



**HOED**



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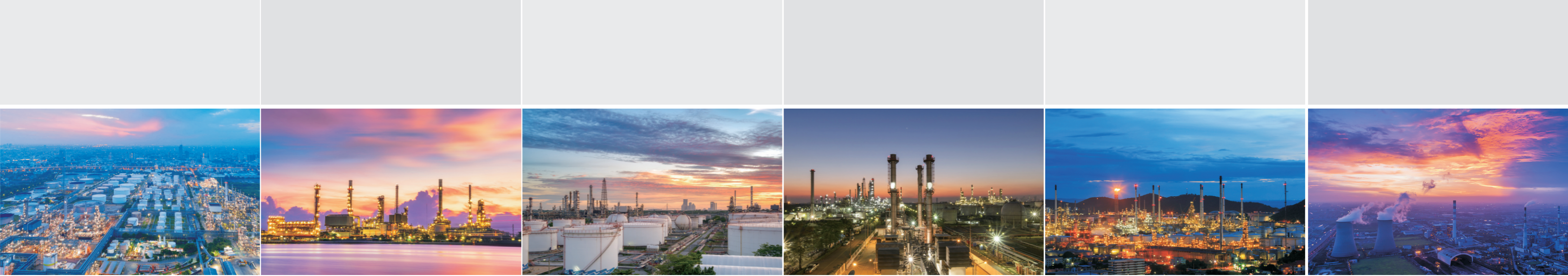
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**Quarter-turn Control Valve  
Selection Manual**

CANADA KINGSWAY FLOW CONTROL CO., LTD.



## Company Profile

Canada Kingsway flow control Co., Ltd. is a company specialized in the design, development and sales of valves with all kinds of integrated control systems. It owns two series of brands "HOEVNDIY" and "HOED". Main products are high-performance electric butterfly valve, fluorine line butterfly valve, ball valve, regulating valve; All products are qualified by ISO and achieve ISO9001, ISO14001, SIL3, CE and other certificates. Our products widely used in environmental protection, HVAC, electricity, petroleum, chemical, metallurgy, electronics, medicine and other fields.

With many years of on-site application experience, our company have continuously developed and designed many new products with characteristics to meet the special requirements of current fluid treatment conditions. Our outstanding project management and technical expertise are reflected in providing perfect solutions for projects of different scale and different unites. We ensure that our analyze, selection, calculation and design which according to the initial working conditions and technical requirements can provide the best solution and timely delivery to meet your needs.

Our company currently have R&D, production and assembly center for control valve and subassembly system development in Vancouver, Canada. There are 3 after-sales office in Xiamen, Shanghai and Chengdu, meanwhile there is a subsidiary company in Beijing, China in charge of the Asia Pacific marketing and after-sales service. We are using advanced production equipment and technology, through 6 SIGMA excelsior management model and SAP management system to provide customer best production and service and offer our best solution.

### Mission

To be a great company providing innovative technological products and services for healthy living.

### Vision

Using technology innovation technology to serve industrial development, create value for customers, create opportunities for ourselves.

### Values

Moral, people-oriented, collective struggle, win-win cooperation.



All valves produced by the company are ISO 9001 certified  
 Products are tested and inspected in accordance with specified test and inspection procedures  
 Provides the reliable guarantee for the high quality product



Building an industrial valve solution to create a valuable ecology.  
 No matter any kind of conditions you are facing, we are committed to providing you  
 the most complete valve applications and solutions!

## Technology & Services

### Factory Capabilities

Canada Kingsway is committed to provide high quality, high reliability and high safety valve products. The leading international product conceptual design is applied; the advanced numerical control design tools such as Mastercam, Solidworks are adopted to standardize the production with strict quality control system and advanced testing process. After continuous to improve the design, our products are ensured to adapt to the market better and quickly.

### Factory quality management and testing capabilities

Canada Kingsway has its own unique product quality management system and corresponding product quality testing equipment, which provides a reliable guarantee for high-quality products. The main testing equipment includes triple coordinate measuring instruments, metallographic analyzers, spectrum analyzers, magnetic particle flaw detectors, X-ray detection equipment, impact testing machines, universal testing machines, etc., which not only ensure the quality of products from production, processing, testing and shipment but also improve the performance of the product, speed up the delivery schedule of the product, increase product R&D speed and reduce the cost of the product.

### CRM customer service system construction

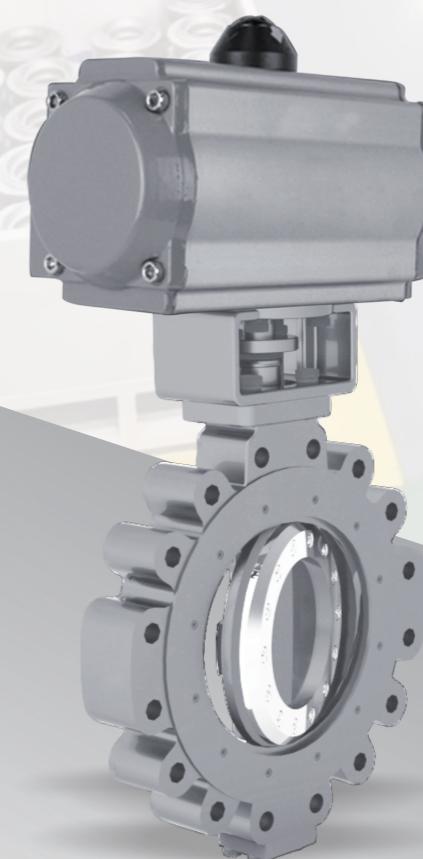
Pre-sales service: type selection guidance, technical confirmation, application condition analysis, maintenance consultation, etc. After-sales service: installation guidance, testing and commissioning, maintenance, spare parts sales, site training, etc. With the advanced CRM customer service system, we provide the total process of service from the beginning of design consulting to the aftersales of equipment commissioning and maintenance. This is also an important concept and principle we are committed to.

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## HDH100 Series Double Eccentric Butterfly Valve



Overview

HDH100 series second-generation double eccentric butterfly valve (also known as high-performance butterfly valve) adopts a unique eccentric structure for the valve plate and seat, which has the characteristics of compact structure, good sealing performance and long service life, with tight shut-off and regulation functions, widely used in tap water, sewage, oily liquids or air, gas, natural gas, steam and other media for chemical, power, textile, food, medicine, paper and other industrial applications, municipal engineering and water works etc.

Features

1. HDH100 series butterfly valve adopts double eccentric sealing structure, which reduces the friction and wear of the valve during opening and closing, with small friction resistance and long service life;
2. HDH100 series butterfly valve is available in soft seal and Metal seal. The leakage level of metal seal is IV, and the leakage of soft seal is VI, which meets the requirement of zero leakage and can be severed for a variety of working conditions.

Technical data and features

Valve Body

HDH100 series butterfly valve data

Nominal Diameter:	50~1600mm (2"~64")
Valve Disc Shape:	Partial eccentric spherical disc
Flow Characteristics:	Approximately equal percentage
Nominal pressure:	PN6, PN10, PN16, PN25, PN40, ANSI Class 150 Class 300;
Connection Type:	Flange, wafer
Flange standard:	ASME B16.5-2013 DIN EN 1092-1-2008 GB/T 9113-2010 HG/T 20615-2019 HG/T 20592-2019
Face to Face Distance:	Refer to HDH100 series connection dimensions
Body and Plate Material:	WCB, CF8, CF8M
Sealing Ring:	PTFE / RTFE, Stainless steel 304/316
Upper Bonnet Type:	HDH100A series standard type HDH100B series extension type HDH100C series low temperature type HDH100D series jacket insulation type
Structure:	HDH100 series double eccentric butterfly valve
Packing:	PTFE V-packing Reinforced PTFE Expanded graphite

Actuator

Pneumatic actuators

Item	Type	Piston type type		
		Pneumatic diaphragm type	Spring return	Double acting
Task		Regulating, On/Off		
Air pressure		0.4MPa	0.4~0.6MPa	0.4~0.6MPa
Connection		Rc1/4"	G1/8", G1/4", G1/2"	
Angular stroke range		60° or 90° or 90°		
Connection type of action		Air Open, Air Close	Air Open, Air Close	Valve open or close according to input signal of positioner
Intrinsic error	General type	± 1.5% Fs (including positioner)		
	Special type	± 4.0% Fs (including positioner)		
Hysteresis Error	General type	1.5% Fs (including positioner)		
	Special type	3.0% Fs (including positioner)		
Allowable ambient temperature		-20 ~ +60		
Optional accessories for valve		Electric valve positioner, air filter regulator, solenoid valve, limit switch, back-up valve, manual device		

Electric Actuator

Item	Type	All electronic type (intelligent)	Electric
		Task	Regulating
Voltage		220V · AC 50Hz; 380V · AC 50Hz	220V · AC 50Hz; 380V · AC 50Hz
Connection		NPT1-1/2", 2-NPT1"	NPT1-1/2", 2-NPT1"
Input/output signal		4-20mA.DC	Digital signal
Angular stroke range		60° or 90°	60° or 90°
Connection type of action		Valve stroke to open or close according to the signal input	Power open, power close
Intrinsic error	General type	± 1.0% FS	-
	Special type	± 2.5% FS	-
Hysteresis Error	General type	≤ 1.0% FS	-
	Special type	≤ 2.0% FS	-
Allowable ambient temperature		-10 ~ +60°C	-10 ~ +60°C
Optional accessories for valve		Overload protection device, manual operation device, junction box, etc.	Inching switch for position detecting, potentiometer

Hydraulic actuator

Item	Type	Hydraulic actuator
Task		Regulating, On/Off
Source pressure of liquid		1.0 ~ 6.3MPa
Connection		G1/8", G1/4", G1/2"
Input/output signal		4~20mA.DC
Connection type of action		Valve stroke to open or close according to the signal input
Allowable ambient temperature		-45 ~ +120°C
Optional accessories for valve		Limit switch, manual device

Allowable valve leakage (metal seal)

Nominal diameter	Allowable leakage ≤ rated Kv (90° opening) × the following%			
	Fluid temperature			
	<300°C	300~400°C	400~500°C	500~600°C
50~150	<0.01	<0.01	<0.018%	<0.05%
200~250	<0.001%	<0.007%	<0.015%	<0.03%
300~450	<0.001%	<0.005%	<0.01%	<0.02%
500	<0.0005%	<0.001%	<0.005%	<0.01%

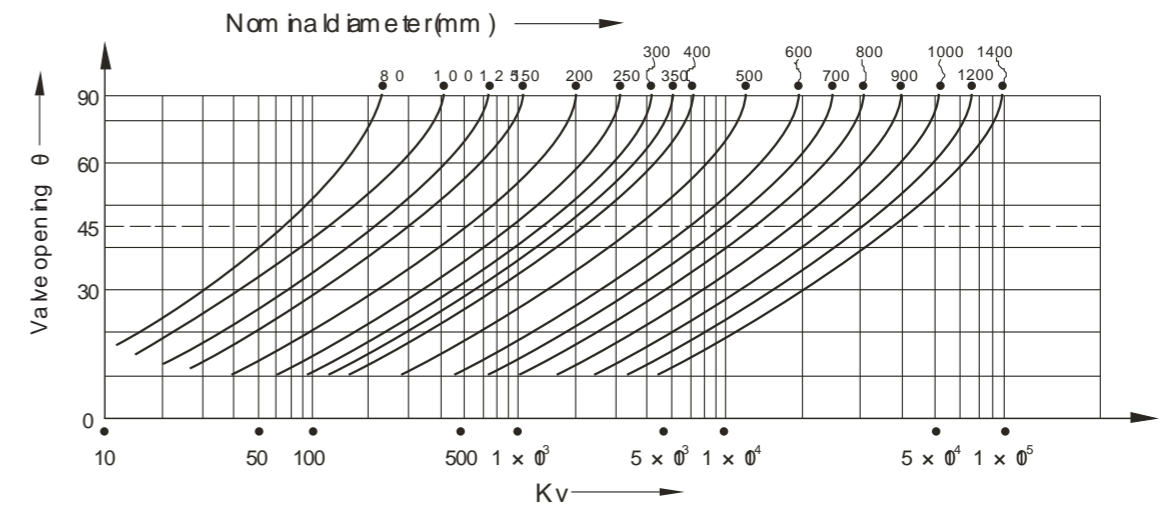
Rated Kv

Nominal diameter	60°	90°	Nominal diameter	60°	90°
80	105	225	450	4600	9500
100	200	405	500	6000	12400
125	315	650	600	8700	18000
150	540	1150	700	11700	24000
200	945	2000	800	15200	31200
250	1500	3100	900	19200	39500
300	2100	4300	1000	24600	50500
350	2800	5800	1200	36500	75000
400	3650	7500	1400	48000	98000

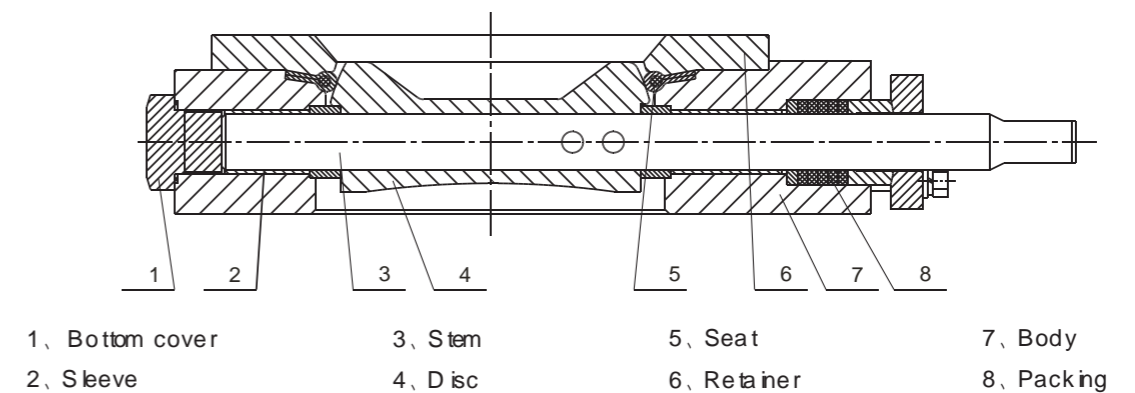
Temperature and pressure range of valve body and bonnet (see appendix)  
 Temperature and pressure range of valve trim and packing (see appendix)

Flow characteristics

HDH100 series double eccentric butterfly valve flow characteristic



▶ HDH100 series double eccentric butterfly valve diagram



▶ **Maximum allowable differential pressure**

- Note: 1. Shut in the table: Allowable differential pressure when the valve is closed
- 2. P: Allowable differential pressure of valve during regulating
- 3. This table is not available for the type of upper bonnet as the extended and the external bearing type.

**Allowable differential pressure table for pneumatic diaphragm actuator (source pressure: 0.4MPa; packing: low friction type) (Unit: MPa)**

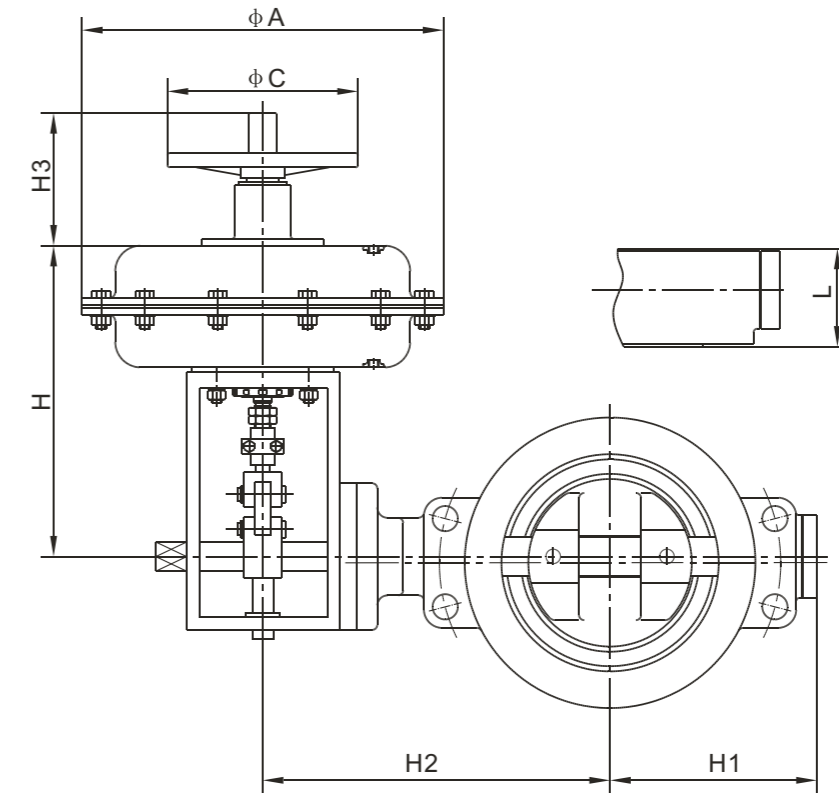
Actuator	Sealing type	Task	Nominal diameter (mm)									
			80	100	125	150	200	250	300	350	400	
PZMA-5	Softseal	Shut	0.36									
		P	0.27									
PZMA-6	Softseal	Shut	1.90	1.09	0.76	0.43	0.11					
		P	0.70	0.35	0.22	0.12	0.04					
PZMA-7	Softseal	Shut					0.56	0.14				
		P					0.12	0.06				
	Metalseal	Shut					0.15	-				
		P					0.12	-				
PZMA-8	Softseal	Shut						0.86	0.49	0.26	0.13	
		P						0.17	0.10	0.07	0.05	
	Metalseal	Shut							0.37	0.15	0.04	-
		P							0.17	0.10	0.04	-

**Allowable differential pressure table for pneumatic diaphragm actuator (source pressure: 0.4MPa; packing: Expanded graphite) (Unit: MPa)**

Actuator	Sealing type	Task	Nominal diameter (mm)									
			80	100	125	150	200	250	300	350	400	
PZMA-5	Softseal	Shut	0.24									
		P	0.23									
PZMA-6	Softseal	Shut	1.74	1.03	0.71	0.39	0.07					
		P	0.65	0.33	0.20	0.11	0.04					
PZMA-7	Softseal	Shut					0.51	0.09				
		P					0.11	0.06				
	Metalseal	Shut					0.10	-				
		P					0.10	-				
PZMA-8	Softseal	Shut						0.81	0.45	0.25	0.09	
		P						0.16	0.10	0.06	0.04	
	Metalseal	Shut							0.34	0.13	0.01	-
		P							0.16	0.10	0.01	-

▶ **HDH100 series double eccentric butterfly valve dimensions and weight**

**HDH100 series pneumatic diaphragm double eccentric butterfly valve (wafer type) overall dimensions and weight**

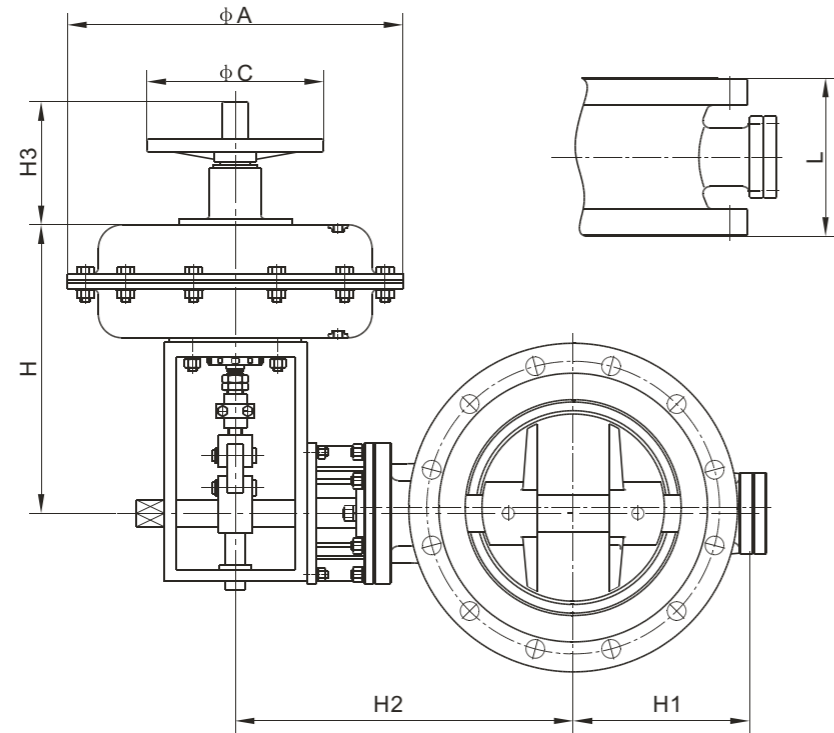


**HDH100 series dimensions (Unit: mm)**

DN	L1	L2	H	H1	H2	A	C	H3	Weight(kg)
80	48	46	500	120	230	308	220	180	25
100	54	52	530	138	240	308	220	180	28
125	57	56	574	164	260	394	270	240	34
150	57	56	595	175	275	394	270	240	42
200	64	60	780	208	360	498	320	310	47
250	71	68	800	243	395	498	320	310	59
300	81	78	990	283	415	618	320	310	65
350	92	78	1025	310	440	618	320	310	88
400	102	102	1150	340	480	618	320	310	107
450	114	114	1200	380	510	618	320	310	115
500	127	127	1300	410	490	618	320	310	125

- Note: 1. The dimensions in the table are the standard configuration data of PN16. For other pressure rating data, please contact our company;
- 2. The handwheel is a non-standard accessory, which can be selected according to customer requirements.

HDH100 series pneumatic diaphragm double eccentric butterfly valve (Flanged) dimensions and weight



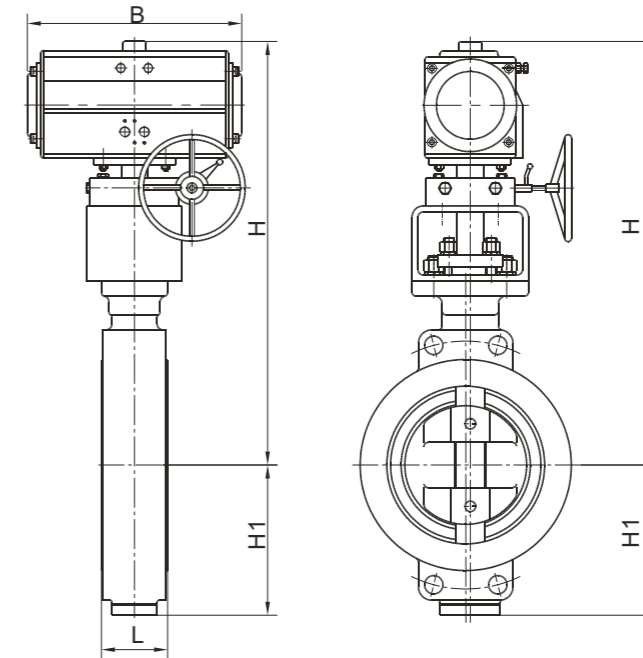
HDH100 series dimensions

(Unit: mm)

DN	L	H	H1	H2	A	C	H3	Weight(kg)
80	114	500	120	230	308	220	180	25
100	127	530	138	240	308	220	180	28
125	140	574	164	260	394	270	240	34
150	140	595	175	275	394	270	240	42
200	152	780	208	360	498	320	310	47
250	165	800	243	395	498	320	310	59
300	178	990	283	415	618	320	310	65
350	190	1025	310	440	618	320	310	88
400	216	1150	340	480	618	320	310	107
450	222	1200	380	510	618	320	310	115
500	229	1300	410	490	618	320	310	125

Note: 1. The dimensions in the table are the standard configuration data of PN16. For other pressure rating data, please contact our company;  
 2. The handwheel is a non-standard accessory, which can be selected according to customer requirements.

HDH100 series pneumatic piston double eccentric butterfly valve (wafer type) overall dimensions and weight



HDH100 series dimensions

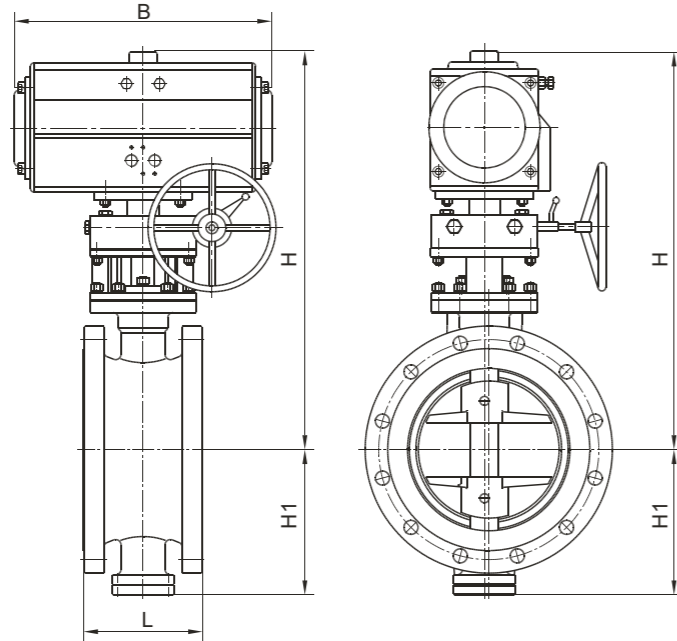
(Unit: mm)

DN	L1	L2	H	H1	B	Weight(kg)
80	48	46	553	120	268	25
100	54	52	563	138	298	28
125	57	56	583	164	298	34
150	57	56	611	175	390	42
200	64	60	716	208	458	47
250	71	68	773	243	525	59
300	81	78	793	283	532	65
350	92	78	875	310	602	88
400	102	102	915	340	722	107
450	114	114	945	380	742	115
500	127	127	983	410	860	125
600	-	154	1058	470	924	185
700	-	165	1203	550	-	245
800	-	190	1279	640	-	365
900	-	203	1334	710	-	470
1000	-	216	1566	770	-	500
1200	-	254	1666	890	-	690

Note: 1. The dimensions in the table are the standard configuration data of PN16. For other pressure rating data, please contact our company;  
 3. The handwheel is a non-standard accessory, which can be selected according to customer requirements.



HDH100 series pneumatic piston double eccentric butterfly valve (Flanged) dimensions and weight



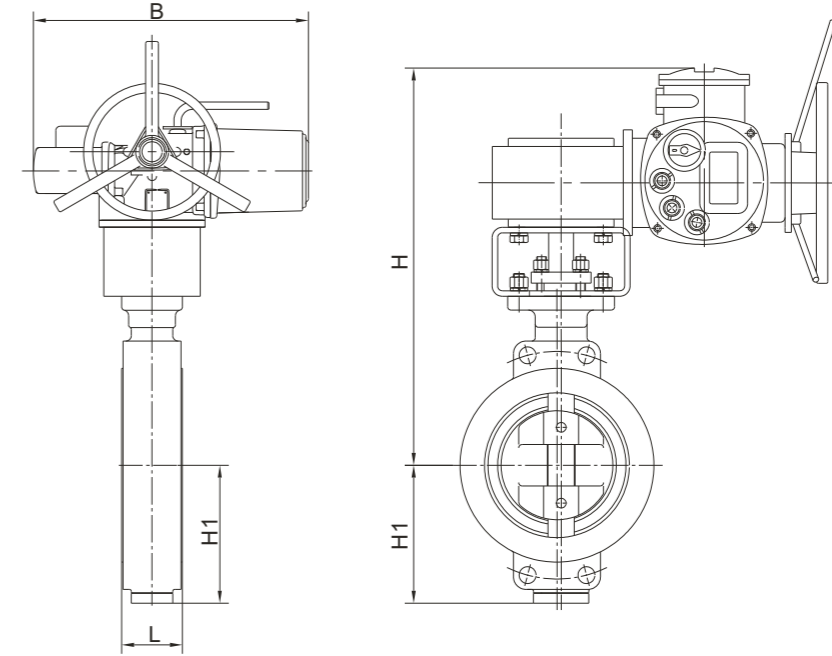
HDH100 series dimensions

(Unit: mm)

DN	L	H	H1	B	Weight(kg)
80	114	553	120	268	25
100	127	563	138	298	28
125	140	583	164	298	34
150	140	611	175	390	42
200	152	716	208	458	47
250	165	773	243	525	59
300	178	793	283	532	65
350	190	875	310	602	88
400	216	915	340	722	107
450	222	945	380	742	115
500	229	983	410	860	125
600	267	1058	470	924	185
700	292	1203	550	-	245
800	318	1279	640	-	365
900	330	1334	710	-	470
1000	410	1566	770	-	500
1200	470	1666	890	-	690

Note: 1. The dimensions in the table are the standard configuration data of PN16. For other pressure rating data, please contact our company;  
 2. The handwheel is a non-standard accessory, which can be selected according to customer requirements.

HDH100 series electric double eccentric butterfly valve (wafer type) overall dimensions and weight



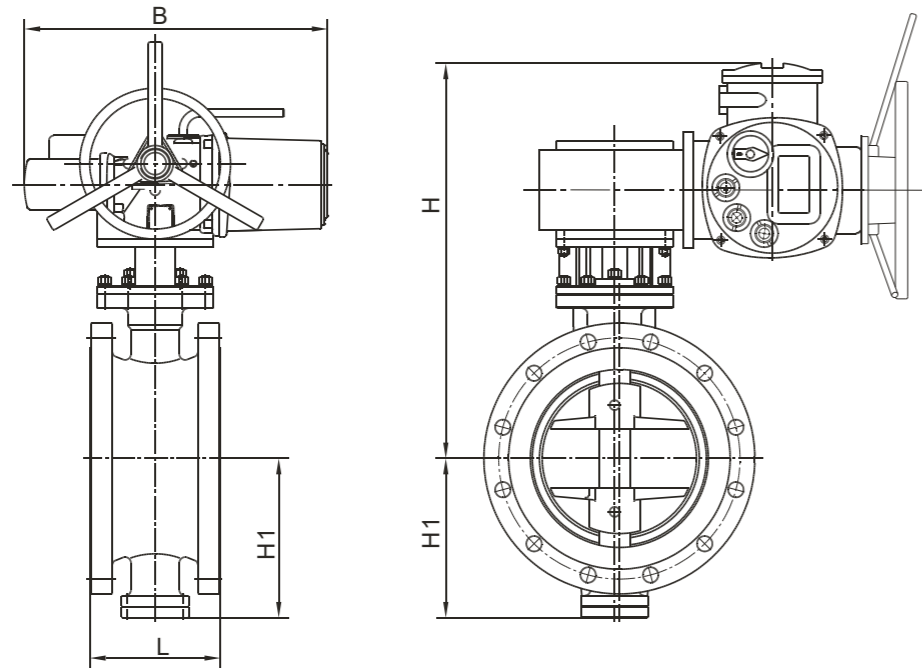
HDH100 series dimensions

(Unit: mm)

DN	L1	L2	H	H1	B	Weight(kg)
80	48	46	553	120	637	25
100	54	52	563	138	637	28
125	57	56	583	164	637	34
150	57	56	611	175	637	42
200	64	60	716	208	637	47
250	71	68	773	243	687	59
300	81	78	793	283	687	65
350	92	78	875	310	687	88
400	102	102	915	340	687	107
450	114	114	945	380	800	115
500	127	127	983	410	800	125
600	-	154	1058	470	800	185
700	-	165	1203	550	-	245
800	-	190	1279	640	-	365
900	-	203	1334	710	-	470
1000	-	216	1566	770	-	500
1200	-	254	1666	890	-	690

Note: 1. The dimensions in the table are the standard configuration data of PN16. For other pressure rating data, please contact our company;  
 2. Various models and specifications of electric (intelligent) actuators can be equipped according to customer requirements.

HDH100 series electric double eccentric butterfly valve (Flanged) dimensions and weight



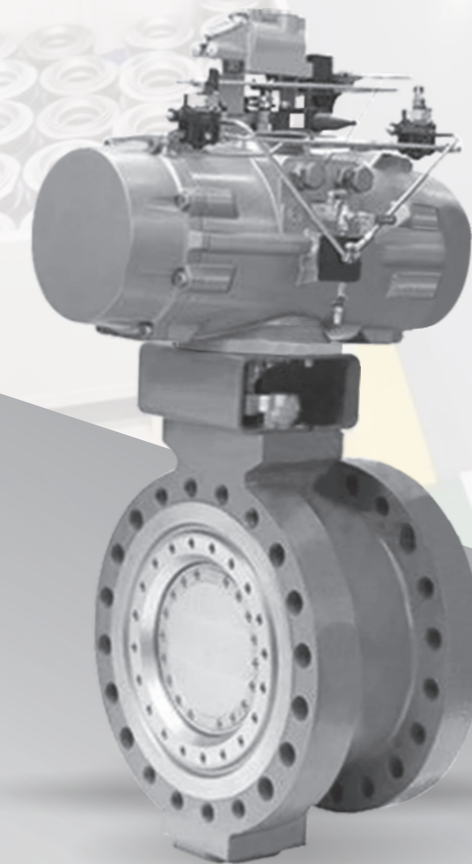
HDH100 series dimensions

(Unit: mm)

DN	L	H	H1	B	Weight(kg)
80	114	553	120	637	25
100	127	563	138	637	28
125	140	583	164	637	34
150	140	611	175	637	42
200	152	716	208	637	47
250	165	773	243	687	59
300	178	793	283	687	65
350	190	875	310	687	88
400	216	915	340	687	107
450	222	945	380	800	115
500	229	983	410	800	125
600	267	1058	470	800	185
700	292	1203	550	-	245
800	318	1279	640	-	365
900	330	1334	710	-	470
1000	410	1566	770	-	500
1200	470	1666	890	-	690

Note: 1. The dimensions in the table are the standard configuration data of PN16. For other pressure rating data, please contact our company;  
 2. Various models and specifications of electric (intelligent) actuators can be equipped according to customer requirements.

HDY500 Series Triple Eccentric Butterfly Valve



Overview

HDY500 series triple eccentric butterfly valve has a unique three-dimensional eccentric structure and has good isolation performance. The new type of regulating valve with both regulation and isolation functions has a compact structure, simple flow path, small pressure loss, and large rated flow coefficient. It can effectively meet the requirements of various working conditions and is widely used in industrial automatic flow control applications.

Features

1. The sealing face of the valve disc and valve seat adopts conical surface contact. When the valve is closed, the torque is small, and the allowable difference pressure is large;
2. The sealing face can be hardened with Titanium alloy for high temperature and high pressure applications;
3. It has two-way sealing characteristics, and the sealing performance is not affected by fluctuations of temperature;
4. Good sealing performance, and reached to level VI leakage (GB / T4213-2008/ API 598).

Technical data and features

Valve body

HDY500 series butterfly valve data

Nominal Diameter:	80~1600mm (3" ~ 64")
Valve Disc Shape:	Triple eccentric oval conical disc
Flow Characteristics:	Approximately equal percentage, on/off
Nominal Pressure:	PN6, PN10, PN16, PN25, PN40, PN63, ANSI Class 150 Class 300
Connection Type:	Flange type, wafer type
Flange Standard:	ASME B16.5-2013 DIN EN 1092-1-2008 GB/T 9113-2010 HG/T 20615-2019 HG/T20592-2019
Face to Face Distance:	See HDY500 series butterfly valve connection dimensions
Body and Disc Material:	WCB, CF8, CF8M Seal ring: Stainless steel + graphite Stainless steel + tetrafluoro
Upper Bonnet Type:	HDY500A series standard type HDY500B series extension type HDY500C series low temperature type HDY500D series jacket insulation type
Structural Form:	HDY500 series triple eccentric butterfly valve
Packing:	PTFE (polytetrafluoroethylene) V-packing Reinforced PTFE Expanded graphite

Actuator

Pneumatic actuators

Item	Type	Pneumatic piston type		
		Pneumatic diaphragm type	Spring return	Double acting
Task		Regulating, On/Off		
Air pressure		0.4MPa	0.4~0.6MPa	0.4~0.6MPa
Connection		Rc1/4"	G1/8", G1/4", G1/2"	
Angular stroke range		60° or 90°		
Connection type of action		Air Open, Air Close	Air Open, Air Close	Valve open or close according to input signal of positioner
Intrinsic error	General type	± 1.5% Fs (Including positioner)		
	Special type	± 4.0% Fs ( Including positioner)		
Hysteresis Error	General type	≤ 1.5% Fs ( Including positioner)		
	Special type	≤ 3.0% Fs (Including positioner)		
Allowable ambient temperature		-20 ~ +60°C		
Optional accessories for valve		Electrical valve positioner, air filter regulator, solenoid valve, limit switch, lock-up valve, manual device		

Pneumatic actuators

Item	Type	All electronic type (intelligent)	Electric
		Task	Regulating
Voltage		220V · AC 50Hz; 380V · AC 50Hz	220V · AC50Hz; 380V · AC50Hz
Connection		NPT1-1/2", 2-NPT1"	NPT1-1/2", 2-NPT1"
Input/output signal		4-20mA.DC	Digital signal
Angular stroke range		60° or 90°	60° or 90°
Connection type of action		Valve stroke to open or close according to the signal input	Power open, power close
Intrinsic error	General type	± 1.0% FS	-
	Special type	± 2.5% FS	-
Hysteresis Error	General type	≤ 1.0% FS	-
	Special type	≤ 2.0% FS	-
Allowable ambient temperature		-10 ~ +60°C	-10 ~ +60°C
Optional accessories for valve		Overbad protection device, manual operation device, junction box, etc.	inching switch for position detecting, potentiometer

Hydraulic actuator

Item	Type	Hydraulic actuator
Task		Regulating, On/Off
Source pressure of liquid		1.0 ~ 6.3MPa
Connection		G1/8", G1/4", G1/2"
Input/output signal		4-20mA.DC
Connection type of action		Valve stroke to open or close according to the signal input
Allowable ambient temperature		-45 ~ +120°C
Optional accessories for valve		Limit switch, manual device

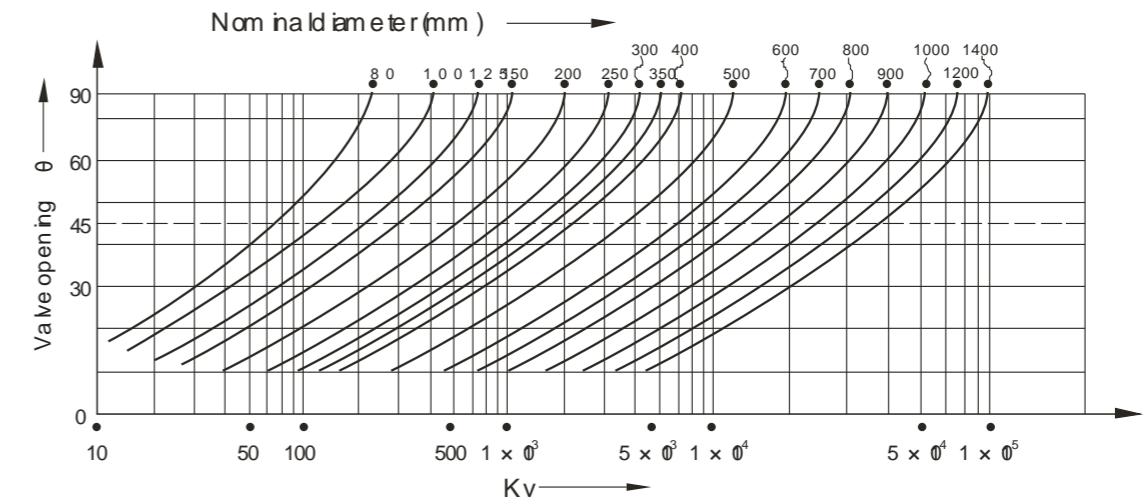
Rated Kv

Nominal diameter	60°	90°	Nominal diameter	60°	90°
80	105	225	450	4600	9500
100	200	405	500	6000	12400
125	315	650	600	8700	18000
150	540	1150	700	11700	24000
200	945	2000	800	15200	31200
250	1500	3100	900	19200	39500
300	2100	4300	1000	24600	50500
350	2800	5800	1200	36500	75000
400	3650	7500	1400	48000	98000

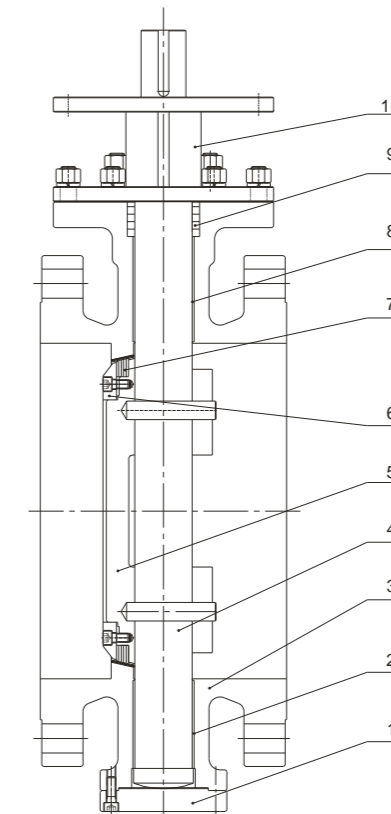
Temperature and pressure range of valve body and bonnet (see appendix)  
 Temperature and pressure range of valve trim and packing (see appendix)

Flow characteristics

HDY500 series triple eccentric butterfly valve flow characteristic



HDY500 series triple eccentric butterfly valve sectional view



- 1. Bottom cover
- 4. Stem
- 7. Multi-layer sealing ring
- 9. Packing
- 2. Lower sleeve
- 5. Disc
- 8. Upper sleeve
- 10. Bracket
- 3. Body
- 6. Retainer

▶ **Maximum allowable differential pressure**

- Note: 1. Shut in the table: Allowable differential pressure when the valve is closed  
 2. P: Allowable differential pressure of valve during regulating  
 3. This table is not available for the type of upper bonnet as the extended and the external bearing type.

**Allowable differential pressure table for pneumatic diaphragm actuator (source pressure: 0.4MPa; packing: low friction type) (Unit: MPa)**

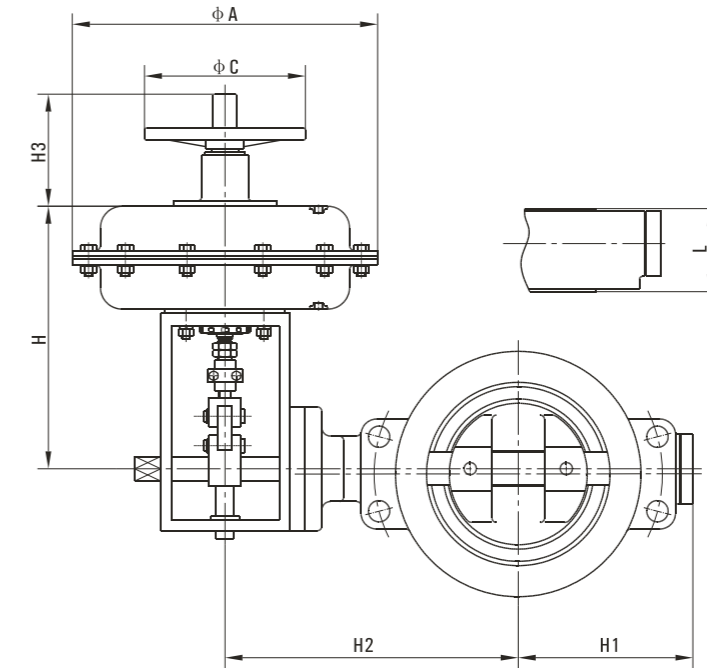
Actuator	Sealing type	Task	v Nominal diameter(mm)									
			80	100	125	150	200	250	300	350	400	
PZMA-5	Softseal	Shut	0.36									
		P	0.27									
PZMA-6	Softseal	Shut	1.90	1.09	0.76	0.43	0.11					
		P	0.70	0.35	0.22	0.12	0.04					
PZMA-7	Softseal	Shut					0.56	0.14				
		P					0.12	0.06				
	Metalseal	Shut					0.15	-				
		P					0.12	-				
PZMA-8	Softseal	Shut						0.86	0.49	0.26	0.13	
		P						0.17	0.10	0.07	0.05	
	Metalseal	Shut							0.37	0.15	0.04	-
		P							0.17	0.10	0.04	-

**Allowable differential pressure table for pneumatic diaphragm actuator (source pressure: 0.4MPa; packing: Expanded graphite) (Unit: MPa)**

Actuator	Sealing type	Task	Nominal diameter(mm)									
			80	100	125	150	200	250	300	350	400	
PZMA-5	Softseal	Shut	0.24									
		P	0.23									
PZMA-6	Softseal	Shut	1.74	1.03	0.71	0.39	0.07					
		P	0.65	0.33	0.20	0.11	0.04					
PZMA-7	Softseal	Shut					0.51	0.09				
		P					0.11	0.06				
	Metalseal	Shut					0.10	-				
		P					0.10	-				
PZMA-8	Softseal	Shut						0.81	0.45	0.25	0.09	
		P						0.16	0.10	0.06	0.04	
	Metalseal	Shut							0.34	0.13	0.01	-
		P							0.16	0.10	0.01	-

▶ HDY500 series triple eccentric butterfly valve dimensions and weight

**HDY500 series pneumatic diaphragm triple eccentric butterfly valve (Wafer Type) dimensions and Weight**

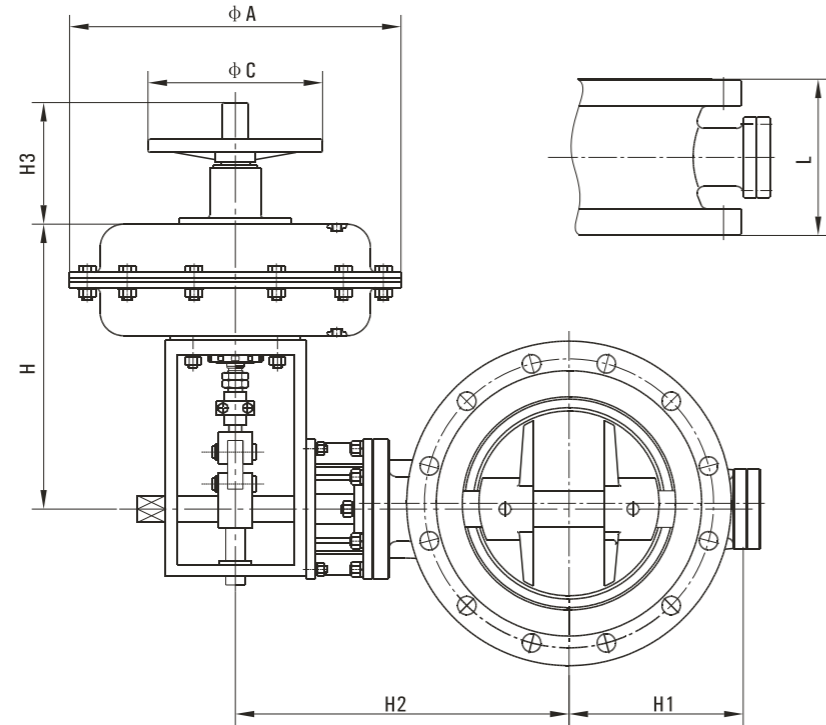


HDY500 series dimensions (Unit: mm)

DN	L1	L2	H	H1	H2	A	C	H3	Weight(kg)
80	48	46	500	120	230	308	220	180	25
100	54	52	530	138	240	308	220	180	28
125	57	56	574	164	260	394	270	240	34
150	57	56	595	175	275	394	270	240	42
200	64	60	780	208	360	498	320	310	47
250	71	68	800	243	395	498	320	310	59
300	81	78	990	283	415	618	320	310	65
350	92	78	1025	310	440	618	320	310	88
400	102	102	1150	340	480	618	320	310	107
450	114	114	1200	380	510	618	320	310	115
500	127	127	1300	410	490	618	320	310	125

- Note: 1. The dimensions in the table are the standard configuration data of PN16. For other pressure rating data, please contact our company;  
 2. The handwheel is a non-standard valve accessory, which can be selected according to customer requirements.  
 3. L1 follows to AP1609  
 4. L2 follows to DN3202

HDY500 series pneumatic diaphragm triple eccentric butterfly valve (Flanged) dimensions and weight



HDY500 series dimensions

(Unit: mm)

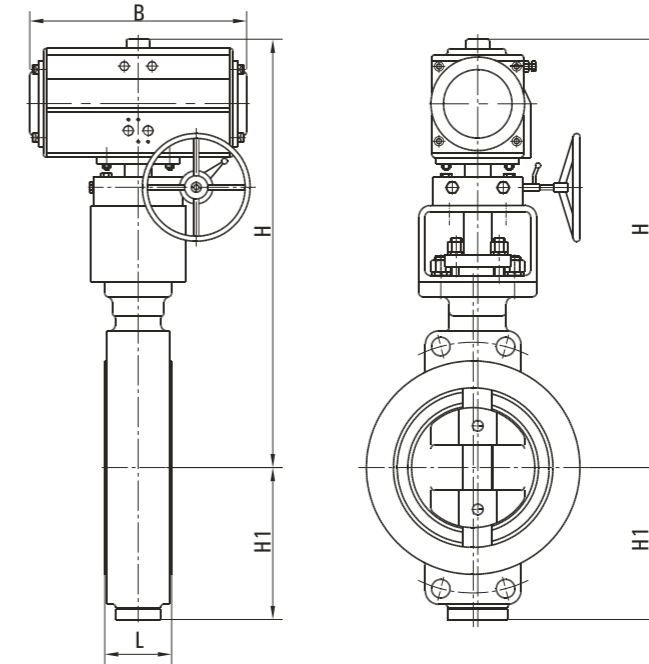
DN	L	H	H1	H2	A	C	H3	Weight(kg)
80	114	500	120	230	308	220	180	25
100	127	530	138	240	308	220	180	28
125	140	574	164	260	394	270	240	34
150	140	595	175	275	394	270	240	42
200	152	780	208	360	498	320	310	47
250	165	800	243	395	498	320	310	59
300	178	990	283	415	618	320	310	65
350	190	1025	310	440	618	320	310	88
400	216	1150	340	480	618	320	310	107
450	222	1200	380	510	618	320	310	115
500	229	1300	410	490	618	320	310	125

Note: 1. The dimensions in the table are the standard configuration data of PN16. For other pressure rating data, please contact our company;

2. The handwheel is a non-standard valve accessory, which can be selected according to customer requirements;

3. L1 follows to API609.

HDY500 series pneumatic piston triple eccentric butterfly valve (Wafer Type) dimensions and weight



HDY500 series dimensions

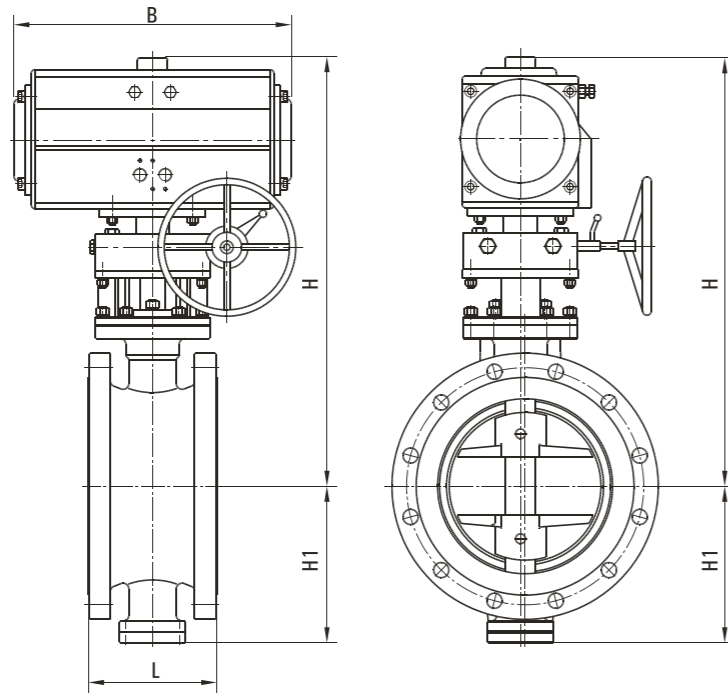
(Unit: mm)

DN	L1	L2	H	H1	B	Weight(kg)
80	48	49	553	120	268	25
100	54	56	563	138	298	28
125	57	64	583	164	298	34
150	57	70	611	175	390	42
200	64	71	716	208	458	47
250	71	76	773	243	525	59
300	81	83	793	283	532	65
350	92	92	875	310	602	88
400	102	102	915	340	722	107
450	114	114	945	380	742	115
500	127	127	983	410	860	125
600	-	154	1058	470	924	185
700	-	165	1203	550	-	245
800	-	190	1279	640	-	365
900	-	203	1334	710	-	470
1000	-	216	1566	770	-	500
1200	-	254	1666	890	-	690

Note: 1. The dimensions in the table are the standard configuration data of PN16. For other pressure rating data, please contact our company;

2. The handwheel is a non-standard valve accessory, which can be selected according to customer requirements.

HDY500 series pneumatic piston triple eccentric butterfly valve (Flanged) dimensions and weight



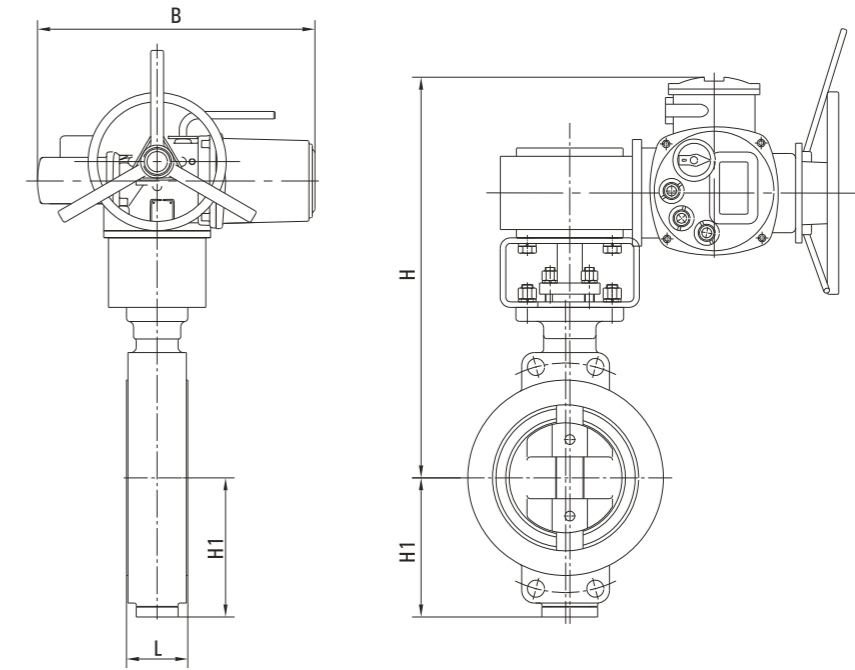
HDY500 series dimensions H

(Unit: mm)

DN	L	H	H1	B	Weight(kg)
80	114	553	120	268	25
100	127	563	138	298	28
125	140	583	164	298	34
150	140	611	175	390	42
200	152	716	208	458	47
250	165	773	243	525	59
300	178	793	283	532	65
350	190	875	310	602	88
400	216	915	340	722	107
450	222	945	380	742	115
500	229	983	410	860	125
600	267	1058	470	924	185
700	292	1203	550	-	245
800	318	1279	640	-	365
900	330	1334	710	-	470
1000	410	1566	770	-	500
1200	470	1666	890	-	690

Note: 1. The dimensions in the table are the standard configuration data of PN16. For the pressure rating data, please contact our company;  
 2. The handwheel is a non-standard valve accessory, which can be selected according to customer requirements.

HDY500 series electric triple eccentric butterfly valve (Wafer Type) dimensions and weight



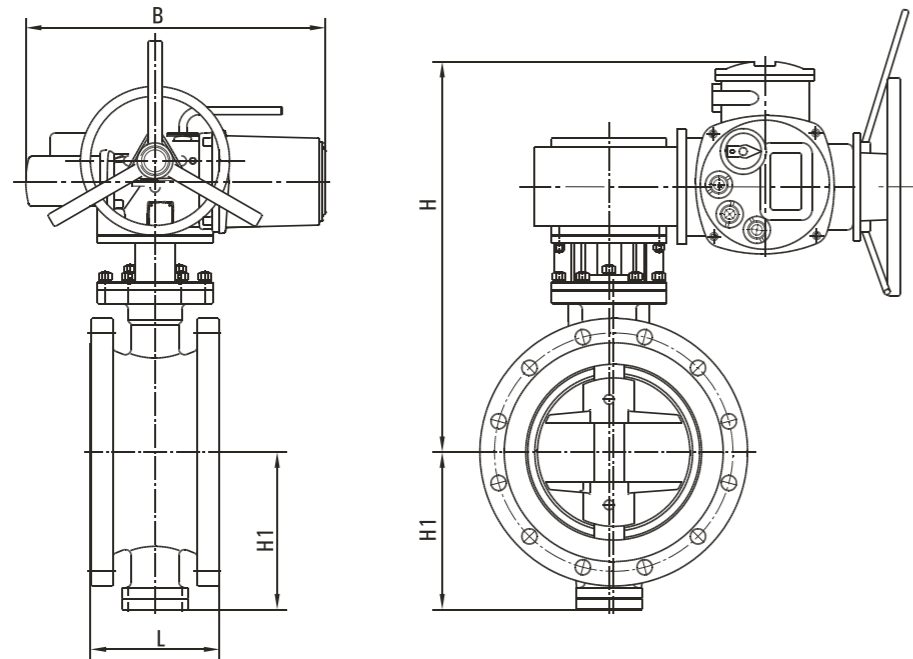
HDY500 series dimensions

(Unit: mm)

DN	L1	L2	H	H1	B	Weight(kg)
80	48	49	553	120	637	25
100	54	56	563	138	637	28
125	57	64	583	164	637	34
150	57	70	611	175	637	42
200	64	71	716	208	637	47
250	71	76	773	243	687	59
300	81	83	793	283	687	65
350	92	92	875	310	687	88
400	102	102	915	340	687	107
450	114	114	945	380	800	115
500	127	127	983	410	800	125
600	-	154	1058	470	800	185
700	-	165	1203	550	-	245
800	-	190	1279	640	-	365
900	-	203	1334	710	-	470
1000	-	216	1566	770	-	500
1200	-	254	1666	890	-	690

Note: 1. The dimensions in the table are the standard configuration data of PN16. For the pressure rating data, please contact our company;  
 2. Various models and specifications of electric (intelligent) actuators can be equipped according to customer requirements.

HDY500 series electric triple eccentric butterfly valve (Flanged) dimensions and weight



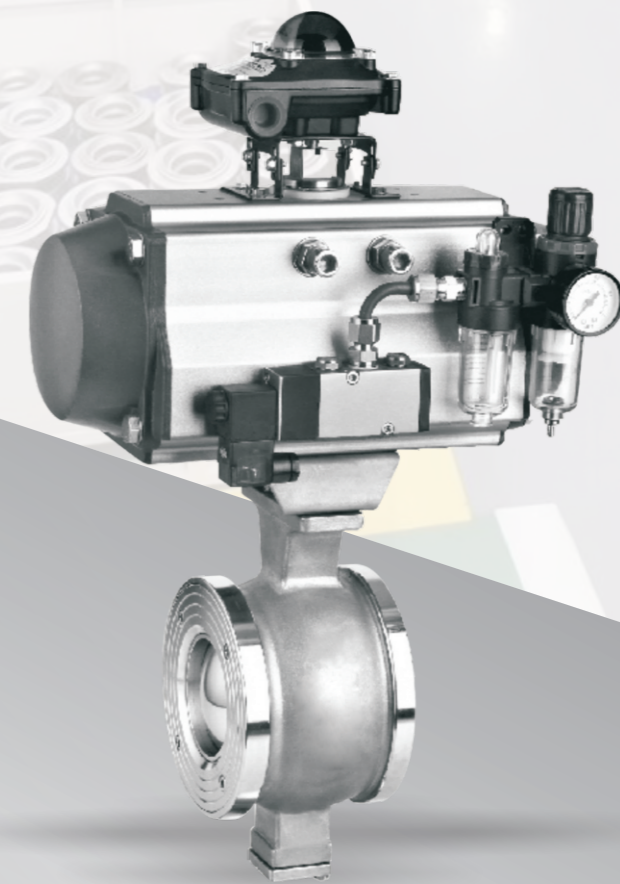
HDY500 series dimensions

(Unit: mm)

DN	L	H	H1	B	Weight(kg)
80	114	553	120	637	25
100	127	563	138	637	28
125	140	583	164	637	34
150	140	611	175	637	42
200	152	716	208	637	47
250	165	773	243	687	59
300	178	793	283	687	65
350	190	875	310	687	88
400	216	915	340	687	107
450	222	945	380	800	115
500	229	983	410	800	125
600	267	1058	470	800	185
700	292	1203	550	-	245
800	318	1279	640	-	365
900	330	1334	710	-	470
1000	410	1566	770	-	500
1200	470	1666	890	-	690

Note: 1. The dimensions in the table are the standard configuration data of PN16. For other pressure rating data, please contact our company;  
 2. Various models and specifications of electric (intelligent) actuators can be equipped according to customer requirements.

HDR100 Series Pneumatic Eccentric Rotary Control Valve





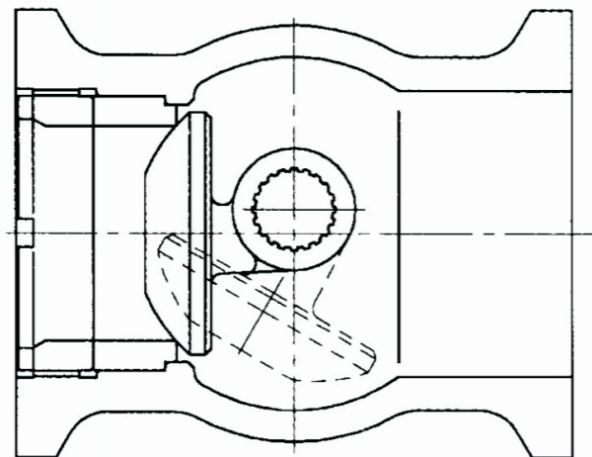
**Overview**

HDR100 series pneumatic eccentric rotary control valve, also known as cam deflection control valve, is one of the latest products developed by our company based on foreign advanced products and combining our own characteristics. It combines the advantages of single seat valve, ball valve, butterfly valve and other valves. It has simple structure, small dimensions, light weight, large flow capacity, large regulating range, wide operating temperature, small leakage and good stability etc, and widely used in chemical industry, metallurgy, power stations and other industrial process automatic control systems.

**Principle and features**

The eccentric rotary plug and the stem of HDR100 series only rotates, so the friction force of the regulating valve is very small in service. When the plug and the valve seat contacted and valve closed, the flexible arm generates slight elastic deformation and elastic tension under the torque of the actuator, which makes the plug and the seat to be contacted more closely and tightly, so the leakage of the eccentric rotary valve is small. At the same time, the torque of the actuator required to close the valve is smaller than ball valves' and butterfly valves'. In addition, a certain gap is left between the plug and the upper and lower guides to ensure that the plug can be automatically centered. (Metal seal standard grade meets to: ANSI B16.104 grade IV; soft seal meets to: ANSI B16.104 grade VI.) In the eccentric rotary valve products, the bonnet is omitted. The bonnet and the valve body are cast into one. Because the bonnet is long and has sufficient area to dissipate heat, the maximum operation temperature of the eccentric rotary valve is -195 °C ~ 400 °C. The eccentric rotary valve is equipped with an integrated actuator.

**Eccentric rotary valve sectional view**

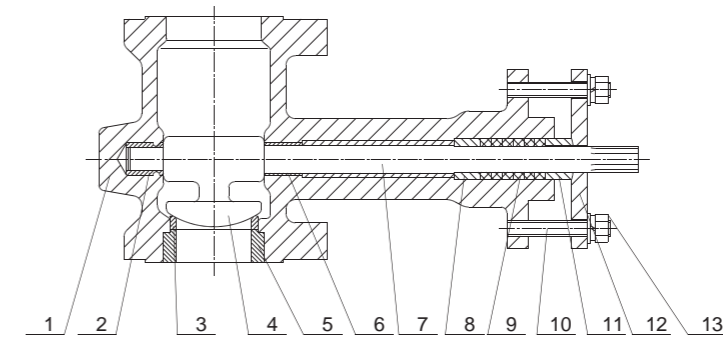


**Main technical data and structural materials**

**The main technical data**

Nominal diameter	25	40	50	80	100	150	200	250	300																			
Flow coefficient Kv	4.8	7.2	12	10.4	15.6	26	17	25	43	46	69	115	78	118	196	171	256	428	290	436	726	444	666	111	598	898	1496	
Flow characteristics	Approximately linear (logarithmic, linear and other characteristics must be equipped with a valve positioner)																											
Nominal pressure	PN1.6 6.4MPa ANSI 150 300 600																											
Stroke range	Corner 50°																											
Valve seat leakage	ANSI B16.104 IV(Metal seal) VI( Soft seal)																											
Operation temperature	-195°C ~ 400°C																											
Regulating ratio	100:1																											
Actuator	Diaphragm type	DL1				DL2				DL3																		
	Piston type	SL1				SL2				SL3				SL4														
Connected to the pipeline	No flange wafer type																											

**Parts and materials**



Item	Name	Material
1	Body	WCB, CF8, CF8M
2	Lower guide sleeve	440C+Stellite
3	Seat	316+Stellite
4	Plug	CF8M+Stellite
5	Ring nut	316
6	Upper guide sleeve	440C+Stellite
7	Stem	316
8	Spacer	304
9	Packing	PTFE
10	Stud bolts	304
11	Packing gland	WCB, 304
12	Packing flange	304
13	Stud nut	304

There are two types for actuator: Diaphragm type and pneumatic piston type. Its main parts are die-cast aluminum alloy to reduce weight. In special applications, such as acid and alkaline solutions, the main materials of the actuator can also be made by stainless steel.

▶ Allowable pressure difference

Metal seal structure

( Unit: MPa)

Body dimensions	KV	Air-on-valve -open type	Air-on-valve-close or air-off-valve-open type								
			Air pressure								
			0.14	0.18	0.21	0.25	0.28	0.32			
25	12	7.0	7.0	-	-	-	-	-	-	-	-
	4.8	10.2	10.2	-	-	-	-	-	-	-	-
40	26	4.7	3.0	5.6	-	-	-	-	-	-	-
	10.4	9.8	6.3	10.2	-	-	-	-	-	-	-
50	43	2.5	1.6	3.5	4.2	-	-	-	-	-	-
	17	5.2	3.3	7.0	7.0	-	-	-	-	-	-
80	115	2.0	1.3	2.7	4.4	-	-	-	-	-	-
	46	4.5	2.8	0.1	7.0	-	-	-	-	-	-
100	196	1.0	0.63	1.4	2.2	3.1	3.9	4.1	-	-	-
	78	2.2	1.4	3.0	4.9	6.8	7.0	7.0	-	-	-

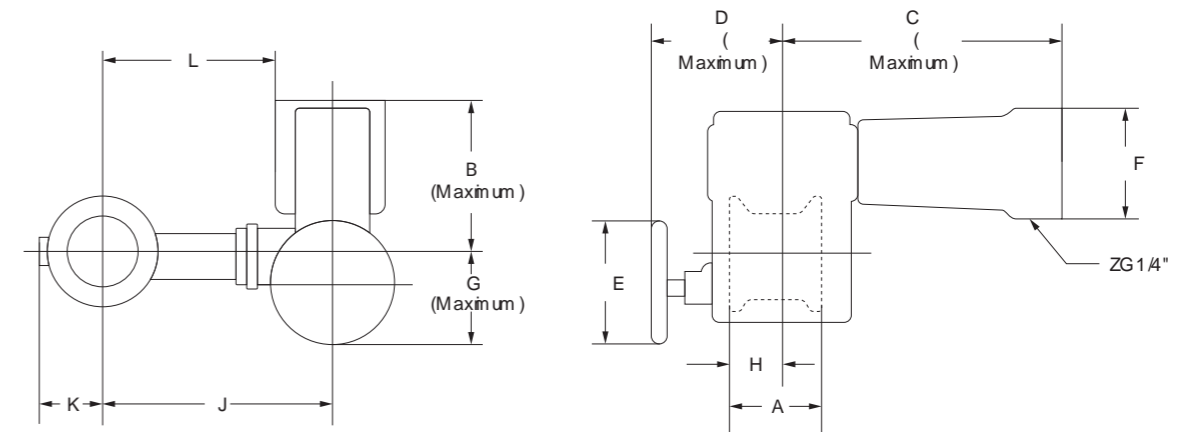
Body dimensions	KV	Air-on-valve -open type	Air-on-valve-close or air-off-valve-open type									
			Air pressure									
			0.21	0.25	0.28	0.32	0.35	0.39	0.42	0.46	0.49	0.53
150	428	0.63	0.35	0.91	1.4	2.1	2.5	3.1	3.7	4.2	-	-
		-	0.35	0.91	1.4	2.1	2.5	3.1	3.7	4.2	-	-
		-	0.35	0.91	1.4	2.1	-	-	-	-	-	-
	171	1.4	0.77	2.0	3.2	4.4	5.6	6.8	7.0	-	-	-
		-	0.77	2.0	3.2	4.4	5.6	6.8	7.0	-	-	-
		-	0.77	2.0	3.2	3.5	-	-	-	-	-	-
200	726	0.32	0.18	0.42	0.7	1.0	1.3	1.5	1.8	2.1	2.4	2.5
		-	0.18	0.42	0.7	1.0	1.3	-	-	-	-	-
		-	0.18	0.42	0.63	-	-	-	-	-	-	-
	436	0.49	0.28	0.4	1.1	1.5	2.0	2.4	2.8	3.2	3.7	3.9
		-	0.28	0.7	1.1	1.5	2.0	-	-	-	-	-
		-	0.28	0.7	1.0	-	-	-	-	-	-	-
	290	0.77	0.42	1.1	0.8	2.5	3.2	3.9	4.5	5.2	5.9	6.3
		-	0.42	1.1	1.8	2.5	3.2	-	-	-	-	-
		-	0.42	1.1	1.5	-	-	-	-	-	-	-

▶ Annex

Due to the approximate linearity flow characteristic of the HDR100 series pneumatic eccentric rotary control valve, generally, when the control accuracy is highly required, a valve positioner must be provided, including an air filter regulator. In addition, according to process requirements, auxiliary components such as electro-pneumatic converters, lock-up valves, safety valve, limit switches and solenoid valves can also be used. The handwheel is integrated with the valve for the HDR100 series pneumatic eccentric rotary control valve. We can supply the device when ordering even not be specified.

▶ Dimensions and weight

The valve is equipped with a roller diaphragm actuator



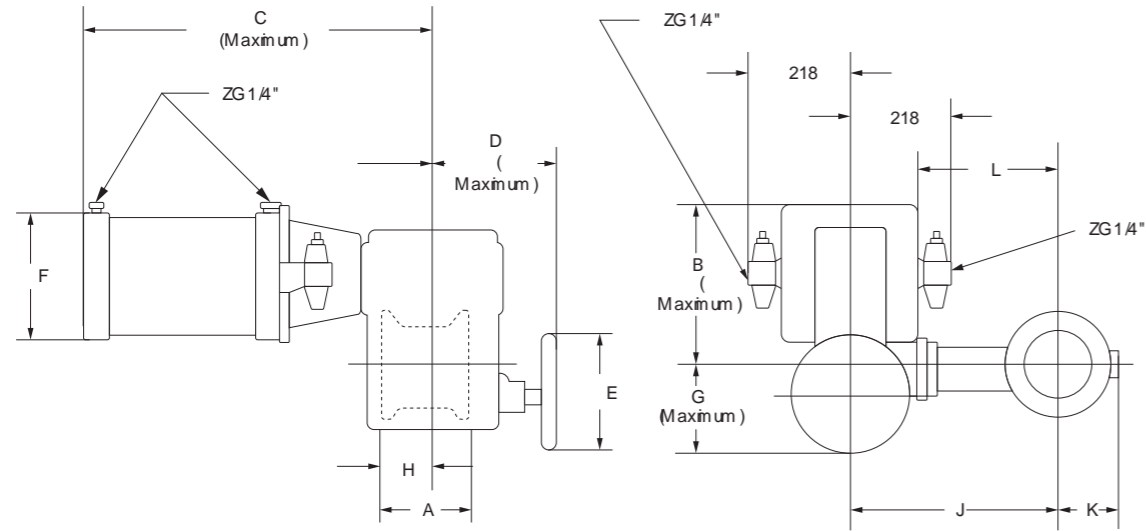
HDR100 series pneumatic eccentric rotary control valve dimensions

(Unit: mm)

Body dimensions	A	B	C	D	E	F	G	H	J	K	L	(kg) Weight
	No flange							No flange				
25	102	173	297	208	163	140	110	67	206	38	137	12
40	114	175	300	211	163	140	110	62	234	51	165	14
50	124	175	300	211	163	140	110	62	239	66	170	16
80	165	262	434	229	163	175	118	97	333	84	244	35
100	194	264	437	229	163	175	118	106.5	356	109	267	47.8
150	229	330	533	302	254	218	197	127	432	147	323	76
200	243	333	536	305	254	218	197	147	470	203	361	127
250	297	335	538	310	254	218	197	167	574	251	465	156
300	338	338	541	312	254	218	197	184	610	277	500	184

Note: construction length standard ISA S75.04.

The valve is equipped with a double acting cylinder actuator



HDR100 series pneumatic eccentric rotary control valve dimensions

(Unit: mm)

Body dimensions	A	B	C	D	E	F	G	H	J	K	L	Weight (kg)
	No flange							No flange				
150	229	330	677	3.0	254	271	213	127	432	147	297	184
200	234	333	680	3.5	254	271	216	147.5	470	203	335	236
250	297	335	683	3.10	254	271	221	167	574	251	440	263
300	338	338	686	3.12	254	271	224	184	610	277	475	290

Note: construction length standard ISA S75.04.

**HDF100 Series  
Light Butterfly Valve**



Overview

HDF100 series light type butterfly valve is light weight and simple structure butterfly valve. It is mainly suitable for the flow and pressure control of low-pressure air or other gases, but also for high-temperature gases;

This series butterfly valve has HDF100-K series open type, HDF100-H series rear seat type, HDF100-M series sealing type.

Features

- HDF100-K series open type of butterfly valve with flat disc is mainly suitable for large-DN size, large-flow and low-difference pressure occasions. It can also be used for regulating in the medium such as thick turbid slurry and suspended particles, with a leakage about 2% ~ 5% of the rated Kv of the valve.;
- HDF100-H rear seat type butterfly valve is an improved product of HDF100-K series. There are two semi-circular sealing rings on the valve body. When the valve is closed, the disc comes into close contact with the sealing ring, which acts as a seal. It is suitable for large diameter, large flow rate, high temperature and low pressure drop occasions, the leakage is less than 1% ~ 2% of the rated Kv of the valve;
- When the HDF100-M series sealing type of butterfly valve is closed, the valve disc has a tilting angle in the valve body, so that the valve can be sealed well. It is suitable for large diameter, large flow rate, low-pressure drop occasions, and the leakage is less than 0.2% ~ 0.5% of the rated valve Kv.

Technical data and features

Valve body

Nominal Diameter:	80 ~ 1600mm (3"-64")
Disc Type:	Open type: Rear seat type: Sealing type
Flow Characteristics:	approximately equal percentage
Nominal Pressure:	PN2.5, PN6, ANSI Class 150
Connection:	Flange type
Flange Standard:	ASME B16.5-2013 DIN EN 1092-1-2008 GB/T 9113-2010 HG/T 20615-2019 HG/T20592-2019
Face to Face Distance:	See HDF100 series butterfly valve connection dimensions
Body and Disc Material:	Carbon steel, stainless steel
Upper Bonnet Type:	HDF100A series standard type HDF100B series extension type HDF100C series low temperature type HDF100D series jacket insulation type
Structure:	HDF100-K series open type of butterfly valve HDF100-H Series rear seat type of butterfly Valve HDF100-M series sealing type of butterfly valve
Output Shaft Type:	DN550 (22") and below Internal bearing type (-5 ~ + 200°C); External bearing type (-5 ~ + 600°C) DN600 (24") External bearing type (-5 ~ + 600°C)
Packing:	PTFE V-packing, Reinforced PTFE, Expanded graphite

Actuator

Pneumatic actuators

Item	Type	Pneumatic piston type		
		Pneumatic diaphragm type	Spring return	Double acting
Task		Regulating	Regulating	Regulating
Air pressure		0.4MPa	0.4~0.6MPa	0.4~0.6MPa
Connection		Rc1/4"	G1/8",G1/4",G1/2"	
Angular stroke range		60 ° ~ 90 °		
Connection type of action		Air Open, Air Close	Air Open, Air Close	Valve open or close according to input signal positioner
Intrinsic error	General type	± 1.5% Fs (including positioner)		
	Special type	± 4.0% Fs (including positioner)		
Hysteresis Error	General type	1.5% Fs (including positioner)		
	Special type	3.0% Fs (including positioner)		
Allowable ambient temperature		-20 ~ + 60		
Optional accessories for valve		Electric valve positioner, air filter regulator, solenoid valve, limit switch, back-up valve, manual device		

Electric Actuator

Item	Type	All electronic type (intelligent)	
Task		Regulating	
Voltage		220V · AC 50Hz ; 80V · AC 50Hz	
Connection		NPT1-1/2" , 3NPT1"	
Input/output signal		4-20mA DC	
Angular stroke range		60 ° ~ 90 °	
Connection type of action		Valve stroke to open or close according to the signal input	
Intrinsic error	General type	± 1.0% FS	
	Special type	± 2.5% FS	
Hysteresis Error	General type	1.0% FS	
	Special type	2.0% FS	
Allowable ambient temperature		-10 ~ + 60	
Optional accessories for valve		Overload protection device, manual operation device, junction box, etc.	

**Rated Kv**

Nominal diameter	60°			90°		
	Valve plate shape			Valve plate shape		
	Open type	Sealing type	Back seat type	Open type	Sealing type	Back seat type
80	135	130	-	275	275	-
100	240	230	-	480	480	-
125	365	360	250	780	780	500
150	525	500	370	1100	1100	725
200	900	870	650	1980	1980	1300
250	1460	1400	1200	3000	3000	2200
300	2150	2050	1700	4450	4450	3400
350	2850	2750	2300	5850	5850	4800
400	3750	3600	3100	7700	7700	6400
450	4800	4550	3850	9500	9500	7800
500	5850	5600	4750	12000	12000	9800
600	8400	8000	7150	17600	17600	14600
700	12000	11000	9700	24000	24000	20500
800	14800	14000	12500	31500	31500	27500
900	19800	18000	16300	39500	39500	35000
1000	23500	21500	21000	49000	49000	42000
1200	33500	-	30500	69500	-	62500
1400	42000	-	39000	89000	-	79000
1600	61000	-	56000	126000	-	112000

Temperature and pressure range of valve body and bonnet (see appendix)  
 Temperature and pressure range of valve trim and packing (see appendix)

**Valve disc shape and valve allowable leakage**

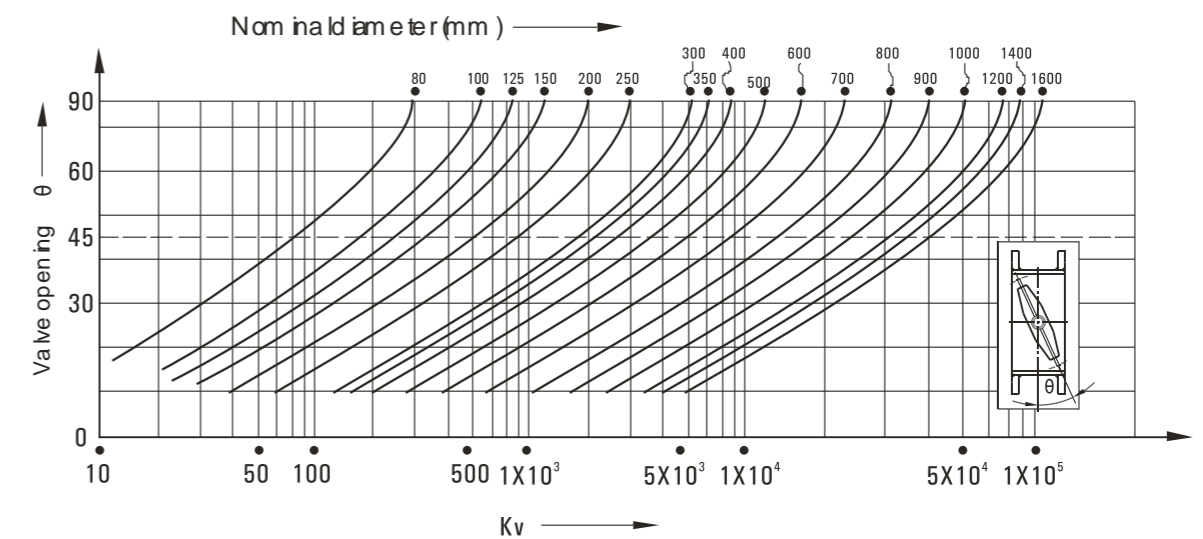
Nominal diameter (mm)	Allowable leakage ≤ valve rated Kv (90° opening) × the following%		
80	5.0%	2.0%	0.5%
100~250	3.5%	2.0%	0.45%
300~450	3.0%	2.0%	0.4%
500~750	2.0%	1.0%	0.3%
800~1600	1.5%	1.0%	0.2%

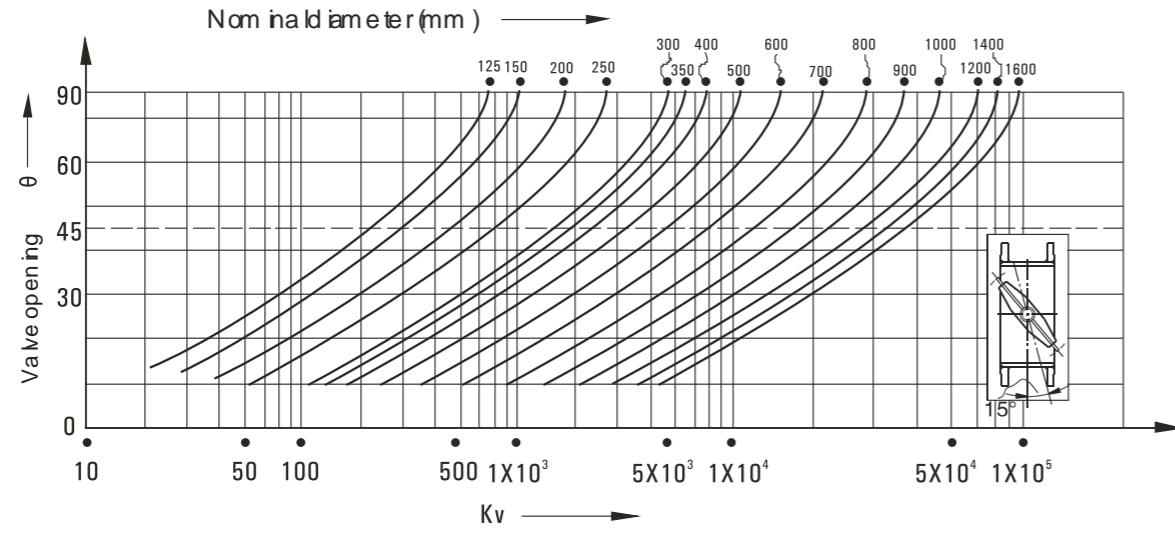
Valve disc shape	Open type	Back seat type	Sealing type

**Flow characteristics**

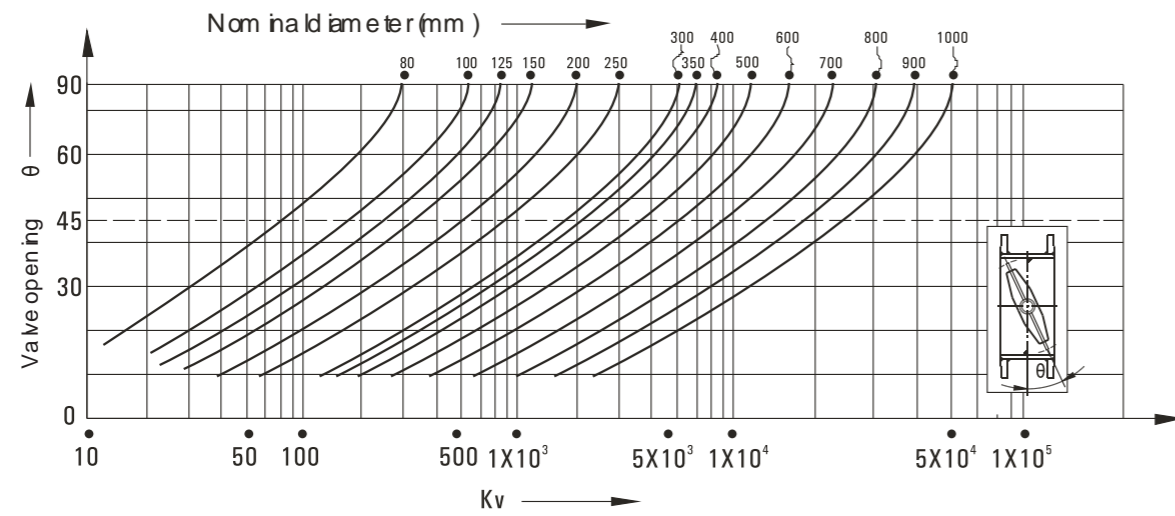
HDF100-K series open type flow characteristic



HDF100-H series rear seat type flow characteristic

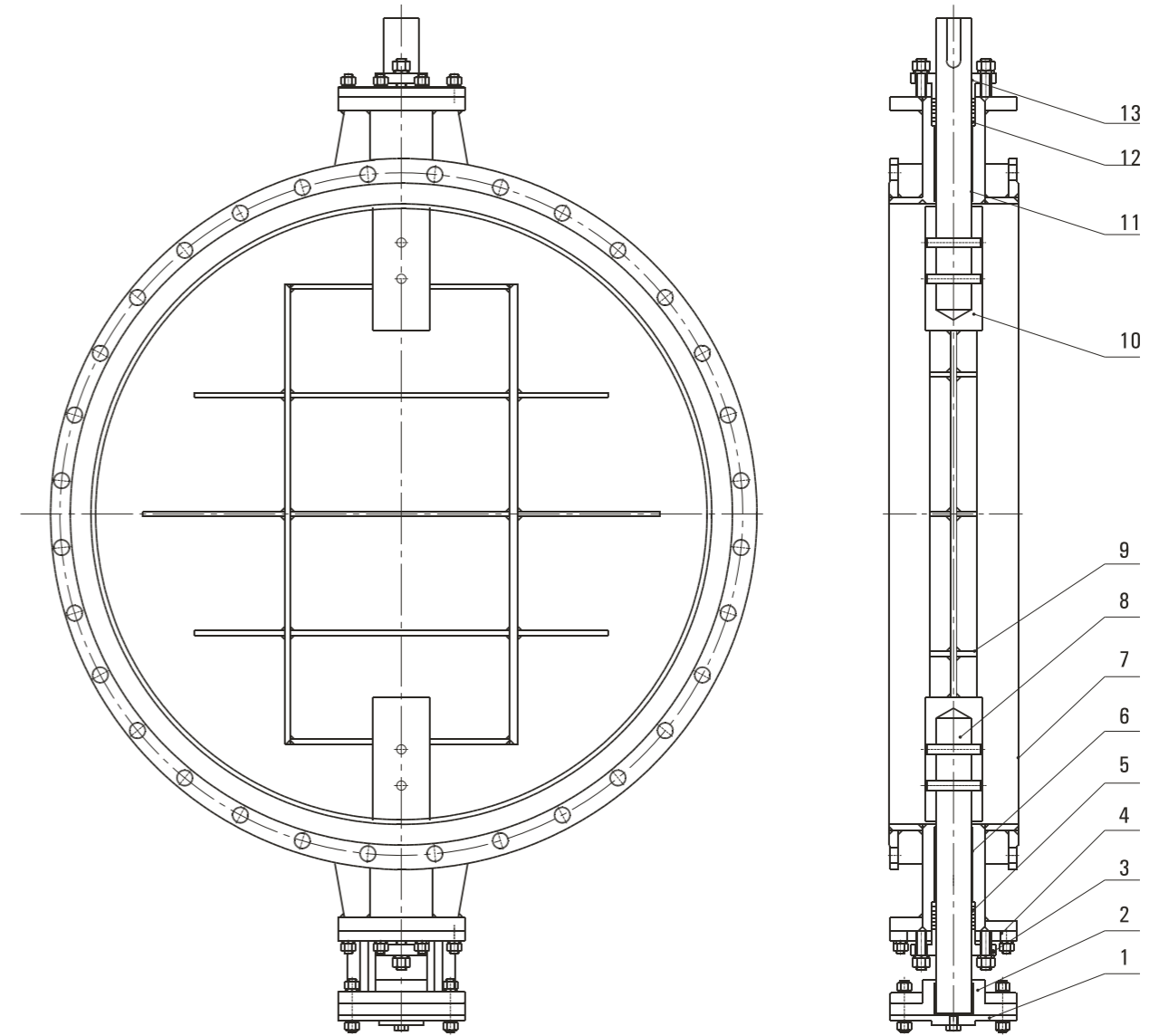


HDF100-M series sealing flow characteristic



HDF100 series light butterfly valve sectional view

HDF100 series light type butterfly valve internal bearing type sectional view



- |                       |                     |                        |
|-----------------------|---------------------|------------------------|
| 1, End cap            | 6, Lower sleeve     | 10, Upper valve stem   |
| 2, Lower bearing seat | 7, Body             | 11, Upper shaft sleeve |
| 3, Lower bracket      | 8, Lower valve stem | 12, Packing            |
| 4, Packing flange     | 9, Butterfly disc   | 13, Packing flange     |
| 5, Packing            |                     |                        |

▶ Maximum allowable differential pressure

Allowable differential pressure table for pneumatic diaphragm actuator (air source pressure: 0.4MPa / valve opening degree: 90°) (Unit: KPa)

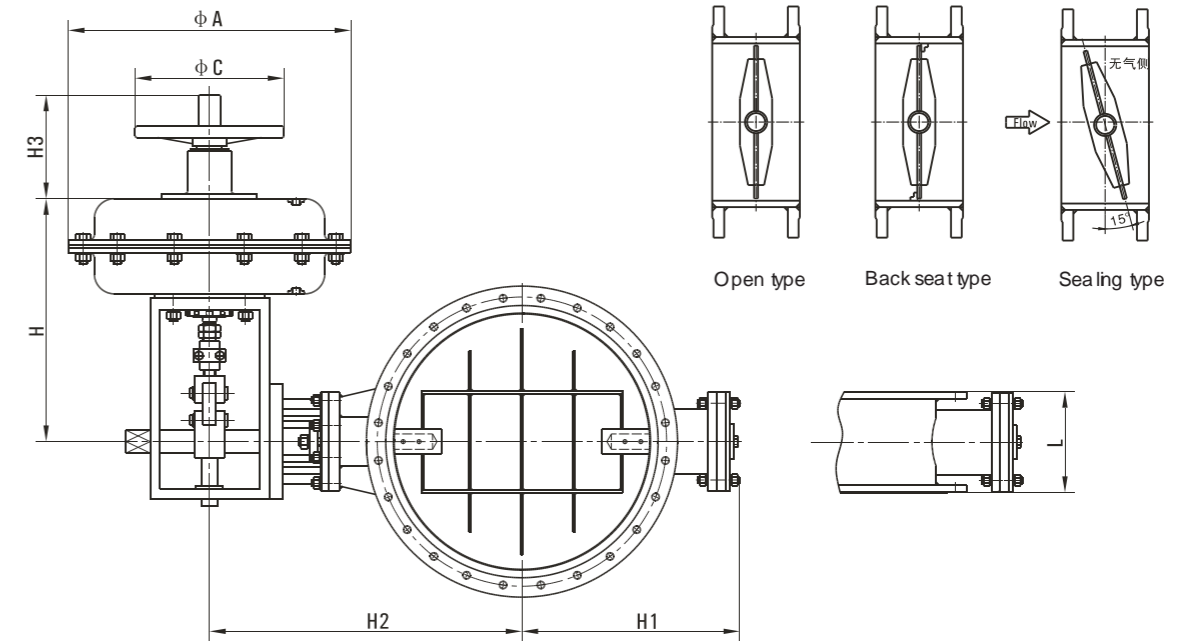
Nominal diameter (mm)	Allowable valve closing pressure (KPa)			Packing: PTFE / RTFE			
	Medium temperature (°C)			Type and dimensions of actuator			
	< 200	< 400	< 600	PZMA-5	PZMA-6	PZMA-7	PZMA-8
80	490	159	119	88.3			
100	490	94.0	70.5	44.4			
125	392	60.7	45.0	22.8			
150	279	58.4	41.7	13.0	40.8		
200	190	46.0	34.3	5.5	17.3		
250	97.0	26.4	19.6		7.5	11.5	
300	75.8	16.6	12.7		4.4	6.7	
350	60.7	15.6	10.7			4.2	9.7
400	41.1	13.7	9.8			2.8	6.5
450	28.4	10.7	7.8			1.9	4.6
500	19.9	9.5	6.6				3.1

Allowable differential pressure table for pneumatic diaphragm actuator (air source pressure: 0.4MPa / valve opening degree: 90°) (Unit: KPa)

Nominal diameter (mm)	Allowable valve closing pressure (KPa)			Packing: Expanded graphite			
	Medium temperature (°C)			Type and dimensions of actuator			
	< 200	< 400	< 600	PZMA-5	PZMA-6	PZMA-7	PZMA-8
80	490	159	119	51.5			
100	490	94.0	70.5	26.3			
125	392	60.7	45.0	13.5			
150	279	58.4	41.7	7.8	34.6		
200	190	46.0	34.3	3.3	14.6		
250	97.0	26.4	19.6		4.8	9.8	
300	75.8	16.6	12.7		2.7	5.6	
350	60.7	15.6	10.7			3.6	9.0
400	41.1	13.7	9.8			2.3	6.1
450	28.4	10.7	7.8			1.7	4.3
500	19.9	9.5	6.6				2.7

▶ HDF100 series light butterfly valve dimensions and weight

HDF100-K series, HDF100-H series, HDF100-M series pneumatic diaphragm light butterfly valve dimensions and weight

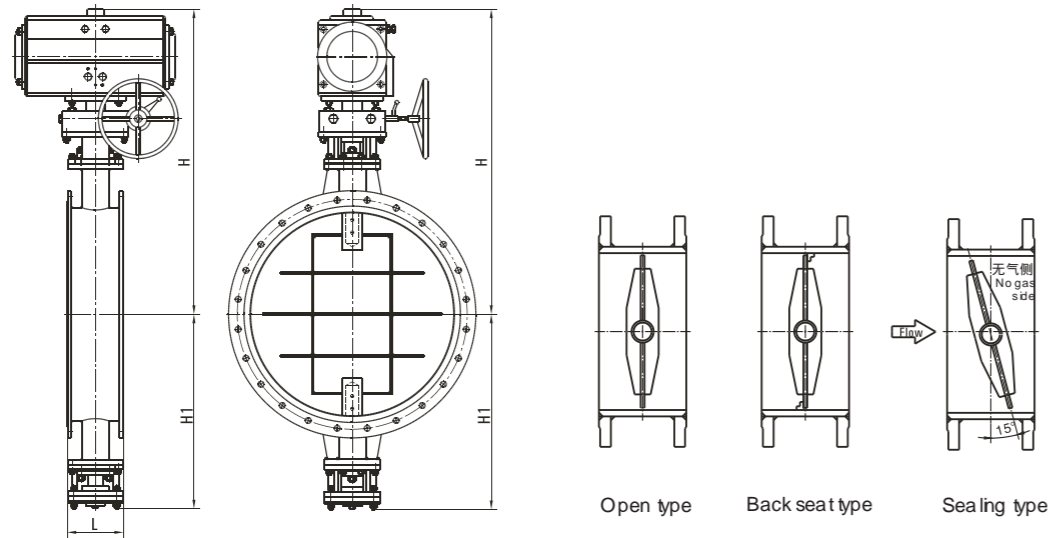


HDF100 series dimensions (Unit: mm)

DN	L	H	H1	H2	A	C	H3	Weight(kg)
80	100	500	195	230	308	220	180	25
100	100	530	205	240	308	220	180	28
125	140	574	220	260	394	270	240	34
150	140	595	245	275	394	270	240	42
200	140	780	305	360	394	320	310	47
250	140	800	340	395	394	320	310	59
300	170	990	360	415	394	320	310	65
350	170	1025	390	440	394	320	310	88
400	190	1150	430	480	498	320	310	107
450	190	1200	450	510	498	320	310	115
500	190	1300	460	490	498	320	310	125

- Note: 1. Dimensions in the table are standard configuration data of PN6. For the pressure rating data, please contact our company;  
 2. The handwheel device is a non-standard valve accessory, which can be selected according to customer requirements;  
 3. When the sealing type of butterfly valve is installed in a horizontal pipeline, please refer to the figure to determine the installation direction to prevent dust from accumulating and increasing the valve opening resistance.

HDF100-K series, HDF100-H series, HDF100-M series pneumatic piston light butterfly valve dimensions and weight



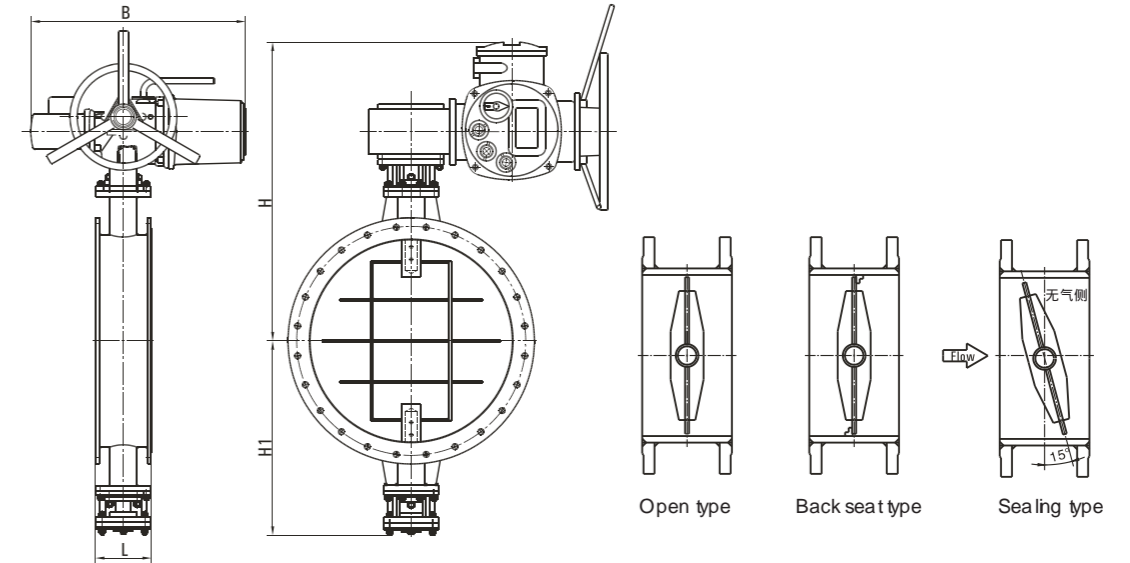
HDF100 series dimensions

(Unit: mm)

DN	L	H	H1	B	重量 Weight(kg)
80	100	553	195	260	25
100	100	563	205	260	28
125	140	583	220	260	34
150	140	611	245	268	42
200	140	716	305	268	47
250	140	773	340	298	59
300	170	793	360	298	65
350	170	875	390	458	88
400	190	915	430	458	107
450	190	945	450	458	115
500	190	983	460	532	125
600	210	1058	525	532	185
700	210	1203	650	532	245
800	210	1279	655	722	365
900	250	1334	715	722	470
1000	250	1566	870	742	500
1200	250	1666	970	742	690
1400	350	1897	1120	924	900
1600	400	1952	1175	924	1120

- Note: 1. Dimensions in the table are standard configuration data of PN6. For other pressure rating data, please contact our company;  
 2. The handwheel device is a non-standard valve accessory, which can be selected according to customer requirements;  
 3. When the tilting disc (15° sealing type) butterfly valve is installed in a horizontal pipeline, please refer to the figure to determine the installation direction to prevent dust from accumulating and increasing the valve opening resistance.

HDF100-K series, HDF100-H series, HDF100-M series electric light butterfly valve dimensions and weight



HDF100 series dimensions

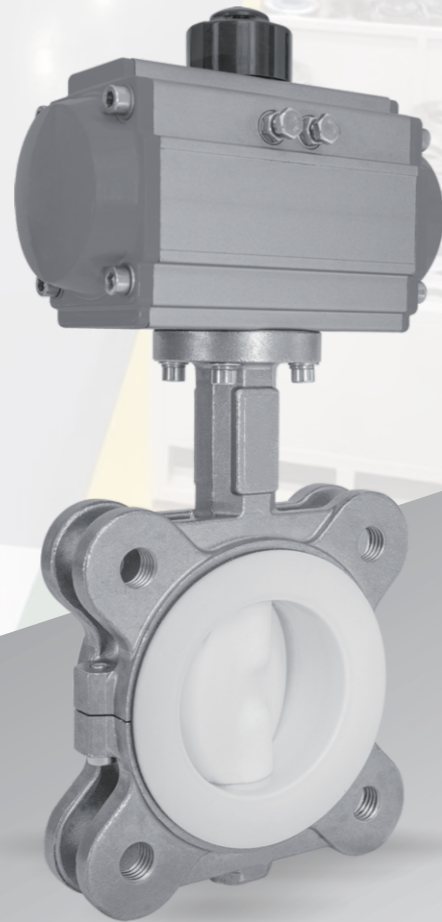
(Unit: mm)

DN	L	H	H1	B	Weight(kg)
80	100	600	195	637	30
100	100	610	205	637	34
125	140	630	220	637	41
150	140	645	245	637	50
200	140	750	305	637	56
250	140	785	340	637	71
300	170	805	360	637	78
350	170	830	390	637	106
400	190	870	430	637	128
450	190	900	450	637	138
500	190	880	460	637	150
600	210	961	525	296	222
700	210	1106	650	296	294
800	210	1135	655	340	438
900	250	1190	715	340	564
1000	250	1390	870	340	600
1200	250	1490	970	340	828
1400	350	1635	1120	340	1080
1600	400	1690	1175	340	1344

- Note: 1. Dimensions in the table are standard configuration data of PN6. For other pressure rating data, please contact our company;  
 2. Various types of electric actuators can be equipped according to customer requirements;  
 3. When the tilting disc (15° sealing type) butterfly valve is installed in a horizontal pipeline, please refer to the figure to determine the installation direction to prevent dust from accumulating and increasing the valve opening resistance.



## HDF200 Series Rubber Lined (Fluorine Lined) Butterfly Valve



### Overview

HDF200 series rubber-lined (fluorine lined) butterfly valve is a simple structure, easy-to-operate, long-life, and light-weight regulating valve. It can realize isolating and/or regulating functions, suitable for handling a multitude of corrosive applications in industries such as chemical, pharmaceutical, food, pulp and paper, water treatment and other industries and mediums can be gas, liquid, slurry and solid powder, etc.

### Features

1. HDF200 series fluorine-lined butterfly valve can resist the corrosion of almost all chemicals (including concentrated sulfuric acid and aqua regia);
2. Fully sealed construction meets the requirements of zero leakage;
3. Small dimensions, light weight, easy disassembly and maintenance and convenient operation;
4. Widely used in the regulating or isolating of strong corrosive medium such as acids, alkalis and salts.

### Technical data and features

#### Valve Body

Nominal Diameter:	50 ~ 1200mm (2" ~ 48")
Valve Plate Shape:	baffle type
Flow Characteristics:	Approximately equal percentage, On/off
Nominal Pressure:	PN10, PN16 ANSI Class 150
Connection:	Wafer, Flange
Flange Standard:	ASME B16.5-2013 DIN EN 1092-1-2008 GB/T 9113-2010 HG/T 20615-2019 HG/T20592-2019
Face to Face Distance:	See HDF200 series butterfly valve connection dimensions
Body Material:	WCB, CF8, CF8M (lined with FEP, PFA, EPDM)
Valve Disc Material:	WCB, CF8, CF8M (lined with FEP, PFA, EPDM) ZCuAl10Fe3 (aluminum bronze)
Seat Sealing Material:	Polyperfluoroethylene (FEP) -30 ~ 150°C Perfluoroalkoxy resin (PFA) -30 ~ 180°C EPDM rubber -40 ~ 135°C
Upper Bonnet Type:	HDF200 series standard type
Structure:	HDF200 series rubber-lined (fluorine-lined) butterfly valve
Packing:	O-ring

**Actuator**

Pneumatic actuators

Item	Type	Pneumatic piston type		
		Pneumatic diaphragm type	Spring return	Double acting
Task		Regulating, On/Off		
Air pressure		0.4MPa	0.4-0.6MPa	0.4-0.6MPa
Connection		Rc1/4"	G1/8",G1/4",G1/2"	
Angular stroke range		60° 或 90° 或 60° 或 90°		
Connection type of action		Air Open, Air Close	Air Open, Air Close	Valve open or close according to input signal of positioner
Intrinsic error	General type	± 1.5% Fs (including positioner)		
	Special type	± 4.0% Fs (including positioner)		
Hysteresis Error	General type	1.5% Fs (including positioner)		
	Special type	3.0% Fs (including positioner)		
Allowable ambient temperature		-20 ~ +60		
Optional accessories for valve		Electric valve positioner, air filter regulator, solenoid valve, limit switch, back-up valve, manual device		

**Maximum allowable differential pressure**

**Allowable differential pressure table for double acting cylinder actuator (air source pressure: 0.45MPa)**

(Unit: KPa)

Actuator	Nominal diameter(mm)													
	50	65	80	100	125	150	200	250	300	350	400	450	500	600
RT075	1.0	1.0	1.0											
RT110			1.0											
RT160				1.0										
RT225					1.0									
RT435						1.0								
RT665							1.0							
RT1000								1.0						
RT1200									1.0					
RT1800										1.0				
RT2700											1.0	1.0		
RT3000													1.0	
RT3500														1.0

**Allowable differential pressure for single-acting cylinder actuator (air source pressure: 0.5MPa)**

(Unit: KPa)

Actuator	Nominal diameter(mm)													
	50	65	80	100	125	150	200	250	300	350	400	450	500	600
RT075	1.0	1.0	1.0											
RT110			1.0											
RT160				1.0										
RT225					1.0									
RT435						1.0								
RT665							1.0							
RT1000								1.0						
RT1200									1.0					
RT1800										1.0				
RT2700											1.0	1.0		
RT3000													1.0	
RT3500														1.0

**Allowable differential pressure for all electronic type (intelligent) actuator**

(Unit: KPa)

Actuator	Nominal diameter(mm)													
	50	65	80	100	125	150	200	250	300	350	400	450	500	600
BDM3-	1.0	1.0	1.0	1.0	1.0	1.0								
BDM8-							1.0	1.0						
BDM20-									1.0					
BDM40-										1.0	1.0			
BDM60-												1.0	1.0	1.0

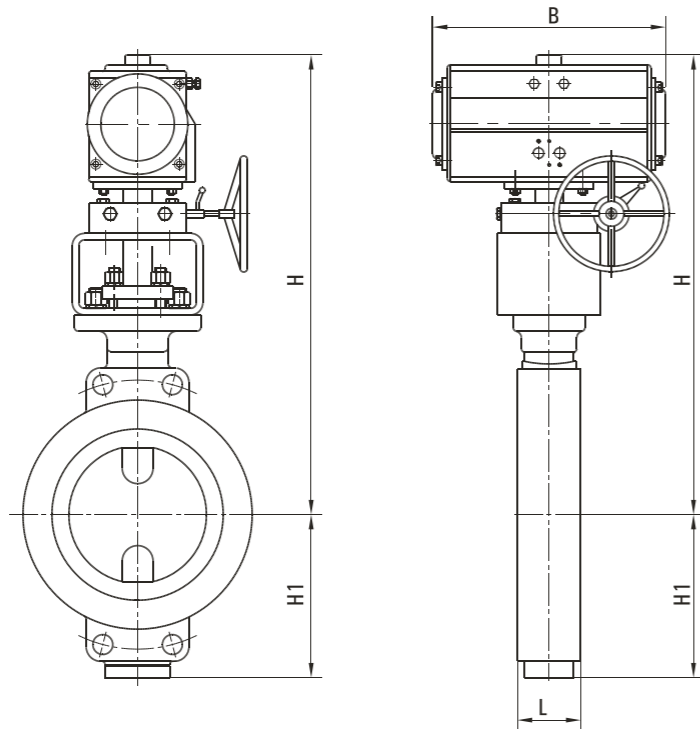
**Allowable differential pressure for electric (intelligent) actuator**

(Unit: KPa)

Actuator	Nominal diameter(mm)													
	50	65	80	100	125	150	200	250	300	350	400	450	500	600
BD3-	1.0	1.0	1.0	1.0	1.0	1.0								
BD8-							1.0	1.0						
BD14-									1.0					
BD20-										1.0	1.0	1.0	1.0	1.0

HDF200 series rubber-lined( fluorine-lined) butterfly valve dimensions and weight

HDF200 Series pneumatic piston type rubber-lined (fluorine-lined) butterfly valve dimensions and weight



HDF200 Series dimensions

(Unit: mm)

DN	L1	L2	H	H1	B	Weight(kg)
50	-	43	463	78	268	5
65	-	46	475	83	268	6
80	48	46	482	92	268	7
100	54	52	501	106	298	11
125	57	56	513	123	298	12
150	57	56	539	136	390	20
200	64	60	594	165	458	34
250	71	68	646	198	525	42
300	81	78	684	229	532	72
350	92	78	765	275	602	96
400	102	102	795	320	722	161
450	114	114	825	340	742	186
500	127	127	923	362	860	225
600	-	154	963	380	924	315

Note: 1. The dimensions in the table are standard configuration data of PN10. For other pressure rating data, please contact our company;  
2. The handwheel device is a non-standard valve accessory, which can be selected according to customer requirements.

Actuator

Electric Actuator

Item	Type	Allelectronic type (intelligent)	Electric
	Task		Regulating
Voltage		220V · AC 50Hz ; 80V · AC 50Hz	220V · AC50Hz ; 80V · AC50Hz
Connection		NPT1-1/2" , 3NPT1"	NPT1-1/2" , 3NPT1"
Input/output signal		4-20mA DC	Digital signal
Angular stroke range		90 °	90 °
Connection type of action		Valve stroke to open or close according to the signal input	Power open, power close
Intrinsic error	General type	± 1.0% FS	-
	Special type	± 2.5% FS	-
Hysteresis Error	General type	1.0% FS	-
	Special type	2.0% FS	-
Allowable ambient temperature		-10 · + 60	-10 · + 60
Optional accessories for valve		Overbad protection device, manual operation device, junction box, etc.	Inching switch for position detecting, potentiometer

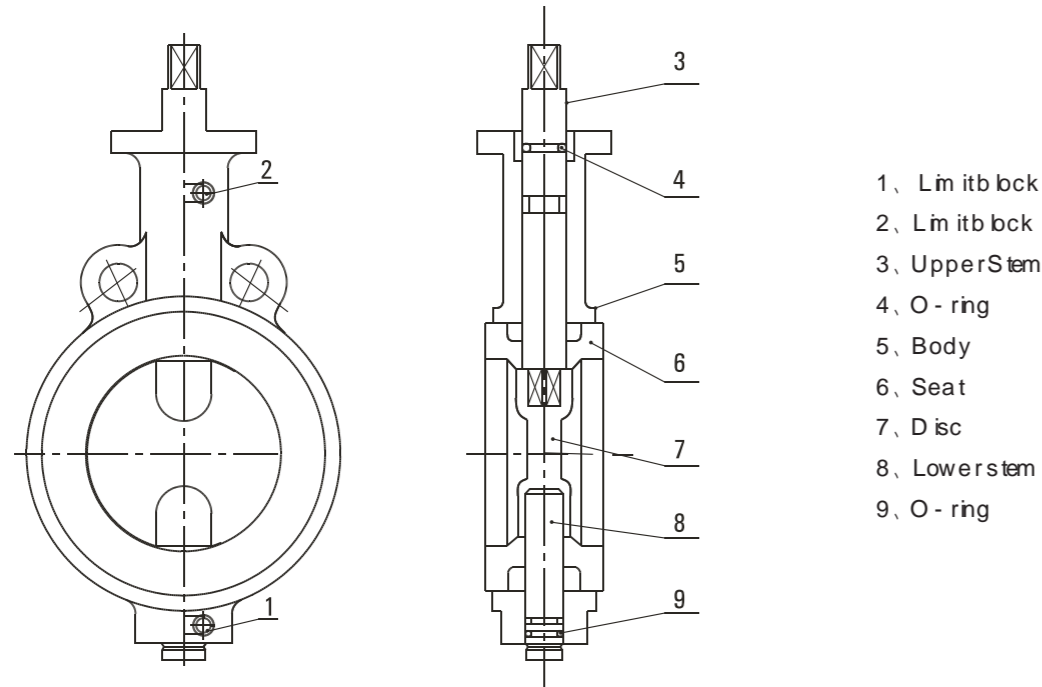
Rated Kv

Nominal diameter	90° opening	Nominal diameter	90° opening
50	60	250	3200
65	108	300	4400
80	230	350	5900
100	410	400	7800
125	645	450	9800
150	1150	500	12000
200	1980	600	17500

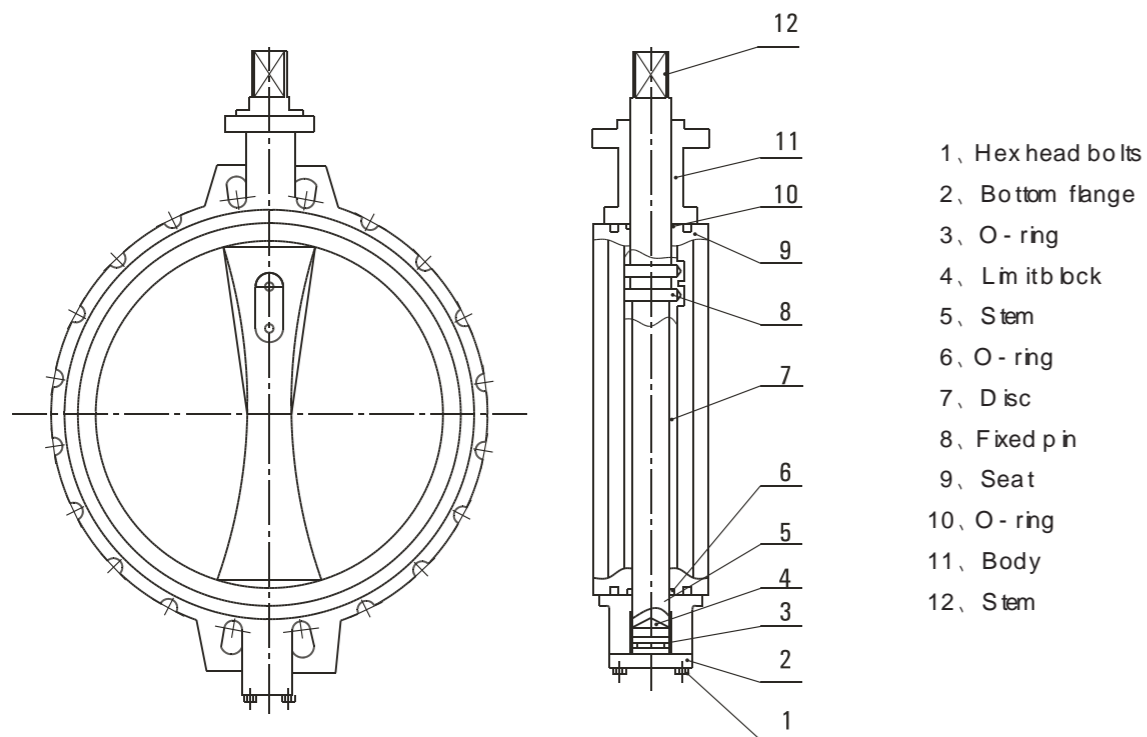
Temperature and pressure range of valve body and bonnet (see appendix)  
Temperature and pressure range of valve trim and packing (see appendix)

HDF200 series rubber-lined (fluorine-lined) butterfly valve sectional view

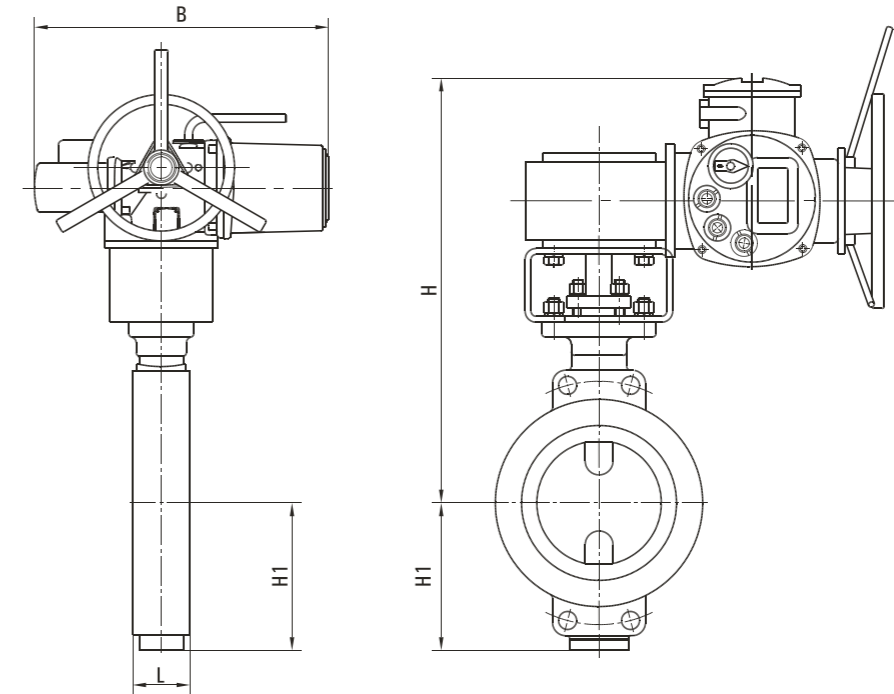
HDF200 series rubber-lined (fluorine-lined) butterfly valve sectional view (DN ≤ 250)



HDF200 series rubber-lined fluorine butterfly valve sectional view (DN > 250)



HDF200 series electric rubber lined (fluorine lined) butterfly valve (Wafer Type) dimensions and weight



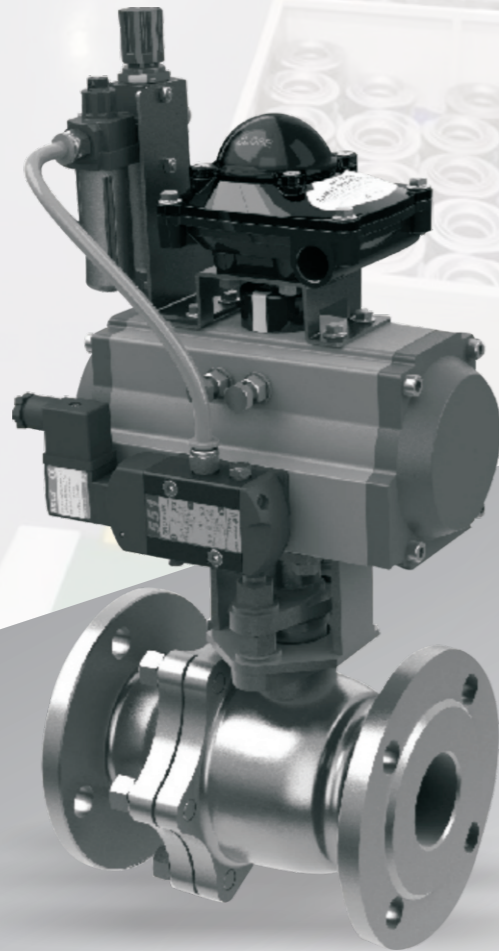
HDF200 series dimensions

(Unit: mm)

DN	L1	L2	H	H1	B	Weight(kg)
50	-	43	463	78	637	6
65	-	46	475	83	637	8
80	48	46	482	92	637	8
100	54	52	501	106	637	13
125	57	56	513	123	637	14
150	57	56	539	136	637	24
200	64	60	594	165	637	41
250	71	68	646	198	687	50
300	81	78	684	229	687	86
350	92	78	765	275	687	115
400	102	102	795	320	687	193
450	114	114	825	340	800	223
500	127	127	923	362	800	270
600	-	154	963	380	800	378

Note: 1. The dimensions in the table are standard configuration data of PN10. For other pressure rating data, please contact our company;  
 2. Various models and specifications of electric (intelligent) actuators can be equipped according to customer requirements.

# HDB100 Series O-type Soft Seal Ball Valve



## Overview

Hdb100 series O-type soft seal isolation ball valve (referred to as isolation ball valve) is a rotary regulating valve. The spherical surface is specially hardened to make its surface smooth and wear-resistant. The product has the advantages of delicate and reasonable structure, large flow capacity, high allowable pressure difference, good sealing performance and strong interchangeability of parts. It can realize isolating and regulating functions, and suitable for handling a multitude of corrosive applications in industries such as petroleum, chemical, pharmaceutical, metallurgy, textile, pulp and paper, sewage treatment and others and mediums can be gas, liquid, slurry and solid powder, etc. to ensure the production process operated as required.

## Technical data and features

### Valve Body

#### HDB100 series standard data

Type:	O-type soft seal ball valve
Nominal Diameter:	10 ~ 300mm (1/2" ~ 12")
Nominal Pressure:	PN16, PN25, PN40, PN63 ANSI Class150, Class 300
Flow Characteristics:	Fast opening
Upper Bonnet Type:	Standard type: -45 °C ~ + 200 °C (Integrated with valve body) But must pay attention to the applicable range of various materials Temperature and pressure range
Connection Type:	Flange type (RF, FM concave surface), socket welding, Butt welding
Material of Valve Body and Upper Bonnet:	WCB, CF8, CF8M <sup>①</sup> Operating temperature and pressure range of each material, See Table 1
Packing:	PTFE: -20 °C ~ + 180°C Expanded graphite: -196 °C ~ + 600 °C See Figure 1
Dimensions:	See Table 4
Note <sup>①</sup> :	The material of valve body, upper bonnet and valve trim can be provided according to the applications requirements.

Actuator

Category	Pneumatic piston		Electric actuator
Model	DA	SR	The details can refer to the model selection of the manufacturers Isolation
Type	Double acting	Single acting	~
Task	Isolation		Isolation
Air pressure or power voltage	0.4~0.6MPa	0.4~0.6MPa	The details can refer to the model selection of the manufacturers
Connector	G1/8", G1/4", G1/2"		
Angular stroke range	90°		
Positive action	Valve close when pressure increase		
Negative action	Valve open when pressure increase		
Ambient temperature	-40 ~ +80°C		
Optional accessories	Filter regulator, solenoid valve, limit switch, exhaust valve, manual operation device		

Main technical specifications

NO.	Item	Pneumatic actuated ball valve	Electric actuated ball valve
1	Rated deviation of stroke angle (° )	+2.5	+0.5
2	Rated deviation of flow coefficient <(%)	± 10	
3	Rated Kv	See table 2	
4	Rated stroke angle (° )	90	
5	Level of leakage	Grade IV and VI (ASME B16.104 / FCI 70-2)	
6	Allowable pressure difference	Nominal pressure value	

Special requirements

Special inspection of body	Material inspection (Liquid penetration flaw testing (PT), radiographic inspection (RT))
Body cleaning	Cleanliness requirements, oil forbidden, waterproof treatment
Special specifications of body and actuator	In sand-proof, dust-proof, salt-proof, cold area, tropical area, copper forbidden, special air piping and special air joint, vacuum working conditions, bolts and nuts in contact with the atmosphere are made of stainless steel, specified coating color

Table 1 Material group of body and trim and temperature range , allowable leakage of seat

O - type soft seal ball valve  
 Flanging type : DN20 ~ DN200  
 Trunnion type : DN250 ~ DN300

Body	WCB	CF8	CF8M
Ball	CF8	CF8	CF8M
Stem	3Cr13	304/17-4PH	316/17-4PH
Seat	Teflon	Teflon	Teflon
Packing	PTFE or Expanded graphite	PTFE or Expanded graphite	PTFE or Expanded graphite
Operating temperature	-5°C ~ 200°C	-45°C ~ 200°C	-45°C ~ 200°C
Allowable leakage	Grade	Grade VI	Grade VI
	Adopted standards	ASME B16.104 / FCI 70-2	

Figure 1 Packing temperature and pressure range

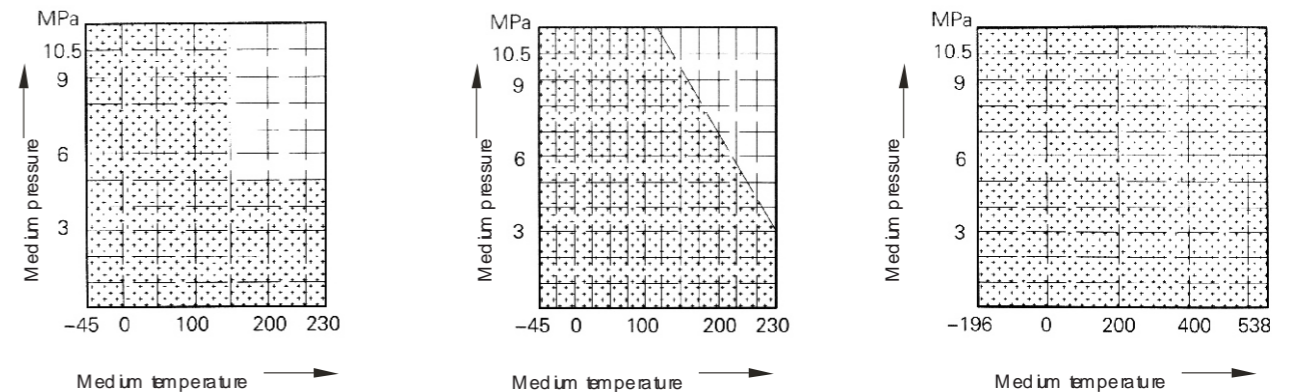
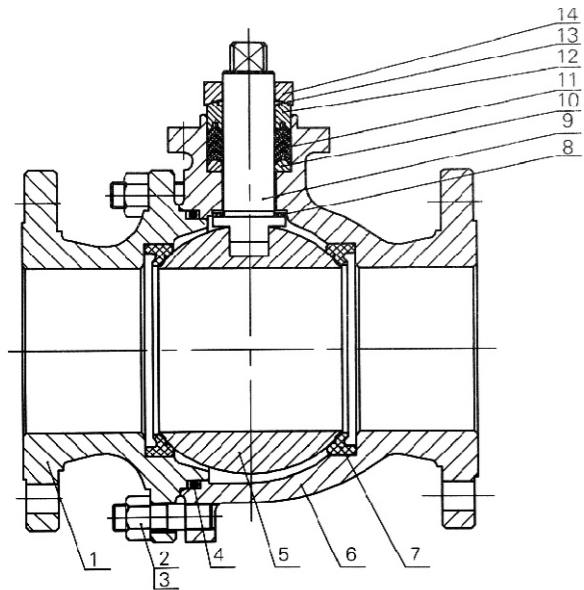


Figure 1- 1 Teflon V- shaped packing    Figure 1- 2 Teflon carbon fiber packing    Figure 1- 3 Expanded graphite packing

▶ Valve body sectional view

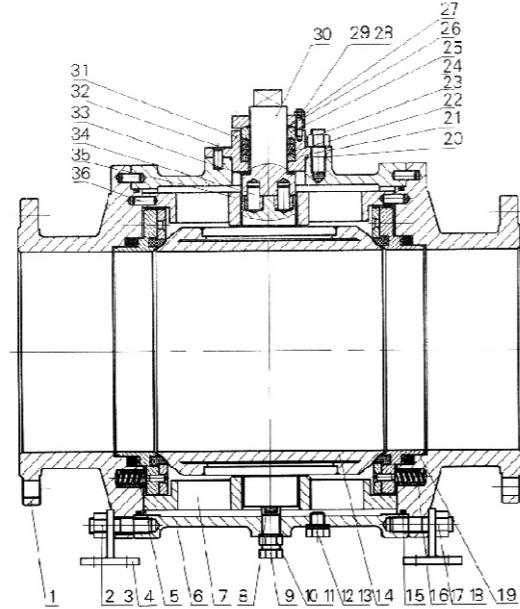
Figure 1: HDB100F series floating O-type soft seal ball valve



Floating O-type soft seal ball valve: DN15 - DN200

- 1. Body cap
- 2. Double-headed stud
- 3. Hex nut
- 4. Sealing ring
- 5. Ball
- 6. Body
- 7. Seat
- 8. Thrustwasher
- 9. Stem
- 10. Gasket
- 11. Packing
- 12. Packing gland
- 13. Safety ring
- 14. Packing gland
- 15. Hex nut
- 16. Double stud

Figure 2: HDB100G series fixed O-type soft seal ball valve



Fixed O-type soft seal ball valve: DN250 - DN300

- 1. Body cap
- 2. Double-headed stud
- 3. Hex nut
- 4. Foot
- 5. Sealing ring
- 6. Body
- 7. Support plate
- 8. Support pad
- 9. Support screw
- 10. Seal ring
- 11. Hex nut
- 12. Bottom plug
- 13. Washer
- 14. Ball assembly
- 15. Seal
- 16. Spring
- 17. Hex nut
- 18. Double-headed studs
- 19. Seal assembly
- 20. Gasket
- 21. Sealing ring
- 22. Teflon
- 23. Studs
- 24. Hex nuts
- 25. Packing gland
- 26. Safety ring
- 27. Packing flange
- 28. Hex nut
- 29. Stud
- 30. Shaft
- 31. Cover
- 32. Location pin
- 33. Thrustwasher
- 34. Drive pin
- 35. Bushing
- 36. Location pin

Table 2 Rated Kv

DN	Rated flow coefficient Kv	DN	Rated flow coefficient Kv	DN	Rated flow coefficient Kv
15	20	50	270	150	2200
20	38	65	380	200	3500
25	72	80	510	250	5000
32	110	100	940	300	8500
40	170	125	1400		

Table 3 Torque table (N·m) (Not for design for design)

Nominal pressure Bar	PN	15	20	25	32	40	50	65	80	100	125	150	200	250	300
	16	8	10	14	20	30	40	60	85	130	190	300	800	1200	1850
	25, 40	10	12	18	30	45	55	120	270	330	610	1040	1250	1550	2740
	64	12	14	20	45	50	90	145	330	380	750	1100	1500	2300	3500

Note: The actuator can be selected according to the table above. If the medium is dry gas, the torque should be increased about 30% ~ 50% on the basis of the above table.

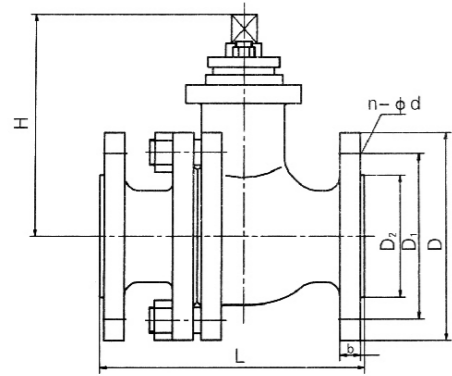
▶ Flange standard, dimensions and weight

Table 4: Flange standards

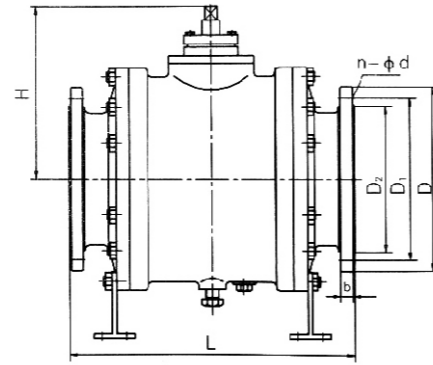
Flange standard	Nominal pressure	Steel flange
	PN16	GB/T9113、HG/T 20592
	Class 150 (PN20)	
	PN25	
	PN40	
	Class 300 (PN50)	
PN63		

Note: Different standards of connections and flanges can be provided according to the customer requirements, such as: HG, SH, ANSI, API, DN, JIS

O-type soft seal ball valve



HDB100F series floating O - type soft seal ball valve  
DN15~200



HDB100G series trunnion ball valve - type soft seal ball valve  
DN250~300

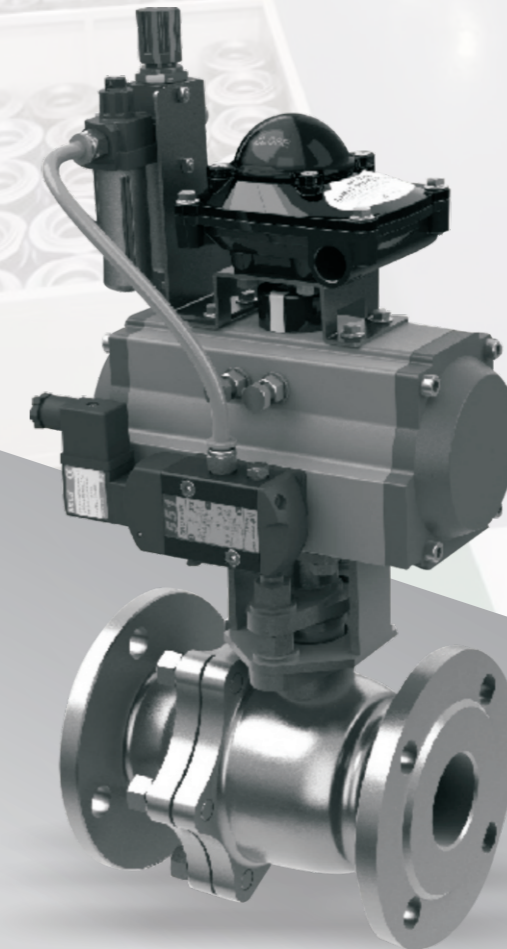
**HDB100 series O-type soft seal ball valve dimensions**

(Unit: mm)

DN	L	H	D	D1	D2	b	n-φd	Weight(kg)
15	160	90	95	65	46	12	4-14	5.2
20	160	90	105	75	56	14	4-14	5.7
25	164	92	115	85	65	14	4-14	6.2
32	164	95	140	100	76	16	4-18	7.9
40	196	124	150	110	84	16	4-18	11.6
50	210	130	165	125	99	18	4-18	13.9
65	233	137	185	145	118	18	4-18	18.9
80	232	175	200	160	132	18	8-18	25.8
100	280	189	220	180	156	20	8-18	36.6
125	320	237	250	210	184	20	8-18	57.9
150	410	273	285	240	211	22	8-22	94.2
200	457	312	340	295	266	22	12-22	151.8
250	630	356	405	355	319	24	12-26	386
300	750	391	460	410	370	26	12-26	535

Note: The flange structure dimensions in the table follow GB/T9113 PN16 standards, and other standards can be followed according to the customer's specification.

**HDB200 Series  
O-type Metal Sealed Ball Valve**





Overview

HDB200 series O-type Metal seal isolation ball valve (referred to as isolation ball valve) adopts metal seal structure, which increases the operation temperature of the ball valve, expands the applicable range of the ball valve, and also improves the comprehensive technical data of the ball valve, making it suitable for more critical service applications. The trim adopts full ball structure, large rated flow coefficient, small flow resistance, excellent sealing and long service life. It can realize isolating and regulating functions, suitable for handling a multitude of corrosive applications in industries such as petroleum, chemical, pharmaceutical, metallurgy, textile, pulp and paper, sewage treatment and others, and mediums can be gas, liquid, slurry and solid powder, etc., to ensure the production process operated as required.

Technical data and features

Valve body

HDB200 series standard data

- Type: O-type Metal seal ball valve
- Nominal Diameter: 15 ~ 200mm (1/2" ~ 8")
- Nominal Pressure: PN16, PN25, PN40, PN63  
ANSI Class150, Class 300
- Flow characteristics: fast opening
- Upper Bonnet Type: Standard type: -45 °C ~ + 427 °C (Integrated with valve body)  
But must pay attention to the applicable range of various materials  
Temperature and pressure range
- Connection Type: Flange (RF, FM concave surface), socket welding, Butt welding
- Material of Valve Body and Upper Bonnet: WCB, CF8, CF8M①  
Temperature and pressure range of each material,  
See Table 1
- Packing: PTFE : -20 °C ~ + 180 °C  
Expanded graphite: - 196 °C ~ + 600 °C  
See Figure 1
- Dimensions: See Table 4
- Note①: The material of valve body, upper bonnet and valve trim can be provided according to the application requirements.

Actuator

Category	Pneumatic piston		Electric actuator
Model	DA	SR	The details can refer to the model selection of the manufacturers Isolation
Type	Double acting	Single acting	~
Task	Isolation		Isolation
Air pressure or power voltage	0.4~0.6MPa	0.4~0.6MPa	The details can refer to the model selection of the manufacturers
Connector	G1/8", G1/4", G1/2"		
Angular stroke range	90°		
Positive action	Valve close when pressure increase		
Negative action	Valve open when pressure increase		
Ambient temperature	-40 ~ +80°C		
Optional accessories	Filter regulator, solenoid valve, limit switch, exhaust valve, manual operation device		

Main technical specifications

NO.	Item	Pneumatic actuated ball valve	Electric actuated ball valve
1	Rated deviation of stroke angle (° )	+2.5	+0.5
2	Rated deviation of flow coefficient <(%)	± 10	
3	Rated Kv	See table 2	
4	Rated stroke angle (° )	90	
5	Level of leakage	Grade IV and VI (ASME B16.104 / FCI 70-2)	
6	Allowable pressure difference	Nominal pressure value	

Special requirements

Special inspection of body	Material inspection (Liquid penetration flaw testing (PT), radiographic inspection (RT))
Body cleaning	Cleanliness requirements, oil forbidden, waterproof treatment
Special specifications of body and actuator	In sand-proof, dust-proof, salt-proof, cold area, tropical area, copper forbidden, special air piping and special air joint, vacuum working conditions, bolts and nuts in contact with the atmosphere are made of stainless steel, specified coating color

Table 1 Material group of body and trim and temperature range , allowable leakage of seat

O-type Metal seal ball valve: DN15 ~ DN200

Body	WCB		CF8		CF8	
Ball	CF8+ST		CF8+ST		CF8M+ST	
Stem	3Cr13		304/17-4PH		316/17-4PH	
Seat	CF8+ST		CF8+ST		CF8M+ST	
Seal ring	Teflon	Expanded graphite	Teflon	Expanded graphite	Teflon	Expanded graphite
Packing	Teflon	Expanded graphite	Teflon	Expanded graphite	Teflon	Expanded graphite
Operating temperature	-5°C ~ 200°C	-5°C ~ 427°C	-45°C ~ 200°C	-45°C ~ 427°C	-45°C ~ 200°C	-45°C ~ 427°C
leakage Allowable	Grade	Grade V		Grade V		Grade V
	Adopted standards	ASME B16.104 / FCI 70-2				

Figure 1 Packing temperature and pressure range

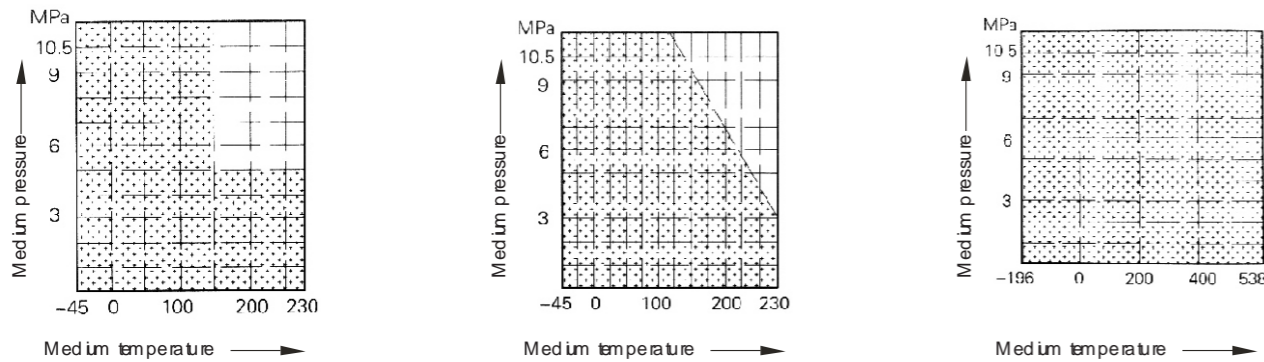
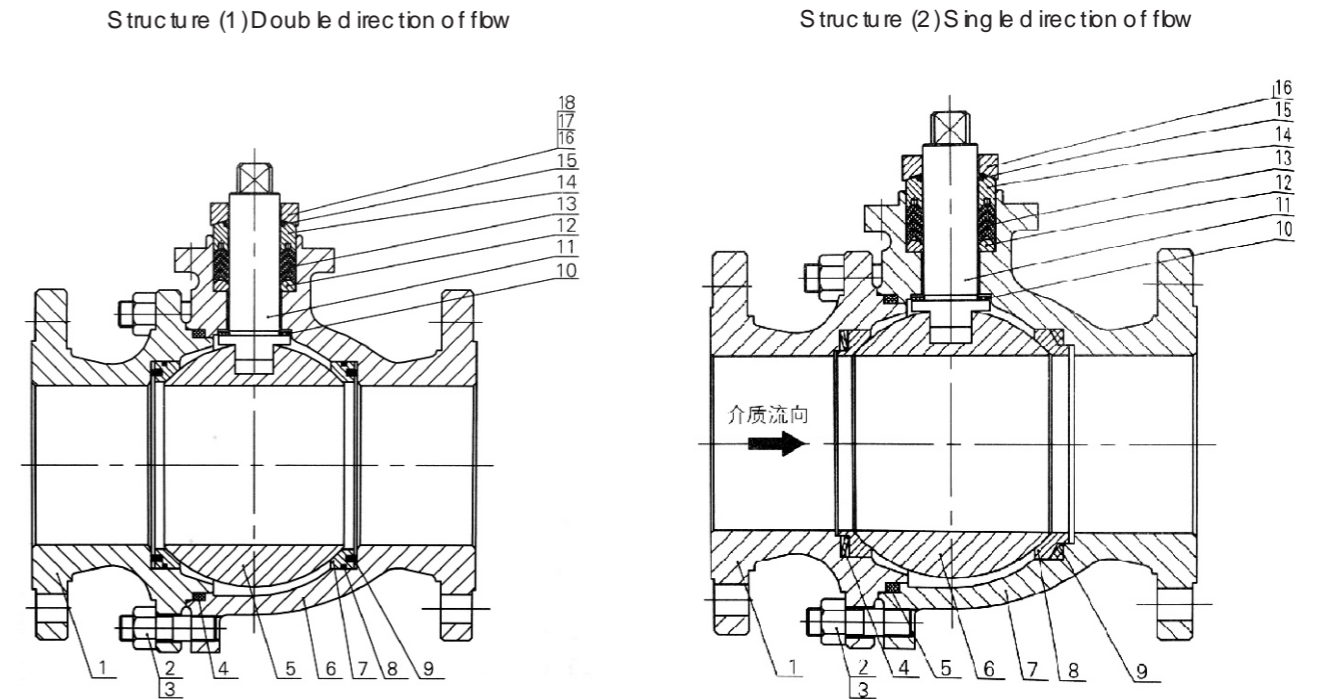


Figure 1- 1 Teflon V- shaped packing      Figure 1- 2 Teflon carbon fiber packing      Figure 1- 3 Expanded graphite packing

▶ Valve body sectional view

Figure 2 HDB200 series O-type metal seal ball valve



HDB200 series O - type Metal seal ball valve :DN15 - DN200

HDB200 series O - type Metal seal ball valve :DN15 - DN200

- |                 |                    |                      |                    |
|-----------------|--------------------|----------------------|--------------------|
| 1. Valve cap    | 10. Thrust washer  | 1. Valve cap         | 10. Thrust washer  |
| 2. Double studs | 11. Stem           | 2. Double studs      | 11. Stem           |
| 3. Hex nut      | 12. Gasket         | 3. Hex nut           | 12. Gasket         |
| 4. Seal ring    | 13. Packing        | 4. Belleville spring | 13. Packing        |
| 5. Ball         | 14. Packing gland  | 5. Sealing ring      | 14. Packing gland  |
| 6. Body         | 15. Safety ring    | 6. Ball              | 15. Safety ring    |
| 7. Seat         | 16. Packing flange | 7. Body              | 16. Packing flange |
| 8. Sealing ring | 17. Hex nut        | 8. Seat              | 17. Hex nut        |
| 9. Spring       | 18. Double stud    | 9. Sealing ring      | 18. Double stud    |

Table 2 Rated Kv

DN	Rated flow coefficient Kv	DN	Rated flow coefficient Kv	DN	Rated flow coefficient Kv
15	20	40	170	100	940
20	38	50	270	125	1400
25	72	65	380	150	2200
32	110	80	510	200	3500

Table 3 Torque table (N·m) (not for design, just for reference)

Nominal pressure Bar	PN	15	20	25	32	40	50	65	80	100	125	150	200
	16	16	20	28	40	60	80	120	170	260	380	600	1500
25、40	20	25	36	60	90	110	240	540	660	1220	2080	2500	
64	25	30	45	90	110	180	290	660	760	1480	2200	3000	

Note: The actual torque can be selected according to the table above. If the medium is dry gas, the torque should be increased about 30% ~ 50% on the basis of the above table.

Flange standard, dimensions and weight

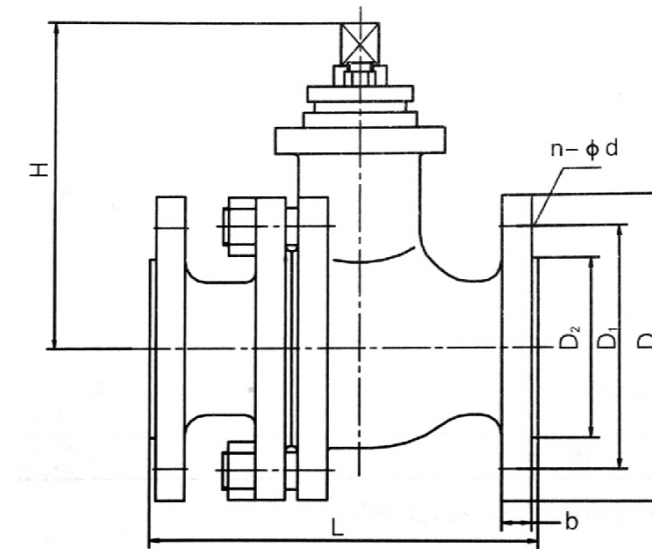
Table 4: Flange standards

Flange standard	Nominal pressure	Steel flange
	PN16	GB/T9113、HG/T 20592
Class 150(PN20)		
PN25		
PN40		
Class 300(PN50)		
PN63		

Note: Different standards of connections and flanges can be provided according to the customer requirements, such as: HG, SH, ANSI, API, DIN, JIS

Table 5 Dimensions and weight

HDB200 series O-type Metal sealed ball valve



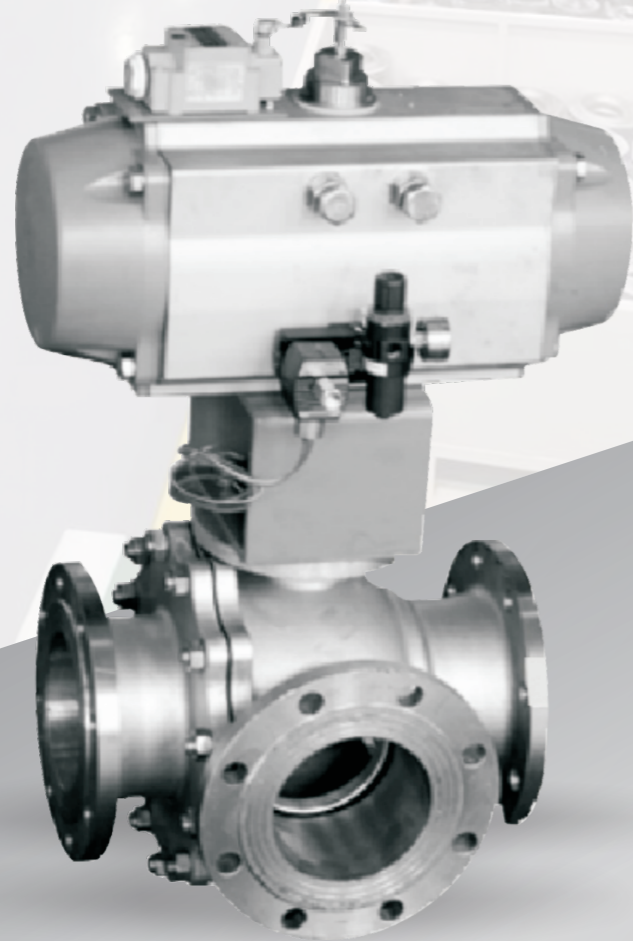
HDB200 series O-type Metal seal ball valve dimensions

(Unit: mm)

DN	L	H	D	D1	D2	b	n-φd	Weight(kg)
15	130	59	95	65	46	12	4-14	5.7
20	130	63	105	75	56	14	4-14	6.3
25	140	75	115	85	65	14	4-14	6.8
32	165	85	140	100	76	16	4-18	8.7
40	165	95	150	110	84	16	4-18	12.8
50	203	107	165	125	99	18	4-18	15.3
65	222	142	185	145	118	18	4-18	20.8
80	241	152	200	160	132	18	8-18	28.4
100	305	178	220	180	156	20	8-18	40.3
125	356	252	250	210	184	20	8-18	63.7
150	394	272	285	240	211	22	8-22	103.6
200	457	342	340	295	266	22	12-22	167.0

Note: The flange structure dimensions in the table follow GB/T9113 PN16 standards, and other standards can be followed according to the customer specified.

## HDB300 Series Three-way Ball Valve



### Overview

HDB300 series three-way ball valve is developed by integrating advanced technologies in domestic and abroad. Standard ball cores have two types: "L" type three-way two-ports and "T" type three-way three-ports. By changing the relative angle between the ball and the pipe, different combination control of the three pipe fluids can be performed. The "T" type channels can play the role of diverting or mixing fluids, and the "L" type channels can be used for proportioning, suitable for regulating and controlling the proportion of liquid, gas, steam and other medium.

This series of ball valve has two types: HDB300L series three-way "L" type and HDB300T series three-way "T" type.

### Features

1. HDB300 series three-way ball valve has compact structure, fast opening and closing, smooth flow passage and small fluid resistance;
2. A single three-Way ball valve replaces several two-Way ball valves, saving valuable space and simplifying piping;
3. In fully open or close positiond, the sealing surfaces of the ball and valve seat are isolated from the medium, so the sealing surface cannot be eroded by the passing medium.

### Technical data and features

#### Valve body

Nominal Diameter:	20 ~ 300mm (3/4" ~ 12")
Trim Type:	Full bore O type
Flow Characteristics:	switch
Nominal Pressure:	PN16, PN25, PN40, PN63 ANSI Class150, Class 300Lb;
Connection:	Flange type
Flange Standard:	ASME B16.5-2013 DIN EN 1092-1-2008 GB/T 9113-2010 HG/T 20615-2019 HG/T20592-2019
Face to Face Distance:	Refer to HDB300 series ball valveconnection dimensions
Body Material:	WCB CF8 CF8M
Core Material:	304 316 316L Above + WC (tungsten carbide) Above + hardened
Seat Material:	PTFE (polytetrafluoroethylene); R.TFE (Reinforced PTFE ) PPL (Para-polybenzene); 304, 316;304, 316 + Stellite (surfacing welding titanium alloy)
Upper bonnet type:	HDB300A series standard type HDB300B series extension type HDB300C series low temperature type
Structure:	HDB300L series tee "L" type HDB300T Series Tee "T"
Packing:	PTFE V-packing, Reinforced PTFE packing, Expanded graphite

Actuator

Pneumatic actuators

Item	Type	Pneumatic piston	
		Double acting	Single acting
Task		Isolation	
Air pressure		0.4~0.6MPa	
Connection		G1/8", G1/4", G1/2"	
Angular stroke range		90°	
Connection type of action		Air Open, Air Close	Double acting
Allowable ambient temperature		-20 ~ +80°C	
Optional accessories for valve		Filter regulator, solenoid valve, limit switch, lock-up valve, manual operation device	

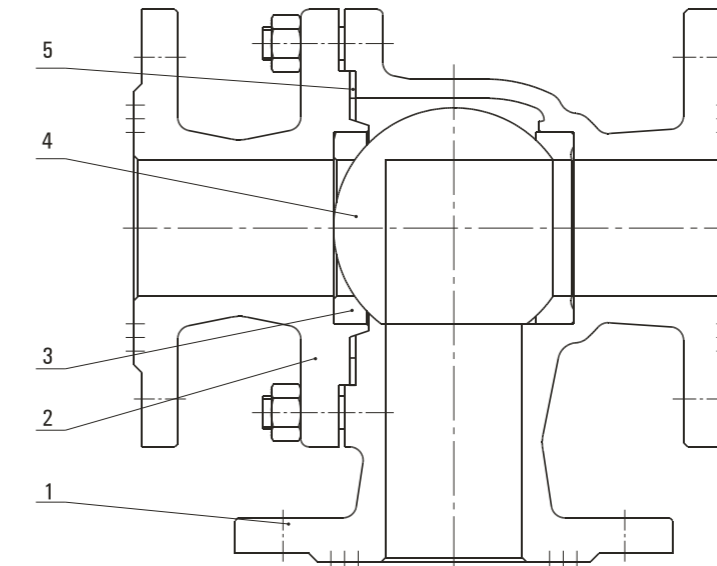
Temperature and pressure range of valve body and bonnet (see appendix)  
 Temperature and pressure range of valve trim and packing (see appendix)

Electric Actuator

Item	Type	Electric piston type
Task		Isolation
Voltage		220V · AC 50Hz; 380V · AC 50Hz
Connection		2-M25 × 1.5
Angular stroke range		90°
Connection type of action		Power open, power close
Allowable ambient temperature		-10 ~ +60°C
Optional accessories for valve		Inching switch for position detecting, potentiometer

HDB300 series three-way ball valve sectional view

HDB300L series L-type ball valve sectional view



1. Main valve body                      3. Seat                      5. Washer  
 2. Valve cap                              4. Ball

HDB300 series three-way ball valve port type

HDB300T series

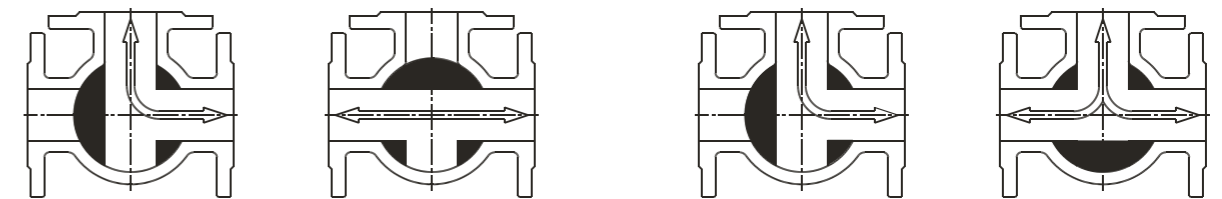


Figure 1

Figure 2

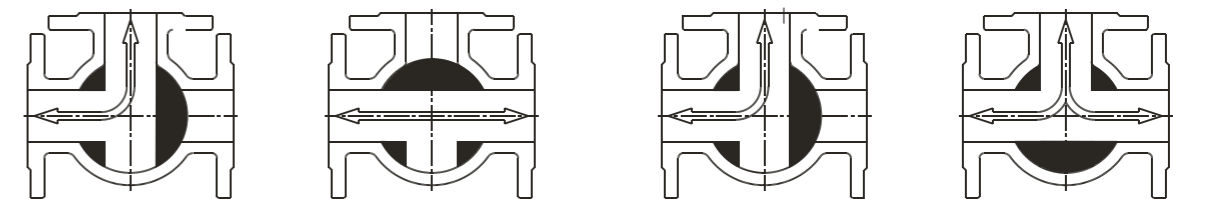


Figure 3

Figure 4

HDB300L series

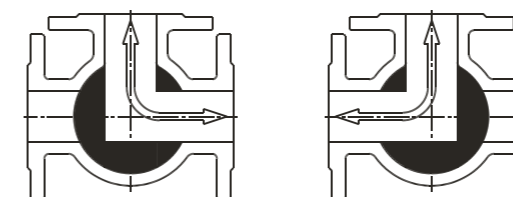


Figure 5

Maximum allowable differential pressure

Allowable differential pressure table for double acting cylinder actuator (air source pressure: 0.45MPa, PN16, ANSI Class 150 #)

(Unit: KPa)

Actuator	Nominal diameter(mm)												
	Floating ball												Trunnion ball
	20	25	32	40	50	65	80	100	125	150	200	250	300
RT035	2.00	2.00											
RT050			1.96	1.96	0.94								
RT075					1.91								
RT110						1.83	0.61						
RT160						2.00	0.88						
RT225							2.00	1.34					
RT435									1.09	0.57			
RT665									1.65	0.86			
RT1000										1.72	0.71	0.58	
RT1200											0.72	0.82	0.46
RT1800											1.06	1.20	0.67
RT2700											1.60	1.82	1.02

Note: The actual allowable differential pressure of the valve should not exceed the maximum of each pressure rating.

Allowable differential pressure table for double acting cylinder actuator (air source pressure: 0.45MPa, PN40, ANSI Class 300 #)

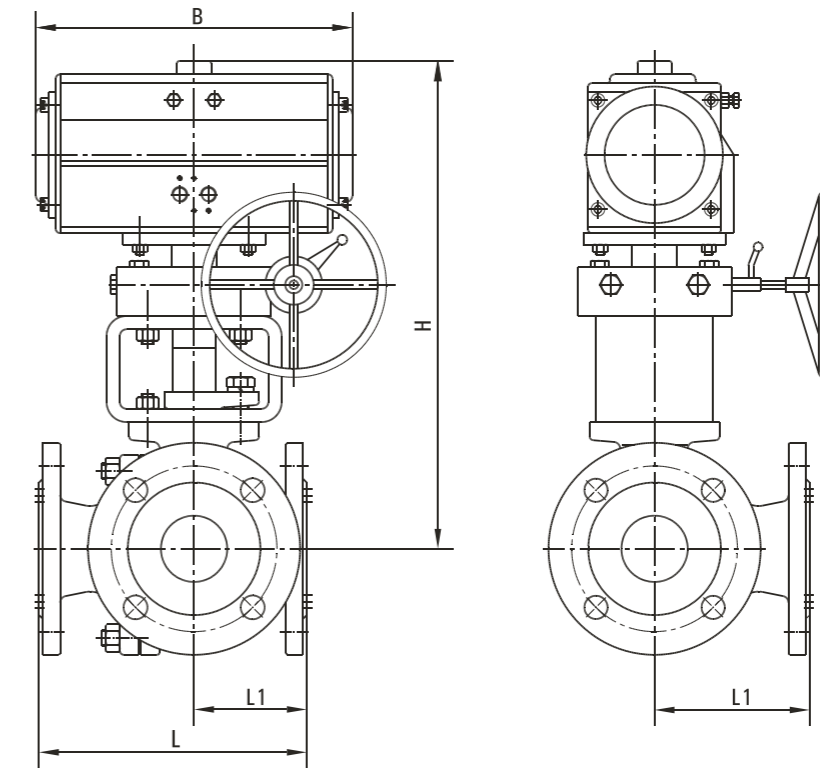
(Unit: KPa)

Actuator	Nominal diameter(mm)															
	Floating ball												Trunnion ball			
	20	25	32	40	50	65	80	100	125	150	200	250	300			
RT035	5.00	5.00														
RT050			5.00	3.17	0.94											
RT075					2.59											
RT110					4.28	1.83	0.61									
RT160						2.65	0.88									
RT225							2.62	1.34								
RT435								2.24	1.09	0.57						
RT665									3.40	1.65	0.86					
RT1000										2.90	1.75	1.72	0.58			
RT1200											1.84	1.84	0.82	0.46		
RT1800												2.71	2.71	1.20	0.67	
RT2700													4.11	4.11	1.82	1.02

Note: The actual allowable differential pressure of the valve should not exceed the maximum of each pressure rating.

HDB300 series three-way ball valve dimensions and weight

HDB300 series pneumatic piston actuated three-way ball valve dimensions and weight



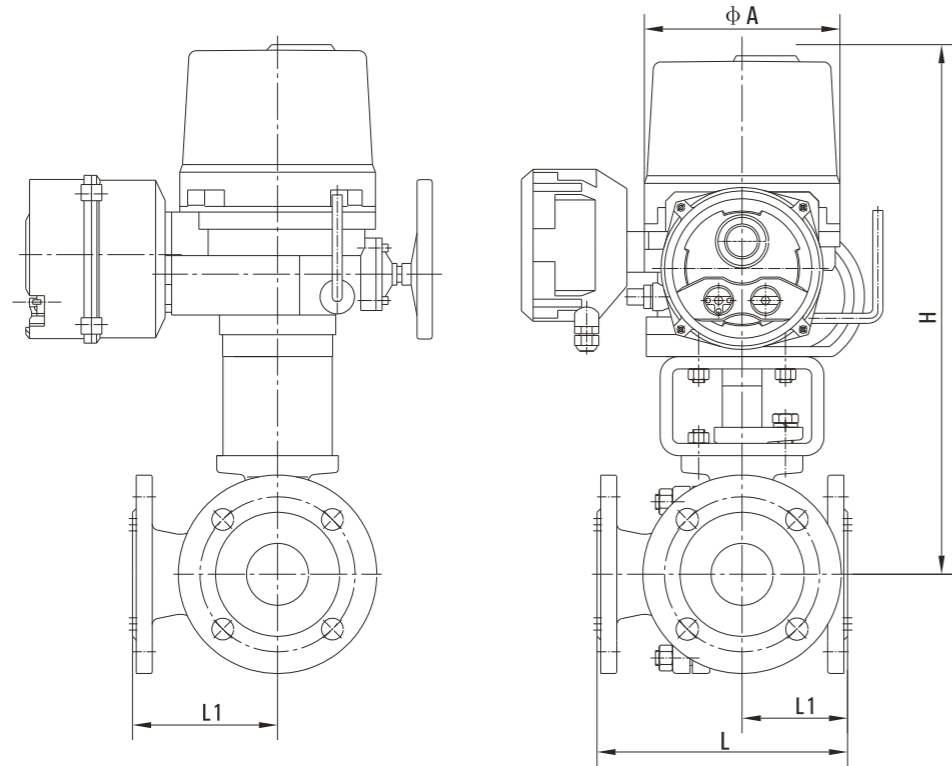
HDB300 series dimensions

(Unit: mm)

DN	L	L1	H	B	Weight(kg)
15	140	70	327	168	10
20	160	80	327	168	11
25	180	90	335	168	13
32	200	100	353	184	15
40	220	110	371	204	27
50	240	120	409	260	50
65	260	130	502	390	69
80	280	140	569	390	101
100	320	160	625	458	140
125	380	190	739	525	340
150	440	220	758	532	353
200	540	270	837	602	484

Note: 1. The dimensions in the table are the standard configuration data of PN16. For other pressure rating data, please contact our company;  
2. The handwheel device is a non-standard valve accessory, which can be selected according to customer requirements.

HDB300 series electric actuated three-way ball valve dimensions and weight



HDB300 series dimensions

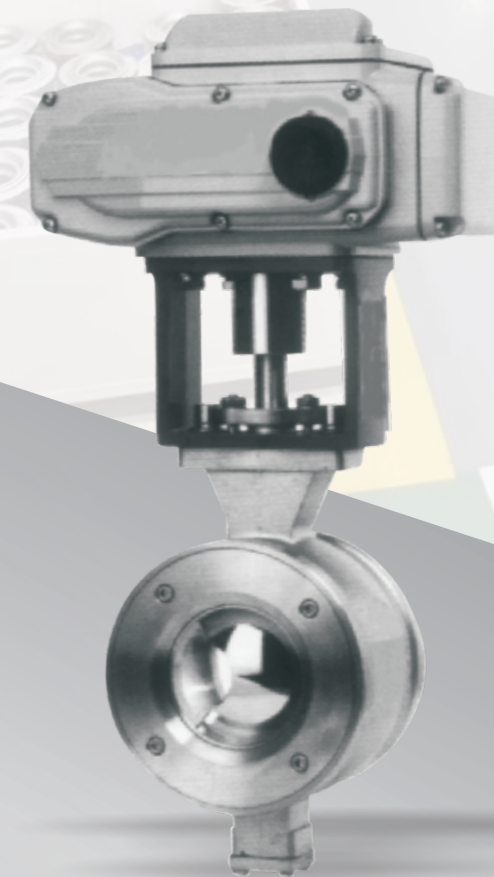
(Unit: mm)

DN	L	L1	H	A	Weight(kg)
15	140	70	327	170	11
20	160	80	327	170	14
25	180	90	335	170	15
32	200	100	353	170	18
40	220	110	371	170	32
50	240	120	409	170	60
65	260	130	502	200	83
80	280	140	569	200	120
100	320	160	625	200	168
125	380	190	739	220	409
150	440	220	758	220	423
200	540	270	837	260	581

Note: 1. The dimensions in the table are the standard configuration data of PN16. For other pressure level pressure rating data, please contact our company;

2. Various types of electric actuators can be equipped according to customer requirements.

HDB400 Series  
Eccentric Ball Valve



Overview

HDB400 series eccentric V-port ball valve (abbreviated as eccentric ball valve), adopt a special eccentric structure between the V-notched ball and the seat ring. Which has compact structure, good sealing performance and long service life, and has both throttling and isolating functions.

Features

1. HDB400 series eccentric V-port ball valve adopts integral casting technology, with compact structure, small dimensions and suitable for high pressure rating applications;
2. When the HDB400 series eccentric V-port ball valve is closed, the ball can generate an eccentric force to achieve the best sealing effect when the ball press into the seat ring. When the valve is opened, the ball and the seat ring are separated quickly, which can effectively prevent the seat ring from wearing;
3. The design of the V-notched ball features approximately equal percentage flow characteristics and smooth, accurate throttling action, at same time, the valve has a good shear force to realize self-cleaning function;
4. Due to the eccentric structure, the operating torque is greatly reduced and the allowable differential pressure is increased;
5. The surface of the ball can be overlaid stellite. After grinding, the surface will be smooth and wear-resistant.

Technical data and features

Valve body

Nominal Diameter:	25 ~ 500mm (1" ~ 20")
Trim Type:	V-notched ball
Flow Characteristics:	Approximately equal percentage, on/off
Nominal Pressure:	PN16, PN25, PN40, Pn63 ANSI Class 150, Class 300, Class 600;
Connection:	Flange, wafer
Flange Standard:	ASME B16.5-2013 DIN EN 1092-1-2008 GB/T 9113-2010 HG/T 20615-2019 HG/T20592-2019
Flange Face Distance:	Refer to HDB400 series ball valve connection dimensions
Body Material:	WCB CF8 CF8M
Ball Material:	304 316 316L Above + Stellite (Titanium alloy overlaid) Above + WC (tungsten carbide) Above + hardened)

Ball Material:	304 316 316L Above + Stellite (Titanium alloy overlaid) Above + WC (tungsten carbide) Above + hardened)
Seat Material:	PTFE (polytetrafluoroethylene) R.TFE (Reinforced PTFE) PPL (para-polybenzene) 304, 316 304, 316 + Stellite (surfacing welding titanium alloy)
Upper Bonnet Type:	HDB400A series standard type HDB400B series extension type HDB400C series low temperature type HDB400D series jacket insulation type
Structure:	HDB400 series eccentric V-type ball valve
Packing:	PTFE V-packing Reinforced PTFE Expanded graphite

Actuator

Pneumatic actuators

Item	Type	Pneumatic piston type	
		Spring return	Double acting
Task		Regulating, On/Off	
Air pressure		0.4~0.6MPa	0.4~0.6MPa
Connection		G1/8", G1/4", G1/2"	
Angular stroke range		90°	
Connection type of action		Air Open, Air Close	Valve open or close according to input signal of positioner
Intrinsic error	General type	± 1.5% Fs ( Including positioner)	
	Special type	± 4.0% Fs ( Including positioner)	
Hysteresis Error	General type	≤ 1.5% Fs (Including positioner)	
	Special type	≤ 3.0% Fs ( Including positioner)	
Allowable ambient temperature		-20 ~ +60°C	
Optional accessories for valve		Electrical valve positioner, air filter regulator, solenoid valve, limit switch, lock-up valve, manual device	



Electric Actuator

Item	Type	A l l e c t r o n i c t y p e ( i n t e l l i g e n t )
Task		Regulating
Voltage		220V · AC 50Hz ; 80V · AC 50Hz
Connection		2-M25 × 15
Input/output signal		4-20mA DC , s w i t c h i n g s i g n a l
Angular stroke range		90 °
Connection type of action		V a l v e s t r o k e t o o p e n o r c l o s e a c c o r d i n g t o t h e s i g n a l i n p u t
Intrinsic error	General type	± 1.0% FS
	Special type	± 2.5% FS
Hysteresis Error	General type	1.0% FS
	Special type	2.0% FS
Allowable ambient temperature		- 10 · + 60
Optional accessories for valve		O v e r p a d p r o t e c t i o n d e v i c e , m a n u a l o p e r a t i o n d e v i c e , j u n c t i o n b o x , e t c .

Rated Kv

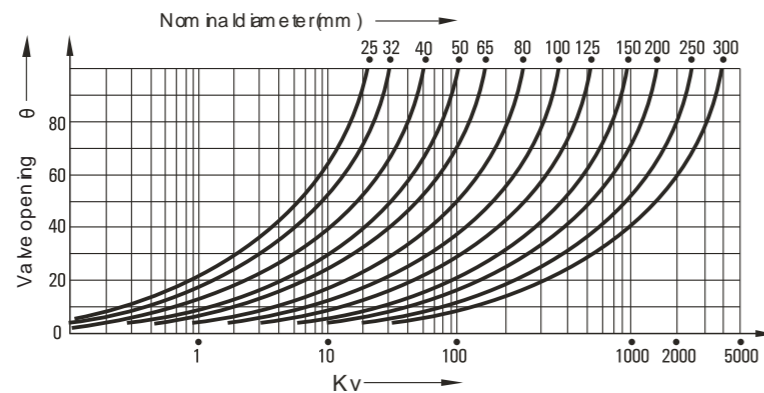
Nominal diameter	Rated Kv(90° )	Nominal diameter	Rated Kv(90° )
25	20	100	370
32	30	125	620
40	50	150	940
50	100	200	1540
65	150	250	2400
80	240	300	3900

Temperature and pressure range of valve body and bonnet (see appendix)

Temperature and pressure range of valve trim and packing (see appendix)

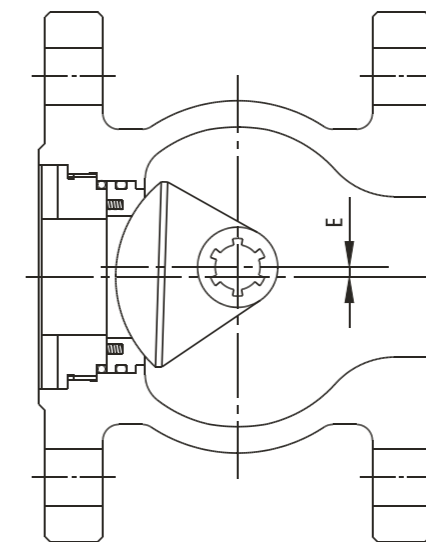
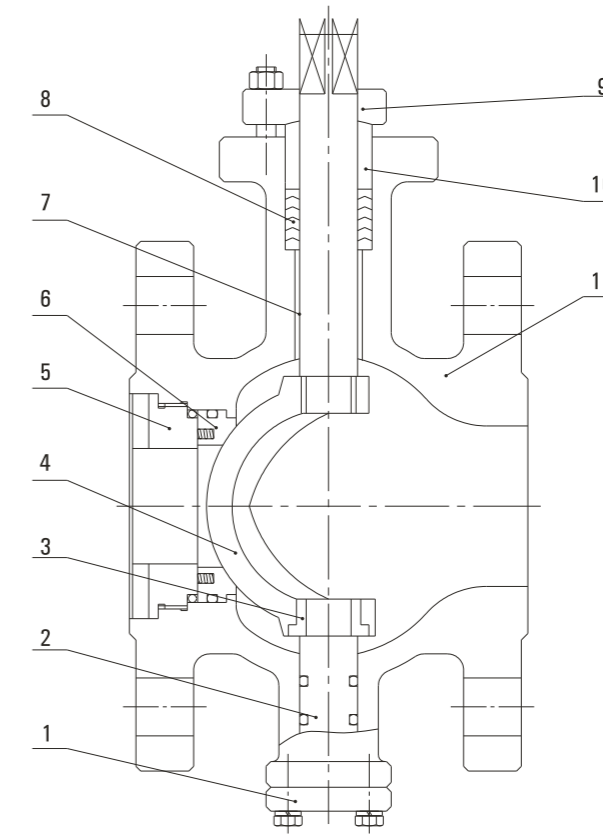
Flow characteristics

HDB400 series eccentric ball valve flow characteristic



HDB400 series eccentric ball valve sectional view

HDB400 series eccentric ball valve sectional view



- 1. Lower Cover
- 2. Lower guided stem
- 3. Thrust bearing
- 4. V - notched Ball

- 5. Body cap
- 6. Seat
- 7. Stem bearing
- 8. Packing

- 9. G land flange
- 10. Packing gland
- 11. Body

Maximum allowable Differential pressure

- Note: 1. Shut in the table: Allowable differential pressure when the valve is closed
- 2. P: Allowable differential pressure of valve during regulating

Allowable differential pressure table for double acting cylinder actuator (Air source pressure: 0.45MPa; packing: low friction type) (Unit: MPa)

Actuator	Task	Nominal diameter (mm)													
		25	40	50	65	80	100	125	150	200	250	300			
RT035	Shut	5.00	1.80												
	P	1.96	0.79												
RT050	Shut	4.88	4.25	1.92	0.41										
	P	3.72	1.53	0.76	0.20										
RT075	Shut			3.52	1.19	0.68									
	P			1.26	1.19	0.68									
RT110	Shut			4.84	2.24	1.37	0.48								
	P			1.96	0.81	0.50	0.16								
RT160	Shut				3.79	2.41	1.07	0.63							
	P				1.33	0.83	0.34	0.22							
RT225	Shut					4.00	1.86	1.16	0.47						
	P					1.35	0.55	0.40	0.17						
RT435	Shut						3.82	2.53	1.18	0.61					
	P						1.12	0.85	0.37	0.19					
RT665	Shut							4.01	1.95	1.05	0.54	0.30			
	P							1.43	0.59	0.31	0.18	0.10			
RT1000	Shut								3.31	1.83	1.00	0.59			
	P								1.00	0.52	0.31	0.18			
RT1200	Shut								4.15	2.43	1.38	0.87			
	P								1.28	0.66	0.40	0.25			
RT1800	Shut								5.00	3.58	2.03	1.28			
	P								1.87	0.97	0.58	0.37			
RT2700	Shut										3.27	2.09			
	P										0.90	0.59			
RT3000	Shut											4.25	2.71		
	P											1.18	0.76		

Note: The actual allowable differential pressure of the valve should not exceed the maximum of each pressure rating.

Allowable differential pressure table for double acting cylinder actuator (Air source pressure: 0.45MPa; Packing: Expanded graphite)

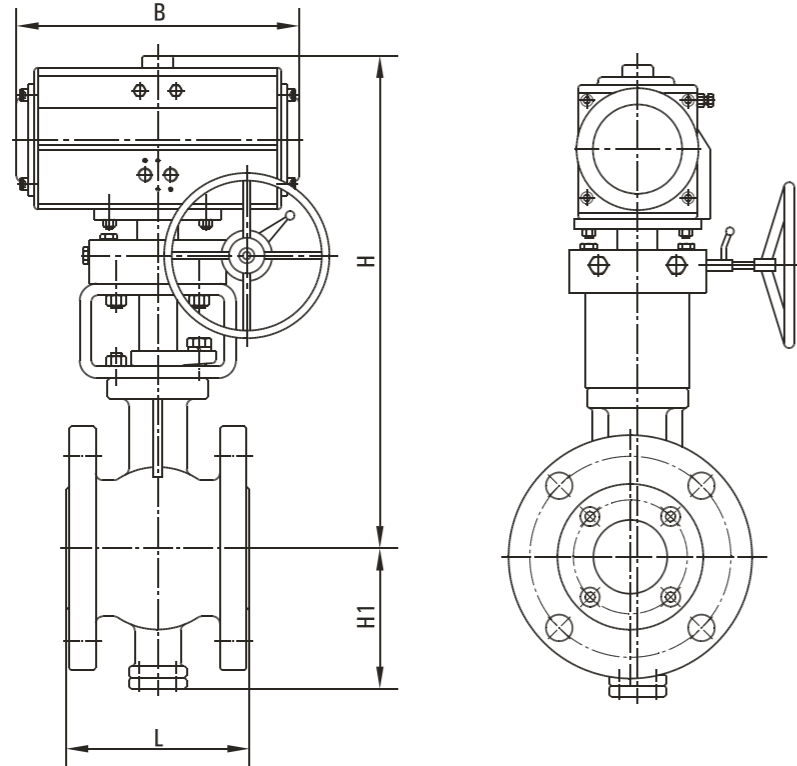
(Unit: MPa)

Actuator	Task	Nominal diameter (mm)															
		25	40	50	65	80	100	125	150	200	250	300					
RT035	Shut	1.40	0.11														
	P	-	-														
RT050	Shut	4.88	3.01	0.32													
	P	2.16	0.90	0.44													
RT075	Shut				2.91	0.29	0.09										
	P				0.98	-	-										
RT110	Shut					4.84	1.33	0.77									
	P					1.64	0.33	0.20									
RT160	Shut						2.97	1.87	0.52	0.27							
	P						0.89	0.55	0.09	0.06							
RT225	Shut							3.33	1.22	0.72	0.14						
	P							1.02	0.27	0.19	-						
RT435	Shut								3.28	2.14	0.91	0.45					
	P								0.87	0.64	0.25	0.12					
RT665	Shut									3.59	1.65	0.87	0.39	0.23			
	P									1.07	0.46	0.24	0.11	0.08			
RT1000	Shut										2.97	1.64	0.82	0.52			
	P										0.84	0.44	0.23	0.15			
RT1200	Shut											2.29	1.26	0.81			
	P											1.10	0.58	0.34	0.22		
RT1800	Shut												5.93	3.36	1.85	1.19	
	P												1.62	0.85	0.50	0.33	
RT2700	Shut														2.06	1.99	
	P														0.81	0.55	
RT3000	Shut															2.77	2.23
	P															1.01	0.71

Note: The actual allowable differential pressure of the valve should not exceed the maximum of each pressure rating.

HDB400 series eccentric V-ball valve dimensions and weight

HDB400 series pneumatic piston eccentric V-port ball valve (Flanged) dimensions and weight



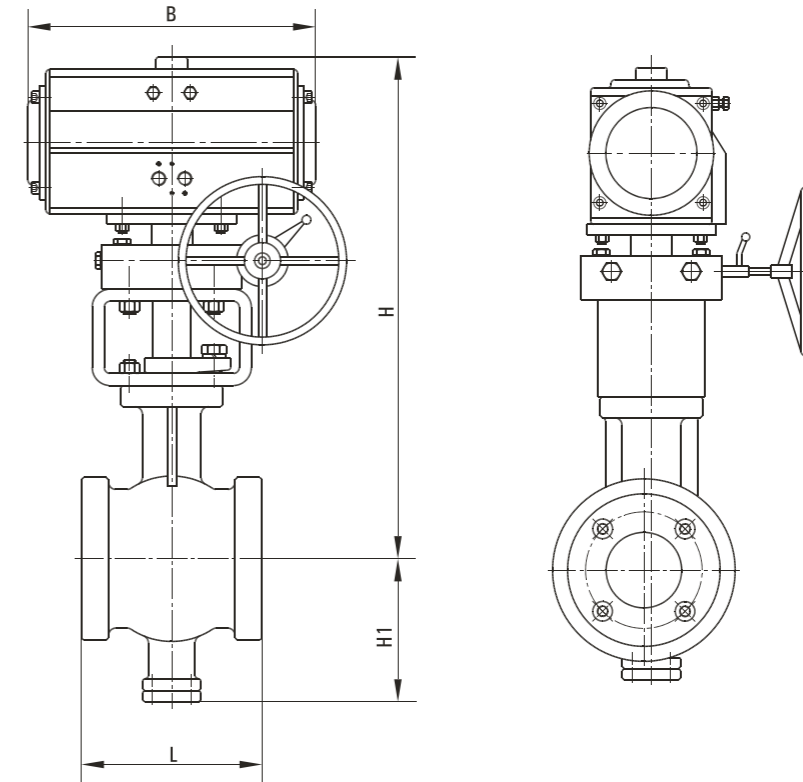
HDB400 series dimensions

(Unit: mm)

DN	L	H	H1	B	Weight(kg)
25	102	412	87	204	10
32	105	423	87	260	11
40	114	446	87	268	12
50	124	483	97	298	17
65	145	525	112	390	19
80	165	580	112	458	31
100	194	648	122	525	37
125	213	708	142	532	45
150	229	804	165	602	59
200	243	879	195	722	94
250	297	946	237	742	135
300	334	1035	287	860	193

Note: 1. The dimensions in the table are the standard configuration data of PN16. For the pressure rating data, please contact our company;  
 2. The handwheel device is a non-standard valve accessory, which can be selected according to customer requirements.

HDB400 series pneumatic piston eccentric V-ball valve (Wafer Type) dimensions and weight



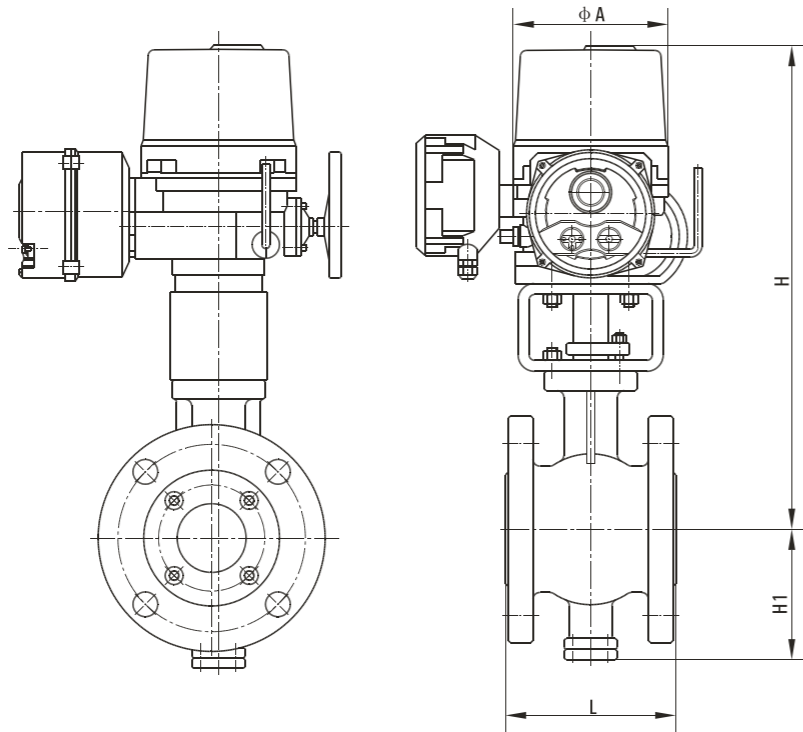
HDB400 series dimensions

(Unit: mm)

DN	L	H	H1	B	Weight(kg)
25	62	412	87	204	10
32	62	423	87	260	11
40	62	446	87	268	12
50	75	483	97	298	17
65	90	525	112	390	19
80	100	580	112	458	31
100	115	648	122	525	37
125	129	708	142	532	45
150	160	804	165	602	59
200	200	879	195	722	94
250	240	946	237	742	135

Note: 1. The dimensions in the table are the standard configuration data of PN16. For the pressure rating data, please contact our company;  
 2. The handwheel device is a non-standard valve accessory, which can be selected according to customer requirements.

HDB400 series full electronic eccentric V-ball valve (Flanged) dimensions and weight



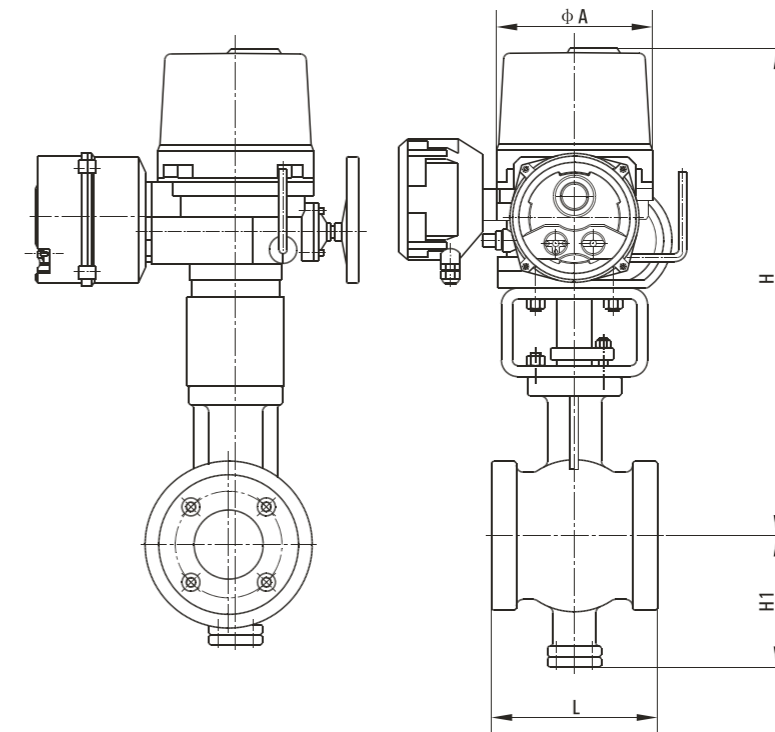
HDB400 series dimensions

(Unit: mm)

DN	L	H	H1	A	Weight(kg)
25	102	436	87	170	13
32	105	436	87	170	14
40	114	446	87	170	16
50	124	461	97	170	22
65	145	478	112	200	25
80	165	508	112	200	40
100	194	543	122	200	48
125	213	613	142	220	59
150	229	648	165	220	77
200	243	737	195	260	122
250	297	879	237	260	176
300	334	914	287	260	251

Note: 1. The dimensions in the table are the standard configuration data of PN16. For other pressure level pressure rating data, please contact our company;  
 2. Various types of electric actuators can be equipped according to customer requirements.

HDB400 series full electronic eccentric V-type ball valve (wafer type) overall dimensions and weight



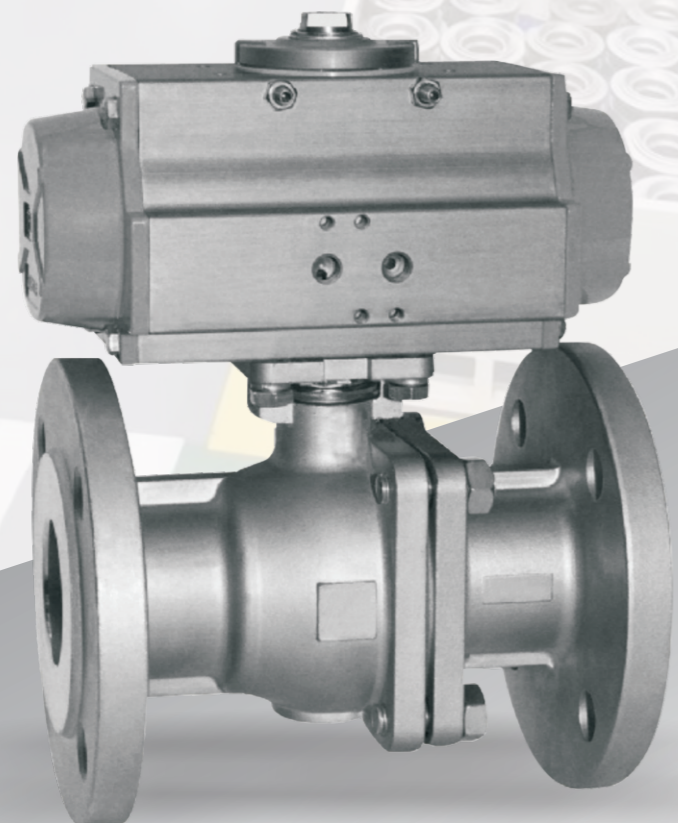
HDB400 series dimensions

(Unit: mm)

DN	L	H	H1	A	Weight(kg)
25	62	436	87	170	13
32	62	436	87	170	14
40	62	446	87	170	16
50	75	461	97	170	22
65	90	478	112	200	25
80	100	508	112	200	40
100	115	543	122	200	48
125	129	613	142	220	59
150	160	648	165	220	77
200	200	737	195	260	122
250	240	879	237	260	176

Note: 1. The dimensions in the table are the standard configuration data of PN16. For other pressure level pressure rating data, please contact our company;  
 2. Various types of electric actuators can be equipped according to customer requirements.

# HDB600 Series O-type Fluorine Lined Ball Valve



## Overview

HDB600 series O-type fluorine-lined ball valve (referred to as fluorine-lined ball valve) is a rotary regulating valve. Because the material of seat is PTFE, and the body and the one piece ball and stem are lined with PTFE, it has reliable corrosion resistance and sealing performance, and is ideally suited for corrosive on-off and control applications, such as acids and alkalis in production process. The product has the advantages of delicate and reasonable structure, large flow capacity, high allowable difference pressure, good sealing performance and strong interchangeability of parts. Therefore it performs closing and opening functions. It performs closing and opening functions, suitable for handling a multitude of corrosive applications in industries such as chemical, pharmaceutical, metallurgy, textile, pulp and paper, sewage treatment and other industries and mediums can be gas, liquid and slurry etc. in order to ensure the production process operated as required.

## Technical data and features

### Valve body

Type:	O-type fluorine-lined ball valve
Nominal Diameter:	15 ~ 200mm (1/2" ~ 8")
Nominal Pressure:	PN16, PN25, PN40 ANSI Class150
Flow Characteristics:	Fast opening
Upper Bonnet Type:	Standard type: -20 °C ~ + 150 °C But must pay attention to the use of various materials Temperature and pressure range
Connection Type:	Flange type (RF, FM concave surface)
Material of Valve Body And Upper	Bonnet: WCB + F46 <sup>①</sup> Operating temperature and pressure range of each material, See Table 1
Packing:	PTFE : -20 °C ~ + 180 °C See Figure 1
Dimensions:	See Table 4
Note <sup>①</sup> :	Different groups of material for valve body, upper bonnet and valve trim can be provided according to the customer requirements.

Actuator

Category	Pneumatic piston		Electric actuator
Model	DA	SR	The details can refer to the model selection of the manufacturers Isolation
Type	Double acting	Single acting	~
Task	Isolation		Isolation
Air pressure or power voltage	0.4~0.6MPa	0.4~0.6MPa	The details can refer to the model selection of the manufacturers
Connector	G1/8", G1/4", G1/2"		
Angular stroke range	90°		
Positive action	Valve close when pressure increase		
Negative action	Valve open when pressure increase		
Ambient temperature	-40 ~ +80°C		
Optional accessories	Filter regulator, solenoid valve, limit switch, exhaust valve, manual operation device		

Main technical specifications

NO.	Item	Pneumatic actuated ball valve	Electric actuated ball valve
1	Rated deviation of stroke angle (° )	+2.5	+0.5
2	Rated deviation of flow coefficient <(%)	± 10	
3	Rated Kv	See table 2	
4	Rated stoke angle (° )	90	
5	Level of leakage	Grade IV and VI (ASME B16.104 / FCI 70-2)	
6	Allowable pressure difference	Nominal pressure value	

Special requirements

Special inspection of body	Material inspection (Liquid penetration flaw testing (PT), radiographic inspection (RT))
Body cleaning	Cleanliness requirements, oil forbidden, waterproof treatment
Special specifications of body and actuator	In sand-proof, dust-proof, salt-proof, cold area, tropical area, copper forbidden, special air piping and special air joint, vacuum working conditions, bolts and nuts in contact with the atmosphere are made of stainless steel, specified coating color

Table 1 Material group of body and trim and temperature range , allowable leakage of seat

O-type fluorine lined ball valve

Body	WCB+F46	
One-piece ball and stem	CF8+F46	
Packing box	WCB+F46	
Seat	Teflon	
Packing	Teflon	
Operating temperature	-20°C ~ 150°C	
Allowable leakage	Grade	Grade VI
	Adopted standards	GB/T4213-2008

Figure 1 Packing temperature and pressure range

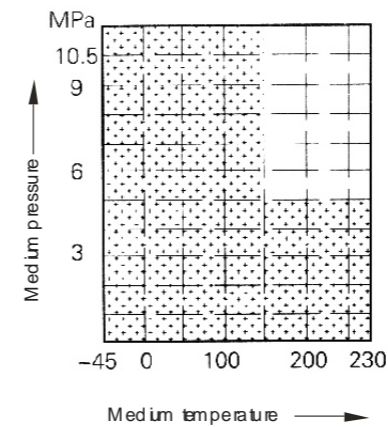


Figure 1 - 1 Teflon V - shaped packing

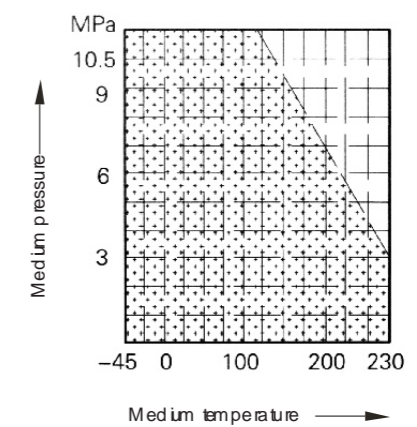
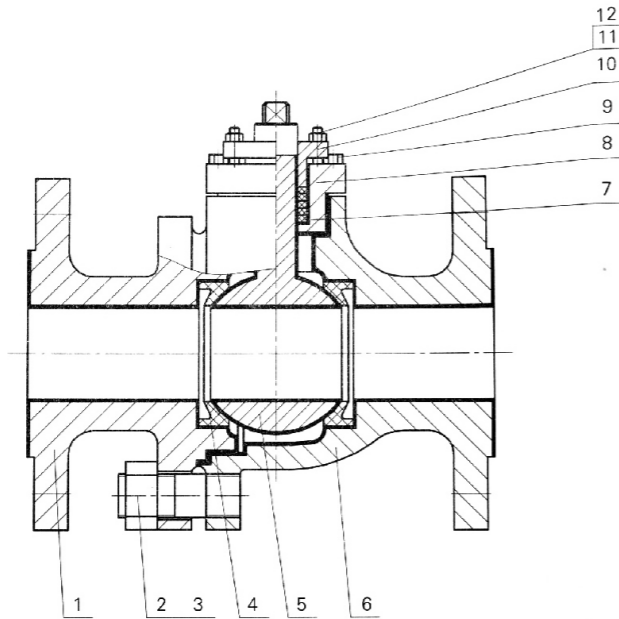


Figure 1 - 2 Teflon carbon fiber packing

▶ Valve sectional view

Figure 2 HDB600 series O-type fluorine lined ball valve



HDB600 series O-type fluorine lined ball valve: DN15–DN200

- |                 |                |                   |
|-----------------|----------------|-------------------|
| 1. Valve cap    | 5. Ball/stem   | 9. Packing box    |
| 2. Double studs | 6. Body        | 10. Packing gland |
| 3. Hex nut      | 7. Packing     | 11. Double stud   |
| 4. Sealing ring | 8. Packing box | 12. Hex nut       |

Table 2 Rated Kv

DN	Rated flow coefficient Kv	DN	Rated flow coefficient Kv	DN	Rated flow coefficient Kv
15	20	40	170	100	940
20	38	50	270	125	1400
25	72	65	380	150	2200
32	110	80	510	200	3500

Table 3 Torque table (N · m) (Not as a design basis, for reference only)

Nominal pressure Bar	PN	15	20	25	32	40	50	65	80	100	125	150	200
	16、20	8	10	14	20	30	40	60	85	130	190	300	800
	25、40	10	12	18	30	45	55	120	270	330	610	1040	1250

Note: The actuator can be selected according to the table above. If the medium is dry gas, the torque should be increased about 30% ~ 50% on the basis of the above table.

▶ Flange standard, dimensions and weight

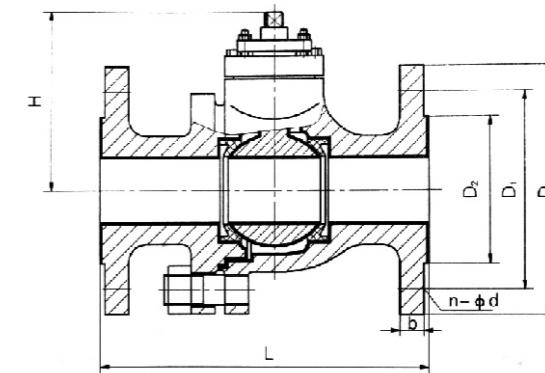
Table 4: Flange standards

Flange standard	Nominal pressure	Steel flange
	PN16	
	Class 150(PN20)	
	PN25	
PN40		

Note: Different standards of connections and flanges can be provided according to the customer requirements, such as: HG, SH, ANSI, API, DIN, JIS

Table 5 Dimensions and weight

HDB600 series O-type fluorine lined ball valve



HDB600 Series O-type fluorine lined ball valve dimensions

( Unit: mm)

DN	L	H	D	D1	D2	b	n-φd	Weight(kg)
15	130	103	95	65	46	12	4-14	2.8
20	130	112	105	75	56	14	4-14	3.5
25	140	122	115	85	65	14	4-14	4.5
32	165	130	140	100	76	16	4-18	6
40	165	140	150	110	84	16	4-18	7.5
50	203	140	165	125	99	18	4-18	9.5
65	222	170	185	145	118	18	4-18	15
80	241	190	200	160	132	18	8-18	20
100	305	210	220	180	156	20	8-18	29
125	356	250	250	210	184	20	8-18	45
150	394	265	285	240	211	22	8-22	85
200	457	300	340	295	266	22	12-22	100

Note: The flange structure dimensions in the table follow to GB / T9113 PN16 standards, and other standards can be followed according to the customer specified.