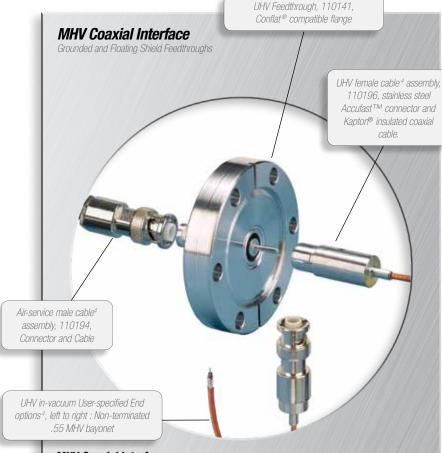
304 Stainless Steel

Kapton® Type-F Film





MHV Coaxial Interface

The 'Miniature High Voltage' connector interface is designed for low noise 50-ohm lines requiring higher voltage than is possible with a standard BNC interface. MHV coaxial feedthroughs are constructed in both grounded and floating shield configurations. Floating shield types provide two concentric conductor paths: an outer metal conductor tube (shield) concentric with, and enclosing, a cylindrical center conductor pin. Both paths are electrically isolated from each other and a mounting flange. Grounded shield MHVs provide only one path that's electrically isolated from the flange; where grounded shield and flange are electrically common. Vacuum side of single-ended grounded and floating MHV feedthroughs have a 0.094 inch (2.4-mm) diameter conductor pin that mates with grounded or floating AccuFast™ connectors.

Warning — MHV socket contacts are not recessed as deep as BNC feedthroughs and are electrically incompatible. They should never be cross mated. To prevent accidental cross mating in mixed low and high voltage coaxial applications use SHV-5 feedthroughs found on page 76.







Features

- MHV Coaxial interface
- Grounded and Floating Shield
- Single and Double Ended configurations
- Kapton® insulated 50-0hm cable
- High temperature rated to 250°C
- UHV compatible construction
- Conflat® and ISO KF compatible mounts
- Air service cables / connectors
- Custom solutions on request

Specifications

Electrical

Voltage 1, Maximum — Grounded Shield	5000 VDC
Voltage 1, Maximum — Floating Shield	2500 VDC
Current, Maximum @ 20°C	3 A

Material Shell

OHOH	004 0141111000 01001
Pin / Conductor	Ni Plated Stainless Steel
Insulation	Alumina Ceramic
Connector, Vacuum	2
Accufast ™	Stainless Steel, PEEK
MHV	Stainless Steel, Ni plated brass, PEEK
Connector, Air	Composite

Vacuum Range

Cable Insulation

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

Temperature Range 3

Feedthrough	-200° to 450°C
Flange Mount, Conflat®	450°C
Flange Mount, ISO	150°C
Connector / Cable, Vacuum	250°C
Connector / Cable, Air	165°C
Thermal Gradient	25°C / Minute Maximum

Notes

- 1. Electrical ratings are maximum test values, with feedthrough's vacuum side at $\leq 1x10^{-4}$ Torr. Feedthroughs are intended for applications carrying
- 2. PEEK is a polyether ether ketone thermoplastic.
- 3. Overall assembly ratings must be adjusted to that of its lowest rated component. For cryogenic service, the lowest recommended temperature is -200°C
- 4. Connectors and cables 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.

MHV

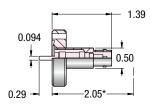
Feedthrough

Interface

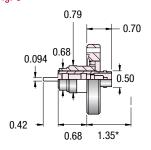
.047 to .082



Grounded Shield — Single-Ended Fig. 1



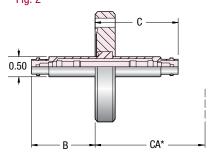
Floating Shield — Single-Ended Fig. 3



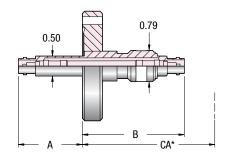
No. Pins	SE Circle
1 2 3 4	0.85 0.85 0.85

* Connector Attached

Double-Ended Fig. 2



Double-Ended Fig. 4



End Views showing feedthrough placements











133 CF 275 CF ----

CF Flange ¹ — 3 Amp / 250°C / UHV to 1x10⁻¹⁰ Torr

No. Pins	Fig.	End ² Type	CF Flange	OD	В	С	CA	Model Number	Part Number	Unit Price \$	
Grounded	Grounded Shield — 5000VDC Pin to Ground										
1	1	SE	133 CF	1.33	_	_	_	MHV-GS-133	110140	105	
1	1	SE	275 CF	2.73	_	_	_	MHV-GS-275	110141	111	
2	1	SE	275 CF	2.73	_	_	_	MHV-GS2-275	110142	158	
3	1	SE	275 CF	2.73	_	_	_	MHV-GS3-275	110143	216	
4	1	SE	275 CF	2.73	_	_	_	MHV-GS4-275	110144	273	
1	2	DE	133 CF	1.33	1.08	2.55	3.20	2MHV-GS-133	110122	310	
1	2	DE	275 CF	2.73	1.58	2.05	2.70	2MHV-GS-275	110123	314	
Floating S	Floating Shield — 2500VDC Shield to Ground										
1	3	SE	275 CF	2.73	_	_	_	MHV-FS-275	110174	231	
1	4	DE	133 CF	1.33	1.20	2.91	3.56	2MHV-FS-133	110175	394	
1	4	DE	275 CF	2.73	1.60	2.51	3.16	2MHV-FS-275	110176	394	

^{1.} Compatible with Conflat® flanges and hardware 2. SE (single-ended) DE (double ended)



110141 / Single-Ended MHV (Vacuum Side)



110144 / Single-Ended MHV (Vacuum Side)



110174 / Single-Ended MHV (Vacuum Side)



110175 / Double-Ended MHV (Vacuum Side)





110151 / Single-Ended MHV (Vacuum Side)



110134 / Double-Ended MHV (Vacuum Side)



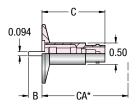
110177 / Single-Ended MHV (Vacuum Side)



110178 / Double-Ended MHV (Vacuum Side)

See page 68 for **Specifications**

Grounded Shield — Single-Ended Fig. 1



Floating Shield — Single-Ended Fig. 3 0.79 0.094 0.68 0.70 0.50 0.42

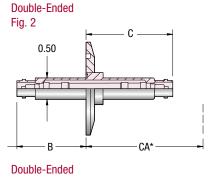


Fig. 4

						_	
No. Pins	SE Circle	DE Circle	End Views sh	owing feedthr	ough placemen	nts	
1 2 3 4	0.75 0.85 0.85	.875 1.10		(1)			
* Con	nector Atta	ched	NW16 KF	NW	10 KF	NW5	50 KF

ISO KF Flange 1 — 3 Amp / 150°C / HV to 1x10-8 Torr

No. Pins	Fig.	End ² Type	ISO Flange	OD	В	С	CA	Model Number	Part Number	Unit Price \$
Grounded	d Shield	d — 5	000VDC							
1	1	SE	NW16 KF	1.18	0.25	1.44	2.10	MHV-GS-K16	110150	105
1	1	SE	NW40 KF	2.16	0.35	1.34	2.00	MHV-GS-K40	110151	111
2	1	SE	NW40 KF	2.16	0.35	1.34	2.00	MHV-GS2-K40	110152	158
3	1	SE	NW50 KF	2.95	0.35	1.34	2.00	MHV-GS3-K50	110153	252
4	1	SE	NW50 KF	2.95	0.35	1.34	2.00	MHV-GS4-K50	110154	310
1	2	DE	NW16 KF	1.18	1.08	2.55	3.20	2MHV-GS-K16	110133	310
1	2	DE	NW40 KF	2.16	1.58	2.05	2.70	2MHV-GS-K40	110134	315
2	2	DE	NW50 KF	2.95	1.58	2.05	2.70	2MHV-GS2-K50	110138	499
Floating 9	Floating Shield — 2500VDC									
1	3	SE	NW40 KF	2.16	_	_	_	MHV-FS-K40	110177	226
1	4	DE	NW16 KF	1.18	1.25	2.86	3.51	2MHV-FS-K16	110178	394
1	4	DE	NW40 KF	2.16	1.65	2.46	3.11	2MHV-FS-K40	110179	394

1. Compatible with ISO 2861/1 specification flanges and hardware 2. SE (single-ended) DE (double ended)



Ultrahigh Vacuum Cable Assemblies

The cables in the assemblies listed below consist of Accu-Glass Products' TYP6, 26 AWG, coaxial cable (part number 100720, page 99). These components are UHV compatible to $1x10^{-10}$ Torr. Connector to Cable UHV cable assemblies are fitted with either stainless steel AccufastTM Female or MHV Male Bayonet connectors at one end and a non-terminated, Kapton® insulated wire at the other. The connectors mate directly to the in-vacuum side of our MHV feedthrough flanges on pages 69 and 70.

Connector to User-Specified End UHV cable assemblies are fitted with either stainless steel Accufast[™] Female or MHV Male Bayonet connectors at one end and a user-specified connector at the other: MHV Bayonet Male. The connectors mate directly to the in-vacuum side of our MHV feedthrough flanges on pages 69 and 70.

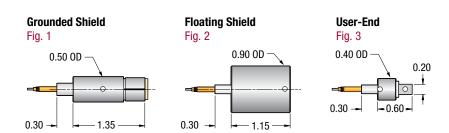


Connector Type	Figure (Below)	Wire Length	Connector Name	Model Number	Part Number	Unit Price \$		
Connector to Cable								
Grounded	1	19	Accufast™ 500	KAP-1CX-19AF500S	110196	175		
Grounded	1	39	Accufast™ 500	KAP-1CX-39AF500S	110197	185		
Floating	2	19	Accufast™ 875	KAP-1CX-19AF875S	110192	175		
Floating	2	39	Accufast™ 875	KAP-1CX-39AF875S	110193	185		
Bayonet	_	19	MHV Male Bayonet	KAP-1CX-19MHV	110798	105		
Bayonet	_	39	MHV Male Bayonet	KAP-1CX-39MHV	110799	115		

Connector to User-Specified End Options

1 contact	3	User-End Female append to Part Number	.51	170
1 contact	_	MHV Male Bayonet append to Part Number	.55	95

These are sold as additions to the above cable assemblies and are added at the factory only. Price is added to the unit price. For example, Part Number 110196.55 would have a price of \$270.





110196 / MHV Grounded Shield UHV Connector



110192 / MHV Floating Shield UHV Connector



.51, and .55 / User End Female and MHV Male Bayonet



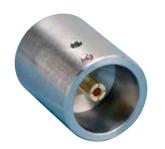
110798.55 / UHV MHV Male Bayonet with MHV Male Bayonet User-Specified End Option

See page 68 for **Specifications**See page 94 for **Cable Specs**





111033 / Accufast TM 500 UHV Connector



111021 / Accufast TM 875 UHV Connector



111024 / MHV Male UHV Connector

Ultrahigh Vacuum Connectors

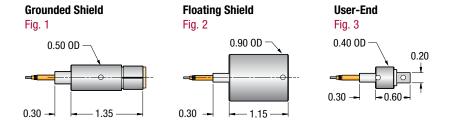
Components in this section are sold as the most basic components. Connectors do not include wire or cable.

Connectors are designed for use with our TYP6, 26 AWG, coaxial cable (part number 100720, page 99). Use of these connectors on other coaxial cable may require modification to the crimp sleeve of the connector. Please call before ordering if using with other coaxial cable.

Accufast[™] 500 and 875 connectors mate directly to the vacuum side of corresponding single-ended feedthroughs on pages 69 and 70.

Connectors — 250°C / UHV to 1x10⁻¹⁰ Torr

Connector Type	Figure (Below)	Connector Name	Model Number	Part Number	Unit Price \$
Connector					
Grounded	1	Accufast [™] 500	AF500HV	111033	165
Floating	2	Accufast™ 875	AF875	111021	155
MHV	_	UHV MHV Male	MHV-UHV-P	111024	90
Generic	3	USER-END	USER-END	111022	145



Assembly Tools and Components

Hex Crimping Tool	1 ea.	HCT-1	111029	95
UHV Solder	1 inch	UHV-SOLDER	110796	39
Solder Flux	1 ea.	S-FLUX	110797	45
Soldering Iron	1 ea.	S-IRON	110800	155

Cable Assembly, Connectors, and Cable — 80°C / Air Atmosphere



Air-service Cable Assemblies and Connectors

MHV Male to MHV Male air side cable assemblies are fitted with standard MHV Male Bayonet connectors at both ends of an RG59B/U coaxial cable. The connectors mate directly with the air side of the MHV feedthrough flanges on pages 69 and 70.



110194 / Air-Service MHV Male Bayonet to MHV Male Bayonet

Length Part Туре Inches Diameter Cable Assembly — MHV to MHV MHV M/M48 0.25 AIR-MHV-482PC 110194 60 **Connectors** — MHV MHV M AIR-MHV-C 110195 30



110195 / Air-Service MHV Male Connector