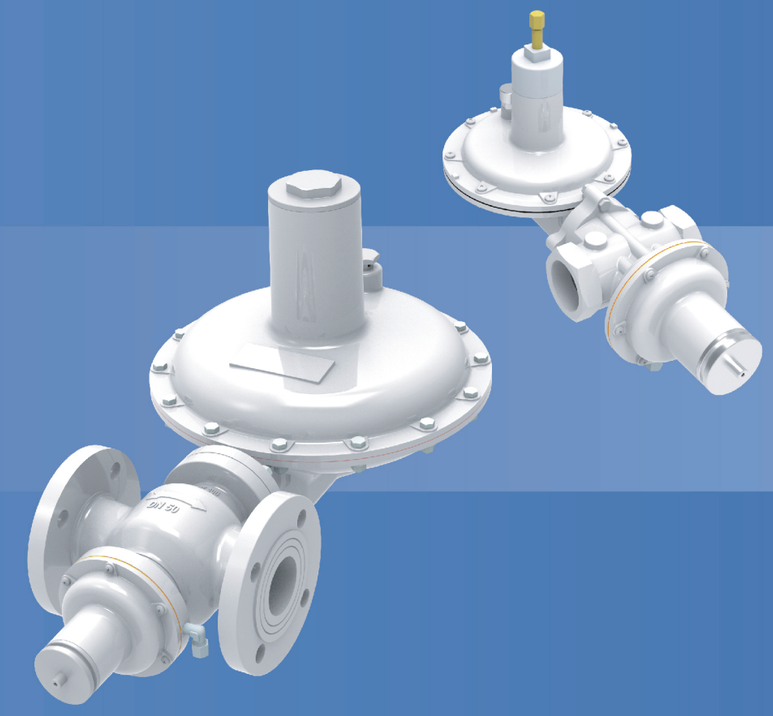
H Series

Pressure Regulators

DGI provides a professional solution for natural gas transmission and distribution.



DGI GmbH

Friedrichstraße 95
10117 Berlin

Tel: +49-335-23386916
http://www.dgi-reg.com

DESCRIPTION

The series H pressure regulator, equipped with loaded spring, controlling diaphragm and balanced valve, is suitable for low and medium pressure.
The regulators are widely used in both commercial and industrial installations using Natural Gas, LPG and other non-corrosive gases.

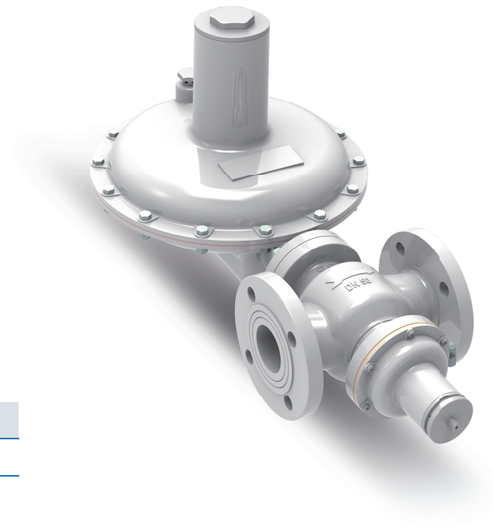
KEY BENEFITS

- High flow coefficient
- High accuracy, even at high flow rates
- Reduced lock-up pressure zone and lock-up pressure
- Reduced response time, no internal leakage at zero flow rate
- Fail to open
- Periodic maintenance without disassembling the valve from the pipework
- Ability to retrofit the SD200 slam-shut OPSO/UPSO, without modifying the existing piping

FEATURES

OPERATING PARAMETERS

- Maximum inlet pressure: 5 bar
- Outlet pressure regulation range: from 15 to 4000 mbar
- Accuracy class (AC): up to 5
- Lock-up pressure (SG): up to 10
- Working temperature: -20℃ - +60℃



CG VALVE COEFFICIENT

H200	H400	H600
260	530	730

CONNECTION PARAMETERS

Model	H200	H400	H400	H600
Connection size	Rp1-1/2"	Rp2"	DN50	DN50
Thread standard Flange rating	ISO 7/1	ISO 7/1	PN16/25 ANSI150	PN16/25 ANSI150

MATERIALS

Valve Body	Covers	Diaphragm	Seat	O-ring
Ductile Cast Iron (GJS400-18-LT EN1563) Optional:(Cast steel ASTM A216 WCB)	Aluminum EN AC 46000 EN 1706	Enhanced fiber rubber	Brass or stainless steel	Nitrile rubber

MODEL INTRODUCTION

Model					Description
H					Series H Pressure Regulator
	2				The different numbers represent different capacity. A greater value means a greater capacity
	4				
	6				
		1			With shutoff regulator
		2			Without shutoff regulator
			1		P1≤5bar, 15mbar≤P2≤150mbar, With diaphragm balanced valve*
			2		P1≤5bar, 0.1bar≤P2≤0.5bar, With diaphragm balanced valve
			3		P1≤5bar, 0.4bar≤P2≤1.5bar, With diaphragm balanced valve
			3TR		P1≤5bar, 1.5bar≤P2≤4bar, With diaphragm balanced valve
				-R	With internal relief, omit R means no relief

*P1: Inlet pressure, P2: Outlet pressure

Model				Description
SD				Series SD Shut-off valve
	2			Type 200 Shut-off valve
		1		With over pressure and under pressure shut-off
		2		With over pressure shut-off
			1	25mbar≤OPSO≤324mbar, 10mbar≤UPSO≤110mbar*
			2	290mbar≤OPSO≤840mbar, 100mbar≤UPSO≤300mbar
			3	658mbar≤OPSO≤5000mbar, 235mbar≤UPSO≤2000mbar

*OPSO: Over pressure shut-off value
UPSO: Under pressure shut-off value

SPRING

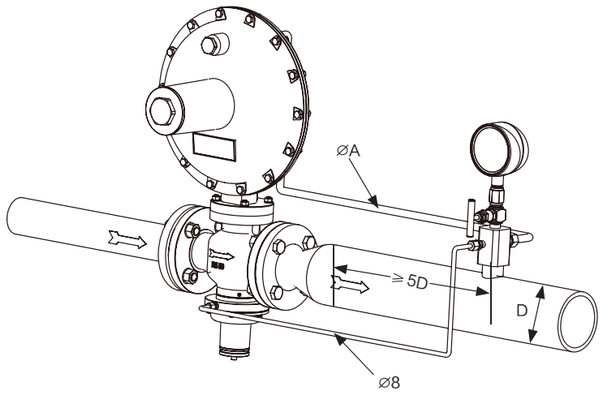
PRESSURE RANGE OF THE REGULATOR SPRING

Model	Version	Outlet pressure range (mbar)	Part number	Color
H200	H211 H221	10-15	19010803211	white
		13-22	19010803212	yellow
		20-32	19010803213	green
		31-45	19010803214	blue
		43-65	19010803215	red
		63-99	19010803216	black
		95-136	19010803217	white
		133-160	19010803218	yellow
	H212 H222	120-195	19010803218	yellow
		193-261	19010803219	green
		259-373	190108032110	blue
		370-500	190108032111	red
H400	H411 H421	10-14	19010805231	white
		13-18	19010805232	yellow
		16-25	19010805233	green
		23-34	19010805234	blue
		32-45	19010805235	red
		43-60	19010805236	black
		57-76	19010805237	white
		72-94	19010805238	yellow
		86-116	19010805239	green
		112-170	190108052310	blue
	H412 H422	100-160	190108052310	blue
		170-275	190108052311	red
		220-398	190108052312	black
		358-556	190108052313	white
H600	H611 H621	10-18	19010804171	white
		17-31	19010804172	yellow
		30-40	19010804173	green
		38-63	19010804174	blue
		60-100	19010804175	red
		95-160	19010804176	black
	H612 H622	100-150	19010804176	black
		140-230	19010804177	white
		210-330	19010804178	yellow
		320-520	19010804179	green
	H613 H623	420-800	190108200411	red
		700-1200	190108200412	black
		1100-1600	190108200413	white
	H613TR H623TR	1500-2400	190108200414	yellow
		2300-3300	190108200415	green
		3200-4000	190108200416	blue

PRESSURE RANGE OF THE SHUT-OFF SPRING

	Model	Shut-off pressure range (mbar)	Part number	Color
Over pressure shut-of	SD201	25-78	19010801651	white
		64-172	19010801652	yellow
		150-324	19010801653	green
	SD202	290-508	19010801654	blue
		476-840	19010801655	red
	SD203	658-1218	19010801653	green
		1069-2250	19010801654	blue
		2100-5000	19010801656	black
Under pressure shut-of	SD201	5-18	19010700311	white
		16-54	19010700312	yellow
		50-110	19010700313	green
	SD202	100-190	19010700314	blue
		170-300	19010700315	red
	SD203	235-435	19010700313	green
		405-930	19010700314	blue
		900-2000	19010700316	black

INSTALLATION

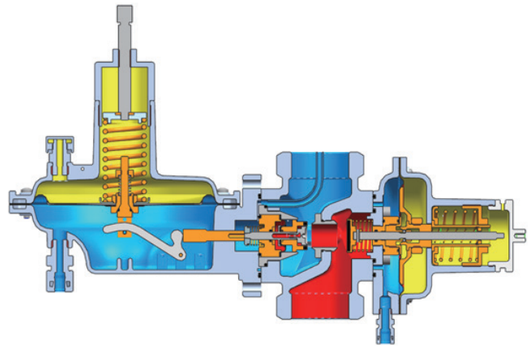


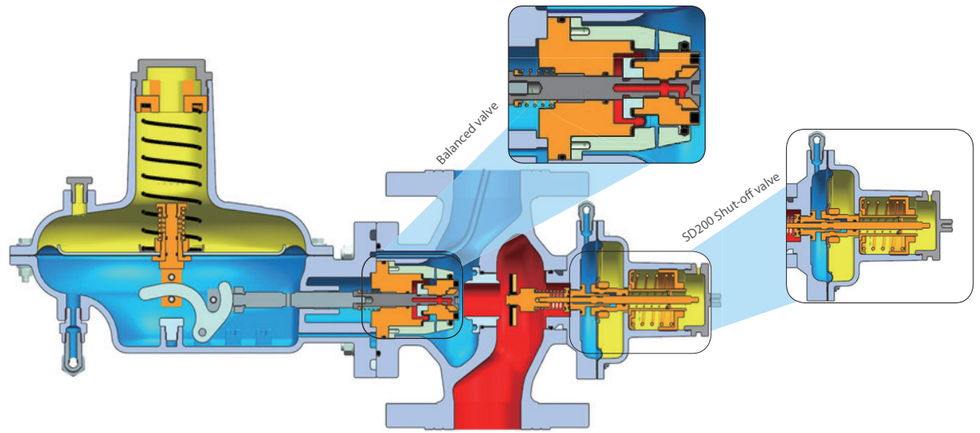
Type	H200	H400	H600
ΦA	10	10	14

OPERATING PRINCIPLE

The series H pressure regulator is a direct-acting device to control pressure through Dual or external sensing. When the flow rate demand of the downstream decreases, the pressure under the diaphragm increases. This pressure overcomes the control spring load and makes the diaphragm moving. The diaphragm's movement is transmitted by the lever system to the balanced valve. The rubber pad is vulcanized on the stopper (part of the balanced valve) to seal the valve.

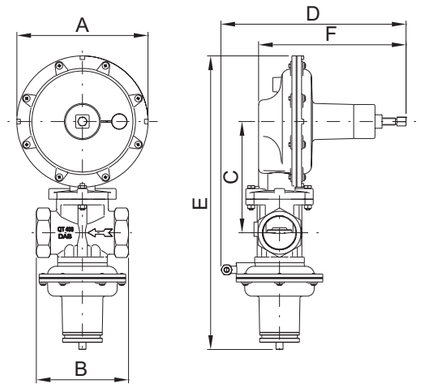
When the flow rate demand of the downstream increases, the pressure under the diaphragm decreases. If the pressure is less than the load of the control spring, the diaphragm lowers and moves the stopper away from the orifice, until the demand begins to decrease.



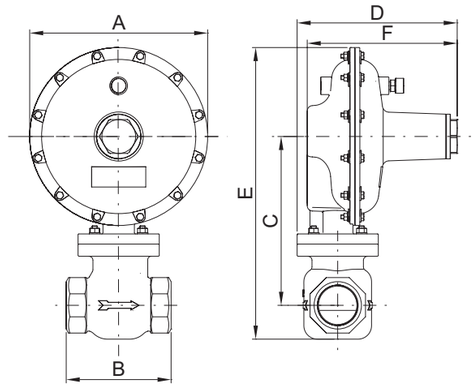


Atmospheric pressure Inlet pressure Outlet pressure

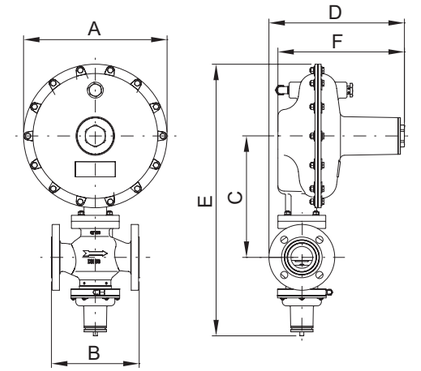
DIMENSIONS



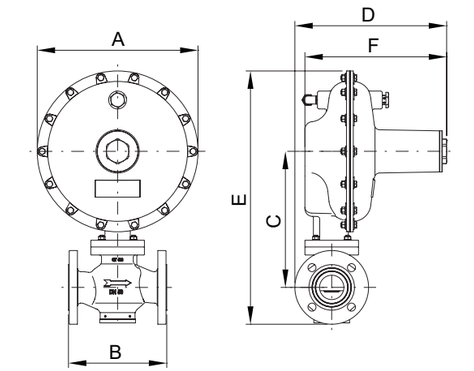
H210 , H410 2”



H220, H420 2”



H410 DN50, H610



H420 DN50, H620

Model	A	B	C	D	E	F	Weight (Kg)
H210	185	130	156.8	274	413.8	219.5	4.5
H220				237.5	281.6		4.5
H410 2”	263	155	257	246.4	569.3	227.4	10.9
H410 DN50		200		268.1	578.3		16.6
H420 2”		155		246.4	447		10.9
H420 DN50		200		268.1	453		16.6
H611/H612	360	220	304.5	339.8	681.3	317.3	21.8
H621/H622					567		19.7
H613/H613TR	263		257	430.5	585.3	389.6	18.0

Unit: mm

FLOW CAPACITY

The choice of the regulator is made depending on the Cg valve coefficient where Cg is numerically equivalent to the value of air flow in Scfh in critical conditions with regulator fully operating with an upstream pressure of 1 psia at temperature of 15 ℃ .

The maximum flow rate under opening at different operating conditions can be calculated as follows:

a) Under non-critical conditions (when P1 < 2 P2)

$$Q=5.26*Cg*(P1+Pa)*\sin\left[\ 102.5*\sqrt{\frac{(P1-P2)}{(P1+Pa)}}\ \right] \text{Deg}$$

b) Under critical conditions (when P1 ≥ 2 P2)

$$Q=5.26*Cg*(P1+Pa)$$

Where:

Q = capacity [Stm^3/h]
P1 = gage upstream pressure [MPa]
P2 = gage downstream pressure [MPa]
Pa = atmospheric pressure [MPa]

AC10, Capacity in Nm^3/h, Natural gas								
Inlet pressure (bar)		**Outlet pressure (bar)**						
		0.025	**0.03**	**0.05**	**0.1**	**0.2**	**0.3**	**0.5**
H200	0.5	100	120	160	140	180	150	-
	0.7	110	130	160	180	200	180	160
	1	160	180	230	310	320	320	370
	1.5	200	240	310	370	370	340	370
	2	300	340	500	500	450	450	460
	3	500	500	600	650	680	650	650
	4	650	680	750	850	880	800	850
	5	500	550	900	1000	1000	950	1000
H400	0.5	100	120	220	220	240	280	-
	0.7	140	160	200	280	320	300	260
	1	250	300	325	380	450	500	450
	1.5	320	375	425	525	600	600	650
	2	500	550	550	650	700	700	700
	3	800	800	900	850	1050	1050	1050
	4	1000	1100	1200	1100	1200	1300	1300
	5	800	900	1300	1400	1400	1400	1400

AC10, Capacity in Nm^3/h, Natural gas												
Inlet pressure (bar)		Outlet pressure (bar)										
		0.025	0.03	0.05	0.1	0.2	0.3	0.5	1	2	3	4
H600	0.5	250	320	320	320	320	300	-	-	-	-	-
	0.7	300	380	400	450	520	500	400	-	-	-	-
	1	360	440	450	550	575	600	500	-	-	-	-
	1.5	500	600	700	750	750	820	800	650	-	-	-
	2	650	760	800	900	950	1050	1050	850	-	-	-
	3	800	1000	1000	1300	1300	1400	1400	1300	1050	-	-
	4	1100	1300	1300	1600	1600	1800	1800	1700	1500	1250	-
	5	1200	1300	1600	1700	2000	2300	2200	2350	1950	1600	1400

ORDERING INFORMATION

- Regulator type code
- Outlet pressure range
- Medium gas
- Shut-off pressure setting
- Inlet pressure range
- Maximum flow rate