



HOED



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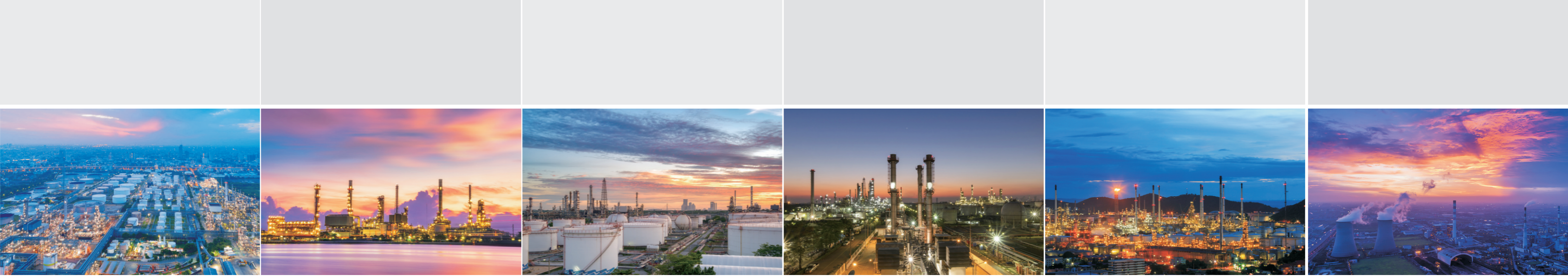
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Self-operated Valve Selection Manual

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 after-sales of equipment commissioning and maintenance. This is also an important concept and principle we are committed to.

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HDS100 Series Self-operated Pressure Regulating Valve



Overview

HDS100 series self-operated pressure regulating valve adopts external pressure taking structure. It rely on the pressure change of the medium to achieve the purpose of automatic pressure regulating and sustaining. It has simple structure and reliable operation. It adopts bellows balanced type, piston balanced type, sleeve-guided type and other plug structure. The energy-saving product suitable for airless or powerless situations, which has small unbalance force and sensitive action, is widely used in various low viscosity liquids, gases and saturated steam. This series of control valve is divided into two types which are inlet of valve pressure control and outlet of valve pressure control.

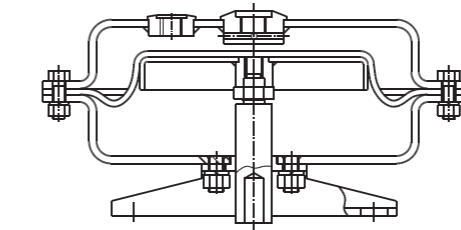
Technical data and features

Valve Body

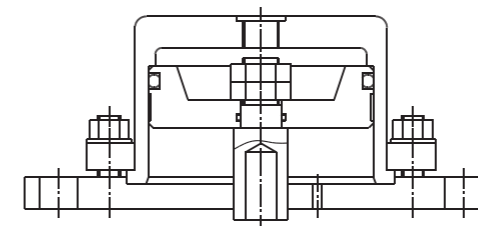
Type:	Medium pressure balanced plug
Nominal Diameter:	20 ~ 400mm (3/4" ~ 16")
Plug type:	Single (double) sealing face balanced type, Bellows balanced type, Piston balanced type
Flow Characteristics:	Fast opening, Linear correction
Nominal Pressure:	PN16, PN25, PN40, PN63; ANSI Class 150, Class 300, Class 600; JIS 10K, 20K, 30K, 40K
Connection Type:	Flange (RF, FM, RTJ) Threaded Welding [Socket welding SW (DN 50) Butt welding BW (DN 65)]
Flange Standard:	ASME B16.5-2013 DN EN 1092-1-2008 GB/T 9113-2010 HG/T 20615-2019 HG/T 20592-2019
Face to Face Distance:	GB/T 12221-2005
Body and Bonnet Material:	WCB, CF8, CF8M, CF3, CF3M
Trim Material:	0Cr18Ni9 (304); 0Cr17Ni2Mo2 (316) 00Cr17Ni4Mo2 (316L) Above + R.TFE (Reinforced PTFE) Above + Stellite (surfacing overlay titanium alloy)
Upper Bonnet Type:	HDS100A series standard type - 30 ~ 250 HDS100B series medium temperature type - 350
Structure:	HDS100 series single seat type self-operated pressure regulating valve HDS110 series cage type single seat type self-operated pressure regulating valve HDS110-D2 series bushing type double-seat type self-operated pressure regulating valve HDS100-D2 series double-seat type self-operated pressure regulating valve HDS130 series multi-stage pressure drop type self-operated regulating valve
Packing:	PTFE V-packing Reinforced PTFE packing

Actuator part

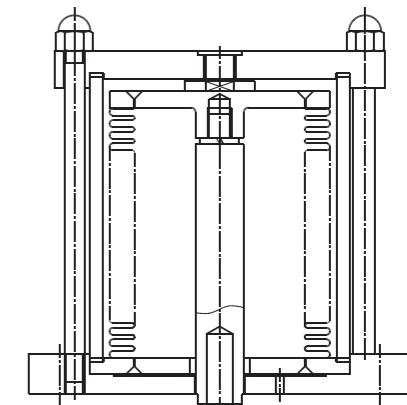
Item \ Type	Diaphragm type	Piston type	Bellows type
Task	Regulating		
Diaphragm material	Nitrile rubber, fluorine rubber, oil resistant rubber	-	-
Piston material	-	Aluminum	-
Bellows material	-	-	304, 316
Connection	M16 x 15		
Type of action	Pressure open (upstream pressure control valve), pressure close (downstream pressure control valve)		
Operating temperature	Gas: -20 ~ +80, liquid: -20 ~ +140 With compensation chamber and heat sink: -20 ~ +350		-20 ~ +350
Standard accessories for valve	Pressure taking pipe (including pressure taking fittings), compensation chamber (for steam medium)		
Optional accessories for valve	Pressure taking pipe connectors, globe valves, pressure gauges, flanges, gaskets and fasteners		



Diaphragm type actuator



Piston type actuator



Bellows type actuator

The main technical data

HDS100 series standard self-operated valve main technical data

Nominal diameter	20	25	32	40	50	65	80	100	125	150	200	250	300	
Rated Kv	Single seat	7	11	20	30	48	75	120	190	300	480	760	1100	1750
	Bushing	7	11	20	30	48	75	120	190	300	480	760	1100	1750
	Double-seat	-	-	22	33	53	83	132	209	330	528	836	1210	1925
Rated stroke L (mm)	8		10		12	20		22		25	25	25	25	
Inherent flow characteristics	Linear, linear correction													
Pressure regulating range (KPa)	15-50 40-80 60-100 80-140 120-180 160-220 200-260 240-300													
	280-350 330-400 380-450 430-500 480-560 540-620 600-700													
	680-800 780-900 880-1000 950-1500 1000-2500 2000-3000 2500-3500													
Regulating accuracy	± 10 %													
Allowable leakage	Metal seal: Class IV (10 ⁻⁴ × Kv); Soft seal: Class VI (see GB/T4213-2008)													

Note: The pressure regulating range can be customized according to the requirements

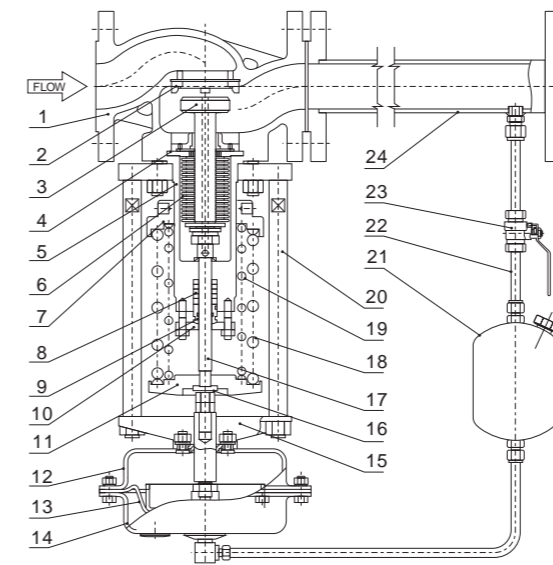
HDS100 series Micro-flow type self-operated valve main technical data

Nominal diameter	20, 25										
	2	3	4	5	6	7	8	9	10	12	15
Rated Kv	0.02	0.08	0.12	0.20	0.32	0.5	0.8	1.2	1.8	3.2	5
Rated stroke L (mm)	5										
Inherent flow characteristics	Linear, linear correction							Fast opening			
Regulating accuracy	± 10 %										
Allowable leakage	Metal seal: Class IV (10 ⁻⁴ × Kv); Soft seal: Class VI (see GB/T4213-2008)										

Temperature and pressure range of valve body and bonnet (see appendix)
 Temperature, pressure range of trims and packings and inherent flow characteristics of valve (see appendix)

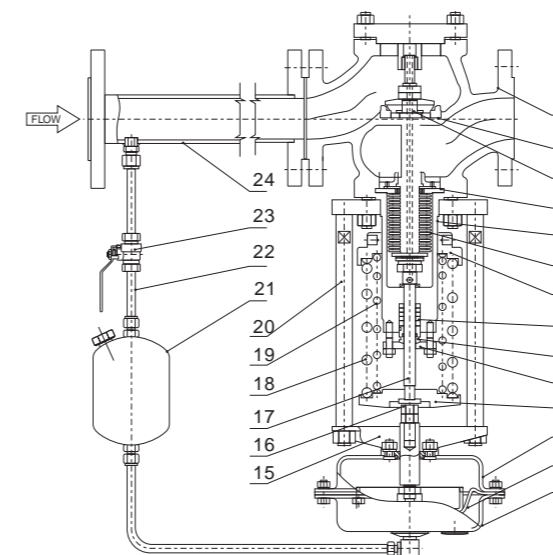
HDS100 series standard type valve sectional view

HDS100 series type downstream pressure control (diaphragm actuator) sectional view



- 1, Body
- 2, Seat
- 3, Plug
- 4, Washers
- 5, Upper bonnet
- 6, Bellows components
- 7, Pressure adjuster
- 8, Packing
- 9, Packing gland
- 10, Gland flange
- 11, Spring plate
- 12, Lower diaphragm cover
- 13, Diaphragm
- 14, Upper diaphragm cover
- 15, Pallet
- 16, Needle roller bearings
- 17, Stem
- 18, Outer ring spring
- 19, Inner ring spring
- 20, Pillar
- 21, Compensation chamber
- 22, Pressure taking pipe
- 23, Globe valve
- 24, Pressure taking pipe connector

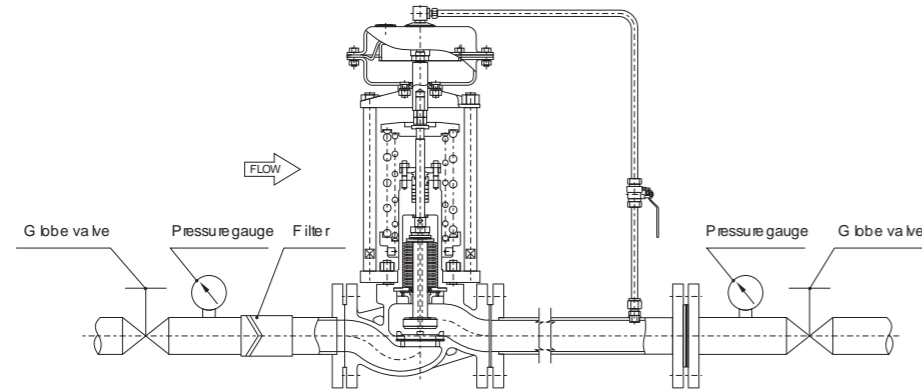
HDS100 series type upstream pressure control (diaphragm actuator) sectional view



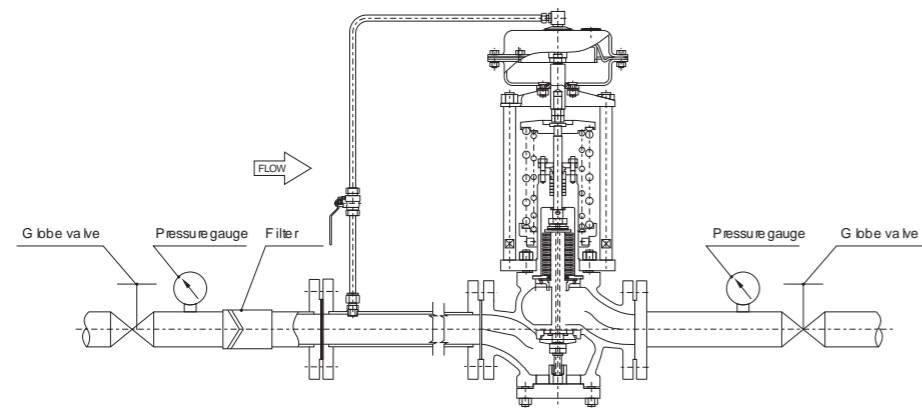
- 1, Body
- 2, Seat
- 3, Plug
- 4, Washers
- 5, Upper bonnet
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- 7, Pressure adjuster
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- 9, Packing gland
- 10, Gland flange
- 11, Spring plate
- 12, Lower diaphragm cover
- 13, Diaphragm
- 14, Upper diaphragm cover
- 15, Pallet
- 16, Needle roller bearings
- 17, Stem
- 18, Outer ring spring
- 19, Inner ring spring
- 20, Pillar
- 21, Compensation chamber
- 22, Pressure taking pipe
- 23, Globe valve
- 24, Pressure taking pipe connector

▶ HDS100 series self-operated regulating valve mounting direction instruction

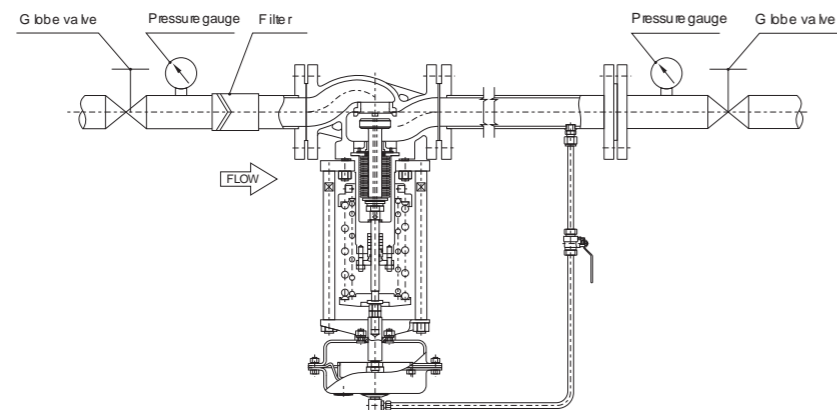
P1 Gas pressure regulating, downstream pressure regulating type (filter may not be installed)



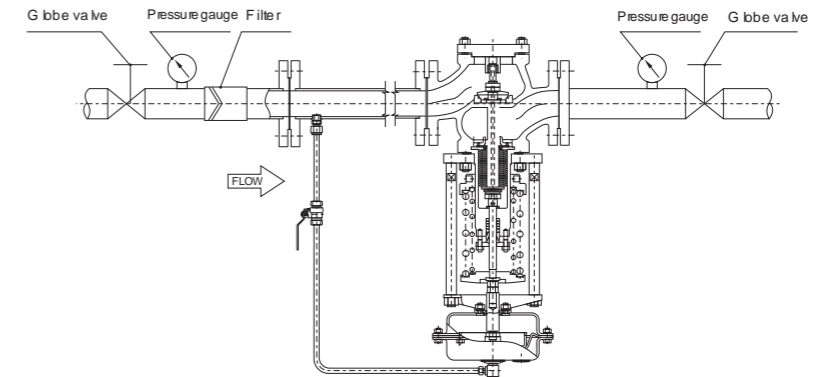
P2 Gas pressure regulating, upstream pressure regulating type (filter may not be installed)



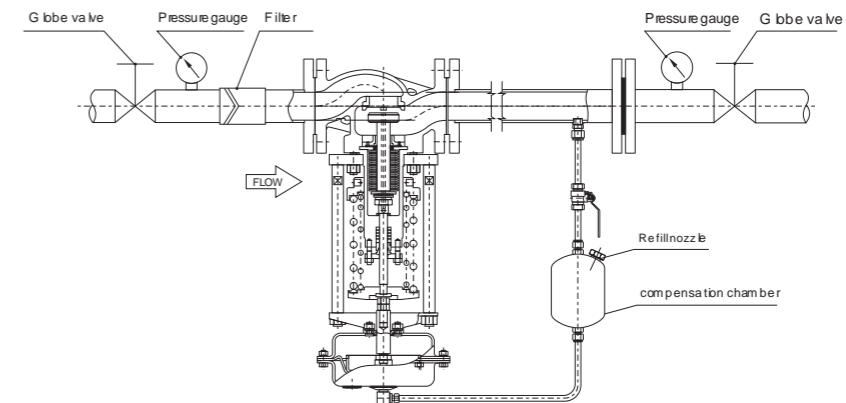
P3 liquid pressure regulating, downstream pressure regulating type (for non-clean liquids, it is recommended to install a filter)



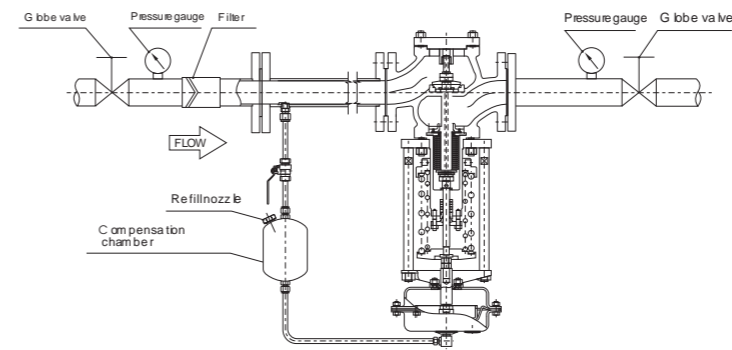
P4 liquid pressure regulating, upstream inlet pressure regulating type (filter is recommended for non-clean liquids)



P5 steam pressure regulating, downstream pressure regulating type (compensation chamber should be installed, filter is recommended)



P6 steam pressure regulating, upstream pressure regulating type (compensation chamber should be installed, filter is recommended)

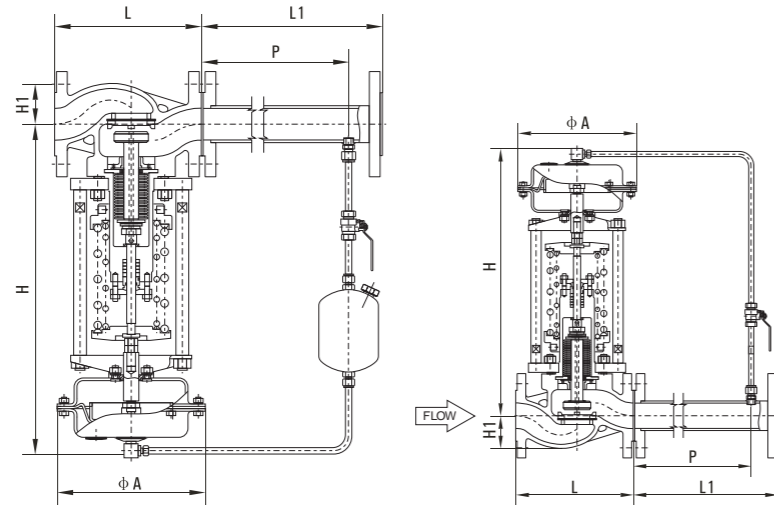


Explanation:

1. Pay attention to the position when installing the compensation chamber, it is higher than the actuator and lower than the process pipeline, so as to ensure that the compensation chamber is full of condensate;
2. Before putting the compensation chamber into the operation, open the screw plug of the refill nozzle and refill pure water or condensed water (must be fully filled).

HDS100 series self-operated pressure regulating valve dimensions and weight

HDS100, HDS100-D2 series downstream pressure control valve type (diaphragm actuator) dimensions and weight

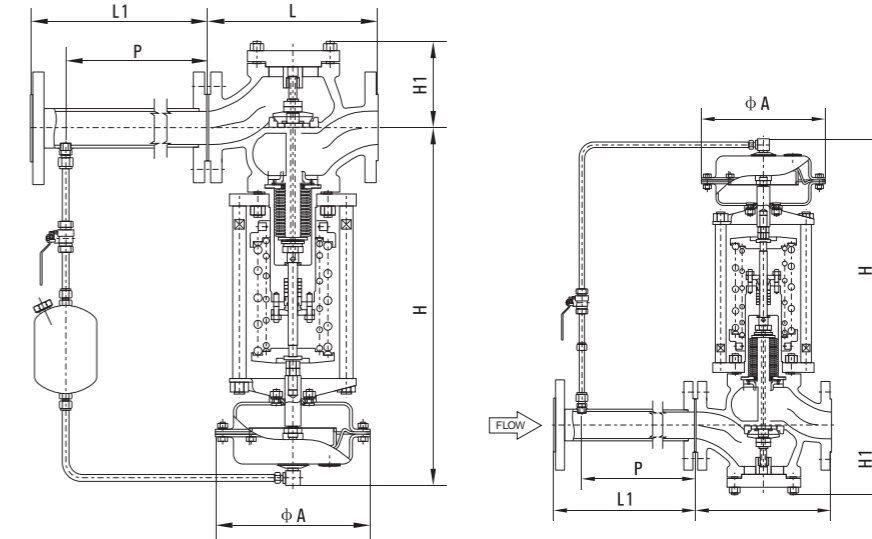


HDS100, HDS100-D2 series downstream pressure control valve type dimensions and weight Unit: mm

DN	L		H	H1	A	L1	P	Weight(kg)		
	PN16, 40	PN63, 100						PN16	PN63	
20	150	206	470	42	176	250	180	26	31	
25	160	210	475	48		250	180	26	31	
32	180	220	510	56		300	220	36	43	
40	200	251	520	64		300	220	37	44	
50	230	286	530	76		370	300	42	50	
65	290	311	550	85		196	520	400	73	88
80	310	337	680	100		232	520	400	90	108
100	350	394	750	110		282	670	570	115	138
125	400	460	800	126		308	980	900	130	156
150	480	508	870	160			980	900	145	174
200	600	610	890	202			1200	1050	180	216
250	730	752	910	270			1500	1250	200	240
300	850	819	950	290		1500	1350	250	300	

- Note: 1. The dimensions in the table are the standard configuration data of PN16. For different pressure rating data, please contact our company;
 2. The valve products can be customized for various severe working conditions according to customer requirements. If there is no special requirements, the products will be supplied according to the standard configuration;
 3. Globe valve and pressure taking pipe connector are non-standard valve accessories, which can be equipped according to customer requirements;
 4. L1 and P in the table are the standard configuration of the product, generally P = 6 x DN, and can also be configured according to customer requirements.

HDS100 series upstream pressure control valve (diaphragm actuator) dimensions and weight



HDS100 series upstream pressure control valve dimensions Unit: mm

DN	L		H	H1	A	L1	P	Weight(kg)		
	PN16, 40	PN63, 100						PN16	PN63	
20	150	206	470	83	176	250	180	26	31	
25	160	210	475	83		250	180	26	31	
32	180	220	510	93		300	220	36	43	
40	200	251	520	95		300	220	37	44	
50	230	286	530	110		370	300	42	50	
65	290	311	550	128		196	520	400	73	88
80	310	337	680	140		232	520	400	90	108
100	350	394	750	160		282	670	570	115	138
125	400	460	800	215		308	980	900	130	156
150	480	508	870	230			980	900	145	174
200	600	610	890	268			1200	1050	180	216
250	730	752	910	385			1500	1250	200	240
300	850	819	950	420		1500	1350	250	300	

- Note: 1. The dimensions in the table are the standard configuration data of PN16. For different pressure rating data, please contact our company;
 2. The valve products can be customized for various severe working conditions according to customer requirements. If there is no special requirements, the products will be supplied according to the standard configuration;
 3. Globe valve and pressure taking pipe connector are non-standard valve accessories, which can be equipped according to customer requirements;
 4. L1 and P in the table are the standard configuration of the product, generally P = 6 x DN, and can also be configured according to customer requirements.

Overview

HDS200 series self-operated pressure regulator with pilot valve is composed of control valve (main valve), actuator and pilot. It can rely on the pressure change of the medium being adjusted to achieve the purpose of automatic pressure regulating and sustaining, suitable for pressure-reducing, relief and sustaining in large rangeability requirement and large pressure difference occasions; HDS200 series is divided into HDS200V micro-pressure type and HDS200L atmospheric pressure type. HDS200V is mainly used for gas pressure reduction and pressure stabilization. It has a large rangeability and wide adjustable range, especially suitable for the occasions with high inlet pressure of the valve (up to 1.4MPa), low pressure setting (down to 14mm water column/0.14KPa) and 2 or 3 stages pressure reduction requirements. HDS200L type can be applied for non-corrosive liquids, gases, steam (temperature ≤300 °C) and other media pressure regulating, with the characteristics of large pressure reduction ratio; This series of control valve is divided into two types downstream of valve pressure control and upstream of valve pressure control.

Technical data and features features

Valve body

- Type: Fluid pressure unbalanced plug, Fluid pressure balanced plug
- Nominal diameter: 20 ~ 400mm (3/4" ~ 16")
- Plug Type: plugger
- Flow Characteristics: Fast opening, linear
- Nominal Pressure: PN10, PN16, PN40; ANSI Class 150, Class 300; JIS 10K, 20K, 30K
- Connection Type: Flange type (RF)
- Flange Standard: ASME B16.5-2013
DN EN 1092-1-2008
GB/T 9113-2010
HG/T 20615-2019
HG/T 20592-2019
- Face to Face Distance: GB/T 12221-2005
- Body and Bonnet Material: WCB, CF8, CF8M, CF3, CF3M
- Trim material: 0Cr18Ni9 (304); 0Cr17Ni12Mo2 (316)
00Cr17Ni14Mo2 (316L)
Above + R.TFE (Reinforced PTFE)
Above + Stellite (Titanium alloy for surfacing)
- Upper Bonnet Type: HDS200A series standard type - 30 ~ 200
- Structure: HDS200V series self-operated pressure regulator with pilot valve (micro-pressure type)
HDS200L series pilot operated self-operated pressure regulator with pilot valve (atmosphere pressure type)
- Packing: Packing: PTFE V-packing
Reinforced PTFE packing
Expanded graphite packing
O-ring
(Material: nitrile rubber, fluorine rubber, oil resistant rubber)
- Others: When the valve is metal sealing and the seat leakage rate is required to reach V, please specify in the contract.

Actuator part

Item	Type	Diaphragm type
Task		Regulating
Diaphragm material		Nitrile rubber, fluorine rubber, oil resistant rubber
Connection		M16 x 15
Type of action		Pressure open (upstream pressure control valve), pressure close (downstream pressure control valve)
Operating temperature		Gas: -20 ~ +120
Standard accessories for valve		Pressure taking pipe (including pressure taking couple)
Optional accessories for valve		Pressure taking pipe connector, globe valves, pressure gauges, flanges, gaskets and fasteners

The main technical data

HDS200V series main technical data

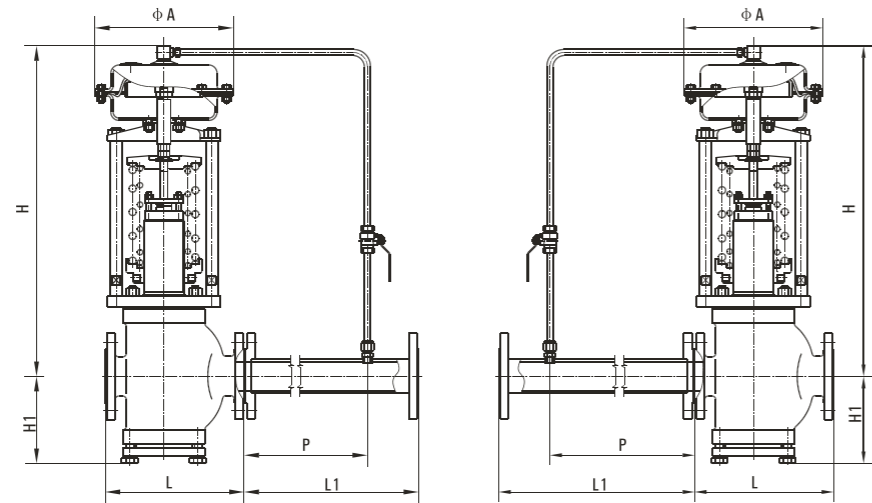
Nominal diameter	20	25	32	40	50	65	80	100	125	150	200
Rated Kv	7	11	20	30	48	75	120	190	300	480	760
Rated stroke L (mm)	8		10		12	20		22		25	25
Inherent flow characteristics	Fast opening										
Min. DP of the valve in normal operation	0.2MPa										
Applicable medium	Non-corrosive gas (-20 ~ 120 °C)										
Pressure regulating range (KPa)	0.14-2.0 1-6 5-10 9-15 12-19 18-25 22-30 28-35 32-40 38-50 48-60 58-72 70-100										
Regulating accuracy	± 5 %										
Allowable leakage	Metal seal: Class M (10 ⁻⁴ × Kv); Soft seal: Class VI (see GB/T 4213-2008)										

Note: The pressure regulating range can be customized according to the requirements

HDS200V series micro-flow type self-operated valve main technical data

Nominal diameter	20, 25											
	2	3	4	5	6	7	8	9	10	12	15	
Rated Kv	0.02	0.08	0.12	0.20	0.32	0.5	0.8	1.2	1.8	3.2	5	
Rated stroke L (mm)	5											
Inherent flow characteristics	Linear, linear correction								Fast opening			
Minimum pressure difference of the valve in normal operation	0.2MPa											
Regulating accuracy	± 5 %											
Allowable leakage	Metal seal: Class M (10 ⁻⁴ × Kv); Soft seal: Class VI (see GB/T 4213-2008)											

HDS100-D2 series (diaphragm actuator) control valve dimensions and weight



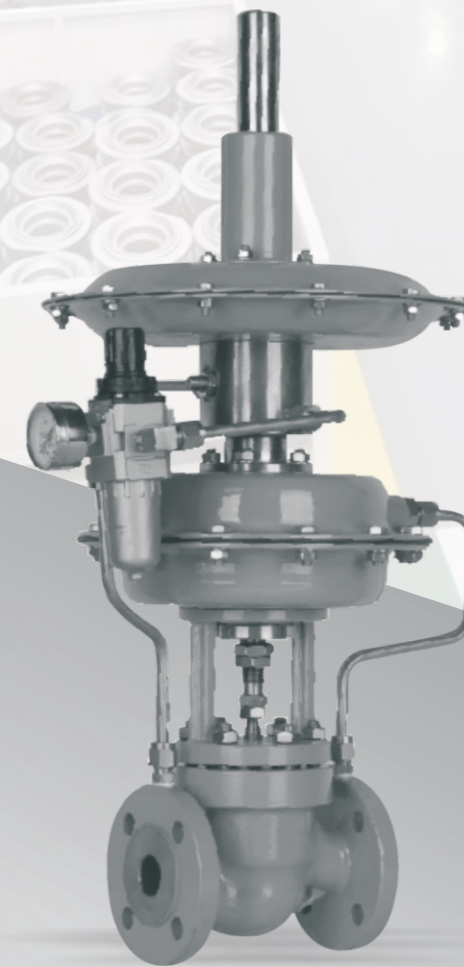
HDS100-D2 series upstream pressure control valve dimensions

Unit: mm

DN	L		H	H1	A	L1	P	Weight(kg)		
	PN16, 40	PN63, 100						PN16	PN63	
20	150	206	470	120	176	250	180	26	31	
25	160	210	475	120		250	180	26	31	
32	180	220	510	120		300	220	36	43	
40	200	251	520	120		300	220	37	44	
50	230	286	530	145		370	300	42	50	
65	290	311	550	190		196	520	400	73	88
80	310	337	680	210		232	520	400	90	108
100	350	394	750	220		282	670	570	115	138
125	400	460	800	270		308	980	900	130	156
150	480	508	870	280		980	900	145	174	
200	600	610	890	320	1200	1050	180	216		
250	730	752	910	385	1500	1250	200	240		
300	850	819	950	420	1500	1350	250	300		

- Note: 1. The dimensions in the table are the standard configuration data of PN16. For different pressure rating data, please contact our company;
 2. The valve products can be customized for various severe working conditions according to customer requirements. If there is no special requirements, the products will be supplied according to the standard configuration;
 3. Globe valve and pressure taking pipe connect rare non-standard valve accessories, which can be equipped according to customer requirements;
 4. L1 and P in the table are the standard configuration of the product, generally $P = 6 \times DN$, and can also be configured according to customer requirements.

HDS200 Series Self-operated Pressure Regulators With Pilot Valve



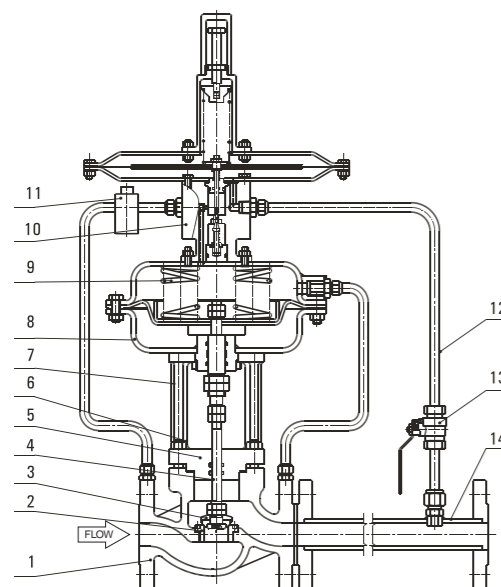
HDS200L series atmosphere pressure self-operated main technical data

Nominal diameter	20	25	32	40	50	65	80	100	125	150	200	
Rated Kv	7	11	20	30	48	75	120	190	300	480	760	
Rated stroke L (mm)	8		10		12	20		22		25	25	
Inherent flow characteristics	Fast opening											
Min. DP of the valve in normal operation	0.2MPa											
Max. DP of the valve in normal operation (MPa)	PN16	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.2	1.0
	PN40	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.5	1.2	1.0
Applicable medium	Non-corrosive gas, liquid, steam (Temperature ≤ 30)											
Pressure regulating range (KPa)	15-200 80-250 200-500 450-1000 600-2000											
Regulating accuracy	$\pm 5\%$											
Allowable leakage	Metal seal: Class M ($10^{-4} \times Kv$); Soft seal: Class VI (see GB/T4213-2008)											

Temperature and pressure range of valve body and bonnet (see appendix)
 Temperature, pressure range of trims and packings and inherent flow characteristics of valve (see appendix)

HDS200 series standard internal structure diagram

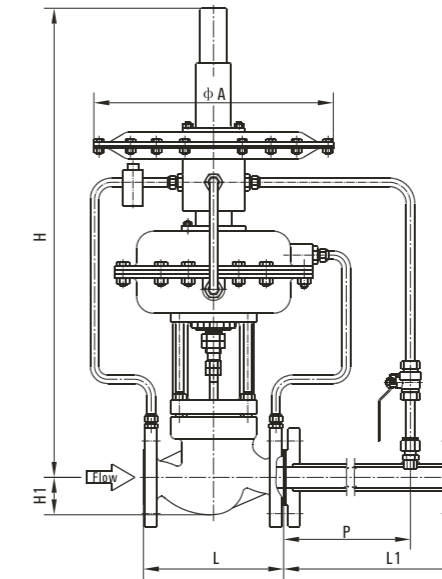
HDS200V series control valve rear type (diaphragm type actuator) internal structure diagram



- 1, Body
- 2, Seat
- 3, Plug assembly
- 4, Stem
- 5, Sealed bushing
- 6, Gland
- 7, Pillar
- 8, Actuator
- 9, Spring
- 10, Pilot
- 11, Supply filter & pressure regulator
- 12, Pressure taking pipe
- 13, Globe valve
- 14, Pressure taking pipe connector

HDS200 series self-operated regulator with pilot valve dimensions and weight

HDS200V series downstream pressure control valve (diaphragm actuator) dimensions and weight



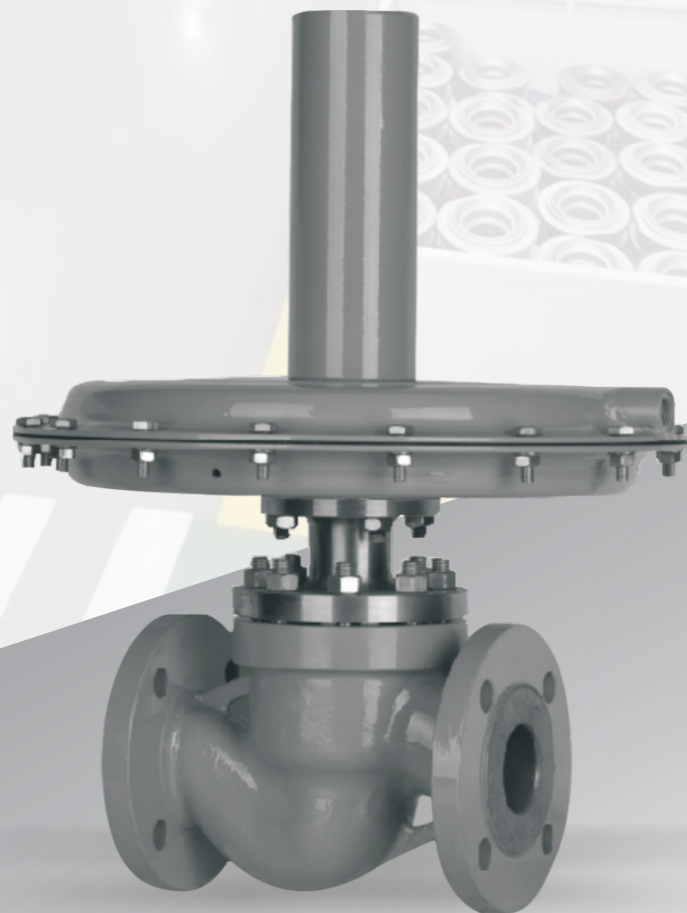
HDS200V series downstream pressure control valve dimensions

Unit: mm

DN	L	H	H1	A	L1	P	Weight(kg)
20	184	548	42	282 394	250	180	13
25	184	548	48		250	180	14
32	180	565	56		300	220	15
40	200	565	64		300	220	17
50	230	565	76		370	300	18
65	290	595	85		520	400	30
80	310	595	100		520	400	45
100	350	595	110		670	570	90
125	400	650	126		980	900	110
150	480	660	160		980	900	130
200	600	680	202		1200	1050	160

Note: 1. The dimensions in the table are the standard configuration data of PN16. For different pressure rating data, please contact our company;
 2. The valve products can be customized for various severe working conditions according to customer requirements. If there is no special requirements, the products will be supplied according to the standard configuration;
 3. Globe valve and pressure taking pipe connector are non-standard valve accessories, which can be equipped according to customer requirements;
 4. L1 and P in the table are the standard configuration of the product, generally $P = 6 \times DN$, and can also be configured according to customer requirements.

HDS300 Series Self-operated Micro-pressure Regulating Valve



Overview

HDS300 series self-operated micro-pressure regulating valve has two structures: external pressure taking and internal pressure taking. It can rely on the pressure change of the medium to achieve the purpose of automatic pressure regulating and sustaining. It has simple structure and reliable operation, suitable for pressure reducing, relief and sustaining. This series of control valve is divided into upstream pressure control and downstream pressure control.

Technical data and features

Valve body

Type:	Media pressure balanced plug
Nominal Diameter:	20 ~ 300mm (3/4" ~ 12")
Plug type:	Plunger
Flow Characteristics:	Fast opening, linear correction
Nominal Pressure:	PN10, Pn16; ANSI Class150; JIS 10K
Connection type:	Flange type (RF) Threaded
Flange Standard:	ASME B16.5-2013 DN EN 1092-1-2008 GB/T 9113-2010 HG/T 20615-2019 HG/T 20592-2019
Face to Face Distance:	GB/T 12221-2005
Body and Bonnet Material:	WCB, CF8, CF8M, CF3, CF3M
Trim Material:	OC r18N Ø (304); OC r17N Ø 2Mo2 (316) 00C r17N Ø 14Mo2 (316L) Above + NBR, FKM (nitrile rubber or fluorine rubber) Above + R.TFE (Reinforced PTFE) Above + Stellite (Titanium alloy for surfacing)
Upper Bonnet Type:	HDS300A series standard type - 30 +120
Structure:	HDS300 series self-operated micro-pressure regulating valve HDS300-D2 series self-operated double-seat micro-pressure regulating valve
Packing:	O-ring Material: nitrile rubber, fluorine rubber, oil resistant rubber
Others:	When the valve is a metal hard sealing and the seat leakage rate is required to reach V, please specify in the contract.

Actuator part

Item	Type	Diaphragm type
Task		Regulating
Diaphragm material		Nitrile rubber, fluorine rubber, oil resistant rubber
Connection		M16 x 15
Type of action		Pressure Opened (upstream pressure control valve), pressure closed (downstream pressure control valve)
Operating temperature		-20~+120
Standard accessories for valve		Pressure taking pipe (including pressure taking connector)
Optional accessories for valve		Pressure taking pipe connectors, globe valves, pressure gauges, flanges, gaskets and fasteners

The main technical data

HDS300 series conventional self-operated control valve main technical data

Nominal diameter	20	25	32	40	50	65	80	100	125	150	200	250	300
Rated Kv	7	11	20	30	48	75	120	190	300	480	760	1100	1750
Rated stroke L (mm)	8	10	12	20	22	25	25	25	25	25	25	25	25
Inherent flow characteristics	Fast opening												
Pressure regulating range (KPa)	0.5-2.1-6.5-10.9-15.12-19.18-25.22-30 28-35.32-40.38-50.48-60.58-72.70-100												
Regulating accuracy	± 10 %												
Allowable leakage	Metal seal: Class M (10 ⁻⁴ × Kv); Soft seal: Class VI (see GB/T4213-2008)												

Note: The pressure regulating range can be customized according to the requirements

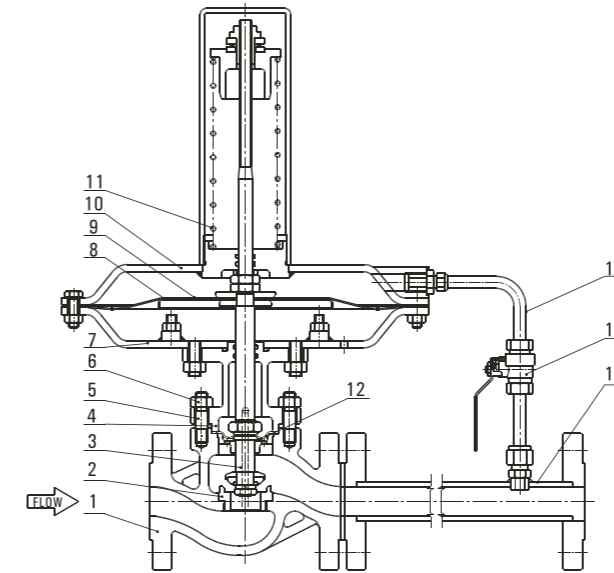
HDS300 series micro-flow type self-operated control valve main technical data

Nominal diameter	20, 25										
	2	3	4	5	6	7	8	9	10	12	15
Rated Kv	0.02	0.08	0.12	0.20	0.32	0.5	0.8	1.2	1.8	3.2	5
Rated stroke L (mm)	5										
Inherent flow characteristics	Linear, linear correction								Fast opening		
Regulating accuracy	± 10 %										
Allowable leakage	Metal seal: Class M (10 ⁻⁴ × Kv); Soft seal: Class VI (see GB/T4213-2008)										

Temperature and pressure range of valve body and bonnet (see appendix)
 Temperature, pressure range of trims and packings and inherent flow characteristics of valve (see appendix)

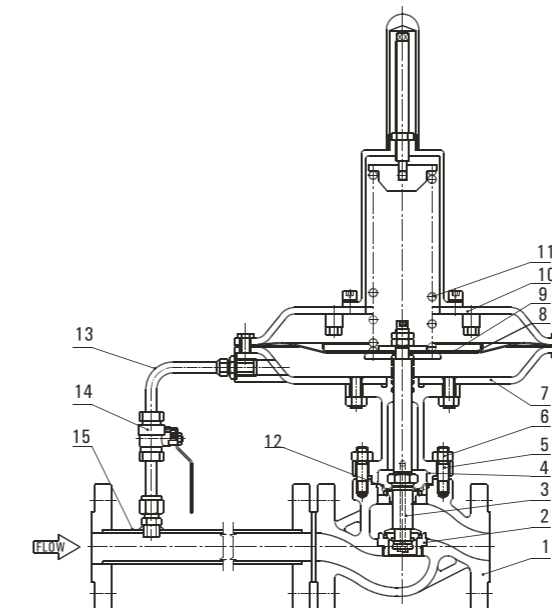
HDS300 series standard sectional view

HDS300 series upstream pressure control valve (diaphragm actuator) sectional view



- 1, Body
- 2, Seat
- 3, Plug
- 4, Bonnet
- 5, Body stud
- 6, Hex nuts
- 7, Lower diaphragm cover
- 8, Pallet
- 9, Diaphragm
- 10, Upper diaphragm cover
- 11, Regulating spring
- 12, Small diaphragm
- 13, Pressure taking pipe
- 14, Globe valve
- 15, Pressure taking pipe connector

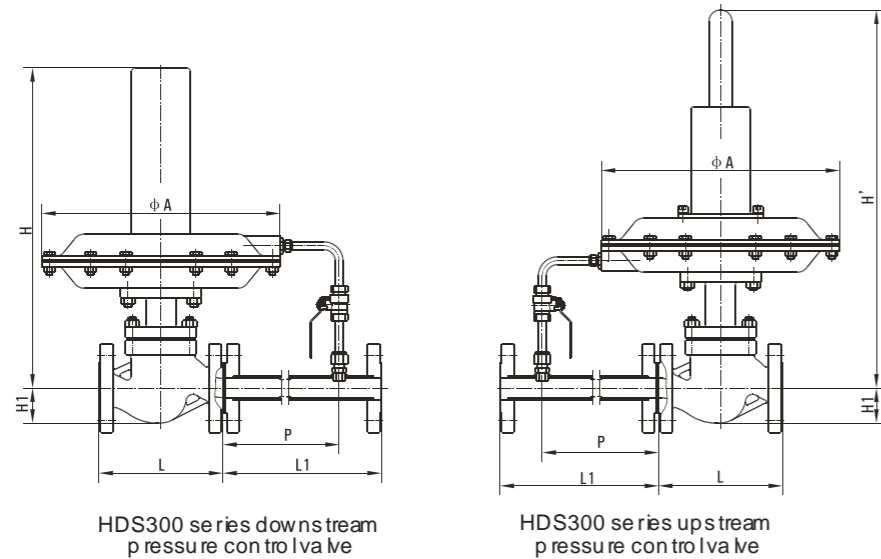
HDS300 series upstream pressure control valve (diaphragm type actuator)



- 1, Body
- 2, Seat
- 3, Plug
- 4, Bonnet
- 5, Body stud
- 6, Hex nuts
- 7, Lower diaphragm cover
- 8, Pallet
- 9, Diaphragm
- 10, Upper diaphragm cover
- 11, Regulating spring
- 12, Small diaphragm
- 13, Pressure taking pipe
- 14, Globe valve
- 15, Pressure taking pipe connector

HDS300 series self-operated micro-pressure regulating valve dimensions and weight

HDS300 series (diaphragm actuator) control valve dimensions and weight



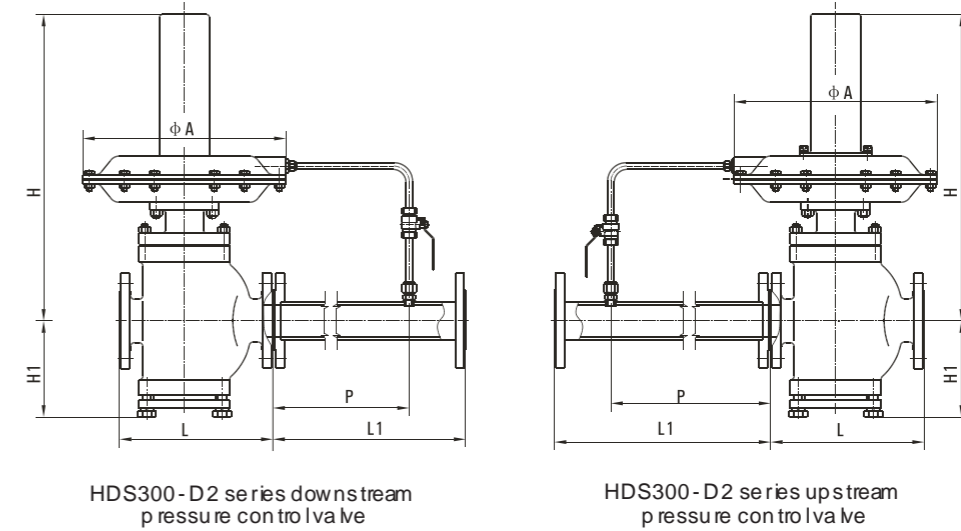
HDS300 series dimensions

Unit: mm

DN	L	H	H'	H1	A	L1	P	Weight(kg)	
20	150	450	550	42	308	250	180	12	
25	160	450	550	48		250	180	13	
32	180	470	570	56		300	220	15	
40	200	485	585	64		300	220	17	
50	230	490	590	76		370	300	29	
65	290	530	630	85		520	400	32	
80	310	550	650	100		394	520	400	38
100	350	560	660	110			498	670	570
125	400	650	750	126		980		900	65
150	480	660	760	160		980		900	75
200	600	900	1000	202	1200	1050		100	
250	730	1000	1100	270	1500	1250		130	
300	850	1050	1150	290	1500	1350		160	

- Note: 1. The dimensions in the table are the standard configuration data of PN16. For different pressure rating data, please contact our company;
 2. The valve products can be customized for various severe working conditions according to customer requirements. If there is no special requirements, the products will be supplied according to the standard configuration;
 3. Globe valve and pressure taking pipe connector are non-standard valve accessories, which can be equipped according to customer requirements;
 4. L1 and P in the table are the standard configuration of the product, generally P = 6 × DN, and can also be configured according to customer requirements.

HDS300-D2 series (diaphragm actuator) control valve dimensions and weight



HDS300-D2 series dimensions

Unit: mm

DN	L	H	H1	A	L1	P	Weight(kg)	
20	150	450	120	308	250	180	16	
25	160	450	120		250	180	17	
32	180	470	120		300	220	20	
40	200	485	120		300	220	22	
50	230	490	145		370	300	38	
65	290	530	190		394	520	400	42
80	310	550	210			498	520	400
100	350	560	220		670		570	59
125	400	650	270		980		900	85
150	480	660	280		980		900	98
200	600	900	320	1200	1050		130	
250	730	1000	385	1500	1250		169	
300	850	1050	420	1500	1350		208	

- Note: 1. The dimensions in the table are the standard configuration data of PN16. For different pressure rating data, please contact our company;
 2. The valve products can be customized for various severe working conditions according to customer requirements. If there is no special requirements, the products will be supplied according to the standard configuration;
 3. Globe valve and pressure taking pipe connector are non-standard valve accessories, which can be equipped according to customer requirements;
 4. L1 and P in the table are the standard configuration of the product, generally P = 6 × DN, and can also be configured according to customer requirements.

HDS400 Series Self-operated Temperature Regulating Valve



Overview

HDS400 series self-operated temperature regulating valve does not require external energy. On the liquid expansion principle, the product draws the energy of the process medium being adjusted to realize the automatic temperature regulation; This series of products, which adopts packing-free sealing structure, ensure high operating reliability and sensitive action. And temperature can be set on line; This series of regulating valve is divided into cooling regulating type and heating regulating type.

Technical data and features

Valve body

Type:	Media pressure balanced plug
Nominal Diameter:	20 ~ 200mm (3/4" - 8")
Plug type:	Plunger
Flow Characteristics:	Fast opening, linear
Nominal Pressure:	PN16, PN25, PN40; ANSI Class 150, Class 300; JIS 10K, 20K, 30K, 40K
Connection Type:	Flange (RF, FM concave, RTJ) Threaded Welding type [Socket welding SW (DN 5) Butt welding BW (DN 6)]
Flange Standard:	ASME B16.5-2013 DN EN 1092-1-2008 GB/T 9113-2010 HG/T 20615-2019 HG/T 20592-2019
Face to Face Distance:	GB/T 12221-2005
Body and Bonnet Material:	WCB, CF8, CF8M, CF3, CF3M
Trim Material:	OC r18N Ø (304); OC r17N Ø 12Mo2 (316) 00C r17N Ø 14M02 (316L) Above + R.TFE (Reinforced PTFE) Above + Stellite (Titanium alloy for surfacing)
Material of Other Parts:	Belows housing: OC r18N Ø (304); OC r17N Ø 12Mo2 (316) Balancing belows: OC r18N Ø (304); OC r17N Ø 12Mo2 (316) Bulb (temperature sensor): H62, OC r18N Ø (304) Capillary tube: H62, OC r18N Ø (304) Connector: 35, OC r18N Ø (304)
Upper Bonnet Form:	HDS400A series standard type - 30 ~ 250
Structure:	HDS300 series self-operated temperature regulating valve HDS310 series self-operated temperature bushing type regulating valve HDS310-D2 series self-operated temperature double-seat regulating valve
Packing:	Packing-free structure
Others:	When the valve is a metal sealing and the seat leakage rate is required to reach V, please specify in the contract.

Actuator part

Item	Type	Temperature package actuator
Task		Regulating
Connection		G1"
Type of action		Heating regulating, cooling regulating
Ambient temperature (°C)		-40~+80
Capillary tube length (m)		3, 5, 8
Standard accessories for valve		Temperature sensor, capillary
Optional accessories for valve		Pressure gauges, flanges, gaskets and fasteners

The main technical data

HDS400 series conventional self-operated control valve main technical data

Nominal diameter	20	25	32	40	50	65	80	100	125	150	200	250	300	
Rated Kv	Single seat	7	11	20	30	48	75	120	190	300	480	760	1100	1750
	Bushing	7	11	20	30	48	75	120	190	300	480	760	1100	1750
	Double-seat	-	-	22	33	53	83	132	209	330	528	836	1210	1925
Rated stroke L (mm)	8	10	12	20	22	25	25	25	25	25	25	25	25	
Inherent flow characteristics	Fastopening													
Pressure regulating range (KPa)	0-70 50-120 100-170 150-220 200-270													
Allowable overload value (°C)	+50 Setpoint of temperature + 50													
Regulating accuracy	± 10 %													
Allowable leakage	Metal seal: Class M (10 ⁻⁴ × Kv); Soft seal: Class VI (see GB/T4213-2008)													

Note: The pressure regulating range can be customized according to the requirements

HDS400 series micro-flow type self-operated control valve technical data

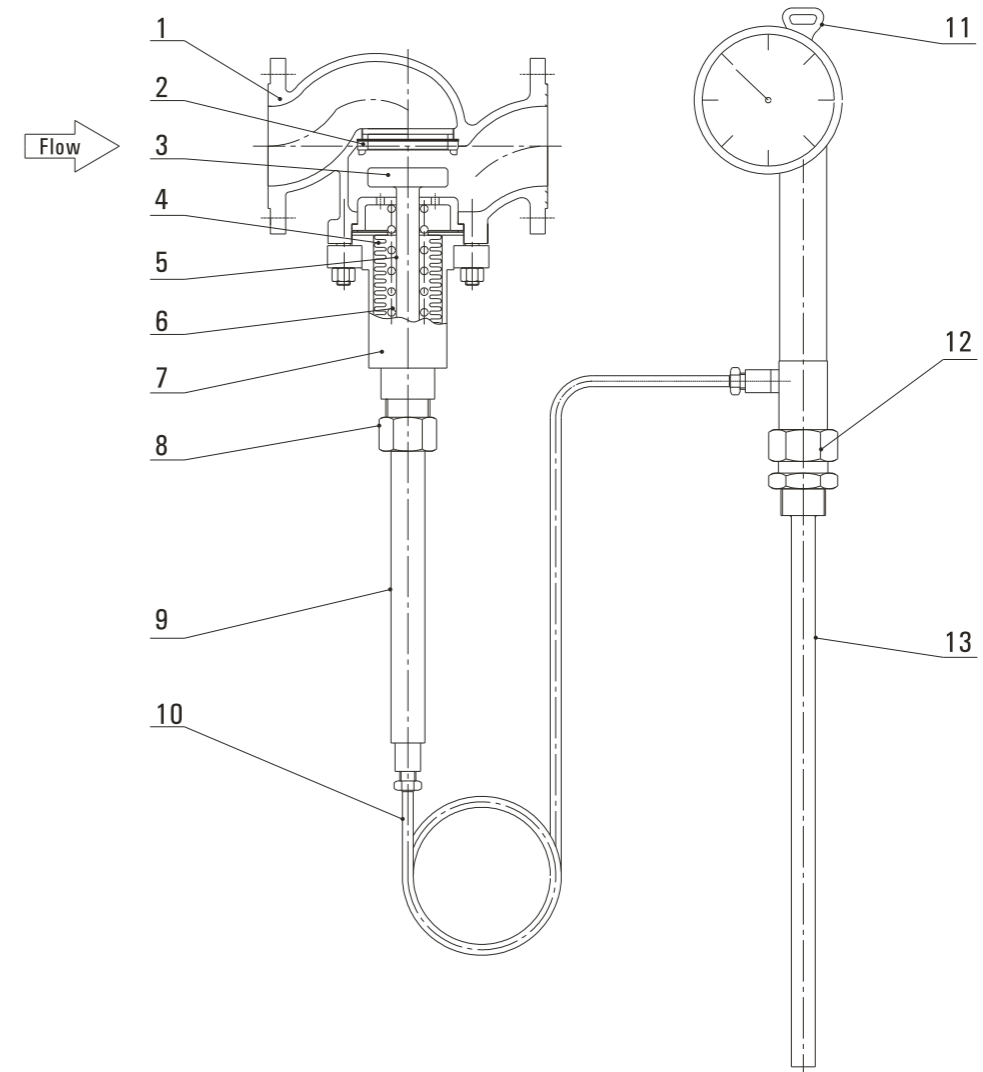
Nominal diameter	20, 25										
	2	3	4	5	6	7	8	9	10	12	15
Rated Kv	0.02	0.08	0.12	0.20	0.32	0.5	0.8	1.2	1.8	3.2	5
Rated stroke L (mm)	5										
Inherent flow characteristics	Linear, modified linear							Fastopening			
Regulating accuracy	± 10 %										
Allowable leakage	Metal seal: Class M (10 ⁻⁴ × Kv); Soft seal: Class VI (see GB/T4213-2008)										

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

Temperature, pressure range of trims and packings and inherent flow characteristics of valve (see appendix)

HDS400 series standard type sectional view

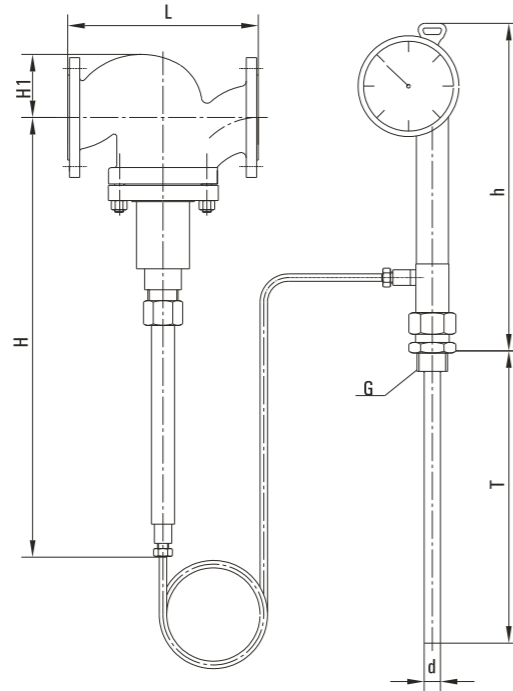
Sectional view of HDS400 series heating regulating type of self-operated temperature regulating valve



- 1, Body
- 2, Seat
- 3, Plug
- 4, Balancing bellows
- 5, Stem
- 6, Spring
- 7, Bonnet
- 8, Connector
- 9, Operating element
- 10, Capillary tube
- 11, Temperature setpoint adjustment
- 12, Mounting connector
- 13, Temperature sensor

HDS400 series self-regulated temperature control valve dimensions and weight

HDS400, HDS410 series heating regulating type of self-operated temperature control valve dimensions and weight



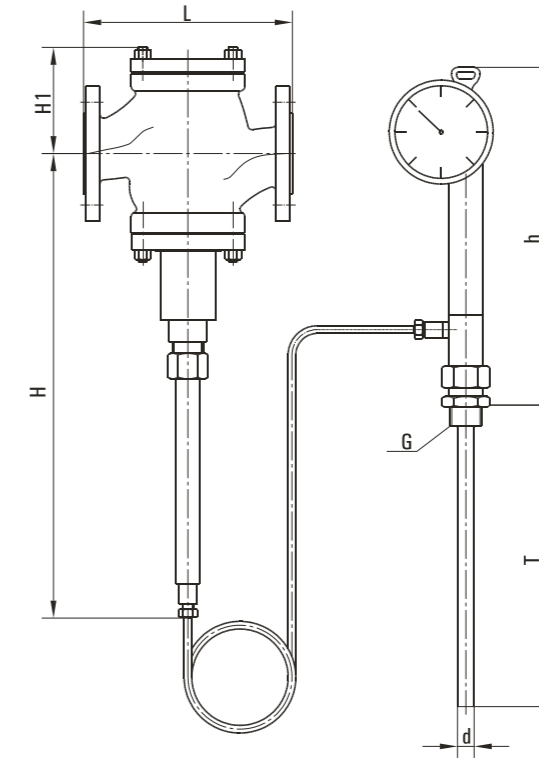
HDS400, HDS410 series dimensions

Unit: mm

DN	L	H	H1	T	h	D	G	Weight(kg)
20	150	500	42	430 630(optimization) 1000	350	25 (Sheath diameter 28)	G1"	8
25	160	500	48					10
32	180	540	56					15
40	200	540	64					15
50	230	580	76					18
65	290	640	85					30
80	310	700	100					35
100	350	750	110					60
125	400	820	126					75
150	480	950	160					85
200	600	1050	202	100				

Note: 1. The dimensions in the table are the standard configuration data of PN16. For different pressure rating data, please contact our company;
2. The valve products can be customized for various severe working conditions according to customer requirements. If there is no special requirements, the products will be supplied according to the standard configuration.

HDS400 series cooling regulating type of self-operated temperature control valve dimensions and weight



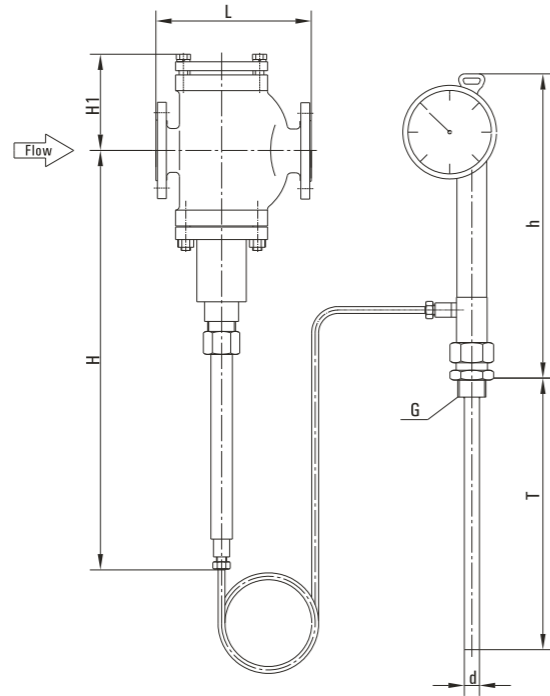
HDS400 series dimensions

Unit: mm

DN	L	H	H1	T	h	D	G	Weight(kg)
20	150	500	83	430 630(optimization) 1000	350	25 (Sheath diameter 28)	G1"	10
25	160	500	83					15
32	180	540	93					15
40	200	540	95					18
50	230	580	110					30
65	290	640	128					35
80	310	700	140					60
100	350	750	160					75
125	400	820	215					85
150	480	950	230					100
200	600	1050	268	120				

Note: 1. The dimensions in the table are the standard configuration data of PN16. For different pressure rating data, please contact our company;
2. The valve products can be customized for various severe working conditions according to customer requirements. If there is no special requirements, the products will be supplied according to the standard configuration.

HDS410-D2 series heating / cooling type of self-operated double-seat temperature control valve dimensions and weight



HDS410-D2 series dimensions

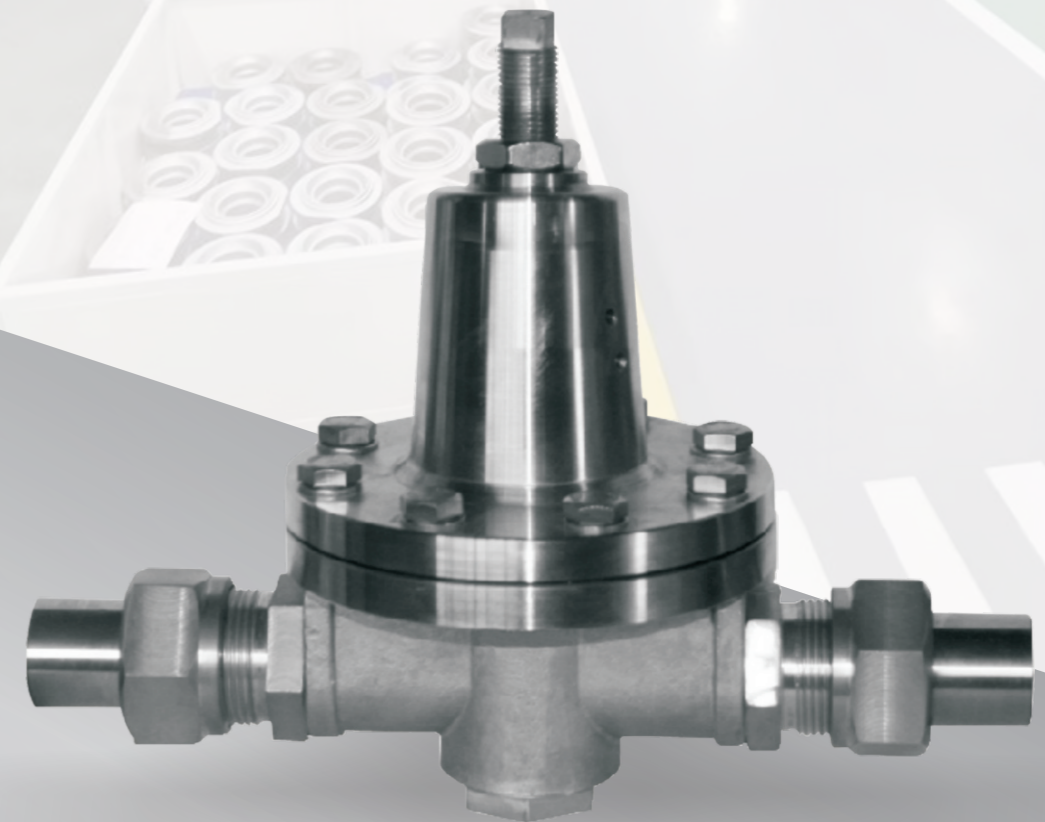
Unit: mm

DN	L	H	H1	T	h	D	G	Weight(kg)
25	160	500	110	430 630(optimization) 1000	350	25 (Sheath diameter 28)	G1"	10
32	180	540	130					15
40	200	540	135					15
50	230	580	145					18
65	290	640	175					30
80	310	700	195					35
100	350	750	210					60
125	400	820	265					75
150	480	950	280					85
200	600	1050	345					100

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

2. The valve products can be customized for various severe working conditions according to customer requirements. If there is no special requirements, the products will be supplied according to the standard configuration.

HDS500 Series Internal Pressure-taking Self-operating Pressure Control Valve



Overview

HDS500 series self-operated pressure regulating valve adopts internal pressure taking structure. It can rely on the pressure change of the medium to achieve the purpose of automatic pressure regulating and sustaining. It has simple structure and reliable operation, suitable for pressure reducing, relief and sustaining in various media, such as steam, non-corrosive gases and liquids. HDS500 adopts packing-free sealing structure, which has the advantages of sensitive action and reliable sealing; HDS510-D2 adopts double-seat differential pressure structure, simple structure, especially suitable for pressure control of high-viscosity fluids; This series of control valve is divided into upstream pressure control valve and downstream pressure control valve.

Technical data and features

Valve body

Type:	Medium pressure unbalanced plug
Nominal diameter:	15 ~ 300mm (1/2" ~ 12")
Plug type:	Plunger type, double-seat type
Flow Characteristics:	Fast opening, linear correction
Nominal Pressure:	PN16, PN25, PN40, PN63; ANSI Class 150, Class 300, Class 600; JIS 10K, 20K, 30K, 40K
Connection type:	Flange (RF, FF, concave, RTJ) Threaded Welding type [Socket welding SW (DN 50) Butt welding BW (DN 65)]
Flange Standard:	ASME B16.5-2013 DN EN 1092-1-2008 GB/T 9113-2010 HG/T 20615-2019 HG/T 20592-2019
Face to Face Distance:	GB/T 12221-2005
Body and Bonnet Material:	WCB, CF8, CF8M, CF3, CF3M
Trim Material:	OCr18Ni9 (304); OCr17Ni12Mo2 (316) OCr17Ni14Mo2 (316L) Above + R.TFE (Reinforced PTFE) Above + Stellite (Titanium alloy for surfacing)
Upper Bonnet Form:	HDS500A series standard type -30 ~ +120 HDS500B series high temperature type -40 ~ +250 HDS500C series low temperature type -196 ~ +80
Structure:	HDS500 series internal pressure taking self-operated pressure regulating valve HDS510-D2 series internal pressure taking double-seat self-operated pressure regulating valve
Packing:	Packing: PTFE V-packing Reinforced PTFE packing Expanded graphite packing O-ring packing-free structure
Others:	When the valve is metal sealing and the seat leakage rate is required to reach V, please specify in the contract.

Actuator part

Item	Type	Diaphragm type	Piston type	Bellows type
Task	Regulating			
Diaphragm material		Nitrile rubber, fluorine rubber, oil resistant rubber, 304, 316	-	-
Piston material		-	Aluminum, stainless steel	-
Bellows material		-	-	304, 316
Type of action	Pressure open (upstream pressure control valve), pressure close (downstream pressure control valve)			
Operating temperature	Low temperature type: -196 ~ +80, normal temperature type: -20 ~ +120, high temperature type: -40 ~ +350			
Optional accessories for valve	Pressure gauges, flanges, gaskets and fasteners			

The main technical data

HDS500 series conventional self-operated control valve technical data

Nominal diameter	20	25	32	40	50	65	80	100	125	150	200	250	300	
Rated Kv	Single seat	7	11	20	30	48	75	120	190	300	480	760	1100	1750
	Double-seat	-	-	22	33	53	83	132	209	330	528	836	1210	1925
Rated stroke L (mm)	8		10	12	20		22		25	25	25	25	25	
Inherent flow characteristics	Linear, linear correction													
Pressure regulating range (KPa)	15-50 40-80 60-100 80-140 120-180 160-220 200-260 240-300 280-350 330-400 380-450 430-500 480-560 540-620 600-700 680-800 780-900 880-1000 950-1500 1000-2500 2000-3000 2500-3500													
Regulating accuracy	± 8 %													
Allowable leakage	Metal seal: Class IV (10 ⁻⁴ × Kv); Soft seal: Class VI (see GB/T 4213-2008)													

Note: The pressure regulating range can be customized according to the requirements

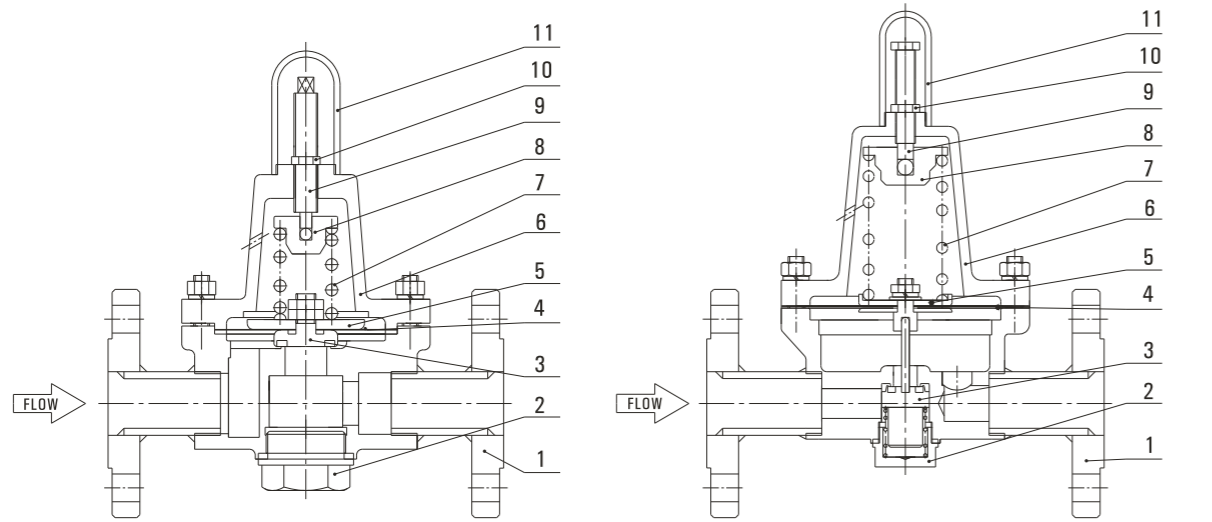
HDS500 series small flow type self-operated technical data

Nominal diameter	20, 25										
Rated Kv	2	3	4	5	6	7	8	9	10	12	15
Rated stroke L (mm)	5										
Inherent flow characteristics	Linear, linear correction										Fast opening
Regulating accuracy	± 8 %										
Allowable leakage	Metal seal: Class IV (10 ⁻⁴ × Kv); Soft seal: Class VI (see GB/T 4213-2008)										

Temperature and pressure range of valve body and bonnet (see appendix)
Temperature, pressure range of trims and packings and inherent flow characteristics of valve (see appendix)

HDS500 series standard type sectional view

HDS500 series (internal pressure taking single seat valve) sectional view

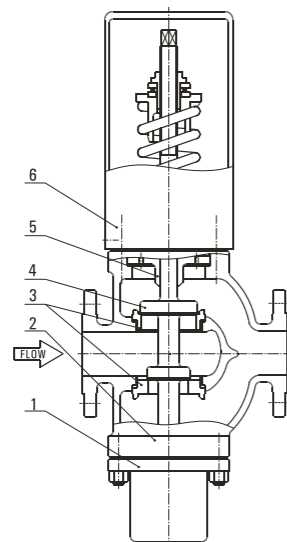


HDS500 series upstream pressure control valve

HDS500 series downstream pressure control valve

- 1, Body
- 2, Bottom cover
- 3, Plug assembly
- 4, Diaphragm
- 5, Spring seat
- 6, Upperbonnet
- 7, Spring
- 8, Spring seat
- 9, Adjusting screw
- 10, Hex nut
- 11, Protective housing

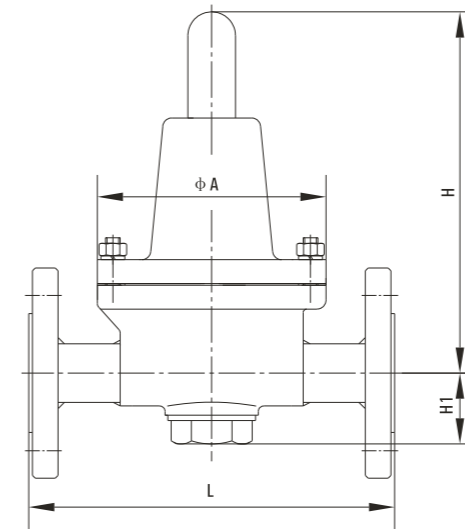
HDS500-D2 series internal pressure taking doubleseat valve sectional view



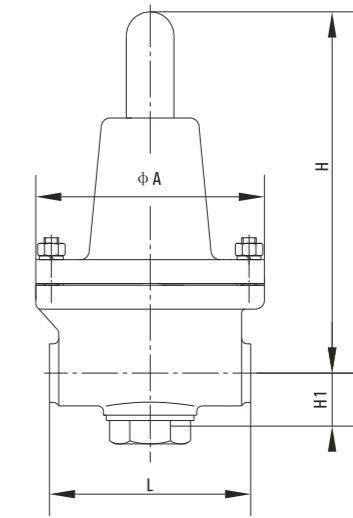
- 1, Sensing device
- 2, Body
- 3, Seat
- 4, Plug
- 5, Guide bushing
- 6, Setting mechanism

HDS500 series internal pressure taking self-operated control valve dimensions and weight

HDS500 series internal pressure taking self-operated valve(single-seat) dimensions and weight



HDS500 series flange connections



HDS500 series threaded connections

HDS500 series dimensions

Unit: mm

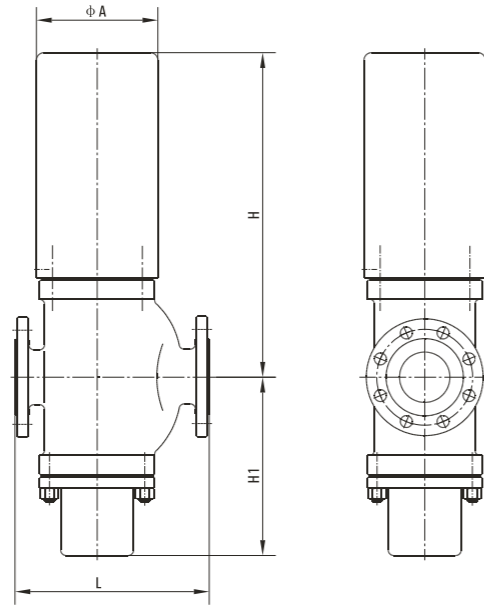
DN	L		H	H1	A
	Threaded	Flange			
15	112	184	240	45	125
20	112	184	240	45	125
25	112	184	240	45	125
32	120	180	250	55	140
40	135	200	320	65	150
50	170	230	460	80	150

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

2. The valve products can be customized for various severe working conditions according to customer requirements. If there is no special requirements, the product will be supplied according to the standard configuration;

3. The length L of the valve structure is a standard configuration of the company and can be customized according to the requirements. Please specify in the contract when required.

HDS500-D2 series internal pressure taking self-operated control valve dimensions and weight



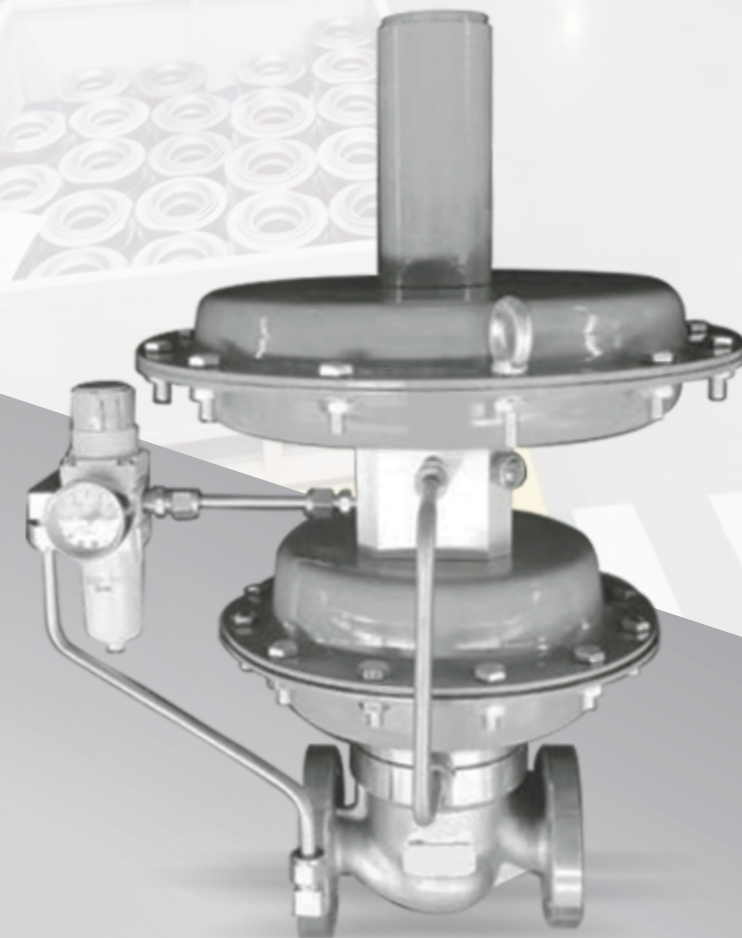
HDS500-D2 series dimensions

Unit: mm

DN	L	H	H1	A
50	230	420	295	160
65	290	550	340	220
80	310	550	360	220
100	350	550	370	220
125	400	795	420	245
150	480	820	430	270
200	600	1100	470	300
250	730	1150	535	300

- Note: 1. The dimensions in the table are the standard configuration data of PN16. For different pressure rating data, please contact our company;
 2. The valve products can be customized for various severe working conditions according to customer requirements. If there is no special requirements, the product will be supplied according to the standard configuration;
 3. The length L of the valve structure is a standard configuration of the company and can be customized according to the requirements. Please specify in the contract when required.

HDS600 Series Nitrogen Seal Device



Overview

HDS600 series nitrogen sealing device are a type of self-operated regulating valve developed by our company. It is a pressure regulating device no needs of external energy and can be used for air seal in various of storage tanks such as oil products, chemicals and liquid. The device is composed of two parts: HDS600H nitrogen supply regulating valve and HDS600W nitrogen release regulating valve (sometimes replaced by breathing valve). The nitrogen supply regulating valve has the characteristics of wide pressure reducing ratio, large flow rate and low setpoint pressure. The nitrogen release valve has the characteristics of low setpoint pressure, sensitive action and high accuracy of regulation. Normally, the nitrogen supply regulating valve shall be used together with the nitrogen release regulating valve to form a complete nitrogen seal regulating system, and can also be ordered separately according to the user's requirements.

Technical data and features

Valve body

- Type: Medium pressure balanced plug
- Nominal diameter: 20 ~ 200mm (3/4" ~ 8")
- Plug Type: Plugger
- Flow Characteristics: Fast opening, linear
- Nominal pressure: PN10, PN16, PN25, PN40; ANSI Class 150 300Lb; JIS 10K, 20K, 30K
- Connection Method: Flange type (RF)
- Flange standard: ASME B16.5-2013
DN EN 1092-1-2008
GB/T 9113-2010
HG/T 20615-2019
HG/T 20592-2019
- Face to Face Distance: GB/T 12221-2005
- Body and Bonnet Material: WCB, CF8, CF8M, CF3, CF3M
- Trim Material: 0Cr18Ni9 (304); 0Cr17Ni2Mo2 (316)
00Cr17Ni14Mo2 (316L)
Above + R.TFE (Reinforced PTFE)
Above + Stellite (titanium alloy for surfacing)
- Upper Bonnet Form: HDS600 series standard type - 20~80
- Structure: HDS600H series nitrogen sealing device (Pilot operated type)
HDS600W series nitrogen sealing device (Direct operated type)
- Packing: O-ring (Material: nitrile rubber, fluorine rubber, oil resistant rubber)
- Others: When the valve is a metal hard seal and the valve seat leakage rate is required to reach V, please specify in the contract.

Actuator part

Item	Type	Diaphragm type
Task		Regulating
Diaphragm material		Nitrile rubber, fluorine rubber, oil resistant rubber
Connection		M16 x 15
Type of action		Pressure open (upstream pressure control valve), pressure close (downstream pressure control valve)
Operating temperature		-20~+80
Standard accessories for valve		Pressure taking pipe (including pressure taking connector), supply filter & pressure regulator (for nitrogen sealing device)
Optional accessories for valve		Pressure taking pipe connector, gaskets, pressure gauges, flanges, gaskets and fasteners

The main technical data

HDS600H series nitrogen seal valve (Nitrogen supply regulating) main technical data

Nominal diameter	20	25	32	40	50	65	80	100	125	150	200
Rated Kv	7	11	20	30	48	75	120	190	300	480	760
Rated stroke L (mm)	8		10		12	20		22		25	25
Inherent flow characteristics	Linear, linear correction										
Minimum DP of the valve in normal operation	0.2MPa										
Applicable medium	Non-corrosive gas (mainly nitrogen)										
Operating temperature	80										
Pressure regulating range (KPa)	0.14-2.0 1-6 5-10 9-15 12-19 18-25 22-30 28-35 32-40 38-50 48-60 58-72 70-100										
Regulating accuracy	± 5 %										
Allowable leakage	Metal seal: Class IV (10 ⁻⁴ × Kv); Soft seal: Class VI (see GB/T 4213-2008)										

Note: The pressure regulating range can be customized according to the requirements

HDS600H series micro-flow type nitrogen seal valve (Nitrogen supply regulating) main technical data

Nominal diameter	20、25										
	2	3	4	5	6	7	8	9	10	12	15
Rated Kv	0.02	0.08	0.12	0.20	0.32	0.5	0.8	1.2	1.8	3.2	5
Rated stroke L (mm)	5										
Inherent flow characteristics	Linear, linear correction							Fast opening			
Minimum DP of the valve in normal operation	0.2MPa										
Regulating accuracy	± 5 %										
Allowable leakage	Metal seal: Class M ($10^{-4} \times Kv$); Soft seal: Class VI (see GB/T4213-2008)										

HDS600W series nitrogen seal valve (nitrogen release regulating) main technical data

Nominal diameter	20	25	32	40	50	65	80	100	125	150	200
Rated Kv	7	11	20	30	48	75	120	190	300	480	760
Rated stroke L (mm)	8	10	12	20	22	25	25				
Inherent flow characteristics	Fast opening										
Maximum inlet pressure	0.3MPa										
Applicable medium	Non-corrosive gas (mainly nitrogen)										
Operating temperature	80										
Pressure regulating range (KPa)	0.5-2.0 1-6 5-10 9-15 12-19 18-25 22-30 28-35 32-40 38-50 48-60 58-72 70-100										
Regulating accuracy	± 10 %										
Allowable leakage	Metal seal: Class M ($10^{-4} \times Kv$); Soft seal: Class VI (see GB/T4213-2008)										

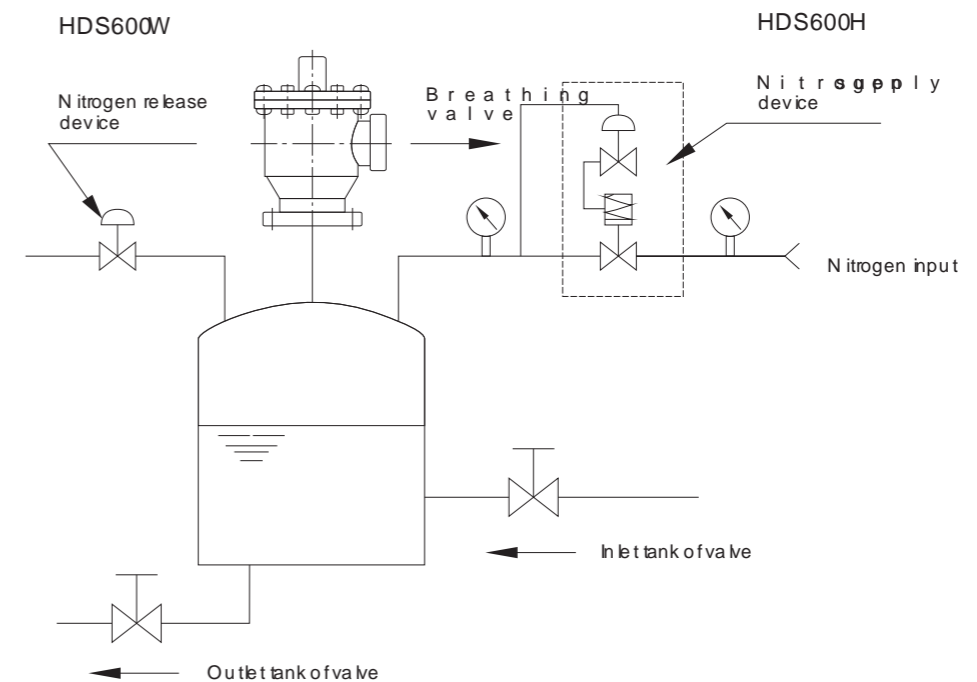
HDS600W series micro-flow nitrogen seal valve (nitrogen release regulating) main technical data

Nominal diameter	20、25										
	2	3	4	5	6	7	8	9	10	12	15
Rated Kv	0.02	0.08	0.12	0.20	0.32	0.5	0.8	1.2	1.8	3.2	5
Rated stroke L (mm)	5										
Inherent flow characteristics	Linear, linear correction							Fast opening			
Maximum inlet pressure	0.2MPa										
Applicable medium	Non-corrosive gas (mainly nitrogen)										
Operating temperature	80										
Regulating accuracy	± 10 %										
Allowable leakage	Metal seal: Class M ($10^{-4} \times Kv$); Soft seal: Class VI (see GB/T4213-2008)										

Temperature and pressure range of valve body and bonnet (see appendix)
 Temperature, pressure range of trims and packings and inherent flow characteristics of valve (see appendix)

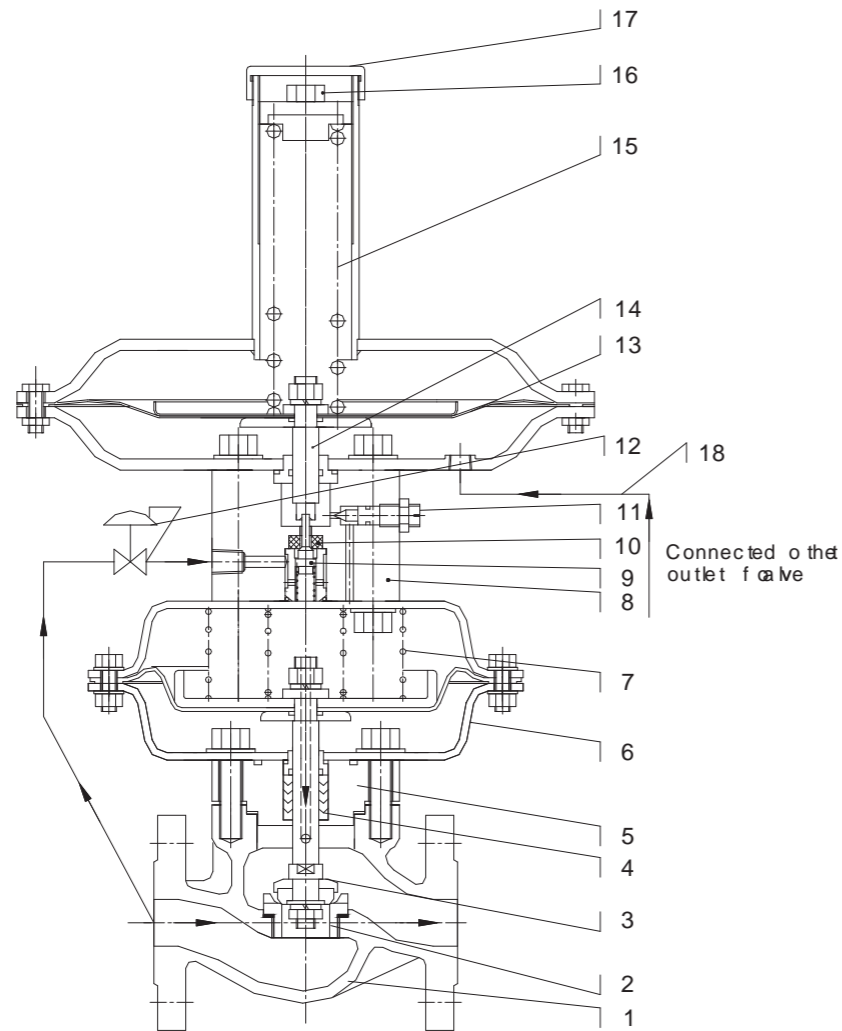
Structure and principle

Principle of nitrogen sealing device



The structure of HDS600H nitrogen supply regulating valve

The nitrogen supply regulating valve is composed of main valve, pilot valve, throttling valve, filter and pressure regulator.

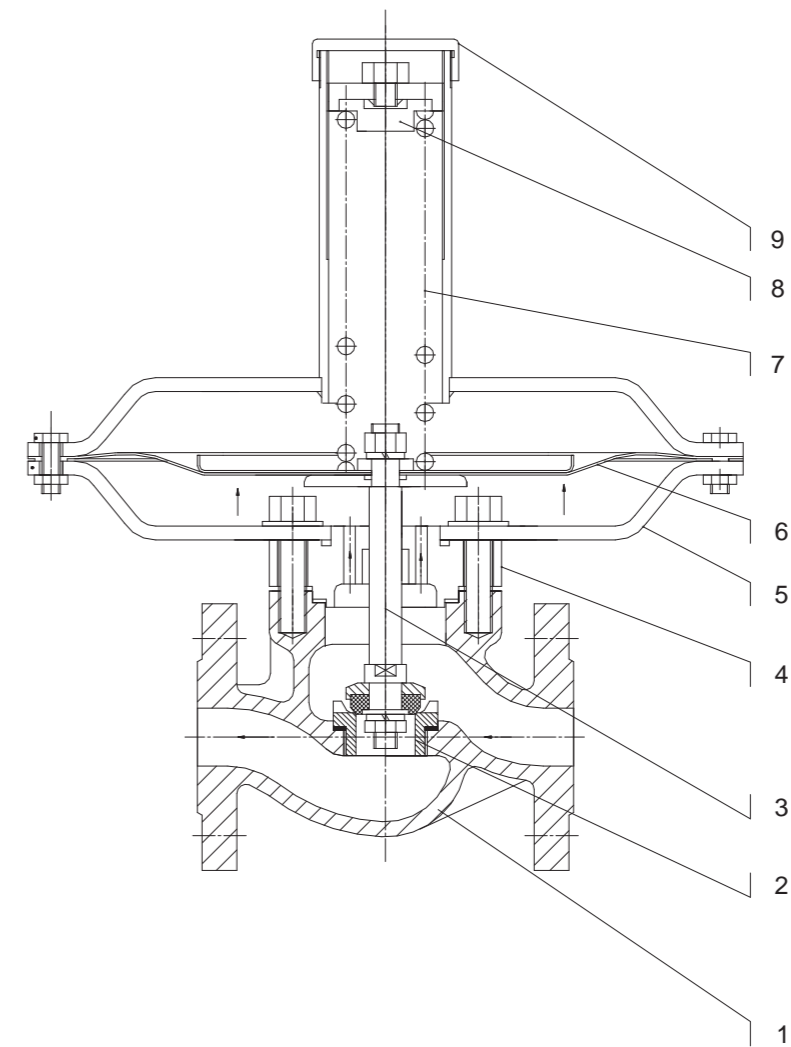


HDS600H series nitrogen supply regulating valve sectional view

- | | | |
|------------------|-----------------------------|--------------------------|
| 1, Body | 7, Spring of main valve | 13, Detecting diaphragm |
| 2, Seat | 8, Body of pilot valve | 14, Rod |
| 3, Plug assembly | 9, Trim of pilot valve | 15, Detecting spring |
| 4, Packing | 10, Seat of pilot valve | 16, Adjusting screw |
| 5, Bonnet | 11, Needle valve | 17, Cover |
| 6, Chamber | 12, Filter pressure reducer | 18, Pressure taking tube |

Structure of HDS600W nitrogen release regulating valve

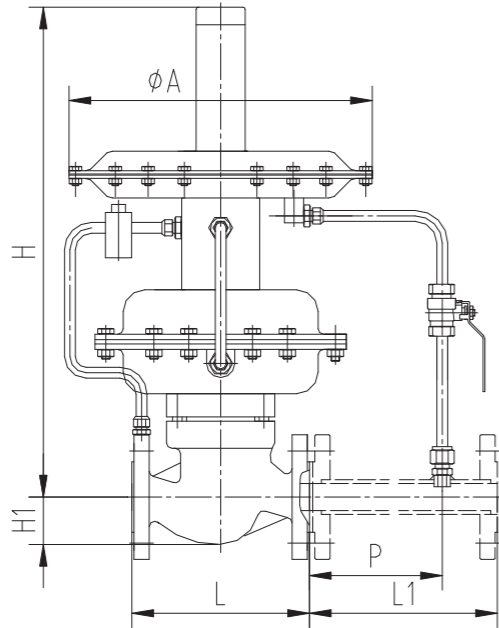
Nitrogen release regulating valve is composed of factor, regulating valve pressure tapping pipe.



HDS600W series nitrogen supply regulating valve sectional view

- | | | |
|---------|------------------------|---------------------|
| 1, Body | 4, Chamber | 7, Detecting spring |
| 2, Seat | 5, Bonnet | 8, Adjusting screw |
| 3, Plug | 6, Detecting diaphragm | 9, Cover |

HDS600H Series nitrogen seal valve (nitrogen supply) dimensions and weight



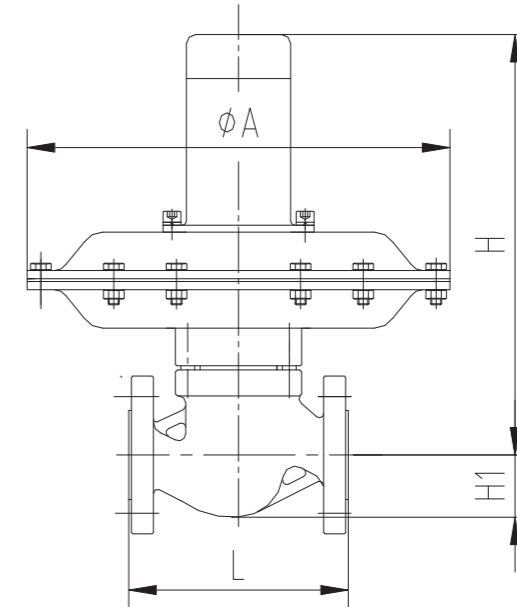
HDS600H series dimensions

Unit: mm

DN	L	H	H1	A	L1	P	Weight(kg)
20	184	456	42	308 394	250	180	11
25	184	458	48		250	180	12
32	180	465	56		300	220	13
40	200	475	64		300	220	15
50	230	485	76		370	300	16
65	290	505	85		520	400	28
80	310	525	100		520	400	40
100	350	545	110		670	570	80
125	400	585	126		980	900	95
150	480	602	160		980	900	120
200	600	628	202	1200	1050	150	

- Note: 1. The dimensions in the table are the standard configuration data of PN16. For different pressure ratings data, please contact our company;
 2. The valve products can be customized for various severe working conditions according to customer requirements. If there is no special requirement, the products will be supplied according to the standard configuration;
 3. Globe valve and pressure taking tube are non-standard valve accessories, which can be equipped according to customer requirements;
 4. L1 and P in the table are the standard configuration of the product, generally $P \geq 6 \times DN$, and can also be configured according to customer requirements.

HDS600W Series nitrogen seal valve (nitrogen release) dimensions and weight



HDS600W series dimensions

Unit: mm

DN	L	H	H'	H1	A	Weight(kg)
20	150	305	550	42	308 394 498	11
25	160	308	550	48		12
32	180	325	570	56		14
40	200	335	585	64		16
50	230	345	590	76		27
65	290	385	630	85		30
80	310	395	650	100		35
100	350	415	660	110		42
125	400	455	750	126		60
150	480	475	760	160		72
200	600	520	1000	202	95	
250	730	595	1100	270	120	
300	850	715	1150	290	150	

- Note: 1. The dimensions in the table are the standard configuration data of PN16. For different pressure ratings data, please contact our company;
 2. The valve products can be customized for various severe working conditions according to customer requirements. If there is no special requirement, the products will be supplied according to the standard configuration.

▶ **Working principle**

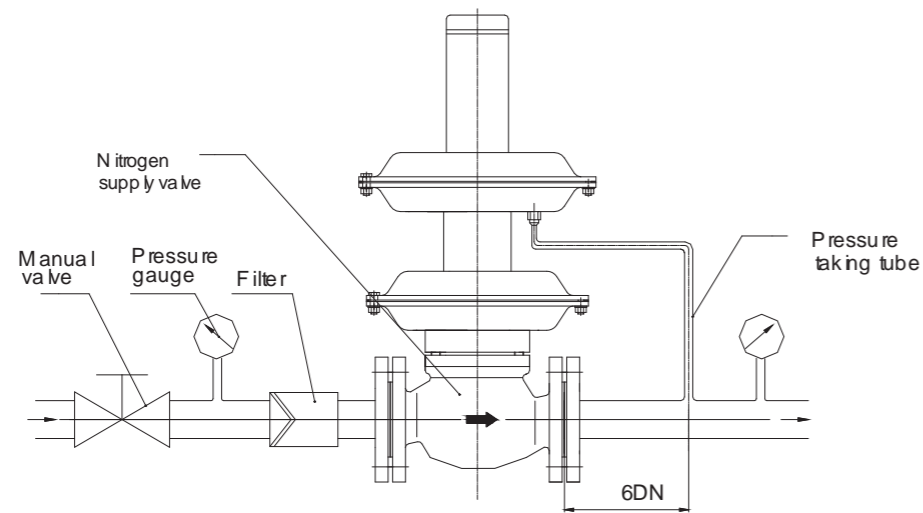
The top of the storage tank for product oil is covered with nitrogen as showed in the Schematic of nitrogen sealing device and the pressure is about 100mmh₂o, which is controlled by the nitrogen seal regulating device. When the valve at the outlet of the tank is opened to discharge oil, the liquid level in the tank drops. When the pressure in the tank is lower than the set point, the HDS600H nitrogen supply regulating valve is opened, and nitrogen is supplemented to hold the pressure to the set point. When the valve at the inlet of the tank is opened to supply oil, the liquid level rises. The nitrogen volume in the tank decreases accordingly, and the pressure rises. Now the HDS600H nitrogen supply regulating valve is closed and the HDS600w nitrogen release regulating valve is opened which is triggered by the tank pressure and the air source pressure. The nitrogen is discharged accordingly and the tank pressure is reduced to the set point.

▶ **Mounting and Maintenance**

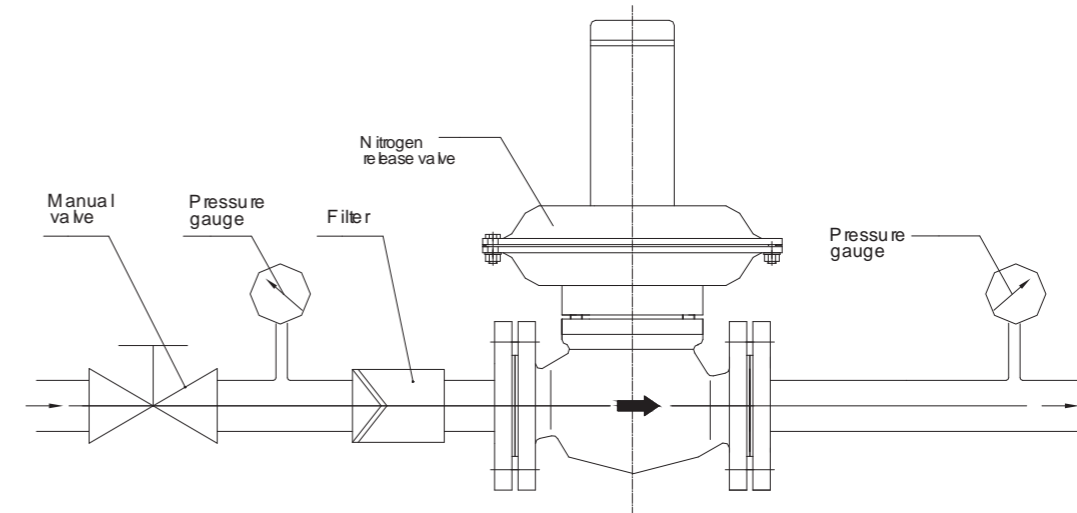
Mounting

Before mounting, the model of product shall be checked whether meet the requirements. The pipeline shall be cleaned and the welding slag and sundries should be removed. The valve shall be installed vertically on the pipeline. The flow direction of the medium shall be consistent with the arrow on the valve body. If possible, a bypass valve should be provided.

In order to keep the normal operation of the pressure regulating valve, the filter, pressure gauge and manual valve shall be arranged in front of the valve, and the installation scheme is shown below



Mounting Scheme of nitrogen supply regulating valve (a)



Mounting Scheme of nitrogen release regulating valve (b)

▶ **Operation**

When put into operation, the manual bypass globe valve shall be opened for manual operation. When the working condition is stable, the micro pressure valve can be put into operation. The setting method is showed as follows.

- (1) Open the adjusting spring cover and adjust the spring preload until the valve is closed.
- (2) Slowly open the inlet and the outlet globe valves of the nitrogen seal valve to the maximum. Now as the medium is introduced into the nitrogen seal valve, the pressure value can be observed.
- (3) Gradually close the bypass globe valve as long as the value of the pressure reaches to the process requirements.

▣ Maintenance

When the valve is put into normal operation, please observe the value of pressure whether meets the requirement of the process. In case of failure, check and solve the problem according to the table.

▣ Failure and troubleshooting

Failure Phenomenon	Possible reasons	Troubleshooting
The pressure cannot be controlled automatically	The pipeline is blocked	Clearing the control pipeline
	The throttle valve is blocked	Clear the throttle valve
	Diaphragm ruptured	Replace the diaphragm
	Spring broken	Replace the spring
	The selected DN size of valve is smaller than the required	Replace the suitable valve
The controlled pressure unstable	The selected DN size of valve is bigger than the required	Replace the suitable valve
	Spring rate is unsuitable as required	Replace the spring

**HDS700 Series Explosion-proof
Fire-resistant Breathing Valve**



Overview

HDS700 series explosion-proof fire-resistance breathing valve is made of high-quality aluminum alloy, stainless steel or cast iron. It is light in weight and has good corrosion resistance. The sealing face between valve plate and valve seat is made of plastic, the sealing performance is good when the valve is closed. The fire barrier layer is made of stainless steel, and porous fire retardant measures with an excellent fire barrier performance. The overall structure is designed according to the self-operated principle, which is the best choice for explosion-proof structure;

This series of regulating valve is divided into two types: explosion-proof and all-weather fire-resistant.

Technical data and features

Valve body

- Nominal diameter: 50 ~ 250mm (2" ~ 10")
- Nominal pressure: PN0.6, 1.0MPa
- Connection Type: Flange type (RF)
- Flange Standard: GB/T9113-2000
HG20592-97 (HG/T20592-2009)
JB/T79-94
ANSI B16.5
- Face to face distance: see dimensions of breathing valve
- Body material: cast iron, stainless steel
- Trim material: Disc: 0Cr18Ni9 (304), PTFE, FKM
- Valve Seat: 0Cr18Ni9 (304)
- Fire Barrier: 0Cr18Ni9 (304)
- Sealing Ring: PTFE
- Fire-resistant Housing: ZL106
- Structure: HDS700Z series explosion-proof fire-resistant breathing valve
HDS700Q series explosion-proof fire-resistant breathing valve
(all-weather fire retardant type)

Uses:

1. Petroleum products or other chemical solvents such as gasoline, kerosene, diesel, crude oil, benzene, toluene, ethanol and other media, during storage or transportation, may evaporate or deteriorate when exposed to air, thus affecting the normal use of the product. During the storage or transportation of the above products, the surface is covered with a layer of nitrogen to prevent it from directly contacting the air and evaporating or deteriorating;
2. When the product is injected into the storage tank or the product is transported outward from the storage tank, or when the ambient temperature changes, etc., the pressure fluctuations of the gas in top of the storage tank will be affected. The breathing valve can quickly eliminate the pressure fluctuations caused by the above reasons and maintain the pressure constant.

The main technical data

Nominal diameter (mm)	50	80	100	150	200	250
Nominal pressure (MPa)	0.6 1.0					
Pressure regulating range (Pa)	Suction: -280; Exhaust: 800, 1200, 1600					
Working temperature (°C)	-30 ~ 60					
Regulating pressure tolerance (Pa)	± 100					
Leakage level	Meets ANSI B16.104 VI level					

Note: The pressure regulating range can be customized according to the requirements

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

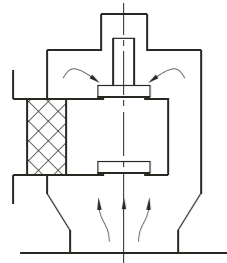
Temperature, pressure range of trims and packings and inherent flow characteristics of valve (see appendix) appendix)

HDS700 series breathing valve structure and working principle

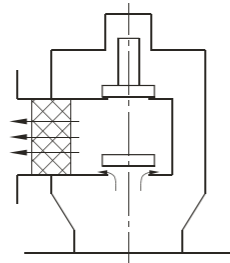
Structure and working principle of HDS700Z series explosion-proof fire-resistant breathing valve

This product consists of body, disc, seat, fire barrier and protective housing. The valve is generally located on the top of the tank and connected by a flange; under normal conditions, namely:

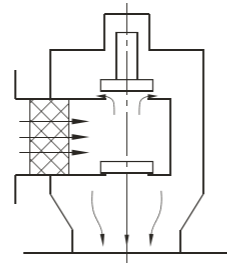
1. The pressure of the storage tank is within the range of pressure-set point, and the upper disc and lower disc of the breathing valve are closed (Figure 1-1). The storage tank does not exhaust outwards or suction inwards;
2. When the pressure in the storage tank rises, the lower disc is opened (Figure 1-2), and excess gas is discharged into the atmosphere through the fire barrier via the gap between the lower disc and the seat;
3. When the pressure in the storage tank decreases (down to negative pressure), the upper disc is opened (Figure 1-3), and the outside atmosphere flows into the storage tank through the fire barrier via the gap between the upper valve plate and the lower valve seat.



The breathing valve does not work



Breathing valve exhaust

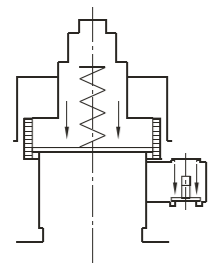


Breathing valve suction

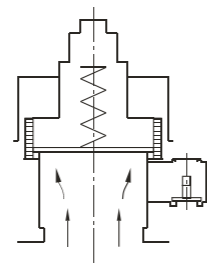
HDS700Q series all-weather fire-resistance breathing valve structure and working principle

This product is composed of exhaust valve and suction valve. It consists of body, disc, seat, fire barrier and protective housing. The valve is generally located on the top of the tank and connected by a flange; Under normal conditions, namely:

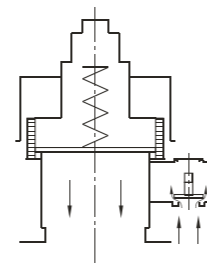
1. The pressure of the storage tank is within the range of pressure set point, the discs of exhaust valve and the suction valve are closed (Figure 2-1), and the storage tank does not exhaust outwards or suction inwards;
2. When the pressure in the storage tank exceeds the pressure set point, the disc of the exhaust valve is pushed up by the air pressure (Figure 2-2), and the exhaust gas is discharged into the atmosphere from the fire barrier through the valve seat;
3. When the pressure in the storage tank drops below the negative pressure set point, the disc of the suction valve is pushed open by the air pressure (Figure 2-3), and the suction air enters the storage tank through the fire barrier via valve seat.



The breathing valve does not work (Figure 2-1)



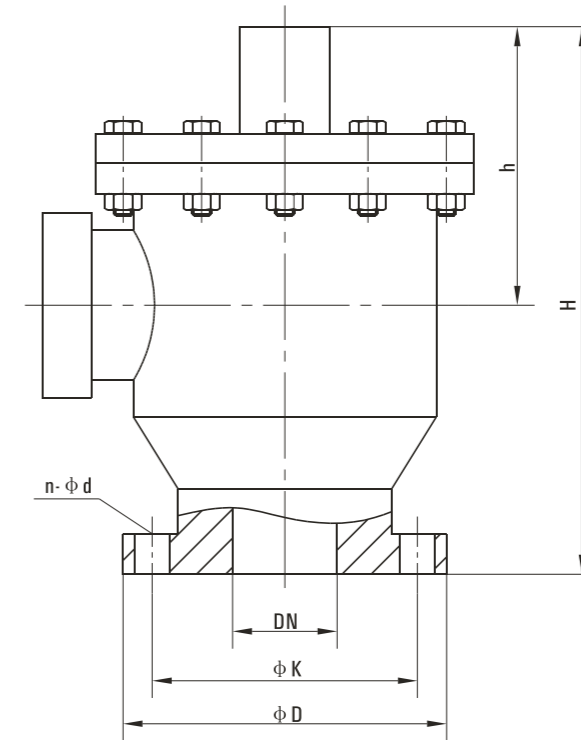
Breathing valve exhaust (Figure 2-2)



Breathing valve suction (Figure 2-3)

HDS700 series breathing valve dimensions and weight

Dimensions and weight of HDS700Z series explosion-proof fire-resistant breathing valve



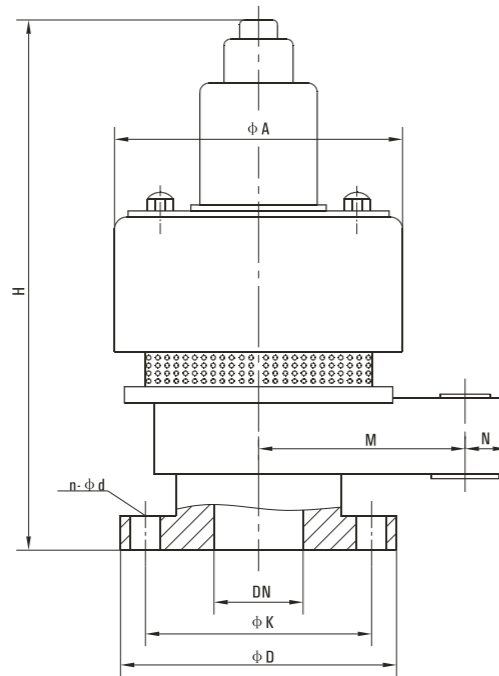
HDS700Z series dimensions

Unit: mm

DN	H	h	D	K	n-d	Weight(kg)
50	260	130	165	125	4-18	8/20
80	340	170	200	160	8-18	10/25
100	400	200	220	180	8-18	12/30
150	500	250	285	240	8-22	15/38
200	600	300	340	295	12-22	30/75
250	650	325	390	350	12-22	50/120

- Note: 1. The table is the standard configuration size of our company. If you need different models and different pressure levels, please contact our company;
 2. The valve products can be customized for various severe working conditions according to customer requirements. If there is no special requirements, the products will be supplied according to the standard configuration.

HDS700Q series all-weather fire-resistance breathing valve dimensions and weight



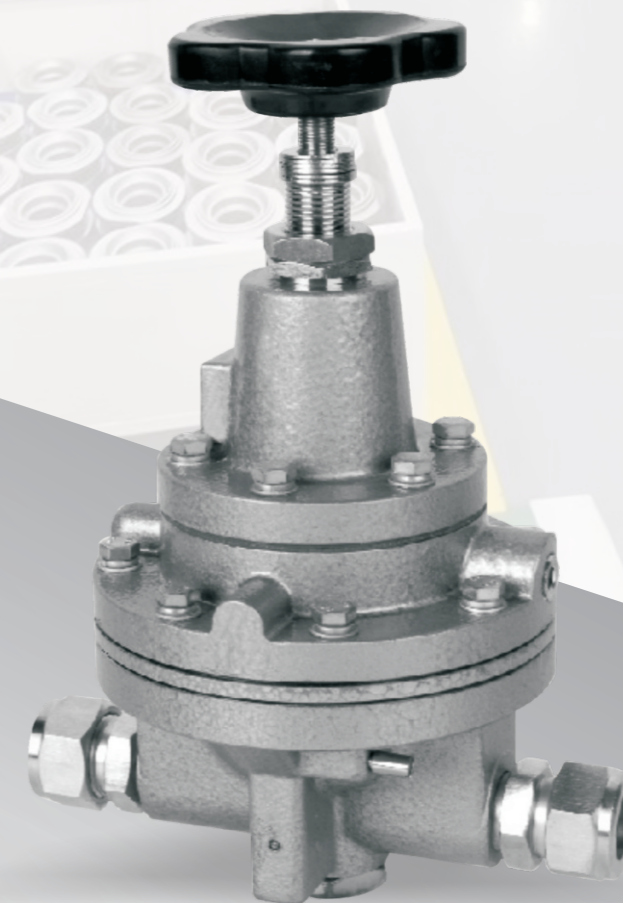
HDS700Q series dimensions

Unit: mm

DN	H	A	M	N	D	K	n-d	Weight(kg)
50	260	220	140	40	165	125	4-18	15
80	340	250	160	50	200	160	8-18	20
100	400	310	200	60	220	180	8-18	25
150	500	380	250	80	285	240	8-22	55
200	600	450	300	100	340	295	12-22	75
250	650	600	400	130	390	350	12-22	105

Note: 1. The table is the standard configuration size of our company. If you need different models and different pressure levels, please contact our company;
 2. The valve products can be customized for various severe working conditions according to customer requirements. If there is no special requirements, the products will be supplied according to the standard configuration.

HDS800 Series Precision Gas Pressure Reducing Valve



Overview

HDS800 series pressure reducing valve is a high-precision pressure reducing valve suitable for compressed air and inert gas, which can manually regulate the output pressure. The output pressure of the valve is stable, not affected by pressure fluctuations of supply air, and not affected by changes of output flow. The accuracy of pressure and flow characteristics has reached to 1%, which has reached or partially exceeded similar foreign products. The valve can be either operated on site manually, or controlled by inputting the pressure signal remotely, mainly used for pressure reducing or sustaining of expansion turbine and other equipment in air separation system.

Technical data and features

Valve body

- Nominal diameter: 1/2"
- Nominal pressure: PN4.0MPa
- Connection: Threaded (NPT1/2")
- Face to Face Distance: see 308 series connection dimensions
- Body Material: LF4, QAL9, CF8
- Plug Material: 304, 316
- Seat Material: AY-1
- Diaphragm Material: special
- Spring Material: 60S2Mn, 304

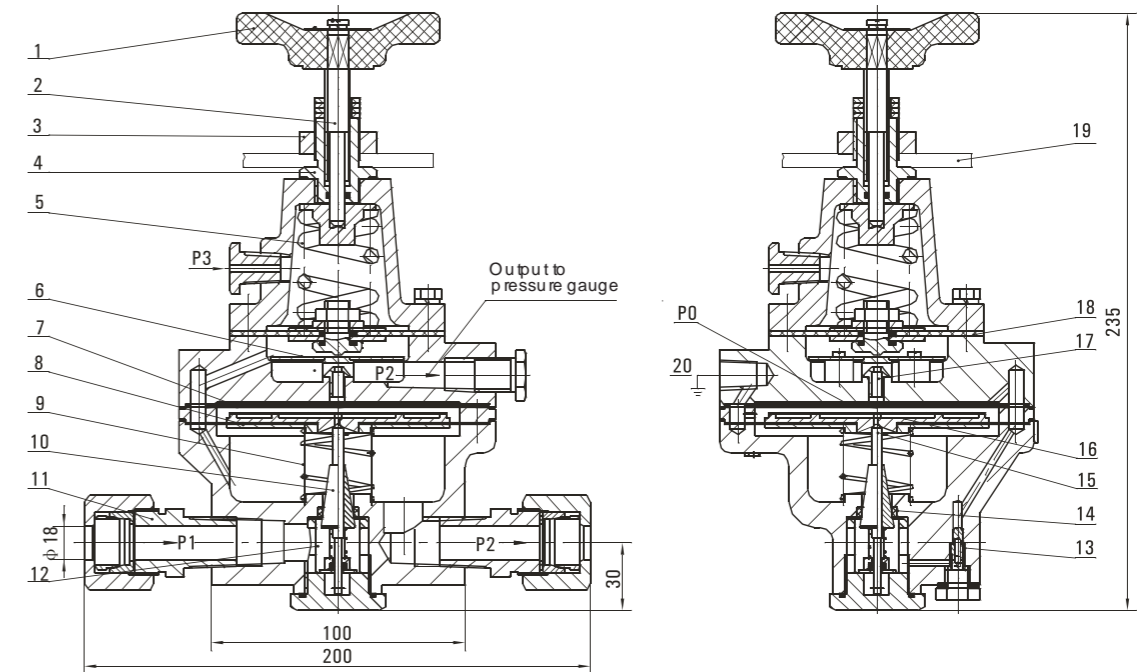
The main technical data

Item	Model	308-	308-	308-	308-	
Supply air pressure range MPa		0.3~0.75	1.2~1.5	3.0~3.2	4.5~5.0	
Output pressure range MPa		0.025~0.25	0.15~1.0	0.25~2.5	0.5~3.5	
Output pressure max. MPa		0.25	1.0	2.5	3.5	
Technical characteristics	Pressure characteristics	output pressure change max. ≤1%	Supply air pressure change ± 0.1MPa			
			± 3.5MPa	± 7MPa	± 10MPa	± 20MPa
	Flow characteristics	Flow output from 1.6~16m³/h	Output pressure change max.			
			3.5MPa	7MPa	10MPa	20MPa
	Pressure manipulated conversion error	maximum output pressure ± 2.5MPa				
	Air consumption (when the output pressure is equal to 0)	350L/h				
Weight		4kg				
Connection		Input and output connection NPT1/2", output pressure gauge connector ZG1/4" Signal pressure connector ZG1/4", exhaust connector ZG1/4"				

Note: 1. Connection size can be customized according to customer requirements;
2. Supply air pressure range, output pressure range and connection size can be configured according to customer requirements.

HDS800 series precision gas pressure reducing valve sectional view

HDS800 series gas precision pressure reducing valve sectional view



- 1, Handwheel
- 2, Setpoint adjustment
- 3, Lock nuts
- 4, Jointnut
- 5, Spring
- 6, Support plate
- 7, Diaphragm
- 8, Diaphragm
- 9, Small spring
- 10, Plug
- 11, Connector
- 12, Filter
- 13, Fixed orifice
- 14, Seat
- 15, Needle valve
- 16, Hard core
- 17, Nozzle
- 18, Diaphragm
- 19, Mounting plate
- 20, Pressure relieve port

► **Installation and maintenance**

Installation

The pressure reducing valve can either be directly mounted in the NPT1/2 "pipeline, leaving about 40mm clear space to the ground, or on an adapter plate as shown in the figure, a $\Phi 19$ hole drilled on the plate and the plate fastened between the nuts. The consumption gas of the pressure reducing valve itself can be discharged outside through a pipe with a ZG1/4 " fitting, especially for the discharge of toxic, harmful or flammable gas, but the exhaust fitting cannot be sealed.

Operation regulating

The valve can be regulated either by mechanical decompression through handwheel or pneumatic decompression through remote control. The two methods can also be combined together to perform the regulating, but the pressure gauges must be installed at the inlet and outlet of the pressure reducing valve for convenient operation

Maintenance

The medium air or inert gas used in the pressure reducing valve must be oil-free, water-free and dust-free. If possible, install a filter in the pipeline before the pressure reducing valve, and a filter included in the pressure reducing valve and same to the fixed orifice. The filter should be cleaned and inspected every quarter. The fixed orifice needs to be cleaned with $\Phi 0.2$ mm copper wire or replaced with a new filter to ensure normal work in the later operation.

Failure and troubleshooting

Failure phenomenon	Failure analysis	Troubleshooting
No output when operating the handwheel	1. Fixed orifice is blocked	Clean with 0.2mm copper wire
	2. The filter is dirty	Clean and replace the filter
	3. Back pressure chamber P0 leakage	Replace the amplifier diaphragm
The output can not reach the maximum value when operating the handwheel	bid. 1, 2, 3	bid
	4. The support plate is dirty or the mating face with the nozzle is damaged	Clean support plate or repair mating face
Output pressure out of zero tolerance	5. Needle valve is stuck or dirty	Cleaning needle valve
Excessive air consumption (Air consumption is greater than 450L/h when the output pressure is 0)	6. Conical face of fixed orifice damaged	Replace fixed orifice assembly
	7. The needle valve is stuck or dirty	Cleaning needle valve
Output pressure fluctuate when operating of handwheel clockwise	8. Mating surface of support plate is damaged	Repair mating faces
	9. The centerline of handwheel, support plate, and nozzle is inconsistent	Reassemble



OTHER VALVES

