



CRS Ferrules

CRS provides straight, blank, capillary, reducing, short and specialty ferrules in a wide range of sizes. Short ferrules refer to Agilent inlet systems; 4890, 5890 and 6890.



VespeL® Ferrules

VespeL®

- Upper temperature limit 350C
- 100% high temp DuPont polyimide
- Precision drilled ID
- Requires no back ferrule
- Fairly hard, tends to seal permanently to the column



Graphite Ferrules

Graphite

- Upper temperature limit 450C
- High purity Graphite-preferred for GC use
- Ideal for glass to metal connections
- Precision formed, flash free ID
- Reusable if not overtightened
- Requires no back ferrule



VespeL®/Graphite

VespeL®/Graphite

- Upper temperature limit 400C
- Made from quality DuPont polyimide/graphite blend
- Recommended for GC/MS interface applications
- Requires no back ferrule
- Precision drilled ID



PTFE Ferrules

PTFE

- Upper temperature limit 250C
- 100% PTFE, completely inert
- Requires no back ferrule



Chromatography Research Supplies, Inc

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Louisville, KY 40299

Phone: (800) 327-3800 Fax (502) 491-3390

Reference Tips

- Ferrule sizes refer to the size of the fittings into which they fit; they are not the diameter of the ferrule
- A 1/16" ferrule is actually 1/8" in diameter and fit in a 1/16" fitting. While a 1/8" ferrule measures 1/4" in diameter
- The terminology arose because a 1/16" ferrule was normally used with a 1/16" OD tubing and so required about twice as much width.
- 1/16" ferrules are standard for most GC's except Agilent Split/Splitless injector uses a 1/16" ferrules of special shape (short ferrules). Other exceptions include PerkinElmer, Shimadzu and ThermoFinnigan GC's.

Vespel®

- Upper temp limit 350C
- 100% DuPont polyimide
- Precision drilled ID, no imperfections from molding
- Requires no back ferrule
- Hard, tends to seal permanently to column
- Durable, leak tight
- At high temps may adhere to glass or metal
- Deforms the least of our formulations, possible to break glass columns if over tightened

Graphite

- Upper temp limit 400C
- High purity
- Ideal for glass to metal connections
- Precision formed, flash free ID
- Reusable if not over tightened
- Requires no back ferrule
- Soft and compressible, forms excellent seal when tightened moderately
- Over tightening should be avoided
- Provides the highest temp stability
- Seals easily, does not stick to glass columns

Vespel®/Graphite

- Upper temp limit 400C
- Made from quality DuPont polyimide/graphite blend
- Requires no back ferrule
- Precision drilled ID
- Can be reused because it does not seize to the column
- Less brittle than pure Vespel®, can be easily removed from the column and does not flake
- Firmer than 100% Graphite, but has similar sealing characteristics
- May require retightening after several temp cycles

PTFE

- Upper temp limit 250C
- 100% PTFE, completely inert
- Requires no back ferrule
- Reusable if not over tightened
- Preferred use with solvent flow lines
- Shows the best chemical inertness of all ferrules

Specialty Ferrules / Liner Seals

5 mm, for Shimadzu 5 mm OD columns, 10/pk
0.5 mm ID (M8 nut), for ThermoFinnigan (formerly CE) 10/pk
0.8 mm ID (M8 nut), for ThermoFinnigan (formerly CE) 10/pk
Cup Ferrule for ThermoFinnigan, 0.25 mm ID (M4 nut), 10/pk
Cup Ferrule for ThermoFinnigan, 0.35 mm ID (M4 nut), 10/pk
Cup Ferrule for ThermoFinnigan, 0.45 mm ID (M4 nut), 10/pk
Cup Ferrule for ThermoFinnigan, 0.8 mm ID (M4 nut), 10/pk
8 mm Graphite Liner Seal for ThermoFinnigan Trace GC (each)



Cup Ferrules
0.35mm ID



8mm Graphite Liner
Seal



1/16" Vespel® Ferrules; Blank,
0.5mm ID, Straight

Vespel® Ferrules

Sold in packages of 10

Description

Straight Ferrules - for tubing with ods as listed

1/16" Ferrules

1/8" Ferrules

1/4" Ferrules

Blank Ferrules - no holes

1/16" Blank Ferrules

1/8" Blank Ferrules

1/4" Blank Ferrules

Capillary Column Ferrules

For Capillary Size

1/16" to 0.3 mm

0.10 - 0.18 mm ID

1/16" to 0.4 mm

0.25 mm ID

1/16" to 0.5 mm

0.32 mm ID

1/16" to 0.8 mm

0.53 mm ID

1/16" to 1.0 mm

0.65 mm ID

1/16" to 1.2 mm

0.75 mm ID

1/16" to 0.4 mm - Agilent style*

0.25 mm ID

1/16" to 0.5 mm - Agilent style*

0.32 mm ID

1/16" to 0.8 mm - Agilent style*

0.53 mm ID

1/16", 2-hole, 0.4 mm ea

0.25 mm ID

1/16", 2-hole, 0.5 mm ea

0.32 mm ID

Reducing Ferrules

1/8" to 0.4 mm

0.25 mm ID

1/8" to 0.5 mm

0.32 mm ID

1/8" to 0.8 mm

0.53 mm ID

1/8", 2-hole, 0.5 mm ea

0.32 mm ID

1/8" to 1/16"

1/16" OD

1/4" to 1/16"

1/16" OD

1/4" to 1/8"

1/8" OD

* Agilent style for inlet systems; 4890, 5890 and 6890



1/4" Vespel® Ferrules



1/16" Graphite Ferrules

Graphite Ferrules

Sold in packages of 10

Description

Straight Ferrules - for tubing with ods as listed

- 1/16" Ferrules
- 1/8" Ferrules
- 1/4" Ferrules
- 3/8" Ferrules
- 1/2" Ferrules, 5/pk
- 3/4" Ferrules, 5/pk

Blank Ferrules - no holes

- 1/16" Blank Ferrules
- 1/8" Blank Ferrules
- 1/4" Blank Ferrules

Capillary Column Ferrules

For Capillary Size

- | | |
|--------------------------|------------|
| 1/16" to 0.4 mm | 0.25 mm ID |
| 1/16" to 0.5 mm | 0.32 mm ID |
| 1/16" to 0.8 mm | 0.53 mm ID |
| 1/16" to 1.0 mm | 0.65 mm ID |
| 1/16" to 1.2 mm | 0.75 mm ID |
| 1/16", 2-hole, 0.4 mm ea | 0.25 mm ID |
| 1/16", 2-hole, 0.5 mm ea | 0.32 mm ID |

Short Ferrules for Agilent Inlets*

- | | |
|---------------------------------|-----------------|
| 1/16" to 0.4 mm | 0.18 mm ID |
| 1/16" to 0.5 mm | 0.25–0.32 mm ID |
| 1/16" to 0.8 mm | 0.53 mm ID |
| 1/16" to 1.0 mm | 0.53–0.65 mm ID |
| 1/16" to 1/16" straight ferrule | 1/16" OD |

Reducing Ferrules

- | | |
|-------------------------|------------|
| 1/8" to 0.4 mm | 0.25 mm ID |
| 1/8" to 0.5 mm | 0.32 mm ID |
| 1/8" to 0.8 mm | 0.53 mm ID |
| 1/8", 2-hole, 0.5 mm ea | 0.32 mm ID |
| 1/8" to 1/16" | 1/16" OD |
| 1/4" to 0.5 mm | 0.32 mm ID |
| 1/4" to 0.8 mm | 0.53 mm ID |
| 1/4" to 4 mm | 4 mm OD |
| 1/4" to 6 mm | 6 mm OD |
| 1/4" to 1/16" | 1/16" OD |
| 1/4" to 1/8" | 1/8" OD |

* Short ferrule for Agilent inlet systems; 4890, 5890 and 6890



1/16"mm ID Agilent Inlet
Graphite



1/16" VespeL/Graphite Ferrules:
Blank, 0.5 mm ID, Straight

VespeL®/Graphite Ferrules

Sold in packages of 10

Description

Straight Ferrules - for tubing with ods as listed

- 1/16" Ferrules
- 1/8" Ferrules
- 1/4" Ferrules
- 1/2" Ferrules, 5/pk

Blank Ferrules - no holes

- 1/16" Blank Ferrules
- 1/8" Blank Ferrules
- 1/4" Blank Ferrules

Capillary Column Ferrules

For Tube Size

- | | |
|----------------------------------|------------|
| 1/16" to 0.3 mm | |
| 1/16" to 0.4 mm | 0.25 mm ID |
| 1/16" to 0.5 mm | 0.32 mm ID |
| 1/16" to 0.8 mm | 0.53 mm ID |
| 1/16" to 1.0 mm | 0.65 mm ID |
| 1/16" to 1.2 mm | 0.75 mm ID |
| 1/16", 2-hole, 0.4 mm ea | 0.25 mm ID |
| 1/16", 2-hole, 0.5 mm ea | 0.32 mm ID |
| 1/16" to 0.3 mm - Agilent style* | 0.10 mm ID |
| 1/16" to 0.4 mm - Agilent style* | 0.25 mm ID |
| 1/16" to 0.5 mm - Agilent style* | 0.32 mm ID |
| 1/16" to 0.8 mm - Agilent style* | 0.53 mm ID |

Reducing Ferrules

- | | |
|-------------------------|------------|
| 1/8" to 0.4 mm | 0.25 mm ID |
| 1/8" to 0.5 mm | 0.32 mm ID |
| 1/8" to 0.8 mm | 0.53 mm ID |
| 1/8", 2-hole, 0.5 mm ea | 0.32 mm ID |
| 1/8", 2-hole, 0.8 mm ea | 0.53 mm ID |
| 1/8" to 1/16" | 1/16" OD |
| 1/4" to 0.4 mm | 0.25 mm ID |
| 1/4" to 0.5 mm | 0.32 mm ID |
| 1/4" to 0.8 mm | 0.53 mm ID |
| 1/4" to 1/16" | 1/16" OD |
| 1/4" to 6 mm | 6 mm OD |
| 1/4" to 1/8" | 1/8" OD |

* Agilent style for inlet systems; 4890, 5890 and 6890



1/4" VespeL/Graphite



PTFE Ferrules

PTFE Ferrules

Sold in packages of 10

Description

Straight Ferrules - for tubing with ods as listed

1/16" Ferrules

1/8" Ferrules

3/16" Ferrule

1/4" Ferrules

Blank Ferrules - no holes

1/16" Blank Ferrules

1/8" Blank Ferrules

1/4" Blank Ferrules

Capillary Column Ferrules

For Tube Size

1/16" to 0.3 mm

1/16" to 0.4 mm

1/16" to 0.5 mm

1/16" to 0.8 mm

1/16" to 1.0 mm

1/16" to 1.2 mm

0.25 mm ID

0.32 mm ID

0.53 mm ID

0.65 mm ID

0.75 mm ID

Reducing Ferrules

1/8" to 0.4 mm

1/8" to 0.5 mm

1/8" to 0.8 mm

1/8" to 1/16"

1/4" to 6 mm

1/4" to 1/16"

1/4" to 1/8"

1/4" to 3/16"

0.25 mm ID

0.32 mm ID

0.53 mm ID

1/16" OD

6 mm OD

1/16" OD

1/8" OD

3/16" OD



PTFE Ferrules



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CRS Ferrule Descriptions with Item Numbers

Vespel®

Description		Item No.
Straight Ferrules - for tubing with ods as listed		
¹ / ₁₆ " Ferrules		212100
¹ / ₈ " Ferrules		212200
¹ / ₄ " Ferrules		212400
Blank Ferrules - no holes		
¹ / ₁₆ " Blank Ferrules		2121XX
¹ / ₈ " Blank Ferrules		2122XX
¹ / ₄ " Blank Ferrules		2124XX
Capillary Column Ferrules	For Capillary Size	
¹ / ₁₆ " to 0.3 mm	0.10 - 0.18 mm ID	212103
¹ / ₁₆ " to 0.4 mm	0.25 mm ID	212104
¹ / ₁₆ " to 0.5 mm	0.32 mm ID	212105
¹ / ₁₆ " to 0.8 mm	0.53 mm ID	212108
¹ / ₁₆ " to 1.0 mm	0.65 mm ID	212110
¹ / ₁₆ " to 1.2 mm	0.75 mm ID	212112
¹ / ₁₆ " to 0.4 mm - Agilent style*	0.25 mm ID	212164
¹ / ₁₆ " to 0.5 mm - Agilent style*	0.32 mm ID	212165
¹ / ₁₆ " to 0.8 mm - Agilent style*	0.53 mm ID	212168
¹ / ₁₆ ", 2-hole, 0.4 mm ea	0.25 mm ID	212124
¹ / ₁₆ ", 2-hole, 0.5 mm ea	0.32 mm ID	212125
Reducing Ferrules		
¹ / ₈ " to 0.4 mm	0.25 mm ID	212204
¹ / ₈ " to 0.5 mm	0.32 mm ID	212205
¹ / ₈ " to 0.8 mm	0.53 mm ID	212208
¹ / ₈ ", 2-hole, 0.5 mm ea	0.32 mm ID	212222
¹ / ₈ " to ¹ / ₁₆ "	¹ / ₁₆ " OD	212210
¹ / ₄ " to ¹ / ₁₆ "	¹ / ₁₆ " OD	212410
¹ / ₄ " to ¹ / ₈ "	¹ / ₈ " OD	212420

Graphite

Straight Ferrules - for tubing with ods as listed		
¹ / ₁₆ " Ferrules		211100
¹ / ₈ " Ferrules		211200
¹ / ₄ " Ferrules		211400
³ / ₈ " Ferrules		211600
¹ / ₂ " Ferrules, 5/pk		211800
³ / ₄ " Ferrules, 5/pk		211120
Blank Ferrules - no holes		
¹ / ₁₆ " Blank Ferrules		2111XX
¹ / ₈ " Blank Ferrules		2112XX
¹ / ₄ " Blank Ferrules		2114XX
Capillary Column Ferrules	For Capillary Size	
¹ / ₁₆ " to 0.4 mm	0.25 mm ID	211104
¹ / ₁₆ " to 0.5 mm	0.32 mm ID	211105
¹ / ₁₆ " to 0.8 mm	0.53 mm ID	211108
¹ / ₁₆ " to 1.0 mm	0.65 mm ID	211110
¹ / ₁₆ " to 1.2 mm	0.75 mm ID	211112
¹ / ₁₆ ", 2-hole, 0.4 mm ea	0.25 mm ID	211124
¹ / ₁₆ ", 2-hole, 0.5 mm ea	0.32 mm ID	211125
Short Ferrules for Agilent Inlets*		
¹ / ₁₆ " to 0.4 mm	0.18 mm ID	211164
¹ / ₁₆ " to 0.5 mm	0.25–0.32 mm ID	211165
¹ / ₁₆ " to 0.8 mm	0.53 mm ID	211168
¹ / ₁₆ " to 1.0 mm	0.53–0.65 mm ID	211160
¹ / ₁₆ " to ¹ / ₁₆ " straight ferrule	¹ / ₁₆ " OD	211170

Graphite

Reducing Ferrules	For Capillary Size	
1/8" to 0.4 mm	0.25 mm ID	211204
1/8" to 0.5 mm	0.32 mm ID	211205
1/8" to 0.8 mm	0.53 mm ID	211208
1/8", 2-hole, 0.5 mm ea	0.32 mm ID	211222
1/8" to 1/16"	1/16" OD	211210
1/4" to 0.5 mm	0.32 mm ID	211405
1/4" to 0.8 mm	0.53 mm ID	211408
1/4" to 4 mm	4 mm OD	211440
1/4" to 6 mm	6 mm OD	211406
1/4" to 1/16"	1/16" OD	211410
1/4" to 1/8"	1/8" OD	211420
Specialty Ferrules / Liner Seals		
5 mm, for Shimadzu 5 mm OD columns, 10/pk		211500
0.5 mm ID (M8 nut), for ThermoFinnigan (formerly CE) 10/pk		211905
0.8 mm ID (M8 nut), for ThermoFinnigan (formerly CE) 10/pk		211908
Cup Ferrule for ThermoFinnigan, 0.25 mm ID (M4 nut), 10/pk		211982-10
Cup Ferrule for ThermoFinnigan, 0.35 mm ID (M4 nut), 10/pk		211983-10
Cup Ferrule for ThermoFinnigan, 0.45 mm ID (M4 nut), 10/pk		211984-10
Cup Ferrule for ThermoFinnigan, 0.8 mm ID (M4 nut), 10/pk		211988-10
8 mm Graphite Liner Seal for ThermoFinnigan Trace GC (each)		216948
O-ring made of Viton® for Agilent, 12/pk		216973

Vespel®/Graphite

Straight Ferrules - for tubing with ods as listed

1/16" Ferrules		213100
1/8" Ferrules		213200
1/4" Ferrules		213400
1/2" Ferrules, 5/pk		213800

Blank Ferrules - no holes

1/16" Blank Ferrules		2131XX
1/8" Blank Ferrules		2132XX
1/4" Blank Ferrules		2134XX

Capillary Column Ferrules

For Tube Size

1/16" to 0.3 mm		213103
1/16" to 0.4 mm	0.25 mm ID	213104
1/16" to 0.5 mm	0.32 mm ID	213105
1/16" to 0.8 mm	0.53 mm ID	213108
1/16" to 1.0 mm	0.65 mm ID	213110
1/16" to 1.2 mm	0.75 mm ID	213112
1/16", 2-hole, 0.4 mm ea	0.25 mm ID	213124
1/16", 2-hole, 0.5 mm ea	0.32 mm ID	213125
1/16" to 0.3 mm - Agilent style*	0.10 mm ID	213163
1/16" to 0.4 mm - Agilent style*	0.25 mm ID	213164
1/16" to 0.5 mm - Agilent style*	0.32 mm ID	213165
1/16" to 0.8 mm - Agilent style*	0.53 mm ID	213168

Reducing Ferrules

1/8" to 0.4 mm	0.25 mm ID	213204
1/8" to 0.5 mm	0.32 mm ID	213205
1/8" to 0.8 mm	0.53 mm ID	213208
1/8", 2-hole, 0.5 mm ea	0.32 mm ID	213222
1/8", 2-hole, 0.8 mm ea	0.53 mm ID	213228
1/8" to 1/16"	1/16" OD	213210
1/4" to 0.4 mm	0.25 mm ID	213404
1/4" to 0.5 mm	0.32 mm ID	213405
1/4" to 0.8 mm	0.53 mm ID	213408
1/4" to 1/16"	1/16" OD	213410
1/4" to 6 mm	6 mm OD	213406
1/4" to 1/8"	1/8" OD	213420

PTFE

Straight Ferrules - for tubing with ods as listed

1/16" Ferrules		214100
1/8" Ferrules		214200
3/16" Ferrule		214300
1/4" Ferrules		214400

Blank Ferrules - no holes

1/16" Blank Ferrules		2141XX
1/8" Blank Ferrules		2142XX
1/4" Blank Ferrules		2144XX

Capillary Column Ferrules

For Tube Size

1/16" to 0.3 mm		214103
1/16" to 0.4 mm	0.25 mm ID	214104
1/16" to 0.5 mm	0.32 mm ID	214105
1/16" to 0.8 mm	0.53 mm ID	214108
1/16" to 1.0 mm	0.65 mm ID	214110
1/16" to 1.2 mm	0.75 mm ID	214112

Reducing Ferrules

1/8" to 0.4 mm	0.25 mm ID	214204
1/8" to 0.5 mm	0.32 mm ID	214205
1/8" to 0.8 mm	0.53 mm ID	214208
1/8" to 1/16"	1/16" OD	214210
1/4" to 6 mm	6 mm OD	214406
1/4" to 1/16"	1/16" OD	214410
1/4" to 1/8"	1/8" OD	214420
1/4" to 3/16"	3/16" OD	214430



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