

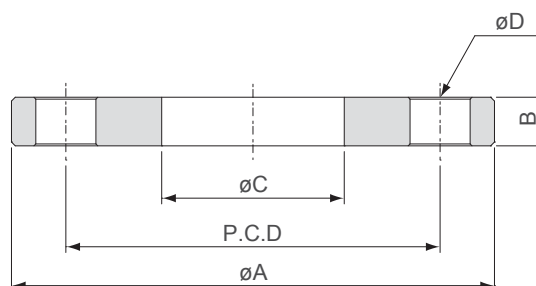
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ANSI, JIS, DIN Flange



Model No.	Nominal	A	B	C	D *No	P.C.D	Parts No.
ANSI150-350-050	1/2	3 1/2	7/16	0.88	5/8*4	2 3/8	156301A43
ANSI150-388-075	3/4	3 7/8	1/2	1.09	5/8*4	2 3/4	156302A53
ANSI150-425-100	1	4 1/4	9/16	1.36	5/8*4	3 1/8	156303A63
ANSI150-463-125	1 1/4	4 5/8	5/8	1.70	5/8*4	3 1/2	156323A73
ANSI150-500-150	1 1/2	5	11/16	1.95	5/8*4	3 7/8	156305A83
ANSI150-600-200	2	6	3/4	2.44	3/4*4	4 3/4	156306A93
ANSI150-700-250	2 1/2	7	7/8	2.94	3/4*4	5 1/2	156307B13
ANSI150-750-300	3	7 1/2	15/16	3.57	3/4*8	6	156308B23
ANSI150-850-350	3 1/2	8 1/2	15/16	4.07	3/4*8	7	156324B33
ANSI150-900-400	4	9	15/16	4.57	3/4*8	7 1/2	156309B43
ANSI150-1000-500	5	10	15/16	5.66	7/8*8	8 1/2	156310B53
ANSI150-1100-600	6	11	1	6.72	7/8*8	9 1/2	156311B63
ANSI150-1350-800	8	13 1/2	1 1/8	8.72	7/8*8	11 3/4	156313B73

Note : ● All dimensions shown on this page are in inch.

● Material : 304 Stainless Steel.

JIS Flange (5kg/cm²)

Model No.	Nominal	A	B	C	D* No	P.C.D	Parts No.
JIS5-075-010	10	75	9	17.8	12*4	55	157200AC3
JIS5-080-015	15	80	9	22.2	12*4	60	157201AD3
JIS5-085-020	20	85	10	27.7	12*4	65	157202AE3
JIS5-095-025	25	95	10	34.5	12*4	75	157203AF3
JIS5-115-032	32	115	12	43.2	15*4	90	157223AG3
JIS5-120-040	40	120	12	49.1	15*4	95	157205AH3
JIS5-130-050	50	130	14	61.1	15*4	105	157206AJ3
JIS5-155-065	65	155	14	77.1	15*4	130	157207AK3
JIS5-180-080	80	180	14	90.0	19*4	145	157208AL3
JIS5-190-090	90	190	14	102.6	19*4	155	157224AM3
JIS5-200-100	100	200	16	115.4	19*8	165	157209AN3
JIS5-235-125	125	235	16	141.2	19*8	200	157210AP3
JIS5-265-150	150	265	18	166.6	19*8	230	157211AQ3
JIS5-300-175	175	300	18	192.1	23*8	260	157225AU3
JIS5-320-200	200	320	20	218.0	23*8	280	157213AR3

JIS Flange (10kg/cm²)

Model No.	Nominal	A	B	C	D* No	P.C.D	Parts No.
JIS10-090-010	10	90	12	17.8	15*4	65	157400AC3
JIS10-095-015	15	95	12	22.2	15*4	70	157401AD3
JIS10-100-020	20	100	14	27.7	15*4	75	157402AE3
JIS10-125-025	25	125	14	34.5	19*4	90	157403AF3
JIS10-135-032	32	135	16	43.2	19*4	100	157423AG3
JIS10-140-040	40	140	16	49.1	19*4	105	157405AH3
JIS10-155-050	50	155	16	61.1	19*4	120	157406AJ3
JIS10-175-065	65	175	18	77.1	19*4	140	157407AK3
JIS10-185-080	80	185	18	90.0	19*4	150	157408AL3
JIS10-195-090	90	195	18	102.6	19*4	160	157424AM3
JIS10-210-100	100	210	18	115.4	19*8	175	157409AN3
JIS10-250-125	125	250	20	141.2	23*8	210	157410AP3
JIS10-280-150	150	280	22	166.6	23*8	240	157411AQ3
JIS10-305-175	175	305	22	192.1	23*8	265	157425AU3
JIS10-330-200	200	330	22	218.0	23*8	290	157413AR3

Note : ● All dimensions shown on this page are in mm.
● Material : 304 Stainless Steel.

DIN Flange (Nominal Pressure 6)

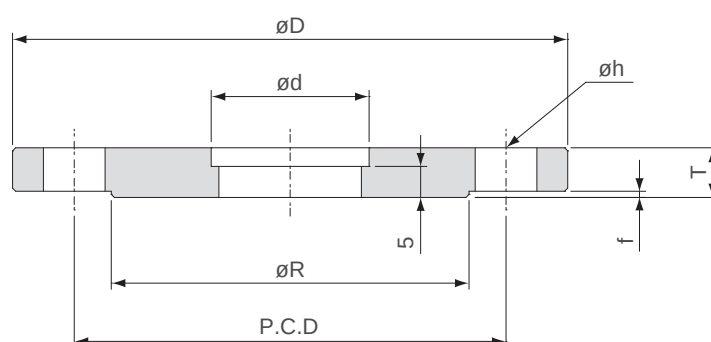
Model No.	Nominal	A	B	C	D* No	P.C.D	Parts No.
DIN6-075-010	10	75	12	17.7	11.5*4	50	158200A33
DIN6-080-015	15	80	12	21.8	11.5*4	55	158201A43
DIN6-090-020	20	90	14	27.4	11.5*4	65	158202A53
DIN6-100-025	25	100	14	34.2	11.5*4	75	158203A63
DIN6-120-032	32	120	16	42.9	14*4	90	158203A73
DIN6-130-040	40	130	16	48.8	14*4	100	158205A83
DIN6-140-050	50	140	16	60.8	14*4	110	158206A93
DIN6-160-065	65	160	16	76.6	14*4	130	158207B13
DIN6-190-080	80	190	18	89.4	18*4	150	158208B23
DIN6-210-100	100	210	18	114.8	18*4	170	158209B43
DIN6-240-125	125	240	20	140.2	18*8	200	158210B53
DIN6-265-150	150	265	20	168.8	18*8	225	158211B63
DIN6-320-200	200	320	22	220.1	18*8	280	158213B73

DIN Flange (Nominal Pressure 10)

Model No.	Nominal	A	B	C	D* No	P.C.D	Parts No.
DIN10-090-010	10	90	14	17.7	14*4	60	158400A33
DIN10-095-015	15	95	14	21.8	14*4	65	158401A43
DIN10-105-020	20	105	16	27.4	14*4	75	158402A53
DIN10-115-025	25	115	16	34.2	14*4	85	158403A63
DIN10-140-032	32	140	16	42.9	18*4	100	158423A73
DIN10-150-040	40	150	16	48.8	18*4	110	158405A83
DIN10-165-050	50	165	18	60.8	18*4	125	158406A93
DIN10-185-065	65	185	18	76.6	18*4	145	158407B13
DIN10-200-080	80	200	20	89.4	18*4	160	158408B23
DIN10-220-100	100	220	20	114.8	18*8	180	158409B43
DIN10-250-125	125	250	22	140.2	18*8	210	158410B53
DIN10-285-150	150	285	22	168.8	23*8	240	158411B63
DIN10-340-200	200	340	24	220.1	23*8	295	158413B73

Note : ● All dimensions shown on this page are in mm.

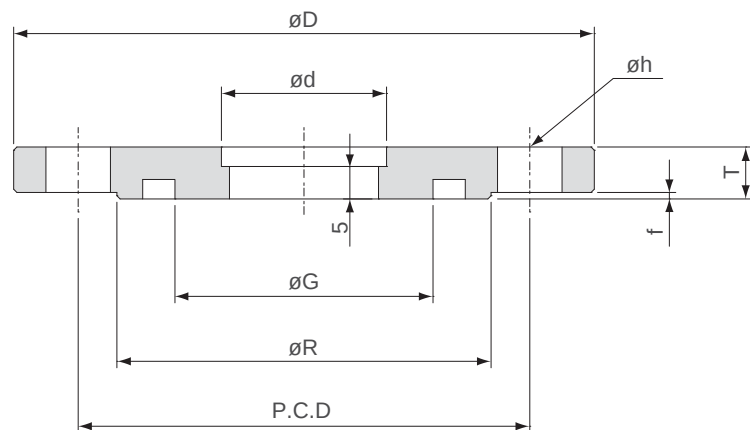
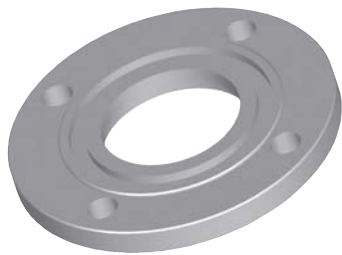
● Material : 304 Stainless Steel.



VF Flange (JIS B 2290_1968)

Model No.	$\varnothing D$	$\varnothing d$	T	f	$\varnothing R$	$\varnothing h^* \text{ No}$	P.C.D	Parts No.
VF20A	80	19.3	8	1	48	10*4	60	157502093
VF25A	90	25.6	8	1	58	10*4	70	157503113
VF40A	105	38.3	10	1	72	10*4	85	157505133
VF50A	120	51	10	1	88	10*4	100	157506143
VF80A	160	76.5	12	2	120	12*4	135	157508163
VF100A	185	101.8	12	2	145	12*8	160	157509183
VF150A	235	152.9	12	2	195	12*8	210	157511203
VF200A	300	203.7	16	2	252	15*8	270	157513213

Note : ● All dimensions shown on this page are in mm.
● Material : 304 Stainless Steel.



VG Flange (JIS B 2290_1968)

Model No.	$\varnothing D$	$\varnothing d$	T	f	$\varnothing G$	$\varnothing R$	$\varnothing h^*$ No	P.C.D	Parts No.
VG20A	80	19.3	8	1	34	48	10*4	60	157602093
VG25A	90	25.6	8	1	40	58	10*4	70	157603113
VG40A	105	38.3	10	1	55	72	10*4	85	157605133
VG50A	120	51	10	1	70	88	10*4	100	157606143
VG80A	160	76.5	12	2	100	120	12*4	135	157608163
VG100A	185	101.8	12	2	120	145	12*8	160	157609183
VG150A	235	152.9	12	2	175	195	12*8	210	157611203
VG200A	300	203.7	16	2	225	252	15*8	270	157613213

Note :

- All dimensions shown on this page are in mm.
- Material : 304 Stainless Steel.

Welding Bellows Parts

We offer excellent welding bellows parts for semiconductor equipments such as CVD, sputter, etcher and implanter etc.



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



- High Machining Accuracy
- Temperature Range : -100°C to 450°C
- The Maximun Transferable Voltage is Up to 100kv
- Customization Available Upon Request

KF Electrical Feedthroughs

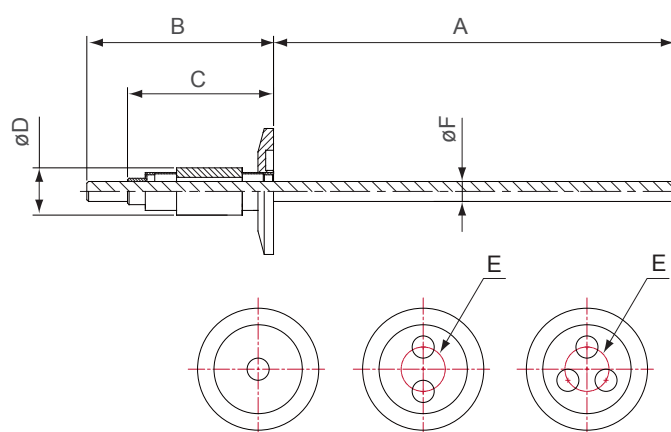


Figure 1

Figure 2

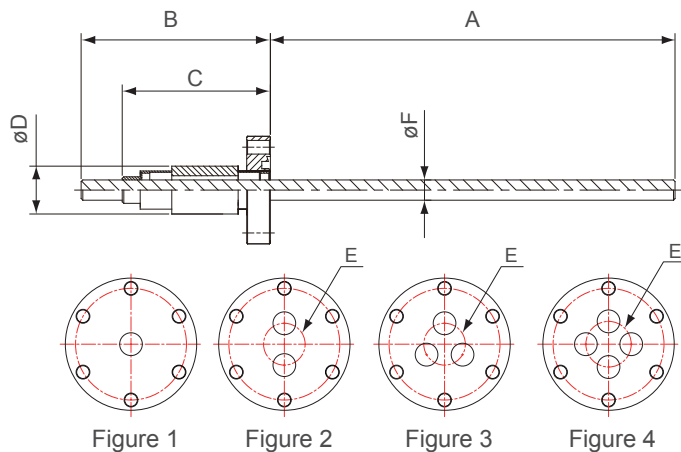
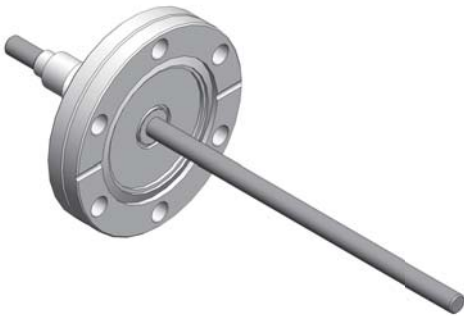
Figure 3

Model No.	Part No.	Flange	No. Pins	Conductor Material	Voltage (kv)	Current (A)	Figure
PFTKF25P1A	1000V0B011	KF25	1	OFHC	15	200	1
PFTKF25P1B	1000V0B012	KF25	1	304 S.S	15	30	1
PFTKF40P1A	1000V0B013	KF40	1	OFHC	15	200	1
PFTKF40P2A	1000V0B014	KF40	2	OFHC	15	200	2
PFTKF40P3A	1000V0B015	KF40	3	OFHC	15	200	3
PFTKF40P1B	1000V0B016	KF40	1	304 S.S	15	30	1
PFTKF40P2B	1000V0B017	KF40	2	304 S.S	15	30	2
PFTKF40P3B	1000V0B018	KF40	3	304 S.S	15	30	3

Model No.	A	B	C	D	E	F
PFTKF25P1A	128.3	59.7	46.7	15	-	6.35
PFTKF25P1B	128.3	59.7	46.7	15	-	6.35
PFTKF40P1A	128.3	59.7	46.7	15	-	6.35
PFTKF40P2A	128.3	59.7	46.7	15	20	6.35
PFTKF40P3A	128.3	59.7	46.7	15	20	6.35
PFTKF40P1B	128.3	59.7	46.7	15	-	6.35
PFTKF40P2B	128.3	59.7	46.7	15	20	6.35
PFTKF40P3B	128.3	59.7	46.7	15	20	6.35

Note : All listed flanges are SUS304, other material could be used on request.

CF Electrical Feedthroughs



Model No.	Part No.	Flange	No.	Conductor	Voltage	Current	Figure
			Pins	Material	(kv)	(A)	
PFTCF16P1A	1000V0B001	CF16	1	OFHC	15	200	1
PFTCF16P1B	1000V0B002	CF16	1	304 S.S	15	30	1
PFTCF35P1A	1000V0B003	CF35	1	OFHC	15	200	1
PFTCF35P2A	1000V0B004	CF35	2	OFHC	15	200	2
PFTCF35P3A	1000V0B005	CF35	3	OFHC	15	200	3
PFTCF35P4A	1000V0B006	CF35	4	OFHC	15	200	4
PFTCF35P1B	1000V0B007	CF35	1	304 S.S	15	30	1
PFTCF35P2B	1000V0B008	CF35	2	304 S.S	15	30	2
PFTCF35P3B	1000V0B009	CF35	3	304 S.S	15	30	3
PFTCF35P4B	1000V0B010	CF35	4	304 S.S	15	30	4

Model No.	A	B	C	D	E	F
PFTCF16P1A	125.6	62.4	49.4	15	-	6.35
PFTCF16P1B	125.6	62.4	49.4	15	-	6.35
PFTCF35P1A	125.6	62.4	49.4	15	-	6.35
PFTCF35P2A	125.6	62.4	49.4	15	22	6.35
PFTCF35P3A	125.6	62.4	49.4	15	22	6.35
PFTCF35P4A	125.6	62.4	49.4	15	22	6.35
PFTCF35P1B	125.6	62.4	49.4	15	-	6.35
PFTCF35P2B	125.6	62.4	49.4	15	22	6.35
PFTCF35P3B	125.6	62.4	49.4	15	22	6.35
PFTCF35P4B	125.6	62.4	49.4	15	22	6.35

Note : All listed flanges are SUS304, other material could be used on request.

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.

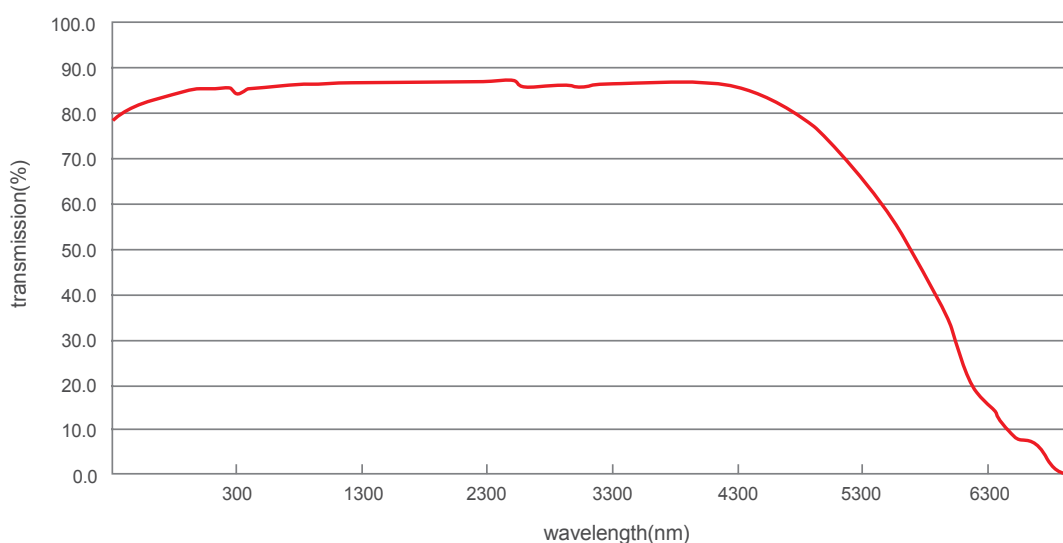
Our sapphire viewport contains non-magnetic stainless steel, either 304 or 316, and sapphire dielectric only. Surface metallization layer on sapphire disk doesn't contain any magnetic composition. Proprietary technology of unmatched seal is used in brazing sapphire disk with stainless steel adaptor together, 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.

Sapphire viewport

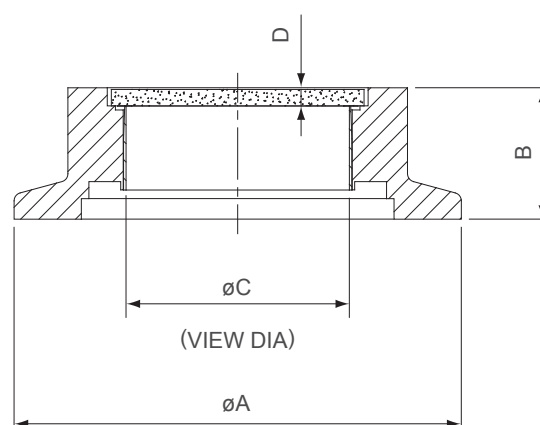
- Non-magnetic
- Excellent Surface Finish : 20-10 Scratch-Dig
- Broader Temperature & Transmission Range
- High Transparency & Wide Bandwidth
- High Hardness
- Customization Available Upon Request

Description	Description
Window Material	Sapphire
Flange Material	304 S.S or 316 S.S
Adapter	304 S.S or 316 S.S
Leak Rate	$<1 \times 10^{-10}$ mbar.l/sec
Temperature Range	-100°C to 450°C
Transmission rate/rang	>80%(0.2 μ m~4.8 μ m)
Max Thermal Gradient	15°C/min

Transmission Curve

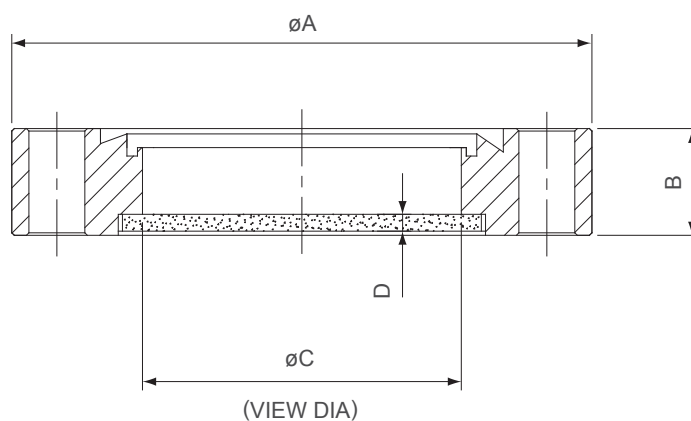


KF Flange Viewport



Model No.	Flange	Material	A	B	C	D	Parts No.
KVPS26	KF40	304S.S/Sapphire	55	15	26	2	1000V0A005
KVPS26-316	KF40	316S.S/Sapphire	55	15	26	2	1000V0A007
KVPS36	KF50	304S.S/Sapphire	75	15	35.7	2	1000V0A006
KVPS36-316	KF50	316S.S/Sapphire	75	15	35.7	2	1000V0A008

CF Flange Viewport



Model No.	Flange	Material	A	B	C	D	Flange
CVPS26	CF35	304S.S/Sapphire	69.5	12.7	26	2	1000V0A001
CVPS26-316	CF35	316S.S/Ssapphire	69.5	12.7	26	2	1000V0A003
CVPS36	CF35	304S.S/Sapphire	69.5	12.7	35.7	2	1000V0A002
CVPS36-316	CF35	316S.S/Sapphire	69.5	12.7	35.7	2	1000V0A004
CVPS67	CF63	304S.S/Sapphire	113.5	18	66.5	2	1000V0A010
CVPS67-316	CF63	316S.S/Sapphire	113.5	18	66.5	2	1000V0A012
CVPS100	CF100	304S.S/Sapphire	152	20	66.5	2	1000V0A011
CVPS100-316	CF100	316S.S/Sapphire	152	20	66.5	2	1000V0A013

Magnetic Fluid Feedthrough



Applications

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

Magnetic Fluid Feedthrough

Applications

Vacuum range : up to 10^{-8} mbar

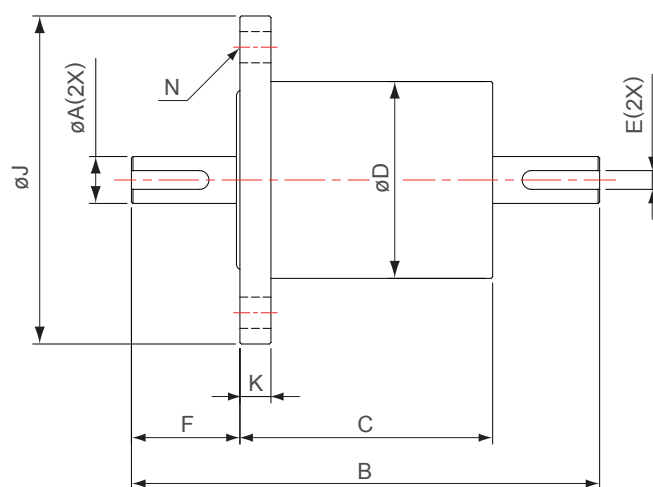
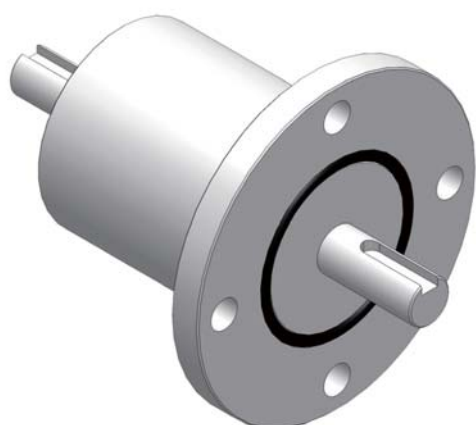
Leak rate(He) : $< 10^{-11}$ mbar.l/sec (He)

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/cm^2 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 $1\text{--}3\text{kg/cm}^2$ at room temperature. Besides, water can not be left in the inner feedthrough which could cause rust and circumrotating failure.

Solid Shaft Sealed Spindles



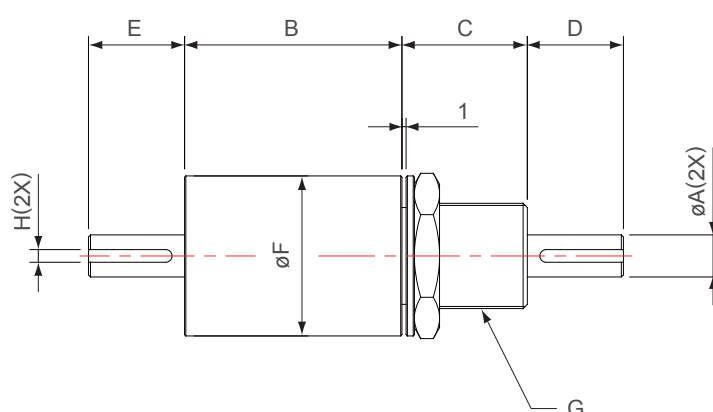
Parts No.	A	B	C	D	E	F	J	K	N	Torque (kg/cm)
1000FF011001	$\varnothing 6^{+0}_{-0.018}$	97.5	57.5	38	0.5Dp*12Lg(Flat)	20	78	10	P.C.D.60/4- $\varnothing 10$	9.2
1000FF011002	$\varnothing 10$	119.5	69.5	44	3W*1.8Dp*14Lg	25	78	10	P.C.D.60/4- $\varnothing 10$	59
1000FF011003	$\varnothing 12^{+0}_{-0.02}$	133.5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

Degree vacuum pressure [mbar] : 10^{-8}

Leakage rate(He) [mbar.l/sec] : $< 10^{-11}$

Temperature range($^{\circ}\text{C}$) : 0~80 $^{\circ}\text{C}$ (Adding water cooling structure if it is beyond this temperature range)

Semiconductor Sealed Spindles



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

Degree vacuum pressure [mbar] : 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)