08 ACCESSORIES

ACCESSORIES

Welding Bellows Parts

Application

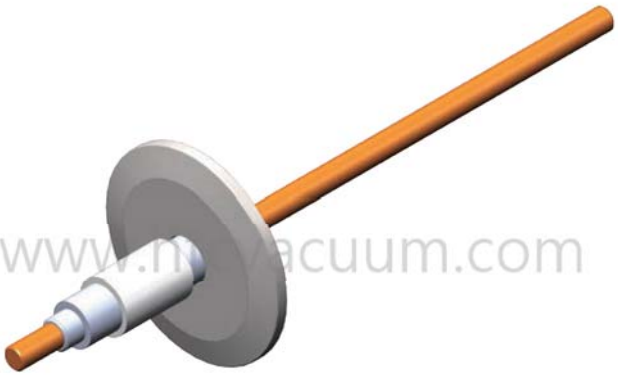
- Semiconductor Equipments
- Accumulators
- Actuators / Pistons
- Aneroids
- Bean Lines
- Connectors
- Couplings (Flexible)
- Couplings
- Expansion (Torque)
- Dampening Devices Joints
- Feed Throughs
- Fluid Shock Absorbers
- Fuel Drains
- Gas Lines
- Gate Valves
- Kiss Seals
- Leak Detectors
- Lifters
- Mechanical Shaft Seals
- Orientors
- Pressure Sensors
- Pressure Switches
- Pressure Transducers
- Pumps / Compressors
- Reservoirs
- Shielding Devices
- Slit Valves
- Temperature Sensors
- Valve Stem Seals
- Vibration Dampeners
- Volume Compensators
- Wafer Compensators
- X-Y-Z Manipulators

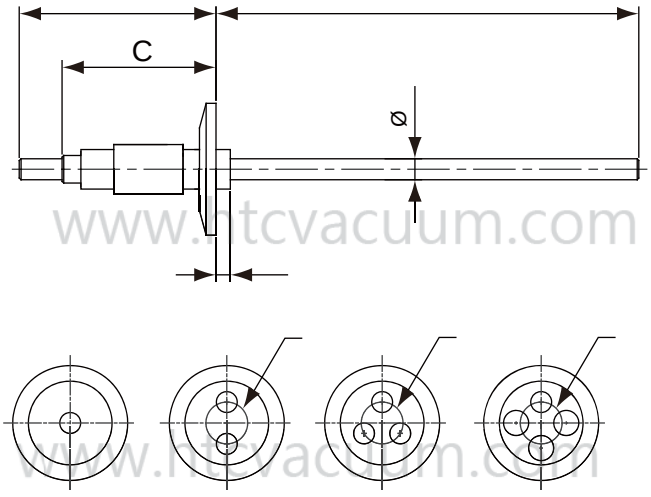
Electrical Feedthrough

1. High Machining Accuracy
2. Temperature Range ： -100°C to 450°C
3. The Maximun Transferable Voltage is Up to 100kV
4. Customization Available Upon Request

Dimension in mm unless otherwise noted

KF Electrical Feedthrough





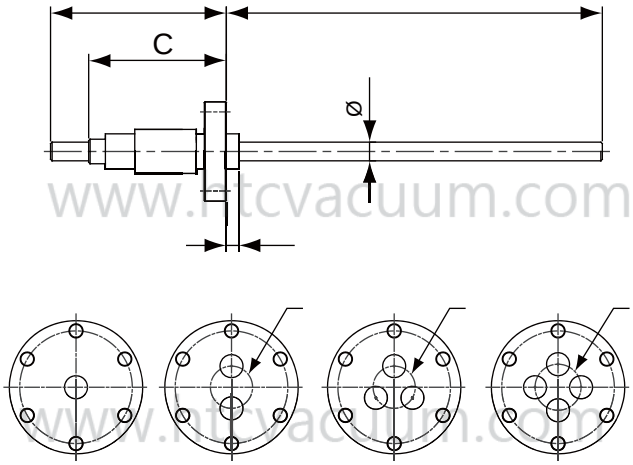
d

Model No.	Flange	No. Pins	Conductor Material	Voltage (kV)	Current (A)	Figure	Part No.
PFA01171QF	KF16	1	OFHC	5	180	1	1000FF030025
PFA01173QF	KF16	1	304 S.S.	5	7	1	1000FF030026
PFA01181QF	KF40	1	OFHC	5	180	1	1000FF030027
PFA01183QF	KF40	1	304 S.S.	5	7	1	1000FF030028
PFA01141QF	KF40	2	OFHC	5	180	2	1000FF030029
PFA01143QF	KF40	2	304 S.S.	5	7	2	1000FF030030
PFA01151QF	KF40	3	OFHC	5	180	3	1000FF030031
PFA01153QF	KF40	3	304 S.S.	5	7	3	1000FF030032
PFA01161QF	KF50	4	OFHC	5	180	4	1000FF030004
PFA01163QF	KF50	4	304 S.S.	5	7	4	1000FF030033

Model No.	A	B	C	K	E	F	Part No.
PFA01171QF	118	66	40.6	5.8	---	6.35	1000FF030025
PFA01173QF	118	66	40.6	5.8	---	6.35	1000FF030026
PFA01181QF	104.6	79.5	54	---	---	6.35	1000FF030027
PFA01183QF	104.6	79.5	54	---	---	6.35	1000FF030028
PFA01141QF	104.6	79.5	54	---	19.05	6.35	1000FF030029
PFA01143QF	104.6	79.5	54	---	19.05	6.35	1000FF030030
PFA01151QF	104.6	79.5	54	---	24	6.35	1000FF030031
PFA01153QF	104.6	79.5	54	---	24	6.35	1000FF030032
PFA01161QF	104.6	79.5	54	---	24	6.35	1000FF030004
PFA01163QF	104.6	79.5	54	---	24	6.35	1000FF030033

Note: All listed flanges are 304 S.S., other material could be used on request.

CF Electrical Feedthrough



Model No.	Flange	No. Pins	Conductor Material	Voltage (kV)	Current (A)	Figure	Part No.
PFA00491CF	CF16	1	OFHC	5	180	1	1000FF030034
PFA00493CF	CF16	1	304 S.S.	5	7	1	1000FF030035
PFA01131CF	CF35	1	OFHC	5	180	1	1000FF030005
PFA01133CF	CF35	1	304 S.S.	5	7	1	1000FF030036
PFA00651CF	CF35	2	OFHC	5	180	2	1000FF030014
PFA00653CF	CF35	2	304 S.S.	5	7	2	1000FF030037
PFA00641CF	CF35	3	OFHC	5	180	3	1000FF030038
PFA00643CF	CF35	3	304 S.S.	5	7	3	1000FF030039
PFA00631CF	CF35	4	OFHC	5	180	4	1000FF030040
PFA00633CF	CF35	4	304 S.S.	5	7	4	1000FF030041

Model No.	A	B	C	K	E	F	Part No.
PFA00491CF	116.3	67.8	42.4	3.6	---	6.35	1000FF030034
PFA00493CF	116.3	67.8	42.4	3.6	---	6.35	1000FF030035
PFA01131CF	103.4	80.8	55.4	---	---	6.35	1000FF030005
PFA01133CF	103.4	80.8	55.4	---	---	6.35	1000FF030036
PFA00651CF	103.4	80.8	55.4	---	19.05	6.35	1000FF030014
PFA00653CF	103.4	80.8	55.4	---	19.05	6.35	1000FF030037
PFA00641CF	103.4	80.8	55.4	---	24	6.35	1000FF030038
PFA00643CF	103.4	80.8	55.4	---	24	6.35	1000FF030039
PFA00631CF	103.4	80.8	55.4	---	24	6.35	1000FF030040
PFA00633CF	103.4	80.8	55.4	---	24	6.35	1000FF030041

Note: All listed flanges are 304 S.S, other material could be used on request.

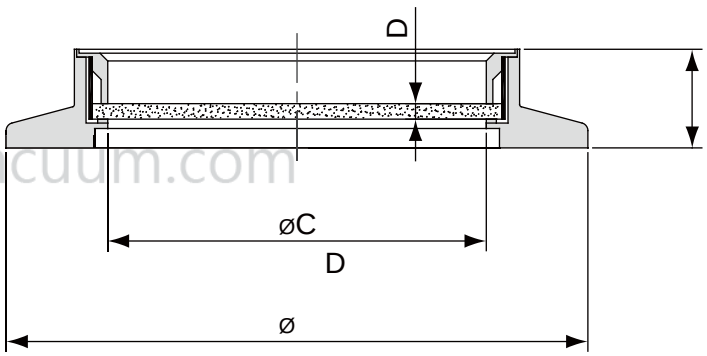
Dimension in mm unless otherwise noted

Sapphire viewport

A sapphire viewport consists of a stainless steel flange, a bridge adaptor and a sapphire dielectric. Kovar is typically used as the material of bridge adaptor to form hermetic seals between SUS flange and sapphire dielectric. Besides, a prior surface metallization layer has to be applied on sapphire dielectric before it can be hermetically sealed with kovar adaptor by brazing. The metallization layer mainly contains Mo, Mn and Ni. Since both kovar and Ni are magnetic materials, they will distort spatial distribution of ambient magnetic field. This has to be taken into account if foregoing effect is critical to user's application with viewport.

Our sapphire viewport contains non-magnetic stainless steel, either 304 or 316, and sapphire dielectric only. Surface metallization layer on sapphire disk doesn't contain any magnetic composition. Proprietary technology of unmatched seal is used in brazing sapphire disk with stainless steel adaptor together, which in turn is tig-welded with stainless steel flange. Our offer of non-magnetic sapphire viewport is the solution if referred distortion of magnetic field by the existence of magnetic material can't be tolerated in user's application.

KF Flange Sapphire Viewport

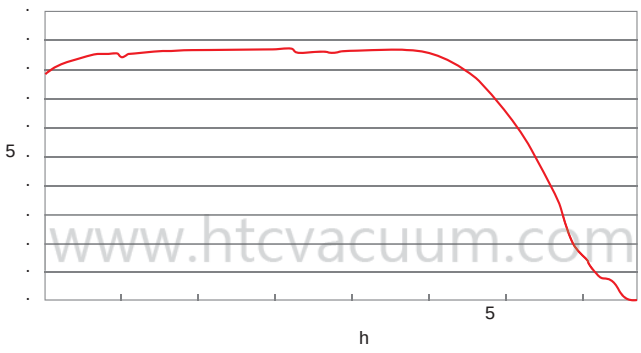


Model No.	Material	A	B	C	D	Flange	Parts No .
KVPS39	304 S.S. / Sapphire	55	12.7	38.5	2	KF40	1000V0A043
KVPS49	304 S.S. / Sapphire	75	12.7	48.8	2	KF50	1000V0A037

- Non-magnetic
- Excellent Surface Finish : 20-10 Scratch-Dig
- Broader Temperature & Transmission Range
- High Trensparency & Wide Bandwidth
- High Hardness
- Customization Available Upon Request

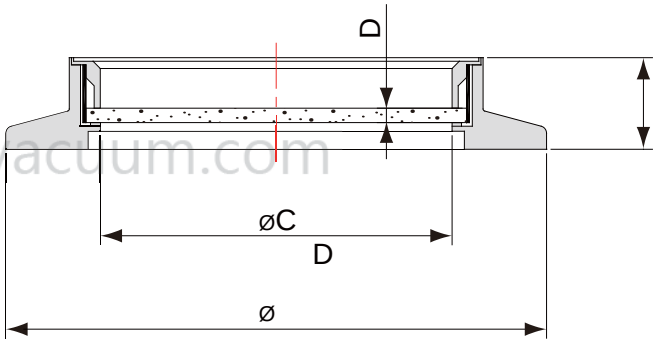
Description	Description
Window Material	Sapphire
Flange Material	304 S.S. or 316 S.S.
Adapter	304 S.S. or 316 S.S.
Leak Rate	<1x10^{-8} mbar.l/sec
Temperature Range	-100°C to 200°C
Transmission rate/rang	>80% (0.2 μm~4.8μm)
Max Thermal Gradient	15°C/min

Transmission Curve



Dimension in mm unless otherwise noted

KF Flange CaF2 Viewport

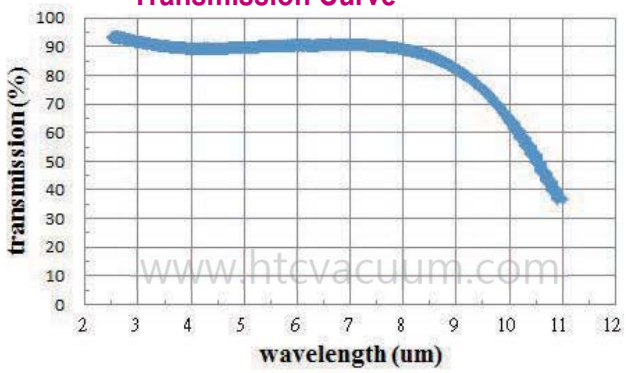


Model No.	A	B	C	D	Flange	Material	Parts No.
KVPC24	40	12.7	23.8	1.6	KF25	304S.S./CaF2	1000V0D001
KVPC39	55	12.7	38.5	2.7	KF40	304S.S./CaF2	1000V0D002

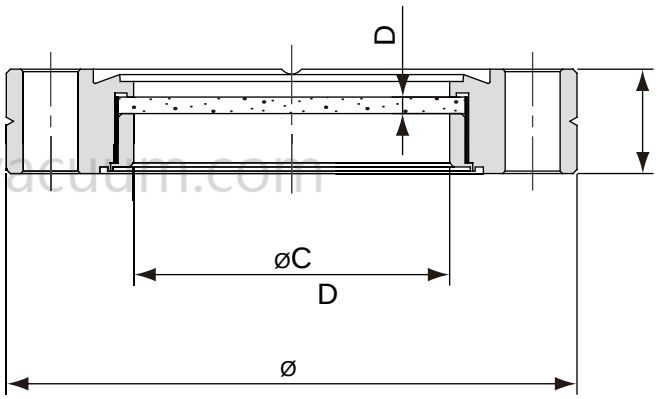
Description :

- Material of flange : 304S.S. or 316S.S. on customer demand
- Material of adaptor : 304S.S.
- Applicable vacuum range : 1X 10^{-10} mbar
- (Practical vacuum range : contingent on customer 's O-ring)
- Applicable temperature range : -100°C to 200°C

Transmission Curve



CF Flange CaF2 Viewport

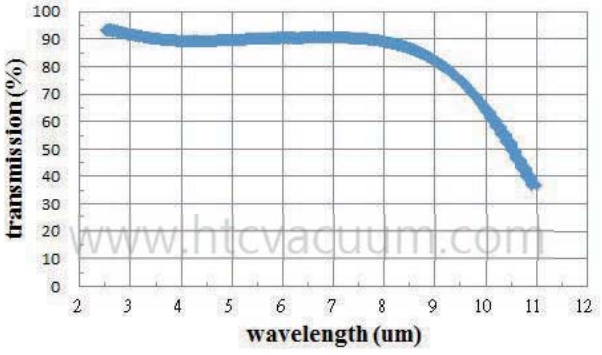


Model No.	A	B	C	D	Flange	Material	Parts No.
CVPC39	69.5	12.7	38.5	2.7	CF35	304S.S./CaF2	1000V0D003

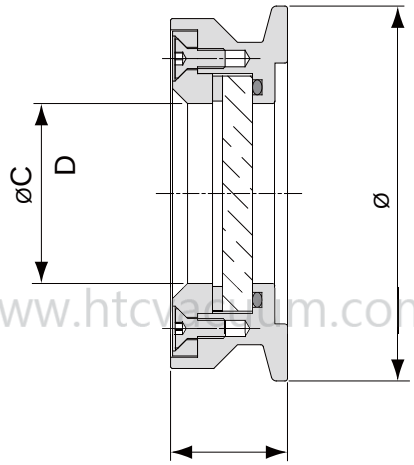
Description :

- Material of flange : 304S.S. or 316S.S. on customer demand
- Material of adaptor : 304S.S.
- Applicable vacuum range : 1X 10^{-10} mbar
- (Practical vacuum range : contingent on customer 's O-ring)
- Applicable temperature range : -100°C to 200°C

Transmission Curve



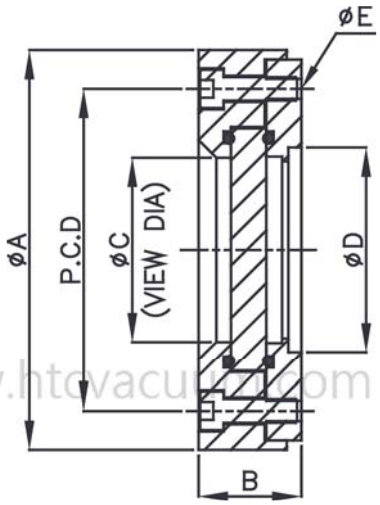
KF Flange Tempered Glass Viewport



Model No.	A	B	C	Fits Flange	Parts No.
KF50VP	75	25	36	KF50	151A0600C

- Window Material : Tempered glass
- Body Material : 304S.S.
- Flange : KF
- Type of sealing : O-ring(Viton)
- Pressure Range : 1.2 bar~1x10^{-8} mbar
- Leak Rate : 1x10^{-9} mbar.l / sec
- Temperature Range : -5°C~150°C

ISO Flange Tempered Glass Viewport



Model No.	A	B	C	D	E*No.	P.C.D.	Parts No.
ISO63VP	136.5	35	63	70	9*4	110	152A0700C
ISO100VP	171.4	35	98	102	9*8	145	152A0900C

- Window Material : Tempered glass
- Body Material : 304S.S.
- Flange : ISO
- Type of sealing : O-ring(Viton)
- Pressure Range : 1.2 bar~1x10^{-8} mbar
- Leak Rate : 1x10^{-9} mbar.l / sec
- Temperature Range : -5°C~150°C

Dimension in mm unless otherwise noted

Magnetic Fluid Feedthrough

Application

Htc vacuum provides quality magnetic fluid rotary feedthroughs, which introduces rotary motion into vacuum environments. A magnetic fluid rotary feedthrough is composed of a non-magnetic housing, bearings, pole pieces, a permanent magnet, a magnetic shaft and ferrofluid. When ferrofluid is applied to the gap between the shaft and the pole pieces in a rotary feedthrough, it creates a magnetic field which functions like an O-ring in the gap. Magnetic fluid rotary feedthroughs can be used in ultra-high vacuum systems and other critical equipment in Semiconductor, FPD, and Solar PV Industry.

Features

- **Long Service Life**
  Non-contact seal, no mechanical friction, very low maintenance
- **High Vacuum Capability**
  Low vapor pressure, used in vacuum range up to 10^{-8} mbar
- **High Speed Capability**
  Very low particle occurs, capable of high speed
- **Wide Transfer Torque**
  Various models are available according to application : from 5kg·cm up to over 5000kg·cm
- **Optimum Torque Transmission**
  Very little torque lost, no backlash or stick-slip

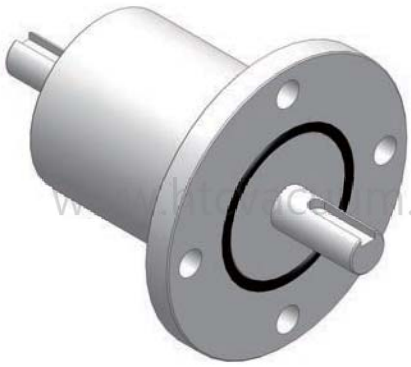
Application

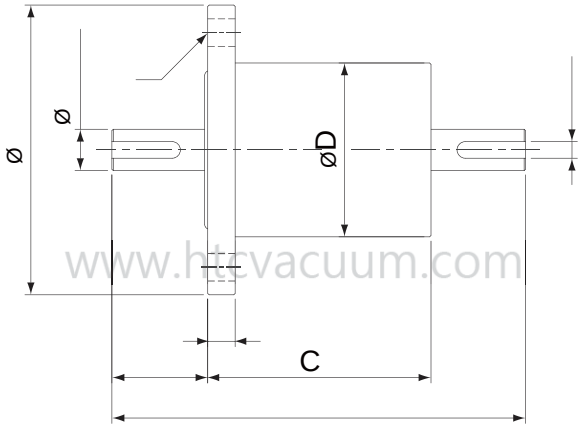
- Vacuum range : up to 10^{-8} mbar
- Leak rate(He) : < 10^{-11} mbar.l/sec (He)
- Temperature : 0~80°C

Notice

- Prevent magnetic fluid rotary feedthrough from dust and organic solvents (alcohol, acetone, Freon, etc.)
- Do not load higher than 1kg/cm² in vacuum environment.
- When the shaft of magnetic fluid rotary feedthrough is at rest, it is normal that the vacuum pressure may rise after the shaft starts working. The situation can be avoided through advanced startup.
- For water cooling devices, the cooling water should be at 1-3kg/cm² at room temperature. Besides, water can not be left in the inner feedthrough which could cause rust and circumrotating failure.

Flange Mount, Solid Shaft

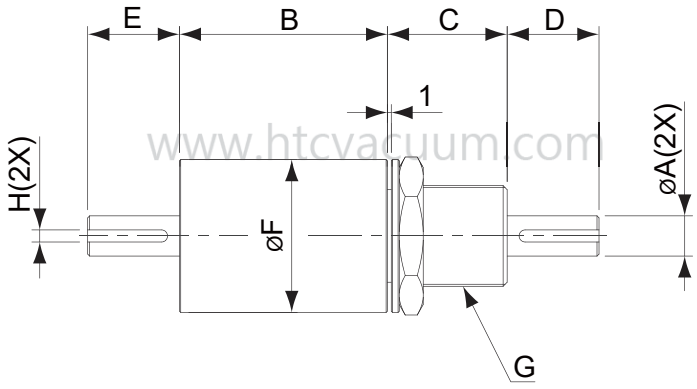




Model No.	A	B	C	D	E	F	J	K	N	Torque (kg-cm)	Parts No.
SF006	Ø6 $^{+0}_{-0.018}$	97.5	57.5	38	0.5Dp*12Lg(Flat)	20	78	10	P.C.D.60/4-Ø10	9.2	1000FF011001
SF010	Ø10	119.5	69.5	44	3W*1.8Dp*14Lg	25	78	10	P.C.D.60/4-Ø10	59	1000FF011002
SF012	Ø12 $^{+0}_{-0.02}$	133.5	73.5	48	4W*2.5Dp*20Lg	30	88	10	P.C.D.70/4-Ø10	118	1000FF011003
SF020	Ø20 $^{+0}_{-0.033}$	151.5	81.5	63	6W*3.5Dp*25Lg	35	105	10	P.C.D.85/4-Ø10	585	1000FF011004
SF026	Ø25 $^{+0}_{-0.033}$	173.5	93.5	75	8W*4Dp*30Lg	40	115	10	P.C.D.95/6-Ø10	1013	1000FF011005

- Degree vacuum pressure [mbar] : $1*10^{-8}$
- Leakage rate(He) [mbar.l/sec] : $<10^{-11}$
- Temperature range(°C) : 0~80°C (Adding water cooling structure if it is beyond this temperature range)

Nose Mount, Solid Shaft

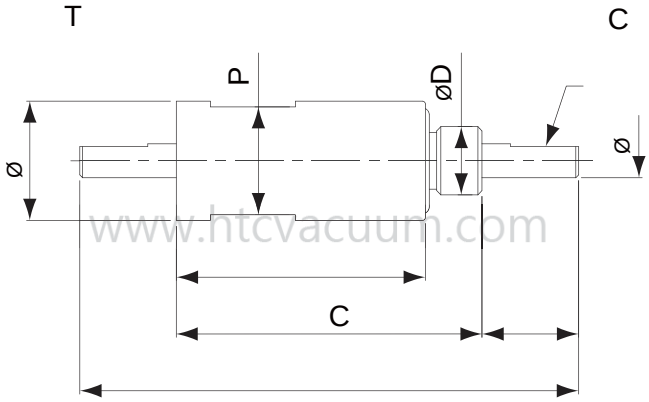


Model No.	A	B	C	D	E	F	G	H	Torque (kg-cm)	Parts No.
ST005	Ø5 $^{-0.010}_{-0.022}$	32	6	12.5	15	16	M8xP1	-	9.2	1000FF012001
ST006	Ø6 $^{-0}_{-0.018}$	42	10	15	15	28	M12xP1.25	0.5Dp*10Lg(Flat)	15.2	1000FF012002
ST010	Ø10 $^{-0.013}_{-0.028}$	52	30	23	23	38	M25xP1.5	3W*1.8Dp*20Lg	76	1000FF012003
ST020	Ø20 $^{-0.020}_{-0.041}$	60	34	36	36	54	M40xP1.5	6W*3.5Dp*32Lg	570	1000FF012004

- Degree vacuum pressure [mbar] : $1*10^{-8}$
- Leakage rate(He) [mbar.l/sec] : $<10^{-11}$
- Temperature range(°C) : 0~80°C (Adding water cooling structure if it is beyond this temperature range)

Dimension in mm unless otherwise noted

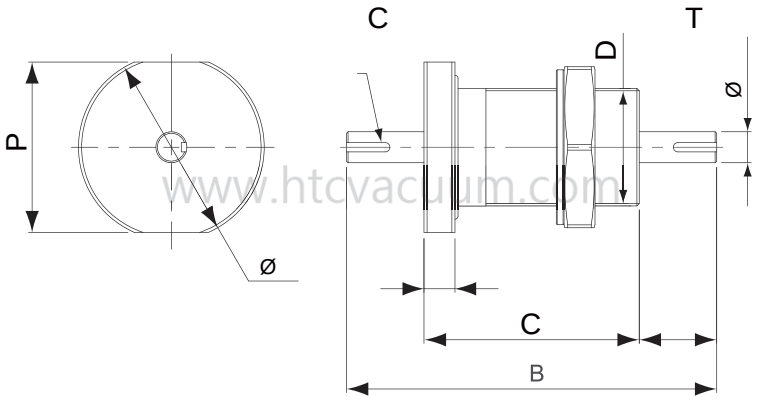
Single Axle(shaft) Non Flange Ferrofluid Feedthrough



Model No.	ØA	B	C	D	E	F	ØJ	K	P	Parts No.
ASS0004CNR10	Ø4 $^{+0}_{-0.018}$	76.5	46.5	M12*P1.5	0.5Dp*10Lg	15	21	36.5	19	1000FF050001
ASS0005CNR10	Ø5 $^{+0}_{-0.018}$	76.5	46.5	M12*P1.5	0.5Dp*10Lg	15	21	36.5	19	1000FF050002
ASS0006CNR10	Ø6 $^{+0}_{-0.018}$	76.5	46.5	M12*P1.5	0.5Dp*10Lg	15	21	36.5	19	1000FF050003

- Degree vacuum pressure [mbar] : $1*10^{-6}$
- Leakage rate(He) [mbar.l/sec] : $<10^{-12}$
- Temperature range(°C) : 0~80°C
- Applicable Gas : Inert Gas
- Housing Material : 304S.S.
- Shaft Material : 420S.S.

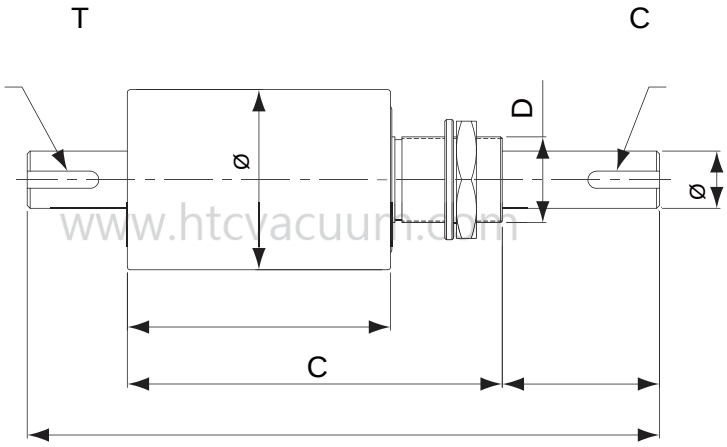
Nut Bush Ferrofluid Vacuum Seal Axle Feedthrough



Model No.	ØA	B	C	D	E	F	ØJ	K	P	Parts No.
ABS0006CNR10	Ø6 $^{+0}_{-0.018}$	97.5	57.5	M32*P1.5	0.5Dp*12Lg(Flat)	20	55	10	-	1000FF051001
ABS0010CNR10	Ø10 $^{+0}_{-0.018}$	119.5	69.5	M38*P1.5	3W*1.8Dp*14Lg	25	60	10	55	1000FF051002
ABS0012CNR10	Ø12 $^{+0}_{-0.018}$	119.5	69.5	M38*P1.5	3W*1.8Dp*14Lg	25	60	10	55	1000FF051003

- Degree vacuum pressure [mbar] : $1*10^{-6}$
- Leakage rate(He) [mbar.l/sec] : $<10^{-12}$
- Temperature range(°C) : 0~80°C
- Applicable Gas : Inert Gas
- Housing Material : 304S.S.
- Shaft Material : 420S.S.

Semiconductor Sealed Spindles

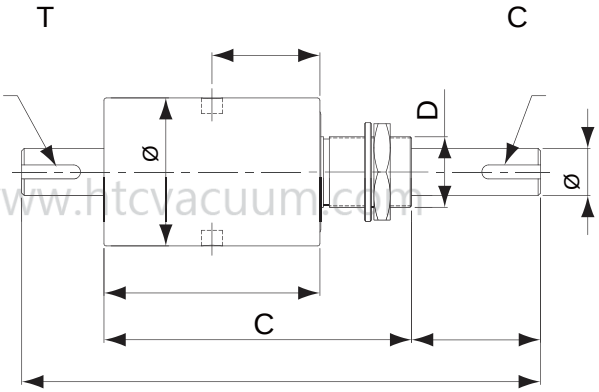


Model No.	ØA	B	C	D	E	F	ØJ	K	Parts No.
ANS0012CNR10	Ø12 $^{+0}_{-0.027}$	179	109	M25*P1.5	4W*2.5Dp*20Lg	40	48	74	1000FF052001
ANS0020CNR10	Ø20 $^{+0}_{-0.033}$	211	121	M30*P1.5	6W*3.5Dp*25Lg	55	63	82	1000FF052002

- Degree vacuum pressure [mbar] : $1*10^{-6}$
- Leakage rate(He) [mbar.l/sec] : $<10^{-12}$
- Temperature range(°C) : 0~80°C
- Applicable Gas : Inert Gas
- Housing Material : 304S.S.
- Shaft Material : 420S.S.

Semiconductor Sealed Spindles

With Water Cooling

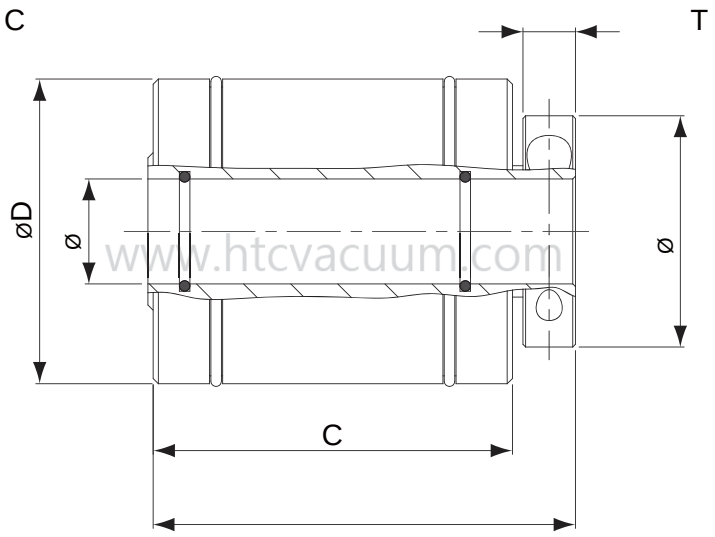


Model No.	ØA	B	C	D	E	F	ØJ	K	L	Parts No.
ANS0012WNR10	Ø12 $^{+0}_{-0.027}$	179	109	M25*P1.5	4W*2.5Dp*20Lg	40	48	74	36.5	1000FF053001
ANS0020WNR10	Ø20 $^{+0}_{-0.033}$	211	121	M30*P1.5	6W*3.5Dp*25Lg	55	63	82	40.5	1000FF053002

- Degree vacuum pressure [mbar] : $1*10^{-6}$
- Leakage rate(He) [mbar.l/sec] : $<10^{-12}$
- Temperature range(°C) : 0~80°C
- Applicable Gas : Inert Gas
- Housing Material : 304S.S.
- Shaft Material : 420S.S.

Dimension in mm unless otherwise noted

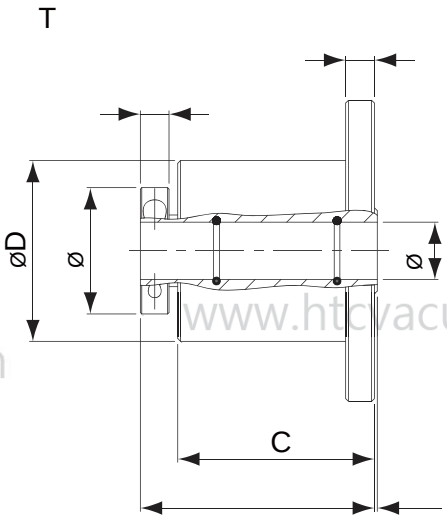
Hollow Axle Magnetic Fluid Feedthrough



Model No.	ØA	B	C	ØD	ØE	F	Parts No.
ACM0010CNR10	$Ø10^{+0.03}_{+0.01}$	78	64	$48^{+0}_{-0.02}$	34	10	1000FF054001
ACM0020CNR10	$Ø20^{+0.04}_{+0.02}$	82.5	68.5	$58^{+0}_{-0.03}$	44	10	1000FF054002
ACM0025CNR10	$Ø25^{+0.04}_{+0.02}$	88	74	$63^{+0}_{-0.03}$	49	10	1000FF054003
ACM0030CNR10	$Ø30^{+0.04}_{+0.02}$	93	79	$73^{+0}_{-0.03}$	54	10	1000FF054004
ACM0040CNR10	$Ø40^{+0.05}_{+0.02}$	96	80	$88^{+0}_{-0.04}$	69	12	1000FF054005
ACM0050CNR10	$Ø50^{+0.05}_{+0.02}$	98	82	$98^{+0}_{-0.04}$	79	12	1000FF054006
ACM0075CNR10	$Ø75^{+0.06}_{+0.03}$	115	96	$137^{+0}_{-0.04}$	109	15	1000FF054007

- Degree vacuum pressure [mbar] : $1*10^{-6}$
- Leakage rate(He) [mbar.l/sec] : $<10^{-12}$
- Temperature range(°C) : 0~80°C
- Applicable Gas : Inert Gas
- Housing Material : 304S.S.
- Shaft Material : 420S.S.

Hollow Axle Flanged Ferrofluid Feedthrough



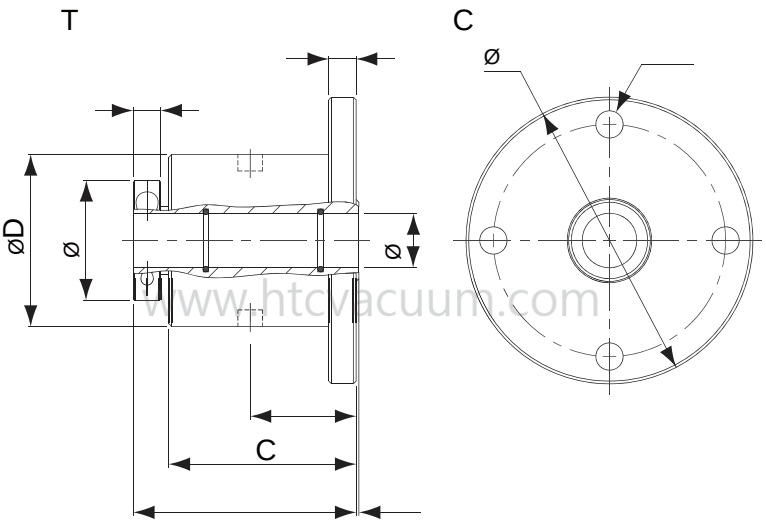
Model No.	ØA	B	C	ØD	ØE	F	ØJ	N	Parts No.
AFM0010CNR10	Ø10 $^{+0.03}_{+0.01}$	78	64	51	34	10	90	P.C.D.70/4-Ø10	1000FF055001
AFM0020CNR10	Ø20 $^{+0.04}_{+0.02}$	82.5	68.5	63	44	10	105	P.C.D.85/4-Ø10	1000FF055002
AFM0025CNR10	Ø25 $^{+0.04}_{+0.02}$	88	74	71	49	10	120	P.C.D.100/4-Ø10	1000FF055003
AFM0030CNR10	Ø30 $^{+0.04}_{+0.02}$	93	79	78	54	10	120	P.C.D.100/4-Ø10	1000FF055004
AFM0040CNR10	Ø40 $^{+0.05}_{+0.02}$	96	80	90	69	12	145	P.C.D.120/4-Ø12	1000FF055005
AFM0050CNR10	Ø50 $^{+0.05}_{+0.02}$	98	82	103	79	12	160	P.C.D.135/4-Ø12	1000FF055006
AFM0075CNR10	Ø75 $^{+0.06}_{+0.03}$	115	96	143	109	15	210	P.C.D.185/8-Ø12	1000FF055007

- Degree vacuum pressure [mbar] : $1*10^{-6}$
- Leakage rate(He) [mbar.l/sec] : $<10^{-12}$
- Temperature range(°C) : 0~80°C
- Applicable Gas : Inert Gas
- Housing Material : 304S.S.
- Shaft Material : 420S.S.

Dimension in mm unless otherwise noted

Hollow Axle Flanged Ferrofluid Feedthrough

With Water Cooling



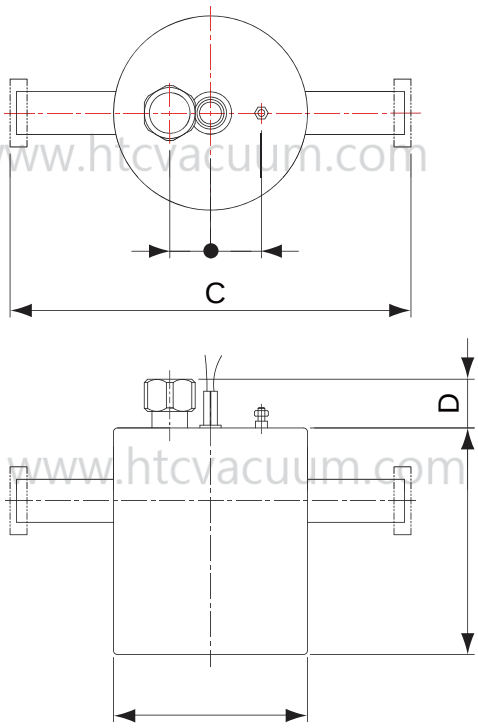
Model No.	ØA	B	C	ØD	ØE	F	ØJ	N	Parts No.
AFM0010WNR10	Ø10 $^{+0.03}_{+0.01}$	78	64	51	34	10	90	P.C.D.70/4-Ø10	1000FF056001
AFM0020WNR10	Ø20 $^{+0.04}_{+0.02}$	82.5	68.5	63	44	10	105	P.C.D.85/4-Ø10	1000FF056002
AFM0025WNR10	Ø25 $^{+0.04}_{+0.02}$	88	74	71	49	10	120	P.C.D.100/4-Ø10	1000FF056003
AFM0030WNR10	Ø30 $^{+0.04}_{+0.02}$	93	79	78	54	10	120	P.C.D.100/4-Ø10	1000FF056004
AFM0040WNR10	Ø40 $^{+0.05}_{+0.02}$	96	80	90	69	12	145	P.C.D.120/4-Ø12	1000FF056005
AFM0050WNR10	Ø50 $^{+0.05}_{+0.02}$	98	82	103	79	12	160	P.C.D.135/4-Ø12	1000FF056006
AFM0075WNR10	Ø75 $^{+0.06}_{+0.03}$	115	96	143	109	15	210	P.C.D.185/8-Ø12	1000FF056007

- Degree vacuum pressure [mbar] : $1*10^{-6}$
- Leakage rate(He) [mbar.l/sec] : $<10^{-12}$
- Temperature range(°C) : 0~80°C
- Applicable Gas : Inert Gas
- Housing Material : 304S.S.
- Shaft Material : 420S.S.

Dimension in mm unless otherwise noted

Molecular Sieve

The zeolite inside the tank trap the oil vapor that back stream toward the vacuum chamber from mechanical pump,and trap other gases include water vapor from chamber toward the mechanical pump.



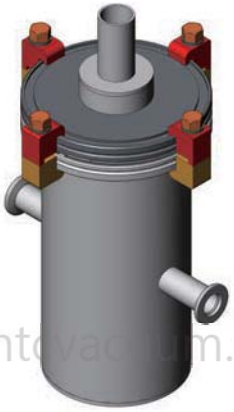
Model No.	O.D.	A	B	C	D	E	F	Parts No.
MST-KF16	19.1	24	30	236.2	28.7	133.4	Ø114.3	1000H0B010
MST-KF25	25.4	24	30	236.2	28.7	133.4	Ø114.3	1000H0B003
MST-KF40	38.1	24	30	236.2	28.7	200	Ø114.3	1000H0B004
MST-CF35	38.1	24	30	239.2	28.7	200	Ø114.3	1000H0B012

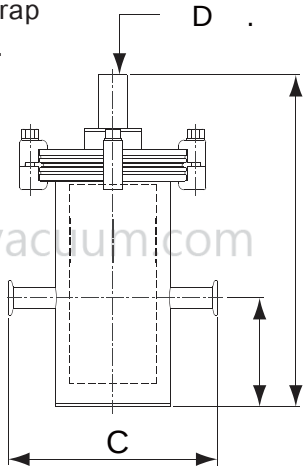
- Trap body : 304S.S.
- Power : AC110V / 300W
- Option : AC220V / 300W
- Sieve material : zeolite
- Zeolite type : 13x4mm (pellet size)
- Zeolite capacity : KF16/KF25(0.5kg)
  KF40/CF35(0.7kg)

Dimension in mm unless otherwise noted

Inline LN_2 Cold Trap

A cold trap is equipped at pumping line between chamber and pump. The cold trap can trap the volatile material to prevent they enter the mechanical pump and trap the oil from mechanical pump to prevent they enter the chamber.



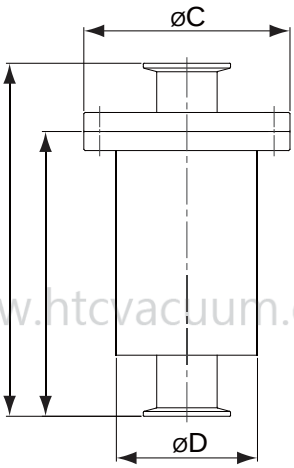


Model No.	Flange size	LN2 Volume (liters)	A	B	C	Parts No.
KF16LN2CT	KF16	0.7	290	95	185	1000H0P001
KF25LN2CT	KF25	0.7	290	95	185	1000H0P002
KF40LN2CTS	KF40	0.7	290	95	185	1000H0P003
KF40LN2CT	KF40	1.6	360	115	235	1000H0P004
KF50LN2CT	KF50	1.6	360	115	235	1000H0P005

Refill time table for single tube LN_2 traps

Trap diameter (Inch)	LN2 Volume (liters)	Hours
4	0.7	8
6	1.6	12

Exhaust Filter



Model No.	A	B	C	D	Connector	Filter Material	Filter Pore Size	Parts No.
EFT-KF25NWF	222.5	179.5	130	89	KF25	non-woven fabric	25	ZZE115A0010100
EFT-KF40NWF	222.5	179.5	130	89	KF40	non-woven fabric	25	ZZE004A0050100
EFT-KF40-SS	222.5	179.5	174	133	KF40	stainless shavings	N/A	ZZE135A0010100

- Body material : 304S.S.