Pressure Regulator

EQA 99

Type EQA 99 is a pressure reducing regulator for air or gas,suitable for multiple applications due to its wide range of inlet pressures which go up to 28 bar and outlet pressures of between 0,0175 bar and 7 bar. Its maximun flow for natural gas is 7.500 m³/hora.

The valve's body may be threaded or flanged 2" S-150. This type of valves is commanded through a pilot, which uses the flow as its principle of operation to cover all ranges of outlet pressures. Two types of pilots are manufactured, which are interchangeable:

- For low pressures (type. 6351-B) from 0,017 bar up to 0,5 bar.
- For high pressures (type. 6351-S) from 0,5 bar up to 7 bar.

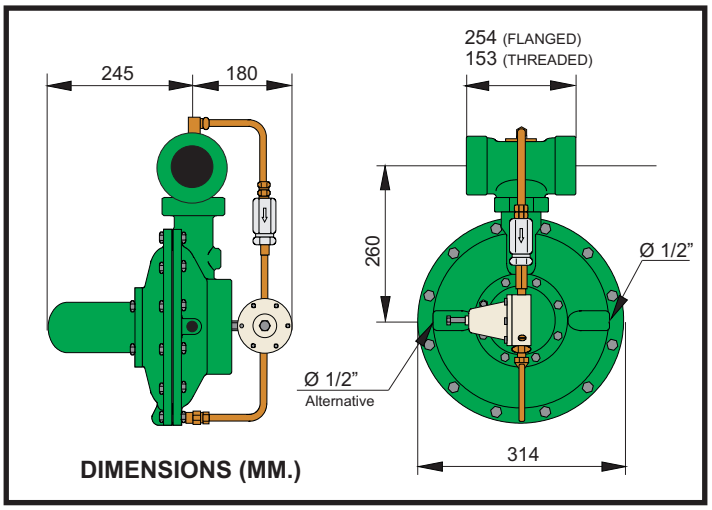
In some cases of high inlet pressures a second stage pilot is incorporated in order to obtain optimal outlet pressures.

Outlet pressure adjustment:

Turn screw (A) clockwise in order to increase outlet pressures, and in the opposite direction to decrease it. Screw (B) shall not be used unless there exist oscillations in outlet pressure when the valve is operating. Ask for instructions to manufacturer in order to do this.

Installation:

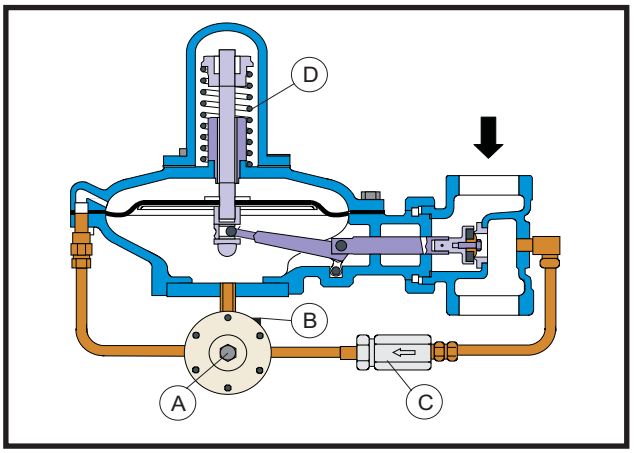
Generally, the diaphragm box is installed horizontally and the pilot downwards, but it can be modified according to the specific requeriments. The positions of the body can be varied due to the junction rotation. In this case, the pilot feeding pipe shall be connected again. Flow must be checked to follow the direction indicated by the arrow on the body. This type of regulator is provided with two ½" threaded connections, located in the lower box of the diaphragm. One of them shall be chosen and the other blocked with the cap provided (important). It shall be connected downstream through a Ø ½" pipe and ball valve with a distance of between 400 y 600 mm. from the regulator, as can be seen in the installation diagram.



DIMENSIONS (MM.)

TECHNICAL DATA	
End connections:	Threated 2" NPT/ 2" flanged S-150
Operation temperature:	-20ºC to 60ºC (-10ºF to 140ºF)
Aprox weight:	37 Kg (82,1 Lbs)

MATERIALS	
Main body:	Carbon steel
Seat orifice:	Brass
Diaphragm:	Nitrile
Valve disk:	Nitrile or Teflon



Capacity Chart for natural gas in Nm³/hour (Sp. Gravity= 0,6) Ø 1-1/8" Orifice - Droop 10%

Inlet pressure [Bar] \ Outlet pressure [Bar]	0,017	0,035	0,07	0,14	0,2	0,3	0,35	0,4	0,5	0,55	0,65	0,7	1	1,4	1,75	2,1	2,5	2,8	3,1	3,5	4,2	5,25	7
0,07	140																						
0,14	210	195	170																				
0,21	250	250	240																				
0,28	280	280	250	240																			
0,35	335	335	310	280	250																		
0,42	365	365	365	335	280	250																	
0,49	420	395	395	365	335	280	265																
0,56	450	450	420	395	365	335	310	265															
0,63	480	480	480	450	420	395	335	310	280														
0,70	535	535	505	480	450	420	395	365	335	280													
1,05	675	675	675	675	675	660	620	620	565	565	535	368											
1,40	875	875	875	875	875	875	845	790	760	735	705	675	505										
1,75	990	990	990	990	990	990	990	990	990	930	930	905	700	565									
2,10	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	960	790	590								
2,45	1245	1245	1245	1245	1245	1245	1245	1245	1245	1245	1245	1245	1130	990	845	620							
2,80	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1330	1245	1075	905	675						
3,50	1610	1610	1610	1610	1610	1610	1610	1610	1610	1610	1610	1610	1610	1610	1470	1330	1185	991	735				
4,20	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1840	1755	1640	1415	1270	1075			
5,25	2205	2205	2205	2205	2205	2205	2205	2205	2205	2205	2205	2205	2205	2205	2205	2205	2205	2095	1925	1755	1415		
7,00	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2490	2090	
8,75	3455	3455	3455	3455	3455	3455	3455	3455	3455	3455	3455	3455	3455	3455	3455	3455	3455	3455	3455	3455	3455	3115	2265
10,50	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	4050	3395
12,00	4530	4530	4530	4530	4530	4530	4530	4530	4530	4530	4530	4530	4530	4530	4530	4530	4530	4530	4530	4530	4530	4530	4390
14,00	5095	5095	5095	5095	5095	5095	5095	5095	5095	5095	5095	5095	5095	5095	5095	5095	5095	5095	5095	5095	5095	5095	5095
16,00	5805	5805	5805	5805	5805	5805	5805	5805	5805	5805	5805	5805	5805	5805	5805	5805	5805	5805	5805	5805	5805	5805	5805
17,50	6230	6230	6230	6230	6230	6230	6230	6230	6230	6230	6230	6230	6230	6230	6230	6230	6230	6230	6230	6230	6230	6230	6230
21,00	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500

Note: Please consult us about appopiate flows and orifices for higher inlet pressures (up to 28 Bar).

Capacity formula

Capacity according to orifice - Natural Gas (d=0,6)

ORIFICES	K
Ø 3/8"	0,16
Ø 1/2"	0,27
Ø 5/8"	0,41
Ø 3/4"	0,48
Ø 7/8"	0,6
Ø 1-1/8"	1

Capacity formula in [Nm³/Hora]

Capacity = K x Qt

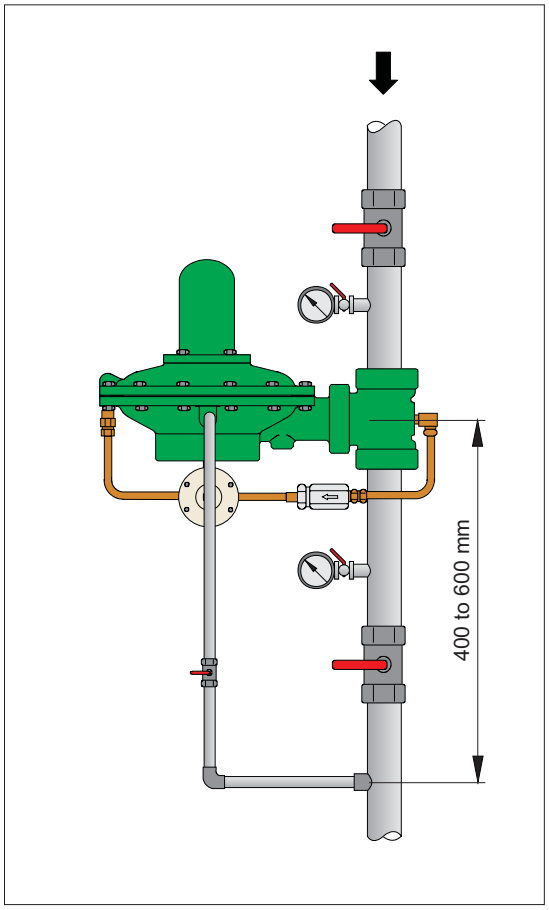
K = Constant according to orifice. (See chart)

Qt = Capacity according to Ip and Op determined in Ø 1-1/8" orifice figure.

In order to calculate capacities with other gases, multiply the value in the chart by K factor

GAS	DENSITY	K FACTOR
BUTANE	2	0.55
PROPANE (LPG)	1.5	0.63
CARBONIC ANHYDRIDE	1.5	0.63
OXYGEN	1.1	0.74
AIR	1	0.77
NITROGEN	0.97	0.79
ACETYLENE	0.9	0.82
AMMONIA	0.59	1.02
HYDROGEN	0.07	3

Installation diagram



CONVERSION UNITS

Pressure conversions

To obtain / Multiply	Pounds per Square Inch (psi)	Inches of Water Column (in H2O)	Milimeters of Water Column (in H2O)	Inches of Mercury (in Hg)	Milimeters of Mercury (mm Hg)	Bar (bar)	Milibar (mbar)	Kilograms per Square centimeter (kg/cm2)	Kilopascals (Kpa)
psi	1	27,68	703,1	2,036	51,7	0,06895	68,95	0,0703	6,895
in H2O	0,0361	1	25,4	0,07355	1,87	0,002491	2,491	0,00254	0,22491
mm H2O	0,0014	0,0394	1	0,00289	0,07355	0,000098	0,0981	0,0001	0,00981
in Hg	0,4911	13,6	345,4	1	25,4	0,03386	33,86	0,03453	3,386
mm Hg	0,01934	0,535	13,6	0,03937	1	0,001333	1,333	0,00136	0,1333
bar	14,5	401,5	10198,1	29,53	750,06	1	1000	1,02	100
mbar	0,0145	0,4015	10,1981	0,02953	0,7501	0,0001	1	0,00102	0,1
Kg/cm2	14,22	393,7	10000	28,96	735,58	0,9807	980,7	1	98,07
Kpa	0,145	4,015	101,98	0,2953	7,501	0,01	10	0,0102	1

Flow conversions

Multiply / to obtain	Scf/h	Scm/h	Scf/d	Scm/d
Standard Cubic Feet per Hour (60°F, 14.7 psia)	1	0,028	24	0,672
Standard Cubic Meter per Hour (15°C, 1.01325 bara)	35,71	1	857,04	24
Standard cubic Feet per Day	0,0417	0,0012	1	0,028
Standard cubic Meter per Day	1,4879	0,0417	35,71	1