≥3 µm Analytical HPLC Columns

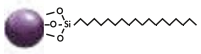
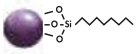
XBridge BEH HPLC Columns

XBridge BEH HPLC Columns are designed for one purpose—to maximize productivity. Whether you are creating a quality-control method or developing a leading-edge LC-MS assay, XBridge Columns are an invaluable help.

- They improve pH stability, increasing column lifetime
- They improve column reliability, ensuring the ruggedness of assays
- They improve particle efficiency, providing unmatched peak shape and capacity

With 10 general-purpose, application-specific sorbents and the widest range of particle sizes available, no other HPLC column family offers the tools you need to meet the most demanding chromatographic challenges. Whether you require robust HPLC methods, seamless UPLC transferability, or preparative scaling for product isolation, count on the versatility of an XBridge Column.

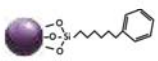
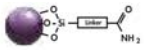
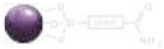
Column Characteristics

	BEH C_{18}, 130Å	BEH Shield RP18, 130Å	BEH C_8, 130Å
	UHPLC: 2.5 µm *XP* HPLC: 3.5, 5, 10 µm	UHPLC: 2.5 µm *XP* HPLC: 3.5, 5, 10 µm	UHPLC: 2.5 µm *XP* HPLC: 3.5, 5, 10 µm
Particle/Ligand			
Ligand Density*	3.1 µmol/m²	3.3 µmol/m²	3.2 µmol/m²
Carbon Load*	18%	17%	13%
Endcap Style	Proprietary	TMS	Proprietary
USP Class No.	L1	L1	L7
pH Range	1–12	2–11	1–12
Temperature Limits	Low pH = 80 °C, High pH = 60 °C	Low pH = 50 °C, High pH = 45 °C	Low pH = 60 °C, High pH = 60 °C
Surface Area*	185 m²/g	185 m²/g	185 m²/g
Performance Standards	**Neutrals QC Reference Material** p/n: 186006360	**Neutrals QC Reference Material** p/n: 186006360	**Neutrals QC Reference Material** p/n: 186006360
Application Standards	**Reversed-Phase QC Reference Material** p/n: 186006363	**Reversed-Phase QC Reference Material** p/n: 186006363	**Reversed-Phase QC Reference Material** p/n: 186006363

*Expected or approximate value.

BEH Technology is also available in UPLC particle sizes (ACQUITY UPLC BEH 1.7 µm), please refer to page 94.

Column Characteristics *Continued*

	BEH Phenyl, 130Å	BEH HILIC, 130Å	BEH Amide, 130Å	Glycan BEH Amide, 130Å	Peptide BEH C_{18}, 130Å
	UHPLC: 2.5 µm *XP* HPLC: 3.5, 5, 10 µm	UHPLC: 2.5 µm *XP* HPLC: 3.5 µm	UHPLC: 2.5 µm *XP* HPLC: 3.5 µm	UHPLC: 2.5 µm *XP* HPLC: 3.5 µm	HPLC: 3.5, 5, 10 µm
Particle/Ligand					
Ligand Density*	3.0 µmol/m²	N/A	7.5 µmol/m²	7.15 µmol/m²	3.1 µmol/m²
Carbon Load*	15%	Unbonded	12%	12%	18%
Endcap Style	Proprietary	N/A	None	None	Proprietary
USP Class No.	L11	L3	L68	L68	L1
pH Range	1–12	1–9	2–11	2–11	1–12
Temperature Limits	Low pH = 80 °C, High pH = 60 °C	Low pH = 45 °C, High pH = 45 °C	Low pH = 90 °C, High pH = 90 °C	Low pH = 90 °C, High pH = 90 °C	Low pH = 80 °C, High pH = 60 °C
Surface Area*	185 m²/g	185 m²/g	185 m²/g	194 m²/g	185 m²/g
Performance Standards	**Neutrals QC Reference Material** p/n: 186006360	**HILIC QC Reference Material** p/n: 186007226	**HILIC QC Reference Material** p/n: 186007226	**Glycan Performance Test Standard** p/n: 186006349	**Cytochrome *c* Digestion Standard** p/n: 186006371
Application Standards	**Reversed-Phase QC Reference Material** p/n: 186006363	**HILIC QC Reference Material** p/n: 186007226	**HILIC QC Reference Material** p/n: 186007226	**Glycan Performance Test Standard** p/n: 186006349 **Dextran Calibration Standard** p/n: 186006841	**Peptide Retention Standard** p/n: 186006555

*Expected or approximate value.

BEH Technology is also available in UPLC particle sizes (ACQUITY UPLC BEH 1.7 µm), please refer to page 94.

Oligonucleotide BEH C_{18}, 130Å	Protein BEH C_4, 300Å	Protein BEH SEC, 125Å	Protein BEH SEC, 200Å	Protein BEH SEC, 450Å
HPLC: 2.5 µm	HPLC: 3.5 µm	HPLC: 3.5 µm	HPLC: 3.5 µm	HPLC: 3.5 µm
3.1 µmol/m^2	2.4 µmol/m^2	4.9 µmol/m^2	5.5 µmol/m^2	4.8 µmol/m^2
18%	8%	15%	12%	9%
Proprietary	None	None	None	None
L1	L26	L33	L33	L33
1–12	1–10	1–8	1–8	1–8
Low pH = 80 °C, High pH = 60 °C	Low pH = 80 °C, High pH = 50 °C	Low pH = 60 °C, High pH = 60 °C	Low pH = 60 °C, High pH = 60 °C	Low pH = 60 °C, High pH = 60 °C
90 m^2/g	90 m^2/g	395 m^2/g	220 m^2/g	80 m^2/g
MassPREP OST Standard p/n: 186004135	**MassPREP Protein Standard Mix** p/n: 186004900	**BEH 125 Protein Standard Mix** p/n: 186006519	**BEH200 SEC Protein Standard Mix** p/n: 186006518	**BEH450 SEC Protein Standard Mix** p/n: 186006842
MassPREP OST Standard p/n: 186004135	**MassPREP Protein Standard Mix** p/n: 186004900	**BEH 125 Protein Standard Mix** p/n: 186006519	**BEH200 SEC Protein Standard Mix** p/n: 186006518	**BEH450 SEC Protein Standard Mix** p/n: 186006842

Ordering Information

XBridge Analytical Columns

	Dimension	P/N	Dimension	P/N
	Particle Size: 3.5 µm		Particle Size: 5 µm	
BEH C_{18}	1.0 × 50 mm	186003126	2.1 × 20 mm *IS*	186003107
	1.0 × 100 mm	186003127	2.1 × 30 mm	186003129
	1.0 × 150 mm	186003128	2.1 × 50 mm	186003108
	2.1 × 20 mm *IS*	186003019	2.1 × 100 mm	186003109
	2.1 × 30 mm	186003020	2.1 × 150 mm	186003110
	2.1 × 50 mm	186003021	3.0 × 20 mm *IS*	186003130
	2.1 × 100 mm	186003022	3.0 × 30 mm	186003111
	2.1 × 150 mm	186003023	3.0 × 50 mm	186003131
	3.0 × 20 mm *IS*	186003024	3.0 × 100 mm	186003132
	3.0 × 30 mm	186003025	3.0 × 150 mm	186003112
	3.0 × 50 mm	186003026	3.0 × 250 mm	186003133
	3.0 × 100 mm	186003027	4.6 × 20 mm *IS*	186003134
	3.0 × 150 mm	186003028	4.6 × 30 mm	186003135
	4.6 × 20 mm *IS*	186003029	4.6 × 50 mm	186003113
	4.6 × 30 mm	186003030	4.6 × 75 mm	186003114
	4.6 × 50 mm	186003031	4.6 × 100 mm	186003115
	4.6 × 75 mm	186003032	4.6 × 150 mm	186003116
	4.6 × 100 mm	186003033	4.6 × 250 mm	186003117
	4.6 × 150 mm	186003034		
	4.6 × 250 mm	186003943		

	Particle Size: 3.5 µm		Particle Size: 5 µm	
BEH C_8	1.0 × 50 mm	186003177	2.1 × 20 mm *IS*	186003186
	1.0 × 100 mm	186003178	2.1 × 30 mm	186003187
	1.0 × 150 mm	186003179	2.1 × 50 mm	186003011
	2.1 × 20 mm *IS*	186003180	2.1 × 100 mm	186003012
	2.1 × 30 mm	186003046	2.1 × 150 mm	186003013
	2.1 × 50 mm	186003047	3.0 × 20 mm *IS*	186003188
	2.1 × 100 mm	186003048	3.0 × 30 mm	186003189
	2.1 × 150 mm	186003049	3.0 × 50 mm	186003190
	3.0 × 20 mm *IS*	186003181	3.0 × 100 mm	186003191
	3.0 × 30 mm	186003182	3.0 × 150 mm	186003014
	3.0 × 50 mm	186003050	3.0 × 250 mm	186003192
	3.0 × 100 mm	186003051	4.6 × 20 mm *IS*	186003193
	3.0 × 150 mm	186003052	4.6 × 30 mm	186003194
	4.6 × 20 mm *IS*	186003183	4.6 × 50 mm	186003015
	4.6 × 30 mm	186003184	4.6 × 75 mm	186003195
	4.6 × 50 mm	186003053	4.6 × 100 mm	186003016
	4.6 × 75 mm	186003185	4.6 × 150 mm	186003017
	4.6 × 100 mm	186003054	4.6 × 250 mm	186003018
	4.6 × 150 mm	186003055		
	4.6 × 250 mm	186003963		

	Dimension	P/N	Dimension	P/N
	Particle Size: 3.5 µm		Particle Size: 5 µm	
BEH Shield RP18	1.0 × 50 mm	186003148	2.1 × 20 mm /S	186003156
	1.0 × 100 mm	186003149	2.1 × 30 mm	186003157
	1.0 × 150 mm	186003150	2.1 × 50 mm	186002999
	2.1 × 20 mm /S	186003151	2.1 × 100 mm	186003002
	2.1 × 30 mm	186003035	2.1 × 150 mm	186003003
	2.1 × 50 mm	186003036	3.0 × 20 mm /S	186003158
	2.1 × 100 mm	186003037	3.0 × 30 mm	186003159
	2.1 × 150 mm	186003038	3.0 × 50 mm	186003160
	3.0 × 20 mm /S	186003152	3.0 × 100 mm	186003004
	3.0 × 30 mm	186003153	3.0 × 150 mm	186003005
	3.0 × 50 mm	186003039	3.0 × 250 mm	186003161
	3.0 × 100 mm	186003040	4.6 × 20 mm /S	186003162
	3.0 × 150 mm	186003041	4.6 × 30 mm	186003163
	4.6 × 20 mm /S	186003154	4.6 × 50 mm	186003006
	4.6 × 30 mm	186003155	4.6 × 75 mm	186003007
	4.6 × 50 mm	186003042	4.6 × 100 mm	186003008
	4.6 × 75 mm	186003043	4.6 × 150 mm	186003009
	4.6 × 100 mm	186003044	4.6 × 250 mm	186003010
	4.6 × 150 mm	186003045		
	4.6 × 250 mm	186003964		

	Particle Size: 3.5 µm		Particle Size: 5 µm	
BEH Phenyl	1.0 × 50 mm	186003317	2.1 × 20 mm /S	186003336
	1.0 × 100 mm	186003318	2.1 × 30 mm	186003337
	1.0 × 150 mm	186003319	2.1 × 50 mm	186003338
	2.1 × 20 mm /S	186003320	2.1 × 100 mm	186003339
	2.1 × 30 mm	186003321	2.1 × 150 mm	186003340
	2.1 × 50 mm	186003322	3.0 × 20 mm /S	186003341
	2.1 × 100 mm	186003323	3.0 × 30 mm	186003342
	2.1 × 150 mm	186003324	3.0 × 50 mm	186003343
	3.0 × 20 mm /S	186003325	3.0 × 100 mm	186003344
	3.0 × 30 mm	186003326	3.0 × 150 mm	186003345
	3.0 × 50 mm	186003327	3.0 × 250 mm	186003346
	3.0 × 100 mm	186003328	4.6 × 20 mm /S	186003347
	3.0 x 150 mm	186003329	4.6 × 30 mm	186003348
	4.6 × 20 mm /S	186003330	4.6 × 50 mm	186003349
	4.6 × 30 mm	186003331	4.6 × 75 mm	186003350
	4.6 × 50 mm	186003332	4.6 × 100 mm	186003351
	4.6 × 75 mm	186003333	4.6 × 150 mm	186003352
	4.6 × 100 mm	186003334	4.6 × 250 mm	186003353
	4.6 × 150 mm	186003335		
	4.6 × 250 mm	186003965		
	4.6 × 250 mm	186003963		

XBridge Analytical Columns *Continued*

	Dimension	P/N	Dimension	P/N
	Particle Size: 3.5 µm		Particle Size: 5 µm	
BEH HILIC	1.0 × 50 mm	186004429	2.1 × 30 mm	186004443
	2.1 × 30 mm	186004431	2.1 × 50 mm	186004444
	2.1 × 50 mm	186004432	2.1 × 100 mm	186004445
	2.1 × 100 mm	186004433	2.1 × 150 mm	186004446
	2.1 × 150 mm	186004434	3.0 × 50 mm	186004447
	3.0 × 50 mm	186004435	3.0 × 100 mm	186004448
	3.0 × 100 mm	186004436	4.6 × 30 mm	186004450
	4.6 × 30 mm	186004438	4.6 × 50 mm	186004451
	4.6 × 50 mm	186004439	4.6 × 100 mm	186004452
	4.6 × 100 mm	186004440	4.6 × 150 mm	186004453
	4.6 × 150 mm	186004441	4.6 × 250 mm	186004454

	Particle Size: 3.5 µm		Particle Size: 5 µm	
BEH Amide	1.0 × 50 mm	186004871	2.1 × 30 mm	186006587
	2.1 × 30 mm	186004858	2.1 × 50 mm	186006588
	2.1 × 50 mm	186004859	2.1 × 100 mm	186006589
	2.1 × 100 mm	186004860	2.1 × 150 mm	186006590
	2.1 × 150 mm	186004861	3.0 × 50 mm	186006591
	3.0 × 30 mm	186004862	3.0 × 100 mm	186006592
	3.0 × 50 mm	186004863	4.6 × 50 mm	186006593
	3.0 × 100 mm	186004864	4.6 × 100 mm	186006594
	4.6 × 30 mm	186004866	4.6 × 150 mm	186006595
	4.6 × 50 mm	186004867	4.6 × 250 mm	186006596
	4.6 × 100 mm	186004868		
	4.6 × 150 mm	186004869		
	4.6 × 250 mm	186004870		

XBridge Glycan Columns

	Dimension	P/N
	Particle Size: 3.5 µm	
BEH Amide, 130Å	2.1 × 50 mm	186007502
	2.1 × 100 mm	186007503
	2.1 × 150 mm	186007504
	4.6 × 50 mm	186007273
	4.6 × 100 mm	186007274
	4.6 × 150 mm	186007275
	4.6 × 250 mm	186007276

XBridge Peptide Columns

	Dimension	P/N	Dimension	P/N
	Particle Size: 3.5 µm		Particle Size: 5 µm	
BEH C_{18}, 130Å	1.0 × 50 mm	186003560	1.0 × 50 mm	186003571
	1.0 × 100 mm	186003561	1.0 × 100 mm	186003572
	1.0 × 150 mm	186003562	1.0 × 150 mm	186003573
	2.1 × 50 mm	186003563	2.1 × 50 mm	186003574
	2.1 × 100 mm	186003564	2.1 × 100 mm	186003575
	2.1 × 150 mm	186003565	2.1 × 150 mm	186003576
	2.1 × 250 mm	186003566	2.1 × 250 mm	186003577
	4.6 × 50 mm	186003567	4.6 × 50 mm	186003578
	4.6 × 100 mm	186003568	4.6 × 100 mm	186003579
	4.6 × 150 mm	186003569	4.6 × 150 mm	186003580
	4.6 × 250 mm	186003570	4.6 × 250 mm	186003581

	Particle Size: 3.5 µm		Particle Size: 5 µm	
BEH C_{18}, 300Å	1.0 × 50 mm	186003604	1.0 × 50 mm	186003615
	1.0 × 100 mm	186003605	1.0 × 100 mm	186003616
	1.0 × 150 mm	186003606	1.0 × 150 mm	186003617
	2.1 × 50 mm	186003607	2.1 × 50 mm	186003618
	2.1 × 100 mm	186003608	2.1 × 100 mm	186003619
	2.1 × 150 mm	186003609	2.1 × 150 mm	186003620
	2.1 × 250 mm	186003610	2.1 × 250 mm	186003621
	4.6 × 50 mm	186003611	4.6 × 50 mm	186003622
	4.6 × 100 mm	186003612	4.6 × 100 mm	186003623
	4.6 × 150 mm	186003613	4.6 × 150 mm	186003624
	4.6 × 250 mm	186003614	4.6 × 250 mm	186003625

	Particle Size: 3.5 µm	
BEH C_4, 300Å	2.1 × 50 mm	186004498
	2.1 × 100 mm	186004499
	2.1 × 150 mm	186004500
	2.1 × 250 mm	186004501
	4.6 × 50 mm	186004502
	4.6 × 100 mm	186004503
	4.6 × 150 mm	186004504
	4.6 × 250 mm	186004505

APPLICATION AREA: Dicarboxylic Acids in Atmospheric Particulate Matter

"I used XBridge Amide 3.5 µm column for HILIC separation of atmospheric dicarboxylic acids. I found it very reproducible over a large period of time (>3 months) while being extensively used during initial method development (use of different mobile phase buffers, pHs and organic solvents), method validation and application to atmospheric particulate matter. After more than 1000 injections with proper change of the guard, the analytical column preserved its initial efficiency and gave me the needed selectivity for separation of the various atmospheric acids. The column is still in good shape and operable. No increase of the column backpressure was observed during its use. We are very satisfied with the product and the level of service provided by Waters representatives."

REVIEWER: Zoran Kitanovski

ORGANIZATION: National Institute of Chemistry

★★★★★

XBridge Columns Method Validation Kits*

	Dimension	P/N	Dimension	P/N
	Particle Size: 3.5 µm		Particle Size: 5 µm	
BEH C_{18}	2.1 × 100 mm	186003766	2.1 × 150 mm	186003771
	3.0 × 100 mm	186003767	3.0 × 100 mm	186003772
	3.0 × 150 mm	186003768	3.0 × 150 mm	186003773
	4.6 × 100 mm	186003769	4.6 × 100 mm	186003774
	4.6 × 150 mm	186003770	4.6 × 150 mm	186003775
			4.6 × 250 mm	186003776
BEH C_8	2.1 × 100 mm	186003777	2.1 × 150 mm	186003782
	3.0 × 100 mm	186003778	3.0 × 100 mm	186003783
	3.0 × 150 mm	186003779	3.0 × 150 mm	186003784
	4.6 × 100 mm	186003780	4.6 × 100 mm	186003785
	4.6 × 150 mm	186003781	4.6 × 150 mm	186003786
			4.6 × 250 mm	186003787
BEH Shield RP18	2.1 × 100 mm	186003788	2.1 × 150 mm	186003793
	3.0 × 100 mm	186003789	3.0 × 100 mm	186003794
	3.0 × 150 mm	186003790	3.0 × 150 mm	186003795
	4.6 × 100 mm	186003791	4.6 × 100 mm	186003796
	4.6 × 150 mm	186003792	4.6 × 150 mm	186003797
			4.6 × 250 mm	186003798
BEH Phenyl	2.1 × 100 mm	186003799	2.1 × 150 mm	186003804
	3.0 × 100 mm	186003800	3.0 × 100 mm	186003805
	3.0 × 150 mm	186003801	3.0 × 150 mm	186003806
	4.6 × 100 mm	186003802	4.6 × 100 mm	186003807
	4.6 × 150 mm	186003803	4.6 × 150 mm	186003808
			4.6 × 250 mm	186003809

*Each Method Validation Kit contains 3 columns, each from a different batch.

XBridge VanGuard Cartridges

	Dimension	P/N	Dimension	P/N
	Particle Size: 3.5 µm		Particle Size: 5 µm	
BEH C_{18}	2.1 × 5 mm	186007766	2.1 × 5 mm	186007769
	3.9 × 5 mm	186007768	3.9 × 5 mm	186007771
BEH C_8	2.1 × 5 mm	186007775	2.1 × 5 mm	186007778
	3.9 × 5 mm	186007777	3.9 × 5 mm	186007780
BEH Shield RP18	2.1 × 5 mm	186007802	2.1 × 5 mm	186007805
	3.9 × 5 mm	186007804	3.9 × 5 mm	186007807
BEH Phenyl	2.1 × 5 mm	186007793	2.1 × 5 mm	186007796
	3.9 × 5 mm	186007795	3.9 × 5 mm	186007798
BEH HILIC	2.1 × 5 mm	186007784	2.1 × 5 mm	186007787
	3.9 × 5 mm	186007786	3.9 × 5 mm	186007789
BEH Amide	2.1 × 5 mm	186007757	2.1 × 5 mm	186007760
	3.9 × 5 mm	186007759	3.9 × 5 mm	186007762

Universal VanGuard Cartridge Holder

Description	P/N
Universal VanGuard Cartridge Holder	186007949

APPLICATION AREA: Pharmaceutical Analysis

"In my opinion XBridge Columns are one of the best available on the market due to its universality. I am using it widely for analytical separations and (especially) for preparative purpose. The major advantages are: broad pH range; high stability at high pH; high durability and low column bleeding."

REVIEWER: Alexey Lapin

ORGANIZATION: Euroscreen SA