



Fused Silica Adapters

Fused silica adapters are available in Valcon polyimide for use up to 350°C and in PEEK for lower temperature applications (up to 175°C). Valcon polyimide is a unique graphite-reinforced composite, specially prepared to maximize mechanical stability at high temperatures. Small blocks are subjected to extreme loads by a process known as hot isostatic pressing, with individual ferrules

subsequently machined from these blocks. The result of this two-step process is a fused silica adapter with high temperature stability which far exceeds that of parts produced by conventional molding. Note that the determining factor in adapter size selection is the fused silica tubing's outer diameter, or OD. Typical ODs for common columns are included in the product number tables.



One piece fused silica adapter (FS)

The one piece FS adapter, essentially a reducing ferrule, is recommended for use in fittings where the polyimide ferrule will not be removed. Connections are made and disconnected by loosening the fitting nut and sliding the tube out.

Package of 5:

	Tubing OD:	Polyimide, Valcon		PEEK		Polyimide, Virgin	
		Prod No	Price	Prod No	Price	Prod No	Price
1/32" Adapters	< 0.25 mm	FS.25-5		FS.25PK-5		FS.25V1-5	
	0.25 ≤ 0.40 mm	FS.4-5		FS.4PK-5		FS.4V1-5	
	0.40 ≤ 0.50 mm	FS.5-5		FS.5PK-5		FS.5V1-5	
	0.50 ≤ 0.80 mm	ZF.5V-5		ZF.5PK-5		ZF.5V1-5	
1/16" Adapters	< 0.25 mm	FS1.2-5		FS1.2PK-5		FS1.2V1-5	
	0.25 ≤ 0.30 mm	FS1.25-5		FS1.25PK-5		FS1.25V1-5	
	0.30 ≤ 0.35 mm	FS1.3-5		FS1.3PK-5		FS1.3V1-5	
	0.35 ≤ 0.40 mm	FS1.4-5		FS1.4PK-5		FS1.4V1-5	
	0.40 ≤ 0.50 mm	FS1.5-5		FS1.5PK-5		FS1.5V1-5	
	0.50 ≤ 0.80 mm	FS1.8-5		FS1.8PK-5		FS1.8V1-5	
	0.80 ≤ 0.90 mm	FS1.9-5		FS1.9PK-5		FS1.9V1-5	
	0.90 ≤ 1.0 mm	FS11.0-5		FS11.0PK-5		FS11.0V1-5	

TEMPERATURE RATINGS

Polyimide adapters can be used at temperatures up to 350°C.

PEEK adapters are not recommended for use above 175°C.

TECH TIP

Virgin polyimide adapters are effective electrical insulators, making them the ideal choice for capillary electrophoresis.

Virgin polyimide is produced as Vespel®.

TECH TIP

If a fused silica tube breaks off in a through-type union, remove the nuts and the tube opposite the broken one. Clear the fitting by passing a drill or wire of the appropriate diameter into the unbroken side and through the center of the fitting.

Our **ferrule removal kit**, left, can be used to remove ferrules from all types of fittings.



Ferrule removal kit

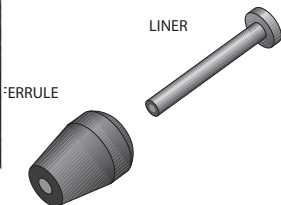
These tapered tools have teeth designed to grip and remove fused silica adapters if they get stuck in a fitting detail. Each kit has two sizes of tools, so they can retrieve 1/32" and 1/16" adapters.

Prod No Price
FRK1 \$23



WHICH ADAPTER FOR WHICH COLUMN?

Column ID	Typical column OD	1/32" adapter	1/16" adapter
< 0.20 mm	0.25 mm	FS.25	FS1.25
0.25 mm	0.4 mm	FS.4	FS1.4
0.32 mm	0.5 mm	FS.5	FS1.5
0.53 mm	0.8 mm	ZF.5V	FS1.8



Removable fused silica adapters (FSR)

The FSR adapter is the only adapter recommended for use in valves. It consists of a liner which slides over the fused silica tubing and a ferrule which makes up on the liner. The polyimide liner has an enlarged diameter at one end which is captured by the nut, so the liner and the tube within it are removed as the nut is unscrewed from the valve. The 1/16" FSR adapter includes a special counter-bored 1/16" nut. The 1/32" FSR adapter uses standard Valco 1/32" nuts.

MORE INFORMATION

Fused silica
 Unions . pp 18-19, 58, 61
 Fittings 18-21
 A pin vise and drill index are useful for enlarging the inner diameters of the FS adapters.
 Pin vise and drill index 55

REPLACEMENT PARTS

Ferrules (package of 5)		
1/32" Polyimide	ZF.5V-5	\$30
1/16" Polyimide	ZF1V-5	25
(package of 10)		
1/16" PEEK	ZF1PK-10	33
Nuts (package of 10)		
1/32" SS	ZN.5-10	29
<i>Special nuts for FSRs:</i>		
1/16" SS	ZCN1-10	30
1/16" SS long	LZCN1-10	45

100 µm	= .004"
150 µm	= .006"
0.25 mm	= .010"
0.50 mm	= .020"
0.75 mm	= .030"
1.0 mm	= .040"
1.5 mm	= .060"
2.0 mm	= .080"
4.6 mm	= .180"
6.0 mm	= .236"
6.4 mm	= .253"
7.0 mm	= .275"
10.0 mm	= .400"
27.0 mm	= 1.08"
1/32"	= 0.8 mm
1/16"	= 1.6 mm
1/8"	= 3.2 mm
1/4"	= 6.4 mm
3/8"	= 9.5 mm
1/2"	= 12.7 mm

Package of 5:

Polyimide, Valcon
 Prod No Price

1/32"

Removable adapters	Tubing OD:	
	< 0.25 mm	FSR.25-5
	0.30 ≤ 0.35 mm	FSR.3-5
	0.35 ≤ 0.40 mm	FSR.4-5
	0.40 ≤ 0.50 mm	FSR.5-5

1/32"

Replacement liners	Tubing OD:	
	< 0.25 mm	FSL.25-5
	0.25 ≤ 0.40 mm	FSL.4-5
	0.40 ≤ 0.50 mm	FSL.5-5

Package of 5:

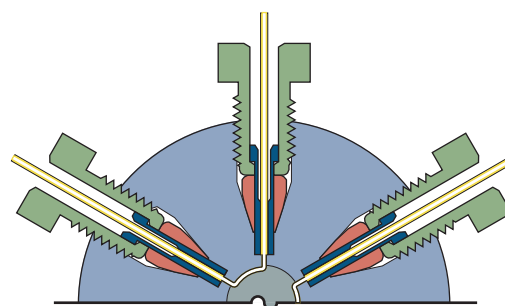
Polyimide, Valcon **PEEK**
 Prod No Price Prod No Price

1/16"

Removable adapters	Tubing OD:		
	< 0.15 mm	-	FS1R.15PK-5
	< 0.20 mm	FS1R.2-5	FS1R.2PK-5
	0.20 ≤ 0.40 mm	FS1R.4-5	FS1R.4PK-5
	0.40 ≤ 0.50 mm	FS1R.5-5	FS1R.5PK-5
	0.50 ≤ 0.80 mm	FS1R.8-5	FS1R.8PK-5
	0.90 ≤ 1.0 mm	FS1R1.0-5	FS1R1.0PK-5

1/16"

Replacement liners	Tubing OD:		
	< 0.15 mm	-	FS1L.15PK-5
	< 0.20 mm	FS1L.2-5	FS1L.2PK-5
	0.20 ≤ 0.40 mm	FS1L.4-5	FS1L.4PK-5
	0.40 ≤ 0.50 mm	FS1L.5-5	FS1L.5PK-5
	0.50 ≤ 0.80 mm	FS1L.8-5	FS1L.8PK-5
	0.90 ≤ 1.0 mm	FS1L1.0-5	FS1L1.0PK-5



Removable FSR adapters in a valve