

# Zebron *PLUS* GC Columns

Improved Inertness, Better Peak Shape,  
Low Bleed, and Aqueous Stability

**Zebron™**  
GC Columns

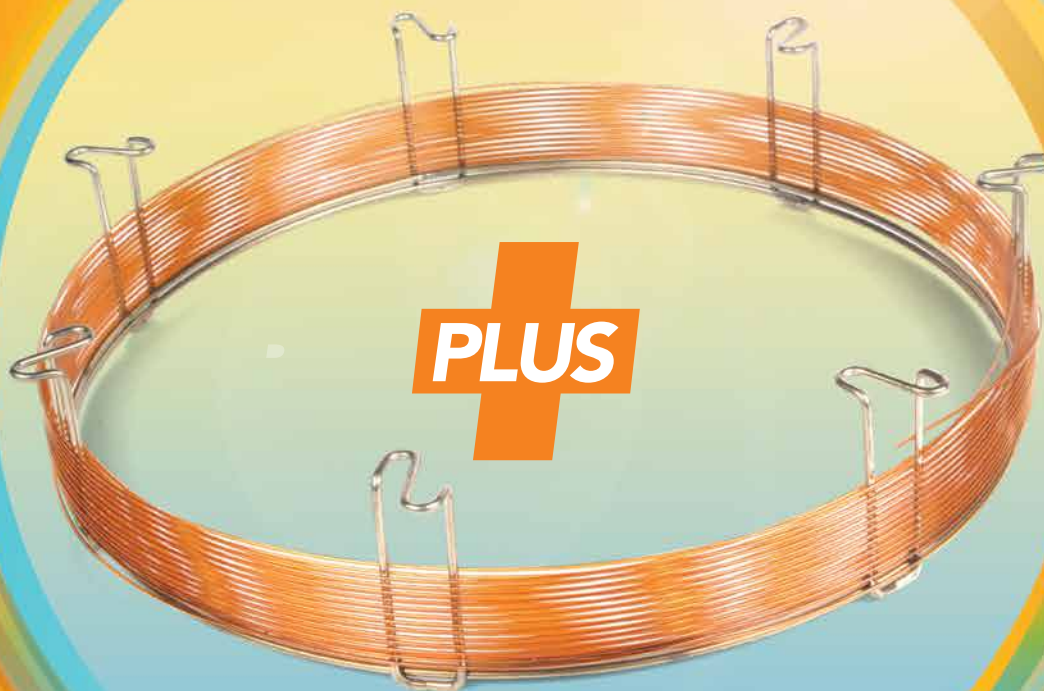
ZB-1*PLUS*™

ZB-5*PLUS*™

ZB-5MS*PLUS*™

ZB-624*PLUS*™

ZB-WAX*PLUS*™



**phenomenex®**  
...breaking with tradition™

[www.phenomenex.com/GCplus](http://www.phenomenex.com/GCplus)



# Exceptionally Versatile GC phases



**Exceptional Inertness**  
**Reduced Bleed**  
**Improved Peak Shape**  
**Aqueous Stability**

Zebtron™ PLUS Selection Table

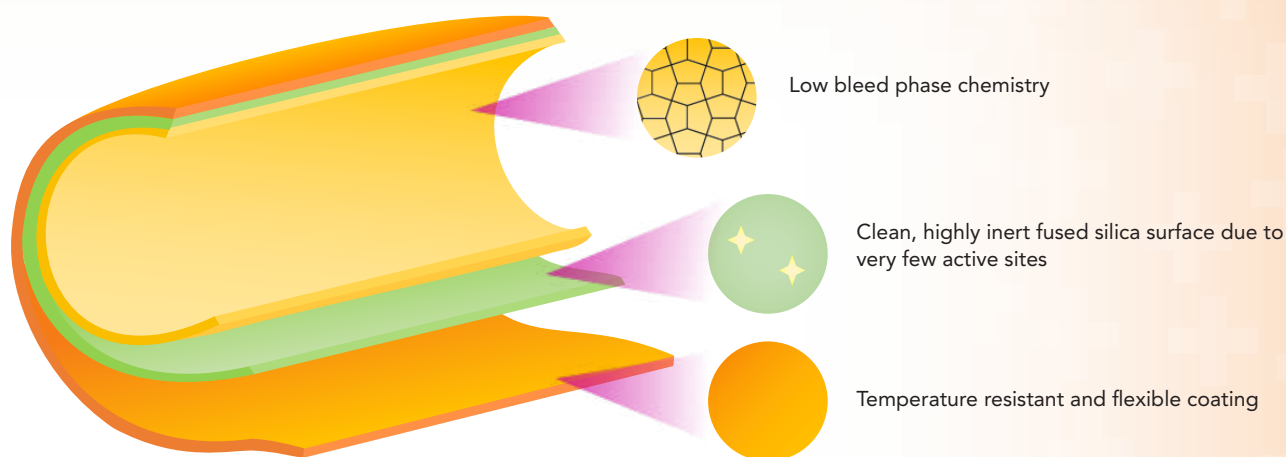
POLARITY	PHASE	COMPOSITION	TEMP. LIMITS (Isothermal/TPGC)	GC-MS CERTIFIED
5	<b>ZB-1 PLUS™</b> Low bleed phase for non-polar compounds	100 % Dimethylpolysiloxane	-60 to 360/370 °C	✓
8	<b>ZB-5 PLUS™</b> Versatile, low bleed, inert 5 % phenyl phase for multi-use applications	5 % Phenyl 95 % Dimethylpolysiloxane	-60 to 360/370 °C	✓
8	<b>ZB-5MS PLUS™</b> The next generation of inertness for specialty chemical, forensic, toxicology, and food testing applications	5 % Phenyl-Arylene 95 % Dimethylpolysiloxane	-60 to 325/350 °C	✓
13	<b>ZB-624 PLUS™</b> The optimal choice for the analysis of volatile compounds for Environmental, Pharmaceutical, Food, Cannabis, and specialty chemicals	Proprietary	-20 to 300/320 °C	✓
52	<b>ZB-WAX PLUS™</b> 100 % aqueous stability with high retention of alcohols and chlorinated solvents	100 % Polyethylene Glycol (PEG)	20 to 250/260 °C * Thicker films (≥ 1.0 µm) are rated to 230/240 °C	

# What's in the Zebron™ PLUS?

Active sites on a GC column's surface can result in analyte adsorption and degradation, which negatively affect peak shape and response.

To reduce potential surface activity, Zebron PLUS phases (ZB-1PLUS, ZB-5PLUS, ZB-5MSPLUS, and ZB-624PLUS) are designed with a rigorous fused silica deactivation process that improves inertness and peak shapes for troublesome compounds

Zebron ZB-WAXPLUS is specially designed for 100% aqueous stability, enhanced resolution and better reproducibility .



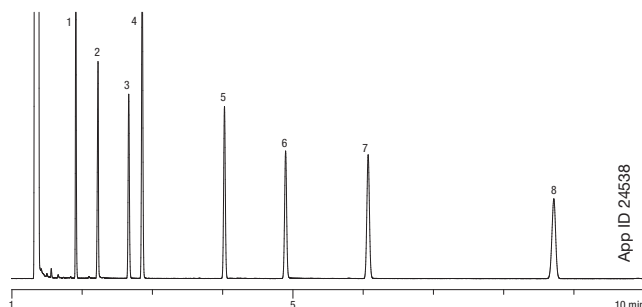
USP PHASE	APPLICATIONS	RECOMMENDED USE	FOR ALTERNATE RESULTS	Page
<b>G1, G2, G9, G38</b>	Acids, Amines, Diesel Fuel, Drugs, Flavors & Fragrances, PCBs (EPA Method 1668), Pesticides, Essential Oils	<ul style="list-style-type: none"> <li>Especially suited to high sensitivity GC-MS</li> <li>Improved signal-to-noise ratio for better sensitivity and mass spectral integrity</li> <li>Extremely inert for active compounds</li> </ul>	Simulated distillation: <b>ZB-1XT SimDist Metal</b>  High temperatures: <b>ZB-1HT Inferno™</b>	<b>4</b>
<b>G27, G36, G41</b>	Drugs of Abuse, EPA Methods, FAMES, Nitrosamines, Pesticides, Phenols, Benzodiazepines, Barbiturates, THC Metabolites	<ul style="list-style-type: none"> <li>Highly inert for improved peak shape of acidic/basic compounds, drugs of abuse, and pesticides</li> <li>Maximum sensitivity for GC-MS 5 % phenyl selectivity with improved column-to-column performance</li> </ul>	SVOCs, PAHs, or PBDEs: <b>ZB-SemiVolatiles</b>  Drugs of abuse: <b>ZB-Drug-1</b>	<b>5</b>
<b>G27</b>	Acids, Alkaloids, Amines, Drugs, Essential Oils/Flavors, Halo-hydrocarbons, Phenols, Residual Solvents, Solvent Impurities, Pesticides/ Herbicides, Drugs of Abuse	<ul style="list-style-type: none"> <li>Specialized deactivation for versatile 5 % Phenyl-Arylene selectivity with improved sensitivity</li> <li>Low bleed (MS Certified) and well-suited to high sensitivity GC-MS and GC-MS/MS work</li> </ul>	SVOCs, PAHs, or PBDEs: <b>ZB-SemiVolatiles</b>  Alternate phenyl selectivity: <b>ZB-5PLUS</b>	<b>6</b>
<b>G43</b>	Cannabis, Terpenes, Residual Solvents, Volatile Amines, EPA Method 8260, EPA Method 524, EPA Method 624, Food, Flavors and Fragrances, Solvent Purity, Alcohols	<ul style="list-style-type: none"> <li>Enhanced peak shape with superior deactivation</li> <li>Increased sensitivity for high boiling solvent</li> <li>Extremely low bleed for GC-MS</li> <li>High temperature stability (300/320 °C)</li> </ul>	VOCs and OVIs: <b>ZB-WAXPLUS</b> <b>ZB-624</b>	<b>7-8</b>
<b>G14, G15, G16, G20, G39, G47</b>	Alcohols, Aldehydes, Aromatics, Essential Oils, Flavors & Fragrances, Free Fatty Acids, Glycols, OVIs, Pharmaceuticals, Solvents / Residual Solvents, Styrene, Xylene Isomers	<ul style="list-style-type: none"> <li>Exceptional stability to repeated injections</li> <li>Extremely inert for acidic compounds</li> <li>Enhanced selectivity for low boiling solvents; high retention of alcohols and chlorinated solvents</li> <li>Increased efficiency at 20 °C</li> </ul>	G43 phase for residual solvents: <b>ZB-624</b>  Free fatty acids testing: <b>ZB-FFAP</b>	<b>9</b>

# Zebron™ ZB-1 PLUS™

- Very low bleed (MS Certified) phase especially suited to high sensitivity GC-MS
- Extremely inert for active compounds such as drugs, pesticides, or acids and bases
- Improved signal-to-noise ratio for better sensitivity and mass spectral integrity
- Equivalent selectivity to 100 % dimethylpolysiloxane phases

## Lower Overall Column Activity

Activity is a key measure of column quality. ZB-1 PLUS columns are aggressively tested to ensure deactivation. Our QC test below demonstrates low tailing on ZB-1 PLUS for even the most active compounds, like 2-ethylhexanoic acid.



**Column:** Zebron ZB-1 PLUS  
**Dimensions:** 30 meter x 0.25 mm x 0.25 µm  
**Part No.:** 7HG-G031-11  
**Injection:** Split 100:1 @ 250 °C, 1 µL  
**Recommended Liner:** Zebron PLUS Single Taper Z-Liner™  
**Liner Part No.:** AG2-0A13-05 (for Agilent® & Thermo Scientific® systems)  
**Carrier Gas:** Hydrogen @ 1.18 mL/min (constant flow)  
**Oven Program:** 140 °C (Isothermal)  
**Detector:** FID @ 325 °C  
**Sample:**  
 1. Decane  
 2. 2-Ethylhexanoic Acid  
 3. 4-Chlorophenol  
 4. Naphthalene  
 5. Tridecane  
 6. 1-Undecanol  
 7. Dicyclohexylamine  
 8. Pentadecane

## Equivalent or Better Results

Upgrade to ZB-1 PLUS from any 100 % dimethylpolysiloxane phase:

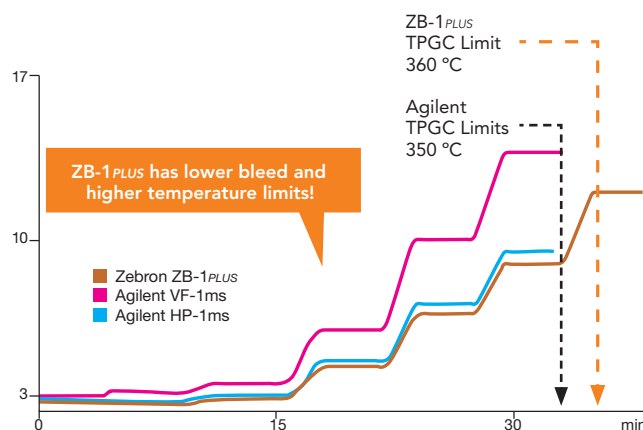
Agilent®	Restek®	SGE®	Supelco®
• DB®-1	• Rtx®-1	• BP1	• SPB®-1
• DB-1ms	• Rtx-1ms	• SolGel-1ms™	• SE-30
• DB-1ms Ultra Inert	• Rxi®-1ms		• MET-1
• HP-1			• MDN-1
• HP-1ms			• Equity®-1
• HP-1ms Ultra Inert			
• VF-1ms			
• CP-Sil 5 CB			
• Ultra 1			

## Recommended Applications

- Acids
- Amines
- Drugs
- EPA Methods (1668)
- Diesel Fuel
- Essential Oils
- Flavors & Fragrances
- Oxygenates and GROs
- PCBs
- Pesticides
- Solvent Impurities
- Sulfur Compounds (Light)

## Lower Column Bleed

We tested the ZB-1 PLUS column bleed profile against other "1MS" columns on the market – ZB-1 PLUS shows the lowest bleed, even at temperatures up to 360 °C.



Test conditions were stopped at 350 °C for all competitor columns so as not to cause damage to the stationary phase by exceeding their maximum temperature limit.

### Conditions for all columns:

**Columns:** As listed  
**Dimensions:** 30 meter x 0.25 mm x 0.25 µm  
**Injection:** Null Injection @ 250 °C  
**Recommended Liner:** Zebron PLUS Single Taper Z-Liner™  
**Liner Part No.:** AG2-0A13-01 (for Agilent® & Thermo Scientific® systems)  
**Carrier Gas:** Hydrogen @ 100 mL/min (constant flow)  
**Oven Program:** 240 °C for 9 min to 280 °C for 6.3 min to 320 °C for 6.4 min to 340 °C for 5.8 min to 350 °C for 5.5 min to 360 °C  
**Detector:** FID @ 320 °C

Comparative separations may not be representative of all applications.

## Did You Know?

Using columns with a slightly smaller ID can provide better resolution, allowing your runtime to in turn be shortened by as much as 50 %. Learn more at:

[www.phenomenex.com/GCPhaseRatio](http://www.phenomenex.com/GCPhaseRatio)

- Highly inert—improved peak shape for acidic/basic compounds, drugs of abuse, and pesticides
- Very low bleed (MS certified) levels provide maximum sensitivity
- Intense QC specifications ensure column-to-column performance
- Engineered Self Cross-linking™ (ESC) bonding results in phase stability and high temperature limits
- Same selectivity as the 5 % phenyl / 95 % dimethylpolysiloxane phase

### Equivalent or Better Results

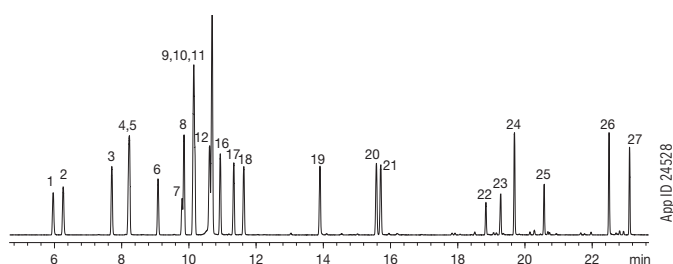
Upgrade to ZB-5PLUS from any 5 % phenyl / 95 % dimethylpolysiloxane phase:

Agilent®	Restek®	SGE®	Supelco®	OV®
• DB®-5	• Rtx®-5	• BP5	• MDN-5S	• OV-5
• HP-5	• Rtx-5MS	• BPX5	• SPB®-5	
• HP-5ms	• Rtx-5Amine		• Equity®-5	
• HP-5msi	• Rxi®-5ms			

### Recommended Applications

- Barbiturates
- Benzodiazepines
- Drugs of Abuse
- EPA Methods
- FAMES
- Nitrosamines
- Pesticides
- Phenols
- THC Metabolites

## Phenols

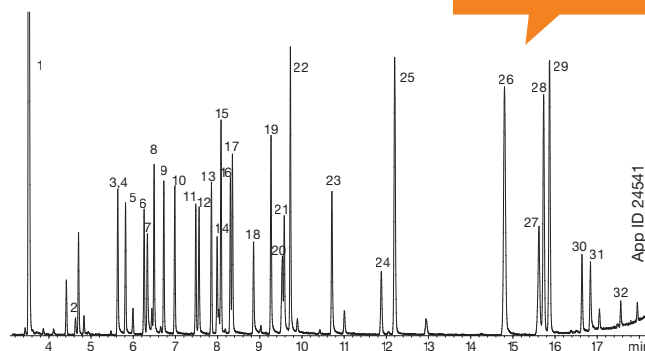


**Column:** Zebtron ZB-5PLUS  
**Dimensions:** 30 meter x 0.25 mm x 0.25 µm  
**Part No.:** 7HG-G032-11  
**Injection:** Split 5:1 @ 240 °C, 1 µL  
**Carrier Gas:** Helium @ 1.2 mL/min (constant flow)  
**Oven Program:** 60 °C to 140 °C @ 5 °C/min to 280 °C @ 10 °C/min  
**Detector:** MSD @ 230 °C, 45-450 amu

Sample:	1. Phenol	16. 2,3-Dimethylphenol
	2. 2-Chlorophenol	17. 3,4-Dimethylphenol
	3. 2-Methylphenol	18. 2,6-Dichlorophenol
	4. 4-Methylphenol	19. 4-Chloro-3-methylphenol
	5. 3-Methylphenol	20. 2,4,6-Trichlorophenol
	6. 2,6-Dimethylphenol	21. 2,4,5-Trichlorophenol
	7. 2-Nitrophenol	22. 2,4-Dinitrophenol
	8. 2-Ethylphenol	23. 4-Nitrophenol
	9. 2,4-Dimethylphenol	24. 2,3,4,6-Tetrachlorophenol
	10. 3,5-Dimethylphenol	25. 4,6-Dinitro-2-methylphenol
	11. 2,5-Dimethylphenol	26. Pentachlorophenol
	12. 4-Ethylphenol	27. Dinoseb
	13. 3-Ethylphenol	
	14. 2,4-Dichlorophenol	
	15. Benzoic Acid	

## Drug Screening by GC-MS

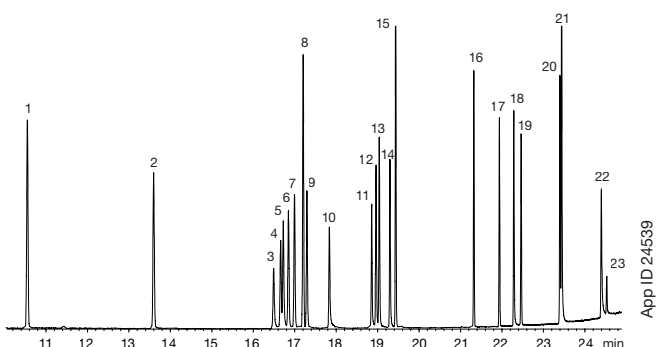
Excellent separation of 32 drugs!



**Column:** Zebtron ZB-5PLUS  
**Dimensions:** 30 meter x 0.25 mm x 0.25 µm  
**Part No.:** 7HG-G032-11  
**Injection:** Split 15:1 @ 240 °C, 1 µL  
**Carrier Gas:** Helium @ 1.1 mL/min (constant flow)  
**Oven Program:** 140 °C to 240 °C @ 10 °C/min for 5 min to 320 °C @ 25 °C/min for 2.25 min  
**Detector:** MSD @ 230 °C, 45-450 amu  
**Sample:** Analytes (underivatized) are 25 ppm in dichloromethane

1. Nicotine	17. Dimenhydrinate
2. Methylecgonine	18. Doxylamine
3. Ibuprofen	19. Phenobarbital
4. Allobarbitol	20. 8-Chlorotheophylline
5. Aprobital	21. Methapyrilene
6. Butabarbital	22. Chlorpheniramine
7. Acetaminophen	23. Brompheniramine
8. Phenacetin	24. Cocaine
9. Amobarbital	25. Chlorcyclizine
10. Pentobarbital	26. Codeine
11. Secobarbital	27. Morphine
12. Meprobamate	28. Diazepam
13. Methyl benzilate	29. Hydrocodone
14. Caffeine	30. 6-Monoacetylmorphine
15. Benzphetamine	31. Oxycodone
16. Hexobarbital	32. Diacetylmorphine (Heroin)

## Endocrine Disruptors by GC-MS



**Column:** Zebtron ZB-5PLUS  
**Dimensions:** 30 meter x 0.25 mm x 0.25 µm  
**Part No.:** 7HG-G032-11  
**Injection:** Split 40:1 @ 250 °C, 1 µL  
**Carrier Gas:** Helium @ 1.2 mL/min (constant flow)  
**Oven Program:** 100 °C to 180 °C @ 5 °C/min to 320 °C @ 15 °C/min  
**Detector:** MSD @ 180 °C, 45-450 amu  
**Sample:** Analytes are 50 ppm in acetone

1. Dimethyl phthalate	9. Terbutylazine	17. 4,4'-DDD
2. Diethyl phthalate	10. Secbumetone	18. Di-n-hexyl phthalate
3. Atraton	11. Simetryn	19. 4,4'-DDT
4. Simazine	12. Ametryn	20. Dicyclohexyl phthalate
5. Prometon	13. Prometryn	21. bis(2-Ethylhexyl)phthalate
6. Atrazine	14. Terbutryn	22. Di-n-octyl phthalate
7. Propazine	15. Dibutyl phthalate	23. Ethinyl estradiol
8. Dipropyl phthalate	16. 4,4'-DDE	

# Zebron™ ZB-5MS<sub>PLUS</sub>™

- The next generation of inertness for specialty chemical, forensic, toxicology, and food testing applications
- Specialized deactivation for versatile 5 % phenyl-arylene selectivity with improved sensitivity
- Low bleed (MS Certified) and well-suited to high sensitivity GC-MS and GC-MS/MS work

## Equivalent or Better Results

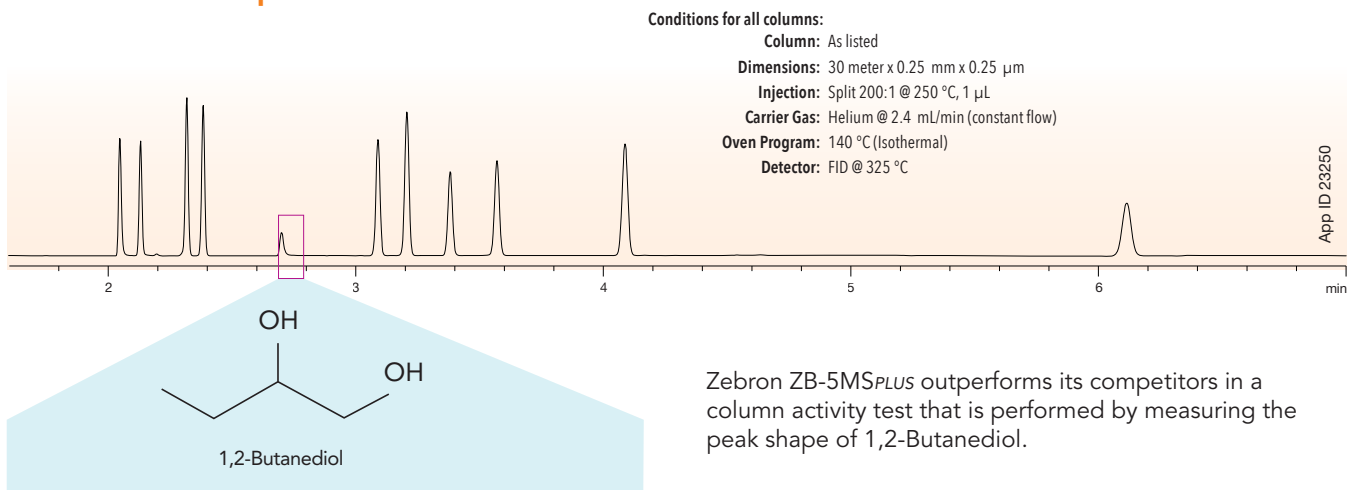
Upgrade to ZB-5MS<sub>PLUS</sub> from any 5 % phenyl or 5 % phenyl-arylene / 95 % dimethylpolysiloxane phase:

- |                      |                |                 |
|----------------------|----------------|-----------------|
| <b>Agilent®</b>      | <b>Restek®</b> | <b>Supelco®</b> |
| • DB®-5ms            | • Rxi®-5Sil MS | • SLB®-5ms      |
| • DB-5ms Ultra Inert |                |                 |
| • HP-5ms             |                |                 |
| • HP-5ms Ultra Inert |                |                 |
| • VF-5ms             |                |                 |

## Recommended Applications

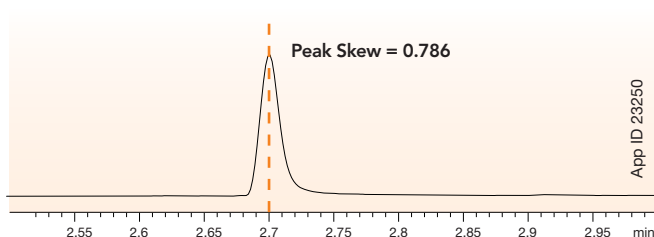
- |             |                     |                      |
|-------------|---------------------|----------------------|
| • Acids     | • Essential Oils    | • Phenols            |
| • Alkaloids | • Flavors           | • Residual Solvents  |
| • Amines    | • Halo-hydrocarbons | • Solvent Impurities |
| • Drugs     | • Pesticides        |                      |

## Better Peak Shape

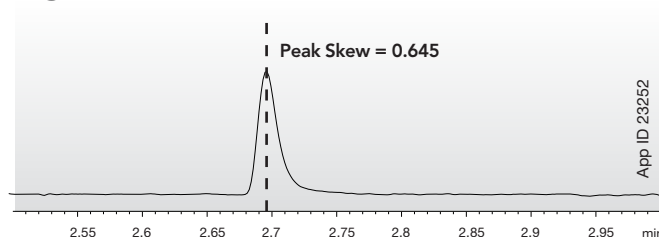


Zebron ZB-5MS<sub>PLUS</sub> outperforms its competitors in a column activity test that is performed by measuring the peak shape of 1,2-Butanediol.

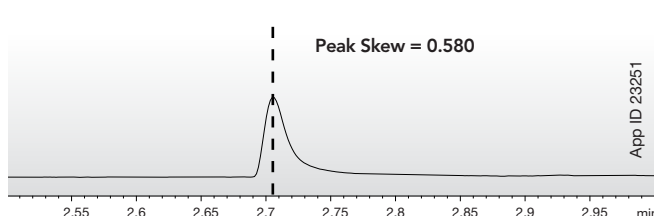
## Zebron ZB-5MS<sub>PLUS</sub>



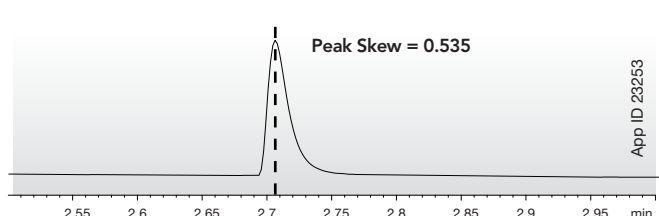
## Agilent® DB®-5ms Ultra Inert



## Agilent HP-5ms Ultra Inert



## Restek® Rxi®-5Sil MS



Comparative separations may not be representative of all applications.

For part numbers, applications, and more information visit

[www.phenomenex.com/PlusGC](http://www.phenomenex.com/PlusGC)

# Zebron 624PLUS™

- Enhanced peak shape with superior deactivation
- Increased sensitivity for high boiling solvents
- Extremely low bleed for GC-MS
- High temperature stability (300/320 °C)

## What makes the PLUS in ZB-624PLUS?

### Low Bleed

Engineered Self Cross-linking™ (ESC™) provides high thermal stability with maximum column temperatures up to 300/320 °C.

### Enhanced Inertness

Proprietary superior deactivation gives great peak shape for troublesome compounds.

### High Selectivity

A G43 phase that's highly selective for polar, non-polar, low and high boiling solvents.

### Column-to-Column Reproducibility

Excellent column-to-column reproducibility well suited for validated methods.

### Temperature Limits

Push the temperature limits of traditional 624 and elute/bake high boiling analytes at 300/320 °C.

### MS Certified

Low bleed characteristics makes it the right choice for GC-MS.

## Equivalent or Better Results

Upgrade to Zebron from these similar\* phases:

- |                        |                 |
|------------------------|-----------------|
| <b>Agilent®</b>        | <b>Restek®</b>  |
| • CP-Select 624 CB     | • Rxi-624Sil MS |
| • DB-624UI Ultra Inert |                 |

\*not exact equivalent, selectivity may differ

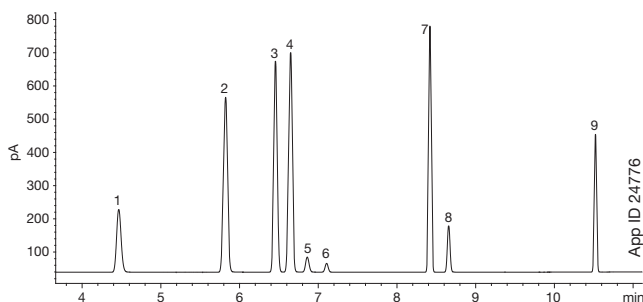
## Recommended Applications

- |                     |                   |                          |
|---------------------|-------------------|--------------------------|
| • Cannabis          | • EPA Method 8260 | • Flavors and Fragrances |
| • Terpenes          | • EPA Method 524  | • Solvent Purity         |
| • Residual Solvents | • EPA Method 624  | • Alcohols               |
| • Volatile Amines   | • Food            |                          |

## Shorter Residual Solvent Analysis by GC-FID

Why wait for an hour long method. Upgrade to ZB-624PLUS and get short runtime, low bleed, high temperature resistance, and the 624 selectivity, all in one column.

### Separation of Residual Solvent Critical Pairs in Less than 15 min



**Column:** Zebron ZB-624PLUS

**Dimensions:** 30 meter x 0.32 mm x 1.80 µm

**Part No.:** 7HM-G040-31

**Injection:** Split 20:1 @ 200 °C, 1 µL

**Recommended Liner:** Zebron PLUS Straight Z-Liner™

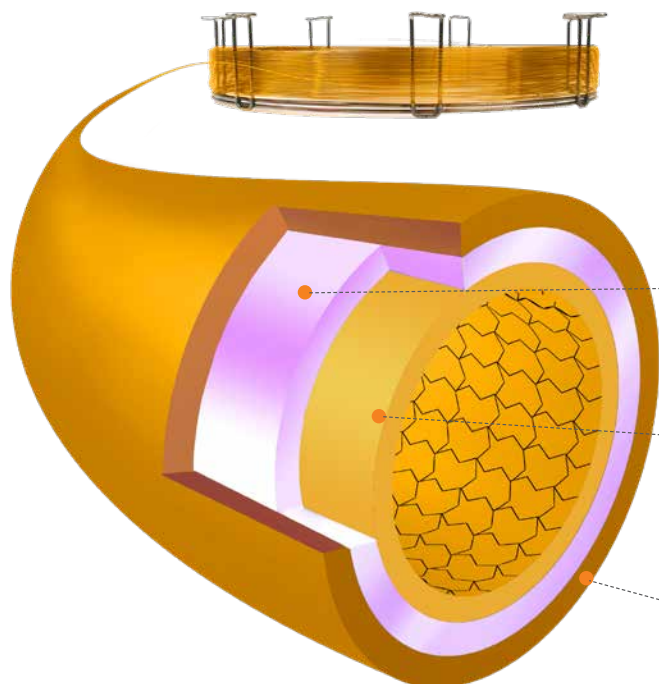
**Liner Part No.:** AG2-OA03-05 (for Agilent® & Thermo Scientific® systems)

**Carrier Gas:** Helium @ 1 mL/min (constant flow)

**Oven Program:** 40 °C for 5 min to 260 °C @ 25 °C/min for 3 min

**Detector:** FID @ 250 °C

- |                            |                  |
|----------------------------|------------------|
| <b>Sample:</b> 1. Methanol | 6. DCM           |
| 2. Ethanol                 | 7. Ethyl Acetate |
| 3. Acetone                 | 8. THF           |
| 4. IPA                     | 9. Toluene       |
| 5. Acetonitrile            |                  |



### Superior Deactivated Fused Silica

Dramatically reduces analyte adsorption, maximizing your peak symmetry.

### Highly Selective Stationary Phase

Provides excellent separation of polar, nonpolar, low and high boiling solvents, while Engineered Self Cross-linking (ESC) results in high-thermal stability and low bleed.

### Polyimide Coating

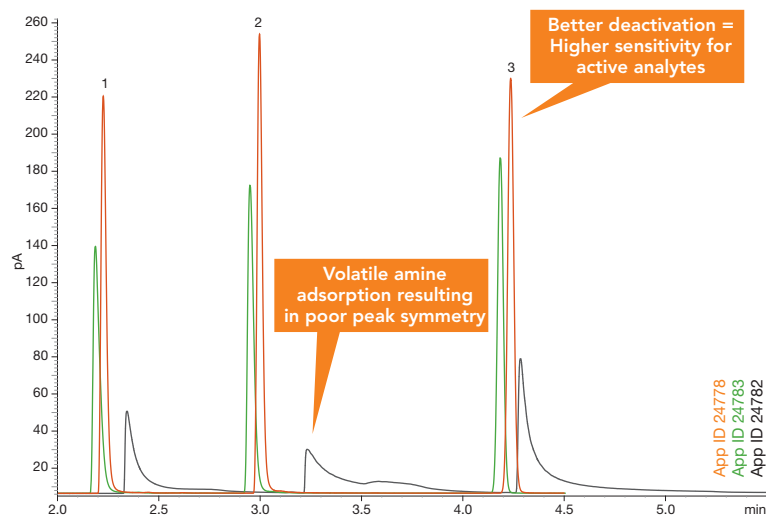
Flexibility and temperature resistance (300/320 °C).

# Zebtron™ 624PLUS™ (cont'd)

## Improved Peak Shape of Volatile Amines

Volatile amines are challenging analytes for GC analysis. They can adsorb to even the smallest imperfections in fused silica. ZB-624PLUS undergoes a superior deactivation process which minimizes active compound adsorption leading to gains in peak response and shape.

### Comparison of Volatile Amines on Various 624 Columns



Volatile Amines on a Zebtron ZB-624PLUS - 500 ppm

Volatile Amines on a Restek® Rxi®-624Sil MS - 500 ppm

Volatile Amines on a Agilent® DB®-624UI Ultra Inert - 500 ppm

#### Conditions for all separations:

**Column:** Zebtron ZB-624PLUS  
Restek Rxi-624Sil MS  
Agilent DB-624UI Ultra Inert

**Dimensions:** 30 meter x 0.32 mm x 1.80 µm

**Injection:** Split 20:1 @ 200 °C, 1 µL

**Recommended Liner:** Zebtron PLUS Straight Z-Liner™

**Liner Part No.:** AG2-0A03-05 (for Agilent® & Thermo Scientific® systems)

**Carrier Gas:** Helium @ 1.8 mL/min (constant flow)

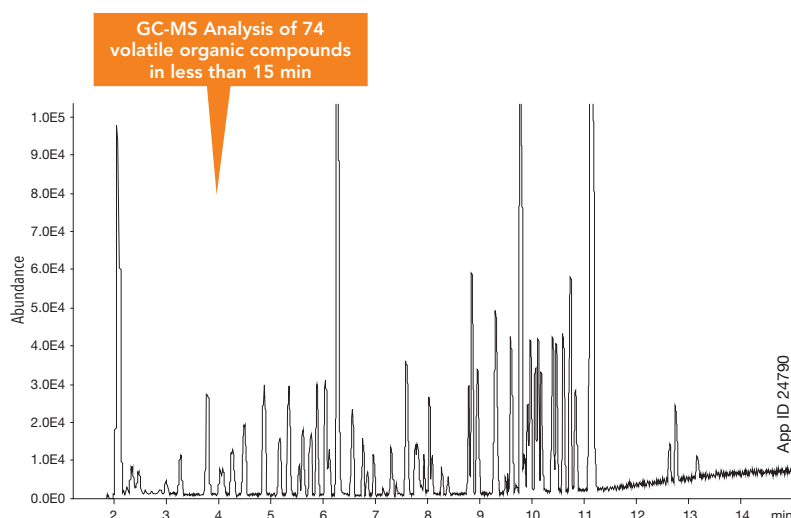
**Oven Program:** 50 °C for 1 min, to 200 °C @ 20 °C/min for 5 min

**Detector:** FID @ 250 °C

**Sample:** 1. Isopropylamine  
2. Diethylamine  
3. Triethylamine

## Volatile Organic Compounds in EPA Methods 8260, 524, and 624

Our high efficiency dimension and superior deactivation can stand real world samples. In addition, MS certification provides extreme low bleed to your GC-MS analysis.



**Column:** Zebtron ZB-624PLUS

**Dimensions:** 30 meter x 0.25 mm x 1.40 µm

**Part No.:** 7HG-G040-27

**Injection:** Split 50:1 @ 230 °C, 1 µL

**Recommended Liner:** Zebtron PLUS Straight Z-Liner™

**Liner Part No.:** AG2-0A03-05 (for Agilent® & Thermo Scientific® systems)

**Carrier Gas:** Helium @ 0.7 mL/min (constant flow)

**Oven Program:** 40 °C for 2 min, to 210 °C @ 17 °C/min for 3 min

**Detection:** Mass Spec transfer line @ 250 °C



# Zebron ZB-WAX<sup>PLUS</sup>™

## Enhanced Aqueous Stability

- 100 % aqueous stable, excellent for aqueous samples
- Extremely inert for acidic compounds
- Enhanced selectivity for low boiling solvents
- High retention of alcohols and chlorinated solvents
- Increased efficiency at 20 °C

## Water Reproducibility of ZB-WAX<sup>PLUS</sup>

Historically, polyethylene glycol (PEG) phases have been unstable with aqueous samples such as beverages or glycols, resulting in poor reproducibility and decreased lifetime. The ZB-WAX<sup>PLUS</sup> bonding procedure results in exceptional stability to repeated injections of aqueous matrices.

## No Way!

A specialized bonding procedure makes ZB-WAX<sup>PLUS</sup> columns exceptionally stable to replicate injections of water-based matrices, while maintaining the selectivity that makes them the scientist's choice for highly polar compounds.

### Equivalent or Better Results

Upgrade to Zebron from any 100% polyethylene glycol phase:

- | Agilent®       | Restek®      | SGE®   | Supelco®         |
|----------------|--------------|--------|------------------|
| • DB®-WAX      | • Stabilwax® | • BP20 | • SUPELCOWAX® 10 |
| • CAM          |              |        |                  |
| • HP-20M       |              |        |                  |
| • Carbowax 20M |              |        |                  |
| • CP-Wax 52 CB |              |        |                  |

### Recommended Applications

- |                  |                        |                                |
|------------------|------------------------|--------------------------------|
| • Alcohols       | • Flavors & Fragrances | • Pharmaceuticals              |
| • Aldehydes      | • Free Fatty Acids     | • Solvents / Residual Solvents |
| • Aromatics      | • Glycols              | • Styrene                      |
| • Essential Oils | • OVIs                 | • Xylene Isomers               |

## Reproducibility and Stability Test



**Column:** Zebron ZB-WAX<sup>PLUS</sup>  
**Dimensions:** 30 meter x 0.25 mm x 0.25 µm  
**Part No.:** 7HG-G013-11  
**Injection:** Split 30:1 @ 140 °C, 0.2 µL  
**Carrier Gas:** Helium @ 1.4 mL/min (constant flow)  
**Oven Program:** 35 °C for 5 min to 85 °C @ 10 °C/min to 200 °C @ 25 °C/min for 1 min  
**Detection:** FID @ 200 °C  
**Sample:** 1. Acetaldehyde  
 2. Ethyl Acetate  
 3. Methanol  
 4. Ethanol  
 5. Propanol  
 6. Isobutanol  
 7. 2-Methylbutanol  
 8. 3-Methylbutanol

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# Zebron™ Gas Management Filters

## No Diffusion and No Leaks with Dual Wall Housing!

More protection and less contamination with an inner glass wall and better safety with a plastic outer wall.

## Higher Capacity

The higher capacity of Zebron gas management filters means less need for replacement and an increase in system uptime, saving you time and money.

## Easy Filter Installation in Under 20 Seconds!

Avoid system downtime by attaching a new filter to your gas line in seconds!

## Never Disrupt Your Instrument!

The integrated one way valve on the Zebron gas management base units allow for quick and easy filter changes without disrupting the instrument.

## Easily Know When to Replace Your Filter!

1

### Color Change

The indicator on each Zebron gas management filter will display when it is time to change your filter.\*

2

### Electronic Indicator

The optional electronic indicator will alert you with an audible warning on when to change your filter based on typical usage.



## Got LC-MS?

Zebron LC-MS gas filters are now available!  
(See page 14 for ordering information.)

## Universal Compatibility

No need to change your existing connecting unit. Simply remove the old filter, replace the O-ring, click a new filter in, and tighten the connection with the ring nut! (Part No.: AG6-1060).

\*Hydrocarbon filters do not include a color indicator

# Zebtron™ Gas Management Traps

## Click-on Trap

Never Disrupt Your Instrument!  
Attach a new filter in under 10 seconds. Once the connecting unit is installed, you will be able to change traps as often as needed without interrupting the instrument.

## Know When to Replace

The optional electronic indicator displays when scheduled replacement or maintenance is due.

## High Pressure Durability

The Click-on trap is completely made out of stainless steel and can withstand high pressures. The seals at each end of the trap will only be punctured when the Click-on connector is locked in place.

## Secure Wall Mount

These wall mounting clamps will EASILY help attach a Zebtron gas trap to a wall or surface.



## Click-On Connection

The Click-on trap connectors allow inline cartridges to be exchanged without introducing contaminants. Spring loaded check valves seal when a filter is removed and open only when a new filter has been locked in place.



# Ordering Information

## Zebron Gas Management Filters

Part No.	Description	Unit
AG6-1040	Gas Filter Universal	ea
AG6-1070	Gas Filter Universal (Helium)	ea
AG6-1010	Gas Filter Oxygen	ea
AG6-1020	Gas Filter Moisture	ea
AG6-1030	Gas Filter Hydrocarbon	ea
AG6-1050	Gas Filter Hydrocarbon/Moisture for LC-MS	2/pk
AG6-1060	Ring Nut for Gas Filter	ea



## Zebron Gas Management Traps

Part No.	Description	Unit
AG6-3140	Click-on Universal Trap	ea
AG6-3110	Click-on Oxygen Trap	ea
AG6-3120	Click-on Moisture Trap	ea
AG6-3130	Click-on Hydrocarbon Trap	ea
AG6-3150	Click-on Carbon Dioxide Trap	ea



## Zebron Connecting Units

Part No.	Description	Unit
AG6-2101	1-position Connecting Unit 1/4 in. Brass	ea
AG6-2102	2-position Connecting Unit 1/4 in. Brass	ea
AG6-2103	4-position Connecting Unit 1/4 in. Brass	ea
AG6-2201	1-position Connecting Unit 1/8 in. Brass	ea
AG6-2202	2-position Connecting Unit 1/8 in. Brass	ea
AG6-2203	4-position Connecting Unit 1/8 in. Brass	ea
AG6-2204	High flow 2-position Connecting Unit for LC-MS	ea
AG6-2205	Particle Filter for LC-MS	ea
AG6-2206	O-ring Replacement for Gas Filter Baseplate	20/pk

Part No.	Description	Unit
AG6-2301	1-position Connecting Unit 1/4 in. Stainless Steel	ea
AG6-2302	2-position Connecting Unit 1/4 in. Stainless Steel	ea
AG6-2303	4-position Connecting Unit 1/4 in. Stainless Steel	ea
AG6-2304	1-position Connecting Unit 1/8 in. Stainless Steel	ea
AG6-2305	2-position Connecting Unit 1/8 in. Stainless Steel	ea
AG6-2306	4-position Connecting Unit 1/8 in. Stainless Steel	ea

## Zebron Base Electronic Indicator and Other Accessories

Part No.	Description	Unit
AG6-3160	1/8 in. Brass Click-on Connector Set	2/pk
AG6-3170	1/4 in. Brass Click-on Connector Set	2/pk
AG6-3180	Wall-mounting Clamp Set for Gas Traps	2/pk
AG6-4150	1/8 in. Stainless Steel Click-on Connector Set	2/pk
AG6-4160	1/4 in. Stainless Steel Click-on Connector Set	2/pk
AG6-3190	O-ring Replacement Set for Gas Trap	20/pk
AG6-4110	Electronic Indicator for Gas Trap	ea
AG6-4120	Electronic Indicator for Gas Filter	ea
AG6-4130	Electronic Indicator for LC-MS Filter	ea



### First time ordering Zebron Click-on Gas Traps?

Be sure to order the **brass or stainless steel connector** with your first trap.



AG6-3160  
(1/8 in.) Brass  
or AG6-4150  
(1/8 in.) SS



AG6-3170  
(1/4 in.) Brass  
or AG6-4160  
(1/4 in.) SS



### Zebron ZB-1PLUS™ GC Columns

ID (mm)	df(μm)	Temp. Limits °C	Part No.
<b>15-Meter</b>			
0.25	0.25	-60 to 360/370	7EG-G031-11
0.32	0.25	-60 to 360/370	7EM-G031-11
<b>30-Meter</b>			
0.25	0.10	-60 to 360/370	7HG-G031-02
0.25	0.25	-60 to 360/370	7HG-G031-11
0.32	0.25	-60 to 360/370	7HM-G031-11
<b>60-Meter</b>			
0.25	0.25	-60 to 360/370	7KG-G031-11
0.25	1.00	-60 to 360/370	7KG-G031-22
0.32	0.25	-60 to 360/370	7KM-G031-11

Note: If you need a 5 in. cage, simply add a (-B) after the part number, e.g., 7HG-G031-11-B. Some exceptions may apply. Agilent 6850 and some SRI and process GC systems use only 5 in. cages.

### Zebron ZB-5PLUS™ GC Columns

ID (mm)	df(μm)	Temp. Limits °C	Part No.
<b>15-Meter</b>			
0.25	0.25	-60 to 360/370	7EG-G032-11
<b>30-Meter</b>			
0.25	0.25	-60 to 360/370	7HG-G032-11
0.25	0.50	-60 to 360/370	7HG-G032-17
0.25	1.00	-60 to 360/370	7HG-G032-22
0.32	0.25	-60 to 360/370	7HM-G032-11
0.32	0.50	-60 to 360/370	7HM-G032-17
<b>60-Meter</b>			
0.25	0.25	-60 to 360/370	7KG-G032-11

Note: If you need a 5 in. cage, simply add a (-B) after the part number, e.g., 7HG-G032-11-B. Some exceptions may apply. Agilent 6850 and some SRI and process GC systems use only 5 in. cages.

### Zebron ZB-5MSPLUS™ GC Columns

ID(mm)	df(μm)	Temp. Limits °C	Part No.
<b>15-Meter</b>			
0.25	0.25	-60 to 325/350	7EG-G030-11
<b>20-Meter</b>			
0.18	0.18	-60 to 325/350	7FD-G030-08
0.18	0.36	-60 to 325/350	7FD-G030-53
<b>30-Meter</b>			
0.25	0.25	-60 to 325/350	7HG-G030-11
0.25	0.50	-60 to 325/350	7HG-G030-17
0.25	1.00	-60 to 325/350	7HG-G030-22
0.32	0.25	-60 to 325/350	7HM-G030-11
0.32	1.00	-60 to 325/350	7HM-G030-22
<b>30-Meter with 5-Meter Guardian™ Integrated Guard</b>			
0.25	0.25	-60 to 325/350	7HG-G030-11-GGA
<b>30-Meter with 10-Meter Guardian Integrated Guard</b>			
0.25	0.25	-60 to 325/350	7HG-G030-11-GGC
0.25	0.50	-60 to 325/350	7HG-G030-17-GGC
<b>60-Meter</b>			
0.25	0.25	-60 to 325/350	7KG-G030-11

Note: If you need a 5 in. cage, simply add a (-B) after the part number, e.g., 7HG-G030-11-B. Some exceptions may apply. Agilent 6850 and some SRI and process GC systems use only 5 in. cages.

### Zebron ZB-WAXPLUS™ GC Columns

ID (mm)	df(μm)	Temp. Limits °C	Part No.
<b>10-Meter</b>			
0.10	0.10	20 to 250/260	7CB-G013-02
<b>15-Meter</b>			
0.25	0.25	20 to 250/260	7EG-G013-11
0.53	1.00	20 to 230/240	7EK-G013-22
<b>20-Meter</b>			
0.18	0.18	20 to 250/260	7FD-G013-08
<b>30-Meter</b>			
0.25	0.25	20 to 250/260	7HG-G013-11
0.25	0.50	20 to 250/260	7HG-G013-17
0.32	0.25	20 to 250/260	7HM-G013-11
0.32	0.50	20 to 250/260	7HM-G013-17
0.32	1.00	20 to 230/240	7HM-G013-22
0.53	1.00	20 to 230/240	7HK-G013-22
<b>60-Meter</b>			
0.25	0.15	20 to 250/260	7KG-G013-05
0.25	0.25	20 to 250/260	7KG-G013-11
0.25	0.50	20 to 250/260	7KG-G013-17
0.32	0.25	20 to 250/260	7KM-G013-11
0.32	0.50	20 to 250/260	7KM-G013-17
0.53	1.00	20 to 230/240	7KK-G013-22

Note: If you need a 5 in. cage, simply add a (-B) after the part number, e.g., 7HG-G013-11-B. Some exceptions may apply. Agilent 6850 and some SRI and process GC systems use only 5 in. cages.

### Zebron ZB-624PLUS™ GC Columns

ID(mm)	df(μm)	Temp. Limits °C	Part No.
<b>20-Meter</b>			
0.18	1.00	-20 to 300/320	7FD-G040-22
<b>30-Meter</b>			
0.25	1.40	-20 to 300/320	7HG-G040-27
0.32	1.80	-20 to 300/320	7HM-G040-31
0.53	3.00	-20 to 300/320	7HK-G040-36
<b>60-Meter</b>			
0.25	1.40	-20 to 300/320	7KG-G040-27
0.32	1.80	-20 to 300/320	7KM-G040-31
0.53	3.00	-20 to 300/320	7KK-G040-36

Note: If you need a 5 in. cage, simply add a (-B) after the part number, e.g., 7HG-G040-27-B. Some exceptions may apply. Agilent 6850 and some SRI and process GC systems use only 5 in. cages. 0.18 mm, 0.25 mm, and 0.32 mm are MS certified.

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