

Power Feedthroughs, Low and High Voltage, Multi-way and Ceramic Breaks

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Molybdenum, Stainless Steel and Copper Conductors



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Power Feedthroughs rated at up to 5KV and up to 20 A
 Stainless Steel, Nickel and Copper Conductor



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 Copper, Copper Tube Conductor and Screw-on contacts



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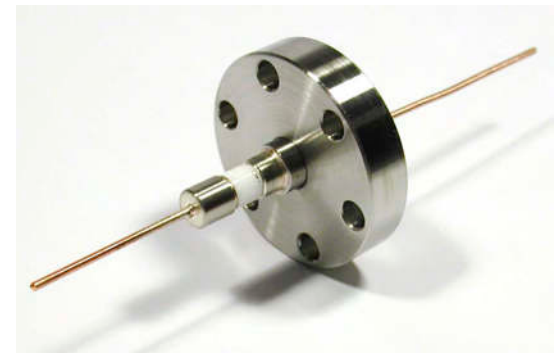
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Crimps, Push-ons, Screw-ons and Clamps

- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
- 6 Cables Accessories
- 7 Viewports Fiberoptic
- 8 Valves
- 9 Motion Manipulation
- 10 Process Control
- 11 CF Hardware
- 12 KF Hardware
- 13 ISO-K Hardware
- 14 Adaptors Specials
- 15 HV / UHV Chambers
- 16 Atlas Bi-Metal

Power Feedthroughs – low voltage types 500V & 1KV

- Choice of Conductor Materials: Molybdenum, Stainless Steel, Nickel or Copper
- 500 Volt types are very small and ideal when space is limited
- 1KV types are for general purpose instrumentation use
All conductor materials and all flange types are available even if not shown in the product tables



General Specification 500V types

Vacuum	UHV (leak rate <math>< 5 \times 10^{-10}</math> mbar l/s)
Materials	SS, Ceramic
Temp.	-200°C to 450°C
Electrical	500V, 8A max per Pin
Pin- \varnothing	0.8 mm
Pin material	Molybdenum (Cu, Ni, SS optional)
Weld \varnothing	1 Pin type 3.9 mm 2 & 4 Pins types 12.6 mm 8 Pin type 19 mm
Crimps	use 360-CRF-07-10

500V 8A Molybdenum Conductor Conductor 0.8 mm

FLANGE	PINS	PART NUMBER
WELD	1	261-08MO500
WELD	2	264-08MO500-2
WELD	4	264-08MO500-4
WELD	8	264-08MO500-8
16CF	2	264-08MO500-2-C16
16CF	4	264-08MO500-4-C16
16CF	8	264-08MO500-8-C16

Note: also available with Copper (12A), Nickel (4A), Stainless Steel (1A) and Constantan (2A) conductors

General Specification 1KV types

Vacuum	UHV (leak rate <math>< 5 \times 10^{-10}</math> mbar-l/s)
Materials	SS, Ceramic
Temp.	-200°C to 450°C
Electrical	1KV, max current see below
Pin- \varnothing	1.3 mm
Pin material	SS, Cu or Kovar
Current SS	1 A max per pin
Current Cu	20 A max per pin
Current Kovar	7 A max per pin
Weld \varnothing	1 Pin type 6.3 mm 2 to 8 Pin types 19 mm
Crimps	use 360-CRIMP-1.3

1KV 1A Stainless Steel Conductor Conductor 1.3 mm (8 pin vers. Kovar rated 7A)

FLANGE	PINS	PART NUMBER
WELD	1	261-13SS1K
WELD	2	264-13SS1K-2
WELD	4	264-13SS1K-4
WELD	8*	264-13KO1K-8
16CF	2	264-13SS1K-2-C16
16CF	4	264-13SS1K-4-C16
16CF	8*	264-13KO1K-8-C16
16KF	2	264-13SS1K-2-K16
16KF	4	264-13SS1K-4-K16
16KF	8*	264-13KO1K-8-K16

Note: feedthroughs marked * are also available with stainless steel tubes

1KV 20A Copper Conductor Conductor 1.3 mm

FLANGE	PINS	PART NUMBER
WELD	1	261-13CU1K
WELD	2	264-13CU1K-2
WELD	4	264-13CU1K-4
WELD	8	264-13CU1K-8
16CF	2	264-13CU1K-2-C16
16CF	4	264-13CU1K-4-C16
16CF	8	264-13CU1K-8-C16
16KF	2	264-13CU1K-2-K16
16KF	4	264-13CU1K-4-K16
16KF	8	264-13CU1K-8-K16

Note: also available with Nickel (7A) conductors



8 pin 500V version on 16CF (left) and 1KV version (right) with copper pin

CRYOGENIC OPTION: Versions with Constantan Pins for use at liquid Helium temperature are available. The current rating is 2A. Please ask for details.

Power Feedthroughs rated at up to 5KV & up to 20 A

- Stainless Steel, Nickel and Copper Conductors with a diameter of 1.3mm.
- Single Pin weldables
- up to 4 Pins on 16CF /16 KF Flanges

Custom arrangements on choice of flanges upon request



General Specification 5KV types

Vacuum	UHV (leak rate <math> < 5 \times 10^{-10}</math> mbar-l/s)
Materials	SS, Ceramic
Temp.	-200°C to 450°C
Electrical	5KV max current see below
Pin-ø	1.3 mm SS, Ni or Cu
Current Cu	20 A max per pin
Current Ni	7 A max per pin
Current SS	1 A max per pin
Weld-ø	1 pin type 6.3 mm
Weld-ø	2 or 4 pin types 19 mm
Crimps	use 360-CRIMP-1.3



261-13CU5K

For versions on 40CF and 40KF Flanges see next page!

5KV 20A Copper Conductor Conductor 1.3 mm

FLANGE	PINS	PART NUMBER
WELD	1	261-13CU5K
WELD	2	264-13CU5K-2
WELD	4	264-13CU5K-4
16CF	2	264-13CU5K-2-C16
16CF	4	264-13CU5K-4-C16
16KF	2	264-13CU5K-2-K16
16KF	4	264-13CU5K-4-K16

5KV 7A Nickel Conductor Conductor 1.3 mm

FLANGE	PINS	PART NUMBER
WELD	1	261-13NI5K
WELD	2	264-13NI5K-2
WELD	4	264-13NI5K-4
16CF	2	264-13NI5K-2-C16
16CF	4	264-13NI5K-4-C16
16KF	2	264-13NI5K-2-K16
16KF	4	264-13NI5K-4-K16

5KV 1A Stainless Steel Conductor Conductor 1.3 mm

FLANGE	PINS	PART NUMBER
WELD	1	261-13SS5K
WELD	2	264-13SS5K-2
WELD	4	264-13SS5K-4
16CF	2	264-13SS5K-2-C16
16CF	4	264-13SS5K-4-C16
16KF	2	264-13SS5K-2-K16
16KF	4	264-13SS5K-4-K16

- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
- 6 Cables Accessories
- 7 Viewports Fiberoptic
- 8 Valves
- 9 Motion Manipulation
- 10 Process Control
- 11 CF Hardware
- 12 KF Hardware
- 13 ISO-K Hardware
- 14 Adaptors Specials
- 15 HV / UHV Chambers
- 16 Atlas Bi-Metal

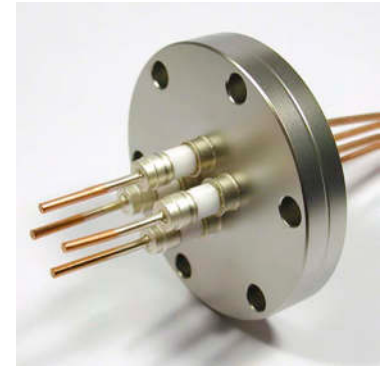
4.4 POWER: 5KV/ 10KV UP TO 30 A

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Power feedthroughs – 5KV and 10KV up to 30 A

- Stainless Steel, Nickel & Copper Conductors
- Up to 12 Pins on 40CF or 40KF flange
- Custom arrangements of Pins and Flange types upon request



264-24CU5K-4-C40

General Specification 5KV 30A types

Vacuum	UHV (leak rate <math> < 5 \times 10^{-10}</math> mbar-l/s)
Materials	SS, Ceramic
Temp.	-200°C to 450°C
Pin-ø	2.4 mm
Voltage	5KV
Current	30 A per pin CU 15 A per pin Ni
Weld-ø	11 mm
Connectors	use 360-CRIMP-2.4

5KV 30A Copper Conductor Conductor 2.4 mm

FLANGE	PINS	PART NUMBER
WELD	1	261-24CU5K
16CF	1	261-24CU5K-C16
16CF	2	264-24CU5K-2-C16
40CF	4	264-24CU5K-4-C40
40CF	8	264-24CU5K-8-C40
40CF	12	264-24CU5K-12-C40
16KF	1	261-24CU5K-K16
16KF	2	264-24CU5K-2-K16
40KF	4	264-24CU5K-4-K40
40KF	8	264-24CU5K-8-K40
40KF	12	264-24CU5K-12-K40

Note: also available with Nickel (15A) conductors

General Specification 10KV types

Vacuum	UHV (leak rate <math> < 5 \times 10^{-10}</math> mbar-l/s)
Materials	SS, Ceramic
Temp.	-200°C to 450°C
Pin-ø	2.4 mm
Voltage	10KV
Current	30 A per pin CU 15 A per pin Ni
Weld-ø	11 mm
Connectors	use 360-CRIMP-2.4

10KV 30A Copper Conductor Conductor 2.4 mm

FLANGE	PINS	PART NUMBER
WELD	1	261-24CU10K
16CF	1	261-24CU10K-C16
16CF	2	264-24CU10K-2-C16
40CF	4	264-24CU10K-4-C40
16KF	1	261-24CU10K-K16
16KF	2	264-24CU10K-2-K16
40KF	4	264-24CU10K-4-K40

Note: also available with Nickel (15A) conductors

5KV 100A Copper Conductor Conductor 4 mm

FLANGE	PINS	PART NUMBER
WELD	1	261-40CU5K
16CF	1	261-40CU5K-C16
40CF	1	261-40CU5K-C40
40CF	2	261-40CU5K-2-C40
25KF	1	261-261-40CU5K-K25
40KF	2	264-261-40CU5K-2-K40

Note: also available with Nickel (30A) conductors



261-24CU10K

*Crimps see page 4.14.
 Versions with air side Power Glove
 Cables on page 4.8!*

- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
- 6 Cables Accessories
- 7 Viewports Fiberoptic
- 8 Valves
- 9 Motion Manipulation
- 10 Process Control
- 11 CF Hardware
- 12 KF Hardware
- 13 ISO-K Hardware
- 14 Adaptors Specials
- 15 HV / UHV Chambers
- 16 Atlas Bi-Metal

High Current Feedthroughs to 1000A

High Current Feedthroughs are suitable for heaters, furnaces and Electron Beam Evaporation Sources.

A range of types is offered as weld adaptors or on KF or CF flanges.

Special arrangements on standard or custom flanges are available upon request.

For very high current a 1000 Ampere water cooled Feedthrough is offered.



Specification 5KV 150A types

Vacuum	UHV (leak rate <math> < 5 \times 10^{-10}</math> mbar-l/s)
Materials	SS, Ceramic
Temp.	-200°C to 450°C
Pin-ø	6.35 mm
Voltage	5KV
Current	150 A per pin CU 75 A per pin Ni 7 A per Pin SS
Weld-ø	15.8 mm
Connectors	use 360-PPO-6.6 / 360-PPO-6.4

**5KV 150A Copper Conductor
 Conductor 6.35 mm ø**

FLANGE	PINS	PART NUMBER
16CF	1	261-63CU5K-C16
40CF	2	264-63CU5K-2-C40
40CF	3	264-63CU5K-3-C40
40CF	4	264-63CU5K-4-C40
16KF	1	261-63CU5K-K16
40KF	2	264-63CU5K-2-K40
40KF	3	264-63CU5K-3-K40
40KF	4	264-63CU5K-4-K40

Also available with Nickel (75A) and stainless steel (7A) conductors

Specification 3KV 250A types

Vacuum	UHV (leak rate <math> < 5 \times 10^{-10}</math> mbar-l/s)
Materials	SS, Ceramic
Temp.	-200°C to 450°C
Electrical	3KV , 250 A
Pin-ø	9.65 mm Cu
Weld-ø	19mm
Clamps	360-CLAMP-9.6

**3KV 250A Copper Conductor
 Conductor 9.65 mm ø**

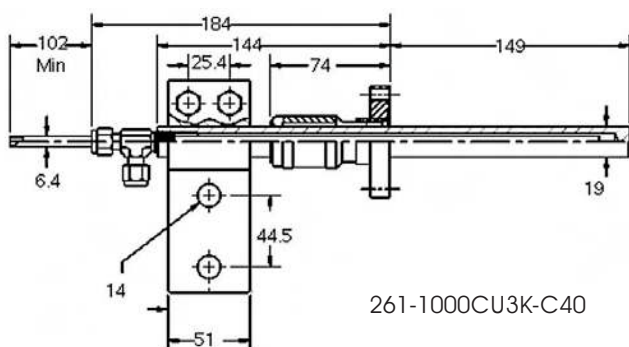
FLANGE	PINS	PART NUMBER
WELD	1	261-96CU3K
16CF	1	261-96CU3K-C16
16KF	1	261-96CU3K-K16
1" BOLT	1	261-96CU3K-BP

Specification 3KV 600A types

Vacuum	UHV (leak rate <math> < 5 \times 10^{-10}</math> mbar-l/s)
Materials	SS, Ceramic
Temp.	-200°C to 450°C
Electrical	3KV , 600 A
Pin-ø	19mm Cu
Weld-ø	28.5mm
Clamps	360-CLAMP-19

**3KV 600A Copper Conductor
 Conductor 19 mm ø**

FLANGE	PINS	PART NUMBER
WELD	1	261-190CU3K
40CF	1	261-190CU3K-C40
40KF	1	261-190CU3K-K40



**3KV 1000A Copper Tube Conductor
 Watercooled 1/4" (6.35 mm) Swagelock conn.**

FLANGE	PINS	PART NUMBER
40CF	1	261-1000CU3K-C40

- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
- 6 Cables Accessories
- 7 Viewports Fiberoptic
- 8 Valves
- 9 Motion Manipulation
- 10 Process Control
- 11 CF Hardware
- 12 KF Hardware
- 13 ISO-K Hardware
- 14 Adaptors Specials
- 15 HV / UHV Chambers
- 16 Atlas Bi-Metal

Multi-way Feedthroughs with MS Circular Sockets

- A range of Multi-way Feedthroughs with 10/ 23 or 40 Amps per Pin
- MS Circular Screw-On Sockets included
- MS sockets comply with MIL-C-5015
- Double Sided option on request



Specification MS 10 Amps 700 Volts

Vacuum	UHV (leak rate <math>< 5 \times 10^{-10}</math> mbar l/s)
Materials	SS, Ceramic
Air side Socket	MS Circular included
Temp.	-200°C to 450°C (without conn.)
Electrical	700V DC, 10 Amp max per Pin
Pin- ϕ	1.4 mm Alumel
Crimps	use 360-CRIMP-1.3/ 360-CRBC-1.4

700V 10A Multi-way 4 to 35 Alumel Cond. 1.4 mm includes MS Circular Air Side Socket

FLANGE	PINLENGTH	PINS	PART NUMBER
16CF	66.5	4	221-10AL700-4-C16
16CF	66.5	6	221-10AL700-6-C16
40CF	78	6	221-10AL700-6-C40
16CF	66.5	10	221-10AL700-10-C16
40CF	78	10	221-10AL700-10-C40
40CF	87	20	221-10AL700-20-C40
40CF	52	35	221-10AL700-35-C40
16KF	66.5	4	221-10AL700-4-K16
16KF	66.5	6	221-10AL700-6-K16
16KF	66.5	10	221-10AL700-10-K16
40KF	88	20	221-10AL700-20-K40
40KF	51	35	221-10AL700-35-K40

Note: all MS types are also available double sided
 Note: available as weldables to order



Double sided 4-pin Version on 40CF, these versions are available on request

Specification MS 23 Amps 700 Volts

Vacuum	UHV (leak rate <math>< 5 \times 10^{-10}</math> mbar l/s)
Materials	SS, Ceramic
Air side Socket	MS Circular included
Temp.	-200°C to 450°C (without conn.)
Electrical	700V DC, 23 Amps max per Pin
Pin- ϕ	2.4 mm Copper
Crimps	use 360-CRIMP-2.4

700V 23A Multi-way 2 to 8 Copper Cond. 2.4 mm includes MS Circular Air Side Socket

FLANGE	PINS	PART NUMBER
40CF	2	221-23CU700-2-C40
40CF	3	221-23CU700-3-C40
40CF	4	221-23CU700-4-C40
40CF	5	221-23CU700-5-C40
40CF	7	221-23CU700-7-C40
40CF	8	221-23CU700-8-C40

Note: also available with Nickel(15A) conductors



221-40MO700-4-C40

Specification MS 40 Amps 700 Volts

Vacuum	UHV (leak rate <math>< 5 \times 10^{-10}</math> mbar l/s)
Materials	SS, Ceramic
Air side Socket	MS Circular included
Temp.	-200°C to 450°C (without conn.)
Electrical	700V DC, 40 Amp max per Pin
Pin- ϕ	3.6 mm Molybdenum
Push-ons	use 360-PPO-4

700V 40A Multi-way 2 & 4 Molybdenum Cond. 3.6mm includes MS Circular Air Side Socket

FLANGE	PINS	PART NUMBER
40CF	2	221-40MO700-2-C40
40CF	4	221-40MO700-4-C40
40KF	2	221-40MO700-2-K40
40KF	4	221-40MO700-4-K40

Note: available as weldables to order

Note: also available with Nickel (25A) conductors

High voltage 12KV with MS circular sockets

- A range of High Voltage Multi-way Feedthroughs with 7.5 Amps per Pin
- MS Circular Screw-On Sockets included for the Air Side
- MS sockets comply with MIL-C-5015

Vacuum Side Sockets are available for 40CF versions. Please ask Sales Office for details.

General Specification 267-075HV

Vacuum	UHV
Compatible	MIL-C-5015
Pin-ø	1.3 mm
Pin material	Mo
Socket	MS circular socket
Leak rate	<5x10 ⁻¹⁰ mbar-l/s
Temp.	-200°C to 450°C
Test-Voltage	12KV DC
Current	7.5 A max per pin
Crimps	360-CRBC-1.3

12KV 7.5A Multi-way 2 to 7 conductors, 1.3 mm includes MS circular air side socket

FLANGE	PINS	PART NUMBER
16CF	2	267-075HV12K-2-C16
16CF	4	267-075HV12K-4-C16
16CF	7	267-075HV12K-7-C16
40CF	2	267-075HV12K-2-C40
40CF	4	267-075HV12K-4-C40
40CF	7	267-075HV12K-7-C40
16KF	2	267-075HV12K-2-K16
16KF	4	267-075HV12K-4-K16
16KF	7	267-075HV12K-7-K16
40KF	2	267-075HV12K-2-K40
40KF	4	267-075HV12K-4-K40
40KF	7	267-075HV12K-7-K40

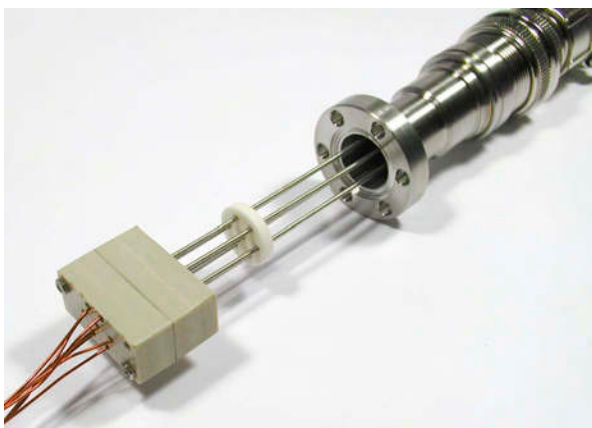
Crimps Beryllium Copper For Conductor 1.3 mm

SIZE	No PER PKT.	PART NUMBER
1.3 mm	10	360-CRBC-1.3

Vacuum side Connector for 12KV F/T, 2 to 7 pins, FITS 40CF Feedthrough

Pins	Qty.	PART NUMBER
2-4	1	267-CON12K-4
7	1	267-CON12K-7

Crimp pins are included



Vacuum side connector 267-CON12K-7. The connector will not fit through a 16CF flange, so it must be fitted from the vacuum side after installation. Alternatively a 40CF flange can be used.



- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
- 6 Cables Accessories
- 7 Viewports Fiberoptic
- 8 Valves
- 9 Motion Manipulation
- 10 Process Control
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Power Glove Feedthroughs 5KV to 10KV

- A new design of High Voltage 5KV and 10 KV Feedthrough
- Air side cables and High Voltage Glove with 2.4 m length included
- 1, 2 or 4 Pins option on 40CF flange
- Supplied on CF, KF or custom flange designs



General Specification 265-025 (CU/ NI/ SS) 5K

Vacuum	UHV
Pin-ø	2.4 mm
Pin material	Cu, Ni or SS
Air cable	High Voltage Power Glove 2.4m
Leak rate	<5 x 10 ⁻¹⁰ mbar l/s
Temp.	-200°C to 450°C without cable
Test-Voltage	5KV DC
Test-Resistivity	>1GΩ (pins to ground)
Current	Cu: 25A max per pin Ni: 15A max per pin SS: 1A max per pin
Connectors	360-CRIMP-2.4 / 360-PPO-2.4
Weld-ø	11 mm

5KV Power Glove Feedthroughs, Copper cond. 25A includes 2.4 m Air side cable

FLANGE	PINS	PART NUMBER
WELD	1	265-025CU5K
16CF	1	265-025CU5K-C16
40CF	2	265-025CU5K-2-C40
40CF	4	265-025CU5K-4-C40

5KV Power Glove Feedthroughs, Nickel cond. 15A includes 2.4 m Air side cable

FLANGE	PINS	PART NUMBER
WELD	1	265-015NI5K
16CF	1	265-015NI5K-C16
40CF	2	265-015NI5K-2-C40
40CF	4	265-015NI5K-4-C40

5KV Power Glove Feedthroughs, Stainless St. cond. 1A includes 2.4 m Air side cable

FLANGE	PINS	PART NUMBER
WELD	1	265-001SS5K
16CF	1	265-001SS5K-C16
40CF	2	265-001SS5K-2-C40
40CF	4	265-001SS5K-4-C40

General Specification 265-025 (CU/ NI/ SS) 10K

Vacuum	UHV
Pin-ø	2.4 mm
Pin material	Cu, Ni or SS
Air cable	High Voltage power Glove 2.4 m
Leak rate	<5x10 ⁻¹⁰ mbar l/s
Temp.	-200°C to 450°C without cable
Test-Voltage	10KV DC
Test-Resistivity	>1GΩ (pins to ground)
Current	Cu: 25A max per pin Ni: 15A max per pin SS: 1A max per pin
Connectors	360-CRIMP-2.4 / 360-PPO-2.4
Weld-ø	11 mm

10KV Power Glove Feedthroughs, Nickel cond. 15A includes 2.4 m Air side

FLANGE	PINS	PART NUMBER
WELD	1	265-015NI10K
16CF	1	265-015NI10K-C16
40CF	2	265-015NI10K-2-C40
40CF	4	265-015NI10K-4-C40

10KV Power Glove Feedthroughs, Copper cond. 25A includes 2.4 m Air side cable

FLANGE	PINS	PART NUMBER	EURO
WELD	1	265-025CU10K	
16CF	1	265-025CU10K-C16	
40CF	2	265-025CU10K-2-C40	
40CF	4	265-025CU10K-4-C40	

Note: also available with Stainless Steel (1A) conductors

Power Glove Feedthroughs 20KV to 40KV

Power Glove High Voltage Feedthroughs include an Air Side insulating cover and 2.4 m of High Voltage Cable
 Power Glove Feedthroughs are available with Copper, Nickel or Stainless Steel conductors.

It is the users responsibility to ensure that electrical components are used in accordance with local regulations.



40KV Feedthrough with Cable

Specification 20KV Power Glove

Vacuum	UHV
Pin-ø	2.4 mm
Pin material	Cu, Ni or SS
Air cable	High Voltage power Glove 2.4m
Leak rate	<5 x 10 ⁻¹⁰ mbar l/s
Temp.	-200°C to 450°C without cable
Test-Voltage	20KV DC
Test-Resistivity	>1GΩ (pins to ground)
Current	Cu: 25A max per pin Ni: 15A max per pin SS: 1A max per pin
Crimps	360-CRIMP-2.4/ 360-PPO-2.4
Weld-ø	11 mm



265-025CU20K-4-C40



265-001SS20K-C40

Specification 40KV with cable

Vacuum	UHV
Materials	Straight Ceramic/SS
Leak rate	<5 x 10 ⁻¹⁰ mbar l/s
Pin-ø	1.6 mm
Pin material	SS
Air cable	9 m cable included
Test-Voltage	40KV DC pin to ground
Current	7A
Crimps	360-CRBC-1.6
Weld-ø	28.5 mm

20KV Power Glove Feedthroughs, Copper cond. 25A includes 2.4 m Air side cable

FLANGE	PINS	PART NUMBER
WELD	1	265-025CU20K
16CF	1	265-025CU20K-C16
40CF	2	265-025CU20K-2-C40
40CF	4	265-025CU20K-4-C40

Air side cable for Power Glove Feedthroughs

LENGTH	VOLTAGE	PART NUMBER
2.4 m	5 KV	265-CAB-5K
2.4 m	20 KV	265-CAB-20K*

* also useable for 10KV

20KV Power Glove Feedthroughs, Nickel cond. 15A includes 2.4 m Air side cable

FLANGE	PINS	PART NUMBER
WELD	1	265-015NI20K
16CF	1	265-015NI20K-C16
40CF	2	265-015NI20K-2-C40
40CF	4	265-015NI20K-4-C40

20KV Power Glove Feedthroughs, Stainless St. cond, 1A includes 2.4 m Air side cable

FLANGE	PINS	PART NUMBER
WELD	1	265-001SS20K
16CF	1	265-001SS20K-C16
40CF	2	265-001SS20K-2-C40
40CF	4	265-001SS20K-4-C40

40KV Feedthroughs, Stainless St. conductor 7A Air side connector and 9 m cable incl.

FLANGE	PINS	PART NUMBER
WELD	1	265-007SS40K
40CF	1	265-007SS40K-C40
40KF	1	265-007SS40K-K40

- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
- 6 Cables Accessories
- 7 Viewports Fiberoptic
- 8 Valves
- 9 Motion Manipulation
- 10 Process Control
- 11 CF Hardware
- 12 KF Hardware
- 13 ISO-K Hardware
- 14 Adaptors Specials
- 15 HV / UHV Chambers
- 16 Atlas Bi-Metal

High Voltage Feedthroughs – other types

High Voltage Feedthroughs are offered in ratings up to 60KV. They are not built for high currents as high voltage and high current are typically not used together.

Tube Feedthroughs (see Page 51) are suitable for liquid cooling applications and High Voltages where higher currents are necessary.



20KV Feedthroughs Nickel and Copper conductor Conductor 6.35 mm Fluted Ceramic

FLANGE	AMPS	PART NUMBER
40CF	75	266-075NI20K-C40
40CF	150	266-150CU20-C40

Weldable versions and KF versions available on request

Specification 20KV Fluted Ceramic

Vacuum	UHV (leak rate <math>< 5 \times 10^{-10}</math> mbar-l/s)
Materials	SS Ceramic
Temp.	-200°C to 450°C
Electrical	20KV, max current as below
Pin	6.35 mm Cu or Ni
Max. Current	Cu 150A Ni 75A
Connector	360-PIC-6.6 (for air and vacuum side)

30KV Feedthroughs, Stainless Steel and Copper cond. Conductor 2.4 mm

FLANGE	COND.	PART NUMBER
WELD	SS	266-003SS30K
40CF	SS	266-003SS30K-C40
40CF	Cu	266-030CU30K-C40

Specification 30KV Fluted Ceramic

Vacuum	UHV (leak rate <math>< 5 \times 10^{-10}</math> mbar-l/s)
Materials	SS Ceramic
Temp.	-200°C to 450°C
Electrical	30KV, max current as below
Pin	2.4 mm Cu or Ni or SS
Max. Current	Cu 30A SS 3A
Connector	360-PPO-2.4
Air Side	Threaded connection 1/4-28

30KV 50A Feedthrough - 2 PIN Conductors 2.4 mm

FLANGE	COND.	PART NUMBER
40CF	CU	266-050CU30K-2-C40



Specification 30KV Fluted Ceramic 2 Pin

Vacuum	UHV (leak rate <math>< 5 \times 10^{-10}</math> mbar-l/s)
Materials	SS Ceramic
Temp.	-200°C to 450°C
Electrical	30KV, 50A (max. 5KV pin to pin)
Pin	2 x copper, 2.4 mm
Connector	360-PPO-2.4
Air Side	Threaded connection 1/4-28

Specification 60KV Fluted Ceramic

Vacuum	UHV (leak rate <math>< 5 \times 10^{-10}</math> mbar-l/s)
Materials	SS Ceramic
Temp.	-200°C to 450°C
Electrical	60KV 3A per Pin
Pin	Vacuum 4mm
Push-on	360-PPO-4
Air Side	Threaded connection 1/4-28

60KV Feedthrough Stainless Steel conductor 3A Conductor 2.4 mm

FLANGE	PINS	PART NUMBER
63CF	1	266-003SS60K-C63

Sub-D
1
CM + DIL
F/T
2
Coax
F/T
3
Power
High Voltage
4
Thermo-
couple
5
Cables
Accessories
6
Viewports
Fiberoptic
7
Valves
8
Motion
Manipulation
9
Process
Control
10
CF
Hardware
11
KF
Hardware
12
ISO-K
Hardware
13
Adaptors
Specials
14
HV / UHV
Chambers
15
Al-
Metal
16

Baseplate Feedthroughs

Baseplate Feedthroughs are designed to fit through a 1"(25.4mm) hole and seal by compressing an O-Ring between 2 nuts.

Applications for these Feedthroughs include High Vacuum Coaters. Many of our Feedthroughs can be supplied as Baseplate types. This page shows a selection of those which are available.

General Specification OCTAL type

Vacuum	High Vacuum
Materials	SS, Ceramic, Viton O ring
Seal	1" (25.4mm) Bolt type
Plate thickness	32 mm max
Pins	8 Octal pattern
Electrical	1KV 5Amps per Pin
Connectors	Air and Vacuum Octal included

1KV 8 way Feedthrough Stainless Steel conductor includes Air and Vacuum Octal Connectors

SIZE	PINS	PART NUMBER
1" BOLT	8	221-005OCT1KV-8-BP



264-13CU1K-2-BP

Specification 1KV 20A Baseplate Feedthrough

Vacuum	High Vacuum
Materials	Stainless Steel, Viton O ring
Electrical	1 KV DC Max current as below
Seal	1" (25.4 mm) baseplate bolt
Plate thickness	32mm max
Pin material	1.3mm Cu (Ni or SS option)
Max. Current	Cu 20A Ni 7A SS 1A
Crimps	360-CRIMP-1.3
8 way Feedthrough has optionally SS tube or Ni conductors	

1KV 20A Baseplate Feedthrough Copper cond. 1.3mm Fits Baseplate with 1"(25.4mm) hole

SIZE	PINS	PART NUMBER
1" BOLT	2	264-13CU1K-2-BP
1" BOLT	4	264-13CU1K-4-BP
1" BOLT	8	264-13CU1K-8-BP

Also available with Stainless Steel tube and Nickel (7A) conductors



261-198CU3K-BP

Specification 250 A BP Feedthrough

Vacuum	High Vacuum
Seal	1" (25.4mm) baseplate bolt
Plate thickness	32mm max
Pin	Cu (3/8-16 thread both sides) ~9.6mm
Electrical	3KV, 250A

3KV 250A Baseplate Feedthrough Copper conductor includes air and vacuum side clamping nuts

SIZE	PINS	PART NUMBER
1" BOLT	1	261-198CU3K-BP



261-1000WC-BP

Specification 1000 A BP Feedthrough

Vacuum	High Vacuum
Seal	1" (25.4mm) baseplate bolt
Plate thickness	32mm max
Pin	Water Cooled Copper
Electrical	50V, 1000A

1000A Water Cooled Baseplate Feedthrough includes vacuum side clamping screw

SIZE	PINS	PART NUMBER
1" BOLT	1	261-1000WC-BP

See page 52 for vacuum Side Crimps

- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
- 6 Cables Accessories
- 7 Viewports Fiberoptic
- 8 Valves
- 9 Motion Manipulation
- 10 Process Control
- 11 CF Hardware
- 12 KF Hardware
- 13 ISO-K Hardware
- 14 Adaptors Specials
- 15 HV / UHV Chambers
- 16 Atlas Bi-Metal

High Voltage Cryogenic and Vacuum Breaks

- Small Tube Size Breaks for Gas and Liquid lines
- Cryogenic versions for use with Liquid Nitrogen
- Large sizes for System Isolation

N.B. If using Ceramic Breaks to join two Vacuum Systems while maintaining electrical isolation, the use of a bellows in addition to the Break is recommended. Stand-offs (see Page 51) for mounting high voltage items are suitable for use in air or vacuum. (In air the Maximum Voltage rating should be reduced by a factor of 2.5)



General Specification Ceramic Breaks

Vacuum	UHV
Ceramic	Al ₂ O ₃
Leak rate	< 5 x 10 ⁻¹⁰ mbar l/s
Temp.	-200°C to 450°C
Temp gradient	25°/ min Max
Test-Voltage	see Product Tables

5KV DC Cryogenic breaks Tube sizes 3/32" (2.4 mm), 1/8" (3.2 mm)

TUBE OD	LENGTH	PART NUMBER
3/32"(2.4)	58.4	271-CB-2.4
1/8"(3.2)	58.4	271-CB-3.2

10KV DC Cryogenic breaks Tube sizes 1/4"(6.35 mm) and 3/8"(9.5 mm)

TUBE OD	LENGTH	PART NUMBER
1/4"(6.35)	76.2	271-CB-6.4
3/8"(9.5)	76.2	271-CB-9.5

30KV Vacuum breaks 50.4mm long ceramic, I.D. 31.7 mm

FLANGE	LENGTH	PART NUMBER
38.1mm ø	97	271-CB30K-32
40CF	107	271-CB30K-32-C40
40KF	104	271-CB30K-32-K40

15KV Vacuum breaks 25.4 mm long ceramic, I.D. 16.0 mm

FLANGE	LENGTH	PART NUMBER
19mm ø	67	271-CB15K-16
16CF	92	271-CB15K-16-C16
16KF	92	271-CB15K-16-K16

30KV Vacuum breaks 117 mm long ceramic, I.D. 16.0 mm

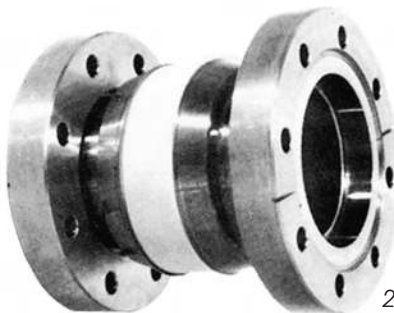
FLANGE	LENGTH	PART NUMBER
19mm ø	117	271-CB30K-16
16CF	117	271-CB30K-16-C16
16KF	117	271-CB30K-16-K16

35KV Vacuum breaks 60 mm long fluted ceramic

FLANGE	LENGTH	PART NUMBER
101mm ø	118	271-CB35K-85
100CF	135	271-CB35K-85-C100



271-CB-6.4



271-CB-10K-59-C63



271-CB-35K-85-C100

Also available 60KV version.
Please call our Sales Office.

- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
- 6 Cables Accessories
- 7 Viewports Fiberoptic
- 8 Valves
- 9 Motion Manipulation
- 10 Process Control
- 11 CF Hardware
- 12 KF Hardware
- 13 ISO-K Hardware
- 14 Adaptors Specials
- 15 HV / UHV Chambers
- 16 Atlas Bi-Metal

Ceramic Stand-offs, Tube Feedthroughs, High Voltage Vacuum Breaks

Ceramic Stand-offs enable items, which must be held at voltage, to be insulated from the chamber.



273-CSO-10-10



273-CSO-50-20

Specification Ceramic Stand-off Isolators

Material	Steatite (MgO)
Screws	SS
Voltage Vac	see table
Voltage Air	approx. 25% of Vacuum rating

Ceramic Stand-off isolators height excludes screws

KV	HEIGHT X DIAM	PART NUMBER
7KV	10 X 10	273-CSO-10-10
10KV	12.7 X 10	273-CSO-13-10
12KV	16 X 12.7	273-CSO-16-13
35KV	51 X 13	273-CSO-51-13
35KV	51 X 19	273-CSO-51-20

Tube Feedthroughs

Tube feedthroughs can be used to carry both current and water for water cooled components in the vacuum system.



272-TU6SS5K welding Version

Specification Tube Feedthroughs

Tube	6.35 mm OD SS tube
Leak rate	5×10^{-10} mbar l/s
Test-Voltage	5KV DC
Current	depends on water flow

5kV Tube feedthroughs

1/4" (6.35mm) OD Stainless Steel Tubes

FLANGE	No. OF TUBES	PART NUMBER
16CF	1	272-TU6SS5K-C16
40CF	2	272-TU6SS5K-2-C40
40CF	3	272-TU6SS5K-3-C40
40CF	4	272-TU6SS5K-4-C40

Note 1: also available with Copper and Nickel Tube conductors

Note 2: also available with KF flanges

High Voltage Vacuum Breaks up to 40KV

High Voltage vacuum breaks allow components to be coupled together with insulation of up to 40KV



271-CB-30K-51-C63

Specification 10kV to 40kV ceramic breaks

Vacuum	UHV
Materials	Ceramic, SS
Test Voltage DC	see Product table
I.D.	10KV : 7.9 mm 20KV: 23 mm 30KV: 51 mm 40KV: 61 mm

10KV to 40KV Vacuum Breaks

Straight Ceramic, Weldable Versions

TUBE Ø	LENGTH	VOLTAGE	PART NUMBER
12.9	39.4	10KV	271-CB10K-8
30.5	65.5	20KV	271-CB20K-23
60.3	85.3	30KV	271-CB30K-51
71.1	110.7	40KV	271-CB40K-61

10KV to 40KV Vacuum Breaks

Straight Ceramic, with CF Flanges

FLANGE	LENGTH	VOLTAGE	PART NUMBER
16CF	46.7	10KV	271-CB10K-8-C16
40CF	76.2	20KV	271-CB20K-23-C40
63CF	101.6	30KV	271-CB30K-51-C63
100CF	122.0	40KV	271-CB40K-61-C100

- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
- 6 Cables Accessories
- 7 Viewports Fiberoptic
- 8 Valves
- 9 Motion Manipulation
- 10 Process Control
- 11 CF Hardware
- 12 KF Hardware
- 13 ISO-K Hardware
- 14 Adaptors Specials
- 15 HV / UHV Chambers
- 16 Atlas Bi-Metal

Crimps, Connectors and Sockets

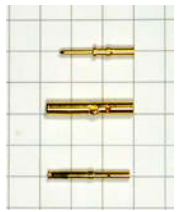
A full range of Crimps, Push-ons and Screw-on Connectors for electrical connection to the Air or Vacuum Side of Power Feedthroughs are offered.



Dimensions and Wire Maximum Sizes
 - all in mm



Wire ØMax	Crimp Length	Crimp Diam.	Material
0.4	12.5	1.4	Au plated Cu
0.8	13.3	1.7	Au plated Cu
1.0	13.7	2.2	Au plated Cu
1.0	13.7	2.2	Au plated Cu
1.3	28.5	3.8	Au plated Cu
1.7	15.0	4.9	Au plated Cu



Wire ØMax	Crimp Length	Crimp Diam.	Material
0.8	13.2	1.3	Au plated Cu
1.0	14.0	2.2	Au plated Cu
1.0	14.0	2.2	Au plated Cu
1.3	16.0	3.7	Au plated Cu



Wire ØMax	Be Cu	Crimp Length	Crimp Diam.	Material
1.7	19.0	2.6		BeCu
1.7	19.0	2.6		BeCu
1.7	19.0	2.6		BeCu



Wire ØMax	Push-on Length	Push-on Diam.	Material
1.27	17.5	6.4	BeCu
1.27	17.5	6.4	BeCu
1.27	17.5	6.4	BeCu
1.27	17.5	6.4	BeCu
2.44	25.4	12.7	BeCu



Wire ØMax	Screw & Nut Length	Push-on Diam.	Material
-	50	7	Ag plated Cu



Wire ØMax	Socket Length	Socket Diam.	Material
1.5	12.7	4.8	BeCu
1.8	12.7	4.8	BeCu
3.8	14.2	6.3	BeCu
3.0	16.0	6.3	BeCu
6.6	25.4	12.7	BeCu



Wire ØMax	Material
-	Cu Ag plated
-	Cu

Crimps Female fit to Feedthrough Pins Gold Plated Copper alloy

PIN SIZE	No PER PKT.	PART NUMBER
0.5 mm	10	360-CRF-05-10
0.7 - 0.8 mm	10	360-CRF-07-10
1.0 mm	10	212-PINF-10
1.0 mm	25	212-PINF-25
1.3 - 1.5 mm	5	360-CRIMP-1.3
2.3 - 2.4 mm	5	360-CRIMP-2.4

Male Crimps to fit Female Crimps Gold Plated Copper alloy

PIN SIZE	QTY	PART NUMBER
0.7 - 0.8mm	10	360-CRM-07-10
1.0mm	10	212-PINM-10
1.0mm	25	212-PINM-25
1.3 - 1.5mm	5	360-CRIMP-1.3-M

Power Crimps Beryllium Copper for Conductor 0.8, 1.3 and 1.6 mm

SIZE	No PER PKT.	PART NUMBER
0.8 mm	10	360-CRBC-0.8
1.3 mm	10	360-CRBC-1.3
1.6 mm	10	360-CRBC-1.6

Power Push-ons with Allen Screw Beryllium Copper

PIN SIZE	No PER PKT.	PART NUMBER
1.0 mm	10	360-PPO-1.0
1.3 mm	10	360-PPO-1.3
1.5 mm	10	360-PPO-1.5
2.4 mm	10	360-PPO-2.4
6.4 mm	2	360-PPO-6.4

Power Push-on with M5 screw and nut Silver plated copper alloy

PIN SIZE	No PER PKT.	PART NUMBER
4.0 mm	5	360-PPO-4.0

Power In-line Screw-on Sockets Beryllium Copper

MAX PIN SIZE	No PER PKT.	PART NUMBER
1.5 mm	10	360-PIC-1.5
1.8 mm	10	360-PIC-1.8
3.0 mm	10	360-PIC-3.0
3.4 mm	10	360-PIC-3.4
6.6 mm	10	360-PIC-6.6

Clamps for large conductors - 1 per packet Conductor from 2.0 to 19.0 mm

PIN SIZE	No PER PKT.	PART NUMBER
3.6 - 9.6 mm	1	360-CLAMP-9.6
19 mm (See P. 43)	1	360-CLAMP-19

- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
- 6 Cables Accessories
- 7 Viewports Fiberoptic
- 8 Valves
- 9 Motion Manipulation
- 10 Process Control
- 11 CF Hardware
- 12 KF Hardware
- 13 ISO-K Hardware
- 14 Adaptors Specials
- 15 HV / UHV Chambers
- 16 Atlas Bi-Metal

Thermocouple Feedthroughs, High Current, Combinations, Sockets and Wires



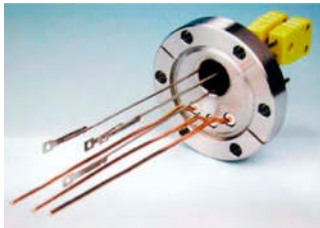
5.1 THERMOCOUPLE F/T TYPES K, N, C AND WIRES -> Page 5.2

Thermocouple Feedthroughs Types K, N and C
 Kapton Isolated Thermocouple wires
 Bare Thermocouple wires
 PTFE (Teflon) Isolated Thermocouple wires



5.2 THERMOCOUPLE F/T TYPES R, S, T AND WIRES -> Page 5.4

Thermocouple Feedthroughs TYPE R/S - with screw terminals
 Bare Thermocouple wires – NO JUNCTION - 1.5 m long
 Bare Thermocouple - with welded JUNCTION - 300 mm long



5.3 COMBINATION POWER/ THERMOCOUPLE F/T -> Page 5.5

Power Pins up to 30A
 Power Pins up to 150A

5.4 THERMOCOUPLE F/T WITH MS CIRCULAR SOCKETS -> Page 5.7

Thermocouple Feedthrough with MS Air Side Sockets



5.5 T/C Air Side Crimps -> Page 5.8

Thermocouple Sockets
 Screw & Nut Sets
 Thermocouple Crimps

Type	(+) Material	(-) Material	EMV $\mu\text{V/K}$	Temp Range	Socket Col.	Remarks
K	Chromel® Ni-Cr	Alumel® Ni-Al	41	-200°C... 1250°C	Yellow	Most common, (-) magnetic, Hysteresis effects 250-600°C
N	Nicrosil® Ni-Cr-Si	Nisil® Ni-Si	28	-250°C... 1300°C	Pink/ Orange	Best wide range element high stability
C	W5%Re	W26%Re	15	0°C ... 2320°C	Red	For high temperatures, no IEC element F/T with extension grade material
E	Chromel® Ni-Cr	Constantan® Cu-Ni	68	-200°C... 900°C	Violet	High EMV rarely used
J	Iron	Constantan® Cu-Ni	53	0°C... 750°C	Black	Old style TC
T	Cu	Constantan® Cu-Ni	43	-200°C... 350°C	Blue	Old style TC Cryo use
R	Pt13%Rh	Pt	6	0°C... 1450°C	---	Very high stability, expensive F/T with extension grade material
S	Pt10%Rh	Pt	7	0°C... 1450°C	---	Very high stability, expensive F/T with extension grade material

- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermocouple
- 6 Cables Accessories
- 7 Viewports Fiberoptic
- 8 Valves
- 9 Motion Manipulation
- 10 Process Control
- 11 CF Hardware
- 12 KF Hardware
- 13 ISO-K Hardware
- 14 Adaptors Specials
- 15 HV / UHV Chambers
- 16 Atlas Bi-Metal

Thermocouple Feedthroughs Type K, C and N

Thermocouple feedthroughs have pins made from the corresponding thermocouple pair materials. On the vacuum side the pins terminate with a screw connector (included). The (+) pole is 25 mm shorter than the (-) pole.

Miniature T /C Connectors are included for the Air Side. The Type-N feedthroughs use screw connectors for air and vacuum side similar to R/ S types (see page 56)



General Specification 262-TC (K, C or N)

Vacuum	UHV
Pin material	Type K,C* or N T/C
Pin length	(+) pole 25mm shorter than (-)pole
Leak rate	<5 x 10 ⁻¹⁰ mbar l/s
Temp.	-200°C to 450°C
Air sockets	Miniature TC Connector / Screw (N)
Vac side	Screw & nut
Weld-ø	1 to 3 pairs 19 mm 4 to 5 pairs 38 mm

* extension grade material with the same thermo-electric properties for type C only

Thermocouple Feedthroughs TYPE K 1 to 5 pairs including air side sockets

FLANGE	No OF PAIRS	PART NUMBER
16CF	1	262-TCK-1-C16
16CF	2	262-TCK-2-C16
16CF	3	262-TCK-3-C16
40CF	4	262-TCK-4-C40
40CF	5	262-TCK-5-C40
16KF	1	262-TCK-1-K16
16KF	2	262-TCK-2-K16
16KF	3	262-TCK-3-K16
40KF	4	262-TCK-4-K40
40KF	5	262-TCK-5-K40

Also available as weldables

Thermocouple Feedthroughs TYPE C 1 to 5 pairs including air side sockets

FLANGE	No OF PAIRS	PART NUMBER
16CF	1	262-TCC-1-C16
16CF	2	262-TCC-2-C16
16CF	3	262-TCC-3-C16
40CF	4	262-TCC-4-C40
40CF	5	262-TCC-5-C40
16KF	1	262-TCC-1-K16
16KF	2	262-TCC-2-K16
16KF	3	262-TCC-3-K16
40KF	4	262-TCC-4-K40
40KF	5	262-TCC-5-K40

Also available as weldables

Thermocouple Feedthroughs TYPE N 1 to 5 pairs including screw connectors

FLANGE	No OF PAIRS	PART NUMBER
16CF	1	262-TCN-1-C16
16CF	2	262-TCN-2-C16
16CF	3	262-TCN-3-C16
40CF	4	262-TCN-4-C40
40CF	5	262-TCN-5-C40
16KF	1	262-TCN-1-K16
16KF	2	262-TCN-2-K16
16KF	3	262-TCN-3-K16
40KF	4	262-TCN-4-K40
40KF	5	262-TCN-5-K40

Also available as weldables



262-TCC-1-C16

Pin Identification

K Type	
Temp. Range	-200°C to 1250°C
Pin length	+ pole (short) Chromel - pole (long) Alumel
Air side colour:	yellow
C Type	
Temp. Range	0°C to 2320°C
Pin length	+ pole (short) - pole (long)
Air side colour:	red
N Type	
Temp. Range	-250°C to 1300°C
Pin length	+ pole (short) Nicrosil - pole (long) Nisil screw connectors

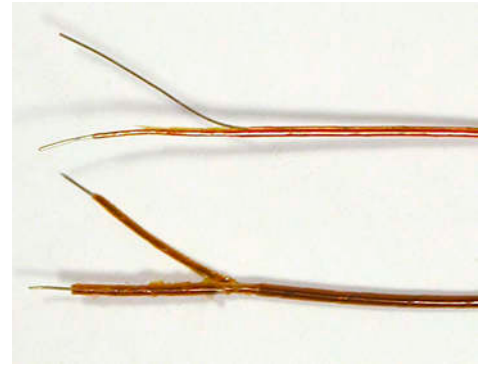
Thermocouple Wires Type K / N / C

For the most common types of Thermocouples, Allectra offers a variety of different thermocouple wires.

The standard wires come without TC connection at the end. As an option Allectra offers welded tips on bare or on the insulated wires. The tip can be left blank (best thermal contact) or electrically insulated with PTFE.

Single insulated
312-KAP-TCK (top)

Double insulated
311-KAP-TCK
(bottom)



General Specification 312-KAP-TC (K or N)

Vacuum	UHV
Material	Kapton coated T/C wire
Wire-ø	2 x 0.25 mm (max. OD 0.9 mm)
Temp.	-200°C to 250°C (higher Temperature when stripped)
Insulation	Kapton outer insulation, inside (+) wire blank, (-) wire insulated

General Specification 311-KAP-TC (K)

Vacuum	UHV
Material	Kapton double insulated T/C wire Cromel (+) = yellow Alumel (-) = red
Wire-ø	2 x 0.25 mm (max OD 1.3 mm)
Temp.	-200°C to 250°C
Insulation	Kapton outer insulation, inside (+) wire yellow, (-) wire red

General Specification 313-TC (K, C or N)

Vacuum	UHV
Material	Bare T/C wire
Wire-ø	2 x 0.25 mm or 2 x 0.13 mm
Insulation	none
TC junction	on request

General Specification 312-PTFE-TCK

Vacuum	UHV
Material	PTFE insulated K type
Wire-ø	2 x 0.5 mm (max OD 1.4 x 2.5mm)
Temp.	-200°C to 250°C
Insulation	PTFE
TC junction	on request

**Kapton Isolated Thermocouple wires – NO JUNCTION
Types K & N**

T/C TYPE	LENGTH	PART NUMBER
K	1 m	312-KAP-TCK-1M
K	5 m	312-KAP-TCK-5M
K	10 m	312-KAP-TCK-10M
N	1 m	312-KAP-TCN-1M
N	5 m	312-KAP-TCN-5M
N	10 m	312-KAP-TCN-10M

Note: Wires with junction made available on request

**Kapton Isolated Thermocouple wires – double insulated
NO JUNCTION - Types K**

T/C TYPE	LENGTH	PART NUMBER
K	1 m	311-KAP-TCK-1M
K	5 m	311-KAP-TCK-5M
K	10 m	311-KAP-TCK-10M

Note: Wires with junction made available on request

**Bare Thermocouple wires – NO JUNCTION - Types K, C & N
Original Material – No extension grade material**

T/C TYPE	LENGTH	PART NUMBER
K	1 m	313-TCK-025
C	30 cm	313-TCC-013*
N	1 m	313-TCN-025

Note: Wires with junction made available on request

* Wire diameter 0.13 mm, 0.25mm on request

**PTFE Isolated Thermocouple wires – NO JUNCTION
Type K**

T/C TYPE	LENGTH	PART NUMBER
K	1 m	312-PTFE-TCK-1M
K	5 m	312-PTFE-TCK-5M
K	10 m	312-PTFE-TCK-10M

**Type K Kapton Isolated Thermocouple wires
with welded tip junction**

TIP INSULATED	LENGTH	PART NUMBER
no	1 m	311-KAP-TCK-1-L
yes (PTFE)	1 m	311-KAP-TCK-1-X

also available in 2m length

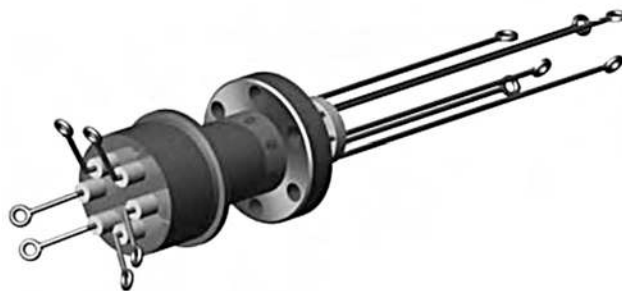
- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
- 6 Cables Accessories
- 7 Viewports Fiberoptic
- 8 Valves
- 9 Motion Manipulation
- 10 Process Control
- 11 CF Hardware
- 12 KF Hardware
- 13 ISO-K Hardware
- 14 Adaptors Specials
- 15 HV / UHV Chambers
- 16 Atlas Bi-Metal

Thermocouple Feedthroughs Type R/ S/ T

Thermocouple Wires for Type K/ C/ N/ R/ S

In addition to the popular K, N and C thermocouples, Allectra offers the special purpose R, S and T types. Types R and S share the same feedthrough pin material and the same F/T may be used in both cases.

Type T is particularly suitable for cryogenic applications. Additionally types E and J are available to order.



General Specification 262-TC (R or S)

Vacuum	UHV
Pin material	R – extension grade
Pin length	+ pole 25mm shorter than -pole
Leak rate	< 5 x 10 ⁻¹⁰ mbar l/s
Temp.	-200°C to 450°C
Test-Resistivity	>1GΩ (pins to ground)
Air sockets	screw loops
Vac side	screw loops
Weld-∅	1 to 3 pairs 19 mm 4 to 5 pairs 38 mm

Pin Identification

R/ S Type	
Temp.	0°C to 1450°C
Pin length	+ pole (short) R: Pt 13% Rh, S:Pt 10% Rh - pole (long) R and S: Pt
(F/T uses extension grade material)	
T Type	
Temp.	-200°C to 350°C
Pin length	+ pole (short) Cu - pole (long) Constantan

General Specification 313-TC (K, C or N)

Vacuum	UHV
Material	Bare TC wire
Wire-∅	2 x 0.25 mm or 2 x 0.13 mm
Temp.	see table page 53
Insulation	none
T/C junction	standard type: None included in JOINT type

Thermocouple Feedthroughs Type R/S with screw terminals

FLANGE	No OF PAIRS	PART NUMBER
16CF	1	262-TCR-1-C16
16CF	2	262-TCR-2-C16
16CF	3	262-TCR-3-C16
40CF	4	262-TCR-4-C40
40CF	5	262-TCR-5-C40
16KF	1	262-TCR-1-K16
16KF	2	262-TCR-2-K16
16KF	3	262-TCR-3-K16
40KF	4	262-TCR-4-K40
40KF	5	262-TCR-5-K40

Note 2 : also available for Thermocouples type T
 Note 1 : also available as weldables

Bare Thermocouple wires – NO JUNCTION (1.5 m long) Types R & S - Original Material – Not extension grade

T/C TYPE	DIAMETER	PART NUMBER
R	0.13 mm	313-TCR-013
R	0.25 mm	313-TCR-025
S	0.13 mm	313-TCS-013
S	0.25 mm	313-TCS-025

Note: Wires with junction made available on request

Bare Thermocouple JOINT (300 mm long) Types K/ C/ N

T/C TYPE	DIAMETER	PART NUMBER
K	0.25 mm	313-TCK-JOINT
C	0.25 mm	313-TCC-JOINT
N	0.25 mm	313-TCN-JOINT

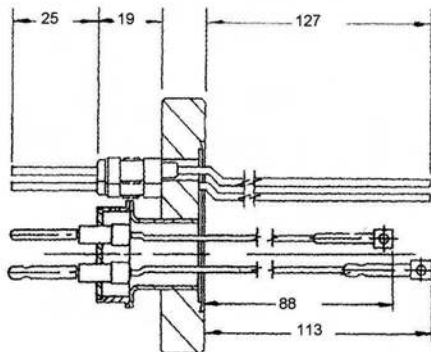
Combination Power/ Thermocouple Feedthroughs

Combination Feedthroughs are intended for heaters where both power leads and temperature measurement are required.

Combination Feedthroughs are offered with either Nickel or Copper conductors and either K or C type thermocouple connections.

Specification Combination T/C Power F/T

Vacuum	UHV
T/C type	K or C
Power pins	Copper/ Nickel
Pin-ø	1.3mm or 2.4mm
Leak rate	$<5 \times 10^{-10}$ mbar l/s
Temp.	-200°C to 450°C
Air sockets	T/C conductor included
Vac side	Screw & nut for T/C
Power pins	use 360-PPO-1.3 or 360-PPO-2.4



263-TCK-1-CU30-2-C16



263-TCK-1-NI05-2-C16



263-TCK-1-NI15-2-C16

2 Power Pins 1KV 15A + 1 Thermocouple F/T COPPER Conductor 1.3 mm -

FLANGE	T/C TYPE	PART NUMBER
16CF	K	263-TCK-1-CU15-2-C16
16CF	C	263-TCC-1-CU15-2-C16
16KF	K	263-TCK-1-CU15-2-K16
16KF	C	263-TCC-1-CU15-2-K16

2 Power Pins 5KV 30A + 1 Thermocouple F/T COPPER Conductor 2.4 mm

FLANGE	T/C TYPE	PART NUMBER
16CF	K	263-TCK-1-CU30-2-C16
16CF	C	263-TCC-1-CU30-2-C16
16KF	K	263-TCK-1-CU30-2-K16
16KF	C	263-TCC-1-CU30-2-K16

2 Power Pins 1KV 5A + 1 Thermocouple F/T NICKEL Conductor 1.3 mm

FLANGE	T/C TYPE	PART NUMBER
16CF	K	263-TCK-1-NI05-2-C16
16CF	C	263-TCC-1-NI05-2-C16
16KF	K	263-TCK-1-NI05-2-K16
16KF	C	263-TCC-1-NI05-2-K16

2 Power Pins 5KV 15A + 1 Thermocouple F/T NICKEL Conductor 2.3 mm

FLANGE	T/C TYPE	PART NUMBER
16CF	K	263-TCK-1-NI15-2-C16
16CF	C	263-TCC-1-NI15-2-C16
16KF	K	263-TCK-1-NI15-2-K16
16KF	C	263-TCC-1-NI15-2-K16

- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermocouple
- 6 Cables Accessories
- 7 Viewports Fiberoptic
- 8 Valves
- 9 Motion Manipulation
- 10 Process Control
- 11 CF Hardware
- 12 KF Hardware
- 13 ISO-K Hardware
- 14 Adaptors Specials
- 15 HV / UHV Chambers
- 16 Atlas Bi-Metal

5.6 COMBINATION: HIGH CURRENT

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 F: fr@allectra.com



Combination Power/ Thermocouple Feedthroughs-High Current Types

The high current types shown below are intended for applications where currents of up to 150 Amps are necessary together with temperature measurement. These feedthroughs may be used for Vacuum Furnaces.



5KV, 60 or 150A, 2 or 3 Power Pins + 1 Thermocouple COPPER Conductor on DN40CF

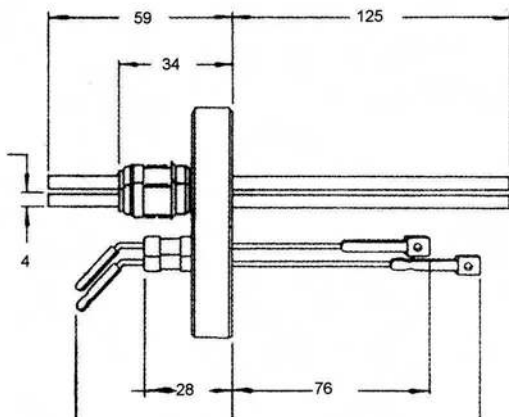
MAX AMPS	T/C TYPE	PART NUMBER
3 x 60A	K	263-TCK-1-CU60-3-C40
3 x 60A	C	263-TCC-1-CU60-3-C40
2 x 150A	K	263-TCK-1-CU150-2-C40
2 x 150A	C	263-TCC-1-CU150-2-C40

Specification Combination High Current - T/C

Vacuum	UHV
T/C type	K or C
Power pins	Copper
Pin-ø	30A pin 2.4 mm 60A pin 4.0 mm 150A pin 6.35 mm
Leak rate	<5 x 10 ⁻¹⁰ mbar l/s He
Temp.	-200°C to 450°C
Air sockets	T/C connectors included
Vac side	Screw & nut for T/C
Power pins	use 360-PPO-2.4 or 360-PPO-4 or 360-PIC-6.6



263-TCK-1-CU150-2-C40



263-TCK-1-CU60-2-C40

5KV 30, 60 or 150A, 2 or 3 Power Pins + 2 Thermocouple COPPER Conductor on DN40CF

MAX AMPS	T/C TYPE	PART NUMBER
3 x 30A	2 x K	263-TCK-2-CU30-3-C40
3 x 30A	2 x C	263-TCC-2-CU30-3-C40
3 x 60A	2 x K	263-TCK-2-CU60-3-C40
3 x 60A	2 x C	263-TCC-2-CU60-3-C40
2 x 150A	2 x K	263-TCK-2-CU150-2-C40
2 x 150A	2 x C	263-TCC-2-CU150-2-C40



263-TCK-2-CU60-3-C40

- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
- 6 Cables Accessories
- 7 Viewports Fiberoptic
- 8 Valves
- 9 Motion Manipulation
- 10 Process Control
- 11 CF Hardware
- 12 KF Hardware
- 13 ISO-K Hardware
- 14 Adaptors Specials
- 15 HV / UHV Chambers
- 16 Atlas Bi-Metal

Thermocouple Feedthroughs with MS Circular Sockets

The MS circular connector is a very robust industrial grade socket. Up to 10 pairs of K type thermocouples are available in one MS style feedthrough.

Air Side MS Connector included.

Vacuum side crimp pins available - on page 60.

Double sided types with MS Sockets on the air and vacuum side are available to order.



General Specification 263-TCK-MS

Vacuum	UHV
Pin material	Chromel / Alumel
Leak rate	$< 5 \times 10^{-10}$ mbar l/s
Temp.	-200°C to 450°C
MS Socket max	125°C
Air sockets	MS circular socket included
Vac side	1.4 mm pins



263-TCK-MS-2-C16

Thermocouple F/T with MS Circular Air Side Sockets Type K

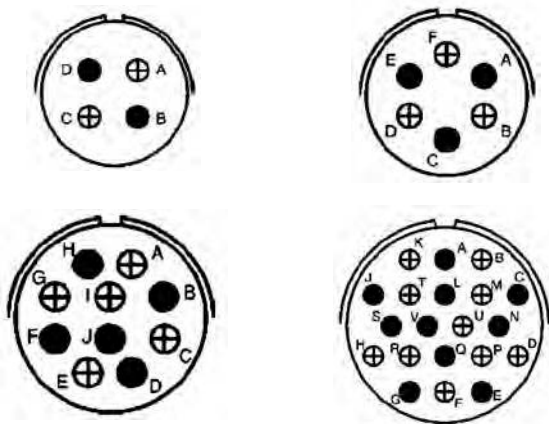
FLANGE	No OF PAIRS	PART NUMBER
16CF	2	263-TCK-MS-2-C16
16CF	3	263-TCK-MS-3-C16
16CF	5	263-TCK-MS-5-C16
40CF	2	263-TCK-MS-2-C40
40CF	3	263-TCK-MS-3-C40
40CF	5	263-TCK-MS-5-C40
40CF	10	263-TCK-MS-10-C40
16KF	2	263-TCK-MS-2-K16
16KF	3	263-TCK-MS-3-K16
16KF	5	263-TCK-MS-5-K16
40KF	2	263-TCK-MS-2-K40
40KF	3	263-TCK-MS-3-K40
40KF	5	263-TCK-MS-5-K40
40KF	10	263-TCK-MS-10-K40

Note 1 : also available as weldables

Note 2 : also available as double sided versions

Note 3: also available for T/C types E and J

Thermocouple Crimps for the Vacuum Side - see Page 60.



Polarity for TC Pins

View from the Air Side,

Black Pins: Chromel, Cross Marked Pins: Alumel

TOP ROW 2 and 3 Pairs,

LOWER ROW 5 and 10 pairs



361-TCRIMP-CR

- 1 Sub-D
- 2 CM + DIL F/T
- 3 Coax F/T
- 4 Power High Voltage
- 5 Thermo-couple
- 6 Cables Accessories
- 7 Viewports Fiberoptic
- 8 Valves
- 9 Motion Manipulation
- 10 Process Control
- 11 CF Hardware
- 12 KF Hardware
- 13 ISO-K Hardware
- 14 Adaptors Specials
- 15 HV / UHV Chambers
- 16 Atlas Bi-Metal

T/C Feedthrough Air Side Sockets

Vacuum Side Sockets & Crimps

Standard Air Side T/C Sockets can be used up to 125°C High Temperature Air side Sockets up to 650°C are also offered. These ceramic versions can be used on the vacuum side as well. Ceramic plugs are available on request.



General Specification Sockets

Standard Type

Vacuum Air use only
 TC type K, C, N, J or E
 Temperature 125°C max.
 Male connectors available on request

Ceramic Type

Vacuum UHV
 TC type K, C, N
 Temperature 650°C max.
 Male connectors available on request



361-TCRIMP-CR

N.B. Thermocouple Feedthroughs include Air Side connectors. However, vacuum Side Crimps are not included and should be ordered separately.

See table on page 5.1.

General Specification Thermocouple Crimps

Vacuum UHV
 Type Female Crimp Pins
 Pin Diameter 1.4mm
 Max. wire ø 1.25mm
 Total length 33.5mm
 Max. OD 3.2mm
 Temperature 350°C max.

Standard Thermocouple Sockets

T/C TYPE	MAX. TEMP.	PART NUMBER
K	125°C	361-TC-CON-K
C	125°C	361-TC-CON-C
N	125°C	361-TC-CON-N
J	125°C	361-TC-CON-J
E	125°C	361-TC-CON-E

Plugs are available on request.

High Temperature Sockets - FEMALE 650°C

T/C TYPE	MAX. TEMP.	PART NUMBER
K	650°C	361-TC-CON-K-HT
C	650°C	361-TC-CON-C-HT
N	650°C	361-TC-CON-N-HT

Thermocouple Sockets - MALE UHV

T/C TYPE	MAX. TEMP.	PART NUMBER
K Air side	125°C	361-TC-CONM-K
N Air side	125°C	361-TC-CONM-N
C Air side	125°C	361-TC-CONM-C
K UHV	650°C	361-TC-CONM-K-HT

Screw and Nut sets - pack of 10 Size 3 - 48 fits Feedthroughs R, S and T

T/C TYPE	MAX. TEMP.	PART NUMBER
R/S/T	200°C	361-TC-SCREW

Thermocouple Crimps

MATERIAL	No PER PKT.	PART NUMBER
Chromel	5	361-TCRIMP-CR
Alumel	5	361-TCRIMP-AL
Iron	5	361-TCRIMP-FE
Constantan-J	5	361-TCRIMP-CONJ
Constantan-E-T	5	361-TCRIMP-CONET
Nickel	5	361-TCRIMP-NI