Column Selection

Our quality mission is to ensure that the Waters' Columns you use today are the most reproducible and reliable LC columns available. As a primary manufacturer of silica and hybrid particles, scientists can be assured of consistent column performance, batch-to-batch reproducibility, and product availability over the life of the analytical method.

The following table lists all Waters Column Brands that are registered according to classifications prescribed in the United States Pharmacopeia (USP).

USP "L" COLUMN LISTING

L1	Octadecyl silane chemically bonded to porous or nonporous silica particles or superficially porous particles or ceramic micro-particles, 1.5 to 10 µm in diameter, or a monolithic rod	
Brand	**Particle Size**	**Type**
AccQTag Ultra RP C_{18}	1.7 µm	Spherical
ACQUITY UPLC BEH C_{18}	1.7 µm	Spherical
ACQUITY UPLC BEH Shield RP18	1.7 µm	Spherical
ACQUITY UPLC CSH C_{18}	1.7 µm	Spherical
ACQUITY UPLC HSS C_{18}	1.7 µm	Spherical
ACQUITY UPLC HSS C_{18} SB	1.7 µm	Spherical
ACQUITY UPLC HSS T3	1.7 µm	Spherical
ACQUITY UPLC Oligonucleotide C_{18}	1.7 µm	Spherical
ACQUITY UPLC Peptide BEH C_{18}	1.7 µm	Spherical
ACQUITY Premier BEH C_{18}	1.7 µm	Spherical
ACQUITY Premier HSS T3	187 µm	Spherical
ACQUITY Premier Peptide BEH C_{18}	1.7 µm	Spherical
ACQUITY Premier Oligonucleotide C_{18}	1.7 µm	Spherical
ACQUITY Premier Shield RP18	1.7 µm	Spherical
ACQUITY Premier CSH C_{18}	1.7 µm	Spherical
XBridge Premier C_{18}	2.5, 3.5 µm	Spherical
XBridge Premier Shield RP18	2.5 µm	Spherical
XBridge Premier Peptide 130 Å	2.5 µm	Spherical
XBridge Premier Peptide 300 Å	2.5 µm	Spherical
XBridge Premier Oligonucleotide C_{18}	2.5 µm	Spherical
XSelect Premier CSH C_{18}	2.5, 3.5 µm	Spherical
XSelect Premier HSS T3	2.5 µm	Spherical
Atlantis dC_{18}	3, 5, 10 µm	Spherical
Atlantis T3	3, 5, 10 µm	Spherical
CORTECS C_{18}	2.7 µm	Spherical
CORTECS C_{18}+	2.7 µm	Spherical
CORTECS Shield RP18	2.7 µm	Spherical
CORTECS T3	2.7 µm	Spherical
CORTECS UPLC C_{18}	1.6 µm	Spherical
CORTECS Premier C_{18}	1.6, 2.7 µm	Spherical
CORTECS Premier C_{18}+	1.6, 2.7 µm	Spherical
CORTECS Premier T3	1.6, 2.7 µm	Spherical

L1	Octadecyl silane chemically bonded to porous or nonporous silica particles or superficially porous particles or ceramic micro-particles, 1.5 to 10 µm in diameter, or a monolithic rod	
Brand	**Particle Size**	**Type**
CORTECS UPLC C_{18}+	1.6 µm	Spherical
CORTECS UPLC Shield RP18	1.6 µm	Spherical
CORTECS UPLC T3	1.6 µm	Spherical
Delta-Pak C_{18}	5 µm	Spherical
µBondapak C_{18}	10 µm	Irregular
µBondapak C_{18} Radial-Pak	10 µm	Irregular
Nova-Pak C_{18}	4, 6 µm	Spherical
Prep Nova-Pak HR C_{18}	6 µm	Spherical
Radial-Pak C_{18}	Spherical	Spherical
Resolve C_{18}	5, 10 µm	Spherical
Spherisorb ODS1	3, 5, 10 µm	Spherical
Spherisorb ODS2	3, 5, 10 µm	Spherical
Spherisorb ODS-B	5 µm	Spherical
SunFire C_{18}	2.5, 3.5, 5, 10 µm	Spherical
Symmetry C_{18}	3.5, 5 µm	Spherical
SymmetryPrep C_{18}	5, 7 µm	Spherical
Symmetry 300 C_{18}	3.5, 5 µm	Spherical
SymmetryShield RP18	3.5, 5 µm	Spherical
XBridge C_{18}	2.5, 3.5, 5, 10 µm	Spherical
XBridge Peptide BEH, 130 Å	3.5, 5, 10 µm	Spherical
XBridge Peptide BEH, 300 Å	3.5, 5, 10 µm	Spherical
XBridge BEH C_{18}	2.5, 3.5, 5, 10 µm	Spherical
XBridge Oligonucleotide C_{18}	2.5 µm	Spherical
XBridge Shield RP18	2.5, 3.5, 5, 10 µm	Spherical
XSelect CSH C_{18}	2.5, 3.5, 5 µm	Spherical
XSelect HSS C_{18}	2.5, 3.5, 5 µm	Spherical
XSelect HSS C_{18} SB	2.5, 3.5, 5 µm	Spherical
XSelect HSS T3	2.5, 3.5, 5 µm	Spherical
XTerra MS C_{18}	2.5, 3.5, 5, 10 µm	Spherical
XTerra RP18	3.5, 5, 10 µm	Spherical

( ) - Denotes particle sizes available outside of L class.

Source: United States Pharmacopeia.

L2 Octadecyl silane chemically bonded to silica gel of a controlled surface porosity that has been bonded to a solid spherical core, 30 to 50 µm in diameter

Brand	Particle Size	Type
Bondapak Prep C_{18}	15–20 µm	Irregular

L3 Porous silica particles or superficially porous particles, 1.5 - 10 µm in diameter, or a monolithic rod

Brand	Particle Size	Type
ACQUITY UPLC BEH HILIC	1.7 µm	Spherical
Atlantis HILIC Silica	3, 5 µm	Spherical
CORTECS HILIC	2.7 µm	Spherical
CORTECS UPLC HILIC	1.6 µm	Spherical
µPorasil	10 µm	Spherical
Nova-Pak Silica	4, 6 µm	Spherical
Prep Nova-Pak HR Silica	6 µm	Spherical
Resolve Silica	5, 10 µm	Spherical
Spherisorb Silica	3, 5, 10 µm	Spherical
SunFire Silica	5, 10 µm	Spherical
XBridge BEH HILIC	2.5, 3.5, 5, 10 µm	Spherical
XBridge Premier BEH HILIC	2.5 µm	Spherical
ACQUITY Premier BEH HILIC	1.7 µm	Spherical
ACQUITY Premier Glycan BEH HILIC	1.7 µm	Spherical

L4 Silica gel of controlled surface porosiy bonded to a solid spherical core, 30 to 50 µm in diameter

Brand	Particle Size	Type
Porasil Prep Silica	15–20 µm	Spherical

L7 Octylsilane chemically bonded to totally or superficially porous silica particles, 1.5 to 10 µm in diameter, or a monolithic silica rod

Brand	Particle Size	Type
ACQUITY UPLC BEH C_8	1.7 µm	Spherical
CORTECS C_8	2.7 µm	Spherical
CORTECS UPLC C_8	1.6 µm	Spherical
CORTECS Phenyl	2.7 µm	Spherical
CORTECS UPLC Phenyl	1.6 µm	Spherical
Nova-Pak C_8	4, 6 µm	Spherical
Resolve C_8	10 µm	Spherical
Spherisorb C_8	3, 5, 10 µm	Spherical
SunFire C_8 Silica	3.5, 5, 10 µm	Spherical
Symmetry C_8	3.5, 5, 7 µm	Spherical
SymmetryPrep C_8	7 µm	Spherical
SymmetryShield RP8	3.5, 5 µm	Spherical
XBridge BEH C_8	2.5 3.5, 5, 10 µm	Spherical
XTerra MS C_8	2.5 3.5, 5, 10 µm	Spherical
XTerra Shield RP8	3.5, 5, 10 µm	Spherical
XBridge Premier BEH C_8	2.5 µm	Spherical
ACQUITY Premier BEH C_8	1.7 µm	Spherical

( ) - Denotes particle sizes available outside of L class.

Source: United States Pharmacopeia.

L8 An essentially monomolecular layer of aminopropylsilane chemically bonded to totally porous silica gel support, 1.5 to 10 µm in diameter, or a monolithic silica rod

Brand	Particle Size	Type
High Performance Carbohydrate Analysis	3, 5 µm	–
µBondapak NH_2	10 µm	Irregular
Spherisorb NH_2	3, 5, 10 µm	Spherical

L9 Irregular or spherical, totally porous silica gel having a chemically bonded, strongly acidic cation-exchange coating, 3 to 10 µm in diameter

Brand	Particle Size	Type
Spherisorb SCX	5, 10 µm	Spherical

L10 Nitrile groups chemically bonded to porous silica particles or superficially porous particles, 1.5 to 10 µm in diameter, or a monolithic silica rod

Brand	Particle Size	Type
ACQUITY UPLC HSS CN	1.7 µm	Spherical
µBondapak CN	10 µm	Irregular
NovaPak CN HP	4 µm	Spherical
Resolve CN	10 µm	Spherical
Spherisorb CN	3, 5, 10 µm	Spherical
Spherisorb CN RP	3, 5, 10 µm	Spherical
XSelect HSS CN	2.5, 3.5, 5 µm	Spherical

L11 Phenyl groups chemically bonded to porous or superficially porous silica particles, 1.5 to 10 µm in diameter, or a monolithic silica rod

Brand	Particle Size	Type
ACQUITY UPLC BEH Phenyl	1.7 µm	Spherical
ACQUITY UPLC CSH Phenyl-Hexyl	1.7 µm	Spherical
ACQUITY Premier BEH Phenyl	1.7 µm	Spherical
XSelect Premier CSH Phenyl-Hexyl	1.7 µm	Spherical
CORTECS Phenyl	2.7 µm	Spherical
CORTECS UPLC Phenyl	1.6 µm	Spherical
µBondapak Phenyl	10 µm	Irregular
NovaPak Phenyl	4 µm	Spherical
Spherisorb Phenyl	3, 5, 10 µm	Spherical
XBridge BEH Phenyl	2.5, 3.5, 5 µm	Spherical
XSelect CSH Phenyl-Hexyl	2.5, 3.5, 5 µm	Spherical
XTerra Phenyl	3.5, 5 µm	Spherical
BioResolve RP mAb Polyphenyl	3 µm	Spherical
XBridge Premier BEH Phenyl	2.5 µm	Spherical
XSelect Premier CSH Phenyl-Hexyl	2.5 µm	Spherical

L12 A strong anion-exchange packing made by chemically bonding a quaternary amine to a solid silica spherical core, 30 to 50 µm in diameter

Brand	Particle Size	Type
AccellPlus QMA	40 µm	Irregular

L13 Trimethylsilane chemically bonded to porous silica particles, 3 to 10 µm in diameter

Brand	Particle Size	Type
Spherisorb C_1	3, 5, 10 µm	Spherical

L14 Silica gel having a chemically bonded strongly basic quaternary ammonium anion-exchange coating, 5 to 10 µm in diameter

Brand	Particle Size	Type
Spherisorb SAX	5, 10 µm	Spherical

L15 Hexylsilane chemically bonded to totally porous silica particles, 3 to 10 µm in diameter

Brand	Particle Size	Type
Spherisorb C_6	3, 5, 10 µm	Spherical

L17 Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the hydrogen form, 6 to 12 µm in diameter

Brand	Particle Size	Type
Fast Fruit Juice	N/A	N/A
IC-Pak Cation	10 µm	Irregular
IC-Pak Ion Exclusion	7 µm	Spherical
Shodex RSpak DC-613	6 µm	Spherical

L19 Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the calcium form, 5 to 15 µm in diameter

Brand	Particle Size	Type
Shodex Sugar SC-1011	7 µm	Spherical
Sugar-Pak 1	9 µm	Spherical

L20 Dihydropropane groups chemically bonded to porous silica particles, 1.5 to 10 µm in diameter, or a monolithic silica rod

Brand	Particle Size	Type
ACQUITY BEH200SEC	1.7 µm	Spherical
BioSuite 125, 250, 450 series	4, 5, 8, 10, (13), (17) µm	Spherical
Insulin HMWP	–	N/A
Protein-Pak 60	10 µm	Spherical
Protein-Pak 125	10 µm	Spherical
Protein-Pak 200SW and 300SW	10 µm	Spherical
XBridge Protein BEH SEC, 125 Å	3.5 µm	Spherical
XBridge Protein BEH SEC, 200 Å	3.5 µm	Spherical
XBridge Protein BEH SEC, 450 Å	3.5 µm	Spherical

L21 A rigid, sphericalstyrenedivinylbenzene copolymer, 3 to 30 µm in diameter

Brand	Particle Size	Type
Styragel HR 0.5, 1, 2, 3 and 4	–	Spherical
Styragel HR 4E	–	Spherical
Styragel HR 5E	–	Spherical

L22 A cation-exchange resin made of porous polystyrene gel with sulfonic acid groups, 5 to 15 µm in diameter

Brand	Particle Size	Type
IC-Pak Ion Exclusion	7 µm	Spherical
Shodex RSpak DC-613	6 µm	Spherical
Shodex Sugar SP0810	8 µm	Spherical

L23 An anion-exchange resin made of porous polymethacrylate or polyacrylate gel with quaternary ammonium groups, 7 to 12 µm in size

Brand	Particle Size	Type
BioSuite DEAE	(2.5), 10, 13 µm	Spherical
BioSuite Q AXC	10, 13 µm	Spherical
BioSuite Q-PEEK	10 µm	Spherical
IC-Pak Anion	10 µm	Spherical
IC-Pak A HC	10 µm	Spherical
Protein-Pak Q 8HR	8 µm	Spherical

L25 Packing having the capacity to separate compounds with a molecular weight range from 100–5000 (as determined by polyethylene oxide), applied to neutral, anionic, and cationic water-soluble polymers. A polymethacrylate resin base, cross-linked with polyhydroxylated ether (surface contained some residual carboxyl functional groups) was found suitable

Brand	Particle Size	Type
Ultrahydrogel DP, +120	10 µm	Spherical

L26 Butyl silane chemically bonded to totally porous or superficially porous silica particles, 1.5 to 10 µm in diameter

Brand	Particle Size	Type
ACQUITY UPLC BEH300 C_4	1.7 µm	Spherical
Delta-Pak C_4	5 µm	Spherical
Symmetry300 C_4	3.5, 5 µm	Spherical
XBridge BEH300 C_4	3.5, 5, 10 µm	Spherical
ACQUITY Premier BEH 300 C_4	1.7 µm	Spherical
XBridge Premier BEH 300 C_4	2.5 µm	Spherical

L27 Porous silica particles, 30 to 50 µm in diameter

Brand	Particle Size	Type
Porasil	37–55 µm	Spherical

( ) - Denotes particle sizes available outside of L class.

Source: United States Pharmacopeia.

L33 Packing having the capacity to separate dextrans by molecular size over a range of 4000 to 500,000 Da. It is spherical, silica-based, and processed to provide pH stability

Brand	Particle Size	Type
ACQUITY UPLC Protein BEH SEC, 125 Å	1.7 µm	Spherical
ACQUITY Premier Protein SEC 250 Å	1.7 µm	Spherical
XBridge Premier Protein SEC 250 Å	2.5 µm	Spherical

L34 Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the lead form, 7 to 9 µm in diameter

Brand	Particle Size	Type
Shodex Sugar SP-0810	N/A	Spherical

L37 Packing having the capacity to separate proteins by molecular size over a range of 2000 to 40,000 Da. It is a polymethacrylate gel

Brand	Particle Size	Type
Ultrahydrogel 250	N/A	Spherical

L38 A methacrylate-based size-exclusion packing for water-soluble samples

Brand	Particle Size	Type
Ultrahydrogel series	N/A	Spherical

L39 A hydrophilic polyhydroxymethacrylate gel of totally porous spherical resin

Brand	Particle Size	Type
Ultrahydrogel series	N/A	Spherical

L43 Pentafluorophenyl groups chemically bonded to porous or superficially porous silica particles by a propyl spacer, 1.5 to 10 µm in diameter

Brand	Particle Size	Type
ACQUITY UPLC CSH Fluoro-Phenyl	1.7 µm	Spherical
ACQUITY UPLC HSS PFP	1.8 µm	Spherical
XSelect CSH Fluoro-Phenyl	2.5, 3.5, 5 µm	Spherical
XSelect HSS PFP	2.5, 3.5, 5 µm	Spherical
ACQUITY Premier HSS PFP	1.7 µm	Spherical
XSelect Premier HSS PFP	2.5 µm	Spherical

L55 A strong cation exchange resin made of porous silica coated with polybutadiene-maleic acid copolymer, about 5 µm in diameter

Brand	Particle Size	Type
IC-Pak C M/D	N/A	N/A

L59 Packing having the capacity to separate proteins by molecular weight over the range of 5 to 7000 kDa. The packing is spherical 1.5 - 10 µm silica or hybrid packing with a hydrophilic coating

Brand	Particle Size	Type
ACQUITY BEH200 SEC	1.7 µm	Spherical
BioSuite 125, 250, 450 series	4–17 µm	Spherical
Protein-Pak 60	10 µm	Spherical
Protein-Pak 300SW	10 µm	Spherical
ACQUITY Premier Protein SEC 250 Å	1.7 µm	Spherical
XBridge Premier Protein SEC 250 Å	2.5 µm	Spherical

L68 Spherical, porous silica, 10 µm or less in diameter, the surface of which has been covalently modified with alkyl amide groups and not endcapped

Brand	Particle Size	Type
ACQUITY UPLC Glycan BEH Amide	1.7 µm	Spherical
ACQUITY UPLC BEH Amide	1.7 µm	Spherical
ACQUITY Premier Glycan BEH Amide	1.7 µm	Spherical
ACQUITY Premier BEH Amide	1.7 µm	Spherical
XBridge Premier Glycan BEH Amide	2.5 µm	Spherical
XBridge BEH Amide	2.5, 3.5, 5 µm	Spherical
XBridge Premier BEH Amide	2.5 µm	Spherical
XBridge BEH Amide Glycan	2.5, 3.5 µm	Spherical

L78 A silane ligand that consists of both reversed-phase (an alkyl chain longer than C_8) and anion-exchange (primary, secondary, tertiary, or quartenary amino groups) functional groups chemically bonded to porous or non-porous silica or ceramic micro-particles, 1.0 to 50 µm in diameter, or a monolithic rod.

Brand	Particle Size	Type
Atlantis Premier BEH C_{18} AX	1.7, 2.5, 5 µm	Spherical
ACQUITY Premier Glycan BEH C_{18} AX	1.7 µm	Spherical
XBridge Premier Glycan BEH C_{18} AX	2.5 µm	Spherical

L122 Sulfobetaine graft-polymerized to totally or superficially porous hydrophilic polymer particles, 1.0 to 10 µm in diameter, or a monolithic rod. Packing having densely bonded zwitterionic groups with 1:1 charge balance

Brand	Particle Size	Type
Atlantis Premier BEH Z-HILIC	1.7, 2.5, 5 µm	Spherical

( ) - Denotes particle sizes available outside of L class.

Source: United States Pharmacopeia.