



# RETENTION GAP KITS

## RGK-1, RGK-2

### INTRODUCTION

Retention Gap Kits can serve several purposes:

1. Where the "solvent effect" is being used, such as in Cold On-Column injection or Splitless injection, it has been shown [1] that an uncoated section of capillary tubing can lessen the effects of peak splitting and allow an increased size of sample injection.

[1] K. Grob Jr. J Chromatogr. 237 (1982) 15-23.

2. Where on-column injection is required but it is not practical due to the particular bore size of the capillary column being used. The injection of the sample can be made onto larger bore fused silica tubing which, in turn, is connected to the capillary column. This will allow effective on-column injection to be used with small inside diameter capillary columns.

**RGK-1** is intended for use with fused silica capillary columns with an inside diameter of 0.1 to 0.32mm ID. The deactivated fused silica tubing provided in the kit has a bore of 0.32 mm ID.

**RGK-2** is intended for use with fused silica capillary columns of 0.22 to 0.53 mm ID. The deactivated fused silica tubing provided in the kit has a bore of 0.52 mm ID.

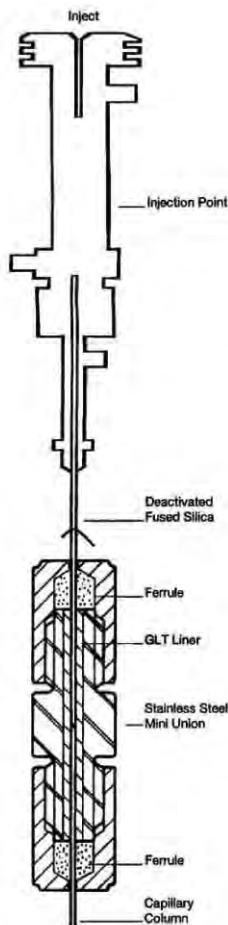
### PACKING LIST

Order Code: RGK-1

Contents	Order Code
2m Deactivated Fused Silica	2VSD-320
1 Stainless Steel Mini Union with GLT insert	MVSU-005
1 pkt (5) Mini Ferrules	MGVF-005
1 pkt (5) Mini Ferrules	MGVF-004

Order Code: RGK-2

Contents	Order Code
2m Deactivated Fused Silica	2VSD-530
1 Stainless Steel Mini Union with GLT insert	MVSU-008
1 pkt (5) Mini Ferrules	MGVF-008
1 pkt (5) Mini Ferrules	MGVF-005



### ASSEMBLY

1) Cut a length of the deactivated fused silica tubing. The length depends, to a extent, on the application, but usually about 50cm will be suitable.

2) Slide one of the nuts from the Stainless Steel union over the end of the fused silica and then thread on the appropriate graphitised vespel ferrule.

3) Carefully score the fused silica near the end with a carbide tipped pen or a piece of corborandum and break the fused silica at the score mark. It is very important that a non-jagged square end is achieved.

4) The connection can be made in two different ways see (a) and (b) depending on the relative sizes of the two pieces of fused silica:

**NOTE: TAPERED END OF FERRULE SITS INSIDE THE NUT AS ILLUSTRATED.**

a) WHERE THE TWO LENGTHS OF FUSED SILICA TO BE JOINED HAVE THE SAME OUTSIDE DIAMETER.

Order Code	Pre-Column ID	Capillary Column ID
RGK-1	0.32mm	0.32mm
RGK-2	0.53mm	0.53mm

The pre-column piece is inserted to a point approximately mid-way through the union and nut is tightened. The same procedure for cutting the end and assembling the nut and ferrule is used on the capillary column. Insert the capillary column into the union until it butts against the pre-column. (Do not push the column into the union too firmly as damage to the ends of the column and fused silica tubing may result). The nut should then be tightened.

b) WHERE THE PRE-COLUMN HAS A LARGER OUTSIDE DIAMETER THAN THE CAPILLARY COLUMN.

Order Code	Pre-Column ID	Capillary Column ID
RGK-1	0.32mm	0.10mm
RGK-1	0.32mm	0.22mm
RGK-2	0.53mm	0.22mm
RGK-2	0.53mm	0.32mm

The pre-column, (after fitting the nut and ferrule and then ensuring the end is square, not jagged) should be inserted entirely through the union so that it protrudes from the other end. Tighten the nut gently so the fused silica can still slide in the ferrule.

Fit the nut end ferrule to the smaller ID capillary column and ensure the end is square and non-jagged. Insert the capillary into the bore of the fused silica pre-column approximately 2 millimetres. Slide the pre-column back into the union so that its end is flush with the end of the union. Being careful not to significantly move the fused silica tubes, tighten both nuts.

5) The length of deactivated fused silica tubing from the union can now be connected to the injection system of the gas chromatograph.

6) The ferrule used depends on the capillary column. The following table will act as a guide in selecting the correct ferrule.

Column ID	Ferrule Order Code
0.10mm	MGVF-004-0
0.22mm	MGVF-004
0.32mm	MGVF-005
0.53mm	MGVF-008

7) Replacement ferrules (packets of 10) and 2 metre lengths of deactivated fused silica may be ordered using codes detailed in the PACKING LIST.



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