THREE SIZES OF ELECTROFORMED NICKEL TUBING

1/16" OD x .040" ID | 1/32" OD x .004" ID | 360 µm OD x .001" ID

ELECTROFORMED NICKEL TUBING

Our microbore EFNi tubing is made by electroplating nickel over a diamond-drawn mandrel in a continuous process. When the mandrel is removed, an internal surface with a mirror-like 1-2 microinch finish remains. The ductile nature of nickel allows the tubing to be easily manipulated. Unlike glass- or silica-lined stainless, EFNi can accept tight bends and cutting without heating, and does not release damaging glass fragments or silica particles.

COMPARISON OF INTERIOR FINISHES

A comparison of the interiors of commonly used tubing (below) shows the quality of the electroformed nickel tubing surface. (All photos are 500x magnification.) The rough interior surface of the mill-drawn Nickel 200 tubing has potential for carryover or cross contamination, and both the Nickel 200 and the stainless steel contain pits, voids, striations, and particles – problems which intensify as the ID decreases.

ELECTROFORMED NICKEL (EFNI) | NICKEL 200 ALLOY | TYPE 316 STAINLESS STEEL

COMPARISON OF INTERIOR FINISHES OF COMMONLY USED TUBING

CUSTOM ID/OD

Custom IDs/ODs are available upon request.

PRICING PER FOOT

For pricing purposes, the length is rounded up to the next foot. For example, a 5" piece is charged as one foot; an 18" piece as two feet. The price per foot is based on the length of each piece, not the total quantity ordered. Cutting and cleaning charges are included in the price per foot for EFNi tubing.

CONVERSIONS

0.05 mm ≈ .002"
0.10 mm ≈ .004"
0.12 mm ≈ .005"

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

360 µm OD EFNi tubing — CUSTOM LENGTHS

See pricing note in box at left.

Tubing ID	*Prod No*	*Max length*
.001"	TEFNI.101	1 foot
.002"	TEFNI.102	2 feet
.004"	TEFNI.104	20 feet
.005"	TEFNI.105	20 feet
.007"	TEFNI.107	20 feet

1/32" OD EFNi tubing — CUSTOM LENGTHS

See pricing note in box at left.

Tubing ID	*Prod No*	*Max length*
.002"	TEFNI.502	2 feet
.004"	TEFNI.504	20 feet
.005"	TEFNI.505	20 feet
.007"	TEFNI.507	20 feet
.010"	TEFNI.510	30 feet
.012"	TEFNI.512	30 feet
.015"	TEFNI.515	30 feet
.020"	TEFNI.520	30 feet

1/16" OD EFNi tubing — CUSTOM LENGTHS

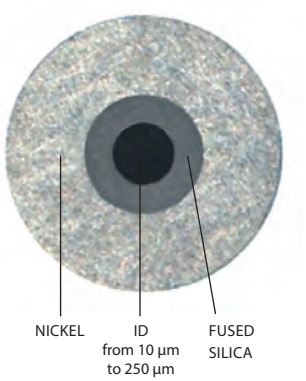
See pricing note in box at left.

Tubing ID	*Prod No*	*Max length*
.020"	TEFNI120	30 feet
.030"	TEFNI130	50 feet
.040"	TEFNI140	50 feet

NICKEL-CLAD FUSED SILICA TUBING

- Inert, flexible transfer lines
- Improved heat transfer
- Thick wall version allows direct connection using metal ferrules
- Rated for up to 40,000 psi (dependant on size and plating thickness)

We take polyimide-coated fused silica (FS) and remove the polyimide layer. Then we electrochemically plate the FS with pure nickel. The resulting nickel-plated FS tube provides superior heat transfer to the FS lining, permitting use as a flexible transfer line with the best qualities of silica-lined stainless but with improved heat transfer and a shorter bend radius.



CROSS SECTION
Nickel-clad FS tubing

For high pressure applications, we recommend using our 316 stainless ferrules.

Nickel-clad fused silica tubing is available in IDs from 10 µm to 700 µm, permitting use of metal ferrules for improved leak-tight connections.

1/32" (800 µm) OD nickel-clad fused silica

Tubing ID	*Prod No*
10 µm	TNFS800010
15 µm	TNFS800015
20 µm	TNFS800020
25 µm	TNFS800025
50 µm	TNFS800050
100 µm	TNFS800100
180 µm	TNFS800180
250 µm	TNFS800250

1/16" OD nickel-clad fused silica

Tubing ID	*Prod No*
50 µm	TNFS1600050
75 µm	TNFS1600075
100 µm	TNFS1600100
200 µm	TNFS1600200
250 µm	TNFS1600250
300 µm	TNFS1600300
400 µm	TNFS1600400
500 µm	TNFS1600500
700 µm	TNFS1600700

TECH TIP

For best results, order clad tubings in the precise length required. Clean cuts are difficult to achieve with the tools normally available.

PRICING PER FOOT

For pricing purposes, the length is rounded up to the next foot. For example, a 5" piece is charged as one foot; an 18" piece as two feet. The price per foot is based on the length of each piece, not the total quantity ordered. Cutting and cleaning charges are included in the price per foot for TNF tubing.

TECH TIP

VICI electrochemically plates fused silica tubing with pure nickel. This strengthens the tubing and allows direct connections using metal ferrules while maintaining the chemical benefits of the wetted surfaces inside.

CONVERSIONS

50 µm ≈ .002"
75 µm ≈ .003"
100 µm ≈ .004"

125 µm ≈ .005"
150 µm ≈ .006"
180 µm ≈ .007"

205 µm ≈ .008"
250 µm ≈ .010"
305 µm ≈ .012"

380 µm ≈ .015"
510 µm ≈ .020"

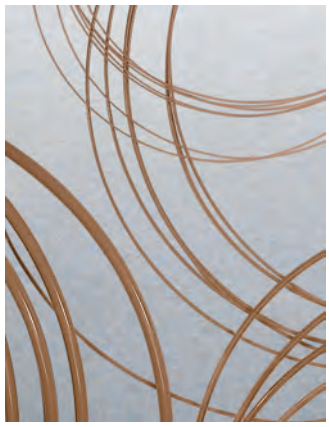
760 µm ≈ .030"
1015 µm ≈ .040"

800 µm ≈ 1/32"
1600 µm ≈ 1/16"

NATURAL PEEK TUBING

PEEK tubing has the strength required to withstand continuous use at HPLC pressure without swelling or bursting, and is not affected by halide salts, high strength buffers, or other aggressive mobile phases that corrode stainless steel. The polymer surface will not leach metal ions into the eluent or extract metal-sensitive components from the sample. Note however that dichloromethane, THF, and DMSO may cause swelling in PEEK, and concentrated nitric and sulphuric acid will attack PEEK.

OD and ID tolerances for our PEEK tubing are ±.0005" for 360 micron tubing; ±.001" for 1/32" and1/16" tubing; and ±.003" for 1/8".



MAXIMUM PRESSURE FOR PEEK TUBING

Tubing ID	Maximum Pressure
1/32"	
.0025"	6600 psi
.005"	6000 psi
.010"	5800 psi
.015"	3900 psi
1/16"	
.005"	6100 psi
.010"	5600 psi
.020"	4500 psi
.030"	3500 psi
1/8"	
.060"	3600 psi
.088"	2500 psi

1/32" OD PEEK tubing

Length	**.0025" ID** *Prod No*	**.005" ID** *Prod No*	**.010" ID** *Prod No*	**.015" ID** *Prod No*
5 meters	TPK.502-5M	TPK.505-5M	TPK.510-5M	TPK.515-5M
10 meters	TPK.502-10M	TPK.505-10M	TPK.510-10M	TPK.515-10M
25 meters	TPK.502-25M	TPK.505-25M	TPK.510-25M	TPK.515-25M

1/16" OD PEEK tubing

Length	**.006" ID** *Prod No*	**.010" ID** *Prod No*	**.020" ID** *Prod No*	**.030" ID** *Prod No*
5 meters	TPK106-5M	TPK110-5M	TPK120-5M	TPK130-5M
10 meters	TPK106-10M	TPK110-10M	TPK120-10M	TPK130-10M
25 meters	TPK106-25M	TPK110-25M	TPK120-25M	TPK130-25M

1/8" OD PEEK tubing

Length	**.060" ID** *Prod No*	**.088" ID** *Prod No*
5 meters	TPK260-5M	TPK288-5M
10 meters	TPK260-10M	TPK288-10M
25 meters	TPK260-25M	TPK288-25M

SEE ALSO

Polymeric tubing
PTFE ..... page 72
FEP..... 72
ETFE..... 72

CUSTOM PEEK TUBING

We offer PEEK tubing custom-manufactured to meet your specific OD, ID, and color requirements. The OD range is .014" (360 micron) to 1/8", with a minimum ID of .002" for tubing up to 1/16" OD. (Maximum ID varies according to the OD.) Color coding can be solid or striped.

PEEK TUBING ELBOWS

Tubing elbows (90° and 180°) are ideal for routing 1/16" PEEK tubing through an LC system. These elbows are proportioned to bend PEEK tubing at the optimum radius for maximum chemical resistance and burst pressure. Installation is simple – just snap the tubing into the elbow.

Package of 5:	*Prod No*
90° elbow	JR-357090-5
180° elbow	JR-357180-5