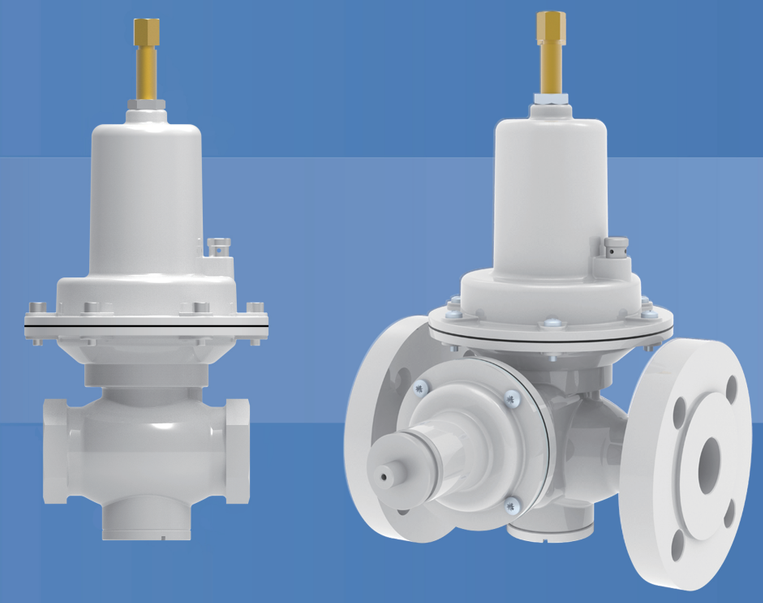
V100 Series

Pressure Regulators

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



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DESCRIPTION

The series V100 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 rat
- Reduced lock-up pressure zone and
- Reduced response time, no internal flow rate
- Fail to open
- Periodic maintenance without disas valve from the pipeline
- Optional shut-off valve
- Internal sense and easy connected.

FEATURES

OPERATING PARAMETERS

- Maximum inlet pressure:
  5 bar for diaphragm balancing valve
  20 bar for piston balancing valve
- Outlet pressure regulation range: fro
- Accuracy class (AC): up to 5
- Lock-up pressure (SG): up to 10
- Working temperature: -20℃ - +60℃
- Cg valve coefficient:195

CONNECTION PARAMETERS

Model	V120	V110
Connection size	Rp1"	DN25
Thread standard/ Flange rating	ISO 7/1	PN16 / 25

MATERIALS

Valve Body	Covers	Diaphragm	Seat	O-ring
Ductile cast iron (GJS 400-18-LT EN1563) Optional: Cast steel (ASTM A216 WCB)	Aluminum EN AC 46000 EN 1706	Enhanced fiber rubber	Stainless steel	Nitrile rubber

MODEL INTRODUCTION

Model					Description
V	1				V100 series regulator
		1			With shutoff regulator
		2			Without shutoff regulator
			3		P1≤5bar, 0.3bar≤P2≤4bar, With diaphragm balance valve*
			4		P1≤20bar, 0.5bar≤P2≤4bar, With piston balance valve
				-R	With internal relief, omit R means no relief

*P1: Inlet pressure, P2: Outlet pressure

Model				Description
SD				Series SD Shut-off valve
	6			Type 600 Shut-off valve
		1		With over pressure and under pressure shut-off
		2		With over pressure shut-off
			1	0.5bar≤OPSO≤5bar, 0.1bar≤UPSO≤2bar*

*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
V100	V103 V104	286-621	19010812141	white
		567-1132	19010812142	yellow
		1047-1885	19010812143	green
		1738-3079	19010812144	blue
		2891-4203	19010812145	red

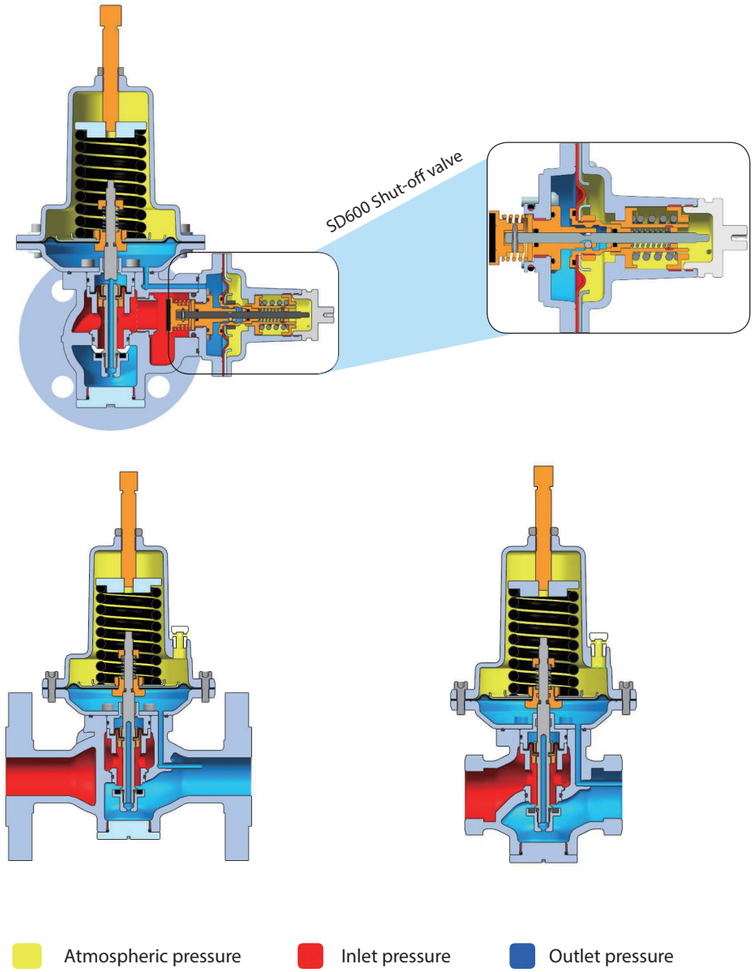
PRESSURE RANGE OF THE SHUT-OFF SPRING

	Model	Shut-off pressure range (mbar)	Part number	Color
Over pressure shut-off	SD601	490-1400	19010201188	yellow
		1000-2500	19010201189	green
		2300-4000	190102011810	blue
		3500-5000	190102011811	red
Under pressure shut-off	SD601	100-250	19010201194	blue
		300-700	19010201195	red
		600-1300	19010201196	black
		1000-2000	19010201197	white

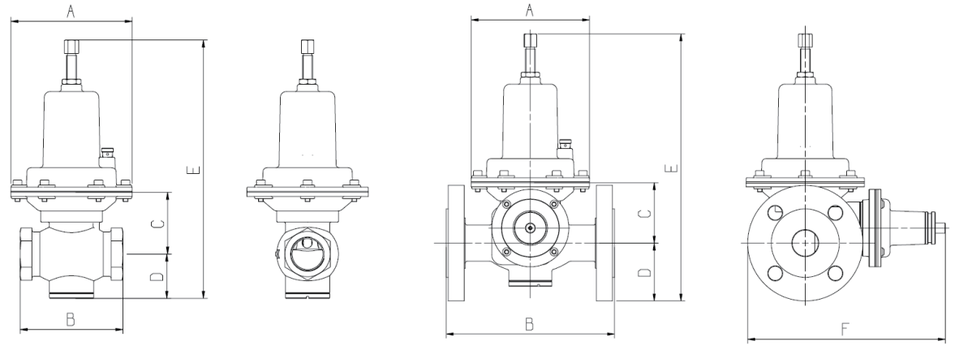
OPERATING PRINCIPLE

The series V100 pressure regulator is a direct-acting device to control the downstream pressure through internal 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 begin to decrease.



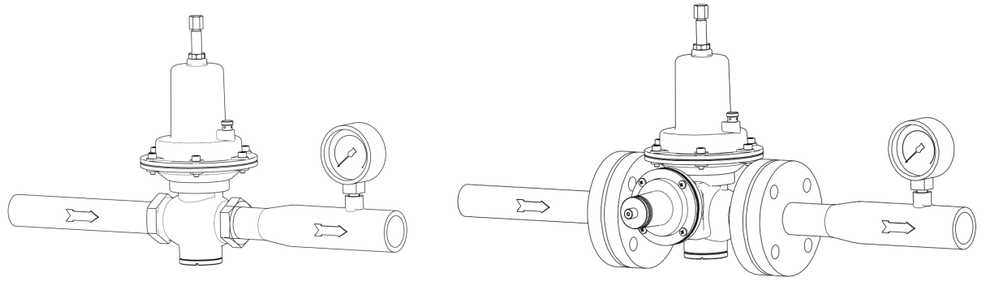
DIMENSIONS



Model	A	B	C	D	E	F	Weight(Kg)
V110	118	168	60	57.5	266	197	5.15
V120	118	100	60	43	251	/	1.85

Unit: mm

INSTALLATION



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)

$$Q=5.26*Cg*(P1+Pa)*\sin\left[96*\sqrt{\frac{(P1-P2)}{(P1+Pa)}}\right] \text{ Deg}$$

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)							
		0.5	0.7	1	1.5	2	2.5	3	4
V110	1	100	90	-	-	-	-	-	-
	1.5	130	130	120	-	-	-	-	-
	2	160	170	160	120	-	-	-	-
	3	240	260	220	240	220	200	-	-
	4	300	340	320	340	320	260	240	-
	5	380	440	460	400	420	420	380	330
	6	520	500	500	520	500	520	460	430
	8	620	650	650	700	650	650	650	600
	10	670	700	800	850	850	900	800	800
	12	650	750	850	950	1000	1000	1000	1000
	14	680	750	900	1100	1200	1200	1200	1200
	16	650	750	900	1100	1200	1400	1300	1400

AC10, Capacity in Nm^3/h, Natural gas

Inlet pressure(bar)		Outlet pressure (bar)							
		0.5	0.7	1	1.5	2	2.5	3	4
V120	1	120	90	-	-	-	-	-	-
	1.5	130	130	150	-	-	-	-	-
	2	190	200	200	180	-	-	-	-
	3	340	300	280	260	260	210	-	-
	4	440	400	420	400	380	340	280	-
	5	560	560	580	460	480	480	420	370
	6	700	700	700	700	650	650	600	550
	8	750	800	900	750	900	900	850	800
	10	750	800	1000	1100	1100	1100	1100	950
	12	700	800	1000	1200	1300	1300	1300	1300
	14	700	850	950	1200	1400	1500	1500	1500
	16	750	850	1000	1300	1500	1700	1700	1800

ORDERING INFORMATION

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