



More choices. More productivity.

More **accurate** results.



Agilent's Complete Line of  
Autosampler and Manual Syringes

Specifications and Selection Guide

Our measure is your success.

**products** | applications | software | service



**Agilent Technologies**




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## Introduction to Agilent Syringes

Now you can **boost productivity**  
along every step of your sample processing

From simple liquid transfers to complex GC and HPLC chromatographic injections, Agilent syringes are, quite simply, a brilliant addition to your laboratory.

Whether automating or manually preparing your samples for analysis, Agilent has a syringe to deliver the precision and accuracy you require. With product specifications second to none, we have expanded our portfolio to offer even greater flexibility.





## New automatic sampler syringes expand the capabilities of your ALS



Our blue line syringes are specifically designed to support the increased productivity of Agilent's new 7693A automatic liquid sampler (ALS). These top-quality syringes:

- Align with every Agilent autosampler syringe stroke to deliver accurate volumes
- Extend plunger lifetime and feature a superior needle finish to reduce inlet septa coring and wear
- Fully compatible with earlier-model Agilent autosamplers
- Decrease carryover between samples
- Accurate within  $\pm 1\%$  of nominal volume, and with precision within 1%, measured at 80% of total scale volume
- Delivered in environmentally friendly, easy-open packaging with no contaminating styrofoam or blister packs
- Available in volumes from 0.5  $\mu\text{L}$  to 100  $\mu\text{L}$ , as well as 250  $\mu\text{L}$  and 500  $\mu\text{L}$

For complete ordering details, see page 8

## New color-coded manual syringes make volume identification easy



Sample preparation, enhancement, and injection require precise measurement, transport and delivery of liquids. To help simplify these time-consuming tasks, our new manual syringes:

- Have a distinct color permanently bonded onto every glass barrel for fast, easy identification
- Available in volumes from 0.5  $\mu\text{L}$  to 50 mL
- Use innovative package that doubles as a bench top syringe stand
- Employ an intuitive, easy-to-read, vertical orientated scale
- Use environmentally-friendly recyclable packaging
- NIST traceable
- Provide accuracy  $\pm 1\%$  for Plunger-in-Barrel syringes and  $\pm 2\%$  for Plunger-in-Needle syringes

For complete ordering details, see page 17



To put our complete line of syringes to work for your lab, go to [www.agilent.com/chem/syringes](http://www.agilent.com/chem/syringes)



# How do I select the best syringe for my application?

Whether you need an autosampler or manual syringe, there are two keys to choosing the right syringe – identifying your sample type and establishing the smallest volume to be dispensed or injected. Agilent offers two varieties of syringes.

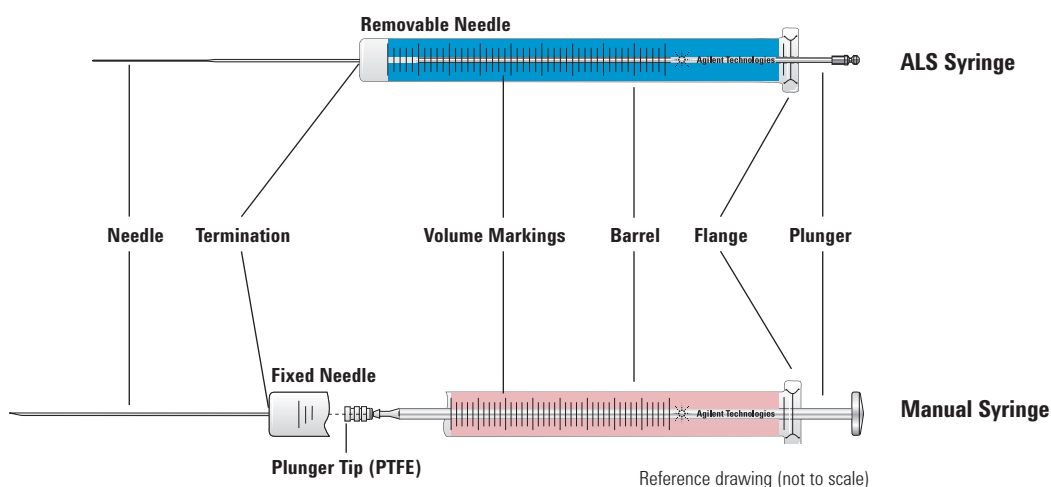
## PTFE-Tipped Syringes for Gases and Liquids

PTFE-tipped syringes have a precision-machined plunger tip that forms a tight seal and enables the tip to wipe the barrel's interior free of sample during operation. This feature is particularly useful for viscous or heterogeneous samples, because it reduces deposits that can cause the plunger to freeze. Replacement plunger assemblies are available for most PTFE-tipped syringes.

## Fitted Plunger Syringes for Liquids

Fitted plunger syringes feature a stainless steel plunger that is meticulously hand-fitted to its matching glass barrel, creating a liquid-tight seal. These syringes are ideal for homogenous samples that are not prone to precipitation or bonding with glass. Note: plungers cannot be interchanged or replaced if damaged.

### Syringe Features



## Needle Gauges

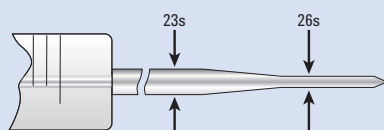
With a broad selection of syringes for manual and auto injectors,  
**Agilent has what you need for accurate and effective sampling**

Needle gauge is the thickness of the needle. The gauge depends on the injector. When selecting a needle gauge, it is important to keep in mind the volume of the syringe and the dead volume of the needle. Refer to the chart below to choose a needle gauge with an appropriate  $\mu\text{L}/\text{inch}$  before selecting a needle.

### Typical Needle Gauge Dimensions

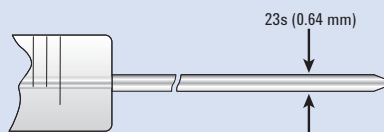
Gauge	OD		ID	
	mm	inches	mm	inches
22	0.71	0.028	0.41	0.016
23s	0.635	0.025	0.11	0.0045
25	0.5	0.02	0.2	0.008
26s	0.47	0.0184	0.11	0.0045

### Needle Gauge



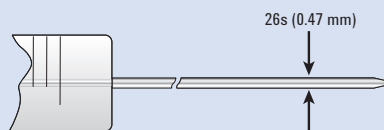
#### Tapered Dual Gauge 23-26 or 23s-26s (0.64 – 0.47 mm)

Durability of a 23-gauge  
 Versatility of a 26-gauge for split/splitless and on-column injection



#### Single Gauge 23 or 23s (0.64 mm)

Merlin Microseal septa  
 Packed column injector ports  
 Split/splitless injector ports



#### Single Gauge 26 or 26s (0.47 mm)

Packed column injector ports  
 Split/splitless injector ports




*Note: Needles with an 'S' following the gauge are more durable, with a thicker needle wall and smaller ID bore.*



## Needle Termination

Needles come in fixed and removable, with various tip styles:

- **Fixed (cemented)** – Economical, reproducible injections, for autosamplers, one syringe-one method
- **Removable needle** – One syringe Fixed – many methods, simplicity of fixed needle, but needle can be replaced if damaged or clogged
- **Luer tip** – Easy, fast needle replacement, syringe filter or pump priming, Luer tip is ground glass suitable for mounting chromatographic or PTFE needles, syringes can be autoclaved (without plunger or needle)
- **Luer Lok** – Security of a locked needle, syringe filter or pump priming, PTFE, male Luer taper with nickel-plated brass locking hub for use with KEL-F or metal hub needles and universal connectors

Needle Tip Design		
		
<b>HP Point Style</b> (Also known as Cone Tip)	<b>Bevel Tip</b>	<b>LC Tip</b>
Proprietary design required for Agilent autosamplers for optimal performance and reliability by reducing septum coring.	General purpose; excellent choice for transferring liquids from ampoules or vials. For manual GC injections, a beveled tip is preferred for optimum septum penetration and to prevent septum coring.	For HPLC injections and sample pipetting, the blunt tip style 3 is preferred. The blunt tip has chamfered and polished edges that eliminate damage to the valve's rotor seal and stator face. This style can also be used for pipetting liquids.





## Autosampler Syringes

# Premium autosampler syringes optimize system productivity and ensure precise sample handling



### Agilent Blue Line Autosampler Syringes for 7693A ALS

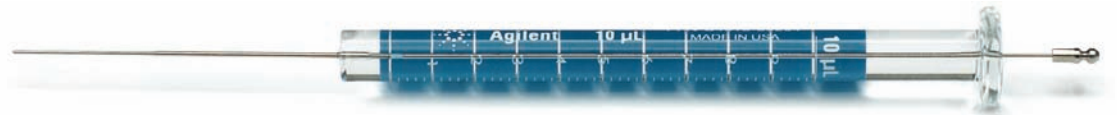
Agilent blue line autosampler syringes are specifically designed to support the higher productivity features of the 7693A ALS, while increasing plunger life and reducing costly downtime. Backed by over 40 years of chromatography experience, these meticulously crafted syringes offer:

- Wider range of volumes including exclusive 250 and 500  $\mu\text{L}$  syringes for sample enhancement with the new 7693A
- Precise match with your autosampler's stroking mechanism, resulting in more accurate volume delivered
- Smooth needle that reduces septum coring and keeps your system working at its full potential
- Choice of PTFE-tipped or metal fitted plunger to meet application needs
- Easy-open, environmentally friendly packaging
- Certified compliance with strict Agilent specifications





## Autosampler Syringes



Fitted plunger syringes are recommended for homogenous liquid samples. Each fitted syringe is individually matched with the plunger for precision injection. Plungers are not interchangeable or replaceable.

### Blue Line Autosampler Syringes with Fitted Plungers

Volume (µL)	Description	Unit	Needle Gauge/Length (mm)/Tip	Part No.
0.5	Plunger in needle, fixed		23/42/cone tipped	G4513-80229
	Replacement needle/plunger for 0.5 µL syringe			G4513-80240
1	Plunger in needle, fixed		23/42/cone tipped	G4513-80215
	Replacement needle/plunger for 1 µL syringe			G4513-80239
5	Straight, fixed		23/42/HP	G4513-80213
	Straight, fixed	6/pk	23/42/HP	G4513-80205
	Straight, fixed		26s/42/HP	G4513-80226
	Straight, fixed	6/pk	26s/42/HP	G4513-80212
	Tapered, fixed		23-26s/42/HP	G4513-80206
	Tapered, fixed	6/pk	23-26s/42/HP	G4513-80201
	Straight, removable		23/42/HP	G4513-80234
	Replacement needle	3/pk	23/42/HP	G4513-80238
	Tapered, removable		23-26s/42/HP	G4513-80224
	Removable, barrel only		On-column	G4513-80207
	Replacement needle	3/pk	0.25 mm on-column	G4513-80217
	Replacement needle	3/pk	0.32 mm on-column	G4513-80214
	Replacement needle	3/pk	0.53 mm on-column	G4513-80225
10	Straight, fixed		23/42/HP	G4513-80209
	Straight, fixed	6/pk	23/42/HP	G4513-80202
	Straight, fixed		26s/42/HP	G4513-80216
	Straight, fixed	6/pk	26s/42/HP	G4513-80211
	Tapered, fixed		23-26s/42/HP	G4513-80204
	Tapered, fixed	6/pk	23-26s/42/HP	G4513-80200
	Straight, removable		23/42/HP	G4513-80235
	Replacement needle	3/pk	23/42/HP	G4513-80238
	Removable		23-26s/42/HP	G4513-80218
	Replacement needle	3/pk	23-26s/42/HP	G4513-80231
25	Tapered, fixed		23-26/42/HP	G4513-80242
50	Tapered, fixed		23-26/42/HP	G4513-80244





Suitable for gas and liquid samples, the PTFE tip of the plunger creates a tight seal between the plunger and the glass helping to reduce carry-over and increase syringe lifetime. Replacement plungers are available.

### Blue Line Autosampler Syringes with PTFE-Tipped Plungers

Volume (µL)	Description	Unit	Needle Gauge/Length (mm)/Tip	Part No.
10	Straight, fixed		23/42/HP	G4513-80220
	Straight, fixed	6/pk	23/42/HP	G4513-80210
	Tapered, fixed		23-26/42/HP	G4513-80203
	Replacement plunger for fixed needle			G4513-80227
	Tapered, fixed	6/pk	23-26s/42/HP	G4513-80208
	Straight, removable		23/42/HP	G4513-80219
	Replacement needle	3/pk		G4513-80238
	Tapered, removable		23-26/42/HP	G4513-80233
	Replacement plunger for fixed needle			G4513-80227
	Replacement needle	3/pk	23-26	G4513-80231
	Replacement plunger for 10 µL syringe, removable			G4513-80232
25	Straight, fixed		23/42/HP	G4513-80228
	Tapered, fixed		23-26/42/HP	G4513-80241
50	Straight, fixed		23/42/HP	G4513-80221
	Tapered, fixed		23-26/42/HP	G4513-80223
100	Tapered, fixed		23-26/42/HP	G4513-80243



Used with the 7693A optional Enhanced Sample Handling Syringe Carriage, these syringes can eliminate analyst-to-analyst variability and reduce re-work in sample preparation such as dilution and internal standard addition.

### Advanced Sample Enhancement Autosampler Syringes with PTFE-Tipped Plungers

Volume (µL)	Description	Needle Gauge/Length (mm)/Tip	Part No.
250	Fixed	23/42/HP	G4513-60560
500	Fixed	23/42/HP	G4513-60561



## Gold Standard Autosampler Syringes

Use one needle and get the benefits of two. The upper portion of the tapered needle offers the strength of a 23-gauge, while the lower portion at 26s-gauge allows for use with split/splitless or on-column injections with 0.53 mm ID columns. All standard plungers are stainless steel.

### Tapered Needle, 23-26s Gauge Autosampler Syringes

Volume (μL)	Description	Unit	Needle Gauge/Length (mm)/Tip	Part No.
5	Tapered, fixed		23-26s/42/HP	5181-1273
	Tapered, fixed	6/pk	23-26s/42/HP	5181-8810
	Tapered, removable		23-26s/42/HP	5182-0835
	Replacement needle for 5 μL syringe	3/pk		5182-0832
10	Tapered, fixed		23-26s/42/HP	5181-1267
	Tapered, fixed	6/pk	23-26s/42/HP	5181-3360
	Tapered, removable		23-26s/42/HP	5181-3321
	Replacement needle for 10 μL syringe	3/pk		5181-3319
	Tapered, fixed, PTFE-tipped plunger		23-26s/42/HP	5181-3354
	Tapered, fixed, PTFE-tipped plunger	6/pk	23-26s/42/HP	5181-3361
	Replacement plunger with PTFE tip for fixed needle 10 μL syringe			5181-3365
	Tapered, removable		23-26s/42/HP	5181-3356
	Replacement plunger with PTFE tip for removable needle 10 μL syringe			5181-3358
50	Tapered, fixed, PTFE-tipped plunger		23-26s/42/HP	5183-0314
100	Tapered, fixed, PTFE-tipped plunger		23-26s/42/HP	5183-2042





### Straight Needle, 23 and 26s Gauge Autosampler Syringes

Volume (μL)	Description	Unit	Needle Gauge/Length (mm)/Tip	Part No.
1	Cone-tipped		23/42/HP	5188-5246
2	Cone-tipped		23/42/HP	5188-5247
5	Straight, fixed		26s/42/HP	9301-0891
	Straight, fixed	6/pk	26s/42/HP	5183-4728
	Straight, fixed		23/42/HP	9301-0892
	Straight, fixed	6/pk	23/42/HP	5182-0875
	Straight, removable		23/42/HP	5182-0834
	Replacement needle for 5 μL syringe	3/pk		5182-0830
10	Straight, fixed		26s/42/HP	9301-0714
	Straight, fixed	6/pk	26s/42/HP	5183-4729
	Straight, fixed		23/42/HP	9301-0713
	Straight, fixed	6/pk	23/42/HP	9301-0725
	Straight, fixed, PTFE-tipped plunger		23/42/HP	5181-8809
	Straight, fixed, PTFE-tipped plunger	6/pk	23/42/HP	5183-4730
	Replacement plunger for 10 μL fixed needle syringe			5181-8808
	Straight, removable, 23 gauge		23/42/HP	5181-8806
	Straight, removable, PTFE-tipped plunger		23/42/HP	5181-8813
	Replacement needle for 10 μL syringe	3/pk		5181-8811
	Replacement plunger with PTFE tip for removable needle 10 μL syringe			5181-3358
25	Straight, fixed, PTFE-tipped plunger		23/42/HP	5183-0316
50	Straight, fixed, PTFE-tipped plunger		23/42/HP	5183-0318
100	Straight, fixed, PTFE-tipped plunger		23/42/HP	5183-2058





## 7673/7683 On-Column Autosampler Syringes

Agilent Technologies 7673/7683 on-column syringes with needle diameters for columns ranging from 0.25 mm to 0.53 mm. Specifically designed for the 7673/7683 Autosampler.

### 7673/7683 On-Column Autosampler Syringes

Volume (μL)	Description	Unit	Part No.
5	Removable needle, barrel only		5182-0836
	Stainless steel needle for 0.53 mm column	3/pk	5182-0832
	Stainless steel needle for 0.32 mm column	3/pk	5182-0831
	Stainless steel needle for 0.25 mm column	3/pk	5182-0833
	Plunger button	10/pk	5181-8866

## HP 7670/71/72 Autosampler Syringes

This syringe has a long needle and regular plunger button for compatibility with HP 7670/71/72 autosamplers. Available with a fixed or removable needle.

### HP 7670/71/72 Autosampler Syringes

Volume (μL)	Description	Needle Gauge/ Length (mm)/Tip	Part No.
1	Straight, removable	23/56/2	5182-9622
10	Straight, fixed	23/50/HP	5182-9734
	Straight, removable	23/50/HP	5182-9626
	Straight, fixed, PTFE-tipped plunger	23/50/HP	5182-9799





## CombiPAL Headspace Syringes



Our fixed needle headspace syringes feature a sideport needle for gas flushing, in conformance with strict CTC standards. Use with Agilent's Merlin Microseal to minimize instrument downtime – and to prevent lost or compromised data caused by septum leaks and liner contamination.

### CombiPAL Headspace Syringes

Volume (mL)	Description	Gauge	Part No.
1	Fixed needle	23	G6500-80107
	Replacement plunger		G4200-80101
2.5	Fixed needle	23	G6500-80109
	Replacement plunger		G4200-80107
5	Fixed needle	23	G6500-80111
	Replacement plunger		G4200-80108





## Autosampler Syringes

### CombiPAL and GC PAL Liquid Injection Syringes

A key feature of CTC's GC PAL and CombiPAL is the ability to inject a wide range of sample volumes, up to 500  $\mu\text{L}$  for LVI applications. The following fixed needle, 26-gauge needles are recommended by CTC to sustain high reproducibility and accuracy.

#### CombiPAL and GC PAL Liquid Injection Syringes

Volume ( $\mu\text{L}$ )	Description	Unit	Needle Gauge/Length (mm)/Tip	Part No.
1.2	Fixed needle		26/51/AS	G6500-80113
5	Fixed needle		26/51/AS	G6500-80114
10	Fixed needle		26/51/2	G6500-80115
			26/51/AS	G6500-80116
	Fixed needle, Merlin & PTV		23S/51/AS	5188-6596
25	Fixed needle		26/51/AS	G6500-80117
	Replacement plunger	10/pk		G4200-80104
100	Fixed needle		26/51/AS	G6500-80118
	Replacement plunger	10/pk		G4200-80105
250	Fixed needle		26/51/AS	G6500-80119
	Replacement plunger	10/pk		G4200-80102
500	Fixed needle		26/51/AS	G6500-80120
	Replacement plunger			G4200-80106







## HTS and HTC PAL Liquid Injection Syringes

Designed specifically for CTC autosamplers, these X-type syringes feature zero carryover and a long-lasting plunger for applications that demand precision and productivity. They are strongly recommended for high-throughput applications.

Agilent offers a wide selection of fixed needle, 22-gauge, pointstyle 3 syringes to accommodate a variety of applications.

### HTS and HTC PAL Liquid Injection Syringes

Volume (μL)	Description	Unit	Needle Gauge/Length (mm)/Tip	Part No.
25	X-type fixed needle		22S/51/3	G4200-80117
	Replacement plunger for X-type syringe	3/pk		G4200-80112
50	X-type fixed needle		22/51/3	5188-6485
	Replacement plunger for X-type syringe	3/pk		5188-5395
100	X-type fixed needle, fast aspiration and eject		22/51/3	G4200-80118
	X-type fixed needle, low dead volume		22S/51/3	G4200-80119
	Replacement plunger for X-type syringe	3/pk		G4200-80111
10	Fixed needle		22S/51/3	G4200-80113
	Replacement plunger	10/pk		G4200-80103
25	Fixed needle		22S/51/3	G4200-80114
	Replacement plunger	10/pk		G4200-80104
100	Fixed needle		22/51/3	G4200-80115
	Fixed needle		22S/51/3	G4200-80116
	Replacement plunger	10/pk		G4200-80105
250	Fixed needle		22/51/3	G6500-80102
	Replacement plunger	10/pk		G4200-80102
500	Fixed needle		22/51/3	G6500-80103
	Replacement plunger			G4200-80106
1000	Fixed needle		22/51/3	G6500-80104
	Replacement plunger			G4200-80101
2500	Fixed needle		22/51/3	G6500-80105
	Replacement plunger			G4200-80107
5000	Fixed needle		22/51/3	G6500-80106
	Replacement plunger			G4200-80108



## Manual Syringes

# We're changing the way you see syringes

**New color-coded manual syringes** let you **identify critical volumes** at a glance and **help boost productivity** along every step of your sample processing workflow

### Color Speaks Volumes

Barrel Color	Volume Size
	0.5 $\mu$ L
	1.0 $\mu$ L
	2.0 $\mu$ L
	5.0 $\mu$ L
	10 $\mu$ L/1.0 mL
	25 $\mu$ L/2.5 mL
	50 $\mu$ L/5.0 mL
	100 $\mu$ L/10.0 mL
	250 $\mu$ L/25.0 mL
	500 $\mu$ L/50.0 mL

Agilent syringes can be ordered in a variety of needle and plunger configurations to meet all of your sample preparation needs.

Deciphering tiny part numbers on syringe barrels is a waste of time in today's busy labs. That is why Agilent is pleased to introduce a new line of syringes that are color-coded based on their maximum volume of liquid.

Agilent color-coded manual syringes allow you to determine syringe volume with one quick glance, so you can more efficiently perform manual dilution, extraction, and sample prep. They also give you the advantages of:

- Improved scale readability with a new vertical syringe scale orientation for more intuitive use
- An easy-access box design that allows you to store syringes right on your lab bench, making it easy to find the volume you need without digging through drawers or unpacking extra cartons
- A wide selection of volumes, making Agilent your "one-stop" resource for all your sample manipulation needs
- Accuracy within  $\pm 1\%$  of nominal volume, and with precision within 1%, measured at 80% of total scale volume
- Earth-friendly cardboard and recyclable plastic packaging that helps reduce landfill waste
- A Certificate of Conformance to ensure the highest quality construction and performance; You can view and print this Certificate anytime online
- Lot traceable for accurate identification

And of course, all Agilent syringes are backed by over 40 years of chromatography expertise, industry-leading technical support, and a 90-day warranty from the date of shipment.

To learn more, visit  
[www.agilent.com/chem/syringes](http://www.agilent.com/chem/syringes)



### Manual Syringes with Fitted Plunger, Fixed and Removable Needle, 0.5 to 5 $\mu$ L

Volume ( $\mu$ L)	Description	Unit	Needle Gauge/Length (mm)/Tip	Part No.
0.5	Plunger in needle, removable		23/70/cone	5190-0464
	Replacement needle and plunger kit for 0.5 $\mu$ L syringe			5190-1461
	Plunger in needle, removable		23/70/bevel	5190-1460
	Replacement needle and plunger kit for 0.5 $\mu$ L syringe			5190-1462
1	Plunger in needle, removable		26/70/cone	5190-1463
	Replacement needle and plunger kit for 1.0 $\mu$ L syringe			5190-1467
	Plunger in needle, removable		26/70/bevel	5190-1466
	Replacement needle and plunger kit for 1.0 $\mu$ L syringe			5190-1470
	Plunger in needle, removable		23/70/cone	5190-1464
	Replacement needle and plunger kit for 1.0 $\mu$ L syringe			5190-1468
	Plunger in needle, removable		23/70/bevel	5190-1465
	Replacement needle and plunger kit for 1.0 $\mu$ L syringe			5190-1469
2	Plunger in needle, removable		23/70/cone	5190-1471
	Replacement needle and plunger kit for 2.0 $\mu$ L syringe			5190-1473
	Plunger in needle, removable			5190-1472
	Replacement needle and plunger kit for 2.0 $\mu$ L syringe			5190-1474
5	Plunger in needle, removable			5190-1475
	Replacement needle and plunger kit for 5.0 $\mu$ L syringe			5190-1477
	Plunger in needle, removable		23/70/bevel	5190-1476
	Replacement needle and plunger kit for 5.0 $\mu$ L syringe			5190-1478
	Straight, fixed		26/50/bevel	5190-1479
	Removable, with flexible plunger		26/50/bevel	5190-1481
	Replacement needle for 5.0 $\mu$ L syringe	3/pk		5190-1482





## Manual Syringes

### Manual Syringes with Fitted Plunger, Fixed and Removable Needle, 10 to 500 µL

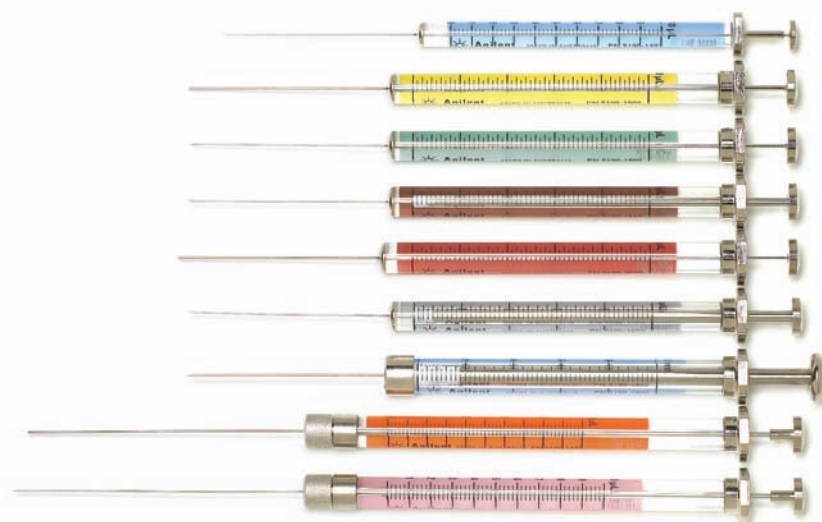
Volume (µL)	Description	Unit	Needle Gauge/Length (mm)/Tip	Part No.
10	Fixed		26/50/bevel	5190-1483
	Fixed	10/pk	26/50/bevel	5190-1487
	Fixed, with flexible plunger		26/50/bevel	5190-1488
	Fixed, with flexible plunger	6/pk	26/50/bevel	5190-1489
25	Fixed		25/50/bevel	5190-1493
	Removable		25/50/bevel	5190-1495
	Replacement needle	3/pk		5190-1496
50	Fixed		25/50/bevel	5190-1500
	Removable		25/50/bevel	5190-1502
	Replacement needle	3/pk		5190-1496
100	Fixed		25/50/bevel	5190-1507
	Removable		25/50/bevel	5190-1509
	Replacement needle	3/pk		5190-1496
250	Fixed		25/50/bevel	5190-1514
	Removable		25/50/bevel	5190-1516
	Replacement needle	3/pk		5190-1496
500	Fixed		25/50/bevel	5190-1521
	Removable		25/50/bevel	5190-1524
	Replacement needle	3/pk		5190-1496

### Manual Syringes with PTFE-Tipped Plunger, Removable Needle, 10 to 500 µL

Volume (µL)	Description	Unit	Needle Gauge/Length (mm)/Tip	Part No.
10	Removable		25/50/bevel	5190-1491
	Replacement needle	3/pk		5190-1496
	Replacement plunger with PTFE tip for 10 µL syringe			5190-1559
25	Removable		25/50/bevel	5190-1498
	Replacement needle	3/pk		5190-1496
	Replacement plunger with PTFE tip for 25 µL syringe			5190-1560
50	Removable		25/50/bevel	5190-1504
	Replacement needle	3/pk		5190-1496
	Replacement plunger with PTFE tip for 50 µL syringe			5190-1561
100	Removable		25/50/bevel	5190-1511
	Replacement needle	3/pk		5190-1496
	Replacement plunger with PTFE tip for 100 µL syringe			5190-1562
250	Removable		25/50/bevel	5190-1518
	Replacement needle	3/pk		5190-1496
	Replacement plunger with PTFE tip for 250 µL syringe			5190-1563
500	Removable		25/50/bevel	5190-1525
	Replacement needle	3/pk		5190-1496
	Replacement plunger with PTFE tip for 500 µL syringe			5190-1564


**Manual Syringes with PTFE-Tipped Plunger, Fixed Needle, 10 to 500  $\mu$ L**

Volume ( $\mu$ L)	Description	Needle Gauge/Length (mm)/Tip	Part No.
10	Fixed	26/50/bevel	5190-1490
	Replacement plunger with PTFE tip for 10 $\mu$ L syringe		5190-1558
25	Fixed	25/50/bevel	5190-1497
	Replacement plunger with PTFE tip for 25 $\mu$ L syringe		5190-1560
50	Fixed	25/50/bevel	5190-1503
	Replacement plunger with PTFE tip for 50 $\mu$ L syringe		5190-1561
100	Fixed	25/50/bevel	5190-1510
	Replacement plunger with PTFE tip for 100 $\mu$ L syringe		5190-1562
250	Fixed	25/50/bevel	5190-1517
	Replacement plunger with PTFE tip for 250 $\mu$ L syringe		5190-1563
500	Fixed	25/50/bevel	5190-1523
	Replacement plunger with PTFE tip for 500 $\mu$ L syringe		5190-1564



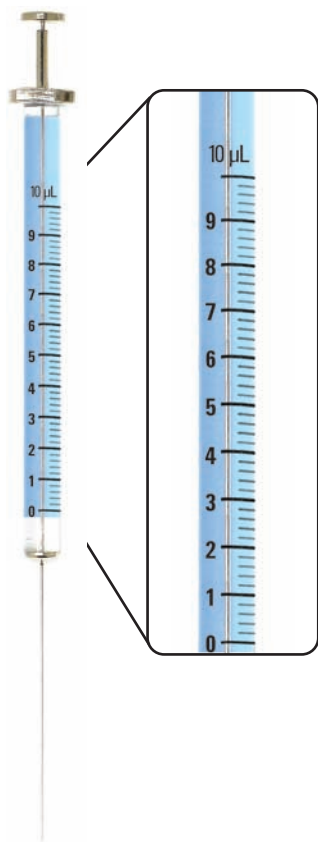


## Manual Syringes



### Manual Syringes with PTFE-Tipped Plunger, Removable Needle, 1 mL to 10 mL

Volume (mL)	Description	Unit	Needle Gauge/Length (mm)/Tip	Part No.
1	Removable		23/50/bevel	5190-1529
	Replacement needle	3/pk		5190-1581
	Replacement plunger with PTFE tip for 1 mL syringes			5190-1565
2.5	Removable		23/50/bevel	5190-1533
	Replacement needle	3/pk		5190-1581
	Replacement plunger with PTFE tip for 2.5 mL syringes			5190-1572
5	Removable		23/50/bevel	5190-1537
	Replacement needle	3/pk		5190-1538
	Replacement plunger with PTFE tip for 5 mL syringes			5190-1573
10	Removable		23/50/bevel	5190-1542
	Replacement needle	3/pk		5190-1538
	Replacement plunger with PTFE tip for 10 mL syringes			5190-1574



### Manual Syringes with PTFE-Tipped Plunger, Fixed Needle, 1 mL to 10 mL

Volume (mL)	Description	Needle Gauge/Length (mm)/Tip	Part No.
1	Fixed	22/50/bevel	5190-1528
	Replacement plunger with PTFE tip for 1 mL syringes		5190-1565
2.5	Fixed	22/50/bevel	5190-1532
	Replacement plunger with PTFE tip for 2.5 mL syringes		5190-1572
5	Fixed	22/50/bevel	5190-1536
	Replacement plunger with PTFE tip for 5 mL syringes		5190-1573
10	Fixed	22/50/bevel	5190-1541
	Replacement plunger with PTFE tip for 10 mL syringes		5190-1574





### Manual Syringe with PTFE-Tipped Plunger and Luer Lok, 50 to 500 $\mu\text{L}$ \*

Volume ( $\mu\text{L}$ )	Description	Part No.
50	Luer Lok	5190-1506
	Replacement plunger with PTFE tip for 50 $\mu\text{L}$ syringe	5190-1561
100	Luer Lok	5190-1513
	Replacement plunger with PTFE tip for 100 $\mu\text{L}$ syringe	5190-1562
250	Luer Lok	5190-1519
	Replacement plunger with PTFE tip for 250 $\mu\text{L}$ syringe	5190-1563
500	Luer Lok	5190-1527
	Replacement plunger with PTFE tip for 500 $\mu\text{L}$ syringe	5190-1564

*\*Needles must be purchased separately*

### Manual Syringe with PTFE-Tipped Plunger and Luer Lok, 1 to 50 mL\*

Volume (mL)	Description	Part No.
1	Luer Lok	5190-1530
	Luer Lok valve	5190-1531
	Replacement plunger with PTFE tip for 1 mL syringes	5190-1565
2.5	Luer Lok	5190-1534
	Luer Lok valve	5190-1535
	Replacement plunger with PTFE tip for 2.5 mL syringes	5190-1572
5	Luer Lok	5190-1539
	Luer Lok valve	5190-1540
	Replacement plunger with PTFE tip for 5 mL syringes	5190-1573
10	Luer Lok	5190-1457
	Luer Lok valve	5190-1543
	Replacement plunger with PTFE tip for 10 mL syringes	5190-1574
25	Luer Lok	5190-1544
	Replacement plunger with PTFE tip for 25 mL syringe	5190-1575
	Luer Lok valve	5190-1545
	Replacement plunger with PTFE tip for 25 mL syringe	5190-1576
50	Luer Lok	5190-1546
	Luer Lok valve	5190-1547
	Replacement plunger with PTFE tip for 50 mL syringes	5190-1577

*\*Needles must be purchased separately*

### Luer Lok and Luer Lok Valve Needles

Description	Unit	Needle Gauge/Length (mm)/Tip	Part No.
Needle	3/pk	23/50/bevel	5190-1548
Needle	3/pk	23/50/sidehole	5190-1549
Needle	3/pk	22/51/LC	5190-1550



## Manual Syringes

### LC Manual Syringes with Fitted Plungers

Volume (μL)	Description	Unit	Needle Gauge/Length (mm)/Tip	Part No.
5	Fixed		22/2 in./LC	5190-1480
10	Fixed		22/2 in./LC	5190-1484
	Removable		22/2 in./LC	5190-1485
	Replacement needle for 10 μL syringe	3/pk		5190-1486
25	Fixed		22/2 in./LC	5190-1494
50	Fixed		22/2 in./LC	5190-1501
100	Fixed		22/2 in./LC	5190-1508
250	Fixed		22/2 in./LC	5190-1515
500	Fixed		22/2 in./LC	5190-1522

### LC Manual Syringes with PTFE-Tipped Plungers

Volume (μL)	Description	Unit	Needle Gauge/Length (mm)/Tip	Part No.
10	Removable		22/2 in./LC	5190-1492
	Replacement needle for 10 μL syringe	3/pk		5190-1486
	Replacement plunger with PTFE tip for 10 μL syringe			5190-1558
25	Removable		22/2 in./LC	5190-1499
	Replacement needle	3/pk		5190-1571
	Replacement plunger with PTFE tip for 25 μL syringe			5190-1560
50	Removable		22/2 in./LC	5190-1505
	Replacement needle	3/pk		5190-1571
	Replacement plunger with PTFE tip for 50 μL syringe			5190-1561
100	Removable		22/2 in./LC	5190-1512
	Replacement needle	3/pk		5190-1571
	Replacement plunger with PTFE tip for 100 μL syringe			5190-1562
250	Removable		22/2 in./LC	5190-1520
	Replacement needle	3/pk		5190-1571
500	Removable		22/2 in./LC	5190-1526
	Replacement needle	3/pk		5190-1571
	Replacement plunger with PTFE tip for 500 μL syringe			5190-1564



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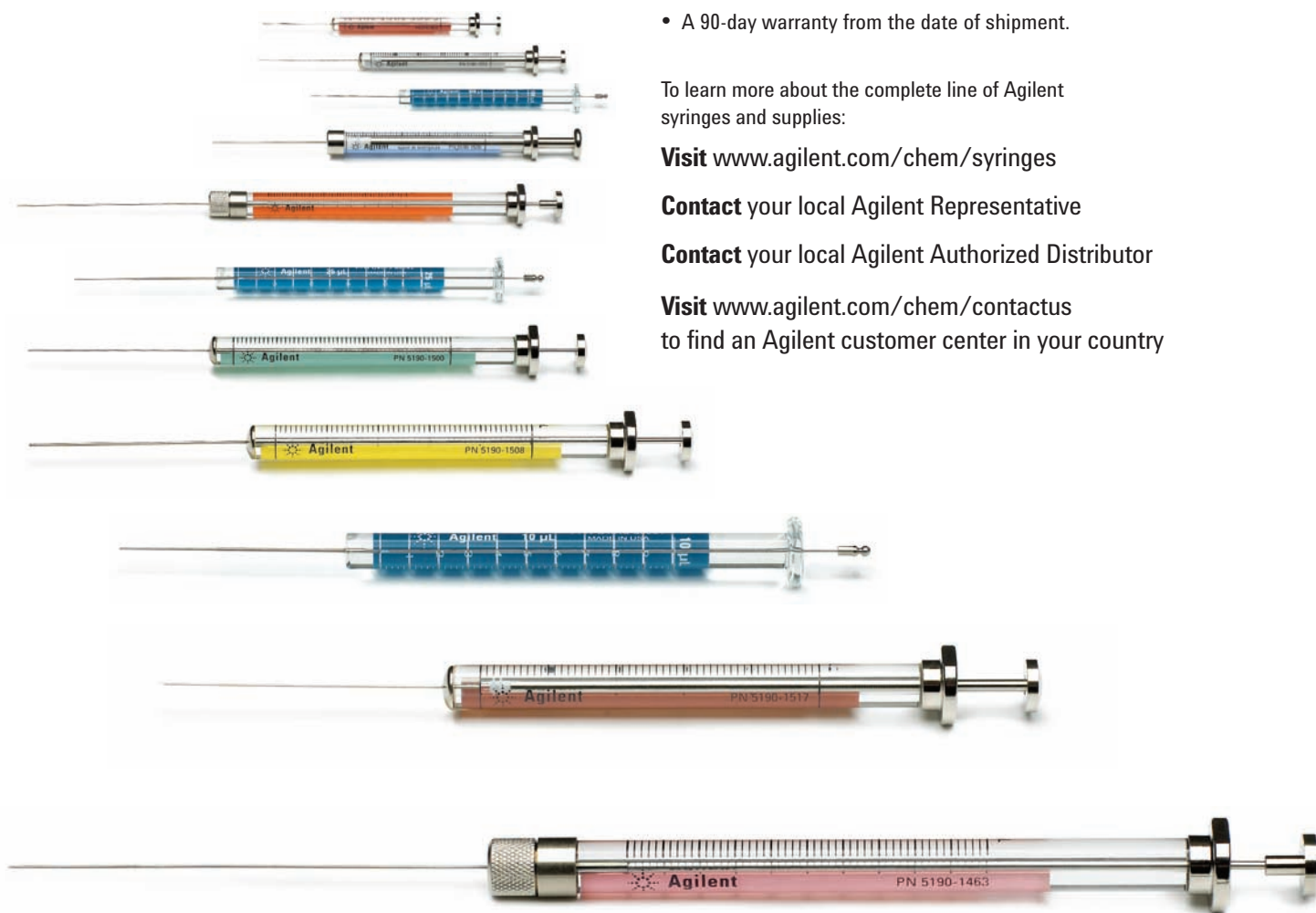
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