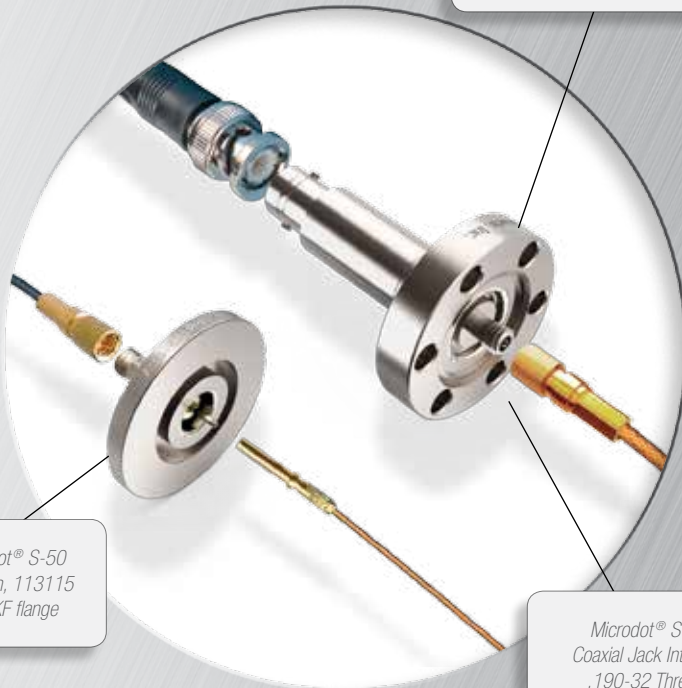




Microdot® Threaded Coaxial Interface

Microdot®, BNC-Microdot® Type Feedthroughs



UHV
BNC-Microdot® S-50 Feedthrough,
113125, Conflat® compatible flange

HV Microdot® S-50
Feedthrough, 113115
ISO NW KF flange

Microdot® S-50
Coaxial Jack Interface
.190-32 Threads

Microdot® Threaded Coaxial Interface

The Microdot® coaxial interface, developed for aerospace and instrumentation applications, is a small circular connector, which is sometimes mistaken for the slightly larger SMA coaxial connection. In its most common configuration, the S-50 series (the feedthroughs offered herein), it uses a No. 10-32 UNF (.190-32) thread. Male connectors are fitted with a .030/.033 diameter pin and jacks have the female mating socket receptacle. It is commonly used in conjunction with high-frequency, low noise, 50-ohm instrumentation signal lines in accelerometers and various transducer applications. Accu-Glass Products' Microdot® and 'between-series' BNC-Microdot® coaxial feedthroughs are constructed with grounded shields, where the feedthrough shield and flange are electrically common.

BNC-Microdot® 'between-series' feedthroughs offer a simple means of transitioning between BNC and Microdot® wired applications, or vice versa. The BNC-Microdot® feedthrough is often used in conjunction with crystal sensors to monitor deposition thicknesses of in-vacuum coating applications. Microdot® cable assemblies, connectors and wiring accessories are also offered. Threaded, mating male and female, coaxial connectors are available.

Warning — Microdot® S-93, with .250-32 thread and .030/.033 pin diameter, are often mistaken for SMA's, which have .250-36 threads and a .035/.037 pins. To avoid possible damage to one or both connector interfaces, these connectors should never be cross-mated. Compare Microdot® and SMA differences, at right...

Features

- Microdot® and BNC Coaxial Interfaces
- Single and 'Between Series' Configurations
- Kapton® insulated, 50-Ohm cables
- 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	500 VDC
Current, Maximum @ 20°C	2 A

Material

Shell	304 Stainless Steel
Pins	Stainless Steel / Molybdenum, Ni Plated
Insulation	Alumina Ceramic
Connector, Vacuum ²	
BNC	Ni Plated brass, PEEK
Microdot	Au Plated brass, PEEK
Connector, Air	Composite
Cable Insulation, Vacuum	Kapton® Type-F Film

Vacuum Range

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

Temperature Range³

Feedthrough	250°C
Flange Mount, Conflat®	450°C
Flange Mount, ISO	150°C
Connector / Cable, Air	165°C
Connector / Cable, Vacuum	250°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/current.
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

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



Fig. 1 Microdot®

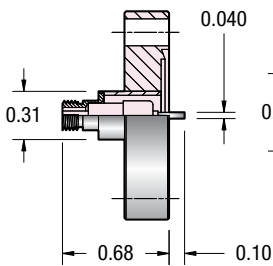
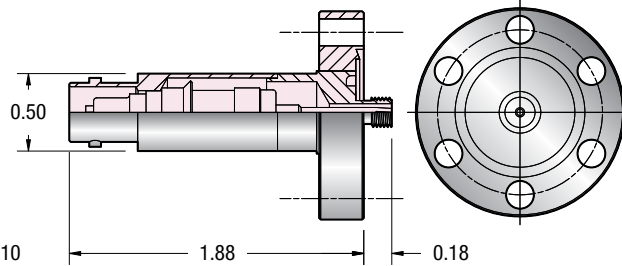


Fig. 2 BNC-Microdot®



113100 / Microdot®
1.33 CF Flange (Vacuum Side)

CF Flange — 500 VDC, 2 Amp / 250°C / UHV to 1x10⁻¹⁰ Torr

No. Pins	Figure No.	Ended	CF Flange	OD	Model Number	Part Number	Unit Price \$
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Microdot — .190-32 Threaded Air-side Interface / .040 Vacuum-side Pin

1	1	Single	133 CF	1.33	MD-SEGS-133	113100	126
1	1	Single	275 CF	2.73	MD-SEGS-275	113110	137

Between Series — BNC-Microdot® Air / Vacuum Interface, .190-32 Threaded Microdot®

1	2	BNC / Microdot	133 CF	1.33	BNC-MD-GS-133	113125	326
1	2	BNC / Microdot	275 CF	2.73	BNC-MD-GS-275	113130	336

Compatible with Conflat® flanges and hardware



113125 / BNC-Microdot
1.33 CF Flange (Vacuum Side)

Fig. 3 Microdot®

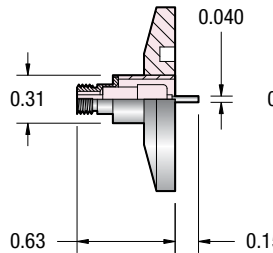
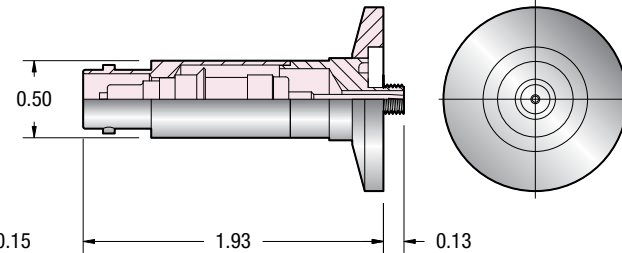


Fig. 4 BNC-Microdot®



113115 / Microdot®
ISO NW16 Flange (Vacuum Side)

ISO KF Flange — 500 VDC, 2 Amp / 250°C / HV to 1x10⁻⁸ Torr

No. Pins	Figure No.	Ended	ISO KF Flange	OD	Model Number	Part Number	Unit Price \$
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Microdot — .190-32 Threaded Air-side Interface / .040 Vacuum-side Pin

1	3	Single	NW16 KF	1.18	MD-SEGS-K16	113115	126
1	3	Single	NW40 KF	2.16	MD-SEGS-K40	113120	137

Between Series — BNC-Microdot® Air / Vacuum Interface, .190-32 Threaded Microdot®

1	4	BNC / Microdot	NW16 KF	1.18	BNC-MD-GS-K16	113135	326
1	4	BNC / Microdot	NW40 KF	2.16	BNC-MD-GS-K40	113140	336

Compatible with ISO 2561/1 specification flanges and hardware



113135 / BNC-Microdot
ISO NW16 Flange (Vacuum Side)



112783 / S-50 Microdot
Male Connector (.190-32 Thread)



112785 / S-50 Microdot
Female Connector (.190-32 Thread)



100180 / Female Contacts and
110908 / High Duty Cycle Contacts
(Wire Sold Separately)

Used to make contact fitted leads for single-ended Microdot coaxial feedthroughs with .040 diameter, vacuum-side pin.
See page 95 for Kapton® insulated 28 AWG wire 100690.

See page 86 for **Specifications**

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 1×10^{-10} Torr. Connector to Cable UHV cable assemblies are fitted with male or female S-50 threaded .190-32 Microdot® connectors at one end and a non-terminated, Kapton® insulated coaxial wire at the other. The connectors mate directly to the vacuum side of our Microdot® feedthrough flanges on page 87. Optionally, opposite end of Connector to Cable UHV cable assemblies can be factory terminated with one of ten (10) User Specified End Options listed in the table below. Table includes part number modifier/extension and price for each termination option. See page 89 for a termination diagram.

Microdot® Cable Assemblies — 50Ω Kapton® Insulated Cable / 250°C / UHV to 1×10^{-10} Torr

No. Leads	Connector Gender	Cable Length (Inch)	Figure No.	Model Number	Part Number	Unit Price \$
Connector to Cable						
1	M	19		KAP-1CX-19MD190M	112783	125
1	M	39		KAP-1CX-39MD190M	112784	135
1	F	19		KAP-1CX-19MD190F	112785	125
1	F	39		KAP-1CX-39MD190F	112786	135

Microdot® Connector to User-Specified End Options¹

1	F	User-End		Append to Part Number Above	.51	150
1	M	SMA		Append to Part Number Above	.52	75
1	F	SMA		Append to Part Number Above	.54	75
1	M	BNC		Append to Part Number Above	.53	75
1	M	MHV		Append to Part Number Above	.55	85
1	M	SMB		Append to Part Number Above	.56	85
1	M	S-50		Append to Part Number Above	.57	115
1	F	S-50		Append to Part Number Above	.58	115
1	M	S-70		Append to Part Number Above	.59	115
1	M	S-93		Append to Part Number Above	.65	115

¹ These are sold as additions to the above cable assemblies and can only be added at the factory. Option price is added to cable unit price. For example, Part Number 112783.52 would have a price of \$200.

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

Number Contacts	Contact		Wire		Model Number	Part Number	Unit Price \$
	Gender	Dia.	Dia. / Gauge				
Contacts, Type-T1 — Standard / 10 per Pack							
1 Pack	F	0.04	.043-.046 / 20-24 AWG		GS-10	100180	24
1 Pack	F	0.04	.023-.027 / 26-30 AWG		GS2-10	100181	24

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

1 Pack	F	0.04	.043-.046 / 20-24 AWG		GS-10-S	110908	35
1 Pack	F	0.04	.023-.027 / 26-30 AWG		GS2-10-S	110909	35

¹ For use in air or vacuum service connectors. ² High duty cycle stainless steel contacts require positioner DCT-P-2 on DCT-1 crimp tool.

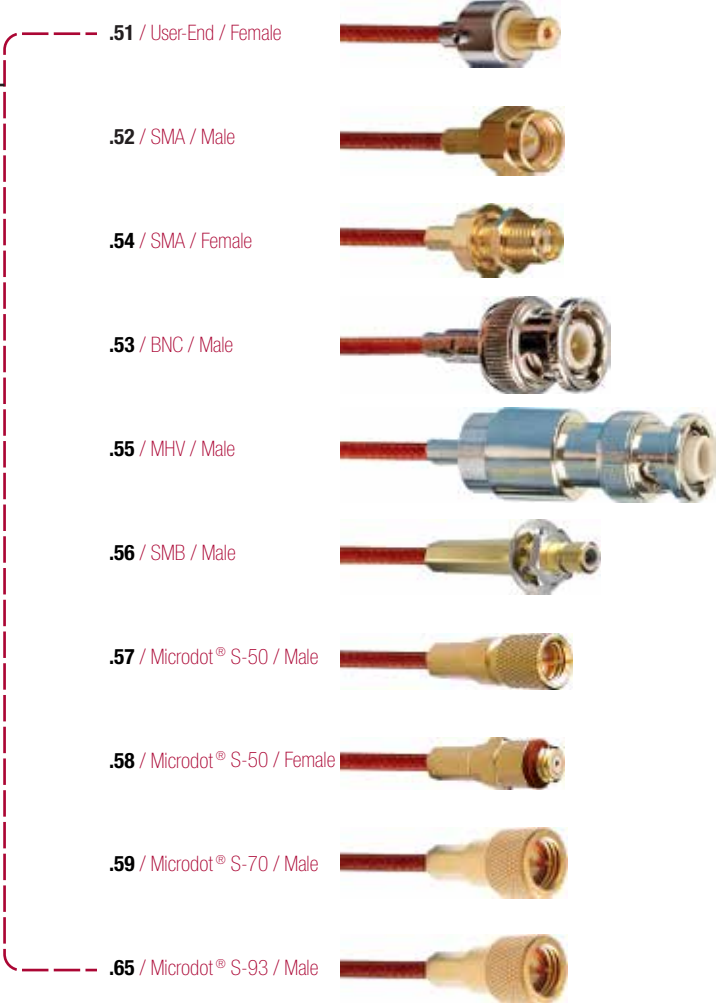
Microdot / User-Specified Terminations

Connector to User-Specified End UHV cable assemblies are fitted with male or female Microdot® S-50 connectors at one end and a user-specified connector .51 through .65 at the other.

Cable End-1 / Standard Terminations / Microdot® S-50



Cable End-2 / User-Specified Terminations



Coaxial

Tools — for Wiring UHV Vacuum Contacts

Contents	Description	Model Number	Part Number	Unit Price \$
1 Unit	Crimping tool for Type-T1 Contacts	DCT-1	100190	454
1 Unit	Crimp Tool Positioner for HDC Contacts ¹	DCT-POS-T2	111315	69
1 Unit	Wire Stripper, 26-36 AWG, .12-.40mm	2636AWG-STR	100191	95
1 Unit	Wire Stripper, 20-30 AWG, .25-.80mm	2030AWG-STR	100192	95

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



100190 / Contact Crimp Tool