

Coaxial BNC/ SMA/ MHV/ Safe High Voltage (SHV), Type N, Microdot Feedthroughs



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Standard BNC Feedthroughs, Single and Double Sided
 Grounded and Floating Shield
 BNC Vacuum Ready Cables



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50Ω BNC Feedthroughs
 Single and Double Sided
 Grounded and Floating Shield



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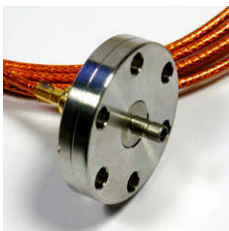
SMA 50Ω Miniature Coaxial Feedthroughs, Standard and G18 Series
 Single and Double Sided
 SMA Connectors and Ready Made Cables



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MHV Standard and 50Ω Feedthroughs
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50Ω Type N Feedthroughs
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Microdot Crystal Sensor Feedthroughs and Vacuum Ready Cables
 for use with Film Thickness Monitors



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Plugs & Sockets for Coaxial Feedthroughs

- 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

Standard BNC Feedthroughs, Single & Double Sided Grounded & Floating Shield / BNC Vacuum Cables

Standard BNC feedthroughs are a general purpose coaxial economic solution where defined impedance and high voltage are not required.

- Up to 4 Feedthroughs fit on a 40 CF or 40 KF flange
- Single or Double Sided
- In-Vacuum cables are available for both types



General Specification 241-BNC(D)

Type	Grounded Shield BNC
Impedance	not matched
Pin- ϕ	2.4 mm (for single sided types)
Voltage	500V DC
Current	3A
Temp.	-200°C to 450°C
Leak rate	$<5 \times 10^{-10}$ mbar l/s
Air Side Connectors are included (for RG58 cable)	

BNC Standard Type 500V Coaxial GROUNDED SHIELD 1 to 4 pins SINGLE SIDED, CF and KF flanges

FLANGE	PINS	PART NUMBER
WELD	1	241-BNC
16CF	1	241-BNC-C16
40CF	1	241-BNC-C40
40CF	2	241-BNC-C40-2
40CF	3	241-BNC-C40-3
40CF	4	241-BNC-C40-4
16KF	1	241-BNC-K16
40KF	1	241-BNC-K40
40KF	2	241-BNC-K40-2
40KF	3	241-BNC-K40-3
40KF	4	241-BNC-K40-4
50KF	4	241-BNC-K50-4

Air side sockets are included

Co-axial In-Vacuum Cables, IVCX type for SINGLE SIDED BNC

LENGTH MM	SOCKETS	PART NUMBER
500 mm	1	380-IVCX-500
1000 mm	1	380-IVCX-1000

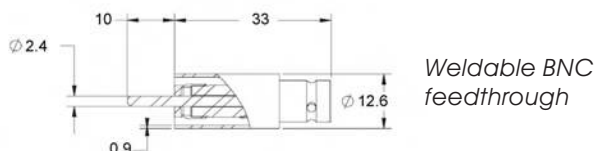
BNC Standard Type 500V Co-axial GROUNDED SHIELD 1 to 4 pins DOUBLE SIDED CF and KF flanges

FLANGE	PINS	PART NUMBER
WELD	1	241-BNCD
16CF	1	241-BNCD-C16
40CF	2	241-BNCD-C40-2
63CF	4	241-BNCD-C63-4
16KF	1	241-BNCD-K16
40KF	1	241-BNCD-K40

Air side sockets are included

BNC Co-axial Cable for DOUBLE SIDED types In-Vacuum Socket with Co-axial Kapton cable

LENGTH MM	SOCKETS	PART NUMBER
NONE	SOCKET ONLY	245-CON-BNC
500 mm	1	380-BNC-MX-500
1000 mm	1	380-BNC-MX-1000
500 mm	2	380-BNC-MM-500
1000 mm	2	380-BNC-MM-1000



IVCX cables fit single sided BNC feedthroughs.



241-BNCD Dimensions	
Weld ϕ :	19 mm
In Vacuum Length	43 mm for weldable 40 mm for CF40 29 mm for CF16



50 Ω BNC F/T, Single & Double Sided

Grounded & Floating Shield

The 50 Ω BNC feedthroughs are suitable for high frequencies. The double sided can be used up to 4 GHz.

- True 50 Ohm Feedthroughs
- High frequency up to 4 GHz
- Air Side sockets included
- In-Vacuum Cables available for both types

General Specification 242-BNC50(DF)

Type	50 Ohm BNC
Frequency	100 MHz single sided 4 GHz double sided
Pin-∅	2.4mm, 13mm long (single sided)
Voltage	500V DC (limited by plug)
Current	3A
Temp.	-200°C to 300°C
Leak rate	<5x10 ⁻¹⁰ mbar l/s
Air Side Connectors are included (for RG58 cable)	



Weldable single sided 50 Ohm BNC F/T

Weld Diameter:
 Single sided grounded: 9.6 mm
 All other types: 16.5 mm
 All BNC feedthroughs include an air side connector for standard RG58 cable



Weldable double sided BNC50

Please ask for a quote if you need more feedthroughs on one flange or assemblies including other feedthroughs types.

Weldable single sided floating BNC50 F/T



Double sided floating shield BNC50 on 16CF Flange

BNC 50 Ohm 500V Coaxial GROUNDED SHIELD 1 to 4 pins SINGLE SIDED CF and KF flanges

FLANGE	PINS	PART NUMBER
WELD	1	242-BNC50
16CF	1	242-BNC50-C16
40CF	1	242-BNC50-C40
40CF	2	242-BNC50-C40-2
40CF	3	242-BNC50-C40-3
40CF	4	242-BNC50-C40-4
16KF	1	242-BNC50-K16
40KF	1	242-BNC50-K40
40KF	2	242-BNC50-K40-2
40KF	3	242-BNC50-K40-3
40KF	4	242-BNC50-K40-4

Air side connectors are included

BNC 50 Ohm 500V Coaxial GROUNDED SHIELD 1 to 4 pins DOUBLE SIDED CF and KF flanges

FLANGE	PINS	PART NUMBER
WELD	1	242-BNCD50
16CF	1	242-BNCD50-C16
40CF	2	242-BNCD50-C40-2
40CF	3	242-BNCD50-C40-3
16KF*	1	242-BNCD50-K16
40KF	2	242-BNCD50-K40-2

Air side connectors are included

*) The 16KF version requires the use of an Outer Centring Ring

BNC 50 OHM 500V Coaxial FLOATING SHIELD SINGLE and DOUBLE SIDED, CF Flanges

FLANGE	PINS	PART NUMBER
WELD	1 SINGLE	242-BNCF50
16CF	1 SINGLE	242-BNCF50-C16
40CF	2 SINGLE	242-BNCF50-C40-2
40CF	3 SINGLE	242-BNCF50-C40-3
WELD	1 DOUBLE	242-BNCF50
16CF	1 DOUBLE	242-BNCF50-C16
40CF	1 DOUBLE	242-BNCF50-C40
40CF	2 DOUBLE	242-BNCF50-C40-2

Air side connectors are included

KF version on request.



- 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

SMA 50 Ω Miniature Co-axial Feedthroughs

18GHz High Frequency version

- True 50Ω, DC to 6.5GHz or 18GHz
- Miniature size - up to 4 Feedthroughs fit onto a 40CF or 40KF flange
- SMA is available Double Sided with both internal and external 50Ω plugs.



SMA High Frequency 50 Ohm Feedthrough SINGLE SIDED - GROUNDED SHIELD

FLANGE	PINS	PART NUMBER
WELD	1	242-SMA50
16CF	1	242-SMA50-C16
40CF	1	242-SMA50-C40
40CF	2	242-SMA50-C40-2
40CF	3	242-SMA50-C40-3
40CF	4	242-SMA50-C40-4

Versions on KF flanges are also available

SMA High Frequency 50 Ohm Feedthrough DOUBLE SIDED - GROUNDED SHIELD

FLANGE	PINS	PART NUMBER
WELD	1	242-SMAD50
16CF	1	242-SMAD50-C16
40CF	1	242-SMAD50-C40
40CF	2	242-SMAD50-C40-2
40CF	3	242-SMAD50-C40-3
40CF	4	242-SMAD50-C40-4

Versions on KF flanges are also available

SMA High Frequency 50 Ohm Feedthrough DOUBLE SIDED - FLOATING SHIELD

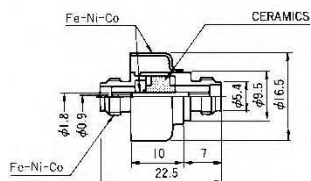
FLANGE	PINS	PART NUMBER
WELD	1	242-SMADF50
16CF	1	242-SMADF50-C16
40CF	1	242-SMADF50-C40
40CF	2	242-SMADF50-C40-2
40CF	3	242-SMADF50-C40-3
40CF	4	242-SMADF50-C40-4

Versions on KF flanges are also available



Weldable SMA Feedthroughs:

- left- Single Sided Grounded Shield
- center- Double Sided Grounded Shield
- right- Double Sided Floating Shield



Dimensions of Floating and Grounded Shield Feedthrough

General Specifications

Vacuum	UHV (leak rate <math>< 5 \times 10^{-10}</math> mbar l/s)
Temperature	-200°C to 300°C
Electrical	1000V DC, 3A max
Impedance	50 Ohm
Frequency	AC to 6.5 GHz
Pin	1.8 mm ϕ , 5 mm long (single sided)
Weld- ϕ	9.5 mm for 242-SMA50 16.5 mm for 242-SMAD/ SMADF
Connector	Male SMA Plug
Cable	311-KAP50/ KAP50-S

High Frequency SMAD18G Series

- True 50Ω, DC to 18 GHz
- Miniature size - up to 4 Feedthroughs fit onto a 40CF or 40KF flange
- SMA is available Double Sided with both internal and external 50Ω plugs.
- UHV compatible 18 GHz Cables available for the vacuum side - see next page.



If 18GHz is not enough, Allectra offers microwave F/Ts SMA-K Type (2.92mm) for up to 40 GHz. Please see page 3.11.

Specification 242-SMAD18G

Vacuum	UHV (leak rate <math>< 5 \times 10^{-10}</math> mbar l/s)
Temp.	-65°C to 200°C
Electrical	1000V DC, 3A max.
Impedance	50Ω
Frequency	DC to 18GHz
VSWR	1.1 + 0.01x f (GHz)
Connectors	Male SMA Plugs
Cable	311-KAP50/KAP50-S/18GHz cable

SMA HIGH FREQUENCY, 18GHZ, 50 OHM F/T DOUBLE SIDED - GROUNDED SHIELD

FLANGE	PINS	PART NUMBER
16KF	1	242-SMAD18G-K16
16CF	1	242-SMAD18G-C16
40CF	1	242-SMAD18G-C40
40CF	2	242-SMAD18G-C40-2
40CF	3	242-SMAD18G-C40-3
40CF	4	242-SMAD18G-C40-4

SMA Ready Made Cables

Allectra offers cables with Male (Plug) and Female (Socket) SMA connectors.
N.B. Male Plugs fit to Feedthroughs both Vacuum and Air Side.

Use Female UHV Socket Connectors for In-vacuum coaxial connections
 Standard 50Ω Kapton coaxial cable is 311-KAP50
 A thinner 50Ω version also available (311-KAP50S).

Cables are available with connectors on one end or on both ends. Standard lengths are 500 mm and 1 m, other lengths can be made on request. Mixed cables with other connectors can be made to order (e. g. SMA to BNC, Microdot, SHV, MHV etc.)



Specifications Standard SMA cables

Impedance	50 Ω
Capacitance	~115pF/m
Damping	0.1db/ m @ 100MHz 1.1db/ m @ 500MHz 1.9db/ m @ 1GHz
Cut off frequency	~ 17GHz (measured with 2 x SMA-Socket)
Current	1A
Temp.	-200°C to 220°C
Connectors:	SMA male (fits to f/t) SMA female
Cable used:	311-KAP 50 (ø 2.3mm)
Test voltage:	500V DC
Test Insulation:	Min. 1GΩ pin to shield
Vacuum:	<10 ⁻¹⁰ mbar

**SMA HIGH FREQUENCY 50 OHM CABLE
Single ended, SMA Plug to open end**

LENGTH	IMPEDANCE	PART NUMBER
500 mm	50Ω	380-SMA-MX-500
1000 mm	50Ω	380-SMA-MX-1000

**SMA HIGH FREQUENCY 50 OHM CABLE
Double ended, Male Plug to Male Plug**

LENGTH	IMPEDANCE	PART NUMBER
500 mm	50Ω	380-SMA-MM-500
1000 mm	50Ω	380-SMA-MM-1000

Connector dimensions

male:	Max ø	9mm, 31mm length
female:	Max ø	10.1mm, 26mm length

Specifications 18GHZ SMA cables

Impedance	50 Ω
Capacitance	97pF/m
Material	PTFE dielectric, outer blank
Damping	0.4db/m @ 1 GHz (cable) 1.5db/m @ 10 GHz 2.25db/m @ 18 GHz
Current	0.5A (DC)
Temp.	-200°C to 220°C
Connectors:	SMA Male (fits to F/T)
Test voltage	500V DC
Test insulation	min 1GΩ pin to shield Typ. 100 GΩ

**SMA 18GHz HIGH FREQUENCY 50 OHM CABLE
Double ended, Male Plug to Male Plug**

LENGTH	IMPEDANCE	PART NUMBER
300 mm	50Ω	380-SMA18G-MM-300
500 mm	50Ω	380-SMA18G-MM-500

Custom lengths available on request



18 GHz cable

Please ask for the full data sheet

Specifications thin SMA cables

Impedance	50 Ω
Capacitance	~120pF/m
Damping	3db/m @ 1 GHz
Current	0.5A (DC)
Temp.	-200°C to 220°C
Connectors:	SMA Male (fits to F/T) (no female connector available)
Cable used:	311-KAP50S (ø 1.45 mm) thin 50 Ohm UHV compatible
Test voltage	500V DC
Test insulation	min 1GΩ pin to shield

**SMA THIN 50 OHM CABLE
Single ended, SMA plug to open end**

LENGTH	IMPEDANCE	PART NUMBER
500 mm	50Ω	380-SMA-MX-500-S
1000 mm	50Ω	380-SMA-MX-1000-S

**SMA THIN 50 OHM CABLE
Double ended, Male Plug to Male Plug**

LENGTH	IMPEDANCE	PART NUMBER
500 mm	50Ω	380-SMA-MM-500-S
1000 mm	50Ω	380-SMA-MM-1000-S

- 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

- 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
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- 10 Process Control
- 11 CF Hardware
- 12 KF Hardware
- 13 ISO-K Hardware
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- 15 HV / UHV Chambers
- 16 Atlas Bi-Metal

MHV Standard and MHV 50Ω Feedthroughs

MHV Vacuum Ready Cables

MHV (Miniature High Voltage) is a variation of BNC with recessed pin and voltage rating increased to 5KV. The listed non-impedance matched versions are Single Sided, the 50Ω versions are Single Sided, Double Sided and Floating Shield.



Specifications MHV Standard Type

Type	Grounded Shield MHV
Impedance	not constant
Pin-ø	2.4mm
Voltage	5KV DC
Current	3A
Temp.	-200°C to 450°C
Leak rate	<5 x 10 ⁻¹⁰ mbar l/s
Air Side Connectors are included	

Specifications MHV 50 Ohm Type

Type	MHV, Grounded Shield, Double Sided and Floating types
Impedance	50Ohm, up to 100MHz
Pin-ø	2.4mm (single sided)
Voltage	5KV DC
Current	3A
Temp.	-200°C to 250°C
Leak rate	<5 x 10 ⁻¹⁰ mbar l/s
Air Side Connectors are not included	



Difficult to distinguish: BNC and MHV look very similar. On the left is a BNC, on the right an MHV. The main visible difference is the recessed ceramic inside the MHV F/T.



245-CON-MHV

MHV STANDARD type, 5KV Coaxial, GROUNDED SHIELD 1 to 4 pins SINGLE SIDED, CF and KF flanges

FLANGE	PINS	PART NUMBER
WELD	1	241-MHV
16CF	1	241-MHV-C16
40CF	1	241-MHV-C40
40CF	2	241-MHV-C40-2
40CF	3	241-MHV-C40-3
40CF	4	241-MHV-C40-4

KF Versions are available on request

MHV 50 Ω, 5KV Coaxial, GROUNDED Shield 1 to 4 pins SINGLE SIDED, CF and KF flanges

FLANGE	PINS	PART NUMBER
WELD	1	242-MHV50
16CF	1	242-MHV50-C16
40CF	1	242-MHV50-C40
40CF	2	242-MHV50-C40-2
40CF	3	242-MHV50-C40-3
40CF	4	242-MHV50-C40-4

MHV 50Ω, 5KV Coaxial, GROUNDED Shield 1 to 4 pins DOUBLE SIDED, CF and KF flanges

FLANGE	PINS	PART NUMBER
WELD	1	242-MHVD50
16CF	1	242-MHVD50-C16
40CF	2	242-MHVD50-C40-2

MHV 50Ω, 5KV Coaxial, FLOATING Shield SINGLE and DOUBLE SIDED, CF flanges

FLANGE	PINS	PART NUMBER
WELD	1 SINGLE	242-MHVF50
16CF	1 SINGLE	242-MHVF50-C16
WELD	1 DOUBLE	242-MHVDF50
16CF	1 DOUBLE	242-MHVDF50-C16
40CF	1 DOUBLE	242-MHVDF50-C40

MHV 50Ω, 5KV Coaxial CABLES for DOUBLE SIDED types In-Vacuum Socket with Coaxial Kapton cable

CABLE MM	SOCKETS	PART NUMBER
NONE	1	245-CON-MHV
500 mm	1	380-MHV-MX-500
1000 mm	1	380-MHV-MX-1000
500 mm	2	380-MHV-MM-500
1000 mm	2	380-MHV-MM-1000

SMB Miniature 50Ω Coaxial Feedthroughs

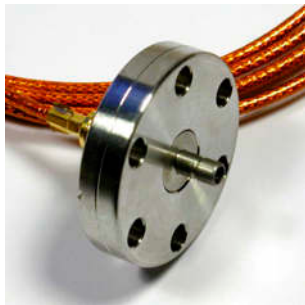
SMB Vacuum Ready Cables

Up to now the SMB has not been popular, owing to lack of in-vacuum connectors, no impedance matching and high prices. The new Allectra SMB overcomes all these problems.

- Small dimensions are combined with a frequency range up to 1 GHz
- In-vacuum connectors and cables at attractive prices
- New SMB is an alternative to the well established SMA types.

General Specification 242-SMB

Vacuum	UHV
Leak rate	<5 x 10 ⁻¹⁰ mbar l/s
Temp.	-200°C to 220°C
Frequency	AC to 1 GHz
Current	1 A max
Test-Voltage	500 V DC (Working: 250V RMS)
Test-Resistivity	>1GΩ (pins to ground)
Impedance	50Ω
Cable	311-KAP50 (Standard)/ 311-KAP50S
Pin-ø	0.5 mm (Single Sided)
Crimp pin	use 360-CRF-05 (Single Sided)



Coaxial 50Ω SMB Feedthrough on 16CF with vacuum side connector and 50Ω cable



242-SMBD-C16

Specification SMB Cables

Type	Female to open end
Vacuum	UHV
Length	500 mm, 1000 mm or custom
Uses Wire	Co-axial Kapton 311-KAP50
Temp.	-40°C to 220°C



**SMB Miniature Coaxial Feedthroughs 500V
1 to 4 pins SINGLE SIDED, CF flanges**

FLANGE	PINS	PART NUMBER
16CF	1	242-SMB-C16
40CF	1	242-SMB-C40
40CF	2	242-SMB-C40-2
40CF	3	242-SMB-C40-3
40CF	4	242-SMB-C40-4

**SMB Miniature Coaxial Feedthroughs 500V
1 to 4 pins SINGLE SIDED, KF flanges**

FLANGE	PINS	PART NUMBER
16KF	1	242-SMB-K16
40KF	1	242-SMB-K40
40KF	2	242-SMB-K40-2
40KF	3	242-SMB-K40-3
40KF	4	242-SMB-K40-4

**SMB Miniature Coaxial Feedthroughs 500V
1 to 4 pins DOUBLE SIDED, CF flanges**

FLANGE	PINS	PART NUMBER
16CF	1	242-SMBD-C16
40CF	1	242-SMBD-C40
40CF	2	242-SMBD-C40-2
40CF	3	242-SMBD-C40-3
40CF	4	242-SMBD-C40-4

**SMB Miniature Coaxial Feedthroughs 500V
1 to 4 pins DOUBLE SIDED, KF flanges**

FLANGE	PINS	PART NUMBER
16KF	1	242-SMBD-K16
40KF	1	242-SMBD-K40
40KF	2	242-SMBD-K40-2
40KF	3	242-SMBD-K40-3
40KF	4	242-SMBD-K40-4

**SMB In-Vacuum 50 Ohm Cables
SMB to open end**

LENGTH	SOCKETS	PART NUMBER
500 mm	1	380-SMB-FX-500
1000 mm	1	380-SMB-FX-1000

- 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

Safe High Voltage (SHV) 5 KV Feedthroughs

Standard & 50 μ types (see page 33)

SAFE HIGH VOLTAGE (SHV) are Coaxial Feedthroughs designed to provide a secure high voltage connection on the air side. On the vacuum side they come in two versions: Recessed Ceramic and Exposed Ceramic.

- SHV F/T's include air side connector
- Single and Double Sided versions are available



General Specifications SHV Standard

Type	241-SHV
Vacuum	UHV
Pin- ϕ	2.4 mm
Leak rate	$<5 \times 10^{-10}$ mbar l/s
Temp.	-200°C to 300°C
Current	5A max
Voltage	5000 V DC
Test-Resistivity	$>1 G\Omega$ (pins to ground)
Impedance	not constant
Cable	RG59B/ U
Weld- ϕ	12.6 mm (18.85mm SHVD)
Air side connectors are included	

SHV 5KV RECESSED type Coaxial SINGLE SIDED versions - GROUNDED SHIELD

FLANGE	PINS	PART NUMBER
WELD	1	241-SHV
16CF	1	241-SHV-C16
40CF	1	241-SHV-C40
40CF	2	241-SHV-C40-2
40CF	3	241-SHV-C40-3
40CF	4	241-SHV-C40-4

Versions on KF Flanges are also available

SHV 5KV EXPOSED type Coaxial SINGLE SIDED versions - GROUNDED SHIELD

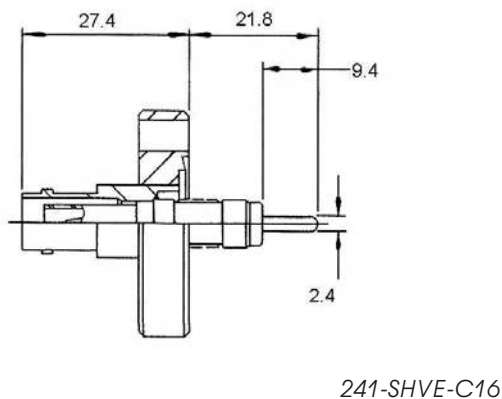
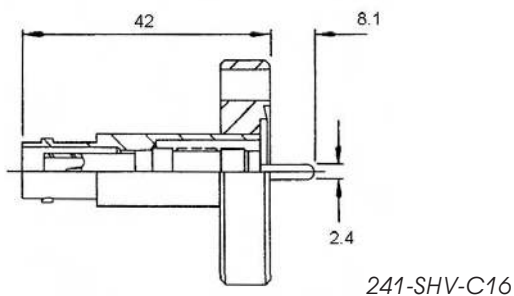
FLANGE	PINS	PART NUMBER
WELD	1	241-SHVE
16CF	1	241-SHVE-C16
40CF	1	241-SHVE-C40
40CF	2	241-SHVE-C40-2
40CF	3	241-SHVE-C40-3
40CF	4	241-SHVE-C40-4

Versions on KF Flanges are also available

SHV 5KV Coaxial DOUBLE SIDED - GROUNDED SHIELD

FLANGE	PINS	PART NUMBER
WELD	1	241-SHVD
16CF	1	241-SHVD-C16
40CF	1	241-SHVD-C40
40CF	2	241-SHVD-C40-2
40KF	1	241-SHVD-K40
40KF	2	241-SHVD-K40-2

Versions on KF Flanges are also available



- 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

SHV50 50 Ohm 6KV Feedthroughs

SHV Vacuum Ready Cables

A special version of the versatile SHV type with 50 Ω impedance and increased voltage rating

- Single and Double Sided versions available
- Grounded Shield and Floating Shield versions



General Specifications SHV50 Ω

Type	242-SHV50
Vacuum	UHV
Pin- ϕ	1.65mm
Leak rate	<5x10 ⁻¹⁰ mbar l/s
Temp.	-200°C to 300°C
Current	5A max
Voltage	6000V DC
Test-Resistivity	>1G Ω (pins to ground)
Impedance	50 Ω
Frequency range	AC to 100 MHz
Connector (air)	use 241-CON-SHV-RG58
Connector (vac)	use 360-PIC-1.8
Weld- ϕ	9.65 mm / double sided: 17.5 mm
Air side connectors are not included	

Custom flanges can be built with multiple SHV feedthroughs or mixtures of SHV and other types such as Sub-D



40CF Flange with Grounded and Floating Shield SHV

Female - Male?

Coaxial connectors are defined by the inner pin, if they are called male or female. All SHV types use for the feedthrough a Pin, so they are male. The connectors are female.

SHV 50 Ohm, 6KV Coaxial SINGLE SIDED versions - GROUNDED SHIELD

FLANGE	PINS	PART NUMBER
WELD	1	242-SHV50
16CF	1	242-SHV50-C16
40CF	1	242-SHV50-C40
40CF	2	242-SHV50-C40-2
40CF	3	242-SHV50-C40-3
40CF	4	242-SHV50-C40-4

Versions on KF Flanges are also available

SHV 50 Ohm, 6KV Coaxial DOUBLE SIDED versions - GROUNDED SHIELD

FLANGE	PINS	PART NUMBER
WELD	1	242-SHVD50
40CF	1	242-SHVD50-C40
40CF	2	242-SHVD50-C40-2
40CF	3*	242-SHVD50-C40-3

*) Min tube ID of 38mm required

Versions on KF Flanges are also available

SHV 50 Ohm, 6KV Coaxial DOUBLE SIDED versions - FLOATING SHIELD

FLANGE	PINS	PART NUMBER
WELD	1	242-SHVDF50
40CF	1	242-SHVDF50-C40
40CF	2	242-SHVDF50-C40-2
40CF	3*	242-SHVDF50-C40-3

*) Min tube ID of 38mm required

Versions on KF Flanges are also available

SHV 50 Ω Coaxial In-vacuum Cables SHV5 to open end

LENGTH	SOCKETS	PART NUMBER
500 mm	1	380-SHV-FX-500
1000mm	1	380-SHV-FX-1000

SHV 50 Ω Air side connector

CONNECTOR	FOR CABLE	PART NUMBER
SHV 50 Ω	RG58	241-CON-SHV-RG58

- 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
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SHV10 and 20 Coaxial Feedthroughs

SHV10 are SAFE HIGH VOLTAGE types rated for 10KV.
 SHV20 is rated for up to 20KV.
 Air side connectors are included for both types.

Ready made air side cables are available on request.



General Specifications SHV10

Materials	SS, Nickel, Ceramic
Vacuum	UHV
Pin-ø	1.3 mm
Leak rate	<5x10 ⁻¹⁰ mbar l/s
Temp.	-100°C to 300°C
Current	5A max
Voltage	10KV DC
Impedance	not constant
Weld-ø	12.6 mm
Air side connector INCLUDED (for RG58 cable)	



Weld version - 10 KV 250-SHV10
 with air side connector

General Specifications SHV20

Materials	SS, Nickel, Ceramic
Vacuum	UHV
Pin-ø	2.4 mm
Leak rate	<5x10 ⁻¹⁰ mbar l/s
Temp.	-100°C to 300°C
Current	15A max
Voltage	20KV DC
Impedance	not constant
Weld-ø	15.8 mm
Air side connector INCLUDED (for RG213 cable)	



Weld version - 20 KV
 250-SHV20

Both Feedthroughs are available to order without Air Side Connectors. Please call Sales Office

SHV 10KV RECESSED type Coaxial SINGLE SIDED versions - GROUNDED SHIELD

FLANGE	PINS	PART NUMBER
WELD	1	250-SHV10
16CF	1	250-SHV10-C16
40CF	1	250-SHV10-C40
40CF	2	250-SHV10-C40-2
40CF	3	250-SHV10-C40-3
40CF	4	250-SHV10-C40-4

SHV 10KV EXPOSED type Coaxial SINGLE SIDED versions - GROUNDED SHIELD

FLANGE	PINS	PART NUMBER
WELD	1	250-SHVE10
16CF	1	250-SHVE10-C16
40CF	1	250-SHVE10-C40
40CF	2	250-SHVE10-C40-2
40CF	3	250-SHVE10-C40-3
40CF	4	250-SHVE10-C40-4

SHV 20KV RECESSED type Coaxial SINGLE ENDED versions - GROUNDED SHIELD

FLANGE	PINS	PART NUMBER
WELD	1	250-SHV20
16CF	1	250-SHV20-C16
40CF	1	250-SHV20-C40
40CF	2	250-SHV20-C40-2

SHV 20KV EXPOSED type Coaxial SINGLE ENDED versions - GROUNDED SHIELD

FLANGE	PINS	PART NUMBER
WELD	1	250-SHVE20
16CF	1	250-SHVE20-C16
40CF	1	250-SHVE20-C40
40CF	2	250-SHVE20-C40-2

- 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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SMA 2.92 mm K Type Microwave Feedthrough 40GHz

For Microwave applications up to 40GHz, Allectra offers a Vacuum Feedthrough type 2.92mm (also called K-Type). This special version of an SMA connector uses no PTFE dielectric.

Frequencies up to 40 GHz with well defined VSWR and insertion loss give high performance for RF applications. Every Feedthrough is delivered with a test certificate.

The seal to the Flange is made with a Viton O-ring.



Specification 242-SMAD40G

Vacuum	down to 10 ⁻⁹ mbar (O-ring sealed)
Leak rate	< 8x 10 ⁻¹⁰ mbar l /s He
Materials	SS, CuBe, Glass, Viton
Frequency	DC to 40GHz
VSWR	1.25:1
Insertion loss	0.25dB max
Impedance	50 Ω
Voltage	1KV RMS
Temp.	-65°C to 125°C
Connectors	2.92 mm Female (K-Type)

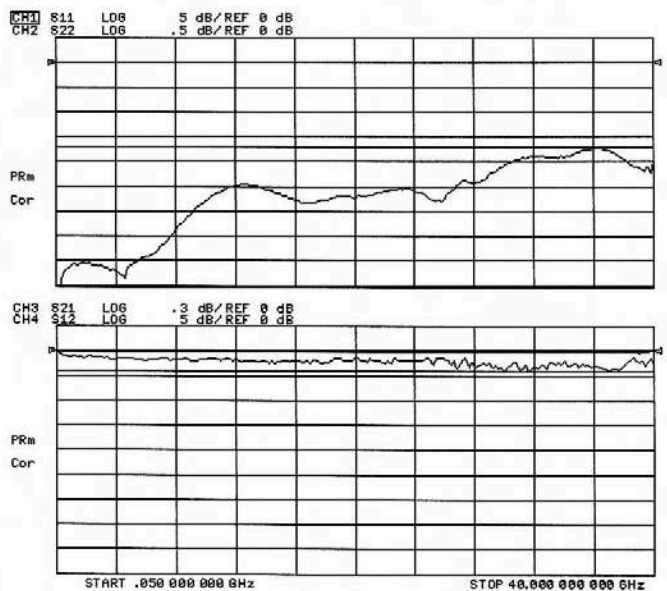
2.92 mm K Type Microwave Feedthroughs 40GHz DOUBLE SIDED

FLANGE	PINS	PART NUMBER
16KF	1	242-SMAD40G-K16
40KF	1	242-SMAD40G-K40
16CF	1	242-SMAD40G-C16
40CF	1	242-SMAD40G-C40
40CF	2	242-SMAD40G-C40-2
40CF	3	242-SMAD40G-C40-3
40CF	4	242-SMAD40G-C40-4



The Vacuum side of the 40 GHz Feedthrough, mounted on a 16CF flange. Please note that normal SMA connectors will fit, but might damage the Feedthrough. Only the nut must be turned for fixing the connector, never the connector itself.

An all metal sealed version for frequencies up to 45GHz is available now as well. Please ask for details!



A typical test spectra of a 40GHz 242-SMAD40G Feedthrough. All Feedthroughs are separately tested and the test certificate is supplied with the Feedthrough. Test frequency is 50MHz to 40GHz.

- 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

50Ω Type N and 7/16 Feedthroughs

Ready made In-Vacuum Cables

- Includes Screw-on Air Side Connector
- High Frequency signals to 200MHz
- Grounded & Floating Shield types
- Single & Double Sided

Additionally high power 7/16 RF Feedthroughs can be offered as High Vacuum versions on KF and ISO flanges.



General Specifications N-Type

Type	Grounded & Floating Shield
Impedance	50Ω
Pin-ø	2.4 mm/ Standard Type N
Voltage	3KV DC
Current	5A
Temp.	-200°C to 300°C
Leak rate	<5x10 ⁻¹⁰ mbar l/s
Air Side Connectors are included (for RG58 cable)	
Vac. Connector	360-CRIMP-1.3M

Type N Feedthrough SINGLE SIDED - GROUNDED shield

FLANGE	PINS	PART NUMBER
WELD ø16mm	1	242-N50
16CF	1	242-N50-C16
40CF	1	242-N50-C40
40CF	2	242-N50-C40-2

Type N Feedthrough DOUBLE SIDED versions - GROUNDED shield

FLANGE	PINS	PART NUMBER
WELD ø24mm	1	242-ND50
40CF	1	242-ND50-C40
63CF	2	242-ND50-C63-2
63CF	3	242-ND50-C63-3

Type N Feedthrough DOUBLE SIDED versions - FLOATING shield

FLANGE	PINS	PART NUMBER
WELD ø24mm	1	242-NDF50
40CF	1	242-NDF50-C40
63CF	2	242-NDF50-C63-2
63CF	3	242-NDF50-C63-3

Type N Coaxial Connector and In-vacuum Cables Type N to open end

LENGTH	SOCKETS	PART NUMBER
NONE	1	245-CON-N
500 mm	1	380-N50-MX-500
1000 mm	1	380-N50-MX-1000

Type 7/16 Coaxial Feedthrough Double Sided - High Vacuum

ITEM	PART NUMBER
7/16 Feedthrough 50KF	242-7_16-K50
Vac. side connector RG393	245-CON-7_16-RG393
Air side connector RG213	241-CON-7_16-RG213
RG-393/U cable (PFTE) available on request	

General Specifications 7/16

Type	Grounded Shield double sided
Impedance	50Ω, max. 7.5 GHz
Voltage	4KV eff max / <2.7KV @ 50Hz
Max. Power	1.8KW @ 1 GHz
Temp.	-20°C to 150°C
Leak rate	<1x10 ⁻⁸ mbar l/s
Flange	KF50 (Viton sealed f/t)
Connectors are not included.	



242-NDF50
245-CON-N



Ready made N-Type cable for Vacuum use

7/16 High power double sided feedthrough on KF50 flange



- 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
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Microdot Crystal Sensor Feedthroughs

Vacuum Ready Cables for use with Film Thickness Monitors

Between Series Feedthroughs are offered with Microdot on the vacuum Side and BNC on the Air Side.

The Feedthroughs include optionally 2 or 3 water cooling pipes.

Cables are also offered with combinations of Microdot to Microdot, BNC or SMA Connectors



Specification Between Series - Microdot/ BNC

Compact Coaxial Threaded Feedthrough

Impedance	Non constant
Leak rate	<5x10 ⁻¹⁰ mbar l/s
Temp.	-100°C to 250°C
Voltage	500V DC
Materials	Molybdenum, Stainless Steel
Water tube	4.8mm (3/16") OD

Microdot crystal sensor Feedthrough Between series Microdot to BNC

FLANGE	PINS	PART NUMBER
WELD	1	243-MDOT-BNC
16CF	1	243-MDOT-BNC-C16
40CF	1	243-MDOT-BNC-C40
16KF	1	243-MDOT-BNC-K16

Air side connectors are not included



Double Sensor Feedthrough on 63CF flange. It includes one tube for pneumatic shutter.

Microdot crystal sensor Feedthrough on 40CF Microdot to BNC with Water Lines

COAX	WATER	PART NUMBER
1	2	710-BNC1-W2-C40
1	3	710-BNC1-W3-C40
2	2	710-BNC2-W2-C40
2	3	710-BNC2-W3-C40

Versions on KF flanges available on request

Microdot crystal sensor Feedthrough In-vacuum Cables

LENGTH	SOCKETS	PART NUMBER
250 mm	2	710-IVC-250
750 mm	2	710-IVC-750
910 mm	2	710-IVC-910



710-IVC-750

Microdot In-Vacuum Cables Microdot to Open End or SMA

LENGTH	SOCKETS	PART NUMBER
NONE	1xMIC	245-CON-MIC
500 mm	1xMIC	380-MIC-MX-500
500 mm	2xMIC	380-MIC-MM-500
500 mm	1x MIC+1xSMA	380-MIC-SMA-500
500 mm	1x MIC+1xBNC	380-MIC-BNC-500
+500 mm		380-SMA-EXT05

Extention for 500 mm and more

Cable used: 311-KAP50, see page 64 for details

- 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
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Vacuum Side Plugs & Sockets for Coaxial Feedthroughs

Air Side Connectors

This page summarizes all the different Vacuum Side connectors for coaxial feedthroughs.

For SMA Feedthroughs, a wide variation of Vacuum Connectors are offered as well as Air Side types.



Non-Magnetic SMA Connector
245-CON-SMA-NM

Specifications: Vacuum Plugs & Sockets

Vacuum	UHV or High Vacuum
Temp.	-40°C to 180°C (min)
Use Wire or Cable	
SMA	311-KAP50 / 311-KAP50S
BNC	311-KAP50 / 311-KAP50S
MHV	311-KAP50
SHV	311-KAP50
N	311-KAP50
MICRODOT	311-KAP50
SMB	311-KAP50 / 311-KAP50S

SMA Connectors 50Ω except Ceramic (CER) types Non-magnetic (NM), Straight (STR) and 90°

TYPE	FOR CABLE	PART NUMBER
STR	KAP50	245-CON-SMA-V2
STR	KAP50	245-CON-SMA-1
STR CER*	KAP50	245-CON-SMA-CER
STR SMALL	KAP50S	245-CON-SMA-S
90°	KAP50	245-CON-SMA-90
STR NM	KAP50	245-CON-SMA-NM
90° NM	KAP50	245-CON-SMA-90-NM
Female	KAP50	245-CON-SMA-F
Female CER*	KAP50	245-CON-SMA-CER-F

* not 50Ω

Vacuum Side Sockets Fit to double sided Feedthroughs

F/T	FOR CABLE	PART NUMBER
BNC(50)	KAP50	245-CON-BNC
BNC(50)	KAP50S	245-CON-BNC-S
MHV(50)	KAP50	245-CON-MHV
SHV	KAP50	245-CON-SHV
N	KAP50	245-CON-N
MICRODOT	KAP50	245-CON-MIC
SMB	KAP50	245-CON-SMB
SMB	KAP50S	245-CON-SMB-S
7/16	RG58	245-CON-7_16-RG58
7/16	RG393/213/214	245-CON-7_16-RG393

MHV, SHV, N, 7/16 have silver plated housings

Air Side Connectors Fit to Feedthroughs

F/T	FOR CABLE	PART NUMBER
SMA	RG174	241-CON-SMA-RG174
BNC	RG58	241-CON-BNC-RG58
SMB	RG174	241-CON-SMB-RG174
MHV	RG59	241-CON-MHV-RG58
SHV	RG59	241-CON-SHV-RG59
SHV 50 Ω	RG58	241-CON-SHV-RG58
SHV-10	RG58C	241-CON-SHV10
SHV-20	RG213	241-CON-SHV20
N50/N	RG58	241-CON-N-RG58
N50/N	RG213	241-CON-N-RG213
7/16	RG213	241-CON-7_16-RG213



Various Vacuum Side connectors:

Top row: 245-CON-SMA -V2 (left)
245-CON-SMA-S (middle)
245-CON-SMA-90 (right)

245-CON-SMA-F (female)



245-CON-MHV
(female connector)



245-CON-SHV



245-CON-N



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
Hardware
CF
11
Hardware
KF
12
Hardware
ISO-K
13
Adaptors
Specials
14
HV / UHV
Chambers
15
Atlas
Bi-Metal
16