

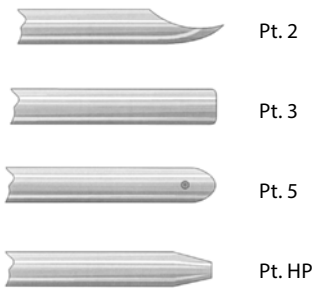


4. *Syringes*

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**[®] - 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**[®] - This features a precision PTFE plunger tip, for use with both gases and liquids.

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



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

ERA-Chrom 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
N- Cemented Needle					
75	5 µl	26s	2"/ 51 mm	HA-DS87900	
701	10 µl	26s	2"/ 51 mm	HA-DS80300	
701	10 µl	22s	2"/ 51 mm		HA-DS80365
710	100 µl	22s	2"/ 51 mm	HA-DS80600	
750	500 µl	22	2"/ 51 mm	HA-DS80800	

RN- Removable Needle					
701	10 µl	26s	2"/ 51 mm	HA-DS80330	

Gastight® Digital Syringes

Model	Volume	Gauge	Length	Pt. 2	Pt. 3
N- Cemented Needle					
701	10 µl	26s	2"/ 51 mm	HA-DS80000	
702	25 µl	22s	2"/ 51 mm		HA-DS80275
710	100 µl	22s	2"/ 51 mm	HA-DS81000	HA-DS81075
725	250 µl	22s	2"/ 51 mm	HA-DS81100	

RN- Removable Needle					
705	50 µl	22s	2"/ 51 mm	HA-DS80930	
750	500 µl	22	2"/ 51 mm	HA-DS81230	

*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

Explanation of Codes



700 Series - The standard Microliter syringeSM

	5 µl	10 µl	25 µl	50 µl	100 µl	250 µl	500 µl
Codes	Model: 75	701	702	705	710	725	750
N	HA-87900	HA-80300	HA-80400	HA-80500	HA-80600	HA-80700	HA-80800
RN	HA-87930	HA-80330	HA-80430	HA-80530	HA-80630	HA-80730	HA-80830
LT		HA-80301	HA-80401	HA-80501	HA-80601	HA-80701	HA-80801
PT5		HA-80339	HA-80439	HA-80539	HA-80639	HA-80739	HA-80839
N- 6 pack		HA-80366					
RN- 6 pack		HA-80336					
Gauge/Length/Point	26s/2/2	26s/2/2	22s/2/2	22s/2/2	22s/2/2s	22s/2/2	22/2/2

600 Series - The compact Microliter syringe

		2.5 µl	5 µl
Codes	Model:	62	65
RN		HA-87942	HA-87943
Gauge/Length/Point		22s/2/3	22s/2/3

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

	5 µl	10 µl	25 µl	50 µl	100 µl	250 µl
Codes	Model: 75	701	702	705	710	725
N	HA-84850	HA-84852	HA-84854	HA-84856	HA-84858	
RN	HA-84851	HA-84853	HA-84855	HA-84857	HA-84859	HA-84861
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 μ l 95	10 μ l 901
N		HA-87920	HA-80360
RN		HA-87925	HA-80370
Gauge/Length/Point	26s/2/2	26s/2/2	

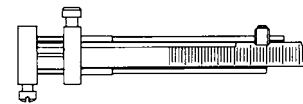


Hamilton Microliter Syringes, from left to right; 700, 800, 900 and 7000 series.

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

Codes	Model:	0.5 μ l 7000.5	1 μ l 7001	1 μ l 7101	2 μ l 7002	2 μ l 7102	5 μ l 7105
KH		HA-86259	HA-80135	HA-86211	HA-88411	HA-88511	HA-88011
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

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

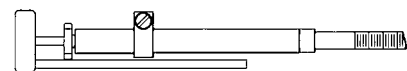


For 700, 1700 and 7000 series

Chaney (Reproducibility) Adapters

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

Description	Part No.
Chaney Adapters	
For 700, 1700; 10 μ l	HA-14700
For 700 above 10 μ l; 7000	HA-14725
For 1700; 25 - 500 μ l	HA-14725
For 800, 1800	HA-32146
For 900	HA-32148

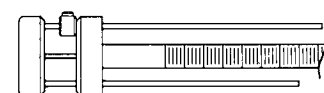


For 800, 900 and 1800 series

Guide Assembly

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

Description	Part No.
Guide Assembly	
For 700, 5 μ l and 10 μ l; 1700	HA-14806
For 700, 1700; above 10 μ l	HA-14906
For 7000 Series	HA-14906



HA-14806

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

1700 Series - The standard Gastight syringeSM



LT



KH

		10 µl	25 µl	50 µl	100 µl	250 µl	500 µl
Codes	Model:	1701	1702	1705	1710	1725	1750
N		HA-80000	HA-80200	HA-80900	HA-81000	HA-81100	HA-81217
RN		HA-80030	HA-80230	HA-80930	HA-81030	HA-81130	HA-81230
LT		HA-80001	HA-80201	HA-80901	HA-81001	HA-81101	HA-81201
TLL				HA-80920	HA-81020	HA-81120	HA-81220
Gauge/Length/Point		26s/2/2	22s/2/2	22s/2/2	22s/2/2	22s/2/2s	22/2/2



LTN

1800 Series - The Gastight syringe with a handle and replaceable partsSM



TLL

		10 µl	25 µl	50 µl	100 µl	250 µl
Codes	Model:	1801	1802	1805	1810	1825
N		HA-84875	HA-84878	HA-84881	HA-84884	HA-84887
RN		HA-84877	HA-84880	HA-84883	HA-84886	HA-84889
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.



Pt. 5

SYRINGES

The new era of *Chromatography*

1000 Series - The high performance Gastight syringe

Codes	Model:	1 mL 1001	1.25 mL 1001.25	2.5 mL 1002	5 mL 1005	10 mL 1010
RN		HA-81330		HA-81430	HA-81530	HA-81630
LT		HA-81301	HA-82001	HA-81401	HA-81501	HA-81601
LTN		HA-81317	HA-82017	HA-81417	HA-81517	HA-81617
TLL		HA-81320		HA-81420	HA-81520	HA-81620
LTNPT5		HA-81343		HA-81443	HA-81543	HA-81643
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

Codes	Model:	25 mL 1025	50 mL 1050	100 mL 1100
TLL		HA-82520	HA-85020	HA-86020

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.

Description	Volume	Part No.
S0500	0.5 L	HA-86311
S1000	1.0 L	HA-86312
S1500	1.5 L	HA-86313
S2000	2.0 L	HA-86314



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	PartNo.
1705SL	50 µl	HA-80956
1710SL	100 µl	HA-81056
1725SL	250 µl	HA-81156
1750SL	500 µl	HA-81256
1001SL	1.0 mL	HA-81356
1002SL	2.5 mL	HA-81456
1005SL	5 mL	HA-81556
1005SLPT	5 mL P&T	HA-81570
1010SL	10 mL	HA-81656
1025SL	25 mL	HA-86326
1050SL	50 mL	HA-86336
1100SL	100 mL	HA-86346

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).

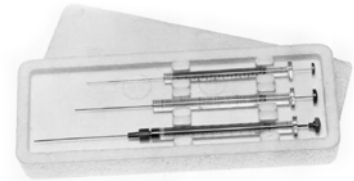
Description	PartNo.
GC Syringe Pack	HA-80380

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	Part No.
7000.5 OC Syringe	HA-86257
Spare Needle/Plunger Assembly	HA-86258



HA-80380

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	Part No.
Fused-Silica Needle Syringes	
701 RNFS Syringe, 10 µl capillary	HA-87402
1701 RNFS Syringe, 10 µl capillary	HA-87404

Replacement Parts

FS Needle, 10 cm x 0.17 mm OD	HA-17737
PTFE Ferrule, 0.17 mm bore diameter	HA-30947
Spacer	HA-30946



HA-87402

Rheodyne, Altrex, Valco VISF-2 Injectors Syringes

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

Model / Capacity	Gauge	Part No.
600 Series Removable Needle Syringes		
2.5 µl	22s	HA-87942
5 µl	22s	HA-87943
700 Series Cemented Needle Syringes		
10 µl	22s	HA-80365
25 µl	22s	HA-80465
50 µl	22s	HA-80565
100 µl	22s	HA-80665
250 µl	22	HA-80765
500 µl	22	HA-80865
1700 Series Removable Needle Syringes		
10 µl	22s	HA-80065
25 µl	22s	HA-80265
50 µl	22s	HA-80965
100 µl	22s	HA-81065
250 µl	22	HA-81165
500 µl	22	HA-81265

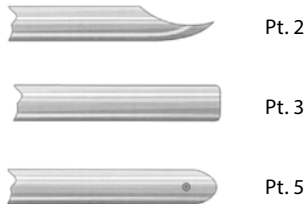


HA-80665

Removable Needle RN Style

Capacity	Gauge	Qty	Part No.
For Rheodyne, Alex, Valco VISF-2 Injectors			
5 - 100 µl	22s	6/pk	HA-7770-01
250 - 10 mL	22	6/pk	HA-7780-04

HAMILTON NEEDLES



Point Style 2 - For septa penetration and GC injections; 22O 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

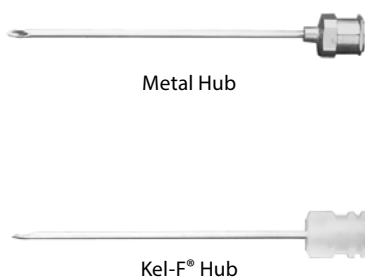


RN Style Needles

Description	Point Style 2	Point Style 3	Point Style 5
For 5 - 100 ul Syringes			
22 gauge	HA-7758-01	HA-7770-02	HA-7784-06
22s gauge	HA-7758-03	HA-7770-01	HA-7784-05
26 gauge	HA-7758-04	HA-7768-02	HA-7784-08
26s gauge	HA-7758-02	HA-7768-01	HA-7784-07
For 250 ul - 10 mL Syringes			
22 gauge	HA-7779-01	HA-7780-04	HA-7784-02
22s gauge	HA-7779-03	HA-7780-03	HA-7784-01
26 gauge	HA-7779-04		HA-7784-04
26s gauge	HA-7779-02		HA-7784-03

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	HA-90028	HA-91028	--	HA-90128	HA-90528
26s	.47 x .11	HA-90039	HA-91039		HA-90139	HA-90539
26	.46 x .24	HA-90026	HA-91026		HA-90126	HA-90533
24	.56 x .29	HA-90024	HA-91024	HA-7729-05	HA-90124	HA-90524
22s	.71 x .14	HA-90038	HA-91038	HA-7729-02	HA-90138	HA-90534
22	.71 x .39	HA-90022	HA-91022		HA-90122	HA-90134
20	.90 x .62	HA-90020	HA-91020		HA-90120	HA-90520
18	1.26 x .80	HA-90018	HA-91018		HA-90118	HA-90535

Chromatographic Luer Hub Needles, 6/pk

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

Gauge	Metal Hub	CTFE Hub
22s	HA-90051	HA-90151
25s	HA-90052	HA-90152
26s	HA-90053	HA-90153

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.



HA-76620

Description	Part No.
Needle Cleaning Kit	HA-76620

Hamilton Syringe Cleaner

The Hamilton Syringe Cleaner effectively cleans 7000 Series syringes by vaporizing residues with a combination of high heat (approximately 370OC) 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.



HA-76610

Description	Part No.
Syringe Cleaner, 120 V	HA-76610
Syringe Cleaner, 220 V	HA-76615

Ordering Information

Custom Standard Quotations – Direct Purchase orders	e-mail: info@erachrom.com
Shipping	Shipments via courier.
Payment	1) Credit Card 2) Pre-Pay - Proforma Invoice 3) TT in advance prior to shipment
Terms and Conditions of Sales	Prices are EXW DUS. Prices are subject to change without notice. The purchase of a ERA-Chrom product assumes the acceptance of ERA-Chrom's "General Sales Terms and Conditions". This information is available in our web site (www.erachrom.com) and upon request.
Minimum Order	Minimum order is 1.000,00 EUR .
Warranty	All ERA-Chrom Chromatography products come with a three months warranty. ERA-Chrom products are available only through authorized distributors. No warranties, claims for damages, or other claims will be honored if products are purchased through unauthorized channels.
Technical Service	Contact your local ERA-Chrom Distributor or e-mail: info@erachrom.com for any technical question
Return Policy	If it is necessary to return material, please contact your local ERA-Chrom Distributor or e-mail: info@erachrom.com for a Return Authorization Form and shipping instructions.

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