Pilla 2000
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HUNGARY

MANUAL DIAPHRAGM VALVE

Feature

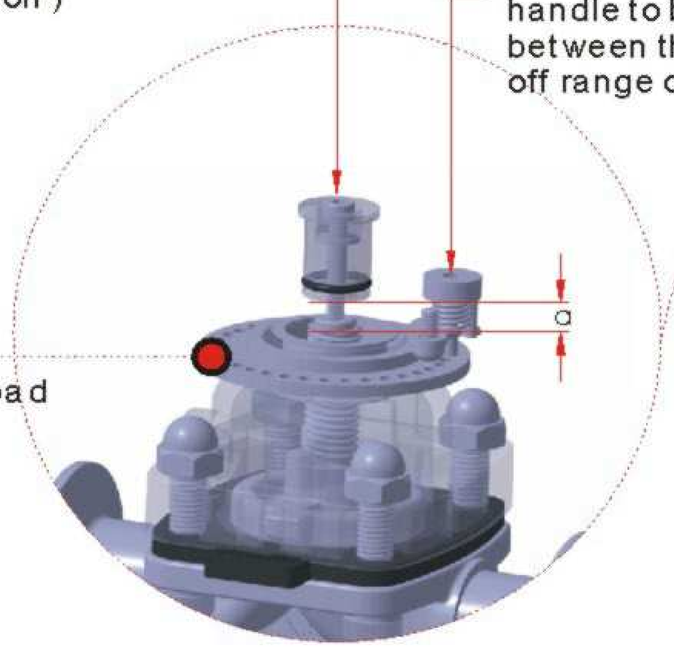
Manual or pneumatic control is available
Limit position adjustable on the manual operate actuator
Lock device on the manual type
All the plastic parts(such as hand wheel, bonnet) are high temperature material
Various surface finish
Non-dead-angle design
Body material is 316L only.
Automatic welding allowed

Application

Biological vaccine, Pharmacy, Water purification, food\beverage, dairy etc.

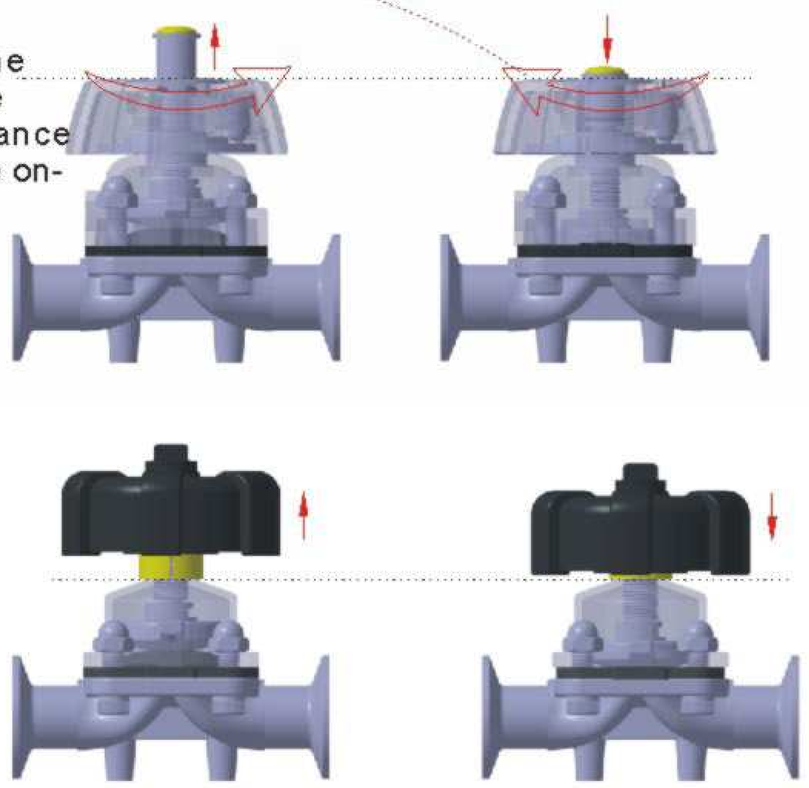
Adjustable screw

Adjsut the distance a by the adjustable screw, to control the valve on-off range (adjust the limit position)



Handle lock

Enter the lock stem to the hole on the orientation pad by spring to lock the handle to be not rotatable. The distance between the holes could control the on-off range of the locked valve.



Turn counterclockwise turn to open

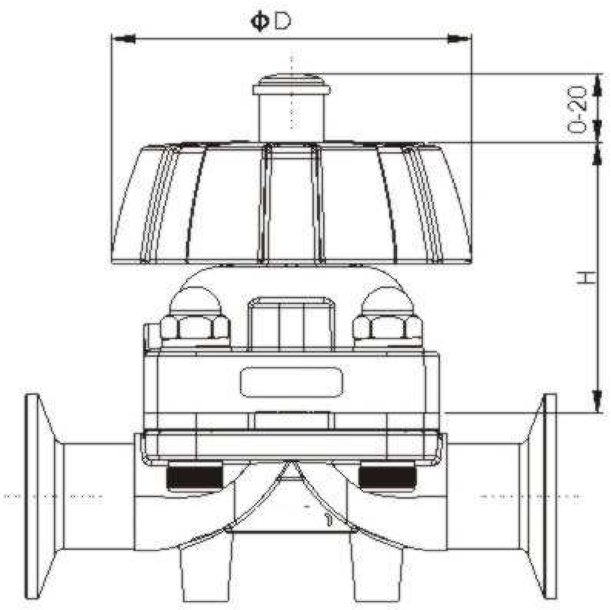
Turn clockwise turn to close

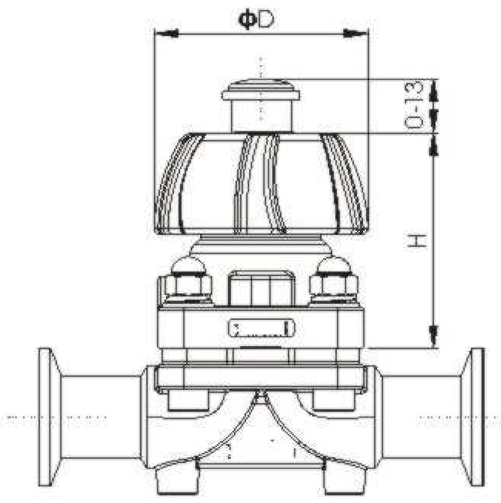
COMPOUND FIBRE ACTUATOR ON THE MANUAL DIAPHRAGM VALVE

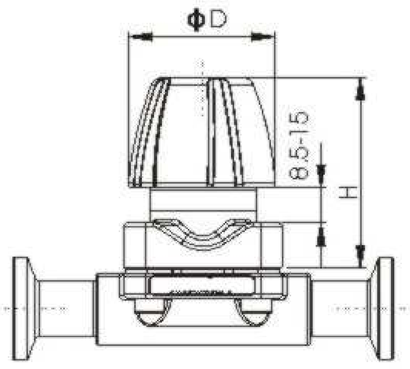
DN25-DN50

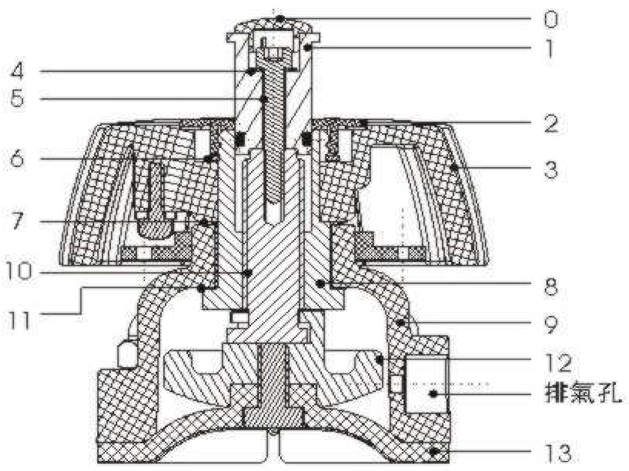
DN15

DN8-DN10

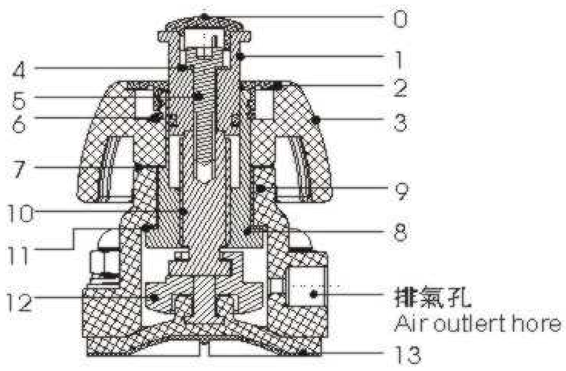




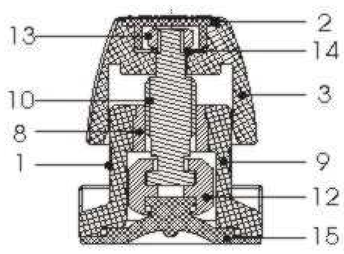




DN25-DN50 Structure of the compound fibre actuator on the manual diaphragm valve with limit position adjustable when opening



DN15 Structure of the compound fibre actuator on the manual diaphragm valve with limit position adjustable when opening.

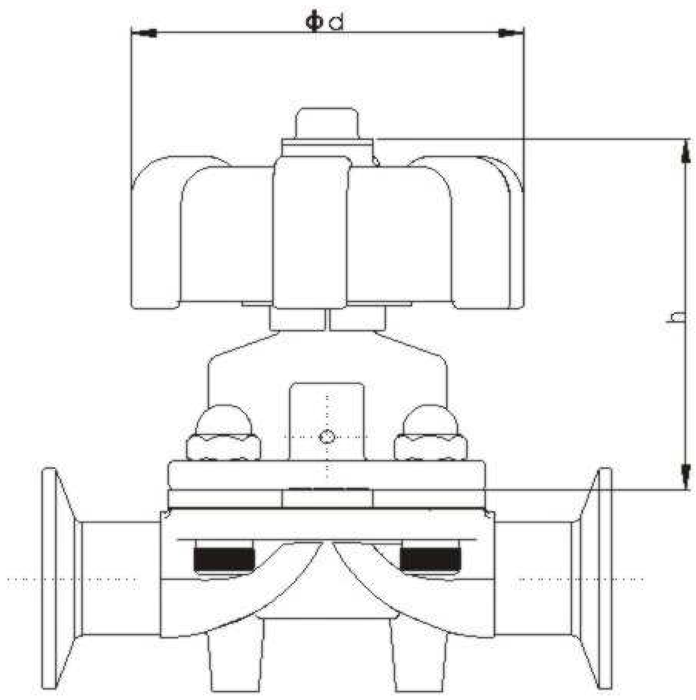


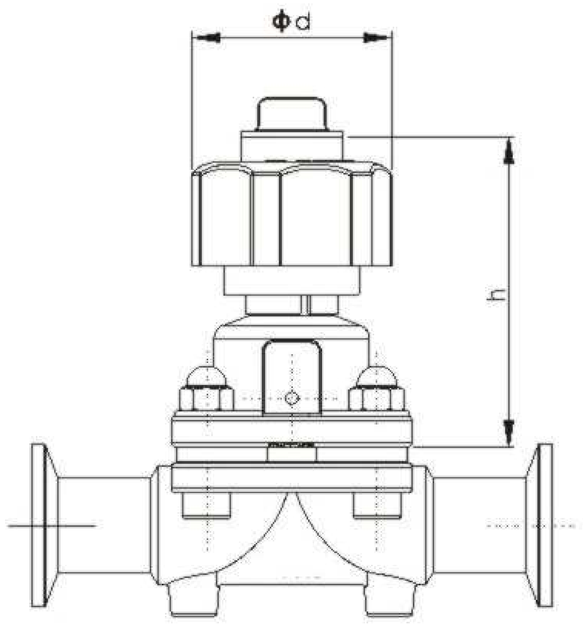
DN10-DN8 Structure of the compound fibre actuator on the manual diaphragm valve when opening.

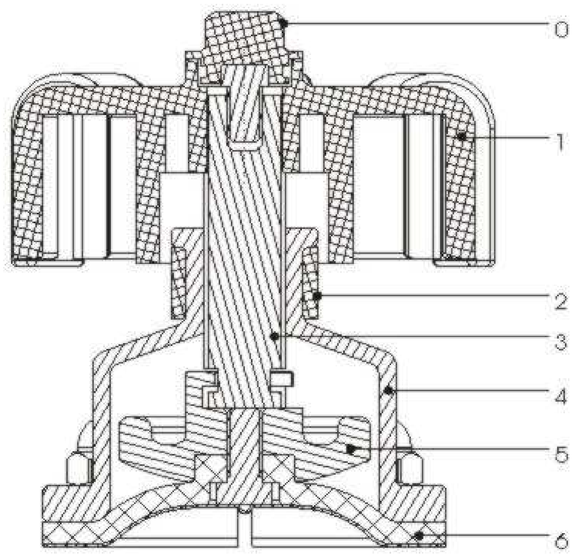
STAINLESS STEEL ACTUATOR ON THE MANUAL DIAPHRAGM VALVE

DN25-DN65

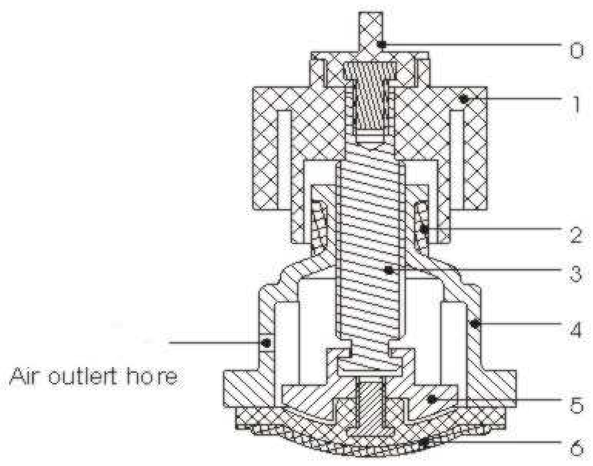
DN15







DN25-DN65 Structure of the stainless steel actuator on the manual diaphragm valve when opening.



DN15 Structure of the stainless steel actuator on the manual diaphragm valve when closing.

Dimension of the actuator on the manual diaphragm valve

SIZE	CODE	D	H	d	h
DN8	3/8"	35	47	x	
DN10	0.5"	35	47		
DN15	0.75"	50	53	40	61
DN25	1"	85	66.5	89	83
DN32	1.25"	85	66.5	89	83
DN40	1.5"	107	82.5	109	95
DN50	2"	107	88.5	109	102
DN65	2.5"	x		123	124

Spare parts for compound fibre actuator on the manual diaphragm valve

Item	Name	Quantity	Material	Remark
15	normal open diaphragm	1	EPDM+PTFE EPDM	EPDM+PTFE EPDM
14	gasket	1	304	Standard
13	screw	1	304	Standard
12	plate	1	304	
11	abrade-resisted sheath	1	Abrade ressisted material	
10	stem	1	304	
9	bonnet	1	PPS compound fibre	230°-260°
8	stem sheath	1	Brass	
7	abrade-resisted ring	1	Abrade-resisted plastic	
6	clip-stop ring	1	304/1CR13	Standard
5	screw	1	304	Standard
4	gasket	1	304	Standard
3	hand wheel	1	PPS compound fibre	230°-260°
2	cap	1	Nylon	
1	switch orientation stem	1	304	
0	switch indicate cap	1	Nylon	

Spare parts for stainless steel actuator on the manual diaphragm valve

Ltem	Name	Quantity	Material	Remark
6	Normal open gasket	1	EPDM+PTFE EPDM	EPDM+PTFE EPDM
5	Plate	1	304	
4	bonnet	1	304	
3	Stem	1	304	
2	Position indicator	1	ABS	
1	hand wheel	1	Strengthened nylon	180°-200°
0	nut	1	ABS	

STAINLESS STEEL PNEUMATIC DIAPHRAGM VALVE

Feature

Manual or pneumatic control is available
Limit position adjustable on the manual operate actuator
Lock device on the manual type
All the plastic parts(such as hand wheel, bonnet) are high temperature material
Various surface finish
Non-dead-angle design
Body material is 316L only.
Automatic welding allowed

Application

Biological vaccine, Pharmacy, Water purification, food\beverage, dairy etc.

When the distance a, between the top of the switch indicator and crystal sight glass, is 2-4mm, there is air in pneumatic actuator . The valve is on open.

Air open: open the valve.

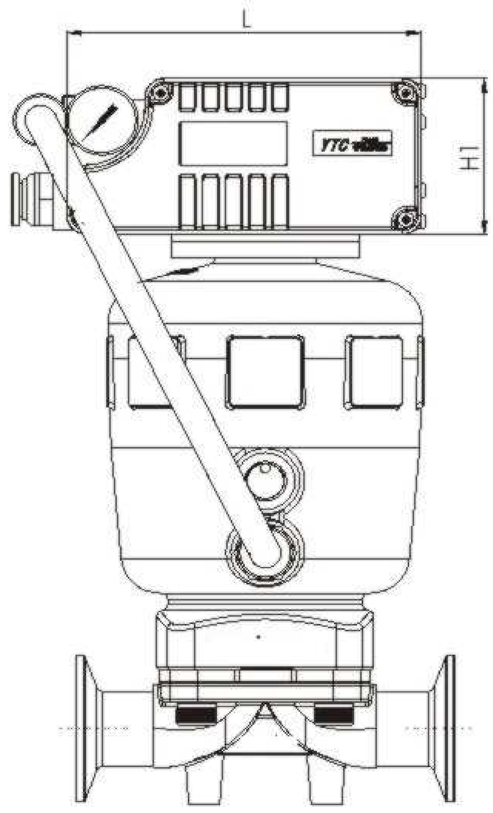
Air close: close the valve

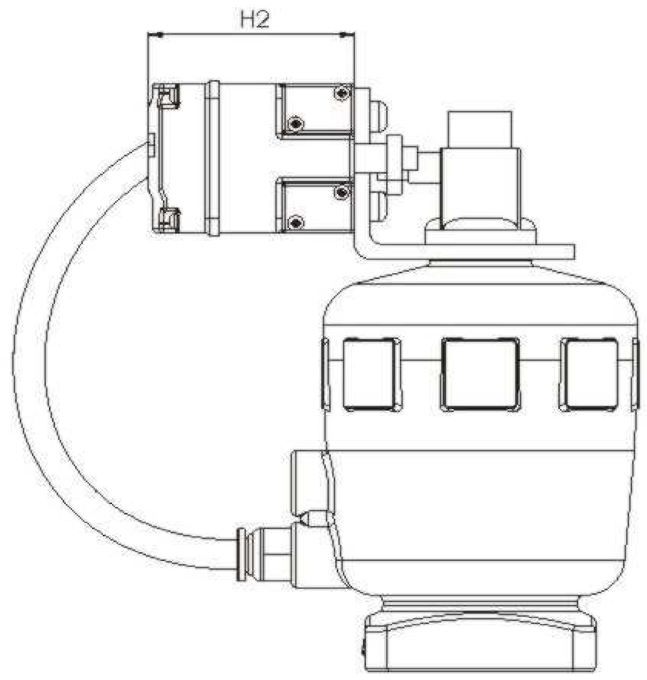
When the distance b, between the top of the switch indicator and crystal sight glass, is 5-15mm, there is no air in pneumatic actuator .The valve is on close.

STAINLESS STEEL ACTUATOR ON THEPNEUMATIC DIAPHRAGM VALVE

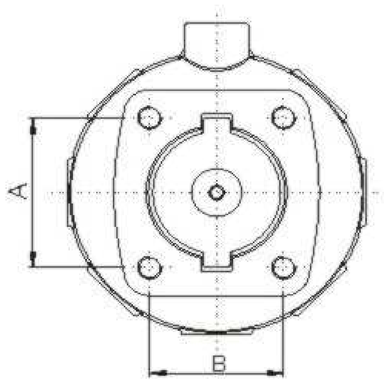
DN15-DN50

INTELLIGENT VALVE POSITIONER, PROCESS CONTROLLER

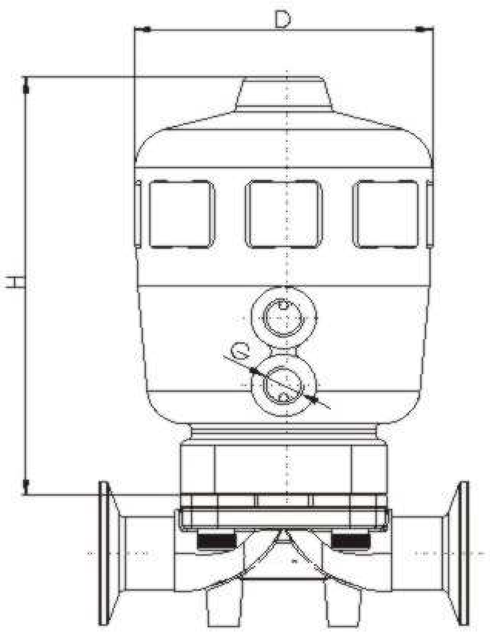


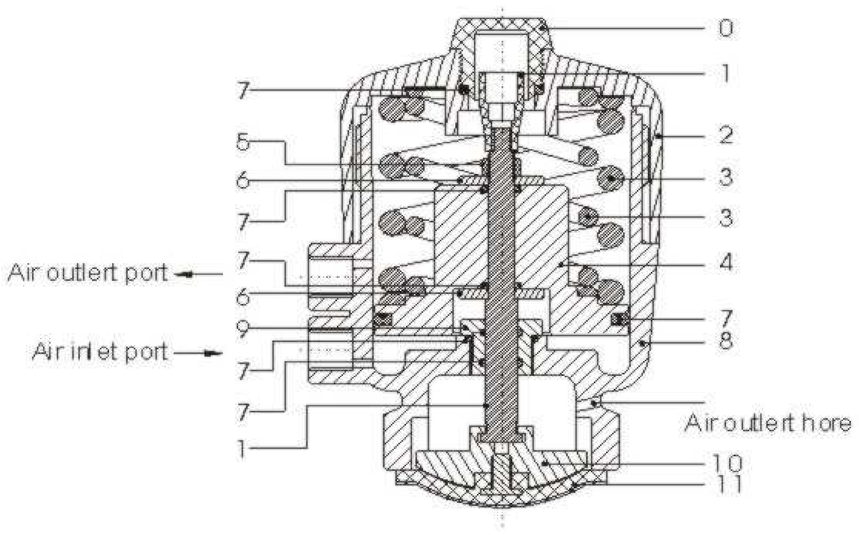


DN25-DN50



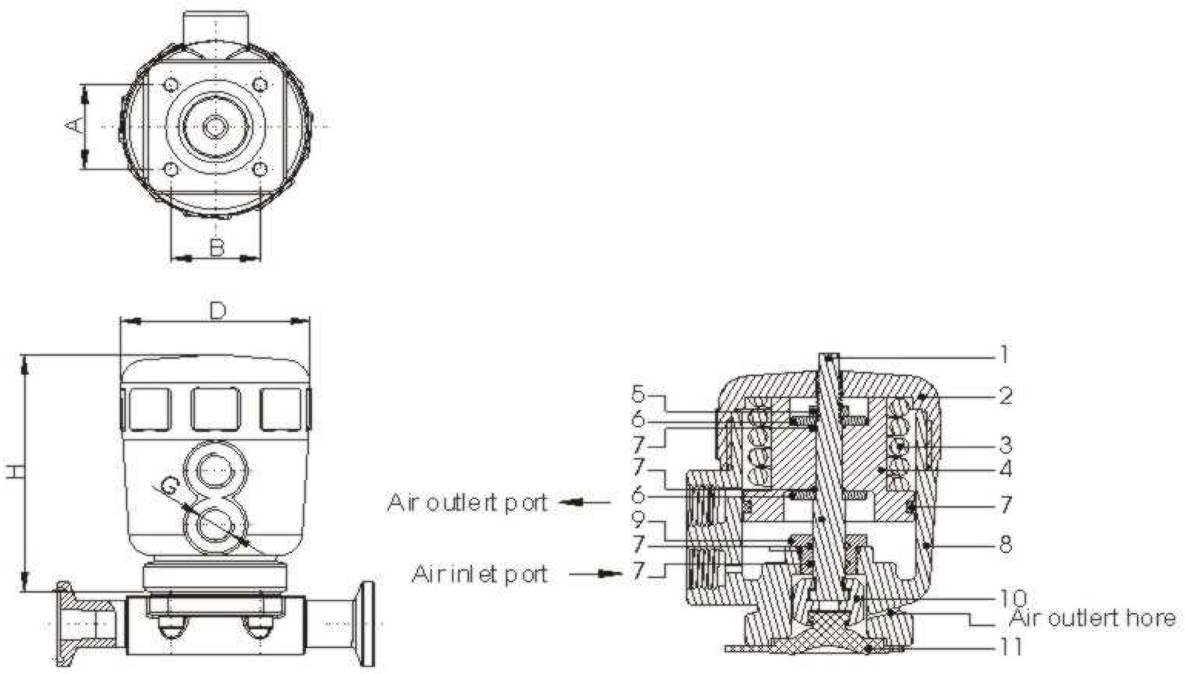
DN15-DN50 Structure of the stainless steel actuator on the pneumatic diaphragm valve when air-closing.





DN8-DN10

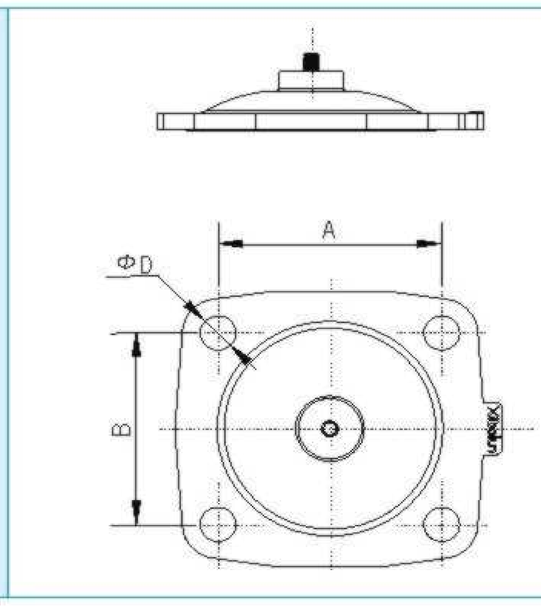
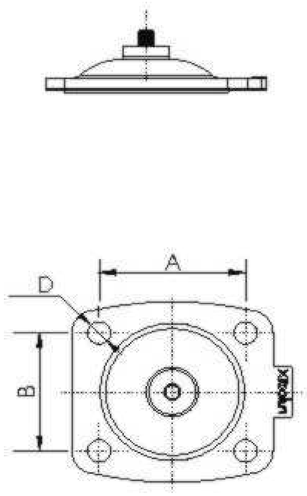
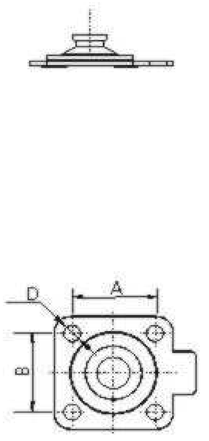
DN8-DN10 Structure of the stainless steel actuator on the pneumatic diaphragm valve when air - opening.



SIZE / CODE		D	A	B	H	G	L	H1	H2
DN8	3/8"	53	25	25	70	G 1/8	x		
DN10	0.5"	53	25	25	70				
DN15	0.75"	70	36	34	111	G 1/4	136	63	79
DN25	1"	100	53	45	148				
DN32	1.25"	100	53	45	148				
DN40	1.5"	115	70	66	164				
DN50	2"	130	81	73	181				

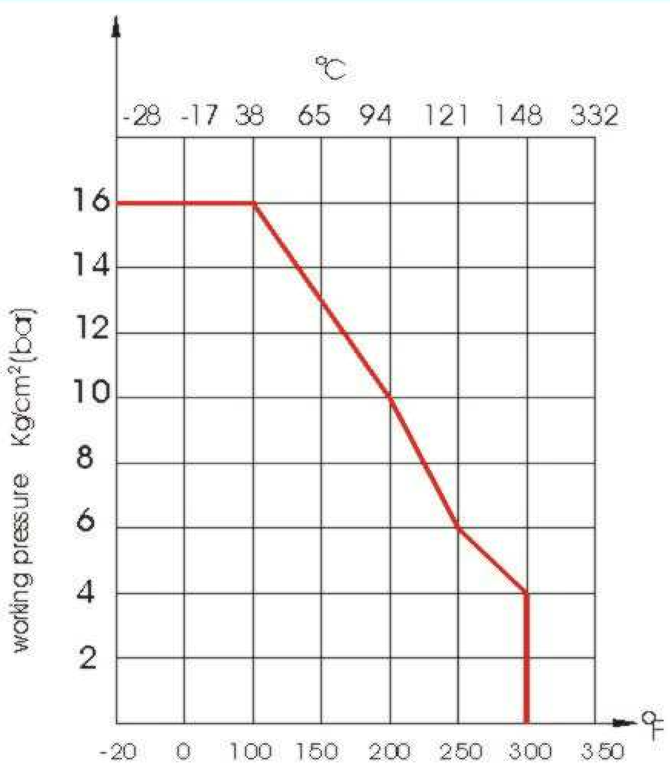
Item	Name	Quantity	Material	Remark
11	Normal close diaphragm	1	EPDM+PTFE EPDM	EPDM+PTFE EPDM
10	Plate	1	304	
9	Hexangular nut	1	Brass	
8	Pneumatic cylinder body	1	304	
7	Seal	6-7	NBR/Viton	Standard
6	Gasket	1	304	
5	Nut	1	304	Standard
4	Piston	1	aluminium	
3	Spring	1-2	Spring steel	
2	Actuator cover	1	304	
1	Stem/position indicator	1	304/ABS	
0	crystal cap(sight glass)	1	ABS	ABS Crystal ABS

Special diaphragm for bio-pharmacy industry

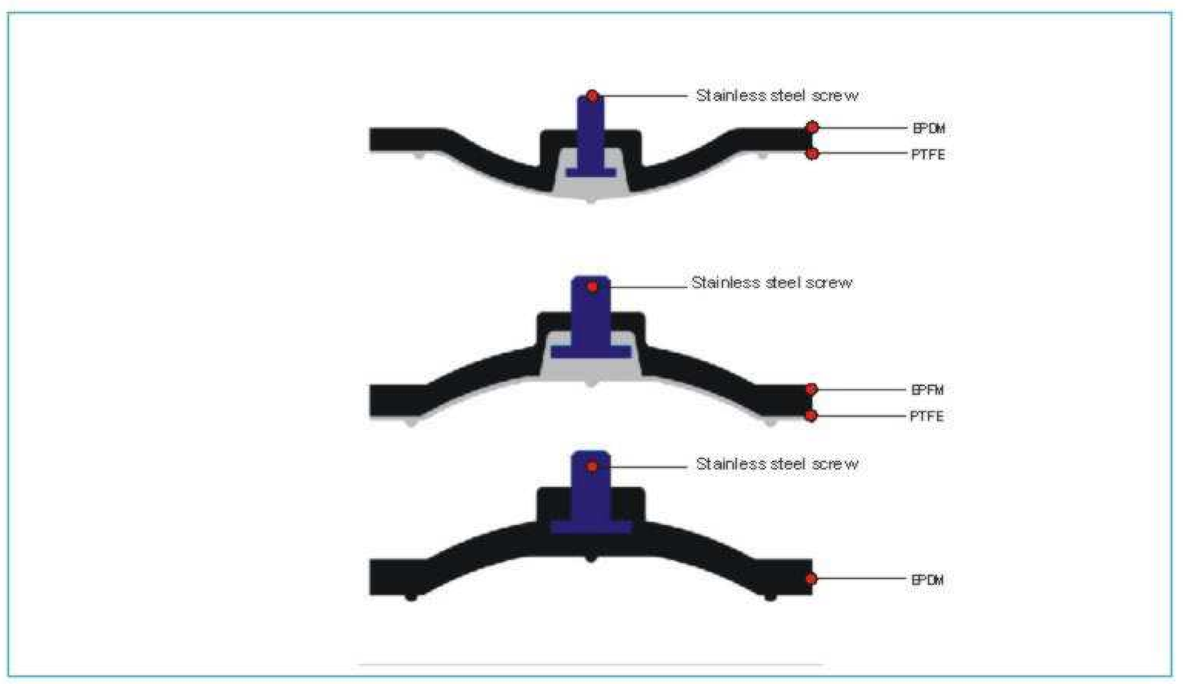
Diaphragm								
Nominal diameter	DN50	DN40	DN32	DN25	DN20	DN15	DN8	
AXB	81X73	70X66	53x45			36.5x34	25x25	
D	4- Φ11		4- Φ9			4- Φ7	4- Φ5	
Material	EPDM	PTFE+EPDM	EPDM	PTFE+EPDM		EPDM	PTFE+EPDM	
Working pressure	max. 10bar	max. 6bar	max. 10bar	max. 6bar		max. 10bar	max. 6bar	
Steam sterilization	max.130℃	max150℃	max.130℃	max150℃		max.130℃	max150℃	

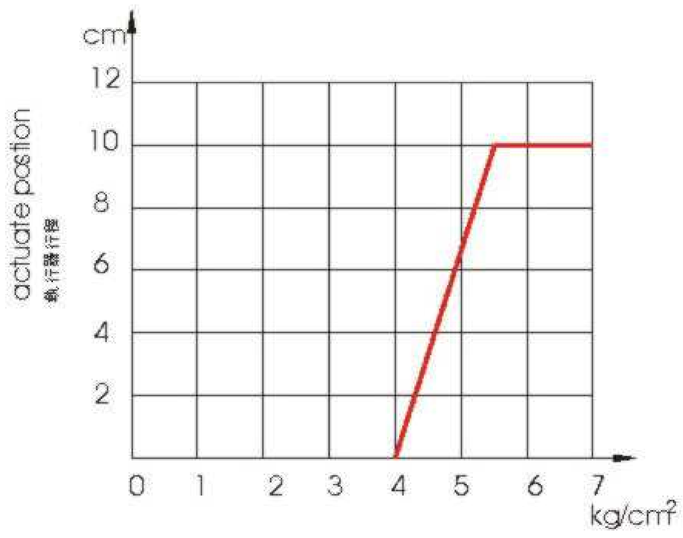
normal open/ normal close compound diaphragm

normal close diaphragm　　normal open diaphragm



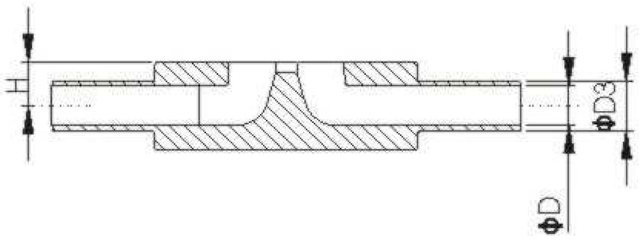
working temperapure　　pressure vs temperapure



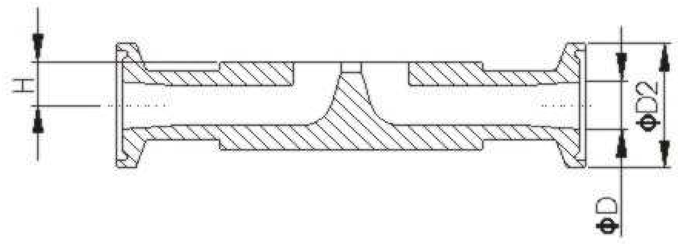


actuate working pressure　actuate working pressure vs postion

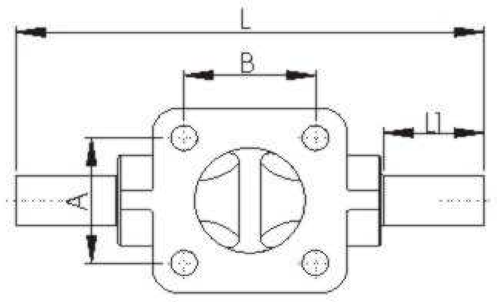
STAINLESS STEEL DIAPHRAGM VALVE BODY



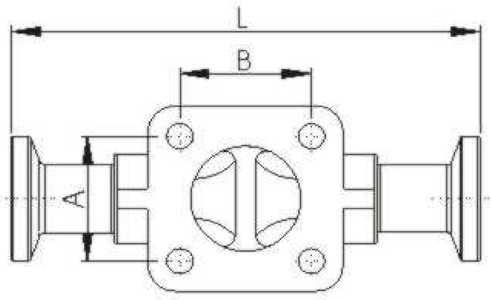
DN8-DN10 clamp diaphragm valve (body)



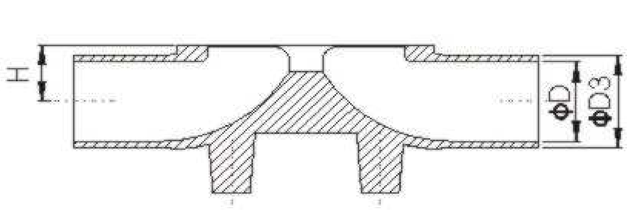
DN8-DN10 clamp diaphragm valve (body)



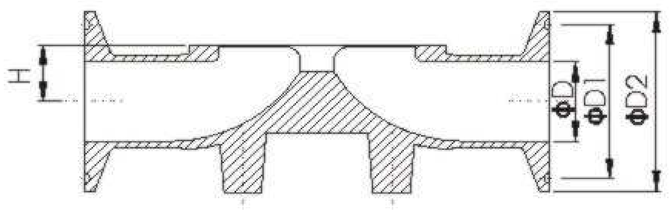
DN15-DN65 clamp diaphragm valve (body)



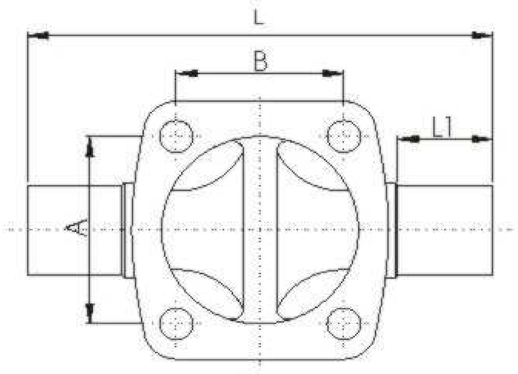
DN15-DN65 clamp diaphragm valve (body)



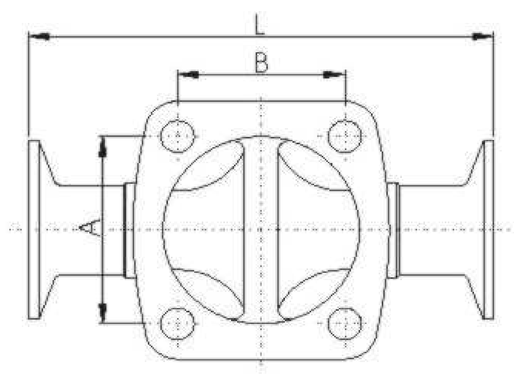
DN15-DN65 clamp diaphragm valve (body)



DN15-DN65 clamp diaphragm valve (body)



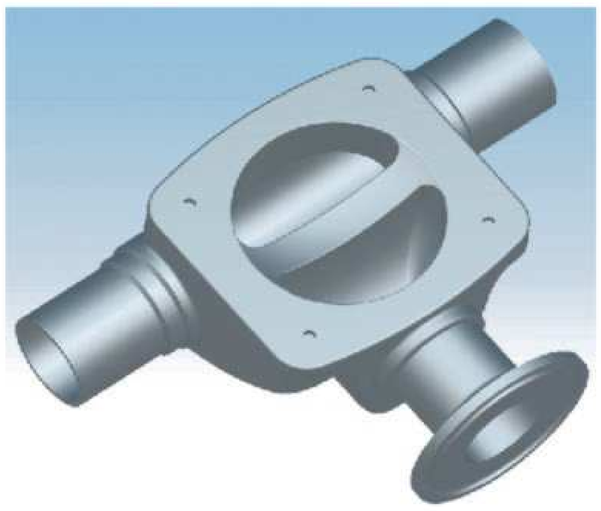
DN15-DN65 clamp diaphragm valve (body)

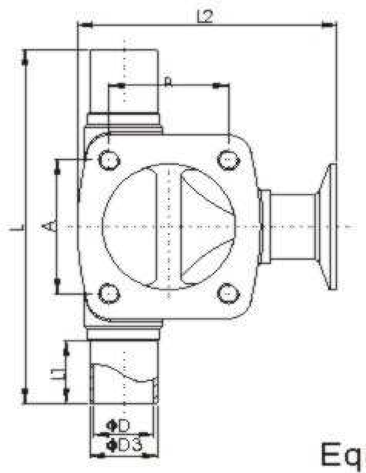


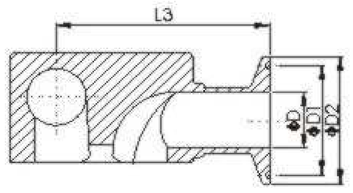
DN15-DN65 clamp diaphragm valve (body)

Dimension for diaphragm valve straight line valve body

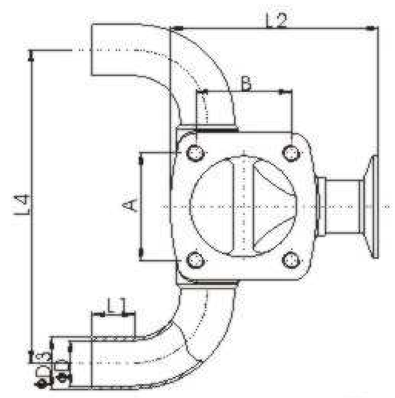
Standard		ISO								
SIZE	CODE	D	D1	D2	D3	A	B	L	L1	H
DN8	3/8"	8	20.4	25	10	25	25	89	19	8.5
DN10	0.5"	9.7	20.4	25	12.7	25	25	89	19	8.5
DN15	0.75"	16.05	43.5	50.5	19.05	36	34	105	24	13
DN25	1"	22.4	43.5	50.5	25.4	53	45	125	25	16
DN32	1.25"	28.8	43.5	50.5	31.8	53	45	125	25	16
DN40	1.5"	35.1	43.5	50.5	38.1	70	66	161	30	23.5
DN50	2"	47.8	56.5	64	50.8	81	73	192	37	33
DN65	2.5"	59.5	70.5	77.5	63.5	110	92	224	39	37.5

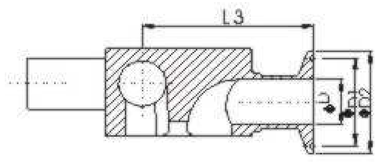






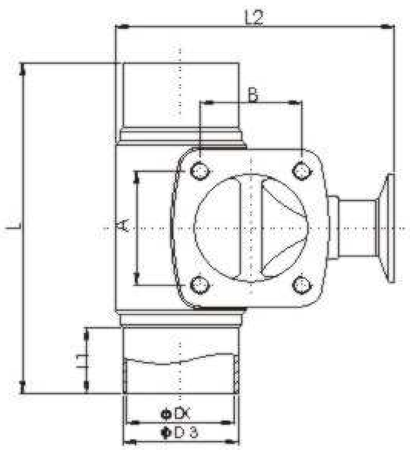
Equal port T-shape weld-clamp-weld diaphragm valve (body)

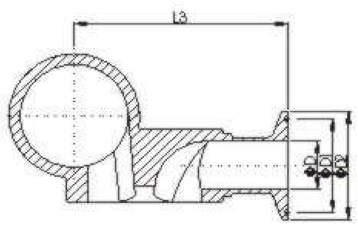




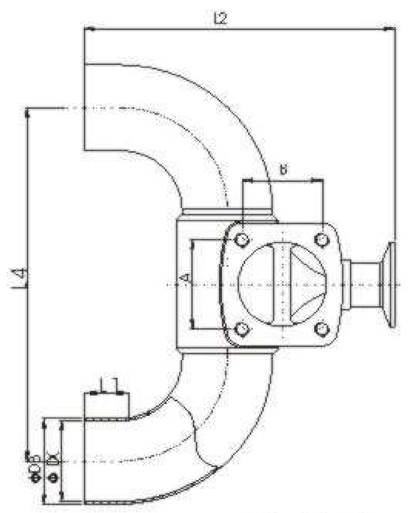
Equal port U-shape weld-clamp-weld diaphragm valve (body)

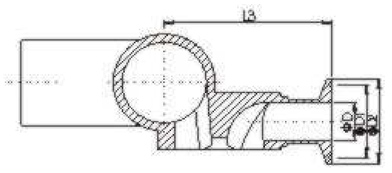
Standard		ISO										
SIZE	CODE	D	D1	D2	D3	A	B	L	L1	L2	L3	L4
DN15	0.75"	16.05	43.5	50.5	19.05	36	34	100	17	76	63	127
DN25	1"	22.4	43.5	50.5	25.4	53	45	140	25	98	80	155
DN32	1.25"	28.8	43.5	50.5	31.8	53	45	145	27	98	78	165
DN40	1.5"	35.1	43.5	50.5	38.1	70	66	170	25	125	104	214
DN50	2"	47.8	56.5	64	50.8	81	73	195	30	148	119	251





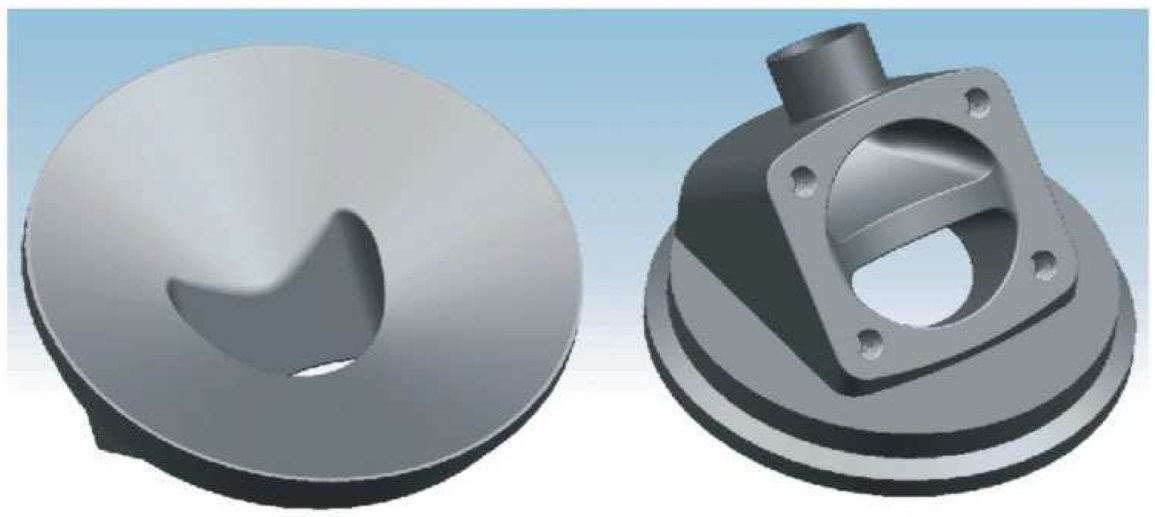
Reducing port T-shape weld-clamp-weld diaphragm valve (body)

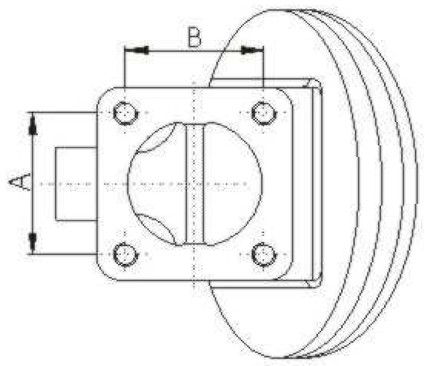


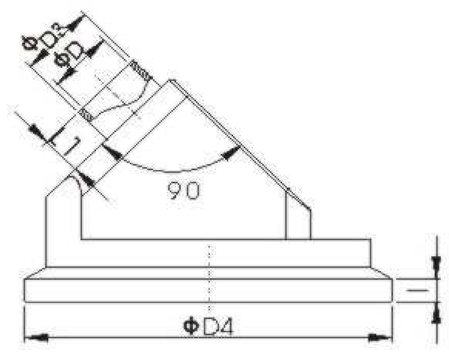


Reducing port U-shape weld-clamp-weld diaphragm valve (body)

Standard		ISO											
SIZE	CODE	D	DX	D1	D2	D3	A	B	L	L1	L2	L3	L4
DN15X25	0.75"X1"	16.05	22.4	43.5	50.5	25.4	36	34	100	17	83	68	132
DN25X50	1"X2"	22.4	47.8	43.5	50.5	50.8	53	45	154	30	123	94	210
DN32X50	1.25"X2"	28.8	47.8	43.5	50.5	50.8	53	45	154	30	123	94	210
DN40X50	1.5"X2"	35.1	47.8	43.5	50.5	50.8	70	66	180	30	141	112	236
DN25X65	1"X2.5"	22.4	59.5	43.5	50.5	63.5	53	45	150	27	136	100	241







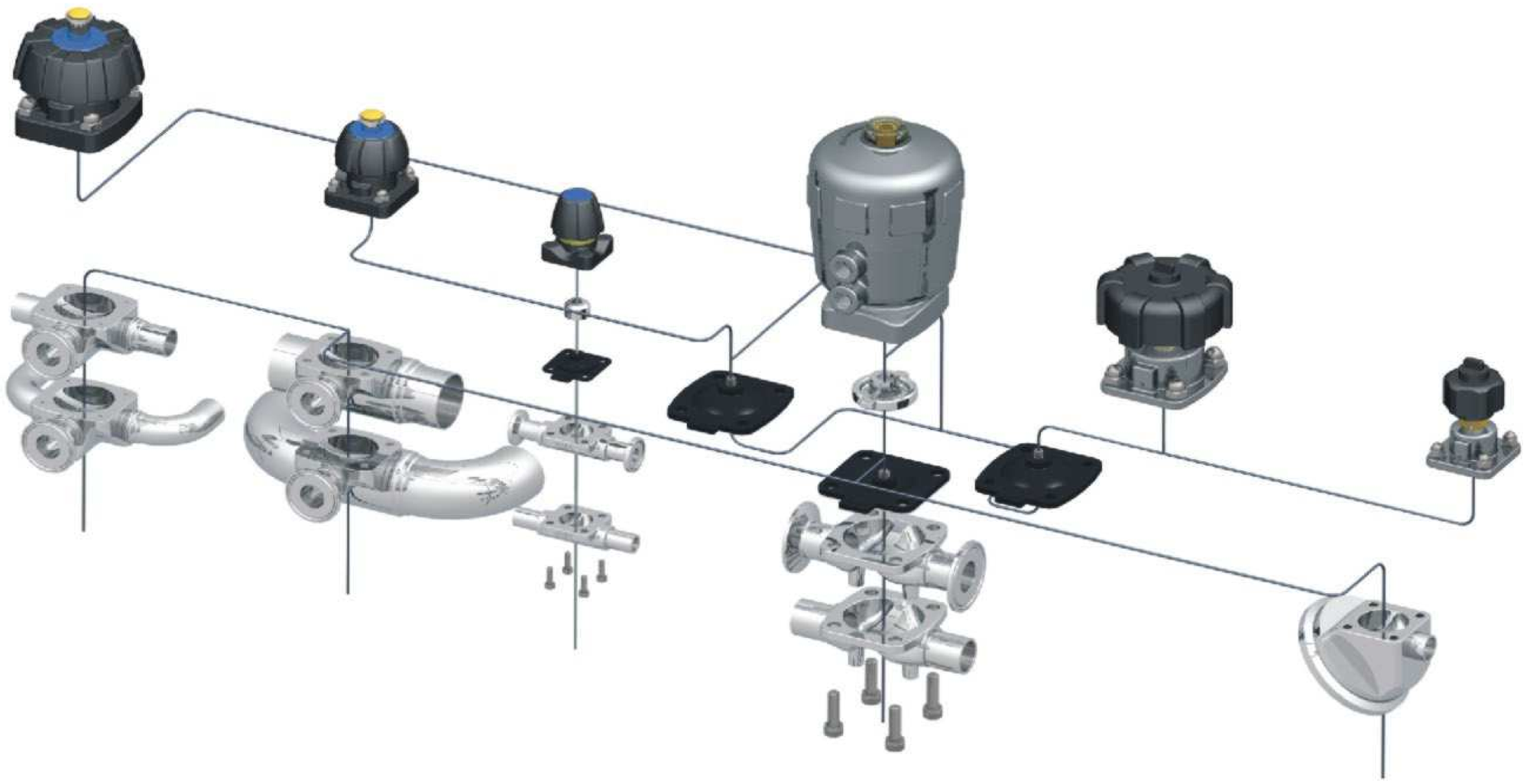
Tank bottom valve (body)

Standard		ISO						
SIZE	CODE	D	D3	D4	A	B	L1	I
DN15	0.75"	16.05	19.05	90	36	34	28	6
DN25	1"	22.4	25.4	120	53	45	28	6
DN32	1.25"	28.8	31.8	160	53	45	28	6
DN40	1.5"	35.1	38.1	160	70	66	28	6
DN50	2"	47.8	50.8	200	81	73	28	6

Dimension of diaphragm valve body in standards of ASME BPE, DIN, ISO

Standard		ASME BPE					DIN 11851					ISO				
SIZE	CODE	D	D1	D2	D3	Dx	D	D1	D2	D3	Dx	D	D1	D2	D3	Dx
DN8	3/8"			X					X			8	20.4	25	10	8
DN10	0.5"	9.4	20.4	25.4	12.7	9.4	9	27.5	34	12	9	9.7	20.4	25	12.7	9.7
DN15	0.75"	15.75	20.4	25.4	19.05	15.75	15	27.5	34	18	15	16.05	43.5	50.5	19.05	16.05
DN25	1"	22.1	43.5	50.5	25.4	22.1	25	43.5	50.5	28	25	22.4	43.5	50.5	25.4	22.4
DN32	1.25"			X			31	43.5	50.5	34	31	28.8	43.5	50.5	31.8	28.8
DN40	1.5"	34.8	43.5	50.5	38.1	34.8	37	43.5	50.5	40	37	35.1	43.5	50.5	38.1	35.1
DN50	2"	47.5	56.5	64	50.8	47.5	49	56.5	64	52	49	47.8	56.5	64	50.8	47.8
DN65	2.5"	60.2	70.5	77.5	63.5	60.2	66	83.5	91	70	59.5	59.5	70.5	77.5	63.5	59.5

Actuator and valve body



The optimum install angle for diaphragm valve is 15° -30°
It could decrease the residue at this angle range.

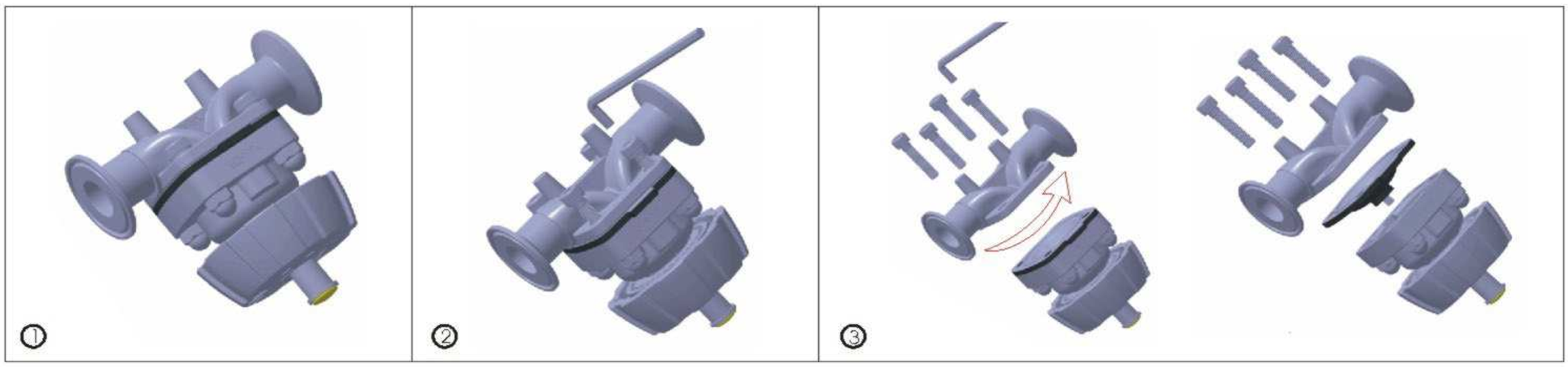
Disassemble the valve body and actuator when installing the welded diaphragm valve, as the welding temperature would be very high, which would destroy the diaphragm or the spare parts inside the pnenmatic cylinder.

Body surface finish

Surface code	Mechanically polished		Surface code	Mechanically polished& Electropolised	
	u-in	um		u-in	um
Sf1	20	0.51	SF4	15	0.38
SF2	25	0.64	SF5	20	0.51
SF3	30	0.76	SF6	25	0.64

Body: Straight line, three way T-shape, three way U-shape, tank bottom.
Body material: 316L
Diaphragm material: EPDM EPDM+PFTE complex
Working temperature: EPDM -20° -130° EPDM+PTFE complex -20° -150°
Material of hand wheel\bonnet\actuator: 304\strengthened nylon\pps compound fibre
Drive method: manual operate (normal open / with limit position adjustable) Pneumatic operate (normal close/double working)
Pneumatic driving pressure: 0.4-0.6(Mpa) Normal pressure: PN 1.6(Mpa) Working pressure: ≤1.6(Mpa)

Change the diaphragm on the manual diaphragm valve as following steps:

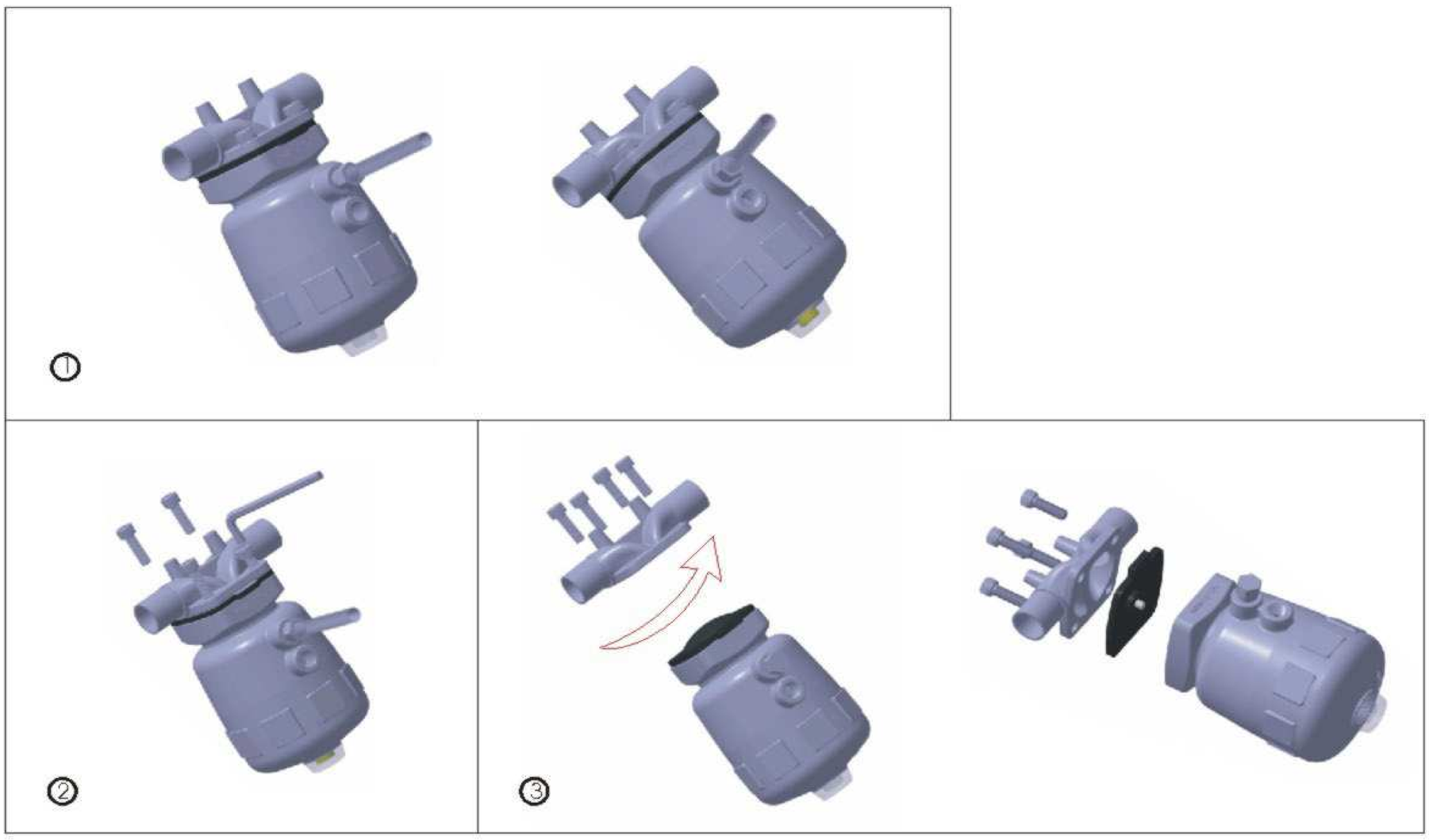


1. Open the valve which is on close.
2. Disassemble the hex-nut on the body.
3. Turn the diaphragm anticlockwise, take down the diaphragm. (See the picture above)

Put the screw on the new diaphragm into the female hole on the bonnet, turn the diaphragm clockwise to tense, and then turn back in one cycle on anticlockwise, to keep the surface curve of the diaphragm is at the same level of surface curve of the body.

Put the screw hole on the body, diaphragm, and actuator in line, and assemble the screws on.

Change the diaphragm in the pneumatic diaphragm valve as following:



1. Inlet the compressed air into the actuator through the air mouth (suggest to be 6Mpa compressed air) by air tube to rise the piston in the actuator to rise the diaphragm, and keep the diaphragm it rising there;

2. Disassemble the hex-nuts on the body;

3. Close the compressed air, waiting the air inside outlet completely, let the diaphragm and actuator be lax, and then turn the diaphragm anticlockwise, and take away the diaphragm; (See the picture above)

1. Put the screw on the new diaphragm into the female hole on the bonnet, turn the diaphragm clockwise to tense, and then turn back in one cycle on anticlockwise, to keep the surface curve of the diaphragm is at the same level of surface curve of the body.

2. Inlet the compressed air into the actuator, (suggest to be 6Mpa compressed air), rise the piston inside the actuator to rise the diaphragm and keep, the diaphragm it rising there;

3. Put the thread hole on the body, diaphragm, and actuator in line, and assemble the threads on.

4. Close the compressed air, draw out the air pipe.