

# VACUUM FEEDTHROUGHS

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# In-Vacuum Wiring & Wiring Accessories

## IN-VACUUM WIRING

Our in-vacuum wiring is designed for high and ultra-high vacuum environments to  $1.10^{-10}$  mbar and are bake-able to 250°C. All conductors and shielded coaxial cable shielding are constructed with Silver plated Copper wire.

Insulation is a high mechanical strength Kapton Type-F film that is applied and heat treated to minimize trapped gases.







Multi-conductor cables are available in either flat ribbon or circular configuration with an outer PEEK\* monofilament weave. Round cable bundles are color-coded for ease of wiring. For non-coded wires, Neyco offers colored glass identification beads in six easy to distinguish colors.





\*Polyetheretherketone.



## SPECIFICATIONS

- Vacuum range:  $1.10^{-10}$  mbar
- Temperature range: -75°C to 250°C
- Material
  - Conductor: Ag-plt Cu
  - Insulation: Kapton Type-F film
- Kapton properties
  - Dielectric constant: 2.9
  - Dielectric strength: 80 kV/mm
  - Dissipation factor, 1 MHz: 0.002
  - Radiation resistance:  $10^9$  Rads
  - Moisture absorption: 0.4% at 50% RH

TYPE	WIRE			NB STRANDS	INSULATION Ø (mm)	RESISTANCE AT 20°C (Ω / Km)	CURRENT RATING (A)	MIN. BEND RADIUS	
	NB	LENGTH (m)	Ø (mm)						
<b>Fine instrument wire</b>	1	9.1	0.15	1	0.165	-	0.25	0.1	
<b>Solid wire</b>	1	9.1	0.25 0.4 0.5 0.6	1	0.5 0.63 0.76 0.86	377 146 88.3 64.3	1.5 3 4 5.5	0.15 0.16 0.16 0.16	
<b>Stranded wire</b>	1	9.1	0.127 0.152 0.203	7	0.5 0.63 0.76	244 159 88.3	2 3 4	0.13 0.13 0.28	
	1	9.1	0.127 0.178	19	0.89 1.09	58.6 32.5	6 8	0.25	
	1	4.5	0.008 0.254 0.279 0.381	19	1.29 1.52 1.65 2.16	20.6 14.3 11.4 6.2	11 14 16 25	0.35 0.35 0.48 0.58	
<b>High voltage wire</b>	1	4.5	0.15	7	1.57	159	3	0.55	
<b>Multi-conductor ribbon cable</b>	9 15 19 25	0.48/ 1/2.4	0.127	7	0.81	244	2A/cond	0.53	
	2 x 25							0.88	
<b>Multi-conductor round cable</b>	9	0.48/ 1/2.4	0.127	7	0.635	244	-	0.35	



TYPE	WIRE		NB STRANDS	JACKET Ø (mm)	SHIELD Ø (mm)	INTERNAL INSULATION Ø (mm)	RESISTANCE AT 20°C (Ω / Km)	CURRENT RATING (A)	MIN. BEND RADIUS	
	LENGTH (m)	Ø (mm)								
Coaxial shielded cable	9.1	0.25	1	-	0.96	0.5	377	1.5	0.23	
	4.5	0.2	7	1.27	1.17	0.8	88.3	4.5	0.5	
50 Ohm coaxial cable	4.5	0.038	7	1.27	1.04	0.73	558	0.5	0.2	
		1.10		1.7	1.47	1.19	353	1.5	0.23	
		1.15		2.28	2.00	1.57	159	3	0.53	

## ACCESSORIES

**PEEK Terminal Blocks** are ideal for UHV environments with a current rating of 10 A per pole. Constructed with a 1, 2, or 4 pole design, these unique blocks can be mounted side by side, or stacked to create an unlimited combination of connector terminals. The body is made with PEEK (polyetheretherketone) and the internal connectors are Gold plated Beryllium-Copper with Stainless Steel set screws. Each block has two through holes for secure mounting and stacking.

### SPECIFICATIONS


- Vacuum range:  $1.10^{-10}$  mbar
- Operating temperature: 250°C

	NB POLES	CONDUCTOR Ø (mm)	A	L x W x H (mm)	
PEEK Terminal Blocks	1 2 4 8	1.83 max.	10 max.	14 x 14 x 8.9 20.3 x 14 x 8.9 33.5 x 14 x 8.9 67 x 14 x 8.9	

**Ceramic Beads** are for use in insulating bare wires in air or vacuum systems. The beads are bakeable to 450°C and manufactured using high purity L3 Steatite. The convex and concave ends stack easily on the wire and interlock to provide a flexible and continuous insulation along the entire length of wire.

**SPECIFICATIONS**



- Vacuum range: 1.10<sup>-10</sup> mbar
- Operating temperature: 450°C
- Packaging: per 300 linear mm

	APPROXIMATE NB OF BEADS	LENGTH (mm)	O.D. (mm)	I.D. (mm)	ACCEPTS WIRE Ø (mm)	
Ceramic beads	85	4.3	4.3	1.7	1.27	
	75	5.1	5.1	2.5	2.16	
	55	0.26	0.26	4	3.25	

**PEEK Cable/Equipment Ties and Shrink tubing** are ideal for ultra-high vacuum, high temperature, and harsh chemical environments. The uses for these PEEK cable ties are virtually unlimited. PEEK Shrink Tubing is considered the highest performing thermoplastic material due to its ability to withstand extreme temperatures to 250°C, high pressure, and chemical fluids. PEEK shrink tubing provides a “shrink to fit” layer of protection for critical components and wiring used in UHV applications.

**SPECIFICATIONS**

- Vacuum range: 1.10<sup>-10</sup> mbar
- Operating temperature: 250°C (cable ties), 340°C to 385°C (heat shrink tubing)

	PACKAGING QTY	LENGTH (mm)	WIDTH (mm)	THICK. (mm)	STARTING I.D.	RECOVERED I.D.	
PEEK* Cable Ties	10	188	4.8	1.4	-	-	
PEEK Shrink Tubing	1	152.4	-	-	2.4	1.7	
					3.2	2.6	
					4.8	4	
					6.5	4.8	

\*PEEK : Polyetheretherketone.



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