

VisionHT™

Ultra High-Pressure Columns



ALSO INSIDE:
High Throughput
Columns for
Conventional
HPLC Systems

Grace Davison Discovery Sciences
www.discoverysciences.com

Brochure #542

Contact your office or distributor for pricing.

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GRACE

VisionHT™ Columns — See Separations with Speed and Clarity

- Ultra-fast separations with superior efficiency, sensitivity and resolution
- 12,000psi pressure rating compatible with all ultra high-pressure LC systems
- Optimized 1.5µm media balances speed and back pressure for maximum performance

Grace® VisionHT™ columns introduce a new level in ultra high-efficiency HPLC. The powerful combination of low volume, high pressure hardware, and optimized high speed 1.5µm media gives separations a whole new clarity. Complex samples resolve 95% faster with 4x greater sensitivity when compared to traditional 150 x 2.1mm, 5µm columns

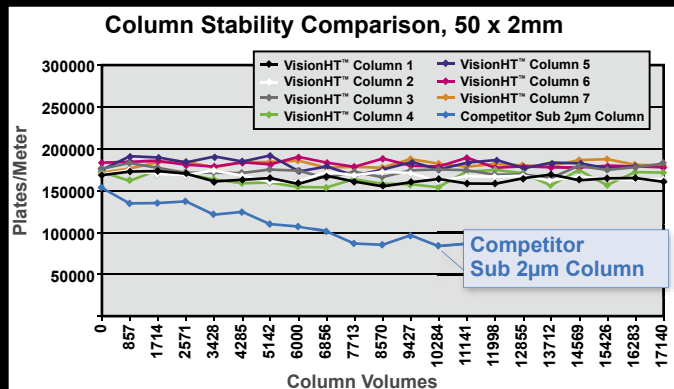
Unique Hardware Advantages

VisionHT™ hardware is designed for ultra high-pressure applications, which demand extremely low dead volume. Instead of traditional frits, thin screens retain media in the column and minimize dead volume. A unique insert combination seals endfittings leak-free to 18,000psi. Various dimensions are available, providing even more flexibility over analysis speed and resolution.

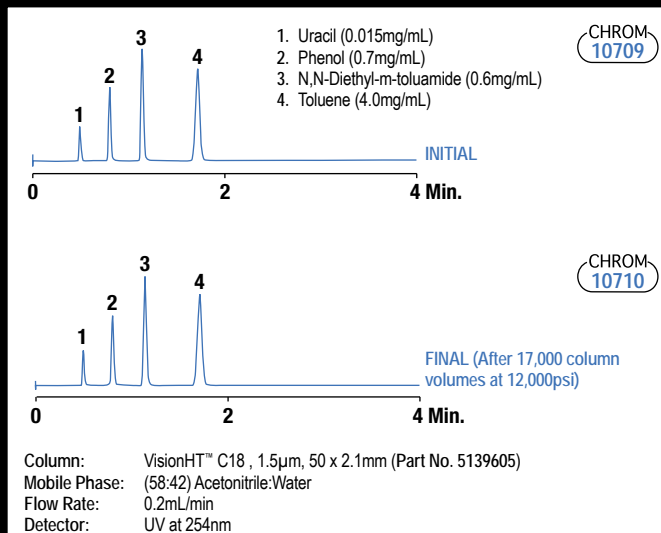


VisionHT™ Column Hardware Specifications	
Dead Volume:	<15nL
Wetted Materials:	316 Stainless Steel, PTFE
Port Geometry:	10-32, Industry Standard
Pressure Rating (hardware alone):	18,000psi (1,250bar)
Pressure Rating (packed column):	12,000psi (830bar)
i.d.:	1.0mm, 2.0mm
Length:	20mm, 30mm, 50mm, 100mm

Efficiency and Retention Times Remain Constant after Exposure to 12,000psi for 17,000 Column Volumes



High-pressure competitor sub 2µm column lost efficiency at routine 12,000psi pressures. VisionHT™ columns remain stable.



Before and after chromatograms show a constant level of performance.

High Purity 1.5µm HT Media Optimized for Fast Analysis

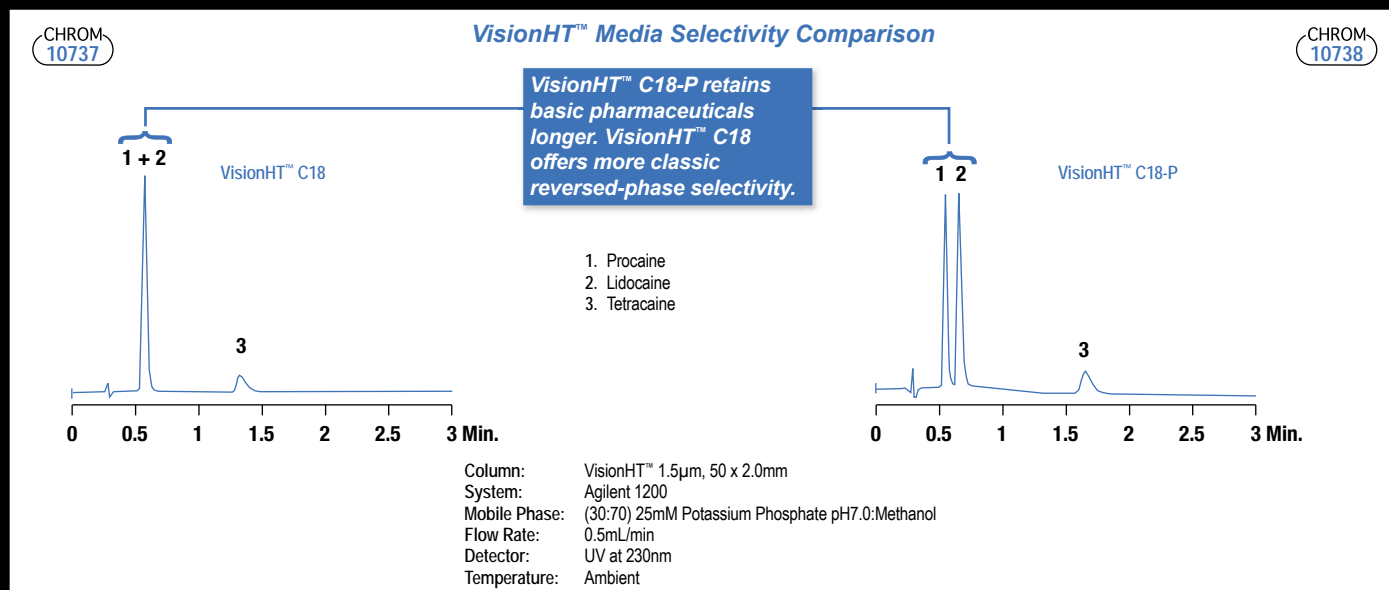
VisionHT™ high purity phases offer increased polar interactions to make neutral, non-polar compounds elute faster and retain polar compounds longer; ideal for high throughput separations. Two phases are available: C18 and C18-P. Each offers a different level of silica exposure. Choose C18 for more traditional reversed-phase selectivity, but with a typically lower than average carbon load for increased speed. This is ideal for neutral or moderately polar compounds. Reserve the C18-P phase when alternate selectivity is desired. It retains polar compounds longer at low pH and may show peak reversal when compared to traditional C18 phases.

The exceptionally rigid silica structure of VisionHT™ media withstands routine use of 12,000psi pressure often required in this new technology. Reproducible silica synthesis, bonding, and column packing guarantee excellent column-to-column consistency.

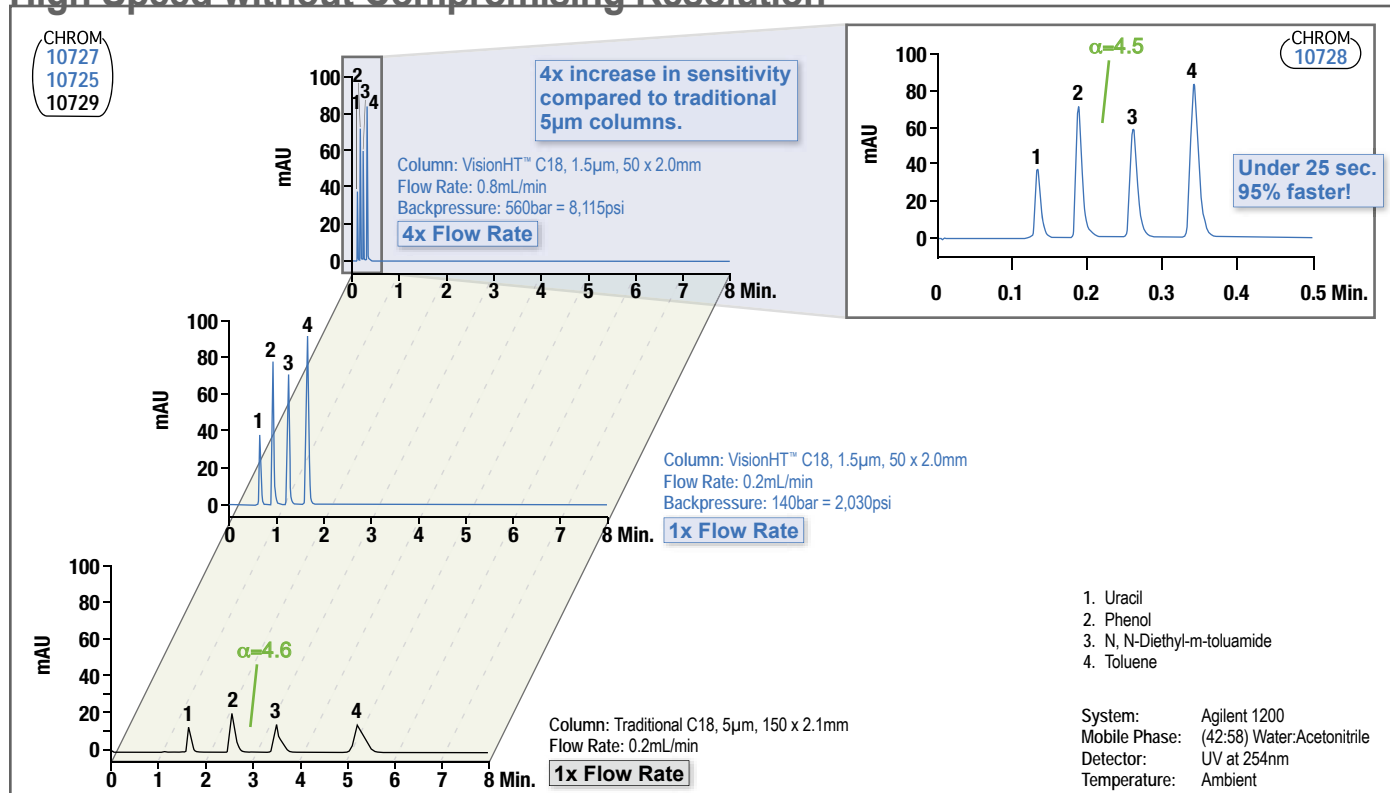
VisionHT™ Phase Specifications

Packing	Base Material	Particle Size (µm)	Carbon Load (%)	Pore Size (Å)	Surface Area (m ² /g)	Phase Type	pH Range*	Feature	Application	MS Compatible
C18	Spherical Silica	1.5	6%	100	200	Monomeric	1 – 10	Moderate silica exposure	Best for neutral and moderately polar compounds	Yes
C18-P	Spherical Silica	1.5	5%	100	200	Monomeric	1 – 10	High silica exposure	Best for compounds with multiple polar groups	Yes

*Choice of buffer is critical at pH >8.

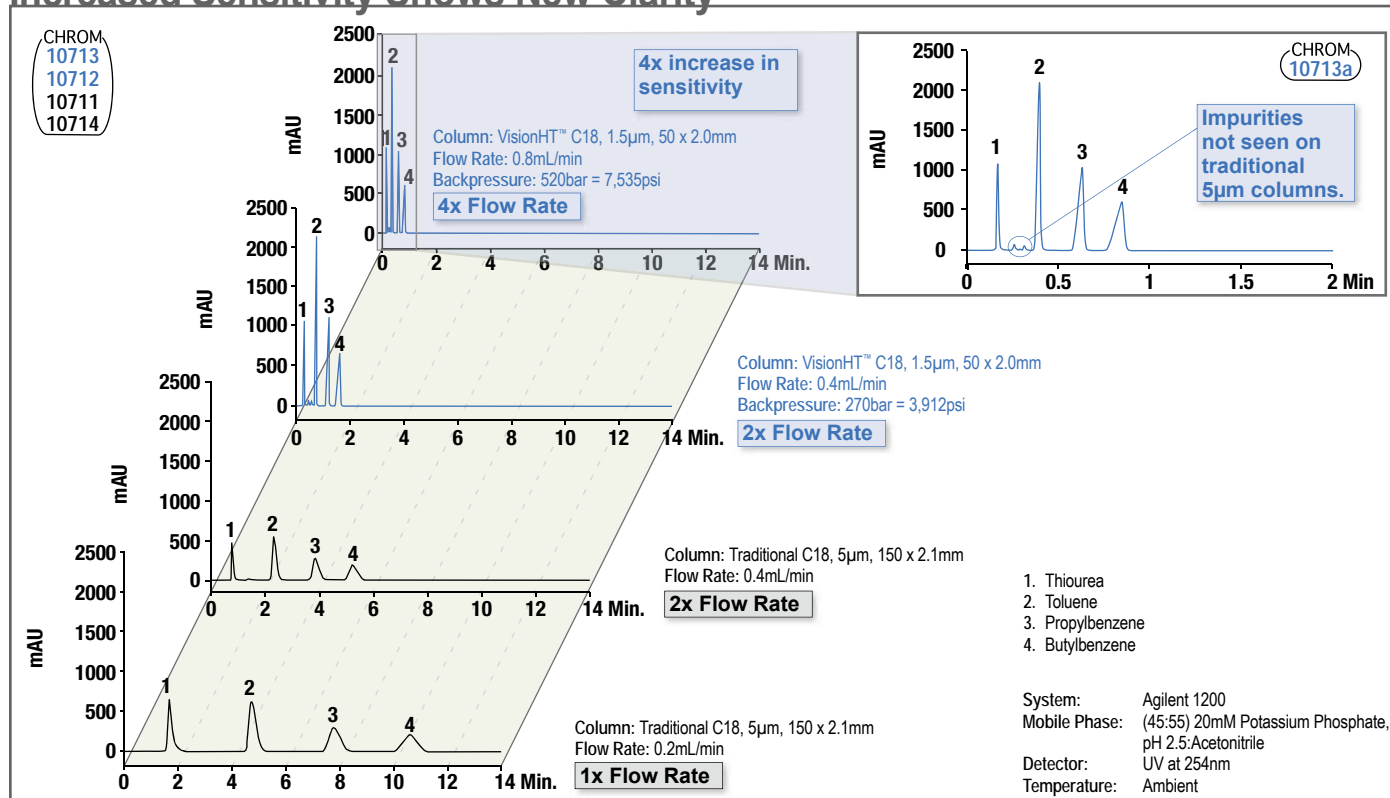


High Speed without Compromising Resolution



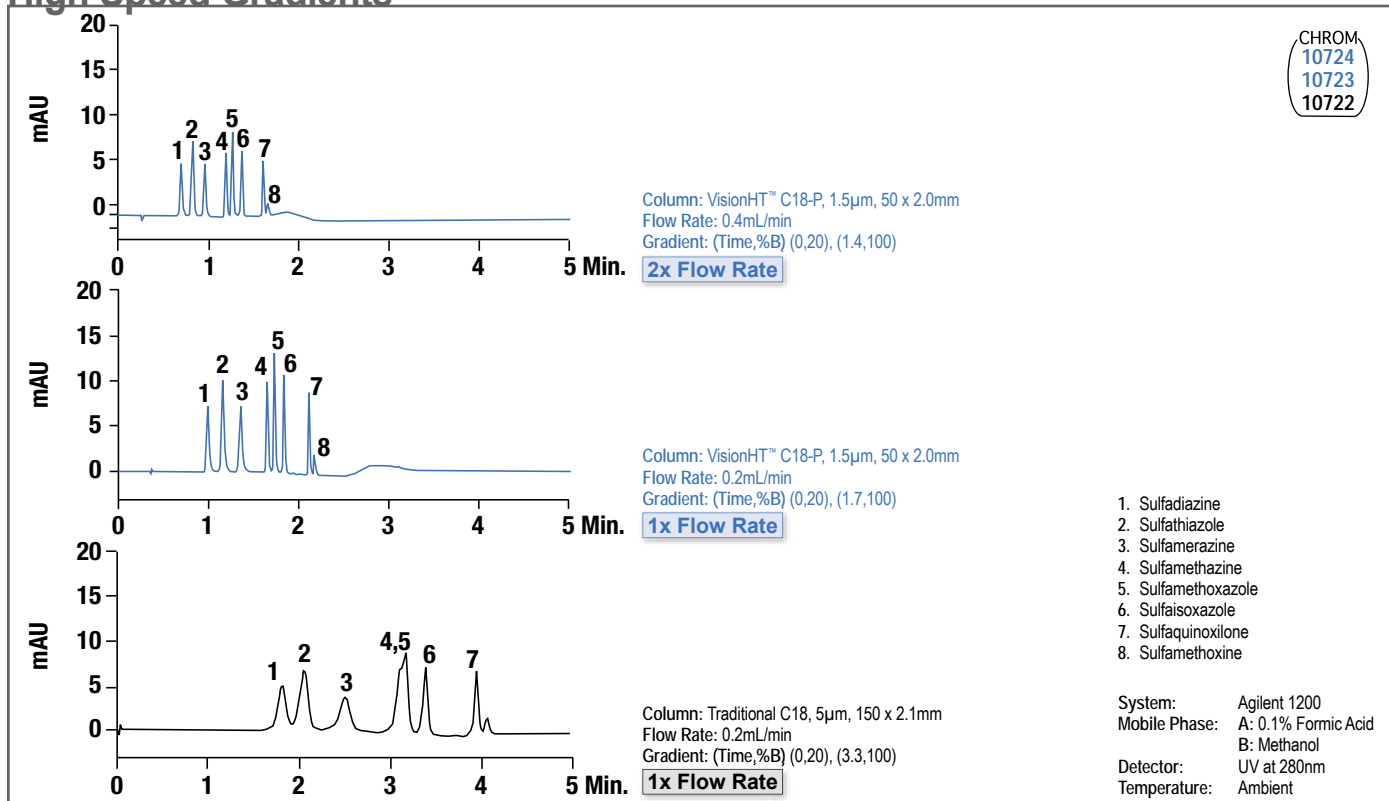
Use VisionHT™ columns at high flow rates and pressures for ultra-fast separations. Up to 95% faster than traditional HPLC.

Increased Sensitivity Shows New Clarity



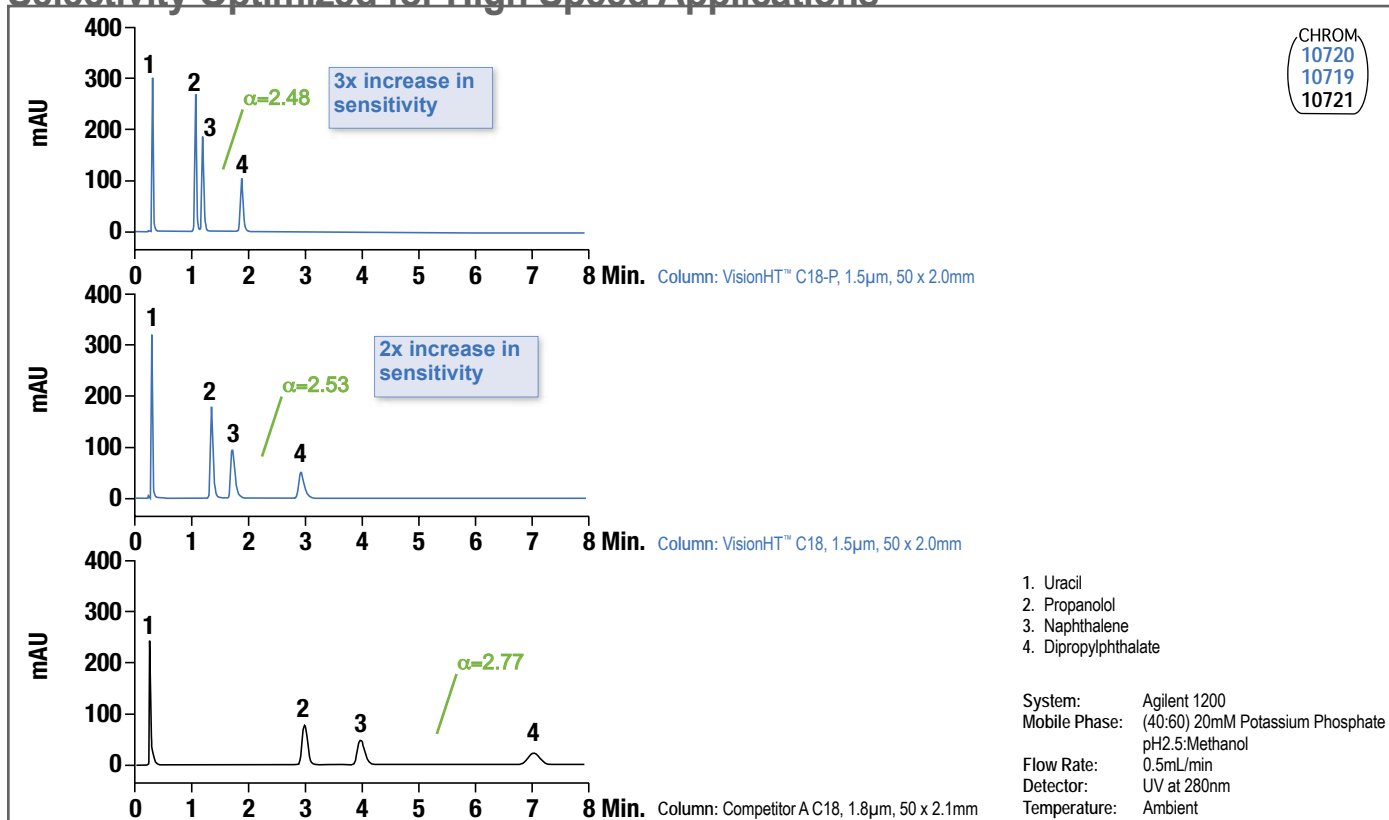
VisionHT™ high efficiency 1.5µm media resolves analytes with 4x greater sensitivity than traditional 5µm media.

High Speed Gradients



Use VisionHT™ columns with high speed gradients for fast resolution of complex samples.

Selectivity Optimized for High Speed Applications



VisionHT™ media maintains resolution and increases overall sensitivity.



High Throughput Columns conventional LC systems

Faster Separations with Better Resolution from High Throughput (HTP) Columns

- Increase productivity with 3–5x faster run times
- Improve resolution with up to 300,000 plates/meter efficiency
- Accelerate existing methods with current media packed into HTP format
- Use conventional LC systems optimized for low volume



Short columns packed with small particles reduce analysis time and increase efficiency. Typical separations on a 150 x 4.6mm column run 70–90% faster on Grace HTP columns without specialized HPLC systems. Faster separations lead to less solvent consumption.

Exceptional Speed Comes from Hardware

Our HTP columns combine unique hardware with highly efficient media. Two HTP column formats are available: Rocket™ and Expedite™. 7mm i.d. Rocket™ columns avoid the common problem of broad or tailing peaks caused by system dead volume. They operate with 2–4 times faster flow rates, sweeping sample bands through the system without distortion. Micro-volume injectors, tubing, and detectors are not necessary! Expedite™ columns have overall smaller volume ideal for ultra-fast separations and mass spec work to get maximum performance, minimize dead volumes in conventional LC systems

High Throughput Hardware Specifications

Format	i.d. (mm)	Length (mm)	Pressure Limits (psi)	Typical Flow Rate (mL/min.)	Features	Benefits	Instrumentation Considerations	MS Compatible
Rocket™	7	33 55	5000	2.3–5.0	7mm i.d. in short lengths	Not plagued with typical dead volume peak shape problems. Can use with >5mL/min flow rate.	Use on conventional LC systems, without the need for low dead volume optimization	yes
Expedite™	2.1 4.6	10 20	5000	0.1–3.0	Extremely low volume hardware	Offers highest sensitivity and MS compatibility. Combine with 1.5µm packings to get >300,000N/m.	Use with conventional LC systems optimized for low dead volume. To achieve fast gradients and minimal re-equilibration times, use with binary, high-pressure mixing pump for precise gradient with low delay volume.	yes



To minimize system volume, plumb with the shortest length tubing in internal diameters that are ≤ 0.12 mm. Be sure to inject no more than 5µL, and use a detector flow cell volume that is ≤ 5 µL.

* Use of a flow splitter is recommended.

Superior Resolution from Optimized Media

HTP formats packed with spherical 1.5µm and 3µm silica media generate between 120,000 to 300,000 plates/meter which gives you better separations than traditional 5µm columns! Multiple media options suit any application. Alltima™ HP HiLoad, Alltima™ HP AQ, Platinum™ C18, and Platinum™ EPS packings offer varying reversed-phase selectivity for small molecule challenges. ProZap™ will deliver exceptional resolution and speed for complex bioseparations. Alltima™ HP HILIC packing offers a unique selectivity option not found elsewhere.

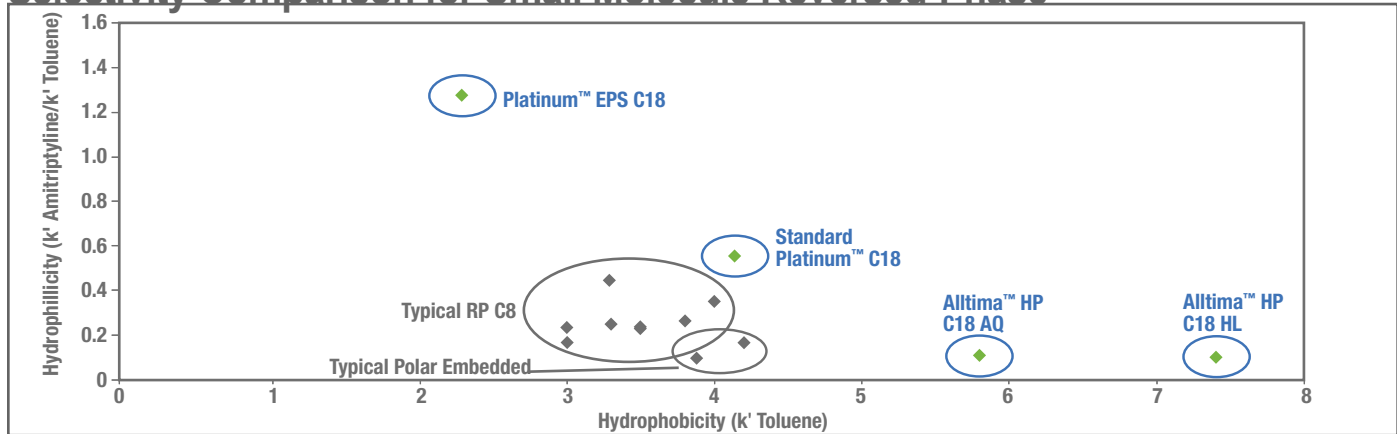
Phase Specifications

Packing	Overall	Particle Size (µm)	Carbon Load (%)	Pore Size (Å)	Surface Area (m ² /g)	pH Range	Features	Benefits	MS Compatible
Platinum™ C18	High throughput media optimized for high speed applications	1.5 3.0	6	100	200	2–7.5	Sub 2µm particle and moderate silica exposure	Reduced carbon load increases speed for all compounds	Yes
Platinum™ C18-EPS	High throughput media optimized for high speed applications	1.5 3.0	5	100	200	2–7.5	Sub 2µm particle and high silica exposure	Unique selectivity, extended retention of polar compounds, and high throughput of non-polar compounds	Yes
Alltima™ HP HILIC	Hydrophilic interaction of polar compounds	1.5 3.0	NA	120	200	1–10	Sub 2µm particle and unbonded high purity silica	Offers completely different retention mechanism over traditional reversed-phase packings	Yes
ProZap™ C18	Large porosity for fast protein separations	1.5	3	500	60	2–8	Large pore on sub 2µm particle	Gives ultra-fast, high resolution bioseparations with minimal backpressure	Yes
Alltima™ HP HiLoad	High purity phase with max carbon load	3.0	24	190	450	1–10	High carbon load	Highly retentive and high capacity. Good for complex samples and structurally similar compounds. Exceptionally low bleed.	Yes
Alltima™ HP C18-AQ	High purity phase with 100% aqueous compatibility	3.0	20	100	450	1–10	Hydrophilic endcapping	100% water wettable ideal for water soluble applications. Exceptionally low bleed.	Yes



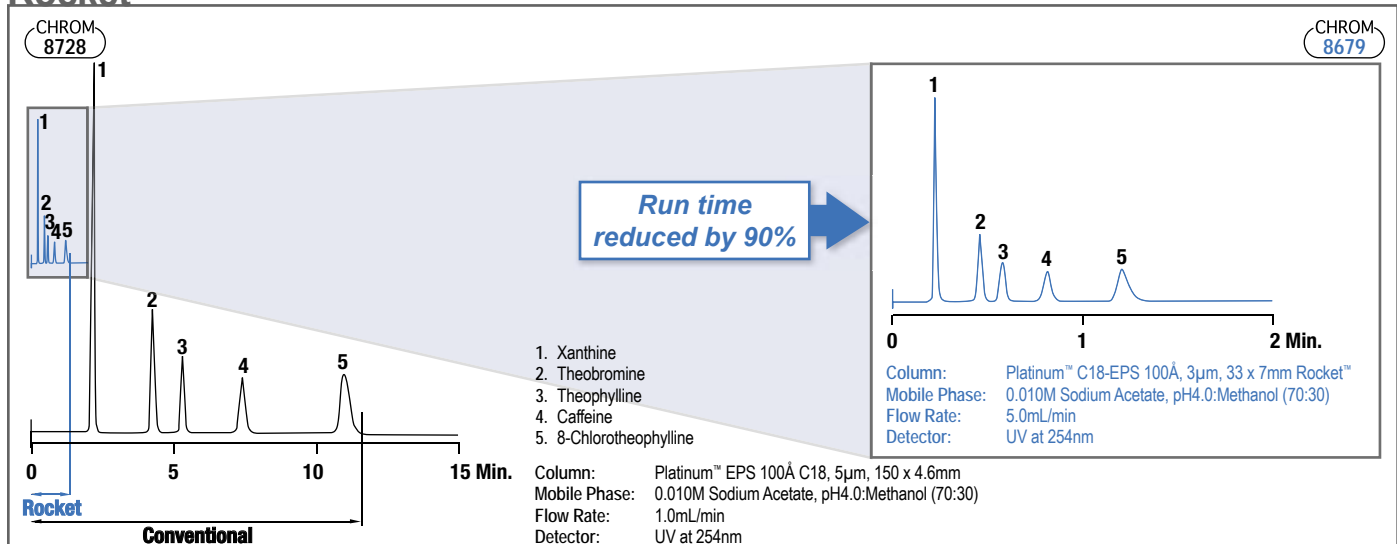
Additional media and HTP columns available. Please contact your local technical support for more information.

Selectivity Comparison for Small Molecule Reversed-Phase



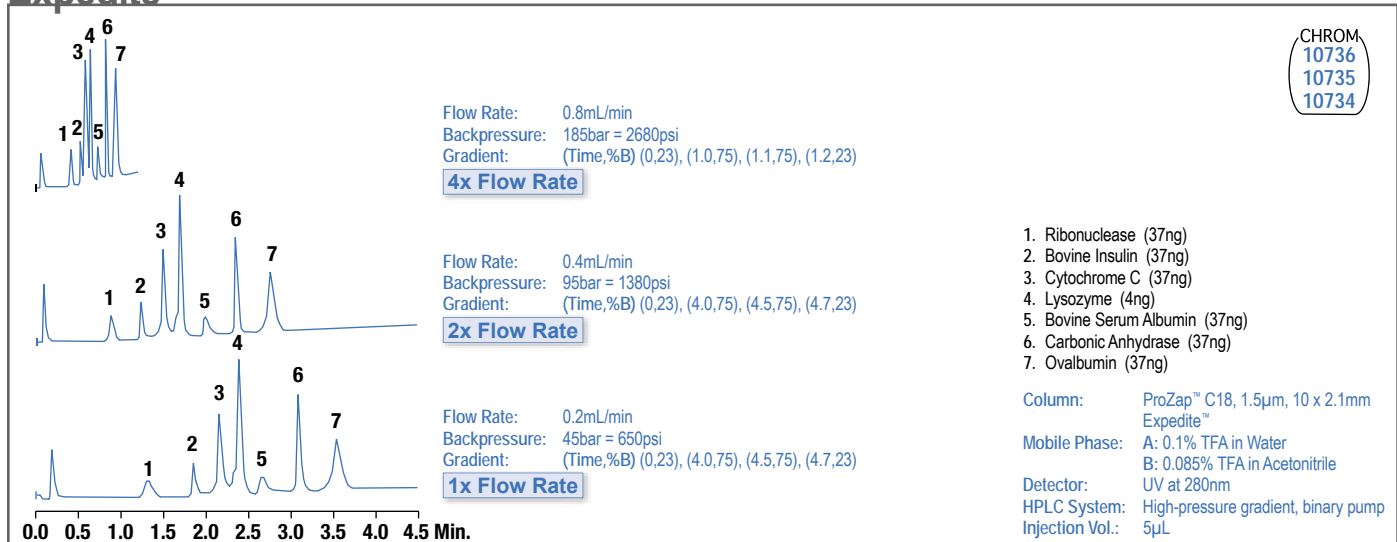
Plotting k' values of different compounds (polar vs. nonpolar) demonstrate unique selectivity of our small molecule reversed-phases featured in this brochure. Additional phases available.

Rocket™



High-speed Rocket™ columns reduce analysis time and solvent consumption significantly on conventional HPLC systems.

Expedite™



With higher flow rates and/or modified gradients, proteins can be separated in under one minute.

The information presented herein is derived from our testing and experience. It is offered for your consideration and verification. Since operating conditions vary significantly, and are not under our control, we disclaim all warranties on the results that may be obtained from the use of our products. Grace reserves the right to change prices and/or specifications without prior notification. Printed in the USA.

Ordering Information *VisionHT™* | *Rocket™* | *Expedite™*

High Throughput Columns for Ultra High-Pressure and Conventional HPLC Systems

Grace® high throughput (HTP) columns increase productivity up to 95%. Whether your system is ultra high-pressure, LCMS or conventional HPLC, Grace offers columns for samples from small molecule to large protein analysis.



VisionHT™ — Ultra High-Pressure Columns		
Media	Dimensions	1.5µm Part No.
VisionHT™ C18	20 x 1mm	5139555
VisionHT™ C18	30 x 1mm	5139559
VisionHT™ C18	50 x 1mm	5139603
VisionHT™ C18	100 x 1mm	5139607
VisionHT™ C18	20 x 2mm	5139557
VisionHT™ C18	30 x 2mm	5139600
VisionHT™ C18	50 x 2mm	5139605
VisionHT™ C18	100 x 2mm	5139609
VisionHT™ C18-P	20 x 1mm	5139556
VisionHT™ C18-P	30 x 1mm	5139601
VisionHT™ C18-P	50 x 1mm	5139604
VisionHT™ C18-P	100 x 1mm	5139608
VisionHT™ C18-P	20 x 2mm	5139558
VisionHT™ C18-P	30 x 2mm	5139602
VisionHT™ C18-P	50 x 2mm	5139606
VisionHT™ C18-P	100 x 2mm	5139610

Rocket™ High Throughput Columns for Conventional HPLC			
Media	Dimensions	1.5µm Part No.	3.0µm Part No.
Platinum™ C18	33 x 7mm	50527	50525
Platinum™ C18	53 x 7mm	50529	50523
Platinum™ C18-EPS	33 x 7mm	50577	50575
Platinum™ C18-EPS	53 x 7mm	50579	50573
Alltima™ HP HILIC	33 x 7mm	86467	86469
Alltima™ HP HILIC	53 x 7mm	86468	86470
ProZap™ C18	33 x 7mm	35589	—
Alltima™ HP C18 HiLoad	33 x 7mm	—	87689
Alltima™ HP C18 HiLoad	53 x 7mm	—	87690
Alltima™ HP C18-AQ	33 x 7mm	—	87811
Alltima™ HP C18-AQ	53 x 7mm	—	87812

Expedite™ High Throughput Columns for Conventional HPLC			
Media	Dimensions	1.5µm Part No.	3.0µm Part No.
Alltima™ HP HILIC MS	20 x 2.1mm	86471	86475
Alltima™ HP HILIC MS	20 x 4.6mm	86472	86476
Alltima™ HP HILIC MS	10 x 2.1mm	—	86473
Alltima™ HP HILIC MS	10 x 4.6mm	—	86474
ProZap™ C18 MS	10 x 2.1mm	35585	—
ProZap™ C18 MS	20 x 2.1mm	35587	—
Alltima™ HP C18 HiLoad MS	10 x 2.1mm	—	87691
Alltima™ HP C18 HiLoad MS	20 x 2.1mm	—	87692
Alltima™ HP C18 HiLoad MS	10 x 4.6mm	—	87693
Alltima™ HP C18 HiLoad MS	20 x 4.6mm	—	87694
Alltima™ HP C18-AQ MS	10 x 2.1mm	—	87813
Alltima™ HP C18-AQ MS	20 x 2.1mm	—	87814
Alltima™ HP C18-AQ MS	10 x 4.6mm	—	87815
Alltima™ HP C18-AQ MS	20 x 4.6mm	—	87816

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