



D Series

Pressure Regulators

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



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DESCRIPTION

The series D 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 civil 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 pipeline
- Optional built-in relief valve
- Optional shut-off valve



FEATURES

OPERATING PARAMETERS

- Maximum inlet pressure: 5 bar
- Outlet pressure regulation range: from 15 to 500 mbar
- Accuracy class (AC): up to 5
- Lock-up pressure (SG): up to 10
- Working temperature: -20 °C - +60 °C

CG VALVE COEFFICIENT

D50	D75	D100
115	165	200

CONNECTION PARAMETERS

Model	D50	D75	D100
Connection size	Rp1"	Rp1"	Rp1"xRp1-1/2"
Thread standard	Internal thread in line with ISO 7/1		

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	Nitrile rubber

MODEL INTRODUCTION

Model				Description
D				Series D Pressure Regulator
	50			The different numbers represent different capacity A greater value means a greater capacity
	75			
	100			
		LP		P1≤5bar, 15mbar≤P2≤150mbar*
		MP		P1≤5bar, 100mbar≤P2≤500mbar
			-R	With internal relief, omit R means no relief

*P1: Inlet pressure, P2: Outlet pressure

Model				Description
SD				Series SD Shut-off valve
	3			Type 300 Shut-off valve
		1		With over pressure and under pressure shut-off
		2		With over pressure shut-off
			1	20mbar≤OPSO≤254mbar, 25mbar≤UPSO≤104mbar*
			2	247mbar≤OPSO≤800mbar, 93mbar≤UPSO≤370mbar

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

SPRING

PRESSURE RANGE OF THE REGULATOR SPRING

Model	Outlet pressure range (mbar)	Part number	Color
D50/75	15-30	19010807041	white
	25-45	19010807042	yellow
	40-75	19010807043	green
	70-130	19010807044	blue
	120-230	19010807045	red
	220-450	19010807046	black
	400-550	19010807047	white

Model	Outlet pressure range (mbar)	Part number	Color
D100	9-13	19010803151	white
	12-19	19010803152	yellow
	16-25	19010803153	green
	23-33	19010803154	blue
	31-52	19010803155	red
	50-74	19010803156	black
	72-115	19010803157	white
	110-200	19010803158	yellow
	180-250	19010803159	green
	230-340	190108031510	blue
	300-440	190108031511	red
	420-570	190108031512	black

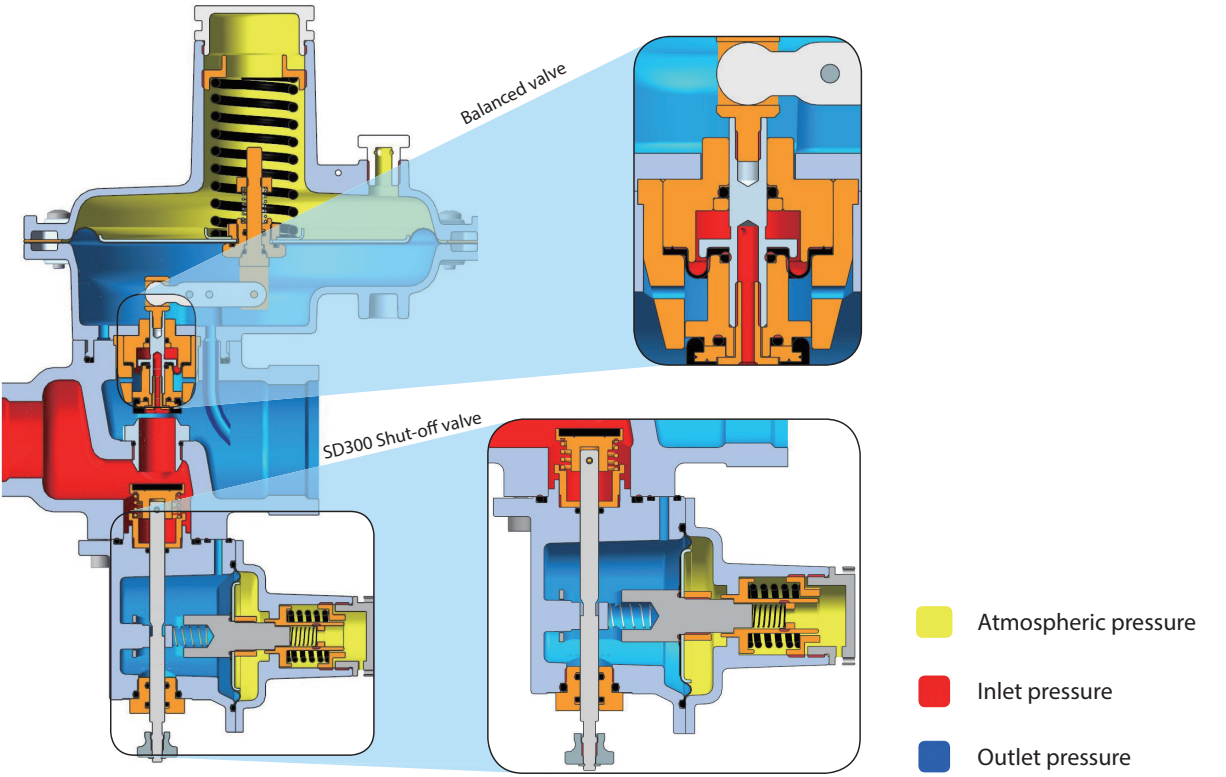
PRESSURE RANGE OF THE SHUT-OFF SPRING

	Model	Shut-off pressure range (mbar)	Part number	Color
Over pressure shut-off	SD301	20-51	19010803911	white
		38-92	19010803912	yellow
		66-150	19010803913	green
		141-254	19010803914	blue
	SD302	247-487	19010803915	red
Under pressure shut-off	SD301	420-800	19010803916	black
		25-55	19010803921	white
	SD302	52-104	19010803922	yellow
		93-177	19010803923	green
		154-275	19010803924	blue
		230-370	19010803925	red

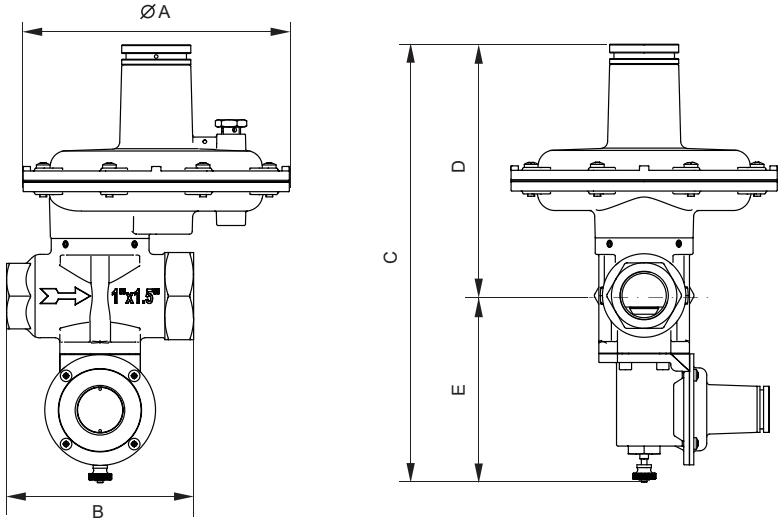
OPERATING PRINCIPLE

The series D pressure regulator is a direct-acting device to control 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. 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.



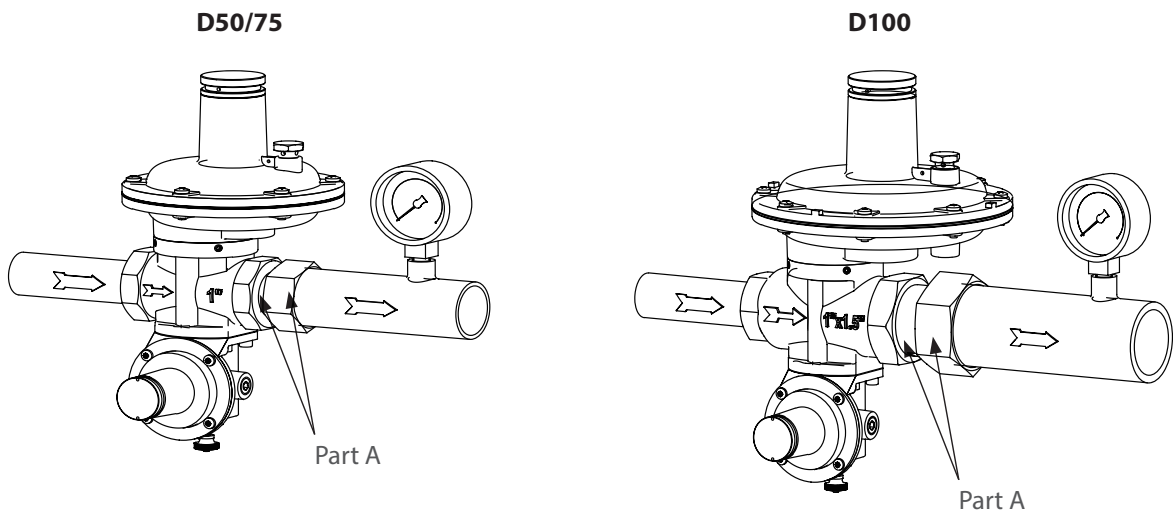
DIMENSIONS



Model	A	B	C	D	E	Weight (Kg)
D50	145	100	282	162	120	2.6
D75						2.64
D100	185	130	302	174	127	2.8

Unit: mm

INSTALLATION



The product can be equipped with part A when leaving the factory to ensure the best performance.

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 °C .

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

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

$$Q=5.26 \cdot C_g \cdot (P_1+P_a) \cdot \sin[95.5 \cdot \sqrt{\frac{P_1-P_2}{P_1+P_a}}] \text{ Deg}$$

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

$$Q=5.26 \cdot C_g \cdot (P_1+P_a)$$

Where:

- Q = capacity [Stm³/h]
- P1 = gage upstream pressure [MPa]
- P2 = gage downstream pressure [MPa]
- Pa = atmospheric pressure [MPa]

AC10, Capacity in Nm³/h, Natural gas								
Inlet pressure (bar)	Outlet pressure (bar)							
	0.025	0.03	0.05	0.1	0.15	0.2	0.3	0.5
D50	0.5	22	25	20	40	38	40	36
	0.7	45	55	55	50	50	50	40
	1	52	68	60	60	65	65	60
	1.5	58	60	70	70	68	75	65
	2	60	55	80	80	75	80	70
	3	55	56	70	80	80	90	80
	4	65	65	75	90	90	100	90
	5	70	70	80	100	100	100	100
D75	0.5	25	25	25	38	40	50	35
	0.7	40	45	45	50	45	60	50
	1	75	90	85	80	80	90	75
	1.5	76	90	100	110	100	110	100
	2	75	80	100	120	110	110	100
	3	77	85	95	110	95	100	110
	4	80	77	85	100	120	120	135
	5	85	85	95	110	130	130	150
D100	0.5	80	80	85	100	90	90	90
	0.7	95	100	110	130	120	110	120
	1	110	110	150	140	150	140	140
	1.5	140	150	200	150	170	180	170
	2	170	170	200	190	200	210	190
	3	110	130	220	230	240	230	230
	4	100	110	170	240	250	240	240
	5	100	110	180	260	270	270	270

ORDERING INFORMATION

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