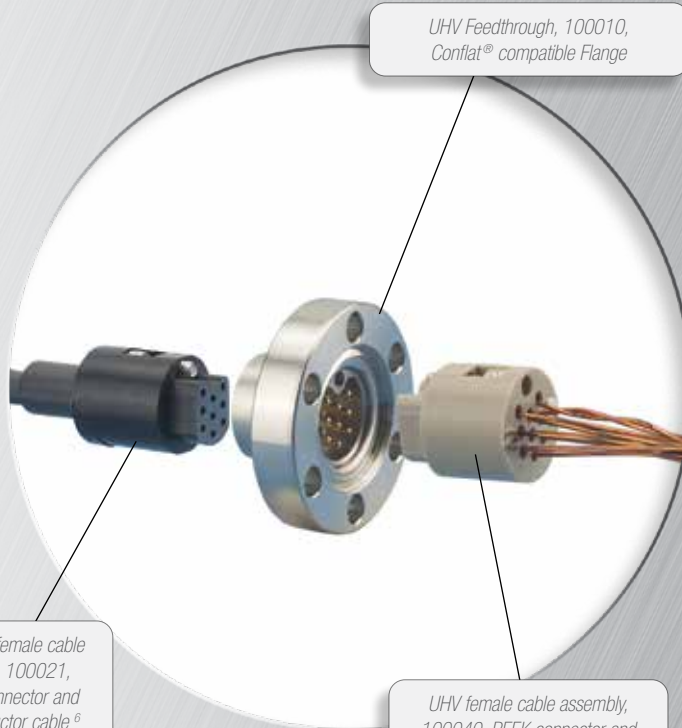




Subminiature-C™

Accu-Glass 9-Pin Feedthrough



Air-service female cable assembly, 100021, Delrin® connector and nine conductor cable⁶

UHV Feedthrough, 100010, Conflat® compatible Flange

UHV female cable assembly, 100040, PEEK connector and Kapton® insulated wire⁶

Subminiature-C™ Interface

Accu-Glass Products Subminiature-C™ multipin hermetic feedthroughs are designed for applications where space is limited or where Subminiature-D connections will not fit. This compact and unique 9-pin design allows installation into 1.33 inch CF metal seal and ISO NW16 KF elastomer seal flanges. Nine gold-plated pins are arranged 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.

Subminiature-C™ feedthroughs and cables are sold individually or as kits, where each kit contains a feedthrough and both vacuum and air side cable assemblies.

Air and vacuum side connectors are fitted with captured stainless steel socket head screws that provide a means of securely locking them to their mating feedthroughs. On the vacuum side, Kapton® insulated cable assemblies fitted with PEEK connectors are available to meet the rigorous demands of ultrahigh vacuum environments. In-vacuum connector screws are vented where required and the feedthrough's screw-boss functions as a connection polarizing key. Air to vacuum pin position is identified with a permanent surface mark, which clearly locates pin assignments.

Features

- Subminiature-C™ 9-Pin Interface
- High temperature rated to 250°C
- UHV compatible construction
- Conflat® and ISO NW compatible mounts
- Kapton® Insulated Vacuum Cables
- PEEK or Macor® Connectors with Locking Screws
- Air Service Cables / Connectors
- Custom Solutions on Request

Specifications

Electrical

Voltage ¹ , Maximum	500 VDC
Current ² , Per Pin Maximum @ 20°C	5 A

Material

Shell	304 Stainless Steel
Pins	Au plated, Ni-Fe alloy
Seal / Insulator	Glass-Ceramic
Connector, Air	Delrin®
Connector, Vacuum ³	PEEK
Connector, Vacuum, High Temperature	Macor® Ceramic

Vacuum Range⁴

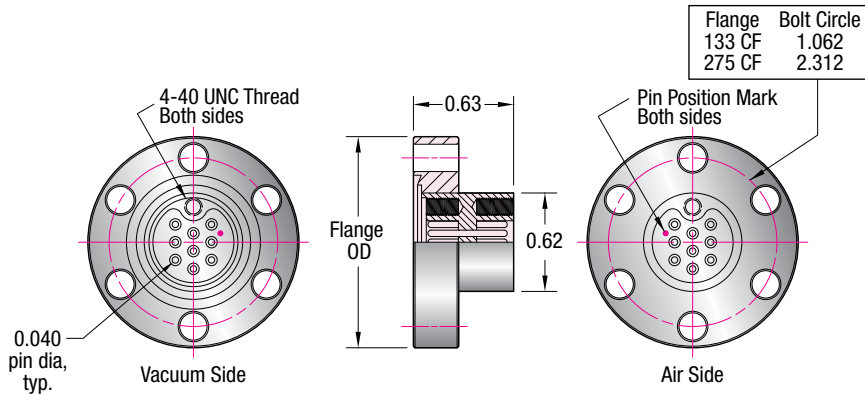
UHV, Ultrahigh vacuum	1x10 ⁻¹⁰ Torr
HV, High vacuum	1x10 ⁻⁸ Torr

Temperature Range⁵

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
Connector, Ceramic	400°C
Thermal Gradient	25°C / Minute Maximum

Notes

1. Electrical ratings are maximum test values, with feedthrough's vacuum side at $\leq 1 \times 10^{-4}$ Torr. Feedthroughs are intended for instrumentation applications carrying low level signal voltage and current.
 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. Leak tested to 5×10^{-10} Standard cc/sec of He.
 5. Overall assembly ratings must be adjusted to that of its lowest rated component. For cryogenic service, the lowest recommended temperature is -200°C
 6. 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.



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

CF Flange — 9-Pin Circular / 500 VDC, 5 Amp / 250°C / UHV to 1×10^{-10} Torr

Number Contacts	Flange Type	OD	Kit Cable Lengths	Model Number	Part Number
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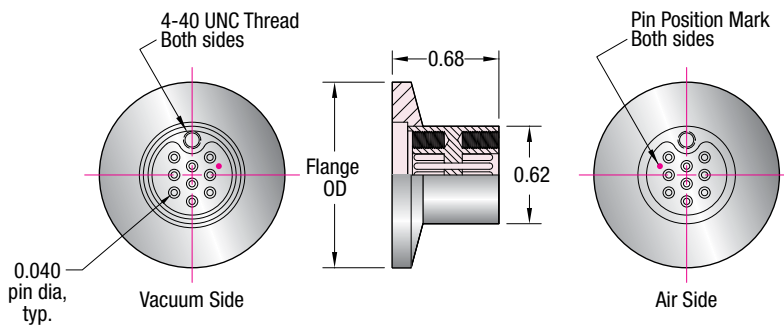
Kit — Feedthrough with Female Cable Assemblies

9	133 CF	1.33	96 Inch Air / 19 Inch Vacuum	9C-KIT-133	100000
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Feedthrough — Feedthrough without Cables

9	133 CF	1.33	—	9C-133	100010
9	275 CF	2.73	—	9C-275	100013
18	275 CF	2.73	Two 9-Pins on 0.750 Centers	9C2-275	100012

Compatible with Coniflat® flanges and hardware



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

ISO KF Flange — 9-Pin Circular / 500 VDC, 5 Amp / 150°C / HV to 1×10^{-9} Torr

Number Contacts	Flange Type	OD	Kit Cable Lengths	Model Number	Part Number
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Kit — Feedthrough with Female Cable Assemblies

9	NW16 KF	1.18	96 Inch Air / 19 Inch Vacuum	9C-KIT-K16	100001
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Feedthrough — Feedthrough without Cables

9	NW16 KF	1.18	—	9C-K16	100011
9	NW25 KF	1.57	—	9C-K25	100016
9	NW40 KF	2.16	—	9C-K40	100015
18	NW40 KF	2.16	Two 9-Pins on 0.710 Centers	9C2-K40	100014

Compatible with ISO 2861/1 specification flanges and hardware



100000 / UHV CF 9-Pin Complete Kit



100012 / UHV CF 2 x 9-Pin Feedthrough (Vacuum Side)

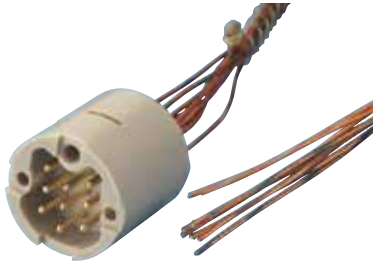


100001 / HV ISO-KF 9-Pin Complete Kit

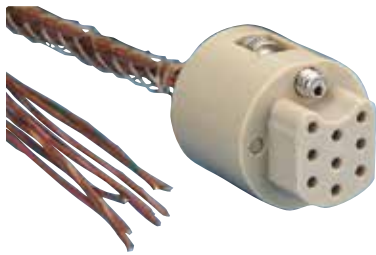


100011 / HV ISO-KF 9-Pin Feedthrough (Vacuum Side)

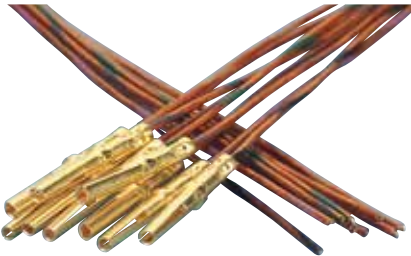
Instrumentation



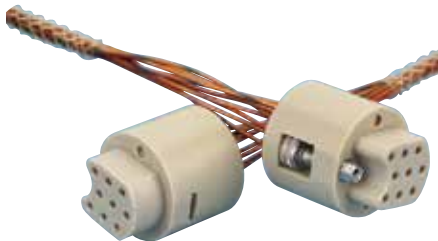
100030 / Male Pin UHV
Connector to Cable



100040 / Female Socket UHV
Connector to Cable



100060 / Female Socket UHV
Contact to Cable



100120 / Female Socket UHV
Connector to Connector Extension Cable

Ultrahigh Vacuum Round Cable Assemblies

Connector to Cable UHV round cable assemblies are fitted with PEEK Subminiature-C™ female or male connectors at one end and nine, non-terminated, Kapton® insulated wires at the other. The female cable connectors mate directly onto the vacuum-side of nine-pin Subminiature-C™ feedthroughs shown on page 9, or with the male in-vacuum cable connectors. The cable jacket is a PEEK braid with a nominal diameter of 0.14 inches. The nine wires are Kapton® insulated 28 AWG silver plated copper conductors, stranded 7 x 0.005.

Contact to Cable UHV round cable assemblies include male or female contacts on one end and nine, non-terminated, Kapton® insulated cable at the other.

Connector to Connector Extension Cables are fitted with PEEK Subminiature-C™ female connectors on both ends of a 19-inch UHV round cable.

Round Cable Assemblies — 9-Pin Circular / 250°C / UHV to 1x10⁻¹⁰ Torr

Number Contacts	Wire		Connector			Model Number	Part Number
	Length	Dia.	Gender	OD	Length		
Connector to Cable							
9	19	7x 0.005	M	0.60	0.65	CKAP-C9-19PC	100030
9	39	7x 0.005	M	0.60	0.65	CKAP-C9-39PC	100031
9	19	7x 0.005	F	0.60	0.75	CKAP-C9-19SC	100040
9	39	7x 0.005	F	0.60	0.75	CKAP-C9-39SC	100041
Contact to Cable¹							
9	19	7x 0.005	M	—	—	CKAP-C9-19P	100050
9	39	7x 0.005	M	—	—	CKAP-C9-39P	100051
9	19	7x 0.005	F	—	—	CKAP-C9-19S	100060
9	39	7x 0.005	F	—	—	CKAP-C9-39S	100061
Connector to Connector Extension							
9	19	7x 0.005	F / F	0.60	0.75	CKAP-C9-192SC	100120

¹. They do not include PEEK connectors and will not allow subsequent connector installation. Wires must be threaded through the connector back-piece before crimping contacts

See page 8 for **Specifications**

Ultrahigh Vacuum Ribbon Cable Assemblies

Connector to Cable UHV ribbon cable assemblies are fitted with PEEK Subminiature-C™ female or male connectors at one end and nine, non-terminated, Kapton® insulated ribbon cable at the other. The female cable connectors mate directly onto the vacuum-side of nine-pin Subminiature-C™ feedthroughs shown on page 9, or with the male in-vacuum cable connectors. The ribbon cable jacket is a PEEK weave with a 0.04 x 0.40 inch nominal cross-section. The nine wires are 28 AWG silver plated copper conductors, stranded 7 x 0.005.

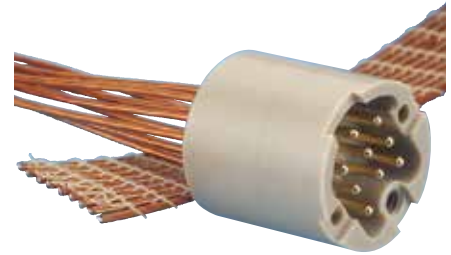
Contact to Cable UHV ribbon cable assemblies include male or female contacts on one end and nine, non-terminated, Kapton® insulated ribbon cable at the other.

Connector to Connector Extension cables are fitted with PEEK Subminiature-C™ female connectors on both ends of a 19-inch UHV ribbon cable.

Ribbon Cable Assemblies — 9-Pin Circular / 250°C / UHV to 1x10⁻¹⁰ Torr

Number Contacts	Wire		Connector			Model Number	Part Number
	Length	Dia.	Gender	OD	Length		
Connector to Cable							
9	19	7x 0.005	M	0.60	0.65	CKAP-R9-19PC	100100
9	39	7x 0.005	M	0.60	0.65	CKAP-R9-39PC	100101
9	19	7x 0.005	F	0.60	0.75	CKAP-R9-19SC	100110
9	39	7x 0.005	F	0.60	0.75	CKAP-R9-39SC	100111
Contact to Cable¹							
9	19	7x 0.005	M	—	—	KAP-R9-19P	100240
9	39	7x 0.005	M	—	—	KAP-R9-39P	100241
9	19	7x 0.005	F	—	—	KAP-R9-19S	100250
9	39	7x 0.005	F	—	—	KAP-R9-39S	100251
Connector to Connector Extension							
9	19	7x 0.005	F / F	0.60	0.75	CKAP-R9-192SC	100130

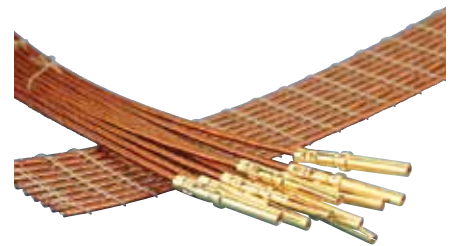
1. They do not include PEEK connectors and will not allow subsequent connector installation. Wires must be threaded through the connector back-piece before crimping contacts



100100 / Male Pin UHV
Connector to Cable



100110 / Female Socket UHV
Connector to Cable



100250 / Female Socket UHV
Contact to Cable

Instrumentation

See page 8 for **Specifications**



100150 / Female PEEK Connector
(Contacts sold separately)



100140 / Male PEEK Connector
(Contacts sold separately)



112700 / Female Ceramic Connector
(Contacts sold separately)



112701 / Male Ceramic Connector
(Contacts sold separately)



100180 / Female Contacts
110908 / High Duty Cycle Contacts

Ultrahigh Vacuum Connectors and Contacts

PEEK and Macor® ceramic connectors do not include contacts and must be purchased separately. High-use stainless steel Type-T1 contacts are recommended for use in connectors where plug-in cycles will exceed 3 cycles per day.

Macor® ceramic connectors are designed for high temperature and extreme environments not suitable for our standard PEEK connectors. Note that wires must be threaded through connector back-piece before crimping contacts.

Connectors¹ — 9-Pin Circular / UHV to 1x10⁻¹⁰ Torr

Number Contacts	Connector			Use Type-T1 Contacts	Model Number	Part Number
	Gender	Dia.	Length			

PEEK — Polymer Shell / 250°C

9	M	0.61	0.64	Male	9C-PKP	100140
9	F	0.61	0.74	Female	9C-PKS	100150

Macor® — Ceramic Shell / 400°C

9	M	0.61	0.64	Male	9C-MCP	112701
9	F	0.61	0.74	Female	9C-MCS	112700

1. Note temperature rating differences

Contacts, Type-T1^{1,2} — 250°C / UHV to 1x10⁻¹⁰ Torr

Number Contacts	Contact		Wire	Model Number	Part Number
	Gender	Dia.	Dia. / Gauge		

Contacts, Type-T1 — Standard / 10 per Pack

1 Pack	M	0.04	.043-.046 / 20-24 AWG	GP-10	100170
1 Pack	M	0.04	.023-.027 / 26-30 AWG	GP2-10	100171
1 Pack	F	0.04	.043-.046 / 20-24 AWG	GS-10	100180
1 Pack	F	0.04	.023-.027 / 26-30 AWG	GS2-10	100181

Contacts³, Type-T1 — High Duty Cycle / 10 per Pack

1 Pack	F	0.04	.043-.046 / 20-24 AWG	GS-10-S	110908
1 Pack	F	0.04	.023-.027 / 26-30 AWG	GS2-10-S	110909

1. For use in air or vacuum service connectors. 2. See page 109 for bulk packs. 3. High duty cycle stainless steel contacts require positioner DCT-P-2 on DCT-1 crimp tool. See Tools on page 13

Air-service Cable Assemblies / Cable

Connector to Cable air-service cable assemblies are fitted with a Delrin® Subminiature-C™ female connector at one end and non-terminated nine wires PVC insulated on the other. The female cable connectors mate directly onto the air side of nine-pin Subminiature-C feedthroughs shown on page 9. The cable jacket is gray PVC with a nominal diameter of 0.23 inches. The nine wires are 24 AWG tinned-copper conductors, stranded 7 x 0.008. Shielding is aluminum / Mylar® foil with a 24 AWG tinned-copper drain wire.

Cable Assemblies — 9-Pin Circular / 80°C / Air Atmosphere

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

Connector to Cable — 9-Pin Circular Connector (one end only)

9	48	7x 0.008	F	0.60	0.87	AIR-CP9-48SC	100020
9	96	7x 0.008	F	0.60	0.87	AIR-CP9-96SC	100021

Cable — Non Terminated 9 Conductor Cable

9	15-ft	7x 0.008	No Connector			AIR-CP9-15	100022
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Air-service Connectors / Tools

Delrin® shell connectors do not include contacts and must be purchased separately. High duty cycle stainless steel Type-T1 contacts are recommended for use in connectors where plug-in cycles will exceed 3 cycles per day.

Connectors¹ — 9-Pin Circular / 80°C / Air Atmosphere

Number Contacts	Connector			Use Type T-1 Contacts	Model Number	Part Number
	Gender	Dia.	Length			

Delrin® — Polymer Shell

9	M	0.61	0.64	Male	9C-DP	100162
9	F	0.61	0.74	Female	9C-DS	100160
Strain Relief ²		0.61	0.64	—	9C-DSR	100161

1. See page 12 for Type-T1 electrical contacts. 2. Includes two screws and shrink tubing

Tools — for Wiring 9-Pin Circular Vacuum and Air-Service Connectors

Contents	Description	Model Number	Part Number
1 Unit	Crimping tool for Type-T1 Contacts	DCT-1	100190
1 Unit	Crimp Tool Positioner ¹	DCT-POS-T2	111315
1 Unit	Wire Stripper, 26-36 AWG, .12-.40mm	2636AWG-STR	100191
1 Unit	Wire Stripper, 20-30 AWG, .25-.80mm	2030AWG-STR	100192
1 Set	Connector Screwdriver Set ²	DRVR-SET	112146

1. Used only with high duty cycle stainless steel contacts, fits DCT-1 part number 100190. 2. Includes one each flat, phillips and hex drivers



100020 / Female Air Connector to Cable
100022 / Non-terminated Air-Service Cable



100160 / Female Air-Service Connector
100162 / Male Air-Service Connector
(Contacts sold separately)



100161 / Air-service Connector Strain Relief
(Connector sold separately)



↖ Set Dial to #5

100190 / Contact Crimp Tool



100191 / Wire Stripper