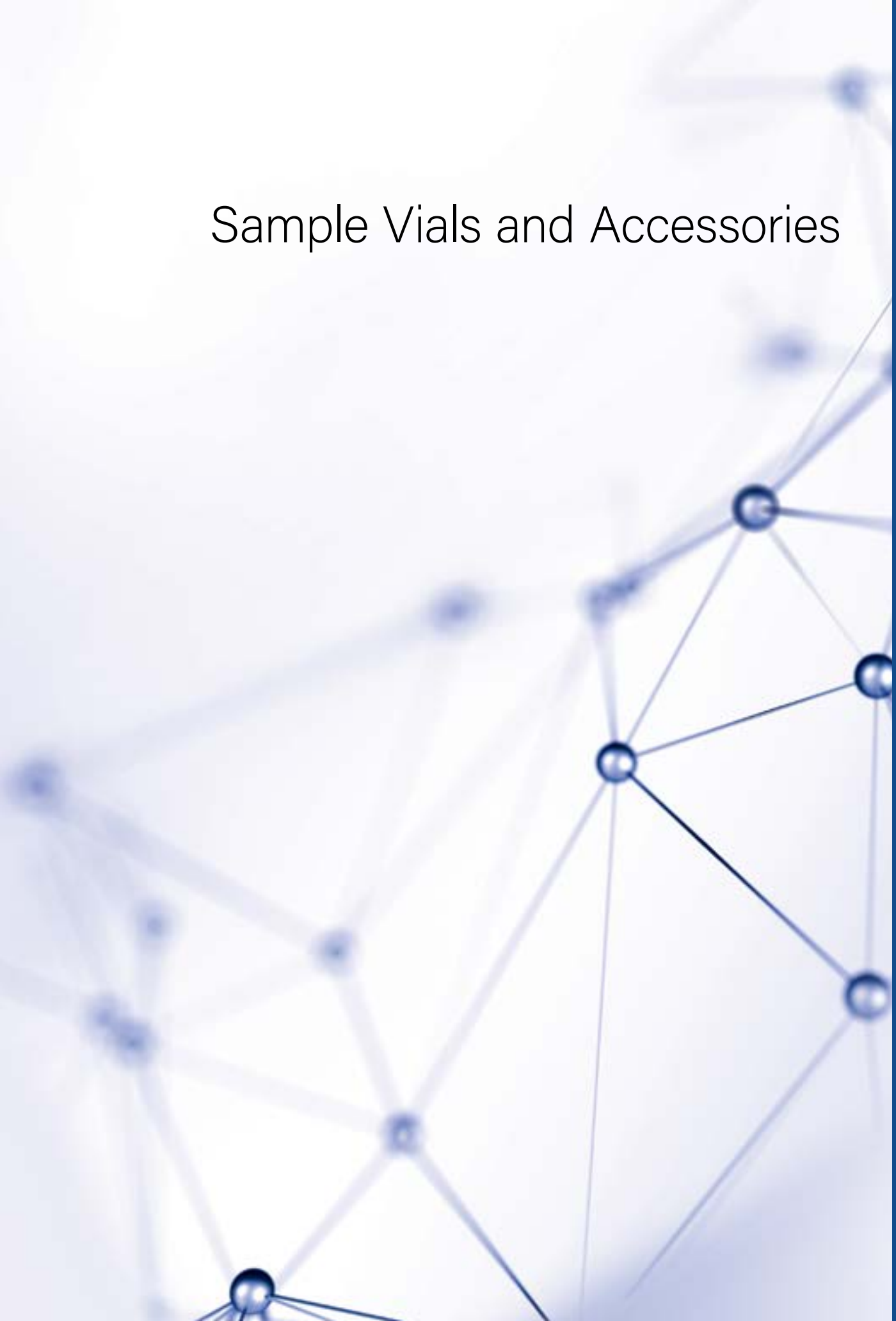
Sample Vials and Accessories



Contents

Sample Vials and Accessories

Your choices of vials or plates should be well informed and consistent with your application and instrumentation. To facilitate your decisions, we organized information about vials and accessories into three sections.

Section 1: Technical Information

Section 2: Quick Selection Guide

Section 3: Complete Product listing

Certified Vials

Waters offers three lines of certified vials:

- LC/GC Certified
- LCMS Certified
- TruView™ LCMS Certified

Find the best sample vial for your Autosampler and application online with our Vial Selector Tool

To try this tool, visit waters.com/VialSelector

DIMENSIONAL TEST

All lines of Waters Vials are certified to be within the dimensional tolerances for height, width, neck opening, neck center, threads, and bottom thickness specified for autosamplers. Conformance of vials to these permissible limits is essential. Out-of-dimension vials can cause needle damage and consequent system downtime.

CHEMISTRY TESTS

LC/GC Certified Vials are UV tested by HPLC. The HPLC test detects trace levels of chemicals used in the manufacturing and packaging process. These chemicals include lubricants, surfactants, antistatic agents, and antioxidants from packaging. To ensure cleanliness, we test each batch of vials after it has been packaged for several days. An additional test, a headspace GC test, determines whether the silicone septa cured properly.

LCMS Certified Vials are MS tested using an unbiased test to look for any ionized masses, regardless of their source. The test, performed in the mass spectrometer's scan mode, determines the total ion count and the presence of clusters in the high-mass range.

TruView LCMS Certified Vials are tested to ensure their conformance to stringent dimensional tolerances, UV and MS cleanliness, and polar-analyte adsorption. The vials are manufactured by a process that limits the concentration of free ions on the glass surface. Ionic sites can cause non-specific binding of polar analytes. Waters TruView LCMS Certified Vials are tested for high recovery of analyte at a concentration of 1 ng/mL using UPLC-MS/MS (MRM) and yield little adsorption. These vials exhibit the lowest adsorption of autosampler vials in the market.

Types of Certified Vials

Certification Tests	Waters LC/GC CERTIFIED	Waters LCMS CERTIFIED	Waters TruView™ LCMS CERTIFIED
Dimensional Test	✓	✓	✓
Septum GC Test	✓	✓	✓
HPLC UV Test	✓	✓	✓
MS Scan		✓	✓
Low Adsorption Test			✓
To download these whitepapers, visit **waters.com** and search by their part numbers.	Waters Certified Sample Vials Whitepaper 720001303EN	Waters LCMS Certified Sample Vials Whitepaper 720001517EN	TruView LCMS Certified Sample Vials Whitepaper 720004097EN

Vial Selection

CHOOSING THE RIGHT VIAL

Choosing the correct vial for your application is important. Equally important, however, is your choice of septum and closure.

The selection options below help you choose the appropriate combination of vial and accessories. For convenience in ordering, we offer many of these items in combination packs of 100.

Step 1

Septa Selection Guide

PTFE	PTFE/Silicone	Pre-slit PTFE/Silicone	PE Septumless
Recommended for single injection applications.	Recommended for multiple injections and sample storage.	Provides adequate venting to prevent vacuum formation in sample vial, delivering excellent sample-draw reproducibility.	Same advantages as PTFE.
Excellent solvent resistance and chemical compatibility.	Demonstrates excellent resealing characteristics.	Eliminates coring from bottom draw needles.	—
Does not reseal upon puncturing.	PTFE chemical resistance until punctured, then the septum will have the chemical compatibility of silicone.	Good resealing capabilities.	—
Not recommended for long-term sample storage.	Working temperature range from -40 ˚C to 200 ˚C.	Recommended for multiple injections.	—
—	—	Working temperature range from -40 ˚C to 200 ˚C.	—

Waters recommends pre-slit PTFE/silicone septa, for venting and accurate sample draw. They also reduce the possibility of septum coring in bottom-draw needles.

For applications with a volatile solvent that require non-slit septa, there are simple steps you can take to reduce creating a vacuum. Do not fill the vial; leave headspace. You may have to reduce the syringe draw rate to improve sample volume accuracy. (Refer to your sample manager's operator guide on how to adjust draw rate.)

Step 2

Vial Closures Guide

Vials are available in three closure types: crimp, snap, and screw cap. Each closure has its advantages.

Cap	Seal	Comment
Crimp	Excellent seal	Requires tools
Snap	Moderate seal	Fast, no tools, some cap cracking
Screw	Excellent seal	Universal

Crimp caps squeeze the septum between the vial's rim and the crimped aluminum cap forming an excellent seal. The crimp cap vial requires the use of a crimping tool to form the cap around the glass vial lip. When you plan to sample only a few vials, a manual crimper suffices. For large numbers of samples, however, the use of automated crimpers is more efficient.

Snap caps function similarly to crimp caps. The use of plastic snap caps requires no tools.

Snap caps are not as effective a seal as other closures:

- If the cap fits too tightly, it proves difficult to apply and may crack
- If the cap fits too loosely, the resultant seal is inadequate, and the septum may dislodge

Screw caps, which are universal, form an excellent seal. A cap screwed onto a vial applies a mechanical force that squeezes the septum between the vial rim and the cap. The use of screw caps requires no tools.

Step 3

Vial Selection Guide		
Analyte Concentration	**Detection Source**	**Recommended Product**
µg/mL	UV, RI (non-MS)	LC/GC Certified Vials
100's ng/mL	Older single quadrupole and MS-MS	LCMS Certified Vials
1 ng/mL and lower	MS-MS, Tof	TruView LCMS Certified Vials

Type 1, 33-Expansion Borosilicate Glass

Analytical laboratories use type 1, 33-expansion glass, the most chemically-inert glass obtainable, in for high-quality test results. Composed primarily of silicone and oxygen, with trace amounts of boron and sodium, the expansion coefficient of this glass is approximately 33×10^{-7} °C. All of our clear glass vials are made using type 1, 33-expansion glass.

Type 1, 51-Expansion Glass

More alkaline than type 1, 33-expansion glass, type 1, 51-expansion glass, is nonetheless adequate for use in many laboratories. Composed primarily of silicone and oxygen, with trace amounts of boron, its expansion coefficient is 51×10^{-7} °C. All of our amber glassware is made using type 1, 51-expansion glass.

Deactivated Glass (DV)

For highly polar analytes that may associate with the polar glass surface, deactivated vials are an effective choice. These glass vials are treated with gas-phase, reactive organosilane, producing a hydrophobic glass surface. Deactivated vials can be stored dry indefinitely.

Polypropylene Plastic

Nonreactive polypropylene plastic (PP) are useful where glass is not an appropriate option. The vials can be incinerated while sealed, minimizing personal exposure to potentially hazardous substances. The maximum-temperature use is 135 °C.

APPLICATION AREA: Analyze Metabolites in *in vitro* Dissolutions and Tissue Samples

"Excellent reproducibility and compatibility with multiple analysis systems and metabolites. We use these for storage as well as sample preparation and running samples. Very happy with the product as a whole."

REVIEWER: Erik Pierstorff

ORGANIZATION: O-Ray

Waters

THE SCIENCE OF WHAT'S POSSIBLE.™

What's New?

QuanRecovery™ WITH MAXPEAK™ HPS

Improve recovery, sensitivity and repeatability by mitigating non-specific binding losses

Use it! Don't lose it!

Learn more by visting waters.com/**QuanRecovery**

Sample Plates and Seals

SAMPLE PLATES

We offer a selection of 96- and 384-well sample plates for use in autosamplers. The plates are SBS/ANSI compliant, for robot compatible systems. The 96-well plates can also serve as collection plates for 96-well SPE and filtration-plate formats. All of our plates are made of polypropylene, for chemical resistance. We also offer 96-well plates fitted with glass inserts that maintain sample in contact only with a glass surface. The glass inserts are also available in deactivated glass format. Refer to the vials section for information about glass and deactivated glass.

The sample plates can be centrifuged to the following maximum centrifugal forces. Exceeding this limit can deform the plates. A deformed plate can cause autosampler error and instrument shutdown.

Ordering Information

96- and 384-well Plates

Description	Maximum Centrifugal Force	P/N
96-well Plate, 350 µL per well	5000 g	186002643
96-well Plate, 700 µL per well	2000 g	186005837
96-well Plate, 800 µL per well	2000 g	186002481
96-well Plate, 2 mL per well	5000 g	186002482
384-well Plate, 100 µL per well	5000 g	186002631
384-well Plate, 250 µL per well	5000 g	186002632

SEALS

Waters offers a selection of cap mats, heat seals, and an adhesive seal for plates.

Polypropylene Cap Mats

The selection of polypropylene cap mats fits all 96-well plates and offer the chemical resistance of polypropylene. The temperature range is -20 to 55 °C.

Silicone/PTFE Cap Mats

Silicone/PTFE cap mats, manufactured in slit and non-slit versions, are available for 96-well plates, including those fitted with glass inserts. We recommend using the slit versions in autosamplers, where they promote proper venting and accuracy of sample draw. We recommend the non-slit versions for long-term sample storage. The temperature range is -40 to 200 °C.

Clear Polyester Heat Seal

The clear polyester seal, usable between -80 °C and 80 °C, is effective for most sample solvents and buffers, including DMSO. To use the seal, place its shiny side facing up, and then use a heat sealer to apply heat in both directions for two to three seconds.

Aluminum Foil Heat Seal

The aluminum foil heat seal is a polyester/aluminum laminate. The addition of the aluminum layer reduces the gas permeability of the seal. For long-term storage, the aluminum foil heat seal is a better choice for reducing evaporative loss. The seal is usable over the temperature range from -200 °C to 90 °C. Position the seal with its white side facing up, and then apply heat in both directions for three seconds using a heat sealer.

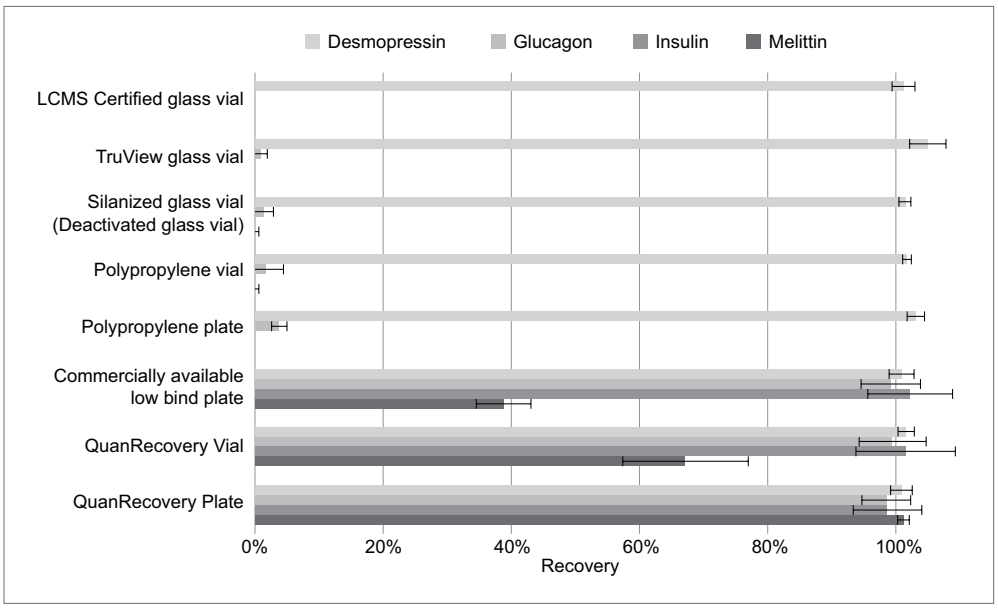
Adhesive Seal

The adhesive seal is a polyolefin film with a synthetic rubber adhesive. This seal is ideal for protein and peptide analyses, where samples are in buffers. The adhesive, which is usable between -80 °C and 80 °C, is resistant to low concentrations (0–30%) of polar organic solvents. No heat sealing equipment is needed to apply the seal.

Quan Recovery Vials and Plates

Designed for LC-MS bioanalysts, QuanRecovery Vials with MaxPeak HPS reduce peptide and protein losses due to ionic interactions and non specific binding. A reduction in these losses lead to higher recovery, sensitivity and repeatability in analytical results. Non -specific binding and ionic interactions can cause losses and be a problem at low and at higher concentrations. Quan Recovery minimized this level of uncertainty with the use of High Performance Surfaces.

MaxPeak High Performance Surfaces are technologies designed to increase analyte recovery, sensitivity and reproducibility by minimizing analyte/surface interactions that can lead to sample losses.



Average recovery (n = 4) of four peptides (1 ng/mL per peptide) after 24 hours of storage at 4 °C. The error bars show the standard deviations. Peptide solutions were prepared in 80:20 water-acetonitrile which was acidified with 0.2% trifluoroacetic acid (TFA). The more hydrophobic peptides are marked with darker grey.

Ordering Information

QuanRecovery for ACQUITY UPLC H-Class, I-Class, M-Class and PREMIER, Arc/Arc Bio, Alliance HPLC

Description	P/N
QuanRecovery with MaxPeak HPS Vial Package (186009186) with pre-slit PTFE silicone cap and septum, 100/pk	176004434
QuanRecovery with MaxPeak HPS 300 µL vials, 100/pk	186009186
QuanRecovery with MaxPeak HPS 700 µL 96 well plates, 25/pk	186009184

QuanRecovery Vials and Plate details - for ACQUITY UPLC H-Class, I-Class, M-Class and PREMIER, Arc/Arc Bio, Alliance HPLC

	Vials	Plates
Shape		
P/N	176004434 (pk/100 with PTFE/Silicone preslit caps) 186009186 (pk/100)	186009184 (pk/25)
Format	12 × 32 (2 mL) vial	96 Well plate
Total Volume (Vial or Well)	300 µL	700 µL
Bottom Shape	Conical	Conical
Plate Selection from Chromatographic Data System	ANSI-48-vial, 2 mL vial holder	ANSI-96-well 1 mL
Residual volume at default needle setting for ACQUIY UPLC	≥ 5 µL (FL: 2 mm – default; FTN: 3 mm)	≥ 8 µL (FL and FTN 2 mm – default)
Max Centrifugal Force	N/A	2000 g
pH range	0–14	0–14

Vials and Accessories for ACQUITY UPLC Systems

The family of ACQUITY™ UPLC Systems continues to evolve and expand, providing various solutions for improved resolution, sensitivity, and throughput. Several different UPLC sample managers are available, each of which offer a choice of needle type to meet the requirements of a laboratory's workflow. Following is the approved selection of vials, plates, and plate seals for current ACQUITY UPLC System configurations.

ACQUITY UPLC System.

Compatibility Tables

The tables below recommend vials and plates for the ACQUITY UPLC System configurations.

Fixed Loop Needle
Vials: ACQUITY UPLC, ACQUITY UPLC M-Class, nanoACQUITY™ UPLC, ACQUITY UPC², and ACQUITY UPLC I-Class FL; Sample Managers
Plates: ACQUITY UPLC, ACQUITY UPLC M-Class, nanoACQUITY UPLC, and ACQUITY UPLC I-Class FL; Metal and Metal Tip Needles
ACQUITY UPLC, ACQUITY UPLC M-Class, nanoACQUITY UPLC, ACQUITY UPC² and ACQUITY UPLC I-Class FL; PEEK and PEEKsil Needles

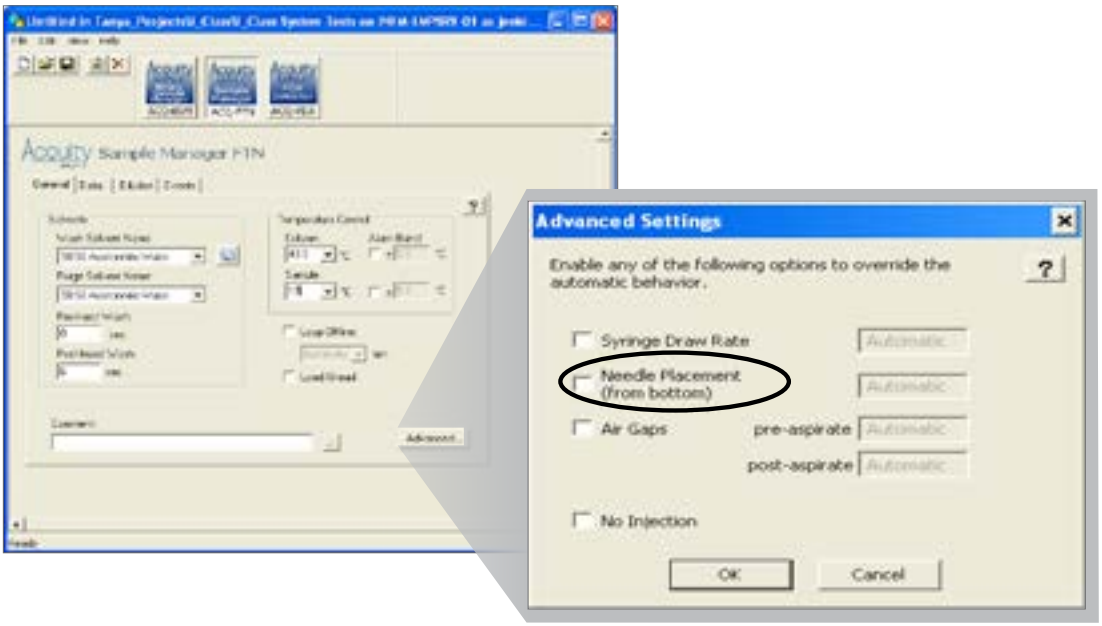
Flow Through Needle
Vials: ACQUITY UPLC H-Class/H-Class Bio, ACQUITY Arc,™ ACQUITY Arc™ Bio, ACQUITY UPLC I-Class FTN, and ACQUITY Advanced Polymer Chromatography™
Plates: ACQUITY UPLC H-Class/H-Class Bio, ACQUITY Arc/Arc Bio, and ACQUITY UPLC I-Class FTN

Residual Volumes

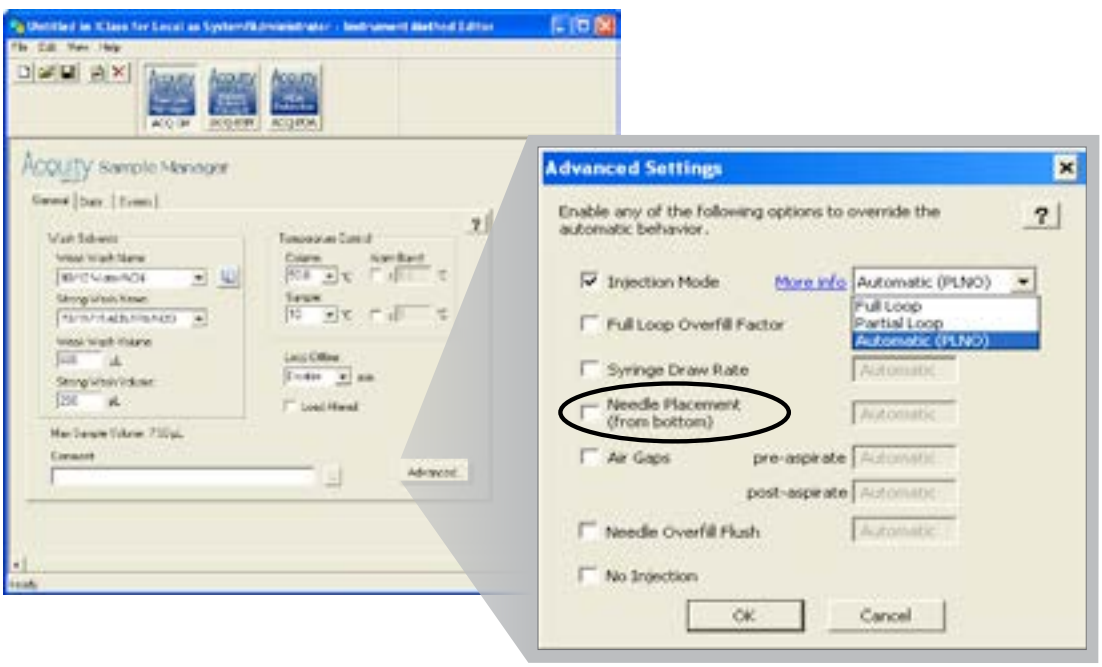
All residual volumes shown in the following table are calculated at the default needle placement setting. For sample-limited applications, you can adjust the needle placement via the software, in the Advanced Settings dialog box of the sample manager's instrument method editor (see figure on the following page). In the case of flow through needles (FTN), exercise care when specifying a lower needle-placement setting: FTN needle tips are susceptible to damage caused by striking against hard surfaces, resulting in sealing or carryover problems.

Default Needle Placement		
Needle Type	**Plates**	**Vials**
FTN	2 mm	4 mm
FL	2 mm	2 mm

Flow Through Needle (FTN) ACQUITY UPLC H-Class/H-Class Bio, ACQUITY UPLC I-Class, ACQUITY APC, and ACQUITY Arc/Arc Bio Systems



Fixed Loop Needle (FL)



QUICK SELECTION GUIDE: FIXED-LOOP-NEEDLE ACQUITY SYSTEMS

The tables below, which show the most frequently purchased vials and plates for fixed-loop-needle ACQUITY Systems, serve as a quick selection guide.

Ordering Information

Vials for ACQUITY UPLC, ACQUITY UPLC I-Class, ACQUITY UPLC M-Class, nanoACQUITY UPLC, and ACQUITY UPC[2]

Fixed Loop (FL), All Needles	Clear	Amber	Max Recovery	Amber Max	300 µL PP	750 µL PP	Clear Glass with Septumless Cap	Total Recovery
12 × 32 mm								
Vial Number	1	2	3	4	5	6	7	8
TruView LCMS Certified Combination Packs								
Vial, Cap, and Pre-slit Silicone/ PTFE Septum	186005666CV	186005661CV	186005662CV	186005670CV	–	–	–	186005663CV
LCMS Certified Combination Packs								
Vial, Cap, and Pre-slit Silicone/ PTFE Septum	600000668CV	600000669CV	600000670CV	600000755CV	–	–	–	600000671CV
LC/GC Certified Combination Packs								
Bonded Pre-slit Silicone/PTFE Septum	186000307C	186000847C	186000327C	186003886C	–	–	–	186000385C
Combination with PE Septumless Cap	186004132C	186004133C	186004168C	–	–	–	186004132C	186004167C
Combination Packs								
Bonded Pre-slit Silicone/PTFE Septum Deactivated	186000307DV	186000847DV	186000327DV	–	–	–	–	186000385DV
Bonded Pre-slit Silicone/PTFE Septum	–	–	–	–	186002639	186005221	–	–
Combination with PE Septumless Cap	–	–	–	–	186004112	186005230	–	–
Injectable Volumes								
Max	1600 µL	1600 µL	1100 µL	1100 µL	210 µL	530 µL	1600 µL	950 µL
Residual	165 µL	165 µL	22 µL	22 µL	20 µL	70 µL	165 µL	4 µL
Vial Selection from Chromatography Data System	ANSI-48-vial 2 mL Holder	ANSI-48-vial 2 mL Holder	ANSI-48-vial 2 mL Holder	ANSI-48-vial 2 mL Holder	ANSI-48-vial 2 mL Holder	ANSI-48-vial 2 mL Holder	ANSI-48-vial 2 mL Holder	ANSI-48-vial 2 mL Holder
Storage Cap								
Black Solid 9 mm Cap with Silicone/PTFE Liner for Sample Storage	186007187	186007187	186007187	186007187	186007187	186007187	186007187	186007187

All items come in quantities of 100 unless otherwise noted.

ACQUITY Sample Organizer Accessories

Description	P/N
Vial Holder, 48-well, 2 mL Vial	700011047
Label, 48-well, 2 mL Vial, Open Access	615003783
Sleeve, 2 mL Vials within the Standard 4 mL Auxiliary Position in the Sample Manager Shuttle Tray, 4/pk	700005338

For the complete selection of vials and accessories for ACQUITY Systems, refer to page 59.

Plates for ACQUITY UPLC, ACQUITY UPLC I-Class, ACQUITY UPLC M-Class, and nanoACQUITY UPLC

Fixed Loop (FL), Metal and Metal Tip Needles	96-well Plates				384-well Plates	
Well Shape						
Plates	186002643	186005837	186002481	186002482	186002632	186002631
Pack Size	100	25	50	50	50	50
Well Volume	350 µL	700 µL	800 µL	2 mL	250 µL	100 µL
Sealing Options						
PTFE/Silicone Pre-slit, 5/pk	186006332	186006332	186006332	186006335	—	—
Polypropylene Cap Mat, 50/pk	—	186002483	186002483	186002484	—	—
Clear Polyester Heat Seal, 100/pk	186002788	186002788	186002788	186002788	186002788	186002788
Aluminum Foil Laminate Heat Seal, 100/pk	186002789	186002789	186002789	186002789	186002789	186002789
Adhesive Seal, 100/pk	186006336	186006336	186006336	186006336	186006336	186006336
Number of Plates in Sample Organizer	21	10	10	7	10	21
Shape	Round	Round	Round	Square	Square	Square
Bottom	Round	Conical	Conical	Conical	Conical	Conical
Material	PP	PP	PP	PP	PP	PP
Plate Height	14 mm	31 mm	31 mm	42.5 mm	22 mm	15.5 mm
Well Depth	11.25 mm	27 mm	27 mm	39 mm	19.5 mm	12.3 mm
Residual Volume in ACQUITY at Default Needle Placement of 2 mm	35 µL	8 µL	15 µL	20 µL	15 µL	15 µL
Plate Selection from Chromatography Data System	ANSI-96-well 350 µL	ANSI-96-well 1 mL	ANSI-96-well 1 mL	ANSI-96-well 2 mL	ANSI-384-well 250 µL	ANSI-384-well 100 µL

	96-well Glass Inserts	
Glass Insert 96-well Plates	**700 µL**	**1 mL**
Plate for Quick Load Inserts, 20/pk	186001438	186001438
Quick Load Glass Insert, 1/pk	186001437(DV)	186001436(DV)
96-well Plate with Inserts	186000349(DV), 1/pk	186000855(DV), 18/pk
Pre-slit PTFE Silicone Seal, 5/pk (Clear)—seals against plate wall	186006335	—
Clear Polyester Heat Seal, 100/pk	186002788	—
Aluminum Foil Laminate Heat Seal, 100/pk	186002789	—
Adhesive Seal,* 100/pk	186006336	—
Residual Volume in ACQUITY at Default Needle Placement of 2 mm	15 µL	15 µL
Plate Selection from Chromatography Data System	ANSI-96-well 700 µL Glass Insert	ANSI-96-well 1 mL Glass Insert

When (DV) appears beside a number, a deactivated version of the part can be ordered by adding a DV to the right of the part number.
*Adhesive seal is designed for use with buffer solutions and can tolerate alcohols and acetonitrile content in buffers.

Plates for ACQUITY UPLC, ACQUITY UPLC I-Class, ACQUITY UPLC M-Class, nanoACQUITY UPLC, and ACQUITY UPC²

Fixed Loop (FL), PEEK and PEEKsil Needles	96-well Plates				384-well Plates	
Well Shape						
Plates	186002643	186005837	186002481	186002482	186002632	186002631
Pack Size	100	25	50	50	50	50
Well Volume	350 µL	700 µL	800 µL	2 mL	250 µL	100 µL
Sealing Options						
Polypropylene Cap Mat, 50/pk	–	186002483	186002483	186002484	–	–
Clear Polyester Heat Seal, 100/pk	186002788	186002788	186002788	186002788	186002788	186002788
Aluminum Foil Laminate Heat Seal, 100/pk	186002789	186002789	186002789	186002789	186002789	186002789
Adhesive Seal,* 100/pk	186006336	186006336	186006336	186006336	186006336	186006336
Number of Plates in Sample Organizer	21	10	10	7	10	21
Shape	Round	Round	Round	Square	Square	Square
Bottom	Round	Conical	Conical	Conical	Conical	Conical
Material	PP	PP	PP	PP	PP	PP
Plate Height	14 mm	31 mm	31 mm	42.5 mm	22 mm	15.5 mm
Well Depth	11.25 mm	27 mm	27 mm	39 mm	19.5 mm	12.3 mm
Residual Volume in ACQUITY at Default Needle Placement of 2 mm	35 µL	8 µL	15 µL	20 µL	15 µL	15 µL
Plate Selection from Chromatography Data System	ANSI-96-well 350 µL	ANSI-96-well 1 mL	ANSI-96-well 1 mL	ANSI-96-well 2 mL	ANSI-384-well 250 µL	ANSI-384-well 100 µL

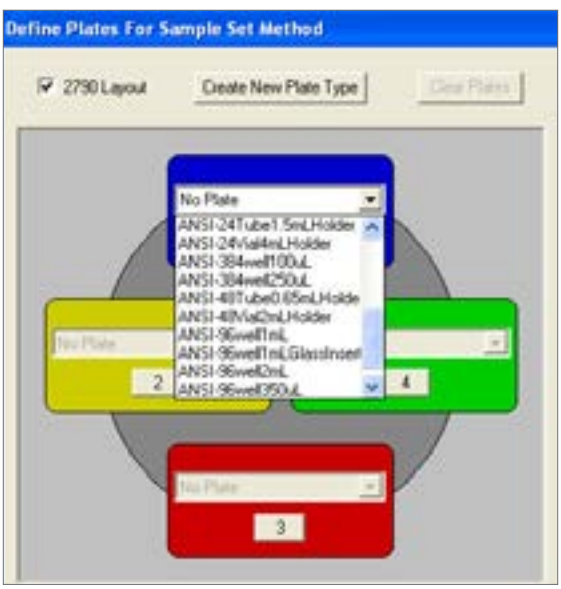
*Adhesive seal is designed for use with buffer solutions and can tolerate alcohols and acetonitrile content in buffers.

	96-well Glass Inserts
Glass Insert 96-well Plates	**700 µL**
Plate for Quick Load Inserts, 20/pk	186001438
Quick Load Glass Insert, 1/pk	186001437(DV)
96-well Plate with Inserts	186000349(DV), 1/pk
Clear Polyester Heat Seal, 100/pk	186002788
Aluminum Foil Laminate Heat Seal, 100/pk	186002789
Adhesive Seal,* 100/pk	186006336
Residual Volume in ACQUITY at Default Needle Placement of 2 mm	15 µL
Plate Selection from Chromatography Data System	ANSI-96-well 700 µL Glass Insert

When (DV) appears beside a number, a deactivated version of the part can be ordered by adding a DV to the right of the part number.
*Adhesive seal is designed for use with buffer solutions and can tolerate alcohols and acetonitrile content in buffers.

Plate Selection

Chromatographic system: Plate selection indicates a preprogrammed geometric plate configuration, with the proper x, y, and z dimensions for the plate. Select the proper plate from the drop-down menu.



QUICK SELECTION GUIDE: FLOW-THROUGH-NEEDLE ACQUITY SYSTEMS

The tables below, which show the most frequently purchased vials and plates for flow-through-needle ACQUITY Systems, serve as a quick selection guide.

Ordering Information

Vials for ACQUITY UPLC H-Class/H-Class Bio, ACQUITY UPLC I-Class, ACQUITY Arc/Arc Bio, and ACQUITY APC Systems

Flow Through Needles (FTN)	Clear	Amber	Max Recovery	Amber Max	300 µL PP	750 µL PP	Clear Glass with Septumless Cap	Total Recovery
12 × 32 mm								
Vial Number	1	2	3	4	5	6	7	8
TruView LCMS Certified Combination Packs								
Vial, Cap, and Pre-slit Silicone/PTFE Septum	186005666CV	186005661CV	186005662CV	186005670CV	–	–	–	186005663CV
LCMS Certified Combination Packs								
Vial, Cap, and Pre-slit Silicone/PTFE Septum	600000668CV	600000669CV	600000670CV	600000755CV	–	–	–	600000671CV
LC/GC Certified Combination Packs								
Bonded Pre-slit Silicone/PTFE Septum	186000307C	186000847C	186000327C	186003886C	–	–	–	186000385C
Combination with PE Septumless Cap	186004132C	186004133C	186004168C	–	–	–	186004132C	186004167C
Combination Packs								
Bonded Pre-slit Silicone/PTFE Septum Deactivated	186000307DV	186000847DV	186000327DV	–	–	–	–	186000385DV
Bonded Pre-slit Silicone/PTFE Septum	–	–	–	–	186002639	186005221	–	–
Combination with PE Septumless Cap	–	–	–	–	186004112	186005230	–	–
Injectable Volumes								
Max	1450 µL	1450 µL	1365 µL	1365 µL	290 µL	610 µL	1450 µL	940 µL
Residual	360 µL	360 µL	135 µL	135 µL	10 µL	90 µL	360 µL	10 µL
Vial Selection from Chromatography Data System	ANSI-48-vial 2 mL Holder	ANSI-48-vial 2 mL Holder	ANSI-48-vial 2 mL Holder	ANSI-48-vial 2 mL Holder	ANSI-48-vial 2 mL Holder	ANSI-48-vial 2 mL Holder	ANSI-48-vial 2 mL Holder	ANSI-48-vial 2 mL Holder
Storage Cap								
Black Solid 9 mm Cap with Silicone/PTFE Liner for Sample Storage	186007187	186007187	186007187	186007187	186007187	186007187	186007187	186007187

All items come in quantities of 100 unless otherwise noted.

ACQUITY Sample Organizer Accessories

Description	P/N
Vial Holder, 48-well, 2 mL Vial	700011047
Label, 48-well, 2 mL Vial, Open Access	615003783
Sleeve, 2 mL Vials within the Standard 4 mL Auxiliary Position in the Sample Manager Shuttle Tray, 4/pk	700005338

For the complete selection of vials and accessories for ACQUITY Systems, refer to page 59.

Plates for ACQUITY UPLC H-Class/H-Class Bio, ACQUITY Arc/Arc Bio, and ACQUITY UPLC I-Class

Flow Through Needle	96-well Plates				384-well Plates
Well Shape					
Plates	186002643	186005837	186002481	186002482	186002632
Pack Size	100	25	50	50	50
Well Volume	350 µL	700 µL	800 µL	2 mL	250 µL
Sealing Options					
PTFE/Silicone Pre-slit, 5/pk	186006332	186006332	186006332	186006335	—
Clear Polyester Heat Seal, 100/pk	186002788	186002788	186002788	186002788	186002788
Adhesive Seal,* 100/pk	186006336	186006336	186006336	186006336	186006336
Number of Plates in Sample Organizer	21	10	10	7	10
Shape	Round	Round	Round	Square	Square
Bottom	Round	Conical	Conical	Conical	Conical
Material	PP	PP	PP	PP	PP
Plate Height	14 mm	31 mm	31 mm	42.5 mm	22 mm
Well Depth	11.25 mm	27 mm	27 mm	39 mm	19.5 mm
Residual Volume in ACQUITY at Default Needle Placement of 2 mm	35 µL	8 µL	15 µL	20 µL	15 µL
Plate Selection from Chromatography Data System	ANSI-96-well 350 µL	ANSI-96-well 1 mL	ANSI-96-well 1 mL	ANSI-96-well 2 mL	ANSI-384-well 250 µL
Plate Selection from Chromatography Data System	ANSI-96-well 350 µL	ANSI-96-well 1 mL	ANSI-96-well 1 mL	ANSI-96-well 2 mL	ANSI-384-well 250 µL

*Adhesive seal is designed for use with buffer solutions and can tolerate alcohols and acetonitrile content in buffers.

	96-well Glass Inserts	
Glass Insert 96-well Plates	**700 µL**	**1 mL**
Plate for Quick Load Inserts, 20/pk	186001438	186001438
Quick-Load Glass Insert, 1/pk	186001437(DV)	186001436(DV)
96-well Plate with Inserts	186000349(DV), 1/pk	186000855(DV), 18/pk
Pre-slit PTFE Silicone Seal, 5/pk (Clear)—Seals Against Plate Wall	186006335	—
Clear Polyester Heat Seal, 100/pk	186002788	—
Adhesive Seal,* 100/pk	186006336	—
Residual Volume in ACQUITY at Default Needle Placement of 2 mm	15 µL	15 µL
Plate Selection from Chromatography Data System	ANSI-96-well 700 µL Glass Insert	ANSI-96-well 1 mL Glass Insert

When (DV) appears beside a number, a deactivated version of the part can be ordered by adding a DV to the right of the part number.
*Adhesive seal is designed for use with buffer solutions and can tolerate alcohols and acetonitrile content in buffers.

Vials and Accessories for Alliance HPLC Systems

Alliance HPLC System.

AUTOSAMPLER VIALS, PLATES, AND SEALS FOR USE WITH ALLIANCE HPLC SYSTEMS

We offer a complete selection of vials, including certified and low-recovery vials suited to the needle designs used in Alliance™ Systems. We also offer a complete line of plate and seal options for the Alliance 2790/2795 HTS System.

SETTINGS FOR ALLIANCE HPLC VIALS AND LOW VOLUME INSERTS (LVI)

The Waters Alliance Separations Module is set initially to accept vials with a bottom thickness of less than 1.6 mm. Any vial that does not meet this criterion must not be used without first adding a positive needle-offset value to the sample draw depth specified in the software. Failure to do so can cause vial breakage or needle damage.

Alliance 2690 and 2695 Needle Offset

Settings for Alliance 2690 and 2695	
Vial	**Needle Offset (add)**
300 µL Polypropylene Vial	1 mm
750 µL Polypropylene Vial	1 mm
Crimp Cap Vial	1 mm
Low Volume Insert and Vial	1 mm

APPLICATION AREA: Sample Preparation for Sphingolipid Biomarkers in Biofluids and Tissues

"Using Waters Certified Vials for my research provides me with the confidence that my prepared samples are safely contained in certified clean vials and that there are no contaminants which might interfere with the LC-MS/MS analysis. I can inject from very low volumes knowing that the vials are shaped to maximize the sample depth to assure good reproducibility between injections. My samples are precious and many are "one-of-a-kind" which I don't want to risk putting into any vial other than Waters Certified vials."

REVIEWER: Christopher Willis

ORGANIZATION: Sanofi

QUICK SELECTION GUIDE: ALLIANCE HPLC SYSTEMS

This selection of 12 × 32 mm vials are the most commonly ordered vials by customers using Waters' Alliance Separations Modules. This page is intended to be a quick selection guide.

Ordering Information

Vials for Alliance 2690/2695/e2695 and 2790/2795 Systems

	Clear	Amber	Max Recovery	300 µL PP	10 mm Cap Clear	Total Recovery	Amber Max	Clear Glass with Septumless Cap
12 × 32 mm								
Vial Number	9	10	11	12	13	14	15	16
Compatible Systems								
Alliance 2690/2695	•	•	—	•	•	•	—	•
Alliance 2790/2795	•	•	•	•	—	—	•	•
TruView LCMS Certified Combination Packs								
Vial, Cap, and Pre-slit Silicone/PTFE Septum	186005666CV	186005661CV	186005662CV	—	—	186005663CV	186005670CV	—
LCMS Certified Combination Packs								
Vial, Cap, and Pre-slit Silicone/PTFE Septum	600000668CV	600000669CV	600000670CV	—	—	600000671CV	600000755CV	—
LC/GC Certified Combination Packs								
Bonded Pre-slit Silicone/PTFE Septum	186000307C	186000847C	186000327C	186002639*	—	186000385C	186003886C	—
Silicone/PTFE Septum	—	—	—	—	WAT270946C	—	—	—
Combination with PE Septumless Cap	—	—	—	—		—	—	186004132C
Combination Packs								
Combination Deactivated	186000307DV	186000847DV	186000327DV	—	—	186000385DV	—	—
Injectable Volumes Alliance 2690/2695								
Max	1100 µL	1100 µL	—	280 µL	1100 µL	950 µL	—	1100 µL
Residual	750 µL	750 µL	—	20 µL	750 µL	9 µL	—	750 µL
Injectable Volumes Alliance 2790/2795								
Max	1700 µL	1700 µL	1500 µL	290 µL	1700 µL	—	1500 µL	1700 µL
Residual	170 µL	170 µL	22 µL	10 µL	170 µL	—	22 µL	170 µL
Insert								
150 µL with Poly Spring	WAT094171(DV)	WAT094171(DV)	—	—	WAT094171(DV)	—	—	WAT094171(DV)
Max Volume Injection/ Max Residual Volume	144 µL/6 µL	144 µL/6 µL	—	—	144 µL/6 µL	—	—	144 µL/6 µL
Storage Cap								
Black Solid 9 mm Cap with Silicone/PTFE Liner for Sample Storage	186007187	186007187	186007187	186007187	—	186007187	186007187	186007187

All items come in quantities of 100 unless otherwise noted.
When (DV) appears beside a number, a deactivated version of the part can be ordered by adding a DV to the right of the part number.
*Not certified.

Complete Listing of 12 × 32 mm Vials and Accessories

Screw Cap Vials	Clear	Amber	Max Recovery	300 µL PP	750 µL PP	10 mm Cap Clear	Total Recovery	Amber Max
12 × 32 mm								
Vial Number	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
Compatible Systems								
Alliance 2690/2695	•	•	—	•	•	•	•	—
Alliance 2790/2795	•	•	•	•	•	—	—	•
ACQUITY	•	•	•	•	•	—	•	•
TruView LCMS Certified Combination Packs								
Vial, Cap, and Silicone/PTFE Septum	186005660CV	186005667CV	186005668CV	—	—	—	186005669CV	186005664CV
Vial, Cap, and Pre-slit Silicone/PTFE Septum	186005666CV	186005661CV	186005662CV	—	—	—	186005663CV	186005670CV
LCMS Certified Combination Packs								
Vial, Cap, and Silicone/PTFE Septum	600000751CV	600000752CV	600000749CV	—	—	—	600000750CV	600000754CV
Vial, Cap, and Pre-slit Silicone/PTFE Septum	600000668CV	600000669CV	600000670CV	—	—	—	600000671CV	600000755CV
LC/GC Certified Combination Packs								
Bonded Silicone/PTFE Septum	186000272C	186000846C	186000326C	186002640*	186005220*	WAT270946C	186000384C	186003885C
Combination Deactivated*	186000272DV	186000846DV	186000326DV	—	—	WAT270946DV	186000384DV	—
Bonded Pre-slit Silicone/PTFE Septum	186000307C	186000847C	186000327C	186002639*	186005221*	—	186000385C	186003886C
Combination Deactivated*	186000307DV	186000847DV	186000327DV	—	—	—	186000385DV	—
Combination with PE Septumless Cap	186004132C	186004133C	186004168C	186004112*	186005230*	—	186004167C	—
LC/GC Certified Combination Pack with Cap and PTFE Septum	186007193C	186007194C	186007195C	—	—	—	186007197C	186007196C
Certified Combination Pack with Cap and LB Silicone/PTFE Septum	186007199C	186007200C	186007201C	—	—	—	186007203C	186007202C
Vials Only								
Vials Only	186000273	186000848	186002802	186002626	186005219	WAT063300	186002805	—
Deactivated Vials Only	186000273DV	186000848DV	—	—	—	WAT063300DV	—	—
Injectable Volumes Alliance 2690/2695								
Max	1100 µL	1100 µL	—	280 µL	400 µL	1100 µL	950 µL	—
Residual	750 µL	750 µL	—	20 µL	300 µL	750 µL	9 µL	—
Injectable Volumes Alliance 2790/2795								
Max	1700 µL	1700 µL	1500 µL	290 µL	530 µL	1700 µL	—	1500 µL
Residual	170 µL	170 µL	22 µL	10 µL	170 µL	170 µL	—	22 µL

All items come in quantities of 100 unless otherwise noted.
*Not certified.

Complete Listing of 12 × 32 mm Vials and Accessories

	Clear	Amber	Max Recovery	300 µL PP	750 µL PP	10 mm Cap Clear	Total Recovery	Amber Max
12 × 32 mm								
Vial Number	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
Compatible Systems								
Alliance 2690/2695	•	•	–	•	•	•	•	–
Alliance 2790/2795	•	•	•	•	•	–	–	•
ACQUITY	•	•	•	•	•	–	•	•
Inserts								
300 µL with Poly Spring	WAT094170(DV)	WAT094170(DV)	–	–	–	WAT094170(DV)	–	–
Max Volume Injection/ Max Residual Volume	230 µL/20 µL	230 µL/20 µL	–	–	–	230 µL/20 µL	–	–
150 µL with Poly Spring	WAT094171(DV)	WAT094171(DV)	–	–	–	WAT094171(DV)	–	–
Max Volume Injection/ Max Residual Volume	144 µL/6 µL	144 µL/6 µL	–	–	–	144 µL/6 µL	–	–
Black Screw Cap for TruView Vials								
PTFE/Silicone Septum	186005826	186005826	186005826	–	–	–	186005826	186005826
Pre-slit PTFE/Silicone Septum	186005827	186005827	186005827	–	–	–	186005827	186005827
Light Blue Screw Cap for LCMS Certified Vials								
PTFE/Silicone Septum	186005828	186005828	186005828	–	–	–	186005828	186005828
Pre-slit PTFE/Silicone Septum	186005829	186005829	186005829	–	–	–	186005829	186005829
Screw Cap and Septum–Silicone/PTFE								
PE Septumless Cap	186004169	186004169	186004169	186004169	186004169	–	186004169	186004169
Blue LectraBond	186000274	186000274	186000274	186000274	186000274	–	186000274	186000274
Red LectraBond	186002129	186002129	186002129	186002129	186002129	–	186002129	186002129
Green LectraBond	186002130	186002130	186002130	186002130	186002130	–	186002130	186002130
White LectraBond	186002456	186002456	186002456	186002456	186002456	–	186002456	186002456
Black Cap with PTFE Septum, 100/pk	186007198	186007198	186007198	186007198	186007198	–	186007198	186007198
Screw Cap and Pre-slit Septum–Silicone/PTFE								
Blue LectraBond	186000305	186000305	186000305	186000305	186000305	–	186000305	186000305
Red LectraBond	186002128	186002128	186002128	186002128	186002128	–	186002128	186002128
Green LectraBond	186002127	186002127	186002127	186002127	186002127	–	186002127	186002127
White LectraBond	186002457	186002457	186002457	186002457	186002457	–	186002457	186002457
For Dissolution System								
Pre-assembled Vial, Cap, and Pre-slit Septum	186000989(DV)	186003455	–	–	–	–	–	–
Storage Cap								
Black Solid 9 mm Cap with Silicone/ PTFE Liner for Sample Storage	186007187	186007187	186007187	186007187	186007187	–	186007187	186007187
Black Cap	–	–	–	–	–	WAT058875	–	–
Septum Only, Silicone/PTFE	–	–	–	–	–	WAT058874	–	–

All items come in quantities of 100 unless otherwise noted.
When (DV) appears beside a number, a deactivated version of the part can be ordered by adding a DV to the right of the part number.

Complete Listing of 12 × 32 mm Vials and Accessories *Continued*

Snap and Crimp Cap Vials	Clear	Amber	Max Recovery	300 µL PP	750 µL PP	Clear Glass Crimp	Amber Crimp	Total Recovery
12 × 32 mm								
Vial Number	25	26	27	28	29	30	31	32
Compatible Systems								
Alliance 2690/2695	•	•	–	•	•	•	•	•
Alliance 2790/2795	•	•	•	•	•	•	•	–
ACQUITY	•	•	•	•	•	•	•	•
Combination Packs								
Vial, Cap, and Silicone/PTFE Septum	–	–	–	186002642	186005223	–	–	186000234(DV)
Vial, Cap, and Pre-slit Silicone/PTFE Septum	–	–	–	186002641	186005222	–	–	–
Vials								
Vials Only	WAT094219	WAT094220	186000984	186002628	186005224	WAT094222	WAT094223	186000302
Deactivated Vials Only	WAT094219DV	WAT094220DV	186000984DV	–	–	WAT094222DV	WAT094223DV	186000302DV
Injectable Volumes Alliance 2690/2695								
Max	1100 µL	1100 µL	–	280 µL	400 µL	1100 µL	1100 µL	950 µL
Residual	750 µL	750 µL	–	20 µL	300 µL	750 µL	750 µL	9 µL
Injectable Volumes Alliance 2790/2795								
Max	1700 µL	1700 µL	1500 µL	290 µL	530 µL	1700 µL	1700 µL	–
Residual	170 µL	170 µL	22 µL	10 µL	170 µL	170 µL	170 µL	–
Inserts								
300 µL with Poly Spring	WAT094170(DV)	WAT094170(DV)	–	–	–	WAT094170(DV)	WAT094170(DV)	–
Max Volume Injection/Max Residual Volume	230 µL/20 µL	230 µL/20 µL	–	–	–	230 µL/20 µL	230 µL/20 µL	–
150 µL with Poly Spring	WAT094171(DV)	WAT094171(DV)	–	–	–	WAT094171(DV)	WAT094171(DV)	–
Max Volume Injection/Max Residual Volume	144 µL/6 µL	144 µL/6 µL	–	–	–	144 µL/6 µL	144 µL/6 µL	–
Snap Cap and Septum–Silicone/PTFE								
Blue	186000303	186000303	186000303	186000303	186000303	–	–	186000303
Black	186002649	186002649	186002649	186002649	186002649	–	–	186002649
Red	186002650	186002650	186002650	186002650	186002650	–	–	186002650
Snap Cap and Pre-slit Septum–Silicone/PTFE								
Blue	186000304	186000304	186000304	186000304	186000304	–	–	186000304
Black	186002648	186002648	186002648	186002648	186002648	–	–	186002648
Red	186002647	186002647	186002647	186002647	186002647	–	–	186002647
Snap Cap and PTFE Septum								
Blue	186000328	186000328	186000328	186000328	186000328	–	–	186000328
Black	186002645	186002645	186002645	186002645	186002645	–	–	186002645
Red	186002646	186002646	186002646	186002646	186002646	–	–	186002646
Crimp Cap								
Crimp Cap Silicone/PTFE Septum	–	–	–	–	–	PSL404219	PSL404219	–
Crimp Cap PTFE/Silicone/PTFE Septum	–	–	–	–	–	PSL404231	PSL404231	–
Crimp Cap with Silicone/PTFE Septa	–	–	–	–	–	186006967	186006967	–
Crimper	–	–	–	–	–	PSL904301	PSL904301	–

All items come in quantities of 100 unless otherwise noted.
When (DV) appears beside the part number, a deactivated version of this product can be ordered by adding DV to the right of the part number.

Plates for Alliance 2790/2795 Systems

	96-well Plates				384-well Plates	
Well Shape						
Plates	186002643	186005837	186002481	186002482	186002632	186002631
Pack Size	100	25	50	50	50	50
Well Volume	350 µL	700 µL	800 µL	2 mL	250 µL	100 µL
Sealing Options						
PTFE/Silicone, 5/pk	186006333	186006333	186006333	186006334	—	—
PTFE/Silicone Pre-slit, 5/pk	186006332	186006332	186006332	186006335	—	—
Polypropylene Cap Mat, 50/pk	186002483	186002483	186002483	186002484	—	—
Clear Polyester Heat Seal, 100/pk	186002788	186002788	186002788	186002788	186002788	186002788
Aluminum Foil Laminate Heat Seal, 100/pk	186002789	186002789	186002789	186002789	186002789	186002789
Adhesive Seal,* 100/pk	186006336	186006336	186006336	186006336	186006336	186006336
Number of Plates in Sample Organizer	21	10	10	7	10	21
Shape	Round	Round	Round	Square	Square	Square
Bottom	Round	Conical	Conical	Conical	Conical	Conical
Material	PP	PP	PP	PP	PP	PP
Plate Height	14 mm	31 mm	31 mm	42.5 mm	22 mm	15.5 mm
Well Depth	11.25 mm	27 mm	27 mm	39 mm	19.5 mm	12.3 mm
Residual Volume in Alliance 2795 at Default Needle Placement of 2 mm	35 µL	8 µL	15 µL	20 µL	15 µL	15 µL

*Adhesive seal is designed for use with buffer solutions and can tolerate alcohols and acetonitrile content in buffers.

Roller for Cap Mats

Description	P/N
Roller for Cap Mats	186002633

Holder for 12 × 32 mm Vials

Description	P/N
Holder for 12 × 32 mm Vials, 5/pk	186004487

AUTOSAMPLER VIALS FOR WATERS SYSTEMS

Vials for Waters 717 Autosampler

	4 mL Screw Neck	Amber Screw Neck	Total Recovery	PP Screw Neck Vial	PP Conical	Glass Shell Vial	Amber Glass Shell Vial
15 × 45 mm							
48-position Carousel	33	34	35	36	37	38	39
Combination Packs							
Vial, Cap, and LectraBond PTFE/Silicone Septum	186000838C	186001133C	186002629C	–	–	–	–
Combination Deactivated	186000838DV	186001133DV	–	–	–	–	–
Vial, Cap, and LectraBond Pre-slit PTFE/Silicone Septum	186000839C	186001134C	186002630C	–	–	–	–
Combination Deactivated	186000839DV	186001134DV	–	–	–	–	–
Vial and PE Snap Cap	–	–	–	–	186004031	WAT025051	WAT025050
Components							
Vials Only	186000840(DV)	186001135(DV)	186002520	186000999[1]	–	–	–
Max Volume Injection/Max Residual Volume	2400 µL/1600 µL	2400 µL/1600 µL	3000 µL/40 µL	2000 µL/1000 µL	2950 µL/50 µL	2400 µL/1600 µL	2400 µL/1600 µL
Cap LectraBond PTFE/Silicone 100/pk	186000841	186000841	186000841	–	–	–	–
Screw Cap with Bonded PTFE/Silicone Septum, 1000/pk	–	–	–	186000965	–	–	–
Cap LectraBond Pre-slit PTFE/Silicone, 100/pk	186000842	186000842	186000842	–	–	–	–
Black Phenol Cap, 144/pk	WAT072711	WAT072711	WAT072711	–	–	–	–
PTFE Septum, 1440/pk	WAT073005	WAT073005	WAT073005	–	–	–	–
PTFE Septum, 144/pk	WAT072714	WAT072714	WAT072714	–	–	–	–
Self Sealing Septum, 144/pk	WAT022861	WAT022861	WAT022861	–	–	–	–
250 µL Glass Insert[2]	WAT072704(DV)	WAT072704(DV)	–	–	–	–	–
Max Volume Injection/Max Residual Volume	244 µL/6 µL	244 µL/6 µL	–	–	–	–	–
250 µL Glass Insert, 144/pk[2]	WAT015199(DV)	WAT015199(DV)	–	–	–	–	–
Max Volume Injection/Max Residual Volume	230 µL/20 µL	230 µL/20 µL	–	–	–	–	–
250 µL Plastic Conical Insert (PMP), 144/pk[2]	WAT072030	WAT072030	–	–	–	–	–
Max Volume Injection/Max Residual Volume	230 µL/20 µL	230 µL/20 µL	–	–	–	–	–
Springs for LVI, 100/pk	WAT072708	WAT072708	–	–	–	–	–
Storage Cap							
Solid Black Cap with Silicone/ PTFE Liner for Sample Storage	186007224	186007224	186007224	–	–	–	–

When (DV) appears beside the part number, a deactivated version of this product can be ordered by adding DV to the right of the part number.

[1]Item contains 1000 vials.

[2]Inserts require springs, p/n: WAT072708.

Vials for Waters 717 Autosampler

	1 mL Shell	Amber	Total Recovery	PP Conical
8 × 40 mm				
96-position Carousel	40	41	42	43

Components				
Shell Vial and Snap Cap	WAT025054C	WAT025053C	186000837C	WAT022476*
Shell Vial and Snap Cap Deactivated	WAT025054DV	WAT025053DV	186000837DV	—
Pack Size	250	250	100	100
Max Volume Injection/Max Residual Volume	600 µL/400 µL	600 µL/400 µL	700 µL/6 µL	650 µL/50 µL
150 µL Glass Insert (requires spring)	WAT072294(DV)	WAT072294(DV)	—	—
Max Volume Injection/Max Residual Volume	144 µL/6 µL	144 µL/6 µL	—	—
PE Snap Cap, 1000/pk	WAT078515	WAT078515	WAT078515	WAT078515
200 µL PE Vial Insert with Poly Spring, 1000/pk	186001728	186001728	—	—
1 mL Shell Vial Assembled for Dissolution System, 500/pk	WAT022479	—	—	—

All items come in quantities of 100 unless otherwise noted.
When (DV) appears beside the part number, a deactivated version of this product can be ordered by adding DV to the right of the part number.
*Vials not certified.

Vials for GPC 2000

	4 mL Screw Cap	10 mL Screw Neck
		
Vial Number	75	76

Components	P/N	P/N
Vial	186000840	186001420
Black Screw Cap	WAT072711*	186001421
PTFE Septum	WAT072714*	186001422
Black Solid Cap with Silicone/PTFE Liner for Sample Storage, 4 mL	186007224	—

*Item contains 144 pieces.

PATROL™ UPLC Process Analysis System.

Vials for Aqua Analysis System

Components	P/N
22 mL Vial with Pre-slit Silicone/PTFE Septum, 100/pk	186004108
Solid Cap, PTFE/Silicone Liner, 100/pk	186004109
Mailing Box for 22 mL vials, 100/pk	186004111

Vials for PATROL UPLC Process Analysis System

Components	P/N
15 × 75 mm Clear Glass with PTFE/Silicone Non-slit Septum, 100/pk	186004902C
15 × 75 mm Clear Glass with PTFE/Silicone Slit Septum, 100/pk	186004903C
15 × 75 mm Clear Glass Total Recovery Vial only, 100/pk	186007573

Screw Cap Vials for Waters 2707 Autosampler and 2777 Sample Manager

	Clear	Amber	Max Recovery	Amber Max	300 µL PP	10 mL Screw Neck
12 × 32 mm						
Vial Number	44	45	46	47	48	49
LCMS Certified Combination Packs						
Vial, Cap, and Pre-slit Silicone/PTFE Septum	600000668CV	600000669CV	600000670CV	600000755CV	–	–
LC/GC Certified Combination Packs						
Bonded Pre-slit Silicone/PTFE Septum	186000307C	186000847C	186000327C	186003886C	–	–
Bonded Pre-slit Silicone/PTFE Septum Deactivated	186000307DV	186000847DV	186000327DV	–	–	–
Bonded Silicone/PTFE Septum	186000272C	186000846C	186000326C	186003885C	–	–
Combination Packs						
Bonded Pre-slit Silicone/PTFE Septum	–	–	–	–	186002639	–
Bonded Silicone/PTFE Septum	–	–	–	–	186002640	–
Injectable Volumes ACQUITY UPLC						
Max	1600 µL	1600 µL	1100 µL	1100 µL	240 µL	–
Residual	150 µL	150 µL	10 µL	10 µL	10 µL	500 µL*
Components						
150 µL with Poly Spring	WAT094171	WAT094171	–	–	–	–
Max Volume Injection/Max Residual Volume	144 µL/6 µL	144 µL/6 µL	–	–	–	–
22 × 45 mm Clear Glass Vial	–	–	–	–	–	186001420
Cap with X-Slit PTFE Silicone Septa	–	–	–	–	–	186004632
Storage Cap						
Black Solid 9 mm Cap with Silicone/PTFE Liner for Sample Storage	186007187	186007187	186007187	186007187	186007187	–

All items come in quantities of 100 unless otherwise noted. For more details, see vials descriptions on page 71.
*500 µL residual volume for the 2707 Autosampler; 1500 µL residual volume for the 2777 Sample Manager.

Plates for Waters 2707 Autosampler

	96-well Plates				384-well Plates	
Well Shape						
Plates	186002643	186005837	186002481	186002482	186002632	186002631
Pack Size	100	25	50	50	50	50
Well Volume	350 µL	700 µL	800 µL	2 mL	250 µL	100 µL
Sealing Options						
PTFE/Silicone, 5/pk	186006333	186006333	186006333	186006334	–	–
PTFE/Silicone, Pre-slit, 5/pk	186006332	186006332	186006332	186006335	–	–
Polypropylene Cap Mat, 50/pk	186002483	186002483	186002483	186002484	–	–
Clear Polyester Heat Seal, 100/pk	186002788	186002788	186002788	186002788	186002788	186002788
Aluminum Foil Laminate Heat Seal, 100/pk	186002789	186002789	186002789	186002789	186002789	186002789
Adhesive Seal,* 100/pk	186006336	186006336	186006336	186006336	186006336	186006336
Residual Volume	125 µL	20 µL	40 µL	60 µL	40 µL	40 µL

*Adhesive seal is designed for use with buffer solutions and can tolerate alcohols and acetonitrile content in buffers.

AUTOSAMPLER VIALS FOR COMPATIBLE SYSTEMS

Waters' high-quality vials are compatible with other manufacturers' autosamplers. The following tables serve as a quick selection guide.

Ordering Information

Snap and Crimp Cap (9 mm) Vials for Compatible Systems

	Clear	Amber	Max Recovery	Qsert Vial	PP 300 µL	PP 750 µL	Clear Crimp	Amber Crimp
12 × 32 mm								
Vial Number	**60**	**61**	**62**	**63**	**64**	**65**	**66**	**67**
Compatible Systems								
Agilent Technologies, Beckman, Dynatech, Finnigan, Fisons, Gilson, Hitachi, LDC, Perkin-Elmer, Shimadzu, Spectra-Physics, Varian	•	•	•	•	•	•	•	•
CTC, Spark, Thermal Separations	–	–	–	–	–	–	•	•
Combination Packs								
Vial, Cap, and Silicone/PTFE Septum	–	–	–	186001124(DV)	186002642	186005223	–	–
Vial, Cap, and Pre-slit Silicone/PTFE Septum	–	–	–	186001125(DV)	186002641	186005222	–	–
Vial, Cap, and PTFE Septum	–	–	–	186001127(DV)	–	–	–	–
Vials Only								
Vials Only	WAT094219	WAT094220	186000984	–	186002628	186005224	WAT094222	WAT094223
Deactivated Vials Only	WAT094219DV	WAT094220DV	186000984DV	–	–	–	WAT094222DV	WAT094223DV
Inserts								
300 µL with Poly Spring	WAT094170(DV)	WAT094170(DV)	–	–	–	–	WAT094170(DV)	WAT094170(DV)
150 µL with Poly Spring	WAT094171(DV)	WAT094171(DV)	–	–	–	–	WAT094171(DV)	WAT094171(DV)
Snap Cap and Septum–Silicone/PTFE								
Blue	186000303	186000303	186000303	186000303	186000303	186000303	–	–
Black	186002649	186002649	186002649	186002649	186002649	186002649	–	–
Red	186002650	186002650	186002650	186002650	186002650	186002650	–	–
Snap Cap and Pre-slit Septum–Silicone/PTFE								
Blue	186000304	186000304	186000304	186000304	186000304	186000304	–	–
Black	186002648	186002648	186002648	186002648	186002648	186002648	–	–
Red	186002647	186002647	186002647	186002647	186002647	186002647	–	–
Snap Cap and PTFE Septum								
Blue	186000328	186000328	186000328	186000328	186000328	186000328	–	–
Black	186002645	186002645	186002645	186002645	186002645	186002645	–	–
Red	186002646	186002646	186002646	186002646	186002646	186002646	–	–
Crimp Cap								
Crimp Cap Silicone/PTFE Septum	–	–	–	–	–	–	PSL404219	PSL404219
Crimp Cap PTFE/Silicone/PTFE Septum	–	–	–	–	–	–	PSL404231	PSL404231

All items come in quantities of 100 unless otherwise noted.
When (DV) appears beside the part number, a deactivated version of this product can be ordered by adding DV to the right of the part number.

Screw Cap Vials for Compatible Systems

	Clear	Amber	Amber Max Recovery	Clear Glass Max Recovery	Qsert Vial	Amber Qsert	PP 300 µL	PP 750 µL	10 mm Cap	PP 250 µL 8 mm Cap
12 × 32 mm										
Vial Number	50	51	52	53	54	55	56	57	58	59
Compatible Systems										
Agilent Technologies	•	•	•	•	•	•	•	•	–	–
Alcott, Antek, CTC, Spark Thermal Separations	–	–	–	–	–	–	–	–	•	•
Beckman, Dynatech, Finnigan, Fisons, Gilson	•	•	•	•	•	•	•	•	–	–
Hitachi, LDC, Perkin-Elmer, Shimadzu, Spectra-Physics, Thermo, Varian	•	•	•	•	•	•	•	•	•	•
LCMS Certified Combination Packs										
Vial, Cap, and Silicone/PTFE Septum	600000751CV	600000752CV	600000754CV	600000749CV	–	–	–	–	–	–
Vial, Cap, and Pre-slit Silicone/PTFE Septum	600000668CV	600000669CV	600000755CV	600000670CV	–	–	–	–	–	–
LC/GC Certified Combination Packs										
Bonded Silicone/ PTFE Septum	186000272C	186000846C	186003885C	186000326C	186001126C	186001130C	–	–	WAT270946C[1]	–
Combination Deactivated[2]	186000272DV	186000846DV	–	186000326DV	186001126DV	186001130DV	–	–	WAT270946DV	–
Bonded Pre-slit Silicone/ PTFE Septum	186000307C	186000847C	186003886C	186000327C	186001128C	186001131C	–	–	–	–
Combination Deactivated[2]	186000307DV	186000847DV	–	186000327DV	186001128DV	186001131DV	–	–	–	–
Combination Packs										
Bonded Silicone/PTFE Septum	–	–	–	–	–	–	186002640	186005220	–	–
Bonded Pre-slit Silicone/PTFE Septum	–	–	–	–	–	–	186002639	186005221	–	–
Vials Only										
Vials Only	186000273	186000848	–	186002802	186002804	186002803	186002626	186005219	WAT063300	WAT094172
Deactivated Vials Only	186000273DV	186000848DV	–	–	–	–	–	–	WAT063300DV	–
Inserts										
300 µL with Poly Spring	WAT094170	WAT094170	–	–	–		–	–	WAT094170	–
300 µL with Poly Spring Deactivated	WAT094170DV	WAT094170DV	–	–	–	–	–	–	WAT094170DV	–
150 µL with Poly Spring	WAT094171	WAT094171	–	–	–	–	–	–	WAT094171	–
150 µL with Poly Spring Deactivated	WAT094171DV	WAT094171DV	–	–	–	–	–	–	WAT094171DV	–

All items come in quantities of 100 unless otherwise noted.
[1] Septum not bonded.
[2] Not certified.

Screw Cap Vials for Compatible Systems

	Clear	Amber	Amber Max Recovery	Clear Glass Max Recovery	Qsert Vial	Amber Qsert	PP 300 µL	PP 750 µL	10 mm Cap	PP 250 µL 8 mm Cap
12 × 32 mm										
Vial Number	50	51	52	53	54	55	56	57	58	59
Compatible Systems										
Agilent Technologies	•	•	•	•	•	•	•	•	–	–
Alcott, Antek, CTC, Spark Thermal Separations	–	–	–	–	–	–	–	–	•	•
Beckman, Dynatech, Finnigan, Fisons, Gilson	•	•	•	•	•	•	•	•	–	–
Hitachi, LDC, Perkin-Elmer, Shimadzu, Spectra-Physics, Thermo, Varian	•	•	•	•	•	•	•	•	•	•
Cap and Septum										
PE Septumless Caps	186004169	186004169	186004169	186004169	186004169	186004169	186004169	186004169	–	–
Black Cap	–	–	–	–	–	–	–	–	WAT058875	186004717
Cap and Septum, Silicone/PTFE, Assembled	–	–	–	–	–	–	–	–	–	WAT094174
Septum Only, PTFE/Silicone, Pre-slit	–	–	–	–	–	–	–	–	–	WAT058876
Septum Only, Silicone/PTFE	–	–	–	–	–	–	–	–	WAT058874	WAT210685
Septum Only, PTFE	–	–	–	–	–	–	–	–	–	WAT058886
Screw Cap and Septum–Silicone/PTFE										
Blue LectraBond	186000274	186000274	186000274	186000274	186000274	186000274	186000274	186000274	–	–
Red LectraBond	186002129	186002129	186002129	186002129	186002129	186002129	186002129	186002129	–	–
Green LectraBond	186002130	186002130	186002130	186002130	186002130	186002130	186002130	186002130	–	–
Screw Cap and Pre-slit Septum–Silicone/PTFE										
Blue LectraBond	186000305	186000305	186000305	186000305	186000305	186000305	186000305	186000305	–	–
Red LectraBond	186002128	186002128	186002128	186002128	186002128	186002128	186002128	186002128	–	–
Green LectraBond	186002127	186002127	186002127	186002127	186002127	186002127	186002127	186002127	–	–
Storage Cap										
Black Solid Cap 9 mm with Silicone/PTFE Liner	186007187	186007187	186007187	186007187	186007187	186007187	186007187	186007187	–	–

All items come in quantities of 100 unless otherwise noted.

APPLICATION AREA: Pharmacokinetics, Drug Metabolism, Proteomics

"The best vials I have used. It not only provides reproducible results, but also it is easy to use. It's the best choice for your sample, especially for the precious samples."

REVIEWER: Zhihong Peng

ORGANIZATION: University of Notre Dame

Vials for Compatible Systems

	4 mL Screw Neck	Amber Screw Neck	Total Recovery	PP Screw Neck Vial	PP Snap Cap	Glass Shell Vial	Amber Glass Shell Vial
15 × 45 mm							
Vial Number	68	69	70	71	72	73	74
Compatible Systems							
Bruker, Kontron, Perkin-Elmer, Shimadzu, Tosoh, Unicam	•	•	•	•	•	•	•
Combination Packs							
Vial, Cap, and LectraBond PTFE/Silicone Septum	186000838C	186001133C	186002629C	–	–	–	–
Combination Deactivated	186000838DV	186001133DV	–	–	–	–	–
Vial, Cap, and LectraBond Pre-slit PTFE/Silicone Septum	186000839C	186001134C	186002630C		–	–	–
Combination Deactivated	186000839DV	186001134DV	–	–	–	–	–
Vial and PE Snap Cap	–	–	–	–	186004031	WAT025051	WAT025050
Components							
Vials Only	186000840	186001135	186002520	186000999[1]	–	–	–
Deactivated Vials Only	186000840DV	186001135DV	–	–	–	–	–
LectraBond Cap and Septum							
Black Cap PTFE/Silicone, 100/pk	186000841	186000841	186000841	–	–	–	–
Screw Cap with Bonded PTFE/Silicone Septum, 1000/pk	–	–	–	186000965	–	–	–
Black Cap Pre-slit PTFE/Silicone, 100/pk	186000842	186000842	186000842	–	–	–	–
Caps, Septa, and Inserts							
Black Phenol Cap, 144/pk	WAT072711	WAT072711	WAT072711	–	–	–	–
PTFE Septum, 1440/pk	WAT073005	WAT073005	WAT073005	–	–	–	–
PTFE Septum, 144/pk	WAT072714	WAT072714	WAT072714	–	–	–	–
Self Sealing Septum, 144/pk	WAT022861	WAT022861	WAT022861	–	–	–	–
250 µL Glass Insert	WAT072704	WAT072704	WAT072704	–	–	–	–
250 µL Glass Insert Deactivated	WAT072704DV	WAT072704DV	WAT072704DV	–	–	–	–
250 µL Glass Insert, 144/pk	WAT015199	WAT015199	WAT015199	–	–	–	–
250 µL Glass Insert, Deactivated, 144/pk	WAT015199DV	WAT015199DV	WAT015199DV	–	–	–	–
250 µL Plastic Conical Insert (PMP), 144/pk	WAT072030	WAT072030	WAT072030	–	–	–	–
Springs for LVI, 100/pk	WAT072708	WAT072708	WAT072708	–	–	–	–
Storage Cap							
Black Solid Cap with Silicone/PTFE Liner for Sample Storage, 100/pk	186007224	186007224	186007224	–	–	–	–

[1]Item contains 1000 vials.

Beware of Poor Quality Look-Alike Vials

- Only Waters Alliance Total Recovery Vials and Maximum Recovery Vials utilize a proprietary manufacturing process, ensuring that the slope of the internal taper will deliver all of the sample to the bottom of the vial
- The bottom thickness is held to a close tolerance, eliminating needle damage caused by bottoming out

Vials Descriptions

Vials for ACQUITY UPLC Systems

Vial Number	Screw Cap 12 × 32 mm Vials for ACQUITY UPLC Systems
1	Clear 12 × 32, Type 1, 33-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
2	Amber 12 × 32, Type 1, 51-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
3	Clear Maximum Recovery, 12 × 32, Type 1, 33-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
4	Amber Maximum Recovery, 12 × 32, Type 1, 51-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
5	Polypropylene 12 × 32, 300 µL, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap). Reformulate clean PP vial.
6	Polypropylene 12 × 32, 750 µL, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap). Reformulate clean PP vial.
7	Clear 12 × 32, Type 1, 33-Expansion Glass, Screw Neck with Quick Thread Design, (6 mm opening, 9 mm septumless cap).
8	Total Recovery, 12 × 32, Type 1, 33-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).

Vials for Alliance Systems

Number	Most Commonly Used Vials for Alliance Systems
9	Clear, 12 × 32, Type 1, 33-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
10	Amber, 12 × 32, Type 1, 51-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
11	Clear Maximum Recovery, 12 × 32, Type 1, 33-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
12	Polypropylene, 12 × 32, 300 µL, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap). Reformulate clean PP vial.
13	Clear, 12 × 32, Type 1, 33-Expansion Glass, Screw Neck (7 mm opening, 10 mm cap).
14	Clear Total Recovery, 12 × 32, Type 1, 33-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
15	Amber Maximum Recovery, 12 × 32, Type 1, 51-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
16	Clear, 12 × 32, Type 1, 33-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm septumless cap).

Number	Screw Cap 12 × 32 mm Vials for Alliance Systems
17	Clear, 12 × 32, Type 1, 33-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
18	Amber, 12 × 32, Type 1, 51-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
19	Clear Maximum Recovery, 12 × 32, Type 1, 33-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
20	Polypropylene, 12 × 32, 300 µL, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap). Reformulate clean PP vial.
21	Polypropylene, 12 × 32, 750 µL, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap). Reformulate clean PP vial.
22	Clear, 12 × 32, Type 1, 33-Expansion Glass, Screw Neck (7 mm opening, 10 mm cap).
23	Clear Total Recovery, 12 × 32, Type 1, 33-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
24	Amber Maximum Recovery, 12 × 32, Type 1, 51-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).

Number	Snap Cap 12 × 32 mm Vials for Alliance Systems
25	Clear, 12 × 32, Type 1, 33-Expansion Glass, Snap Cap (6 mm opening, 9 mm cap).
26	Amber, 12 × 32, Type 1, 51-Expansion Glass, Snap Cap (6 mm opening, 9 mm cap).
27	Clear Maximum Recovery, 12 × 32, Type 1, 33-Expansion Glass, Snap Cap (6 mm opening, 9 mm cap).
28	Polypropylene, 12 × 32, 300 µL, Snap Cap (6 mm opening, 9 mm cap). Reformulate clean PP vial.
29	Polypropylene, 12 × 32, 750 µL, Snap Cap (6 mm opening, 9 mm cap). Reformulate clean PP vial.
30	Clear, 12 × 32, Type 1, 33-Expansion Glass, Crimp Top (6 mm opening, 12 mm cap).
31	Amber, 12 × 32, Type 1, 51-Expansion Glass, Crimp Top (6 mm opening, 12 mm cap).
32	Clear Total Recovery, 12 × 32, Type 1, 33-Expansion Glass, Snap Cap (6 mm opening, 9 mm cap).

Number	15 × 45 mm Vials for Waters 717 Autosampler
33	Clear, 15 × 45, Type 1, 33-Expansion Glass, Screw Neck.
34	Amber, 15 × 45, Type 1, 51-Expansion Glass, Screw Neck.
35	Clear Glass Total Recovery, 15 × 45, Type 1, 33-Expansion Glass Screw Neck.
36	Polypropylene, 15 × 45, 3 mL Round Bottom, Screw Neck.
37	Polypropylene Snap Cap with Conical Bottom, PE Snap Caps.
38	4 mL Glass Shell, Type 1, 51-Expansion Glass with Polyethylene Snap Cap.
39	4 mL Amber Shell, Type 1, 51-Expansion Glass with Polyethylene Snap Cap.

Number	8 × 40 mm Vials for Waters 717 Autosampler
40	1 mL Clear Glass Shell, (8 × 40 mm), Type 1, 51-Expansion Glass with Polyethylene Snap Cap.
41	1 mL Amber Glass Shell, (8 × 40 mm), Type 1, 51-Expansion Glass with Polyethylene Snap Cap.
42	Clear Glass Total Recovery, (8 × 40 mm), Type 1, 51-Expansion Glass with Polyethylene Snap Cap.
43	650 µL Polypropylene (8 × 40 mm), with Polyethylene Snap Cap.

Vials for Compatible Systems

Number	Vials for Waters 2707 Autosampler
44	Clear, 12 × 32, Type 1, 33-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
45	Amber, 12 × 32, Type 1, 51-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
46	Maximum Recovery, 12 × 32, Type 1, 33-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
47	Amber Maximum Recovery, 12 × 32, Type 1, 51-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
48	Polypropylene, 12 × 32, 300 µL, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap). Reformulate clean PP vial.
49	Clear, 22 × 45 mm, Type I, 33-Expansion Glass with Screw Neck.

Number	Screw Cap 12 × 32 mm Vials for Compatible Systems
50	Clear, 12 × 32, Type 1, 33-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
51	Amber, 12 × 32, Type 1, 51-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
52	Amber Maximum Recovery, 12 × 32, Type 1, 51-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
53	Clear Maximum Recovery, 12 × 32, Type 1, 33-Expansion Glass, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap).
54	Qsert Clear Screw Cap Glass, Quick Thread Design with Fused in Glass Insert (6 mm opening, 9 mm cap).
55	Qsert Amber Screw Cap Glass, Quick Thread Design with Fused in Glass Insert (6 mm opening, 9 mm cap).
56	Polypropylene, 12 × 32, 300 µL, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap). Reformulate clean PP vial.
57	Polypropylene, 12 × 32, 750 µL, Screw Neck with Quick Thread Design (6 mm opening, 9 mm cap). Reformulate clean PP vial.
58	Clear, 12 × 32, Type 1, 33-Expansion Glass, Screw Neck (6 mm opening, 10 mm cap).
59	Polypropylene, 12 × 32, 250 µL, Screw Neck (6 mm opening, 8 mm cap).

Number	Snap and Crimp Cap 12 × 32 mm (9 mm Cap) Vials for Compatible Systems
60	Clear, 12 × 32, Type 1, 33-Expansion Glass, Snap Cap (6 mm opening, 9 mm cap).
61	Amber, 12 × 32, Type 1, 51-Expansion Glass, Snap Cap (6 mm opening, 9 mm cap).
62	Maximum Recovery, 12 × 32, Type 1, 33-Expansion Glass, Snap Cap (6 mm opening, 9 mm cap).
63	Qsert Clear Snap Cap Glass with Fused in Glass Insert (6 mm opening, 9 mm cap).
64	Polypropylene, 12 × 32, 300 µL with Snap Cap (6 mm opening, 9 mm cap). Reformulate clean PP vial.
65	Polypropylene, 12 × 32, 750 µL with Snap Cap (6 mm opening, 9 mm cap). Reformulate clean PP vial.
66	Clear, 12 × 32, Type 1, 33-Expansion Glass with Crimp Top (6 mm opening, 12 mm cap).
67	Amber, 12 × 32, Type 1, 51-Expansion Glass with Crimp Top (6 mm opening, 12 mm cap).

Vial Number	15 × 45 mm Vials for Compatible Systems
68	Clear, 15 × 45, Type 1, 33-Expansion Glass with Screw Neck.
69	Amber, 15 × 45, Type 1, 51-Expansion Glass with Screw Neck.
70	Clear Glass Total Recovery, 15 × 45, Type 1, 33-Expansion Glass with Screw Neck.
71	Polypropylene, 15 × 45, 3 mL Screw Neck.
72	Polypropylene Snap Cap with Conical Bottom, PE Snap Caps.
73	4 mL Glass Shell, Type 1, 51-Expansion Glass with Polyethylene Snap Cap.
74	4 mL Amber Shell, Type 1, 51-Expansion Glass with Polyethylene Snap Cap.

Vial Number	15 × 45 mm Vials for Compatible Systems: GPC 2000 Vials
75	4 mL Glass Screw Neck, Type 1, 33-Expansion Glass.
76	10 mL Screw Neck Glass.

Vials Troubleshooting Guide

Problem	Impact	Solution
Septum dislodged during shipment or use	▪ Need to insert septum or rerun analysis ▪ Loss of time	▪ Check to see if needle is piercing in center of septa ▪ Check to see if needle is sharp
Vacuum forms in vial during sample draw	▪ Sample spill over ▪ Sample draw reproducibility problems	▪ Use pre-slit septa, which provides proper venting, eliminating sample spill over and insuring reproducible sample draw volumes*
Sample-limited applications require the use of cumbersome low-volume inserts	▪ Increased labor required for inserting the LVI into the vial leads to delays in sample processing ▪ Increased labor time and difficulty when pipetting into small neck opening of LVI ▪ Additional handling increases chance of contamination ▪ Increased costs from purchasing multiple components: vial, cap, and LVI	▪ Use Waters Total Recovery Vial and Maximum Recovery Vial: – No need to use LVIs – Wide neck opening for easy sample pipetting – One less handling step reduces chance of contamination – Only need one component, saving storage space and costs
Need to perform multiple injections with minimum residual volume in each vial requires LVI to obtain minimum residual volume, but maximum capacity is only 300 µL	▪ Increased labor to fill additional sample vials ▪ Increased cost to purchase additional sample vials and LVIs	▪ Use Waters Total Recovery Vial and Maximum Recovery Vial ▪ The increased capacity and low residual volume allows you to perform multiple injections with minimum residual volume in a single vial
Need to use glass inserts in a 96-well plate format but it requires capping each insert one at a time.	▪ Delay in sample processing	▪ The glass inserts in the Waters 96-well format allows for the use of a sealing cap mat, saving time and labor
Frequent needle damage	▪ Downtime causing missed deadlines ▪ Cost of repairs	▪ All Waters vials have dimensional specifications that eliminate the potential of needle damage
Laboratory owns HPLC instruments from several different manufacturers	▪ Purchasing several different vials ▪ Increased number of purchase orders ▪ Unable to take advantage of quantity discounts, leading to higher costs	▪ The tight dimensional tolerances on all Waters vials and accessories make them ideal for use with virtually all HPLC systems ▪ Reduce the number of purchase orders and take advantage of quantity discounts by buying all your sample vials from Waters
Analyte compounds are sticking to the glass surface of the vial	▪ Loss of sample ▪ Loss of time ▪ Need to run the analysis again	▪ Deactivated glass vials and inserts: Waters uses a gas phase deactivation process that renders the glass surface inert. Unlike other deactivated vials, the surface modification is permanent, resulting in an indefinite shelf life
Inconsistent quality between laboratory sites	▪ N/A	▪ Waters vials are distributed worldwide from the same source

*Adjust sample draw rate to a slower speed (refer to your sample manager's operator guide on how to adjust draw rate).

Certified Containers

Certified Containers are designed to provide every chromatography and mass spectrometry scientist with mobile phase containers free from extraneous peaks and background noise that may result from high total organic carbon (TOC). This added attention to detail results in the cleanest and highest quality mobile phase reservoirs, which can be extremely critical when high sensitivity is required. Each Certified Container is constructed of Type 1, Class A borosilicate glass processed to contain <15 ppb TOC, making them ultra clean for high sensitivity chromatography or mass spectrometry analysis. To maintain this level of cleanliness after manufacture, each Certified Container is individually sealed in a Mylar bag to prevent particulate and phthalate contamination. Each container is supplied with a Certificate of Analysis that documents TOC level.

Ordering Information

Certified Containers

Description	Contents	P/N
Certified Container Kit	Kit contains: (4) 1 L certified containers, (3) 500 mL certified containers, (1) certified container cap kit	186007088
Certified Container, 1000 mL	1 certified container	186007089
Certified Container, 500 mL	1 certified container	186007090
Certified Container Cap Kit	Certified container cap kit contains 7 solid caps and 7 open caps with liners and plugs	205000642
Certified Container Low Volume Kit	Kit contains: (5) 250 mL certified containers, (1) 500 mL certified container, (1) certified container cap kit	186007278

Related Parts to Certified Containers

Description	P/N
Solvent Bottle Caps, 4 L, 4/pk - fits all certified containers	WAT062341
ACQUITY/Alliance Bottle Accessory Kit	205000589
Solvent Bottle Filter, 1/pk	700003615
Solvent Bottle Filter, 7/pk	700003616

APPLICATION AREA: Analyze Mycotoxins in Animal Feed

"TruView vials provide the quality product needed for our process. Amber glass protects our solution from degradation and the slated glass is critical in avoiding compound plating out on the glass. The slit top caps reduce pressure on the injection needle and we feel it maintains even atmospheric pressure in the vial resulting in consistent needle draws. The vials are easy to manipulate and cap. Waters provides superb support and sales follow up and the price has stayed quite stable for a while now."

REVIEWER: Steven Mobley

ORGANIZATION: Alltech

For additional information, please go to waters.com/certifiedcontainers