



Choices to give you **control and confidence**,
including unsurpassed Fast LC capabilities

ZORBAX and Poroshell Families

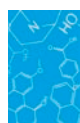


The Measure of Confidence



Agilent Technologies

Day to day, column to column...



You can trust the ZORBAX name for superior reproducibility and long-term stability

From research... to leading-edge method development... to routine quality assurance... Agilent ZORBAX LC columns are optimized for high resolution and high throughput analysis, and feature the sensitivity, accuracy, and reliability that demanding applications require.

Chromatographers around the world recognize the ZORBAX name as synonymous with high quality and reliability.

What's more, ZORBAX columns have been manufactured by Agilent for more than 40 years. We meticulously oversee every step of the manufacturing process – including rigorous physical and chromatographic testing – to ensure the highest reproducibility for your method.

ZORBAX: leading the way in LC breakthroughs

2001

Poroshell 300 – a ZORBAX family column for biomolecules – took its place as the first superficially porous column.

2003

Agilent introduces our ZORBAX Rapid Resolution High Throughput (RRHT) column family – the industry's first sub-2 μm columns.

2006

ZORBAX Eclipse Plus columns harness a unique bonding and endcapping process to deliver symmetrical peak shapes for basic compounds.

2009

ZORBAX Rapid Resolution High Definition (RRHD) columns become the only columns stable to 1200 bar, thanks to an innovative new loading process.

2010

Agilent's unique single-step coacervation process for Poroshell 120 columns yields a more consistent final particle – and more reliable results. This column innovation also enables analysts to produce UHPLC efficiency on conventional HPLC instruments.



“Why should I start my LC column search with Agilent’s ZORBAX family?”

Designed especially for high-productivity analysis (Fast LC), Agilent ZORBAX and Poroshell columns are the best first choice for any analysis, because they give you:

- **The productivity you need to stay ahead of your competition:** technological advances like sub-2 μm particles and superficially porous Poroshell 120 columns deliver increased speed and resolution.
- **Flexibility and method scalability** from lab to lab and around the world – for small molecule and biomolecule analyses.
- **Unbeatable chromatographic performance:** ZORBAX silica – the base silica used for all ZORBAX and Poroshell 120 columns – is ultra-pure, very strong, and highly uniform for ultimate reliability.
- **The broadest range of phases and column configurations** to suit your specific application needs.

“We choose ZORBAX because we need a robust and reproducible column in our laboratory routine.”

**D.W.,
Pharmaceutical QA Lab**

“ZORBAX columns are extremely stable and provide reproducible results over very long periods.”

**R. M.,
Pharmaceutical Lab**

“Switching to ZORBAX has extended my column lifetime by 40%.”

**S.R.,
Independent Testing Laboratory**

You’re just a few clicks away from a wealth of LC resources

Download the Infinity Series LC supplies catalog and Sample Prep Selection Guides at: www.agilent.com/chem/getguides

Get help selecting the right column; email us at: lc-column-support@agilent.com

Access the RRHD product details and application notes: www.agilent.com/chem/rrhd

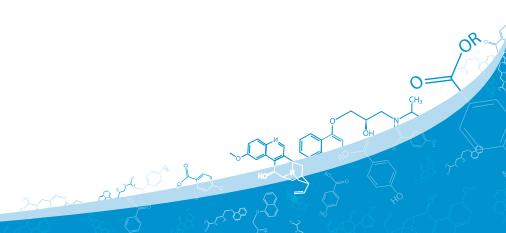
Learn more about the Poroshell 120 column family, including quick access to application notes: www.agilent.com/chem/poroshell120



Download Agilent’s LC Handbook

With tips and tools for working with HPLC – for your mobile device:

www.agilent.com/chem/lchandbookmobile



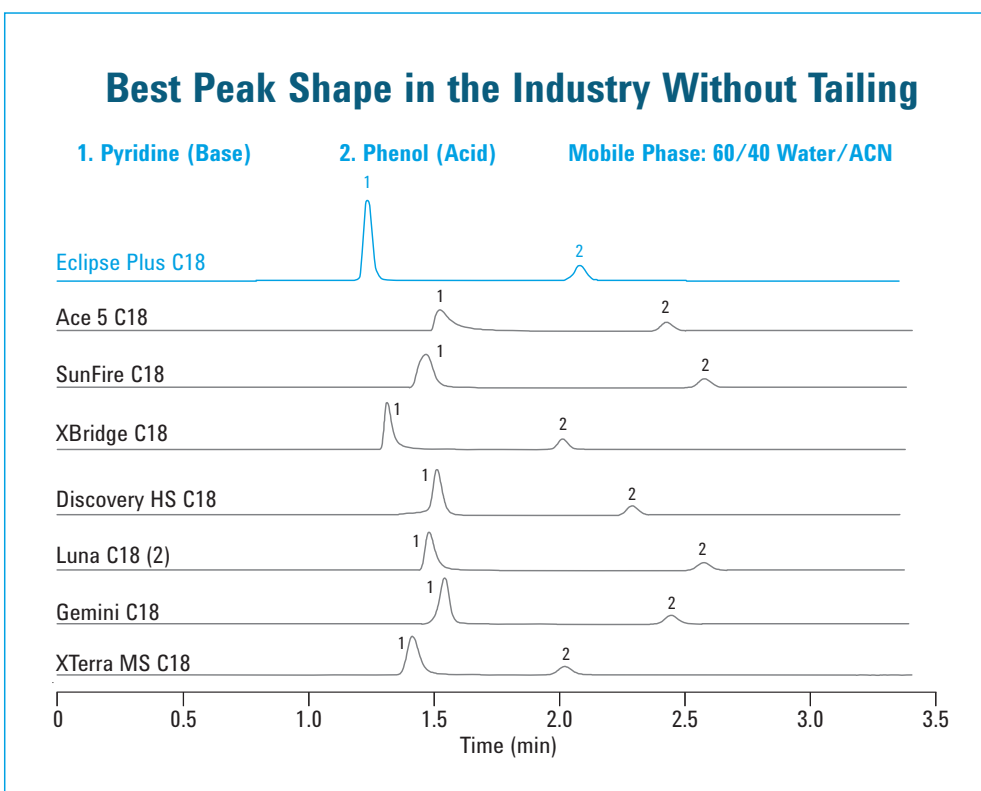
Begin your method development with ZORBAX Eclipse Plus C18 columns for confident separations of acids, bases, and neutrals

Eclipse Plus C18 is the ZORBAX family's flagship bonded phase, delivering superior, reproducible separations of tough basic compounds, as well as acids and neutrals.

These go-to columns achieve their outstanding performance through extra-dense bonding, combined with a double-endcapping process. Moreover, Eclipse Plus columns are manufactured with enhanced high-performance silica, advanced endcapping reagents, and a unique bonding process that is optimized for the improved silica. Together, these features let you...

- Achieve excellent peak shape for all compounds, to reduce the confusion of co-elution or hidden peaks
- Significantly reduce tailing – to confidently resolve and quantitate difficult analytes
- Perform ultra-fast, fast or conventional LC under a range of temperatures, pressures, and pH conditions
- Choose from a variety of column dimensions, based on your application needs:
 - Fast LC 1.8 μm Rapid Resolution High Definition (RRHD) columns (stable to 1200 bar)
 - Rapid Resolution High Throughput columns (stable to 600 bar)
 - Rapid Resolution 3.5 μm and 5 μm configurations

What's more, you can run, transfer, or replace existing HPLC methods from site to site without worrying about change or variability in your results. So the methods you create today won't have to be re-validated tomorrow.



Beyond C18:

A variety of bonded phases with alternate selectivities puts *you* in control

While ZORBAX Eclipse Plus C18 is a reliable column for method development, your sample is unique and you may need alternate selectivities to perfect your separation. In addition, some separations may be optimized with bonded phases other than C18.

That's why the ZORBAX column family has more than 18 phases to provide the alternate selectivities that certain applications require.

Here are a few examples...

If you need...	Choose this bonded phase...
A "next step" alternative to C18	ZORBAX Eclipse Plus Phenyl-Hexyl
Suitability for highly aqueous compounds	ZORBAX SB-Aq and Bonus-RP
Stability at lower pH values (1-2)	ZORBAX StableBond
Alternate selectivity for USP L60	ZORBAX Bonus-RP
Compatibility with LC/MS applications	ZORBAX Solvent Saver (3.0 mm id) ZORBAX NarrowBore (2.1 mm id) ZORBAX MicroBore (1 mm id)
Stability up to 1200 bar with more selectivity options for UHPLC	ZORBAX Rapid Resolution High Definition (RRHD)
Hydrophilic interaction chromatography (HILIC) for retention of polar analytes	ZORBAX HILIC Plus

ZORBAX columns are available in a range of dimensions from nano to Prep with choices for reversed-phase separations of proteins such as 300Å ZORBAX and Poroshell 300.



Agilent offers a complete line of sample preparation products to support LC and LC/MS applications.

The Agilent Bond Elut and Captiva Sample Prep family of products offer the largest choice of formats and widest range of solutions available in the market today.

Learn more at www.agilent.com/chem/sampleprep

To learn more about the latest advances in Fast LC, visit www.agilent.com/chem/lccolumns

"The selectivity of [superficially porous] Poroshell 120 columns is identical to traditional particles. Identical column dimensions make them easy to use in established methods. We find that column-to-column reproducibility is very good."

K.O., Pharmaceutical Manufacturer

Welcome to the latest advance in Fast LC

Agilent Poroshell 120 columns can make your lab's LC & LC/MS systems work even harder

Poroshell 120 columns provide exceptional efficiency for standard HPLC, and significantly boost the performance you'll get from UHPLC instruments. They are designed to deliver:

- **Comparable speed and resolution to sub-2 μm columns** with up to 50% less backpressure – so you can use Poroshell 120 columns on older HPLC instruments, and push your UHPLC instrument to a more productive flow rate.
- **Extraordinary lot-to-lot reproducibility:** Poroshell 120 columns are manufactured using a NEW single-step porous shell process that dramatically reduces minute differences between columns and lots.
- **Superior peak shape** – especially at pH 6-7 – for faster, more accurate results.
- **High-quality separations and longer column life:** Poroshell 120 columns use a standard 2 μm frit, which makes them an excellent choice for bioanalysis, and with "dirty" samples in food and environmental analysis. You can also use the columns in series for exceptionally high efficiency.
- **Easy method transfer and scalability:** Poroshell 120 and Poroshell 300 columns are manufactured in the same facility – with the same strong base silica – as the full ZORBAX family of columns, and are available in phases very similar to ZORBAX phases.

In addition, chromatographers have reported that Poroshell 120 columns demonstrate outstanding method ruggedness.

A new particle technology designed for peak performance

Like all ZORBAX columns, Poroshell 120 columns are manufactured by Agilent. For Poroshell, we start with a solid core and coat it with a superficially porous outer layer (or "porous shell") that provides significant speed and resolution advantages.

To ensure that Poroshell 120 columns would be the best columns for small-molecule separations, we reinvented our porous particle manufacturing process. Instead of traditional multi-layering, used by other manufacturers, Poroshell 120 columns are manufactured **using a proprietary single-step coacervation process** that produces a more consistent final particle – and more reliable chromatographic results.

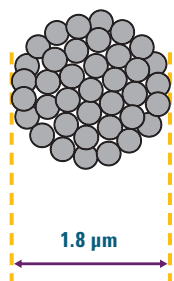
"Poroshell is my go-to column"

"Reliably excellent performance...the new 'standard' in our lab"

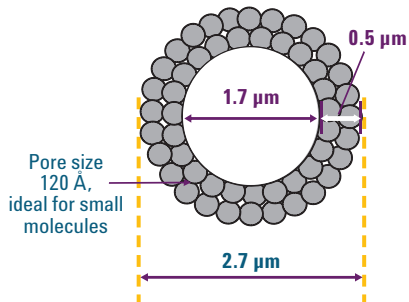
"For complicated samples – which I face most – Poroshell 120 columns save me a lot of time"

Quotes from our Poroshell 120 columns customers

1.8 μm totally porous



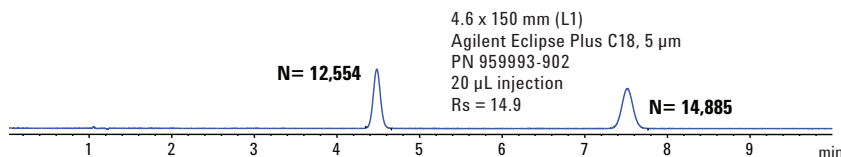
Agilent Poroshell 120 2.7 μm



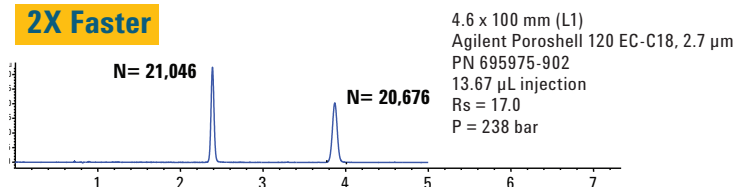
Superficially porous microparticulate column packing

Poroshell 120 particles have a 1.7 μm solid silica core with a 0.5 μm porous outer layer to make a 2.7 μm particle. This carefully selected configuration gives you all the performance advantages of sub-2 μm particles with backpressure that is comparable to a sub-3 μm particle.

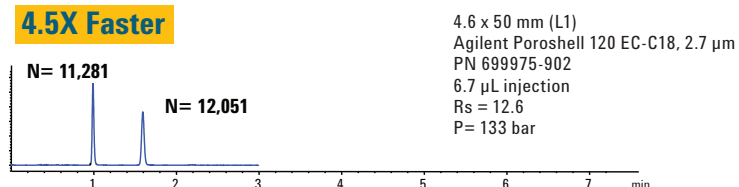
Method Requirement $N > 4000$, R_s better than 11.5



2X Faster



4.5X Faster



Agilent Poroshell 120 is an excellent choice for faster methods at HPLC pressures.

Common Conditions

Mobile Phase: 50:49:1 MeCN:H₂O
Acetic Acid

Sample: 1. Naproxen
2. Butyrophenone

Flow Rate: 1.2 mL/min

USP method for Naproxen tablets – 4.5X faster analysis on Agilent Poroshell 120 at HPLC pressures

This Naproxen separation demonstrates how easy it can be to convert a method to Poroshell 120 columns *without changing the flow rate or mobile phase*.

The **top** chromatogram shows a USP analysis on an Eclipse Plus C18 column, which delivers sharp peaks, three times the needed efficiency, and a resolution of 15.

In the **middle** chromatogram, the Poroshell 120 EC-C18 column (100 mm length) provides greater efficiency and resolution at *twice* the speed of the original method. And because the pressure is only 238 bar, this isocratic method is an excellent HPLC option.

The Poroshell 120 EC-C18 column (50 mm length) on the **bottom** chromatogram still meets the requirements for efficiency and resolution, but is 4.5 times faster than the 5 μm column. Furthermore, the pressure is only 133 bar, which is very HPLC compatible.

To learn more about the latest advances in Fast LC, visit www.agilent.com/chem/hplccolumns

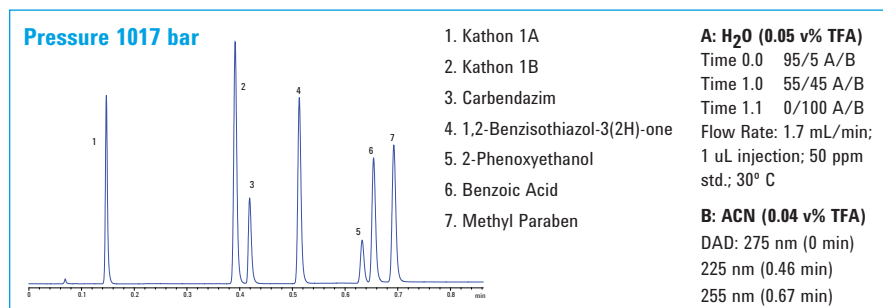
Refine your UHPLC analysis with our expanded selection of ZORBAX Rapid Resolution High Definition (RRHD) columns

Agilent RRHD columns are manufactured with a proprietary loading process that allows them to withstand UHPLC pressures. In fact, they are the *only* columns stable to 1200 bar. Choose from more than 12 phases, plus HILIC and multiple 300Å options for analysis of intact proteins and digests.

The RRHD family also includes our method-tested ZORBAX phases – including **Eclipse Plus**, **StableBond**, and specialty phases such as **Bonus-RP** – so you can reliably scale between conventional and UHPLC methods.



Separation of Seven Biocides in 0.7 min on a ZORBAX RRHD Eclipse Plus C18 2.1 x 50 mm, 1.8 µm Column



Flexible, cost-effective options for scaling and prep

Whether you are scaling up a routine analytical method... or maintaining precise separations throughout every phase of production, Agilent can help you rise to the challenge.

Visit www.agilent.com/chem/prepscale to learn more.



Agilent 1200 Infinity Series

Infinitely more confident execution of Fast LC applications

When you apply LC technologies to today's challenging analyses, accurate quantitation and precise retention times are critical.

The Agilent 1200 Infinity Series is designed to generate reliable data – regardless of variables such as pressure, flow, column dimension, and particle size. Whether you need a “workhorse” LC system for routine analysis or a sophisticated, high-resolution LC/MS system, the Agilent 1200 Infinity Series has what you're looking for.

Together with Agilent ZORBAX LC columns, our 1200 Infinity Series deliver ultimate resolution and sensitivity, while helping you boost your separation power per time. They also ensure easy method transferability between systems – without redevelopment or revalidation.

Agilent 1290 Infinity LC

Infinitely more powerful

Now you are no longer limited in your choice of column dimension, particle type, mobile and stationary phase, flow rate, or pressure. **Agilent's 1290 Infinity LC** gives you the foundation for method transfer to or from any Agilent or non-Agilent UHPLC or HPLC system. You also get the confidence that comes with high-performance features like binary pump, active damping, and Infinity Diode Array Detector.



Agilent 1260 Infinity LC

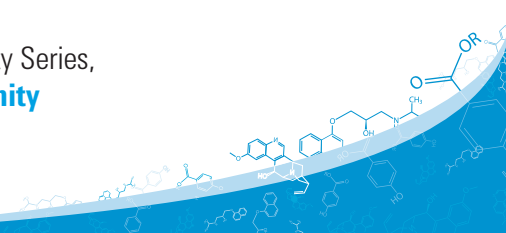
Infinitely more confident

Finally – an LC system that meets your demands for chromatographic performance while matching the constraints of your budget.

The **Agilent 1260 Infinity LC** sets a new standard for analytical HPLC with a 600 bar, high-speed 80Hz detector, and up to 10x greater sensitivity. It is also 100% compatible with HPLC and RRLLC.

Use Agilent certified lamps and capillaries in your instrument for best performance. Request your Agilent 1200 Infinity Series supplies brochure (pub #5990-6511EN) at www.agilent.com/chem/getguides

To learn more about the Agilent 1200 Infinity Series, visit www.agilent.com/chem/infinity



Agilent ZORBAX Rapid Resolution High Definition (RRHD) columns

Achieve true high-definition separations without sacrificing stability

Size (mm)	Particle Size (µm)	Eclipse Plus C18 (USP L1)	Eclipse Plus C8 (USP L7)	Eclipse XDB-C18 (USP L1)	Extend-C18 (USP L1)	Eclipse PAH (USP L1)	Eclipse Plus Phenyl-Hexyl	Bonus RP
2.1 x 150	1.8	959759-902	959759-906	981759-902	759700-902	959759-918	959759-912	859768-901
2.1 x 100	1.8	959758-902	959758-906	981758-902	758700-902	959758-918	959758-912	858768-901
2.1 x 50	1.8	959757-902	959757-906	981757-902	757700-902	959757-918	959757-912	857768-901
3.0 x 150	1.8	959759-302	959759-306	981759-302				
3.0 x 100	1.8	959758-302	959758-306	981758-302	758700-302	959758-318	959758-312	
3.0 x 50	1.8	959757-302	959757-306	981757-302	757700-302	959757-318	959757-312	

Size (mm)	Particle Size (µm)	StableBond SB-C18 (USP L1)	StableBond SB-C8 (USP L7)	StableBond SB-Phenyl (USP L11)	StableBond SB-CN (USP L10)	StableBond SB-Aq	HILIC Plus
2.1 x 150	1.8	859700-902	859700-906	859700-912	859700-905	859700-914	959759-901
2.1 x 100	1.8	858700-902	858700-906	858700-912	858700-905	858700-914	959758-901
2.1 x 50	1.8	857700-902	857700-906	857700-912	857700-905	857700-914	959757-901
3.0 x 150	1.8	859700-302	859700-306				
3.0 x 100	1.8	858700-302	858700-306	858700-312	858700-305	858700-314	959758-301
3.0 x 50	1.8	857700-302	857700-306	857700-312	857700-305	857700-314	959757-301

ZORBAX RRHD columns for protein and peptide separations

Size (mm)	Particle Size (µm)	StableBond 300SB-C18	StableBond 300SB-C8
2.1 x 100	1.8	858750-902	858750-906
2.1 x 50	1.8	857750-902	857750-906

Agilent Poroshell 120 columns

High efficiency at lower pressures with proven column-to-column consistency

Size (mm)	Particle Size (µm)	SB-C18	EC-C18	EC-C8
4.6 x 150	2.7	683975-902	693975-902	693975-906
4.6 x 100	2.7	685975-902	695975-902	695975-906
4.6 x 75	2.7	687975-902	697975-902	697975-906
4.6 x 50	2.7	689975-902	699975-902	699975-906
4.6 x 30	2.7	681975-902	691975-902	691975-906
3.0 x 150	2.7	683975-302	693975-302	693975-306
3.0 x 100	2.7	685975-302	695975-302	695975-306
3.0 x 75	2.7	687975-302	697975-302	697975-306
3.0 x 50	2.7	689975-302	699975-302	699975-306
3.0 x 30	2.7	681975-302	691975-302	691975-306
2.1 x 150	2.7	683775-902	693775-902	693775-906
2.1 x 100	2.7	685775-902	695775-902	695775-906
2.1 x 75	2.7	687775-902	697775-902	697775-906
2.1 x 50	2.7	689775-902	699775-902	699775-906
2.1 x 30	2.7	681775-902	691775-902	691775-906

Note: Poroshell 120 columns have a 600 bar/9000 psi pressure limit.

For a complete list of part numbers and specifications, go to www.agilent.com/chem/lccolumns

Agilent ZORBAX RRHD Eclipse Plus

See page 10 for more information

Agilent ZORBAX Rapid Resolution High Throughput (RRHT) columns, Stable to 600 Bar

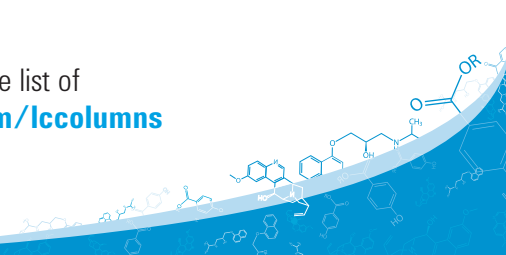
Size (mm)	Particle Size (µm)	Eclipse Plus C18 (USP L1)	Eclipse Plus C8 (USP L7)	Eclipse Plus Phenyl-Hexyl (USP L11)	Eclipse Plus PAH (USP L1)
4.6 x 100	1.8	959964-902	959964-906	959964-912	959964-918
4.6 x 75	1.8	959951-902			
4.6 x 50	1.8	959941-902	959941-906	959941-912	959941-918
4.6 x 30	1.8	959931-902	959931-906	959931-912	959931-918
3.0 x 100	1.8	959964-302	959964-306	959964-312	
3.0 x 50	1.8	959941-302	959941-306	959941-312	
2.1 x 100	1.8	959764-902	959764-906	959764-912	959764-918
2.1 x 50	1.8	959741-902	959741-906	959741-912	959741-918
2.1 x 30	1.8	959731-902	959731-906	959731-912	

Agilent ZORBAX Eclipse Plus 3.5µm and 5µm columns

Special bonding that delivers exceptional peak shapes for a broad range of analytes

Size (mm)	Particle Size (µm)	Eclipse Plus C18 (USP L1)	Eclipse Plus C8 (USP L7)	Eclipse Plus Phenyl-Hexyl (USP L11)	Eclipse Plus PAH (USP L1)
4.6 x 250	5	959990-902	959990-906	959990-912	959990-918
4.6 x 150	5	959993-902	959993-906	959993-912	959993-918
4.6 x 100	5	959996-902	959996-906	959996-912	959996-918
4.6 x 50	5	959946-902	959946-906		
3.0 x 250	5				959990-318
3.0 x 150	5	959993-302	959993-306		
2.1 x 250	5				959790-918
2.1 x 150	5	959701-902	959701-906	959701-912	959701-918
2.1 x 50	5	959746-902	959746-906		
4.6 x 150	3.5	959963-902	959963-906	959963-912	959963-918
4.6 x 100	3.5	959961-902	959961-906	959961-912	959961-918
4.6 x 75	3.5	959933-902	959933-906	959933-902	
4.6 x 50	3.5	959943-902	959943-906	959943-912	959943-918
4.6 x 30	3.5	959936-902	959936-906	959936-912	
3.0 x 150	3.5	959963-302	959963-306	959963-312	
3.0 x 100	3.5	959961-302	959961-306	959961-312	
2.1 x 150	3.5	959763-902	959763-906	959763-912	
2.1 x 100	3.5	959793-902	959793-906	959793-912	959793-918
2.1 x 50	3.5	959743-902	959743-906	959743-912	
2.1 x 30	3.5	959733-902	959733-906	959733-912	

To place your order now and view a complete list of Agilent LC columns, visit www.agilent.com/chem/lccolumns



Agilent's ZORBAX LC column family

Results you can trust across broad separation conditions

- **Superior choice and flexibility** for small molecule and reversed phase biomolecule analysis with more than 18 phases, including Eclipse Plus and HILIC
- **Easy method development** starting with ZORBAX Eclipse Plus C18 for excellent performance across analytes and conditions
- **Cutting-edge Fast LC** with advances such as superficially porous Poroshell 120 columns for faster analysis and high resolution on any HPLC or UHPLC
- **UHPLC method refinement** via ZORBAX RRHD 1.8 μm columns (stable to 1200 bar)
- **Performance, reproducibility, and value** – *proven* through millions of injections
- **Exceptional peak shape performance** through proven and innovative silica and bonding technologies
- **The long-term confidence** of superior prep and scalability across the entire family, and the knowledge that the choices you need for analytical and preparative separations are available when you need them across the entire family.

You also have access to Agilent's extensive applications library for faster method development – plus worldwide technical support, speedy problem resolution, and our global infrastructure and delivery network.



Agilent Chemistries: Keeping you in command of your analyses

In addition to ZORBAX columns for small molecule and biomolecule reversed phase analysis, we offer columns with alternate selectivities – plus a range of columns for fast separation and characterization of biomolecules using techniques such as size exclusion and ion exchange.

Agilent's meticulous production oversight also ensures column and sample prep consistency and performance. With more than 40 years of experience in producing polymers and silica chemistries, our team is committed to continuously developing new advances that make you most productive.

To learn more about Agilent ZORBAX columns, visit us online at www.agilent.com/chem/lccolumns

In the U.S. and Canada, call toll free: **1-800-227-9770**, option 3, then option 3 again

In other countries, please call your local Agilent Representative or Agilent Authorized Distributor – see www.agilent.com/chem/contactus

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