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PRECISION LIQUID HANDLING



Syringes & Valves

HAMILTON
THE MEASURE OF EXCELLENCE™

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Introduction



Hamilton Bonaduz



Hamilton Reno

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.

- The quality you expect
- In the time you request
- The most convenient approach

It is our task to provide you with the best information 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
- Their availability

This catalog 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 catalog helps you to find the correct syringes for the various autosamplers on the market.

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Made by Werner Kirsch, Cologne

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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.

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 ± 1 % of nominal volume. The HAMILTON Quality System is EN ISO 9001 / EN 46001 certified.

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Syringe Calibration

Syringe Calibration Service

HAMILTON offers a calibration service for precision Syringes, Digital Syringes and MICROLAB Diluters and Dispensers.
A Certificate of Calibration is provided with the product and the procedure is performed with an unbroken chain of calibration traceable to NIST.

How to Order a Calibrated Syringe

Calibrated precision syringes are available only at the time of purchase. To order a calibrated syringe ad the prefix "CAL" to the beginning of the syringes part number.
For example to order a 701 N syringe:
Request part number CAL80300.
A recalibration service is available.

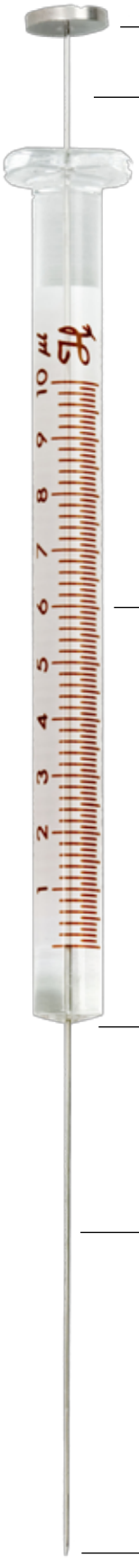
Digital Syringes

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.



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Syringe Schemes



Button

Plunger assembly

Glass Flange

Barrel with volume markings

Termination (N, RN, LT)

Needle, needle gauge (ga)

Needle point style (pst)



Stop

Plunger assembly

Glass Flange

Barrel with volume markings

PTFE or UHMWE PE seal

Termination (LT, LTN, N, RN, TLL, C, AD)

Needle, needle gauge (ga)

Needle point style (pst)

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Codes and Explanations



N, NR (Cemented Needle, Cemented Needle Rheodyne)

The stainless steel needle is cemented into the glass barrel such that it aligns with the zero point of the scale. **NR** stands for Rheodyne specified syringes.



LTN (Luer Tip Cemented Needle)

The needles of the 1000 series syringes are cemented into the conical glass luer tip.



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

Syringes with special lengths. To manufacture SN Syringes we need the following specifications: (*=gauge/*=length/*=point style) whether electro-tapered. Example of a correct needle specification: 701 SN gauge 25 length 70 mm pst3 = 80308 701 SN (25/70/3).



Cemented needles are not recommended for use with halogenated solvents such as $MeCl_2$.



RN, RNR (Removable Needle, Removable Needle Rheodyne)

RN needles like cemented needles are adjusted to the zero graduation mark of the syringe scale. Their connection is therefore dead volume free. Needles for syringes with a volume capacity of 2.5 µl to 100 µl are interchangeable, likewise needles for syringes with a capacity of 250 µl to 10 ml. RN Needles are available from gauge 19 up to gauge 34.



RN Needles are recommended for advantageous laboratories with multiple users, economical since you can replace the needle without having to purchase a new syringe.



KH (Knurled Hub)

Removable plunger/needle assembly, knurled hub is used exclusively in 7000 series syringes. The attachment of different spacer lengths enables repeatable depth injections.



LT (Luer Tip)

Ground glass tip can be used with most hypodermic needles (Kel-F® needles, PTFE tubing assemblies and connectors for a tight seal.) The LT Syringe offers a wide flexibility. LT Syringes can be heated up to 115°C.



SL (SampleLock™)

Lock your 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. The positive rear plunger stop prevents loss of sample and plunger blowout at elevated pressure.



TLL/TLLX (PTFE Luer Lock, PFTE Luer Lock with stop)

Male luer taper with nickel plated hub accepts, and locks in place, luer hub needles and connectors. TLL and TLLX are used in HAMILTON Diluters/Dispensers and in many other pipetting systems. The X-style plunger stop incorporates a 6-32 UNC female thread on the end of the stop to allow attachment to drive arm mechanism.

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DX (Diluter)
TLL PTFE Luer Lock male fitting with M6X1 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 mechanism. Such as on the ML 500 Diluters/ Dispensers. These syringes are used on the sample side of ML 500 Diluters.



TLL-XL (60 mm Syringe)
These 60 mm stroke TLL style syringes are compatible with many Liquids Handling Instruments, including XL-3000 modular digital syringe pump, Tecan, Rosys and Cavro sample processors and Liquid Handling Applications.



TLL/TLLX (30 mm Syringe)
These syringes are designed specifically for the PSD.



C, CX (Cheminert)
¼"-28 UNF male fitting. Used in low volume applications where system dead volume 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 mechanism. Such as on the ML 500 Diluters/Dispensers. These syringes can also be screwed into HAMILTON micro valves HV, HVP and HVX.



C-XP
These 30 mm stroke C-style syringes are compatible with many Liquid Handling Instruments like Tecan, Cavro, Rosys and other OEM Liquid Handling Systems.



AD (AccuDil®)
This syringe has been specially developed for use with Diluters/Dispensers. It's screwed directly into the carrier with a fine thread M8X0.5. These syringes have no scale.



DAD (Diluter AccuDil®)
These syringes have an axial fine thread M8X0,5 and a M6 side connector.
As with the DX syringe they are used on the sampleside of Diluters.



N, NR, KH, SN, RN, RNR, LTN, LTSN and SL

Syringes are shipped with needles.

RN without needle, LT, TLL, TLLX, TLL-XL DX, C, CX, C-XP, AD, DAD

Syringes are shipped without needles.

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Codes and Explanations

Several different needle point styles are offered on HAMILTON syringe and needle products depending upon the application. The standard needles are manufactured from stainless steel and optimized according to use and syringe capacity. They have a standard length of 51 mm and point style 2 or 3.

Standard diameters available are:
Gauge 26s for 5 µl and 10 µl syringes
Gauge 22s for 25 µl to 250 µl syringes
Gauge 22 for syringes 500 µl and above.

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

Point styles (pst)



pst 2
This is the standard point style suitable for septum penetration for all chromatographic applications. 10-12° bevelled, non-coring needle point, recommended for septum penetration. (Only needle gauges from 22 to 26s are ideal for septum penetration.)



pst 3
This needle has a 90° bevel and is mainly used in HPLC injection valves. It is recommended for sample pipetting and where precision dosing is required (e.g. thin layer chromatography).



pst 4
This needle is cut at an angle of 10-12° and has a sharp point for animal injections.



pst 5
Conical needle with closed end and a side hole. The closed end prevents the needle from being plugged when septa are penetrated (coring). Pst 5 needles are available from gauges 10 to 26s. Ideal for penetration of septa, thin-gauged vinyls and plastic without coring.



pst AS
The needles have an 8° cone. They have been designed to penetrate GC Autosampler septa. AS standard needles are available in gauges 26, 26s, 23, 23s, 22, 22s. Other dimensions on request.

The needles are electro-polished and electro-tapered.
This is a manufacturing process that electrochemically removes the needle material and eliminates burrs. This process is used for pst 2 and pst 3 needles and minimizes damage to septa during penetration.
Needles can be electro-tapered from gauges 10 to 26s.
SN needles are only tapered on request.

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Pipetting Aids/ Syringe Accessories



Reproducibility (Chaney) Adapter

The design allows reproducible dosing and also prevents the plunger from bending. The system can be retrofitted to 700, 800, 1700, 1800 and 7000 series syringes.
The chaney adapter is available as option for the above mentioned syringes and can be easily installed in the field.



Syringe Guide

The guide prevents the plunger from bending. Furthermore it prevents the plunger from being pulled out. The guide is available for syringes series 700, 1700 and 7000. It is available separately and can be easily installed in the field.

Adapters



Septum Adapter

Store and sample syringes contents with this adapter. It attaches to any TLL or LT syringes. The septum is replaceable



RN Adapters (Removable Adapters)

There are three different removable adapters for 250 µl and larger syringes as well as for SampleLock Syringes available. It provides connection to threaded fittings, tubing assemblies, tees and crosses.



Syringe and Needle Cleaning Kit

The HAMILTON cleaning set helps to keep your syringe clean. Cleaned syringes kept last longer. The powerful cleaning solution and the detailed description of the cleaning procedure helps to care your HAMILTON syringes.



GC 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.



MTB Sampling Valve

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



Syringe Rack

Clean and safe storage of syringes from the series 700, 1700 and 7000 on your working place. Usable as free standing or wall mounted model.

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700 Series Syringes

The 700 series MICROLITER™ syringes are the original HAMILTON syringe and are the standard liquid measuring device throughout the world for precise delivery of liquids in the volume range from 5 µl to 500 µl.
Steel plungers individually fitted into the borosilicate glass barrels guarantee the highest level of quality.
The accuracy of these syringes is ± 1% of the nominal volume.

Typical applications are:

- Sample injection in gas chromatography (GC)
- Sample injection in HPLC valves
- Sample injection with automatic samplers from different manufacturers
- Thin layer chromatography
- Everyday applications



Due to different coefficients of expansion of steel and glass, syringes with needles must not be heated above 50°C. Due to the manufacturing process, the plungers and glass barrels are not interchangeable.

Tech Tip
Before each use, thoroughly inspect the syringe barrel for cracks, and the needle point for burrs.

Economical Tip
Syringes cost less in a Six Pack. Packaging container keeps Syringes close at hand.

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N Syringes



Ordering information	Needle length mm	Volume 5 µl Model 75 Gauge 26s	Volume 10 µl Model 701 Gauge 26s	Volume 25 µl Model 702 Gauge 22s	Volume 50 µl Model 705 Gauge 22s	Volume 100 µl Model 710 Gauge 22s	Volume 250 µl Model 725 Gauge 22s	Volume 500 µl Model 750 Gauge 22
N cemented needle pst2	51	87900	80300	80400	80500	80600	80700	80800
N cemented needle pst2	70		80350					
N cemented needle pst2	76		80384					
N cemented needle pst3	51	87919	80383	80465	80565	80665	80765	80865
N cemented needle pst5	51		80339					80839
SN cemented needle *	*	87908	80308	80408	80508	80608	80708	80808

* Specify needle gauge, length, point style and whether electro tapered

RN Syringes



Ordering information	Needle length mm	Volume 5 µl Model 75 Gauge 26s	Volume 10 µl Model 701 Gauge 26s	Volume 25 µl Model 702 Gauge 22s	Volume 50 µl Model 705 Gauge 22s	Volume 100 µl Model 710 Gauge 22s	Volume 250 µl Model 725 Gauge 22s	Volume 500 µl Model 750 Gauge 22
RN cemented needle pst2	51	87930	80330	80430	80530	80630	80730	88030
RN without needle		7634-01	7635-01	7636-01	7637-01	7638-01	7639-01	7640-01

LT Syringes



Ordering information	Needle length mm	Volume 5 µl Model 75 Gauge 26s	Volume 10 µl Model 701 Gauge 26s	Volume 25 µl Model 702 Gauge 22s	Volume 50 µl Model 705 Gauge 22s	Volume 100 µl Model 710 Gauge 22s	Volume 250 µl Model 725 Gauge 22s	Volume 500 µl Model 750 Gauge 22
LT Luer Tip Without needle			80301	80401	80501	80601	80701	80801

Six Pack



Ordering information	Needle length mm	Volume 5 µl Model 75 Gauge 26s	Volume 10 µl Model 701 Gauge 26s	Volume 25 µl Model 702 Gauge 22s	Volume 50 µl Model 705 Gauge 22s	Volume 100 µl Model 710 Gauge 22s	Volume 250 µl Model 725 Gauge 22s	Volume 500 µl Model 750 Gauge 22
N Six Pack	51		80366					
RN Six Pack	51		80336					

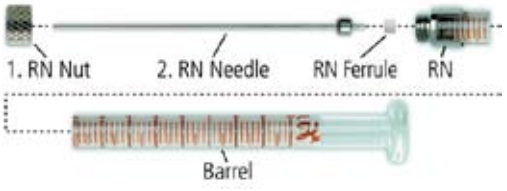
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Accessories and Spare Parts

Syringe type Syringe capacity	75 5 µl	701 10 µl	702 25 µl	705 50 µl	710 100 µl	725 250 µl	750 500 µl
Reproducibility (Chaney) Adapter	14700	14700	14725	14725	14725	14725	14725
Syringe Guide	14806	14806	14806	14906	14906	14906	14906
Needles							
RN nut	30902	30902	30902	30902	30902	30902	30902
Standard RN needles	7758-02	7758-02	7770-01	7770-01	7770-01	7779-03	7779-01
Standard N needles	90039	90039	90038	90038	90038	90038	90022
Standard KF needles	90139	90139	90138	90138	90138	90138	90122

Syringe Calibration Service

Add the prefix "CAL" in the beginning of the syringe part number



Technical Specifications

Syringe type Syringe capacity	75 5 µl	701 10 µl	702 25 µl	705 50 µl	710 100 µl	725 250 µl	750 500 µl
Needle length (mm)	51	51	51	51	51	51	51
Needle gauge	26s	26s	22s	22s	22s	22s	22
Needle outer diameter (mm)	0.47	0.47	0.72	0.72	0.72	0.72	0.72
Needle inner diameter (mm)	0.13	0.13	0.15	0.15	0.15	0.15	0.41
Needle point style	2	2	2	2	2	2	2
Electro tapered	Yes	Yes	Yes	Yes	Yes	Yes	No
Dead volume in needle (µl)	0.68	0.68	0.90	0.90	0.90	0.90	6.73
Scale length (mm)	54	54	60	60	60	60	60
Test pressure (MPa)	0.6	0.6	0.6	0.6	0.6	0.6	0.6

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These syringes are rugged, durable and long lasting. They have a reinforced plunger, which prevents plunger bending. The plunger is individually fitted to the glass barrel and can not be interchanged between syringes.

These syringes only are available with a removable needle (RN) termination.



RN Syringes

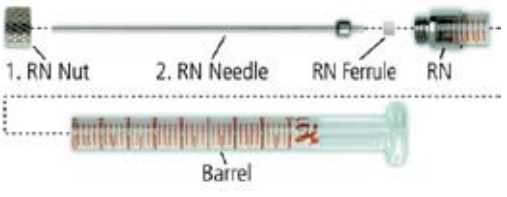
Ordering information	Needle length mm	Volume 2.5 µl Model 62 Gauge 22s	Volume 5 µl Model 65 Gauge 22s
RN cemented needle pst3	51	87942	87943
RN without needle		7632-01	7633-01

Accessories and Spare Parts

Syringe type / **Syringe capacity**	62 2.5 µl	65 5 µl
RN Nut	30902	30902
Standard RN needles	7770-01	7770-01

Syringe Calibration Service

Add the prefix "CAL" in the beginning of the syringe part number



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800 Series Syringes

The 800 series MICROLITER syringes are a further development of the 700 series syringes and are liquid tight. The plungers are equipped with a removable metal handle which prevents heat transfer and the fine plunger from bending. The handle is assembled with a special stop that prevents the plunger from blowing out.
If the glass barrel becomes damaged, the barrel can be easily replaced in the lab.
The accuracy of these syringes is ± 1% of the nominal volume.

Typical applications are:

- Sample injections in HPLC valves
- Manual sample injections in GC
- Sample collection from deep containers



Tech Tip
To achieve best reproducibility results of single deliveries, it is recommended to first overfill the syringe by 20% of the volume dispensed.

Economical Tip
Reusable handle can be used for 800 and 1800 series syringes.

800 N Syringes



Ordering information	Needle length mm	Volume 5 µl Model 85 Gauge 26s	Volume 10 µl Model 801 Gauge 26s	Volume 25 µl Model 802 Gauge 22s	Volume 50 µl Model 805 Gauge 22s	Volume 100 µl Model 810 Gauge 22s	Volume 250 µl Model 825 Gauge 22s
N cemented needle pst2	51	84850	84852	84854	84856	84858	84860

800 RN Syringes



Ordering information	Needle length mm	Volume 5 µl Model 85 Gauge 26s	Volume 10 µl Model 801 Gauge 26s	Volume 25 µl Model 802 Gauge 22s	Volume 50 µl Model 805 Gauge 22s	Volume 100 µl Model 810 Gauge 22s	Volume 250 µl Model 825 Gauge 22s
RN needle pst2	51	84851	84853	84855	84857	84859	84861
RN without needle		7641-01	7642-01	7643-01	7644-01	7645-01	7646-01

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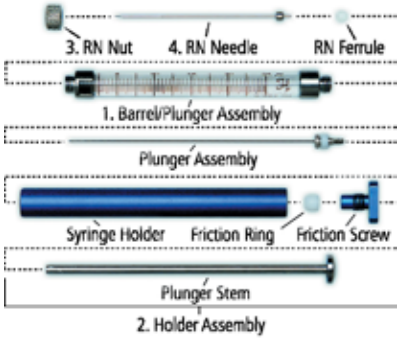
Accessories and Spare Parts

Syringe type Syringe capacity	85 5 µl	801 10 µl	802 25 µl	805 50 µl	810 100 µl	825 250 µl
Reproducibility (Chaney) Adapter	32146	32146	32146	32146	32146	32146
RN nut	30902	30902	30902	30902	30902	30902
Holder assembly	32135	32135	32135	32135	32135	32135
Needles						
Standard RN needles	7758-02	7758-02	7770-01	7770-01	7770-01	7779-03
Barrel plunger assemblies						
Barrel/punger assembly N	32150	32151	32152	32153	32154	32155
Barrel/punger assembly RN	32164	32165	32166	32167	32168	32169
Barrel/punger assembly RN [1]	32134	32129	32117	32120	32123	32126

[1] Without needle

Syringe Calibration Service

Add the prefix "CAL" in the beginning of the syringe part number



Technical Specifications

Syringe type Syringe capacity	85 5 µl	801 10 µl	802 25 µl	805 50 µl	810 100 µl	825 250 µl
Needle length (mm)	51	51	51	51	51	51
Needle gauge	26s	26s	22s	22s	22s	22s
Needle outer diameter (mm)	0.47	0.47	0.72	0.72	0.72	0.72
Needle inner diameter (mm)	0.13	0.13	0.15	0.15	0.15	0.15
Needle point style	2	2	2	2	2	2
Electro tapered	Yes	Yes	Yes	Yes	Yes	Yes
Dead volume in needle (µl)	0.68	0.68	0.90	0.9	0.9	0.9
Scale length (mm)	54	54	60	60	60	60
Test pressure (MPa)	0.6	0.6	0.6	0.6	0.6	0.6

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7000 Series Syringes

HAMILTON 7000 series syringes are designed on the dead volume free principle of positive displacement. A fine tungsten plunger extends through the whole length of the syringe to the needle end. These syringes are available in capacities from 0.5 µl up to 5 µl. The accuracy is ± 1% of the nominal volume. The needle and tungsten plunger are exactly fitted and can be replaced as an assembly. Since the needle length and inner diameter determine the nominal volume when ordering special needles (SN) only the length and point style can be defined. Point style 5 needles are not available

Typical applications are:

- Sample injection in GC
- Sample pipetting in the sub microliter range in GC and TLC
- Micropipetting
- Animal injections
- Micro volume fluid transfers



Tech Tip

The knurled hub is seated against a sealing ferrule at the junction of the needle/glass barrel, to ensure injection pressure. To maintain this seal periodically tighten the knurled hub nut until light resistance to plunger movement is felt. Use of pliers on the knurled hub nut may be required to achieve tightness.

7000 Syringes



Ordering information	Needle length mm	Volume 0.5 µl Model 7000.5 OC Needle O.D. 0.23 mm	Volume 0.5 µl Model 7000.5 Needle O.D. 0.50 mm	Volume 1.0 µl Model 7001 Needle O.D. 0.47 mm	Volume 1.0 µl Model 7101 Needle O.D. 0.70 mm	Volume 2.0 µl Model 7002 Needle O.D. 0.50 mm	Volume 2.0 µl Model 7102 Needle O.D. 0.63 mm	Volume 5.0 µl Model 7105 Needle O.D. 0.56 mm
Knurled hub (KH) pst2	70		86259	80135	86211	88411	88511	88011
Knurled hub (KH) pst3	100	86257						
Knurled hub (KH) pst3	70		86250	80100	86200	88400	88500	88000
Knurles hub (KH) pst *	*			80108				

* Specify only needle length, point style 5 is not available
Maximum needle length for SN is 130 mm

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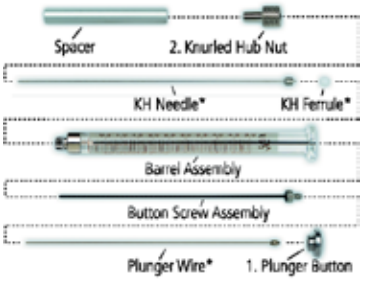
Accessories and Spare Parts

Ordering information	Volume 0.5 µl Model 7000.5 OC	Volume 0.5 µl Model 7000.5	Volume 1.0 µl Model 7001	Volume 1.0 µl Model 7101	Volume 2.0 µl Model 7002	Volume 2.0 µl Model 7102	Volume 5.0 µl Model 7105
Reproducibility (Chaney) Adapter	14725	14725	14725	14725	14725	14725	14725
Syringe Guide	14096	14096	14096	14096	14096	14096	14096
Knurled hub (KH)	17658	17789	17789	17789	17789	17789	17789
Repair kit pst3	86258						
Repair kit pst3		17187	17188	17190	17191	17192	17193
Repair kit pst2		17887	17888	17890	17891	17892	17893
Repair kit SN *			17881				

* Specify only needle length, point style 5 is not available
Maximum needle length for SN is 130 mm

Syringe Calibration Service

Add the prefix "CAL" in the beginning of the syringe part number



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

Technical Specifications

Ordering information	Volume 0.5 µ Model 7000.5 OC	Volume 0.5 µ Model 7000.5	Volume 1.0 µ Model 7001	Volume 1.0 µ Model 7101	Volume 2.0 µ Model 7002	Volume 2.0 µ Model 7102	Volume 5.0 µ Model 7105
Needle length	100	70	70	70	70	70	70
Needle O.D. (mm)	0.23	0.50	0.47	0.70	0.50	0.63	0.56
Needle I.D. (mm)	0.11	0.11	0.15	015	0.21	0.21	0.33
Dead volume (µ)	0	0	0	0	0	0	0
Electro-tapered	no	no	no	yes	no	yes	no
Scale length (mm)	60	60	60	60	60	60	60
Minor graduation (µ)	0.005	0.005	0.01	0.01	0.02	0.02	0.05
Max working temperatur (°C)	50°	50°	50°	50°	50°	50°	50°
Min working temperatur (°C)	10°	10°	10°	10°	10°	10°	10°

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1700 Series Syringes

The HAMILTON 1700 series is the GASTIGHT® version of the 700 series. The syringes are designed to work with liquids and gases. These syringes use PTFE as an inert plunger seal. They cover capacities from 10 µl to 500 µl.
The syringes have an accuracy of ± 1% of the nominal volume. With these syringes liquids only come into contact with glass and PTFE. The plunger assemblies are interchangeable.

Typical applications are:

- Use in diluters/dispensers
- Use in autosamplers and analysers
- Pipetting of gases
- Sample injection in GC, LC and TLC



Tech Tip
When initially inserting the plunger into a GASTIGHT® syringe barrel, wet the PTFE tip with deionised water or another solvent compatible with the sample.

Economical Tip
Plungers for GASTIGHT® syringes are easily replaceable while your glass barrel is not broken.

N Syringes



Ordering information	Needle length mm	Volume 10 µl Model 1701 Gauge 26s	Volume 25 µl Model 1702 Gauge 22s	Volume 50 µl Model 1705 Gauge 22s	Volume 100 µl Model 1710 Gauge 22s	Volume 250 µl Model 1725 Gauge 22s	Volume 500 µl Model 1750 Gauge 22
N cemented needle pst2	51	80000	80200	80900	81000	81100	81217
N cemented needle pst3	51	80075	80275	80975	81075	81175	81216
N cemented needle pst5	51	80039	80239	80939	81039	81139	81243
SN cemented needle *	*	80008	80208	80908	81008	81108	81214

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

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RN Syringes



Ordering information	Needle length mm	Volume 10 µl Model 1701 Gauge 26s	Volume 25 µl Model 1702 Gauge 22s	Volume 50 µl Model 1705 Gauge 22s	Volume 100 µl Model 1710 Gauge 22s	Volume 250 µl Model 1725 Gauge 22s	Volume 500 µl Model 1750 Gauge 22
RN removable needle pst2	51	80030	80230	80930	81030	81130	81230
RN removable needle pst3	51	80065 [1]	80265	80965	81065	81165	81265
RN needle not included		7653-01	7654-01	7655-01	7656-01	7657-01	7658-01

[1] Needle gauge is 22S

LT Syringes



Ordering information	Needle length mm	Volume 10 µl Model 1701 Gauge 26s	Volume 25 µl Model 1702 Gauge 22s	Volume 50 µl Model 1705 Gauge 22s	Volume 100 µl Model 1710 Gauge 22s	Volume 250 µl Model 1725 Gauge 22s	Volume 500 µl Model 1750 Gauge 22
LT Luer Tip		80001	80201	80901	81001	81101	81201

TLL Instrument Syringes



Ordering information	Needle length mm	Volume 10 µl Model 1701 Gauge 26s	Volume 25 µl Model 1702 Gauge 22s	Volume 50 µl Model 1705 Gauge 22s	Volume 100 µl Model 1710 Gauge 22s	Volume 250 µl Model 1725 Gauge 22s	Volume 500 µl Model 1750 Gauge 22
TLL without slots (Luer Lock) needle not included				80920	81020	81120	81220
TLL with slots (Luer Lock) needle not included				80927	81027	81127	81227
TLLX, TLL with stop			80222	80922	81022	81122	81222

TLL-XL Instrument Syringes



Ordering information	Needle length mm	Volume 10 µl Model 1701 Gauge 26s	Volume 25 µl Model 1702 Gauge 22s	Volume 50 µl Model 1705 Gauge 22s	Volume 100 µl Model 1710 Gauge 22s	Volume 250 µl Model 1725 Gauge 22s	Volume 500 µl Model 1750 Gauge 22
TLL-XL Needle not included				201790	201797	201802	201807

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1700 Series Syringes

TLLXB Instrument Syringes



Ordering information	Needle length mm	Volume 10 µl Model 1701 Gauge 26s	Volume 25 µl Model 1702 Gauge 22s	Volume 50 µl Model 1705 Gauge 22s	Volume 100 µl Model 1710 Gauge 22s	Volume 250 µl Model 1725 Gauge 22s	Volume 500 µl Model 1750 Gauge 22
TLLXB, TLL with stop & backbushing. Needle not included			80223	80947	81047	81147	81247

DX Instrument Syringes



Ordering information	Needle length mm	Volume 10 µl Model 1701 Gauge 26s	Volume 25 µl Model 1702 Gauge 22s	Volume 50 µl Model 1705 Gauge 22s	Volume 100 µl Model 1710 Gauge 22s	Volume 250 µl Model 1725 Gauge 22s	Volume 500 µl Model 1750 Gauge 22
DX Diluter with stop Needle not included			80226	80926	81026	81126	81226

CX Chem Instrument Syringes



Ordering information	Needle length mm	Volume 10 µl Model 1701 Gauge 26s	Volume 25 µl Model 1702 Gauge 22s	Volume 50 µl Model 1705 Gauge 22s	Volume 100 µl Model 1710 Gauge 22s	Volume 250 µl Model 1725 Gauge 22s	Volume 500 µl Model 1750 Gauge 22
CX CHEM with stop No needles available		80062	80262	80962	81062	81162	81262

C-XP Instrument Syringes



Ordering information	Needle length mm	Volume 10 µl Model 1701 Gauge 26s	Volume 25 µl Model 1702 Gauge 22s	Volume 50 µl Model 1705 Gauge 22s	Volume 100 µl Model 1710 Gauge 22s	Volume 250 µl Model 1725 Gauge 22s	Volume 500 µl Model 1750 Gauge 22
C-XP No needles available				201720	201730	201740	201750

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AD, DAD AccuDil® Instrument Syringes



Ordering information	Needle length mm	Volume 10 µl Model 1701 Gauge 26s	Volume 25 µl Model 1702 Gauge 22s	Volume 50 µl Model 1705 Gauge 22s	Volume 100 µl Model 1710 Gauge 22s	Volume 250 µl Model 1725 Gauge 22s	Volume 500 µl Model 1750 Gauge 22
AD, AccuDil® with stop (Needle not available)				201000	201050	201100	201150
DAD Diluter AccuDil® with stop (Needle not available)				201500	201550	201600	201650

Accessories

Syringe type **Syringe capacity**	1701 10 µl	1702 25 µl	1705 50 µl	1710 100 µl	1725 250 µl	1750 500 µl
PB600 Repeating Dispenser	83700	83700	83700	83700	83700	83700
Reproducibility (Chaney) Adapter	14700	14725	14725	14725	14725	14725
Syringe Guide	14806	14906	14906	14906	14906	14906
Needles						
Standard RN needles	7758-02	7770-01	7770-01	7770-01	7779-03	7779-01
Standard N needles	90039	90038	90038	90038	90038	90022
Standard KF needles	90139	90138	90138	90138	90138	90122

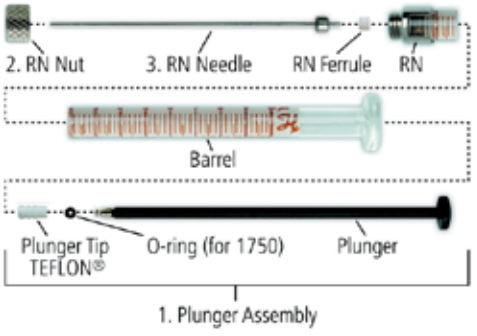
Syringe Calibration Service

Add the prefix "CAL" in the beginning of the syringe part number

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Spare Parts

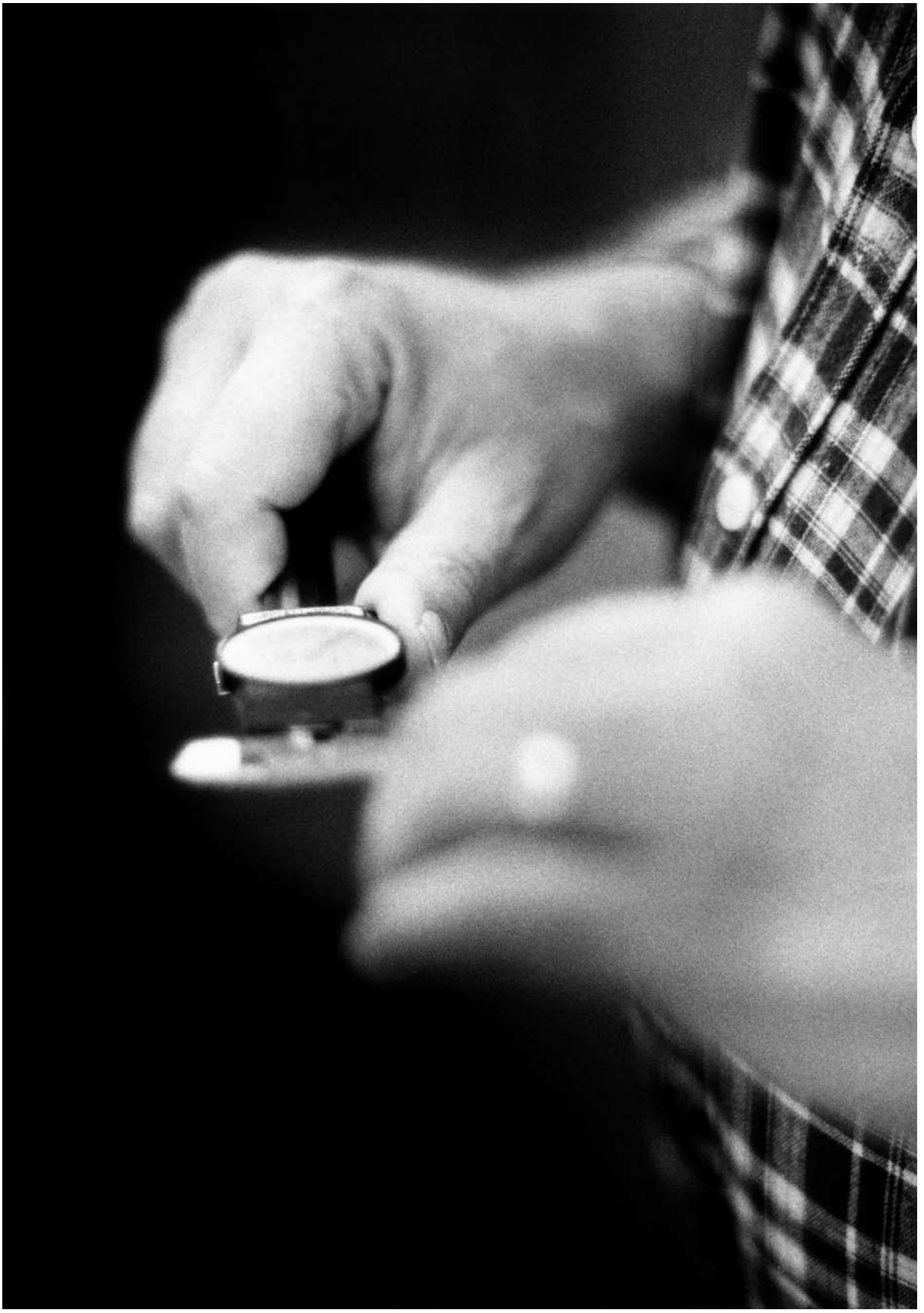
Syringe type Syringe capacity	1701 10 µl	1702 25 µl	1705 50 µl	1710 100 µl	1725 250 µl	1750 500 µl
RN Nut	30902	30902	30902	30902	30902	30902
Plunger assembly N	13205	1122-01	1162-01	1162-02	1162-03	1169-01
Plunger assembly RN	13205	1122-01	1162-01	1162-02	1162-03	1169-01
Plunger assembly LT/LTN	13205	1122-01	1162-01	1162-02	1162-03	13219
Plunger assembly TLLX/DX/CX		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 TLL (without slots)		13269	1162-01	1162-02	1162-03	1169-01



Technical Specifications

Syringe type Syringe capacity	1701 10 µl	1702 25 µl	1705 50 µl	1710 100 µl	1725 250 µl	1750 500 µl
Needle length (mm)	51	51	51	51	51	51
Needle gauge	26s	22s	22s	22s	22s	22
Needle outer diameter (mm)	0.47	0.72	0.72	0.72	0.72	0.72
Needle inner diameter (mm)	0.13	0.15	0.15	0.15	0.15	0.41
Needle point style	2	2	2	2	2	2
Electro-tapered	Yes	Yes	Yes	Yes	Yes	No
Dead volume in needle (µl)	0.68	0.90	0.9	0.9	0.9	6.73
Scale length (mm)	60	60	60	60	60	60
Test pressure (MPa)	0.6	0.6	0.6	0.6	0.6	0.6
Max working temperature (°C)	50	50	50	50	50	50
Min working temperature (°C)	20	20	20	20	20	20

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1800 Series Syringes

HAMILTON 1800 series syringes are gas and liquid tight and equivalent in design to the 800 series. As a further development of the 800/1700 series they combine interchangeability of individual parts (glass barrel, plunger, reusable handle) with easy handling (adjustable plunger, drag and blow out stop). These syringes are available in capacities from 10 µl to 250 µl. The accuracy is the same as other HAMILTON syringes ± 1%

Typical applications are:

- Sample injections in HPLC valves
- Manual sample injections in GC
- Sample collection from deep containers



Tech Tip
Syringes should be used at a constant temperature. Accuracy and reproducibility specifications are determined at 25°C.

Economical Tip
The reusable handle allows fast and easy exchange in your lab and increase the lifetime of your syringes.

1800 N Syringes



Ordering Information	Needle length mm	Volume 10 µl Model 1801 Gauge 26s	Volume 25 µl Model 1802 Gauge 22s	Volume 50 µl Model 1805 Gauge 22s	Volume 100 µl Model 1810 Gauge 22s	Volume 250 µl Model 1825 Gauge 22s
N cemented needle pst2	51	84875	84878	84881	84884	84887

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1800 RN Syringes



Ordering information	Needle length mm	Volume 10 µl Model 1801 Gauge 26s	Volume 25 µl Model 1802 Gauge 22s	Volume 50 µl Model 1805 Gauge 22s	Volume 100 µl Model 1810 Gauge 22s	Volume 250 µl Model 1825 Gauge 22s
RN needle pst2	51	84877	84880	84883	84886	84889
RN without needle		7659-01	7660-01	7661-01	7662-01	7663-01

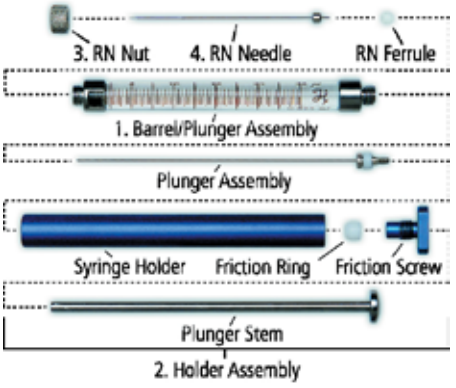
Accessories and Spare Parts

Syringe type Syringe capacity	1801 10 µl	1802 25 µl	1805 50 µl	1810 100 µl	1825 250 µl
Reproducibility (Chaney) Adapter	32146	32146	32146	32146	32146
RN nut	30902	30902	30902	30902	30902
Holder assembly	32135	32135	32135	32135	32135
Standard RN needles	7758-02	7770-01	7770-01	7770-01	7779-03
Plunger assemblies N/RN	32193	1160-01	1161-01	1161-02	4871-01
Glass barrel N	32175				32179
Glass barrel RN [1]	32187	32188	32189	32190	32191

[1] Needle not included

Syringe Calibration Service

Add the prefix "CAL" in the beginning of the syringe part number



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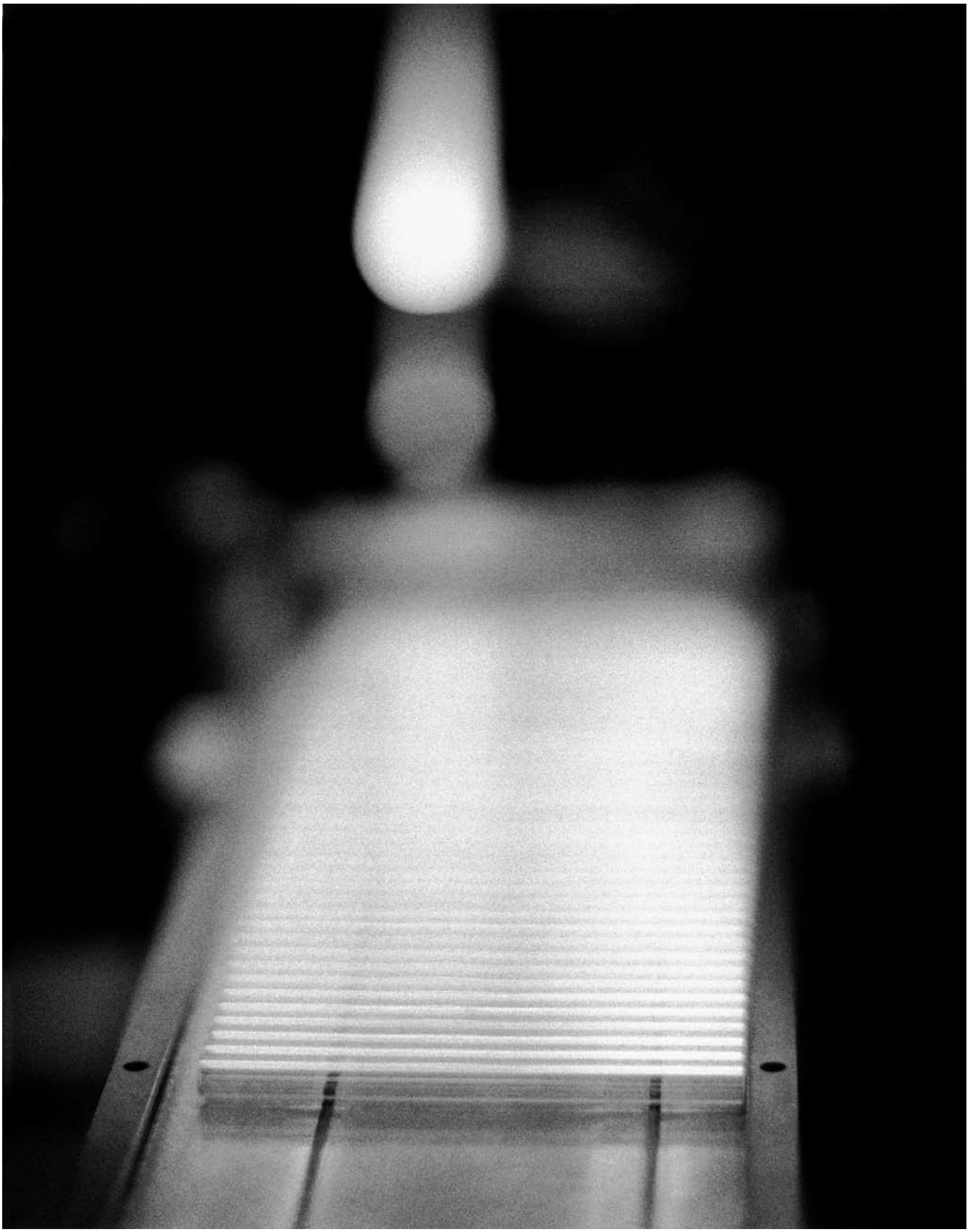
1800 Series Syringes

Technical Specifications

Syringe type **Syringe capacity**	1801 10 µl	1802 25 µl	1805 50 µl	1810 100 µl	1825 250 µl
Needle length (mm)	51	51	51	51	51
Needle gauge	26s	22s	22s	22s	22s
Needle outer diameter (mm)	0.47	0.72	0.72	0.72	0.72
Needle inner diameter (mm)	0.13	0.15	0.15	0.15	0.15
Needle point style	2	2	2	2	2
Electro tapered	Yes	Yes	Yes	Yes	Yes
Dead volume in needle (µl)	0.68	0.90	0.90	0.90	0.90
Scale length (mm)	60	60	60	60	60
Test pressure (MPa)	0.6	0.6	0.6	0.6	0.6
Max working temperature (°C)	50	50	50	50	50
Min working temperature (°C)	20	20	20	20	20



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1000 Series Syringes

The HAMILTON 1000 series syringes are gas and liquid tight and are available in volumes from 1 ml to 100 ml. The barrel is precision-manufactured from borosilicate glass. The plunger is made of PTFE coated aluminium and equipped with a precision PTFE seal. The flexibility of the seal allows the interchange of glass barrel and plunger between syringes of the same capacity. All parts in contact with the samples are made of inert materials such as glass and PTFE.
These GASTIGHT® syringes have an accuracy of ± 1% of the nominal volume.

Typical applications are:

- Use with Hamilton Diluters/Dispensers
- Use with Diluters/Dispensers third party instruments
- Use in analysers
- Pipetting of corrosive liquids
- Pipetting of gases (up to 0.6 MPa)
- Sample injection in GC, LC, TLC and Headspace



Tech Tip
Avoid variations in liquid measure due to body heat by grasping the syringe flange and plunger as you draw and dispense fluid.

Economical Tip
For labs with multiple applications is recommended to buy a RN syringe without needle and separate RN needles according to the application.

LTN Syringes



Ordering information	Needle length mm	Volume 1000 µl Model 1001 Gauge 22	Volume 1250 µl Model 1001.25 Gauge 22	Volume 2500 µl Model 1002 Gauge 22	Volume 5000 µl Model 1005 Gauge 22	Volume 10000 µl Model 1010 Gauge 22	Volume 25000 µl Model 1025 Gauge 22	Volume 50000 µl Model 1050 Gauge 22	Volume 100000 µl Model 1100 Gauge 22
LTN cemented needle pst2	51	81317	82017	81417	81517	81617			
LTN cemented needle pst3	51	81316		81416	81516	81616			
LTN cemented needle pst5	51	81343		81443	81543	81643			
LTSN cemented needle *	*	81314		81414	81514	81614			

* Specify needle gauge, length, point style and whether electro tapered

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RN Syringes



Ordering information	Needle length mm	Volume 1000 µl Model 1001 Gauge 22	Volume 1250 µl Model 1001.25 Gauge 22	Volume 2500 µl Model 1002 Gauge 22	Volume 5000 µl Model 1005 Gauge 22	Volume 10000 µl Model 1010 Gauge 22	Volume 25000 µl Model 1025 Gauge 22	Volume 50000 µl Model 1050 Gauge 22	Volume 100000 µl Model 1100 Gauge 22
RN removable needle pst2	51	81330		81430	81530	81630			
RN removable needle pst3	51	81365							
RN needle not included		7649-01		7650-01	7651-01	7652-01			

LT Syringes



Ordering information	Needle length mm	Volume 1000 µl Model 1001 Gauge 22	Volume 1250 µl Model 1001.25 Gauge 22	Volume 2500 µl Model 1002 Gauge 22	Volume 5000 µl Model 1005 Gauge 22	Volume 10000 µl Model 1010 Gauge 22	Volume 25000 µl Model 1025 Gauge 22	Volume 50000 µl Model 1050 Gauge 22	Volume 100000 µl Model 1100 Gauge 22
LT Luer Tip		81301	82001	81401	81501	81601			

TLL Instrument Syringes



Ordering information	Needle length mm	Volume 1000 µl Model 1001 Gauge 22	Volume 1250 µl Model 1001.25 Gauge 22	Volume 2500 µl Model 1002 Gauge 22	Volume 5000 µl Model 1005 Gauge 22	Volume 10000 µl Model 1010 Gauge 22	Volume 25000 µl Model 1025 Gauge 22	Volume 50000 µl Model 1050 Gauge 22	Volume 100000 µl Model 1100 Gauge 22
TLL (Luer Lock) without slots Needle not included		81320		81420	81520	81620	82520	85020	86020
TLL with slots Needle not included		81327		81427	81527	81627	82527	85027	
TLL without flange, without slots. Needle not included							82521	85021	
TLL w/o flange with slots Needle not included							82525	85025	

TLL-XL Instrument Syringes



Ordering information	Needle length mm	Volume 1000 µl Model 1001 Gauge 22	Volume 1250 µl Model 1001.25 Gauge 22	Volume 2500 µl Model 1002 Gauge 22	Volume 5000 µl Model 1005 Gauge 22	Volume 10000 µl Model 1010 Gauge 22	Volume 25000 µl Model 1025 Gauge 22	Volume 50000 µl Model 1050 Gauge 22	Volume 100000 µl Model 1100 Gauge 22
TLL-XL (Luer Lock) without slots. Needle not included		201812		201817	201822	201827			

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1000 Series Syringes

DX Instrument Syringes



Ordering information	Needle length mm	Volume 1000 µl Model 1001 Gauge 22	Volume 1250 µl Model 1001.25 Gauge 22	Volume 2500 µl Model 1002 Gauge 22	Volume 5000 µl Model 1005 Gauge 22	Volume 10000 µl Model 1010 Gauge 22	Volume 25000 µl Model 1025 Gauge 22	Volume 50000 µl Model 1050 Gauge 22	Volume 100000 µl Model 1100 Gauge 22
DX, Diluter with stop Needle not available		81326							

C Instrument Syringes



Ordering information	Needle length mm	Volume 1000 µl Model 1001 Gauge 22	Volume 1250 µl Model 1001.25 Gauge 22	Volume 2500 µl Model 1002 Gauge 22	Volume 5000 µl Model 1005 Gauge 22	Volume 10000 µl Model 1010 Gauge 22	Volume 25000 µl Model 1025 Gauge 22	Volume 50000 µl Model 1050 Gauge 22	Volume 100000 µl Model 1100 Gauge 22
C-Chem Needle not available		81360		81460	81560	81660			

AD AccuDil® Instrument Syringes



Ordering information	Needle length mm	Volume 1000ul Model 1001 Gauge 22	Volume 1250ul Model 1001.25 Gauge 22	Volume 2500ul Model 1002 Gauge 22	Volume 5000ul Model 1005 Gauge 22	Volume 10000ul Model 1010 Gauge 22	Volume 25000ul Model 1025 Gauge 22	Volume 50000ul Model 1050 Gauge 22	Volume 100000ul Model 1100 Gauge 22
AD, AccuDil® with stop Needle not available		201200		201250	201300	201350	201400		
DAD, Diluter AccuDil® with stop. Needle not available		201700							

C-XP Instrument Syringes



Ordering information	Needle length mm	Volume 1000 µl Model 1001 Gauge 22	Volume 1250 µl Model 1001.25 Gauge 22	Volume 2500 µl Model 1002 Gauge 22	Volume 5000 µl Model 1005 Gauge 22	Volume 10000 µl Model 1010 Gauge 22	Volume 25000 µl Model 1025 Gauge 22	Volume 50000 µl Model 1050 Gauge 22	Volume 100000 µl Model 1100 Gauge 22
C-XP Needle not available		201760		201770	201780				

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Accessories

Ordering information	Needle length mm	Volume 1000 µl Model 1001 Gauge 22	Volume 1250 µl Model 1001.25 Gauge 22	Volume 2500 µl Model 1002 Gauge 22	Volume 5000 µl Model 1005 Gauge 22	Volume 10000 µl Model 1010 Gauge 22	Volume 25000 µl Model 1025 Gauge 22	Volume 50000 µl Model 1050 Gauge 22	Volume 100000 µl Model 1100 Gauge 22
PB600 Repeating Dispenser		83700	83700	83700					
RN nut		30902	30902	30902	30902	30902	30902	30902	30902
Needles									
RN needles		7779-01	7779-01	7779-01	7779-01	7779-01	7779-01	7779-01	7779-01
N needles		90022	90022	90022	90022	90022	90022	90022	90022
KF needles		90122	90122	90122	90122	90122	90122	90122	90122

Syringe Calibration Service

Add the prefix "CAL" in the beginning of the syringe part number

Spare Parts

Ordering information	Needle length mm	Volume 1000 µl Model 1001 Gauge 22	Volume 1250 µl Model 1001.25 Gauge 22	Volume 2500 µl Model 1002 Gauge 22	Volume 5000 µl Model 1005 Gauge 22	Volume 10000 µl Model 1010 Gauge 22	Volume 25000 µl Model 1025 Gauge 22	Volume 50000 µl Model 1050 Gauge 22	Volume 100000 µl Model 1100 Gauge 22
Plunger assembly LT/LTN/TLL		1359-01		1360-01	13230	13231	13271	13272	52343-01 [1]
Plunger assembly RN		1359-01		1360-01	13230	13231			
Plunger assembly TLLX		200920							
Plunger assembly C-XP		201765		201775	201785				
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			

[1] Consist of a spindle/tip assembly

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Digital Syringes

The HAMILTON Digital Syringes combined with 700, 1700 and 7000 series syringes forms a device of the highest precision and accuracy. The easy-to-read LCD display has a resolution of ± 0.5% of the nominal volume. These manual operated syringes are equipped with options that help to exactly set volumes and have a plunger stop for reproducible volume deliveries. Syringes series and nominal volume can be easily preset. The nominal volume range is from 0.5 µl to 500 µl. The Digital Syringe combined with a standard syringe is shipped with a Calibration Certificate. Every Digital Syringe is a calibrated device traceable to NIST methods.

Typical applications are:

- Exact sampling for GLP and GMP procedures
- Preparation of standards for GC/HPLC
- Calibration of analytical instruments (AA/ICP, GC, HPLC etc.)



Tech Tip

Periodically clean the plunger slide by gently wiping it with a soft cloth moistered with water or isopropyl alcohol. Thoroughly dry the plunger slide before operating the unit. Occasionally you may need to lubricate the plunger slide by wiping it with a soft cloth moistened with a light oil. Do not leave excess oil on the slide surface that would tend to accumulate dirt. After applying the lubricant, wipe the surface of the plunger slide with a dry cloth, leaving only a very thin film of the oil.

700 Digital Syringes

Ordering information	Needle length mm	Volume 5 µl Model 75 Gauge 26s	Volume 10 µl Model 701 Gauge 26s	Volume 25 µl Model 702 Gauge 22s	Volume 50 µl Model 705 Gauge 22s	Volume 100 µl Model 710 Gauge 22s	Volume 250 µl Model 725 Gauge 22s	Volume 500 µl Model 750 Gauge 22
N cemented needle pst2	51	DS87900	DS80300	DS80400	DS80500	DS80600	DS80700	DS80800
N cemented needle pst3	51		DS80365	DS80465	DS80565	DS80665	DS80765	DS80865
RN cemented needle pst2	51	DS87930	DS80330	DS80430	DS80530	DS80630	DS80730	DS80830

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1700 Digital Syringes

Ordering information	Needle length mm	Volume 10 µl Model 1701 Gauge 26s	Volume 25 µl Model 1702 Gauge 22s	Volume 50 µl Model 1705 Gauge 22s	Volume 100 µl Model 1710 Gauge 22s	Volume 250 µl Model 1725 Gauge 22s	Volume 500 µl Model 1750 Gauge 22
N cemented needle pst2	51	DS80000	DS80200	DS80900	DS81000	DS81100	DS81217
N cemented needle pst3	51	DS80075	DS80275	DS80975	DS81075	DS81175	
RN removable needle pst2	51	DS80030	DS80230	DS80930	DS81030	DS81130	DS81230

7000 Digital Syringes

Ordering information	Needle length mm	Volume 0.5 µl Model 7000.5 OC O.D. 0.23 mm	Volume 0.5 µl Model 7000.5 O.D. 0.50 mm	Volume 1.0 µl Model 7001 O.D. 0.47 mm	Volume 1.0 µl Model 7101 O.D. 0.70 mm	Volume 2.0 µl Model 7002 O.D. 0.50 mm	Volume 2.0 µl Model 7102 O.D. 0.63 mm	Volume 5.0 µl Model 7105 O.D. 0.56 mm
Knurled hub (KH) pst2	70		DS86259	DS80135	DS86211	DS88411	DS88511	DS88011
Knurled hub (KH) pst3	70		DS86250	DS80100	DS86200	DS88400	DS88500	DS88000
Knurled hub (KH) pst*				DS80108				
Replacement battery	**369076**							

* Specify only needle length, point style 5 is not available
Maximum needle length for SN is 130 mm



Shelf Life

Calibration for Digital Syringes remain valid during the period before use. Syringes that are recalibrated do not show significant changes in accuracy, unless there is evidence of abuse or contamination.



Recalibration

The recommended maximum calibration interval is one year. This is depended upon use and user needs. If the Digital Syringe is used daily, then calibration should be performed every six months.
If the application for which the Digital Syringe is used is critical then the interval should be six months or less.

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SampleLock Syringes

The HAMILTON SampleLock syringes allow you to collect, store, transport and analyze liquid or gaseous samples without the danger of evaporative loss or environmental contamination.
Syringes are available in sizes ranging from 50 µl to 100 ml. An easy-to-use twist valve and a positive rear stop on SampleLock (250 µl to10 ml) prevents loss of sample and plunger blowout. Optional male luer and female luer lock adapter threads on the SampleLock valve making the syringes compatible with a multitude of connectors and fittings.

Typical applications are:

- Headspace application
- Environmental sample collection and storage
- Pre-pressurization of gaseous sample for GC analysis
- Injection of internal standards through the valve port into samples
- Sample spiking



Tech Tip
Sample Pre-Pressurization
Obtain reproducible results during GC quantitation of gaseous samples by pressurizing the syringe contents prior to injection.

1. With the SampleLock valve closed, depress the syringe plunger and hold it in position.
2. Insert the needle into the injection valve and open the SampleLock valve while depressing the plunger to release the sample onto the head of the column.

This technique produces a positive injection pressure over the column inlet, prevents sample loss from blowback, and ensures a tighter sample plug. Please exercise care when pre-pressurizing small volume SampleLock syringes as it is easy to develop pressures in excess of 250 psig, which may cause the valve to leak.

1700 SampleLock Syringes



Ordering information	Needle length mm	Volume 50 µl Model 1705 Gauge 22s	Volume 100u µl Model 1710 Gauge 22s	Volume 250 µl Model 1725 Gauge 22s	Volume 500 µl Model 1750 Gauge 22
RN removable needle pst2	51	80956		81156	81256

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1000 SampleLock Syringes



Ordering information	Needle length mm	Volume 1000u µl Model 1001 Gauge 22	Volume 2500 µl Model 1002 Gauge 22	Volume 5000 µl Model 1005 Gauge 22	Volume 10000 µl Model 1010 Gauge 22	Volume 25000 µl Model 1025 Gauge 22	Volume 50000 µl Model 1050 Gauge 22	Volume 100000 µl Model 1100 Gauge 22
RN removable needle pst2	51	81356	81456	81556	81656	86326	86336	86346

Accessories & Spare Parts

Ordering information	Model 1705 Gauge 22S	Model 1710 Gauge 22S	Model 1725 Gauge 22S	Model 1750 Gauge 22	Model 1001 Gauge 22	Model 1002 Gauge 22	Model 1005 Gauge 22	Model 1010 Gauge 22	Model 1025 Gauge 22	Model 1050 Gauge 22	Model 1100 Gauge 22
Plunger assembly	1162-02	1162-02	1320-01	1321-01	1343-01						1615-03
RN removable needle pst2	7779-03	7779-03	7779-03	7779-01	7779-01	7779-01	7779-01	7779-01	7779-01	7779-01	7779-01
RN removable needle pst3	7780-03	7780-03	7780-03	7780-04	7780-04	7780-04	7780-04	7780-04	7780-04	7780-04	7780-04
RN removable needle pst5	7784-01	7784-01	7784-01	7784-02	7784-02	7784-02	7784-02	7784-02	7784-02	7784-02	7784-02
Female Luer RN needle hub	35081	35081	35081	35081	35081	35081	35081	35081	35081	35081	35081
Male Luer RN needle hub	35080	35080	35080	35080	35080	35080	35080	35080	35080	35080	35080
Male Luer Lock RN needle hub	35083	35083	35083	35083	35083	35083	35083	35083	35083	35083	35083

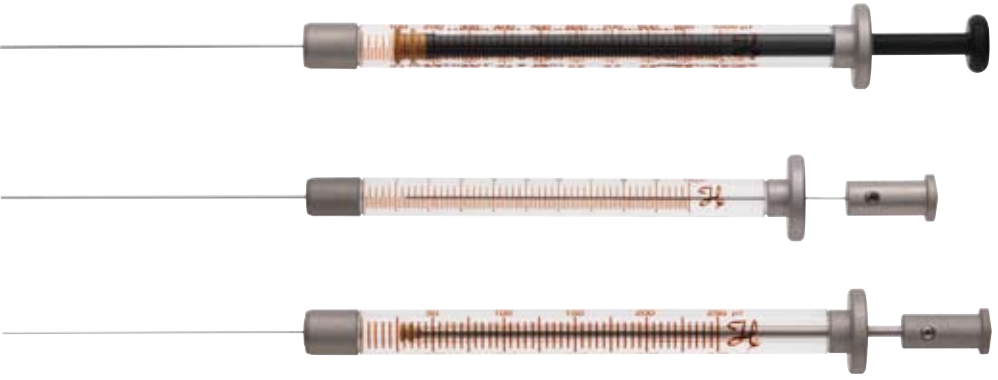
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GC Autosampler Syringes

For manual injection and for automatic injectors (Autosamplers) from leading manufacturers you can choose from a wide variety of HAMILTON syringes.

CTC GC PAL Autosampler Syringes

The newest generation of Autosampler syringes is used in the CTC GC and LC PAL instrument.
These syringes combine the well known HAMILTON syringe with the newest development in syringes.



CTC GC PAL 700 Series Syringes



Ordering information	Needle length mm	Volume 1,2 µl Model 7701.2	Volume 5 µl Model 75 Gauge 26s	Volume 5 µl Model 75 **/**	Volume 10 µl Model 701 Gauge 23s	Volume 10 µl Model 701 Gauge 26s	Volume 10 µl Model 701 */*
Needle pstAS		203185	203189		203361	203205	
Needle pst2					203363	203072	
SN needle *	*			203197			203198

* Specify needle gauge, length, point style and whether electro tapered

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CTC GC PAL 1700 Series Syringes and Spare Parts



Ordering information	Needle length mm	Volume 10 µl Model 1701 Gauge 26s	Volume 25 µl Model 1702 Gauge 26s	Volume 25 µl 1702 Slim Line Gauge 26s	Volume 100 µl Model 1710 Gauge 26s	Volume 250 µl Model 1725 Gauge 26	Volume 500 µl Model 1750 Gauge 26
Needle pstAS			203043	203074	203076	203078	203080
SN needle *	*	203206	203209	203275	203226	203219	
Plunger assembly 10 pcs/pack		203239	203245	203276	203246	203249	203254

* Specify needle gauge, length, point style and whether electro tapered

Headspace Syringes and Spare Parts

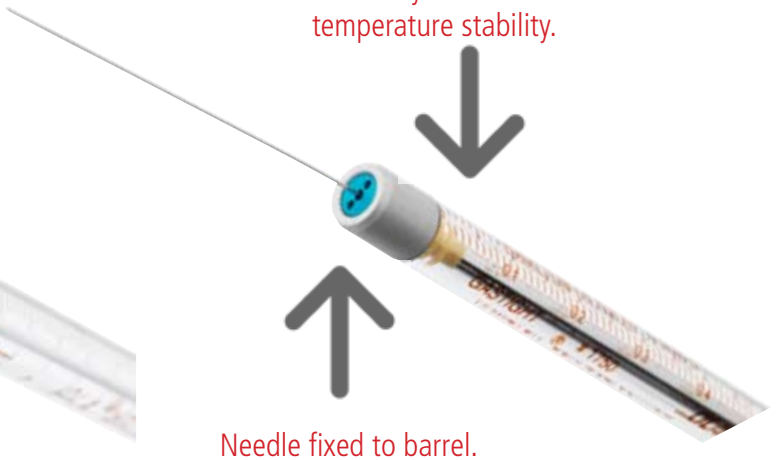
Ordering information	Volume 1000 µl Model 1001 Gauge 23	Volume 1000 µl Model 1001 Gauge 26	Volume 2500 µl Model 1002 Gauge 23	Volume 2500 µl Model 1002 Gauge 26	Volume 5000 µl Model 1005 Gauge 23	Volume 5000 µl Model 1005 Gauge 26
Needle pst5	203082	203141	203084	203181	203086	203182
Replacement plunger	203255	203255	203256	203256	203259	203259

NEW Flange design for clear assembling in the instrument.



Adjustable plunger protects plunger tip from squeezing.

NEW SEAL TIP
PFTE/Polymer mixture: Better temperature stability.



Needle fixed to barrel.
Zero carry over.
Sample has no contact with glue or cement.

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GC Autosampler Syringes

The syringe for accurate and effective sampling in your Agilent Autosampler. The syringes are available with N (cemented) and RN (removable) needle.



Tech Tip

Always pull liquid into a syringe barrel to wet the interior surface. Avoid unnecessary moving or pumping of the plunger in a dry syringe. Excessive dry pumping increases plunger wear, shorten syringe life expectancy and may lead to damage beyond repair.

Economical Tip

Six Pack

- Savings! Syringes cost less in a Six Pack
- Convenience! Packaging container keeps Syringes close at hand

Agilent Instrument 7673-7683, 6850 ALS



Ordering information	Needle length mm	Volume 0.5 µl Model 7000.5	Volume 1 µl Model 7001	Volume 5 µl Model 75	Volume 10 µl Model 701	Volume 10 µl Model 1701
N needle 23s/AS	43			87987	80387	80080
RN needle 23s/AS	43	86276	80176	87957	80357	80087
N needle 23s/2	43			87991	80398	
N needle 26s/AS	43			87988	80388	
RN needle 26s/AS	43	86274		87958	80358	80088
N needle 26s/2	43			87992	80399	
N needle 23s-26s/AS	43			87993	80393	80079
RN needle 23s-26s/AS	43			87959	80359	80089

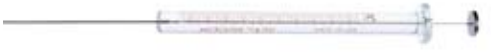
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Agilent Instrument
7673-7683, 6850 ALS (Six Pack)



Ordering information	Needle length mm	Volume 5 µl Model 75	Volume 10 µl Model 701	Volume 10 µl Model 1701
N needle 23s/AS	43	87990	80390	80094
RN needle 23s/AS	43			
N needle 23s/2	43			
N needle 26s/AS	43	87989	80389	
RN needle 26s/AS	43			
N needle 26s/2	43			
N needles 23s-26s/AS	43	87994	80391	80096
RN needle 23s-26s/AS	43			

Agilent Instrument
7670, 7671, 7672 ALS



Ordering information	Needle length mm	Volume 5 µl Model 75	Volume 10 µl Model 701	Volume 10 µl Model 1701
N needles 26s/2	51	87900	80300	80000
RN needle 26s/2	51		80338	80011
RN needle 26s/2 6 pack	51		80366	

Six Pack RN Needles Agilent Instrument
7673-7683, 6850 7670,7671,7672 ALS



Ordering information	Needle length mm	Volume 5 µl Model 75	Volume 10 µl Model 701	Volume 10 µl Model 1701
RN needle 23s/AS	43	7786-01	7786-01	
RN needle 26s/AS	43	7786-02	7786-02	
RN needles 26s/2	51			7758-02
RN needle 23s-26s/AS	43	7785-01	7785-01	

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GC Autosampler Syringes

Varian-Chrompack GC Autosamplers

Varian 8100/8200



Ordering information	Needle length mm	Volume 10 µl Model 701 Varian
RN needle 0.48/5		202880
RN replacement needle 0.48/5		202903

Varian CP 8400/8410 CP9010/9050



Ordering information	Needle length mm	Volume 5 µl Model 75	Volume 10 µl Model 701
N needles 26s/2	51	87900	80300
N needles 26s/2 6 pcs/pk	51		80366

Shimadzu GC Autosamplers

Shimadzu AOC-9



Ordering information	Needle length mm	Volume 5 µl Model 75	Volume 10 µl Model 701
RN needle 26s/2	51	87930	80330
RN replacement needle 26s/2 6 pcs/pk	51	7758-02	7758-02

Tech Tip

Always pull liquid into a syringe barrel to wet interior surface. Avoid unnecessary moving or pumping of the plunger in a dry syringe. Excessive dry pumping increases plunger wear, shortens syringe life expectancy and may lead to damage beyond repair.

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Shimadzu AOC-14/17/20



Ordering information	Needle length mm	Volume 5 µl Model 75	Volume 10 µl Model 701
RN needle 22s/2	51	202630	202640
RN replacement needles 22s/2	51	202645	202645

Thermo Autosamplers

HS 250/500/850



Ordering information	Needle length mm	Volume 2500 µl Model 1002 Gauge 22
LTN needle pst5	51	202660
LTN without needle		202670

AS 800



Ordering information	Needle length mm	Volume 10 µl Model 701 Gauge 26s
N needle pstAS	80	202066

AI/AS 3000

Ordering information	Needle length mm	Volume 5 µl Model 75 Gauge 26s	Volume 10 µl Model 701 Gauge 26s	Volume 10 µl Model 1701 Gauge 26s
N needle pst2	50	204000	204001	
N needle pstAS	50	204051	204052	
RN needle pst2	50			204922

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Perkin-Elmer® Autosystem™

Autosystem™ and Clarus 500 GC



Ordering information	Needle length mm	Volume 5 µl Model 75
N needle 0.47 pst3	70	88040
N needle 0.63 pst3	70	88035

Syringes for On-Column Grob GC Injection



Ordering information	Needle length mm	Volume 0.5 µl Model 7000.5 OC	Volume 5 µl Model 75	Volume 10 µl Model 701
N needle 0.23/pst45°	85		200741	200740
N needle 0.23/pst45°	75		200743	200742
KH needle 0.23/pst3	100	86257		

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Made by Werner Kirsch, Cologne

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HPLC Manual Injection Syringes



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

Ordering information	Needle length mm	Model 600 RNR	Model 700NR	Model 1700 NR	Model 1700RNR	Model 1000 RNR	RN needle 6pack
2.5 µl RN Removable needle 22s/pst3	51	87942					7770-01
5 µl RN Removable needle 22s/pst3	51	87943					7770-01
10 µl N Cemented needle 22s/pst3	51		80365				
10 µl RN Removable needle 22s/pst3	51				80065		7770-01
25 µl N Cemented needle 22s/pst3	51		80465	80275			
25 µl RN Removable needle 22s/pst3	51				80265		7770-01
50 µl N Cemented needle 22s/pst3	51		80565	80975			
50 µl RN Removable needle 22s/pst3	51				80965		7770-01
100 µl N Cemented needle 22s/pst3	51		80665	81075			
100 µl RN Removable needle 22s/pst3	51				81065		7770-01
250 µl N Cemented needle 22s/pst3	51		80765	81175 [1]			
250 µl RN Removable needle 22s/pst3	51				81165		7780-04
500 µl N Cemented needle 22s/pst3	51		80865	81216			
500 µl RN Removable needle 22s/pst3	51				81265		7780-04
1000 µl RN Removable needle 22s/pst3	51					81365	7780-04

[1] with needle gauge 22s

Tech Tip

Rinse the syringe after use with an appropriate solvent cleaning agent. Following the use of cleaning agent, rinse the syringe with deionized water and finally acetone. Wipe the exterior surface of the syringe barrel and needle dry with a lint-free tissue. Make sure that there is no residual cleaning agent in the syringe before using or storing the syringe. Do not soak or submerse the entire syringe in any cleaning agent. Prolonged contact with cleaning agents may damage bonded parts.

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Syringes for Valco™ VISF-1



Ordering information	Needle length mm	Model RNCP	RN needle 6pack
25 µl RN Removable needle 22s/pst3	19	80231	7787-01
50 µl RN Removable needle 22s/pst3	19	80931	7787-01
100 µl RN Removable needle 22s/pst3	19	81031	7787-01
250 µl RN Removable needle 22s/pst3	19	81131	7787-01
500 µl RN Removable needle 22s/pst3	19	81231	7787-02
1000 µl RN Removable needle 22s/pst3	19	81331	7787-02
2500 µl RN Removable needle 22s/pst3	19	81431	7787-02
5000 µl RN Removable needle 22s/pst3	19	81531	7787-02
10000 µl RN Removable needle 22s/pst3	19	81631	7787-02

Syringes for WATERS® U6K Injection Valve



Ordering information	Needle length mm	Model 800RNW	Model 1700RNW	Model 1800RNW	RN needle 6pack
10 µl RN Removable needle 25s/pst3	50	84815			8647-01
25 µl RN Removable needle 25s/pst3	50	84816	80238	84980	8647-01
50 µl RN Removable needle 25s/pst3	50	84817	80938	84983	8647-01
100 µl RN Removable needle 25s/pst3	50	84818	81038	84986	8647-01
250 µl RN Removable needle 25s/pst3	50	84819	81138	84989	8648-01

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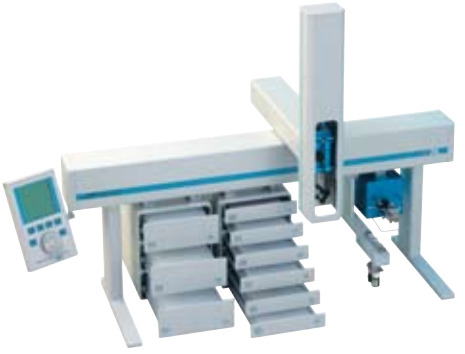
HPLC Autosampler Syringes

Syringes for CTC LC Autosamplers



Ordering information	Model 700 C-Line Slim Line	Model 1700 C-Line	Model 1700 C-Line Slim Line	Model1000 C-Line	Replacement plungers 10 pcs/pk
10 µl N Fixed needle 22s/pst3	203073				
10 µl N Fixed needle 22s/pst3			203194		203239
25 µl N Fixed needle 22s/pst3		203075			203245
25 µl N Fixed needle 22s/pst3			203274		203276
50 µl N Fixed needle 22s/pst3		204940			
100 µl N Fixed needle 22s/pst3			203077		203246
100 µl N Fixed needle 22/pst3			203235		203246
250 µl N Fixed needle 22/pst3		203079			203249
500 µl N Fixed needle 22/pst3		203349			203254
1000 µl N Fixed needle 22/pst3				203081	203255 [1]
2500 µl N Fixed needle 22/pst3				203083	203256 [1]
5000 µl N Fixed needle 22/pst3				203085	203259 [1]

[1] Only 1 piece per pack



Syringes for Agilent 1090A



Ordering information	Model 1700
25 µl RN without needle	202315
250 µl RN without needle	202325

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Syringes for Shimadzu SIL-6A



Ordering information	Model 1700
100 µl RN without needle	7656-01

Syringes for Gynkotek Gina Dionex ASI-100LC



Ordering information	Model 1700
25 µl RN without needle	7654-01
250 µl RN without needle	202134

Syringes for Hitachi/LaChrom L-7200/7250 AS1000/2000/42000



Ordering information	Model 1700
500 µl 1750 SPLC	0160310

Syringes for Spectra-Physics



Ordering information	Model 1700	Model 1000
250 µl C-connector	202145	
500 µl C-connector	202192	
2500 µl C-connector		81460

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HPLC Autosampler Syringer

Thermo LC Autosamplers



Ordering information	Model 1700	Model 1000
250 µl C-connector	202456	
500 µl C-connector	202457	
1000 µl C-connector		81360
2500 µl C-connector		81460

Syringes Perkin-Elmer Autosampler 200



Ordering information	Model 1700	Model 1000
50 µl C-connector	80962	
250 µl C-connector	81162	
500 µl C-connector	81262	
1000 µl C-connector		81360
2500 µl C-connector		81460

Syringes Varian 9100

Ordering information	Model 1700
100 µl C-connector	0159902

Syringes WATERS® WISP™



Ordering information	Model 1700	Model 1000
25 µl WISP	80020	
250 µl WISP	80024	
500 µl C-connector	81262	
10000 µl W		81610

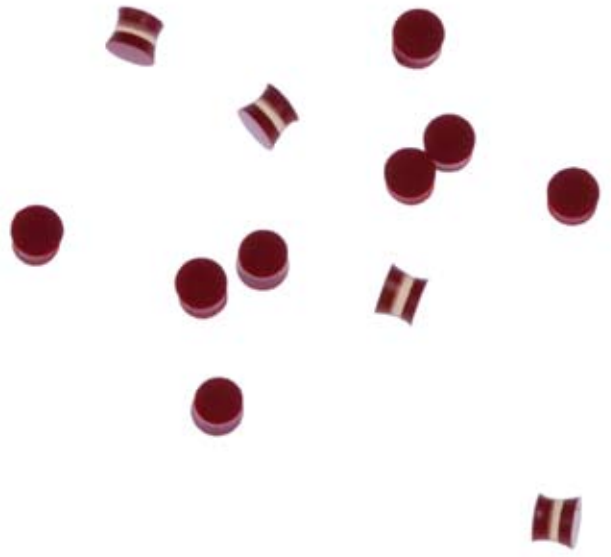
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HAMILTON offers four different varieties of septa. The Long Life GC Autosampler Septa, the Low Bleed High Temperature Septa (up to 400°C), the PTFE High Temperature Septa (up to 212°C) and the Three Layer Septa (up to 200°C) are available.

Three Layer Septa

- Preconditioned silicone rubber septa, 3.81 mm (0.15") thick
- Average life: 100 injections with a 26s gauge needle
- Maximum operating temperature: 200°C
- 12 per package

Septa diameter	Three Layer Septa Partnumber
5 mm/.197"	76022
6.35 mm/.250"	76001
7 mm/.281"	76010
8 mm/.312"	76002
9 mm/.355"	76003
9.5 mm/.375"	76004
10 mm/.394"	76005
11 mm/.438"	76007
12 mm/.469"	76013
12.7 mm/.500"	76006
13 mm/.516"	76009
14 mm/.562"	76015
15 mm/.594"	76016
16 mm/.625"	76008
16.7 mm/.656"	76017
18 mm/.719"	76019
19 mm/.750"	76020



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High Temperature Septa

- Preconditioned PTFE/silicone rubber septa, 3.175 mm (0.125") thick
- Average life: up to 100 injections with a 26s gauge needle
- Maximum operating temperature: 212°C
- 12 per package

Septa diameter	Three Layer Septa Partnumber
6.35 mm/.250"	75801
7 mm/.281"	75810
8 mm/.312"	75802
9 mm/.355"	75803
9.5 mm/.375"	75804
10 mm/.394"	75805
11 mm/.438"	75807
12 mm/.469"	75813
12.7 mm/.500"	75806



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Long Life GC Autosampler Septa

Long Life GC Autosampler 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 use of the HAMILTON dual gauge needle GC autosampler syringes.

Part Number	Description
75829	5 mm diameter septa for Agilent on-column injector port with prepunctured center depression 25/pk
75831	9 mm diameter septa with prepunctured center depression 25/pk
75825	9.5 mm diameter septa 25/pk
75826	11 mm diameter septa with prepunctured center depression 25/pk
75832	11.5 mm diameter septa with prepunctured center depression 25/pk
75827	12.7 mm diameter septa 25/pk
75830	17 mm diameter septa 25/pk



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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 center depression which guides the syringe needle 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.

Part Number	Description
75840	5 mm diameter septa for Agilent on-column injector port with prepunctured center depression 50/pk
75834	9 mm diameter septa with prepunctured center depression 50/pk
75833	9.5 mm diameter septa 50/pk
75838	10 mm diameter septa 50/pk
75835	11 mm diameter septa with center depression 50/pk
75839	11.5 mm diameter septa with 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



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SaltLine Syringes

The HAMILTON SaltLine Syringes have an extremely long lifetime when used with salty solution in the pH range from 1 to 13. Special attention must be paid to their alkaline resistance (alkaline class 2) when used in the higher pH range (> pH 10). The syringes are gas and liquid tight and are available in the volume range from 100 µl to 10 ml. The accuracy is ± 1% of the nominal volume.
HAMILTON SaltLine Syringes are designed to be compatible with the HAMILTON 1000 and 1700 series GASTIGHT® Syringes.
They can be ordered with TLL, D, AD and DAD connectors.

Typical applications are:

- Sampling of aqueous, salty solutions up to 30g/litre
- Sampling in a pH range from 1 to 13
- The syringes can be used with HAMILTON Diluters/Dispensers
- Use with hematalogy, titrators and clinical analyzers
- Use with Autosamplers



Tech Tip
A clean syringe does not require any lubricating grease. Grease should not be used. The use of grease may lead to a variety of problems including sample cross-contamination and seizing of the plunger in the barrel.
HAMILTON syringes may be sterilized with appropriate sterilizing agents such as ethylene oxide.

SaltLine Syringe

Ordering information	Volume 100 µl Model 1710	Volume 250 µl Model 1725	Volume 500 µl Model 1750	Volume 1000 µl Model 1001	Volume 2500 µl Model 1002	Volume 50000 µl Model 1005	Volume 10000 µl Model 1010
TLL-SAL	205620	203220	203230	203240	203250	203260	203270
TLL-XL SAL		203500	203505	203510	203515	203520	203525
D-SAL		203450	203460	203470		203480	
AD-SAL	205615	203310	203320	203330	203340	203350	203360
DAD-SAL		203400	203410	203420			
C-XP-SAL		203530	203535	203540	203545	203550	

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SaltLine Syringe Replacement Parts

Ordering information	Volume 100 µl Model 1710	Volume 250 µl Model 1725	Volume 500 µl Model 1750	Volume 1000 µl Model 1001	Volume 2500 µl Model 1002	Volume 50000 µl Model 1005	Volume 10000 µl Model 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	



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Super Syringes

For the delivery of large gas volumes, the HAMILTON Super Syringe is the reliable product. The syringes are made of acrylic glass. The HAMILTON Super Syringes are available with TLL connections.
The maximum possible pressure is 0.2 MPa. HAMILTON stainless needles and PTFE tubing can be mounted onto the TLL connectors.

The HAMILTON Super Syringe is to use in the following applications:

- Air and gas collection in industrial laboratories
- Aid for the graduation of pneumatographs and small containers
- Pulmonary function tests



Operating parameters maximum temperature 80°C maximum test pressure is 2 bar

Super Syringe

Ordering information	Volume 0.5 litre Model S0500	Volume 1 litre Model S1000	Volume 1.5 litre Model S1500	Volume 2 litre Model S2000
TLL	86311	86312	86313	86314
Tracheal adapater	86301	86302		

Super Syringe Replacement Parts

Ordering information	Volume 0.5 litre Model S0500	Volume 1 litre Model S1000	Volume 1.5 litre Model S1500	Volume 2 litre Model S2000
TLL connector	18026	18026	18026	18026
Super Syringe barrel	18050			

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Constant Rate Syringes

With the CR700 Constant Rate Syringes, preset volumes can be dispensed at a constant flow rate.
The volume is adjustable with a precise and fine adjustable micrometer screw. The adjusted volume can be fixed with a locking ring. Reproducible injection speed is obtained by means of a spring. The sample is delivered by pressing the push button. All these features make the syringe easy to use.

Typical applications:

- Carbon analysis
- Analysis of waste water
- TOC analyzers



CR 700 Syringes

Ordering information	Volume 20 µl Model CR700-20 Gauge 22s	Volume 50 µl Model CR700-50 Gauge 22	Volume 200 µl Model CR700-200 Gauge 22
µl per graduation	**0.05 µl**	**0.1 µl**	**0.5 µl**
CR 700 syringe	84301	84303	84302

CR 700 Syringes Replacement Parts

Ordering information	Volume 20 µl Model CR700-20	Volume 50 µl Model CR700-50	Volume 200 µl Model CR700-200
Plunger assembly	15909		15910
Glass barrel	15927	15945	15928
Needle	15934	15936	15936

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Purge & Trap Syringes

These syringes are ideal for Purge & Trap because you can easily remove the syringe plunger and load water samples into the syringe barrel. You can add an internal standard or surrogate sample directly to your sample through the twist valve with a 10 µl syringe. You can also connect the sample syringe directly to the Purge & Trap valve via the integral male luer fitting.

HAMILTON 5 ml and 25 ml SampleLock Purge & Trap syringes were designed for the analysis of drinking water samples according to EPA purge and trap concentration techniques (see EPA methods 502.1, 502.2, 503.1, 524.1 and 524.2).



Purge & Trap Syringes

Ordering information	Volume 10 µl Model 700	Volume 5000 µl Model 1005 SLPT	Volume 25000 µl Model 1025 SLPT
Syringes	80300	81570	82570
Purge & Trap Valve with female luer fitting For use with TEKMAR™ and 0-I purge and trap connections		86789	86789



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 twiste valve with a 10 µl syringe.



Connect the sample syringe directly to the Purge & Trap valve via the integrale male luer fitting.

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PB600-1 Repeating Dispenser

The PB600-1 sampling device is ideal for repeated dispensing of equal volumes. Per step 1/50th of the syringe volume is delivered. By using different syringe volumes, dispensing between 0.5 µl and 50 µl are possible. To avoid carry over the device can be used with commercially available disposable tips.

Typical applications are:

- Micro pipetting
- Cell cultures
- Serology
- Thin layer chromatography
- Radio immuno assay

The PB600-1 is delivered without syringe.



Tech Tip
The PB600-1 can be used with liquid or gases to consistently dispense 1/50th of the syringe volume.

PB600-1 Repeating Dispenser

Ordering information

Repeating Dispenser	83700 [1]
Total Syringe Volume	25 µl to 2.5 ml
µl per Dispense	0.5 µl to 50 µl

[1] Syringe not included

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MICROLITER™ Syringes for PB600-1

Ordering information	Volume 25 µl Model 702	Volume 50 µl Model 705	Volume 100 µl Model 710	Volume 250 µl Model 725	Volume 500 µl Model 750
µl per dispense	**0.5 µl**	**1 µl**	**2 µl**	**5 µl**	**10 µl**
N cemented needle pst3	80465	80565	80665	80765	80865
RN removable needle pst2	80430	80530	80630	80730	80830
LT (Luer Tip)	80401	80501	80601	80701	80801

GASTIGHT® Syringes for PB600-1

Ordering information	Volume 25 u µl Model 1702	Volume 50 µl Model 1705	Volume 100 µl Model 1710	Volume 250 µl Model 1725	Volume 500 µl Model 1750	Volume 1000 µl Model 1001	Volume 1250 µl Model 1001.25	Volume 2500 µl Model 1002
µl per dispense	**0.5 µl**	**1 µl**	**2 µl**	**5 µl**	**10 µl**	**20 µl**	**25 µl**	**50 µl**
N cemented needle pst3	80275	80975	81075	81175	81216			
RN removable needle pst2	80230	80930	81030	81130	81230	81330		81430
LT (Luer Tip)	80201	80901	81001	81101	81201	81301	82001	81401
LTN (Luer Tip Needle) pst2							82017	
LTN (Luer Tip Needle) pst3						81316		81416
TLL (Luer Lock)		80920	81020	81120	81220	81320		81420

Accessories

Ordering information	Volume 100 µl	Volume 1000 µl
Disposable Tip	75700	
Luer Tip adapter	31331	31331

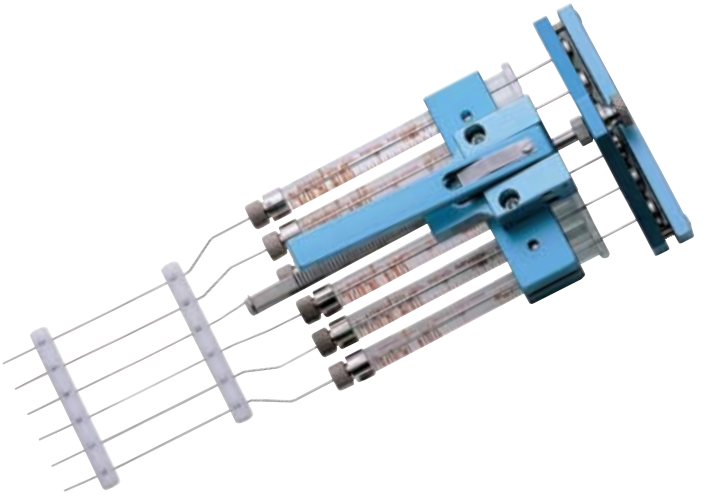
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Terasaki Dispenser

This multi-syringe dispenser consists of 6 identical 1700 RN series GASTIGHT® syringes. An easy to use mechanism releases step by step movement of the plungers. Each movement dispenses 1/50th of the syringe volume. 6 equal volumes are dispensed simultaneously. The HAMILTON multiple dispenser is available with a needle space of 6.35 mm for Terasaki plates.

Typical applications are:

- Filling of Terasaki plates
- Serology for transplantations
- Cell analysis
- Drop sampling



Tech Tip
Needles can be replaced by HAMILTON only. Please contact your local dealer.

Terasaki Dispenser

Ordering information	Volume 25 µl Model 1702	Volume 50 µl Model 1705	Volume 100 µl Model 1710	Volume 250 µl Model 1725	Volume 500 µl Model 1750
µl per dispense	**0.5 µl**	**1 µl**	**2 µl**	**5 µl**	**10 µl**
Dispenser	201900	201910	201920	201930	201940

Replacement Parts

Ordering information	Volume 25 µl Model 1702	Volume 50 µl Model 1705	Volume 100 µl Model 1710	Volume 250 µl Model 1725	Volume 500 µl Model 1750
Plunger assembly (1 piece)	1122-01	1162-01	1162-02	1162-03	1169-01
Glass barrell (1 piece)	10372	10367	10368	10369	10370

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Syringes with Threaded Plunger

Syringes with Threaded Plunger are ideal for all applications where an extremely small plunger movement is required. These GASTIGHT® syringes are sold as LT types and can be used with Kel-F® hub needles.
Depending on the application, you can choose between a sleeve or a plunger type. Syringes with Threaded Plungers are ideal for any liquid handling use and sampling of minute volumes. They have proven to be ideal for microscopy.



Tech Tip

If your application only requires desinfection the HAMILTON recommends the use of Microcide SQ (PN 3995-01). This desinfectant is rated to eliminate the majority of commonly encountered bacteria, viruses, fungus and mildew. Use of other common chemicals like 10% bleach, acetone or ethanol are acceptable but are not rated to be as effective as Microcide SQ.

Syringes with Threaded Plunger

Ordering information	Volume 25 µl Model 1702	Volume 100 µl Model 1710	Volume 500 µl Model 1750	Volume 1000 µl Model 1001
Volume in µl per rotation	**0.33 µl**	**1.32 µl**	**5.29 µl**	**13.23 µl**
Sleeve type syringe	80266	81041		
Plunger type syringe			81242	81341

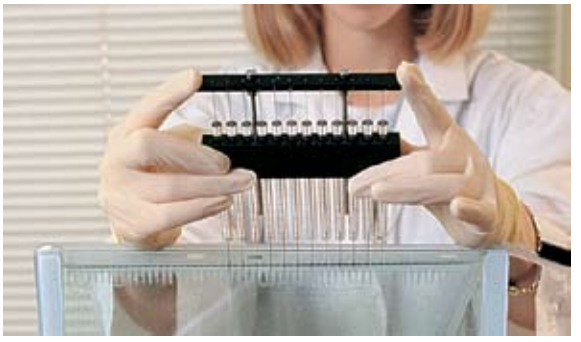
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Multi-Channel Gel Loading Syringes

Multi-Channel Gel Loading Syringes are designed for multiplex DNA sequencing methodologies. You can rapidly transfer 8 or 12 samples to sequencing gels, microwell plates or nylon membranes. It accurately dispenses from 0.2 to 10 µl of sample per syringe simultaneously. The 9 mm needle spacing and the three needle diameters optimize sample transfers. There is an adjustable volume stop that allows faster, more accurate reloading and excellent reproducibility.

Multi-Channel Gel Loading Syringes

Ordering information	Needle design For < 0.2 mm gel	Needle design For < 0.3 mm gel	Needle design For < 0.4 mm gel
Multi-Channel cemented needle 8 Channel	84511	84503	84502
Multi-Channel removable needle 8 Channel	84711		
Single-Channel cemented needle	80081	84505	84504
Single-Channel removable needle	80091		



Replacement Parts

Ordering information	Needle design For < 0.2 mm gel	Needle design For < 0.3 mm gel	Needle design For < 0.4 mm gel
Replacement syringe (barrel incl plunger) 1 piece	80023	80022	80021
Replacement barrel with needle	10398	10396	10395
RN Replacement barrel with-out needle and nut 1 piece	10399	10399	10399
Replacement needles pack of 6 pcs/pk	8651-01	8651-02	8651-03
RN nut	30902	30902	30902
Plunger assembly 1 piece	15948	15948	15948
Cleaning wires	18306	18306	18306

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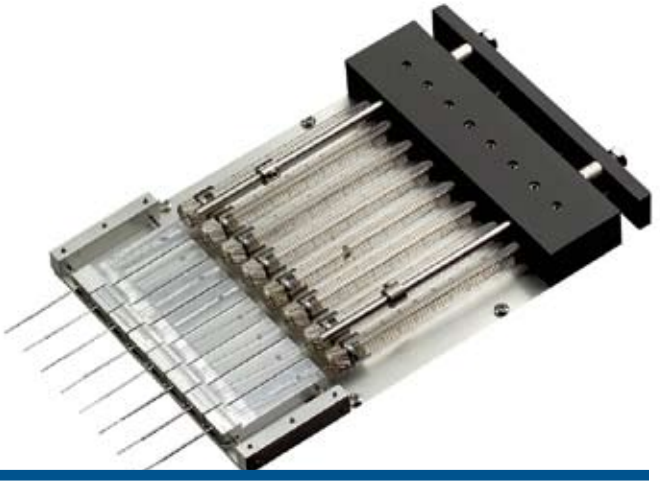
Adjustable Multi-Channel Gel Loading Syringes

Adjustable Multi-Channel Gel Loading Syringes simplify and speed sample loading of 96-lane gels. They are compatible with 96-lane ABI 377 PRISM® DNA sequencing instrument. They have an easy-to-use design for needle spacing adjustment. The removable needle designs are available with 0.2 mm.

The Adjustable Gel Loading Syringe (AGLS) allows quick, easy transfer and loading of DNA samples. Eight samples at a time can be transferred directly from a microwell plate with 9 mm spacing to a 96-lane gel with 10.8 mm spacing.

Easy Needle Spacing Adjustment

The easy-to-use sliding plate makes needle spacing adjustment possible without repositioning the hands. Simply slide the plate up or down for the appropriate needle spacing. There's no need to pause between the sample filling and gel loading procedure since the sliding plate lever is within reach of your fingers on the backside of the AGLS. As a result, gels are loaded more efficiently, decreasing diffusion-related band broadening and loading order errors.



Adjustable Multi-Channel Gel Loading Syringes

Ordering information	Needle design For < 0.2 mm gel
8-Channel Adjustable Gel Loading syringe	84611

Replacement Parts

Ordering information		Needle design For < 0.2 mm gel
RN Replacement barrel without needle and nut 1 piece	10399	10399
AGLS needles 4pcs/pk	78633	78631
Plunger assembly 1 piece	15948	15948
Cleaning wires	18306	18306

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Glass Pipettes & Peek Tubing Connectors

Quick and reliable connection of glass capillary needles and PEEK tubing to most Removable Needle (RN) and Knurled Hub (KH) terminations.
The syringe and needle accessories described below were developed for low dead volume applications that require easily primed connections for MICROLITER™ and GASTIGHT® syringes. The connectors and ferrules described below are designed for use with the small Removable Needle (RN) and Knurled Hub (KH) terminations found on the 600, 700, 800, 1700, 1800 and 7000 series syringes with a nominal volume of less than 100 µl.
Ideal for the following recommended applications

- Mass Spectrometer tuning
- Neuroscience injections
- Electrophysiology
- Non-metallic needles
- Single-cell microinjections



Glass Pipettes & Peek Tubing Connectors

Ordering information	Volume 0.5 µl	Volume 1.0 µl	Volume 2.0 µl	Volume 2.5 µl	Volume 5 µl	Volume 10 µl	Volume 25 µl	Volume 50 µl	Volume 100 µl
7000 KH syringes	86250	80100	88400						
600 RN syringes w/o needle				7632-01	7633-01				
700 RN syringes w/o needle					7634-01	7635-01	7636-01	7637-01	7638-01
1700 RN syringes w/o needle						7653-01	7654-01	7655-01	7656-01

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Ordering Information		Description	Content
PRMKIT		The Priming Kit provides the necessary tools to ensure that the syringe and needle connection is completely primed.	The Priming Kit contains one 250 µl Syringe (PN 81120), one 6 pack of 30 gauge needles (PN 90030), and one pack of septa (PN 75826).
55750-01		The 1 mm connector is designed to attach pulled glass pipettes directly to a small hub RN connection.	The RN Compression Fitting 1mm consists of one large bore RN nut, 5 PFA ferrules and 5 PEEK cup ferrules.
55751-01		The 1/16 inch connector is designed to attach 1/16 inch PEEK tubing directly to a small hub RN connection.	The RN Compression Fitting 1/16 inch consists of one large bore RN nut, 5 PFA ferrules and 5 PEEK cup ferrules.
55752-01		The Dual RN Coupler is constructed from model 1702 glass with a small hub RN termination on either end.	The Dual RN Coupler consists of two large bore RN nuts, and one dual RN barrel.
55753-01		The Luer to RN Adapter consists of a Metal Luer Lock Hub and a Small Removable Needle Hub combined in a single needle.	The Luer to RN Adapter consists of one RN to Luer Needle and a sealing ferrule for a 25 gauge 7000 series needle.



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Reproducibility (Chaney) Adapter

Reproducibility (Chaney) Adapter. This adapter is built to adjust reproducible injections. It also prevents the plunger from bending. The adjustable stop prevents plunger damage. Easy to install in your laboratory. Available for syringes 700, 800, 1700 and 7000 series.



Reproducibility (Chaney) Adapter

Ordering information

Syringe series	PN Chaney Adapter
700, 1700, 7000	14725
800, 1800	32146

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Syringe Guide

The Syringe Guide prevents the plunger from bending and also prevents pulling out of the plunger.
Easy to install in your laboratory. Available for syringes 700, 1700 and 7000 series.



Syringe Guide

Ordering information

Syringe Series	0,5 - 5 µl volume	5 - 10 µl volume	25 - 500 µl volume
700, 1700		14806	
700, 1700			14906
7000	14906		

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MTB Sampling Valve

Lever actuated on/off valve for storing and transporting samples in any GASTIGHT® TLL syringe. Pressure tested to 6 bar and autoclaveable. Bore diameter 1 mm. Kel-F hub or N needles can be attached to the valve.



MTB Sampling Valve

Ordering information

PN	Description
86580	MTB Sampling Valve

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Septum Adapter Removable (RN) Adapter

Store and sample syringe contents through the Septum Adapter: Attaches to any TLL or LT syringe Replaceable Septum.



Septum Adapter

Ordering information

PN	Description
31335	Septum adapter TLL includes 12 septa
75810	Replacement septa 7 mm diameter 12 pieces

For 250 µl and larger volumes syringes. Useable for SampleLock syringes. The larger port inner diameter of 1 mm allows sample spiking with a 701 N Syringe. Provides connection to threaded fittings, tubings assemblies, tees and crosses.

Removable (RN) Adapter



Ordering information

PN	Description
35081	Female Luer/Removable needle hub
35080	Male Luer/Removable needle hub
35083	Male Luer Lock/Removable needle hub

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Syringe Rack

Safe keeping of HAMILTON syringes. The brushed stainless steel Syringe Rack keeps your workplace tidy. It is a clean and safe storage for your syringes. Storage up to 5 syringes from the series 700, 1700 and 7000 is possible. A lip on the plastic holder protects the syringe against accidental touching and falling down. The distance of the plastic holder prevents the syringe from getting in contact with the metal plate.
The Syringe Rack is useable as free standing or wand model.



Syringe Rack

Ordering information

PN	Description
204880	Syringe Rack

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Needle Cleaning Kit

If your HAMILTON syringes are kept clean, they will last longer. The HAMILTON Needle Cleaning Kit helps you to do so. It contains a powerful residue-free cleaning solution and a detailed description of the cleaning procedure for syringe and needles. Five fine tungsten wires with diameters from 0.076 mm to 0.306 mm are also included. With these wires you can clean plugged needles.



Tech Tip - Clogged Needles

For a partially clogged needle, flush the syringe with an appropriate solvent to solubilize the clog. For a completely clogged needle, do not attempt to clean by forcing the liquid or compressed air through the syringe. Excessive pressure will split the glass barrel. Alternatively, use the HAMILTON Needle Cleaning Kit (PN 76620). Start by using the cleaning wires to dislodge any foreign material. Then flush with the Cleaning Concentrate to further dissolve the clog. Once the clog is removed, rinse the syringe and needle thoroughly with deionized water. Wipe the exterior surfaces of the syringe barrel and needle dry with a lint-free tissue. Make sure that there is no residual cleaning agent in the syringe before using or storing the syringe.

Needle Cleaning Kit

Ordering information	Description	Content
76620		Syringe cleaning set
	Cleaning Wires (178 mm length) pack of 10 pieces	**Use to clean needle gauges**
18306	0.076 mm O.D.	23s, 26s, 31-33
18300	0.089 mm O.D.	26s, 31-33
18301	0.126 mm O.D.	22s, 25s, 28-30
18302	0,167 mm O.D.	27
18303	0.207 mm O.D.	24-26
18304	0.306 mm O.D.	22, 23 and larger
18311	Cleaning Concentrate 500 ml	Not included in Cleaning Kit

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Removable Needles

RN needles are made of stainless steel. The needles are available for syringes in volumes from 5 µl to 100 µl and from 250 µl up to 10 ml syringes. RN needles are available in a range from gauge 19 to gauge 34.
All standard RN needles are delivered in 51 mm needle length. The RN ferrule is contained in the RN pack.
Platinum needles are intended for use with aggressive media. They are made of a combination of 90% platinum and 10% ruthenium. RN Needles are sold in packages of six pieces. Platinum needles are sold as single needle. From HAMILTON you can order your custom made needle according to your specification (SN).



Tech Tip
Burrs, rough edges at the needle opening and a rough needle surface can be removed by gently rubbing with a fine emery cloth or fine carborundum paper. Make sure to thoroughly rinse and dry the needle before using.

Economical Tip
By use of a non standard needle order a RN syringe without needle and separate a six pack of your preferred RN or customized RN needle.

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RN Needle for Syringe Volume 2.5 µl to 100 µl

Gauge	OD X ID [mm]	Point Style 2	Point Style 3	Point Style 5	Custom made Point Style 5	Custom made Point Style 2, 3, 4, AS
34	0.16 x 0.06					207434
33	0,21 x 0,11		7762-06			7803-05
32	0.24 x 0.11		7762-05			7803-04
31	0.26 x 0.13		7762-04			7803-03
30	0.26 x 0.16		7762-03			7803-07
28	0.34 x 0.18		7762-02			7803-02
27	0.41 x 0.21		7762-01			7803-01
26s	0.47 x 0.13	7758-02	7768-01	7784-07	7731-02	7804-04 [1]
26	0.46 x 0.26	7758-04	7768-02	7784-08	7731-01	7804-03 [1]
23	0.64 x 0.34					207423 [1]
22s	0.72 x 0.15	7758-03	7770-01	7884-05	7731-04	7804-02 [1]
22	0.72 x 0.41	7758-01	7770-02	7784-06	7731-03	7804-01
21	0.83 x 0.51					207421
19	1.07 x 0.69					207419

RN Needle for Syringe Volume 250 µl to 10 ml

Gauge	OD X ID [mm]	Point Style 2	Point Style 3	Point Style 5	Custom made Point Style 5	Custom made Point Style 2, 3, 4, AS
26s	0.47 x 0.13	7779-02	7780-01	7784-03	7732-04	7806-04 [1]
26	0.46 x 0.26	7779-04	7780-02	7784-04	7732-03	7806-03 [1]
22s	0.72 x 0.15	7779-03	7780-03	7884-01	7732-02	7806-02 [1]
22	0.72 x 0.41	7779-01	7780-04	7784-02	7732-01	7806-01 [1]
20	1.07 x 0.69					207420

[1] Available as point style AS

RN PEEK Needles for Syringe Volume of 250 µl to 10 ml

Gauge	OD X ID [mm]	Point Style 2	Point Style 3	Point Style 5	Custom made Point Style 5	Custom made Point Style 2, 3, 4
PEEK	1.52 x 0.76		8650-01			

RN Fused Silicon Needles for Syringe Volume of 5 µl to10 µl

Gauge	OD X ID [mm]	Needle Length	Point Style 3
FS 0.17	0.17 x 0.08	100 mm	200285
FS 0.23	0.23 x 0.08	100 mm	200295

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Metal (N) Hub Needles

The N needles (metal hub) are available in a convenient Six Pack.
The needles are available with a wide variety of point style. Standard needles are delivered with a needle length of 51 mm. Custom made needles are available up to a length of max 1000 mm.
The metal hub is made of brass and nickel plated. The needle material quality is SST 304 (DIN1.4301).
SST tubing without hub can also be ordered.



Metal Hub Needles

Gauge	OD X ID [mm]	SST Tubing No hub	Point Style 2	Point Style 3	Point Style 5	Custom made Point Style 5	Custom made Point Style 2, 3, 4, AS
34	0.16 x 0.06	21034					
33	0.21 x 0.11	21033					7747-01
32	0.24 x 0.11	21032					7747-02
31	0.26 x 0.13	21031					7748-17
30	0.31 x 0.16	21030					7748-16
29	0.34 x 0.18	21029					7748-15
28	0.36 x 0.18	21028					7748-14
27	0.41 x 0.21	21027					7748-13
26s	0.47 x 0.13	21039	90039	91039	7729-01	7751-19	7748-19 [1]
26	0.46 x 0.26	21026	90026	91026	7729-03	7751-17	7748-12 [1]
25	0.52 x 0.26	21025	90025	91025	7729-04	7751-16	7748-11
24	0.57 x 0.31	21024	90024	91024	7729-05	7751-15	7748-10
23	0.64 x 0.34	21023	90023	91023	7729-06	7751-14	7748-09 [1]
22s	0.72 x 0.15	21038	90038	91038	7729-02	7751-18	7748-18 [1]
22	0.72 x 0.41	21022	90022	91022	7729-07	7751-13	7748-08 [1]
21	0.83 x 0.51	21021	90021	91021	7729-08	7751-12	7748-07
20	0.91 x 0.60	21020	90020	91020	7729-09	7751-11	7748-06
19	1.07 x 0.69	21019				7751-10	7748-05
18	1.27 x 0.84	21018				7751-09	7748-04
17	1.47 x 1.07	21017				7751-08	7748-03
16	1.65 x 1.19	21016				7751-07	7748-02
15	1.83 x 1.37	21015				7751-06	7748-01
14	2.11 x 1.60	21014				7751-05	7749-05
13	2.41 x 1.80	21013				7751-04	7749-04
12	2.77 x 2.16	21012				7751-03	7749-03
11	3.05 x 2.39	21011				7751-02	7749-02
10	3.40 x 2.69	21010				7751-01	7749-01

[1] Available as point style AS

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Kel-F® (KF) Hub Needles

The KF needles (Kel-F® Hub) are available in a convenient Six Pack. The needles are available with a wide variety of point style. Standard needles are delivered with a needle length of 51 mm. Custom made needles are available up to a length of max. 1000 mm. The needle material quality is SST 304 (DIN1.4301).



Kel-F® Hub Needles

Gauge	OD X ID [mm]	Point Style 2	Point Style 3	Point Style 5	Custom made Point Style 5	Custom made Point Style 2, 3, 4, AS	Platin Needles
33	0.21 x 0.11						
32	0.24 x 0.11						
31	0.26 x 0.13					7750-22	
30	0.31 x 0.16					7750-21	
28	0.36 x 0.18					7750-19	
27	0.41 x 0.21					7750-18	
26s	0.47 x 0.13	90139	90539	7746-12	7752-19	7750-24 [1]	
26	0.46 x 0.26	90126	90533	7746-10	7752-17	7750-17 [1]	90526
25	0.52 x 0.26	90125	90525	7746-09	7752-16	7750-16 [1]	
24	0.57 x 0.31	90124	90524	7746-08	7752-15	7750-15	
23	0.64 x 0.34	90123	90523	7746-07	7752-14	7750-14 [1]	
22s	0.72 x 0.15	90138	90534	7746-11	7752-18	7750-23 [1]	
22	0.72 x 0.41	90122	90134	7746-06	7752-13	7750-13 [1]	90522
21	0.83 x 0.51	90121	90521	7746-05	7752-12	7750-12	
20	0.91 x 0.60	90120	90520	7746-04	7752-11	7750-11	
18	1.27 x 0.84			7746-03	7752-09	7750-09	90518
17	1.47 x 1.07			7746-02	7752-08	7750-08	
16	1.65 x 1.19			7746-01	7752-07	7750-07	
14	2.11 x 1.60				7752-05	7750-05	
13	2.41 x 1.80				7752-04	7750-04	
12	2.77 x 2.16				7752-03	7750-03	
11	3.05 x 2.39				7752-02	7750-02	
10	3.40 x 2.69				7752-01	7750-01	

[1] Available as point style AS

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Needle Gauge Index

Gauge	Nominal O.D. inch	Nominal O.D. [mm]	Nominal I.D. inch	Nominal I.D. [mm]	Wall Thickness inch	Wall Thickness [mm]	Volume µl/inch
34	.0055 - .0066	0.16	.0015 - .0031	0.06	.0019	0.05	0.03
33	.0080 - .0085	0.21	.0035 - .0050	0.11	.002	0.05	0.20
32	.0090 - .0095	0.24	.0035 - .0050	0.11	.002	0.05	0.20
31	.0100 - .0105	0.26	.0045 - .0060	0.13	.0025	0.06	0.34
30	.0120 - .0125	0.31	.0055 - .0070	0.16	.003	0.08	0.45
28	.0140 - .0145	0.36	.0065 - .0080	0.18	.0035	0.09	0.63
27	.0160 - .0165	0.41	.0075 - .0090	0.21	.004	0.10	0.80
26s	.0184 - .0189	0.47	.0045 - .0055	0.13	.007	0.18	0.26
26	.0180 - .0185	0.46	.0095 - .0110	0.26	.004	0.10	1.25
25	.0200 - .0205	0.51	.0095 - .0110	0.26	.005	0.13	1.25
24	.0220 - .0225	0.57	.0115 - .0130	0.31	.005	0.13	1.80
23s	.0263 - .0240	0.64	.0023 - .0043	0.09	.011	0.28	0.06
23	.0250 - .0255	0.64	.0125 - .0140	0.34	.006	0.15	2.17
22s	.0280 - .0285	0.72	.0055 - .0065	0.15	.011	0.28	0.45
22	.0280 - .0285	0.72	.0155 - .0170	0.41	.006	0.15	3.35
21	.0320 - .0325	0.82	.0195 - .0210	0.51	.006	0.15	5.19
20	.0355 - .0360	0.91	.0230 - .0245	0.60	.006	0.15	6.71
19	.0415 - .0467	1.07	.0255 - .0287	0.69	.007	0.19	3.74
18	.0495 - .0505	1.27	.0315 - .0345	0.84	.0085	0.22	14.08
17	.0575 - .0580	1.47	.0405 - .0435	1.07	.008	0.20	22.84
16	.0645 - .0655	1.65	.0455 - .0485	1.19	.009	0.23	28.25
14	.0820 - .0840	2.11	.0610 - .0600	1.60	.010	0.25	51.07
13	.0940 - .0960	2.41	.0690 - .0730	1.80	.012	0.31	64.63
12	.1080 - .1100	2.77	.0830 - .0870	2.16	.012	0.31	93.07
11	.1190 - .1210	3.05	.0920 - .0960	2.39	.013	0.33	113.00
10	.1330 - .1350	3.40	.1040 - .1080	2.69	.014	0.36	143.28

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HAMILTON Polymer Tubing is manufactured from flanged PFTE Tubing pressed into a PCTFE Connector with a threaded hole. Used with LT or TLL Syringes, the tubings form a completely inert system which allows highly corrosive liquids to be dispensed. The Polymer Tubings are available in three different variants, with PCTFE Connectors on one or both ends (specification: KF) or without connectors (Cut tubing). The standard length is 300 mm. Special lenghts with single or double hubs can be ordered according the list below.



Polymer Tubings with Kel-F® (KF) Connector

Gauge	O.D X I.D. [mm]	Material	Tubing only	1 KF Hub [300 mm]	1 KF Hub Specify length	2 KF Hubs Specify length and gauge
30	0.76 x 0.30	PTFE	20930	90630	90680	86510
28	0.84 x 0.38	PTFE	20928	90628	90678	86510
26	0.91 x 0.46	PTFE	20926	90626	90676	86510
24	1.02 x 0.56	PTFE	20924	90624	90674	86510
22	1.17 x 0.71	PTFE	20922	90622	90672	86510
20	1.47 x 0.86	PTFE	20920	90620	90670	86510
19	1.57 x 0.97	PTFE	20919	90619	90669	86510
18	1.68 x 1.07	PTFE	20918	90618	90668	86510
18	2.00 x 1.00	FEP	20942			
17	1.80 x 1.19	PTFE	20917	90617	90667	86510
16	1.96 x 1.35	PTFE	20916	90616	90666	86510
15	2.11 x 1.50	PTFE	20915	90615	90665	86510
14	2.29 x 1.68	PTFE	20914	90614	90664	86510
13	2.54 x 1.93	PTFE	20913	90613	90663	86510
12	2.77 x 2.16	PTFE	20912	90612	90662	86510
12	2.90 x 2.00	FEP	20943			
11	3.02 x 2.41	PTFE	20911	90611	90661	86510
10	3.30 x 2.69	PTFE	20910	90610	90660	86510
9	3.76 x 3.00	PTFE	20909	90609	90659	86510
8	4.14 x 3.38	PTFE	20908	90608	90658	86510
7	4.52 x 3.76	PTFE	20907	90607	90657	86510
1/8″			20941	90641	90691	86510

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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.



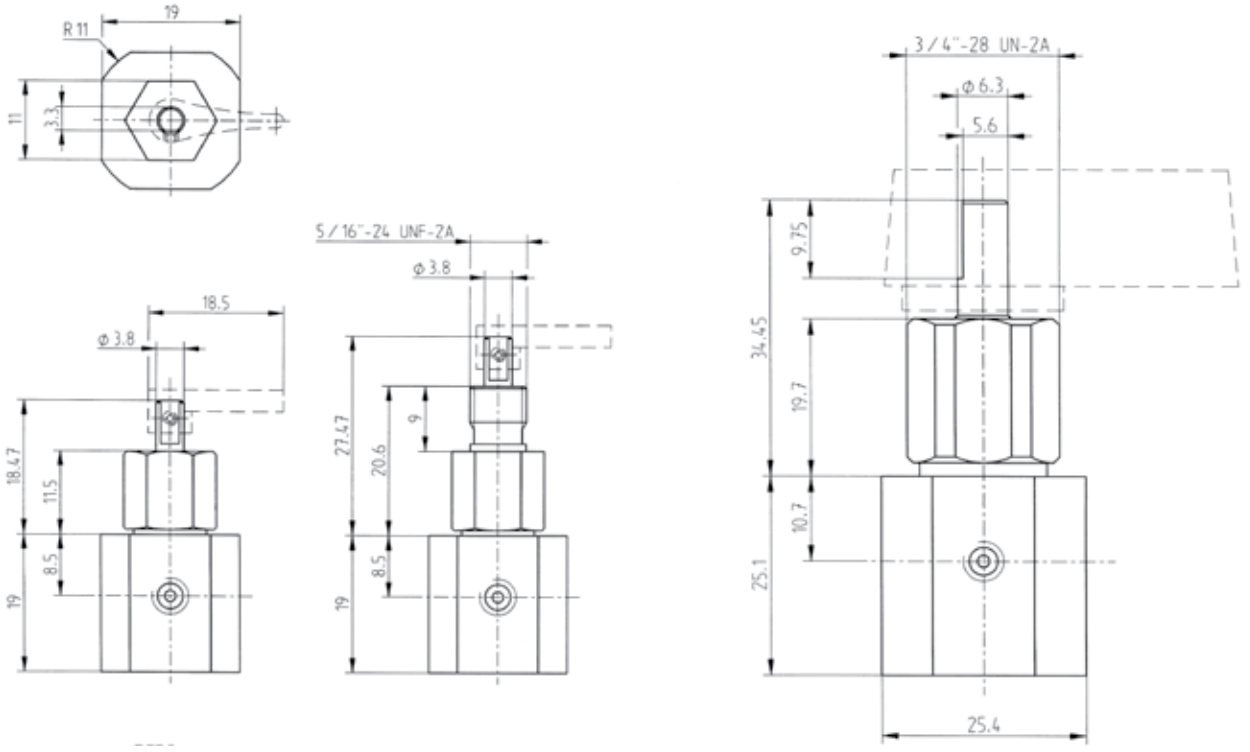
HVP Valve
The HVP valve is essentially the same as the HV valve except the HVP can be mounted into panels, instruments allowing customized installations.



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, **PN 35121**. 6- and 8-port distribution and loop valves are available only in the HVX body style.

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HV Valve Dimension and Specifications

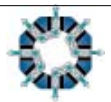


	HV	HVP	HVX
Temperature Range (°C)	10 - 100	10 - 100	10 - 100
Weight (g)	25	25	25
Maximum Pressure Rating (MPa)	0.6	0.6	0.6
Valve Connection Ports	1/4-28	1/4-28	1/4-28
Break Away Torque (mNm)	106	106	424
Maximum Panel Thickness (mm)	N/A	3.8	15.9
Panel Hole Diameter (mm)	N/A	11.1	19.1
1. Handle	Nickel	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)

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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 0.059 inch / 1.5 mm diameter ports unless otherwise specified.
[1] Valve has 0.118 inch / 3 mm diameter ports.
[2] Valve has 0.048 inch / 1 mm diameter ports.

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HV Fittings, Adapters and Tubings

- 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



HV, HVP



HVX

Ordering information

Description	Port Diameter [mm]	Pack	PN	Port Diameter [mm]	Pack	PN
Female Luer / 1/4"-28 UNF	1.5	1/pk	35031	3.0	1/pk	35071
						
Male Luer / 1/4"-28 UNF	1.5	1/pk	35030	3.0	1/pk	35070
						
Male Luer Lock / 1/4"-28 UNF	1.5	1/pk	35033	3.0	1/pk	35073
						
1/8" Barb / 1/4"-28 UNF	1.5	1/pk	35032	3.0	1/pk	35072
						

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Ordering information

Description	Gauge	I.D. [mm]	Pack	PN
Plug / 1/4"-28 UNF 			1/pk 10/pk	32802 88802
Union / 1/4"-28 UNF 		1.5	1/pk 10/pk	32800 88800
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
Bushing for "Hat" type Needles / 1/4"-28 UNF 			1/pk	35056
Needles Stainless Steel "Hat" type (51/3) Use with bushing PN 35056	14 15 16 17 18 19 20 21 22 23 24 25 26		3/pk 3/pk 3/pk 3/pk 3/pk 3/pk 3/pk 3/pk 3/pk 3/pk 3/pk 3/pk 3/pk	90814 90815 90816 90817 90818 90819 90820 90821 90822 90823 90824 90825 90826

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Ordering Information

Description	Gauge	I.D. [mm]	Pack	PN
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	5/pk	249982
		M6x1 for Gauge 24	5/pk	249983
		M6x1 for 2.5 x 1.5 mm tubing	5/pk	249984
		1/4"-28 UNF for 2.9 x 2 mm tubing	5/pk	249985
		1/4"-28 UNF for 2.5 x 1.5 mm tubing	5/pk	249986
		1/4"-28 UNF for Gauge 20/22	5/pk	249987
		1/4"-28 UNF for Gauge 24	5/pk	249988
		1/4"-28 UNF for 2 x 1 mm tubing	5/pk	249989

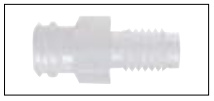
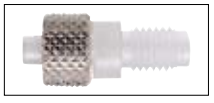
[1] PTFE (Polytetrafluoroethylene)

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General Laboratory Fittings, Adapters and Tubing (Industrial 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	PN
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 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
			

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Ordering Information

Description	I.D. [mm]	Pack	PN
Male Luer Lock / Male Luer Lock	1.5	1/pk	86511
			
Male Luer Lock / Male Luer	1.5	1/pk	86512
			
Male Luer Lock / Female Luer	1.5	1/pk	86513
			
3 Way "T" 1/4"-28 UNF inner thread M6x1 inner thread	1.6 1.6	1/pk 1/pk	32810 32860
			
4 Way "X" Threaded Junction	0.8	1/pk	32811
			
3 Way "Y" 1/4"-28 UNF inner thread 1/4"-28 UNF inner thread M6x1 inner thread	1.6 1.6	1/pk 1/pk	32814 32864
			

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