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## General Information

### Features

- HTC is pleased to offer vacuum valves designed and manufactured in Tainan, Taiwan, R.O.C. These valves are the result of a long and careful development program designed to insure product quality, reliability and value. Every effort has been made to provide a valve family suited to the requirements of various users.  
They will function reliably in applications ranging from semiconductor production system with chemical and particulate contamination.
- Long life operation.
- Stainless steel welded bellows seal.
- Manual and electropneumatic actuation or fail safe operators (closes in the event of air pressure loss).
- Bakeable to 200°C intermittently, Viton seal bonnet.
- Compact size.
- Simple and fast maintenance.
- Simple control via solenoid valve with manual override.

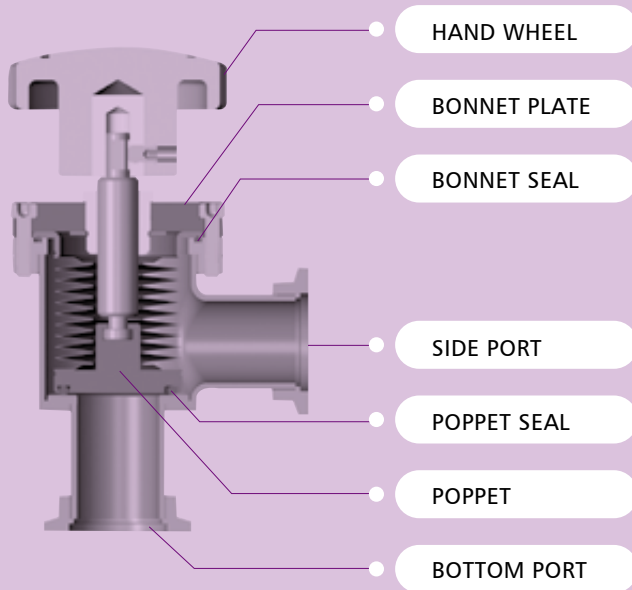
### Specifications

- Body : 304 S.S. (Other material available upon request)
- Poppet : 304 S.S. (Other material available upon request)
- Bellows : Welded AM-350 (option)
- Solenoid : Option
- Position indicator : Option
- Seal : Viton O'ring
- Leak rate :  $2 \times 10^{-9}$  std.cc./second
- Pressure range :  $1 \times 10^{-9}$  torr to 760 torr Viton seal bonnet
- Maximum  $\Delta$ pressure before opening : 1.2 Bar
- Operating air pressur : 4~6.5 kg/cm<sup>2</sup>
- Cycles until service : 16 to 50~500,000
- (full orifice open) : 63 to 150~250,000  
: 200 to larger~application dependent
- Bake-out limitation : 150°C Viton seal bonnet
- **Larger or special size available upon request**

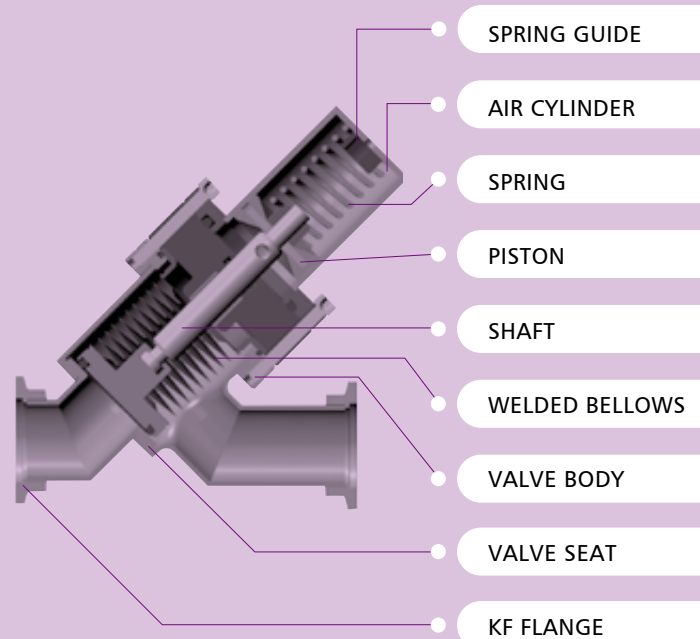
## Applications

- KF, ISO and ANSI port models are designed for high vacuum applications where vacuum pressures approximate  $10^{-9}$  torr and bake-out temperature do not exceed  $150^{\circ}\text{C}$ . The standard international KF/ISO configurations and ANSI configurations are used in areas requiring an easily mountable and demountable flange type seal.
- CF port models are designed for ultra-high vacuum applications where the vacuum pressure approximates  $10^{-10}$  torr and bake-out temperatures do not exceed  $200^{\circ}\text{C}$ . These valves are used in applications during an OFHC copper gasket rather the conventional Viton O'ring because of higher bake-out temperatures, lower vacuum pressures, (minimal outgassing) and reduced permeability. They are also commonly used in applications requiring a more permanent seal.

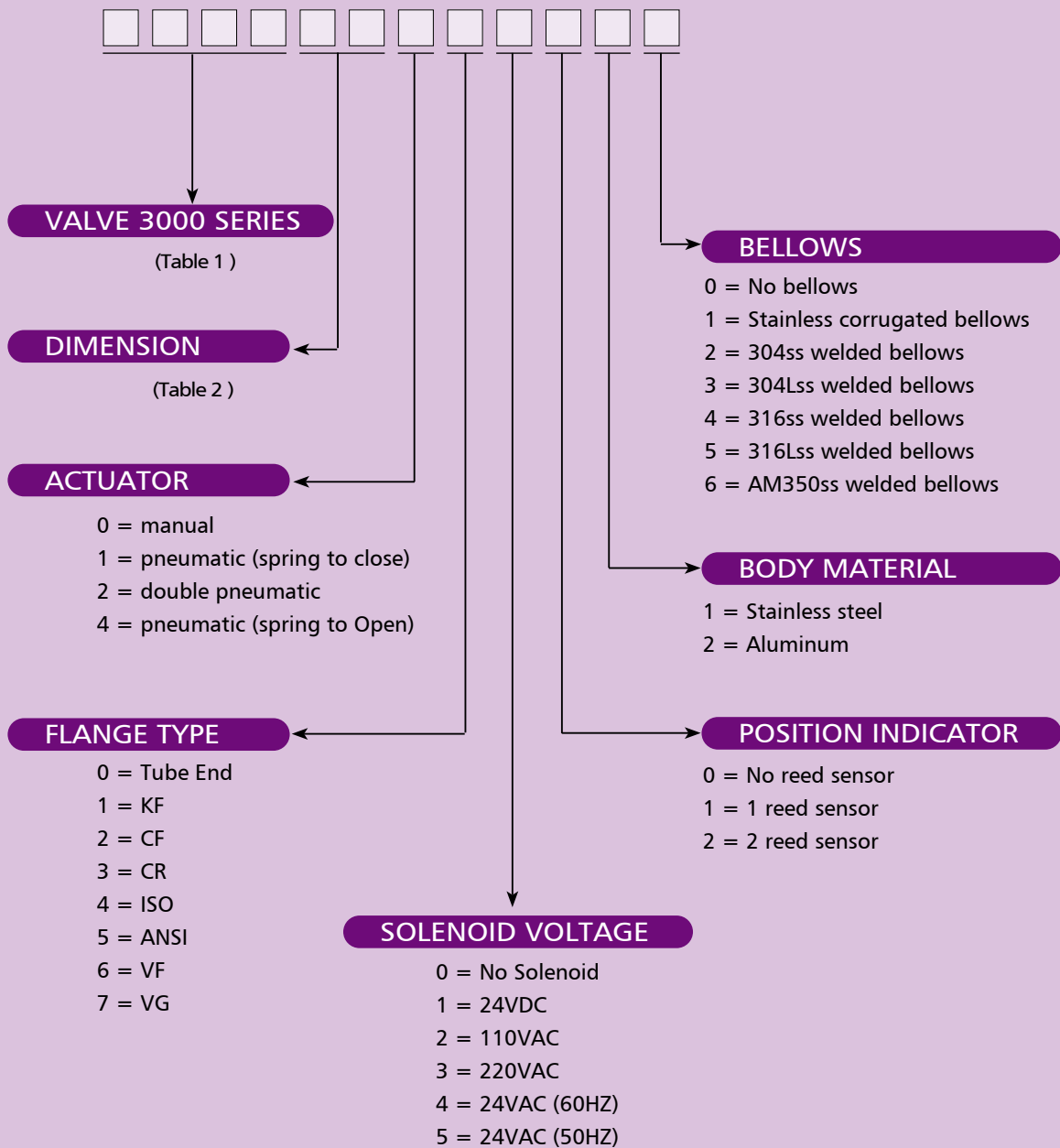
### Manually Operated Angle Valve:



### Pneumatically Actuated Angle-In-Line Valve:



### Ordering Information



**Table 1. Valve 3000 Series**

	VALVE	U.S.A.	Series code
Angle Valve 3001   3019	VITON POPPET	BONNET SEAL	3001
	KALREZ POPPET	BONNET SEAL	3003
	KALREZ POPPET	METAL BONNET SEAL	3004
	BONNET ALL-METAL		3005
	VITON POPPET	METAL BONNET SEAL	3006
Z-Inline Valve 3021   3039	VITON POPPET	BONNET SEAL	3021
	KALREZ POPPET	BONNET SEAL	3023
	KALREZ POPPET	METAL BONNET SEAL	3024
	BONNET ALL-METAL		3025
	VITON POPPET	BONNET SEAL	3026
Y-Inline Valve 3041   3059	VITON POPPET	BONNET SEAL	3041
	KALREZ POPPET	BONNET SEAL	3043
	KALREZ POPPET	METAL BONNET SEAL	3044
	BAKEABLE ALL-METAL		3045
	VITON POPPET	METAL BONNET SEAL	3046
Tee Valve 3061   3069	VITON POPPET	BONNET SEAL	3061
	KALREZ POPPET	BONNET SEAL	3063
	KALREZ POPPET	METAL BONNET SEAL	3064
	BAKEABLE ALL-METAL		3065
	VITON POPPET	METAL BONNET SEAL	3066
Straight-Through 3001   3089	VITON POPPET	BONNET SEAL	3071
	KALREZ POPPET	BONNET SEAL	3073
	KALREZ POPPET	METAL BONNET SEAL	3074
	BAKEABLE ALL-METAL		3075
	VITON POPPET	METAL BONNET SEAL	3076

Table 1. Continuous

	VALVE	Europe	Series code
Angle Valve 3101   3119	VITON POPPET	BONNET SEAL	3101
	KALREZ POPPET	BONNET SEAL	3103
	KALREZ POPPET	METAL BONNET SEAL	3104
	BONNET ALL-METAL		3105
	VITON POPPET	METAL BONNET SEAL	3106
Z-Inline Valve 3121   3139	VITON POPPET	BONNET SEAL	3121
	KALREZ POPPET	BONNET SEAL	3123
	KALREZ POPPET	METAL BONNET SEAL	3124
	BONNET ALL-METAL		3125
	VITON POPPET	BONNET SEAL	3126
Y-Inline Valve 3141   3159	VITON POPPET	BONNET SEAL	3141
	KALREZ POPPET	BONNET SEAL	3143
	KALREZ POPPET	METAL BONNET SEAL	3144
	BAKEABLE ALL-METAL		3145
	VITON POPPET	METAL BONNET SEAL	3146
Tee Valve 3161   3169	VITON POPPET	BONNET SEAL	3161
	KALREZ POPPET	BONNET SEAL	3163
	KALREZ POPPET	METAL BONNET SEAL	3164
	BAKEABLE ALL-METAL		3165
	VITON POPPET	METAL BONNET SEAL	3166
Straight-Through 3171   3189	VITON POPPET	BONNET SEAL	3171
	KALREZ POPPET	BONNET SEAL	3173
	KALREZ POPPET	METAL BONNET SEAL	3174
	BAKEABLE ALL-METAL		3175
	VITON POPPET	METAL BONNET SEAL	3176

**Table 2. Dimension**

Codes and Dimensions Description							
01 ~ 99TUBE (Fractional)		1A ~ 9Z TUBE (Metric)		A1 ~ Z9 PIPE (ANSI)		AA ~ ZZ PIPE (JIS)	
Code	Dimension	Code	Dimension	Code	Dimension	Code	Dimension
01	1/16"	1A	2	A1	1/8"	AA	6(1/8")
02	1/8"	1B	3	A2	1/4"	AB	8(1/4")
03	3/16"	1C	4	A3	3/8"	AC	10(3/8")
04	1/4"	1D	6	A4	1/2"	AD	15(1/2")
05	5/16"	1E	8	A5	3/4"	AE	20(3/4")
06	3/8"	1F	10	A6	1"	AF	25(1")
07	1/2"	1G	12	A7	1-1/4"	AG	32(1-1/4")
08	5/8"	1H	16	A8	1-1/2"	AH	40(1-1/2")
09	3/4"(16)	1J	20	A9	2"	AJ	50(2")
10	7/8"	1K	22	B1	2-1/2"	AK	65(2-1/2")
11	1"(25)	1L	25	B2	3"	AL	80(3")
12	1-1/4"	1M		B3	3-1/2"	AM	90(3-1/2")
13	1-1/2"(40)	1N		B4	4"	AN	100(4")
14	2"(50)	1P		B5	5"	AP	125(5")
15	2-1/2"(63)	1Q		B6	6"	AQ	150(6")
16	3"(80)	1R		B7	8"	AR	100(4")
17	3-1/2"	1S		B8	10"	AS	125(5")
18	4"(100)	1T		B9	12"	AT	150(6")
19	5"	1U		C1		AU	200(8")
20	6"(160)	1V		C2		AV	250(10")
21	8"(200)	1W		C3		AW	300(12")
22	10"(250)	1X		C4		AX	
23	12"	1Y		C5		AY	
24	14"	1Z		C6		AZ	
25	16"						
26	18"						
27	20"						
28	22"						
29	24"						

## Specifications for No Port Flange Angle Valve

Characteristic	Units	Model No.			
		AVB-TE16-P	AVB-TE25-P	AVB-TE40-P	AVB-TE50-P
Conductance	Liters/second	4	7	26	29
Seal Leak Rate	Std cc/s	$<10^{-9}$	$<10^{-9}$	$<10^{-9}$	$<10^{-9}$
Body Leak Rate	Std cc/s	$<10^{-9}$	$<10^{-9}$	$<10^{-9}$	$<10^{-9}$
Cylinder Air Pressure Required For Fully Opening	Bar	4 ~ 6.5	4 ~ 6.5	4 ~ 6.5	4 ~ 6.5

## Note

- Conductance tables based on air at 25°C.
- Measure using helium search gas with test time less than one minute to avoid the leak signal caused by permeation through elastomer seal.



# ANGLE VALVE

## Manually Operated with Bellows

Tube End

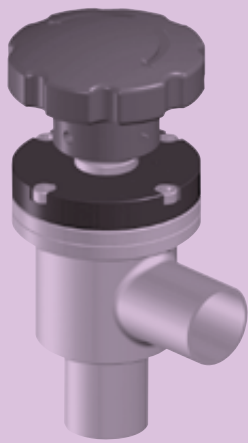
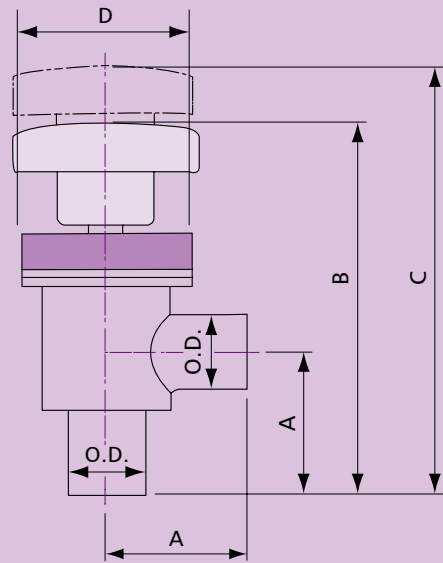


Figure 1



KF Flange

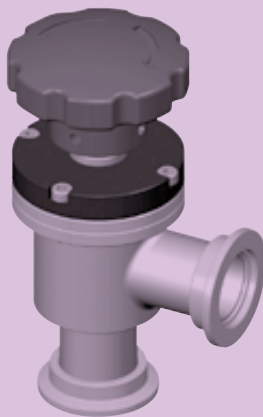
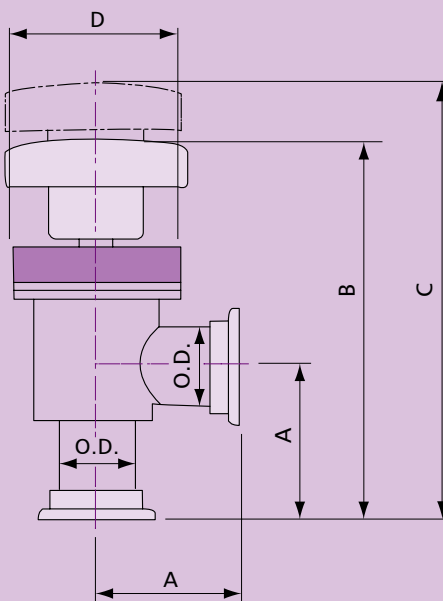


Figure 2



ANGLE VALVE

Manually Operated with Bellows

CF Flange

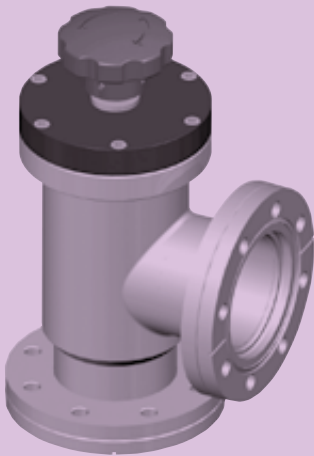
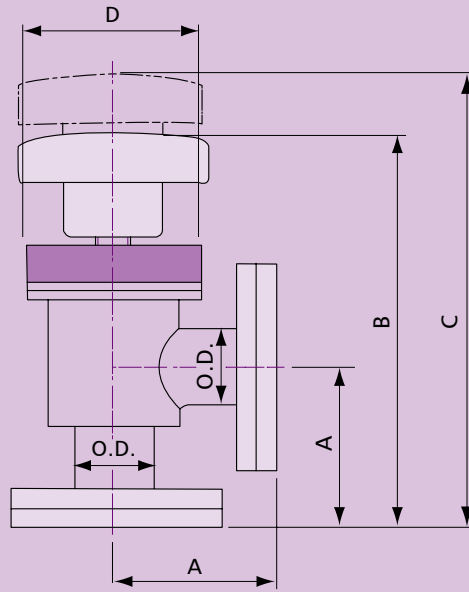


Figure 3



ISO Flange

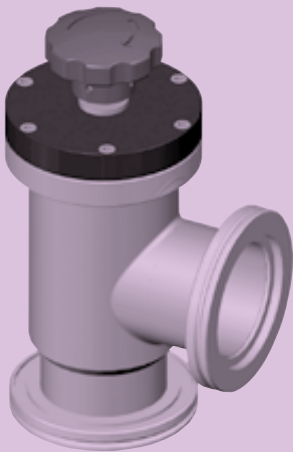
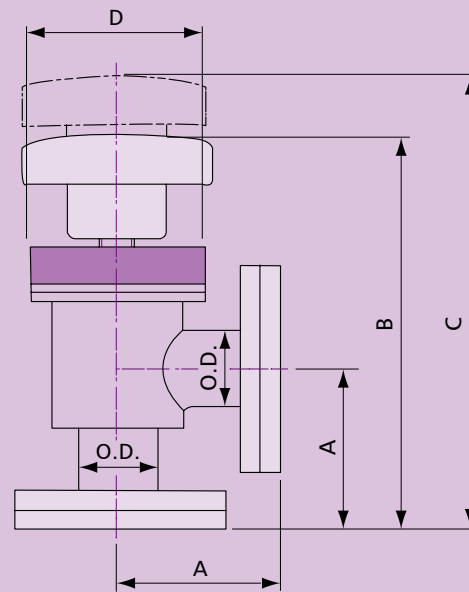


Figure 4



## ANGLE VALVE

### Manually Operated with Bellows

Available Area : U.S.A.

#### Port Connections : Tube End

Model No.	O.D.	A	B	C	D	Figure	Parts No.
AVB-TE16-M	0.75	2.00	5.25	6.00	2.24	1	300109000016
AVB-TE25-M	1.00	1.88	4.97	5.70	2.24	1	300111000016
AVB-TE40-M	1.50	2.25	6.28	7.50	2.98	1	300113000016
AVB-TE50-M	2.00	3.25	8	9.76	3.48	1	300114000016
AVB-TE63-M	2.50	3.00	8.37	10.04	3.92	1	300115000016
AVB-TE80-M	3.00	3.25	8.69	10.57	4.49	1	300116000016

#### Port Connections : KF Flange

Model No.	O.D.	A	B	C	D	Figure	Parts No.
AVB-KF16-M	0.75	2.15	5.41	6.15	2.24	2	300109010016
AVB-KF25-M	1.00	2.03	5.13	5.89	2.24	2	300111010016
AVB-KF40-M	1.50	2.40	6.20	7.48	2.98	2	300113010016
AVB-KF50-M	2.00	3.40	8.15	9.91	3.48	2	300114010016

#### Port Connections : CF Rotatable Flange

Model No.	O.D.	A	B	C	D	Figure	Parts No.
AVB-CR16-M	0.75	2.50	5.7	6.50	2.24	3	300109030016
AVB-CR35-M	1.50	2.46	6.50	7.78	2.98	3	300113030016
AVB-CR63-M	2.50	3.37	8.75	10.42	3.92	3	300115030016

#### Port Connections : ISO Flange

Model No.	O.D.	A	B	C	D	Figure	Parts No.
AVB-ISO63-M	2.50	3.26	8.63	10.30	3.92	4	300115040016
AVB-ISO80-M	3.00	3.51	8.95	10.83	4.49	4	300116040016

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

#### Specifications

- Polished 304 stainless steel body.
- 3/4~3 inch port ODs.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF, ISO and CF flange.

**ANGLE VALVE****Manually Operated with Bellows***Available Area :Europe**(Special Sizes Available Upon Request)***Port Connections : KF Flange**

Model No.	O.D.	A	B	C	D	Figure	Parts No.
AVB-KF16-M-E	19.05	40	121.9	141.5	56.8	2	310109010016
AVB-KF25-M-E	25.4	50	128.6	148.1	56.8	2	310111010016
AVB-KF40-M-E	38.1	65	167.5	200	75.8	2	310113010016
AVB-KF50-M-E	50.8	70	190.5	235.5	88.4	2	310114010016

**Port Connections : CF Rotatable Flange**

Model No.	O.D.	A	B	C	D	Figure	Parts No.
AVB-CR16-M-E	19.05	38	119.9	139.5	56.8	3	310109030016
AVB-CR35-M-E	38.1	63	165.5	198	75.8	3	310113030016
AVB-CR63-M-E	63.5	105	241.5	283.9	151.6	3	310115030016

**Port Connections : ISO Flange**

Model No.	O.D.	A	B	C	D	Figure	Parts No.
AVB-ISO63-M-E	63.5	88	224.5	266.9	151.6	4	310115040016
AVB-ISO80-M-E	76.2	98	236.3	283.9	114	4	310116040016

**Specifications**

- Polished 304 stainless steel body.
- 19.05~76.2 mm port ODs.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF, ISO and CF flange.

# ANGLE VALVE

## Manually Operated without Bellows

Tube End

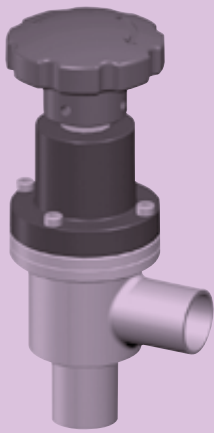
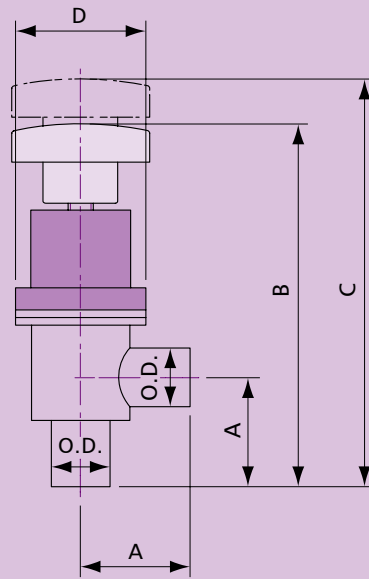


Figure 5



KF Flange

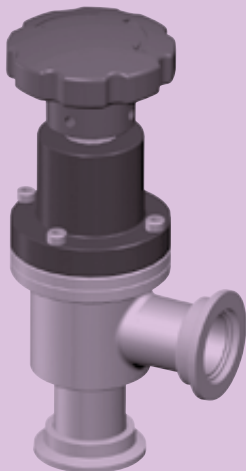
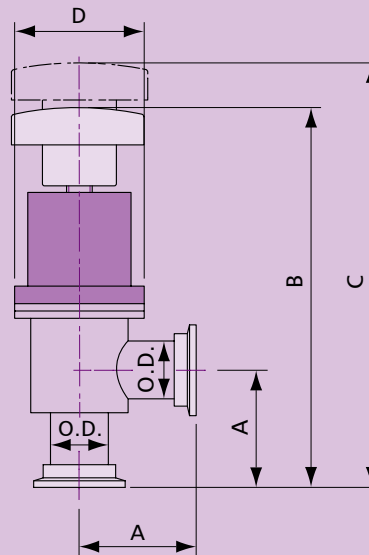


Figure 6



## ANGLE VALVE

**Manually Operated without Bellows***Available Area : U.S.A.***Port Connections : Tube End**

Model No.	O.D.	A	B	C	D	Figure	Parts No.
AV-TE16-M	0.75	2.00	6.45	7.07	2.24	5	300109000010
AV-TE25-M	1.00	1.88	6.20	6.82	2.24	5	300111000010
AV-TE40-M	1.50	2.25	7.35	8.63	2.98	5	300113000010
AV-TE50-M	2.00	3.25	9.65	11.24	3.48	5	300114000010

**Port Connections : KF Flange**

Model No.	O.D.	A	B	C	D	Figure	Parts No.
AV-KF16-M	0.75	2.15	6.59	7.22	2.24	6	300109010010
AV-KF25-M	1.00	2.03	6.35	6.97	2.24	6	300111010010
AV-KF40-M	1.50	2.40	7.50	8.78	2.98	6	300113010010
AV-KF50-M	2.00	3.40	9.80	11.39	3.48	6	300114010010

**Specifications**

- Polished 304 stainless steel body.
- 3/4~2 inch port ODs.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF flange.

# ANGLE VALVE

## Manually Operated without Bellows

Available Area :Europe

(Special Sizes Available Upon Request)

### Port Connections : KF Flange

Model No.	O.D.	A	B	C	D	Figure	Parts No.
AV-KF16-M-E	19.05	40	152.9	168.7	56.8	6	310109010010
AV-KF25-M-E	25.4	50	159.6	175.4	56.8	6	310111010010
AV-KF40-M-E	38.1	65	194.5	227	75.8	6	310113010010
AV-KF50-M-E	50.8	70	232.7	273.1	88.4	6	310114010010

### Specifications

- Polished 304 stainless steel body.
- 19.05~50.8 mm port ODs.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF, ISO and CF flange.

ANGLE VALVE

Manually Operated Copper Seal Bonnet with Bellows

Tube End

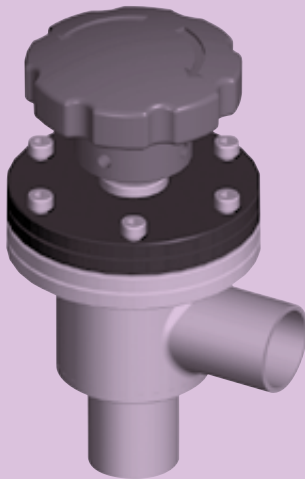
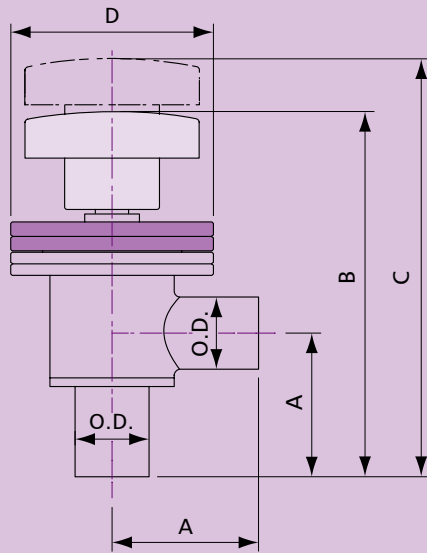


Figure 7



KF Flange

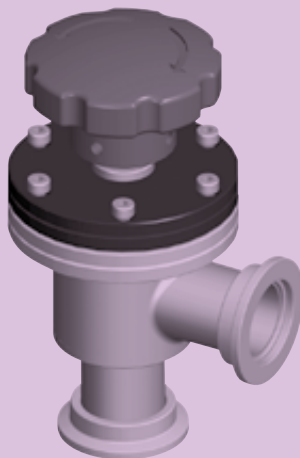
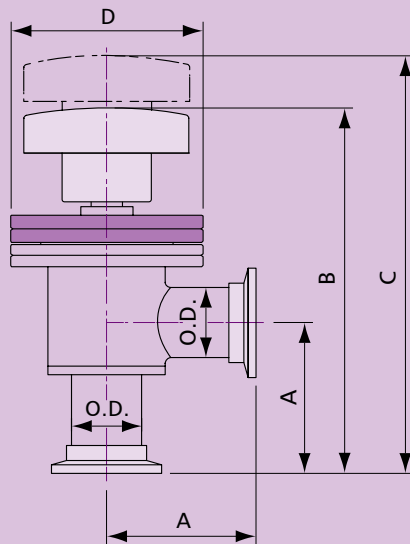


Figure 8





# ANGLE VALVE

## Manually Operated Copper Seal Bonnet with Bellows

CF Flange

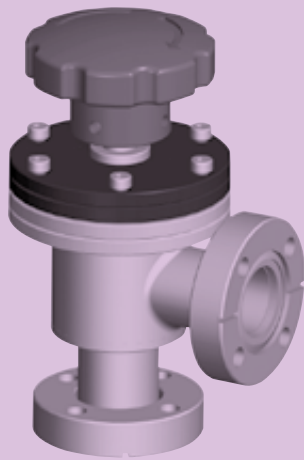
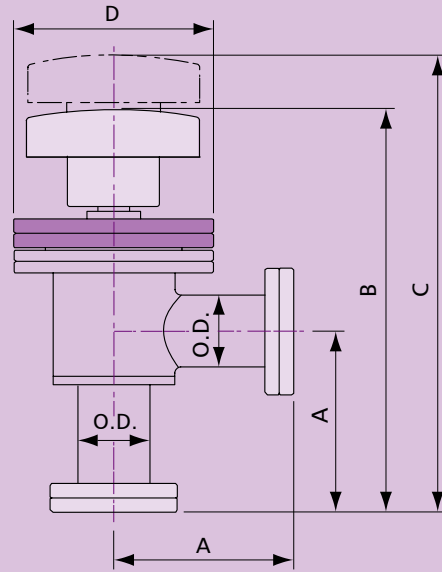


Figure 9



## ANGLE VALVE

**Manually Operated Copper Seal Bonnet with Bellows***Available Area : U.S.A.***Port Connections : Tube End**

Model No.	O.D.	A	B	C	D	Figure	Parts No.
AVB-CU-TE16-M	0.75	2.00	5.20	5.98	2.75	7	300609000016
AVB-CU-TE25-M	1.00	1.88	4.96	5.74	2.75	7	300611000016
AVB-CU-TE40-M	1.50	2.25	6.48	7.70	3.37	7	300613000016
AVB-CU-TE50-M	2.00	3.25	7.99	9.76	4.47	7	300614000016
AVB-CU-TE63-M	2.50	3.00	8.35	11.01	4.47	7	300615000016

**Port Connections : KF Flange**

Model No.	O.D.	A	B	C	D	Figure	Parts No.
AVB-CU-KF16-M	0.75	2.15	5.24	6.01	2.75	8	300609010016
AVB-CU-KF25-M	1.00	2.03	5.11	5.89	2.75	8	300611010016
AVB-CU-KF40-M	1.50	2.40	6.62	7.85	3.37	8	300613010016
AVB-CU-KF50-M	2.00	3.40	8.14	9.91	4.47	8	300614010016

**Port Connections : CF Rotatable Flange**

Model No.	O.D.	A	B	C	D	Figure	Parts No.
AVB-CU-CR16-M	0.75	2.50	5.58	6.36	2.75	9	300609030016
AVB-CU-CR35-M	1.50	2.45	6.68	7.90	3.37	9	300613030016
AVB-CU-CR63-M	2.50	3.38	8.72	11.38	4.47	9	300615030016

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

**Specifications**

- Polished 304 stainless steel body.
- 3/4~3 inch port ODs.
- Bakeable to 150°C. (200°C intermittently for CF flange port).
- Metal Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF, and approximate 10<sup>-10</sup> Torr vacuum rating CF flange.

# ANGLE VALVE

## Pneumatically Actuated

Tube End

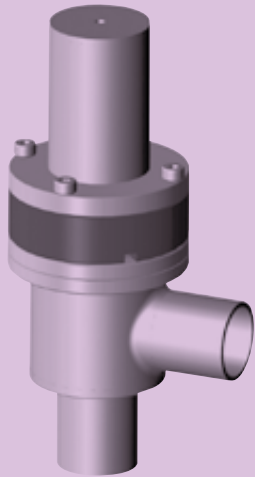
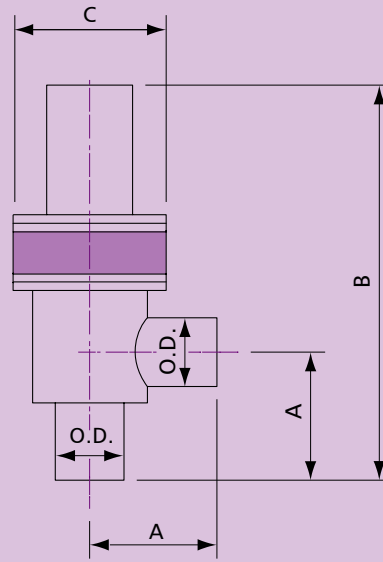


Figure 10



Tube End

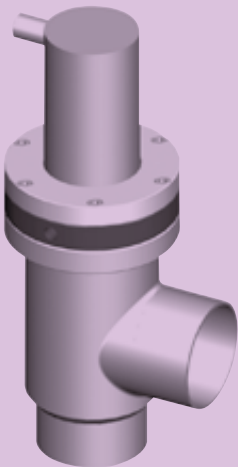
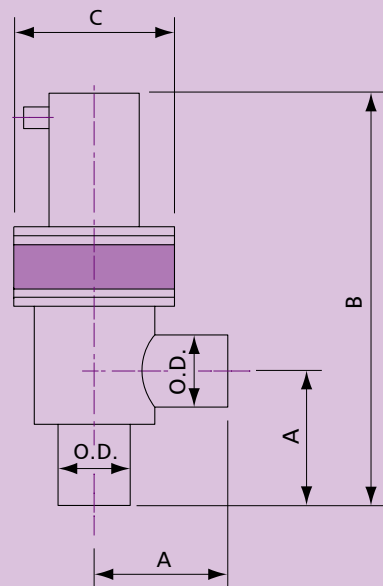


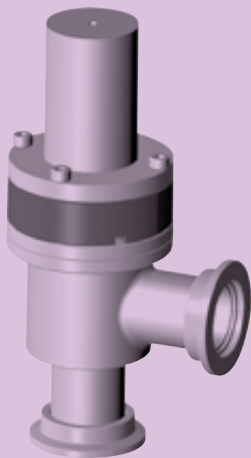
Figure 11



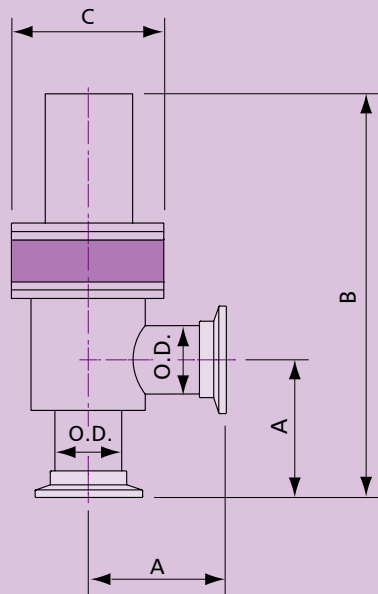
ANGLE VALVE

*Pneumatically Actuated*

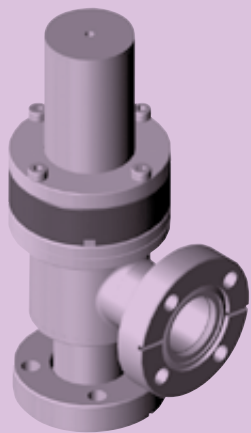
*KF Flange*



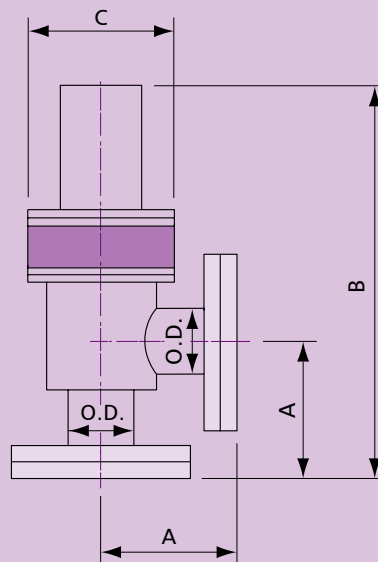
*Figure 12*



*CF Flange*



*Figure 13*



# ANGLE VALVE

## Pneumatically Actuated

CF Flange

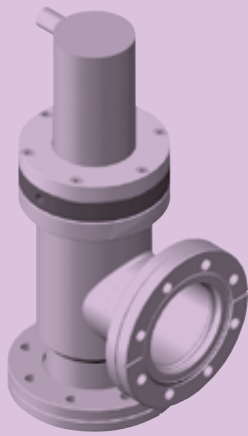
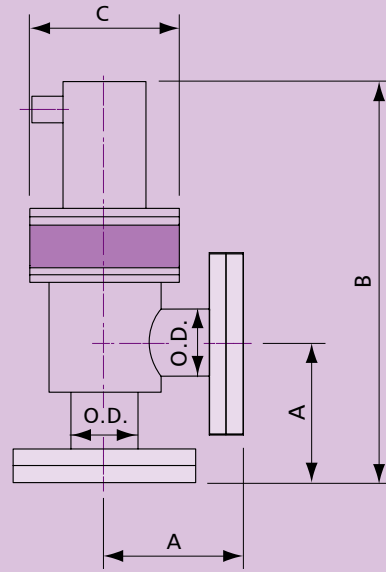


Figure 14



ISO Flange

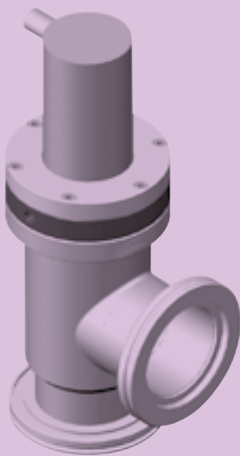
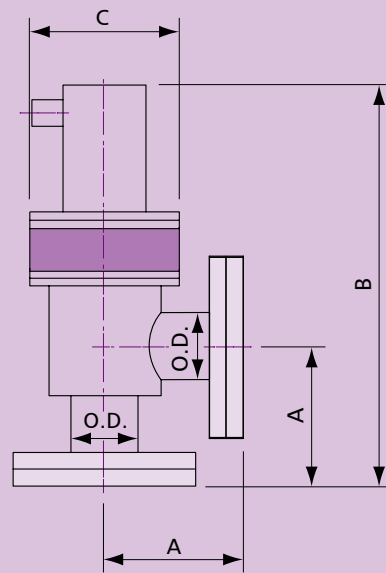


Figure 15



## ANGLE VALVE

***Pneumatically Actuated****Available Area : U.S.A.**With bellows, air to open, spring to close.***Port Connections : Tube End**

Model No.	O.D.	A	B	C	Figure	Parts No.
AVB-TE16-P	0.75	2.00	6.03	2.24	10	300109100016
AVB-TE25-P	1.00	1.88	5.77	2.24	10	300111100016
AVB-TE40-P	1.50	2.25	7.69	2.98	10	300113100016
AVB-TE50-P	2.00	3.25	10.18	3.48	10	300114100016

**Port Connections : KF Flange**

Model No.	O.D.	A	B	C	Figure	Parts No.
AVB-KF16-P	0.75	2.15	6.17	2.24	12	300109110016
AVB-KF25-P	1.00	2.03	5.92	2.24	12	300111110016
AVB-KF40-P	1.50	2.40	7.60	2.98	12	300113110016
AVB-KF50-P	2.00	3.40	10.33	3.48	12	300114110016

**Port Connections : CF Rotatable Flange**

Model No.	O.D.	A	B	C	Figure	Parts No.
AVB-CR16-P	0.75	2.50	6.52	2.24	13	300109130016
AVB-CR35-P	1.50	2.46	7.89	2.98	13	300113130016

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

**Specifications**

- Polished 304 stainless steel body.
- 3/4~2 inch port ODs.
- 4~6.5 kg/cm<sup>2</sup> operating air pressure.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF and CF flange.

# ANGLE VALVE

## Pneumatically Actuated

Available Area : U.S.A.

With bellows, air to open, air to close.

### Port Connections : Tube End

Model No.	O.D.	A	B	C	Figure	Parts No.
AVB-TE16-P2	0.75	2.00	6.41	2.24	11	300109200016
AVB-TE25-P2	1.00	1.88	6.17	2.24	11	300111200016
AVB-TE40-P2	1.50	2.25	7.18	2.98	11	300113200016
AVB-TE50-P2	2.00	3.25	9.44	3.48	11	300114200016
AVB-TE63-P2	2.50	3.00	10.44	3.92	11	300115200016
AVB-TE80-P2	3.00	3.25	10.69	4.49	11	300116200016
AVB-TE100-P2	4.00	4.21	13.60	5.97	11	300118200016
AVB-TE160-P2	6.00	6.00	17.56	9.45	11	300120200016

### Port Connections : CF Rotatable Flange

Model No.	O.D.	A	B	C	Figure	Parts No.
AVB-CR63-P2	2.50	3.37	10.81	3.92	14	300115230016
AVB-CR100-P2	4.00	4.7	18.06	5.97	14	300118230016

### Port Connections : ISO Flange

Model No.	O.D.	A	B	C	Figure	Parts No.
AVB-ISO-63-P2	2.50	3.26	10.70	3.92	15	300115240016
AVB-ISO-80-P2	3.00	3.51	10.95	4.49	15	300116240016
AVB-ISO-100-P2	4.00	4.47	13.86	5.97	15	300118240016
AVB-ISO-160-P2	6.00	6.26	17.82	9.45	15	300120240016

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

### Specifications

- Polished 304 stainless steel body.
- 3/4~8 inch port ODs.
- 4~6.5 kg/cm<sup>2</sup> operating air pressure.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF and ISO flange.

## ANGLE VALVE

***Pneumatically Actuated****Available Area : U.S.A.**Without bellows, air to open, spring to close.***Port Connections : Tube End**

Model No.	O.D.	A	B	C	Figure	Parts No.
AV-TE16-P	0.75	2.00	6.03	2.24	10	300109100010
AV-TE25-P	1.00	1.88	5.77	2.24	10	300111100010
AV-TE40-P	1.50	2.25	7.69	2.98	10	300113100010
AV -TE50-P	2.00	3.25	10.18	3.48	10	300114100010

**Port Connections : KF Flange**

Model No.	O.D.	A	B	C	Figure	Parts No.
AV-KF16-P	0.75	2.15	6.17	2.24	12	300109110010
AV-KF25-P	1.00	2.03	5.92	2.24	12	300111110010
AV-KF40-P	1.50	2.40	7.60	2.98	12	300113110010
AV-KF50-P	2.00	3.40	10.33	3.48	12	300114110010

**Port Connections : CF Rotatable Flange**

Model No.	O.D.	A	B	C	Figure	Parts No.
AV-CR16-P	0.75	2.50	6.52	2.24	13	300109130010
AV-CR35-P	1.50	2.46	7.89	2.98	13	300113130010

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

**Specifications**

- Polished 304 stainless steel body.
- 3/4~2 inch port ODs.
- 4~6.5 kg/cm<sup>2</sup> operating air pressure.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF and CF flange.



## ANGLE VALVE

### *Pneumatically Actuated*

*Available Area : U.S.A.*

*Without bellows, air to open, air to close.*

#### Port Connections : Tube End

Model No.	O.D.	A	B	C	Figure	Parts No.
AV-TE16-P2	0.75	2.00	6.41	2.24	11	300109200010
AV-TE25-P2	1.00	1.88	6.16	2.24	11	300111200010
AV-TE40-P2	1.50	2.25	7.17	2.98	11	300113200010
AV-TE50-P2	2.00	3.25	9.44	3.48	11	300114200010
AV-TE63-P2	2.50	3.00	10.44	3.92	11	300115200010
AV-TE80-P2	3.00	3.25	10.68	4.49	11	300116200010
AV-TE100-P2	4.00	4.21	14.11	5.97	11	300118200010
AV-TE160-P2	6.00	6.00	17.71	9.45	11	300120200010

#### Port Connections : CF Rotatable Flange

Model No.	O.D.	A	B	C	Figure	Parts No.
AV-CR63-P2	2.50	3.37	10.81	3.92	14	300115230010
AV-CR100-P2	4.00	4.70	14.61	5.97	14	300118230010

#### Port Connections : ISO Flange

Model No.	O.D.	A	B	C	Figure	Parts No.
AV-ISO-63-P2	2.50	3.26	10.70	3.92	15	300115240010
AV-ISO-80-P2	3.00	3.51	10.94	4.49	15	300116240010
AV-ISO-100-P2	4.00	4.47	14.37	5.97	15	300118240010
AV-ISO-160-P2	6.00	6.26	17.97	9.45	15	300120240010

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

#### Specifications

- Polished 304 stainless steel body.
- 3/4~8 inch port ODs.
- 4~6.5 kg/cm<sup>2</sup> operating air pressure.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF and ISO flange.

**ANGLE VALVE*****Pneumatically Actuated***

*Available Area :Europe (Special Sizes Available Upon Request)  
With bellows, air to open, spring to close.*

**Port Connections : KF Flange**

Model No.	O.D.	A	B	C	Figure	Parts No.
AVB-KF16-P-E	19.05	40	142	56.8	12	310109110016
AVB-KF25-P-E	25.4	50	149	56.8	12	310111110016
AVB-KF40-P-E	38.1	65	203	75.8	12	310113110016
AVB-KF50-P-E	50.8	70	246	88.4	12	310114110016

**Port Connections : CF Rotatable Flange**

Model No.	O.D.	A	B	C	Figure	Parts No.
AVB-CR16-P-E	19.05	38	140	56.8	13	310109130016
AVB-CR35-P-E	38.1	63	201	75.8	13	310113130016

**Specifications**

- Polished 304 stainless steel body.
- 19.05~50.8 mm port ODs.
- 4~6.5 kg/cm<sup>2</sup> operating air pressure.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF and CF flange.

# ANGLE VALVE

## Pneumatically Actuated

Available Area :Europe (Special Sizes Available Upon Request)

With bellows, air to open, air to close.

### Port Connections : CF Rotatable Flange

Model No.	O.D.	A	B	C	Figure	Parts No.
AVB-CR63-P2-E	63.5	105	294	99.5	14	310115230016
AVB-CR100-P2-E	101.6	135	373.6	151.6	14	310118230016

### Port Connections : ISO Flange

Model No.	O.D.	A	B	C	Figure	Parts No.
AVB-ISO63-P2-E	63.5	88	277	99.5	15	310115240016
AVB-ISO80-P2-E	76.2	98	294	114	15	310116240016
AVB-ISO100-P2-E	101.6	108	346.6	151.6	15	310118240016

### Specifications

- Polished 304 stainless steel body.
- 63.5~101.6 mm port ODs.
- 4~6.5 kg/cm<sup>2</sup> operating air pressure.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating CF and ISO flange.

**ANGLE VALVE*****Pneumatically Actuated****Available Area :Europe (Special Sizes Available Upon Request)**Without bellows, air to open, spring to close.***Port Connections : KF Flange**

Model No.	O.D.	A	B	C	Figure	Parts No.
AV-KF16-P-E	19.05	40	142	56.8	12	310109110010
AV-KF25-P-E	25.4	50	149	56.8	12	310111110010
AV-KF40-P-E	38.1	65	203	75.8	12	310113110010
AV-KF50-P-E	50.8	70	246	88.4	12	310114110010

**Port Connections : CF Rotatable Flange**

Model No.	O.D.	A	B	C	Figure	Parts No.
AV-CR16-P-E	19.05	38	140	56.8	13	310109130010
AV-CR35-P-E	38.1	63	201	75.8	13	310113130010

**Specifications**

- Polished 304 stainless steel body.
- 19.05~50.8 mm port ODs.
- 4~6.5 kg/cm<sup>2</sup> operating air pressure.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF and CF flange.

## ANGLE VALVE

### *Pneumatically Actuated*

*Available Area :Europe (Special Sizes Available Upon Request)  
Without bellows, air to open, air to close.*

#### Port Connections : CF Rotatable Flange

Model No.	O.D.	A	B	C	Figure	Parts No.
AV-CR63-P2-E	63.5	105	294	99.5	14	310115230010
AV-CR100-P2-E	101.6	135	387	151.6	14	310118230010

#### Port Connections : ISO Flange

Model No.	O.D.	A	B	C	Figure	Parts No.
AV-ISO63-P2-E	63.5	88	277	99.5	15	310115240010
AV-ISO80-P2-E	76.2	98	287	114	15	310116240010
AV-ISO100-P2-E	101.6	108	360	151.6	15	310118240010

#### Specifications

- Polished 304 stainless steel body.
- 63.5~101.6 mm port ODs.
- 4~6.5 kg/cm<sup>2</sup> operating air pressure.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating CF and ISO flange.

ANGLE VALVE

*Pneumatically Actuated with Bellows Attached Reed Sensor*

Tube End

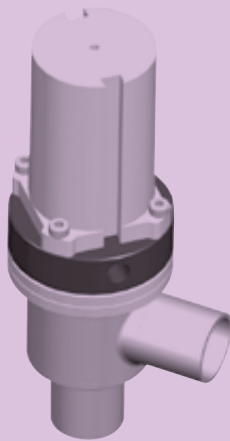
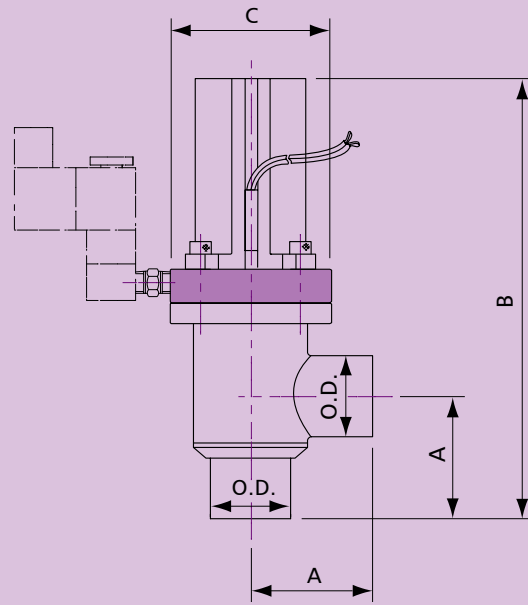


Figure 16



KF Flange

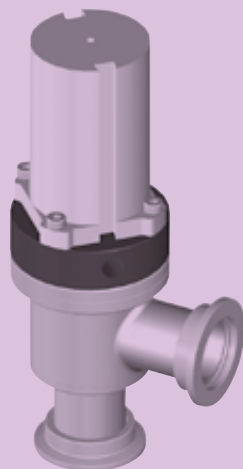
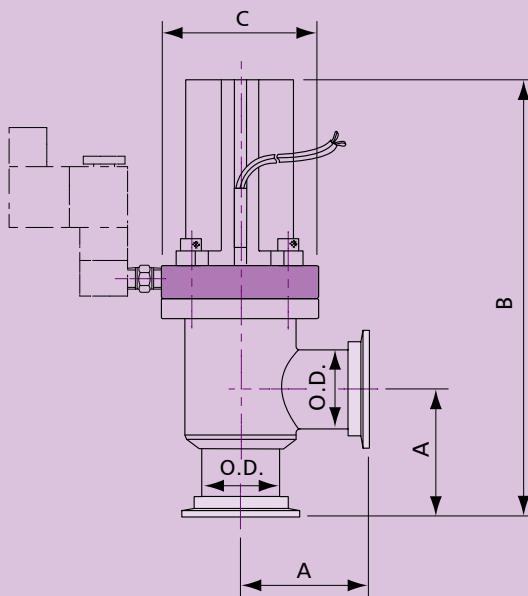


Figure 17



# ANGLE VALVE

## *Pneumatically Actuated with Bellows Attached Reed Sensor*

CF Flange

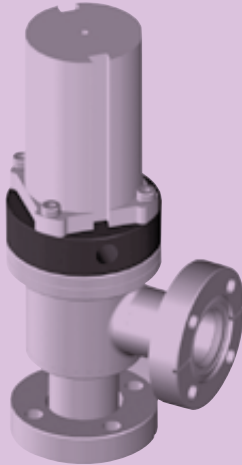
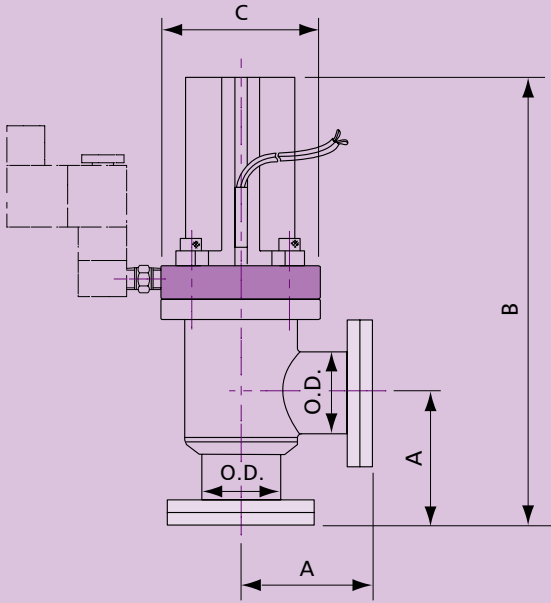


Figure 18



**ANGLE VALVE*****Pneumatically Actuated with Bellows Attached Reed Sensor****Available Area : U.S.A.***Port Connections : Tube End**

Model No.	O.D.	A	B	C	Figure	Parts No.
AVBS-TE16-P	0.75	2.00	6.63	2.24	16	300109100216
AVBS-TE25-P	1.00	1.88	6.38	2.24	16	300111100216
AVBS-TE40-P	1.50	2.25	8.13	2.98	16	300113100216
AVBS-TE50-P	2.00	3.25	10.39	3.48	16	300114100216

**Port Connections : KF Flange**

Model No.	O.D.	A	B	C	Figure	Parts No.
AVBS-KF16-P	0.75	2.15	6.78	2.24	17	300109110216
AVBS-KF25-P	1.00	2.03	6.53	2.24	17	300111110216
AVBS-KF40-P	1.50	2.40	8.28	2.98	17	300113110216
AVBS-KF50-P	2.00	3.40	11.08	3.48	17	300114110216

**Port Connections : CF Rotatable Flange**

Model No.	O.D.	A	B	C	Figure	Parts No.
AVBS-CR16-P	0.75	2.50	7.13	2.24	18	300109130216
AVBS-CR35-P	1.50	2.46	8.33	2.98	18	300113130216

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

**Specifications**

- Polished 304 stainless steel body.
- 3/4~2 inch port ODs.
- 3/4~2 inch : air to open, spring to close. (Normally Close)
- 4~6.5kg/cm<sup>2</sup> operating air pressure.
- Sensor Specification : Voltage DC/AC 4~240V Amps : 5~40mA
- Options Available : Air solenoid DC24V, AC24V, AC110V, AC220V.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF and CF flange..



## ANGLE VALVE

### *Pneumatically Actuated with Bellows Attached Reed Sensor*

*Available Area : Europe (Special Sizes Available Upon Request)*

#### Port Connections : KF Flange

Model No.	O.D.	A	B	C	Figure	Parts No.
AVBS-KF16-P-E	19.05	40	158	56.8	17	310109110216
AVBS-KF25-P-E	25.4	50	164.3	56.8	17	310111110216
AVBS-KF40-P-E	38.1	65	214	75.8	17	310113110216
AVBS-KF50-P-E	50.8	70	251.3	88.4	17	310114110216

#### Port Connections : CF Rotatable Flange

Model No.	O.D.	A	B	C	Figure	Parts No.
AVBS-CR16-P-E	19.05	38	155.6	56.8	18	310109130216
AVBS-CR35-P-E	38.1	63	212	75.8	18	310113130216

#### Specifications

- Polished 304 stainless steel body.
- 3/4~2 inch port ODs.
- 3/4~2 inch : air to open, spring to close. (Normally Close)
- 4~6.5kg/cm<sup>2</sup> operating air pressure.
- Sensor Specification : Voltage DC/AC 4~240V Amps : 5~40mA
- Options Available : Air solenoid DC24V, AC24V, AC110V, AC220V.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF and CF flange..

Z-INLINE VALVE

Manually Operated with Bellows

Tube End

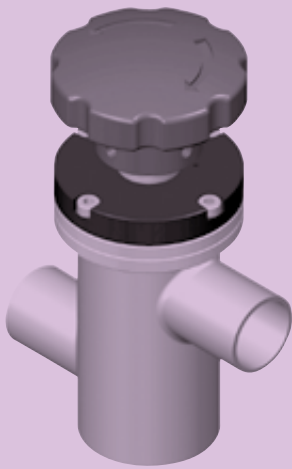
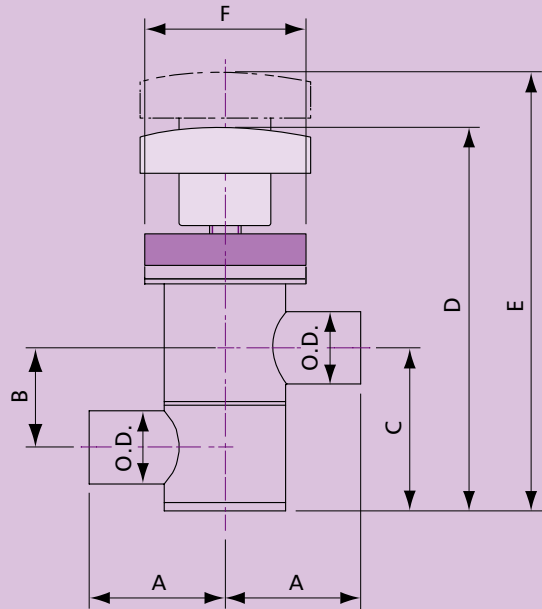


Figure 19



KF Flange

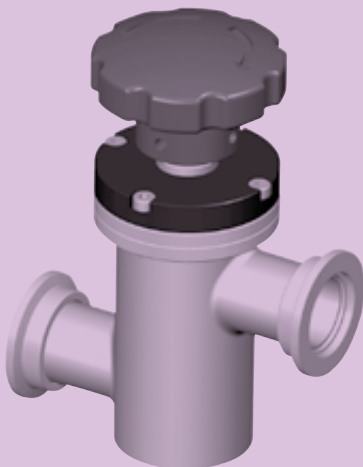
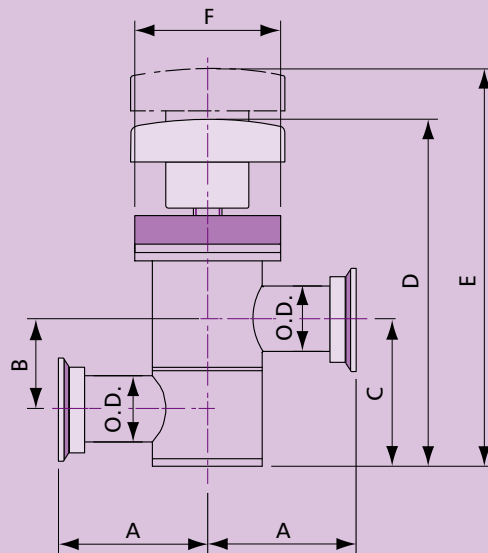


Figure 20



# Z-INLINE VALVE

## Manually Operated with Bellows

CF Flange

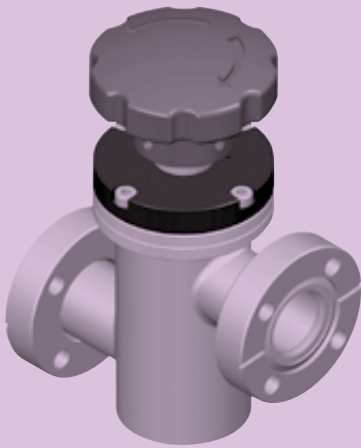
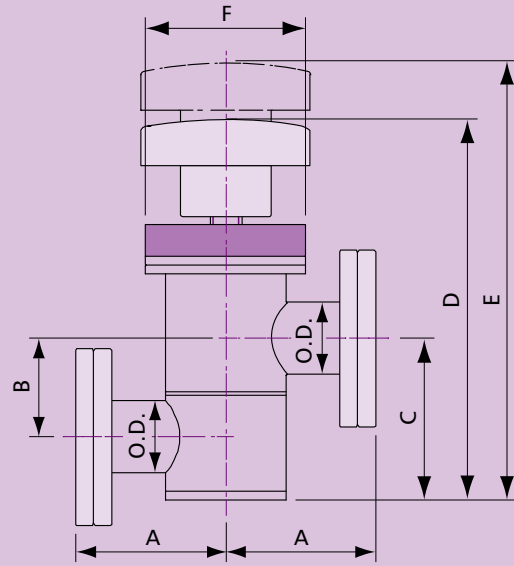


Figure 21



**Z-INLINE VALVE*****Manually Operated with Bellows****Available Area : U.S.A.***Port Connections : Tube End**

Model No.	O.D.	A	B	C	D	E	F	Figure	Parts No.
IVB-TE16-M	0.75	2.00	1.13	1.87	5.09	5.86	2.24	19	302109000016
IVB-TE25-M	1.00	1.88	1.37	2.25	5.35	6.11	2.24	19	302111000016
IVB-TE40-M	1.50	2.25	1.88	3.12	7.16	8.44	2.98	19	302113000016
IVB-TE50-M	2.00	3.25	2.62	4.12	8.85	10.61	3.48	19	302114000016

**Port Connections : KF Flange**

Model No.	O.D.	A	B	C	D	E	F	Figure	Parts No.
IVB-KF16-M	0.75	2.15	1.13	1.87	5.09	5.86	2.24	20	302109010016
IVB-KF25-M	1.00	2.03	1.37	2.25	5.35	6.11	2.24	20	302111010016
IVB-KF40-M	1.50	2.40	1.88	3.12	7.16	8.44	2.98	20	302113010016
IVB-KF50-M	2.00	3.40	2.62	4.12	8.85	10.61	3.48	20	302114010016

**Port Connections : CF Rotatable Flange**

Model No.	O.D.	A	B	C	D	E	F	Figure	Parts No.
IVB-CR16-M	0.75	2.50	1.13	1.87	5.09	5.86	2.24	21	302109030016
IVB-CR35-M	1.50	2.46	1.88	3.12	7.16	8.44	2.98	21	302113030016

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

**Specifications**

- Polished 304 stainless steel body.
- 3/4~2 inch port ODs.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF and CF flange.

# Z-INLINE VALVE

## Manually Operated without Bellows

Tube End

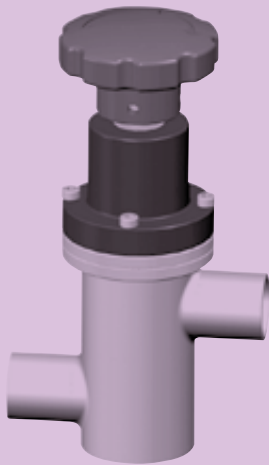
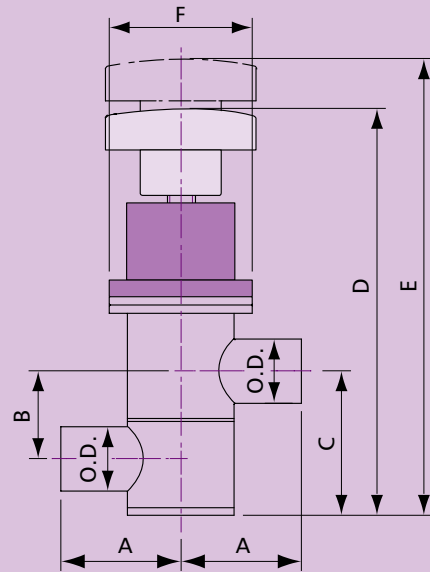


Figure 22



KF Flange

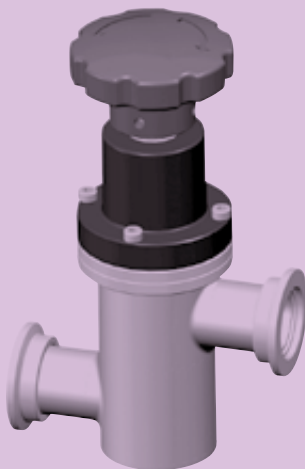
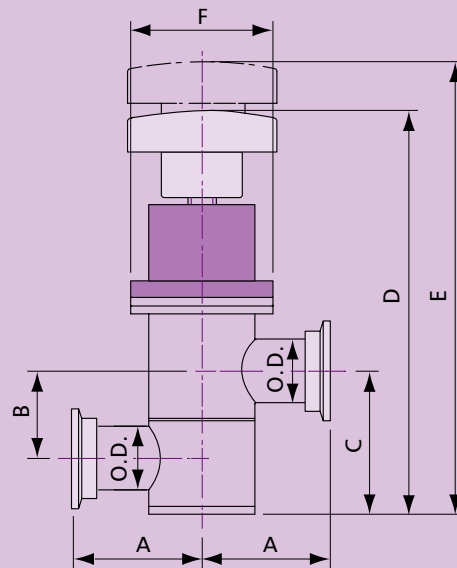
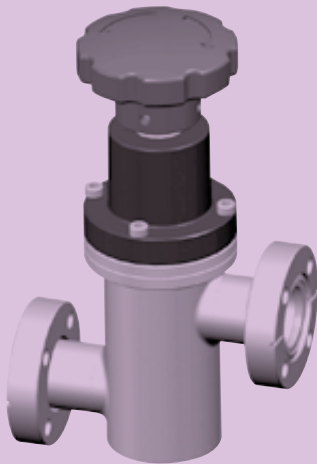
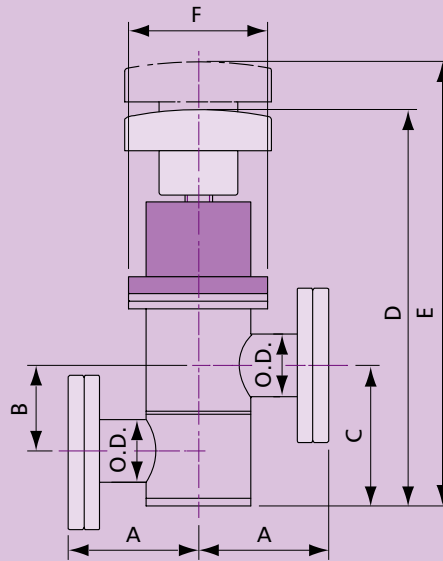


Figure 23



**Z-INLINE VALVE***Manually Operated without Bellows**CF Flange**Figure 24*

## Z-INLINE VALVE

### Manually Operated without Bellows

Available Area : U.S.A.

#### Port Connections : Tube End

Model No.	O.D.	A	B	C	D	E	F	Figure	Parts No.
IV-TE16-M	0.75	2.00	1.13	1.87	6.32	6.94	2.24	22	302109000010
IV-TE25-M	1.00	1.88	1.37	2.25	6.57	7.19	2.24	22	302111000010
IV-TE40-M	1.50	2.25	1.88	3.12	8.22	9.32	2.98	22	302113000010
IV-TE50-M	2.00	3.25	2.62	4.12	10.53	12.12	3.48	22	302114000010

#### Port Connections : KF Flange

Model No.	O.D.	A	B	C	D	E	F	Figure	Parts No.
IV-KF16-M	0.75	2.15	1.13	1.87	6.32	6.94	2.24	23	302109010010
IV-KF25-M	1.00	2.03	1.37	2.25	6.57	7.19	2.24	23	302111010010
IV-KF40-M	1.50	2.40	1.88	3.12	8.22	9.32	2.98	23	302113010010
IV-KF50-M	2.00	3.40	2.62	4.12	10.53	12.12	3.48	23	302114010010

#### Port Connections : CF Rotatable Flange

Model No.	O.D.	A	B	C	D	E	F	Figure	Parts No.
IV-CR16-M	0.75	2.50	1.13	1.87	6.32	6.94	2.24	24	302109030010
IV-CR35-M	1.50	2.46	1.88	3.12	8.22	9.32	2.98	24	302113030010

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

#### Specifications

- Polished 304 stainless steel body.
- 3/4~2 inch port ODs.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF and CF flange.

Z-INLINE VALVE

Manually Operated Copper Seal Bonnet with Bellows

Tube End

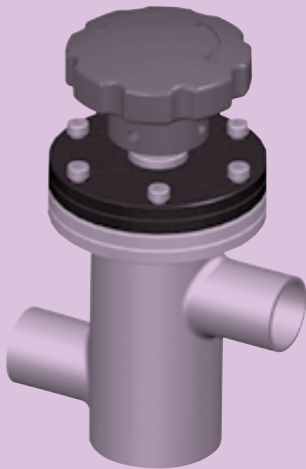
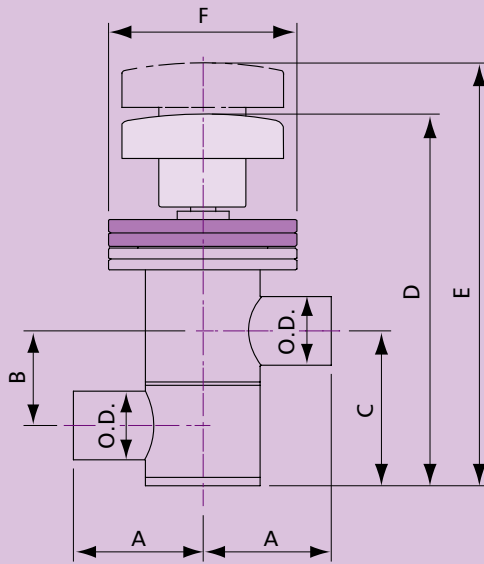


Figure 25



KF Flange

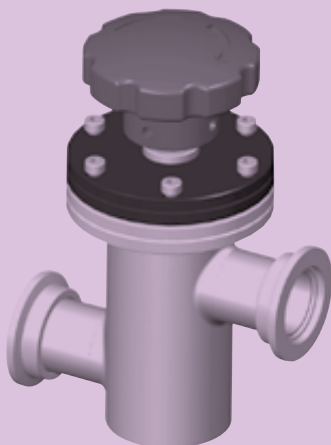
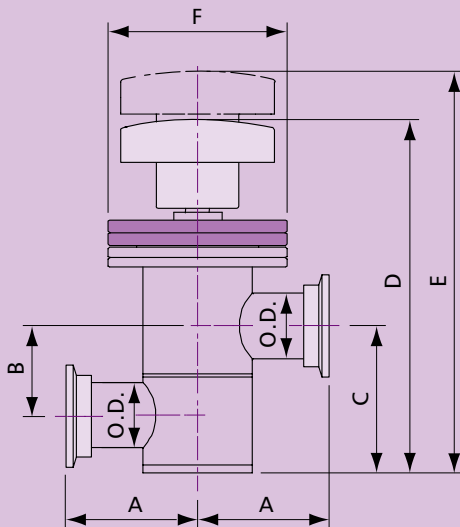


Figure 26





## Z-INLINE VALVE

### Manually Operated Copper Seal Bonnet with Bellows

CF Flange

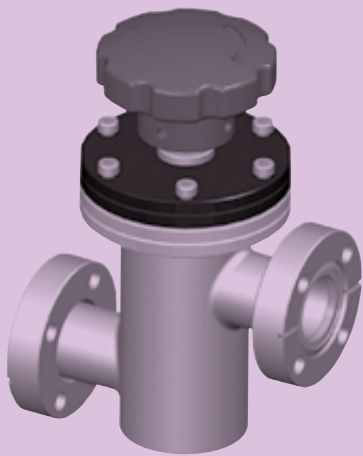
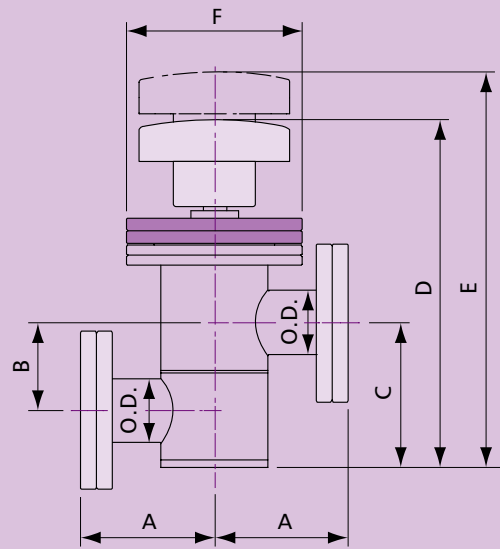


Figure 27



**Z-INLINE VALVE*****Manually Operated Copper Seal Bonnet with Bellows****Available Area : U.S.A.***Port Connections : Tube End**

Model No.	O.D.	A	B	C	D	E	F	Figure	Parts No.
IVB-CU-TE16-M	0.75	2.00	1.12	1.87	5.07	5.85	2.75	25	302609000016
IVB-CU-TE25-M	1.00	1.88	1.37	2.25	5.33	6.11	2.75	25	302611000016
IVB-CU-TE40-M	1.50	2.25	1.88	3.12	7.35	8.57	3.37	25	302613000016
IVB-CU-TE50-M	2.00	3.25	2.62	4.12	8.86	10.63	4.47	25	302614000016

**Port Connections : KF Flange**

Model No.	O.D.	A	B	C	D	E	F	Figure	Parts No.
IVB-CU-KF16-M	0.75	2.15	1.12	1.87	5.07	5.86	2.75	26	302609010016
IVB-CU-KF25-M	1.00	2.03	1.37	2.25	5.33	6.11	2.75	26	302611010016
IVB-CU-KF40-M	1.50	2.40	1.88	3.12	7.35	8.57	3.37	26	302613010016
IVB-CU-KF50-M	2.00	3.40	2.62	4.12	8.86	10.63	4.17	26	302614010016

**Port Connections : CF Rotatable Flange**

Model No.	O.D.	A	B	C	D	E	F	Figure	Parts No.
IVB-CU-CR16-M	0.75	2.50	1.12	1.87	5.07	5.85	2.75	27	302609030016
IVB-CU-CR35-M	1.50	2.45	1.88	3.12	7.35	8.57	3.37	27	302613030016

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

**Specifications**

- Polished 304 stainless steel body.
- 3/4~2 inch port ODs.
- Bakeable to 150°C.(200°C intermittently for CF flange port).
- Metal Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF and approximate 10<sup>-10</sup> Torr vacuum rating CF flange.

# Z-INLINE VALVE

## Pneumatically Actuated

Tube End

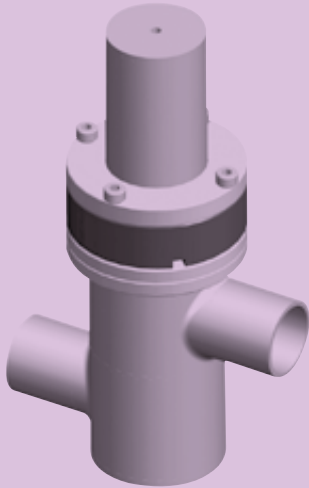
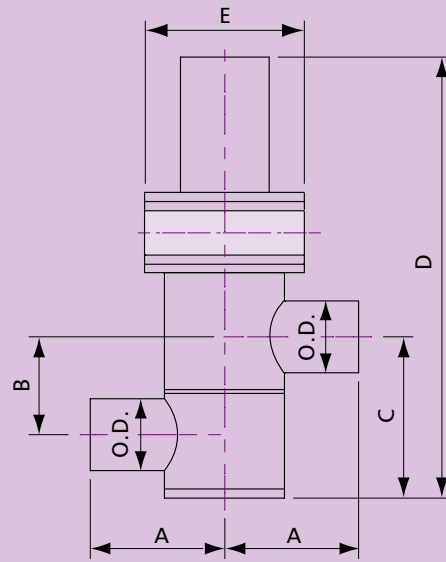


Figure 28



KF Flange

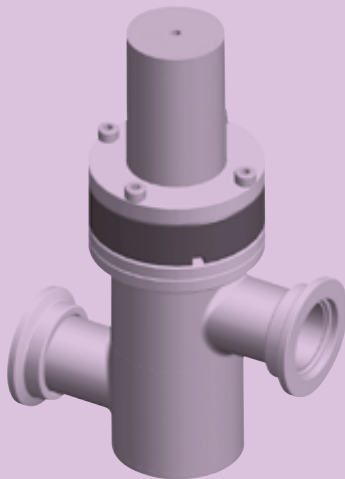
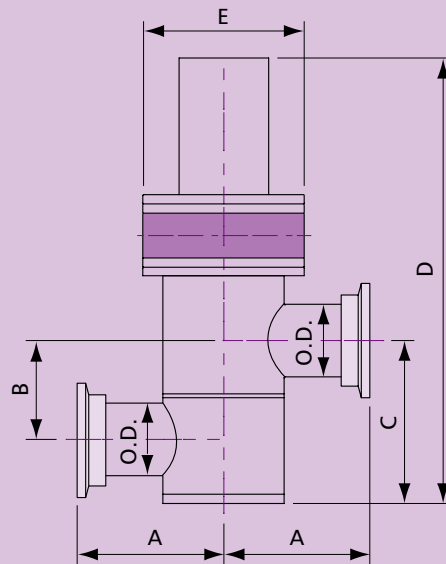
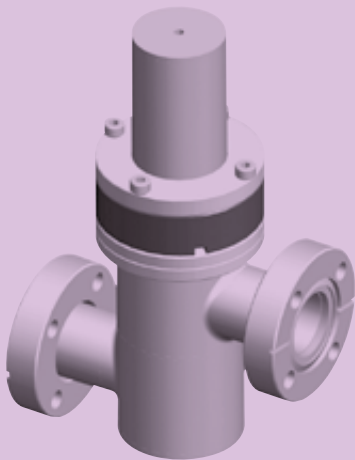
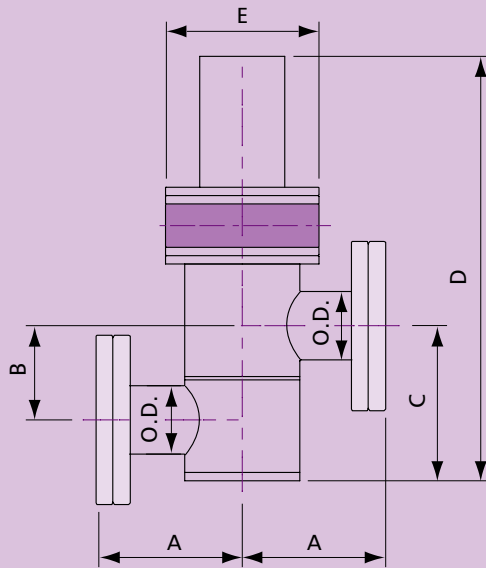


Figure 29



**Z-INLINE VALVE***Pneumatically Actuated**CF Flange**Figure 30*

## Z-INLINE VALVE

### *Pneumatically Actuated*

*Available Area : U.S.A.*

*With bellows, air to open, spring to close.*

#### Port Connections : Tube End

Model No.	O.D.	A	B	C	D	E	Figure	Parts No.
IVB-TE16-P	0.75	2.00	1.13	1.87	5.90	2.24	28	302109100016
IVB-TE25-P	1.00	1.88	1.37	2.25	6.14	2.24	28	302111100016
IVB-TE40-P	1.50	2.25	1.88	3.12	8.56	2.98	28	302113100016
IVB-TE50-P	2.00	3.25	2.62	4.12	11.05	3.48	28	302114100016

#### Port Connections : KF Flange

Model No.	O.D.	A	B	C	D	E	Figure	Parts No.
IVB-KF16-P	0.75	2.15	1.13	1.87	5.90	2.24	29	302109110016
IVB-KF25-P	1.00	2.03	1.37	2.25	6.14	2.24	29	302111110016
IVB-KF40-P	1.50	2.40	1.88	3.12	8.56	2.98	29	302113110016
IVB-KF50-P	2.00	3.40	2.62	4.12	11.05	3.48	29	302114110016

#### Port Connections : CF Rotatable Flange

Model No.	O.D.	A	B	C	D	E	Figure	Parts No.
IVB-CR16-P	0.75	2.50	1.13	1.87	5.90	2.24	30	302109130016
IVB-CR35-P	1.50	2.46	1.88	3.12	8.56	2.98	30	302113130016

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

#### Specifications

- Polished 304 stainless steel body.
- 3/4~2 inch port ODs.
- 4~6.5 kg/cm<sup>2</sup> operating air pressure.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF and CF flange.

**Z-INLINE VALVE*****Pneumatically Actuated****Available Area : U.S.A.**Without bellows, air to open, spring to close.***Port Connections : Tube End**

Model No.	O.D.	A	B	C	D	E	Figure	Parts No.
IV-TE16-P	0.75	2.00	1.13	1.87	5.90	2.24	28	302109100010
IV-TE25-P	1.00	1.88	1.37	2.25	6.14	2.24	28	302111100010
IV-TE40-P	1.50	2.25	1.88	3.12	8.56	2.98	28	302113100010
IV-TE50-P	2.00	3.25	2.62	4.12	11.05	3.48	28	302114100010

**Port Connections : KF Flange**

Model No.	O.D.	A	B	C	D	E	Figure	Parts No.
IV-KF16-P	0.75	2.15	1.13	1.87	5.90	2.24	29	302109110010
IV-KF25-P	1.00	2.03	1.37	2.25	6.14	2.24	29	302111110010
IV-KF40-P	1.50	2.40	1.88	3.12	8.56	2.98	29	302113110010
IV-KF50-P	2.00	3.40	2.62	4.12	11.05	3.48	29	302114110010

**Port Connections : CF Rotatable Flange**

Model No.	O.D.	A	B	C	D	E	Figure	Parts No.
IV-CR16-P	0.75	2.50	1.13	1.87	5.90	2.24	30	302109130010
IV-CR35-P	1.50	2.46	1.88	3.12	8.56	2.98	30	302113130010

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

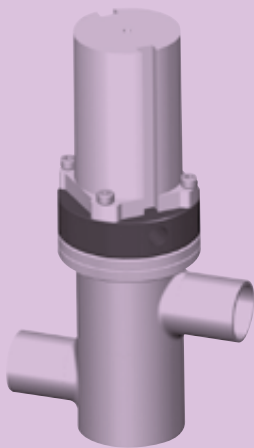
**Specifications**

- Polished 304 stainless steel body.
- 3/4~2 inch port ODs.
- 4~6.5 kg/cm<sup>2</sup> operating air pressure.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF and CF flange.

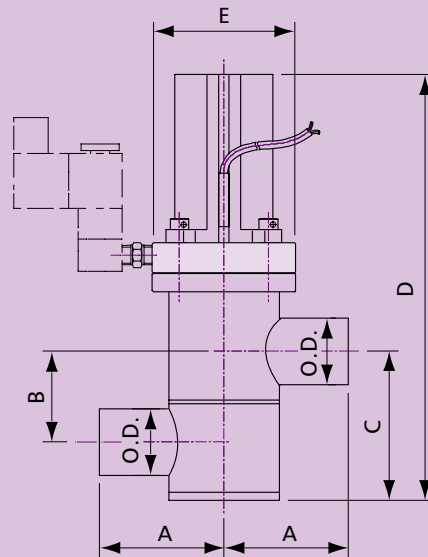
# Z-INLINE VALVE

*Pneumatically Actuated with Bellows Attached Reed Sensor*

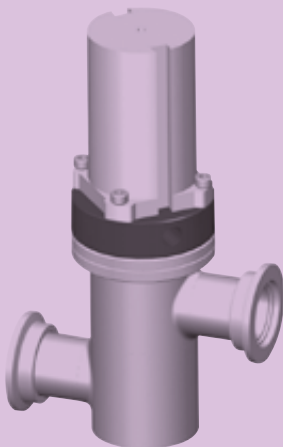
*Tube End*



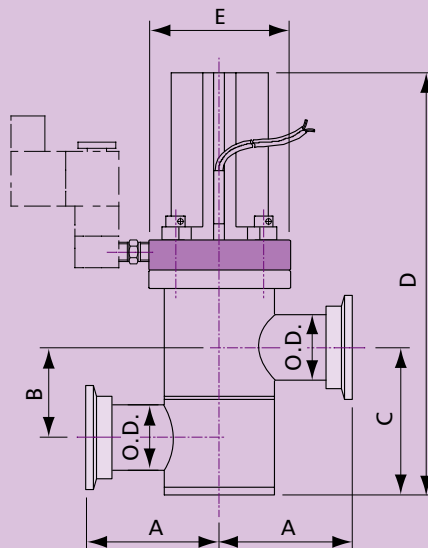
*Figure 31*



*KF Flange*



*Figure 32*



**Z-INLINE VALVE**

*Pneumatically Actuated with Bellows Attached Reed Sensor*

CF Flange

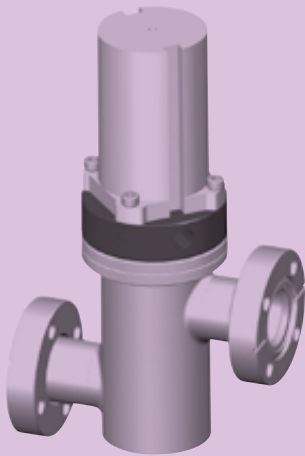
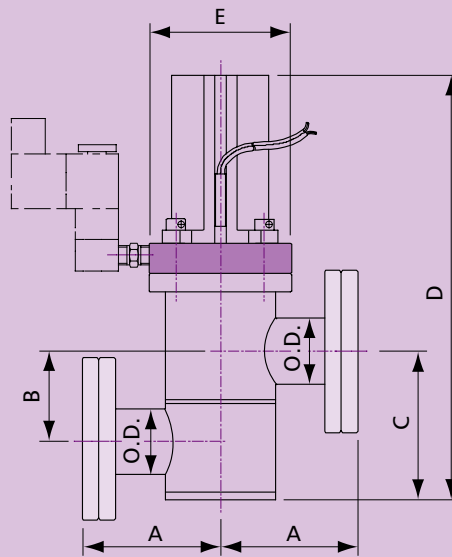


Figure 33





## Z-INLINE VALVE

### *Pneumatically Actuated with Bellows Attached Reed Sensor*

*Available Area : U.S.A.*

#### Port Connections : Tube End

Model No.	O.D.	A	B	C	D	E	Figure	Parts No.
IVBS-TE16-P	0.75	2.00	1.13	1.87	6.51	2.24	31	302109100216
IVBS-TE25-P	1.00	1.88	1.37	2.25	6.75	2.24	31	302111100216
IVBS-TE40-P	1.50	2.25	1.88	3.12	8.90	2.98	31	302113100216
IVBS-TE50-P	2.00	3.25	2.62	4.12	11.26	3.48	31	302114100216

#### Port Connections : KF Flange

Model No.	O.D.	A	B	C	D	E	Figure	Parts No.
IVBS-KF16-P	0.75	2.15	1.13	1.87	6.51	2.24	32	302109110216
IVBS-KF25-P	1.00	2.03	1.37	2.25	6.75	2.24	32	302111110216
IVBS-KF40-P	1.50	2.40	1.88	3.12	8.90	2.98	32	302113110216
IVBS-KF50-P	2.00	3.40	2.62	4.12	11.26	3.48	32	302114110216

#### Port Connections : CF Rotatable Flange

Model No.	O.D.	A	B	C	D	E	Figure	Parts No.
IVBS-CR16-P	0.75	2.50	1.13	1.87	6.51	2.24	33	302109130216
IVBS-CR35-P	1.50	2.46	1.88	3.12	8.90	2.98	33	302113130216

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

#### Specifications

- Polished 304 stainless steel body.
- 3/4~2 inch port ODs.
- 3/4~2 inch : air to open, spring to close. (Normally Close)
- 4~6.5 kg/cm<sup>2</sup> operating pressure.
- Sensor Specification : Voltage DC/AC 4~240V Amps : 5~40 mA.
- Option Available : Air Solenoid DC24V, AC24V, AC110V, AC220V.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF and CF flange.

Y-INLINE VALVE

Manually Operated with Bellows

Tube End

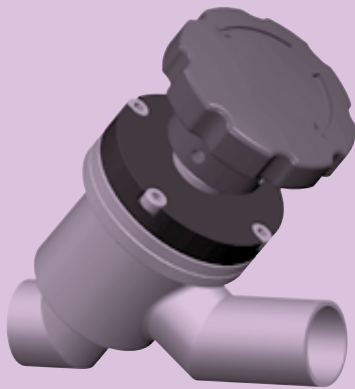
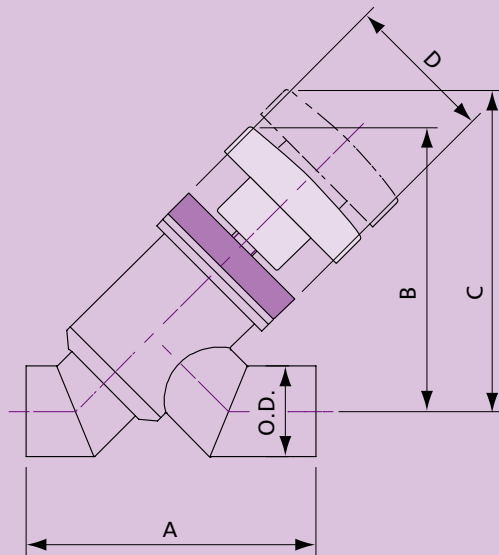


Figure 34



KF Flange

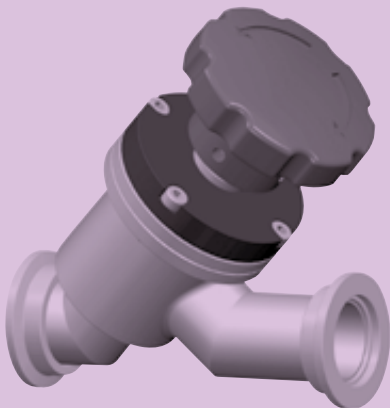
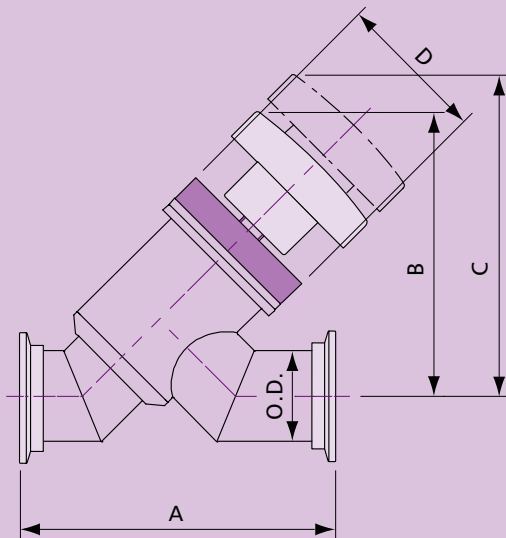


Figure 35

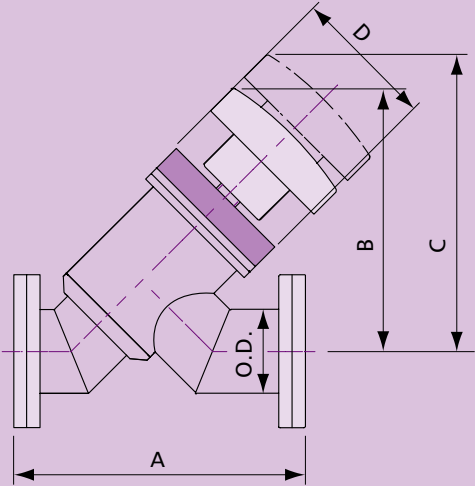
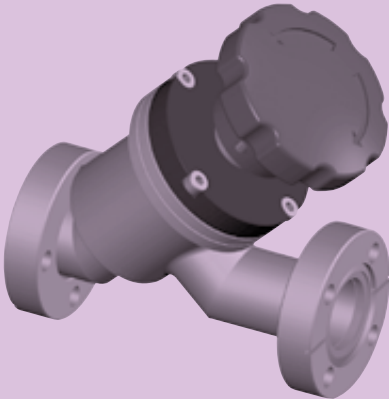


# Y-INLINE VALVE

## Manually Operated with Bellows

CF Flange

Figure 36



## Y-INLINE VALVE

**Manually Operated with Bellows***Available Area : U.S.A.***Port Connections : Tube End**

Model No.	O.D.	A	B	C	D	Figure	Parts No.
YVB-TE16-M	0.75	3.70	3.89	4.43	2.24	34	304109000016
YVB-TE25-M	1.00	3.90	3.89	4.43	2.24	34	304111000016
YVB-TE40-M	1.50	4.82	4.89	5.80	2.98	34	304113000016
YVB-TE50-M	2.00	6.70	5.59	6.83	3.48	34	304114000016

**Port Connections : KF Flange**

Model No.	O.D.	A	B	C	D	Figure	Parts No.
YVB-KF16-M	0.75	4.00	3.89	4.43	2.24	35	304109010016
YVB-KF25-M	1.00	4.20	3.89	4.43	2.24	35	304111010016
YVB-KF40-M	1.50	5.12	4.89	5.80	2.98	35	304113010016
YVB-KF50-M	2.00	7.00	5.59	6.83	3.48	35	304114010016

**Port Connections : CF Rotatable Flange**

Model No.	O.D.	A	B	C	D	Figure	Parts No.
YVB-CR16-M	0.75	4.70	3.89	4.43	2.24	36	304109030016
YVB-CR35-M	1.50	5.24	4.89	5.80	2.98	36	304113030016

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

**Specifications**

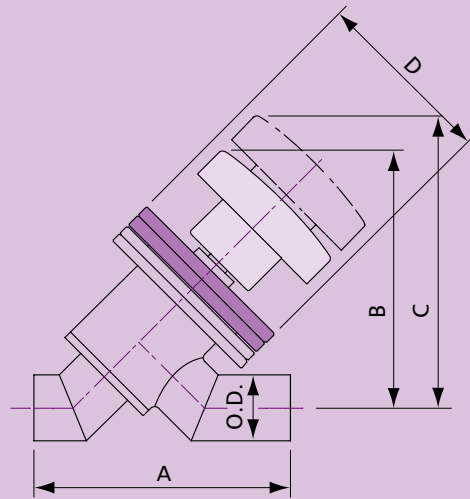
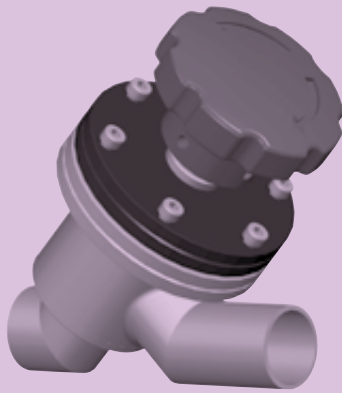
- Polished 304 stainless steel body.
- 3/4~2 inch port ODs.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF and CF flange.

# Y-INLINE VALVE

## Manually Operated Copper Seal Bonnet with Bellows

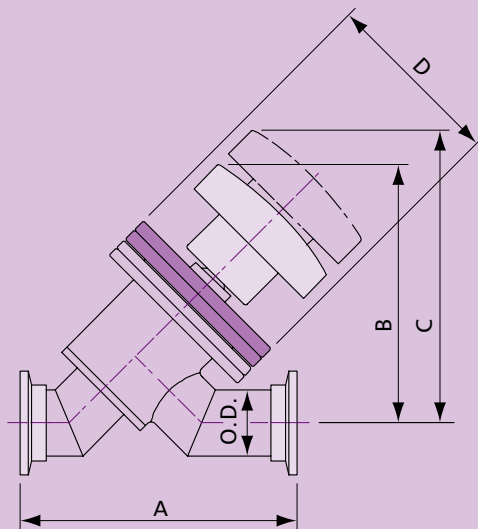
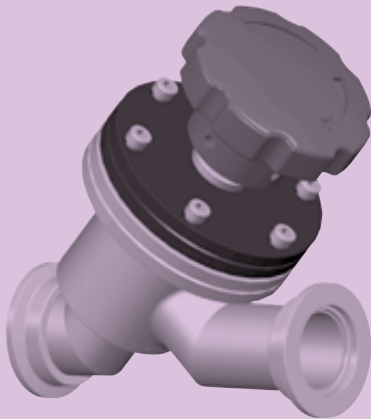
Tube End

Figure 37



KF Flange

Figure 38



## Y-INLINE VALVE

*Manually Operated Copper Seal Bonnet with Bellows*

CF Flange

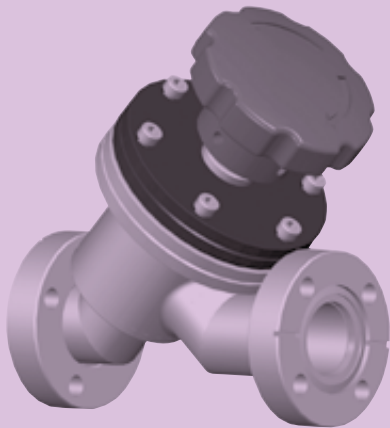
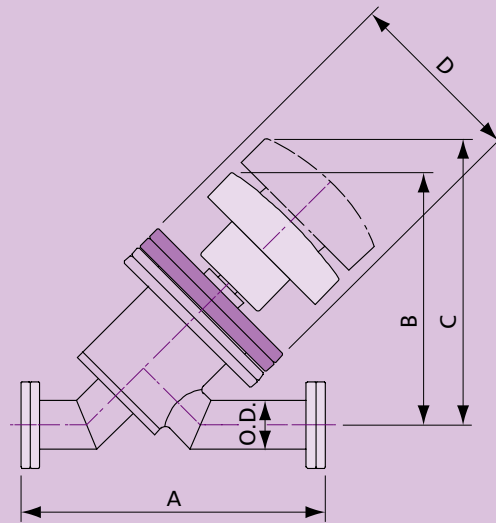


Figure 39



## Y-INLINE VALVE

### Manually Operated Copper Seal Bonnet with Bellows

Available Area : U.S.A.

#### Port Connections : Tube End

Model No.	O.D.	A	B	C	D	Figure	Parts No.
YVB-CU-TE16-M	0.75	3.70	3.88	4.76	2.75	37	304609000016
YVB-CU-TE25-M	1.00	3.90	3.92	4.44	2.75	37	304611000016
YVB-CU-TE40-M	1.50	4.82	5.01	5.87	3.37	37	304613000016
YVB-CU-TE50-M	2.00	6.70	5.30	6.55	4.47	37	304614000016

#### Port Connections : KF Flange

Model No.	O.D.	A	B	C	D	Figure	Parts No.
YVB-CU-KF16-M	0.75	4.00	3.88	4.76	2.75	38	304609010016
YVB-CU-KF25-M	1.00	4.20	3.92	4.44	2.75	38	304611010016
YVB-CU-KF40-M	1.50	5.12	5.01	5.87	3.37	38	304613010016
YVB-CU-KF50-M	2.00	7.00	5.30	6.55	4.47	38	304614010016

#### Port Connections : CF Rotatable Flange

Model No.	O.D.	A	B	C	D	Figure	Parts No.
YVB-CU-CR16-M	0.75	4.70	3.88	4.76	2.75	39	304609030016
YVB-CU-CR35-M	1.50	5.24	5.01	5.87	3.37	39	304613030016

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

#### Specifications

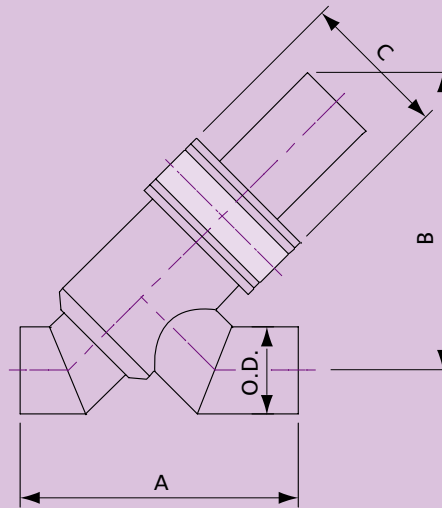
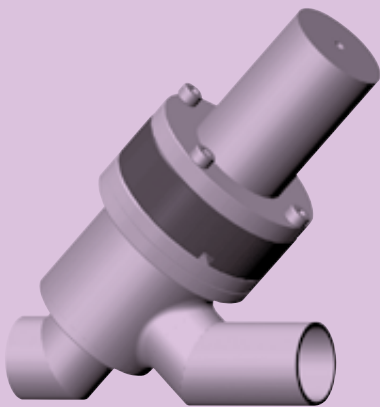
- Polished 304 stainless steel body.
- 3/4~2 inch port ODs.
- Bakeable to 150°C. (200°C intermittently for CF flange port).
- Metal Seal Bonnet :  $10^{-9}$  Torr vacuum rating KF and approximate  $10^{-10}$  Torr vacuum rating CF flange.

Y-INLINE VALVE

Pneumatically Actuated with Bellows

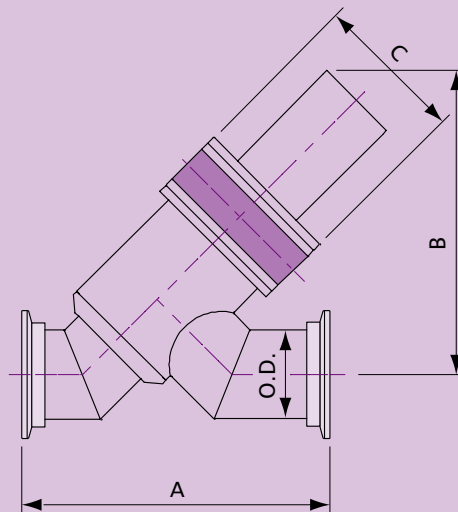
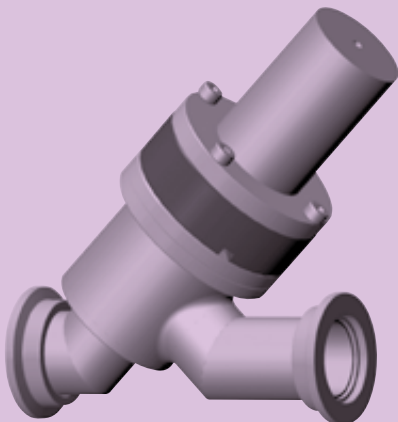
Tube End

Figure 40



KF Flange

Figure 41



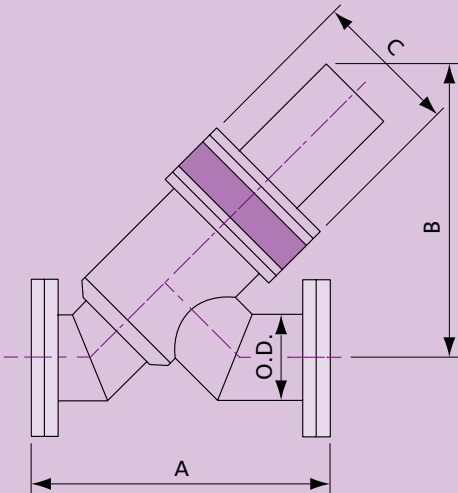
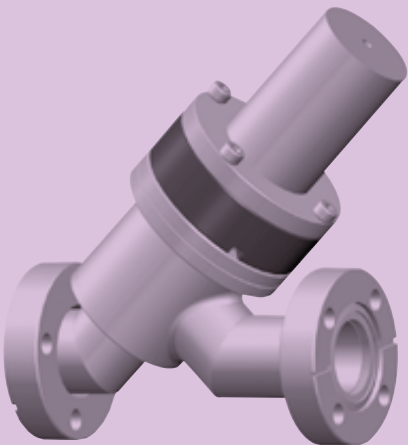


# Y-INLINE VALVE

*Pneumatically Actuated with Bellows*

CF Flange

Figure 42



## Y-INLINE VALVE

***Pneumatically Actuated with Bellows****Available Area : U.S.A.***Port Connections : Tube End**

Model No.	O.D.	A	B	C	Figure	Parts No.
YVB-TE16-P	0.75	3.70	4.15	2.24	40	304109100016
YVB-TE25-P	1.00	3.90	4.16	2.24	40	3041111100016
YVB-TE40-P	1.50	4.82	5.71	2.98	40	304113100016
YVB-TE50-P	2.00	6.70	7.15	3.48	40	304114100016
YVB-TE63-P2	2.50	7.75	7.87	3.92	40	304115200016

**Port Connections : KF Flange**

Model No.	O.D.	A	B	C	Figure	Parts No.
YVB-KF16-P	0.75	4.00	4.15	2.24	41	304109110016
YVB-KF25-P	1.00	4.20	4.16	2.24	41	3041111110016
YVB-KF40-P	1.50	5.12	5.71	2.98	41	304113110016
YVB-KF50-P	2.00	7.00	7.15	3.48	41	304114110016

**Port Connections : CF Rotatable Flange**

Model No.	O.D.	A	B	C	Figure	Parts No.
YVB-CR16-P	0.75	4.70	4.15	2.24	42	304109130016
YVB-CR35-P	1.50	5.24	5.71	2.98	42	304113130016
YVB-CR63-P2	2.50	8.5	7.87	3.48	42	304115230016

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

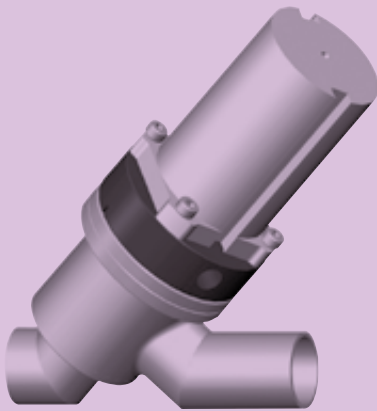
**Specifications**

- Polished 304 stainless steel body.
- 3/4~2 inch port ODs.
- 3/4"~2 inch : air to open, spring to close.
- Over 2 inch : air to open, air to close.
- 4~6.5 kg/cm<sup>2</sup> operating pressure.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF and CF flange.

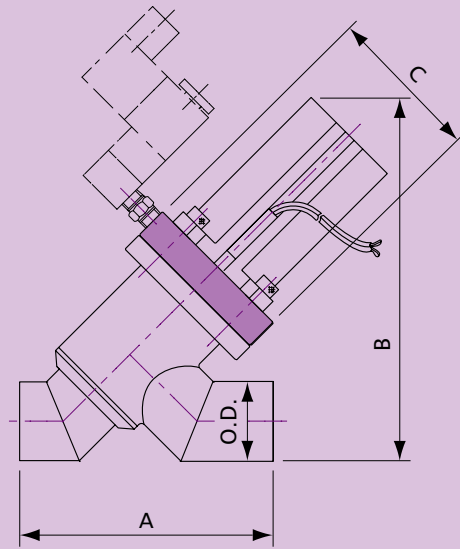
# Y-INLINE VALVE

*Pneumatically Actuated with Bellows Attached Reed Sensor*

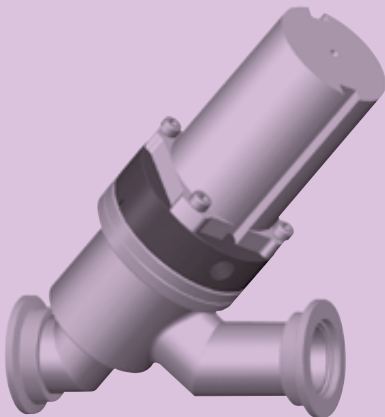
*Tube End*



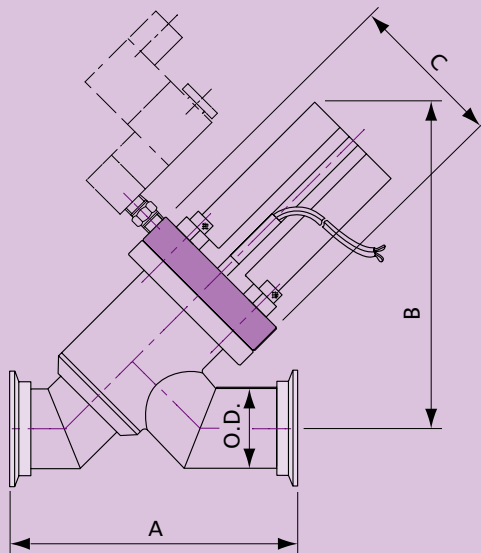
*Figure 43*



*KF Flange*



*Figure 44*



## Y-INLINE VALVE

*Pneumatically Actuated with Bellows Attached Reed Sensor*

CF Flange

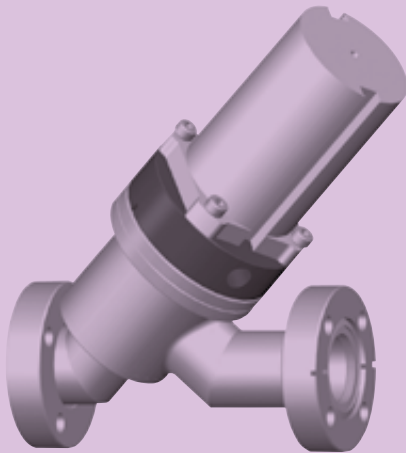
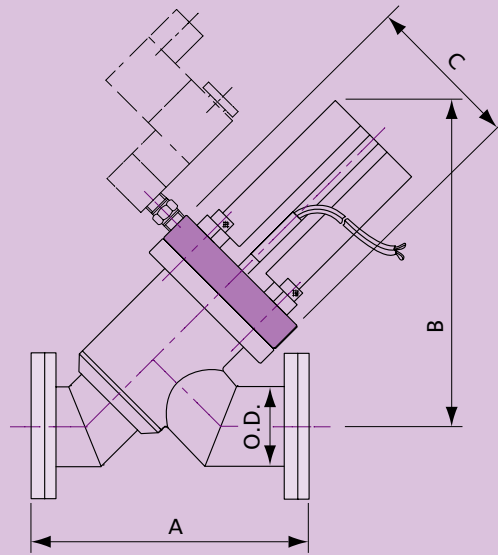


Figure 45



## Y-INLINE VALVE

### *Pneumatically Actuated with Bellows Attached Reed Sensor*

Available Area : U.S.A.

#### Port Connections : Tube End

Model No.	O.D.	A	B	C	Figure	Parts No.
YVBS-TE16-P	0.75	3.70	4.74	2.24	43	304109100216
YVBS-TE25-P	1.00	3.90	4.73	2.24	43	3041111100216
YVBS-TE40-P	1.50	4.82	6.17	2.98	43	304113100216
YVBS-TE50-P	2.00	6.70	7.43	3.48	43	304114100216

#### Port Connections : KF Flange

Model No.	O.D.	A	B	C	Figure	Parts No.
YVBS-KF16-P	0.75	4.00	4.74	2.24	44	304109110216
YVBS-KF25-P	1.00	4.20	4.73	2.24	44	304111110216
YVBS-KF40-P	1.50	5.12	6.17	2.98	44	304113110216
YVBS-KF50-P	2.00	7.00	7.43	3.48	44	304114110216

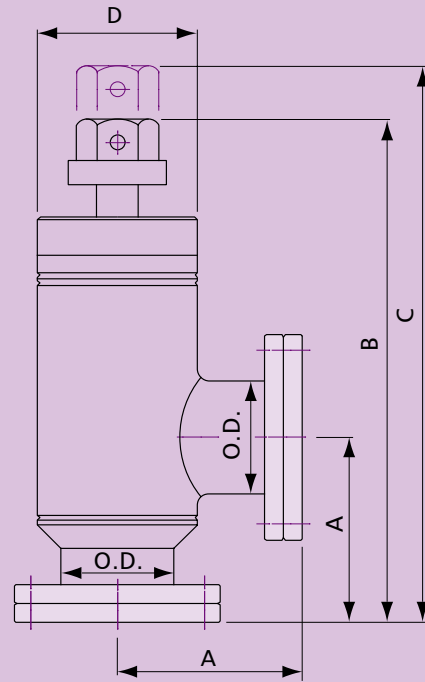
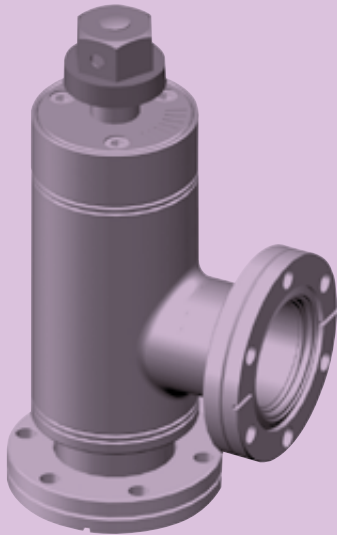
#### Port Connections : CF Rotatable Flange

Model No.	O.D.	A	B	C	Figure	Parts No.
YVBS-CR16-P	0.75	4.70	4.74	2.24	45	304109130216
YVBS-CR35-P	1.50	5.24	6.17	2.98	45	304113130216

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

#### Specifications

- Polished 304 stainless steel body.
- 3/4~2 inch port ODs.
- 3/4"~2 inch : air to open, spring to close. (Normally Close)
- 4~6.5 kg/cm<sup>2</sup> operating pressure.
- Sensor Specification : Voltage DC/AC 4~240V Amps : 5~40 mA.
- Option Available : Air Solenoid DC24V, AC24V, AC110V, AC220V.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF and CF flange.

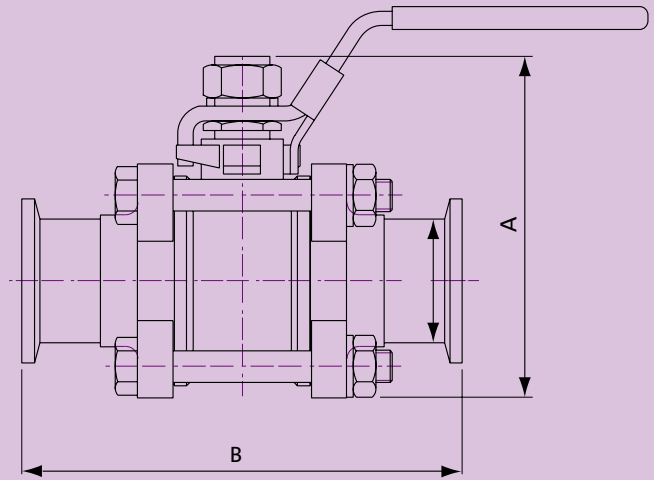
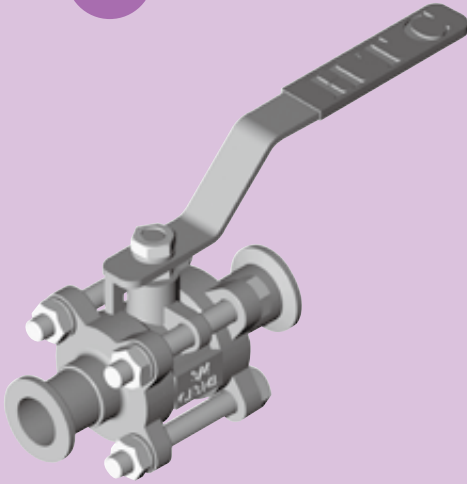
**Bakeable All-Metal Valve**

Model No.	O.D.	A	B	C	D	Parts No.
AVBAK-CR16	19.05	38.1	122.2	133	38.1	300509030011
AVBAK-CR35	38.1	62.5	170	189	54	300513030011

**Specifications**

- Bakeability :400°C (open), 300°C (close).
- Pressure Range : Below  $10^{-10}$  torr.
- All stainless steel construction.
- Bellows stem seal.
- Leak Rate :  $8.7 \times 10^{-11}$  Pa.m<sup>3</sup>/sec.
- Closure Torque : CR16 First 150kg-cm, Maximum 250kg-cm.  
CR35 First 300kg-cm, Maximum 600kg-cm.
- Orientation : Any position.

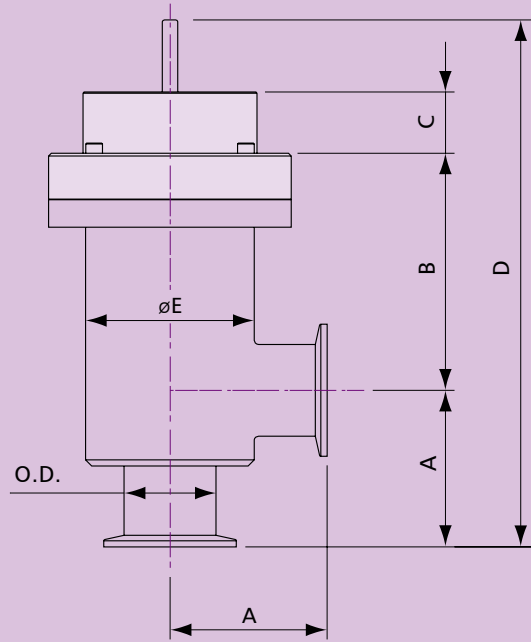
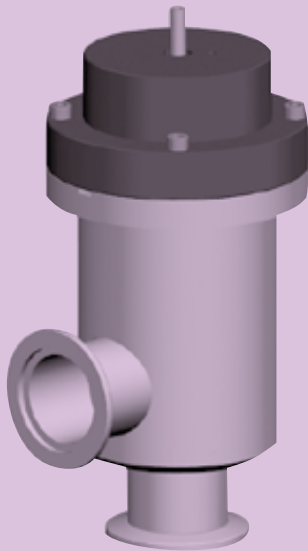
## Ball Valve



Model No.	Connector	A	B	Parts No.
KF16BV092(3/4")	KF16	64.4	92	3201093101131
KF25BV107(1")	KF25	80	107	3201113101131
KF40BV130(1.5")	KF40	106.9	130	3201133101131
KF50BV151(2")	KF50	121.7	151	3201143101131

Description		Description	
Flange		KF (NW)	
Operation		1/4 Turn manual open and close	
Fittngs		N/A	
Sensors		N/A	
Wetted materials		SS316, Viton, PTFE	
Leak rate mbar-L/sec		9.0*10 <sup>-9</sup>	
Max pressure		56.8 PSI	
Pneumatic supply		N/A	
Operation time		N/A	
Operating temperature		150°C MAX	
Weight		3/4"	0.6KG
		1"	1.2KG
		1.5"	2.8KG
		2"	4.4KG

## FORMED BELLOWS SEAL STAINLESS VALVE

*Angle Valve*

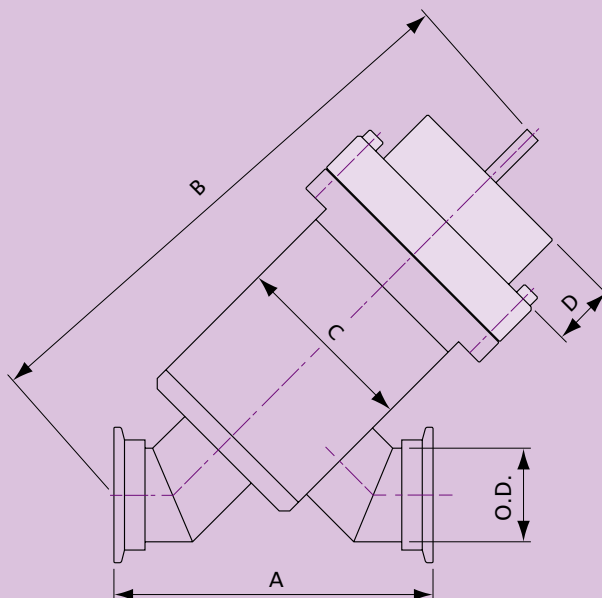
Parts No.	O.D.	A	B	C	D	E
ZFP0081520040K00	1.50	65	99.5	25.5	214.3	76.2

**Specifications**

- Polished 304 stainless steel body.
- 3/4~2 inch port ODs.
- Operation : Air to open, spring to close.
- Operating pressure : 4~6 kg/cm<sup>2</sup>
- Orientation : Any position.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF, ISO and CF flange.



## Y-inline Valve

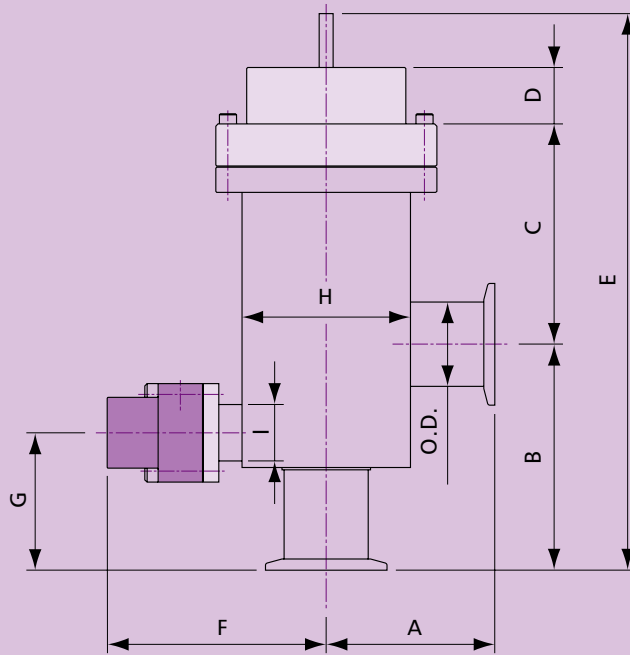
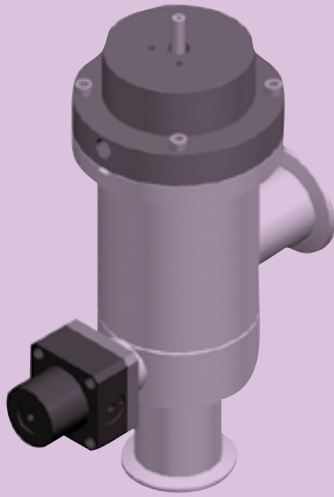


Parts No.	O.D.	A	B	C	D
ZFP0081620040K00	1.50	130	224	76.2	25.5

### Specifications

- Polished 304 stainless steel body.
- 3/4~2 inch port ODs.
- Operation : Air to open, spring to close.
- Operating pressure : 4~6 kg/cm<sup>2</sup>
- Orientation : Any position.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF, ISO and CF flange.

## FORMED BELLOWS SEAL STAINLESS VALVE

*Two-Stage Valve*

Parts No.	O.D.	A	B	C	D	E	F	G	H	I
ZFP008V2040AK00	1.50	76.2	102	99.5	25.5	251.3	99	62	76.2	25.4
ZFP008V2050AK00	2.00	89	126.5	129.4	40	303	107.2	63.3	89.1	25.4

## Specifications

- Polished 304 stainless steel body .
- 3/4~2 inch port ODs .
- Operation : Air to open, spring to close.
- Operating pressure : 4~6 kg/cm<sup>2</sup>
- Orientation : Any position.
- Bakeable to 150°C.
- Viton Seal Bonnet : 10<sup>-9</sup> Torr vacuum rating KF, ISO and CF flange.
- Provides soft pumpdown and isolation for vacuum system.
- Reduces particulate contamination during early turbulent pumpdown.