

BioClean®

Sterile Diaphragm Valves

In line with ASME BPE standard



KL KINGLAI

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Global leader of hygienic materials and equipment

As a leading manufacturer of Sanitary pipes, fittings, valves, pumps, pressure vessels, and other types of equipment, KINGLAI Group is committed to R&D and production of safer, reliable, and Sanitary applied materials and products. Our 30 years of accumulation and experiences enable all-around services for customers, which are well acknowledged in the market.

BioClean is a whole new sub-brand of KINGLAI Group in sterile diaphragm valves and sanitary pumps. The products are widely applied in biopharmacy, water for injection (WFI), personal care, and microelectronic semiconductors. Dedicated itself into more reliable products, Bioclean will promote the progress in environment, science, and health.

Second-generation sterile diaphragm valve

The hand-wheel position-limit device will enable flexible use of valves. Meanwhile, a clear mark of the closing position of valves can avoid short service life of diaphragms caused by over-tightening.

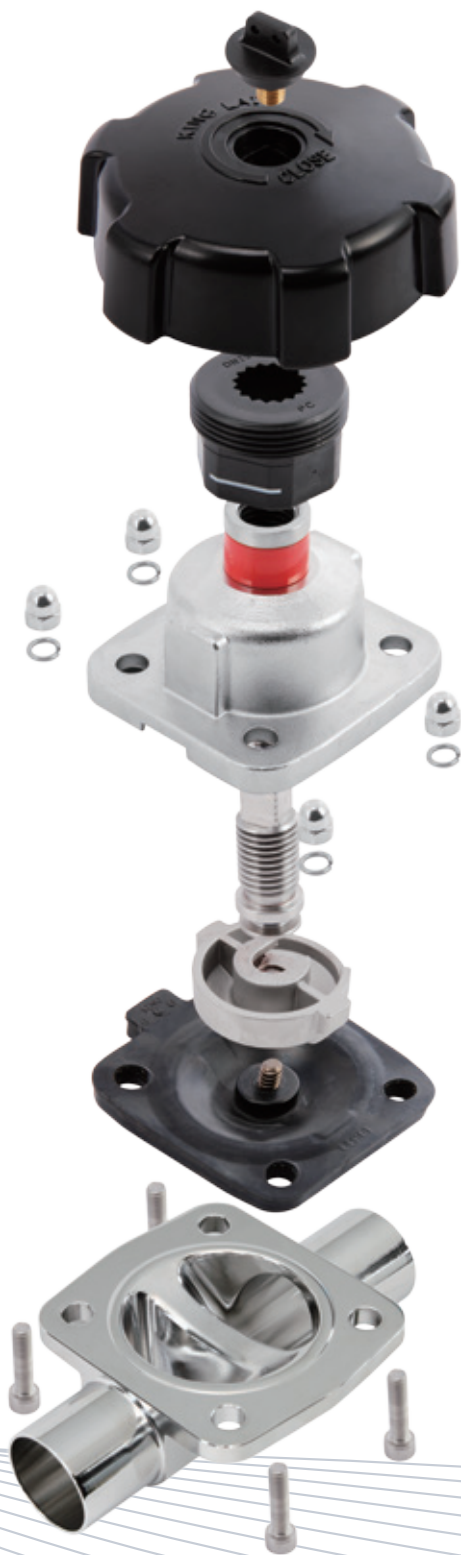
With abundant and flexible options in accessories and automation components, Bioclean sterile diaphragm valves are an ideal control product. In addition to standard parts, we also provide diversified customized solutions, such as bottom tank valves, multi-path valves, and SAP/GMP valves.



General Introduction

As one of the most common valves used in pharmaceutical engineering, sterile diaphragm valves are ideal for applications that require zero bacteria breeding as well as high cleaning and sterilization performance. Compared with valve products such as ball valves and butterfly valves, diaphragm valves with static seals use sealing elements free of wearing and a structure without dead angles, thus being more sanitary and durable.

As an ideal choice in bio-pharmaceuticals and other applications with demanding sanitary conditions, Kinglai's BioClean series sterile diaphragm valves comply with ASME BPE Design Standards and CGMP (Current Good Manufacturing Practice), and also have passed 3A Sanitary Standards Certification.



Our sterile diaphragm valves feature completely transparent production process, which is fully traceable from stainless steel base metal to valve diaphragm and gasket. Each valve has passed strict performance tests before delivery to ensure excellent product performance and complete verification from beginning to end.

Kinglai sterile diaphragm valves cover KDV series straight-through diaphragm valves, KDV-T type diaphragm valves, KDV-TU water diaphragm valves, KDV-MU U-type diaphragm valves, KDMP multi-way diaphragm valves, KGMP SAP\GMP diaphragm valves and KTBV bottom diaphragm valves.



Product Features:



Advantages of Sealing Technology

30 years' service experience gives Kinglai reliable technical resources and extensive application experience, which allow us to provide you with more reasonable suggestions for the selection of elastic seals to meet the application requirements of various working conditions.

Thanks to continuous and deep cooperation with international manufacturers, the diaphragms of our diaphragm valves boast better thermal stability, ductility, chemical stability and fatigue resistance, thus being more reliable and durable.



High Compatibility

Kinglai valves can be configured with a variety of connections, including welded type and ferrule type quick disconnect couplings, and are suitable for pipes of all sizes that meet ASME BPE, 3A, ISO, DIN, BS, JIS and other standards, thus ensuring high quality and reliable use anywhere in the pipeline system.



Strict Sanitary Standards

While complying with ASME BPE Sterile Diaphragm Valve Design Standards, Kinglai's sterile diaphragm valves are manufactured by electrolytic polishing. They satisfy EN 10204 3.1/ MTR Traceability Standards, Declaration of Conformity with FDA, USP Class VI Certification and 3A Sanitary Standards Certification, all of which ensure product contamination control.



Advantages of Valve Body

Kinglai firmly believes that strong and stable manufacturing capability serves as the cornerstone of product quality, while strict inspections and tests ensure service life. Decades of accumulations in manufacturing technologies enable Kinglai to ensure that the surface finish of valves can reach up to 0.375µm (BPE SF4) without any wave. Delicately polished surface is the most direct defence for the valves to prevent bacterial contamination.

Design and Structure

Modular Design

With modular structure design, the BioClean series sterile diaphragm valves can meet various demands.

The valves are composed of the following components:

- Controller
- Actuator
- Diaphragm
- Valve body

Controller	 Feedback device	 Positioner				
Actuator	 Stainless steel	 Composite material	 Aluminum alloy	 Stainless steel	 Composite material	 Composite material
Diaphragm	 EPDM		 EPDM+TFM			
Valve body	 Straight-through type	 T-type	 Multi-way		 SAP / GMP	 Bottom valve

Optional Configurations



Generally, the BioClean series pneumatic sterile diaphragm valves can be used in conjunction with the feedback device or valve positioner.

As for the BioClean series pneumatic sterile diaphragm valve equipped with valve positioner, the real-time feedback of valve opening can be achieved. Meanwhile, the valve's opening position (travel percentage) can be adjusted via remote PLC control or direct adjustment on the automatic regulator, thus realizing precise control over the valve.

The BioClean series multi-way sterile diaphragm valves allow customized design and processing of valve bodies on request. These valve bodies are made by forging and fine machining. Multi-way diaphragm valves can effectively reduce the overall space of the pipeline system, and are easier to clean and discharge.



Option

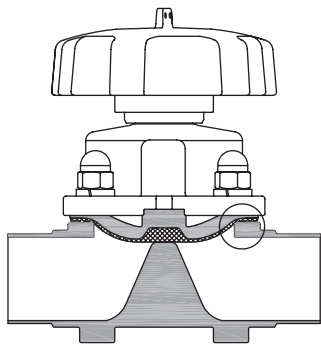
Standards for connections	DIN, ISO, 3A, BPE	Material of valve body	316L
Mode of connections	Welded type, ferrule type or welded and ferrule type	Process of valve body	Casting or forging
Size	1/4" - 3"	Material of seal	EPDM, EPDM+TFM
Form of valve body	Straight-through type, T-type, multi-way type, SAP\GMP or bottom valve	Polishing	Electrolytic polishing
Driver	Manual, pneumatic NC (default) or double acting	Controller	Solenoid valve, travel switch or valve positioner

- 1. Please contact us for purchase of SAP/GMP diaphragm valves and multi-way diaphragm valves.
- 2. If the valves with feedback device are to be used in risky areas, please specify the explosive-proof grade.

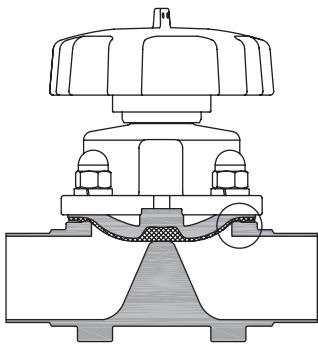
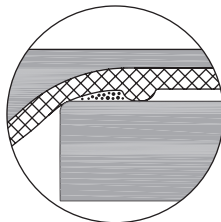
KDV sterile diaphragm valve

Diaphragm

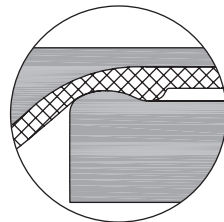
Design of Diaphragm



Conventional diaphragm valves
Prone to residues



BioClean diaphragm valves
Prevent residues



Unlike that of conventional diaphragm valves, the bodies of BioClean series sterile diaphragm valves have a tight seal on the inside diameter that reduces the ring clearance between the diaphragm and the valve body. This feature makes the BioClean series diaphragm valves particularly suitable for aseptic process.

Material of Diaphragm

Two options are provided for the material of diaphragms: EPDM soft artificial rubber and TFM rigid artificial rubber. Single or double diaphragm designs are available.

The double diaphragm design allows two diaphragms to work independently, thus reducing the tension caused by different thermal properties. As each application has different working conditions, different requirements are put forward for the diaphragms. In order to select the most suitable diaphragms, the following factors need to be considered: working pressure, application temperature and process fluid. EPDM is suitable for most application conditions, but some high temperature conditions require diaphragms made of TFM materials.

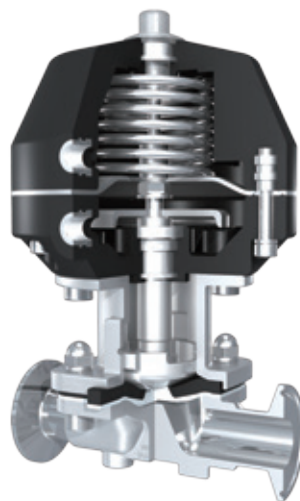


Certificate of Material

Declaration of Conformity with FDA (CFR 21:177.2600 or 177.1550)

USP Class VI Certification

Selection of actuators



Engineering plastic
actuator



Stainless steel
actuator

The BioClean series sterile diaphragm valves are available with hand wheels or air cylinders made from various materials.

Drive hand wheels or pneumatic actuators made from composite engineering plastics can meet your demands in most general working conditions, while stainless steel actuators are a good choice in case of small installation space, compact valve structure or high cleaning requirements for the outer parts of the valve.

PP, PC, stainless steels and aluminum alloy materials are optional.



Material	PP	PC	Stainless steel		Aluminum alloy
Size	Driver	Hand wheel	Hand wheel	Driver	Driver
1/4"		●		●	
3/8"		●		●	
1/2"		●		●	
3/4"			●	●	
1.0"	●		●	●	
1 1/2"	●		●	●	
2.0"	●		●	●	
2 1/2"			●		●
3.0"			●		●

Valve Body



Kinglai provides all kinds of high quality valve bodies that are widely accepted. Two manufacturing methods are optional, i.e. casting and forging, with strict control of ferrite content and sulfur content.

The diaphragm valve bodies manufactured by casting forming enjoy good cost-effectiveness and the quality materials selected according to American Standards allow better versatility.

The valve bodies produced by forging forming and precision machining boast extremely compact structure and better chemical stability. In terms of surface oxidation resistance and long-term anti-corrosion performance, forged bodies have significant advantages to guarantee the high quality of the products during long-term usage.

Form of valve body	Cast type	Forged type	Forged block
Two-way valve	●	●	
T-type valve	●	●	●
Tandem valve	●	●	●
Multi-way valve			●

Type	Cast type	Forged type / Forged block
Material	CF3M (316L)	1.4435 (316L)
Ferrite content	< 15%	< 0.5%
Sulfur content	< 0.04%	0.005-0.017%

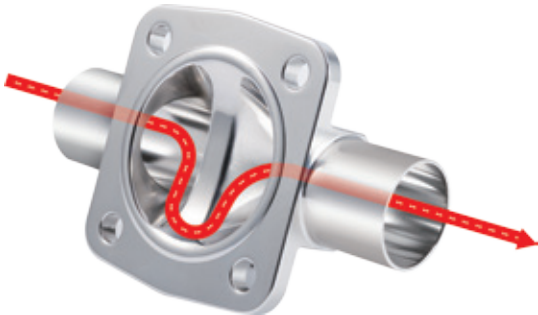
EN 10204 3.1/ MTR Traceability Certificate

Self-discharge of Valves

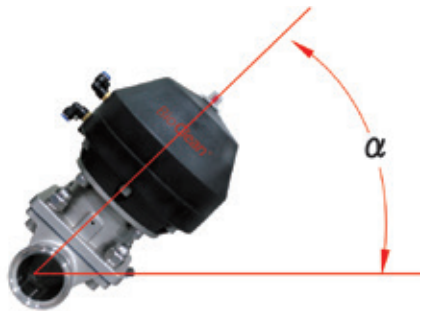
The BioClean series sterile diaphragm valves have excellent self-discharge performance and are capable of maintaining excellent self-discharge capability in both horizontal and vertical mountings. It is necessary for the pipeline designers and users to cooperate to make use of the self-discharge characteristics.

The factors that influence self-discharge:

- Valve dimension and pipeline specification
- Surface finish and treatment method (Ra)
- Discharge direction
- Surface tension and viscosity of medium
- Design inclination angle of pipeline - recommended angle 2~3°

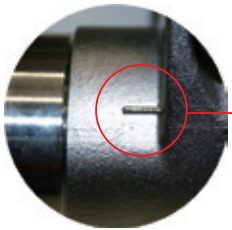


Self-discharge Mounting



Self-discharge angle

During mounting, the marks at both ends of the valve body shall be set with correct angle to optimize self-discharge performance.



During mounting, this mark shall be horizontal and facing upward.

Table of self-discharge angles

Size	1/4"	3/8"	1/2"	3/4"	1.0"	1 1/2"	2.0"	2 1/2"	3.0"
α	32.5°	23.5°	21°	20°	29.2°	25°	18.2°	27°	19°

KDV Sterile diaphragm valve



Application

KDV Sterile diaphragm valves produced by King Lai can meet the production process with cleanness and sterilization requirements. The product is widely applied in medicine, food and bio-pharmacy, as well as sectors of semiconductors, microelectronics, personal care, water for injection, and other industries.

Features

- The valves bodies are available in casting and forging, and can meet demands of different customers.
- The specifications are complete, available from DN4 ~ DN80.
- The diaphragm is made of materials with corrosion resistance and in line with the certification of FDA and USP24 class 6.
- The protrusions around the valves body and the prominent part of the diaphragm are closely matched with each other to ensure that the diaphragm can be tightly sealed with the valve body in the open or closed state. Such structure, in line with EHEDG design standards, can achieve zero residual and is easy to clean.
- The normally-closed structure of diaphragm ensures easier manual switching.
- The rotary hand-wheel can achieve protection of excessive closing via the adjustable limit nut, and ensure that the diaphragm has a pre-set closing pressure to optimize the sealing safety and extend the life of the diaphragm.
- The red switching indicator between the hand-wheel and the cover can show the state and degree of openness/closing of the valves.
- The solenoid valves, position feedback or position regulator can be installed on the pneumatic valves at consumer's request to realize automatic control or flow control of the valves.

Technical Data

Items	Details
Actuator	Manual Pneumatic normally closed (NC) / Double acting (DA)
Control	Feedback device/ adjustment positioner/ cylindrical position sensor
Body material	CF3M (316L), 1.4435 (316L)
Diaphragm material	EPDM, EPDM+TFM
Size	DN4 – DN80
Connections	Butt-weld, Clamp, Weld/clamp ASME BPE, 3A, ISO, DIN
Surface finish	Outer surface sand blasted Inner surface Ra ≤ 0.5 μm(SF1), Ra ≤ 0.375 μm(SF4)
Certifications	3A, CE

Size		DN4~DN50	DN65/DN80
Working temperature	EPDM	Max. pressure	10bar
		Max. temperautre	-10°C~100°C, 14~212°F
		SIP	150°C, 302°F max.60min
	EPDM+TFM	Max. pressure	6bar, 87psi
		Max. temperautre	-10°C~100°C, 14~212°F
		SIP	150°C, 302°F no.limit
Pneumatic pressure	Normally close (NC)		5-6bar, 72-87psi
	Normally open (NO)		5.5bar, 79psi
	Double action (DA)		5.5bar, 79psi
Pneumatic connection		G1/8"	G1/4"

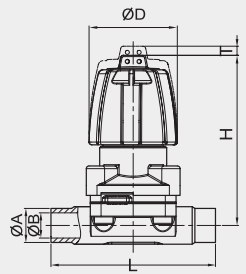
If the sterilisation temperatures listed above are applied to the EPDM or TFM diaphragms for longer periods of time, the service life of the diaphragms will be reduced. In these cases, maintenance cycles must be adapted accordingly.

TFM diaphragms can also be used as steam barriers; however, this will reduce their service life. The maintenance cycles must be adapted accordingly.

Types	Casting	Forging, Forged block
Material	CF3M (316L)	1.4435 (316L)
Ferrite	< 15%	< 0.5%
Sulfur contents	< 0.04%	0.005-0.017%

Compliance with EN 10204 3.1/MTR traceability certificate
FDA-FDA Declaration of Conformity (CFR 21:177.2600 or 177.1550)
Compliance Certificate for USP-USP VI Category

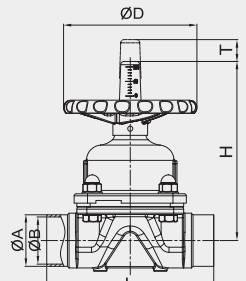
KDV-M100-1
Manual diaphragm valves with welding ends

Code	Size	A	B	D	T	H	L	
1558100-000025	¼"	6.35	4.57	33	4.5	58	61	
1558100-000038	⅜"	9.53	7.75	33	4.5	58	61	
1558100-000050	½"	12.7	9.4	33	4.5	63.5	61	

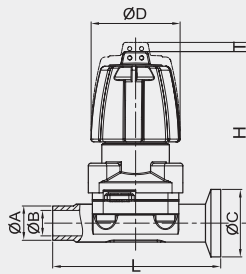
KDV-M100-2
Manual diaphragm valves with welding ends

Code	Size	A	B	D	T	H	L	
1558100-000075	¾"	19.1	15.8	60	6	79.5	117	
1558100-000100	1.0"	25.4	22.1	90	11	103.5	127	
1558100-000150	1½"	38.1	34.8	110	15.5	129.8	159	
1558100-000200	2.0"	50.8	47.5	128	20.5	153	190	

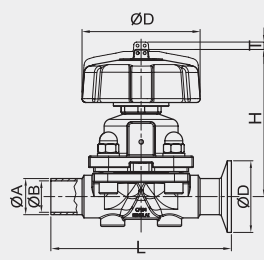
KDV-M100-3
Manual diaphragm valves with welding ends

Code	Size	A	B	D	T	H	L	
1558100-000250	2½"	63.5	60.2	200	44	264	250	
1558100-000300	3"	76.2	72.9	200	44	269	250	

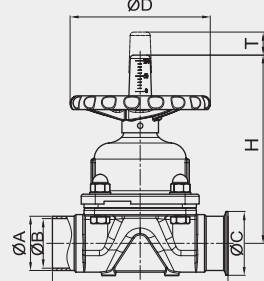
KDV-M200-1
Manual diaphragm valves with weld/clamp ends

Code	Size	A	B	C	D	T	H	L	
1558200-000025	¼"	6.35	4.57	25	33	4.5	58	62	
1558200-000038	⅜"	9.53	7.75	25	33	4.5	58	62	
1558200-000050	½"	12.7	9.4	25.0	33	4.5	63.5	62	

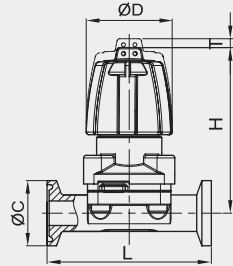
KDV-M200-2
Manual diaphragm valves with welding /clamp ends

Code	Size	A	B	C	D	T	H	L	
1558200-000075	¾"	19.1	15.8	25.0	60	6	79.5	117	
1558200-000100	1.0"	25.4	22.1	50.4	90	11	103.5	127	
1558200-000150	1½"	38.1	34.8	50.4	110	15.5	129.8	159	
1558200-000200	2.0"	50.8	47.5	63.9	128	20.5	153	190	

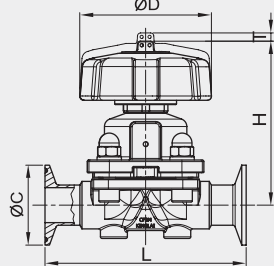
KDV-M200-3
Manual diaphragm valves with welding /clamp ends

Code	Size	A	B	C	D	T	H	L	
1558200-000250	2½"	63.5	60.2	77.5	200	44	264	250	
1558200-000300	3.0"	76.2	72.9	90.9	200	44	269	250	

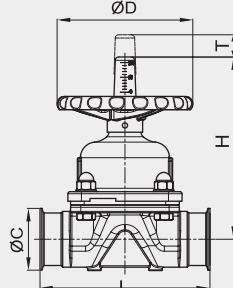
KDV-M300-1
Manual diaphragm valves with clamp ends

Code	Size	C	D	T	H	L	
1558300-000025	¼"	25	33	4.5	58	63	
1558300-000038	⅜"	25	33	4.5	58	63	
1558300-000050	½"	25	33	4.5	63.5	63	

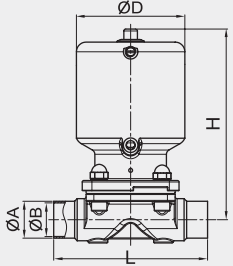
KDV-M300-2
Manual diaphragm valves with clamp ends

Code	Size	C	D	T	H	L	
1558300-000075	¾"	25	60	6	79.5	117	
1558300-000100	1.0"	50.4	90	11	103.5	127	
1558300-000150	1½"	50.4	110	15.5	129.8	159	
000200	2.0"	63.9	128	20.5	153	190	

KDV-M300-3
Manual diaphragm valves with clamp ends

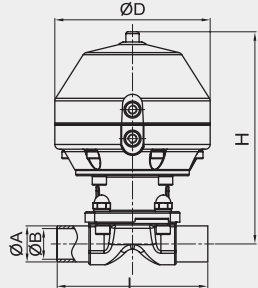
Code	Size	C	D	T	H	L	
1558300-000250	2½"	77.5	200	44	264	250	
1558300-000300	3.0"	90.9	200	44	269	250	

KDV-P120
Pneumatic diaphragm valves with clamp ends

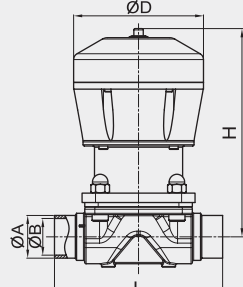
Code	Size	A	B	D	H	L	
1558160-000025	¼"	6.35	4.57	45	101	61	
1558160-000038	⅜"	9.53	7.75	45	101	61	
1558160-000050	½"	12.7	9.4	45	101	61	
1558160-000075	¾"	19.1	15.8	60	127	117	
1558160-000100	1.0"	25.4	22.1	89	162	127	
1558160-000150	1½"	38.1	34.8	112	193	159	
1558160-000200	2.0"	50.8	47.5	142	227	190	

Stainless steel actuator has a smaller diameter and easier to install.

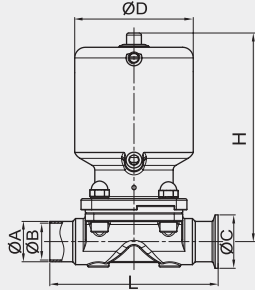
KDV-P160-1
Pneumatic diaphragm valves with welding ends (plastic actuator)

Code	Size	A	B	D	H	L	
1558160-000100	1.0"	25.4	22.1	128	188	127	
1558160-000150	1½"	38.1	34.8	164	227	159	
1558160-000200	2.0"	50.8	47.5	164	227	190	

KDV-P160-2
Pneumatic diaphragm valves with welding ends (aluminum actuator)

Code	Size	A	B	D	H	L	
1558160-000250	2½"	63.5	60.2	193	311.6	250	
1558160-000300	3"	76.2	72.9	193	311.6	250	

KDV-P220
Pneumatic diaphragm valves with welding/clamp ends (Stainless steel actuator)

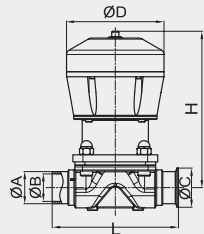
Code	Size	A	B	C	D	H	L	
1558260-000025	¼"	6.35	4.57	25.0	45	101	62	
1558260-000038	⅜"	9.53	7.75	25.0	45	101	62	
1558260-000050	½"	12.7	9.4	25.0	45	101	62	
1558260-000075	¾"	19.1	15.8	25.0	60	127	117	
1558260-000100	1.0"	25.4	22.1	50.4	89	162	127	
1558260-000150	1½"	38.1	34.8	50.4	112	193	159	
1558260-000200	2.0"	50.8	47.5	63.9	142	227	190	

Stainless steel actuator has a smaller diameter and easier to install.

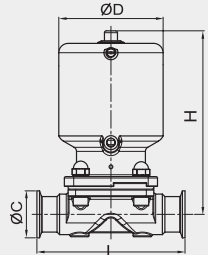
KDV-P260-1
Pneumatic diaphragm valves with welding/clamp ends (plastic actuator)

Code	Size	A	B	C	D	H	L	
1558260-000100	1.0"	25.4	22.1	50.4	89	188	127	
1558260-000150	1½"	38.1	34.8	50.4	112	227	159	
1558260-000200	2.0"	50.8	47.5	63.9	142	227	190	

KDV-P260-2
Pneumatic diaphragm valves with welding/clamp ends (Aluminum alloy actuator)

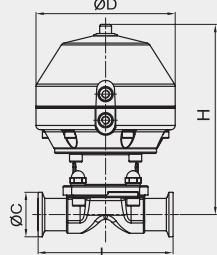
Code	Size	A	B	C	D	H	L	
1558260-000250	2½"	63.5	60.2	77.5	193	311.6	250	
1558260-000300	3"	76.2	72.9	90.9	193	311.6	250	

KDV-P320
Pneumatic diaphragm valves with welding/clamp ends (Stainless steel actuator)

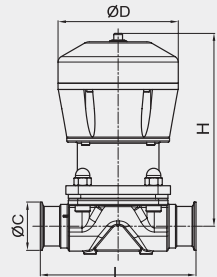
Code	Size	C	D	H	L	
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1558320-000038	⅜"	25	45	101	63	
1558320-000050	½"	25	45	101	63	
1558320-000075	¾"	25	60	127	117	
1558320-000100	1.0"	50.4	89	162	127	
1558320-000150	1½"	50.4	112	193	159	
1558320-000200	2.0"	63.9	142	227	190	

Stainless steel actuator has a smaller diameter and easier to install.

KDV-P360-1
Pneumatic diaphragm valves with clamp ends (plastic actuator)

Code	Size	C	D	H	L	
1558360-000100	1.0"	50.4	89	188	127	
1558360-000150	1½"	50.4	112	227	159	
1558360-000200	2.0"	63.9	142	227	190	

KDV-P360-2
Pneumatic diaphragm valves with clamp ends (Aluminum alloy actuator)

Code	Size	C	D	H	L	
1558360-000250	2½"	77.5	193	311.6	250	
1558360-000300	3.0"	90.9	193	311.6	250	

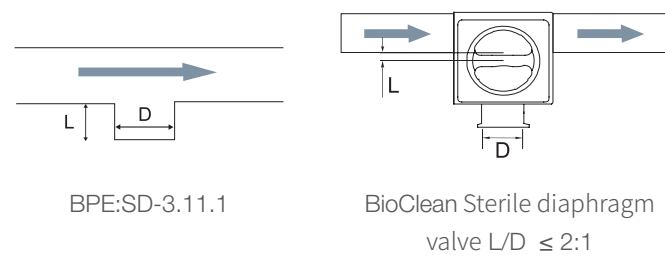
KDV-T Sterile forging diaphragm valve



Design of valves body:
Precisely forged blocks

Features

- Compact structure, fully self-drained, and without dead corners.
- Forged valves body with dense inter-granular structure, quick sterilization and easy verification.
- Integrated and art-of-the-state processing to ensure safe and reliable installation.
- The size of the main pipe is larger than that of the branches to ensure the circulation of the main pipeline.
- Applicable to high-purity water system, drainages and taps.

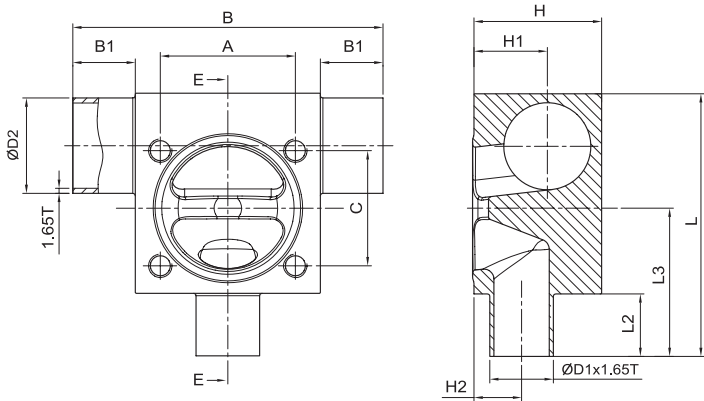


Technical Data

Items	Details
Working pressure	0-10bar, 145psi (EPDM) 0-7bar, 101psi (PTFE)
Working temperature	-40~130℃ , -40~266°F (EPDM) -40~150℃ , -40~302°F (EPDM+PTFE)
Driving structure	Manual / pneumatic control
Body design	OEM/ODM
Body material	1.4435 (316L), forging block
Surface finish	External sand blasting Internal surface Ra ≤ 0.5 μm(SF1), Ra ≤ 0.375 μm(SF4)
Connections	Butt-Weld, Clamp ISO, DIN, ASME BPE, 3A

KDV-T Sterile forging diaphragm valve

BioClean®



KDV-T5

NO.	D1	D2
1558500-10005002	12.7	25.4
1558500-10007502	19.1	25.4
1558500-10010002	25.4	25.4
1558500-15007502	19.1	38.1
1558500-15010002	25.4	38.1
1558500-20010002	25.4	50.8
1558500-20015002	38.1	50.8

A	B	B1	C	D	H	H1	H2	L	L1	L2	L3	M
22.0	82.0	25.0	22.0	6.0	35.0	20.0	8.5	66.0	15.3	20.0	36.0	M4
44.5	114.5	25.0	39.7	10.0	38.0	23.5	19.0	93.0	17.9	25.0	55.0	M6
54.0	124.0	25.0	46.0	10.0	38.0	23.5	19.0	93.0	17.9	25.0	59.0	M8
39.7	100.0	25.0	44.5	8.0	48.0	27.7	12.5	97.0	23.5	25.0	53.0	M6
54.0	124.0	25.0	46.0	10.0	51.0	29.9	19.0	105.0	25.0	25.0	59.0	M8
54.0	134.0	30.0	46.0	10.0	64.0	36.2	19.0	118.0	32.0	25.0	59.0	M8
70.0	162.0	30.0	65.0	10.0	66.0	39.1	26.0	133.0	34.1	25.0	71.0	M10

KDV-T Sterile casting diaphragm valve



- Features**
- Compact structure, fully self-drained, and without dead corners.
 - Forged valves body with dense inter-granular structure, quick sterilization and easy verification.
 - Integrated and art-of-the-state processing to ensure safe and reliable installation.
 - The size of the main pipe is larger than that of the branches to ensure the circulation of the main pipeline.
 - Applicable to high-purity water system, drainages and taps.

KDV-T500 (welding & welding ends)

NO.	D	D1	D2	T	H	L	
1558500-075050	12.7	9.4	12.7	1.65	42.5	72	
1558500-075075	19.1	15.8	19.1	1.65	59.4	101	
1558500-100050	12.7	9.4	25.4	1.65	49.3	82	
1558500-100075	19.1	15.8	25.4	1.65	63	101	
1558500-100100	25.4	22.1	25.4	1.65	76.9	125	
1558500-150050	12.7	9.4	38.1	1.65	57.5	82	
1558500-150075	19.1	15.8	38.1	1.65	70	101	
1558500-150100	25.4	22.1	38.1	1.65	84	124	
1558500-150150	38.1	34.8	38.1	1.65	98.1	150	
1558500-200050	12.7	9.4	50.8	1.65	64.6	92	
1558500-200175	19.1	15.8	50.8	1.65	77.1	111	
1558500-200100	25.4	22.1	50.8	1.65	92	134	
1558500-200150	38.1	34.8	50.8	1.65	105.1	160	
1558500-200200	50.8	47.5	50.8	1.65	120.3	176	
1558500-250050	12.7	9.4	63.5	1.65	71.6	92	
1558500-250075	19.1	15.8	63.5	1.65	84.1	111	
1558500-250100	25.4	22.1	63.5	1.65	98.1	135	
1558500-250150	38.1	34.8	63.5	1.65	112.2	160	

KDV-T Sterile casting diaphragm valve

KDV-T600 (welding & clamp ends)

NO.	D	D1	D2	T	H	L	
1558600-075050	25	9.4	12.7	1.65	44.5	72	
1558600-075075	25	15.8	19.1	1.65	61.4	101	
1558600-100050	25	9.4	25.4	1.65	51.3	82	
1558600-100075	25	15.8	25.4	1.65	65	101	
1558600-100100	50.4	22.1	25.4	1.65	76.9	125	
1558600-150050	25	9.4	38.1	1.65	59.5	82	
1558600-150075	25	15.8	38.1	1.65	72	101	
1558600-150100	50.4	22.1	38.1	1.65	84	124	
1558600-150150	50.4	34.8	38.1	1.65	98.1	150	
1558600-200050	25	9.4	50.8	1.65	66.6	92	
1558600-200175	25	15.8	50.8	1.65	79.1	111	
1558600-200100	50.4	22.1	50.8	1.65	92	134	
1558600-200150	50.4	34.8	50.8	1.65	105.1	160	
1558600-200200	63.9	47.5	50.8	1.65	120.3	176	
1558600-250050	25	9.4	63.5	1.65	73.6	92	
1558600-250075	25	15.8	63.5	1.65	86.1	111	
1558600-250100	50.4	22.1	63.5	1.65	98.1	135	
1558600-250150	50.4	34.8	63.5	1.65	112.2	160	

KDV-T400 (clamp ends)

NO.	D	D1	D2	D3	H	L	
1558400-075050	25	9.4	9.4	25	44.5	72	
1558400-075075	25	15.8	15.8	25	61.4	101	
1558400-100050	25	9.4	22.1	50.4	51.3	82	
1558400-100075	25	15.8	22.1	50.4	65	101	
1558400-100100	50.4	22.1	22.1	50.4	76.9	125	
1558400-150050	25	9.4	34.8	50.4	59.5	82	
1558400-150075	25	15.8	34.8	50.4	72	101	
1558400-150100	50.4	22.1	34.8	50.4	84	124	
1558400-150150	50.4	34.8	34.8	50.4	98.1	150	
1558400-200050	25	9.4	47.5	63.9	66.6	92	
1558400-200175	25	15.8	47.5	63.9	79.1	111	
1558400-200100	50.4	22.1	47.5	63.9	92	134	
1558400-200150	50.4	34.8	47.5	63.9	105.1	160	
1558400-200200	64	47.5	47.5	63.9	120.3	176	
1558400-250050	25	9.4	60.2	77.5	73.6	92	
1558400-250075	25	15.8	60.2	77.5	86.1	111	
1558400-250100	50.4	22.1	60.2	77.5	98.1	135	
1558400-250150	50.4	34.8	60.2	77.5	112.2	160	

KDV-TU Water point diaphragm valve

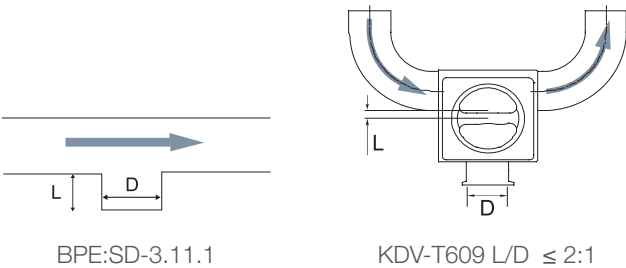


Application

To avoid the retention of the bacterial at the barrier of U-shaped tee through diaphragm valves, reduce the number of welds and improve the smoothness of the contact surface (MOC) with a minimum length of the horizontal pipe. BPE 2012: SD-3.1.2.2, to eliminate the risk of breeding of bacterial at retention area of fluid at discharge port area and ensure that the loop is absolutely safe.

Features

- In the loop for production of purified water (PW) and injection water (WFI), one of the applications is on the tap valves.
- The valve must ensure an absolute safe loop and prevent environmental damage, which will also be worn as a junction point. Therefore this valve must have highest level of security and cleanliness



KDV-TU6

NO.	D	D1	D2	T	C	H	
1559400-050050	25.0	9.4	12.7	1.65	109.2	120.7	
1559400-075075	25.0	15.8	19.1	1.65	128.2	137.6	
1559400-100050	25.0	9.4	25.4	1.65	128.2	127.5	
1559400-100075	25.0	15.8	25.4	1.65	147.2	141.2	
1559400-100100	50.4	22.1	25.4	1.65	171.2	153.1	
1559400-150050	25.0	9.4	38.1	1.65	166.4	154.8	
1559400-150075	25.0	15.8	38.1	1.65	185.4	167.3	
1559400-150100	50.4	22.1	38.1	1.65	208.4	179.3	
1559400-150150	50.4	34.8	38.1	1.65	234.4	193.4	
1559400-200050	25.0	9.4	50.8	1.65	204.4	187.2	
1559400-200075	25.0	15.8	50.8	1.65	234.4	199.8	
1559400-200100	50.4	22.1	50.8	1.65	246.4	211.7	
1559400-200150	50.4	34.8	50.8	1.65	272.4	225.8	
1559400-200200	64.0	47.5	50.8	1.65	288.4	241.0	
1559400-250050	25.0	9.4	63.5	1.65	242.6	213.3	
1559400-250075	25.0	15.8	63.5	1.65	261.6	225.8	
1559400-250100	50.4	22.1	63.5	1.65	285.6	237.8	
1559400-250150	50.4	34.8	63.5	1.65	310.6	251.9	

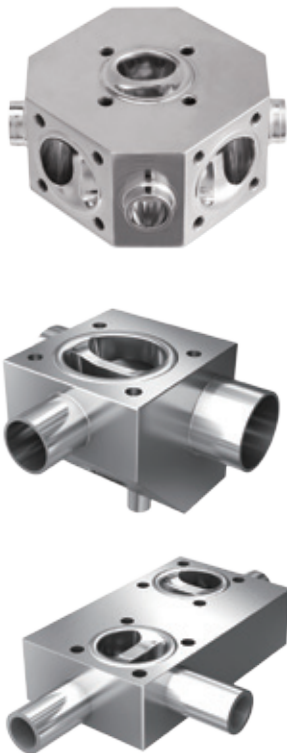
KDV-MU U-type diaphragm valve



KDV-MU400

NO.	D1	T	D2	A	C	H	
1559400-075050	19.1	1.65	12.7	25	114.3	139.7	
1559400-075075	19.1	1.65	19.1	25	114.3	179.7	
1559400-100050	25.4	1.65	12.7	25	76.2	142.9	
1559400-100075	25.4	1.65	19.1	25	76.2	182.9	
1559400-100100	25.4	1.65	25.4	50.4	76.2	201.8	
1559400-150050	38.1	1.65	12.7	25	114.3	189.1	
1559400-150075	38.1	1.65	19.1	25	114.3	229.1	
1559400-150100	38.1	1.65	25.4	50.4	114.3	248.4	
1559400-150150	38.1	1.65	38.1	50.4	114.3	286.5	
1559400-200050	50.8	1.65	12.7	25	152.4	208.9	
1559400-200075	50.8	1.65	19.1	25	152.4	248.9	
1559400-200100	50.8	1.65	25.4	50.4	152.4	267.8	
1559400-200150	50.8	1.65	38.1	50.4	152.4	306.2	
1559400-200200	50.8	1.65	50.8	64	152.4	330.2	
1559400-250050	63.5	1.65	12.7	25	190.5	232.85	
1559400-250075	63.5	1.65	19.1	25	190.5	272.85	
1559400-250100	63.5	1.65	25.4	50.4	190.5	293.7	
1559400-250150	63.5	1.65	38.1	50.4	190.5	331.8	
1559400-250200	63.5	1.65	50.8	64	190.5	355.8	
1559400-300050	76.3	1.65	12.7	25	228.6	258.2	
1559400-300075	76.3	1.65	19.1	25	228.6	298.2	
1559400-300100	76.3	1.65	25.4	50.4	228.6	319	
1559400-300150	76.3	1.65	38.1	50.4	228.6	357.1	
1559400-300200	76.3	1.65	50.8	64	228.6	381.1	

KDMP Multi-port diaphragm valves



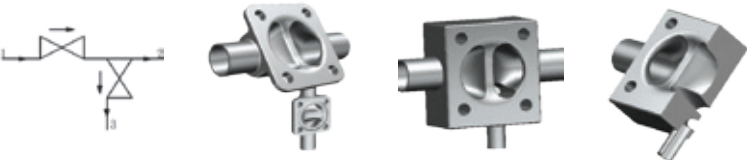
Multi-channel diaphragm valves can save installation space and time, reduce cost, and can be used as a substitute in the valves

Evolution of multi-channel valves

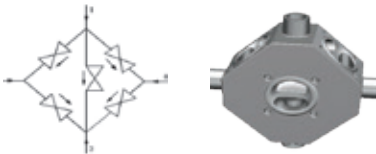
T-valve with sterilizing port



Integrated GMP valve



Chromatography valve



Technical Data

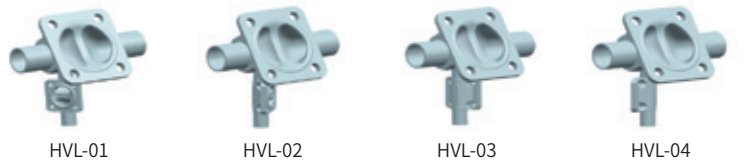
Items	Details
Working pressure	0-10bar, 145psi (EPDM) 0-7bar, 101psi (PTFE)
Working temperature	-40~130°C , -40~266°F (EPDM) -40~150°C , -40~302°F (EPDM+PTFE)
Operation	Manual / pneumatic
Body design	OEM/ODM
Body material	1.4435 (316L), forging block
Surface finish	External sand blasting Internal surface Ra ≤ 0.5 μm(SF1), Ra ≤ 0.375 μm(SF4)
Connections	Butt-Weld, Clamp ISO, DIN, ASME BPE, 3A

KGMP SAP/GMP diaphragm valves

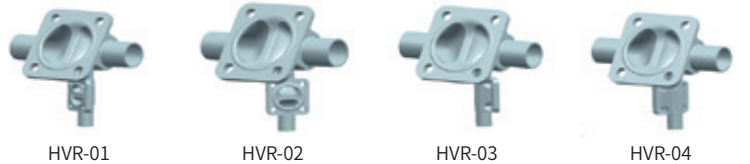


The KGMP / SAP diaphragm valves are available in a variety of angles and positions with forging or casting materials (as shown in the drawing).

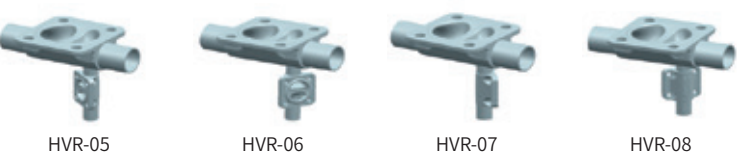
Horizontal installation of the main valve with automatic drainage and vertical installation of the branch valve at the left side.



Horizontal installation of the main valve with automatic drainage and vertical installation of the branch valve at the right side.



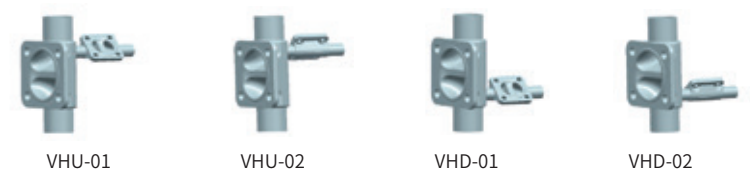
Horizontal installation of the main valve (upwards) and vertical installation of the branch valve at the right (left) side.



Horizontal installation of the main valve with automatic drainage and automatic drainage for the branch vertically installed at the left side.



Vertical installation of the main valve and automatic drainage for the branch horizontally installed



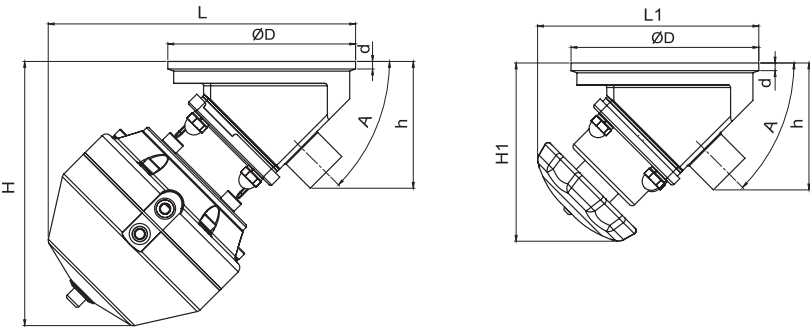
KTBV Tank outlet valve



King Lai tank outlet valves are mainly used in pharmaceutical, food and beverage industries, and are generally installed at the bottoms of the tanks for sampling and drainage. They can also be integrated for SIP/CIP. KINGLAI's tank outlet valves are evolved on the basis of the diaphragm valves with the sealing weir as close as possible to the tank wall to avoid dead ends at the bottom of the tank.

Technical Data

Items	Details
Working pressure	0-10bar, 145psi (EPDM) 0-7bar, 101psi (EPDM+PTFE)
Working temperature	-40~130℃ , -40~266°F (EPDM) -40~150℃ , -40~302°F (EPDM+PTFE)
Driving structure	Manual / pneumatic control
Body material	CF3M (316L), 1.4435 (316L) forging block
Surface finish	External sand blasting Internal surface Ra ≤ 0.5 μm(SF1), Ra ≤ 0.375 μm(SF4)
Connections	Butt-Weld, Clamp ISO, DIN, ASME BPE, 3A



KTBV

No	Size	A	D	H	H1	L	L1	h	d	OD	T
1558700-000100	1.0"	45°	119	175.1	122.9	206.6	154.1	82.9	6.0	25.4	1.65
1558700-000150	1.5"	45°	160	225.1	151.6	262	207	108	6.5	38.1	1.65
1558700-000200	2.0"	45°	180	234.3	167	274	274	12.7	6.5	50.8	1.65
1558700-000300	3.0"	45°	250	344.7	270	402.4	326.1	173.5	8.5	76.2	1.65