

# Electrical & Instrumentation Feedthroughs

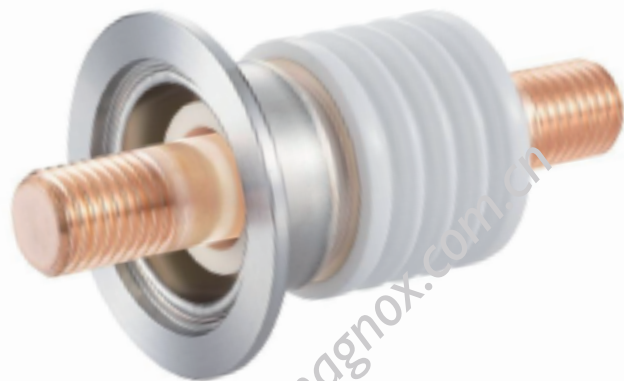
# 7

7.1 Electrical Feedthroughs .....	142-156
7.2 BNC Feedthroughs.....	157-158
7.3 Miniature High Voltage(MHV).....	159-160
7.4 SHV-B、 5、 10、 20 Feedthroughs.....	161-165
7.5 Type N Coaxial Feedthroughs .....	166-167
7.6 SMA Coaxial Feedthroughs .....	168-169
7.7 SMB Coaxial Feedthroughs.....	170
7.8 BNC TO Microdot Coaxial Feedthroughs .....	171
7.9 Multi-Pin, Circular (MPC) Feedthroughs .....	172-173
7.10 MPDT Sub D-Type.....	174
7.11 Subminiature-C Multipin .....	175
7.12 USB Feedthroughs .....	176
7.13 MS Multi-Pin .....	177-178
7.14 MPT Multi-Pin .....	179
7.15 Type C Mini Plug.....	180
7.16 Type C Mini Plug Plus Power.....	181
7.17 Type E Mini Plug.....	182
7.18 Type E Mini Plug Plus Power.....	183
7.19 Type E Push-On .....	184
7.20 Type J Mini Plug .....	185
7.21 Type J Mil-Spec Plug .....	186-187
7.22 Type J Push-On .....	187
7.23 Type J Mini Plug Plus Power.....	188
7.24 Type J Push-On .....	189
7.25 Type K Mini Plug Plus Power .....	190-191
7.26 Type K Mil-Spec Plug .....	192-193
7.27 Type K Push-On .....	194
7.28 Type R Feedthroughs .....	195
7.29 Type T Feedthroughs .....	196

# Electrical Feedthroughs

MAGNOX Products' extensive line of electrical feedthroughs are manufactured from ultra-high vacuum grade materials such as high alumina ceramic insulators, OFHC copper or nickel conductors, and 304 stainless steel flanges. These robust ceramic to metal feedthroughs have electrical ratings for operation with one side in dry atmosphere while the opposite end is in a stable vacuum. They are used in UHV systems with CF flanges or high vacuum systems with NW flanges. CF feedthroughs can be baked to 450°C and NW to 200°C.

Our product line consists of the most commonly required feedthroughs for general vacuum applications. Custom designs or modified standards can readily be supplied.



## Electrical Feedthroughs Ordering Information

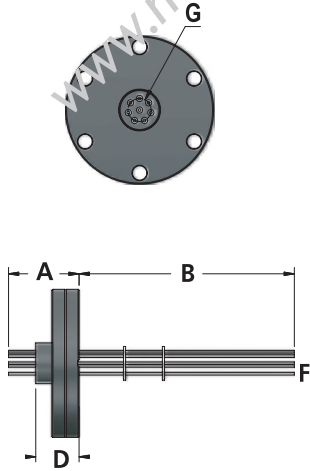
电极馈通订购信息

<b>66906</b>	<b>0212</b>	<b>P</b>	<b>4</b>	<b>02</b>	<b>NI</b>	<b>I5</b>	<b>0005</b>	
型号	尺寸规格	电极形式	电极规格	电极数量	电极材质	单芯电流 (A)	单芯电压 (KV)	
66906 真空电极系列	0133 CF16 0075 KF16 0212 CF25 0100 KF15 0275 CF35 0150 KF40 0338 CF50 0200 KF50 0450 CF63 0250K ISO63-K 0250F ISO63-F 0250N ISO63-NW 0462 CF80 0300K ISO80-K 0300F ISO80-F 0300N ISO80-NW 0600 CF100 0400K ISO100-K 0400F ISO100-F 0400N ISO100-NW 0675 CF130 0600K ISO160-K 0600F ISO160-F 0600N ISO160-NW 0800 CF160 0800K ISO200-K 0800F ISO200-F 0800N ISO200-NW 1000 CF200 1000K ISO250-K 1000F ISO250-F 1000N ISO250-NW 1200 CF250 1200K ISO320-K 1200F ISO320-F 1200N ISO320-NW	P Pink T Tube	2 1/8" 4 1/4" 6 3/8" 8 1/2" 12 3/4" 16 1" XXM 公制管 MXX 公制螺牙	01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20	NI 银 KA 4J33 RC 红铜	5 10 12 14 15 20 30 50 80 160 200 350 500 800 1000	0015 0010 0015 0020 0025 0030 0050 0100 0200	0.5 1 ... 2 3 5 10 12 20

### 说明

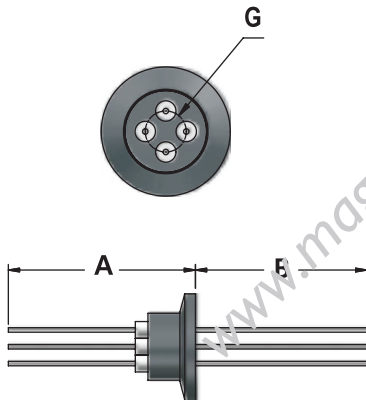
- 1、型号说明仅用于说明型号组成规则，有些组合实际并不存在；如有疑问请联系迈格诺科销售代表。

## CF Flange Voltage: 1,000 Amperage: 1; 7; 20



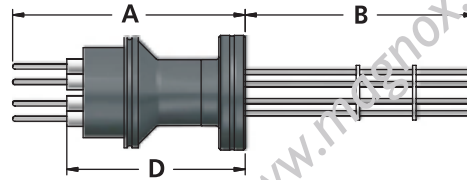
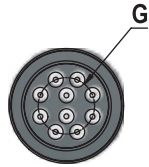
Flange Size	Pins or Tubes	#of Pins or Tubes	Conductor Material	Amps Per Pin/Tube	Dimensions, (in.)				
					A	B	D	F	G
1.33" CF	Pin	1	Stainless Steel	1	1.80	2.20	0.80	0.05	N/A
1.33" CF	Pin	1	Copper	20	1.80	2.20	0.80	0.05	N/A
2.75" CF	Pin	1	Copper	20	1.80	2.20	0.80	0.05	N/A
1.33" CF	Pin	2	Nicke	7	2.60	1.40	1.20	0.05	0.31
2.75" CF	Pin	2	Nicke	7	2.10	1.90	0.70	0.05	0.31
1.33" CF	Pin	2	Stainless Steel	1	2.60	1.40	1.20	0.05	0.31
2.75" CF	Pin	2	Stainless Steel	1	2.10	1.90	0.70	0.05	0.31
1.33" CF	Pin	2	Copper	20	2.63	1.40	1.20	0.05	0.31
2.75" CF	Pin	2	Copper	20	2.10	1.90	0.70	0.05	0.31
1.33" CF	Pin	4	Nicke	7	2.63	1.27	1.17	0.05	0.38
2.75" CF	Pin	4	Nicke	7	2.13	1.87	0.67	0.05	0.38
1.33" CF	Pin	4	Stainless Steel	1	2.63	1.27	1.17	0.05	0.38
2.75" CF	Pin	4	Stainless Steel	1	2.13	1.87	0.67	0.05	0.38
1.33" CF	Pin	4	Copper	20	2.63	1.27	1.17	0.05	0.38
2.75" CF	Pin	4	Copper	20	2.13	1.87	0.67	0.05	0.38
1.33" CF	Pin	8	Kovar	7	2.63	1.37	1.17	0.05	0.43
2.75" CF	Pin	8	Kovar	7	2.13	1.87	0.67	0.05	0.43

## KF(QF) Flange Voltage: 1,000 Amperage: 1; 7; 20



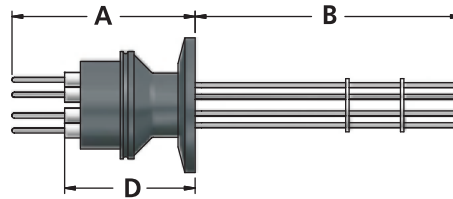
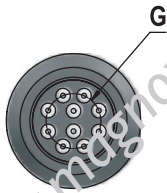
Flange Size	Pins or Tubes	#of Pins or Tubes	Conductor Material	Amps Per Pin/Tube	Dimensions, (in.)		
					A	B	G
KF25	Pin	1	Nicke	7	1.80	2.20	N/W
KF16	Pin	1	Copper	20	1.80	2.20	N/W
KF16	Pin	2	Nicke	7	2.10	1.90	0.31
KF16	Pin	2	Nicke	7	2.10	1.90	0.31
KF16	Pin	2	Stainless Steel	1	2.10	1.90	0.31
KF40	Pin	2	Stainless Steel	1	2.10	1.90	0.31
KF16	Pin	2	Copper	20	2.10	1.90	0.31
KF25	Pin	2	Copper	20	2.10	1.90	0.31
KF40	Pin	2	Copper	20	2.10	1.90	0.31
KF16	Pin	4	Nicke	7	2.13	1.87	0.38
KF25	Pin	4	Nicke	7	2.13	1.87	0.38
KF40	Pin	4	Nicke	7	2.13	1.87	0.38
KF16	Pin	4	Stainless Steel	1	2.13	1.87	0.38
KF25	Pin	4	Stainless Steel	1	2.13	1.87	0.38
KF40	Pin	4	Stainless Steel	1	2.13	1.87	0.38
KF16	Pin	4	Copper	20	2.13	1.87	0.38
KF25	Pin	4	Copper	20	2.13	1.87	0.38
KF40	Pin	4	Copper	20	2.13	1.87	0.38
KF50	Pin	4	Copper	20	2.13	1.87	0.38
KF16	Pin	8	Kovar®	7	2.13	1.87	0.43
KF25	Pin	8	Kovar	7	2.13	1.87	0.43
KF40	Pin	8	Kovar	7	2.13	1.87	0.43

CF Flange Voltage: 2,000 Amperage: 10



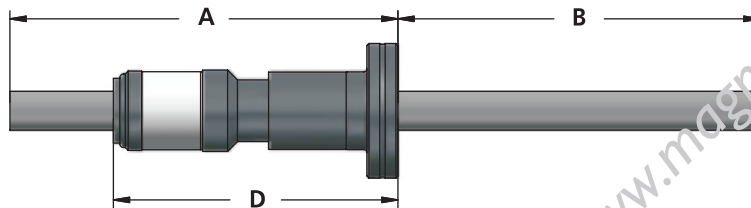
Flange Size	# of Pins	Conductor Material	Amps/Pin	Dimensions, (in.)			
				A	B	D	G
1.33" CF	4	Alumel	10	2.30	2.70	1.81	0.38
2.75" CF	4	Alumel	10	1.80	3.20	1.31	0.38
1.33" CF	6	Alumel	10	2.30	2.70	1.81	0.44
2.75" CF	6	Alumel	10	1.80	3.20	1.31	0.44
1.33" CF	10	Alumel	10	2.55	2.70	1.93	0.51
2.75" CF	10	Alumel	10	2.05	3.20	1.43	0.51

KF Flange Voltage: 2,000 Amperage: 10



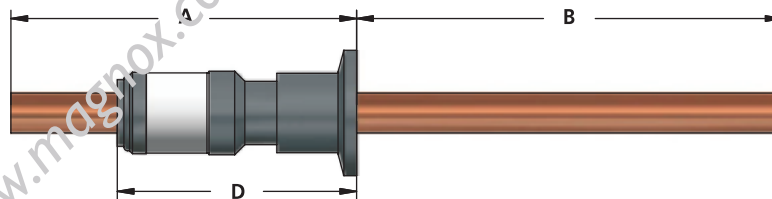
Flange Size	# of Pins	Material	Amps/Pin	Dimensions, (in.)			
				A	B	D	G
KF16	4	Alumel®	10	2.30	2.70	1.31	0.38
KF40	4	Alumel	10	1.80	3.20	1.31	0.38
KF16	6	Alumel	10	2.30	2.70	1.31	0.44
KF25	6	Alumel	10	1.80	3.20	1.31	0.44
KF40	6	Alumel	10	2.55	2.70	1.31	0.44
KF16	10	Alumel	10	2.55	3.20	1.43	0.51
KF25	10	Alumel	10	2.05	3.20	1.43	0.51
KF40	10	Alumel	10	2.05	3.20	1.43	0.51

CF Flange Voltage: 3,000 Amperage: 125; 250; 600



Flange Size	Pins or Tubes	# of Pins or Tubes	Conductor Material	Amps Per Pin/Tube	Dimensions, (in.)		
					A	B	D
1.33" CF	Pin	1	Nickel	125	3.60	3.70	2.60
1.33" CF	Pin	1	Copper	250	3.65	3.60	2.65
1.33" CF	Tube	1	Copper	250	3.65	3.60	2.65
2.75" CF	Pin	1	Copper	250	3.15	4.10	2.15
2.75" CF	Tube	1	Copper	250	3.15	4.10	2.15
2.75" CF	Pin	1	Copper	600	3.85	3.40	2.85
2.75" CF	Tube	1	Copper	600	3.80	4.10	2.80
2.75" CF	Pin	2	Copper	250	2.90	4.40	1.90

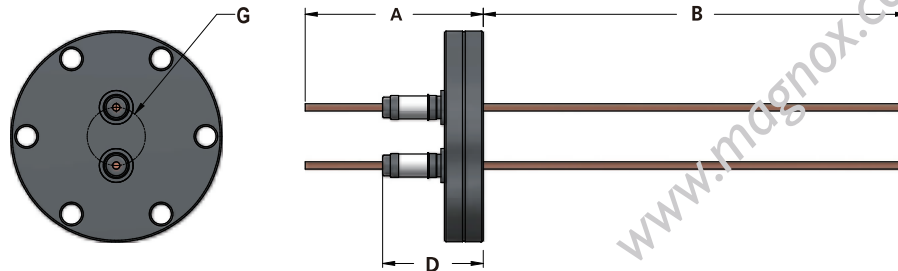
KF Flange Voltage: 3,000 Amperage: 250; 600



Flange Size	Pins or Tubes	# of Pins or Tubes	Conductor Material	Amps Per Pin/Tube	Dimensions, (in.)		
					A	B	D
KF16	Pin	1	Nickel	250	3.15	4.10	2.15
KF16	Pin	1	Copper	250	2.75	4.10	2.15
KF25	Tube	1	Copper	250	3.15	4.10	2.15
KF40	Pin	1	Copper	250	3.15	4.10	2.15
KF40	Tube	1	Copper	250	3.15	4.10	2.15
KF40	Pin	1	Copper	600	3.85	3.40	2.85
KF40	Tube	1	Copper	600	3.80	4.10	2.80
KF50	Pin	1	Copper	600	3.85	4.40	2.85
KF50	Tube	2	Copper	250	3.15	4.10	2.15
KF50	Pin	2	Copper	250	3.15	4.10	2.15

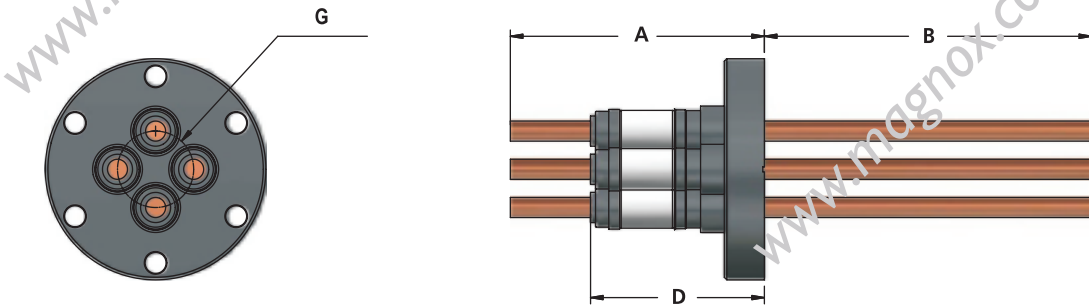
# Electrical Feedthroughs

CF Flange Voltage: 5,000 Amperage: 1;2;5;15;30



Flange Size	Pins or Tubes	#of Pins or Tubes	Conductor Material	Amps Per Pin/Tube	Dimensions, (in.)			
					A	B	D	G
1.33" CF	Pin	1	Nickel	5	1.85	2.15	0.85	N/A
2.75" CF	Pin	1	Nickel	5	1.85	2.15	0.85	N/A
1.33" CF	Pin	1	Nickel	15	2.30	5.00	1.20	N/A
2.75" CF	Pin	1	Nickel	15	2.30	5.00	1.20	N/A
1.33" CF	Pin	1	Stainless Steel	1	1.85	2.15	0.85	N/A
2.75" CF	Pin	1	Stainless Steel	1	1.85	2.15	0.85	N/A
1.33" CF	Pin	1	Stainless Steel	2	2.30	5.00	1.20	N/A
2.75" CF	Pin	1	Stainless Steel	2	2.30	5.00	1.20	N/A
1.33" CF	Pin	1	Copper	15	1.85	2.15	0.85	N/A
2.75" CF	Pin	1	Copper	15	1.85	2.15	0.85	N/A
1.33" CF	Pin	1	Copper	30	2.30	5.00	1.20	N/A
2.75" CF	Pin	1	Copper	30	2.30	5.00	1.20	N/A
1.33" CF	Pin	2	Nickel	5	2.37	1.63	1.37	0.31
2.75" CF	Pin	2	Nickel	5	1.87	2.13	0.87	0.31
1.33" CF	Pin	2	Nickel	15	2.25	5.32	1.23	0.36
2.75" CF	Pin	2	Nickel	15	2.30	5.00	1.20	0.75
1.33" CF	Pin	2	Stainless Steel	1	2.37	1.63	1.37	0.31
2.75" CF	Pin	2	Stainless Steel	1	1.87	2.13	0.87	0.31
2.75" CF	Pin	2	Stainless Steel	2	2.30	5.00	1.20	0.75
1.33" CF	Pin	2	Copper	15	2.37	1.63	1.37	0.31
2.75" CF	Pin	2	Copper	15	1.87	2.13	0.87	0.31
1.33" CF	Pin	2	Copper	30	2.25	5.32	1.23	0.36
2.75" CF	Pin	2	Copper	30	2.30	5.00	1.20	0.75
1.33" CF	Pin	4	Nickel	15	2.00	5.80	1.00	0.41
1.33" CF	Pin	4	Copper	30	2.00	5.80	1.00	0.41
1.33" CF	Pin	4	Nickel	5	2.37	1.63	1.37	0.375
2.75" CF	Pin	4	Nickel	5	1.87	2.13	0.87	0.375
1.33" CF	Pin	4	Stainless Steel	1	2.37	1.63	1.37	0.375
2.75" CF	Pin	4	Stainless Steel	1	1.87	2.13	0.87	0.375
1.33" CF	Pin	4	Copper	15	2.37	1.63	1.37	0.375
2.75" CF	Pin	4	Copper	15	1.87	2.13	0.87	0.375
2.75" CF	Pin	4	Nickel	15	2.25	5.32	1.23	0.62
2.75" CF	Pin	4	Copper	30	2.25	5.32	1.23	0.62
2.75" CF	Pin	8	Nickel	5	1.60	2.40	0.60	0.75
2.75" CF	Pin	8	Nickel	15	2.20	5.60	1.20	1.10
2.75" CF	Pin	8	Copper	30	2.25	5.32	1.23	1.00
2.75" CF	Pin	12	Nickel	15	2.20	5.60	1.20	1.20
2.75" CF	Pin	12	Copper	30	2.25	5.32	1.23	1.21

CF Flange Voltage: 5,000 Amperage: 7;75;150

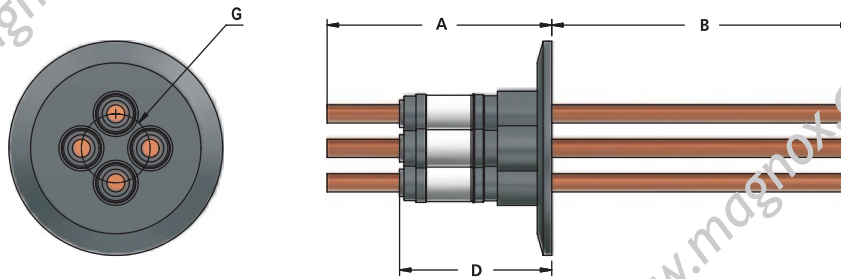


Flange Size	Pins or Tubes	#of Pins or Tubes	Conductor Material	Amps Per Pin/Tube	Dimensions, (in.)			
					A	B	D	G
1.33" CF	Pin	1	Nickel	75	3.13	4.12	2.13	N/A
2.75" CF	Pin	1	Nickel	75	3.13	4.12	2.13	N/A
1.33" CF	Pin	1	Stainless Steel	7	3.13	4.12	2.13	N/A
2.75" CF	Pin	1	Stainless Steel	7	3.13	4.12	2.13	N/A
2.75" CF	Tube	1	Stainless Steel	7	3.13	4.12	2.13	N/A
1.33" CF	Pin	1	Copper	150	3.13	4.12	2.13	N/A
1.33" CF	Tube	1	Copper	150	3.13	4.12	2.13	N/A
2.75" CF	Pin	1	Copper	150	3.13	4.12	2.13	N/A
2.75" CF	Tube	1	Copper	150	3.13	4.12	2.13	0.87
2.75" CF	Pin	2	Nickel	75	3.13	4.12	2.13	0.87
2.75" CF	Pin	2	Copper	150	3.13	4.12	2.13	0.87
2.75" CF	Tube	2	Copper	150	3.13	4.12	2.13	0.95
2.75" CF	Tube	3	Stainless Steel	7	3.18	4.07	2.18	0.95
2.75" CF	Pin	3	Copper	150	3.18	4.07	2.18	0.95
2.75" CF	Tube	3	Copper	150	3.18	4.07	2.18	0.95
2.75" CF	Pin	4	Nickel	75	3.18	4.07	2.18	0.95
2.75" CF	Pin	4	Stainless Steel	7	3.18	4.07	2.18	0.95
2.75" CF	Pin	4	Copper	150	3.18	4.07	2.18	0.95
2.75" CF	Tube	4	Copper	150	3.18	4.07	2.18	0.95





KF Flange Voltage: 5,000 Amperage: 1;2;5;15;30



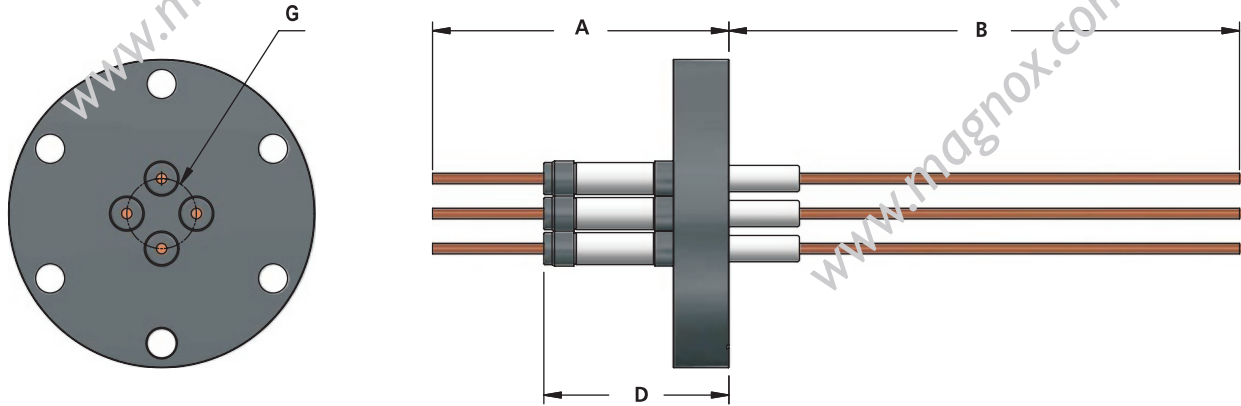
Flange Size	pins or Tubes	#of Pins or Tubes	Conductor Material	Amps / Pin/	Dimensions, (in.)			
					A	B	D	G
KF16	Pin	1	Nickel	5	1.85	2.15	0.85	N/A
KF40	Pin	1	Nickel	5	1.85	2.15	0.85	N/A
KF16	Pin	1	Nickel	15	2.30	5.00	1.20	N/A
KF40	Pin	1	Nickel	15	2.30	5.00	1.20	N/A
KF16	Pin	1	Stainless Steel	1	1.85	2.15	0.85	N/A
KF40	Pin	1	Stainless Steel	1	1.85	2.15	0.85	N/A
KF16	Pin	1	Stainless Steel	2	2.30	5.00	1.20	N/A
KF40	Pin	1	Stainless Steel	2	2.30	5.00	1.20	N/A
KF16	Pin	1	Copper	15	1.85	2.15	0.85	N/A
KF40	Pin	1	Copper	15	1.85	2.15	0.85	N/A
KF16	Pin	1	Copper	30	2.30	5.00	1.20	N/A
KF40	Pin	1	Copper	30	2.30	5.00	1.20	N/A
KF16	Pin	2	Nickel	5	1.87	2.13	0.87	0.31
KF25	Pin	2	Nickel	5	1.87	2.13	0.87	0.31
KF40	Pin	2	Nickel	5	1.87	2.13	0.87	0.31
KF40	Pin	2	Nickel	15	2.30	5.00	1.20	0.75
KF50	Pin	2	Nickel	15	2.30	5.00	1.20	0.95
KF16	Pin	2	Stainless Steel	1	1.87	2.13	0.87	0.31
KF25	Pin	2	Stainless Steel	1	1.87	2.13	0.87	0.31
KF40	Pin	2	Stainless Steel	1	1.87	2.13	0.87	0.31
KF40	Pin	2	Stainless Steel	2	2.30	5.00	1.20	0.75
KF16	Pin	2	Copper	15	1.87	2.13	0.87	0.31
KF25	Pin	2	Copper	15	1.87	2.13	0.87	0.31
KF40	Pin	2	Copper	15	1.87	2.13	0.87	0.31
KF16	Pin	2	Copper	30	1.95	5.62	0.93	0.39
KF25	Pin	2	Copper	30	2.30	5.00	1.20	0.50
KF40	Pin	2	Copper	30	2.30	5.00	1.20	0.75
KF16	Pin	4	Nickel	5	1.87	2.13	0.87	0.375
KF40	Pin	4	Nickel	5	1.87	2.13	0.87	0.375
KF16	Pin	4	Stainless Steel	1	1.87	2.13	0.87	0.375
KF25	Pin	4	Stainless Steel	1	1.87	2.13	0.87	0.375
KF40	Pin	4	Stainless Steel	1	1.87	2.13	0.87	0.375
KF16	Pin	4	Copper	15	1.87	2.13	0.87	0.375
KF25	Pin	4	Copper	15	1.87	2.13	0.87	0.375
KF40	Pin	4	Copper	15	1.87	2.13	0.87	0.375
KF50	Pin	4	Copper	15	1.87	2.13	0.87	0.375
KF40	Pin	4	Copper	30	1.95	5.62	0.93	0.62
KF40	Pin	8	Copper	30	1.95	5.62	0.93	1.00

KF Flange Voltage: 5,000 Amperage: 150

Flange Size	#of Pins	Conductor Material	Amps / Pin	Dimensions, (in.)					
				A	B	C	D	E	F
KF16	1	Copper	150	3.13	4.12	1.33	2.13	0.54	0.25
KF50	4	Copper	150	3.18	4.07	2.75	2.18	0.57	0.25

# Electrical Feedthroughs

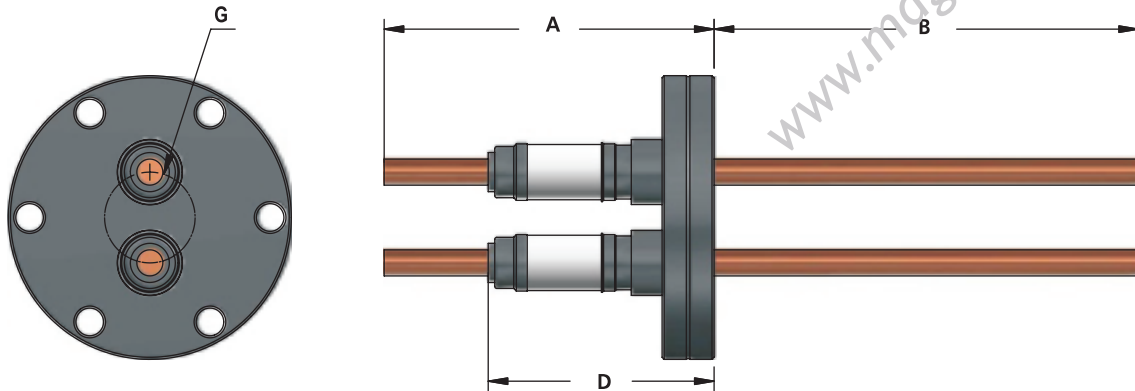
CF Flange Voltage: 12,000 Amperage: 30



Flange Size	#of Pins or Tubes	Conductor Material	Amps / Pin	Dimensions, (in.)			
				A	B	D	G
1.33" CF	1	Nickel	15	2.63	4.94	1.67	N/A
1.33" CF	1	Copper	30	2.63	4.94	1.67	N/A
2.75" CF	1	Nickel	15	2.63	4.94	1.67	N/A
2.75" CF	1	Copper	30	2.63	4.94	1.67	N/A
2.75" CF	2	Copper	30	2.63	4.94	1.67	0.50
2.75" CF	2	Nickel	15	2.63	4.94	1.67	0.75
2.75" CF	4	Nickel	15	2.70	4.10	0.70	1.00
2.75" CF	4	Copper	30	2.70	4.10	0.70	1.00

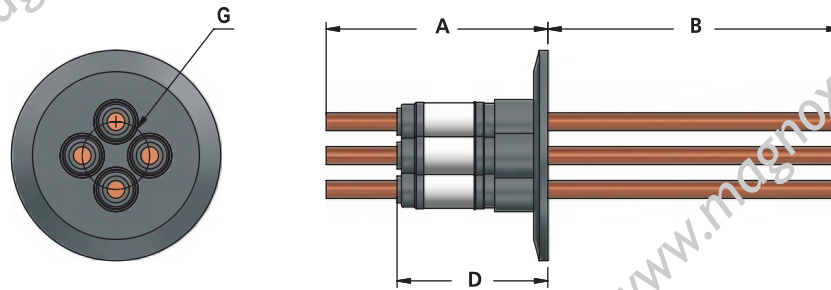


CF(QF) Flange Voltage: 12,000 Amperage: 7;75;150



Flange Size	pins or Tubes	#of Pins or Tubes	Conductor Material	Amps / Pin	Dimensions, (in.)			
					A	B	D	G
1.33" CF	Tube	1	Nickel	75	3.10	4.20	2.10	N/A
1.33" CF	Tube	1	Stainless Steel	7	3.10	4.20	2.10	N/A
1.33" CF	Tube	1	Copper	150	3.10	4.20	2.10	N/A
2.75" CF	Tube	1	Nickel	75	3.10	4.20	2.10	N/A
2.75" CF	Tube	1	Stainless Steel	7	3.10	4.20	2.10	N/A
2.75" CF	Tube	1	Copper	150	3.10	4.20	2.10	N/A
1.33" CF	Pin	1	Nickel	75	3.10	4.20	2.10	N/A
1.33" CF	Pin	1	Stainless Steel	7	3.10	4.20	2.10	N/A
1.33" CF	Pin	1	Copper	150	3.10	4.20	2.10	N/A
2.75" CF	Pin	1	Nickel	75	3.10	4.20	2.10	N/A
2.75" CF	Pin	1	Stainless Steel	7	3.10	4.20	2.10	N/A
2.75" CF	Pin	1	Copper	150	3.10	4.20	2.10	N/A
2.75" CF	Pin	2	Nickel	75	3.10	4.20	2.10	0.87
2.75" CF	Tube	2	Nickel	75	3.10	4.20	2.10	0.87
2.75" CF	Pin	2	Stainless Steel	7	3.10	4.20	2.10	0.87
2.75" CF	Tube	2	Stainless Steel	7	3.10	4.20	2.10	0.87
2.75" CF	Pin	2	Copper	150	3.10	4.20	2.10	0.87
2.75" CF	Tube	2	Copper	150	3.10	4.20	2.10	0.87
2.75" CF	Pin	3	Nickel	75	3.10	4.20	2.10	0.87
2.75" CF	Tube	3	Copper	150	3.10	4.20	2.10	0.87
2.75" CF	Pin	4	Copper	150	2.90	4.40	2.10	0.94
2.75" CF	Tube	4	Copper	150	2.90	4.40	2.10	0.94

KF Flange Voltage: 12,000 Amperage: 15;30

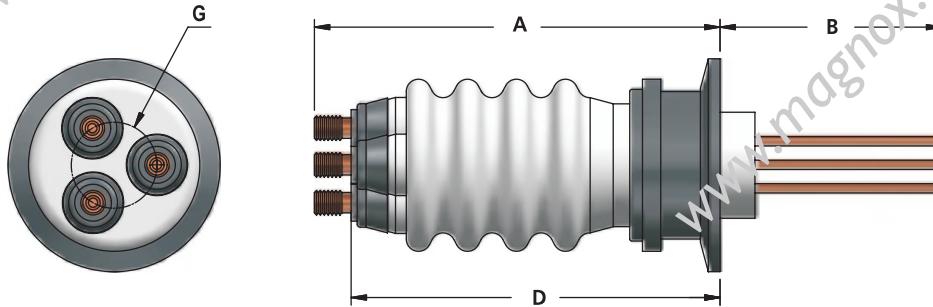


Flange Size	#of Pins	Conductor Material	Amps/ Pin	Dimensions, (in.)			
				A	B	D	G
KF16	1	Nickel	15	2.63	4.94	1.67	N/A
KF16	1	Copper	30	2.63	4.94	1.67	N/A
KF40	1	Nickel	15	2.63	4.94	1.67	N/A
KF40	1	Copper	30	2.63	4.94	1.67	N/A
KF25	1	Copper	30	2.63	4.94	1.67	0.39
KF40	2	Copper	30	2.63	4.94	1.67	0.50
KF40	2	Nickel	15	2.63	4.94	1.67	0.75
KF40	4	Nickel	15	2.33	5.20	1.37	0.62
KF40	4	Copper	30	2.33	5.20	1.37	0.62

Voltage: 12,000 Amperage: 7;15;150

Flange Size	pins or Tubes	#of Pins	Conductor Material	Amps/ Pin	Dimensions, (in.)			
					A	B	D	G
KF16	Tube	1	Nickel	75	3.10	4.20	2.10	N/A
KF16	Tube	1	Stainless Steel	7	3.10	4.20	2.10	N/A
KF16	Tube	1	Copper	150	3.10	4.20	2.10	N/A
KF40	Tube	1	Nickel	75	3.10	4.20	2.10	N/A
KF40	Tube	1	Stainless Steel	7	3.10	4.20	2.10	N/A
KF40	Tube	1	Copper	150	3.10	4.20	2.10	N/A
KF16	Pin	1	Nickel	75	3.10	4.20	2.10	N/A
KF16	Pin	1	Stainless Steel	7	3.10	4.20	2.10	N/A
KF16	Pin	1	Copper	150	3.10	4.20	2.10	N/A
KF40	Pin	1	Nickel	75	3.10	4.20	2.10	N/A
KF40	Pin	1	Stainless Steel	7	3.10	4.20	2.10	N/A
KF40	Pin	1	Copper	150	3.10	4.20	2.10	N/A
KF25	Pin	1	Nickel	75	3.10	4.20	2.10	N/A
KF25	Pin	1	Stainless Steel	7	3.10	4.20	2.10	N/A
KF25	Pin	1	Copper	150	3.10	4.20	2.10	N/A
KF50	Pin	1	Copper	150	3.10	4.20	2.10	N/A
KF40	Pin	2	Nickel	75	3.10	4.20	2.10	0.75
KF40	Tube	2	Nickel	75	3.10	4.20	2.10	0.75
KF40	Pin	2	Stainless Steel	7	3.10	4.20	2.10	0.75
KF40	Tube	2	Stainless Steel	7	3.10	4.20	2.10	0.75
KF40	Pin	2	Copper	150	3.10	4.20	2.10	0.75
KF40	Tube	2	Copper	150	3.10	4.20	2.10	0.75
KF50	Pin	2	Copper	150	2.90	4.40	2.10	0.94
KF50	Pin	4	Stainless Steel	7	2.90	4.40	2.10	0.94
KF50	Pin	4	Copper	150	2.90	4.40	2.10	0.94
KF50	Tube	4	Copper	150	2.90	4.40	2.10	0.94

KF Flange Voltage: 20,000 ;25,000;30,000 Amperage: 2;15;30;75;150



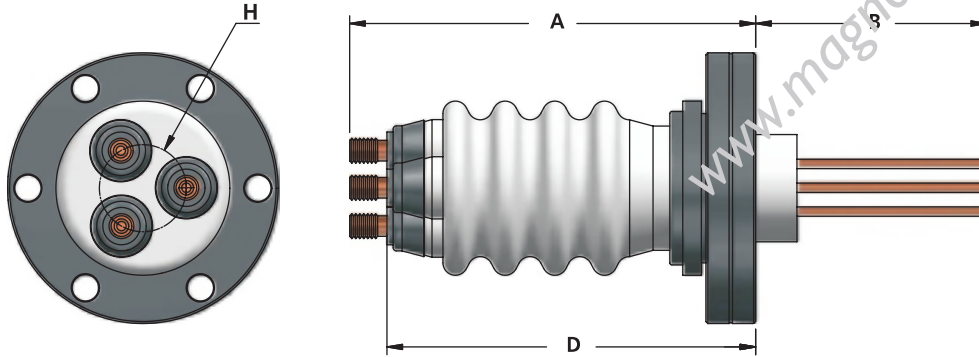
Flange Size	#of Pins	Atm. Side Thread	Amps/ Pin	Voltage (kV)	Conductor Material	Dimensions, (in.)			
						A	B	D	H
KF16	1	1/4-28	15	20	Nickel	2.63	5.63	2.80	N/A
KF40	1	1/4-28	15	20	Nickel	2.63	5.63	2.80	N/A
KF40	1	1/4-28	2	20	Stainless Steel	2.63	5.63	2.80	N/A
KF40	1	N/A	75	20	Nickel	2.63	3.47	2.78	N/A
KF40	1	N/A	150	20	Copper	2.63	3.47	2.78	N/A
KF40	1	1/4-28	3	25	Stainless Steel	2.63	5.31	3.19	N/A
KF40	1	1/4-28	3	30	Stainless Steel	2.63	4.70	3.72	N/A
KF40	2	1/4-28	30	25	Copper	2.33	1.82	3.66	0.88
KF40	3	1/4-28	30	25	Copper	2.33	2.37	6.62	0.88



## CF Flange

Voltages: 20,000 ;25,000; 30,000; 50,000; 60,000; 100,000

Amperage: 2; 3;15; 30; 75; 100; 150



Flange Size	#of Pins	Atm. Side Thread	Amps/ Pin	Voltage (kV)	Conductor Material	Dimensions, (in.)				
						A	B	D	G	H
1.33" CF	1	1/4-28	15	20	Nickel	3.67	5.13	3.30	0.03	N/A
1.33" CF	1	1/4-28	30	20	Copper	3.67	5.13	3.30	0.03	N/A
2.75" CF	1	1/4-28	2	20	Stainless Steel	3.17	5.63	2.80	0.03	N/A
2.75" CF	1	N/A	75	20	Nickel	3.78	3.47	2.78	0.59	N/A
2.75" CF	1	N/A	150	20	Copper	3.78	3.47	2.78	0.59	N/A
2.75" CF	1	1/4-28	3	25	Stainless Steel	3.57	5.31	3.19	N/A	N/A
2.75" CF	1	1/4-28	3	30	Stainless Steel	4.10	4.70	3.72	0.62	N/A
2.75" CF	1	1/4-28	55	30	Copper	4.10	4.70	3.72	0.62	N/A
4.5" CF	1	1/2-28	3	60	Stainless Steel	7.82	4.61	6.82	0.86	N/A
6"CF	1	1/4-28	3	60	Stainless Steel	7.82	4.61	6.82	0.86	N/A
2.75"CF	1	1/4-28	30	25	Copper	4.04	1.82	3.66	0.70	0.88
2.75" CF	2	1/4-28	30	25	Copper	4.00	2.37	3.62	0.70	0.88
6"CF	3	1/4-26	30	25	Copper	4.00	2.37	3.62	0.70	0.88



## CF Flange

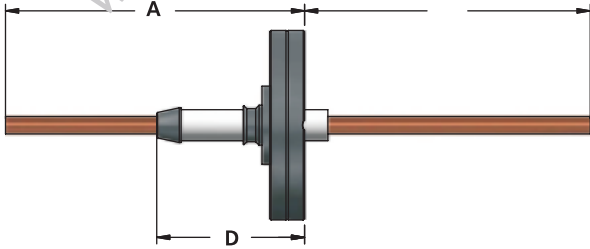


Figure 1 (1 tube)

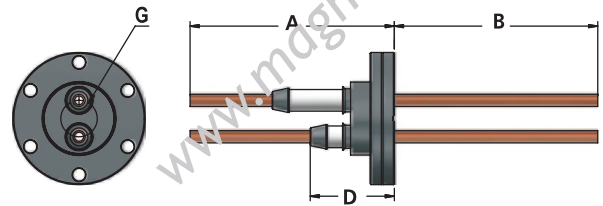


Figure 2 (2 tubes)

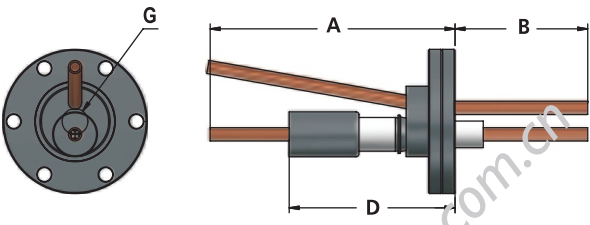


Figure 3 (2 tubes)

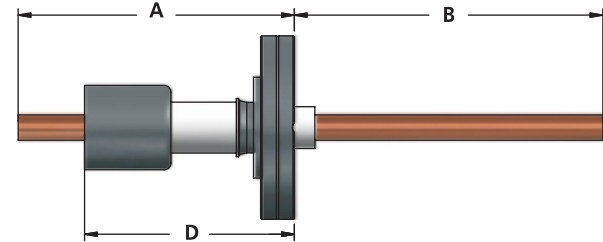


Figure 4 (1 tube)

Flange Size	#of Pins	Voltage (kV)	Conductor Material	Power (kW)	Frequency	Dimensions, (in.)			
						A	B	D	G
2.75"CF	1	8	Copper	10	450kHz	4.13	4.26	1.96	N/A
2.75"CF	2	8	Copper	10	450kHz	4.25	4.14	2.50	0.75
2.75"CF	2	10	Copper	20	13.56MHz	4.61	2.50	3.12	0.80
2.75"CF	1	10	Copper	35	13.56MHz	4.23	4.52	3.25	N/A

## CF(QF) Flange

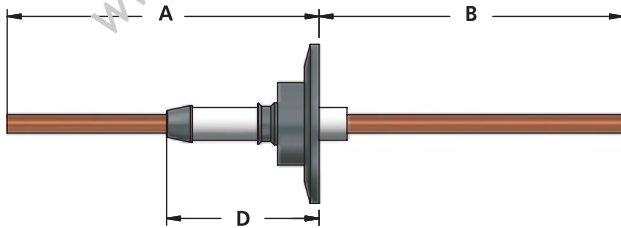


Figure 1 (1 tube)

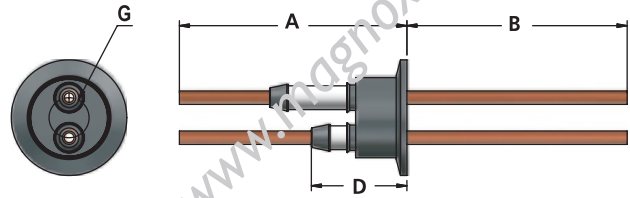


Figure 2 (2 tubes)

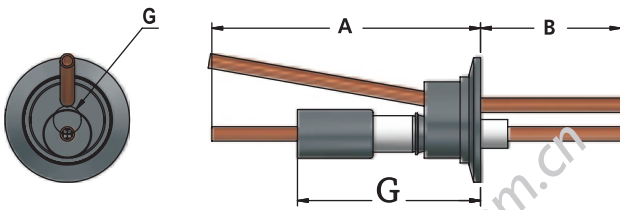


Figure 3 (2 tubes)

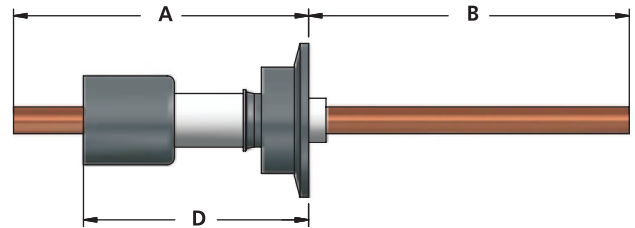


Figure 4 (1 tube)

Flange Size	#of Pins	Voltage (kV)	Conductor Material	Power (kW)	Frequency	Dimensions, (in.)			
						A	B	D	G
KF40	1	8	Copper	10	450kHz	4.03	4.31	1.91	N/A
KF40	2	8	Copper	10	450kHz	4.29	4.10	2.54	0.75
KF40	2	10	Copper	20	13.56MHz	4.65	2.45	3.16	0.80
KF40	1	10	Copper	35	13.56MHz	4.18	4.57	3.23	N/A



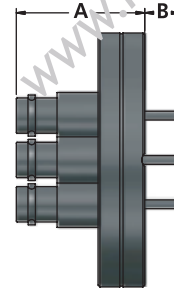
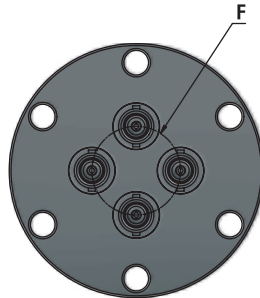
## BNC Feedthroughs

BNC 引线

### Bayonet naval connector (BNC) coaxial feedthroughs:

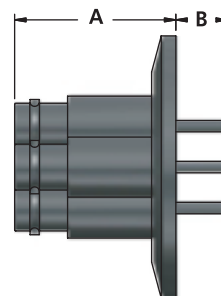
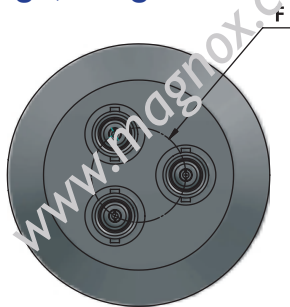
- ◆ Single-ended assemblies come with one air-side cable connector but with out vacuum-side connectors.
- ◆ Optional push on contacts and vacuum-compatible cables are available
- ◆ Feature grounded or floating shields
- ◆ Designed and rated for use in high vacuum and UHV applications
- ◆ Double-ended assemblies come with air-side connector only

### CF Flange, Single-Ended



Part Number	#of Pins	Conductor Material	Shield	Flange Size	Voltage (DC)	Amps/ Pin	Dimensions, (in.)		
							A	B	F
66826-0120321FTBG	1	Stainless Steel	Grounded	1.33"CF	500V	3	1.33	0.40	N/A
66826-0120331FTBG	1	Stainless Steel	Grounded	2.75"CF	500V	3	1.33	0.40	N/A
66826-0220331FTBG	2	Stainless Steel	Grounded	2.75"CF	500V	3	1.33	0.40	0.87
66826-0320331FTBG	3	Stainless Steel	Grounded	2.75"CF	500V	3	1.33	0.40	0.87
66826-0420331FTBG	4	Stainless Steel	Grounded	2.75"CF	500V	3	1.33	0.40	0.95
66826-0120321FTBF	1	Stainless Steel	Floating	1.33"CF	2500V	3	2.70	0.42	N/A
66826-0120331FTBF	1	Stainless Steel	Floating	2.75"CF	2500V	3	0.89	0.84	N/A

### KF (QF) Flange, Single-Ended



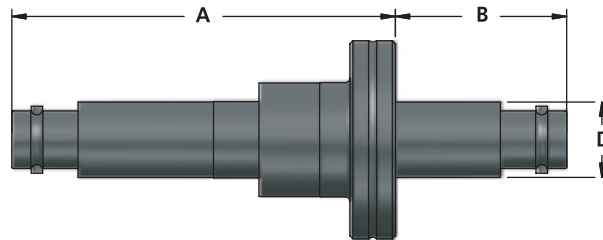
Part Number	#of Pins	Conductor Material	Shield	Flange Size	Voltage (DC)	Amps/ Pin	Dimensions, (in.)		
							A	B	F
66827-0120381FTBG	1	Stainless Steel	Grounded	KF16	500V	3	1.33	0.40	N/A
66827-012038B1FTBG	1	Stainless Steel	Grounded	KF40	500V	3	1.33	0.40	N/A
66827-022038B1FTBG	2	Stainless Steel	Grounded	KF40	500V	3	1.33	0.40	0.78
66827-032038B1FTBG	3	Stainless Steel	Grounded	KF40	500V	3	1.33	0.40	0.78
66827-032038C1FTBG	3	Stainless Steel	Grounded	KF40	500V	3	1.33	0.40	0.87
66827-042038B1FTBG	4	Stainless Steel	Grounded	KF50	500V	3	1.33	0.40	0.87
66827-042038C1FTBG	4	Stainless Steel	Grounded	KF40	500V	3	1.33	0.40	0.95
66827-052038C1FTBG	5	Stainless Steel	Grounded	KF50	500V	3	1.33	0.40	0.95
66827-0120381FTBF	1	Stainless Steel	Floating	KF16	2500V	3	2.70	0.50	N/A
66827-012038B1FTBF	1	Stainless Steel	Floating	KF40	2500V	3	0.89	0.84	N/A

## Specifications

<b>Maximum Voltage:</b>	500 VDC
<b>Grounded Shield:</b>	2,500 VDC
<b>Floating Shield: Shield-Ground:</b>	500 VDC
<b>Floating Shield: ShieldPin:</b>	3A
<b>Maximum Current:</b>	Stainless Steel
<b>Conductor:</b>	Alumina
<b>Insulator: Cable:</b>	RG-58U
<b>Connection:</b>	Bayonet
<b>Vacuum Application:</b>	HV or UHV
<b>Temperature:</b>	
<b>Weld Adapter, CF:</b>	-200° C to +450° C
<b>KF, O-Ring, NPT</b>	To +150° C
<b>Max. Ramp Rate:</b>	25° C/minute
<b>Cable Connectors:</b>	-65° C to +165° C

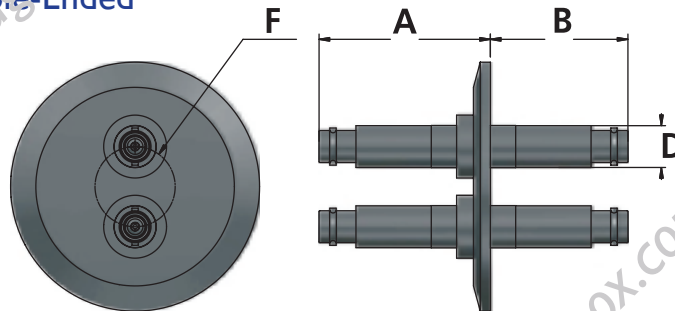
\*NOTE: Standard feedthroughs are unmatched. 50-ohm matched impedance connectors are available at an additional cost.

## CF Flange, Double-Ended



Part Number	#of Pins	Conductor Material	Shield	Flange Size	Voltage (DC)	Amps/ Pin	Conductor Material	Dimensions, (in.)		
								A	B	D
66828-0120321FDBG	1	Stainless Steel	Grounded	1.33"CF	500V	3	Unmatched	2.53	1.13	0.50
66828-0120331FDBG	1	Stainless Steel	Grounded	2.75"CF	500V	3	Unmatched	2.03	1.63	0.50
66828-012033AIFDBG	1	Stainless Steel	Grounded	3.375"CF	500V	3	Unmatched	2.03	1.63	0.50
66828-012032MIFDBG	1	Stainless Steel	Grounded	1.33"CF	500V	3	Matched 50 Ohm	0.89	0.64	0.50
66828-012033MIFDBG	1	Stainless Steel	Grounded	2.75"CF	500V	3	Matched 50 Ohm	0.89	0.64	0.50
66828-0120321FDBF	1	Stainless Steel	Floating	1.33"CF	2500V	3	Unmatched	2.96	1.21	0.50
66828-0120331FDBF	1	Stainless Steel	Floating	2.75"CF	2500V	3	Unmatched	2.46	1.71	0.50
66828-042036IFDBF	4	Stainless Steel	Floating	4.5"CF	2500V	3	Unmatched	2.46	1.71	0.50

## KF (QF) Flange, Double-Ended



Part Number	#of Pins	Conductor Material	Shield	Flange Size	Voltage (DC)	Amps/ Pin	Conductor Material	Dimensions, (in.)			
								A	B	D	F
66829-0120381FDBG	1	Stainless Steel	Grounded	KF16	500V	3	Unmatched	2.53	1.63	0.50	N/A
66829-012038AIFDBG	1	Stainless Steel	Grounded	KF25	500V	3	Unmatched	2.03	1.63	0.50	N/A
66829-012038BIFDBG	1	Stainless Steel	Grounded	KF40	500V	3	Unmatched	2.03	1.63	0.50	N/A
66829-012038CIFDBG	1	Stainless Steel	Grounded	KF50	500V	3	Unmatched	2.53	1.63	0.50	N/A
66829-022038CIFDBG	2	Stainless Steel	Grounded	KF50	500V	3	Unmatched	2.03	1.63	0.50	0.95
66829-0120381FDBF	1	Stainless Steel	Floating	KF16	2500V	3	Unmatched	2.46	1.71	0.50	N/A
66829-012038A1FDBF	1	Stainless Steel	Floating	KF25	2500V	3	Unmatched	2.46	1.71	0.50	N/A
66829-012038B1FDBF	1	Stainless Steel	Floating	KF40	2500V	3	Unmatched	2.46	1.71	0.50	N/A

## Miniature High Voltage(MHV)

### MHV引线

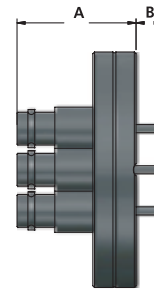
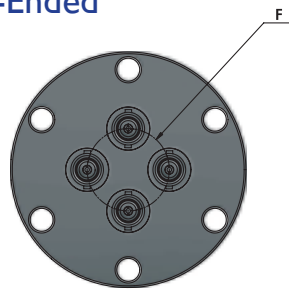
Feature grounded or floating shields  
 Designed and rated for use in high vacuum and UHV applications  
 Suitable for cryogenic temperatures  
 Single-ended assemblies come with one air-side cable connector,  
 without vacuum-side connectors. Options include  
 power push-on contacts and vacuum cable assemblies  
 Double-ended assemblies come with air-side connectors only

**NOTE:** Do not crossmate MHV feedthroughs with BNC feedthroughs.  
 MHV feedthroughs are rated at higher voltages

## Specifications

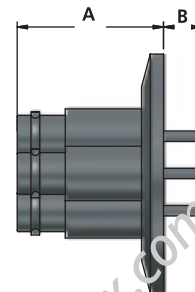
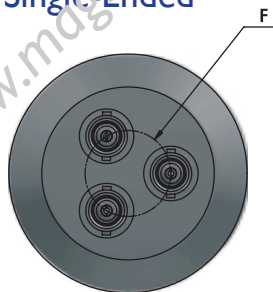
- Maximum Voltage:** Grounded Shield: 5,000 VDC  
 Floating Shield: Shield-Ground: 2,500 VDC  
 Floating Shield: Shield-Pin: 5,000 VDC
- Maximum Current:** 3A
- Conductor:** Stainless Steel
- Insulator:** Alumina
- Cable:** RG-59U
- Connection:** Bayonet
- Vacuum Application:** HV or UHV  
 Weld Adapter, CF: -200°C to +450°C  
 KF,O-Ring, NPT: to +150°C
- Temperature:** Max Ramp Rate: 25°C/minute  
 Cable Connectors: -65°C to +165°C

## CF Flange, Single-Ended



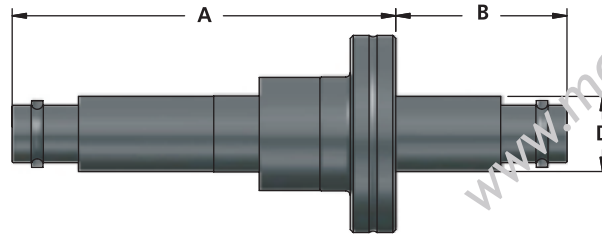
Part Number	#of Pins	Conductor Material	Shield	Flange Size	Voltage (DC)	Amps/ Pin	Dimensions, (in.)	
							A	B
66830-012032IFTMG	1	Stainless Steel	Grounded	1.33"CF	5kV	3	1.33	0.35
66830-012033IFTMG	1	Stainless Steel	Grounded	2.75"CF	5kV	3	1.33	0.35
66830-0220331IFTMG	2	Stainless Steel	Grounded	2.75"CF	5kV	3	1.33	0.35
66830-032033IFTMG	3	Stainless Steel	Grounded	2.75"CF	5kV	3	1.33	0.35
66830-042033IFTMG	4	Stainless Steel	Grounded	2.75"CF	5kV	3	1.33	0.35
66830-012032IFTMF	1	Stainless Steel	Floating	1.33"CF	2500V	3	2.70	0.42
66830-012033IFTMF	1	Stainless Steel	Floating	2.75"CF	2500V	3	0.84	0.84

## KF(QF) Flange, Single-Ended



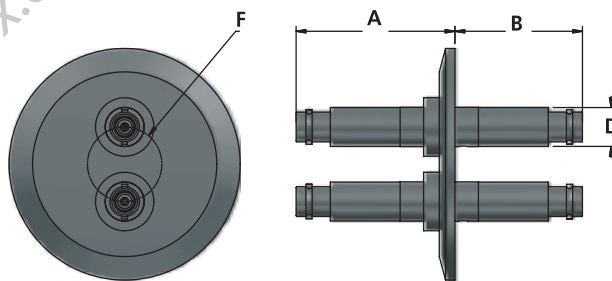
Part Number	#of Pins	Conductor Material	Shield	Flange Size	Voltage (DC)	Amps/ Pin	Dimensions, (in.)		
							A	B	F
66831-012038IFTMG	1	Stainless Steel	Grounded	KF16	5kV	3	1.33	0.35	N/A
66831-012038BIFTMG	1	Stainless Steel	Grounded	KF40	5kV	3	1.33	0.35	N/A
66831-022038BIFTMG	2	Stainless Steel	Grounded	KF40	5kV	3	1.33	0.35	0.78
66831-032038BIFTMG	3	Stainless Steel	Grounded	KF40	5kV	3	1.33	0.35	0.78
66831-032038CIFTMG	3	Stainless Steel	Grounded	KF40	5kV	3	1.33	0.35	0.87
66831-042038BIFTMG	4	Stainless Steel	Grounded	KF50	5kV	3	1.33	0.35	0.95
66831-042038CIFTMG	4	Stainless Steel	Grounded	KF40	5kV	3	1.33	0.35	0.95
66831-012038IFTMF	1	Stainless Steel	Floating	KF16	2.5KeV	3	2.70	0.61	N/A
66831-012038BIFTMF	1	Stainless Steel	Floating	KF40	2.5KeV	3	0.84	0.84	N/A

## CF Flange, Double-Ended



Part Number	#of Pins	Conductor Material	Shield	Flange Size	Voltage (DC)	Amps/ Pin	Conductor Material	Dimensions, (in.)		
								A	B	D
66832-012032IFDMG	1	Stainless Steel	Grounded	1.33"CF	5kV	3	Unmatched	2.53	1.13	0.50
66832-012033IFDMG	1	Stainless Steel	Grounded	2.75"CF	5kV	3	Unmatched	2.03	1.63	0.50
66832-022033IFDMG	2	Stainless Steel	Grounded	2.75"CF	5kV	3	Unmatched	2.03	1.63	0.50
66832-012032IFDMF	1	Stainless Steel	Floating	1.33"CF	2500V	3	Unmatched	2.96	1.21	0.50
66832-012033IFDMF	1	Stainless Steel	Floating	2.75"CF	2500V	3	Unmatched	2.46	1.71	0.50

## KF (QF) Flange, Double-Ended



Part Number	#of Pins	Conductor Material	Shield	Flange Size	Voltage (DC)	Amps/ Pin	Dimensions, (in.)			
							A	B	D	F
66833-012038IFDMG	1	Stainless Steel	Grounded	KF16	5kV	3	2.03	1.63	0.50	N/A
66833-012038BIFDMG	1	Stainless Steel	Grounded	KF40	5kV	3	2.03	1.63	0.50	N/A
66833-022038CIFDMG	2	Stainless Steel	Grounded	KF50	5kV	3	2.03	1.63	0.50	0.95
66833-012038IFDMF	1	Stainless Steel	Floating	KF16	2.5KeV	3	2.46	1.71	0.50	N/A
66833-012038AIFDMF	1	Stainless Steel	Floating	KF25	2.5KeV	3	2.46	1.71	0.50	N/A
66833-012038BIFDMF	1	Stainless Steel	Floating	KF40	2.5KeV	3	2.46	1.71	0.50	N/A

# Instrumentation Feedthroughs

## SHV-B Feedthroughs

SHV-B 引线

### Safe, High Voltage, Bakeable (SHV-B) coaxial connectors:

Feature grounded shields

Use a ceramic dielectric suitable for baking at 450°C

Units excel in applications requiring the feedthrough to remain connected and operational at high temperatures

All assemblies come with air-side cable connectors. Vacuum- side, push-on connectors only available as optional extras

### Specifications

**Maximum Voltage:**

**Grounded Shield:** 7,500 VDC

**Maximum Current:** 3A

**Conductor:** Stainless Steel

**Insulator:** Alumina

**Cable:** RG-59U

**Connection:** Screw Thread

**Vacuum Application:** HV or UHV

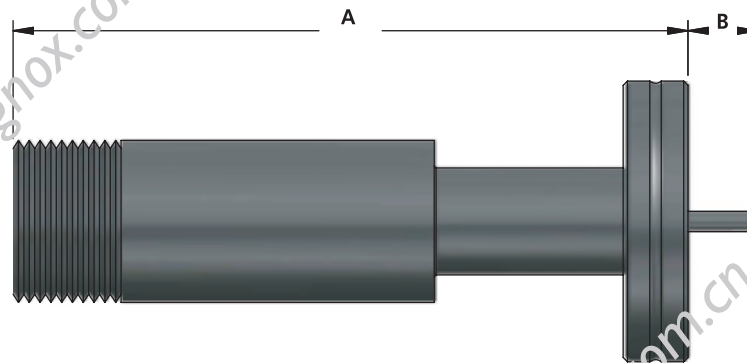
Weld Adapter, CF: -200°C to +450°C

**Temperature:** KF, O-Ring, NPT: to +150°C

Max,Ramp Rate: 25° C/minute

Cable Connectors: -200°C to +450°C

### CF Flange, Single-Ended



Part Number	#of Pins	Conductor Material	Shield	Flange Size	Voltage (DC)	A, nps/ Pin	Dimensions, (in.)	
							A	B
66834-012032IFTTG	1	Stainless Steel	Grounded	1.33"CF	7.5kV	3	3.08	0.36
66834-012033IFTTG	1	Stainless Steel	Grounded	2.75"CF	7.5kV	3	3.08	0.36

## SHV-5 Feedthroughs SHV-5引线

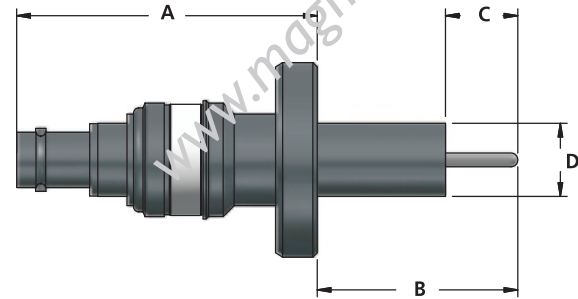
Designed and rated for use in high vacuum and UHV applications.

Constructed of vacuum-grade materials, including 304 stainless steel conductor pins and mounts, high-purity alumina ceramic insulation, and vacuum-tube-grade braze alloys.

Recessed female contacts in cable connectors reduce the possibility of electrical shock while preventing cross mating with BNC- or MHV-style components. These coaxial assemblies have one air-side cable connector, but no vacuum-side power push-on connectors.

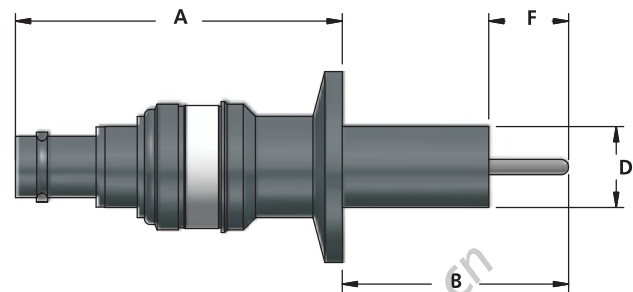
### Specifications

<b>Maximum Voltage:</b>	Grounded Shield: 5,000 VDC Shield-Ground: 2,500 VDC Shield-Pin: 5,000 VDC
<b>Cable:</b>	RG-59U
<b>Connector:</b>	Bayonet
<b>Vacuum Application:</b>	HV or UHV
<b>Temperature:</b>	Weld Adapter, CF: -200°C to +450°C KF, O-Ring, NPT: to +150°C Max. Ramp Rate: 25°C/minute Cable Connectors: -65°C to +165°C



## CF Flange, Single-Ended

Part Number	#of Pins	Conductor Material	Shield	Conductor	Flange Size	Voltage (DC)	Amps/ Pin	Dimensions, (in.)			
								A	B	D	F
66836-0110321FTSG	1	Nickel	Grounded	Recessed	1.33"CF	5kV	5	1.60	0.37	1.33	0.094
66836-0110331FTSG	1	Nickel	Grounded	Recessed	2.75"CF	5kV	5	1.60	0.37	2.75	0.094
66836-0210331FTSG	2	Nickel	Grounded	Recessed	2.75"CF	5kV	5	1.60	0.37	2.75	0.094
66836-0310331FTSG	3	Nickel	Grounded	Recessed	2.75"CF	5kV	5	1.60	0.37	2.75	0.094
66836-0410331FTSG	4	Nickel	Grounded	Recessed	2.75"CF	5kV	5	1.60	0.37	2.75	0.094
66836-0110321FTSE	1	Nickel	Grounded	Exposed	1.33"CF	5kV	5	1.03	0.86	1.33	0.094
66836-0110331FTSE	1	Nickel	Grounded	Exposed	2.75"CF	5kV	5	1.03	0.86	2.75	0.094
66836-0210331FTSE	2	Nickel	Grounded	Exposed	2.75"CF	5kV	5	1.03	0.86	2.75	0.094
66836-0310331FTSE	3	Nickel	Grounded	Exposed	2.75"CF	5kV	5	1.03	0.86	2.75	0.094
66836-0410331FTSE	4	Nickel	Grounded	Exposed	2.75"CF	5kV	5	1.03	0.86	2.75	0.094
66836-0110321FTSF	1	Nickel	Floating	Recessed	1.33"CF	2.5keV	5	2.04	1.38	1.33	0.094
66836-0110331FTSF	1	Nickel	Floating	Recessed	2.75"CF	2.5keV	5	2.25	1.17	2.75	0.094



## KF(QF) Flange, Single-Ended

Part Number	#of Pins	Conductor Material	Shield	Conductor	Flange Size	Voltage (DC)	Amps/ Pin	Dimensions, (in.)			
								A	B	D	F
66837-0110381FTSG	1	Nickel	Grounded	Recessed	KF16	5kV	5	1.60	0.37	0.094	N/A
66837-011038B1FTSG	1	Nickel	Grounded	Recessed	KF40	5kV	5	1.60	0.37	0.094	N/A
66837-031038C1FTSG	3	Nickel	Grounded	Recessed	KF50	5kV	5	1.60	0.37	0.094	0.87
66837-041038C1FTSG	4	Nickel	Grounded	Recessed	KF50	5kV	5	1.60	0.37	0.094	0.95
66837-0110381FTSE	1	Nickel	Grounded	Exposed	KF16	5kV	5	1.03	0.37	0.094	N/A
66837-011038B1FTSE	1	Nickel	Grounded	Exposed	KF40	5kV	5	1.03	0.95	0.094	N/A
66837-021038B1FTSE	2	Nickel	Grounded	Exposed	KF40	5kV	5	1.03	0.95	0.094	0.87
66837-031038C1FTSE	3	Nickel	Grounded	Exposed	KF50	5kV	5	1.03	0.95	0.094	0.87
66837-041038B1FTSE	4	Nickel	Grounded	Exposed	KF40	5kV	5	1.03	0.95	0.094	0.95
66837-041038C1FTSE	4	Nickel	Grounded	Exposed	KF50	5kV	5	1.03	0.95	0.094	0.95
66837-0110381FTSF	1	Nickel	Floating	Recessed	KF16	2.5keV	5	2.01	1.45	0.094	N/A
66837-011038B1FTSF	1	Nickel	Floating	Recessed	KF40	2.5keV	5	2.01	1.45	0.094	N/A

## SHV-10 Feedthroughs

### SHV-10 引线

Designed and rated for use in high vacuum and UHV applications.

Constructed of vacuum-grade materials, including 304 stainless steel conductor pins and mounts, high-purity alumina ceramic insulation, and vacuum-tube-grade braze alloys.

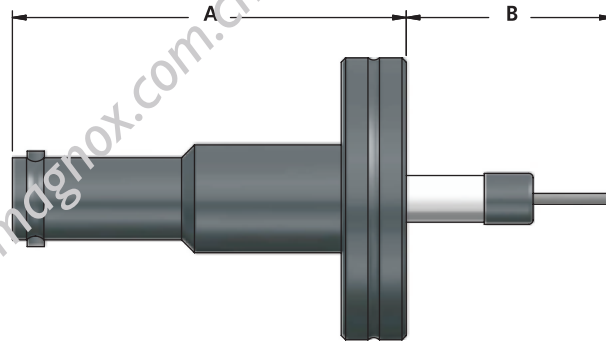
Recessed female contacts in cable connectors reduce the possibility of electrical shock while preventing cross mating with BNC or MHV-style components.

These coaxial assemblies have one air-side cable connector, but no vacuum-side power push-on connectors.

### Specifications

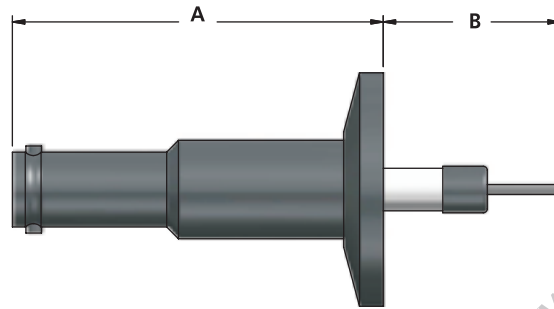
<b>Maximum Voltage:</b>	10,000 VDC
<b>Grounded Shield:</b>	5A
<b>Maximum Current:</b>	Nickel
<b>Conductor:</b>	Alumina
<b>Insulator:</b>	RG-58,58A,58C/U
<b>Cable:</b>	Bayonet
<b>Connection:</b>	HV or UHV
<b>Vacuum Application:</b>	Weld Adapter, CF: -200°C to +450°C
<b>Temperature:</b>	Max,Ramp Rate: 25°C/minute
	Cable Connectors: -65°C to +165°C

### CF Flange, Single-Ended



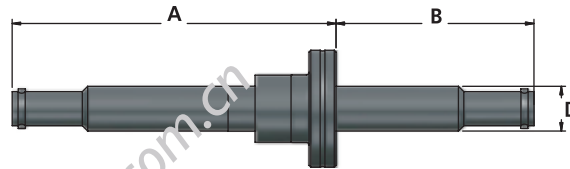
Part Number	Flange Size	#of Pins	Amps/ Pin	Voltage (DC)	Shield	Conductor Material	Connector	Dimensions, (in.)	
								A	B
66838-0110521FTVG	1.33"CF	1	5	10kV	Grounded	Nickel	Recessed	2.40	0.38
66838-0110531FTVG	2.75"CF	1	5	10kV	Grounded	Nickel	Recessed	2.40	0.38
66838-0210531FTVG	2.75"CF	2	5	10kV	Grounded	Nickel	Recessed	2.40	0.38
66838-0310531FTVG	2.75"CF	3	5	10kV	Grounded	Nickel	Recessed	2.40	0.38
66838-0410531FTVG	2.75"CF	4	5	10kV	Grounded	Nickel	Exposed	2.40	0.38
66838-0110521FTVE	1.33"CF	1	5	10kV	Grounded	Nickel	Exposed	1.77	1.00
66838-0110531FTVE	2.75"CF	1	5	10kV	Grounded	Nickel	Exposed	1.77	1.00
66838-0210531FTVE	2.75"CF	2	5	10kV	Grounded	Nickel	Exposed	1.77	1.00
66838-0310531FTVE	2.75"CF	3	5	10kV	Grounded	Nickel	Exposed	1.77	1.00
66838-0410531FTVE	2.75"CF	4	5	10kV	Grounded	Nickel	Exposed	1.77	1.00

## KF(QF) Flange, Single-Ended



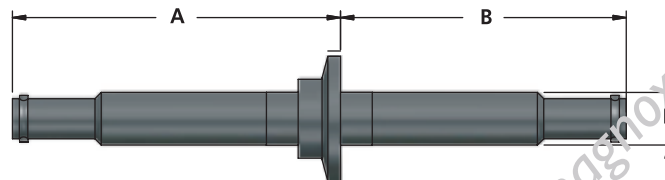
Part Number	Flange Size	#of Pins	Amps/ Pin	Voltage (DC)	Shield	Conductor Material	Conductor	Dimensions, (in.)	
								A	B
66839-011058IFTVG	KF16	1	5	10kV	Grounded	Nickel	Recessed	2.40	0.38
66839-011058BIFTVG	KF40	1	5	10kV	Grounded	Nickel	Recessed	2.40	0.38
66839-021058BIFTVG	KF40	2	5	10kV	Grounded	Nickel	Recessed	2.40	0.38
66839-031058CIFTVG	KF50	3	5	10kV	Grounded	Nickel	Recessed	2.40	0.38
66839-041058CIFTVG	KF50	4	5	10kV	Grounded	Nickel	Recessed	2.40	0.38
66839-011058IFTVE	KF16	1	5	10kV	Grounded	Nickel	Exposed	1.77	1.00
66839-011058BIFTVE	KF40	1	5	10kV	Grounded	Nickel	Exposed	1.77	1.00
66839-021058BIFTVE	KF40	2	5	10kV	Grounded	Nickel	Exposed	1.77	1.00
66839-031058CIFTVE	KF50	3	5	10kV	Grounded	Nickel	Exposed	1.77	1.00
66839-041058CIFTVE	KF50	4	5	10kV	Grounded	Nickel	Exposed	1.77	1.00

## CF Flange, Double-Ended



Part Number	Flange Size	#of Pins	Amps/ Pin	Voltage (DC)	Shield	Conductor Material	Dimensions, (in.)		
							A	B	D
66840-0110521FDVG	1.33"CF	1	5	10kV	Grounded	Nickel	3.73	2.83	0.495
66840-0110531FDVG	2.75"CF	1	5	10kV	Grounded	Nickel	3.73	2.83	0.495

## KF (QF) Flange, Double-Ended



Part Number	Flange Size	#of Pins	Amps/ Pin	Voltage (DC)	Shield	Conductor Material	Dimensions, (in.)		
							A	B	D
66841-0110581FDVG	KF16	1	5	10kV	Grounded	Nickel	3.23	2.83	0.495
66841-011058B1FDVG	KF40	1	5	10kV	Grounded	Nickel	3.23	2.83	0.495



# Instrumentation Feedthroughs

## SHV-20 Feedthroughs

### SHV-20 引线

Safe, High Voltage to 20kV (SHV-20) coaxial feedthroughs:

Feature grounded shields

Have recessed or exposed ceramic insulators

Offer the highest voltage and current ratings of the SHV line

Recessed female contacts in cable connectors reduce the possibility of electrical shock

Assemblies have air-side cable connectors (vacuum-side push-on connectors are available as accessories)

### Specifications

**Maximum Voltage:**

**Grounded Shield:** 20,000 VDC

**Maximum Current:** 15A

**Conductor:** Nickel

**Insulator:** Alumina

**Cable:** RG-8U

**Connection:** Bayonet

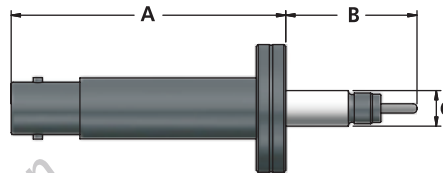
**Vacuum Application:** HV or UHV

**Temperature:** Weld Adapter, CF: -200°C to +450°C

Max,Ramp Rate: 25°C/minute

Cable Connectors: -40°C to +100°C

### CF Flange, Single-Ended



Part Number	#of Pins	Conductor Material	Shield	Flange Size	Conductor	Voltage (DC)	Amps/ Pin	Dimensions, (in.)		
								A	B	C
66842-0111521FTXG	1	Nickel	Grounded	1.33"CF	Recessed	20kV	15	3.76	0.36	1.33
66842-0111521FTXE	1	Nickel	Grounded	1.33"CF	Exposed	20kV	15	3.75	0.36	1.33
66842-0211531FTXE	2	Nickel	Grounded	2.75"CF	Exposed	20kV	15	3.75	1.37	2.75



## Type N Coaxial Feedthroughs

### N系列同轴引线

Use Nickel as conductor material.

Feature grounded shield.

Feedthroughs have air side cable connectors (vacuum-side push-on connectors are available as accessories for single-ended versions only).

### Specifications

**Maximum Voltage:**

**Grounded Shield:** 500 VDC

**Maximum Current:** 3A

**Conductor:** Nickel

**Insulator:** Alumina

**Cable:** RG-8U, RG-9U, RG-10U

**Connection:** Screw Thread

**Vacuum Application:** HV or UHV

**Temperature:**

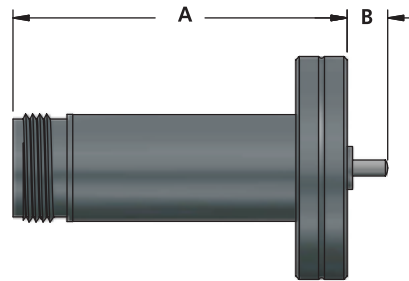
Weld Adapter, CF: -200°C to +450°C

KF, O-Ring, NPT: to +150°C

Max. Ramp Rate: 25°C/minute

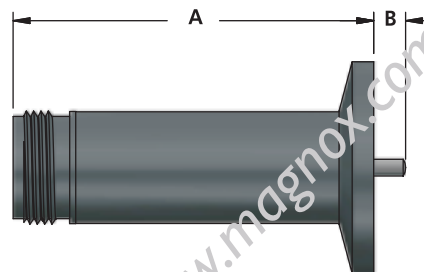
Cable Connectors: -65°C to +165°C

### CF Flange, Single-Ended



Part Number	#of Pins	Conductor Material	Shield	Flange Size	Voltage	Amps/ Pin	Dimensions, (in.)	
							A	B
66843-011032IFTNG	1	Nickel	Grounded	1.33"CF	500V	3	1.91	0.26
66843-011033IFTNG	1	Nickel	Grounded	2.75"CF	500V	3	1.91	0.26

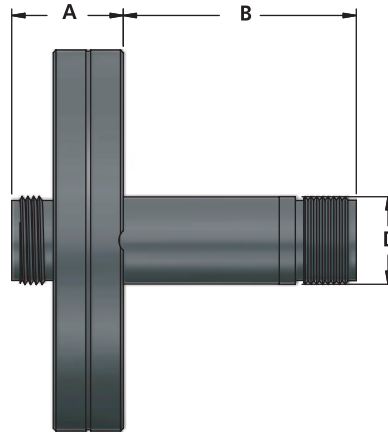
### KF(QF) Flange, Single-Ended



Part Number	#of Pins	Conductor Material	Shield	Flange Size	Voltage	Amps/ Pin	Dimensions, (in.)	
							A	B
66844-011038IFTNG	1	Nickel	Grounded	KF16	500V	3	1.91	0.26
66844-011038IBFTNG	1	Nickel	Grounded	KF40	500V	3	1.91	0.26

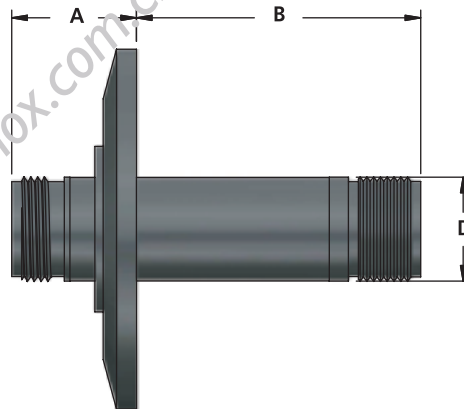
# Instrumentation Feedthroughs

## CF Flange, Double-Ended



Part Number	#of Pins	Conductor Material	Shield	Flange Size	Voltage	Amps/ Pin	Dimensions, (in.)		
							A	B	D
66845-0110331FDNG	1	Nickel	Grounded	2.75"CF	500V	3	0.75	1.71	0.63

## KF(QF) Flange, Double-Ended



Part Number	#of Pins	Conductor Material	Shield	Flange Size	Voltage	Amps/ Pin	Dimensions, (in.)		
							A	B	D
66846-011038B1FDNG	1	Nickel	Grounded	KF40	500V	3	0.75	1.71	0.63

## SMA Coaxial Feedthroughs

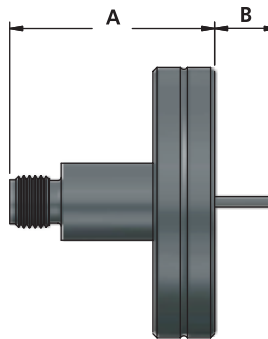
### SMA同轴引线

Made of 304 stainless steel  
 Feature floating or grounded shields  
 Versions available with 50-ohm matched impedance  
 Feedthroughs have air-side cable connectors (vacuum-side, push-on connectors are available as accessories)

### Specifications

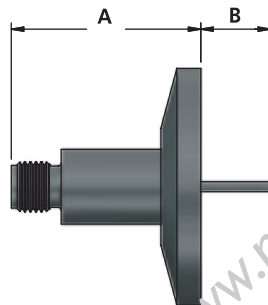
<b>Maximum Voltage:</b>	Grounded Shield: 700 VDC Floating Shield: Shield-Ground: 2,500 VDC Floating Shield: Shield-Pin: 700 VDC
<b>Grounded Shield:</b>	500 VDC
<b>Maximum Current:</b>	1A
<b>Conductor:</b>	48-52 ohms
<b>Insulator:</b>	Stainless Steel
<b>Cable:</b>	Alumina
<b>Connection:</b>	RG-8U, RG-9U, RG-10U
<b>Vacuum Application:</b>	Screw Thread HV or UHV
<b>Temperature:</b>	Weld Adapter, CF: -200°C to +450°C KF, O-Ring, NPT: To +150°C Max Ramp Rate: 25°C/minute Cable Connectors: -65°C to +165°C

### CF Flange, Single-Ended



Part Number	#of Pins	Conductor Material	Shield	Flange Size	Voltage	Amps/ Pin	Dimensions, (in.)	
							A	B
66847-012012IFTG	1	Stainless Steel	Grounded	1.33"CF	700V	1	1.00	0.35
66847-012013IFTG	1	Stainless Steel	Grounded	2.75"CF	700V	1	1.00	0.35
66847-0120131FTCF	1	Stainless Steel	Floating	2.75"CF	2500V	1	0.72	0.70

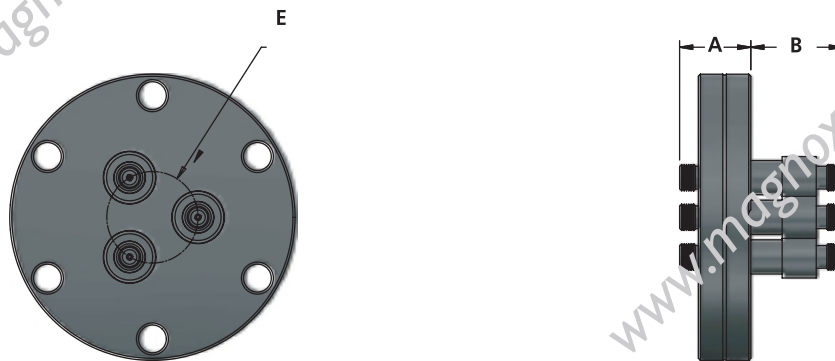
### KF(QF) Flange, Single-Ended



Part Number	#of Pins	Conductor Material	Shield	Flange Size	Voltage	Amps/ Pin	Dimensions, (in.)	
							A	B
66848-012018IFTG	1	Stainless Steel	Grounded	KF16	700V	1	1.00	0.35
66848-012018BIFTG	1	Stainless Steel	Grounded	KF40	700V	1	1.00	0.35

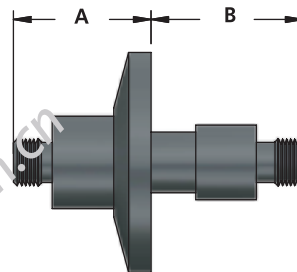
# Instrumentation Feedthroughs

## CF Flange, Double-Ended



Part Number	#of Pins	Conductor Material	Shield	Flange Size	Voltage	Amps/ Pin	Impedance	Dimensions, (in.)		
								A	B	E
66849-0120121FDCG	1	Stainless Steel	Grounded	1.33"CF	700V	1	50-Ohm Matched	0.63	0.92	N/A
66849-0120131FDCG	1	Stainless Steel	Grounded	2.75"CF	700V	1	50-Ohm Matched	0.63	0.92	N/A
66849-0320131FDCG	3	Stainless Steel	Grounded	2.75"CF	700V	1	50-Ohm Matched	0.63	0.92	0.87
66849-0420131FDCG	4	Stainless Steel	Grounded	2.75"CF	700V	1	50-Ohm Matched	0.63	0.92	0.87

## KF(QF) Flange, Double-Ended



Part Number	#of Pins	Conductor Material	Shield	Flange Size	Voltage	Amps/ Pin	Impedance	Dimensions, (in.)	
								A	B
66850-0120181FDCG	1	Stainless Steel	Grounded	KF16	700V	1	50-Ohm Matched	0.63	0.92
66850-012018A1FDCG	1	Stainless Steel	Grounded	KF25	700V	1	50-Ohm Matched	0.63	0.92
66850-012018B1FDCG	1	Stainless Steel	Grounded	KF40	700V	1	50-Ohm Matched	0.63	0.92



## SMB Coaxial Feedthroughs

### SMB同轴引线

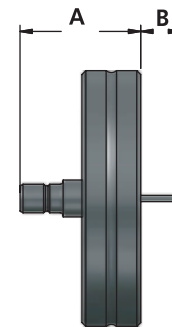
Conductors made of 416 stainless steel

Feature floating or grounded shields

Feedthroughs have air-side cable connectors (vacuum-side, push-on connectors available as accessories)

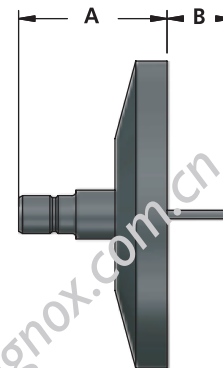
### Specifications

<b>Maximum Voltage:</b>	Grounded Shield: 500 VDC Floating Shield: Shield-Ground: 1,000 VDC Floating Shield: Shield-Pin: 500 VDC
<b>Maximum Current:</b>	5A
<b>Conductor:</b>	Stainless Steel (type 416)
<b>Insulator:</b>	Alumina
<b>Cable:</b>	RG-174U
<b>Connection:</b>	Push Clip
<b>Vacuum Application:</b>	HV or UHV
<b>Temperature:</b>	Weld Adapter, CF: To +450°C KF, O-Ring, NPT: To +150°C Max. Ramp Rate: 25°C/minute Cable Connectors: -65°C to +165°C



### CF Flange, Single-Ended

Part Number	#of Pins	Conductor Material	Shield	Flange Size	Voltage	Amps/ Pin	Dimensions, (in.)	
							A	B
66851-0120021FTDG	1	416 Stainless Steel	Grounded	1.33"CF	500V	0.5	0.57	0.27
66851-0120031FTDG	1	416 Stainless Steel	Grounded	2.75"CF	500V	0.5	0.57	0.27
66851-0120021FTDF	1	416 Stainless Steel	Floating	1.33"CF	1000V	0.5	0.51	0.33
66851-0120031FTDF	1	416 Stainless Steel	Floating	2.75"CF	1000V	0.5	0.51	0.33



### KF(QF) Flange, Single-Ended

Part Number	#of Pins	Conductor Material	Shield	Flange Size	Voltage	Amps/ Pin	Dimensions, (in.)	
							A	B
66852-0120081FTDG	1	416 Stainless Steel	Grounded	KF16	500V	0.5	0.57	0.27
66852-012008B1FTDG	1	416 Stainless Steel	Grounded	KF40	500V	0.5	0.57	0.27
66852-012008B1FTDF	1	416 Stainless Steel	Floating	KF40	1000V	0.5	0.51	0.33
66852-0120081FTDF	1	416 Stainless Steel	Floating	KF16	1000V	0.5	0.51	0.33

# Instrumentation Feedthroughs

## BNC TO Microdot Coaxial Feedthroughs

BNC转Microdot同轴引线

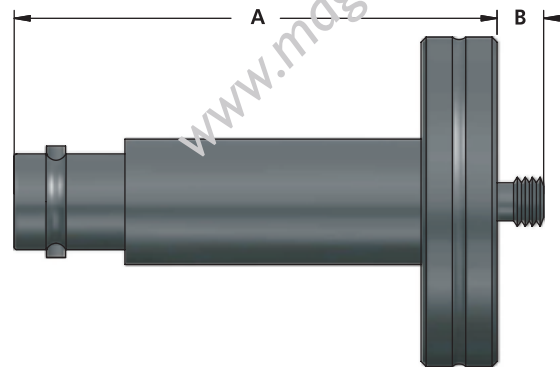
Allow a means of adapting coaxial connection styles.

Typically used for deposition monitors (cystal head sensors),with the Microdot connection in vacuum and the BNC connection to cable to the controlle.

Assembly includes a single air-side connector.

### Specifications

<b>Maximum Voltage:</b>	500 VDC
<b>Grounded Shield:</b>	
<b>Maximum Current:</b>	1A
<b>Conductor:</b>	Stainless Steel (type 416)
<b>Insulator:</b>	Alumina
<b>Cable:</b>	RG-58U
<b>Connection:</b>	Bayonet
<b>Vacuum Application:</b>	HV or UHV
	Weld Adapter, CF: To +400°C
<b>Temperature:</b>	KF, O-Ring, NPT: Ambient to +150°C
	Max, Ramp Rate: 25°C/ minute
	Cable Connectors: -65°C to +165°C



## CF Flange, Double-Ended

Part Number	#of Pins	Conductor Material	Voltage	Amps/ Pin	Flange Size	Shield	Dimensions, (in.)	
							A	B
66853-012012IFDBM	1	Stainless Steel	500V	1	1.33"CF	Grounded	1.83	0.23
66853-012013IFDBM	1	Stainless Steel	500V	1	2.75"CF	Grounded	1.83	0.23



## Multi-Pin, Circular (MPC) Feedthroughs

### MPC多芯引线

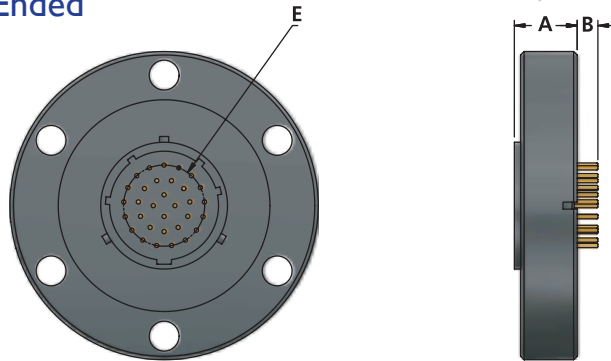
- ◆ Non-magnetic connector headers
- ◆ Available in configurations with 3, 6, 10, 19, 32, and 41 pins
- ◆ Feature stainless steel shells and gold-plated stainless steel alloy pins
- ◆ UHV compatible with a minimum leak rate of  $1 \times 10^{-9}$  scc He/sec.
- ◆ Single-ended design consists of a plug on the air side with .040" diameter pins for connection on the vacuum side\*
- ◆ Double-ended design has a plug on the airside and a threaded plug connection on the vacuum side\*

\* Plugs not included with feedthroughs

## Specifications

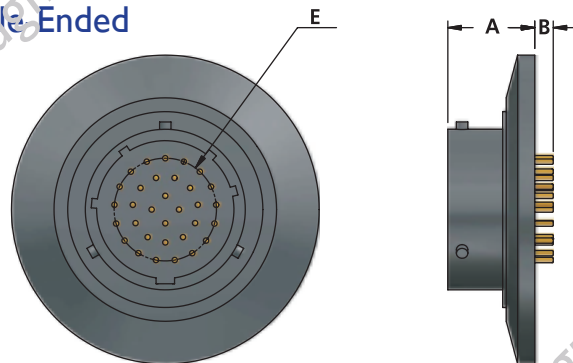
<b>Conductor Material:</b>	Stainless Steel, Gold Plated
<b>Insulator Material:</b>	Glass-Ceramic
<b>Connection:</b>	Bayonet
<b>Vacuum Application:</b>	HV or UHV
<b>Max. Current:</b>	5A
<b>Max. Voltage:</b>	1kV
<b>Number of Pins:</b>	3-41
<b>Temperature Range:</b>	
<b>Weld Adapter, CF:</b>	-269° C to +450° C
<b>KF, O-Ring, NPT:</b>	-25° C to +205° C
<b>Max. Ramp Rate:</b>	25°C/minute
<b>Air-Side Connector:</b>	-55° C to +35° C

## CF Flange, Single-Ended



Part Number	#of Pins	Conductor Material	Voltage (DC)	Crimp or Solder	Amps/Pin	Flange Size	Dimensions, (in.)		
							A	B	E
66854-0370131FTRG	3	Gold-Plated SST	1kV	Crimp	5	2.75"CF	0.63	0.26	0.15
66854-0670131FTRG	6	Gold-Plated SST	1kV	Crimp	5	2.75"CF	0.63	0.26	0.26
66854-1070131FTRG	10	Gold-Plated SST	1kV	Crimp	5	2.75"CF	0.63	0.26	0.39
66854-1970131FTRG	19	Gold-Plated SST	1kV	Crimp	5	2.75"CF	0.63	0.26	0.52
66854-3270131FTRG	32	Gold-Plated SST	1kV	Crimp	5	2.75"CF	0.63	0.26	0.72
66854-417013AIFTRG	41	Gold-Plated SST	1kV	Crimp	5	3.375"CF	0.63	0.26	0.84

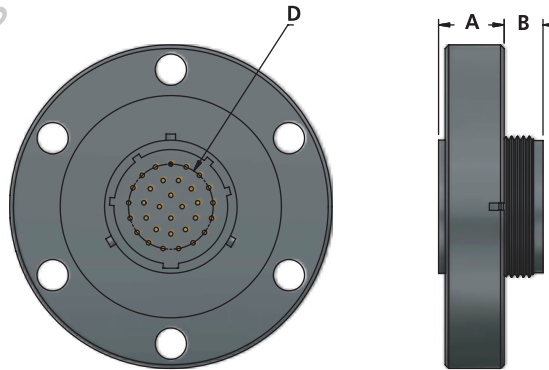
## KF (QF) Flange, Single-Ended



Part Number	#of Pins	Conductor Material	Voltage (DC)	Crimp or Solder	Amps/Pin	Flange Size	Dimensions, (in.)		
							A	B	E
66855-037018AIFTRG	3	Gold-Plated SST	1kV	Crimp	5	KF25	0.69	0.21	0.15
66855-067018BIFTRG	6	Gold-Plated SST	1kV	Crimp	5	KF40	0.69	0.21	0.26
66855-107018BIFTRG	10	Gold-Plated SST	1kV	Crimp	5	KF40	0.69	0.21	0.39
66855-197018BIFTRG	19	Gold-Plated SST	1kV	Crimp	5	KF40	0.69	0.21	0.52
66855-327018BIFTRG	32	Gold-Plated SST	1kV	Crimp	5	KF40	0.69	0.21	0.72
66855-417018CIFTRG	41	Gold-Plated SST	1kV	Crimp	5	KF50	0.69	0.21	0.84

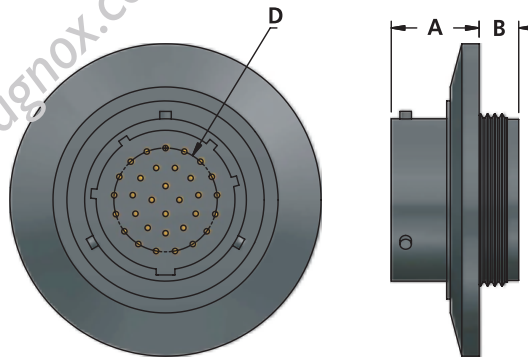


## CF Flange, Double-Ended



Part Number	#of Pins	Conductor Material	Voltage (DC)	Amps/Pin	Flange Size	Dimensions, (in.)		
						A	B	D
66856-037013IFDRG	3	Gold-Plated SST	1kV	5	2.75"CF	0.69	0.39	0.15
66856-067013IFDRG	6	Gold-Plated SST	1kV	5	2.75"CF	0.69	0.39	0.26
66856-107013IFDRG	10	Gold-Plated SST	1kV	5	2.75"CF	0.69	0.39	0.39
66856-197013IFDRG	19	Gold-Plated SST	1kV	5	2.75"CF	0.69	0.39	0.52
66856-327013IFDRG	32	Gold-Plated SST	1kV	5	2.75"CF	0.69	0.39	0.72
66856-417013AIFDRG	41	Gold-Plated SST	1kV	5	3.375"CF	0.69	0.39	0.84

## KF (QF) Flange, Double-Ended



Part Number	#of Pins	Conductor Material	Voltage (DC)	Amps/Pin	Flange Size	Dimensions, (in.)		
						A	B	D
66857-037018AIFDRG	3	Gold-Plated SST	1kV	5	KF25	0.69	0.33	0.15
66857-067018BIFDRG	6	Gold-Plated SST	1kV	5	KF40	0.69	0.33	0.26
66857-107018BIFDRG	10	Gold-Plated SST	1kV	5	KF40	0.69	0.33	0.39
66857-197018BIFDRG	19	Gold-Plated SST	1kV	5	KF40	0.69	0.33	0.52
66857-327018BIFDRG	32	Gold-Plated SST	1kV	5	KF40	0.69	0.33	0.72
66857-417018CIFDRG	41	Gold-Plated SST	1kV	5	KF50	0.69	0.33	0.84

## MPDT Sub D-Type

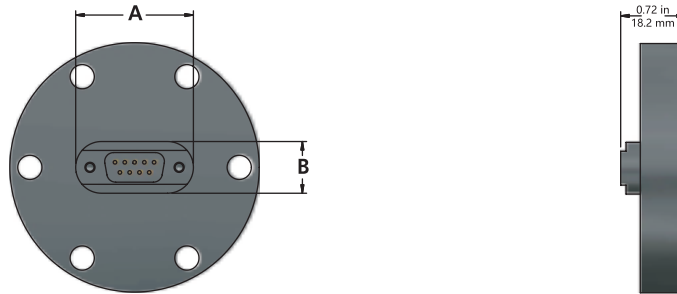
### MPDT型多芯引线

- ◆ Available in different pin densities, from 9- to 50-pin designs
- ◆ Vacuum-side connectors are made of PEEK (polyetheretherketone)
- ◆ 304L stainless steel shell offers corrosion-resistance and strength

## Specifications

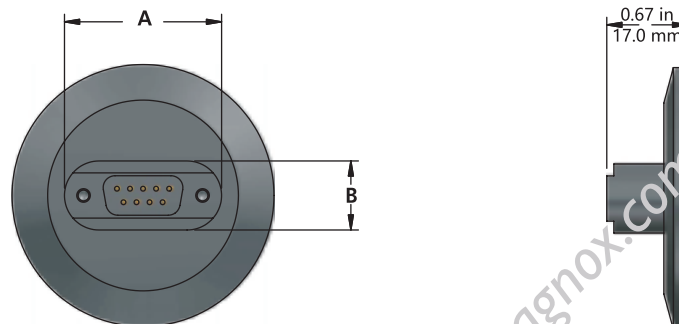
<b>Number of Pins:</b>	9-50
<b>Max. Voltage (DC):</b>	500 VDC
<b>Max. Current (per pin):</b>	5A
<b>Conductor:</b>	Ni-Fe Alloy
<b>Connector Insulator:</b>	PEEK
<b>Connector Type:</b>	Push On
<b>Vacuum Application:</b>	HT or UHV Weld A dapter, CF: 77K to +300°C KF, O-Ring, NPT: -40°C to +150°C Max. Ramp Rate: 25°C/minute Air-Side Connector: 0°C to +35°C Vac-Side Connector: 77K to +350°C
<b>Temperature Range:</b>	

## CF Flange



Part Number	Flange Size	#of Pin	Dimensions, (in.)	
			A	B
66858-091053IFDGG	2.75"CF	9	33.00	14.50
66858-151056IFDGG	4.5"CF	15	38.00	16.50
66858-251056IFDGG	4.5"CF	25	55.00	19.00
66858-251056XIFDGG	4.5"CF	50 (2x25)	55.00	19.00
66858-371056AIFDGG	6"CF	37	70.00	19.00
66858-501056AIFDGG	6"CF	50	68.00	19.00

## KF (QF)/ISO Flange



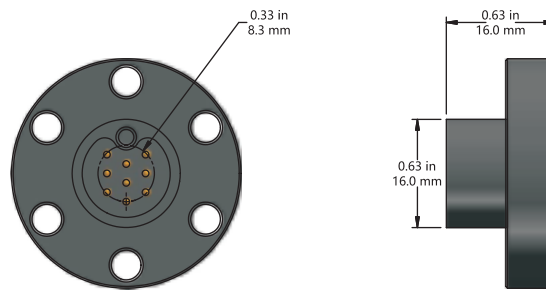
Part Number	Flange Size	#of Pin	Dimensions, (in.)	
			A	B
66859-091058BIFDGG	KF40	9	33.00	14.50
66859-151058CIFDGG	KF50	15	38.00	16.50
66859-251058DIFDGG	ISO63-K	25	55.00	19.00
66859-371058FIFDGG	ISO100-K	37	70.00	19.00
66859-501058FIFDGG	ISO100-K	50	68.00	19.00

## Subminiature-C Multipin 微型C系列多针馈通

### Multipin Heretic Feedthroughs:

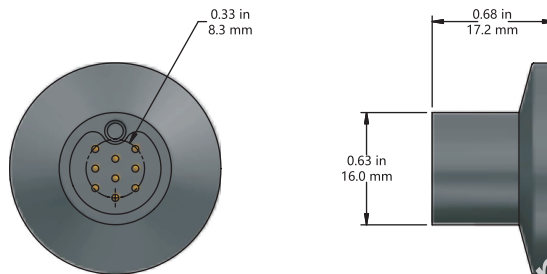
- ◆ 9-pin configuration
- ◆ 250C high-temperature rated
- ◆ UHV compatible construction
- ◆ CF and QF flange mounts
- ◆ Kapton® insulated vacuum cables
- ◆ PEEK vacuum connectors
- ◆ Delrin® atmosphere connectors
- ◆ Custom versions available on request

### CF Flange



Part Number	Flange Size	#of Pin	Vac Side Configuration	Description
66860-091052IFDJG	1.33"CF	9	Gold-Plated Ni-Fe	9-Pin Feedthrough, 1.33" CF
66860-091052KIFDJG	1.33"CF	9	Gold-Plated Ni-Fe	9-Pin Feedthrough Kit, 1.33" CF*
66860-091053IFDJG	2.75"CF	9	Gold-Plated Ni-Fe	9-Pin Feedthrough, 2.75" CF
66860-181053IFDJG	2.75"CF	18 (2x9-Pin)	Gold-Plated Ni-Fe	(2)x9-Pin Feedthrough, 2.75" CF

### KF (QF) Flange



Part Number	Flange Size	#of Pin	Vac Side Configuration	Description
66861-091058IFDJG	KF16	9	Gold-Plated Ni-Fe	9-Pin Feedthrough, kF16
66861-091058KIFDJG	KF16	9	Gold-Plated Ni-Fe	9-Pin Feedthrough Kit, KF16*
66861-091058BIFDJG	KF40	9	Gold-Plated Ni-Fe	9-Pin Feedthrough, KF40
66861-181058BIFDJG	KF40	18 (2x9-Pin)	Gold-Plated Ni-Fe	(2)x9-Pin Feedthrough, KF40

### Specifications

**Vacuum Application:** UHV:  $1 \times 10^{-10}$  Torr  
**Maximum Current:** HV:  $1 \times 10^{-9}$  Torr  
**Maximum Voltage:** 5A@ 20°C  
 300V

### Temperature:

Feedthrough: 250°C  
 CF Flange: 450°C  
 KF Flange: 150°C  
 Connector, Air: 80°C  
 Connector, Vacuum: 250°C  
 Thermal Gradient: 25°C/ minute

### Materials:

Shell: Stainless Steel  
 Pins: Ni-Fe Alloy, Gold Plated  
 Seal & Insulation: Glass-Ceramic  
 Connector, Air: Delrin  
 Connector, Vacuum: PEEK

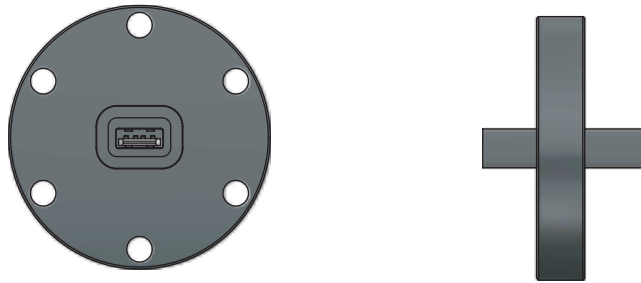
# Instrumentation Feedthroughs

## USB Feedthroughs

### USB引线馈通

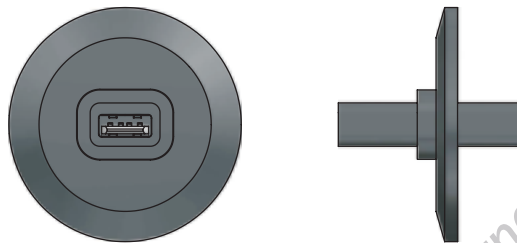
- ◆ Specifications Table
- ◆ Vacuum Application:HV or UHV
- ◆ Metal Seal Temperature Range:(Weld Adapter, CF)-269°C to 200°C
- ◆ Elastomer: Seals Temperature Range (KF,O-Ring, NPT):-25°C to 200°C
- ◆ Grounded Shields Max. Voltage:30V RMS
- ◆ Leak Rate :≤ 2x10<sup>-10</sup> CC/SEC He

## CF Flange



Part Number	Flange Size	Voltage(V)	Current(A)	Atm Side Termination	VAC Side Termination
66835-0120121TFTKG	1.33"CF	30	I	USB 2.0 Male	USB 2.0 Male
66835-0120131TFTKG	2.75"CF	30	I	USB 2.0 Male	USB 2.0 Male
66835-012013FITFTKG	2.75"CF	30	I	USB 2.0 Female	USB 2.0 Female
66835-012013FITFT3G	2.75"CF	30	I	USB 3.0 Female	USB 3.0 Female

## KF (QF) Flange



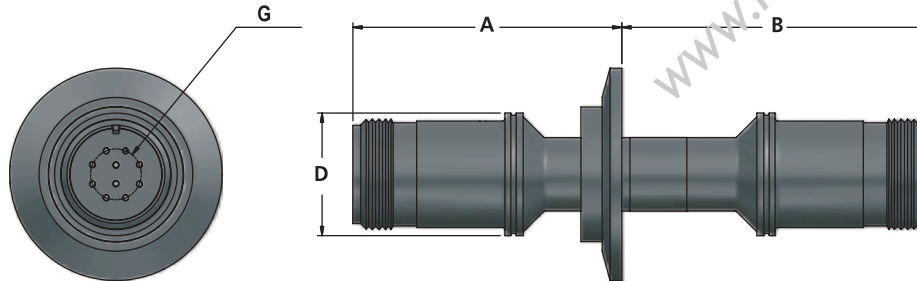
Part Number	Flange	Voltage(V)	Current(A)	ATM Side Termination	VAC Side Termination
66904-012018BIFTKG	KF40	30	I	USB 2.0 Male	USB 2.0 Male
66904-012018BFIFTKG	KF40	30	I	USB 2.0 Female	USB 2.0 Female
66904-012018BFIFD3G	KF40	30	I	USB 3.0 Female	USB 3.0 Female

## MS Multi-Pin

### MS型多针馈通

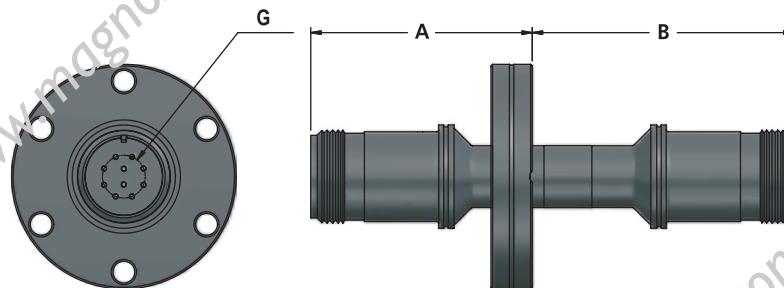
- ◆ Work with MS circular connectors--solid-shell, straight-threaded connectors with polarized key ways
- ◆ Silver-plated contacts have pre-tinned solder pockets
- ◆ Single-Ended version includes air-side connector (vacuum-side crimp connectors are available as accessories)
- ◆ Double-Ended version includes both air- and vacuum-side connector

## KF (CF)/ISO Flange, Double-Ended



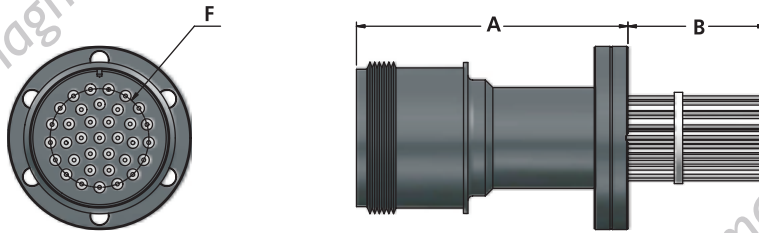
Part Number	#of Pins	Flange Size	Conductor Material	Voltage (DC)	Amps/Pin	Dimensions, (in.)			
						A	B	D	G
66865-045108BIFDAG	4	KF40	Alume®	700V	10	2.36	3.49	1.25	0.38
66865-045108CIFDAG	4	KF50	Alumel	700V	10	2.36	3.49	1.25	0.38
66865-065108BIFDAG	6	KF40	Alume	700V	10	2.36	3.49	1.25	0.44
66865-065108CIFDAG	6	KF50	Alumel	700V	10	2.36	3.49	1.25	0.44
66865-105108BIFDAG	10	KF40	Alume	700V	10	2.36	3.49	1.25	0.51
66865-105108CIFDAG	10	KF50	Alumel	700V	10	2.36	3.49	1.25	0.51
66865-205108DIFDAG	20	ISO63-K	Alumel	700V	10	2.78	3.50	1.75	1.03
66865-355108FI FDAG	35	ISO100-K	Alumel	700V	10	2.50	3.89	2.25	1.22

## CF Flange, Double-Ended



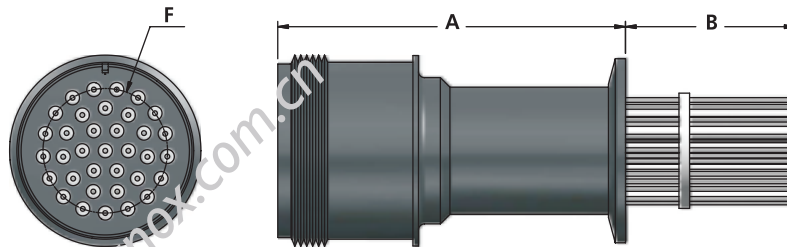
Part Number	#of Pins	Flange Size	Conductor Material	Voltage (DC)	Amps/Pin	Dimensions, (in.)		
						A	B	G
66864-045103IFDAG	4	2.75"CF	Alume®	700V	10	2.36	3.49	0.38
66864-065103IFDAG	6	2.75"CF	Alumel	700V	10	2.36	3.49	0.44
66864-105103IFDAG	10	2.75"CF	Alume	700V	10	2.36	3.49	0.51
66864-205106IFDAG	20	4.5"CF	Alumel	700V	10	2.78	3.50	1.03
66864-355106IFDAG	35	4.5"CF	Alume	700V	10	2.50	3.89	1.22

## CF Flange, Single-Ended



Part Number	#of Pins	Flange Size	Conductor Material	Voltage (DC)	Amps/Pin	Dimensions, (in.)		
						A	B	F
66862-0451021FTAG	4	1.33"CF	Alume®	700V	10	2.85	2.69	0.38
66862-0451031FTAG	4	2.75"CF	Alumel	700V	10	2.35	3.19	0.38
66862-0651021FTAG	6	1.33"CF	Alume	700V	10	2.85	2.69	0.44
66862-0651031FTAG	6	2.75"CF	Alumel	700V	10	2.35	3.19	0.44
66862-1041021FTAG	10	1.33"CF	Molybdenum	700V	10	2.85	2.69	0.51
66862-1041031FTAG	10	2.75"CF	Molybdenum	700V	10	2.35	3.19	0.51
66862-1051021FTAG	10	1.33"CF	Alumel	700V	10	2.85	2.69	0.51
66862-1051031FTAG	10	2.75"CF	Alumel	700V	10	2.35	3.19	0.51
66862-2041031FTAG	20	2.75"CF	Molybdenum	700V	10	2.53	3.50	1.03
66862-2051031FTAG	20	2.75"CF	Alumel	700V	10	2.53	3.50	1.03
66862-3551031FTAG	35	2.75"CF	Alume	700V	10	3.98	2.10	1.22
66862-3551061FTAG	35	4.5"CF	Alumel	700V	10	3.98	2.10	1.22

## (QF)Flange, Single-Ended



Part Number	# of Pins	Flange Size	Conductor Material	Voltage (DC)	Amps/Pin	Dimensions, (in.)		
						A	B	F
66863-0451081FTAG	4	KF16	Alume®	700V	10	2.35	3.19	0.38
66863-045108B1FTAG	4	KF40	Alumel	700V	10	2.35	3.19	0.38
66863-0651081FTAG	6	KF16	Alume	700V	10	2.35	3.19	0.44
66863-065108A1FTAG	6	KF25	Alumel	700V	10	2.35	3.19	0.44
66863-065108B1FTAG	6	KF40	Alumel	700V	10	2.35	3.19	0.44
66863-1041081FTAG	10	KF16	Molybdenum	700V	10	2.35	3.19	0.51
66863-104108A1FTAG	10	KF25	Molybdenum	700V	10	2.35	3.19	0.51
66863-104108B1FTAG	10	KF40	Molybdenum	700V	10	2.35	3.19	0.51
66863-104108C1FTAG	10	KF50	Molybdenum	700V	10	2.35	3.19	0.51
66863-1051081FTAG	10	KF16	Alumel	700V	10	2.35	3.19	0.51
66863-105108A1FTAG	10	KF25	Alumel	700V	10	2.35	3.19	0.51
66863-105108B1FTAG	10	KF40	Alumel	700V	10	2.35	3.19	0.51
66863-105108C1FTAG	10	KF50	Alumel	700V	10	2.35	3.19	0.51
66863-204108B1FTAG	20	KF40	Molybdenum	700V	10	2.53	3.50	1.03
66863-204108C1FTAG	20	KF50	Molybdenum	700V	10	2.53	3.50	1.03
66863-205108B1FTAG	20	KF40	Alumel	700V	10	2.53	3.50	1.03
66863-205108C1FTAG	20	KF50	Alumel	700V	10	2.53	3.50	1.03
66863-355108B1FTAG	35	KF40	Alume	700V	10	3.98	2.10	6.33
66863-355108C1FTAG	35	KF50	Alumel	700V	10	3.98	2.10	6.33

## MPT Multi-Pin

### MPT型多针馈通

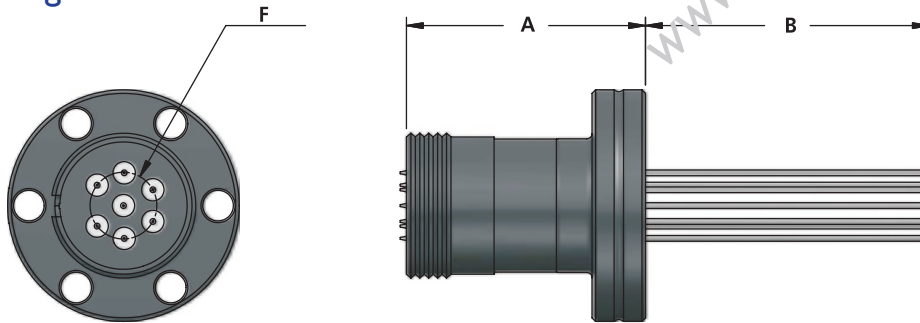
- ◆ Available with 3, 5, or 7 nickel-clad molybdenum pins, and weldable terminations, CF flanges, or KF flanges
- ◆ Includes one air-side connector (vacuum-side crimp connectors are available as accessories)

Number of Pins: 3-7 Max.  
Voltage (DC): 500 VDC Max.  
Current (per Pin): 3.5A  
Conductor: Molybdenum

F/T Insulator: Alumina  
Connector Insulator: Plastic  
Connector Type: Screw Thread  
Vacuum Application: HV or UHV

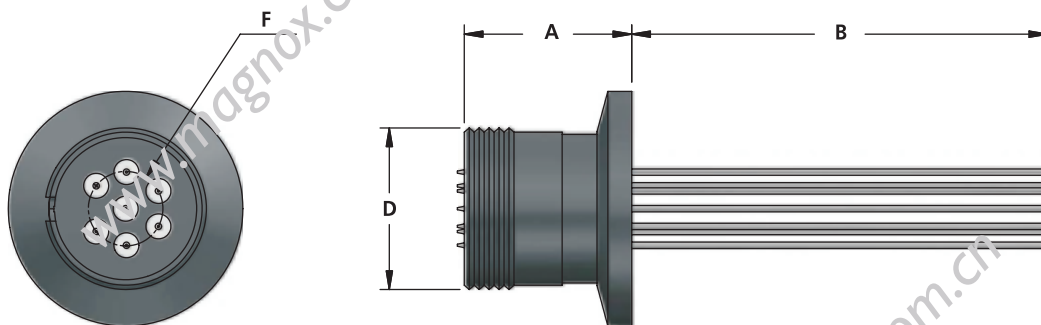
Temperature Range:  
Weld Adapter, CF: Ambient to +450° C  
KF, O-Ring, NPT: -40° C to +150° C  
Max. Ramp Rate: 25° C/minute  
Air-Side Connector: 0° C to +35° C

## CF Flange, Single-Ended



Part Number	#of Pins	Flange Size	Vac. Side	Voltage (DC)	Amps/Pin	Dimensions, (in.)		
						A	B	F
66866-0340321FTAG	3	1.33"CF	Molybdenum	500V	3.5	0.97	2.01	0.25
66866-0340331FTAG	3	2.75"CF	Molybdenum	500V	3.5	0.97	2.01	0.25
66866-0540321FTAG	5	1.33"CF	Molybdenum	500V	3.5	1.34	1.58	0.38
66866-0540331FTAG	5	2.75"CF	Molybdenum	500V	3.5	0.84	2.08	0.38
66866-0740321FTAG	7	1.33"CF	Molybdenum	500V	3.5	1.34	1.58	0.38
66866-0740331FTAG	7	2.75"CF	Molybdenum	500V	3.5	0.84	2.08	0.38

## KF (QF) Flange, Single-Ended



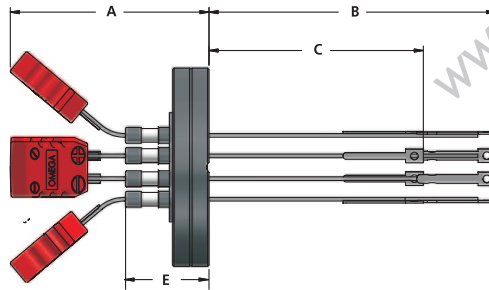
Part Number	#of Pins	Flange Size	Vac. Side	Voltage (DC)	Amps/Pin	Dimensions, (in.)		
						A	B	F
66867-0340381FTAG	3	KF16	Molybdenum	500V	3.5	0.97	2.01	0.25
66867-034038BIFTAG	3	KF40	Molybdenum	500V	3.5	0.97	2.01	0.25
66867-0540381FTAG	5	KF16	Molybdenum	500V	3.5	0.84	2.08	0.38
66867-054038AIFTAG	5	KF25	Molybdenum	500V	3.5	0.84	2.08	0.38
66867-054038BIFTAG	5	KF40	Molybdenum	500V	3.5	0.84	2.08	0.38
66867-054038CIFTAG	3	KF50	Molybdenum	500V	3.5	0.84	2.08	0.38
66867-0740381FTAG	7	KF16	Molybdenum	500V	3.5	0.84	2.08	0.38
66867-074038AIFTAG	7	KF25	Molybdenum	500V	3.5	0.84	2.08	0.38
66867-074038BIFTAG	7	KF40	Molybdenum	500V	3.5	0.84	2.08	0.38
66867-074038CIFTAG	7	KF50	Molybdenum	500V	3.5	0.84	2.08	0.38

## Type C Mini Plug

### C 型热电偶引线

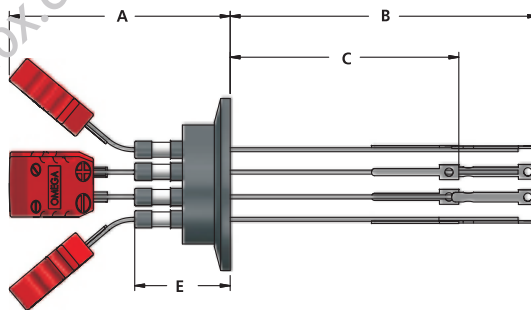
- ◆ Feature positive wires made of Tungsten/5% Rhenium and negative wires of Tungsten/26% Rhenium
- ◆ Temperature range between 0°C and 2,315°C
- ◆ Can be used with refractory-metal thermocouples
- ◆ Rated for use in high and ultrahigh vacuum applications
- ◆ Include air-side connectors
- ◆ Vacuum side leads terminate in thermocouple lugs, which include a stainless steel nut and screw to facilitate thermocouple hookup

### CF Flange



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)			
					A	B	C	E
66868-00002TFT1CY	Miniature Plug	Nut/Bolt	1.33"CF	1	1.81	4.00	3.00	1.08
66868-00003TFT1CY	Miniature Plug	Nut/Bolt	2.75"CF	1	1.31	4.50	3.50	0.58
66868-00002TFT2CY	Miniature Plug	Nut/Bolt	1.33"CF	2	2.61	4.00	3.00	1.88
66868-00003TFT2CY	Miniature Plug	Nut/Bolt	2.75"CF	2	2.11	4.50	3.50	1.38
66868-00002TFT3CY	Miniature Plug	Nut/Bolt	1.33"CF	3	2.76	4.00	3.00	2.08
66868-00003TFT3CY	Miniature Plug	Nut/Bolt	2.75"CF	3	2.26	4.50	3.50	1.58
66868-00003TFT4CY	Miniature Plug	Nut/Bolt	2.75"CF	4	2.00	4.00	3.00	1.16
66868-00003TFT5CY	Miniature Plug	Nut/Bolt	2.75"CF	5	2.50	4.00	3.00	1.16

### KF(QF) Flange



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)			
					A	B	C	E
66869-00008TFT1CY	Miniature Plug	Nut/Bolt	KF16	1	1.31	4.50	3.50	0.58
66869-00008ATFT1CY	Miniature Plug	Nut/Bolt	KF25	1	1.31	4.50	3.50	0.58
66869-00008BTFT1CY	Miniature Plug	Nut/Bolt	KF40	1	1.31	4.50	3.50	0.58
66869-00008TFT2CY	Miniature Plug	Nut/Bolt	KF16	2	2.11	4.50	3.50	1.38
66869-00008ATFT2CY	Miniature Plug	Nut/Bolt	KF25	2	2.11	4.00	3.50	1.38
66869-00008BTFT2CY	Miniature Plug	Nut/Bolt	KF40	2	2.11	4.50	3.50	1.38
66869-00008TFT3CY	Miniature Plug	Nut/Bolt	KF16	3	2.26	4.50	3.50	1.58
66869-00008BTFT3CY	Miniature Plug	Nut/Bolt	KF40	3	2.26	4.50	3.50	1.58
66869-00008CTFT3CY	Miniature Plug	Nut/Bolt	KF50	3	2.26	4.50	3.50	1.58
66869-00008BTFT4CY	Miniature Plug	Nut/Bolt	KF40	4	2.00	4.00	3.00	1.16
66869-00008BTFT5CY	Miniature Plug	Nut/Bolt	KF40	5	2.50	4.00	3.00	1.16



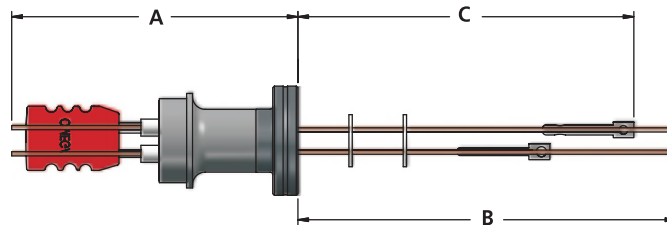
# Thermocouple Feedthroughs

## Type C Mini Plug Plus Power

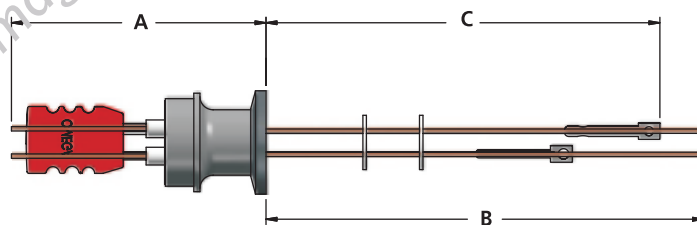
### E型热电偶+电源引线

- ◆ Nickel or copper
- ◆ Rated to 5,000 volts and 30 amps
- ◆ Designed for use in high vacuum and UHV applications requiring both power and temperature measurements
- ◆ Minimize the number of dedicated vacuum ports ultimately required in a vacuum system
- ◆ Feature positive wires made of Tungsten/5% Rhenium and negative wires of Tungsten/26% Rhenium
- ◆ Temperature range between 0°C and 2,320°C
- ◆ Can be used with refractory-metal thermocouples
- ◆ Rated for use in high vacuum and UHV applications
- ◆ All assemblies are supplied with miniature air-side thermocouple connectors and vacuum-side thermocouple lugs with a #3-48 screw and nut

## CF Flange



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Power Pins	Amps/ Pin	Dimensions, (in.)		
							A	B	C
66870-2C152TFT1CY	Miniature Plug	Nut/Bolt	1.33"CF	1	(2) 0.050" Cu	15	2.50	4.00	3.00
66870-2C153TFT1CY	Miniature Plug	Nut/Bolt	2.75"CF	1	(2) 0.050" Cu	15	2.00	4.50	3.50
66870-2C302TFT1CY	Miniature Plug	Nut/Bolt	1.33"CF	1	(2) 0.094" Cu	30	2.85	3.86	2.86
66870-2C303TFT1CY	Miniature Plug	Nut/Bolt	2.75"CF	1	(2) 0.094" Cu	30	2.35	4.36	3.36
66870-2N052TFT1CY	Miniature Plug	Nut/Bolt	1.33"CF	1	(2) 0.050" Ni	5	2.50	4.00	3.00
66870-2N053TFT1CY	Miniature Plug	Nut/Bolt	2.75"CF	1	(2) 0.050" Ni	5	2.00	4.50	3.50
66870-2N152TFT1CY	Miniature Plug	Nut/Bolt	1.33"CF	1	(2) 0.094" Ni	15	2.85	3.86	2.86
66870-2N153TFT1CY	Miniature Plug	Nut/Bolt	2.75"CF	1	(2) 0.094" Ni	15	2.35	4.36	3.36



## KF (QF) Flange

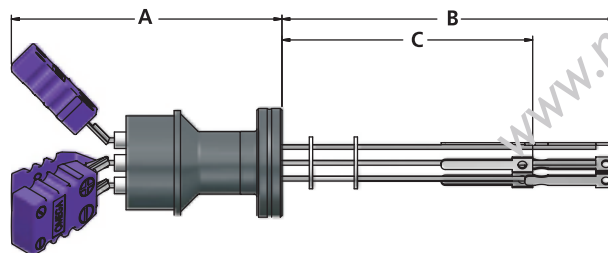
Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Power Pins	Amps/ Pin	Dimensions, (in.)		
							A	B	C
66871-2C158TFT1CY	Miniature Plug	Nut/Bolt	KF16	1	(2) 0.050" Cu	15	2.00	4.50	3.50
66871-2C158BTFT1CY	Miniature Plug	Nut/Bolt	KF40	1	(2) 0.050" Cu	15	2.00	4.50	3.50
66871-2C308TFT1CY	Miniature Plug	Nut/Bolt	KF16	1	(2) 0.094" Cu	30	2.35	4.36	3.36
66871-2C308BTFT1CY	Miniature Plug	Nut/Bolt	KF40	1	(2) 0.094" Cu	30	2.35	4.36	3.36
66871-2N058TFT1CY	Miniature Plug	Nut/Bolt	KF16	1	(2) 0.050" Ni	5	2.00	4.50	3.50
66871-2N058BTFT1CY	Miniature Plug	Nut/Bolt	KF40	1	(2) 0.050" Ni	5	2.00	4.50	3.50
66871-2N158TFT1CY	Miniature Plug	Nut/Bolt	KF16	1	(2) 0.094" Ni	15	2.35	4.36	3.36
66871-2N158BTFT1CY	Miniature Plug	Nut/Bolt	KF40	1	(2) 0.094" Ni	15	2.35	4.36	3.36

## Type E Mini Plug

### E型热电偶引线

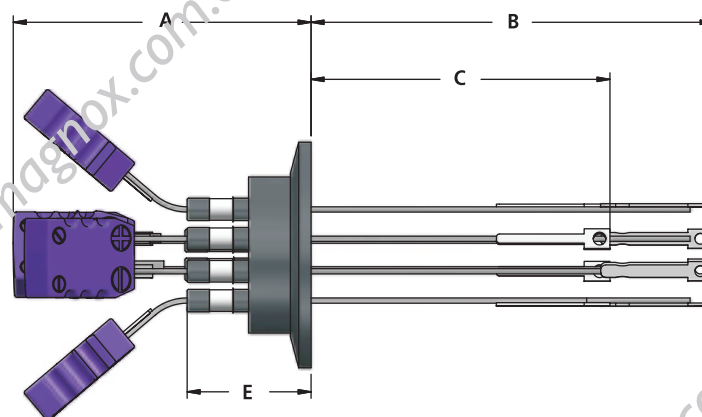
- ◆ Available in 1, 2, 3, 4, and 5 pairs
- ◆ Positive wires are made of Chromel® and the negative wires are made of Constantan
- ◆ Temperature range of -200°C to +900°C

## CF Flange, Single-Ended



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)			
					A	B	C	D
66872-00002TFT1EY	Miniature Plug	Nut/Bolt	1.33"CF	1	1.81	4.00	3.00	1.33
66872-00003TFT1EY	Miniature Plug	Nut/Bolt	2.75"CF	1	1.31	4.50	3.50	2.75
66872-00002TFT2EY	Miniature Plug	Nut/Bolt	1.33"CF	2	2.61	4.00	3.00	1.33
66872-00003TFT2EY	Miniature Plug	Nut/Bolt	2.75"CF	2	2.11	4.50	3.50	2.75
66872-00002TFT3EY	Miniature Plug	Nut/Bolt	1.33"CF	3	2.76	4.00	3.00	1.33
66872-00003TFT3EY	Miniature Plug	Nut/Bolt	2.75"CF	3	2.26	4.50	3.50	2.75
66872-00003TFT4EY	Miniature Plug	Nut/Bolt	2.75"CF	4	2.00	4.00	3.00	2.75
66872-00003TFT5EY	Miniature Plug	Nut/Bolt	2.75"CF	5	2.50	4.00	3.00	2.75

## KF (QF) Flange, Single-Ended



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)			
					A	B	C	E
66873-00008TFT1EY	Miniature Plug	Nut/Bolt	KF16	1	1.31	4.50	3.50	0.58
66873-00008BTFT1EY	Miniature Plug	Nut/Bolt	KF40	1	1.31	4.50	3.50	0.58
66873-00008TFT2EY	Miniature Plug	Nut/Bolt	KF16	2	2.11	4.50	3.50	1.38
66873-00008BTFT2EY	Miniature Plug	Nut/Bolt	KF40	2	2.11	4.50	3.50	1.38
66873-00008TFT3EY	Miniature Plug	Nut/Bolt	KF16	3	2.26	4.50	3.50	1.58
66873-00008BTFT3EY	Miniature Plug	Nut/Bolt	KF40	3	2.26	4.50	3.50	1.58
66873-00008BTFT4EY	Miniature Plug	Nut/Bolt	KF40	4	2.00	4.00	3.00	1.16
66873-00008BTFT5EY	Miniature Plug	Nut/Bolt	KF40	5	2.50	4.00	3.00	1.16

# Thermocouple Feedthroughs

## Type E Mini Plug Plus Power

### E型热电偶+电源引线

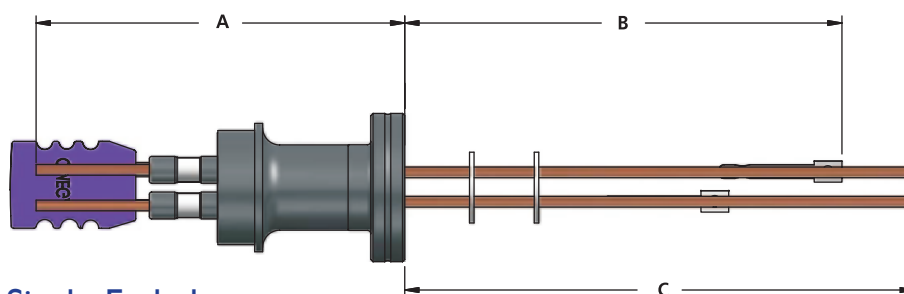
#### Type E Thermocouple/Power Feedthroughs:

- ◆ Two nickel or copper power conductors
- ◆ Rated to 5,000 volts and 30 amps
- ◆ Use in high vacuum and UHV applications requiring both power and temperature measurements
- ◆ Minimizes the number of dedicated vacuum ports required in vacuum systems

#### Type E Feedthroughs:

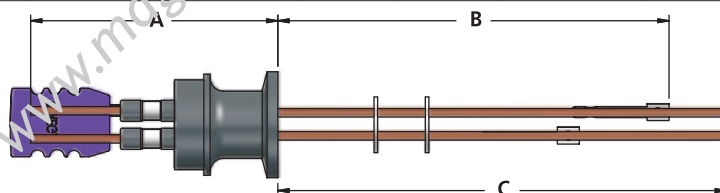
- ◆ Constructed of vacuum-grade materials, including OFHC copper or nickel conductor pins, high-purity alumina ceramic insulation, 304 stainless steel mounts, and vacuum-tube-grade braze alloys
- ◆ Positive wires made of Chromel® and negative wires made of Constantan
- ◆ Temperature range of -200° C to +900° C
- ◆ Assemblies supplied with miniature air-side thermocouple connectors and vacuum-side thermocouple lugs with a #3–48 screw and nut

NOTE: Power leads are not supplied with connectors. Must be purchased separately



### CF Flanged, Single-Ended

Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Power Pins	Amps/ Pin	Dimensions, (in.)		
							A	B	C
66874-2G152TFT1EY	Miniature Plug	Nut/Bolt	1.33"CF	1	(2) 0.050" Cu	15	2.64	4.00	3.00
66874-2C153TFT1EY	Miniature Plug	Nut/Bolt	2.75"CF	1	(2) 0.050" Cu	15	2.14	4.50	3.50
66874-2C302TFT1EY	Miniature Plug	Nut/Bolt	1.33"CF	1	(2) 0.094" Cu	30	2.85	4.00	3.00
66874-2C303TFT1EY	Miniature Plug	Nut/Bolt	2.75"CF	1	(2) 0.094" Cu	30	2.35	4.50	3.50
66874-2N052TFT1EY	Miniature Plug	Nut/Bolt	1.33"CF	1	(2) 0.050" Ni	5	2.64	4.00	3.00
66874-2N053TFT1EY	Miniature Plug	Nut/Bolt	2.75"CF	1	(2) 0.050" Ni	5	2.14	4.50	3.50
66874-2N152TFT1EY	Miniature Plug	Nut/Bolt	1.33"CF	1	(2) 0.092" Ni	15	2.85	4.00	3.00
66874-2N153TFT1EY	Miniature Plug	Nut/Bolt	2.75"CF	1	(2) 0.092" Ni	15	2.35	4.50	3.50



### KF (QF)Flange, Single-Ended

Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Shield	Amps/ Pin	Dimensions, (in.)		
							A	B	C
66875-2C158TFT1EY	Miniature Plug	Nut/Bolt	KF16	1	(2) 0.050" Cu	15	2.14	4.50	3.50
66875-2C158BTFT1EY	Miniature Plug	Nut/Bolt	KF40	1	(2) 0.050" Cu	15	2.14	4.50	3.50
66875-2C308TFT1EY	Miniature Plug	Nut/Bolt	KF16	1	(2) 0.094" Cu	30	2.35	4.36	3.36
66875-2C308BTFT1EY	Miniature Plug	Nut/Bolt	KF40	1	(2) 0.094" Cu	30	2.35	4.36	3.36
66875-2N058TFT1EY	Miniature Plug	Nut/Bolt	KF16	1	(2) 0.050" Ni	5	2.14	4.50	3.50
66875-2N058BTFT1EY	Miniature Plug	Nut/Bolt	KF40	1	(2) 0.050" Ni	5	2.14	4.50	3.50
66875-2N158TFT1EY	Miniature Plug	Nut/Bolt	KF16	1	(2) 0.092" Ni	15	2.35	4.36	3.36
66875-2N158BTFT1EY	Miniature Plug	Nut/Bolt	KF40	1	(2) 0.092" Ni	15	2.35	4.36	3.36

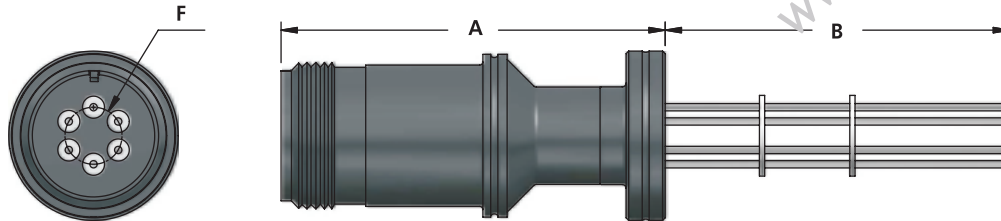
## Type E Push-On

E型热电偶引推入式插头

Type E T/C Screw-On

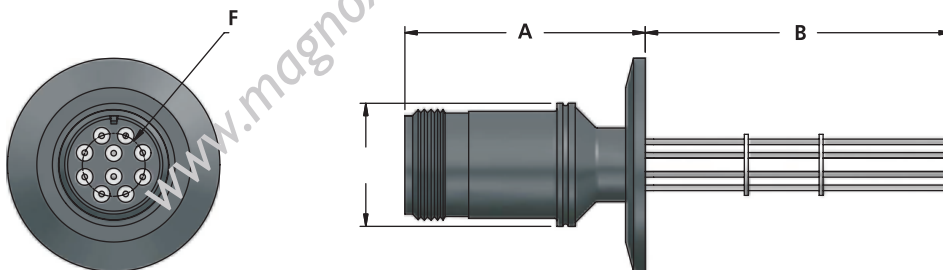
- ◆ Individual push-on connectors
- ◆ Available in 2, 3, 5, and 10 pairs
- ◆ Positive wires are made of Chromel® and the negative wires are made of Constantan
- ◆ Temperature range of -200°C to +900°C

## CF Flange, Single-Ended



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)		
					A	B	F
66876-00002TFT2EA	Mil-Spec Plug	Pins	1.33"CF	2	2.85	2.70	0.38
66876-00003TFT2EA	Mil-Spec Plug	Pins	2.75"CF	2	2.35	3.20	0.38
66876-00002TFT3EA	Mil-Spec Plug	Pins	1.33"CF	3	2.85	2.70	0.44
66876-00003TFT3EA	Mil-Spec Plug	Pins	2.75"CF	3	2.35	3.20	0.44
66876-00002TFT5EA	Mil-Spec Plug	Pins	1.33"CF	5	2.85	2.70	0.51
66876-00003TFT5EA	Mil-Spec Plug	Pins	2.75"CF	5	2.35	3.20	0.51
66876-00003TFTVEA	Mil-Spec Plug	Pins	2.75"CF	10	2.53	3.50	1.03

## KF (QF) Flange, Single-Ended



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)		
					A	B	F
66877-00008TFT2EA	Mil-Spec Plug	Pins	KF16	2	2.35	2.20	0.38
66877-00008BTFT2EA	Mil-Spec Plug	Pins	KF40	2	2.35	3.20	0.38
66877-00008TFT3EA	Mil-Spec Plug	Pins	KF16	3	2.35	2.20	0.44
66877-00008BTFT3EA	Mil-Spec Plug	Pins	KF40	3	2.35	3.20	0.44
66877-00008TFT5EA	Mil-Spec Plug	Pins	KF16	5	2.35	2.20	0.51
66877-00008BTFT5EA	Mil-Spec Plug	Pins	KF40	5	2.35	3.20	0.51
66877-00008BTFTVEA	Mil-Spec Plug	Pins	KF40	10	2.53	3.50	1.03

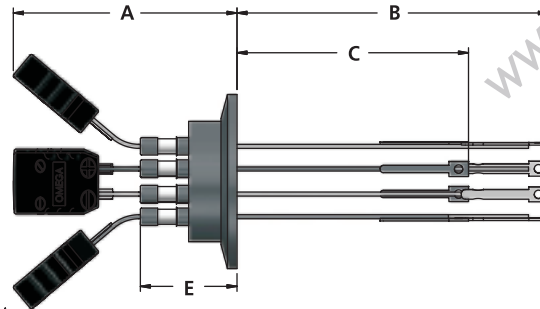
# Thermocouple Feedthroughs

## Type J Mini Plug

### J型热电偶引线

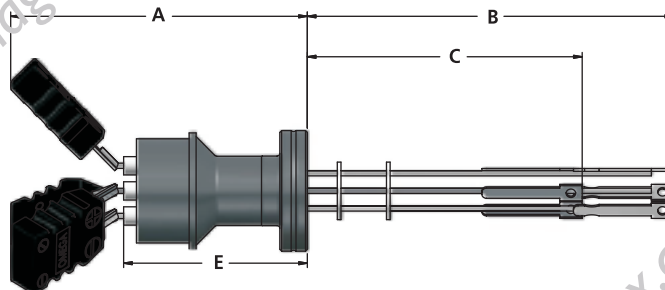
- ◆ Available in 1, 2, 3, 4, and 5 pairs
- ◆ Temperature range from 0°C to 750°C
- ◆ Include air-side connectors
- ◆ Vacuum-side leads terminate in thermocouple lugs, which include a stainless steel nut and screw to facilitate thermocouple hookup
- ◆ Designed for use in high vacuum and UHV applications
- ◆ Feature positive wires made of iron and negative wires of Constantan

## KF (QF) Flange, Single-Ended



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)			
					A	B	C	E
66878-00008TFT1JY	Miniature Plug	Nut/Bolt	KF16	1	1.31	4.50	3.50	0.58
66878-00008ATFT1JY	Miniature Plug	Nut/Bolt	KF25	1	1.31	4.50	3.50	0.58
66878-00008BTFT1JY	Miniature Plug	Nut/Bolt	KF40	1	1.31	4.50	3.50	0.58
66878-00008TFT2JY	Miniature Plug	Nut/Bolt	KF16	2	2.11	4.50	3.50	1.38
66878-00008ATFT2JY	Miniature Plug	Nut/Bolt	KF25	2	2.11	4.50	3.50	1.38
66878-00008BTFT2JY	Miniature Plug	Nut/Bolt	KF40	2	2.11	4.50	3.50	1.38
66878-00008TFT3JY	Miniature Plug	Nut/Bolt	KF16	3	2.26	4.50	3.50	1.58
66878-00008BTFT3JY	Miniature Plug	Nut/Bolt	KF40	3	2.26	4.50	3.50	1.58
66878-00008BTFT4JY	Miniature Plug	Nut/Bolt	KF40	4	2.00	4.00	3.00	1.16
66878-00008BTFT5JY	Miniature Plug	Nut/Bolt	KF40	5	2.50	4.00	3.00	1.16

## CF Flange, Single-Ended



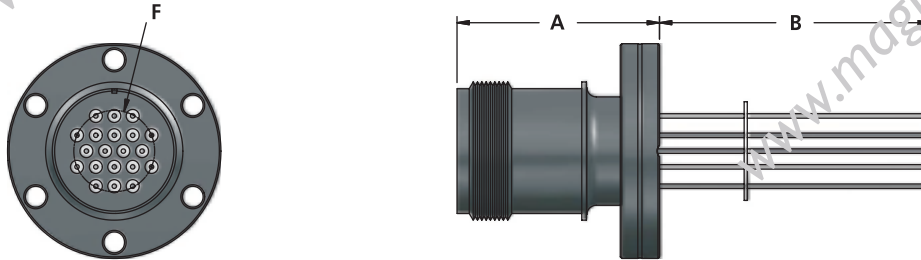
Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)			
					A	B	C	E
66879-00002TFT1JY	Miniature Plug	Nut/Bolt	1.33"CF	1	1.81	4.00	3.00	1.08
66879-00003TFT1JY	Miniature Plug	Nut/Bolt	2.75"CF	1	1.31	4.50	3.50	0.58
66879-00002TFT2JY	Miniature Plug	Nut/Bolt	1.33"CF	2	2.61	4.00	3.00	1.88
66879-00003TFT2JY	Miniature Plug	Nut/Bolt	2.75"CF	2	2.11	4.50	3.50	1.38
66879-00002TFT3JY	Miniature Plug	Nut/Bolt	1.33"CF	3	2.76	4.00	3.00	2.08
66879-00003TFT3JY	Miniature Plug	Nut/Bolt	2.75"CF	3	2.26	4.50	3.50	1.58
66879-00003TFT4JY	Miniature Plug	Nut/Bolt	1.33"CF	4	2.00	4.00	3.00	1.16
66879-00003TFT5JY	Miniature Plug	Nut/Bolt	2.75"CF	5	2.50	4.00	3.00	1.16

# Thermocouple Feedthroughs

## Type J Mil-Spec Plug

J型热电偶Mil-Spec标准插头

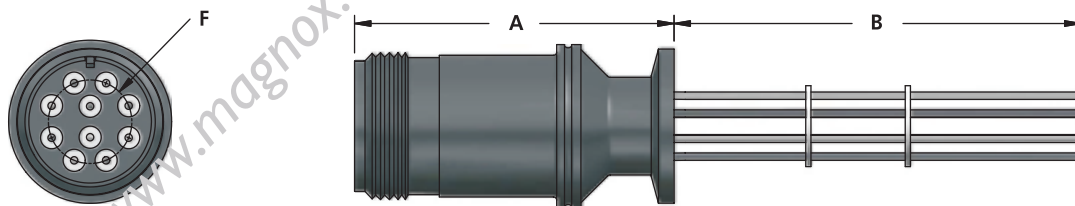
### CF Flange, Single-Ended



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)		
					A	B	F
66880-00002TFT2JA	Mil-Spec Plug	Pins	1.33"CF	2	2.85	2.70	0.38
66880-00003TFT2JA	Mil-Spec Plug	Pins	2.75"CF	2	2.35	3.20	0.38
66880-00002TFT3JA	Mil-Spec Plug	Pins	1.33"CF	3	2.85	2.70	0.44
66880-00003TFT3JA	Mil-Spec Plug	Pins	2.75"CF	3	2.35	3.20	0.44
66880-00002TFT5JA	Mil-Spec Plug	Pins	1.33"CF	5	2.85	2.70	0.51
66880-00003TFT5JA	Mil-Spec Plug	Pins	2.75"CF	5	2.35	3.20	0.51
66880-00003TFTVJA	Mil-Spec Plug	Pins	2.75"CF	10	2.53	3.50	1.03

### KF (QF)Flange, Single-Ended

◆ Available in 1, 2, 3, 5, and 10 pairs



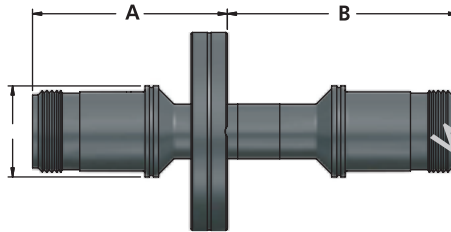
Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)		
					A	B	F
66881-00008TFT2JA	Mil-Spec Plug	Pins	KF16	2	2.35	3.20	0.38
66881-00008BTFT2JA	Mil-Spec Plug	Pins	KF40	2	2.35	3.20	0.38
66881-00008TFT3JA	Mil-Spec Plug	Pins	KF16	3	2.35	3.20	0.44
66881-00008BTFT3JA	Mil-Spec Plug	Pins	KF40	3	2.35	3.20	0.44
66881-00008TFT5JA	Mil-Spec Plug	Pins	KF16	5	2.35	3.20	0.51
66881-00008BTFT5JA	Mil-Spec Plug	Pins	KF40	5	2.35	3.20	0.51
66881-00008BTFTVJA	Mil-Spec Plug	Pins	KF40	10	2.53	3.50	1.03

## Type J Mil-Spec Plug

K型热电偶+电源引线

### CF Flange, Double-Ended

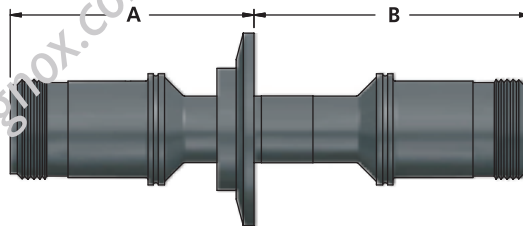
◆ Available in 1, 2, 3, 5, and 10 pairs



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)	
					A	B
66886-00003TFD2JA	Mil-Spec Plug	Mil-Spec Plug	2.75"CF	2	2.34	3.69
66886-00003TFD3JA	Mil-Spec Plug	Mil-Spec Plug	2.75"CF	3	2.34	3.69
66886-00003TFD5JA	Mil-Spec Plug	Mil-Spec Plug	2.75"CF	5	2.34	3.69
66886-00006TFDVJA	Mil-Spec Plug	Mil-Spec Plug	4.50"CF	10	2.78	3.50

## KF (QF) Flange, Double-Ended

◆ Available in 1, 2, 3, 5, and 10 pairs



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)	
					A	B
66887-00008BTFD2JA	Mil-Spec Plug	Mil-Spec Plug	KF40	2	2.34	3.69
66887-00008CTFD2JA	Mil-Spec Plug	Mil-Spec Plug	KF50	2	2.34	3.69
66887-00008BTFD3JA	Mil-Spec Plug	Mil-Spec Plug	KF40	3	2.34	3.69
66887-00008CTFD3JA	Mil-Spec Plug	Mil-Spec Plug	KF50	3	2.34	3.69
66887-00008TFD5JA	Mil-Spec Plug	Mil-Spec Plug	KF40	5	2.34	3.69
66887-00008CTFD5JA	Mil-Spec Plug	Mil-Spec Plug	KF50	5	2.34	3.69
66887-00008DTFDVJA	Mil-Spec Plug	Mil-Spec Plug	ISC 53	10	2.78	3.50

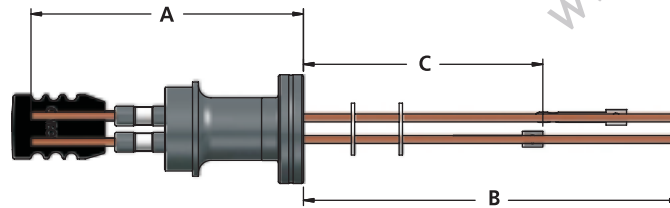
## Type J Mini Plug Plus Power

### J型热电偶+电源引线

- ◆ Nickel or copper power conductors
- ◆ Temperature range from 0°C to 750°C.
- ◆ Use in high vacuum and UHV applications requiring both power and temperature measurements
- ◆ Rated to 5,000 volts and 30 amps
- ◆ Feature positive wires made of iron and negative wires made of Constantane

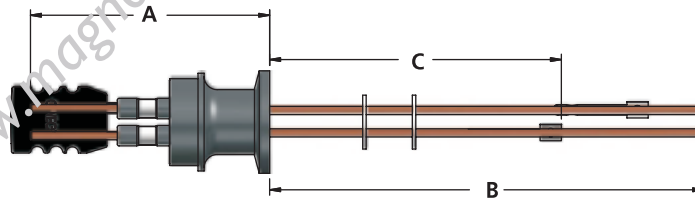
NOTE: Power leads are not supplied with connectors. Must be purchased separately

## CF Flange, Single-Ended



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Shield	Amps/ Pin	Dimensions, (in.)		
							A	B	C
66884-2C152TFTIJY	Miniature Plug	Nut/Bolt	1.33"CF	1	(2) 0.050" Cu	15	2.50	4.00	3.00
66884-2C153TFTIJY	Miniature Plug	Nut/Bolt	2.75"CF	1	(2) 0.050" Cu	15	2.00	4.50	3.50
66884-2C302TFTIJY	Miniature Plug	Nut/Bolt	1.33"CF	1	(2) 0.094" Cu	30	2.50	4.00	3.00
66884-2C303TFTIJY	Miniature Plug	Nut/Bolt	2.75"CF	1	(2) 0.094" Cu	30	2.00	4.50	3.50
66884-2N052TFTIJY	Miniature Plug	Nut/Bolt	1.33"CF	1	(2) 0.050" Ni	5	2.50	4.00	3.00
66884-2N053TFTIJY	Miniature Plug	Nut/Bolt	2.75"CF	1	(2) 0.050" Ni	5	2.00	4.50	3.50
66884-2N152TFTIJY	Miniature Plug	Nut/Bolt	1.33"CF	1	(2) 0.094" Ni	15	2.85	4.86	3.86
66884-2N153TFTIJY	Miniature Plug	Nut/Bolt	2.75"CF	1	(2) 0.094" Ni	15	2.35	4.36	3.36

## KF(QF) Flange, Single-Ended



Part Number	Air Side	Vac. Side	Flange Size	Pairs	Shield	Amps/ Pin	Dimensions, (in.)		
							A	B	C
66885-2C158TFTIJY	Miniature Plug	Nut/Bolt	KF16	1	(2) 0.050" Cu	15	2.00	4.50	3.50
66885-2C158ATFTIJY	Miniature Plug	Nut/Bolt	KF25	1	(2) 0.050" Cu	15	2.00	4.50	3.50
66885-2C158BTFTIJY	Miniature Plug	Nut/Bolt	KF40	1	(2) 0.050" Cu	15	2.00	4.50	3.50
66885-2C308TFTIJY	Miniature Plug	Nut/Bolt	KF16	1	(2) 0.094" Cu	30	2.00	4.50	3.50
66885-2C308BTFTIJY	Miniature Plug	Nut/Bolt	KF40	1	(2) 0.094" Cu	30	2.00	4.50	3.50
66885-2N058TFTIJY	Miniature Plug	Nut/Bolt	KF16	1	(2) 0.050" Ni	5	2.00	4.50	3.50
66885-2N058BTFTIJY	Miniature Plug	Nut/Bolt	KF40	1	(2) 0.050" Ni	5	2.00	4.50	3.50
66885-2N158TFTIJY	Miniature Plug	Nut/Bolt	KF16	1	(2) 0.094" Ni	15	2.35	4.36	3.36
66885-2N158BTFTIJY	Miniature Plug	Nut/Bolt	KF40	1	(2) 0.094" Ni	15	2.35	4.36	3.36

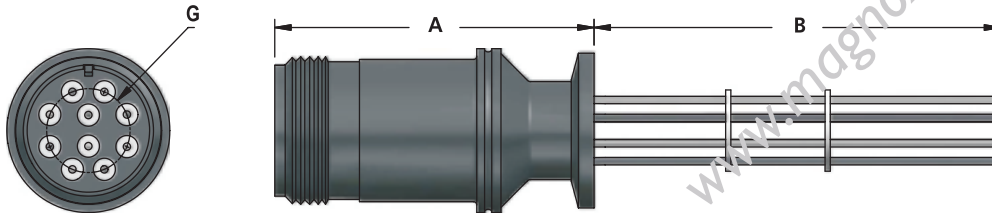


# Thermocouple Feedthroughs

## Type J Push-On

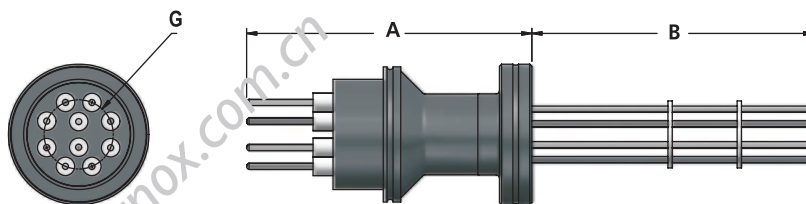
CF Flanged

CF Flange



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)		
					A	B	G
66882-00002TFT2JP	Pins	Pins	1.33"CF	2	2.55	2.70	0.38
66882-00003TFT2JP	Pins	Pins	2.75"CF	2	2.05	3.20	0.38
66882-00002TFT3JP	Pins	Pins	1.33"CF	3	2.55	2.70	0.44
66882-00003TFT3JP	Pins	Pins	2.75"CF	3	2.05	3.20	0.44
66882-00002TFT5JP	Pins	Pins	1.33"CF	5	2.55	2.70	0.51
66882-00003TFT5JP	Pins	Pins	2.75"CF	5	2.05	3.20	0.51

KF (QF)Flange



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)		
					A	B	G
66883-00008TFT2JP	Pins	Pins	KF16	2	2.05	3.20	0.38
66883-00008BTFT2JP	Pins	Pins	KF40	2	2.05	3.20	0.38
66883-00008TFT3JP	Pins	Pins	KF16	3	2.05	3.20	0.44
66883-00008BTFT3JP	Pins	Pins	KF40	3	2.05	3.20	0.44
66883-00008TFT5JP	Pins	Pins	KF16	5	2.05	3.20	0.51
66883-00008BTFT5JP	Pins	Pins	KF40	5	2.05	3.20	0.51



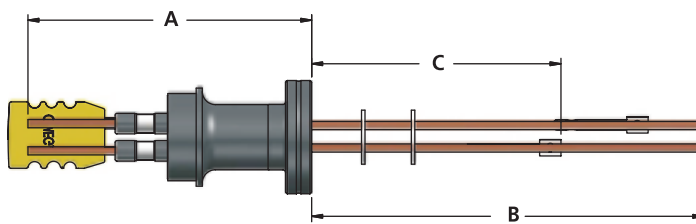
## Type K Mini Plug Plus Power

### K型热电偶+电源引线

- ◆ Two nickel or copper power conductors
- ◆ Rated to 5,000 volts and 30 amps
- ◆ Designed for use in high vacuum and UHV applications requiring both power and temperature measurements
- ◆ Feature positive wires made of Chromel® and negative wires made of Alumel®
- ◆ Temperature range from -200°C to 1,250°C
- ◆ Assemblies supplied with miniature air-side thermocouple connectors and vacuum-side thermocouple lugs with #3-48 screw and nut

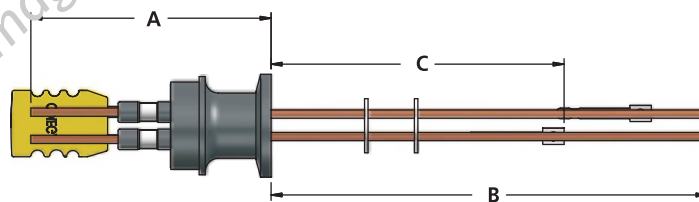
NOTE: Power leads are not supplied with connectors. Must be purchased separately

### CF Flange, Single-Ended



Part Number	Air Side	Vac. Side	Flange Size	Pairs	Shield	Amps/ Pin	Dimensions, (in.)		
							A	B	C
66888-2C152TFT1KY	Miniature Plug	Nut/Bolt	1.33"CF	1	(2) 0.050" Cu	15	2.64	4.00	3.00
66888-2C153TFT1KY	Miniature Plug	Nut/Bolt	2.75"CF	1	(2) 0.050" Cu	15	2.14	4.50	3.50
66888-2C302TFT1KY	Miniature Plug	Nut/Bolt	1.33"CF	1	(2) 0.050" Cu	30	2.85	3.86	2.86
66888-2C303TFT1KY	Miniature Plug	Nut/Bolt	2.75"CF	1	(2) 0.050" Cu	30	2.35	4.36	3.36
66888-2N052TFT1KY	Miniature Plug	Nut/Bolt	1.33"CF	1	(2) 0.050" Cu	5	2.64	4.00	3.00
66888-2N053TFT1KY	Miniature Plug	Nut/Bolt	2.75"CF	1	(2) 0.050" Cu	5	2.14	4.50	3.50
66888-2N152TFT1KY	Miniature Plug	Nut/Bolt	1.33"CF	1	(2) 0.050" Cu	15	2.85	3.86	2.86
66888-2N153TFT1KY	Miniature Plug	Nut/Bolt	2.75"CF	1	(2) 0.050" Cu	15	2.35	4.36	3.36

### KF(QF) Flange, Single-Ended



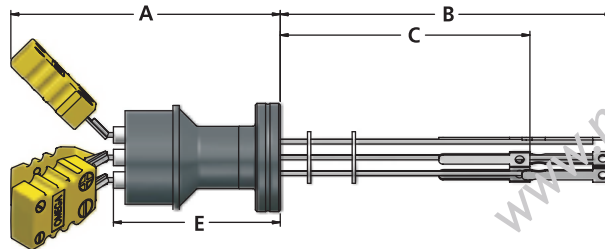
Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Shield	Amps/ Pin	Dimensions, (in.)		
							A	B	C
66889-2C158TFT1KY	Miniature Plug	Nut/Bolt	KF16	1	(2) 0.050" Cu	15	2.14	4.50	3.50
66889-2C158BTFT1KY	Miniature Plug	Nut/Bolt	KF40	1	(2) 0.050" Cu	15	2.14	4.50	3.50
66889-2C158CTFT1KY	Miniature Plug	Nut/Bolt	KF50	1	(2) 0.050" Cu	15	2.14	4.50	3.50
66889-2C308TFT1KY	Miniature Plug	Nut/Bolt	KF16	1	(2) 0.094" Cu	30	2.35	4.36	3.36
66889-2C308BTFT1KY	Miniature Plug	Nut/Bolt	KF40	1	(2) 0.094" Cu	30	2.35	4.36	3.36
66889-2C308CTFT1KY	Miniature Plug	Nut/Bolt	KF50	1	(2) 0.094" Cu	30	2.35	4.36	3.36
66889-2N058TFT1KY	Miniature Plug	Nut/Bolt	KF16	1	(2) 0.050" Ni	5	2.14	4.50	3.50
66889-2N058ATFT1KY	Miniature Plug	Nut/Bolt	KF25	1	(2) 0.050" Ni	5	2.14	4.50	3.50
66889-2N058BTFT1KY	Miniature Plug	Nut/Bolt	KF40	1	(2) 0.050" Ni	5	2.14	4.50	2.86
66889-2N158TFT1KY	Miniature Plug	Nut/Bolt	KF16	1	(2) 0.092" Ni	15	2.35	4.36	3.36
66889-2N158BTFT1KY	Miniature Plug	Nut/Bolt	KF40	1	(2) 0.092" Ni	15	2.35	4.36	3.36

## Type K Mini Plug

K型热电偶引线插头

### CF Flange, Single-Ended

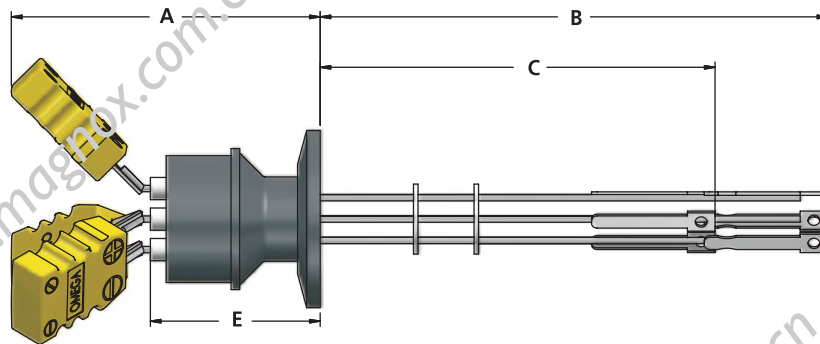
◆ Available in 1, 2, 3, 5, and 5 pairs



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)			
					A	B	C	E
66891-00002TFT1KY	Miniature Plug	Nut/Bolt	1.33"CF	1	1.81	4.00	3.00	1.08
66891-00003TFT1KY	Miniature Plug	Nut/Bolt	2.75"CF	1	1.31	4.50	3.50	0.58
66891-00003ATFT1KY	Miniature Plug	Nut/Bolt	3.375"CF	1	1.31	4.50	3.50	0.58
66891-00002TFT2KY	Miniature Plug	Nut/Bolt	1.33"CF	2	2.61	4.00	3.00	1.88
66891-00003TFT2KY	Miniature Plug	Nut/Bolt	2.75"CF	2	2.11	4.50	3.50	1.38
66891-00003ATFT2KY	Miniature Plug	Nut/Bolt	3.375"CF	2	2.11	4.50	3.50	1.38
66891-00002TFT3KY	Miniature Plug	Nut/Bolt	1.33"CF	3	2.76	4.00	3.00	2.08
66891-00003TFT3KY	Miniature Plug	Nut/Bolt	2.75"CF	3	2.26	4.50	3.50	1.58
66891-00003ATFT4KY	Miniature Plug	Nut/Bolt	2.75"CF	4	2.00	4.00	3.00	1.16
66891-00003ATFT5KY	Miniature Plug	Nut/Bolt	2.75"CF	5	2.50	4.00	3.00	1.16

## KF(QF) Flange, Single-Ended

◆ Available in 1, 2, 3, 5, and 5 pairs



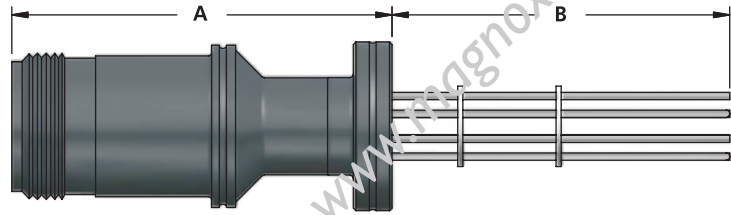
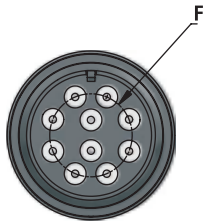
Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)			
					A	B	C	E
66892-00008TFT1KY	Miniature Plug	Nut/Bolt	KF16	1	1.31	4.50	3.50	0.58
66892-00008ATFT1KY	Miniature Plug	Nut/Bolt	KF25	1	1.31	4.50	3.50	0.58
66892-00008BTFT1KY	Miniature Plug	Nut/Bolt	KF40	1	1.31	4.50	3.50	0.58
66892-00008TFT2KY	Miniature Plug	Nut/Bolt	KF16	2	2.11	4.50	3.50	1.38
66892-00008ATFT2KY	Miniature Plug	Nut/Bolt	KF25	2	2.11	4.50	3.50	1.38
66892-00008BTFT2KY	Miniature Plug	Nut/Bolt	KF40	2	2.11	4.50	3.50	1.38
66892-00008CTFT2KY	Miniature Plug	Nut/Bolt	KF50	2	2.11	4.50	3.50	1.38
66892-00008TFT3KY	Miniature Plug	Nut/Bolt	KF16	3	2.26	4.50	3.50	1.58
66892-00008ATFT3KY	Miniature Plug	Nut/Bolt	KF25	3	2.26	4.50	3.50	1.58
66892-00008BTFT3KY	Miniature Plug	Nut/Bolt	KF40	3	2.26	4.50	3.50	1.58
66892-00008BTFT4KY	Miniature Plug	Nut/Bolt	KF40	4	2.00	4.00	3.00	1.16
66892-00008BTFT5KY	Miniature Plug	Nut/Bolt	KF40	5	2.50	4.00	3.00	1.16

## Type K Mil-Spec Plug

K型热电偶Mil-Spec标准接头

### CF Flange, Single-Ended

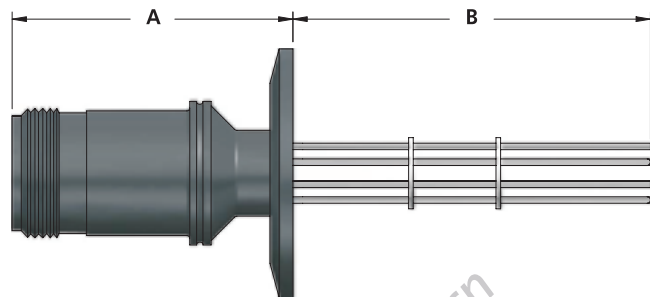
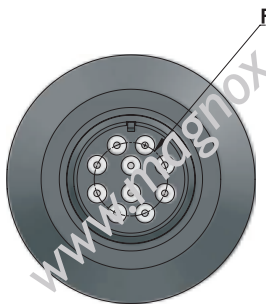
◆ Available in 2, 3, 5, and 10 pairs



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)		
					A	B	F
66893-00002TFT2KA	Mil-Spec Plug	Pins	1.33"CF	2	2.85	2.70	0.38
66893-00003TFT2KA	Mil-Spec Plug	Pins	2.75"CF	2	2.35	3.20	0.38
66893-00002TFT3KA	Mil-Spec Plug	Pins	1.33"CF	3	2.85	2.70	0.44
66893-00003TFT3KA	Mil-Spec Plug	Pins	2.75"CF	3	2.35	3.20	0.44
66893-00002TFT5KA	Mil-Spec Plug	Pins	1.33"CF	5	2.85	2.70	0.51
66893-00003TFT5KA	Mil-Spec Plug	Pins	2.75"CF	5	2.35	3.20	0.51
66893-00003TFTVKA	Mil-Spec Plug	Pins	2.75"CF	10	2.53	3.50	1.03

## KF(QF) Flange, Single-Ended

◆ Available in 2, 3, 5, and 10 pairs

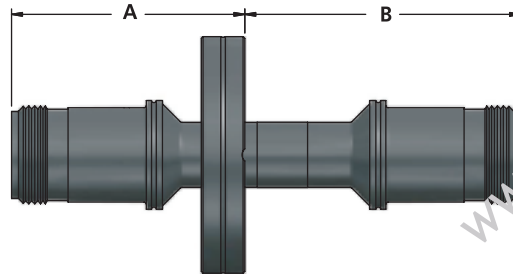


Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)		
					A	B	F
66894-00008TFT2KA	Mil-Spec Plug	Pins	KF16	2	2.35	3.20	0.38
66894-00008BTFT2KA	Mil-Spec Plug	Pins	KF40	2	2.35	3.20	0.38
66894-00008TFT3KA	Mil-Spec Plug	Pins	KF16	3	2.35	3.20	0.43
66894-00008ATFT3KA	Mil-Spec Plug	Pins	KF25	3	2.35	3.20	0.43
66894-00008BTFT3KA	Mil-Spec Plug	Pins	KF40	3	2.35	3.20	0.43
66894-00008TFT5KA	Mil-Spec Plug	Pins	KF16	5	2.35	3.20	0.51
66894-00008ATFT5KA	Mil-Spec Plug	Pins	KF25	5	2.35	3.20	0.51
66894-00008BTFT5KA	Mil-Spec Plug	Pins	KF40	5	2.35	3.20	0.51
66894-00008BTFTVKA	Mil-Spec Plug	Pins	KF40	10	2.53	3.50	1.03
66894-00008CTFTVKA	Mil-Spec Plug	Pins	KF50	10	2.53	3.50	1.03

# Thermocouple Feedthroughs

## CF Flange, Double-Ended

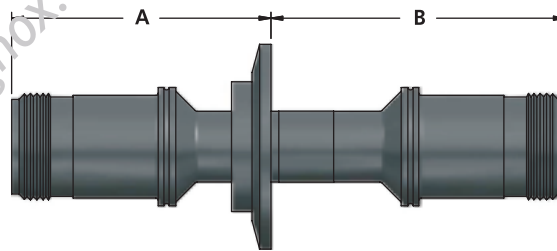
- ◆ Available in 2, 3, 5, and 10 pairs



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)	
					A	B
66896-00003TFD2KA	Mil-Spec Plug	Mil-Spec Plug	2.75"CF	2	2.34	3.69
66896-00003TFD3KA	Mil-Spec Plug	Mil-Spec Plug	2.75"CF	3	2.34	3.69
66896-00003TFD5KA	Mil-Spec Plug	Mil-Spec Plug	2.75"CF	5	2.34	3.69
66896-00006TFDVKA	Mil-Spec Plug	Mil-Spec Plug	4.5"CF	10	2.78	3.50

## KF (QF) & ISO Flange, Double-Ended

- ◆ Available in 2, 3, 5, and 10 pairs



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)	
					A	B
66897-00008BTFD2KA	Mil-Spec Plug	Mil-Spec Plug	KF40	2	2.34	3.69
66897-00008CTFD2KA	Mil-Spec Plug	Mil-Spec Plug	KF50	2	2.34	3.69
66897-00008BTFD3KA	Mil-Spec Plug	Mil-Spec Plug	KF40	3	2.34	3.69
66897-00008CTFD3KA	Mil-Spec Plug	Mil-Spec Plug	KF50	3	2.34	3.69
66897-00008BTFD5KA	Mil-Spec Plug	Mil-Spec Plug	KF40	5	2.34	3.69
66897-00008CTFD5KA	Mil-Spec Plug	Mil-Spec Plug	KF50	5	2.34	3.69
66897-00008DTFDVKA	Mil-Spec Plug	Mil-Spec Plug	ISO63	10	2.78	3.50

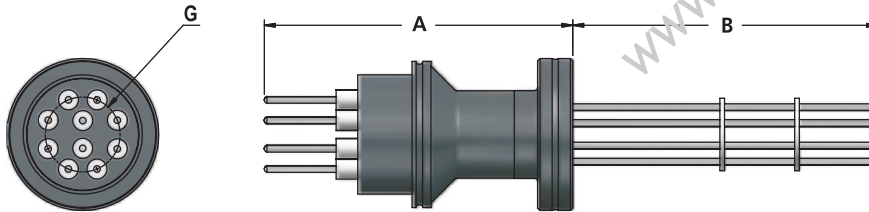
## Type K Push-On

K型热电偶推入式引线

- ◆ Temperature range from 200° C to 1,250° C
- ◆ Designed for use in high vacuum and UHV applications
- ◆ Does not include connectors
- ◆ Feature positive wires made of Chromel and negative wires made of Alumel @

## CF Flange, Single-Ended

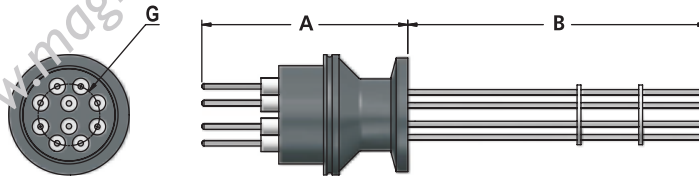
- ◆ Available in 1, 2, 3, and 5 pairs



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)		
					A	B	G
66890-00002TFT2KP	Pins	Pins	1.33"CF	2	2.05	3.20	0.38
66890-00003TFT2KP	Pins	Pins	2.75"CF	2	2.05	3.20	0.38
66890-00002TFT3KP	Pins	Pins	1.33"CF	3	2.05	3.20	0.38
66890-00003TFT3KP	Pins	Pins	2.75"CF	3	2.05	3.20	0.38
66890-00002TFT5KP	Pins	Pins	1.33"CF	5	2.05	2.20	0.44
66890-00003TFT5KP	Pins	Pins	2.75"CF	5	2.05	3.20	0.44

## KF(QF) Flange, Single-Ended

- ◆ Available in 1, 2, 3, and 5 pairs



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)		
					A	B	G
66895-00008TFT2KP	Pins	Pins	KF16	2	2.05	3.20	0.38
66895-00008ATFT2KP	Pins	Pins	KF25	2	2.05	3.20	0.38
66895-00008BTFT2KP	Pins	Pins	KF40	2	2.05	3.20	0.38
66895-00008CTFT2KP	Pins	Pins	KF50	2	2.05	3.20	0.38
66895-00008TFT3KP	Pins	Pins	KF16	3	2.05	3.20	0.44
66895-00008ATFT3KP	Pins	Pins	KF25	3	2.05	3.20	0.44
66895-00008BTFT3KP	Pins	Pins	KF40	3	2.05	3.20	0.44
66895-00008CTFT3KP	Pins	Pins	KF50	3	2.05	3.20	0.44
66895-00008TFT5KP	Pins	Pins	KF16	5	2.05	3.20	0.51
66895-00008BTFT5KP	Pins	Pins	KF40	5	2.05	3.20	0.51

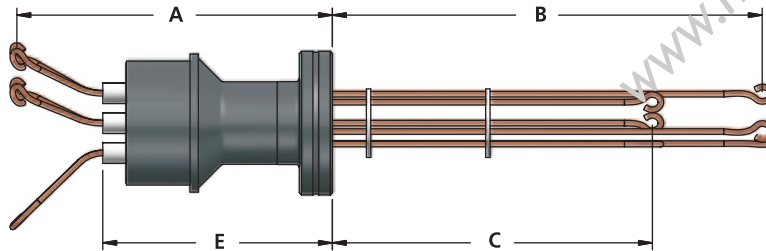
## Type R Feedthroughs

### R型电偶引线

- ◆ Designed for use in high vacuum and UHV applications
- ◆ Feature positive wires made of copper and negative wires made of alloy 111 (Type R extension grade wires)
- ◆ Temperature range from 0°C to 1,450°C
- ◆ Both air-side and vacuum-side terminate in loops and include a stainless steel nut and screw to facilitate thermocouple attachment

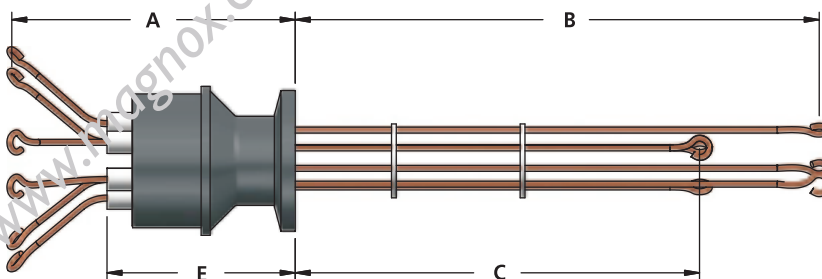
NOTE: Because both Type R and Type S thermocouples use identical extension grade wires, Type R feedthroughs can also be used for Type S.

## CF Flange



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)			
					A	B	C	E
66898-00002TFT1RN	Loops	Loops	1.33"CF	1	2.23	4.00	3.00	1.23
66898-00003TFT1RN	Loops	Loops	2.75"CF	1	1.73	4.50	3.50	0.73
66898-00002TFT2RN	Loops	Loops	1.33"CF	2	2.88	4.00	3.00	1.88
66898-00003TFT2RN	Loops	Loops	2.75"CF	2	2.38	4.50	3.50	1.38
66898-00002TFT3RN	Loops	Loops	1.33"CF	3	2.50	4.00	3.00	2.08
66898-00003TFT3RN	Loops	Loops	2.75"CF	3	2.00	4.50	3.50	1.58
66898-00003TFT4RN	Loops	Loops	2.75"CF	4	2.00	4.00	3.00	1.16
66898-00003TFT5RN	Loops	Loops	2.75"CF	5	2.13	4.00	3.00	1.16

## KF (QF) Flange



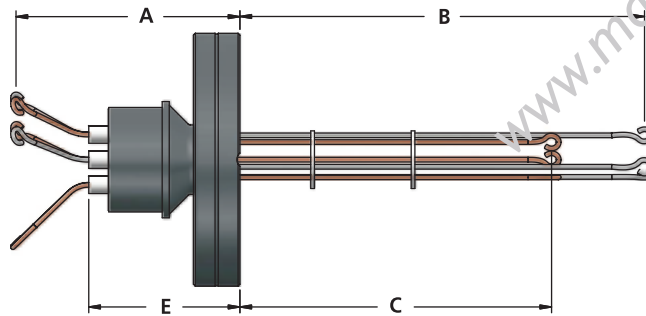
Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)			
					A	B	C	E
66899-00008TFT1RN	Loops	Loops	KF16	1	1.73	4.50	3.50	0.73
66899-00008ATFT1RN	Loops	Loops	KF25	1	1.73	4.50	3.50	0.73
66899-00008BTFT1RN	Loops	Loops	KF40	1	1.73	4.50	3.50	0.73
66899-00008TFT2RN	Loops	Loops	KF16	2	2.38	4.50	3.50	1.38
66899-00008BTFT2RN	Loops	Loops	KF40	2	2.38	4.50	3.50	1.38
66899-00008TFT3RN	Loops	Loops	KF16	3	2.00	4.50	3.50	1.58
66899-00008ATFT3RN	Loops	Loops	KF25	3	2.00	4.50	3.50	1.58
66899-00008BTFT3RN	Loops	Loops	KF40	3	2.00	4.50	3.50	1.58
66899-00008BTFT4RN	Loops	Loops	KF40	4	2.00	4.00	3.00	1.16
66899-00008CTFT4RN	Loops	Loops	KF50	4	2.00	4.00	3.00	1.16
66899-00008BTFT5RN	Loops	Loops	KF40	5	2.13	4.00	3.00	1.16

## Type T Feedthroughs

### T型电偶引线

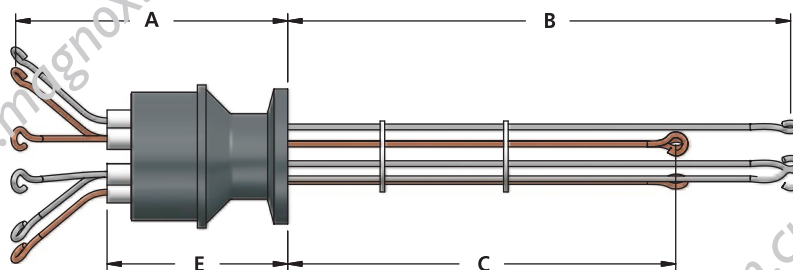
- ◆ Designed for use in high vacuum and UHV applications
- ◆ Feature positive wires made of copper and negative wires made of Constantan
- ◆ Temperature range from -200°C to 350°C
- ◆ Both air-side and vacuum-side terminate in loops and include a stainless steel nut and screw/ to facilitate thermocouple attachment

### CF Flange



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)			
					A	B	C	E
66900-00002TFT1TN	Loops	Loops	1.33"CF	1	2.23	4.00	3.00	1.23
66900-00003TFT1TN	Loops	Loops	2.75"CF	1	1.73	4.50	3.50	0.73
66900-00002TFT2TN	Loops	Loops	1.33"CF	2	2.88	4.00	3.00	1.88
66900-00003TFT2TN	Loops	Loops	2.75"CF	2	2.38	4.50	3.50	1.38
66900-00002TFT3TN	Loops	Loops	1.33"CF	3	2.50	4.00	3.00	2.08
66900-00003TFT3TN	Loops	Loops	2.75"CF	3	2.00	4.50	3.50	1.58
66900-00003TFT4TN	Loops	Loops	2.75"CF	4	2.00	4.00	3.00	1.16
66900-00003TFT5TN	Loops	Loops	2.75"CF	5	2.13	4.00	3.00	1.16

### KF (QF) Flange



Part Number	Air Side	Vac. Side	Flange Size	T/C Pairs	Dimensions, (in.)			
					A	B	C	E
66901-00008TFT1TN	Loops	Loops	KF16	1	1.73	4.50	3.50	0.73
66901-00008ATFT1TN	Loops	Loops	KF25	1	1.73	4.50	3.50	0.73
66901-00008BTFT1TN	Loops	Loops	KF40	1	1.73	4.50	3.50	0.73
66901-00008TFT2TN	Loops	Loops	KF16	2	2.38	4.50	3.50	1.38
66901-00008BTFT2TN	Loops	Loops	KF40	2	2.38	4.50	3.50	1.38
66901-00008CTFT2TN	Loops	Loops	KF50	2	2.00	4.50	3.50	1.58
66901-00008TFT3TN	Loops	Loops	KF16	3	2.00	4.50	3.50	1.58
66901-00008BTFT3TN	Loops	Loops	KF40	3	2.00	4.50	3.50	1.58
66901-00008BTFT4TN	Loops	Loops	KF40	4	2.00	4.00	3.00	1.16
66901-00008BTFT5TN	Loops	Loops	KF40	5	2.13	4.00	3.00	1.16



附录一：CF法兰公英制尺寸对照表

序号	公称通径	法兰外径 【mm (inch)】	厚度 【mm】	铜垫片外径 【mm】	PCD 【mm】	螺栓类型
A	CF16	34 ( 1.33")	7.6	21	27	6 × M4
B	CF25	54 (2.12")	11.5	33	41	4 × M6
C	CF40	70 (2.75")	13	48	59	6 × M6
D	CF50	86 ( 3.38")	16	61	72	8 × M8
E	CF63	114 (4.5")	17.5	82	92	8 × M8
F	CF80	117 ( 4.62")	17.5	91	102	10 × M8
G	CF100	152 (6")	20	120	130	16 × M8
H	CF130	171 ( 6.75")	2	141	152	18 × M8
I	CF160	203 (8")	22	171	181	20 × M8
J	CF200	254 (10")	25	222	232	24 × M8
K	CF250	305 (12")	25	272.7	284	32 × M8
L	CF275	337 ( 13.5")	28	294	306	30 × M10
M	CF300	368 (14.5")	28	326	338	32 × M10
N	CF350	419 (16.5")	28	376	389	36 × M10
O	CF400	470 (18.5")	28	424	438	40 × M10

附录二：真空单位换算表

	帕斯卡 Pa (N/m <sup>2</sup> )	千克力每平方 厘米Kgf/cm <sup>2</sup>	巴 bar	毫巴 mbar	标准大气压 atm	托 torr	毫米汞柱 mmHg	磅每平方英寸 psi (lb/in <sup>2</sup> )
Pa	1	1.02×10 <sup>-5</sup>	1×10 <sup>-5</sup>	0.01	9.87×10 <sup>-6</sup>	7.5×10 <sup>-3</sup>	7.5×10 <sup>-3</sup>	1.45×10 <sup>-6</sup>
Kgf/cm <sup>2</sup>	9.8×10 <sup>4</sup>	1	0.98	980.67	0.967	735.56	735.56	14.2
bar	1×10 <sup>5</sup>	1.02	1	1000	0.987	750.06	750.06	14.5
mbar	100	1.02×10 <sup>-8</sup>	0.001	1	9.87×10 <sup>-4</sup>	0.75	0.75	1.45×10 <sup>-4</sup>
atm	101325	1.03	1.01	1013.25	1	760	760	14.7
torr	133.32	1.36×10 <sup>-3</sup>	1.33×10 <sup>-3</sup>	1.33	1.32×10 <sup>-3</sup>	1	1	1.93×10 <sup>-3</sup>
lnH <sub>2</sub> O	249.09	2.54×10 <sup>-3</sup>	2.49×10 <sup>-3</sup>	2.49	2.46×10 <sup>-3</sup>	1.87	1.87	3.61×10 <sup>-3</sup>
mmHg	133.32	1.36×10 <sup>-3</sup>	1.33×10 <sup>-3</sup>	1.33	1.32×10 <sup>-3</sup>	1	1	1.93×10 <sup>-3</sup>
PSI	6895	7.03×10 <sup>-2</sup>	6.90×10 <sup>-2</sup>	68.95	6.81×10 <sup>-2</sup>	51.715	51.715	1

附录三：温度单位换算表

	K	°C	°F
1 K=	1	C+273.15	5/9*(F+459.67)
1 °C=	K-273.15	1	1
1 °F=	9/5-459.67	9/5 +32	5/9*(F-32)

附录四：长度单位换算表

	m	ft	in
1 m=	1	3.28	3.9×10
1 ft=	3.1×10 <sup>-1</sup>	1	1.2×10
1 in=	3.1×10 <sup>-2</sup>	8.3×10 <sup>-2</sup>	1

附录五: 流导和漏率单位换算表

	$\mu\text{m}^3/\text{s}$	$\text{mbar}\cdot\text{l}\cdot\text{s}$	$\text{l torr}\cdot\text{s}$	sccm
1 $\text{pa}\cdot\text{m}^3/\text{s} =$	1	10	7.5	$5.92 \times 10^{-2}$
1 $\text{mbar}\cdot\text{l}\cdot\text{s} =$	$1 \times 10^{-1}$	1	$7.5 \times 10^{-1}$	5.92x10
1 $\text{torr}\cdot\text{l}\cdot\text{s} =$	$1.33 \times 10^{-2}$	$1.33 \times 10^{-2}$	1	7.89x10
1 sccm =	$1.69 \times 10^{-2}$	$1.69 \times 10^{-2}$	$1.27 \times 10^{-3}$	1

附录六: 抽速单位换算表

	$\text{pa}\cdot\text{m}^3/\text{s}$	$\text{l}/\text{min}$	$\text{m}^3/\text{h}$	$\text{cft}/\text{min}$
1 $\text{l}/\text{m} =$	1	60	3.6	2.12
1 $\text{l}/\text{min} =$	$1.67 \times 10^{-2}$	1	$6 \times 10^{-2}$	$3.54 \times 10^{-2}$
1 $\text{m}^3/\text{h} =$	$2.8 \times 10^{-1}$	$1.67 \times 10^{-1}$	1	$5.9 \times 10^{-1}$
1 $\text{cft}/\text{min} =$	$4.7 \times 10^{-1}$	$2.83 \times 10^{-1}$	1.69	1

附录七: 20°C 空气中不同压力下的分子平均自由程

	1	$10^{-3}$	$10^{-4}$	$10^{-5}$	$10^{-6}$	$10^{-9}$
1 $P(\text{torr}) =$	1	$10^{-3}$	$10^{-4}$	$10^{-5}$	$10^{-6}$	$10^{-9}$
1 $\lambda(\text{cm}) =$	$4.72 \times 10^{-3}$	4.72	$4.72 \times 10$	$4.72 \times 10^2$	$4.72 \times 10^3$	$4.72 \times 10^8$

附录八: 不同压强下的分子密度

	1	$10^{-3}$	$10^{-4}$	$10^{-5}$	$10^{-6}$	$10^{-9}$
1 $P(\text{torr}) =$	1	$10^{-3}$	$10^{-4}$	$10^{-5}$	$10^{-6}$	$10^{-9}$
1 $\lambda(\text{cm}) =$	$4 \times 10^6$	$4 \times 10^{13}$	$4 \times 10^{12}$	$4 \times 10^{11}$	$4 \times 10^{10}$	$4 \times 10^7$

## 附录九: 真空泵选择公式

$$T=(V/S) \times 2.303 \times \log(P1/P2)$$

T:抽气时间(s), V:被抽腔体容积(L), S:抽气速度(L/s), P1:起始压力(Pa), P2:达到压力(Pa)。

例如:

1.100 升腔体, 需要10 分钟从大气抽到 20Pa, 如何选择真空泵?

$$S=(V/T) \times 2.303 \times \log(P1/P2)$$

$$=(100/10) \times 2.303 \times \log(100000/20)$$

$$=10 \times 2.303 \times 3.699=85(L/min)$$

=1.42(L/s), 需要选择4L/s的真空泵。

2.100 升腔体, 用8L/s 真空泵, 从大气抽到 200Pa, 需要多长时间?

$$T=(V/S) \times 2.303 \times \log(P1/P2)$$

$$=(100/8) \times 2.303 \times \log(100000/200)$$

$$=77s, \text{抽气时间需要77秒。}$$

## 附录十: 抽气时间估算公式

$$T=8V/S$$

V:被抽腔体容积(升), S:抽气速度(升/秒), (适合大气到133Pa压力范围)。

例如:

100 升腔体, 用8L/s 真空泵, 从大气抽到 133Pa, 需要用多长时间?

$$T=8V/S=8 \times 100/8=100s, \text{抽气时间需要100秒。}$$

## 附录十一: 真空表读数与绝对真空度的换算

绝对真空度 $P \approx 100,000 \times (1 - \phi / 0.1) Pa$ ,  $\phi$ :真空表读数的绝对值。

例如:真空表读数为-0.075, 则绝对真空度 $P \approx 100,000 \times (1 - 0.075/0.1) \approx 25,000 Pa$

真空表读数为-0.097, 则绝对真空度 $P \approx 100,000 \times (1 - 0.097/0.1) \approx 3,000 Pa$

真空表读数为-685mmHg, 则绝对真空度 $P \approx 100,000 \times (1 - 685/760) \approx 10,500 Pa$

真空表读数为-700mmHg, 则绝对真空度 $P \approx 100,000 \times (1 - 700/760) \approx 7,800 Pa$

