Vu-Tight Direct Injection Liners and Fittings

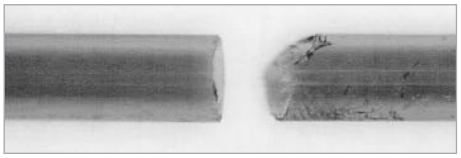
Vu-Tight Direct Injection Liners: cat.#'s 20342, 20343, 20344
Cyclo-Vu-Tight Direct Injection Liners: cat.#'s 20787, 20788
Vu-Tight Installation Fittings: cat.# 20504

For use with 0.32and 0.53mm ID fused silica capillary columns (tubing OD must be 0.4mm or greater). Fits Agilent, Varian, and most other GCs equipped with the 1/4-inch on-column packed injection ports (4-inch maximum insertion depth).

Installation Instructions

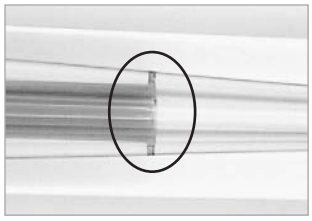
1. Remove all internal pieces from the 1/4-inch injection port. (The injection port is now in the on-column mode.)
2. Attach the 1/4-inch to 1/16-inch SS reducing fitting onto the outlet of the Vu-Tight liner using the 1/4-inch graphite ferrule. Tighten the ferrule approximately 1/4-turn past finger-tight. Be careful not to place lateral torque against the glass liner or it could break.
3. Insert the Vu-Tight liner (slotted end up) into the injection port (allow a 1/16-inch gap between the top of the liner and the injection port body) and secure it with the 1/4-inch graphite ferrule and 1/4-inch SS nut provided in the installation kit (cat.# 20504). Tighten the ferrule approximately 1/4-turn past finger-tight.
4. Using a ceramic scoring wafer (cat.# 20116), cut approximately 10cm from each column end while pointing the column end downward to prevent fused silica fragments from falling inside. Then, slide the 1/16-inch nut and a 0.5mm or 0.8mm ID graphite ferrule onto the column end. (Ferrule size depends on column OD.)
5. Cut an additional 10cm from the column end making sure the cut is perfectly square. Closely examine the column end with a magnifying glass (cat.# 20124) to make sure it is perfectly square. An improper cut results in a poor Press-Tight® seal and causes solvent tailing.
6. Next, seat the ferrule. **It is important to seat an unused ferrule before installing the column because as the nut is tightened onto the fitting, the ferrule compresses into the fitting cavity, moves upward, and crushes the column end.**

   To seat the ferrule, insert the column end through the SS reducer and gently position it so the column end is at least 1/2-inch below the Press-Tight® taper. Next, tighten the 1/16-inch nut approximately 1/2-turn past finger-tight until the column end is held firmly and cannot be moved when gentle pressure is applied. The ferrule is now seated.

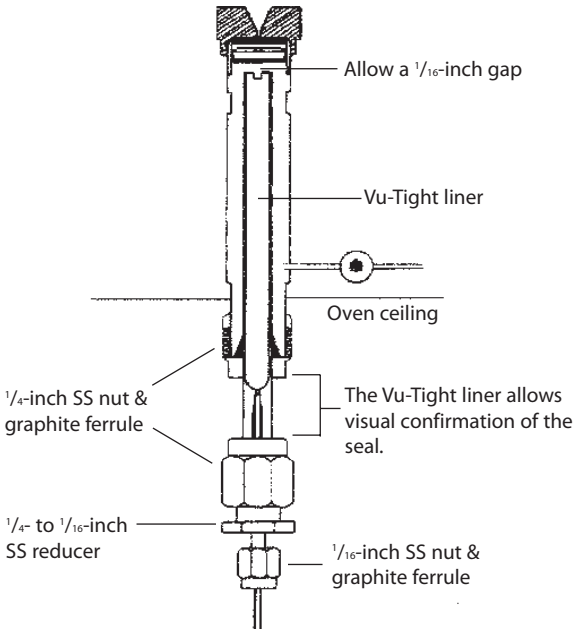


In order to obtain a correct seal in the Vu-Tight direct injection liner, the column tubing **must** be cut squarely. This photo shows a properly cut column end (left) and a poorly cut column end (right).

7. Loosen the 1/16-inch nut and slowly push the column end into the Vu-Tight liner until it meets the Press-Tight® restriction. Retighten the nut carefully and examine the taper region to make sure the upward movement caused by the retightening of the ferrule did not crush the column end. A uniform brown ring is visible if the column is connected correctly to the Press-Tight® taper. If powder or deformation is observed at the column end, the column has been inserted too deeply into the taper and has been crushed. If this is the case, remove the column end from the reducing fitting, cut it, and reinstall. In cases where powder or glass fragments are observed in the tapered region, remove the liner and blow out the fragments using compressed air or nitrogen.



The presence of a uniform brown ring indicates proper installation.

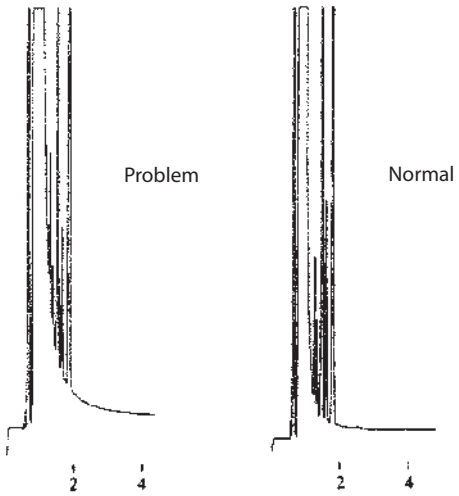


8. Turn on the carrier gas (helium or hydrogen preferred) and set the column flow rate at approximately 5cc/min. Use Restek's Leak Detector (cat.# 22839) to confirm a leak-tight connection. Do not use liquid leak detectors or contamination will occur. Usually a leak-free connection is assured if the column end cannot be moved up or down with moderate force.
9. Install the column into the detector according to the GC manual.
10. Inject methane or another nonretained substance to measure the dead time and set linear velocity. See Table I for the recommended dead time for each column length and inside diameter.
11. Perform the solvent peak shape test as described in Restek's on-line Column Installation Guide (www.restek.com/guide_cap.asp). An excessively tailing solvent peak indicates improper column installation. Always confirm proper column installation and leak check before conditioning the column or running samples.

Table I Dead volume times for both hydrogen (80cm/sec.) and helium (40cm/sec.) carrier gases to achieve flow rates of approximately 5cc/min.

	Length			
Carrier gas	15 meters	30 meters	60 meters	105 meters
hydrogen	0.3 min.	0.6 min.	1.2 min.	2.1 min.
helium	0.65 min.	1.3 min.	2.6 min.	4.5 min.

The solvent peak shape is a good indicator of system integrity.



Rtx®-5, 30m, 0.53mm ID, 1.50µm (cat.# 10270)
1.0µL direct injection of methylene chloride

Oven temp.:	45°C isothermal
Inj. & det. temp:	150°C
Carrier gas:	Hydrogen
Linear velocity:	80cm/sec.
FID sensitivity:	4 x 10-11 AFS

Call Technical Service at 800-356-1688 or 814-353-1300, ext. 4 (or your Restek representative) if you have any questions about this product or any other Restek product.

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