

Measurement, Separations, and More

More than 2,000 Syringes and Accessories



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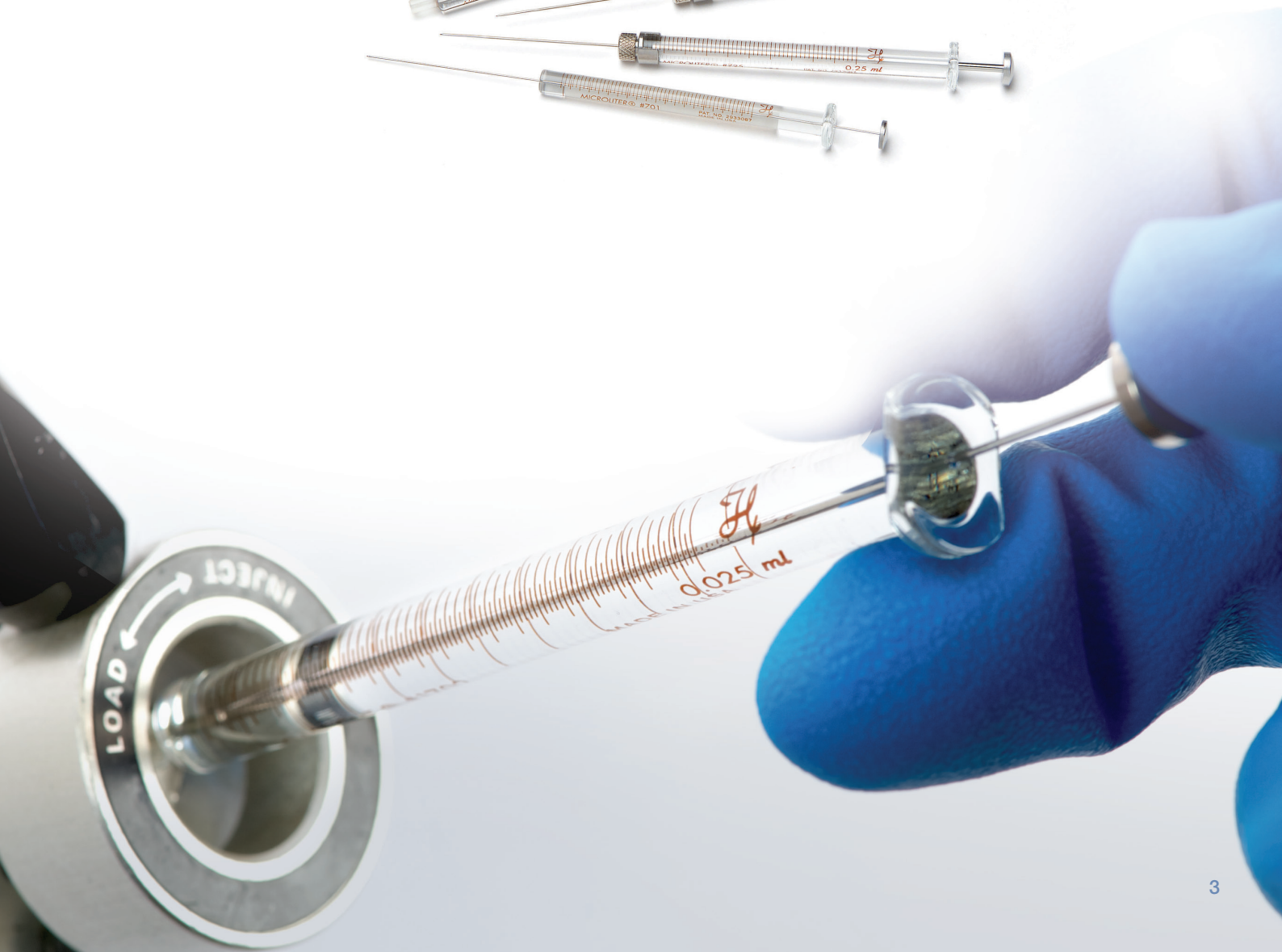
Manual Sample Transfer and Manual HPLC Syringes

HPLC syringes are equipped with a point style 3 (blunt) needle to fit HPLC injection valve seats without damaging the rotor seal.

Hamilton Company manufactures a complete range of high performance liquid chromatography (HPLC) syringes and thin-layer chromatography (TLC) syringes.

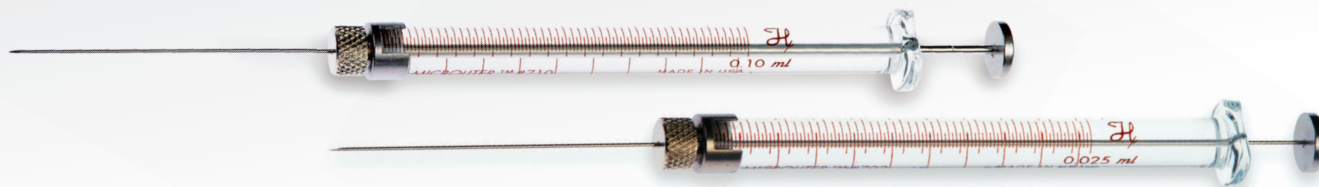
Benefits

- ▶ HPLC syringes are designed for manual or autosampler injection ports.
- ▶ The needle is blunt and electro-polished to slide smoothly into the injection port, reducing the wear on critical seals.



Manual Sample Transfer and Manual HPLC Syringes (Cont.)

Gastight Syringes



Volume	10 μ L	25 μ L	50 μ L	100 μ L	250 μ L	500 μ L	1000 μ L
Model	1701	1702	1705	1710	1725	1750	1001
Gauge	22s	22s	22s	22s	22s	22	22

Cemented Needle (N) Syringe (point style 3)	–	8928N30	8928N32	8928N34	–	–	–
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Cemented Needle (LTN) Syringe (point style 3)	–	–	–	–	8928N36	8928N38	1216L88
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Removable Needle (RN) Syringe (point style 3)	8928N50	8928N52	1196K02	1196K01	8928N58 ¹	8928N60	1216L89
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Replacement Needle 6 pk (point style 3)	8929F65	8929F65	8929F65	8929F65	8929F93	8929F95	8929F95
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*Note: Needles are 51 mm
22 gauge needle*

Microliter Syringes



Volume	10 μ L	25 μ L	50 μ L	100 μ L	250 μ L	500 μ L
Model	701	702	705	710	725	750
Gauge	22s	22s	22s	22s	22	22

Cemented Needle (N) Syringe (point style 3)	8928N10	8928N12	8928N14	8928N16	8928N18	8928N20
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Note: Needles are 51 mm

Manual GC Syringes

Hamilton provides a variety of syringes that are designed for use with manual GC injection ports.

GC syringes are fitted with a point style 2 (beveled) needle to pierce injection port septa without damage.

Manual GC Microliter™ syringes are used for liquid samples and manual GC Gastight® syringes can be used for gas and liquid samples.



Syringes For Manual Injection of Liquid Samples



Volume	5 µL	10 µL	25 µL	50 µL	100 µL	250 µL	500 µL
Model	75	701	702	705	710	725	750
Gauge	26s	26s	22s	22s	22s	22s	22
Cemented Needle (N) Syringe (point style 2)	8928B58	8928B60 8928B64 (6 pk)	8929A40	8929A45	8929A50	8929A55	8929A60
Removable Needle (RN) Syringe (point style 2)	1207K83	8929A70 8928B64 (6 pk)	8929A75	8929A80	8929A85	8929A90	8929A95
Replacement Needle 6 pk (point style 2)	8928C41	8928C41	8928C44	8928C44	8928C44	8929F83	8929F85

Note: Needles are 51 mm

Zero Dead Volume Syringes



Volume	0.5 µL	10 µL	25 µL	50 µL
Model	7000.5	7001	7002	7105
Gauge	25	25	25	24
Knurled Hub (KH) Syringe (point style 2)	8929C61	8929C63	8929C67	8929C71

HPLC Autosampler Syringes

HPLC autosamplers enable the automatic introduction of samples into the sample loop as well as some sample preparation.

Hamilton maintains a large catalog of replacement syringes for the most popular HPLC autosamplers.

Manufacturer	Model
Agilent	1290 Infinity LC Injector ProStar 410, ProStar 420, and ProStar 430
Antec	AS 100 and AS 110
Beckman Coulter	508
CTC/LEAP	A200S PAL LC HTC and HTS Syringes
Dionex	Dionex Gina ASI-100 Syringes ESA Model 540 ESA Model 540 MT ESA Model 542 Ultimate 3000
Grace Alltech	Model 580
Hitachi LaChrom	L-7200, L-7250, L-2200, L-8800, L-8900, AS1000, and AS2000
Kontron	360, 460, and 465
Perkin Elmer	Flexar FX-10 and FX-15, Series 225 Series 220
Shimadzu	SIL-6A SIL-10AF, SIL-10AP
Spark Holland	Midas, Triathlon, Endurance, and Alias
Thermo Finnigan	AS 100, AS 1000, AS 3000, and AS 3500 SP 8780, SP 8875, and SP 8880
Varian	ProStar 410, ProStar 420, and ProStar 430 9100
Waters	717 PLUS and WISP 2707 2777

Featured Product: X-Type Autosampler Syringes

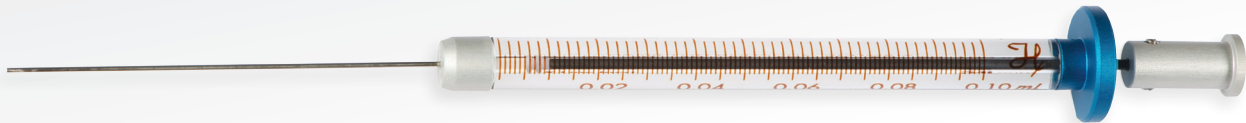
Hamilton, together with CTC Analytics, designed the X-Type syringe for use with PAL System liquid chromatography (LC) autosamplers. The syringes feature near zero carryover and a long-lasting plunger tip to meet the requirements of sensitive, high-throughput LC applications. The X-Type syringe is designed for sensitive LC samples such as proteins, peptides, phospholipids, or smaller amines.

Benefits

- ▶ The syringe glass barrel is polished and sealed for inertness and enhanced lifetime.
- ▶ The needle is deactivated to reduce sample adsorption.



X-Type Syringes



Volume	Thomas Scientific Part Number	Syringe Type	Model Number	Gauge	Point Style	Needle Length	Standard Needle Dead Volume	Termination
100 µL	1206F89	Gastight	1700	22	3	2 in (51 mm)	6.81 µL	Fixed Needle (FN)
100 µL	1206F90	Gastight	1710	22s	3	2 in (51 mm)	1.13 µL	Fixed Needle (FN)
25 µL	1206F88	Gastight	1700	22s	3	2 in (51 mm)	1.13 µL	Fixed Needle (FN)
50 µL	1180Q50	Gastight	1700	22s	3	2 in (51 mm)	1.13 µL	Fixed Needle (FN)

GC Autosampler Syringes

GC autosamplers enable the automatic introduction of samples into the injector of the gas chromatograph (GC). Hamilton maintains a large catalog of replacement syringes for the most popular gas chromatography autosamplers.

Benefits

- ▶ The point style AS (for autosampler) is designed to withstand repeated puncturing through the GC injection port septa.
- ▶ Syringes for headspace injection come with a point style 5 (conical with side port), which is ideal for large gas volume injection.
- ▶ Autosampler syringes are available in various gauges depending on the type of injector used.

Manufacturer	Model
Agilent	7670, 7671, and 7672 ALS 7673, 7683, and 6850 ALS 7693A ALS
Bruker Varian	8100 and 8200 CP-8400, CP-8410, CP-9010, and CP-9050 CP-9020 and CP-9025
CTC / LEAP	CombiPAL (Headspace) CTC / LEAP PAL GC
Gerstel	CTC / LEAP PAL GC
Perkin Elmer	AutoSystem Clarus 500
Shimadzu	AOC-9 AOC-14, AOC-17, and AOC-20 AOC-5000
Thermo Finnigan	AI 3000 and AS 3000 AS 800 and AS 2000 HS 250, HS 500 and HS 850



Featured Product: HDHT Headspace Syringes

A cement-free connection between the needle and the glass barrel make HDHT-type syringes a perfect choice for applications where temperatures up to 200 °C will be used.

Modern GC headspace analysis requires injecting over large temperature ranges. Conventional headspace syringes use a rubber O-ring sealed plunger which has a limited sealing performance at high temperatures due to varying thermal expansion between the different materials. HDHT-type syringes employ a unique spring in the plunger tip which compensates for the materials' different expansion coefficients, creating a superior seal over a larger temperature range, improving syringe lifetime.



New HDHT-Type Syringe Design

Patent pending

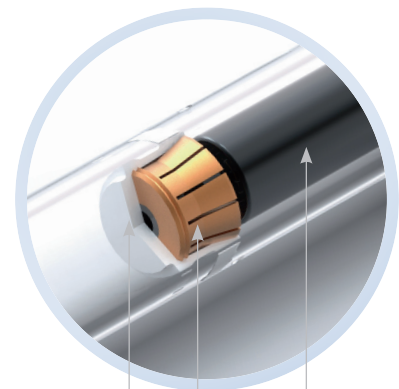


Glue-free needle attachment

Headspace Applications
up to
200°C

HD-Type Plunger Design

Patented



PTFE plunger tip

Plunger
Compression spring

Featured Product: HDHT Headspace Syringes (Cont.)

HDHT Headspace Syringes



Volume	Thomas Scientific Part Number	Model Number	Gauge	Point Style	Needle Length (mm)	Standard Needle Dead Volume
1 mL	1183J18	1001 GF	23	5	2 in (51 mm)	4.76 μ L
1 mL	1183J19	1001 GF	26	5	2 in (51 mm)	2.70 μ L
2.5 mL	1183J20	1002 GF	23	5	2 in (51 mm)	4.76 μ L
2.5 mL	1183J21	1002 GF	26	5	2 in (51 mm)	2.70 μ L
5 mL	1183J22	1005 GF	23	5	2 in (51 mm)	4.76 μ L
5 mL	1180Q49	1005 GF	26	5	2 in (51 mm)	2.70 μ L



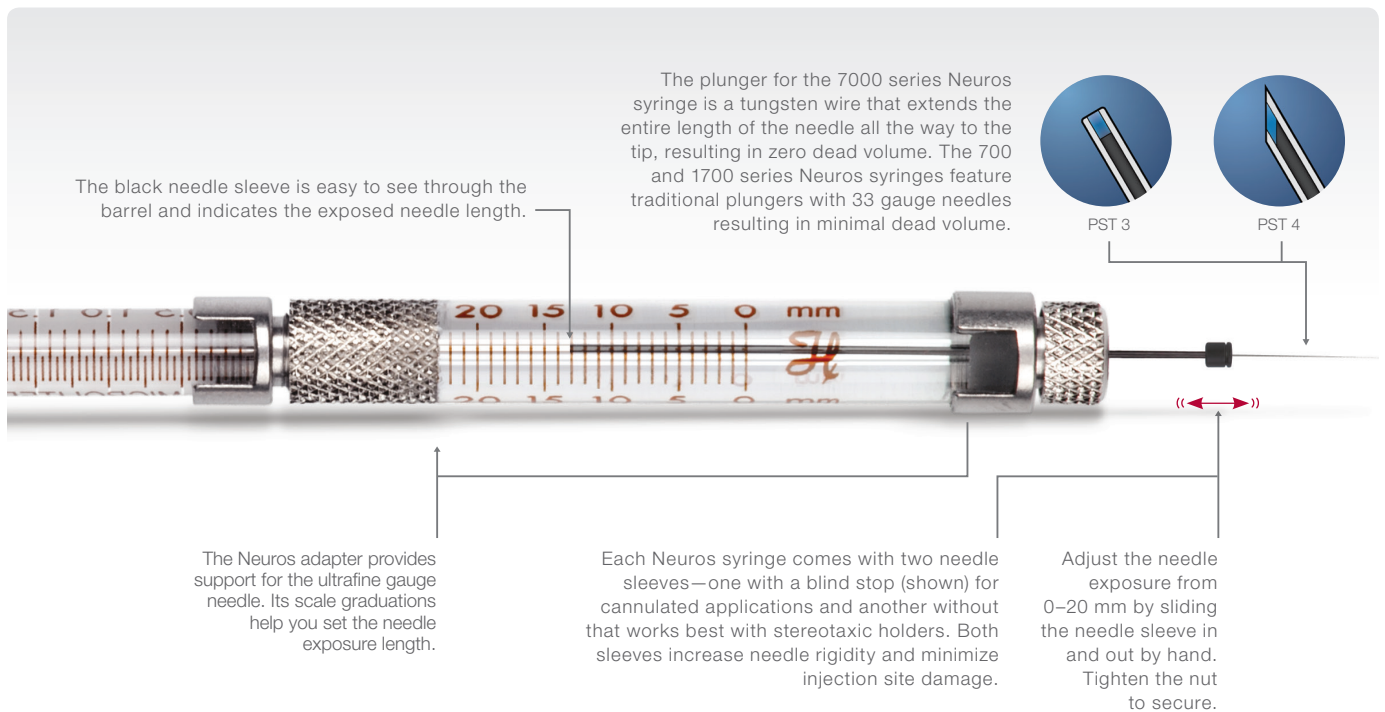
Neuroscience Syringes

Neuro Syringes

Hamilton Neuros syringe technology provides unprecedented functionality for controlled animal injections. The Neuros accurately dispenses volumes between 50 nL and 100 μ L through an ultrafine needle. Developed specifically for neuroscience applications, the Neuros enables the delivery of microvolumes to an exact location while minimizing injection site damage. Neuros syringes come with two types of protective sleeves. The sleeve with a blind stop is perfect for cannulated applications and ensures targeted administration with an adjustable penetration depth. The version without a blind stop works best with stereotaxic holders. Both models provide an adjustable needle exposure of 0 to 20 mm.

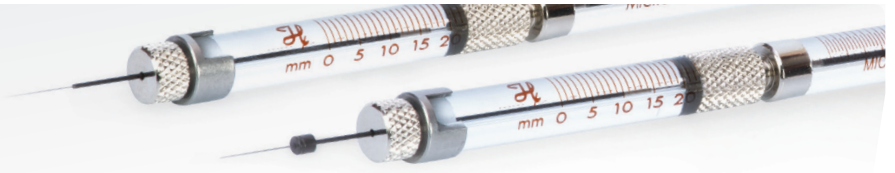
Benefits

- ▶ Needle rigidity improves insertion path accuracy
- ▶ Minimal tissue damage reduces injection variability
- ▶ Reduced sample loss saves money and materials
- ▶ A fine gauge needle creates smaller injection sites
- ▶ Compatibility with most infusion pumps and stereotaxic holders means an easy integration into existing processes



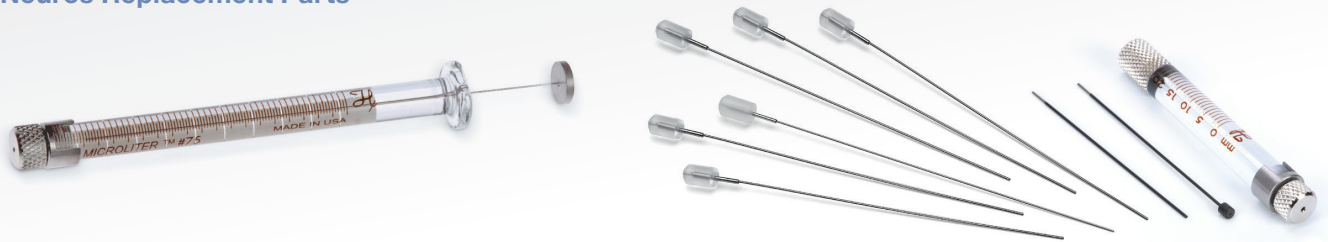
Neuroscience Syringes (Cont.)

Neuro Syringe Assemblies



Thomas Scientific Part Number	Volume	Gauge	Point Style	Syringe Series
1209C55	0.5 µL	32	3	7000
1183U29	0.5 µL	32	4	7000
1209C56	1.0 µL	32	3	7000
1183U30	1.0 µL	32	4	7000
1209C57	2.0 µL	30	3	7000
1183U31	2.0 µL	30	4	7000
1209C58	5.0 µL	33	3	700
1183U32	5.0 µL	33	4	700
1209C59	10 µL	33	3	1700
1183U33	10 µL	33	4	1700
1209C60	25 µL	33	3	1700
1183U34	25 µL	33	4	1700
1209C61	50 µL	33	3	1700
1183U35	50 µL	33	4	1700
1209C62	100 µL	33	3	1700
1183U36	100 µL	33	4	1700

Neuro Replacement Parts



Thomas Scientific Part Number	Volume	Gauge	Point
1209C63	Needle 5 – 100 µL - 6pk	33 ga	3
1183U38	Needle 5 – 100 µL - 6pk	33 ga	4
1192C12	Adapter Kit for 5 – 100 µL RN syringes	33 ga	3
1183U37	Adapter Kit for 5 – 100 µL RN syringes	33 ga	4

Sample Preparation and Dilution

The Microlab® 600 is a highly precise syringe pump with a touchscreen interface designed to quickly and easily dilute and dispense fluids. This positive displacement system provides better than 99%

accuracy, independent of a liquid's viscosity, vapor pressure, and temperature. The inert fluid path minimizes sample carryover and is compatible with harsh chemicals.

Microlab 600 Diluter and Dispensers

The Microlab 600 offers labs a way to securely monitor processes and greatly increase efficiency. No more adjusting pipettes and recalculating dilutions. Quickly recall stored dispenses and dilutions with the Favorites Menu. Trigger the hand probe or tap the foot switch to actuate the syringe drives according to a predefined program. These are just some of the conveniences of the Microlab 600.

Benefits

- ▶ Reduce time preparing samples or dispensing reagents
- ▶ Minimize experimental variation from one user to the next
- ▶ Manage log files from any PC
- ▶ Complies with EPA, FDA, GLP, GMP, 21 CFR Part 11, and ISO regulations
- ▶ N.I.S.T. traceable calibration

Application	Configuration	Controller	Thomas Scientific Part Number
Dilution	PTFE Tube Diluter	Basic	1221W10
		Advanced	1221W14
	Disposable Tip Diluter	Basic	–
		Advanced	1192L86
Dispensing	Single Syringe Dispenser	Basic	1220B14
		Advanced	1221W13
	Dual Syringe Dispenser	Basic	1221W11
		Advanced	1221W15
	Continuous Syringe Dispenser	Basic	1221W12
		Advanced	1221W16
	PC Controlled Single Syringe	–	1192L87
		–	1192L88

Columns

Hamilton offers a complete selection of polymer-based HPLC columns for Reversed-Phase, Anion Exchange, Cation Exchange, and Ion Exclusion as well as silica-based columns for Reversed-Phase.

Featured Product: PRP-C18 Polymer-Based Columns

The Hamilton PRP-C18 is designed to provide high-efficiency, reversed-phase separations over an extended column life in nearly any mobile phase or pH.

The PRP-C18 is a durable and effective column for general purpose HPLC and is especially well-suited for specialized applications in the clinical, pharmaceutical, environmental, food, forensics, and life sciences industries.

The properties of the PRP-C18 make it a superior column in the field of oligonucleotide purifications.



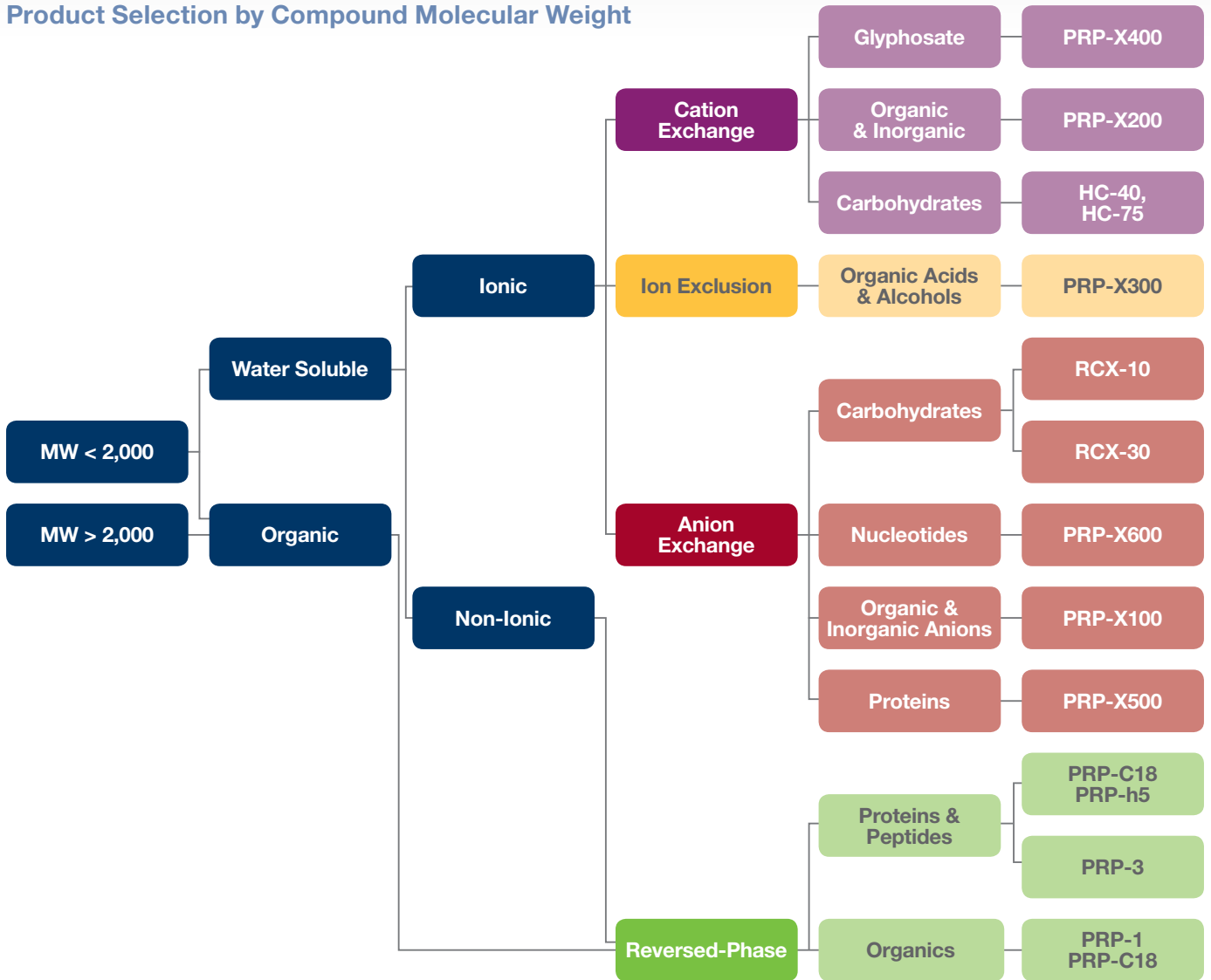
PRP-C18 Columns

Thomas Scientific Part Number	Particle Size	Hardware Inner Diameter	Hardware Length	Hardware Material
1192F41	5 μm	4.6 mm	50 mm	Stainless Steel
1192F44	12 – 20 μm	21.2 mm	250 mm	Stainless Steel
1192F39	5 μm	2.1 mm	150 mm	Stainless Steel
1192F46	5 μm	2.1 mm	150 mm	PEEK
1192F40	5 μm	2.1 mm	250 mm	Stainless Steel
1192F47	5 μm	2.1 mm	250 mm	PEEK
1192F38	5 μm	2.1 mm	50 mm	Stainless Steel
1192F45	5 μm	2.1 mm	50 mm	PEEK
1192F42	5 μm	4.6 mm	150 mm	Stainless Steel
1192F49	5 μm	4.6 mm	150 mm	PEEK
1192F43	5 μm	4.6 mm	250 mm	Stainless Steel
1192F50	5 μm	4.6 mm	250 mm	PEEK
1192F48	5 μm	4.6 mm	50 mm	PEEK

Columns (Cont.)

Hamilton Polymer Column Product Selection Guide

Product Selection by Compound Molecular Weight





Pipettes

We've learned that our best ideas come from listening to people working in the lab and using our products. Responding to user demand, we have developed our pipettes putting a priority on addressing the issues of hand strain, fatigue, and other injuries caused by pipettes. The result

is innovative designs that set new standards for quality, comfort, and precision. You'll feel the difference the first time you pick one up. Hamilton's line of SoftGrip Pipettes are easy to use, reliable, and maximize the efficiency of your lab.

SoftGrip Pipettes

Outstanding Quality

The SoftGrip™ pipette, with its award-winning, innovative design, is built to last. SoftGrip manual pipettes are completely autoclavable for easy decontamination and sterilization. User may perform pipette calibration or the pipettes may be sent to Hamilton for calibration service.

Total Comfort

The soft, ergonomic shape and low plunger forces of the SoftGrip pipette reduce hand and wrist fatigue as compared to other pipettes. Using SoftGrip pipettes decreases the risk factors associated with pipette-related repetitive stress injuries such as carpal tunnel syndrome.



Pipettes (Cont.)

Adjustable Volume Pipettes

Thomas Scientific Part Number	Volume Range	Increments	Color
1230N51	0.2 – 2 µL	0.002 µL	Aqua
1230N52	1 – 10 µL	0.02 µL	Purple
1230N53	2.5 – 25 µL	0.02 µL	Forest Green
1230N54	10 – 100 µL	0.2 µL	Violet
1230N55	30 – 300 µL	0.2 µL	Brick Red
1230N56	100 – 1000 µL	2.0 µL	Sky Blue

Fixed Volume Pipettes

Thomas Scientific Part Number	Volume Range	Color
1230N41	5 µL	Steel Blue
1230N42	10 µL	Purple
1230N43	25 µL	Forest Green
1230N44	50 µL	Sandstone
1230N45	100 µL	Violet
1230N46	200 µL	Mustard
1230N47	250 µL	Burnt Orange
1230N48	300 µL	Brick Red
1230N49	500 µL	Olive Green
1230N50	1000 µL	Sky Blue

Multi-Channel Pipettes

Thomas Scientific Part Number	Volume Range	Channels	Color
1230N57	5 – 50 µL	8	Sandstone
1230N58	30 – 300 µL	8	Brick Red
1230N59	5 – 50 µL	12	Sandstone
1230N60	30 – 300 µL	12	Brick Red

Guaranteed Accuracy and Precision

SoftGrip pipettes deliver superior accuracy and precision. Every pipette is calibrated at the factory with standards traceable to N.I.S.T. and shipped with a Certificate of Calibration documenting the pipette's accuracy.



Contact Tom Lorusso for more information about any of the products shown in this brochure.

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— *How Can We Help?*

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