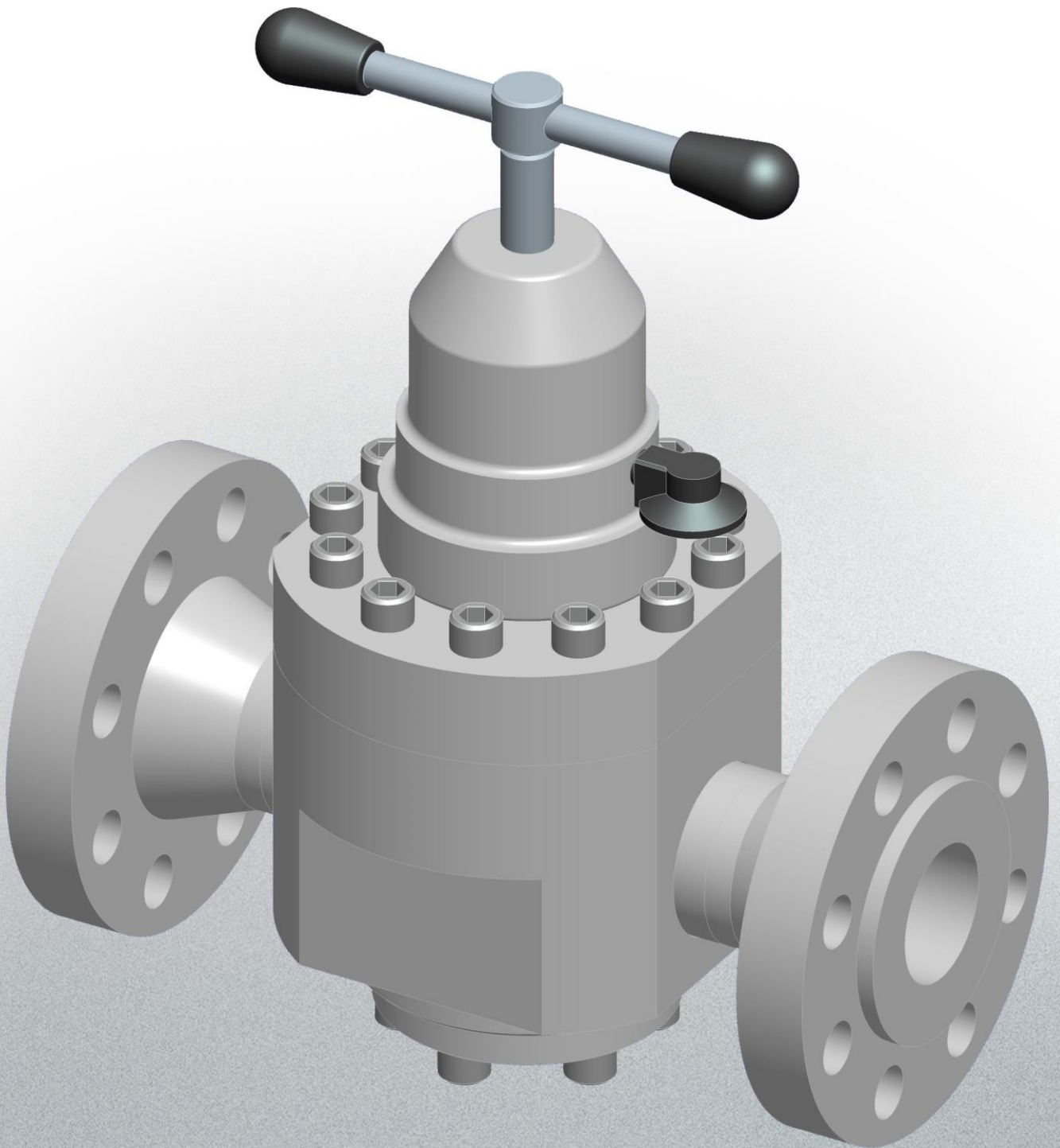


DOMUS AP

DIRECT SPRING REGULATOR



GASCAT

INTRODUCTION

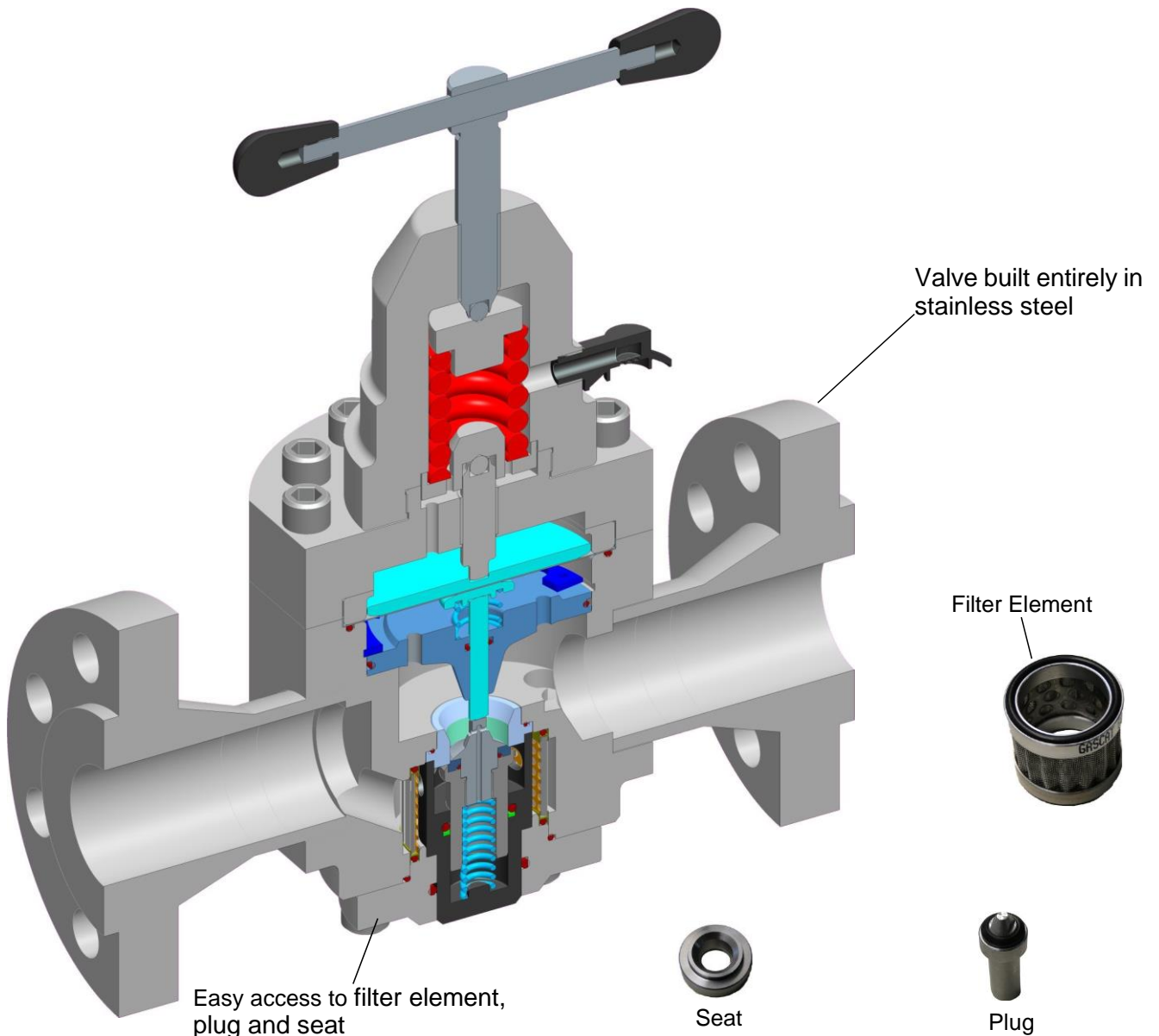
The Domus version spring actuated has been developed by Gascat for the simplest application; installation; and maintenance purposes where set pressures do not need high accuracy; since the only need after installation is turn clock wise if there is a need more pressure or turn anticlockwise if there is a need less pressure.

Beyond that the regulator still offers set points from 0,5 bar until 60 bar according the spring range specified.

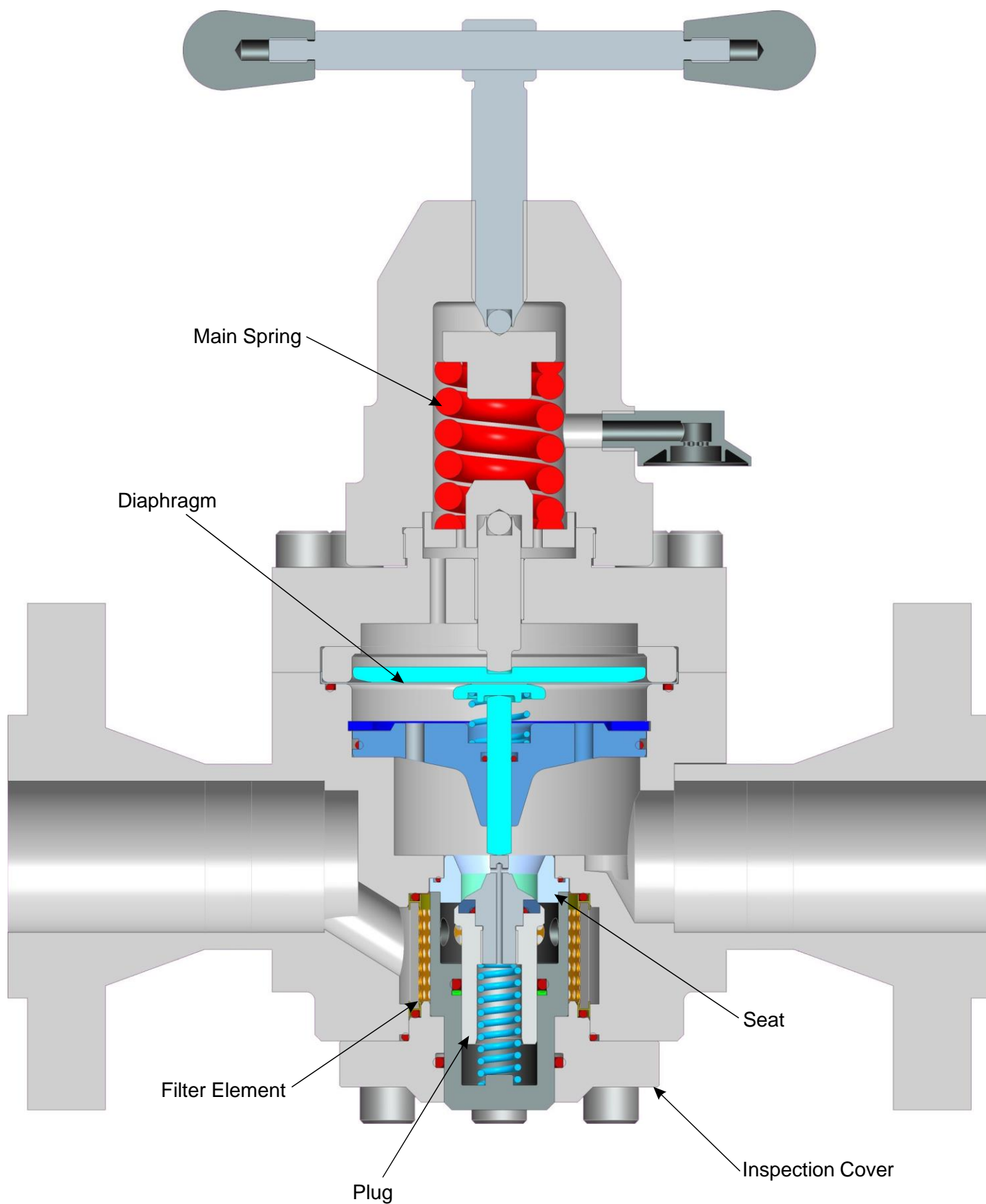
Body material and trim can be done in several materials as stainless steels or others materials like Monel or Hastelloy or Duplex steel to be used with sea water or any other gases like Natural Gas; Hydrogen; Oxygen; or any other corrosive gas or liquid.

Bellow some known applications:

- Decompression Natural Gas Systems
- Wellheads
- Virtual Gas Pipelines (bullet baskets on natural gas)
- Industrial process with gas pressurized in bullets baskets where there is a need of pressure reduction
- Hydrostatic testing circuit



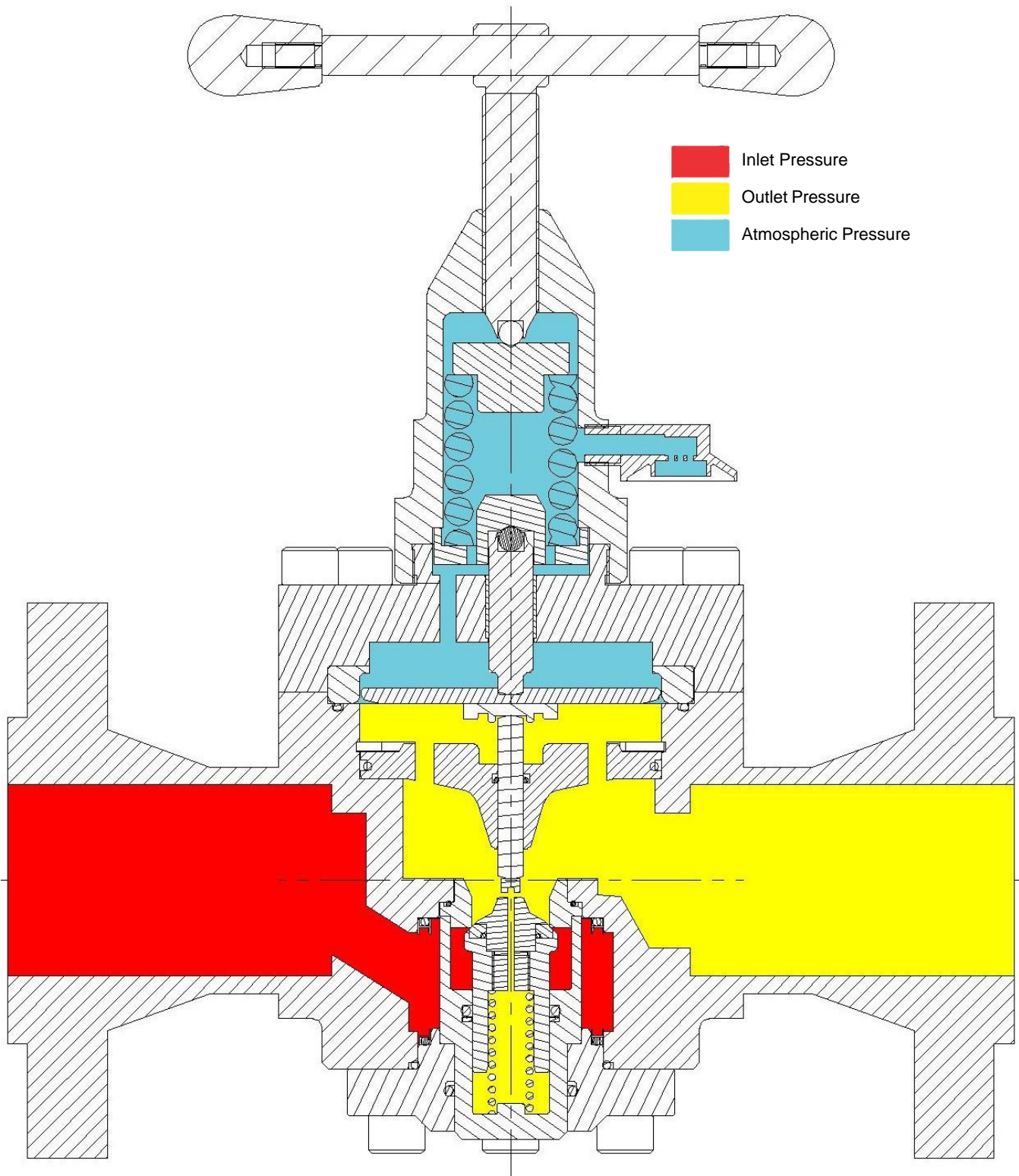
MAIN FEATURES



OPERATION PRINCIPLE

The pressure regulator Domus with direct spring actuated works with the “force in equilibrium” principle the forces between the loading force below the diaphragm and the spring force above the diaphragm trying to put the actuator in equilibrium maintaining the outlet pressure constant with flow variations.

There is spring forcing the plug against the seat installed bellow the valve plug that is additional at Gas Force bellow the diaphragm and main purpose is close the plug in case of gas absence.



TECHNICAL CHARACTERISTICS

COMPONENT	MATERIAL
Body	AISI 316-316L/ INCONEL/ MONEL/ HASTELLOY / DUPLEX/ SUPER DUPLEX/ TITANIUM
Cover	AISI 316-316L/ INCONEL/ MONEL/ HASTELLOY / DUPLEX/ SUPER DUPLEX/ TITANIUM
Diaphragm plate	AISI 316-316L/ INCONEL/ MONEL/ HASTELLOY / DUPLEX/ SUPER DUPLEX/ TITANIUM Diaphragm
Diaphragm	Buna N/ VITON/ AISI 316-316L/ AISI 302/ INCONEL/ MONEL/ HASTELLOY
Seat	AISI 316-316L/ INCONEL/ MONEL/ HASTELLOY / DUPLEX/ SUPER DUPLEX/ TITANIUM
Poppet	AISI 316 / POLYURETHANE / PTFE / DELRIN / UHMW/ PEEK
Filter	AISI 316 / others on request
Micron Rating	10 / 20 / 50 microns

OPERATION LIMITS	
Maximum Inlet Pressure	650 bar
Outlet Pressure Range	0.5 bar ~ 80 bar
Temperature Range	-30°C ~ +80°C (*)

Note: Gascat should be consulted if operation is different of this limits

END CONNECTIONS	DN	CLASSE
Flanged Threaded NPT or BSP	1" x 1" 1" x 2" 1" x 3" 2" x 2" 2" x 3" 2" x 4"	300# ~ 2500#

Note: Gascat must be consulted for other end connections.

PRESSURE CONTROL RANGES	SPRING COLOR
0.5 ~ 2.5 bar	WHITE
2 ~ 4.5 bar	GREEN
4.5 ~ 14 bar	GREY
7 ~ 18.3 bar	BROWN
14 ~ 32 bar	BLUE
14 ~ 36 bar	YELLOW
28 ~ 63 bar	RED
5 ~ 11 bar	PURPLE
5 ~ 20 bar	SILVER
18 ~ 80 bar	BLACK

SIZING

In order to size Domus Pressure Regulator properly is necessary follow bellow steps:

1. Define is critical flow or sub critical flow. You must use Inlet and Outlet pressure and maximum flow;
2. Convert the gas flow specific for natural gas flow;
3. Do not exceed above limit 90% capacity the maximum flow rate.

To size follow the equation bellow:

Q = Flow in Nm³ / h;

P1 = Inlet Pressure in absolute bar;

P2 = Outlet Pressure in absolute bar;

Kg = Flow Coefficient.

Important note:

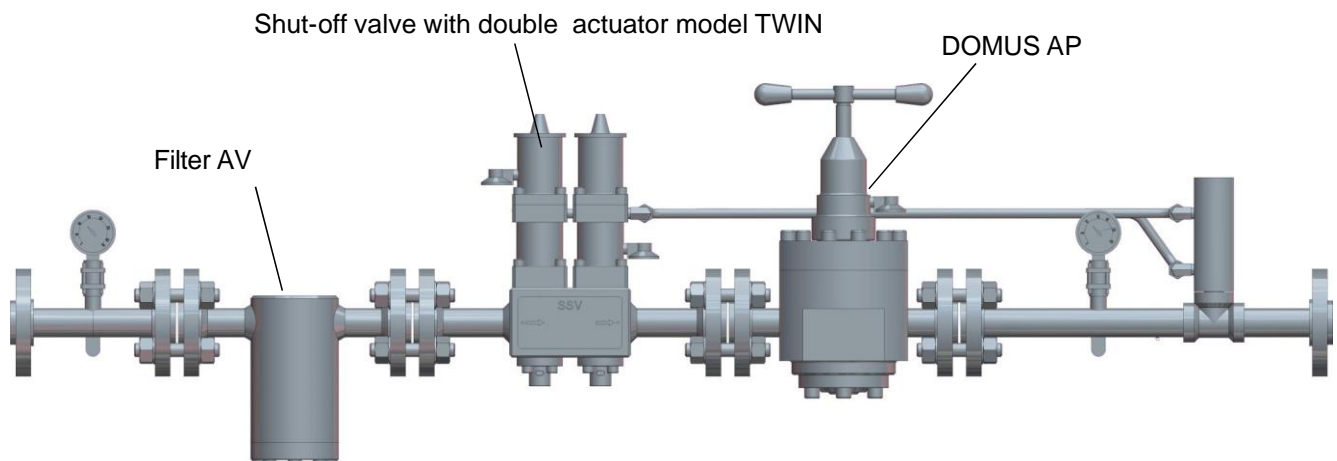
It is important remind the Domus regulator by direct spring actuated is design for application's with high differential pressure. And this conditions with Natural Gas can cause Joule Thompson effect reducing considerably the gas temperatures causing frozen in many parts. So is always desirable heat the Natural Gas before the pressure drop.

SUB-CRITICAL FLOW
$P_2 / P_1 \geq 0.53$
$Q = KG \times \sqrt{P_2 \times (P_1 - P_2)}$

CRITICAL FLOW
$P_2 / P_1 < 0.53$
$Q = (KG \times P_1) / 2$

FLOW COEFFICIENT	
ND	KG
1" x 1" 1" x 2" 1" x 3"	40
2" x 2" 2" x 3" 2" x 4"	250

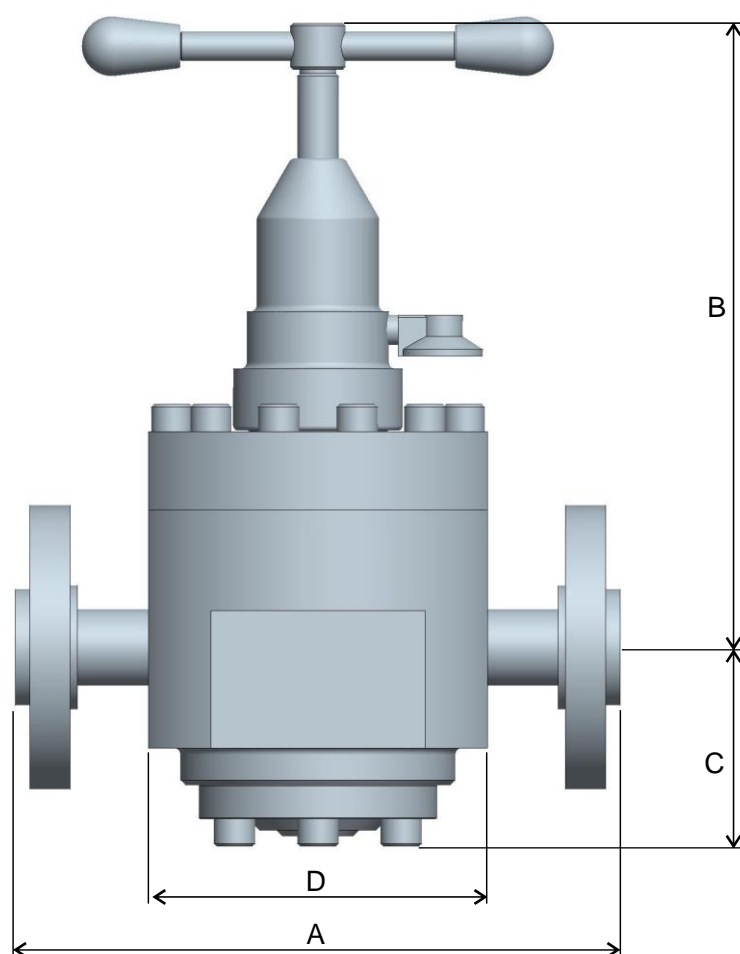
GAS	SPECIFIC GRAVITY	CORRECTION FACTOR	FOR OTHER GASES
AIR	1.29 kg/m ³	0.77	Correction Factor= $\sqrt{\frac{0.78}{(\text{SPECIFIC GRAVITY})}}$
NITROGEN	1.25 kg/m ³	0.79	
PROPANE	2.02 kg/m ³	0.62	
BUTANE	2.70 kg/m ³	0.53	



DIMENSIONS AND WEIGHTS

DIMENSIONS (mm)					WEIGHTS (kg)
ND	A	B	C	D*	
1" x 1"	300	350	110	148	19
1" x 2"	367	350	110	148	23
1" x 3"	367	350	110	-	29
2" x 2"	575	350	110	148	34
2" x 3"	575	350	110	-	45
2" x 4"	575	350	110	-	52

* Face-to-face for threaded connections



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Gascat policy is one of continuous improvement and development. The Company reserves the right to change specifications and introduce improved designs without previous notice.