



## LC Columns Physical Characteristics Chart

### UHPLC Columns

Restek Column	End Cap?	Pore Size (Å)	Carbon load (%)	Applications	Chromatographic Properties	Similar Phases	USP Code
<b>Pinnacle DB C8</b>	Y	140	6	Applications similar to Pinnacle DB C18, but with less hydrophobic retention. Less retention can be useful for shortening analysis time, if resolution is adequate.	Highly base-deactivated spherical silica manufactured by Restek. Monomeric C8 bonding. Similar to Pinnacle DB C18, but the shorter alkyl chain provides less hydrophobic retention.	Hypersil BDS C8, Spherisorb C8	L7
<b>Pinnacle DB C18</b>	Y	140	11	Hydrophobic C18 phase suitable for analyses of a wide range of compounds, from acidic through slightly basic.	Highly base-deactivated spherical silica manufactured by Restek. Monomeric C18 bonding.	Hypersil BDS C18, Zorbax Eclipse XDB-C18, Spherisorb ODS	L1
<b>Pinnacle DB Aqueous C18</b>	—	140	6	Ideal for applications that require highly aqueous mobile phases, such as organic acids and water-soluble vitamins.	Highly selective phase for polar analytes. Compatible with highly aqueous (up to 100%) mobile phases. Silica manufactured by Restek.	Aquasil C18, AQUA C18, Hypersil Gold AQ, YMC ODS-Aq	L1
<b>Pinnacle DB Biphenyl</b>	Y	140	8	Excellent choice for the analysis of steroids, tetracyclines, drug metabolites, and other compounds that contain some degree of unsaturation.	Highly base-deactivated spherical silica manufactured by Restek. Unique reversed phase material that displays both increased retention and selectivity for aromatic and/or unsaturated compounds when compared to conventional alkyl and phenyl phases.	Unique	L11
<b>Pinnacle DB IBD</b>	Y	140	—	A polar group assists in deactivating surface silanols and contributes to unique separation selectivities for acids, bases, zwitterions, and other polar compounds.	One of a group of intrinsically base-deactivated (IBD) phases, with a polar group within, or intrinsic to, the alkyl bonded phase. Provides unique selectivity and high level of base deactivation while reducing or eliminating the need for mobile phase additives.	Unique	L68
<b>Pinnacle DB PFP Propyl</b>	Y	140	6	Exhibits excellent peak shapes for a wide range of compounds, including nucleosides, nucleotides, and halogenated compounds.	Highly base-deactivated spherical silica manufactured by Restek. Unique pentafluorophenyl phase with a propyl spacer.	Discovery HS F5	L43
<b>Pinnacle DB Cyano</b>	Y	140	4	Suitable for a wide range of compounds, from acidic through slightly basic. Also useful for confirmation of analyses on a C18 or C8 column. Can be used in normal phase or reversed phase mode of separation.	Highly base-deactivated spherical silica manufactured by Restek. Cyano bonding.	Hypersil BDS Cyano, Spherisorb Cyano, Zorbax Eclipse XDB-CN	L10
<b>Pinnacle DB Silica</b>	—	140	—	Normal phase mode of separation.	Highly base-deactivated spherical silica manufactured by Restek.	—	L3
<b>Pinnacle DB PAH</b>	Y	140	—	Ideal for polycyclic aromatic hydrocarbons.	Specifically designed to resolve complex mixtures of polycyclic aromatic hydrocarbons.	Unique	—

### HPLC Columns

Restek Column	End Cap?	Pore Size (Å)	Carbon load (%)	Applications	Chromatographic Properties	Similar Phases	USP Code
<b>Ultra C1</b>	—	100	5	Alternative selectivity to Ultra C18 or C8 columns, especially for polar analytes. Shortest chain alkyl phase available for reversed phase separations.	Exceptionally stable C1 packing resists hydrolysis, even under acidic mobile phase conditions. Least retentive reversed phase hydrocarbon packing.	Spherisorb C1	L13
<b>Ultra C4</b>	Y	100	9	Ideal for peptides and small proteins.	Exceptionally stable C4 packing, with high bonding coverage and silanol base-deactivation. Exhibits shorter retention than C18 or C8 phases.	Supelcosil Butyl (C4), Delta-Pak C4	L26
<b>Ultra C8</b>	Y	100	12	Selectivity and peak shape similar to Ultra	Very retentive, high-purity, base-deactivated reversed	Luna C8, Symmetry C8,	L7

				C18, but less hydrophobic retention.	phase packing that exhibits excellent peak shape for a wide range of compounds.	Hypersil Gold C8	
<b>Ultra C18</b>	Y	100	20	Ideal for anilines, barbiturates, carbonyls, fat-soluble vitamins, fatty acids, glycerides, phthalates, PTH amino acids, steroids, other acids.	A very retentive, high-purity phase that exhibits excellent peak shape for a wide range of compounds. Recommended as a general purpose reversed phase column.	Discovery C18, Symmetry C18, Hypersil Gold C18, Luna C18, Zorbax C18, Kromasil C18, LiChrospher RP-18, Inertsil ODS-2, Develosil C18	L1
<b>Ultra Aqueous C18</b>	N	100	15	Ideal for analyses that require >90% water in the mobile phase. Excellent for highly water soluble or poorly organic soluble compounds. Excellent for water-soluble vitamins and organic acids.	Highly retentive and selective for reversed phase separations of polar analytes. Highly base deactivated. Compatible with highly aqueous (up to 100%) mobile phases.	AQUA C18, Aquasil C18, Hypersil Gold AQ, YMC ODS-Aq	L1
<b>Ultra Biphenyl</b>	Y	100	15	An excellent choice for the analysis of steroids, tetracyclines, drug metabolites, and other compounds that contain some degree of unsaturation.	A unique reversed phase material that exhibits both increased retention and selectivity for aromatic and/or unsaturated compounds, compared to conventional alkyl and phenyl phases.	Unique	L11
<b>Ultra Aromax</b>	Y	100	17	A very suitable choice for analysis of steroids, tetracyclines, drug metabolites, and other compounds that contain some degree of unsaturation.	A unique reversed phase material that exhibits superior retention and selectivity for aromatic and/or unsaturated compounds, compared to conventional alkyl and phenyl phases. This column is a great alternative to our Biphenyl phase when increased retention is required.	Unique	L11
<b>Ultra IBD</b>	N	100	12	A polar group assists in deactivating surface silanols and contributes to unique separation selectivities for acids, bases, zwitterions, and other polar compounds.	One of a group of intrinsically base-deactivated (IBD) phases, with a polar group within, or intrinsic to, the alkyl bonded phase. Provides unique selectivity and high level of base deactivation while reducing or eliminating the need for mobile phase additives.	SymmetryShield, Discovery ABZ & ABZ+, Prism	L68
<b>Ultra PFP Propyl</b>	Y	100	15	Highly retentive for basic analytes. An excellent phase for separating nucleosides, nucleotides, purines, pyrimidines, and halogenated compounds.	A pentafluorophenyl phase with a propyl spacer.	Discovery HS F5	L43
<b>Ultra Cyano</b>	Y	100	8	Excellent for basic pharmaceuticals, steroids (normal or reversed phase conditions), or other basic compounds.	High-purity cyano phase with reduced silanol activity. Often a better choice than C18 for basic pharmaceuticals. Cyano is the most stable bonded phase for normal phase mode.	Platinum CN, Develosil Cyano, Luna CN, Hypersil Gold CN	L10
<b>Ultra Amino</b>	N	100	2	Superior general purpose amino phase. Ideal for carbohydrates.	Recommended for normal phase analyses of mono- and disaccharides and other similar compounds. Can also serve as a weak anion exchanger, with aqueous buffers.	Platinum Amino, Develosil NH2	L8
<b>Ultra Silica</b>	—	100	—	Ideal for normal phase applications.	High purity, high surface area.	—	L3

## Specialty Columns

Restek Column	End Cap?	Pore Size (Å)	Carbon load (%)	Applications	Chromatographic Properties	Similar Phases	USP Code
<b>Allure AK</b>	Y	60	—	Ideal for the analysis of aldehydes and ketones as DNPH derivatives.	Highly retentive, highly selective phase, developed specifically for the analysis of aldehydes and ketones as DNPH derivatives.	Unique	—
<b>Allure Basix</b>	Y	60	12	Ideal for LC/MS of basic solutes. Excellent for basic pharmaceuticals or other amine-containing compounds.	Highly retentive phase for analytes containing amino functionality.	BetaMax Base, Maxsil CN	L10
<b>Allure Organic Acids</b>	N	60	—	Excellent resolution of challenging organic acids.	Single 30cm column performs equally to two C18 columns in series. (AOAC Method 986.13)	Unique	—
<b>Pinnacle II PAH</b>	Y	110	—	Maximum resolution of polycyclic aromatic hydrocarbons.	Proprietary stationary phase; resolves 16 PAHs in US EPA Method 610. Silica manufactured by Restek.	Unique	—
<b>Ultra Carbamate</b>	—	100	—	Rapid analysis of carbamates.	Proprietary stationary phase can process up to twice as many samples per hour,	Unique	—

					compared to a conventional C18 phase.		
<b>Ultra Quat</b>	—	100	—	Proprietary phase for the analysis of paraquat and diquat and other quaternary amines.	High purity silica.	Unique	—

## Large Molecule Columns

Restek Column	End Cap?	Pore Size (Å)	Carbon load (%)	Applications	Chromatographic Properties	Similar Phases	USP Code
<b>Viva C4</b>	Y	300	3.5	Proteins and other higher molecular weight compounds. Less retentive than C18 and C8 phases.	Silica manufactured by Restek.	BioBasic 4, Symmetry 300 C4, Jupiter 300 C4, Synchronapak C4, 208 TP C4	L26
<b>Viva C8</b>	Y	300	5	Proteins and other higher molecular weight compounds. Less retentive than C18 phase.	Silica manufactured by Restek.	BioBasic 8, Zorbax 300 OSB C8, Synchronapak C8, 208 TP C8	L7
<b>Viva C18</b>	Y	300	9	Proteins and other higher molecular weight compounds.	Silica manufactured by Restek.	BioBasic 18, Symmetry 300 C18, Jupiter 300 C18, Zorbax 300 OSB C18, Synchronapak C18, 208 TP C18	L1
<b>Viva Biphenyl</b>	Y	300	6.7	Exhibits excellent peak shape for a wide range of compounds; ideal for large molecule and biomolecule assays.	Silica manufactured by Restek.	Unique	L11
<b>Viva PFP Propyl</b>	Y	300	5	Exhibits excellent peak shape for a wide range of compounds, including nucleosides, nucleotides, and halogenated compounds.	Silica manufactured by Restek.	Unique	L43
<b>Viva Silica</b>	—	300	—	Normal phase applications for highly retained high molecular weight compounds.	Silica manufactured by Restek.	—	L3