

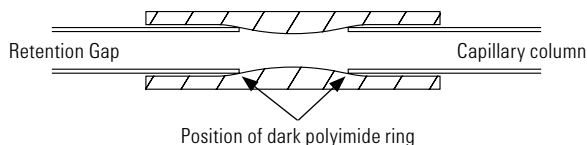
Agilent Retention Gap and Retention Gap for Large Volume Injection user manual

1. Installation

- 1.1. Remove the old retention gap including the connector from the analytical column.
- 1.2. Prepare a float 90° cut at the injector end of the analytical column, using a diamond-tipped column cutting pencil (Part No. 420-1000) or Ceramic wafer column cutter (Part No. 5181-8836).
- 1.3. Examine the cut with a magnifying glass. If the cut to the glass or polyimide is not square, or if the polyimide surface around the column is damaged, repeat from point 2.
- 1.4. Gently push the newly-treated column end into the Quick-Seal/Press-Fit connector. At the point where the fused silica polyimide touches the glass of the connector, you will see a change of color in the polyimide, as shown in the figure. The color change should form a complete ring around the end of the fused silica to ensure a leak-tight connection (see drawing).
- 1.5. Install retention gap, connector and column in the oven.
- 1.6. Set the column pre-pressure and check for leaks, particularly at the analytical column end of the connector. If leaking occurs, remove the column and repeat the procedure from point 2. Remove any polyimide inside the connector with, for example, a syringe-cleaning wire.

- 1.7. Start the GC analysis.

Note: No glueing necessary!



Methyl Deactivated, Nonpolar

Retention Gaps only. Order Quick-Seal/Press-Fit connectors separately.

Fused silica retention gap with Quick-Seal/Press-Fit connector methyl deactivation

Part No.	Dimension	Quantity	Quick-Seal/Press-Fit connector
CP8007	2.5 m x 0.25 mm	5	Universal
CP8008	2.5 m x 0.32 mm	5	Universal
CP8009	2.5 m x 0.53 mm	5	Universal
CP8128	5 x 2.5 m x 0.32 mm	5	0.32/0.32
CP8129	5 x 2.5 m x 0.32 mm	5	0.32/0.25
CP8134	5 x 2.5 m x 0.53 mm	5	0.53/0.32
CP8135	5 x 2.5 m x 0.53 mm	5	0.53/0.25



Cyano/Phenyl/Methyl Deactivated, Medium Polarity

Suitable for Methylene Chloride and similar solvents.

Fused silica retention gap with Quick-Seal/Press-Fit connector cyano-phenyl-methyl deactivation

Part No.	Dimension	Quantity
CP8017	5 x 2.5 m x 0.25 mm	5
CP8018	5 x 2.5 m x 0.32 mm	5
CP8019	5 x 2.5 m x 0.53 mm	5

Polyethylene Glycol Deactivated, Polar

Fused silica retention gap with Universal Quick-Seal/Press-Fit connector polyethylene glycol (PEG) deactivation

Part No.	Dimension	Quantity
CP8087	5 x 2.5 m x 0.25 mm	5
CP8088	5 x 2.5 m x 0.32 mm	5
CP8089	5 x 2.5 m x 0.53 mm	5

All three polarities

Contains 3 nonpolar, 1 medium polarity and 1 polar.

Fused silica retention gap with Quick-Seal/Press-Fit connector

Part No.	Dimension	Quantity	Polarity
CP8070	5 x 2.5 m x 0.25 mm	5	3x methyl/1x cyano-phen-methyl/1x PEG deactivation
CP8080	5 x 2.5 m x 0.32 mm	5	3x methyl/1x cyano-phen-methyl/1x PEG deactivation
CP8090	5 x 2.5 m x 0.53 mm	5	3x methyl/1x cyano-phen-methyl/1x PEG deactivation

Select the right Retention Gaps

Retention gaps are available in different polarities. Depending on the sample solvent used, a particular retention gap polarity is recommended. The table below provides information to select the appropriate retention gap.

Solvent Polarities (Polarity index by Rohrschneider)

Columns 3 to 5 give the appropriate Retention Gap Polarity.

Apolar solvent	Polarity	A	M	P
Squalane	-0.8	X		
Isooctane	-0.4	X		
n-Decane	-0.3	X		
Pentane	0.0	X		
Cyclohexane	0.0	X		
Hexane	0.0	X		
Carbon disulfide	1.0	X		
Carbon tetrachloride	1.7	X		
Triethylamine	1.8	X		
Toluene	2.3	X	X	
p-Xylene	2.4	X	X	
Diethyl ether	2.9	X	X	

Medium-polarity solvent	Polarity	A	M	P
Benzene	3.0	X	X	
n-Octanol	3.2	X	X	
Dichloromethane	3.4	X	X	
Dichloroethene	3.7	X	X	
tert.-Butanol	3.9	X	X	
n-Propanol	3.9	X	X	
Methyl isobutyl keton	4.2	X	X	
Tetrahydrofuran	4.2	X	X	
Isopropanol	4.3	X	X	X
Ethyl acetate	4.3		X	X
Chloroform	4.4		X	X
Butanone	4.5		X	X
Cyclohexanone	4.5		X	X
Methyl ethylketon	4.5		X	X
Dioxane	4.8		X	X
2-Picoline	4.8		X	X

Polar solvent	Polarity	A	M	P
Diethylene glycol	5.0		X	X
Ethanol	5.2		X	X
Pyridine	5.3		X	X
Ethylene glycol	5.4		X	X
Acetone	5.4		X	X
Methoxyethanol	5.7			X
Acetonitrile	6.2			X
Dimethylformamide	6.4			X
Dimethylsulfoxide	6.5			X
N-Methylpyrrolidone	6.5			X
HMPA	6.6			X
Methanol	6.6			X
Nitromethane	6.8			X
Formamide	7.3			X
Water	9.0			X
Tetrafluoropropanol	9.3			X

If the A, M and P columns are checked an Apolar, Medium-polarity or Polar retention gap can be used

Maximum operating temperatures

Nonpolar iso-prog.	Medium polarity iso-prog.	Polar iso-prog.
300 °C - 325 °C	275 °C - 300 °C	250 °C - 275 °C

Retention Gap for Large Volume Injection

Description	Quantity	Part No.
Universal Quick-Seal	10 pc	CP4787
Universal Press-Fits	25 pk glass	705-0825
	5 pk fused silica	705-0905
	25 pk fused silica	705-0925
	5 pk quartz	5181-3395
For 0.53 mm id:		
Quick-Seal Y-splitters	1 pc	CP4797
	5 pc	CP4798
	1 pc quartz	5181-3397
Press-Fit Y-splitters	1 pc quartz deactivated	5181-3398

Maximum operating temperature

Isothermal:	300 °C
Programmed:	325 °C

Color coding

Agilent supplies several types of Quick-Seal/Press-Fit connectors. The Universal Quick-Seal/Press-Fit does not require a color code.

For GC/MS, a leak-tight connection is easily obtained, using a color-coded Quick-Seal/Press-Fit connector, where the design is optimized for different capillary diameters. The following color code is used as standard:

		0.32 mm	0.53 mm
0.53 mm	Blue	-	CP4787
0.32 mm	Black	CP4775	CP4777
0.25 mm	Red	CP4774	CP4776

Literature:

Grob, K.J. Chromatogr. 1985, 334, 129
Grob, K.J. HRC & CC 1984, 7, 319
Grob, K.J. Chromatogr. 1985, 323, 237

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© Agilent Technologies, Inc., 2014
Published in The Netherlands, March 28, 2014
Publication Number CP995143



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