	20.11
13	1.80	0.05	2.41	0.025	0.31	25.45
12	2.16	0.05	2.77	0.025	0.31	36.64
11	2.39	0.05	3.05	0.025	0.33	44.86
10	2.69	0.05	3.40	0.025	0.36	56.83

Tubing Assemblies

- For use with LT or TLL Hamilton syringes and connectors
- PTFE tubing with Kel-F® (PCTFE) hub on one end or both ends when specified
- Standard 30 cm length
- Also available: Stainless steel tubing (see page 54)



Ordering Information

Gauge	I.D. [mm]	O.D. [mm]	Tubing Only ¹⁾	 1 Hub, 30 cm	 1 Hub ¹⁾	 2 Hub ²⁾
30	0.30	0.76	20930	90630	90680	86510
28	0.38	0.84	20928	90628	90678	86510
26	0.46	0.91	20926	90626	90676	86510
24	0.56	1.02	20924	90624	90674	86510
22	0.71	1.17	20922	90622	90672	86510
20	0.86	1.47	20920	90620	90670	86510
19	0.97	1.57	20919	90619	90669	86510
18	1.07	1.68	20918	90618	90668	86510
18	1.07	1.68	20942 ³⁾			
17	1.19	1.80	20917	90617	90667	86510
16	1.35	1.96	20916	90616	90666	86510
15	1.50	2.11	20915	90615	90665	86510
14	1.68	2.29	20914	90614	90664	86510
13	1.93	2.54	20913	90613	90663	86510
12	2.16	2.77	20912	90612	90662	86510
12	2.16	2.77	20943 ³⁾			
11	2.41	3.02	20911	90611	90661	86510
10	2.69	3.30	20910	90610	90660	86510
9	3.00	3.76	20909	90609	90659	86510
8	3.38	4.14	20908	90608	90658	86510
7	3.76	4.52	20907	90607	90657	86510
1/8"	3.18	3.94	20941	90641	90691	86510

1) Specify length

2) Specify length and gauge

3) Tubing made from FEP (Fluorinated Ethylene Propylene)

Operating Parameters

- Kel-F® and FEP hub maximum temperature is 200° C
- PTFE Tubing maximum temperature is 260° C

Valves and Fittings

Hamilton (HV) Plug Valves

- Wetted paths are chemically inert PTFE and Kel-F® materials
- Valves are for stand alone use or HVX and HVP valves can also be panel mounted
- Valve position is controlled manually via a handle attached to the valve stem
- Valve connections are via 1/4"-28 UNF-2B (Unified Fine) fittings

Hamilton HV Plug Valves provide an economical and flexible method of custom-building a fluid flow control system, for a simple on/off valve to a more complex multi-valve arrangement, using a combination of loop and distribution valves. The small valve body with its chemically inert flow path is ideally suited for low pressure applications. All HV Plug Valves allow you to select and interchange a wide variety of fittings, adapters and tubing, including male and female luers, FEP tubing assemblies, and adapters which thread directly into the valve providing an endless variety of valve configurations for any flow applications. Hamilton (HV) fittings and adapters are installed finger-tight and provide a leak-tight seal tested to 6 bar.



HV Valve

The HV valve is physically the smallest valve and constitutes a basic unit for the control of fluids. It is ideal for low pressure applications; for a basic on/off flow to a four-way distribution system.



HVP Valve

The HVP valve is essentially the same as the HV valve except the HVP can be mounted into panels allowing for custom installation into control panels or instruments.

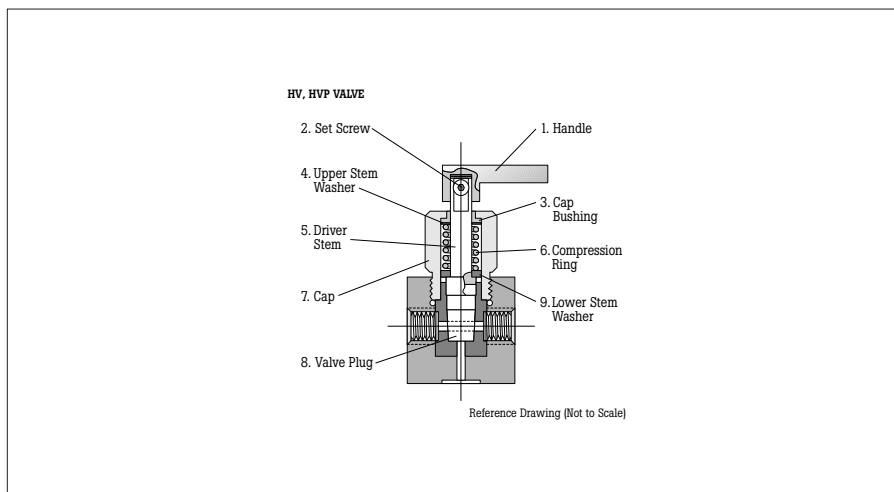


HVX Valve

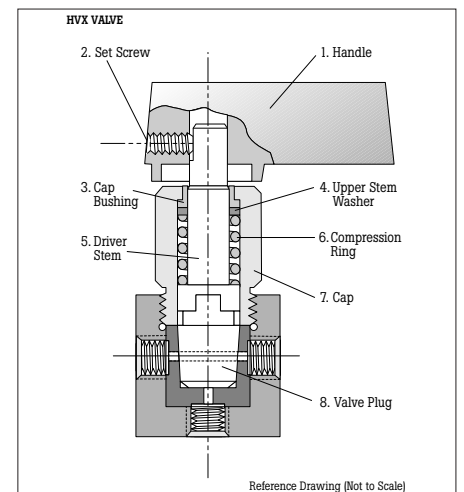
The HVX valve is physically the largest valve. A larger port internal diameter allows increased fluid flows even with moderately viscous fluids. HVX valves can be used free standing or panel-mounted using an optional locking nut, **Part # 35121**. 6- and 8-port distribution and loop valves are available only in the HVX body style.

HV Valve Dimensions and Specifications

The following dimensions and specifications should help to plan a flow control system. All dimensions are in mm. The mentioned valve parts are not spare parts and cannot be ordered separately.

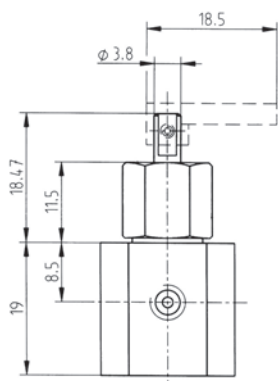
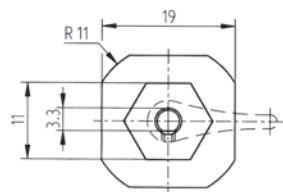


HV, HVP

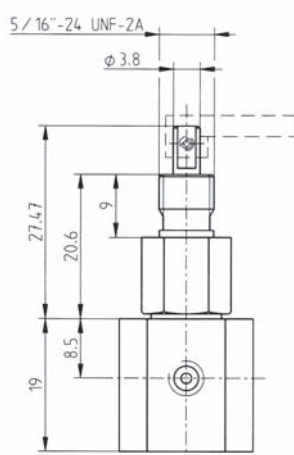


HVX

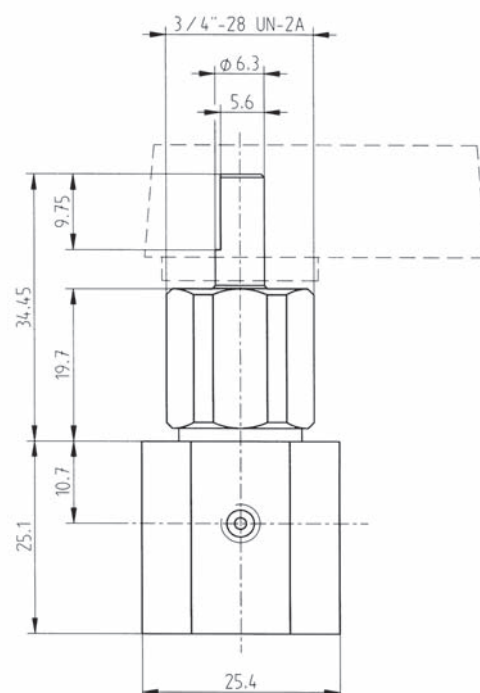
Valves and Fittings



HV



HVP



HVX

	HV	HVP	HVX
Temperature Range [°C]	10 - 100	10 - 100	10 - 100
Weight [g]	25	25	25
Maximum Pressure Rating [MPa]	0.6	0.6	0.6
Valve Connection Ports	1/4-28	1/4-28	1/4-28
Break Away Torque [mNm]	106	106	424
Maximum Panel Thickness [mm]	N/A	3.8	15.9
Panel Hole Diameter [mm]	N/A	11.1	19.1
1. Handle	Nickel	Nickel	Black Nylon
2. Set Screw	Stainless Steel	Stainless Steel	Stainless Steel
3. Cap Bushing	Nylon	Nylon	PTFE
4. Upper Stem Washer	Stainless Steel	Stainless Steel	Stainless Steel
5. Drive Stem	Stainless Steel	Stainless Steel	Stainless Steel
6. Compression Spring	Zinc Plated Wire	Zinc Plated Wire	Stainless Steel
7. Cap	Aluminium	Aluminium	Aluminium
8. Valve Plug	PTFE ¹⁾	PTFE ¹⁾	PTFE ¹⁾
O-Ring	Buna-N	Buna-N	Viton
Valve Plug Seat	PCTFE ²⁾	PCTFE ²⁾	PCTFE ²⁾
Valve Housing	Aluminium	Aluminium	Aluminium
Lower Stem Washer	Stainless Steel	Stainless Steel	

1) PTFE (Polytetrafluoroethylene)

2) PCTFE (Polychlorotrifluoroethylene)

Ordering Information



Flow Diagram	Valve Description	Valve Model	HV	HVP	HVX
	180° Flow Path 2-ports	1-1	86725	86775	86901 ¹⁾
	90° Flow Path 2-ports	2-2	86726	86776	86902 ¹⁾
	"T" Flow Path 3-ports	3-3	86727	86777	86903 ¹⁾
	90° Flow Path 3-ports	3-2	86728	86778	86904 ¹⁾
	Loop Flow Path 4-ports	4-4	86729	86779	86905 ¹⁾
	"T" Flow Path 4-ports	4-3	86730	86780	86906 ¹⁾
	90° Flow Path 4-ports	4-2	86731	86781	86907 ¹⁾
	180° Flow Path 4-ports	4-1	86732	86782	86908 ¹⁾
	Distribution Flow Path 2-ports	1-5	86735	86785	86910 ¹⁾
	Distribution Flow Path 2-ports	2-5	86736	86786	86911 ¹⁾
	Distribution Flow Path 3-ports	3-5	86737	86787	86912 ¹⁾
	Distribution Flow Path 4-ports	4-5	86738	86788	86913 ¹⁾
	Distribution Flow Path 6-ports	6-5			86915
	Loop Flow Path 6-ports	6-6			86916 ²⁾
	Distribution Flow Path 8-ports	8-5			86918
	Loop Flow Path 8-ports	8-7			86919 ²⁾

Note: All valves have 1.5 mm diameter ports unless otherwise specified.

1) Valve has 3 mm diameter ports.

2) Valve has 1 mm diameter ports.

Valves and Fittings

HV Fittings, Adapters and Tubing

- Use with Hamilton valves
- Use tubing assemblies to connect tubing to valves (6 bar or less)
- Use female luer, male luer, luer lock and barbed fittings to connect syringes, equipment, or other devices to Hamilton valves
- Fittings and adapters are Kel-F® (PCTFE) unless otherwise noted

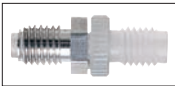


Ordering Information

HV, HVP			
Description	Port Diameter [mm]	Pack	Part #
Female Luer / 1/4"-28 UNF	1.5	1/pk	35031
			
Male Luer / 1/4"-28 UNF	1.5	1/pk	35030
			
Male Luer Lock / 1/4"-28 UNF	1.5	1/pk	35033
			
1/8" Barb / 1/4"-28 UNF	1.5	1/pk	35032
			

HVX		
Port Diameter [mm]	Pack	Part #
3.0	1/pk	35071
3.0	1/pk	35070
3.0	1/pk	35073
3.0	1/pk	35072

Description	Gauge	I.D. [mm]	Pack	Part #
Plug / 1/4"-28 UNF			10/pk	88802
				
Union / 1/4"-28 UNF		1.5	1/pk 10/pk	32800 88800
				

Description	Gauge	I.D. [mm]	Pack	Part #
Swivel Union / 1/4"-28 UNF 		1.5	1/pk	35037
Bushing for "RN" type Needles / 1/4"-28 UNF 		1.0	1/pk	35035
One 1/4"-28 UNF Hub Assembled with 600 mm FEP Tubing 	12	2.0	1/pk	88988
	18	1.0	1/pk	88987
	22	0.7	1/pk	88986 ¹⁾
Two 1/4"-28 UNF Hubs Assembled with 300 mm FEP Tubing 	12	2.0	1/pk	88918
	18	1.0	1/pk	88917
	22	0.7	1/pk	88916 ¹⁾
Fittings with washer 		M6x1 for 2 x 1 mm tubing	5/pk	249980
		M6x1 for 2.9 x 2 mm tubing	5/pk	249981
		M6x1 for Gauge 20/22		249982
		M6x1 for Gauge 24		249983
		M6x1 for 2.5 x 1.5 mm tubing		249984
		1/4"-28 UNF for 2.9 x 2 mm tubing		249985
		1/4"-28 UNF for 2.5 x 1.5 mm tubing		249986
		1/4"-28 UNF for Gauge 20/22		249987
		1/4"-28 UNF for Gauge 24		249988
		1/4"-28 UNF for 2 x 1 mm tubing		249989

1) PTFE (Polytetrafluoroethylene)

Valves and Fittings

General Laboratory Fittings, Adapters and Tubing (Industry Standard)

- Use for assembly of low pressure (6 bar) fluid systems (not recommended for direct connection to Hamilton valves)
- Fittings and adapters are Kel-F® (PCTFE) unless otherwise noted

Ordering Information

Description	I.D. [mm]	Pack	Part #
Female Luer / 1/4"-28 UNF	1.5	1/pk	32834
Female Luer / M6x1	1.5	1/pk	32874
Female Luer / M6x1	2.0	1/pk	230223
Female Luer / M6x1 inner thread	1.5	1/pk	230225
			
Male Luer / 1/4"-28 UNF	1.5	1/pk	32835
Male Luer / M6x1	2.0	1/pk	230222
Male Luer / M6x1	3.0	1/pk	35074
Male Luer / M6x1 inner thread	1.5	1/pk	230227
			
Male Luer Lock / 1/4"-28 UNF	1.5	1/pk	32836
Male Luer Lock / M6x1	1.5	1/pk	32876
			
Female Luer / Female Luer Connector	1.5	1/pk	86505
			
Male Luer / Male Luer	1.5	1/pk	86506
			
Female Luer / Male Luer	1.5	1/pk	86507
			
Male Luer Lock / Male Luer Lock	1.5	1/pk	86511
			

Description	I.D. [mm]	Pack	Part #
Male Luer Lock / Male Luer 	1.5	1/pk	86512
Male Luer Lock / Female Luer 	1.5	1/pk	86513
3 Way "T" Male Luer 	1.5	1/pk	86516
4 Way "X" Male Luer 	1.5	1/pk	86518
3 Way "T" Threaded Junction 1/4"-28 UNF inner thread	0.8	1/pk	32809
1/4"-28 UNF inner thread	1.6	1/pk	32810
M6x1 inner thread	1.6	1/pk	32860
			
4 Way "X" Threaded Junction 1/4"-28 UNF inner thread	0.8	1/pk	32811
1/4"-28 UNF inner thread	1.6	1/pk	32812
M6x1 inner thread	0.8	1/pk	32861
			
3 Way "Y" Threaded Junction 1/4"-28 UNF inner thread	0.8	1/pk	32813
1/4"-28 UNF inner thread	1.6	1/pk	32814
M6x1 inner thread	1.6	1/pk	32864
			

Numerical Index

P/N	Page	P/N	Page	P/N	Page	P/N	Page
10367	49	17881	21	21020	54	32181	28
10368	49	17882	21	21021	54	32182	28
10369	49	17883	21	21022	54	32183	28
10370	49	17884	21	21023	54	32184	28
10372	49	17885	21	21024	54	32185	28
10395	47	17887	21	21025	54	32187	28
10396	47	17888	21	21026	54	32188	28
10398	47	17890	21	21027	54	32189	28
10399	48	17891	21	21028	54	32190	28
13200	25	17892	21	21029	54	32191	28
13205	25/42	17893	21	21030	54	32193	28
13209	25/42	18003	38	21031	54	32800	60
13219	25/42	18026	38	21032	54	32809	63
13230	27	18050	38	21033	54	32810	63
13231	27	18051	38	21038	54	32811	63
52343-01	27	18052	38	21039	54	32812	63
13269	25	18066	38	30902	19/20/22/23/25/27/28/42	32813	63
13271	27	18300	52	30980	42	32814	63
13272	27	18301	52	30981	42	32834	62
13291	27	18302	52	30983	42	32835	62
13292	27	18303	52	31330	43	32836	62
14700	19/21/25/41	18304	52	31331	43	32860	63
14704	43	18306	52	31332	43	32861	63
14725	25/41	18311	52	31335	51	32864	63
14806	19/25/41	20907	56	32105	22	32874	62
14906	19/25/41	20908	56	32117	22	32876	62
15121	43	20909	56	32120	22	35030	60
15125	43	20910	56	32123	22	35031	60
15133	43	20911	56	32126	22	35032	60
15134	43	20912	56	32129	22	35033	60
15142	43	20913	56	32134	22	35035	61
15144	43	20914	56	32135	22/28	35037	61
15909	39	20915	56	32146	22/28	35056	61
15910	39	20916	56	32148	23	35070	60
15927	39	20917	56	32150	22	35071	60
15928	39	20918	56	32151	22	35072	60
15934	39	20919	56	32152	22	35073	60
15936	39	20920	56	32153	22	35074	62
15944	39	20922	56	32154	22	35080	51
15945	39	20924	56	32155	22	35081	51
15948	47/48	20926	56	32158	22	35083	51
16102	43	20928	56	32159	22	38063	30
16106	43	20930	56	32160	22	38065	30
16107	43	20941	56	32161	22	75700	43
16203	43	20942	56	32162	22	75701	43
16204	43	20943	56	32164	22	75702	43
17187	21	21010	54	32165	22	75810	51
17188	21	21011	54	32166	22	75825	33
17190	21	21012	54	32167	22	75826	33
17191	21	21013	54	32168	22	75827	33
17192	21	21014	54	32169	22	75828	33
17193	21	21015	54	32175	28	75829	33
17658	21	21016	54	32176	28	75830	33
17778	21	21017	54	32177	28	75831	33
17789	21	21018	54	32178	28	75832	33
17880	21	21019	54	32179	28	75833	33

P/N	Page	P/N	Page	P/N	Page	P/N	Page
75834	33	80262	25	80830	18/43	81165	24/37
75835	33	80265	24/37	80839	18	81175	24/37/43
75836	33	80266	46	80865	18/37/43	81201	24/43
75837	33	80275	24/37/43	80900	24	81214	24
75838	33	80300	18/29/30/40	80901	24/43	81216	24/37/43
75839	33	80301	19	80908	24	81217	24
75840	33	80308	18	80920	24	81220	24
75841	33	80330	18/31	80922	24	81222	24
76620	52	80336	19	80926	25	81226	25
78633	48	80338	29	80927	24	81227	24
80000	24/29	80339	18	80930	24/43	81230	24/43
80001	24	80350	18	80931	37	81231	37
80008	24	80357	29	80938	37	81242	46
80011	29	80358	29	80939	24	81243	24
80020	35	80359	29	80947	25	81247	25
80021	47	80360	23	80950	41	81250	41
80022	47	80365	18/37	80955	41	81255	41
80023	47	80366	19/29/30	80956	24	81256	24
80024	35	80370	23	80962	25/34	81262	25/34/36
80030	24	80383	18	80965	24/37	81265	24/37
80038	37	80384	18	80975	24/37/43	81301	26/43
80039	24	80387	29	81000	24	81314	26
80050	41	80388	29	81001	24/43	81316	26/43
80055	41	80389	29	81008	24	81317	26
80062	25	80390	29	81020	24	81320	26/43
80065	24/37	80391	29	81022	24	81323	27
80074	29	80393	29	81026	25	81326	27
80075	24	80398	29	81027	24	81327	26
80076	29	80399	29	81030	24/43	81330	26/43
80079	29	80400	18	81031	37	81331	37
80080	29	80401	19/43	81038	37	81341	46
80081	47	80408	18	81039	24	81343	26
80086	29	80430	18/43	81041	46	81356	26
80087	29	80465	18/37/43	81047	25	81360	27/34/36
80088	29	80500	18	81050	41	81365	26/37
80089	29	80501	19/43	81055	41	81401	26/43
80090	29	80508	18	81056	24	81414	26
80092	29	80530	18/43	81062	25	81416	26/43
80094	29	80550	40	81065	24/37	81417	26
80096	29	80551	40	81075	24/37/43	81420	26/43
80100	21	80565	18/37/43	81100	24	81427	26
80108	21	80600	18	81101	24/43	81430	26/43
80135	21	80601	19/43	81108	24	81431	37
80176	29	80608	18	81120	24	81443	26
80200	24	80630	18/43	81122	24	81456	26
80201	24/43	80660	40	81126	25	81460	27/34/36
80208	24	80665	18/37/43	81127	24	81501	26
80222	24	80700	18	81130	24/43	81514	26
80223	25	80701	19/43	81131	37	81516	26
80226	25	80708	18	81138	37	81517	26
80230	24/43	80730	18/43	81139	24	81520	26
80231	37	80765	18/37/43	81147	25	81527	26
80238	37	80770	40	81150	41	81530	26
80239	24	80800	18	81155	41	81531	37
80250	41	80801	19/43	81156	24	81543	26
80255	41	80808	18	81162	25/34/36	81556	26

Numerical Index

P/N	Page	P/N	Page	P/N	Page	P/N	Page
81560	27	84875	28	86580	51	87959	29
81570	40	84876	28	86725	59	87989	29
81601	26	84877	28	86726	59	87990	29
81610	27/35	84878	28	86727	59	87991	29
81614	26	84879	28	86728	59	87992	29
81616	26	84880	28	86729	59	87994	29
81617	26	84881	28	86730	59	88000	21
81620	26	84882	28	86731	59	88011	21
81627	26	84883	28	86732	59	88035	31
81630	26	84884	28	86735	59	88040	31
81631	37	84885	28	86736	59	88400	21
81643	26	84886	28	86737	59	88408	21
81656	26	84887	28	86738	59	88411	21
81660	27	84888	28	86775	59	88500	21
82001	26/43	84889	28	86776	59	88508	21
82017	26/43	84977	37	86777	59	88511	21
82520	26	84980	37	86778	59	88800	60
82521	26	84983	37	86779	59	88802	60
82525	27	84986	37	86780	59	88916	61
82527	26	84989	37	86781	59	88917	61
82570	40	85020	26	86782	59	88918	61
83700	19/25/27/41/42/44	85021	26	86785	59	88986	61
84301	39	85025	27	86786	59	88987	61
84302	39	85027	26	86787	59	88988	61
84303	39	86020	26	86788	59	90010	54
84500	47	86200	21	86789	40	90011	54
84501	47	86201	21/39	86901	59	90012	54
84502	47	86202	21	86902	59	90013	54
84503	47	86203	21	86903	59	90014	54
84504	47	86208	21	86904	59	90015	54
84505	47	86211	21	86905	59	90016	54
84511	47	86250	21	86906	59	90017	54
84611	48	86251	21	86907	59	90018	54
84801	22	86257	21	86908	59	90019	54
84803	22	86258	21	86910	59	90020	54
84815	37	86259	21	86911	59	90021	54
84816	37	86274	29	86912	59	90022	54
84817	37	86276	29	86913	59	90023	54
84818	37	86301	38	86915	59	90024	54
84819	37	86302	38	86916	59	90025	54
84850	22	86311	38	86918	59	90026	54
84851	22	86312	38	86919	59	90027	54
84852	22	86313	38	87900	18/29/30	90028	54
84853	22	86314	38	87908	18	90029	54
84854	22	86326	26	87919	18	90030	54
84855	22	86336	26	87920	23	90031	54
84856	22	86346	26	87925	23	90032	54
84857	22	86505	62	87930	18/31	90033	54
84858	22	86506	62	87939	18	90038	54
84859	22	86507	62	87942	20/37	90039	54
84860	22	86510	56	87943	20/37	90110	54
84861	22	86511	62	87987	29	90111	54
84865	22	86512	63	87988	29	90112	54
84866	22	86513	63	87993	29	90113	54
84867	22	86516	63	87957	29	90114	54
84868	22	86518	63	87958	29	90115	54

P/N	Page	P/N	Page	P/N	Page	P/N	Page
90116	54	90630	56	91039	54	201805	25
90117	54	90641	56			201807	25
90118	54	90657	56	0159902	34	201810	25
90119	54	90658	56	0160310	36	201812	27
90120	54	90659	56	200399	21	201815	27
90121	54	90660	56	200690	21	201817	27
90122	54	90661	56	200740	32	201820	27
90123	54	90662	56	200741	32	201822	27
90124	54	90663	56	200742	32	201825	27
90125	54	90664	56	200743	32	201827	27
90126	54	90665	56	200920	27	201829	27
90127	54	90666	56	201000	25	201900	49
90128	54	90667	56	201020	25	201910	49
90129	54	90668	56	201050	25/36	201920	49
90130	54	90669	56	201070	25	201930	49
90131	54	90670	56	201100	25	201940	49
90134	54	90672	56	201120	25	202066	31
90138	54	90674	56	201150	25	202315	34
90139	54	90676	56	201170	25	202325	34
90369	54	90678	56	201200	27	202456	36
90516	54	90680	56	201220	27	202457	36
90517	54	90691	56	201250	27	202460	29
90520	54	90814	61	201270	27	202630	31
90521	54	90815	61	201300	27	202640	31
90523	54	90816	61	201301	27	202645	31
90524	54	90817	61	201350	27	202660	30/31
90525	54	90818	61	201370	27	202670	31
90528	54	90819	61	201400	27	202950	30
90530	54	90820	61	201500	25	202980	29
90531	54	90821	61	201520	25	202981	30
90532	54	90822	61	201550	25	203043	32
90533	54	90823	61	201570	25	203072	32
90534	54	90824	61	201600	25	203073	35
90535	54	90825	61	201620	25	203074	32
90539	54	90826	61	201650	25	203075	35
90542	61	91010	54	201670	25	203076	32
90546	61	91011	54	201700	27	203077	35
90547	61	91012	54	201720	25	203078	32
90607	56	91013	54	201725	25	203079	35
90608	56	91014	54	201730	25	203080	32
90609	56	91016	54	201735	25	203081	35
90610	56	91017	54	201740	25	203082	32
90611	56	91018	54	201745	25	203083	35
90612	56	91020	54	201750	25	203084	32
90613	56	91021	54	201755	25	203085	35
90614	56	91022	54	201760	27	203086	32
90615	56	91023	54	201765	27	203141	32
90616	56	91024	54	201770	27	203181	32
90617	56	91025	54	201775	27	203182	32
90618	56	91026	54	201780	27	203185	32
90619	56	91027	54	201785	27	203189	32
90620	56	91028	54	201790	25	203194	35
90622	56	91030	54	201793	25	203197	32
90624	56	91031	54	201797	25	203198	32
90626	56	91033	54	201800	25	203205	32
90628	56	91038	54	201802	25	203206	32

Numerical Index

P/N	Page	P/N	Page	P/N	Page	P/N	Page
203209	32	203520	44	1117-03	25	7657-01	24/36
203219	32	203525	44	1120-01	25	7658-01	24
203220	44	203530	44	1122-01	25/42/49	7659-01	28
203222	44	203535	44	1160-01	28	7660-01	28
203225	32	203540	44	1161-01	28	7661-01	28
203226	32	203545	44	1161-02	28	7662-01	28
203230	44	203550	44	1161-03	28	7663-01	28
203232	44	203560	35	1162-01	25/42/49	7729-01	54
203235	35	203562	35	1162-02	25/42/49	7729-02	54
203239	35	203563	35	1162-03	25/42/49	7729-03	54
203240	44	203565	35	1169-01	25/42/49	7729-04	54
203242	44	203566	35	1320-01	25	7729-05	54
203245	32/35	203569	35	1321-01	25	7729-06	54
203246	32/35	203571	44	1343-01	27	7729-07	54
203249	32/35	203572	44	1359-01	27	7729-08	54
203250	44	203573	44	1360-01	27	7729-09	54
203252	44	203574	44	1578-01	27	7729-10	54
203254	32/35	203575	44	1615-02	27	7729-11	54
203255	32/35	203576	44	1615-03	27	7729-12	54
203256	32/35	203577	44	1993-01	47/48	7731-01	53
203259	32/35	203578	44	4871-01	28	7731-02	53
203260	44	203579	44	5495-10	45	7731-03	53
203262	44	203580	44	5495-15	45	7731-04	53
203270	44	203581	44	5495-20	45	7732-01	53
203272	44	204000	31	5495-25	45	7732-02	53
203274	35	204001	31	5495-30	45	7732-03	53
203275	32	204051	31	5495-35	45	7732-04	53
203276	35	204052	31	5495-40	45	7746-01	54
203310	44	204292	31	5495-45	45	7746-02	54
203312	44	204880	50	5495-50	45	7746-03	54
203320	44	205615	44	5495-55	45	7746-04	54
203322	44	205616	44	7632-01	20	7746-05	54
203330	44	205619	44	7633-01	20	7746-06	54
203332	44	205620	44	7634-01	18	7746-07	54
203340	44	207419	53	7635-01	18	7746-08	54
203342	44	207421	53	7636-01	18	7746-09	54
203349	35	207423	53	7637-01	18	7746-10	54
203350	44	207434	53	7638-01	18	7746-11	54
203360	44	207720	53	7639-01	18	7746-12	54
203361	32	230222	62	7640-01	18	7747-01	54
203362	32	230223	62	7641-01	22	7748-02	54
203363	32	230225	62	7642-01	22	7748-03	54
203400	44	230227	62	7643-01	22	7748-04	54
203402	44	249980	61	7644-01	22	7748-06	54
203410	44	249981	61	7645-01	22	7748-07	54
203412	44	249982	61	7646-01	22	7748-08	54
203420	44	249983	61	7647-01	23	7748-09	54
203450	44	249984	61	7648-01	23	7748-10	54
203460	44	249985	61	7649-01	26	7748-11	54
203470	44	249986	61	7650-01	26	7748-12	54
203472	44	249987	61	7651-01	26	7748-13	54
203480	44	249988	61	7652-01	26	7748-14	54
203500	44	249989	61	7653-01	24	7748-16	54
203505	44			7654-01	24/36	7748-17	54
203510	44	1117-01	25	7655-01	24	7748-18	54
203515	44	1117-02	25	7656-01	24/34	7748-19	54

P/N	Page	P/N	Page
7749-01	54	7758-02	30/31/53
7749-02	54	7758-03	53
7749-03	54	7758-04	53
7749-04	54	7762-01	53
7749-05	54	7762-02	53
7750-01	54	7762-03	53
7750-02	54	7762-04	53
7750-03	54	7762-05	53
7750-04	54	7762-06	53
7750-05	54	7768-01	53
7750-07	54	7768-02	53
7750-08	54	7770-01	37/53
7750-09	54	7770-02	53
7750-11	54	7779-01	53
7750-12	54	7779-02	53
7750-13	54	7779-03	53
7750-14	54	7779-04	53
7750-15	54	7780-01	53
7750-16	54	7780-02	53
7750-17	54	7780-03	53
7750-18	54	7780-04	37/53
7750-19	54	7784-01	53
7750-21	54	7784-02	53
7750-22	54	7784-03	53
7750-23	54	7784-04	53
7750-24	54	7784-05	53
7751-07	54	7784-06	53
7751-08	54	7784-07	53
7751-09	54	7784-08	53
7751-11	54	7785-01	30
7751-12	54	7786-01	30
7751-13	54	7786-02	30
7751-14	54	7787-01	37
7751-15	54	7787-02	37
7751-16	54	7803-01	53
7751-17	54	7803-02	53
7751-18	54	7803-03	53
7751-19	54	7803-04	53
7752-01	54	7803-07	53
7752-02	54	7804-01	53
7752-03	54	7804-02	53
7752-04	54	7804-03	53
7752-05	54	7804-04	53
7752-07	54	7806-01	53
7752-08	54	7806-02	53
7752-09	54	7806-03	53
7752-11	54	7806-04	53
7752-12	54	8647-01	37
7752-13	54	8648-01	37
7752-14	54	8649-01	53
7752-15	54	8650-01	53
7752-16	54		
7752-17	54		
7752-18	54		
7752-19	54		
7758-01	53		

General Ordering Information



HAMILTON
THE MEASURE OF EXCELLENCE™

Office Hours:

Weekdays 7.30 am - 5.00 pm Swiss time

Telephone: +41 (0)81 660 60 60

Fax: +41 (0)81 660 60 70

Ordering:

For your convenience, please have your client number and your purchase order number ready when placing an order. In-stock items, can be shipped the next day.

Order Via Email:

opd@hamilton.ch

Terms:

After credit responsibility has been established with Hamilton Bonaduz AG, terms are net 30 days from the date of invoice. A finance charge will be applied to all invoices not paid within 30 days. Unestablished accounts require payment in advance.

Shipping:

All domestic shipments are ex works Bonaduz by Post unless otherwise specified. All international shipments are ex works Bonaduz, Switzerland, to be shipped as specified by purchaser.

Warranty:

All products mentioned in this catalogue are guaranteed to be free of defects in material and workmanship at the time of delivery only.

**Returned Goods/
Restocking Charges:**

Any product returned to Hamilton Bonaduz AG for repair, evaluation, or exchange must be accompanied by an assigned Returned Goods Authorization (RGA) tracking number. Unauthorized returned will be refused.

Products returned for credit must also have an assigned RGA tracking number, and are subject to a 20 % restocking fee. All returns must be sent to the following address:

Hamilton Bonaduz AG
Via Crusch 8
7402 Bonaduz
Switzerland

Internet:

www.hamiltoncompany.com

Standard Conditions of Sales

1 Introduction and scope of validity

- 1.1 The following provisions comprise a *Capsule Version of the General Terms of Sale (GTS)*, Edition July 1999 of Hamilton Bonaduz AG, as agreed on with the customer in the year 1999.
- 1.2 The legal relationship between Hamilton and the customer is regulated by this capsule version and *comprehensively* by aforementioned *complete GTS*. Deviating provisions shall only be valid if expressly agreed on in writing.
- 1.3 Should the customer no longer have a copy of the GTS Hamilton will supply them on request at any time.

2 Hamilton price lists, offers and prices

- 2.1 Our price lists are purely invitations to submit offers; their validity is *limited* in time as set out in the price lists.
- 2.2 The validity of our offers is *limited* to 60 days as of offer date and in any case by scope of validity of the relevant lists.
- 2.3 The *relevant* price is the one applicable on the day the order is registered.
- 2.4 The costs for taxes, charges and duties of all kinds shall be borne by the customer.

3 Terms of payment, default and collection

- 3.1 Invoices are *payable* within 30 days as of invoice date, no deductions allowed.
- 3.2 The customer is in *default* upon expiry of the payment deadline specified above. Default interest of 6% is due as of this date. In addition, any collection costs Hamilton may incur shall be refunded, and Hamilton is entitled to further rights.

4 Delivery times and partial deliveries

- 4.1 The delivery times we specified are merely target times and *not* binding promises.
- 4.2 *Partial deliveries* are permissible; they will be invoiced as executed.

5 Transport, assumption of risk, liability and compliance with control regulations

- 5.1 The customer is responsible for *transport*, *transport documents* and *insurance*. Hamilton will organise these matters at customer's request. The corresponding costs shall in any case be borne by the customer.
- 5.2 *Risk* in respect of loss, destructions and damage as well as *liability* for the products shall be borne by the customer as soon as they have been set aside for transport/dispatch.
- 5.3 In all cases, and insofar as not bindingly prescribed by the applicable law, the customer shall be solely responsible for compliance with all export, import, transit and *control regulations* and *formalities*.

6 Inspection and notification of defect

- 6.1 The *customer* shall *inspect* the products (quality and quantity) at his own expense.
- 6.2 The customer shall notify us of *apparent* defects immediately after receipt of the products and of *hidden* defects immediately after discovery, in writing and with a detailed description.
- 6.3 Should the customer fail to provide due and proper notification of defect, the product shall be deemed *approved* without reservation.

7 Guarantee (warranty) and liability

- 7.1 Hamilton *guarantees* that its products are free of material and manufacturing defects.

- 7.2 Our guarantee commences on the day of dispatch for the *guarantee period* agreed on the individual contract, or if no such guarantee period has been specified for a period of 12 months for appliances and 3 months for all other products, insofar as no special provisions apply.
- 7.3 *Special provisions* apply for:
 - a) *consumables and utensils* such as syringes, hoses, valves, sensors etc.;
 - b) *pH, redox and reference electrodes*, for *oxygen sensors* and their accessories as well as for *conductivity cells*;
 - c) *buffers, electrolytes and reagents*.
- 7.4 Our guarantee is limited, *at our discretion*, to repair or replacement of the defective products or components, or to refund of the material value of the products or components that were not replaced.
- 7.5 In certain circumstances the customer will *lose* his claims.
- 7.6 In asserting guarantee claims the customer shall follow the *terms and directives* issued by Hamilton.
- 7.7 Any further warranty or liability of any nature for any kind of damage (i.e. *direct and indirect*) is – insofar as legally permissible – *excluded*.

8 Miscellaneous provisions

- 8.1 Under certain conditions Hamilton will accept the return of products that were *erroneously ordered by the customer*, and will refund 80% of the price invoiced for the products.
- 8.2 All intellectual property rights and the belonging rights of use remain with *Hamilton*.
- 8.3 The customer shall apply strict *confidentiality* to all the details of his business relationship with Hamilton as well as to Hamilton's business secrets. The customer shall impose this obligation also on his company executives, board members and employees as well as on any third parties he may lawfully consult.
- 8.4 Hamilton remains the *owner* of all products sold until the full purchase price has been received. If an invoiced amount is due but not fully paid, Hamilton shall be entitled to demand the return of all products supplied on this invoice, or to collect such products, whereby the customer shall not hold any claims whatsoever.
- 8.5 Bonaduz, Switzerland, is *place of performance* for all obligations of the parties.
- 8.6 The customer shall not set off his own claims on Hamilton against Hamilton's claims on the customer. Moreover, the customer shall *not* assign his claims against Hamilton to third parties.
- 8.7 *Communications* shall be addressed to Hamilton Bonaduz AG, Via Crusch 8, CH-7402 Bonaduz, Switzerland.
- 8.8 **All legal relationship between Hamilton and the customer are subject to Swiss law, to the exclusion of the Vienna Convention on International Sales.**

The ordinary courts at the domicile of Hamilton shall exclusively be competent for the settlement any disputes between the customer and Hamilton. Hamilton shall, however, be entitled to initiate legal action against the customer at any other competent court.



HAMILTON
THE MEASURE OF EXCELLENCE™

<http://www.hamiltoncompany.com>

Support: syringe@hamilton.ch

Your Hamilton representative:

Hamilton Bonaduz AG

Via Crusch 8
CH-7402 Bonaduz/Switzerland
Telephone: +41 (0)81 660 60 60
Fax: +41 (0)81 660 60 70
e-mail: liquidhandling@hamilton.ch

Quality Hamilton Products:

MICROLITER™ Syringes
GASTIGHT® Syringes
Chromatography Syringes
Syringes for Life Science
Instrument Syringes
SoftGrip™ Pipettes
Miniature Valves
Modular Valve Positioner
Laboratory Fittings, Adapters & Tubing
Precision Syringe Pumps
MICROLAB® Diluters & Dispensers
Electrochemical Sensors
DURACAL™ Buffer Solutions
HPLC Columns & Resins

Laboratory Automation for:

Drug Discovery
Genomics
Proteomics
Forensics
In Vitro Diagnostics

TRADEMARKS:

The following are trademarks of Hamilton

Digital Syringe™
GASTIGHT®
MICROLITER™
MODIFIED MICROLITER™
ACCUDIL®
SampleLock™
MICROLAB®

The following company trademarks have been used in this catalog

ABI PRISM® 377
Kel-F® - 3M Company
Tekmar™ - Tekmar-Dohrmann
Microseal™ - Merlin Instrument Company
Perkin-Elmer® - Perkin-Elmer Corporation
Integral™ - Perkin-Elmer Corporation
AutoSystem™ - Perkin-Elmer Corporation
Beckman® - Beckman Instruments
WATERS® - WATERS Corporation
WISP™ - WATERS Corporation