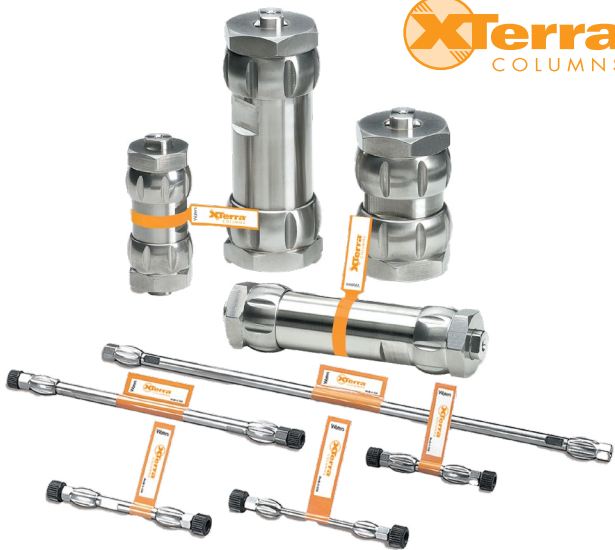


## XTerra HPLC Columns

The first-generation hybrid particle – the efficiency of silica combined with the stability of polymers

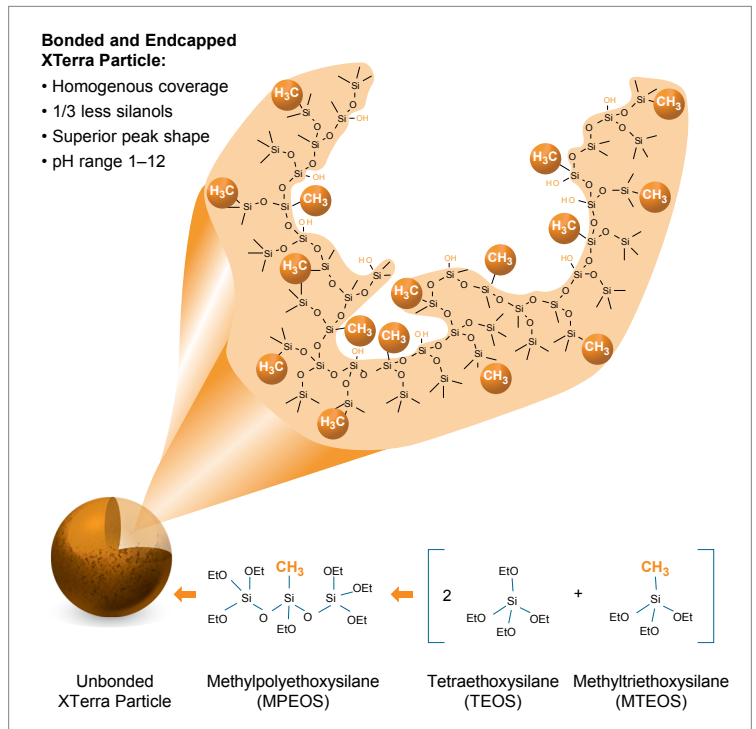


XTerra	MS C <sub>18</sub>	MS C <sub>8</sub>	Shield RP18	Shield RP8	Phenyl
Particle Size	2.5, 3.5, 5, 10 μm	2.5, 3.5, 5, 10 μm	3.5, 5, 10 μm	3.5, 5, 10 μm	3.5, 5 μm
Particle Shape	Spherical	Spherical	Spherical	Spherical	Spherical
Pore Size	125 Å	125 Å	125 Å	125 Å	125 Å
Carbon Load	15.5%	12%	15.0%	13.5%	12.0%
End-capped	Proprietary	Proprietary	Proprietary	Proprietary	Proprietary
Temperature Limits	20–60 °C	20–60 °C	20–60 °C	20–60 °C	20–60 °C
pH Range	1–12	1–12	2–12	2–12	1–12
USP Class No.	L1	L7	L1	L7	L11

XTerra™ HPLC Columns were the first commercially available hybrid particle (silica co-polymer) stationary phase. XTerra particles are methylene bridged, versus the more modern ethylene bridged BEH™ Particle.

### SILICA SEPARATIONS AT POLYMER PH

XTerra Columns combine the high efficiency separations of a silica particle with the expanded pH range of a polymer particle, resulting in a rugged material that has high mechanical strength, high efficiency, excellent peak shape for bases, and a wider pH range than a silica-based particle.



### XTerra MS

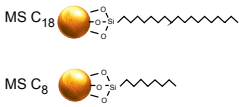
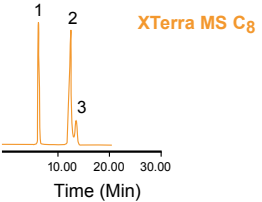
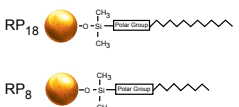
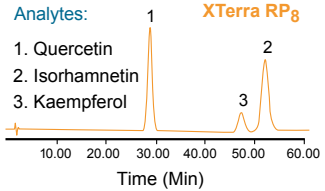
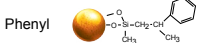
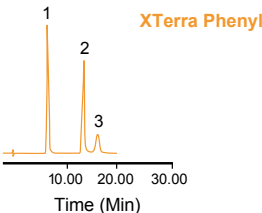
XTerra MS C<sub>18</sub> and MS C<sub>8</sub> Columns were designed to be compatible with Mass Spectrometry applications and provide sharp peaks, good sensitivity, and large peak capacities. The trifunctional bonding chemistries deliver long lifetimes over a wide pH range and provide high throughput with excellent resolution and ultra-low bleed.

### XTerra RP

XTerra RP18 and RP8 Columns incorporate an embedded polar group to deliver the best possible peak shape and a unique selectivity. They exhibit excellent water wettability, even in 100% aqueous mobile phases.

### XTerra Phenyl

XTerra Phenyl Columns offer a complimentary selectivity to other XTerra phases, and deliver excellent peak shapes for all compounds.

	Particle/Ligand Structure	Comments	Effect of XTerra Stationary Phase on Selectivity
XTerra MS	 <p>MS C<sub>18</sub> MS C<sub>8</sub></p>	<p>Sharpest peaks Trifunctional bonding Longest lifetimes pH 1–12 Ideally suited for Mass Spec</p>	 <p style="text-align: right; color: #f4a460;">XTerra MS C<sub>8</sub></p>
XTerra RP	 <p>RP<sub>18</sub> RP<sub>8</sub></p>	<p>Best peak shape for bases Shield technology pH 2–12 Ideally suited for UV, fluorescence, electrochemical, and RI detectors</p>	 <p style="text-align: right; color: #f4a460;">XTerra RP<sub>8</sub></p> <p>Analytes: 1. Quercetin 2. Isorhamnetin 3. Kaempferol</p>
XTerra Phenyl	 <p>Phenyl</p>	<p>Complimentary selectivity Difunctional bonding Excellent peak shape for all compounds pH 1–12 Ideally suited for Mass Spec</p>	 <p style="text-align: right; color: #f4a460;">XTerra Phenyl</p>

**Conditions:**

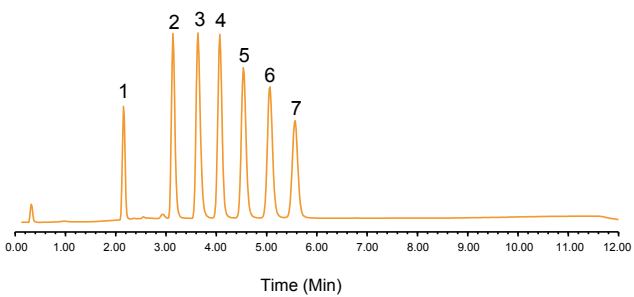
Columns:	4.6 x 150 mm, 5 μm	Flow rate:	1.0 mL/min	Detection:	UV @ 270 nm
Mobile phase:	52% 0.1% H <sub>3</sub> PO <sub>4</sub> , pH 3.0 48% MeOH (v/v)	Temp.:	35 °C		Waters 2690, 996 PDA

### Excellent Resolution and Peak Shape at High pH

The wider pH range of XTerra Columns allows for greater selectivity choices while improving peak shape and resolution.

**Conditions:**

Column:	XTerra RP <sub>18</sub> , 4.6 x 50 mm, 3.5 μm	Injection vol.:	20 μL																								
Mobile phase A:	H <sub>2</sub> O	Temp.:	30 °C																								
Mobile phase B:	MeOH	Detection:	UV @ 254 nm																								
Mobile phase C:	100 mM NH <sub>4</sub> HCO <sub>3</sub> , pH 9.0	Instrument:	Alliance™ 2695, 2996 PDA																								
Flow rate:	2.0 mL/min	<b>Analytes:</b>																									
Gradient:	<table style="border-collapse: collapse; font-size: small;"> <thead> <tr> <th>Time (min)</th> <th>%A</th> <th>%B</th> <th>%C</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>90</td><td>0</td><td>10</td></tr> <tr><td>2.0</td><td>30</td><td>60</td><td>10</td></tr> <tr><td>10.0</td><td>16</td><td>74</td><td>10</td></tr> <tr><td>12.0</td><td>90</td><td>0</td><td>10</td></tr> <tr><td>15.0</td><td>90</td><td>0</td><td>10</td></tr> </tbody> </table>	Time (min)	%A	%B	%C	0.0	90	0	10	2.0	30	60	10	10.0	16	74	10	12.0	90	0	10	15.0	90	0	10	<ol style="list-style-type: none"> <li>1. Trimethoprim</li> <li>2. Nordoxepin</li> <li>3. Nortriptyline</li> <li>4. Doxepin</li> <li>5. Imipramine</li> <li>6. Amitriptyline</li> <li>7. Trimipramine</li> </ol>	
Time (min)	%A	%B	%C																								
0.0	90	0	10																								
2.0	30	60	10																								
10.0	16	74	10																								
12.0	90	0	10																								
15.0	90	0	10																								



Time (Min)

## ORDERING INFORMATION: ANALYTICAL COLUMNS

Dimension/Type	Particle Size	MS C <sub>18</sub>	MS C <sub>8</sub>	Shield RP18	Shield RP8	Phenyl
2.1 x 5 mm VanGuard Cartridge <sup>1</sup>	2.5 µm	186007887	186007901	-	-	-
2.1 x 30 mm Column	2.5 µm	186000592	-	-	-	-
2.1 x 50 mm Column*	2.5 µm	186000594	-	-	-	-
3.9 x 5 mm VanGuard Cartridge <sup>1</sup>	2.5 µm	186007889	186007903	-	-	-
4.6 x 20 mm IS Column <sup>2</sup>	2.5 µm	186001889	-	-	-	-
4.6 x 30 mm Column	2.5 µm	186000600	-	-	-	-
4.6 x 50 mm Column*	2.5 µm	186000602	186000603	-	-	-
4.6 x 75 mm Column*	2.5 µm	186000981	-	-	-	-
1.0 x 150 mm Column	3.5 µm	186000394	-	-	-	-
2.1 x 5 mm VanGuard Cartridge <sup>1</sup>	3.5 µm	186007892	186007905	186007929	186007941	186007917
2.1 x 20 mm IS Column <sup>2</sup>	3.5 µm	186001923	-	186001925	-	-
2.1 x 30 mm Column	3.5 µm	186000398	186000399	-	-	-
2.1 x 50 mm Column*	3.5 µm	186000400	186000401	186000402	186000403	186001179
2.1 x 100 mm Column*	3.5 µm	186000404	186000405	186000406	186000407	186001180
2.1 x 150 mm Column*	3.5 µm	186000408	186000409	186000410	186000411	186001181
3.0 x 30 mm Column	3.5 µm	186000412	186000413	-	-	-
3.0 x 50 mm Column*	3.5 µm	186000414	186000415	186000416	186000417	186001141
3.0 x 100 mm Column*	3.5 µm	186000418	186000419	186000420	186000421	186001142
3.0 x 150 mm Column*	3.5 µm	186000422	186000423	186000424	186000425	186001143
3.9 x 5 mm VanGuard Cartridge <sup>1</sup>	3.5 µm	186007894	186007907	186007931	186007943	186007919
3.9 x 20 mm IS Column <sup>2</sup>	3.5 µm	-	-	186001902	-	-
3.9 x 100 mm Column*	3.5 µm	186000426	186000427	186000428	186000429	186001177
3.9 x 150 mm Column*	3.5 µm	-	-	-	-	186001178
4.6 x 20 mm IS Column <sup>2</sup>	3.5 µm	186001891	-	186001893	-	-
4.6 x 30 mm Column	3.5 µm	186000430	-	-	-	-
4.6 x 50 mm Column*	3.5 µm	186000432	186000433	186000434	186000435	186001138
4.6 x 100 mm Column*	3.5 µm	186000436	186000437	186000438	186000439	186001139
4.6 x 150 mm Column*	3.5 µm	186000440	186000441	186000442	186000443	186001140
4.6 x 250 mm Column*	3.5 µm	186001470	186001471	186001472	186001473	186001474
2.1 x 5 mm VanGuard Cartridge <sup>1</sup>	5 µm	186007896	186007909	186007933	186007945	186007921
2.1 x 20 mm IS Column <sup>2</sup>	5 µm	186001979	-	186001982	-	-
2.1 x 50 mm Column*	5 µm	186000446	186000447	186000448	186000449	-
2.1 x 100 mm Column*	5 µm	186000450	186000451	186000452	186000453	-
2.1 x 150 mm Column*	5 µm	186000454	186000455	186000456	186000457	-
2.1 x 250 mm Column*	5 µm	186000458	-	186000460	186000461	-
3.0 x 50 mm Column*	5 µm	186000462	186000463	186000464	-	-
3.0 x 100 mm Column	5 µm	186000466	186000467	186000468	186000469	-
3.0 x 150 mm Column*	5 µm	186000470	186000471	186000472	186000473	-
3.0 x 250 mm Column	5 µm	186000474	-	186000476	-	-
3.9 x 5 mm VanGuard Cartridge <sup>1</sup>	5 µm	186007899	186007911	186007935	186007947	186007923
3.9 x 150 mm Column*	5 µm	186000478	186000479	186000480	186000481	186001184
4.6 x 20 mm IS Column <sup>2</sup>	5 µm	-	-	186001994	-	-
4.6 x 30 mm Column	5 µm	186000878	186000879	186001909	186001911	-
4.6 x 50 mm Column*	5 µm	186000482	186000483	186000484	186000485	186001144
4.6 x 100 mm Column*	5 µm	186000486	186000487	186000488	186000489	186001145
4.6 x 150 mm Column*	5 µm	186000490	186000491	186000492	186000493	186001146
4.6 x 250 mm Column*	5 µm	186000494	186000495	186000496	186000497	186001147

\* Dimension also available with eConnect. Add RF suffix to part number, <sup>1</sup> Requires Universal VanGuard Cartridge Holder, Part No. 186007949, <sup>2</sup> Intelligent Speed™ Columns

## Easy Scale-up to Prep

XTerra Columns provide easy scale-up from analytical to preparative chromatography. This allows new drug candidates to be taken directly from the lead generation to the lead optimization stage of drug discovery. The ability to operate at high pH provides excellent peak shapes for bases and increased mass loading (up to 60x) as compared to conventional silica-based materials.

### ORDERING INFORMATION: PREPARATIVE COLUMNS

Dimension/Type	Particle Size	MS C <sub>18</sub>	MS C <sub>8</sub>	Shield RP18	Shield RP8	Phenyl
10 x 50 mm Column	2.5 µm	186008102	-	-	-	-
7.8 x 10 mm Guard Cartridge <sup>1</sup>	5 µm	186001168	186001169	186001170	186001171	-
7.8 x 50 mm Column	5 µm	186001152	186001153	186001154	186001155	-
7.8 x 100 mm Column	5 µm	186001156	186001157	186001158	186001159	-
7.8 x 150 mm Column	5 µm	186001475	186001476	186001477	186001478	-
10 x 10 mm Guard Cartridge <sup>2</sup>	5 µm	186001001	-	186001006	186001008	-
10 x 50 mm Column	5 µm	186008103	-	186008105	186008106	-
10 x 100 mm Column	5 µm	186008107	-	186008128	-	-
10 x 150 mm Column	5 µm	186008141	186008142	186008143	186008144	-
19 x 10 mm Guard Cartridge <sup>3</sup>	5 µm	186001104	186001105	186001106	186001107	-
19 x 50 mm Column	5 µm	186001930	186001931	186001932	-	-
19 x 100 mm Column	5 µm	186001934	186001935	186001936	186001937	-
19 x 150 mm Column	5 µm	186002379	186002380	186002381	186002382	-
30 x 10 mm Guard Cartridge <sup>4</sup>	5 µm	186006903	186006904	186006906	-	-
30 x 50 mm Column	5 µm	186001938	-	186001940	186001941	-
30 x 75 mm Column	5 µm	-	186002388	186002389	186002390	-
30 x 100 mm Column	5 µm	186001942	186001943	186001944	186001945	-
50 x 50 mm Column	5 µm	186002218	186002219	186002220	186002221	-
50 x 100 mm Column	5 µm	186002222	186002223	186002224	186002225	-
7.8 x 10 mm Guard Cartridge <sup>1</sup>	10 µm	186001172	186001173	186001174	186001175	-
7.8 x 150 mm Column	10 µm	186001160	186001161	186001162	186001163	-
7.8 x 300 mm Column	10 µm	186001164	186001165	186001166	186001167	-
10 x 10 mm Guard Cartridge <sup>2</sup>	10 µm	186001002	-	186001007	186001009	-
10 x 150 mm Column	10 µm	186008129	186008130	186008131	186008132	-
10 x 250 mm Column	10 µm	186008133	186008134	186008135	186008136	-
10 x 300 mm Column	10 µm	186008137	186008138	186008139	186008140	-
19 x 10 mm Guard Cartridge <sup>3</sup>	10 µm	186001034	186001035	186001036	186001037	-
19 x 50 mm Column	10 µm	186002254	-	-	186002258	-
19 x 150 mm Column	10 µm	186002255	186002256	186002257	186002262	-
19 x 250 mm Column	10 µm	186002259	186002260	186002261	186002266	-
19 x 300 mm Column	10 µm	186002263	186002264	186002265	-	-
30 x 10 mm Guard Cartridge <sup>4</sup>	10 µm	186006902	-	186006905	-	-
30 x 100 mm Column	10 µm	186003303	-	186001058	186002270	-
30 x 150 mm Column	10 µm	186002267	186002268	186002269	186002274	-
30 x 250 mm Column	10 µm	186002271	186002272	186002273	186002278	-
30 x 300 mm Column	10 µm	186002275	186002276	186002277	186002282	-
50 x 50 mm Column	10 µm	186002279	186002280	186002281	-	-
50 x 150 mm Column	10 µm	186002843	186002844	-	186002846	-
50 x 250 mm Column	10 µm	186002847	-	186002849	186002850	-

<sup>1</sup> Requires 7.8 x 10 mm Cartridge Holder, Part No. 186000708, <sup>2</sup> Requires 10 x 10 mm Cartridge Holder, Part No. 186000779, <sup>3</sup> Requires 19 x 10 mm Cartridge Holder, Part No. 186000709,

<sup>4</sup> Requires 30 x 10 mm Cartridge Holder, Part No. 186006912

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