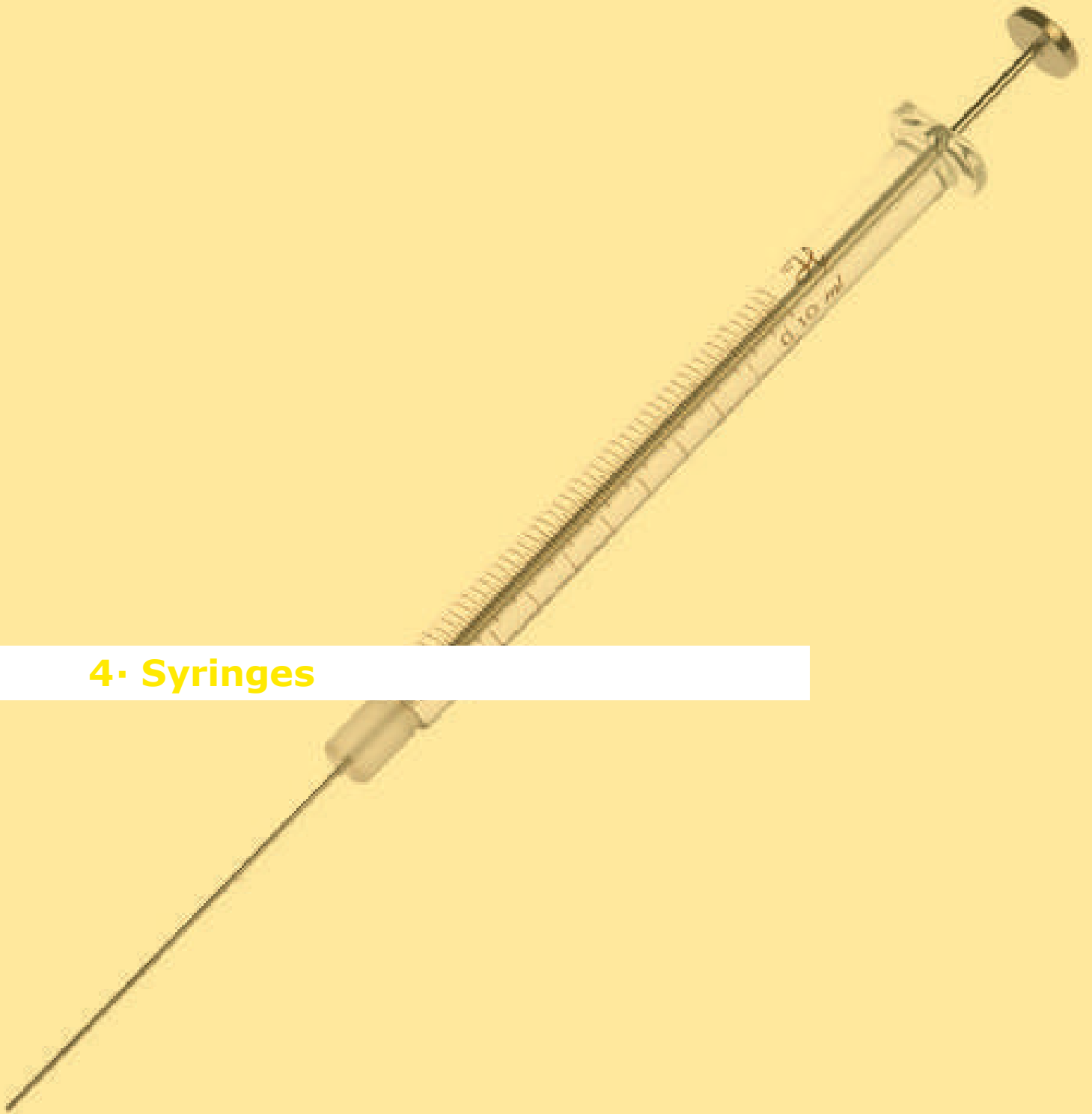


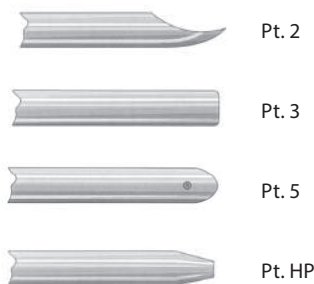
## 4• Syringes



## HAMILTON SYRINGES



### Hamilton Point Styles



Hamilton syringes are designed as precision measuring instruments, and find wide use for sample introduction into analytical instruments, as well as volume dispensers for accurate, small-scale dilutions.

### Hamilton Syringe Types

- **Microliter**<sup>®</sup> - For use with liquids. It has an individually-fitted stainless steel plunger.
- **Modified Microliter** - For micro-sampling liquids, the entire sample is contained in the needle. A tungsten-wire plunger travels the length of the needle to displace the sample.
- **Gastight**<sup>®</sup> - This features a precision PTFE plunger tip, for use with both gases and liquids.

### Syringe Terminations



### Hamilton Point Styles

- **Point Style 2** - For septa penetration and GC injections
- **Point Style 3** - For pipetting and HPLC injections
- **Point Style 5** - Used to minimize septum coring
- **Point Style HP** - Used on Agilent 7673 / 1683 Autosamplers

### Syringe Terminations

- **N, Cemented Needle** - Needles are cemented into the glass syringe barrel at a point corresponding to the zero graduation mark. Not autoclavable.
- **RN, Removable Needle** - Removable needles seat precisely to the zero graduation mark of the syringe; damaged needles are easily replaced. Autoclavable when disassembled.
- **TLL, PTFE Luer Lock** - The male luer taper accepts all luer-hub needles and connectors; locks luer hubs in place. Autoclavable when disassembled.
- **LT, Luer Tip** - Ground glass syringe barrel with a male luer taper accepts most hypodermic needles. Autoclavable when disassembled.
- **LTN, Luer Tip Cemented Needle** - Needles are cemented into the glass syringe barrel at a point corresponding to the zero graduation mark. Not autoclavable.
- **KH, Knurled Hub** - The knurled hub, with replaceable needle, is used on 7000 series syringes only. Autoclavable when disassembled. The knurled hub enables high injection pressures and attachment of spacers, for repeatable-depth injections.

## HAMILTON DIGITAL SYRINGES

- The only N.I.S.T. traceable, calibrated syringe device available
- Easy-to-read LCD displays volume dispensed within +/- 0.5% of the syringe volume
- Used with Hamilton syringes with total volumes of 0.5 to 500 µl
- Comes with certificates of analysis

GIBNIK offers the Hamilton Digital Syringe, for unsurpassed accuracy and precision. With the Digital Syringe, problems of plunger tip positioning and consistency are eliminated.

*Note: The "handle" can be used with any existing syringe of the types listed. However, it is only N.I.S.T. traceable with the serialized syringe that comes with it when ordered.*



Digital Syringe

## Microliter® Digital Syringes

Model	Volume	Gauge	Length	Pt. 2	Pt. 3
<b>N- Cemented Needle</b>					
75	5 µl	26s	2"/ 51 mm	ACHDS87900	
701	10 µl	26s	2"/ 51 mm	ACHDS80300	
701	10 µl	22s	2"/ 51 mm		ACHDS80365
710	100 µl	22s	2"/ 51 mm	ACHDS80600	
750	500 µl	22	2"/ 51 mm	ACHDS80800	
<b>RN- Removable Needle</b>					
701	10 ul	26s	2"/ 51 mm	ACHDS80330	

## Gastight® Digital Syringes

Model	Volume	Gauge	Length	Pt. 2	Pt. 3
<b>N- Cemented Needle</b>					
701	10 µl	26s	2"/ 51 mm	ACHDS80000	
702	25 µl	22s	2"/ 51 mm		ACHDS80275
710	100 µl	22s	2"/ 51 mm	ACHDS81000	ACHDS81075
725	250 µl	22s	2"/ 51 mm	ACHDS81100	
<b>RN- Removable Needle</b>					
705	50 µl	22s	2"/ 51 mm	ACHDS80930	
750	500 µl	22	2"/ 51 mm	ACHDS81230	

\*Cemented luer-tip needle (LTN).

## HAMILTON MICROLITER® SYRINGES

**Microliter** - This is the standard syringe for use with liquids. It has a stainless steel plunger individually fitted to the barrel.

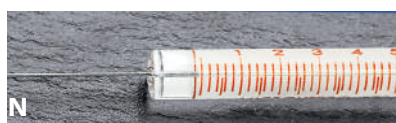


Digital Syringe

### 700 Series - The standard Microliter syringeSM

Codes	Model: 75	5 µl 701	10 µl 702	25 µl 705	50 µl 710	100 µl 725	250 µl 750
N	ACH87900	ACH80300	ACH80400	ACH80500	ACH80600	ACH80700	ACH80800
RN	ACH87930	ACH80330	ACH80430	ACH80530	ACH80630	ACH80730	ACH80830
LT		ACH80301	ACH80401	ACH80501	ACH80601	ACH80701	ACH80801
PT5		ACH80339	ACH80439	ACH80539	ACH80639	ACH80739	ACH80839
N- 6 pack		ACH80366					
RN- 6 pack		ACH80336					
Gauge/Length/Point	26s/2/2	26s/2/2	22s/2/2	22s/2/2	22s/2/2s	22s/2/2	22/2/2

### Explanation of Codes



### 600 Series - The compact Microliter syringe

Codes	Model:	2.5 µl 62	5 µl 65
RN		ACH87942	ACH87943
Gauge/Length/Point		22s/2/3	22s/2/3

### 800 Series - The Microliter syringe with a handle and replaceable parts

Codes	Model:	5 µl 75	10 µl 701	25 µl 702	50 µl 705	100 µl 710	250 µl 725
N	ACH84850	ACH84852	ACH84854	ACH84856	ACH84858		
RN	ACH84851	ACH84853	ACH84855	ACH84857	ACH84859	ACH84861	
Gauge/Length/Point		26s/2/2	26s/2/2	22s/2/2	22s/2/2	22s/2/2s	22s/2/2

Note: "s" with a gauge designates narrow-bore.



Pt. 5

## 900 Series - The economical Microliter syringe with a handle

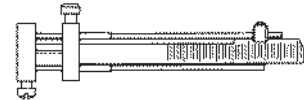
Codes	Model:	5 µl 95	10 µl 901
N		ACH87920	ACH80360
RN		ACH87925	ACH80370
Gauge/Length/Point	26s/2/2	26s/2/2	



Hamilton Microliter Syringes, from left to right; 700, 800, 900 and 7000 series.

## 7000 Series - The Modified Microliter syringe with the sample in the needle

Codes	Model:	0.5 µl 7000.5	1 µl 7001	1 µl 7101	2 µl 7002	2 µl 7102	5 µl 7105
KH		ACH86259	ACH80135	ACH86211	ACH88411	ACH88511	ACH88011
Gauge/Length/Point		25s/2.75/2	25s/2.75/2	22s/2.75/2	25s/2.75/2	23s/2.75/2s	24/2.75/2



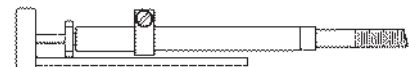
For 700, 1700 and 7000 series

Note: "s" with the gauge designates narrow-bore.

## Chaney (Reproducibility) Adapters

- For consistent, reproducible injections
- Prevents syringe plunger bending
- Adjustable stop prevents plunger damage
- Easily installed

Description	Item No.
<b>Chaney Adapters</b>	
For 700, 1700; 10 µl	ACH14700
For 700 above 10 µl; 7000	ACH14725
For 1700; 25 - 500 µl	ACH14725
For 800, 1800	ACH32146
For 900	ACH32148

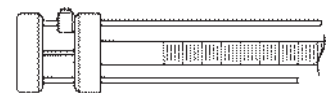


For 800, 900 and 1800 series

## Guide Assembly

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

Description	Item No.
<b>Guide Assembly</b>	
For 700, 5 µl and 10 µl; 1700	ACH14806
For 700, 1700; above 10 µl	ACH14906
For 7000 Series	ACH14906



ACH14806

## HAMILTON GASTIGHT® SYRINGES



**N**

### Gastight

This type of syringe features a precision-machined PTFE plunger tip, for use with both gas and liquid samples.



**RN**



**LT**



**KH**



**LTN**



**TLL**



**Pt. 5**

### 1700 Series - The standard Gastight syringe<sup>SM</sup>

		10 µl	25 µl	50 µl	100 µl	250 µl	500 µl
Codes	Model:	1701	1702	1705	1710	1725	1750
N		ACH80000	ACH80200	ACH80900	ACH81000	ACH81100	ACH81217
RN		ACH80030	ACH80230	ACH80930	ACH81030	ACH81130	ACH81230
LT		ACH80001	ACH80201	ACH80901	ACH81001	ACH81101	ACH81201
TLL				ACH80920	ACH81020	ACH81120	ACH81220
Gauge/Length/Point		26s/2/2	22s/2/2	22s/2/2	22s/2/2	22s/2/2s	22/2/2

### 1800 Series - The Gastight syringe with a handle and replaceable parts<sup>SM</sup>

		10 µl	25 µl	50 µl	100 µl	250 µl
Codes	Model:	1801	1802	1805	1810	1825
N		ACH84875	ACH84878	ACH84881	ACH84884	ACH84887
RN		ACH84877	ACH84880	ACH84883	ACH84886	ACH84889
Gauge/Length/Point		26s/2/2	22s/2/2	22s/2/2	22s/2/2s	22s/2/2

Note: "s" with a gauge designates narrow-bore.

## 1000 Series - The high performance Gastight syringe

	1 mL	1.25 mL	2.5 mL	5 mL	10 mL	
<b>Codes</b>	<b>Model:</b>	<b>1001</b>	<b>1001.25</b>	<b>1002</b>	<b>1005</b>	<b>1010</b>
RN		ACH81330		ACH81430	ACH81530	ACH81630
LT		ACH81301	ACH82001	ACH81401	ACH81501	ACH81601
LTN		ACH81317	ACH82017	ACH81417	ACH81517	ACH81617
TLL		ACH81320		ACH81420	ACH81520	ACH81620
LTNPT5		ACH81343		ACH81443	ACH81543	ACH81643
Gauge/Length/Point		22/2/2	22/2/2	22/2/2	22/2/2	22/2/2



Gastight syringe

## 1000 Series, 25 - 100 mL - The high performance Gastight syringe

	25 mL	50 mL	100 mL	
<b>Codes</b>	<b>Model:</b>	<b>1025</b>	<b>1050</b>	<b>1100</b>
TLL		ACH82520	ACH85020	ACH86020

## Super Syringes

- For air sampling, preparing gas standards, calibrating reservoirs
- PTFE luer lock termination for many applications
- Acrylic plastic barrel

Hamilton Company's Super Syringes will handle your big jobs. These are suitable for many measuring and sampling applications in the lab and field. The PTFE luer lock fitting takes standard luer-hub needles (needles not included). Please note the acrylic barrel is not suitable for use with solvents.

<b>Description</b>	<b>Volume</b>	<b>Item No.</b>
SO500	0.5 L	ACH86311
S1000	1.0 L	ACH86312
S1500	1.5 L	ACH86313
S2000	2.0 L	ACH86314



Super Syringe

## HAMILTON SAMPLELOCK SYRINGES

- Lock your sample in the SampleLock syringe with the easy-to-use twist valve
- Inject internal standards through the valve port into samples contained in the SampleLock syringe
- Pressurize gaseous samples prior to GC injection
- Prevent loss of sample and plunger blowout at elevated pressures with the positive rear plunger stop

SampleLock syringes allow you to collect, store, transport, and analyze liquid or gaseous samples without the danger of evaporative loss or environmental contamination. Common applications for SampleLock syringes include environmental sample collection and storage, pre-pressurization of gaseous samples for GC analyses, and sample spiking.

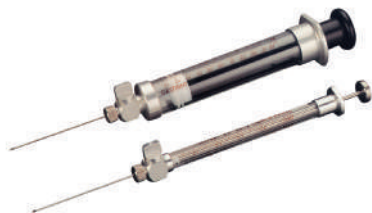
The SampleLock syringe combines the quality of the world-renowned Hamilton Gastight® syringe with an easy-to-use twist valve. The syringe is available in sizes ranging from 50 µl to 100 mL. A positive rear stop on the SampleLock syringe (250 µl to 100 mL) prevents plunger blowout and loss of sample. In addition, for improved precision and accuracy, the SampleLock syringes may be used in conjunction with Hamilton Company's new Digital Syringe.

SampleLock syringes come with 2", point style 2 RN needles, 22 gauge (except 22s gauge for 50 - 250 µl).

Valve Operation - The SampleLock valve is easy to use; a simple twist is all it takes to open or close the valve. Open the valve by turning it so that the cap is in line with the fluid path. Close the valve by turning it so that the cap is perpendicular to the fluid path.

Purge & Trap Syringe - A purge and trap (P & T) version of the SampleLock syringe is available in 5 mL capacity. It comes with a male luer fitting, and is designed for analysis of drinking water following methods such as EPA 502, 503 and 524.

### SampleLock Syringes



SampleLock Syringes

Model	Volume	Item No.
1705SL	50 µl	ACH80956
1710SL	100 µl	ACH81056
1725SL	250 µl	ACH81156
1750SL	500 µl	ACH81256
1001SL	1.0 mL	ACH81356
1002SL	2.5 mL	ACH81456
1005SL	5 mL	ACH81556
1005SLPT	5 mL P&T	ACH81570
1010SL	10 mL	ACH81656
1025SL	25 mL	ACH86326
1050SL	50 mL	ACH86336
1100SL	100 mL	ACH86346

## HAMILTON SPECIALTY SYRINGES

### GC Syringe Pack

This convenient package contains three of the most often needed syringes for GC: **701N** (10 µl - standard liquid measuring device); 1702N ( 25 µl - for gas or liquid injections); 7001KH (1 µl - eliminates dead volume).

Description	Item No.
GC Syringe Pack	ACH80380

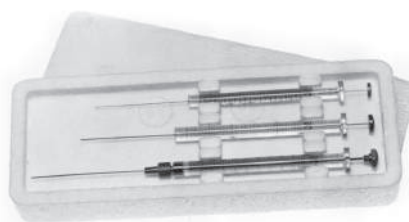


## 0.5 µl Syringe with Stainless Steel Needle

### For Capillary On-Column Injection

Inject small samples directly onto columns (0.25 mm ID and greater) with this fine-diameter needle syringe. Capacity is 0.5 µl. The stainless steel needle has a 0.23 mm OD.

Description	Item No.
7000.5 OC Syringe	ACH86257
Spare Needle/Plunger Assembly	ACH86258



ACH80380

## Fused Silica Needle Syringe

### For Capillary On-Column Injection

HAMILTON combines their popular Microliter® syringes with a needle made from fused silica (coated with high-temperature polyimide for strength), for direct injection onto your fused silica capillary column. The deactivated fused silica needles and precision syringe hubs and ferrules ensure accurate, reproducible and essentially inert sample handling. The needles are available in various lengths and they can be used with 10 µl Microliter syringes as well as the 10 µl Gastight® syringe. Accuracy and reproducibility are within 1% of the syringe volume.

Description	Item No.
<b>Fused-Silica Needle Syringes</b>	
701 RNFS Syringe, 10 µl capillary	ACH87402
1701 RNFS Syringe, 10 µl capillary	ACH87404



ACH87402

### Replacement Parts

FS Needle, 10 cm x 0.17 mm OD	ACH17737
PTFE Ferrule, 0.17 mm bore diameter	ACH30947
Spacer	ACH30946

## Rheodyne, Altrex, Valco VISF-2 Injectors Syringes

- 2" length
- 0.028" OD
- Point style 3, no taper

Model / Capacity	Gauge	Item No.
<b>600 Series Removable Needle Syringes</b>		
2.5 µl	22s	ACH87942
5 µl	22s	ACH87943
<b>700 Series Cemented Needle Syringes</b>		
10 µl	22s	ACH80365
25 µl	22s	ACH80465
50 µl	22s	ACH80565
100 µl	22s	ACH80665
250 µl	22	ACH80765
500 µl	22	ACH80865
<b>1700 Series Removable Needle Syringes</b>		
10 µl	22s	ACH80065
25 µl	22s	ACH80265
50 µl	22s	ACH80965
100 µl	22s	ACH81065
250 µl	22	ACH81165
500 µl	22	ACH81265



ACH80665

## Removable Needle RN Style

Capacity	Gauge	Qty	Item No.
<b>For Rheodyne, Alex, Valco VISF-2 Injectors</b>			
5 - 100 µl	22s	6/pk	ACH7770-01
250 - 10 mL	22	6/pk	ACH7780-04



Pt. 2



Pt. 3



Pt. 5

## HAMILTON NEEDLES

Point Style 2 - For septa penetration and GC injections; 220 bevel

Point Style 3 - For pipetting and HPLC injections; blunt tip

Point Style 5 - Used to minimize septum coring; conical point with side port

## Removable Needles for RN Style Syringes, 6/pk

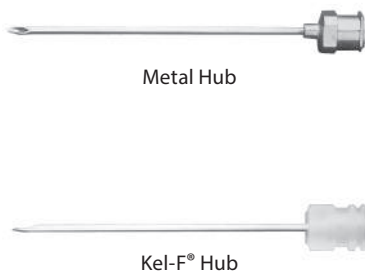
Description	Point Style 2	Point Style 3	Point Style 5
<b>For 5 - 100 ul Syringes</b>			
22 gauge	ACH7758-01	ACH7770-02	ACH7784-06
22s gauge	ACH7758-03	ACH7770-01	ACH7784-05
26 gauge	ACH7758-04	ACH7768-02	ACH7784-08
26s gauge	ACH7758-02	ACH7768-01	ACH7784-07
<b>For 250 ul - 10 mL Syringes</b>			
22 gauge	ACH7779-01	ACH7780-04	ACH7784-02
22s gauge	ACH7779-03	ACH7780-03	ACH7784-01
26 gauge	ACH7779-04		ACH7784-04
26s gauge	ACH7779-02		ACH7784-03



RN Style Needles

## Luer Lock Needles for Hamilton LT and TLL, 6/pk

These are replacement needles for LT and TLL syringes. They are available with a metal (nickel-plated brass) or fluorocarbon (Kel-F) hub. Needles are made from type 304 stainless steel. Needles are 2" long and have point style 2, 3 or 5.



Metal Hub

Kel-F® Hub

Gauge	OD x ID mm	Metal Point 2	Metal Point 3	Metal Point 5	Kel-F Point 2	Kel-F Point 3
28	.36 x .17	ACH90028	ACH91028	--	ACH90128	ACH90528
26s	.47 x .11	ACH90039	ACH91039		ACH90139	ACH90539
26	.46 x .24	ACH90026	ACH91026		ACH90126	ACH90533
24	.56 x .29	ACH90024	ACH91024	ACH7729-05	ACH90124	ACH90524
22s	.71 x .14	ACH90038	ACH91038	ACH7729-02	ACH90138	ACH90534
22	.71 x .39	ACH90022	ACH91022		ACH90122	ACH90134
20	.90 x .62	ACH90020	ACH91020		ACH90120	ACH90520
18	1.26 x .80	ACH90018	ACH91018		ACH90118	ACH90535

## Chromatographic Luer Hub Needles, 6/pk

- Made from 304 stainless steel tubing, 2" long
- Electrotapered

Gauge	Metal Hub	CTFE Hub
22s	ACH90051	ACH90151
25s	ACH90052	ACH90152
26s	ACH90053	ACH90153

## ACCESSORIES

### Needle Cleaning Kit

This kit is specifically designed for cleaning syringes and needles. It includes one bottle of organic, biodegradable cleaning solution, and 10 each of five different diameter tungsten wires, ranging in diameter from 0.0035" to 0.0121". Suggested cleaning procedures are included. This kit is especially recommended for use with Hamilton needles and syringes.

Description	Item No.
Needle Cleaning Kit	ACH76620



ACH76620

### Fine Wire Kit

The GIBNIK Fine Wire Kit lets you clean many small items around the lab; also useful for bending into microhooks, other uses. The kit contains a pin vise and 30 stainless steel wires, 10 of each of the following sizes: 0.006", 0.010" and 0.020". Please note: the wires in this kit cannot be used to clean 26s or 22s gauge needles.

Description	Item No.
Fine Wire Kit	ACH205230



ACH205230

### Hamilton Syringe Cleaner

The Hamilton Syringe Cleaner effectively cleans 7000 Series syringes by vaporizing residues with a combination of high heat (approximately 3700C) and vacuum (0.1 mm Hg). The syringe needle is inserted through the septum for 30 seconds while the plunger is reciprocated several times. This cleaner is not effective against syringes with plugged needles or frozen plungers. Care should be used when handling because of the extreme temperature generated. The cleaner is available in 120 or 220 volt versions.

Description	Item No.
Syringe Cleaner, 120 V	ACH76610
Syringe Cleaner, 220 V	ACH76615



ACH76610