

# Section Contents



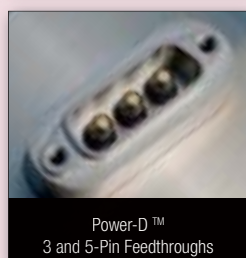
Mil-DTL-5015  
3 and 6-Pin Feedthroughs



Mil-DTL-5015 Vacuum-Side  
3 and 6-Pin PEEK Connectors



Mil-DTL-5015 Air-Side  
3 and 6-Pin Connectors / Cables



Power-D™  
3 and 5-Pin Feedthroughs



Power-D™ Vacuum-Side  
3, 5-Pin Connectors / Cables



Power-D™ Air-Side  
3, 5-Pin Connectors / Cables



High Power Feedthroughs  
5, 10, and 20 kVDC



High Power, Vacuum-Side  
Push-On Connectors



High Power  
Air-Side Connectors / Cables

## Product Highlights

**Power Feedthroughs** — Hermetic glass-to-metal seal feedthroughs are designed to meet Mil-DTL-5015 Circular and industry standard Subminiature-D configurations. Ceramic seal high power feedthroughs provide three high power feedthrough options.

**In-Vacuum Cable Assemblies** — UHV and high temperature cable assemblies using compatible materials such as PEEK, ceramic, Kapton® insulated wire and stainless steel are just some of the vacuum compatible materials used to provide complete in-vacuum wiring.

**Air-service Cable Assemblies** — Industry standard cables and connectors are utilized to provide the end user with complete connectivity solutions from bench equipment to the feedthrough flange.

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### Mil-DTL-5015 Circular

Accu-Glass 3 and 6 Pin Feedthrough

UHV Feedthrough, 110630, Conflat®  
Compatible Flange

Air-Service Female Cable  
Assembly, 110705,  
Nickel Plated Aluminum  
Connector and PVC  
Insulated Cable<sup>5</sup>

UHV Female Cable Assembly,  
110661, PEEK Vacuum Side  
Connector and Kapton® Insulated  
Wire<sup>5</sup>

### Mil-DTL-5015 Interface

Circular hermetic power feedthroughs are designed to meet Mil-DTL-5015 specifications. These feedthroughs are available in either a 3-pin or 6-pin configuration. Gold-plated pins are in a straight through pin-to-pin design and are hermetically sealed and electrically insulated in a stainless steel shell using the latest in glass-ceramic bonding technology.

Ultrahigh vacuum cable assemblies with PEEK connectors and Kapton® insulated 18 AWG cables are available to meet the demands of UHV environments. They are fitted with a captured stainless steel vented screw that provides a means of securely locking them to their mating feedthrough. Air-service cable assemblies use standard Mil-DTL-5015 connectors. Custom air-service cable assemblies are available on request.

Mil-DTL-5015 feedthroughs are sold individually or as kits, where each kit contains one feedthrough and one each of both vacuum and air side cable assemblies.

### Features

- Mil-DTL-5015 3 and 6-Pin Interface
- High temperature rated to 250°C
- UHV compatible construction
- Conflat® and ISO NW compatible mounts
- Kapton® insulated vacuum cables
- PEEK connector with locking screw
- Air Service Cables / Connectors
- Custom Solutions on Request

### Specifications

#### Electrical

Voltage <sup>1</sup> , Maximum	700 VDC
Current <sup>2</sup> , Per Pin Maximum @ 20°C	10 A

#### Material

Shell	304 Stainless Steel
Pins	Au plated, Ni-Fe alloy
Seal / Insulator	Glass-Ceramic
Connector, Air	Ni plated Aluminum Alloy
Connector, Vacuum <sup>3</sup>	PEEK Polymer

#### Vacuum Range

UHV, Ultrahigh vacuum	1x10 <sup>-10</sup> Torr
HV, High vacuum	1x10 <sup>-8</sup> Torr

#### Temperature Range<sup>4</sup>

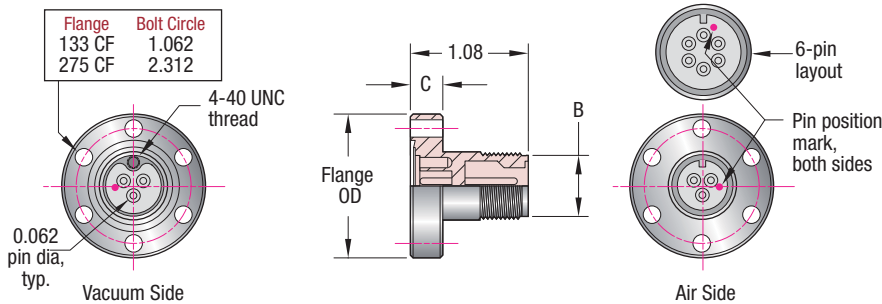
Feedthrough	-200° to 250°C
Flange Mount, Conflat®	-200° to 450°C
Flange Mount, ISO	-26° to 150°C
Connector / Cable, Air	80°C
Connector / Cable, Vacuum	250°C
Thermal Gradient	25°C / Minute Maximum

### Notes

1. Electrical ratings are maximum test values, with vacuum side at  $\leq 1 \times 10^{-4}$  Torr.
2. For proper heat dissipation, a maximum of 20% of the pins on a feedthrough may carry the maximum pin current at any given time.
3. PEEK is a polyether ether ketone thermoplastic.
4. Overall assembly ratings must be adjusted to that of its lowest rated component. For cryogenic service, the lowest recommended temperature is -200°C
5. Unless designated a 'kit,' connectors and cable assemblies are not included with feedthrough and must be purchased separately.

§ Unless specified otherwise, dimensional units in all sections of this catalog are expressed in inches.

Mil-DTL-5015 Circular, 10-Amp, UHV and HV Feedthroughs



• Pin 1 reverses position from vacuum side to air side.

**CF Flange** — 3 or 6-Pin Circular / 700 VDC, 10 Amp / 250°C / UHV to  $1 \times 10^{-10}$  Torr

Number Contacts	Flange Type	OD	B	C	Model Number	Part Number
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**Kit** — Feedthrough with Female Cable Assemblies, 96 Inch Air / 19 Inch Vacuum

3	133 CF	1.33	—	—	3CP-KIT-133	<b>110806</b>
6	275 CF	2.73	—	—	6CP-KIT-275	<b>110807</b>

**Feedthrough** — Feedthrough without Cables

3	133 CF	1.33	0.620	0.30	3CP-133	<b>110600</b>
3	275 CF	2.73	0.620	0.50	3CP-275	<b>110601</b>
6	275 CF	2.73	0.875	0.50	6CP-275	<b>110630</b>

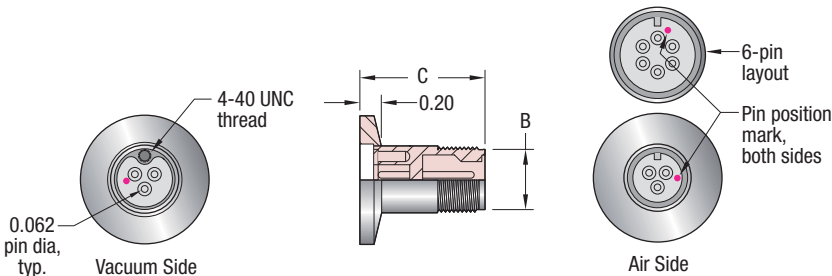
Compatible with Conflat® flanges and hardware



**110807** / UHV CF 6-Pin Complete Kit



**110600** / UHV CF 3-Pin Feedthrough (Vacuum Side)



• Pin 1 reverses position from vacuum side to air side.

**ISO KF Flange** — 3 or 6-Pin Circular / 700 VDC, 10 Amp / 150°C / HV to  $1 \times 10^{-8}$  Torr

Number Contacts	Flange Type	OD	B	C	Model Number	Part Number
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**Kit** — Feedthrough with Female Cable Assemblies, 96 Inch Air / 19 Inch Vacuum

3	NW16 KF	1.18	—	—	3CP-KIT-K16	<b>110808</b>
6	NW40 KF	2.16	—	—	6CP-KIT-K40	<b>110809</b>

**Feedthrough** — Feedthrough without Cables

3	NW16 KF	1.18	0.620	1.14	3CP-K16	<b>110620</b>
3	NW40 KF	2.16	0.620	1.04	3CP-K40	<b>110621</b>
6	NW40 KF	2.16	0.875	1.04	6CP-K40	<b>110640</b>

Compatible with ISO 2861/1 specification flanges and hardware



**110809** / HV ISO-KF 6-Pin Complete Kit



**110620** / HV ISO-3Pin Feedthrough (Vacuum Side)

Power



### Ultrahigh Vacuum Cable Assemblies

*Connector to Cable* UHV cable assemblies are fitted with female Mil-DTL-5015 type PEEK 3-pin or 6-pin connectors at one end and either three or six, non-terminated Kapton® insulated wires at the other. The female cable connectors mate directly onto the vacuum-side of Mil-DTL-5015 feedthroughs shown on page 35. The individual conductors are 18 AWG, 10 Amp silver plated copper wire, stranded 19 x 0.009, with a Kapton® insulation.

*Connector to Connector Extension* cables have the same physical properties as Connector to Cable assemblies, except both ends are fitted with female connectors.

**Cable Assemblies** — 3 or 6-Pin Circular / 250°C / UHV to 1x10<sup>-10</sup> Torr

Number Contacts	Wire		Connector			Model Number	Part Number
	Length	Dia.	Gender	OD	Length		

#### Connector to Cable — 3 Power

3	19	3x 0.060	M	0.620	1.02	3KAP-TYP13-19PC	<b>110650</b>
3	39	3x 0.060	M	0.620	1.02	3KAP-TYP13-39PC	<b>110652</b>
3	19	3x 0.060	F	0.620	1.10	3KAP-TYP13-19SC	<b>110651</b>
3	39	3x 0.060	F	0.620	1.10	3KAP-TYP13-39SC	<b>110653</b>

#### Contact to Cable — 6 Power

6	19	6x 0.060	M	0.875	1.02	6KAP-TYP13-19PC	<b>110660</b>
6	39	6x 0.060	M	0.875	1.02	6KAP-TYP13-39PC	<b>110662</b>
6	19	6x 0.060	F	0.875	1.10	6KAP-TYP13-19SC	<b>110661</b>
6	39	6x 0.060	F	0.875	1.10	6KAP-TYP13-39SC	<b>110663</b>

#### Connector to Connector Extension — 3 and 6 Power

3	19	—	F / F	—	—	3KAP-TYP13-192SC	<b>110670</b>
3	39	—	F / F	—	—	3KAP-TYP13-392SC	<b>110671</b>
6	19	—	F / F	—	—	6KAP-TYP13-192SC	<b>110672</b>
6	39	—	F / F	—	—	6KAP-TYP13-392SC	<b>110673</b>

### Ultrahigh Vacuum Connectors and Contacts

Components in this section are sold as the most basic components. Connectors do not include contacts and must be purchased separately. Connectors are made of UHV compatible PEEK material.

• Wires must be threaded through the connector back-piece before crimping contacts. • The pins and sockets listed below are intended for use with ultrahigh vacuum PEEK connectors listed in this section.

**Connectors and Contacts** — 3 or 6-Pin Circular / 250°C / UHV to 1x10<sup>-10</sup> Torr

Number Contacts	Connector				Use With	Model Number	Part Number
	Gender	Material	OD	Length			

#### Connectors

3	M	PEEK	0.620	1.02	110700	3C-PKP	<b>110680</b>
6	M	PEEK	0.875	1.02	110700	6C-PKP	<b>110690</b>
3	F	PEEK	0.620	1.10	110701	3C-PSK	<b>110685</b>
6	F	PEEK	0.875	1.10	110701	6C-PSK	<b>110695</b>

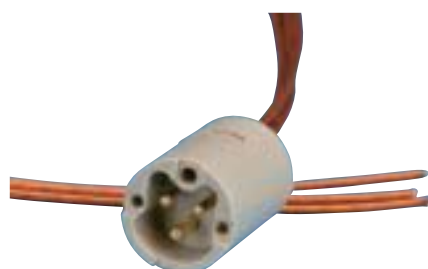
#### Connectors with Strain Relief

3	M	PEEK	0.750	1.16	110700	3C-PKP-SR	<b>112509</b>
6	M	PEEK	0.875	1.43	110700	6C-PKP-SR	<b>112511</b>
3	F	PEEK	0.750	1.22	110701	3C-PSK-SR	<b>112510</b>
6	F	PEEK	0.875	1.50	110701	6C-PSK-SR	<b>112512</b>

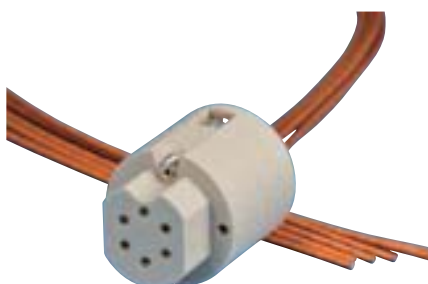
#### Contacts, Type-T5p — 10 per Pack

1 Pack	M	—	0.060	0.066	—	GP-M60-10	<b>110700</b>
1 Pack	F	—	0.060	0.066	—	GS-M60-10	<b>110701</b>

\* Use PN-110702 tool located on next page.



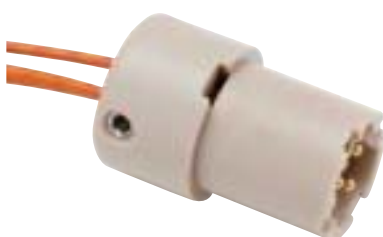
**110650** / Male Pin UHV Connector to Cable



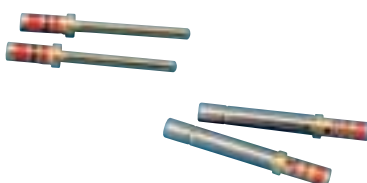
**110661** / Female Socket UHV Connector to Cable



**110685** / Female Socket UHV Connector  
(Contacts Sold Separately)



**112509** / Male Pin UHV Connector with Strain Relief  
(Contacts Sold Separately)



**110700 and 110701** / Male and Female Contacts

See page 34 for **Specifications**



## Air-service Round Cable Assemblies

*Connector to Cable* air-service round cable assemblies are fitted with an aluminum shell, electroless nickel finish, Mil-DTL-5015 3-pin or 6-pin female connector at one end. The cables are 18 AWG stranded tinned-copper conductors. The non-terminated end has either three or six color coded PVC insulated wires. The conductors are shielded with an aluminum-polyester foil shield, stranded tinned-copper draw wire. The gray PVC jacket is either 0.20 OD with three conductors or 0.30 OD with six conductors. Rated 300 volt at 80°C.

### Round Cable Assemblies — 3 or 6-Pin Circular / 80°C / Air Atmosphere

Number Contacts	Wire		Connector			Model Number	Part Number
	Length	Dia.	Gender	OD	Length		

#### Connector to Cable — 3 Power

3	48	.20	F	0.88	2.05	AIR-CP3-48SC	<b>110703</b>
3	96	.20	F	0.88	2.08	AIR-CP3-96SC	<b>110704</b>
6	48	.30	F	1.13	2.17	AIR-CP6-48SC	<b>110705</b>
6	96	.30	F	1.13	2.17	AIR-CP6-96SC	<b>110706</b>

## Air-service Connectors, Contacts and Tools

*Connectors* accept up to 16 AWG wires. Contacts are gold-plated and the shell is aluminum with an electroless nickel finish. Rear removable crimp contacts provide easy assembly. Connectors are available with straight or 90-degree angled strain reliefs.

Components in this section are sold as the most basic components. Connectors do not include contacts and must be purchased separately.

### Connectors and Contacts — 3 or 6-Pin Circular / 80°C / Air Atmosphere

Number Contacts	Connector			Use With	Model Number	Part Number
	Gender	OD	Length			

#### Connectors

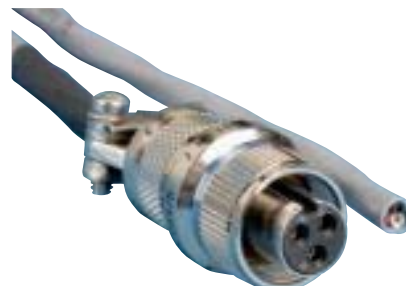
3	F	0.88	2.05	110701	3C-AIR	<b>110710</b>
3	F-90	0.88	2.05	110701	3C-AIR-90	<b>112703</b>
6	F	1.13	2.17	110701	6C-AIR	<b>110711</b>
6	F-90	1.13	2.15	110701	6C-AIR-90	<b>112704</b>

#### Contacts, Type-T5p — 10 per Pack

1 Pack	F	0.060	0.066	—	GS-M60-10	<b>110701</b>
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### Tools — for Wiring 3 or 6-Pin Circular Air-Service Connectors

Contents	Description	Model Number	Part Number
1 Unit	Crimping Tool for Type-T5 Contacts	DCT-5	<b>110702</b>
1 Unit	Extraction Tool for Type-T5p Contacts	ET-M60	<b>111614</b>
1 Unit	Insertion Tool for Type-T5p Contacts	IT-M60	<b>111613</b>



**110703** / Air-Service Female Cable Assembly



**110706** / Air-Service Female Cable Assembly



**110710** / Air-Service Female Connector  
(Contacts Sold Separately)



**110711** / Air-Service Female Connector  
(Contacts Sold Separately)

↖ Set First Dial to #16 / Blue



↖ Set Second Dial to #16

**110702** / Contact Crimp Tool

See page 34 for **Specifications**



### Power-D™ High Current

3 and 5 Pin Subminiature-D Feedthroughs

UHV Feedthrough, 100945, Conflat®  
Compatible Flange

Air-Service Female Cable  
Assembly, 100965,  
Delrin® Connector and  
Cable<sup>4</sup>

UHV Female Cable Assembly,  
100955, PEEK Vacuum Side  
Connector and Kapton® Insulated  
Wire<sup>4</sup>

### Power-D™ Interface

Accu-Glass Power-D™ — hermetic, high-current power feedthroughs, are designed to IEC 807-2 and DESC 85039 combination subminiature-D interface specifications.

Three (3) and five (5) pin feedthroughs, with Au plated NiFe alloy pins, rated to 20 Amps per pin, are hermetically sealed and insulated into 304 stainless steel subminiature-D shells using the latest in glass-ceramic / metal bonding technology. Mating cable assemblies with PEEK polymer connectors and Kapton® insulated leads are also available to meet the rigorous demands of UHV environments.

Vacuum and air-side cable assemblies, individual connectors, contacts, wiring tools and other accessories can be found starting on page 40. Custom Power-D™ solutions are also available on request. Please contact factory for more information.

### Features

- Subminiature-D 3 and 5 Pin Interface
- High temperature rated to 250°C
- UHV Compatible Construction
- Conflat® and ISO NW compatible mounts
- Kapton® Insulated Vacuum Cables
- PEEK Connector with Locking Screws
- Air Service Cables / Connectors
- Custom Solutions on Request

### Specifications

#### Electrical

Voltage <sup>1</sup> , Maximum	500 VDC
Current, Per Pin Maximum @ 20°C	20 A

#### Material

Shell	304 Stainless Steel
Pins	Au plated, Ni-Fe alloy
Seal / Insulator	Glass-Ceramic
Connector, Air	Delrin® Polymer
Connector, Vacuum <sup>2</sup>	PEEK Polymer

#### Vacuum Range

UHV, Ultrahigh vacuum	1x10 <sup>-10</sup> Torr
HV, High vacuum	1x10 <sup>-8</sup> Torr

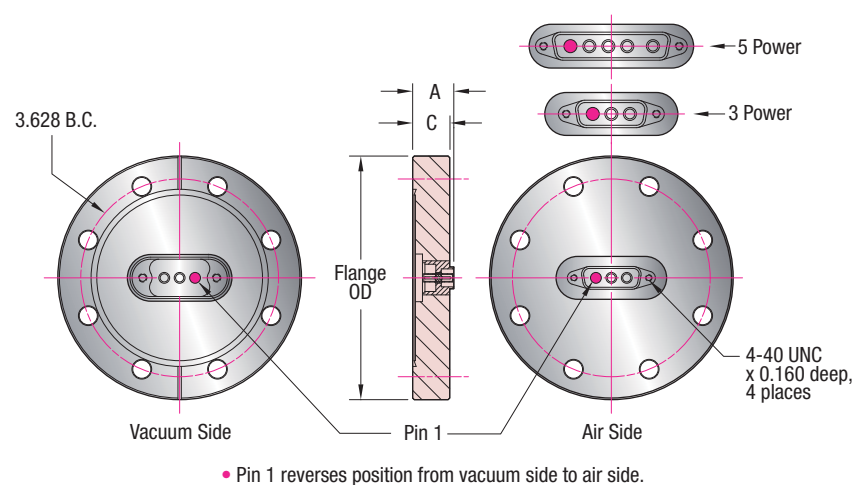
#### Temperature Range<sup>3</sup>

Feedthrough	250°C
Flange Mount, Conflat®	450°C
Flange Mount, ISO	150°C
Connector / Cable, Air	80°C
Connector / Cable, Vacuum, PEEK	250°C
Thermal Gradient	25°C / Minute Maximum

### Notes

1. Electrical ratings are maximum test values, with vacuum side at  $\leq 1 \times 10^{-4}$  Torr. Feedthroughs are designed for high power applications.
2. PEEK is a polyether ether ketone thermoplastic.
3. Overall assembly ratings must be adjusted to that of its lowest rated component.
4. Unless designated a 'kit,' connectors and cable assemblies are not included with feedthrough and must be purchased separately.

§ Unless specified otherwise, dimensional units in all sections of this catalog are expressed in inches.



100940 / UHV Power Feedthrough (Vacuum Side)



100945 / UHV Power Feedthrough (Vacuum Side)

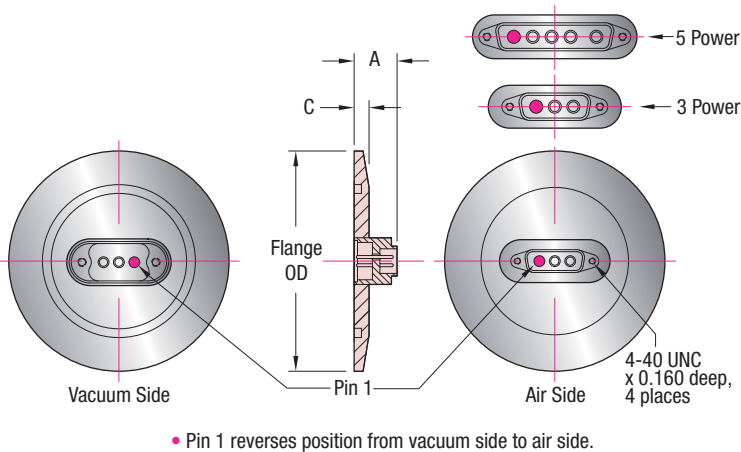
## CF Flange<sup>1</sup> — 3 or 5 Power Leads / 500 VDC, 20 Amp / 250°C / UHV to 1x10<sup>-10</sup> Torr

Number Contacts	Flange Type	OD	A	C	Model Number	Part Number
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### Feedthrough — Feedthrough without Cables

3	450 CF	4.47	0.76	0.68	15D-3P-450	100940
5 <sup>2</sup>	450 CF	4.47	0.76	0.68	25D-5P-450	100945

1. Compatible with Conflat® flanges and hardware. 2. Pin position not centered or symmetrical



100941 / HV Power Feedthrough (Air Side)

## ISO KF and LF Flange<sup>1</sup> — 3 or 5 Power Leads / 500 VDC, 20 Amp / 150°C / HV to 1x10<sup>-8</sup> Torr

Number Contacts	Flange Type	OD	A	C	Model Number	Part Number
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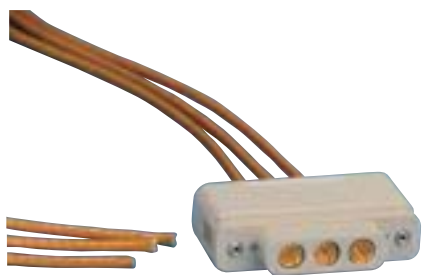
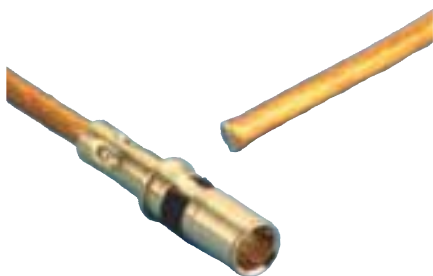
### Feedthrough — Feedthrough without Cables

3	NW50 KF	2.95	0.59	0.20	15D-3P-K50	100941
5 <sup>2</sup>	NW63 LF	3.74	0.59	0.47	25D-5P-L63	100942

1. Compatible with ISO 2861/1 specification flanges and hardware. 2. Pin position not centered or symmetrical



100942 / HV Power Feedthrough (Vacuum Side)

**100950** / Female Socket UHV Connector to Cable**100860** / Female Socket UHV Contact to Cable**101011** / Male Power UHV Connector  
(Contacts Sold Separately)**101000** / Female Socket UHV/Air Power Contacts**101080** / Crimp Tool

➤ Set Dial to...  
#6 for 12AWG  
#3 for 16AWG

**Ultrahigh Vacuum Power Cable Assemblies**

*Connector to Cable* UHV assemblies are fitted with PEEK Subminiature-D connectors at one end and non-terminated Kapton® insulated cable at the other. The female socket connectors mate directly onto the vacuum-side of corresponding feedthroughs shown on page 39.

*Contact to Cable* UHV assemblies have gold-plated female socket contacts at one end and non-terminated Kapton® insulated 12 AWG multi-strand wire at the other end. Power female socket contacts mate with 0.142 diameter male pins.

**Vacuum Cables — 3 or 5-Pin Subminiature-D / 250°C / UHV to 1x10<sup>-10</sup> Torr**

Number Contacts	Wire		Connector		Model Number	Part Number
	Length	Dia.	Gender	W x H x D		
3	19	3x 0.05	M	1.70 x 0.50 x 0.99	15KAP-3P-19PC	<b>110934</b>
3	39	3x 0.05	M	1.70 x 0.50 x 0.99	15KAP-3P-39PC	<b>110935</b>
3	19	3x 0.05	F	1.70 x 0.50 x 0.99	15KAP-3P-19SC	<b>100950</b>
3	39	3x 0.05	F	1.70 x 0.50 x 0.99	15KAP-3P-39SC	<b>100951</b>
5	19	5x 0.05	M	2.20 x 0.50 x 0.99	25KAP-5P-19PC	<b>110936</b>
5	39	5x 0.05	M	2.20 x 0.50 x 0.99	25KAP-5P-39PC	<b>110937</b>
5	19	5x 0.05	F	2.20 x 0.50 x 0.99	25KAP-5P-19SC	<b>100955</b>
5	39	5x 0.05	F	2.20 x 0.50 x 0.99	25KAP-5P-39SC	<b>100956</b>

**Connector to Cable****Contact to Cable**

1	19	1x 0.05	F	Socket Contacts	KAP-P-19S	<b>100860</b>
1	39	1x 0.05	F	Socket Contacts	KAP-P-39S	<b>100861</b>

**Ultrahigh Vacuum Connectors, Contacts and Tools**

*Connectors* are made of PEEK and do not include contacts, which must be purchased separately. Female connectors mate directly onto the vacuum side of Subminiature-D feedthroughs shown on page 39.

**Connectors and Contacts — 3 or 5-Pin Subminiature-D / 250°C / UHV to 1x10<sup>-10</sup> Torr**

Number Contacts	Connector		Model Number	Part Number
	Gender	W x H x D		
3	M	1.70 x 0.50 x 0.99	15D-3P-PKP	<b>101011</b>
3	F	1.70 x 0.50 x 0.99	15D-3P-PKS	<b>101009</b>
5	M	2.20 x 0.50 x 0.99	25D-5P-PKP	<b>100932</b>
5	F	2.20 x 0.50 x 0.99	25D-5P-PKS	<b>100933</b>

**Connectors****Contacts, Type-T3 — 5 per Pack**

1 Pack	M	0.142 Power Pin	PP-5	<b>101001</b>
1 Pack	F	0.142 Power Socket	PS-5	<b>101000</b>

See Page 112 for (.065) 16 AWG Wire Contacts.

**Tools — for Wiring 3 or 5-Pin Subminiature-D Vacuum Connectors**

Contents	Description	Model Number	Part Number
1 Unit	Crimping tool for Type-T3 Contacts, UHV / Air	DCT-3	<b>101080</b>
1 Unit	Extraction Tool	CX-ET	<b>100935</b>

See page 38 for **Specifications**



### Air-service Power Cable Assemblies

*Connector to Cable* assemblies are fitted with a glass filled polyester composite Subminiature-D connector at one end and non-terminated PVC insulated 12 AWG power leads at the other. The female cable connectors mate directly onto the air side of corresponding feedthroughs shown on page 39.

*Connector to Cable* assemblies may be used without the outer shell for minimum space requirements.

### Air-service Cable Assemblies — 3 or 5-Pin Subminiature-D / 80°C / Air Atmosphere

Number Contacts	Wire		Connector		Model Number	Part Number
	Length	Dia.	Gender	W x H x D		

#### Connector to Cable

3	96	3x 0.05	F	1.72 x 0.75 x 2.10 <sup>1</sup>	AIR-3P-96SC	<b>100960</b>
5	96	5x .05	F	2.27 x 0.75 x 2.36 <sup>2</sup>	AIR-5P-96SC	<b>100965</b>

1. 1.50 x 0.50 x 0.50 without shell. 2. 2.10 x 0.50 x 0.50 without shell.

### Air-service Connectors, Cable, Contacts and Tools

Components in this section are sold as the most basic components. Connectors do not include contacts and must be purchased separately. All power connectors use glass-filled polyester composite.

*Connectors* may be used without the outer shell for minimum space requirements

### Air Service Connectors — 3 or 5-Pin Subminiature-D / 80°C / Air Atmosphere

Number Contacts	Connector		Model Number	Part Number
	Gender	W x H x D		

#### Connectors

3	F	1.72 x 0.75 x 2.10 <sup>1</sup>	15D-3P-DS	<b>101010</b>
5	F	2.27 x 0.75 x 2.36 <sup>2</sup>	25D-5P-DS	<b>100931</b>
3	M	1.72 x 0.75 x 2.10 <sup>1</sup>	15D-3P-DP	<b>101012</b>
5	M	2.27 x 0.75 x 2.36 <sup>2</sup>	25D-5P-DP	<b>100934</b>

1. 1.70 x 0.50 x 0.50 without shell. 2. 2.10 x 0.50 x 0.50 without shell.

Number Contacts	Connector		Model Number	Part Number
	Gender	Contact Size		

#### Contacts, Type-T3 — 5 per Pack

1 Pack	F	.142 Power Socket	PS-5	<b>101000</b>
1 Pack	M	.142 Power Pin	PP-5	<b>101001</b>

### Tools — for Wiring 3 or 5-Pin Subminiature-D Air-Service Connectors

Contents	Description	Model Number	Part Number
1 Unit	Crimping tool for Type-T3 Contacts, UHV / Air	DCT-3	<b>101080</b>
1 Unit	Extraction Tool	CX-ET	<b>100935</b>



**100960** / Female Socket Air Connector to Cable



**100965** / Connector to Cable



**101010** / Female Socket Air Connector  
(Contacts Sold Separately)



**101001** / Male Socket UHV/Air Power Contacts

See page 38 for **Specifications**



### High Power

5, 10, and 20 kVDC Feedthroughs

Vacuum Cable Assembly, 110103  
and 100726<sup>3</sup>

Air-Service Female Cable  
Assembly, 112475<sup>3</sup>

UHV Feedthrough, 112474,  
Conflat® Compatible Flange

### High Power Feedthroughs

Accu-Glass Products' High Power hermetic feedthroughs are available in three power ratings up to 20,000 volts and 30 amps.

The maximum standard ratings are:

- 5 kVDC 30A
- 10 kVDC 30A
- 20 kVDC 30A

For custom feedthroughs or for ratings other than the standards, contact the factory. All three versions are offered on Conflat® compatible CF metal seal and ISO-KF elastomer seal flanges.

High purity Alumina ceramic insulators provide electrical isolation and copper conductors provide maximum current capacity. The high purity Alumina ceramic is bonded and sealed to low expansion metals in a vacuum furnace environment using precious and semi-precious high temperature vacuum tube grade braze alloys.

### Features

- High Voltage to 20 kVDC
- High Current to 30 Amps
- UHV Compatible Construction
- Conflat® and ISO Compatible Mounts
- Kapton® Insulated Vacuum Cables
- Air Service Cables / Boot Connectors
- Custom Solutions on Request

### Specifications

#### Electrical

Voltage <sup>1</sup> , Maximum	5, 10 and 20 kVDC
Current <sup>2</sup> , Per Pin Maximum @ 20°C	30 A

#### Material

Shell	304 Stainless Steel
Conductor	OFE Copper
Seal	Vacuum Grade Braze Alloy
Insulator	High Purity Alumina Ceramic
Connector, Air / Vacuum	Silicone / Au-plated Be-Cu

#### Vacuum Range

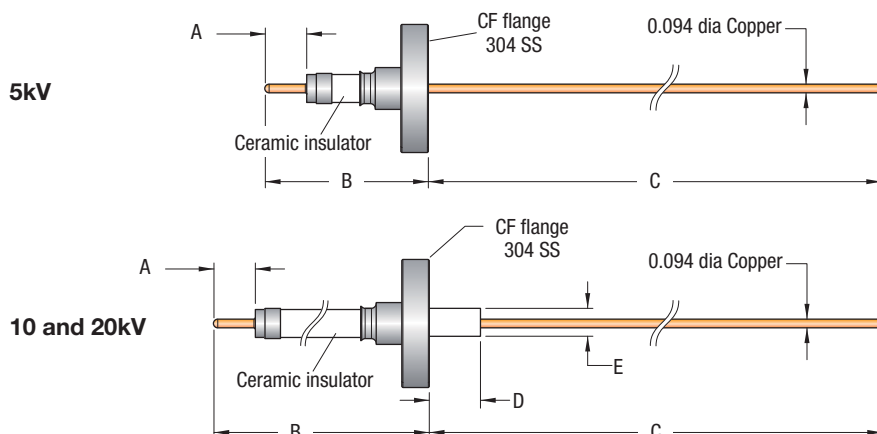
UHV, Ultrahigh vacuum	1x10 <sup>-10</sup> Torr
HV, High vacuum	1x10 <sup>-8</sup> Torr

#### Temperature Range<sup>2</sup>

Feedthrough	250°C
Flange Mount, Conflat®	450°C
Flange Mount, ISO	150°C
Thermal Gradient	25°C / Minute Maximum

### Notes

1. Electrical ratings are maximum test values, with vacuum side at  $\leq 1 \times 10^{-4}$  Torr. Feedthroughs are designed for high power applications.
  2. Overall assembly ratings must be adjusted to that of its lowest rated component. For cryogenic service, the lowest recommended temperature is -200°C
  3. Unless designated a 'kit,' connectors and cable assemblies are not included with feedthrough and must be purchased separately.
- § Unless specified otherwise, dimensional units in all sections of this catalog are expressed in inches.



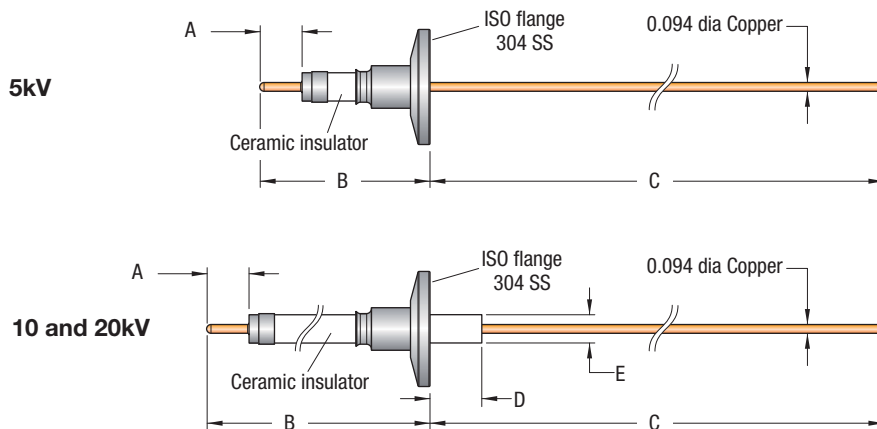
**CF Flange** — 5k to 20k VDC, 30 Amp / 250°C / UHV to  $1 \times 10^{-10}$  Torr

Flange Type	OD	Volts kVDC	A	B	C	D	E	Model Number	Part Number
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**Feedthrough — Feedthrough without Cables**

133 CF	1.33	5	0.43	1.69	5.34	—	—	HP-05-133	<b>112467</b>
133 CF	1.33	10	0.43	2.11	4.92	0.63	0.23	HP-10-133	<b>112468</b>
133 CF	1.33	20	0.43	2.25	4.75	0.50	0.28	HP-20-133	<b>112470</b>
275 CF	2.73	5	0.43	1.69	5.34	—	—	HP-05-275	<b>112472</b>
275 CF	2.73	10	0.43	2.11	4.92	0.63	0.23	HP-10-275	<b>112469</b>
275 CF	2.73	20	0.43	2.25	4.75	0.50	0.28	HP-20-275	<b>112474</b>

Compatible with Conflat® flanges and hardware



**ISO KF Flange** — 5k to 20k VDC, 30 Amp / 150°C / HV to  $1 \times 10^{-8}$  Torr

Flange Type	OD	Volts kVDC	A	B	C	D	E	Model Number	Part Number
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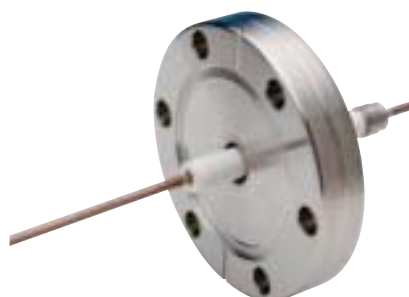
**Feedthrough — Feedthrough without Cables**

NW16 KF	1.18	5	0.43	1.79	5.21	—	—	HP-05-K16	<b>112476</b>
NW16 KF	1.18	10	0.43	2.20	4.85	0.58	0.23	HP-10-K16	<b>112477</b>
NW16 KF	1.18	20	0.43	2.33	4.67	0.45	0.28	HP-20-K16	<b>112479</b>
NW40 KF	2.16	5	0.43	1.69	5.31	—	—	HP-05-K40	<b>112483</b>
NW40 KF	2.16	10	0.43	2.10	4.95	0.68	0.23	HP-10-K40	<b>112478</b>
NW40 KF	2.16	20	0.43	2.23	4.77	0.55	0.28	HP-20-K40	<b>112484</b>

Compatible with ISO 2861/1 specification flanges and hardware



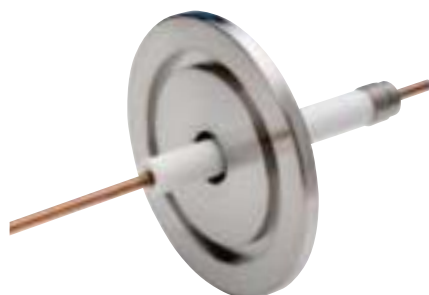
**112467** / 5 kV Power Feedthrough (Air Side)



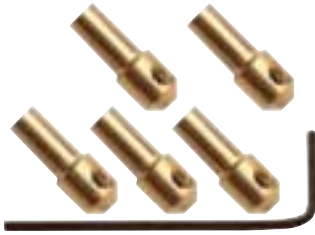
**112474** / 20 kV Power Feedthrough (Vacuum Side)



**112477** / 10 kV Power Feedthrough (Air Side)



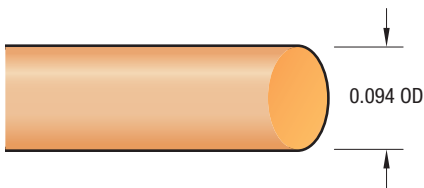
**112484** / 20 kV Power Feedthrough (Vacuum Side)



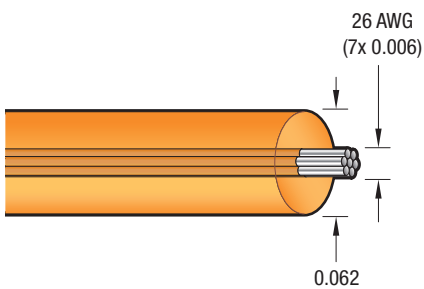
110103 / Push-On Connectors



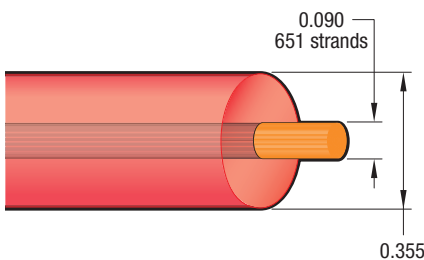
110112 / In-Line Connectors



111322 / Copper Bare Conductor



100726 / Kapton Insulated High Voltage Wire



111660 / Silicone Insulated High Voltage Wire

### Ultrahigh Vacuum Power Components

*Push-On Connectors* are available to accept a 0.094 standard pin size. They are constructed of UHV compatible gold-plated beryllium-copper material, and the included set screw is stainless steel. Maximum temperatures are 200°C in vacuum and 150°C in air.

*In-Line Connectors* are available to accept a 0.120 standard pin size. They are constructed of UHV compatible gold-plated beryllium-copper material, and the two included screws are stainless steel. Maximum temperatures are 400°C in vacuum and 150°C in air.

### Components — See Above / UHV to $1 \times 10^{-10}$ Torr

Accepts Pin Size	Well Wire ID	OD	Length	Qty.	Model Number	Part Number
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#### Push-On Connectors

0.094	0.052	0.250	0.690	5/pkg	POC94-5	110103
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#### In-Line Connectors

0.120	0.120	0.250	0.560	5/pkg	ILC120-5	110112
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### Bare Copper Conductor

*Copper Conductor* is an ultra-pure electronic grade copper. Suitable for ultrahigh vacuum and high temperature use. Multiple quantities will be sold in one continuous length.

### Conductor — 400°C / UHV to $1 \times 10^{-10}$ Torr

Length	Conductor OD	Nominal AWG	Qty.	Model Number	Part Number
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#### Copper Conductor

1 Foot	0.094	—	1/pkg	CU-BC-094-1	111322
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See page 115 for ceramic insulation beads.

### High and Ultrahigh Vacuum Wire

*High Voltage Wire, Kapton Insulated* is suitable for most HV and UHV applications. The Kapton insulation has a dielectric strength of 10kVDC.

*High Voltage Wire, Silicone Insulated* is suitable for most HV applications. The halogen-free silicone insulation has a dielectric strength of 30kVDC.

### High Voltage Wire — 3 kVAC, 10kVDC / 3 Amp / 250°C / UHV to $1 \times 10^{-10}$ Torr

Wire	Strands x	Insulation	Resistance @	Min. Bend	Model	Part
AWG	Length	Dia.	20°C	Radius	Number	Number

#### Kapton Insulated — 7 Strands

26	15'	7x .006	0.062	159Ω/km	1.10	TYP22-15	100726
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### High Voltage Wire — 30 kVDC / 20 Amp / 250°C / 300°C Temporary / HV to $1 \times 10^{-8}$ Torr

Wire	Strands x	Insulation	Resistance @	Min. Bend	Model	Part
AWG	Length	Dia.	20°C	Radius	Number	Number

#### Silicone Insulated — 651 Strands

11	15'	651 x .007	0.355	-	1.10	SIL-TYP26-15	111660
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# High Power, Air-Service Cables and Components

## Air-service High Power Cable Assemblies

Accu-Glass Products High Power Cable Assemblies are designed to provide safe air side connections for 5 to 20 kVDC Power Feedthroughs. They are rated 26 Amps, up to 125°C. All cables are 96 inches long, 12 AWG stranded copper conductor with a silicone rubber insulation. Termination on one end is a gold-plated beryllium copper contact covered with a molded silicone rubber boot insulator.

To provide as much safety as possible, the molded silicone rubber insulator extends beyond the beryllium copper contact. However, whenever high power products are used, power should be turned off prior to installation or handling of the products.

### Cable Assemblies — 125°C / Air Atmosphere

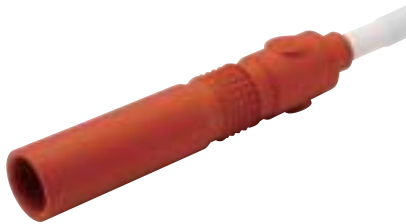
Fits Contact Size	Cable		Dia.	Length	Model Number	Part Number
	Size	Rating				

### High Power Cable Assemblies

.094	12 AWG	26 Amps, 5kVDC	0.44	96	HP-AIR-05-96SC	<b>112475</b>
.094	12 AWG	26 Amps, 10kVDC	0.48	96	HP-AIR-10-96SC	<b>112481</b>
.094	12 AWG	26 Amps, 20kVDC	0.48	96	HP-AIR-20-96SC	<b>112485</b>



112475 / Power Boot Cable Assembly



112485 / Power Boot Cable Assembly

Power