

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 $\pm 0.5\%$ 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 moistened 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

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.

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 μ l to 100 ml. An easy-to-use twist valve and a positive rear stop on SampleLock (250 μ l to 10 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 μ l Model 1705 Gauge 22s	Volume 100 μ l Model 1710 Gauge 22s	Volume 250 μ l Model 1725 Gauge 22s	Volume 500 μ l Model 1750 Gauge 22
RN removable needle pst2	51	80956		81156	81256

SampleLock Syringes

1000 SampleLock Syringes



Ordering information	Needle length mm	Volume 1000µl 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

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 $\pm 1\%$ 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 hematology, 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 5000 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	

Special Syringes

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 5000 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	



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 adapter	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			

Special Syringes

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

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 O-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 twist valve with a 10 µl syringe.



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

Special Syringes

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

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 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

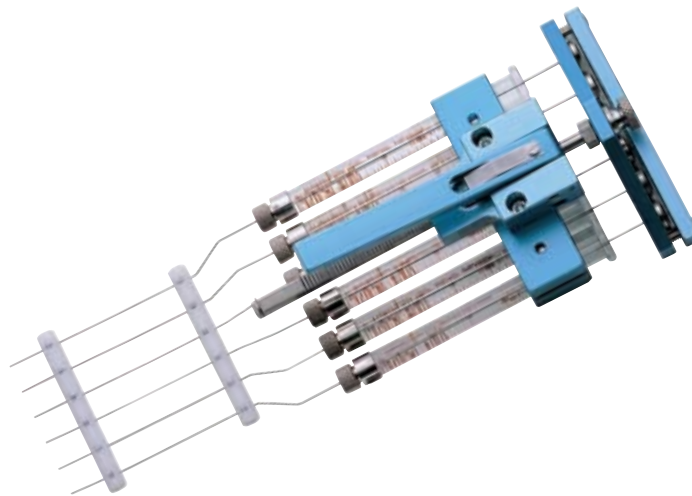
Special Syringes

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

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 disinfection the HAMILTON recommends the use of Microcide SQ (PN 3995-01). This disinfectant 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

Special Syringes

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 μ l 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 without 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

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

Special Syringes

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

Special Syringes

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.

