U.S. Pharmacopeia Cross-Reference

L1	Octadecyl silane chemically bonded to porous silica or ceramic microparticles; 1.7 to 10 µm in diameter or a monolithic rod. *Raptor™ ARC-18 (p. 158), Raptor™ C18 (p. 158), Pinnacle® DB Aqueous C18 (p. 163), Pinnacle® DB C18 (p. 166), Ultra Aqueous C18 (p. 169), Ultra C18 (p. 171), Viva C18 (p. 175)*
L3	Porous silica particles; 5 to 10 µm in diameter. *Pinnacle® DB Silica (p. 168), Ultra Silica (p. 174), Viva Silica (p. 177)*
L7	Octylsilane chemically bonded to totally porous silica particles; 1.7 to 10 µm in diameter. *Pinnacle® DB C8 (p. 167), Ultra C8 (p. 172), Viva C8 (p. 175)*
L8	An essentially monomolecular layer of aminopropylsilane chemically bonded to totally porous silica gel support; 3 to 10 µm in diameter. *Ultra Amino (p. 174)*
L10	Nitrile groups chemically bonded to porous silica particles; 3 to 10 µm in diameter. *Pinnacle® DB Cyano (p. 167), Ultra Cyano (p. 174)*
L11	Phenyl groups chemically bonded to porous silica particles; 1.7 to 10 µm in diameter. *Raptor™ Biphenyl (p. 157), Pinnacle® DB Biphenyl (p. 165), Ultra Biphenyl (p. 170), Ultra Aromax (p. 173), Viva Biphenyl (p. 176)*
L13	Trimethylsilane chemically bonded to porous silica particles; 3 to 10 µm in diameter. *Ultra C1 (p. 173)*
L26	Butyl silane chemically bonded to totally porous silica particles; 3 to 10 µm in diameter. *Ultra C4 (p.172), Viva C4 (p.176)*
L43	Pentafluorophenyl groups chemically bonded to silica particles by a propyl spacer; 5 to 10 µm in diameter. *Pinnacle® DB PFP Propyl (p. 166), Ultra PFP Propyl (p. 171), Viva PFP Propyl (p. 176)*
L68	Spherical, porous silica; 100 µm or less in diameter, the surface of which has been covalently modified with alkyl amide groups and not end-capped. *Pinnacle® DB IBD (p. 164), Ultra IBD (p. 169)*

Optimal Linear Velocities

Column ID (mm)	Optimal flow rate (mL/min)* 1.9 µm dp	3 µm dp	5 µm dp	2.7 µm Raptor™	5 µm Raptor™
4.6	—	1.5	1.0	1.6	1.0
3.2	—	0.7	0.5	0.8	0.5
3.0	1.1	0.6	0.4	0.7	0.4
2.1	0.5	0.3	0.2	0.3	0.2
1.0	—	0.07	0.05	0.08	0.05

* Optimal flow rates are mobile phase dependent; table above is provided as a guide.

Common Classifications for LC Columns by Internal Diameter

Classification	Internal Diameter
Capillary	<1.0 mm ID
Micro bore	1.0 mm ID
Narrow bore	2.1–3.0 mm ID
Standard bore	3.2–4.6 mm ID
Semi-prep	10–21.2 mm ID
Prep	30–50 mm ID

HPLC Pump Pressure Conversion Table

Pressure	psi	atm	kg/cm²	torr	kPa	bar	inches Hg
1 psi =	1	0.068	0.0703	51.713	6.8948	0.06895	2.0359
1 atm =	14.696	1	1.0332	760	101.32	1.0133	29.921
1 kg/cm² =	14.223	0.967	1	735.5	98.06	0.9806	28.958
1 torr =	0.0193	0.00132	0.00136	1	0.1330	0.00133	0.0394
1 kPa =	0.1450	0.00987	0.0102	7.52	1	0.0100	0.2962
1 bar =	14.5038	0.9869	1.0197	751.88	100	1	29.5300
1 in Hg =	0.49612	0.0334	0.0345	25.400	3.376	0.03376	1

To convert a pressure, multiply the units in the left-most column by the conversion factors listed in the columns to the right.

For example: 10 psi x 0.068 = 0.68 atm
10 bar x 29.5300 = 295.300 inches Hg

Solvent Miscibility and Solubility