TRAJAN

SGE® Syringes

Syringes for the laboratory

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SGE Syringes

SGE syringes have been the syringe of choice in analytical laboratories for over 50 years

In the laboratory it is essential to have the right consumables to deliver an efficient workflow. The analytical syringe plays an important role in ensuring consistent delivery, precision, accuracy, and integrity of the sample.

Trajan Scientific and Medical (Trajan) is focused on delivering a portfolio of high performance syringes designed to meet these requirements.

We combine precision manufacturing and meticulous assembly, to create SGE syringes for precise volume delivery of your analytical samples.

Our comprehensive expertise in liquid handling technologies with glass and metal assembly enables us to develop syringes for a vast variety of applications.

We are confident this guide will assist you in identifying the right SGE syringe for your application. If you need help with your selection, please contact us to recommend appropriate products or to investigate a custom solution for you.

Contents

SGE Syringes | Structure of a syringe

Front screw or needle cap

Made from nickel plated brass, protects the syringe barrel from chipping and breakage.

Needle

Stainless steel needles for robustness and corrosion resistance. Fixed and removable needle options in a wide range of lengths and diameters.

Knurled front cover nut

Needle tip

A range of tip styles are available for a wide range of applications.

Removable needle

Removable needles can be replaced if bent, blocked or broken without the need to replace the entire syringe.

Needle spring/ seal/hub

Plunger tip PTFE or metal

Backing strip and scale

Bright white backing with black scale markings on manual syringes for accurate reading of the syringe scale.

Autosampler syringes have colored backing strips, distinguished by volume for easy identification of installed syringes.

Barrel

Made from borosilicate glass for robustness and solvent resistance.

Back flange

Shape provides stability and prevents syringe rolling away, made from nickel plated brass or stainless steel to resist fracture.

Plunger protection

Guides the plunger into the syringe. Helps to prevent plunger bending.

Plunger button

Designed for easy syringe use or to fit appropriate autosampler.

Plunger stem

SGE Syringes - volumetric color guide

SGE Syringes for autosamplers incorporate a vibrant color scheme, distinguished by volume, enabling easy identification of syringes installed in instruments.

Choose from a comprehensive range of SGE Syringe options including plunger protection, removable or fixed needles, a range of needle gauge and length options as well as needle tip style alternatives.

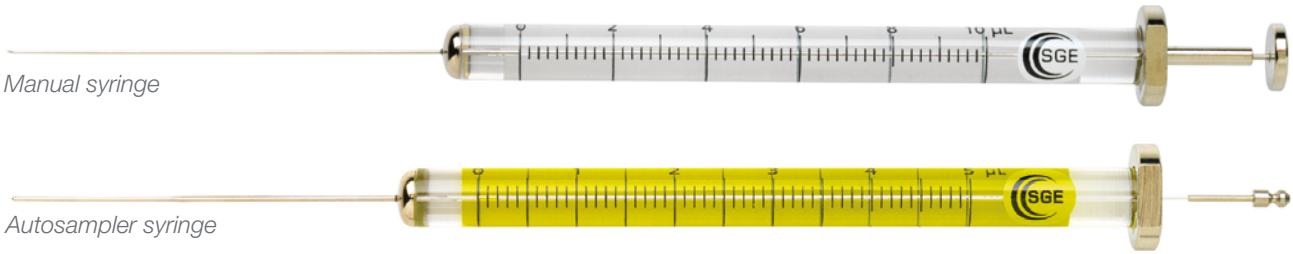
Color	Syringe capacities			
Light orange	500 nL (0.5 µL)	500 µL		500 mL (0.5 L)
Yellow	1000 nL (1 µL)		1 mL	1000 mL (1 L)
Lime	5000 nL (5 µL)	5 µL	5 mL	
Dark orange		10 µL	10 mL	
Green		25 µL	25 mL	
Purple		50 µL	50 mL	
Aqua		100 µL	100 mL	
Gray		250 µL	2.5 mL	2000 mL (2 L)

SGE Syringes | Which syringe to use?

Trajan offers a complete choice in syringes with a range of capacities, termination types, and numerous needle sizes for a wide range of applications. The following sections explain the SGE Syringe features and how to select the ideal syringe for any application.

What type of syringe?

If the syringe is being used by hand, a manual syringe should be selected. If the syringe is installed in an instrument then select an autosampler syringe to suit that particular instrument.



Manual syringe

Autosampler syringe

Trajan has a large range of manual syringes for use in chromatography and many other applications. SGE manual syringes have a bright white backing and contrasting black print making them easy to read the fluid level. This provides confidence the right volume is being delivered every time.

Trajan's extensive range of SGE autosampler syringes meet all fit, form and function criteria of a specific autosampler model. As minimum requirements, they meet dimensional specifications, have accuracy of better than ±1%*, are designed for worry free overnight sampling, have extended life, and are color coded by capacity for easy identification.

Consider the eVol® XR the digital analytical syringe for precise programmable injections. eVol syringes are easily and quickly changed allowing them to be dedicated to individual liquids or methods to prevent possible cross contamination of reagents.

eVol XR

What size syringe?

For the best possible injection reproducibility and accuracy, the smallest injectable volume from any syringe (with the exception of eVol) should be no less than 10% of its total capacity. For example: the smallest recommended injection volume from a 10 µL syringe would be 1 µL.

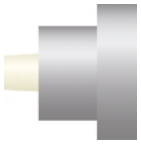
To accurately dispense 1 µL or less a NanoVolume syringe is recommended. SGE NanoVolume syringes are available with capacities ranging from 0.5 µL to 5 µL. These syringes can inject down to 0.05 µL because the entire sample is contained within the needle. Designed with submicron tolerances, these syringes are rugged, robust and reliable with virtually zero dead volume. Liquid tight, they provide precision and accuracy of ±2%.

**Plunger-in-barrel syringes.*

Termination

Termination refers to the interface between the syringe barrel and its mating connection such as the needle. There are several different termination options to accommodate a wide range of applications.

Many syringes are supplied and used with needles attached; there are also other terminations available: Luer Lock, Luer Tip, and threaded terminations.



Luer Lock termination

- For Luer Lock needles and fittings, syringe filters and pump priming.
- Specifically designed to secure Luer Lock needles.

Luer Tip termination

- For Luer Lock needles and fittings.

Luer Lock and Luer Tip fittings are a universal fitting with a male Luer taper made from Kel-F® or PTFE to ISO standard 594. Luer Lock needles and fittings are used with syringes having Luer terminations. These syringes are often used with syringe filters and syringe pumps.

Trajan offers both fixed and removable Luer Lock syringes. Fixed Luer Lock syringes have a Luer fitting that is permanently fixed to the barrel. If the tip is ever damaged, the syringe will need to be replaced. Removable Luer Lock syringes have Luer fittings that screw onto the barrel with the Luer Tip inserted. Luer tips and Luer fittings can be replaced if these are damaged. Removable Luer tips need to be tightened securely to ensure they do not come loose during use.

Syringes with threaded terminations screw into a valve or other device, and are required for some LC autosamplers, syringe pumps and dispensers. There are many thread terminations possible, contact Trajan if you require a particular threaded termination that is not covered in this selection guide.

Trajan's termination codes for SGE Syringes:

F	Fixed needle
R	Removable needle
LL	Luer Lock
LT	Luer Tip

Barrel internal diameter

When using a syringe pump, the internal diameter (ID) of the syringe barrel is required to calculate the pumping speed. The table below lists the IDs of SGE syringes based on capacity.

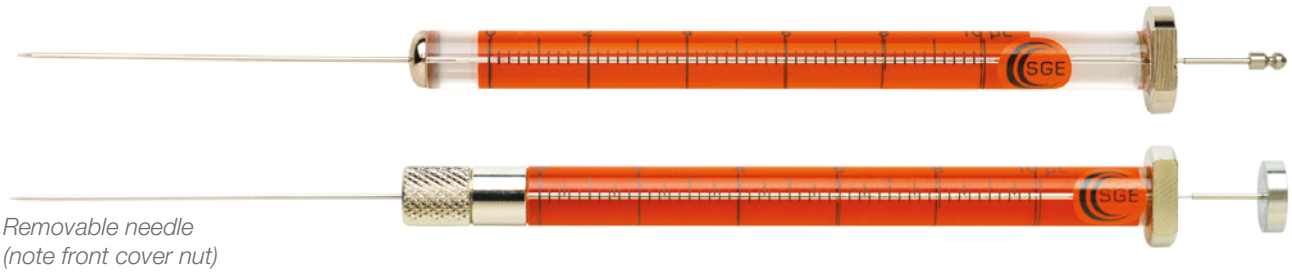
Syringe capacity	5 µL	10 µL	25 µL	50 µL	100 µL	250 µL	500 µL	1 mL
Internal diameter of syringe barrel	0.343 mm	0.485 mm	0.728 mm	1.030 mm	1.457 mm	2.303 mm	3.257 mm	4.606 mm

Syringe capacity	-	-	2.5 mL	5 mL	10 mL	25 mL	50 mL	100 mL
Internal diameter of syringe barrel	-	-	7.284 mm	10.30 mm	14.57 mm	23.03 mm	27.50 mm	34.99 mm

Note: These diameters are based on scale lengths of 54.1 mm for 5 µL and 10 µL syringes, and 60 mm for 25 µL to 100 mL syringes. Scale length is sometimes referred to as stroke length or the travel of the plunger in one direction.

Needle selection

Needle selection is based on application and personal preference.



Removable needle (note front cover nut)

Fixed needle or removable needle syringes:

Fixed needle syringes are often the preferred option for experienced operators or for applications requiring trace sample levels. A fixed needle syringe is recommended for autosampler use where the probability of needle bending is minimal. Fixed needles are easy to use and the most economical syringe option. Fixed needle syringes can be heated to 70°C.

For versatility a removable needle syringe is recommended. The removable needle syringe reduces cost over time because only the needle needs to be replaced if bent or blocked. Removable needle syringes can be heated to 120°C. Removable needle syringes allow the needle to be changed for different applications.

Needles are easily changed to meet the application need. For example: a standard 10 µL removable needle syringe can be easily converted for LC or on-column use.

Trajan divides its removable needles into different ranges:

- 5 µL eVol
- 5 µL
- 10 µL
- 25 µL to 500 µL (suitable for 50 µL and 100 µL eVol syringes)
- 1 mL to 2.5 mL (suitable for 500 µL and 1 mL eVol syringes)
- 5 mL to 10 mL
- Luer Lock
- Valve needles

Gauge or outer diameter (OD)

To reduce the possibility of bending, choose the largest available needle outer diameter suitable for the application. For autosamplers, syringes with 23 gauge or 0.63 mm OD cone tipped needles should be selected for all applications except on-column injection.

Internal diameter (ID)

The ID of the needle is selected to ensure minimal retained volume without compromising the ability of the syringe to draw normal viscosity samples. Medium to high viscosity samples should be diluted prior to use or select a needle with a larger internal diameter.

Needle tip styles

Trajan has various needle tip styles to suit a range of applications and uses.

Needle tip style	Application	Features/applications
Bevel 	Manual GC	Typically used for manual injections. The tip shape helps reduce septa coring.
Cone 	GC autosampler	Most versatile needle for autosampler use. Resist coring of vial and inlet septa.
Dual gauge 	On-column injection - autosampler	Narrow gauge part suitable for suitable for large bore on-column injection.
LC 	HPLC	Also suitable for injections that do not contain an inlet septa such as Merlin Microseal™.
Dome 	With pre-drilled septa	Recommended for use with pre-drilled septa.
Side hole 	LV Injection	Usually used for headspace and large volume injections.

Bevel
The standard general purpose needle tip style supplied with many SGE Syringes is a 20° bevel tip. It is the preferred option for manual injection where piercing the septa in exactly the same place is difficult. The bevel tip is designed for optimum septa penetration and prevention of septa coring.

Cone
The cone shaped needle tip is specially developed to withstand multi injection demands and improve septa lifetime when used with an autosampler. The cone design effectively ‘parts’ the septa during piercing not cutting it, as would a bevel needle.

Dual gauge
Dual gauge needles have a narrow gauge at the tip suitable for large bore on-column injection. The wider gauge for the remainder of the needle gives increased strength to the needle for autosampler use.

LC
These needles are used for LC and HPLC valve injection and have a 90° square tip with rounded and polished edges, this eliminates damage to the valve’s rotor seal and stator face.

Dome
This style needle is recommended for use with pre-drilled septa. The tip is rounded and polished to help septa penetration.

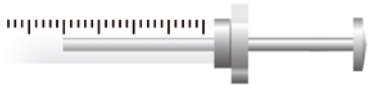
Side hole
Samples are filled and dispensed through the side hole eliminating septa plugging of the needle. Ideal for large volume gas injection, the solid domed tip minimizes septa damage.

PTFE tipped or metal plunger

A syringe with a PTFE tipped plunger should be selected when analyzing ‘dirty’ samples such as serum and urine. The PTFE tip minimizes carryover and prevents particulate matter from getting between the plunger and barrel by effectively wiping the barrel inner diameter during the plunger stroke. PTFE tipped plungers are suitable for both liquid and gas samples. Syringes with PTFE tipped plungers have the added benefit of the plungers being replaceable as the PTFE wears due to use.

Metal plungers are individually fitted to the syringe glass barrel for a perfect ‘feel’, optimized life with minimal carryover, a liquid tight seal between the barrel and plunger and excellent performance.

SGE Syringe plunger options:



Metal plunger

- Stainless steel plunger individually fitted to its own syringe barrel.
- Plunger is not replaceable or interchangeable.
- Industry standard syringe for chromatography applications.
- For use when injection volume is greater than 1 µL.

Metal plunger for NanoVolume syringes (plunger-in-needle)

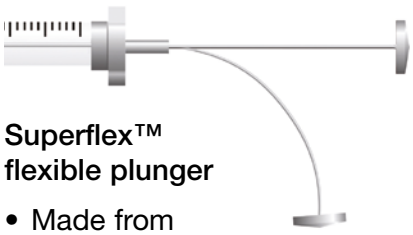
- Plunger extends into the needle tip.
- Sample is contained only in the needle, i.e. no glass contact.
- Ideal for dispensing very small liquid volumes.
- Recommended for use when sample volume is less than 1 µL.
- Capacities: 0.5 µL, 1 µL and 5 µL.

Plunger protection

- Extended protection from the top of the syringe back flange to help prevent plunger bending during injection and improve plunger stroke.
- Ideal for general use for both experienced and inexperienced users.
- Capacities: 5 µL and 10 µL (not necessary for capacities larger than 10 µL due to strength of the wider plunger diameter).

PTFE tipped plunger

- Suitable for both liquid and gas samples.
- Suitable for headspace applications.
- Plunger is replaceable.
- Ideal for ‘dirty’ samples.
- Easy to remove and clean to extend plunger life.
- Capacities: 10 µL to 100 mL.



Superflex™ flexible plunger

- Made from titanium/nickel alloy.
- Virtually indestructible plunger.
- Capacities: 5 µL and 10 µL.

Guided plunger

- Extended barrel guides plunger during injection.
- Robust and rugged.
- Capacities: 5 µL and 10 µL.

Syringe care, cleaning and use

The SGE Syringe is a precision instrument with a high standard of fit between the plunger and the glass barrel. Like most precision instruments, regular maintenance is important for ensuring long life and robust performance.

Syringes should be routinely checked for damage to the barrel and needle. Look for fine cracks in the barrel. Needles should also be checked for burrs and rough surfaces which may cause tearing and excessive wear on the septa.

Needle care

Unblocking needles:

1. To unblock the needle, remove the plunger and fill the syringe with solvent using another syringe.
2. Insert plunger and gently push solvent through the needle. Never force the plunger as too much pressure may crack the syringe barrel.

Needle cleaning kit (part number 031782)

The SGE Syringe needle cleaning kit contains a range of stylet wires for needle cleaning, tweezers and a surfactant material for barrel cleaning.

Syringe cleaning

Syringe cleaning agents will usually depend on the contaminating material. Methanol, methylene chloride, acetonitrile and acetone are commonly used.

Do not immerse the entire syringe in solvent as this may damage the adhesive used to bond parts of the syringe. Clean externally by wiping with a tissue.

Syringe cleaning steps

1. Flush thoroughly with suitable solvents. Depending on contaminant this may have to be done up to 20 times.
2. Rinse with distilled water.
3. Flush with acetone.
4. Remove plunger and wipe with tissue.
5. Refit plunger and flush with acetone.
6. Allow syringe to dry.

Cleaning steps for NanoVolume syringes can be found in the manual supplied with the syringe.

SGE Syringe temperature specifications

Heating will remove semi-volatile material from the syringe. Before heating or autoclaving remove the plunger.

- Fixed needle and fixed Luer syringes can be heated in an oven to 70°C.
- Removable needle and removable Luer syringes can be heated in an oven to 120°C.
- NanoVolume syringes can be heated in an oven to 70°C.
- Headspace syringes can be heated to 150°C.

Rapid changes in temperature can lead to splitting of the glass barrel. Ensure heating and cooling of a syringe is a gradual process.

Syringe use

- Always inspect the syringe before use. Check the barrel for cracks and the needle tip for burrs.
- To eliminate carryover between samples, flush the syringe with solvent 5-20 times, remembering to discard at least the first 2-3 washes.
- To eliminate air bubbles from the barrel, repeatedly draw and expel sample while keeping the needle tip immersed in the solution. Bubbles can also be removed by turning the barrel upright while expelling some of the sample. If bubbles persist, slow the aspiration speed.
- To make an injection, overfill the syringe then press the plunger until the correct volume is reached. Draw the plunger back slightly then wipe the needle tip with a lint free tissue. Make injection. For improved precision, a repeating adaptor, which allows the volume to be preset, may be purchased.

Before storage always flush the syringe with solvent and air dry.

Plunger care

Metal plungers for standard syringes

- Never force the plunger.
- Do not pump the plunger when the needle is blocked as the high pressure generated could crack the barrel.
- Replacement metal plungers are not available. Plungers are individually fitted to the barrels to achieve a perfect seal. This means that plungers are not interchangeable.
- Avoid unnecessary movement of plungers when the syringe is dry.

Metal plungers for NanoVolume syringes

- Always loosen needle cover nut before removing or inserting plunger.
- Wipe plunger with a lint-free tissue before replacing into the syringe.

PTFE tipped plungers

- Avoid unnecessary movement of plungers when the syringe is dry.
- Replacement PTFE tipped plungers are available for many syringes.

Syringe validation and calibration

If your laboratory is involved in GLP, ISO, GMP, NAMAS, ANSI, BSI or National Standards Protocol, then you will appreciate the importance of instrument calibration and its traceability. Although essential, this is often a time consuming, error prone and costly exercise to perform.

Certificate of conformance

Trajan supplies a syringe conformance certificate with every syringe to guarantee the syringe meets all specifications.

Trajan syringes are manufactured under a documented Quality Management System. All in-process measuring equipment and instrumentation is maintained and calibrated in accordance with stringent quality standards. Trajan warrants syringe displacement within the stated conformity specifications.

Certificate of calibration

Available for most SGE Syringes:

Trajan offers a factory calibration service, at an additional cost, for any syringe nominated by you at the time of purchase. These syringes are supplied with a certificate of calibration providing volume conformance and traceability. For identification, each calibrated syringe is uniquely numbered and marked with this number.

Many companies attempt to calibrate syringes by measuring the mass of a dispensed volume. The accuracy of this technique is affected by many variables such as weighing errors, fluctuations in environmental temperature, pressure and evaporation, as well as operator error.

Trajan uses a superior technique of calibrated volume based on the length and inner diameter of the syringe barrel. Using specialized measuring equipment, Trajan's calibration method has the highest degree of displacement volume accuracy and provides calibration traceability.

To order a calibrated syringe simply add 'CAL' to the end of the part number when ordering. For example; if you require a calibration certificate for a 002000, 10 µL fixed needle syringe; order part number 002000CAL.

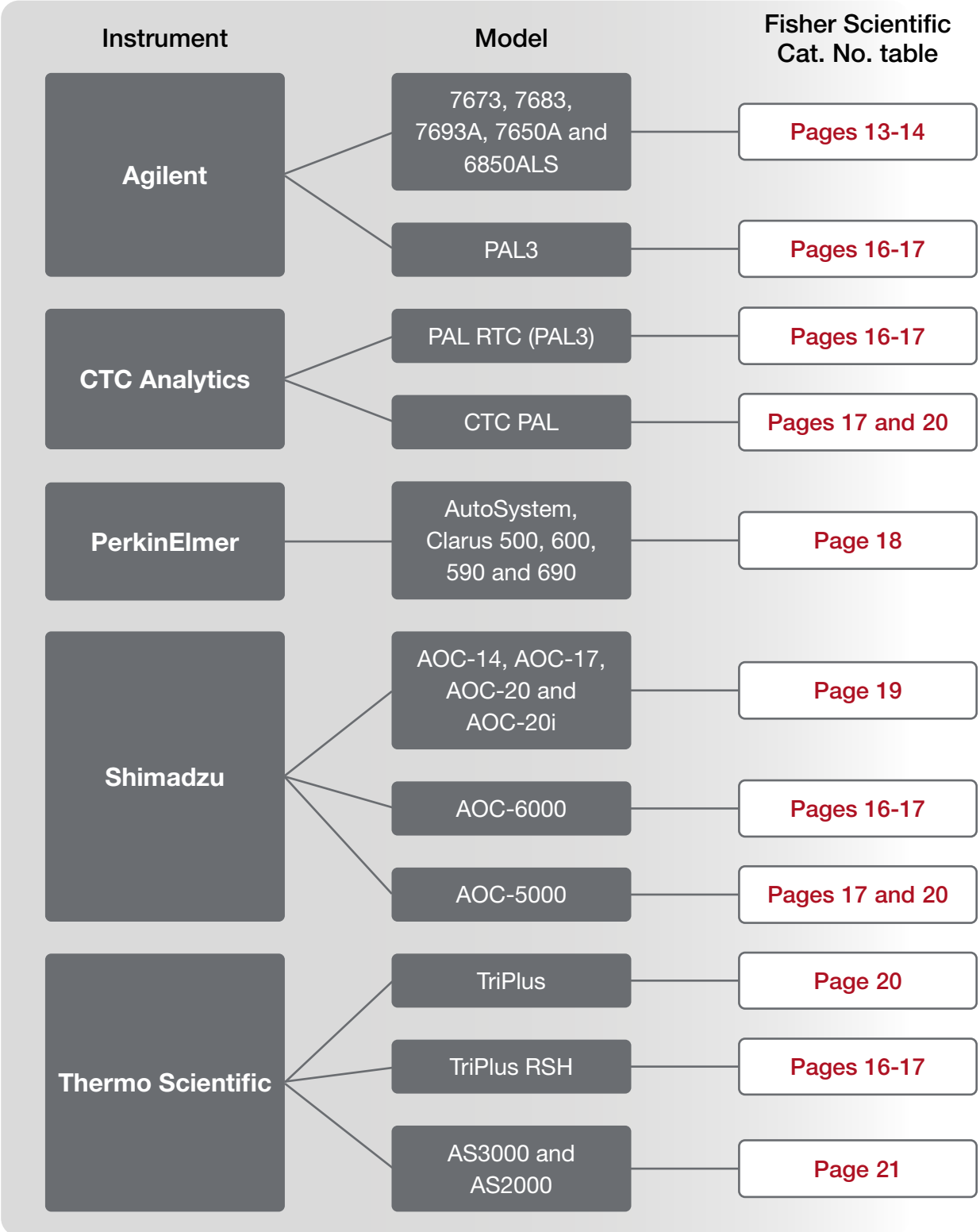
eVol XR digital analytical syringe calibration

Trajan's eVol XR – Digitally controlled analytical syringe, is the world's first user calibrated analytical syringe. Every eVol XR is factory tested to ensure its operation complies with a comprehensive list of criteria.

To achieve the highest level of accuracy possible each syringe may be calibrated. This will ensure your eVol XR will dispense more accurately than any other manual syringe-based dispensing technique. A calibration factor for each syringe is used to adjust the software instructions controlling the motor to compensate for any slight variations in the positively displaced liquid volume. The calibration procedure for eVol XR is based on a gravimetric measure of the volume dispensed from the eVol XR.

Autosampler syringe selection tree

This selection tree is provided to facilitate finding the syringes to suit your autosampler. The relevant part number table can be found after following the path for your instrument and model.



Product specifications and part numbers

Specifications			
Accuracy and reproducibility	±1% (dispensed volume) (±2% for 0.5 µL and 1 µL syringes)	Scale length	0.5 µL to 1 µL = 27.05 mm 5 µL to 10 µL = 54.1 mm 25 µL to 250 µL = 60 mm
Borosilicate glass barrel outer diameter (OD)	0.5 µL to 250 µL = 6.5 mm	International standards traceability	✓

Syringes listed in the following part number table (pages 13-14) are suitable for:

- Agilent 7673
- Agilent 7683
- Agilent 7693A
- Agilent 7650A
- Agilent 6850ALS

For Agilent PAL3 compatible syringes see pages 16-17.

Agilent 7673, 7683, 7693A, 7650A, 6850ALS

Fisher Scientific Cat. No.	Part description and detail	Replacement needle (*needle and plunger kit)	Replacement plunger
10137070	0.5 µL NanoVolume Agilent syringe with 4.2 cm 0.47 mm OD cone tipped needle	10442731*	-
10239010	0.5 µL NanoVolume Agilent syringe with 4.2 cm 0.63 mm OD cone tipped needle	10137500*	-
10424492	0.5 µL NanoVolume Agilent syringe with 4.2 cm 0.63/0.47 mm OD dual gauge cone tipped needle	16622592*	-
15208443	1.0 µL NanoVolume Agilent syringe with 4.2 cm 0.63 mm OD cone tipped needle	16682592*	-
10390371	5 µL fixed needle Agilent syringe with 4.2 cm 0.47 mm OD cone tipped needle	-	-
10177210	5 µL fixed needle Agilent syringe with 4.2 cm 0.47 mm OD cone tipped needle PK6	-	-
10300381	5 µL fixed needle Agilent syringe with 4.2 cm 0.63 mm OD cone tipped needle	-	-
10380421	5 µL fixed needle Agilent syringe with 4.2 cm 0.63 mm OD cone tipped needle PK6	-	-
10033672	5 µL fixed needle Agilent syringe with 4.2 cm 0.63/0.47 mm OD cone tipped dual gauge needle	-	-
10759823	5 µL fixed needle Agilent syringe with 4.2 cm 0.63/0.47 mm OD cone tipped dual gauge needle PK6	-	-
10340471	10 µL fixed needle Agilent syringe with 4.2 cm 0.47 mm OD cone tipped needle	-	-
10587152	10 µL fixed needle Agilent syringe with 4.2 cm 0.47 mm OD cone tipped needle PK6	-	-
10666601	10 µL removable needle Agilent syringe with 4.2 cm 0.47 mm OD cone tipped needle	10258770	-
10360471	10 µL fixed needle Agilent syringe with 4.2 cm 0.63 mm OD cone tipped needle	-	-
15248453	10 µL fixed needle Agilent syringe with 4.2 cm 0.63 mm OD side hole needle	-	-
10481021	10 µL fixed needle Agilent syringe with GT plunger and 4.2 cm 0.63 mm OD cone tipped needle	-	15218533
10493492	10 µL fixed needle Agilent syringe with 4.2 cm 0.63 mm OD cone tipped needle PK25	-	-
10177450	10 µL fixed needle Agilent syringe with 4.2 cm 0.63 mm OD cone tipped needle PK6	-	-
10166830	10 µL removable needle Agilent syringe with 4.2 cm 0.63 mm OD cone tipped needle	10075620	-
15258453	10 µL fixed needle Agilent syringe with GT plunger and 4.2 cm 0.63 mm OD cone tipped needle PK25	-	15218533
10514365	10 µL removable needle Agilent syringe with GT plunger and 4.2 cm 0.63 mm OD cone tipped needle PK10	10075620	15228533
10575023	10 µL fixed needle Agilent syringe with 4.2 cm 0.63/0.47 mm OD cone tipped dual gauge needle	-	-
10585023	10 µL fixed needle Agilent syringe with 4.2 cm 0.63/0.47 mm OD cone tipped dual gauge needle PK6	-	-
10654643	10 µL fixed needle Agilent syringe with 4.2 cm 0.63/0.47 mm OD cone tipped dual gauge needle PK25	-	-
10063622	10 µL fixed needle Agilent syringe with GT plunger and 4.2 cm 0.63/0.47 mm OD cone tipped dual gauge needle	-	-
16652572	10 µL fixed needle Agilent syringe with GT plunger and 4.2 cm 0.63/0.47 mm OD cone tipped dual gauge needle PK6	-	15218533
12917556	10 µL removable needle Agilent syringe with GT plunger and 4.2 cm 0.63/0.47 mm OD cone tipped dual gauge needle	12977616	15228533

Agilent 7673, 7683, 7693A, 7650A, 6850ALS continued

Fisher Scientific Cat. No.	Part description and detail	Replacement needle (*needle and plunger kit)	Replacement plunger
10492551	10 µL fixed needle Agilent syringe with Superflex plunger and 4.2 cm 0.47 mm OD cone tipped needle PK6	-	-
10402561	10 µL fixed needle Agilent syringe with Superflex plunger and 4.2 cm 0.63 mm OD cone tipped needle PK6	-	-
12927556	25 µL fixed needle Agilent syringe with GT plunger and 4.2 cm 0.63/0.47 mm OD cone tipped dual gauge needle	-	-
15288473	50 µL removable needle Agilent syringe with 4.2 cm 0.63 mm OD cone tipped needle	15218603	-
12937556	50 µL fixed needle Agilent syringe with GT plunger and 4.2 cm 0.63/0.47 mm OD cone tipped dual gauge needle	-	-
10042524	100 µL fixed needle Agilent syringe with GT plunger and 4.2 cm 0.63/0.47 mm OD cone tipped dual gauge needle	-	15278543

Expert tips

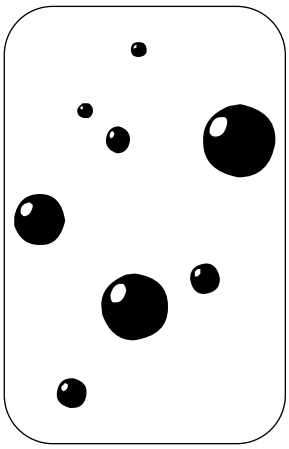
Q. We are getting air bubbles when taking up sample – what is the cause and how can we fix this?

A. To prevent air bubbles forming, repeatedly draw and expel sample while keeping needle tip immersed in the sample.

Slow down! If the plunger is being pulled back too quickly air can be pulled up from the sample.

To remove air bubbles turn the syringe tip towards the ceiling, tap the side of the barrel and expel some sample.

Air bubbles



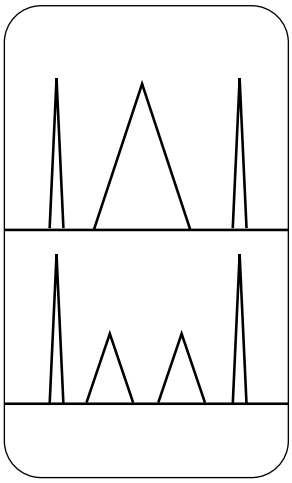
Q. Our results are inconsistent and unreliable – why is this happening and what can we do to fix this?

A. One of the major causes of inconsistent results is sampling and injection technique. Check that each sample is being injected the same way.

The SGE repeating adaptor, RAX, ensures reproducibility of sample volumes with accuracy and precision in injection.

Another cause of unreliable results is carryover between samples. Flush the syringe with solvent after each sample injected.

Inconsistent results



Product specifications and part numbers

Specifications			
Accuracy and reproducibility	±1% (dispensed volume) (±2% for 0.5 µL and 1 µL syringes)	Scale length	0.5 µL to 1 µL = 27.05 mm 5 µL to 10 µL = 54.1 mm 25 µL to 5 mL = 60 mm
Borosilicate glass barrel outer diameter (OD)	10 µL to 250 µL = 6.5 mm (except part numbers 003715 and 006720 = 8 mm) 500 µL = 8 mm 1 mL = 7.6 mm 2.5 mL = 9.7 mm 5 mL = 14 mm	International standards traceability	✓

Syringes listed in the following part number tables (pages 16-17) are suitable for:

- CTC Analytics CTC PAL
- CTC Analytics PAL RTC (PAL3)
- Shimadzu AOC-6000
- Shimadzu AOC-5000
- Thermo Scientific TriPlus RSH
- Agilent PAL3

CTC Analytics PAL RTC (PAL3), Shimadzu AOC-6000, Thermo Scientific TriPlus RSH and Agilent PAL3

Fisher Scientific Cat. No.	Part description and detail	Replacement needle (* needle and plunger kit)	Replacement plunger
13159195	0.5 µL NanoVolume CTC RTC and Thermo RSH syringe with 5.7 cm 0.63 mm OD cone tipped needle	16652592*	-
13169195	1.0 µL NanoVolume CTC RTC and Thermo RSH syringe with 5.7 cm 0.63 mm OD cone tipped needle	13149025*	-
13186105	5 µL fixed needle CTC RTC and Thermo RSH syringe with 5.7 cm 0.63 mm OD cone tipped needle	-	-
13196105	5 µL fixed needle CTC RTC and Thermo RSH syringe with 8.5 cm 0.63 mm OD cone tipped needle	-	-
13106115	5 µL fixed needle CTC RTC and Thermo RSH syringe with 5.7 cm 0.47 mm OD cone tipped needle	-	-
13126115	5 µL removable needle CTC RTC and Thermo RSH syringe with 5.7 cm 0.63 mm OD cone tipped needle	13169175	-
13149015	5 µL removable needle CTC RTC and Thermo RSH syringe with 5.7 cm 0.47 mm OD cone tipped needle	13139185	-
13159015	5 µL removable needle CTC RTC and Thermo RSH syringe with 8.5 cm 0.47 mm OD cone tipped needle	13189175	-
13169015	10 µL fixed needle CTC RTC and Thermo RSH syringe with 5.7 cm 0.63 mm OD cone tipped needle	-	-
13179195	10 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 5.7 cm 0.63 mm OD cone tipped needle	-	13149185
13179095	10 µL fixed needle CTC RTC and Thermo RSH syringe with 8.5 cm 0.63 mm OD cone tipped needle	-	-
13189195	10 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 8.5 cm 0.63 mm OD cone tipped needle	-	13149185
13189015	10 µL fixed needle CTC RTC and Thermo RSH syringe with 5.7 cm 0.47 mm OD cone tipped needle	-	-
13199195	10 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 5.7 cm 0.47 mm OD cone tipped needle	-	-
13199015	10 µL fixed needle CTC RTC and Thermo RSH syringe with 8.5 cm 0.47 mm OD cone tipped needle	-	-
13109205	10 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 8.5 cm 0.47 mm OD cone tipped needle	-	13149185
15278453	10 µL fixed needle CTC RTC and Thermo RSH syringe with 8.5 cm 0.47 mm OD bevel tipped needle	-	-
13109025	10 µL removable needle CTC RTC and Thermo RSH syringe with 5.7 cm 0.63 mm OD cone tipped needle	13199175	-
13119205	10 µL removable needle CTC RTC and Thermo RSH syringe with GT plunger and 5.7 cm 0.63 mm OD cone tipped needle	13199175	13149185
13129205	10 µL removable needle CTC RTC and Thermo RSH syringe with GT plunger and 8.5 cm 0.63 mm OD cone tipped needle	13109185	13149185
13129025	10 µL removable needle CTC RTC and Thermo RSH syringe with 5.7 cm 0.47 mm OD cone tipped needle	13119185	-
13139205	10 µL removable needle CTC RTC and Thermo RSH syringe with GT plunger and 5.7 cm 0.47 mm OD cone tipped needle	13119185	13149185
13149205	10 µL removable needle CTC RTC and Thermo RSH syringe with GT plunger and 8.5 cm 0.47 mm OD cone tipped needle	13129185	13149185
13159205	25 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 5.7 cm 0.63 mm OD cone tipped needle	-	13159185
13169205	25 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 8.5 cm 0.63 mm OD cone tipped needle	-	13159185
13179205	25 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 5.7 cm 0.47 mm OD cone tipped needle	-	13159185
13189205	25 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 8.5 cm 0.47 mm OD cone tipped needle	-	13159185
13199205	50 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 5.7 cm 0.63 mm OD cone tipped needle	-	13169185
13109215	50 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 8.5 cm 0.63 mm OD cone tipped needle	-	13169185
13119215	50 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 5.7 cm 0.47 mm OD cone tipped needle	-	13169185
13129215	50 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 8.5 cm 0.47 mm OD cone tipped needle	-	13169185
13139215	100 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 5.7 cm 0.63 mm OD cone tipped needle	-	13179185
13149215	100 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 8.5 cm 0.63 mm OD cone tipped needle	-	13179185
13159215	100 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 5.7 cm 0.47 mm OD cone tipped needle	-	13179185
13169215	100 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 8.5 cm 0.47 mm OD cone tipped needle	-	13179185

CTC Analytics PAL RTC (PAL3), Shimadzu AOC-6000, Thermo Scientific TriPlus RSH and Agilent PAL3 continued

Fisher Scientific Cat. No.	Part description and detail	Replacement needle (* needle and plunger kit)	Replacement plunger
13179215	100 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 5.7 cm 0.63 mm OD side hole needle	-	13179185
13189215	100 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 8.5 cm 0.63 mm OD side hole needle	-	13179185
13166095	250 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 5.7 cm 0.63 mm OD cone tipped needle	-	13189185
13176095	250 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 8.5 cm 0.63 mm OD cone tipped needle	-	13189185
13186095	250 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 5.7 cm 0.47 mm OD cone tipped needle	-	13189185
13196095	250 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 8.5 cm 0.47 mm OD cone tipped needle	-	13189185
13106105	250 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 5.7 cm 0.63 mm OD side hole needle	-	13189185
13116105	250 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 8.5 cm 0.63 mm OD side hole needle	-	13189185
13126105	500 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 5.7 cm 0.63 mm OD cone tipped needle	-	13199185
13136105	500 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 8.5 cm 0.63 mm OD cone tipped needle	-	13199185
13146105	500 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 5.7 cm 0.47 mm OD cone tipped needle	-	13199185
13156105	500 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 8.5 cm 0.47 mm OD cone tipped needle	-	13199185
13166105	500 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 5.7 cm 0.63 mm OD side hole needle	-	13199185
13176105	500 µL fixed needle CTC RTC and Thermo RSH syringe with GT plunger and 8.5 cm 0.63 mm OD side hole needle	-	13199185
13197876	1 mL fixed needle CTC RTC and Thermo RSH headspace syringe with energized GT plunger and 6.5 mm OD side hole needle	-	13109195
13107886	2.5 mL fixed needle CTC RTC and Thermo RSH headspace syringe with energized GT plunger and 5.6 cm 0.63 mm OD side hole needle	-	13119195

CTC Analytics CTC PAL and Shimadzu AOC-5000

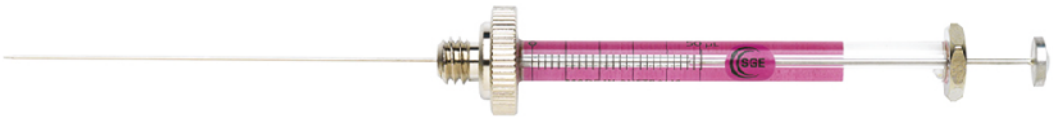
Fisher Scientific Cat. No.	Part description and detail	Replacement needle (* needle and plunger kit)	Replacement plunger
12937506	10 µL fixed needle CTC syringe with 5 cm 0.47 mm OD cone tipped needle	-	-
12957506	10 µL fixed needle CTC syringe with GT plunger and 5 cm 0.72 mm OD side hole needle	-	15298523 (PK1) 16642582 (PK2)
12644925	25 µL fixed needle CTC syringe with GT plunger and 5 cm 0.47 mm OD cone tipped needle	-	15228573
12997506	100 µL fixed needle CTC syringe with GT plunger and 5 cm 0.47 mm OD cone tipped needle	-	15288543
12917516	250 µL fixed needle CTC syringe with GT plunger and 5 cm 0.47 mm OD cone tipped needle	-	15238573
12655597	1 mL fixed needle CTC headspace syringe with energized GT plunger and 5.6 cm 0.63 mm OD side hole needle	-	15298553
13177876	1 mL fixed needle CTC headspace syringe with energized GT plunger and 5.6 cm 0.47 mm OD side hole needle	-	15298553
12857913	2.5 mL fixed needle CTC headspace syringe with energized GT plunger and 5.6 cm 0.63 mm OD side hole needle	-	15238563
13187876	2.5 mL fixed needle CTC headspace syringe with energized GT plunger and 5.6 cm 0.47 mm OD side hole needle	-	15238563

Product specifications and part numbers

Specifications			
Accuracy and reproducibility	±1% (dispensed volume) (±2% for 0.5 µL syringes)	Scale length	0.5 µL to 5 µL = 27.05 mm 50 µL = 54.1 mm
Borosilicate glass barrel outer diameter (OD)	0.5 µL to 50 µL = 6.5 mm	International standards traceability	✓

Syringes listed in the following part number table are suitable for:

- PerkinElmer AutoSystem
- PerkinElmer Clarus 500
- PerkinElmer Clarus 600
- PerkinElmer Clarus 590
- PerkinElmer Clarus 690



PerkinElmer AutoSystem, Clarus 500, 600, 590 and 690

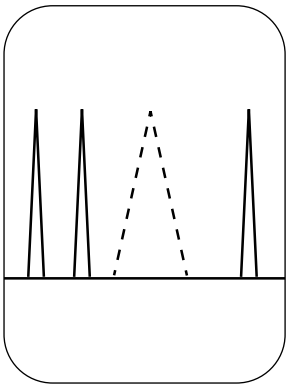
Fisher Scientific Cat. No.	Part description and detail	Replacement needle (* needle and plunger kit)	Replacement plunger
10299050	0.5 µL NanoVolume PerkinElmer syringe with 7 cm 0.47 mm OD cone tipped needle	10782572*	-
10741232	0.5 µL NanoVolume PerkinElmer syringe with 7 cm 0.63 mm OD cone tipped needle	10310811*	-
10611813	5 µL fixed needle PerkinElmer syringe with 7 cm 0.47 mm OD cone tipped needle	-	-
10143402	5 µL fixed needle PerkinElmer syringe with 7 cm 0.63 mm OD cone tipped needle	-	-
10616041	5 µL fixed needle PerkinElmer syringe with GT plunger and 7 cm 0.47 mm OD cone tipped needle	-	16632582
10742002	5 µL fixed needle PerkinElmer syringe with GT plunger and 7 cm 0.63 mm OD cone tipped needle	-	16632582
11947234	50 µL fixed needle PerkinElmer syringe with 7 cm 0.63 mm OD cone tipped needle	-	-

Expert tips

Q. Ghost peaks are appearing on our chromatograms and interfering with our results – what is causing this?

A. Ghost peaks can be caused by a number of areas of the instrument set up. To rule out the syringe as a cause of ghost peaks consider if the injection volume is too large or if the syringe or needle tip is contaminated.

Ghost peaks



Product specifications and part numbers

Specifications			
Accuracy and reproducibility	±1% (dispensed volume) (±2% for 0.5 µL syringes)	Scale length	0.5 µL = 27.05 mm 5 µL to 10 µL = 54.1 mm
Borosilicate glass barrel outer diameter (OD)	0.5 µL to 10 µL = 6.5 mm	International standards traceability	✓

Syringes listed in the following part number table are suitable for:

- Shimadzu AOC-14
- Shimadzu AOC-17
- Shimadzu AOC-20
- Shimadzu AOC-20i

For Shimadzu AOC-6000 compatible syringes see pages 16-17.
For Shimadzu AOC-5000 compatible syringes see pages 17 and 20.

Shimadzu AOC-14, AOC-17, AOC-20 and AOC-20i

Fisher Scientific Cat. No.	Part description and detail	Replacement needle (* needle and plunger kit)	Replacement plunger
10781422	0.5 µL NanoVolume Shimadzu syringe with 4.2 cm 0.47 mm OD cone tipped needle	10258530*	-
10452561	0.5 µL NanoVolume Shimadzu syringe with 4.2 cm 0.63 mm OD cone tipped needle	10712772*	-
16622572	5 µL fixed needle Shimadzu syringe with 4.2 cm 0.63 mm OD cone tipped needle	-	-
10577922	10 µL removable needle Shimadzu syringe with 4.2 cm 0.47 mm OD cone tipped needle	10360711	-
10380611	10 µL removable needle Shimadzu syringe with 4.2 cm 0.63 mm OD cone tipped needle	12967566	-
10494422	10 µL removable needle Shimadzu syringe with GT plunger and 4.2 cm 0.63 mm OD cone tipped needle	12967566	15288523

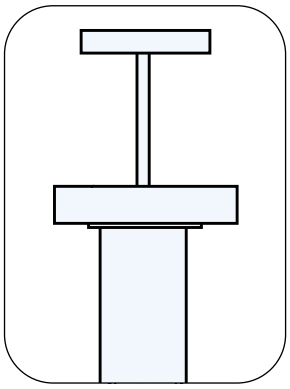
Expert tips

Q. Why is the plunger getting stuck in the syringe barrel?

A. Build up from dirty samples can cause plungers to seize – ensure correct syringe cleaning procedures are being followed. The plungers may also be 'getting stuck' if they are bent. Plungers bend because of poor dispensing technique.

If plungers are seizing when using an autosampler check that the syringe is installed correctly.

Seized plungers



Product specifications and part numbers

Specifications			
Accuracy and reproducibility	±1% (dispensed volume) (±2% for 0.5 µL and 1 µL syringes)	Scale length	0.5 µL to 1 µL = 27.05 mm 5 µL to 10 µL = 54.1 mm 25 µL to 5 mL = 60 mm
Borosilicate glass barrel outer diameter (OD)	10 µL to 250 µL = 6.5 mm (except part numbers 003715 and 006720 = 8 mm) 500 µL = 8 mm 1 mL = 7.6 mm 2.5 mL = 9.7 mm 5 mL = 14 mm	International standards traceability	✓

Syringes listed in the following part number tables (pages 20-21) are suitable for:

- Thermo Scientific TriPlus
- Thermo Scientific AS3000
- Thermo Scientific AS2000
- CTC Analytics CTC PAL
- Shimadzu AOC-5000

For Thermo Scientific TriPlus RSH compatible syringes see pages 16-17.

Thermo Scientific TriPlus, CTC Analytics CTC PAL and Shimadzu AOC-5000

Fisher Scientific Cat. No.	Part description and detail	Replacement needle (* needle and plunger kit)	Replacement plunger
12674915	0.5 µL NanoVolume CTC/Thermo syringe with 5 cm 0.47 mm OD cone tipped needle	16632592*	-
12684915	0.5 µL NanoVolume CTC/Thermo syringe with 5 cm 0.63 mm OD cone tipped needle	16642592*	-
15218443	2.0 µL NanoVolume CTC/Thermo syringe with 5.0 cm 0.63 mm OD cone tipped needle	16692592*	-
10581433	5 µL fixed needle CTC/Thermo syringe with 5 cm 0.63 mm OD cone tipped needle	-	-
10033662	5 µL fixed needle CTC/Thermo syringe with 5 cm 0.47 mm OD cone tipped needle	-	-
12917506	5 µL removable needle CTC/Thermo syringe with 5 cm 0.63 mm OD cone tipped needle	15208593	-
15298453	10 µL fixed needle CTC/Thermo syringe with 5 cm 0.5 mm OD cone tipped needle	-	-
12694915	10 µL fixed needle CTC/Thermo syringe with 5 cm 0.63 mm OD cone tipped needle PK6	-	-
12614925	10 µL fixed needle CTC/Thermo syringe with GT plunger and 5 cm 0.63 mm OD cone tipped needle PK6	-	15298523 (PK1) 16642582 (PK2)
12927506	10 µL fixed needle CTC/Thermo syringe with GT plunger and 5 cm 0.47 mm OD cone tipped needle PK6	-	15298523 (PK1) 16642582 (PK2)
12643486	10 µL fixed needle CTC/Thermo syringe with GT plunger and 5 cm 0.47 mm OD cone tipped needle	-	15298523 (PK1) 16642582 (PK2)
10248770	10 µL fixed needle CTC/Thermo syringe with 5 cm 0.47 mm OD cone tipped needle	-	-
10509522	10 µL fixed needle CTC/Thermo syringe with 5 cm 0.63 mm OD cone tipped needle	-	-
10770272	10 µL removable needle CTC/Thermo syringe with 5 cm 0.47 mm OD cone tipped needle	11922605	-
10152922	10 µL removable needle CTC/Thermo syringe with 5 cm 0.63 mm OD cone tipped needle	15268593	-
10247312	10 µL removable needle CTC/Thermo syringe with GT plunger and 5 cm 0.47 mm OD cone tipped needle	11922605	16652582
16692572	10 µL fixed needle CTC/Thermo syringe with 5 cm 0.47 mm OD cone tipped needle PK6	-	-
10366672	10 µL fixed needle CTC/Thermo syringe with GT plunger and 5 cm 0.63 mm OD cone tipped needle	-	15298523 (PK1) 16642582 (PK2)
10431031	10 µL fixed needle CTC/Thermo syringe with 8 cm 0.47 mm OD cone tipped needle^	-	-
15208473	10 µL removable needle CTC/Thermo syringe with 8 cm 0.47 mm OD cone tipped needle^	15228523	-
10327012	25 µL fixed needle CTC/Thermo syringe with GT plunger and 5 cm 0.63 mm OD cone tipped needle	-	15218543
12977506	25 µL removable needle CTC/Thermo syringe with GT plunger and 5 cm 0.47 mm OD side hole needle	15248603	15208543
12624925	100 µL removable needle CTC/Thermo syringe with GT plunger and 5 cm 0.47 mm OD cone tipped needle	15228603	10388254
10474872	100 µL fixed needle CTC/Thermo syringe with GT plunger and 5 cm 0.63 mm OD cone tipped needle	-	15288543

^Syringes with 8 cm length needles are not suitable for CTC Analytics CTC PAL and Shimadzu AOC-5000.

Thermo Scientific AS3000 and AS2000

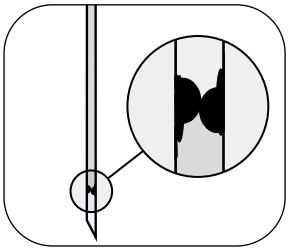
Fisher Scientific Cat. No.	Part description and detail	Replacement needle (* needle and plunger kit)	Replacement plunger
15248443	5 µL fixed needle CTC/Thermo (classic button) syringe with 5 cm 0.63 mm OD cone tipped needle	-	-
15258443	5 µL fixed needle CTC/Thermo (classic button) syringe with 5 cm 0.47 mm OD cone tipped needle	-	-
15208463	10 µL fixed needle CTC/Thermo (classic button) syringe with 5 cm 0.5 mm OD cone tipped needle	-	-
16672572	10 µL fixed needle CTC/Thermo (classic button) syringe with 8 cm 0.72 mm OD cone tipped needle	-	-
15218463	10 µL fixed needle CTC/Thermo (classic button) syringe with GT plunger and 5 cm 0.47 mm OD cone tipped needle PK6	-	15268533
15228463	10 µL fixed needle CTC/Thermo (classic button) syringe with GT plunger and 5 cm 0.47 mm OD cone tipped needle	-	15268533
15238463	10 µL fixed needle CTC/Thermo (classic button) syringe with 7 cm 0.47 mm OD cone tipped needle	-	-
16682572	10 µL fixed needle CTC/Thermo (classic button) syringe with 5 cm 0.47 mm OD cone tipped needle	-	-
15248463	10 µL removable needle CTC/Thermo (classic button) syringe with 5 cm 0.63 mm OD cone tipped needle	15268593	-
15268463	10 µL fixed needle CTC/Thermo (classic button) syringe with 5 cm 0.47 mm OD cone tipped needle PK6	-	-
15278463	10 µL fixed needle CTC/Thermo (classic button) syringe with GT plunger and 5 cm 0.63 mm OD cone tipped needle	-	15268533
15288463	10 µL fixed needle CTC/Thermo (classic button) syringe with 8 cm 0.63 mm OD cone tipped needle	-	-
15298463	10 µL fixed needle CTC/Thermo (classic button) syringe with 8 cm 0.47 mm OD cone tipped needle	-	-
15218473	10 µL removable needle CTC/Thermo (classic button) syringe with 8 cm 0.47 mm OD cone tipped needle	15228523	-
15248473	25 µL fixed needle CTC/Thermo (classic button) syringe with GT plunger and 5 cm 0.63 mm OD cone tipped needle	-	15228543

Expert tips

Q. Why is the syringe needle getting blocked?

A. Needles become blocked due to a build up from dirty sample, improper cleaning or by septa during injection. SGE bevel and cone tipped needles are designed for optimum septa penetration and prevention of septa coring.

Blocked needles



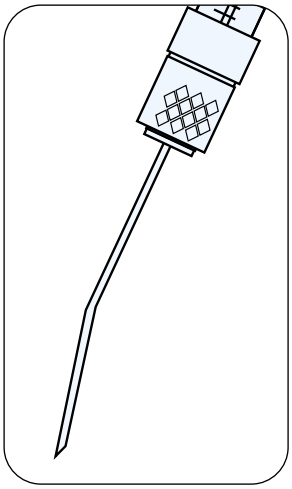
Q. Why does the needle keep bending?

A. To reduce the possibility of bending choose the largest available needle outer diameter suitable for the application. For autosamplers, syringes with 23 gauge or 0.63 mm OD cone tipped needles are recommended.

If needles are bending when the syringe is being used on an autosampler check that the syringe is installed correctly.

Use a removable needle syringe as the needle can be replaced if bent or blocked.

Bent needles



Product specifications and part numbers

0.5 µL to 5 µL NanoVolume syringes

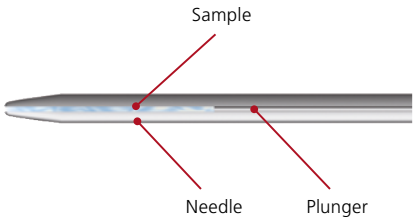
Specifications			
Accuracy and reproducibility	±2% (dispensed volume)	Scale length	0.5 µL and 1 µL = 54.1 mm 5 µL = 48.7 mm
Borosilicate glass barrel outer diameter (OD)	0.5 µL to 5 µL= 8 mm (except part numbers 000300, 000301, 000303, 000303, 000350, 000353 = 6.5 mm)	International standards traceability	✓

With the ability to inject down to 50 nL with high precision and accuracy, SGE NanoVolume syringes are perfect for NanoVolume capillary chromatography injection as well as making accurate standards that require small volumes.

The sample is only drawn into the needle, not the syringe barrel. When the plunger is depressed, the sample is completely dispensed by the NanoVolume plunger that extends to the tip of the needle.

Displacing the full sample during injection results in virtually zero dead volume and carry over between injections.

The plungers and needles are matched sets and must be replaced as a set.



0.5 µL to 5 µL NanoVolume syringes

Fisher Scientific Cat. No.	Part description and detail	Replacement needle and plunger kit
NanoVolume		
10711432	0.5 µL NanoVolume syringe with 5 cm 0.63 mm OD cone tipped needle	10137260
11962585	0.5 µL NanoVolume syringe with 5 cm 0.63 mm OD bevel tipped needle	16602592
10370901	0.5 µL NanoVolume syringe with 5 cm 0.47 mm OD cone tipped needle	10107360
10482001	0.5 µL NanoVolume syringe with 7 cm 0.63 mm OD cone tipped needle	10588302
16602582	0.5 µL NanoVolume syringe with 7 cm 0.63 mm OD bevel tipped needle	16612592
10095500	0.5 µL NanoVolume syringe with 5 cm 0.63 mm OD cone tipped needle and repeating adaptor	10137260
15298433	0.5 µL NanoVolume syringe with 5 cm 0.47 mm OD cone tipped needle and repeating adaptor	10107360
10306392	0.5 µL NanoVolume syringe with 7 cm 0.63 mm OD cone tipped needle and repeating adaptor	10588302
10636231	0.5 µL NanoVolume on-column syringe with 7 cm 0.47 mm OD needle	10599072
10626231	0.5 µL NanoVolume on-column syringe with 7.5 cm 0.23 mm OD needle	10402181
10763714	1.0 µL NanoVolume syringe with 5 cm 0.63 mm OD cone tipped needle	10472561
10725046	1.0 µL NanoVolume syringe with 5 cm 0.63 mm OD bevel tipped needle	16662592
10616421	1.0 µL NanoVolume syringe with 7 cm 0.63 mm OD cone tipped needle	10700852
11992585	1.0 µL NanoVolume syringe with 7 cm 0.63 mm OD bevel tipped needle	16672592
10167260	1.0 µL NanoVolume syringe with 11.5 cm 0.63 mm OD bevel tipped needle	10656601
10601813	1.0 µL NanoVolume syringe with 5 cm 0.63 mm OD cone tipped needle and repeating adaptor	10472561
10214942	1.0 µL NanoVolume syringe with 7 cm 0.63 mm OD cone tipped needle and repeating adaptor	10700852
10568882	1.0 µL NanoVolume syringe with 7 cm 0.47 mm OD cone tipped needle	10686221
10288860	5.0 µL NanoVolume syringe with 5 cm 0.63 mm OD cone tipped needle	10197350
16652642	5.0 µL NanoVolume syringe with 5 cm 0.63 mm OD bevel tipped needle	16602602
10588882	5.0 µL NanoVolume syringe with 7 cm 0.63 mm OD cone tipped needle	10065630
16662642	5.0 µL NanoVolume syringe with 7 cm 0.63 mm OD bevel tipped needle	16612602
12907536	5.0 µL NanoVolume syringe with 11.5 cm 0.63 mm OD cone tipped needle	-
10441401	5.0 µL NanoVolume syringe with 5 cm 0.63 mm OD cone tipped needle and repeating adaptor	10197350
10578302	5.0 µL NanoVolume syringe with 7 cm 0.63 mm OD cone tipped needle and repeating adaptor	10065630

Expert tips

To eliminate carryover between samples, flush the syringe with solvent 5-20 times, remembering to discard the first 2-3 washes.

When replacing the plunger and needle follow the instructions included in the kit – the front cover nut must be loosened before removing the plunger.

5 µL to 500 µL metal plunger syringes

Specifications			
Accuracy and reproducibility	±1% (dispensed volume)	Scale length	5 µL to 10 µL = 54.1 mm 25 µL to 500 µL = 60 mm
Borosilicate glass barrel outer diameter (OD)	5 µL to 10 µL = 6.5 mm 25 µL to 500 µL = 8 mm	International standards traceability	✓

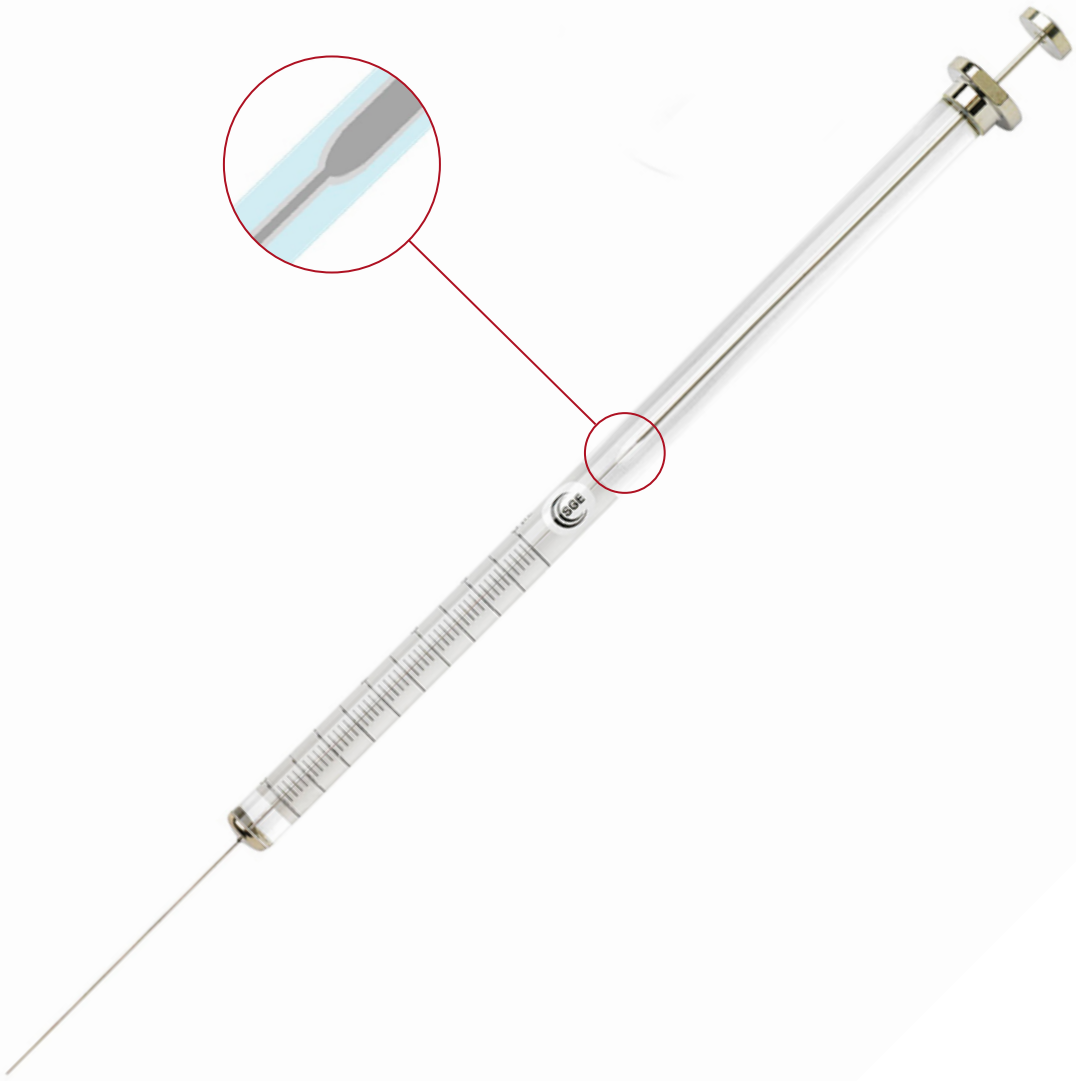
5 µL to 500 µL metal plunger syringes

Fisher Scientific Cat. No.	Part description and detail	Replacement needle
10518502	5 µL fixed needle syringe with 5 cm 0.47 mm OD bevel tipped needle	-
10025590	5 µL removable needle syringe with 5 cm 0.47 mm OD bevel tipped needle	10492731
10095490	5 µL fixed needle syringe with flexible plunger and 5 cm 0.47 mm OD bevel tipped needle	-
10607171	10 µL fixed needle syringe with 5 cm 0.47 mm OD bevel tipped needle	-
10215322	10 µL fixed needle syringe with 7 cm 0.47 mm OD bevel tipped needle	-
15278443	10 µL fixed needle syringe with 5 cm 0.47 mm OD cone tipped needle	-
10127070	10 µL fixed needle syringe with 5 cm 0.47 mm OD bevel tipped needle PK6	-
12937536	10 µL fixed needle syringe with 5 cm 0.47 mm OD bevel tipped needle PK10	-
11932627	10 µL fixed needle syringe with 5 cm 0.47 mm OD bevel tipped needle PK25	-
10278720	10 µL removable needle syringe with 5 cm 0.47 mm OD bevel tipped needle	10126930
10288720	10 µL removable needle syringe with 5 cm 0.47 mm OD bevel tipped needle PK6	10126930
10278960	10 µL fixed needle syringe with flexible plunger and 5 cm 0.47 mm OD bevel tipped needle	-
16632572	10 µL fixed needle syringe with flexible plunger and 5 cm 0.47 mm OD cone tipped needle	-
10331001	10 µL fixed needle syringe with flexible plunger and 5 cm 0.47 mm OD bevel tipped needle PK6	-
15288443	10 µL fixed needle syringe with flexible plunger and 5 cm 0.47 mm OD cone tipped needle PK6	-
10696705	10 µL fixed needle syringe with flexible plunger and 5 cm 0.63 mm OD cone tipped needle PK6	-
10005510	10 µL removable needle syringe with flexible plunger and 5 cm 0.47 mm OD bevel tipped needle PK6	10126930
11941134	25 µL fixed needle syringe with 5 cm 0.5 mm OD bevel tipped needle	-
10065620	25 µL removable needle syringe with 5 cm 0.5 mm OD bevel tipped needle	10626041
10229010	50 µL fixed needle syringe with 5 cm 0.5 mm OD bevel tipped needle	-
10750852	50 µL removable needle syringe with 5 cm 0.5 mm OD bevel tipped needle	10626041
10625471	100 µL fixed needle syringe with 5 cm 0.5 mm OD bevel tipped needle	-
10228820	100 µL removable needle syringe with 5 cm 0.5 mm OD bevel tipped needle	10626041
15228483	100 µL removable needle syringe with 7 cm 0.5 mm OD bevel tipped needle	16632602
10559072	250 µL fixed needle syringe with 5 cm 0.5 mm OD bevel tipped needle	-
10645851	250 µL removable needle syringe with 5 cm 0.5 mm OD bevel tipped needle	10626041
10771422	500 µL fixed needle syringe with 5 cm 0.5 mm OD bevel tipped needle	-
10421031	500 µL removable needle syringe with 5 cm 0.5 mm OD bevel tipped needle	10626041

5 µL to 10 µL guided plunger syringes

Specifications			
Accuracy and reproducibility	±1% (dispensed volume)	Scale length	5 µL to 10 µL = 54.1 mm
Borosilicate glass barrel outer diameter (OD)	5 µL to 10 µL = 6.5 mm	International standards traceability	✓

Guided plunger syringes are the most rugged syringe available, making them perfect for industrial environments.

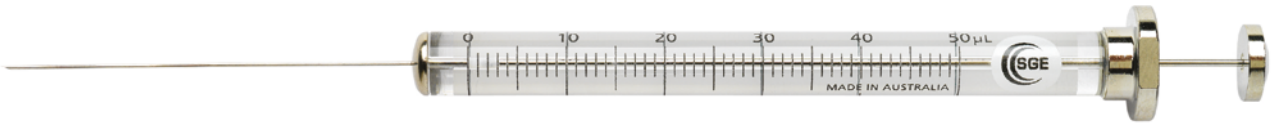


5 µL to 10 µL guided plunger syringes

Fisher Scientific Cat. No.	Part description and detail	Replacement needle	Replacement plunger
10442171	5 µL fixed needle guided plunger syringe with 5 cm 0.47 mm OD bevel tipped needle	-	-
10655851	5 µL removable needle guided plunger syringe with 5 cm 0.47 mm OD bevel tipped needle	10492731	-
15238443	5 µL removable needle guided plunger syringe with 5 cm 0.47 mm OD bevel tipped needle (half scale)	10126930	-
10472171	10 µL fixed needle guided plunger syringe with 5 cm 0.47 mm OD bevel tipped needle	-	-
10452171	10 µL removable needle guided plunger syringe with 5 cm 0.47 mm OD bevel tipped needle	10126930	-
10641823	10 µL removable needle guided plunger syringe with GT plunger and 5 cm 0.47 mm OD bevel tipped needle	10126930	15208533

10 µL to 500 µL PTFE tipped plunger syringes

Specifications			
Accuracy and reproducibility	±1% (dispensed volume)	Scale length	10 µL = 54.1 mm 25 µL to 500 µL = 60 mm
Borosilicate glass barrel outer diameter (OD)	10 µL = 6.5 mm 25 µL to 500 µL = 8 mm	International standards traceability	✓

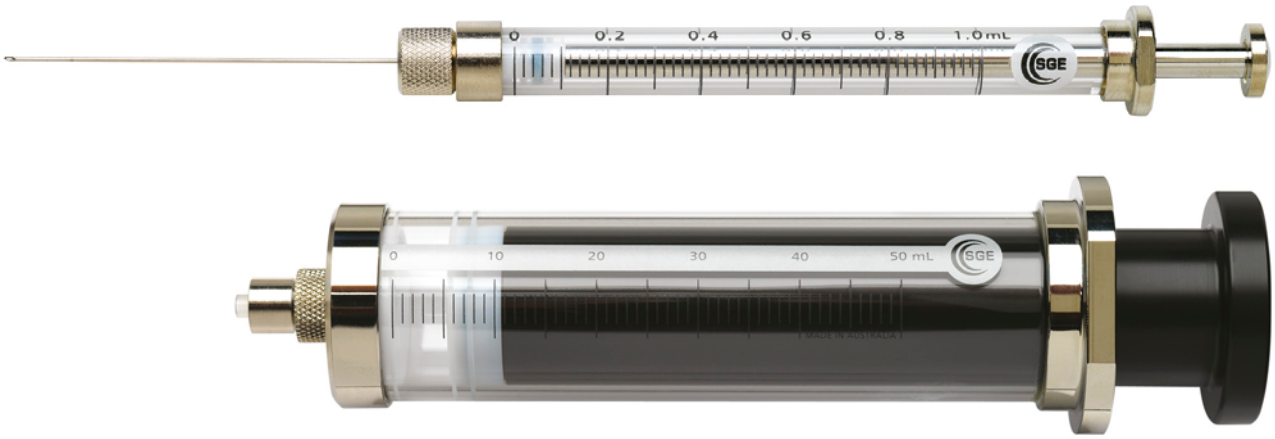


10 µL to 500 µL PTFE tipped plunger syringes

Fisher Scientific Cat. No.	Part description and detail	Replacement needle	Replacement plunger
10229250	10 µL fixed needle syringe with GT plunger and 5 cm 0.47 mm OD bevel tipped needle	-	15238533
15298443	10 µL fixed needle syringe with GT plunger and 5 cm 0.47 mm OD bevel tipped needle PK6	-	15238533
15208453	10 µL fixed needle syringe with GT plunger and 7 cm 0.47 mm OD bevel tipped needle	-	15238533
10635661	10 µL removable needle syringe with GT plunger and 5 cm 0.47 mm OD bevel tipped needle	10126930	15248533
12947536	10 µL removable needle syringe with GT plunger and 5 cm 0.47 mm OD bevel tipped needle PK6	10126930	15248533
10546772	25 µL fixed needle syringe with GT plunger and 5 cm 0.5 mm OD bevel tipped needle	-	15298533
10299100	25 µL removable needle syringe with GT plunger and 5 cm 0.5 mm OD bevel tipped needle	10626041	15298533
10167450	50 µL fixed needle syringe with GT plunger and 5 cm 0.5 mm OD bevel tipped needle	-	16662582
10025540	50 µL fixed Luer Tip syringe with GT plunger	-	16662582
16642602	50 µL fixed Luer Lock syringe with GT plunger	-	16662582
15268473	50 µL fixed Luer Lock syringe with GT plunger and plunger stop	-	-
11951134	50 µL removable needle syringe with GT plunger and 5 cm 0.5 mm OD bevel tipped needle	10626041	16662582
15278473	50 µL syringe with removable needle valve and GT plunger	-	16662582
10035540	100 µL fixed needle syringe with GT plunger and 5 cm 0.5 mm OD bevel tipped needle	-	16672582
10452571	100 µL fixed Luer Tip syringe with GT plunger	-	16672582
10065560	100 µL fixed Luer Lock syringe with GT plunger	-	16672582
15238483	100 µL fixed Luer Lock syringe with GT plunger and plunger stop	-	-
10095510	100 µL removable needle syringe with GT plunger and 5 cm 0.5 mm OD bevel tipped needle	10626041	16672582
10285222	100 µL syringe with removable needle valve and GT plunger	-	16672582
10702772	250 µL fixed needle syringe with GT plunger and 5 cm 0.5 mm OD bevel tipped needle	-	16682582
10482731	250 µL fixed Luer Tip syringe with GT plunger	-	16682582
10208630	250 µL fixed Luer Lock syringe with GT plunger	-	16682582
15298483	250 µL fixed Luer Lock syringe with GT plunger and plunger stop	-	15248553
10473039	250 µL removable needle syringe with GT plunger and 5 cm 0.5 mm OD bevel tipped needle	10626041	16682582
16652622	250 µL syringe with removable needle valve and GT plunger	-	16682582
10106930	500 µL fixed needle syringe with GT plunger and 5 cm 0.5 mm OD bevel tipped needle	-	16692582
10567922	500 µL fixed Luer Tip syringe with GT plunger	-	16692582
10218630	500 µL fixed Luer Lock syringe with GT plunger	-	16692582
15248493	500 µL fixed Luer Lock syringe with GT plunger and plunger stop	-	-
10625851	500 µL removable needle syringe with GT plunger and 5 cm 0.5 mm OD bevel tipped needle	-	16692582
15258493	500 µL syringe with removable needle valve and GT plunger	-	16692582

1 mL to 100 mL PTFE tipped plunger syringes

Specifications			
Accuracy and reproducibility	±1% (dispensed volume)	Scale length	1 mL to 25 mL = 60 mm 50 mL = 84.2 mm 100 mL = 104 mm
Borosilicate glass barrel outer diameter (OD)	1 mL = 9 mm 2.5 mL = 11 mm 5 mL = 14 mm 10 mL = 18 mm 25 mL = 27 mm 50 mL = 32.8 mm 100 mL = 40.8 mm	Thread in plunger stem	6-32 UNC
		International standards traceability	✓



1 mL to 100 mL PTFE tipped plunger syringes

Fisher Scientific Cat. No.	Part description and detail	Replacement needle	Replacement plunger
10508312	1 mL fixed Luer Tip syringe with GT plunger	-	15208563
10432731	1 mL fixed Luer Lock syringe with GT plunger	-	10286119
10025530	1 mL removable needle syringe with GT plunger and 5 cm 0.63 mm OD bevel tipped needle	10117170	15208563
10605093	1 mL fixed needle syringe with GT plunger and 5 cm 0.72 mm OD bevel tipped needle	-	10286119
16672642	1 mL syringe with removable needle valve and GT plunger	-	15208563
16682642	1 mL syringe with removable Luer Lock valve and GT plunger	-	15208563
10655471	2.5 mL fixed Luer Tip syringe with GT plunger	-	15248563
16692642	2.5 mL fixed Luer Lock syringe with GT plunger	-	15248563
10518312	2.5 mL removable needle syringe with GT plunger and 5 cm 0.63 mm OD bevel tipped needle	10117170	15248563
12780710	2.5 mL fixed needle syringe with GT plunger and 5 cm 0.72 mm OD bevel tipped needle	-	15248563
12727007	2.5 mL syringe with removable needle valve and GT plunger	-	15248563
16602652	2.5 mL syringe with removable Luer Lock valve and GT plunger	-	15248563
10710662	5 mL removable needle syringe with GT plunger and 5 cm 0.63 mm OD bevel tipped needle	11911144	15268563
16622652	5 mL removable Luer Lock syringe with GT plunger	-	15268563
11993064	5 mL fixed Luer Lock syringe with GT plunger	-	15278563
16632652	5 mL syringe with removable Luer Lock valve and GT plunger	-	15268563
10412001	10 mL removable needle syringe with GT plunger and 5 cm 0.63 mm OD bevel tipped needle	11911144	15288563
16642652	10 mL removable Luer Lock syringe with GT plunger	-	15288563
12957536	10 mL fixed Luer Lock syringe with GT plunger	-	15298563
16652652	10 mL syringe with removable Luer Lock valve and GT plunger	-	15288563
16662652	25 mL removable Luer Lock syringe with GT plunger	-	15208573
12967536	25 mL fixed Luer Lock syringe with GT plunger	-	15218573
16672652	25 mL syringe with removable Luer Lock valve and GT plunger	-	15208573
16682652	50 mL removable Luer Lock syringe with GT plunger	-	16612582
16692652	50 mL syringe with removable Luer Lock valve and GT plunger	-	16612582
11901144	100 mL removable Luer Lock syringe with GT plunger	-	16622582
16602662	100 mL syringe with removable Luer Lock valve and GT plunger	-	16622582

LC syringes

Specifications			
Accuracy and reproducibility	±1% (dispensed volume)	Scale length	5 µL to 10 µL = 54.1 mm 25 µL to 2.5 mL = 60 mm
Borosilicate glass barrel outer diameter (OD)	5 µL and 10 µL = 6.5 mm 25 µL to 500 µL = 8 mm 1 mL = 8.8 mm 2.5 mL = 10.8 mm	International standards traceability	✓

Syringes listed in the following part number table are suitable for:

- Beckman/Altex
- Rheodyne
- SSI instruments
- Valco valves

Beckman/Altex, Rheodyne, SSI instruments and Valco valves

Fisher Scientific Cat. No.	Part description and detail	Replacement needle	Replacement plunger
16612552	5 µL fixed needle syringe with 5.1 cm 0.72 mm OD LC needle	-	-
10176920	10 µL fixed needle syringe with Superflex plunger and 5.1 cm 0.72 mm OD LC needle	-	-
10617171	10 µL fixed needle syringe with 5.1 cm 0.72 mm OD LC needle	-	-
16642572	10 µL removable needle syringe with GT plunger and 5.1 cm 0.72 mm OD LC needle	10749891	15248533
10005460	10 µL fixed needle syringe with 5.1 cm 0.72 mm OD LC needle PK6	-	-
12977546	10 µL fixed needle syringe with Superflex plunger and 5.1 cm 0.72 mm OD LC needle PK6	-	-
15228453	10 µL fixed needle syringe with GT plunger and 5.1 cm 0.72 mm OD LC needle	-	15238533
10627171	25 µL fixed needle syringe with 5.1 cm 0.72 mm OD LC needle	-	-
12730710	25 µL removable needle syringe with GT plunger and 5.1 cm 0.72 mm OD LC needle	10462171	15298533
10462721	50 µL fixed needle syringe with 5.1 cm 0.72 mm OD LC needle	-	-
16652602	50 µL removable needle syringe with GT plunger and 5.1 cm 0.72 mm OD LC needle	10462171	16662582
10197110	100 µL fixed needle syringe with 5.1 cm 0.72 mm OD LC needle	-	-
16662602	100 µL removable needle syringe with GT plunger and 5.1 cm 0.72 mm OD LC needle	10462171	16672582
10209060	250 µL fixed needle syringe with 5.1 cm 0.72 mm OD LC needle	-	-
10688143	250 µL removable needle syringe with 5.1 cm 0.72 mm OD LC needle	-	-
16662622	250 µL removable needle syringe with GT plunger and 5.1 cm 0.72 mm OD LC needle	10462171	16682582
10025480	500 µL fixed needle syringe with and 5.1 cm 0.72 mm OD LC needle	-	-
15268493	500 µL removable needle syringe with 5.1 cm 0.72 mm OD LC needle	10462171	-
16682632	500 µL removable needle syringe with GT plunger and 5.1 cm 0.72 mm OD LC needle	10462171	16692582
10661793	1 mL removable needle syringe with GT plunger and 5.1 cm 0.72 mm OD LC needle	10187260	15208563
15258503	2.5 mL removable needle syringe with GT plunger and 5.1 cm 0.72 mm OD LC needle	10187260	15208563

Expert tips

Users of Valco injectors requiring 3/4" long needles, must fit a Valco VISF-2 adaptor.

When using the complete loop fill technique, the syringe capacity should be greater than twice the loop volume. The loop capacity sets the injection volume.

When using the partial loop technique, the injection volume should be no greater than half the loop capacity. The injection size sets the injection volume.

Digital analytical syringe | eVol® XR

Product specifications and part numbers

eVol® XR is the coupling of two precision devices: a digitally controlled electronic drive and an XCHANGE® enabled analytical syringe.

Ergonomic, comfortable and easy to use.

- Suitable for use with volatile samples.
- Variable speed of operation.
- eVol syringes are easily and quickly changed allowing them to be dedicated to individual liquids or methods to prevent possible cross contamination of reagents.
- Easily calibrated by operators, and calibration factors saved for each syringe, enabling laboratories to comply with stringent global laboratory standards (e.g. GLP, GMP, FDA).
- Programmable and able to store a laboratory workflow (up to 98 steps).
- Password protection options enabling standardization of work processes.
- Inject directly onto a chromatography column with a consistent flow rate.
- eVol syringe stainless steel needle enables direct injection through septa.

Accuracy of eVol syringes

Syringe volume	1 mL	500 µL	100 µL	50 µL	5 µL
At 100% (uncalibrated)*	±0.7%	±0.7%	±0.7%	±1.0%	±1.0%
At 100% (calibrated)**	±0.2%	±0.2%	±0.2%	±0.2%	±0.2%
At 10% (calibrated)***	±0.5%	±0.5%	±0.5%	±0.5%	±1.0%

**Calibration factor of 1.0000 applied to handle.*
***Syringe and handle calibrated at full volume.*
****Syringe and handle calibrated at 10% of capacity. Accuracy based on the 10% dispensed volume closest to zero position.*

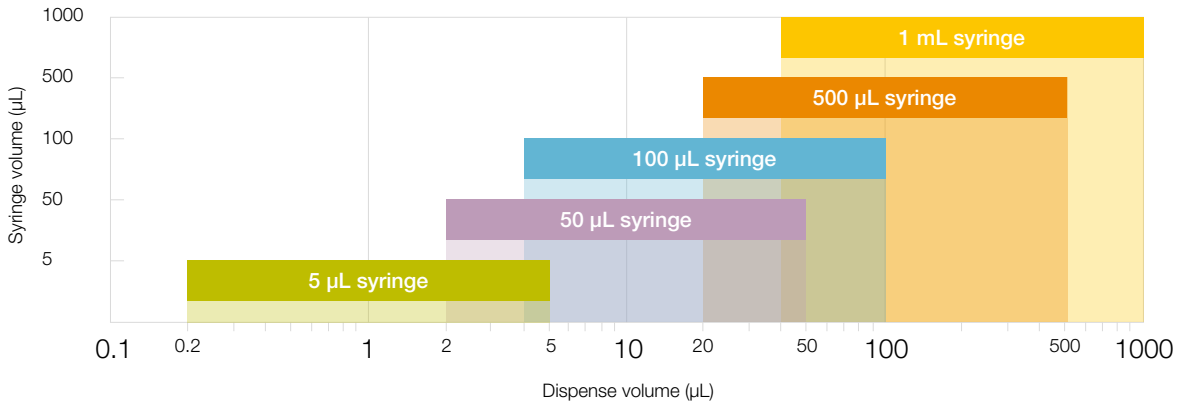
Note: For best results when performing repeat dispense (one aspiration followed by multiple dispense steps) use a calibration factor of 1.0000.

Precision of eVol syringes

Syringe volume	1 mL	500 µL	100 µL	50 µL	5 µL
At 100%	±0.3%	±0.3%	±0.4%	±0.4%	±0.5%
At 10%	±0.6%	±0.6%	±0.7%	±0.8%	±1.0%

Product specification

Volume range of eVol syringes



Applications include:

- Preparation of calibration standards
- Preparation and addition of internal standards
- Precise dispensing of aqueous and non-aqueous liquids
- Routine dispensing
- Sample dilution
- Ergonomic operation with substances in a fume hood
- GC and LC instrument injections
- Eliminates the need for serial dilutions
- Micro titrations
- TLC spotting
- FDA methods requiring a 1 mL syringe

Improve standard laboratory processes

The award winning eVol XR improves the pace of laboratory processes while delivering improved accuracy and reproducibility.

Process	Without eVol XR	With eVol XR	Benefits of using eVol XR
eVol XR			
Standard preparation	Standards prepared in a large volume flask. From this standard aliquots are individually dispensed into autosampler vials.	Standards are made up directly in the vial, including the make up solvent.	• Less glassware usage • Reduces waste fluid • Significant time saving • Improved accuracy and reproducibility
Addition of standards	Small amounts of standard aspirated and dispensed into all samples before being transferred to an autosampler vial.	One aspiration and a fast series of repeated accurate dispenses directly into vials.	• Significant time saving • Improved accuracy and reproducibility
Delivery of derivatization agents	Laboratory staff required to work in a fume hood with potentially hazardous materials, to prepare combinations of derivatization agents in open vials.	Process completed with eVol XR programmed to aspirate an amount of solvent or agent and then dispense aliquots into sealed vials. This is a single handed operation.	• Improved operator safety, lower spill and splash risk • Ergonomic benefits behind fume hood screen • Improved accuracy and reproducibility • Less glassware use
Serial dilutions	Transfer of a small amount of solution to another container. Solvent added to achieve the required volume. This is repeated multiple times to obtain the required final accurate concentration.	One aspiration of the solution can be dispensed directly into the solvent to achieve the required accurate concentration.	• Complete workflow simplification • Significant time savings • Improved accuracy • Less solvent required • Less glassware used

eVol XR for MEPS®

Enabling MEPS automation.

MEPS is microextraction by packed sorbent, the miniaturization of conventional SPE (solid phase extraction) packed bed devices from milliliter bed volumes to microliter volumes.

The MEPS approach to sample preparation is suitable for reversed phase, normal phase, mixed mode or ion exchange chemistries.

MEPS advantages over conventional SPE:

Less sample required giving you greater flexibility when you have small sample quantities.

- Less solvent used means less solvent waste and ultimately reduced expense.
- Faster preparation time, reducing from hours to minutes for improved laboratory workflow.
- MEPS incorporates packed phase in a micro-cartridge or BIN (barrel insert and needle) which is then integrated into an SGE analytical syringe to make miniaturized SPE possible. With MEPS, the sample processing, extraction and injection steps are performed using the same syringe.

Configuration for MEPS

MEPS BINs are available for use with eVol MEPS syringes, with a range of packing material phases.

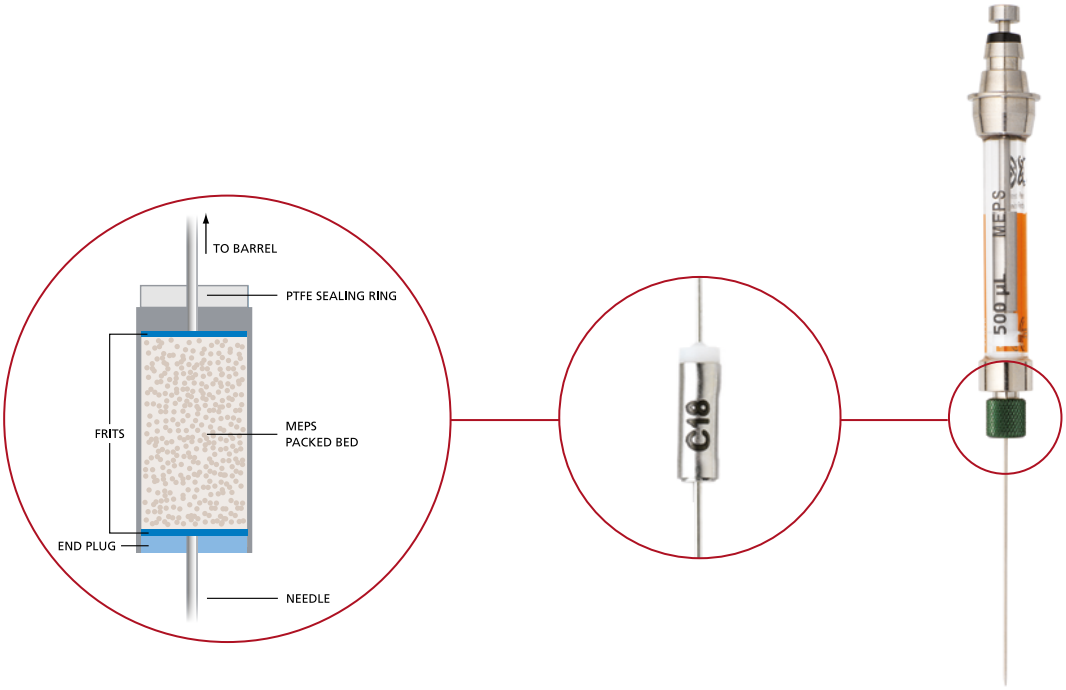
- MEPS BINs can be used with 50 µL, 100 µL and 500 µL eVol MEPS syringes.
- LC needles are 55.5 mm in length, 22 gauge and LC tipped.
- GC needles are 55.5 mm in length, 23 gauge and cone tipped.

eVol MEPS applications

Use eVol MEPS for sample preparation, SPE method development, sample clean up and proofing before transition to fully automated platforms. Quickly process small sample batches, or urgent samples.

Suitable for a range of analyses:

- **Environmental** e.g. determination of organic priority pollutants and emerging compounds in wastewater and snow samples.
- **Forensics** e.g. the analysis of cotinine in human urine by GCMS.
- **Pharmaceutical** e.g. liquid chromatographic analysis of oxcarbazepine and its metabolites in plasma and saliva.
- **Food and flavor** e.g. determination of 2,4,6-trichloroanisole and 2,4,6-tribromoanisole in wine.
- **Life sciences** e.g. rapid and sensitive method for determination of cyclophosphamide in patient plasma samples.



eVol XR

Fisher Scientific Cat. No.	Part description and detail	Replacement needle	Replacement plunger
eVol kits and components			
12977606	eVol stand (acrylic)	-	-
12987606	eVol charger	-	-
12907616	eVol charging stand	-	-
12997606	eVol replacement battery	-	-
12907586	eVol XR starter kit for NMR (eVol XR handle, charger, stand. 3 eVol removable needle syringes with bevel tipped removable needles: 5 µL with 11.5 cm removable needle, 50 µL with 11.5 cm and 18 cm removable needles, 500 µL with 11.5 cm and 18 cm removable needles)	-	-
15116194	eVol XR starter kit (eVol XR handle, charger, stand. 3 eVol syringes with 5 cm bevel tipped needles: 5 µL , 100 µL , 1 mL)	-	-
15289253	eVol XR (handle only)	-	-
eVol syringes			
12927586	5 µL eVol syringe with GT plunger and 5 cm 0.5 mm OD bevel tipped needle	12907606	12967596
12937586	5 µL eVol syringe with GT plunger. No needle.	-	12967596
12947586	50 µL eVol syringe with GT plunger and 5 cm 0.5 mm OD bevel tipped needle	10626041	12977596
12957586	50 µL eVol syringe with GT plunger. No needle.	-	12977596
12997586	500 µL eVol syringe with GT plunger and 5 cm 0.63 mm OD bevel tipped needle	10117170	12997596
12907586	500 µL eVol syringe with GT plunger. No needle.	-	12997596
12977586	100 µL eVol syringe with GT plunger and 5 cm 0.5 mm OD bevel tipped needle	10626041	12987596
13467878	1 mL eVol syringe with GT plunger and 5 cm 0.63 mm OD bevel tipped needle	10117170	15209263
15279253	100 µL eVol syringe with GT plunger. No needle.	-	12987596
12927586	5 µL eVol syringe with GT plunger and 5 cm 0.5 mm OD bevel tipped needle PK3	12907606	12967596
12937586	50 µL eVol syringe with GT plunger and 5 cm 0.5 mm OD bevel tipped needle PK3	10626041	12977596
12957596	500 µL eVol syringe with GT plunger and 5 cm 0.5 mm OD bevel tipped needle PK3	10117170	12997596
12947596	100 µL eVol syringe with GT plunger and 5 cm 0.5 mm OD bevel tipped needle PK3	10626041	12987596
15299253	1 mL eVol syringe with GT plunger and 5 cm 0.63 mm OD bevel tipped needle PK3	10117170	15209263
eVol MEPS syringes			
12917596	500 µL eVol MEPS syringe with GT plunger	-	12997596
12967586	50 µL eVol MEPS syringe with GT plunger	-	12977596
12987586	100 µL eVol MEPS syringe with GT plunger	-	12987596

MEPS BINs

Fisher Scientific Cat. No.	Part description and detail
MEPS barrel insert and needle (BIN) for LC applications	
15259243	C18 MEPS BIN for eVol MEPS syringes, 0.72 mm OD LC tipped needle PK5
15269243	C8 MEPS BIN for eVol MEPS syringes, 0.72 mm OD LC tipped needle PK5
15279243	APS MEPS BIN for eVol MEPS syringes, 0.72 mm OD LC tipped needle PK5
15289243	HVDB MEPS BIN for eVol MEPS syringes, 0.72 mm OD LC tipped needle PK5
15299243	SDVB MEPS BIN for eVol MEPS syringes, 0.72 mm OD LC tipped needle PK5
15209253	C2 MEPS BIN for eVol MEPS syringes, 0.72 mm OD LC tipped needle PK5
MEPS barrel insert and needle (BIN) for GC applications	
15219253	C18 MEPS BIN for eVol MEPS syringes, 0.63 mm OD cone tipped needle PK5
15229253	C8 MEPS BIN for eVol MEPS syringes, 0.63 mm OD cone tipped needle PK5
15239253	APS MEPS BIN for eVol MEPS syringes, 0.63 mm OD cone tipped needle PK5
15249253	HDVB MEPS BIN for eVol MEPS syringes, 0.63 mm OD cone tipped needle PK5
15259253	SDVB MEPS BIN for eVol MEPS syringes, 0.63 mm OD cone tipped needle PK5
15269253	C2 MEPS BIN for eVol MEPS syringes, 0.63 mm OD cone tipped needle PK5

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