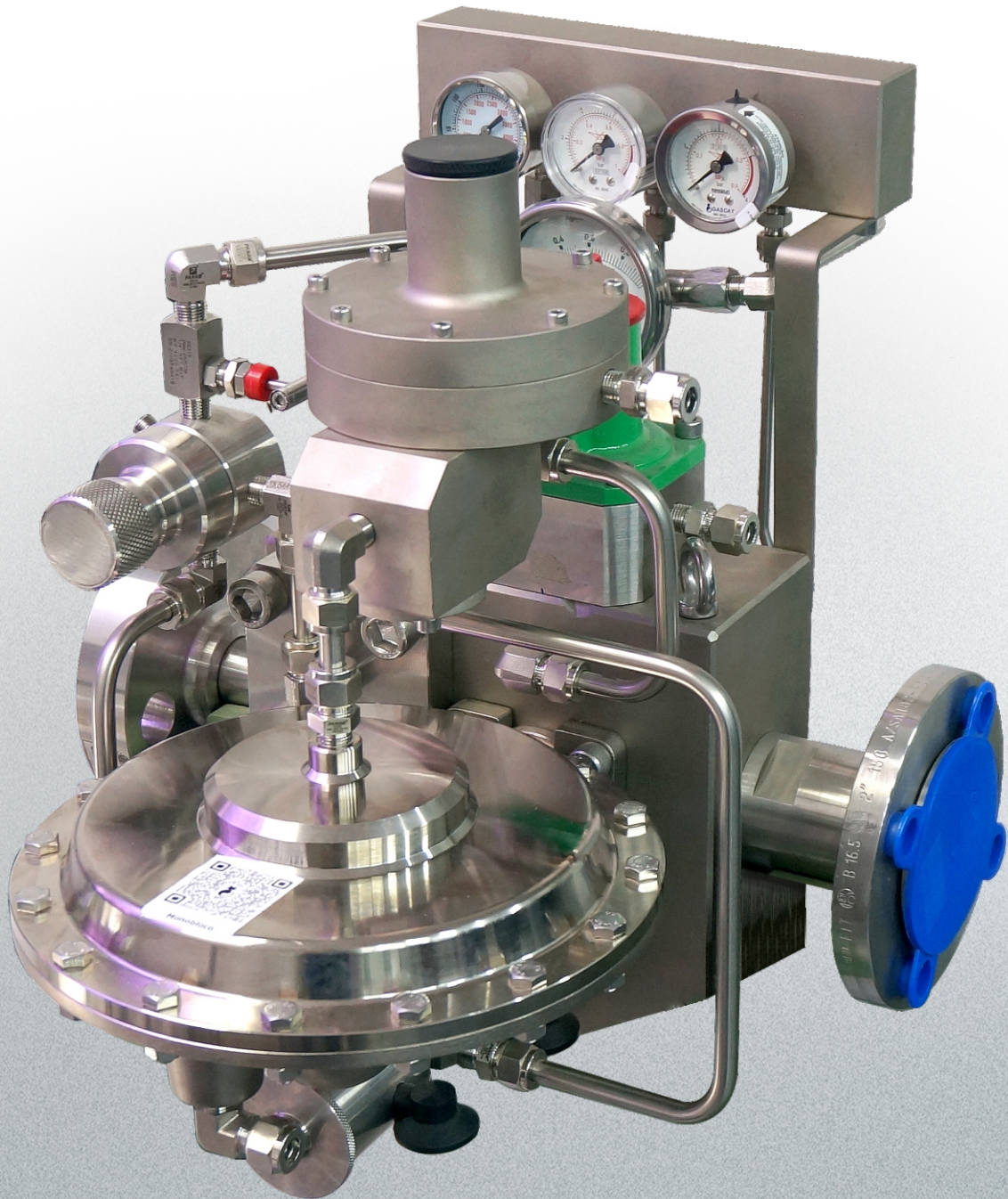


# HYDROGENESIS

Series

Compact Pressure Reduction Station



**GASCAT**

## INTRODUCTION

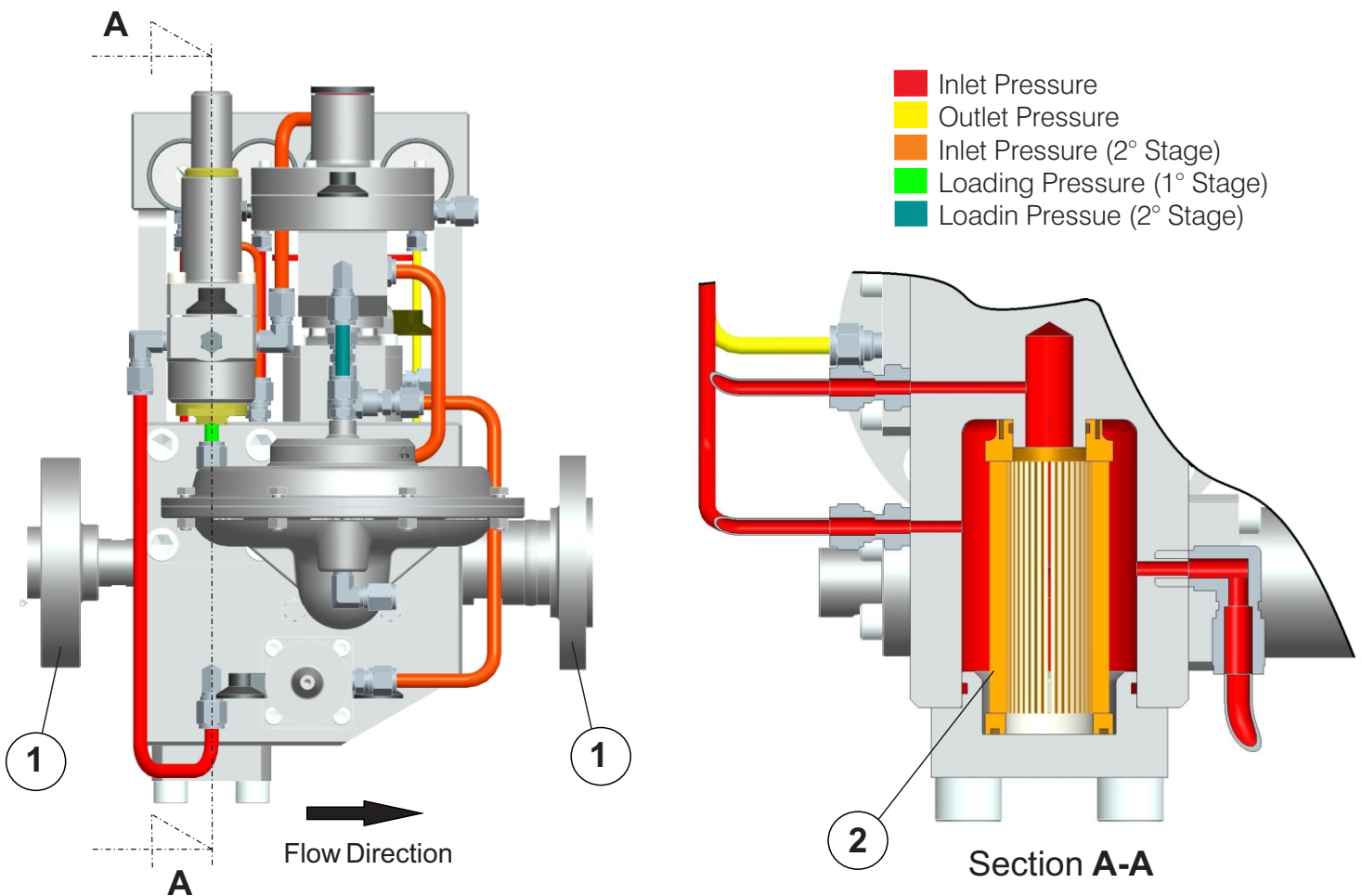
The HYDROGENESIS station have been designed to attend all new necessities of Hydrogen Pressures Control with its whole security associated following EN 12186 in only one and small unit of forged stainless steel 316 L. Our very experienced designers and operational people leads the company in total harmony resulting on this incomparable product design with unparalleled performance, much less fugitive emissions compared to a traditional PRS and much less carbon footprint to produce.

## FEATURES

HYDROGENESIS for multiple bodies is cold rolled stainless steel 316 L Hydrostatic Tested up to 600 bar. All the devices below are coming from pressure regulators and security shutoff valves with more than 25 years in field operation. So the HYDROGENESIS is totally reliable.

The flow direction is compatible with the bellow devices sequence:

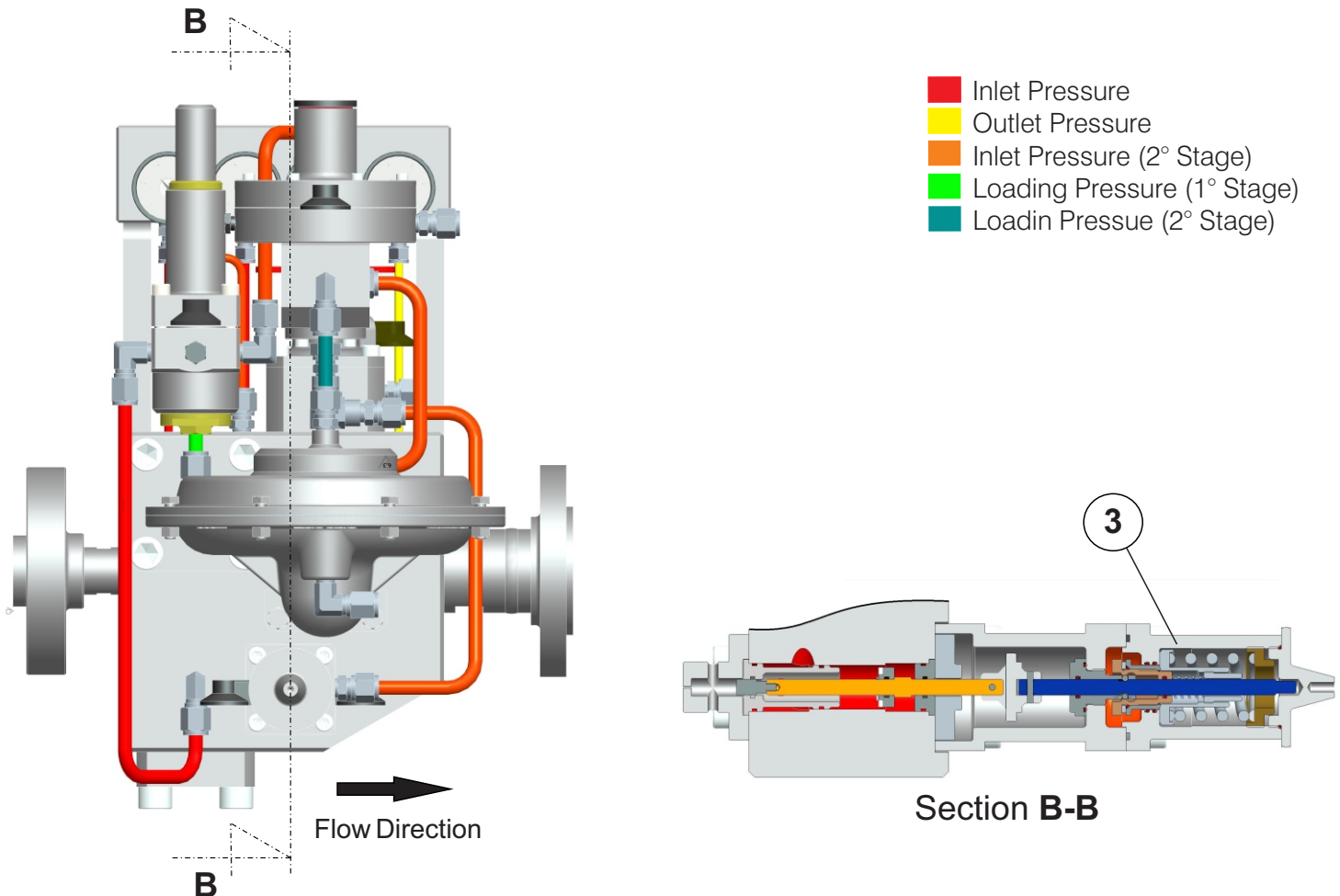
1. Inlet Connection Stub End flanged 2500# down to 150# SS 316L
2. Filter Unit with SS filter element 10  $\mu$ . Cracking DP 20 bar. (coming from our AV Filter)



Many contaminants can enter into the system. Excessive amounts of liquid impurities and solid particulates contamination are common in high pressure systems. This contamination can lead to poor performance and wear of internal components throughout the system, which can result in unscheduled maintenance, increasing maintenance costs and impacting product quality.

## FEATURES

3. Security Shut off Valve has two actuators with operational set pressures from 3,0 bar until 200 bar material SS 316L coming from our Twin SSV



The TWIN series slam shut valves are installed in pressure regulating or metering skid units in order to protect the pipe line or the gas equipments and all downstream instruments from an unexpected over pressure or also in case of gas source interruption or even in case of rupture of it's own tubing's. With under pressure blocking (it is adjusted in Gascat plant) the slam shut valve matches the requirements of EN 14382 standard.

The slam shut valves are very fast disengaging, less than 1s and totally bubble tight; they are totally manually reset and due to it's design, have a very low pressure drop with a wide range of set pressures. They are easy to install and accept any position even upside down.

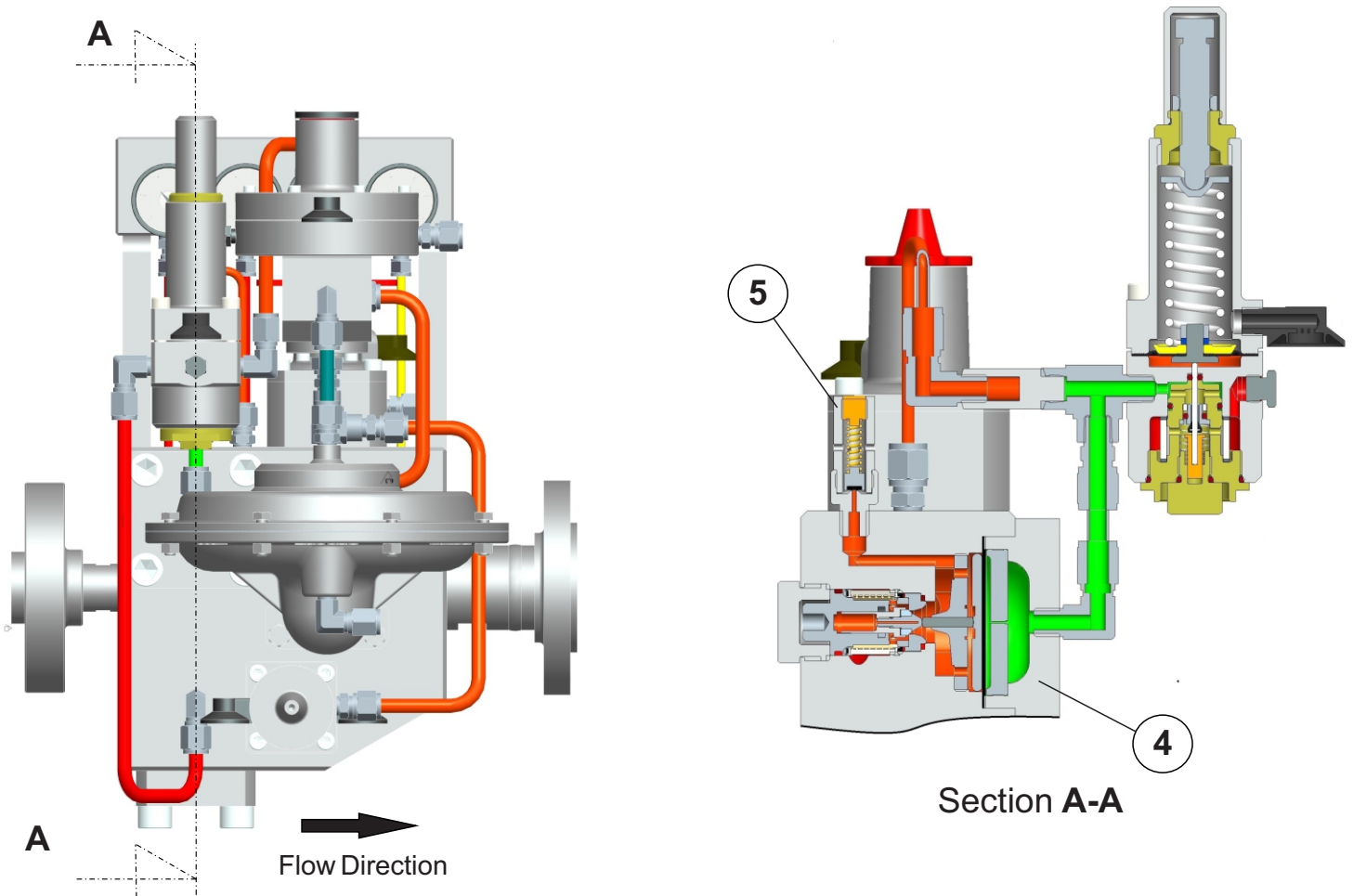
Due to its design the set pressure are not affected by the inlet pressure variation (EN 14382 class A).



**FEATURES**

- 4. Domus Pressure Regulator piloted with G31F or Corinox set pressure from 2,0 bar to 200 bar all material SS 316L our standard Domus
- 5. Partial Relief Valve VS with 1% capacity of max flow material AISI 316 L coming from our HP regulator

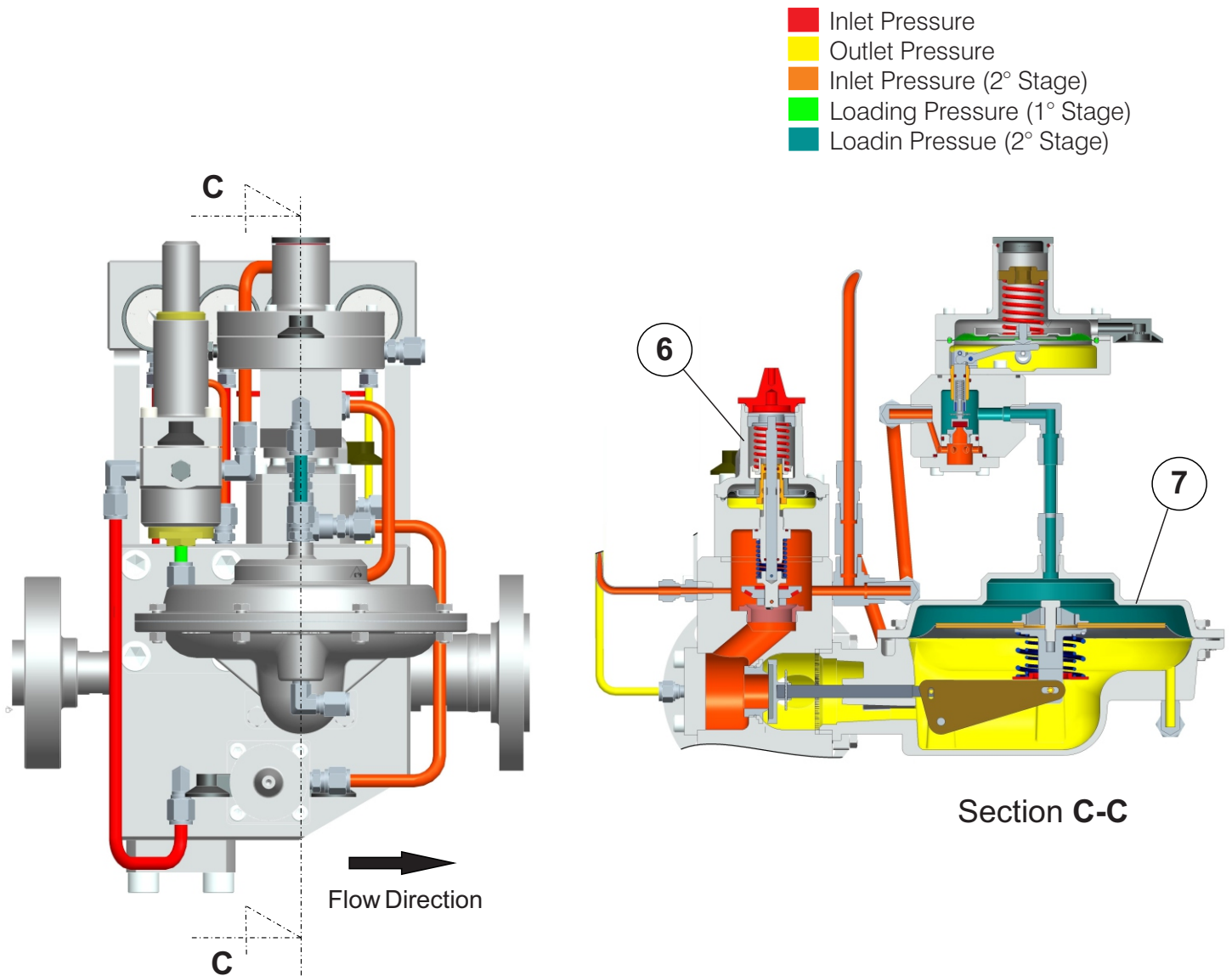
- Inlet Pressure
- Outlet Pressure
- Inlet Pressure (2° Stage)
- Loading Pressure (1° Stage)
- Loadin Pressue (2° Stage)



The pilot operated version of pressure regulator model DOMUS was developed by Gascat to apply in high pressure applications where is necessary better accuracy in pressure regulation achieving values up to 1% and lock up up to 10%. Beyond that, the pilot added in the pressure regulator also offer pressure adjustment from 14.5 psi (1 bar) to 1740 psi (120 bar).

## FEATURES

6. Security Shut off Valve with operation pressure from 20mbar to 08 bar material SS 316L. coming from our Brise Regulator
7. Athos Pressure Regulator piloted with G50/G80 series with operation pressure fro 20 mbar up to 4bar; hard anodized aluminum 6351 T6
8. Partial Relief Valve VS made in SS 316L



The ATHOS regulator is a pilot operated pressure regulator which main characteristic is its excellent regulation accuracy achieving up to 1% from its minimum to its maximum flow capacity.

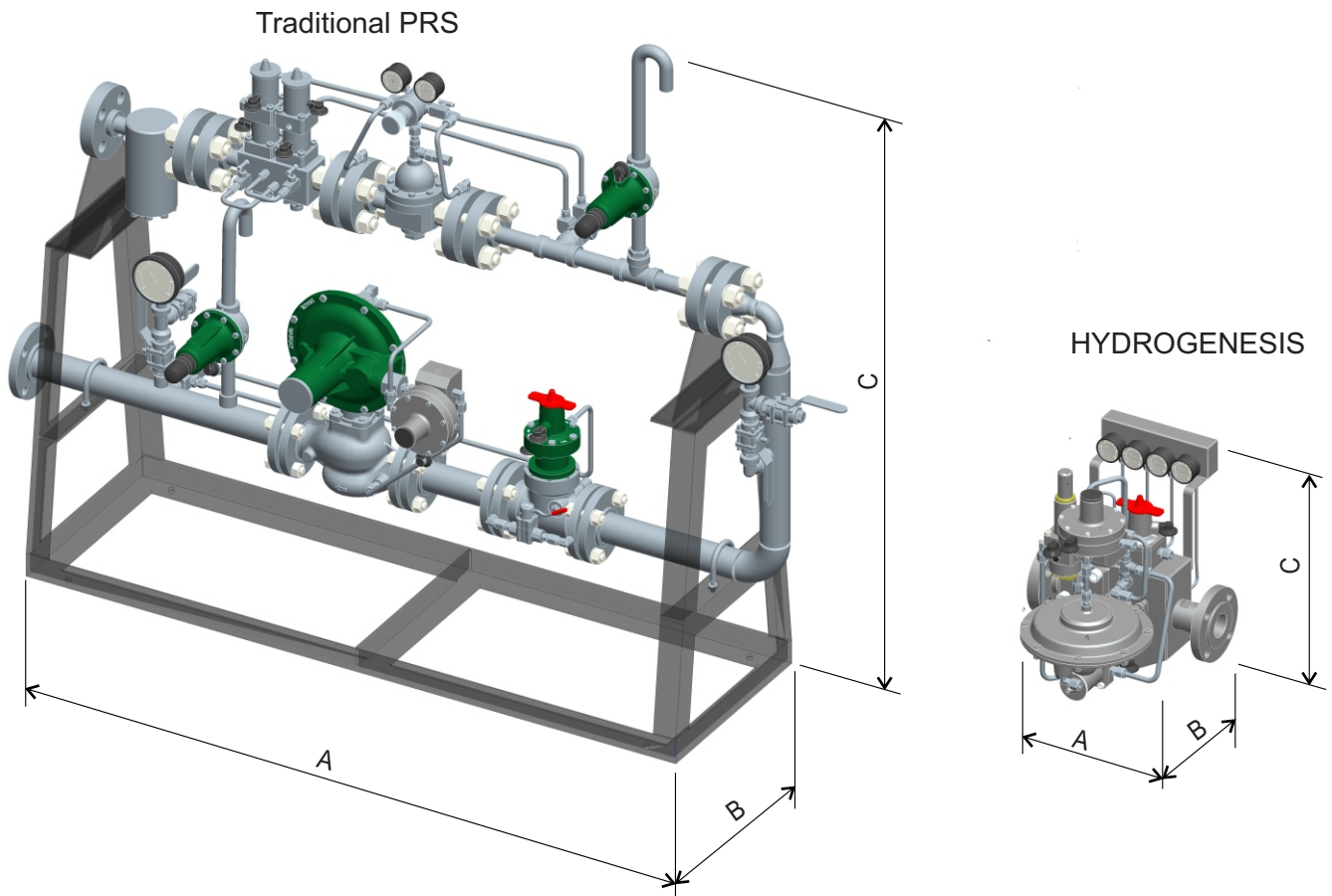
It is largely used in gas distribution in pressure regulating and metering Skid, or in any other application requiring excellent accuracy of pressure regulation.

## ADVANTAGES

The HYDROGENESIS system is ideally suited for hydrogen gas control application. They can accommodate several inlet pressure from 30 bar up to 400 bar only changing orifices and domus pilots.

	TRADITIONAL PRS	HYDROGENESIS
<b>WEIGHT (kg)</b>	250	50
<b>JOINTS (un.)</b>	10	02
<b>A (mm)</b>	1500	400
<b>B (mm)</b>	450	485
<b>C (mm)</b>	1450	495

- Low quantity of joints, reducing the possible fugitive emission and leakage;
- Easy to transport, just a small wooden box with very low cost and easily transport by air;



## TECHNICAL CHARACTERISTICS

COMPONENT	MATERIAL
Body	Stainless Steel 316L
Bottom Cover	Stainless Steel 316L
Top Cover	Stainless Steel 316L
Internals	Stainless Steel 316L
Elastomers	BUNA-N (STD) FKM (Optional)

Note: For other material option, consult our Sales Department.

OPERATION LIMITS	
Maximum Inlet Pressure	400 bar
Outlet Pressure Range	20 mbar ~ 4 bar
Temperature Range	-20°C ~ +60°C (*)
AC - Accuracy Class	Up to 2.5%
SG - Lock Up	Up to 5%

Note: GASCAT should be consulted for temperatures different than mentioned above.

CONNECTION	ND	CLASS
Flange ANSI B16.5	1" x 2"	2500# x 150#RF

SPRING RANGE	SPRING COLOR	PILOT
10 - 25 mbar	Yellow	G51
20 - 130 mbar	Blue	
90 - 250 mbar	White and Gray	
230 - 400 mbar	Silver	
350 - 1100 mbar	Gray	

## SIZING

The sizing of HYDROGENESIS is based in the short equations from standard DIN EN 334 and flow behavior according to differential pressure.

Where:

Q = Flow in Nm<sup>3</sup>/h;

P1 = Inlet pressure in bar absolute;

P2 = Outlet pressure in bar absolute;

KG = Regulator flow coefficient;

SUB-CRITICAL FLOW	CRITICAL FLOW
$P_2 / P_1 \geq 0.53$	$P_2 / P_1 < 0.53$
$Q = KG \times \sqrt{P_2 \times (P_1 - P_2)}$	$Q = (KG \times P_1) / 2$

ND	KG
1" x 2"	3800

## DIMENSIONS

