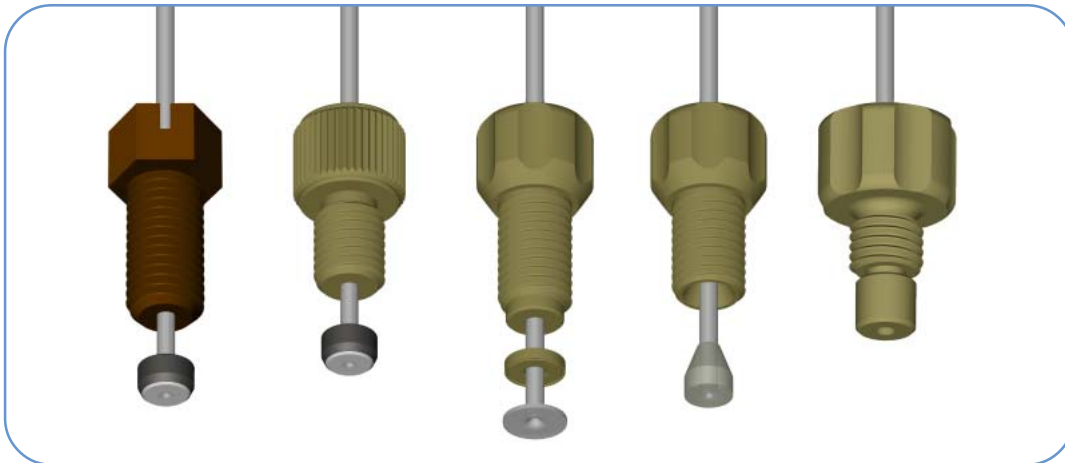




# Fitting Systems



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Leak-free, simple-to-use 1/4"-28 and M6 fitting types in chemically resistant materials

- Gripper, Flanged, Inverted cone and Omnigrip fitting systems
- Designed for 1/8" and 1/16" outside diameter tubing
- Pressure ratings up to 1000 psi (69 bar)
- PTFE, PEEK™, polypropylene and Tefzel® materials

## The Gripper Fitting System

A flangeless tube connection system that incorporates a PTFE facing washer press-fitted into a 316 stainless steel housing. These provide a leak-free connection with minimum disturbance to the fluid path and allow repeated connect/disconnect. These fittings do not compress tubing if over tightened and do not twist the tubing during connection. Pressure rated to 1000 psi.



## Flanged Fitting System

Flanging is a long established method of making tubing connections. By forming the end of hardwall tubing, a flange can be produced which fitted into a flat-bottom port, the fitting compresses to produce a seal.



## Inverted Cone Fitting System

A Tefzel® cone is matched to the outside diameter of the tubing being used. The cone is compressed into the cone shaped end of the fitting nut when screwed into a port, forming an inert seal. This method has a good sealing pressure and requires no tools. Pressure rated to 500 psi.



## Omnigrip Fitting System

Omnigrip presents a one-piece instant connection which is pressure rated to 1000 psi. Screw in fitting, push tube into fitting and twist. This simple action locks it into position and seals instantly, needing no flanging or threading onto tubing.



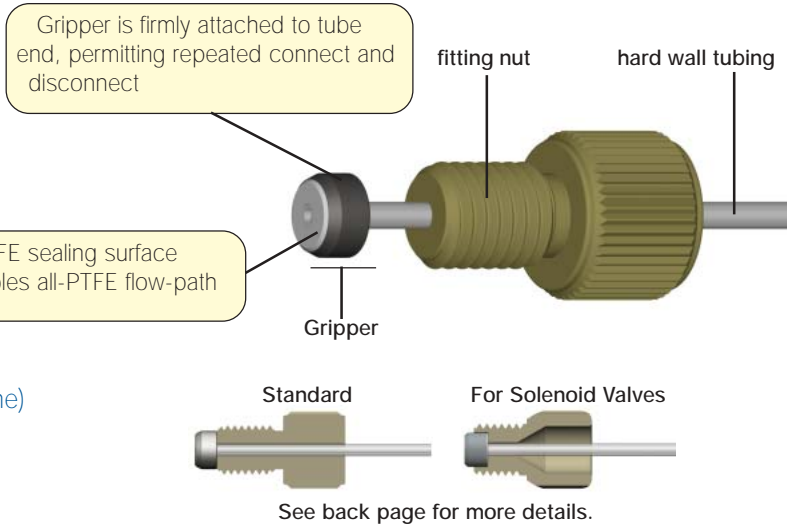
# The Gripper Fitting System

## Features

- Secure up to 1,000 psi (69 bar) pressure when finger-tight
- Minimal to zero dead volume
- Allows an all-PTFE flow path
- Fitting nut spins freely without twisting the tubing

## Specifications

- Materials: - casing: 316 stainless steel  
- ferrule: PTFE (polytetrafluoroethylene)
- Tubing sizes: 1/16" O.D. and 1/8" O.D.



## Tubing:

Gripper sealing surface material	Compatible Tubing Types				
	PTFE	FEP	PEEK™	Stainless Steel	Tefzel®
PTFE	✓	✓			✓

## How it works

1. The pre-assembled Gripper ferrule is mounted onto the end of hardwall tubing.
2. The barb in the Gripper's Stainless Steel casing cuts a groove into the tubing and becomes permanently attached.
3. The fitting nut is assembled onto the tube behind the Gripper.
4. The Gripper fitting assembly is screwed into a 1/4"-28 UNF threaded port.

## Assembling Gripper Fittings

1	<p>With a scalpel, cut the tubing to form a point approximately 30mm long. This enables the tube to be passed through the Gripper ferrule.</p>
2	<p>Fit the fitting nut to the tube. Then fit a Gripper ferrule to the tube ensuring the PTFE seal is facing towards the pointed tube end.</p>
3	<p>With the aid of pliers or similar, pull the pointed tube end through the Gripper until the PTFE sealing surface has reached the uncut section of the tube. Keeping the Gripper as perpendicular as possible to the tube will ensure the best performance. Rotate the Gripper around the tube 3 or 4 times to seal the Gripper on the tube correctly.</p>
4	<p>Using a scalpel, cut the pointed tube end as close to the PTFE sealing surface as possible, ensuring the PTFE sealing surface is not cut. Tube assembly is now ready for use.</p>

### Safety precautions

Always take care when using scalpels. Always make tube cuts away from the body and keep fingers away from blade.

## How to order Gripper Fittings:

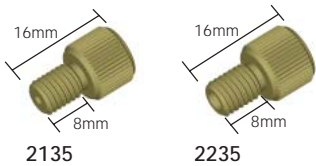
### 1/4"-28, polypropylene, Hex-Head Fitting Nuts



Part Number	Tubing O.D.	Pack size	Color	Use with gripper
2100	1/16"	10	Black	2310
2101	1/16"	10	Brown	2310
2102	1/16"	10	Red	2310
2103	1/16"	10	Orange	2310
2104	1/16"	10	Yellow	2310
2105	1/16"	10	Green	2310
2106	1/16"	10	Blue	2310
2107	1/16"	10	Violet	2310
2108	1/16"	10	Grey	2310
2109	1/16"	10	White	2310
2110	1/16"	10	Mixed	2310
2200	1/8"	10	Black	2312
2201	1/8"	10	Brown	2312
2202	1/8"	10	Red	2312
2203	1/8"	10	Orange	2312
2204	1/8"	10	Yellow	2312
2205	1/8"	10	Green	2312
2206	1/8"	10	Blue	2312
2207	1/8"	10	Violet	2312
2208	1/8"	10	Grey	2312
2209	1/8"	10	White	2312
2210	1/8"	10	Mixed	2312

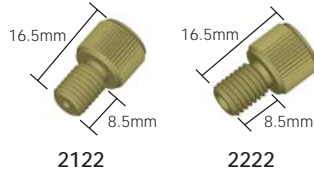
Note: lock nuts for bulkhead mounting are available. Add "L" to the end of the fitting nut part number to order the fitting nut with the lock nut included.

### M6, PEEK, Fitting Nuts



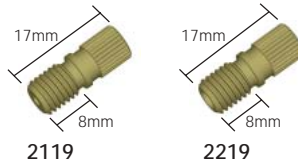
Part Number	Tubing O.D.	Pack size	Use with gripper
2135	1/16"	1	2313
2235	1/8"	1	2314

### 1/4"-28, PEEK Fitting Nuts



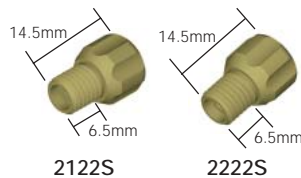
Part Number	Tubing O.D.	Pack size	Use with gripper
2122	1/16"	1	2310
2222	1/8"	1	2312

### 1/4"-28, PEEK, Close-Packing Fitting Nuts



Part Number	Tubing O.D.	Pack size	Use with gripper
2119	1/16"	1	2310
2219	1/8"	1	2312

### 1/4"-28, PEEK, Fitting Nuts for solenoid valve ports



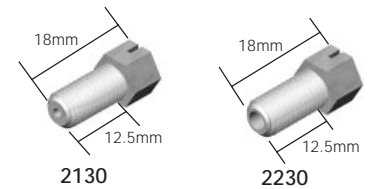
Part Number	Tubing O.D.	Pack size	Use with gripper
2122S	1/16"	1	2310S
2222S	1/8"	1	2312S

### Gripper Ferrules



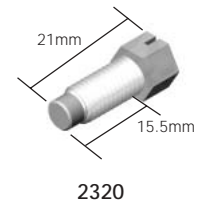
Part Number	Tubing O.D.	Thread type	Pack size
2310	1/16"	1/4"-28 UNF	10
2312	1/8"	1/4"-28 UNF	10
2310S	1/16"	1/4"-28 UNF solenoid valve ports	10
2312S	1/8"	1/4"-28 UNF solenoid valve ports	10
2313	1/16"	M6	10
2314	1/8"	M6	10

### 1/4"-28, Tefzel®, Hex-Head Fitting Nuts



Part Number	Tubing O.D.	Pack size	Use with gripper
2130	1/16"	10	2310
2230	1/8"	10	2312

### 1/4"-28, Tefzel®, Hex-Head Plug



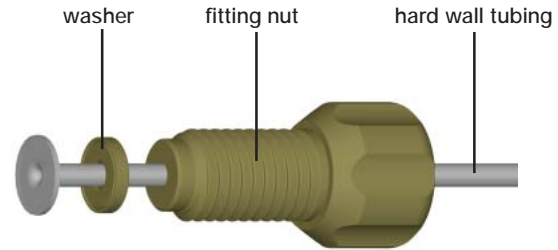
Part Number	Pack size
2320	10

# The Flanged Fitting System

Flanging is a long established method of making tubing connections. By forming the end of hardwall tubing, a flange can be produced which when screwed into place in a flat-bottom port, the fitting compresses to produce a seal. Omnifit flanged fitting nuts and washers are made from chemically-resistant PEEK™ material. Nuts are available with standard or compact head types.

## Features

- Connection using flanged tube
- Suitable for hardwall tubing



## Specifications

- Materials:
  - fitting nut: PEEK™
  - washer: PEEK™
- Tubing sizes: 1/16" O.D. and 1/8" O.D.

## Tubing:

Compatible Tubing Types				
PTFE	FEP	PEEK™	Stainless Steel	Tefzel®
✓	✓			✓

## How it works

1. Use the Omnifit tubing cutter to cut the hard wall tubing.
2. Assemble the fitting nut then the washer over the tube end.
3. Use the Omnifit flanging tool to create the flange.

## How to order Flanged Fittings:

**1/4"-28, PEEK Flanged Fitting Nuts**

Part Number	Tubing O.D.	Pack size	Use with flanging washer
2123	1/16"	1	2123FN
2223	1/8"	1	2223FN

**1/4"-28, PEEK, Close-Packing Flanged Fitting Nuts**

Part Number	Tubing O.D.	Pack size	Use with flanging washer
2124	1/16"	1	2123FN
2224	1/8"	1	2223FN

**Washers for Flanged Fittings**

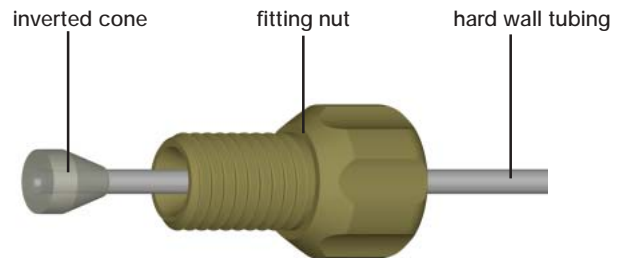
Part Number	Tubing O.D.	Pack size
2123FN	1/16"	10
2223FN	1/8"	10

# The Inverted Cone Fitting System

Inverted cone fittings give a simple, compression fitting. A Tefzel® cone is matched to the outside diameter of the tubing to be used. The cone, once fitted into a female flat-bottom port, is compressed into the cone shaped end of the fitting forming an inert seal. This method has a good sealing pressure and requires no tools, providing a quick and easy method of tubing connection. Inverted cone fittings, with a 1/4"-28 UNF thread, are available to fit 1/16" or 1/8" OD hardwall tubing. Large and compact head sizes are available as well as versions for use with solenoid valves, all manufactured in PEEK™.

## Features

- Chemically resistant, bio-compatible Tefzel® cone material
- Sealing pressure rated to 500 psi (34 bar)
- Quick, easy installation
- No tools required



## Specifications

- Materials:
  - fitting nut: PEEK™
  - cone: Tefzel®
- Tubing sizes: 1/16" O.D. and 1/8" O.D.
- Tubing Type: hard wall tubing only

## How it works:

1. An Inverted Cone and fitting nut are assembled onto the end of squarely cut tubing.
2. The fitting nut is screwed into a 1/4"-28 UNF port until finger tight.
3. The angle of the Inverted Cone is different to that in the fitting nut. When screwed finger tight into a port, this difference causes compression of the inverted cone at the small end. This makes the cone grip the tube and also creates a seal.

## How to order Inverted Cone Fittings:

**1/4"-28, PEEK Inverted Cone Fitting Nuts**

Part Number	Tubing O.D.	Pack size	Use with inverted cone
2144	1/16"	1	1544
2244	1/8"	1	1545

**1/4"-28, PEEK, Close-Packing Inverted Cone Fitting Nuts**

Part Number	Tubing O.D.	Pack size	Use with inverted cone
2145	1/16"	1	1544
2245	1/8"	1	1545

**1/4"-28, PEEK Inverted Cone Fitting Nuts for solenoid valve ports**

Part Number	Tubing O.D.	Head type	Pack size	Use with inverted cone
2144S	1/16"	Regular	1	1544S
2244S	1/8"	Regular	1	1545S
2245S	1/8"	Compact	1	1545S

**Tefzel® Inverted Cones**

Part Number	Tubing O.D.	Pack size
1544	1/16"	10
1544S	1/16"	10
1545	1/8"	10
1545S	1/8"	10

# The Omnigrip Fitting System

The Omnigrip is an inert, one-piece fitting requiring only a twist of the finger to seal instantly on any flat-bottom connection. Easy to use and pressure rated to 1000 psi, Omnigrip fittings have a 1/4"-28 UNF male thread to fit any 1/4"-28 UNF flat bottom female port. The Omnigrip can be used with any 1/16" or 1/8" OD hardwall tube, such as PEEK™, Tefzel® or PTFE.

## Features

- 1/4"-28 UNF flat-bottom connection
- Sealing pressure rated to 1000 psi (69 bar)
- Quick, easy installation
- No tools required
- PEEK™ for chemical inertness

### Eliminates:

- Lost Pieces
- Flanging
- Intricate Assembly



## Specifications

- Material: PEEK™
- Tubing Sizes: 1/16" O.D. and 1/8" O.D.
- Tubing Type: hard wall tubing only

## How it works:

1. An Omnigrip fitting is screwed into a female 1/4"-28 UNF port, until the bottom of the port is reached but do NOT tighten.
2. A tube that has had a square cut end is then passed through the fitting nut until it touches the bottom of the port.
3. While pushing the tube into the port, tighten the fitting.

## How to order Omnigrip Fittings:

**1/4"-28, PEEK Omnigrip Fittings**

2260

2264

Part Number	Tubing O.D.	Pack size
2260	1/16"	2
2264	1/8"	2

## Accessories

### Tubing Cutter

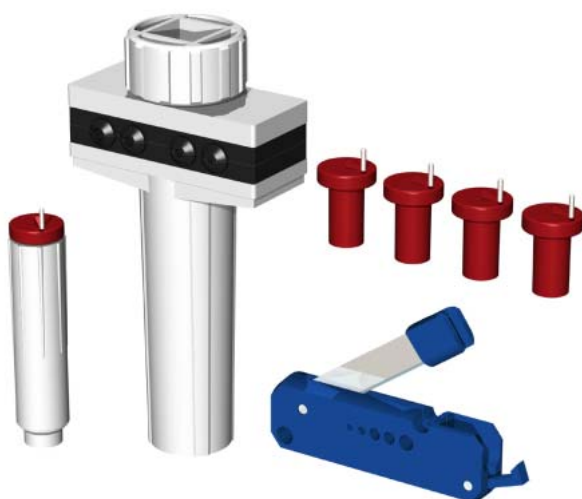
A handy cutter is available to ensure clean cuts by holding the tube perpendicular to the blade and supporting it while cutting. Replacement blades are also available.



Part Number	Description
3062	tubing cutter
3063	replacement blades

### Flanging Kit

The flanging kit includes the flanging tool, tips for 0.5mm, 0.8mm and 1.6mm ID tubing and the tubing cutter. The Omnifit flanging tool creates a perfect flange without practice. The flange is mechanically formed without heat stressing the tube material. The flanging tool is safe to use being non-electrical and not heated, especially important with organic solvents around.



Part Number	Description
7003	Flanging Kit

## Technical Information

All of the Omnifit fitting nuts can be used in any type of female port commonly found in Bio-Chem Valve and Omnifit products. However, some nuts are more suited to particular port types than others. The main benefit provided with correct fitting nut selection is thread engagement. This feature is particularly important when the female port is shallow in depth and/or is made from PTFE.

### Why is this a concern?

Shallow ports have less threads for the fitting nut to engage with. PTFE ports exhibit less strength than for instance a PEEK™ port. These factors can lead to thread stripping in the case of a PTFE port, or a less than optimum seal integrity in the case of a shallow port.

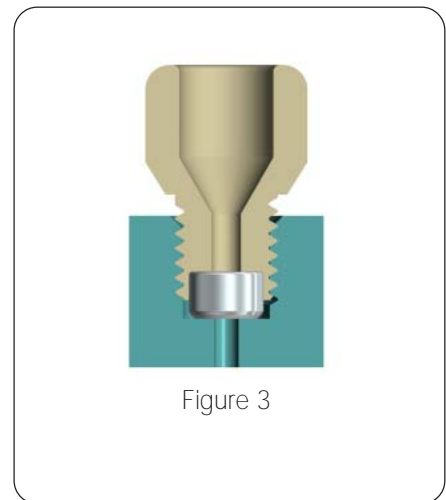
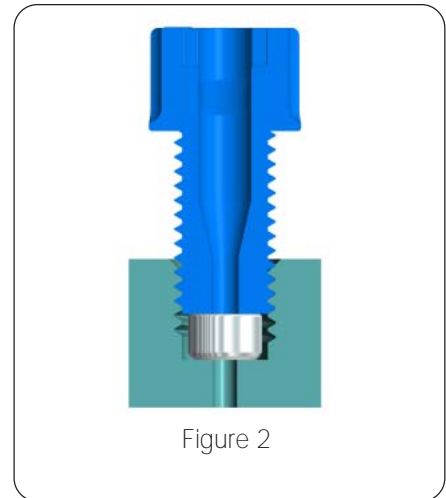
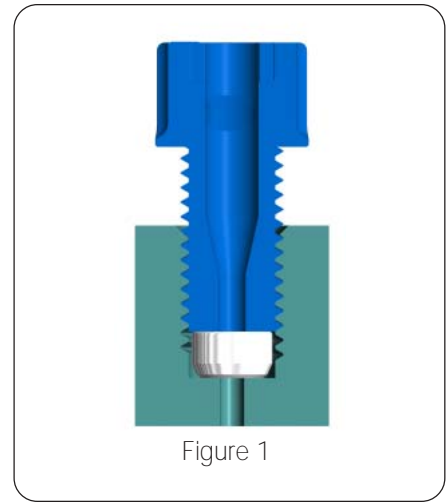
### What are the differences?

**Figure 1** shows a 2100 type Gripper fitting in a port typically found in Omnifit products. This has a port depth of 9.5mm, providing thread engagement of 6.6mm. This is a typical application for this type of nut.

**Figure 2** shows the same fitting in a port typically found in a Bio-Chem Valve product. Here the port depth is only 6.35mm, providing just 3.5mm of thread engagement. The nut will work in this application, but a better solution is shown in figure 3.

**Figure 3** shows a 2122S type fitting nut in the same port as figure 2. Here the thread engagement is 5.2mm. This increase in thread engagement provides a more robust, reliable connection. This is achieved by having a recess in the end of the fitting nut into which the gripper sits, allowing the nut to go further into the female port.

This principle applies for both Gripper nuts and inverted cone nuts.



Trademarks:

PEEK™ is a trademark of Victrex plc

Tefzel® is a registered trademark of E.I. du Pont de Nemours and Company

Rev. 1104

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