



PROTECOL™  
FLOW SPLITTER  
Installation Instructions

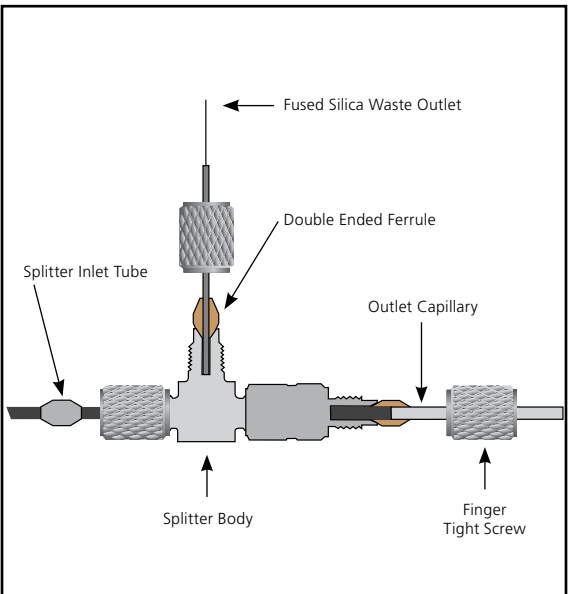


## INTRODUCTION

The ProteCol™ Flow Splitter is designed to split conventional LC flow rates (250  $\mu\text{L}/\text{min}$  to 8  $\text{mL}/\text{min}$ ) to achieve capillary LC flow rates (100 nL to 10  $\mu\text{L}$ ). This allows capillary LC columns and MS detectors to be used in conjunction with conventional LC equipment.

There are two main applications for the ProteCol™ Flow Splitter in a conventional LC system:

1. If the splitter is installed before the autosampler (or manual injection valve), small sample sizes and capillary LC columns can be used with a conventional LC pump.
2. Installed after a LC column, the flow splitter enables a conventional LC system to be used with a Mass Spectrometer.



The ProteCol™ Flow Splitter is guaranteed against faults in materials and workmanship for a period of twelve months from the date of invoice. The warranty implies free repair and/or replacement of defective goods, only upon written proof and (where authorized) return of the defective product.

## IMPORTANT INFORMATION

The ProteCol™ Flow Splitter is supplied with a 1/16" OD piece of PEEKsil™ capillary tubing connected to the inlet. The tubing contains a 2 µm filter to prevent the splitter from becoming blocked.

To connect a 1/16" OD capillary tube to the splitter inlet tubing, a double-ended PEEK ferrule and PEEK union are provided. To ensure both pieces of tubing meet in the center of the double-ended ferrule, a positioning toolkit is provided to assist positioning the end of the tubing at the centre of the ferrule.

Each of the two identical restrictor capillaries supplied with the ProteCol™ Flow Splitter is calibrated before it leaves the factory. This calibration factor is related to the exact internal diameter of the tube and can be used to calculate the length of restrictor tubing needed to achieve a particular split ratio.

For a given split ratio, the length of fused silica tubing required can be calculated by:

Restrictor Length (cm) =

$$\frac{\text{System Pressure (psi)}}{\text{Split Ratio}} \times \text{Calibration Factor}$$

The System Pressure is the back pressure generated by the components in the HPLC system. To determine the pressure, attach the pump to the exact point in the system where the ProteCol™ Flow Splitter will be installed (ie. after the column but before the detector etc) and observe the pressure required to generate a flow of 1 µL/min.

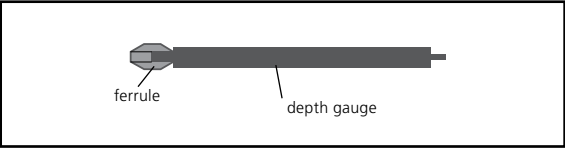
If the pump is not capable of generating a 1 µL/min flow rate (which is likely), set the pump at a higher flow rate and back calculate the flow to 1 µL/min. For example, set 100 µL/min and divide the pressure reading by 100.

**Do not dismantle the body of the ProteCol™ Flow Splitter as damage to the splitter will result.**

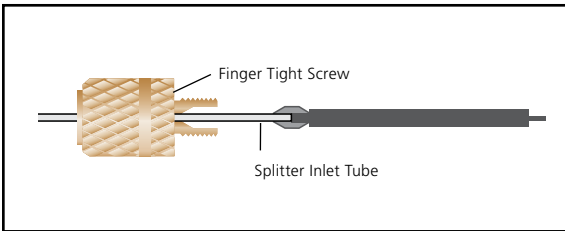
# INSTALLATION PROCEDURE

## Connecting 1/16" OD tubing to the splitter inlet tube

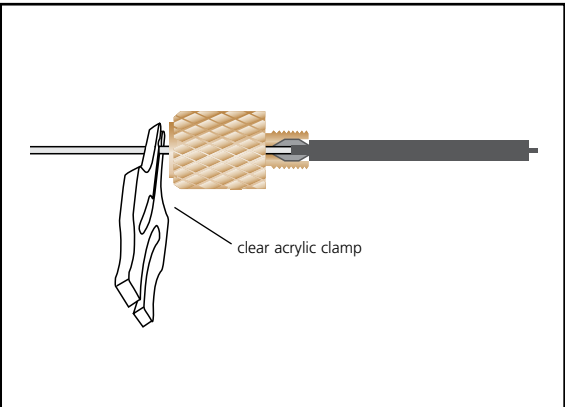
Place a 1/16" double-ended ferrule onto the 1/16" end of the depth gauge.



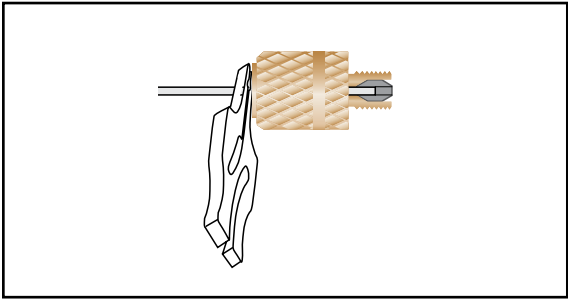
Slide the PEEK finger-tight screw onto the splitter inlet tube and insert the tube into the PEEK ferrule until it meets the depth gauge.



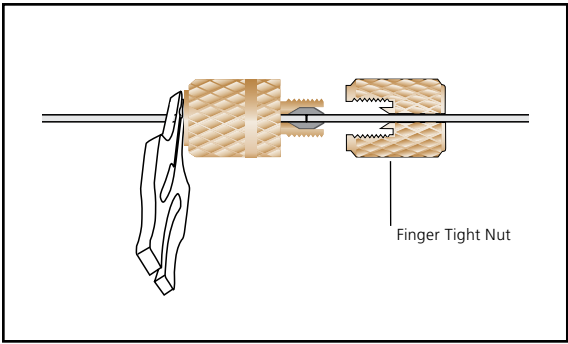
While holding the depth gauge, push the finger-tight screw up against the ferrule. Lock the screw into position by clamping the clear acrylic clamp onto the inlet tube.



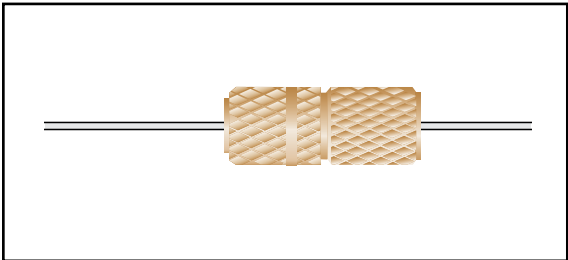
Remove the depth gauge. The screw and ferrule will now be in the correct position on the splitter inlet tube.



Slide the PEEK finger-tight nut onto the 1/16" tube that the splitter will be connected to. Insert the tube into the double-ended ferrule while holding the clear acrylic clamp (the clamp will stop the ferrule and screw from slipping out of position when the second piece of tubing is inserted into the ferrule).

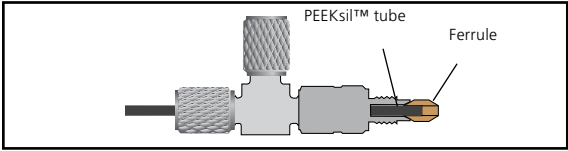


Tighten the nut and screw together and remove the clear acrylic clamp.

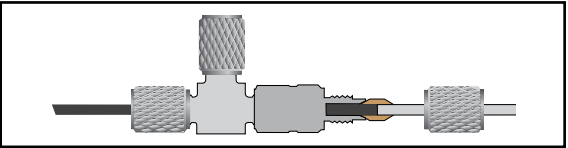


## Connecting Capillary Tubing to the Splitter Outlet

Slide a double-ended PEEK™ ferrule onto the short PEEKsil™ tube protruding from the outlet port of the splitter. When the ferrule is pushed against the outlet port, the PEEKsil™ tube is positioned half way into the ferrule.

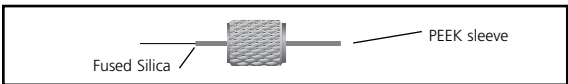


Slide the stainless steel finger-tight nut onto the tube that the splitter outlet will be connected to. Insert the tube into the double-ended ferrule and tighten the nut.

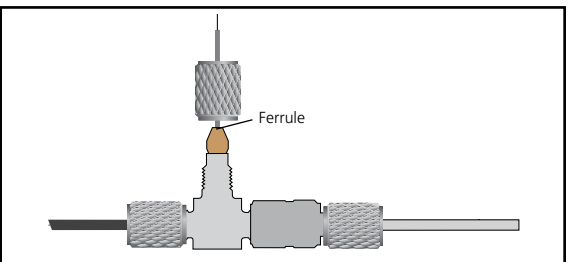


## Connecting a fused silica restrictor to the splitter waste outlet

There are two fused silica restrictors provided with the ProteCol™ Flow Splitter. Each restrictor has a 1/32" PEEK sleeve on one end. Slide the stainless steel finger-tight nut onto the PEEK sleeve of one of the restrictors. Both restrictors are identical so choose either one.



Slide a 1/32" double-ended PEEK ferrule onto the PEEK sleeve, insert the sleeve into the waste outlet of the splitter and tighten the nut.



# REORDER LIST

Description	Qty	P/N
<b>ProteCol™ Flow Splitter Kits*</b>		
ProteCol™ Flow Splitter with inlet filter 1/16"	1	212001
ProteCol™ Flow Splitter with inlet filter 1/32"	1	222001
<b>Accessories*</b>		
Fused silica restrictor capillaries (50 µm ID x 2000 mm)	2	212003
1/16" to 1/16" PEEK double ended ferrule	Pk5	213006
1/32" to 1/32" PEEK double ended ferrule	Pk5	223005
Finger-tight 1/16" union and positioning tool	1	212009

\* All accessories listed are included with the Flow Splitter Kits 212001 & 222001

**AUSTRALIA & PACIFIC REGION**

SGE Analytical Science Pty Ltd  
Toll Free: 1800 800 167  
Tel: +61 (0) 3 9837 4200  
Fax: +61 (0) 3 9874 5672  
Email: support@sge.com

**CHINA**

SGE Shanghai Representative Office  
Tel: +86 21 6407 9382  
Fax: +86 21 6407 9386  
Email: china@sge.com

**FRANCE**

SGE Europe Ltd  
Tel: +33 1 69 29 80 90  
Fax: +33 1 69 29 09 25  
Email: europe@sge.com

**GERMANY**

SGE GmbH  
Tel: +49 (0) 6155 / 60746 0  
Fax: +49 (0) 6155 / 60746 50  
Email: europe@sge.com

**INDIA**

SGE Laboratory Accessories Pvt Ltd  
Tel: +91 22 24715896  
Fax: +91 22 24716592  
Email: sgeindia@vsnl.com

**JAPAN**

SGE Japan Inc  
Tel: +81 45 222 2885  
Fax: +81 45 222 2887  
Email: japan@sge.com

**MIDDLE EAST**

SGE Gulf  
Tel: +971 6 557 3341  
Fax: +971 6 557 3541  
Email: gulfsupport@sge.com

**UNITED KINGDOM**

SGE Europe Ltd  
Tel: +44 1908 568 844  
Fax: +44 1908 566 790  
Email: europe@sge.com

**UNITED STATES OF AMERICA**

SGE Incorporated  
Toll Free: (800) 945 6154  
Tel: +1 512 837 7190  
Fax: +1 512 836 9159  
Email: usa@sge.com