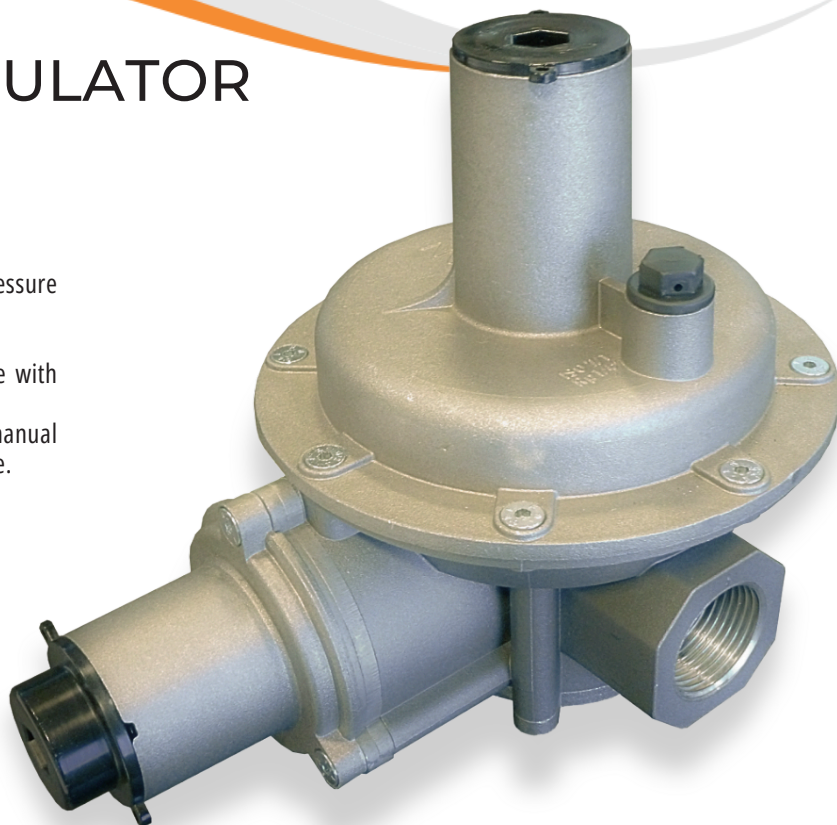
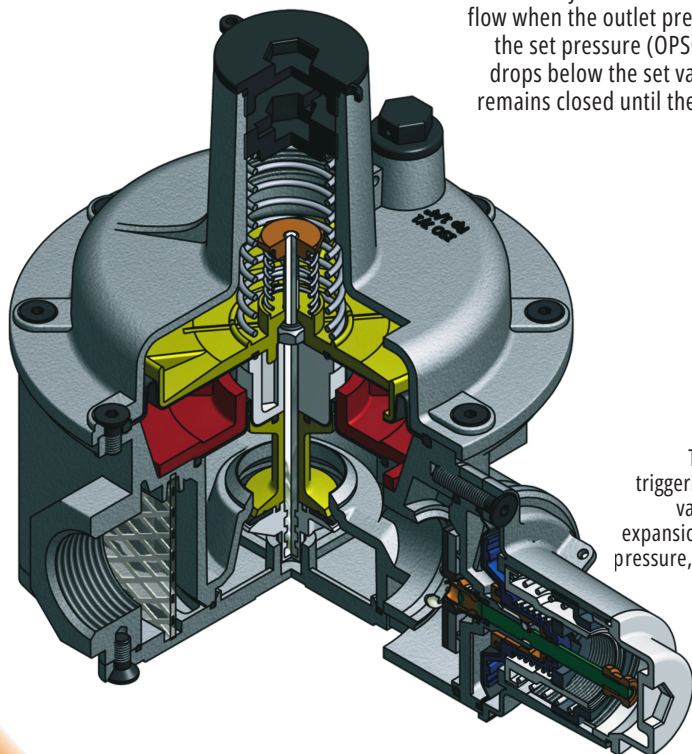


GAS PRESSURE REGULATOR EQA S402 / S-417

This regulator series have great sensitivity and high outlet pressure stability, regardless of any variation on inlet pressure.
Widely used in low pressure gas distribution systems.
With internal filter and relief device for high output pressure with automatic reset.
Model S-417 also has a safety device for shut off (SSV) with manual reset that works in case of excess or decrease in outlet pressure.



Operational Diagram



The safety shut-off valve cuts the gas flow when the outlet pressure exceeds the set pressure (OPSO). Or when it drops below the set value (UPSO). It remains closed until the valve is reset manually.

The relief valve avoids triggering the safety shut-off valve in case of thermal expansion, transient surges of pressure, and creep leaks from the regulator.

TECHNICAL SPECIFICATIONS

Inlet pressure	0.02 to 4 bar
Outlet pressure	0.012 to 0.3 bar
Nominal capacity	Up to 260 Nm ³ /h
OPSO	Only model S-417
UPSO	Only model S-417 (optional)
Minimum pressure differential	0.003 bar (1.18 in. wc)
Connections / Type	1" BSP / Parallel internal thread according to ISO 228/1 or NPT
Operating temperature	-20°C to 60°C
Accuracy Class & Lock Up Pressure Class	Up to AC5 (%) / Up to SG 10 (%)
Acceptable gases	Natural gas, LPG, propane, butane, air, nitrogen, hydrogen (up to 20%) or any non-corrosive gas.

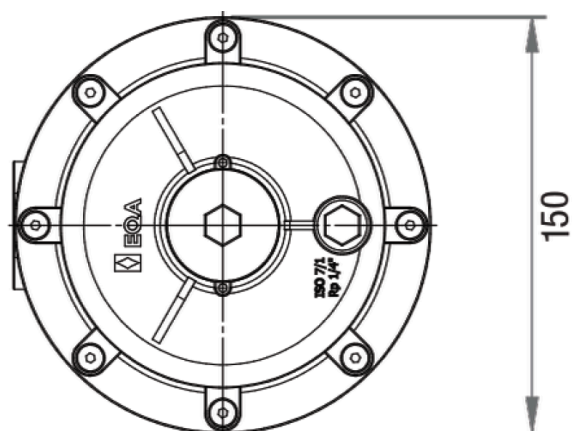
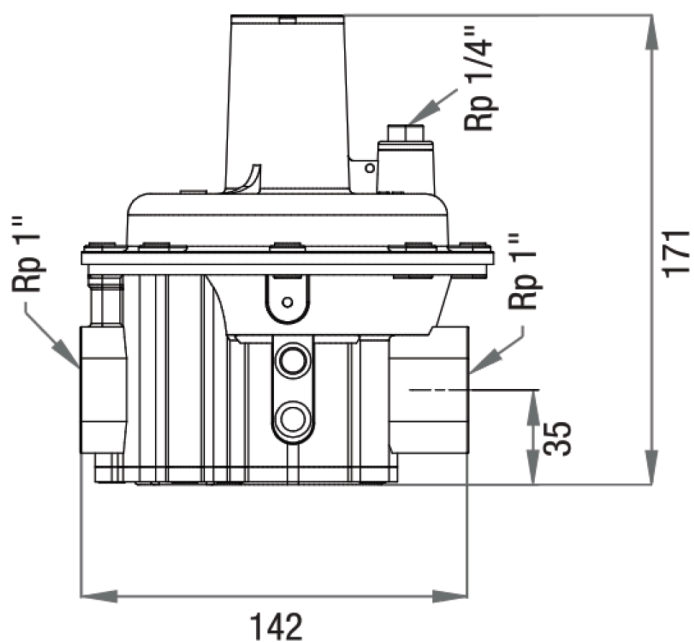
MATERIALS

Main body	Aluminum
Internals	Stainless steel, brass, PA6
Diaphragm and Seat	Nitrile rubber

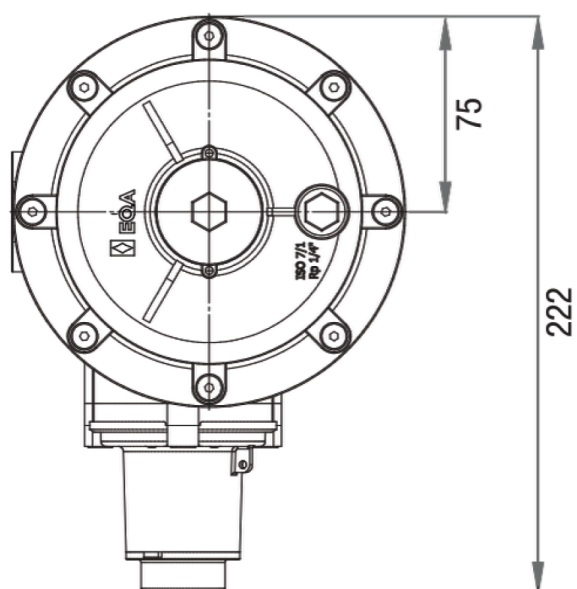
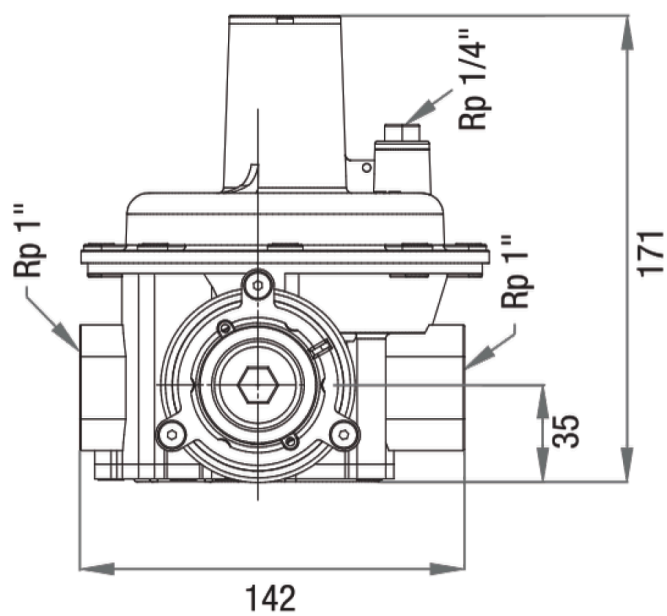


Overall Dimensions

S-402



S-417





Designation Codes for Ordering

Regulator Series			Material	Connection type	SSV	Nozzle	Filter	Future		Description
4	0	2	0		0	0		0	0	For S-402 without OPSO & UPSO
4	1	7	0			0		0	0	For S-417
				B						1" BSP
				F						1" NPT
					1					For S-417 with OPSO
					2					Optional for S-417 with OPSO & UPSO
							1			With filter

Example: 4170B10100 codification for 417 regulator series, standard material, 1" BSP connection type, regulated pressure up to 0.3 bar OPSO, standard nozzle, with filter.

Regulator Spring Selection

Spring Code	Spring Characteristic					Outlet Pressure (kg/cm ²)
	Wire Diameter (mm)	Outside Diameter (mm)	Free Length (mm)	Qty. of coils	Material	
R83	1.7	29	82	10	Carbon Steel	0.015 to 0.030
R84	1.9	29	82	8.1	Carbon Steel	0.024 to 0.05
R85	2.1	29	82	8.1	Carbon Steel	0.044 to 0.08
R86	2.5	29	82	8.1	Carbon Steel	0.065 to 0.145
R87	2.7	29.5	82	6.8	Carbon Steel	0.12 to 0.24
R88	2.8	29.5	82	6.5	Carbon Steel	0.14 to 0.3

Relief Spring Selection

Spring Code	Spring Characteristic					Relief Pressure (kg/cm ²)
	Wire Diameter (mm)	Outside Diameter (mm)	Free Length (mm)	Qty. of coils	Material	
R97	1	14.8	33	6	Carbon Steel	0.035
R98	1.3	15	33	8	Carbon Steel	0.075
R99	1.5	15	33	7.9	Carbon Steel	0.15
R100	1.7	15	33	7.9	Carbon Steel	0.20
R101	1.9	15	33	7.85	Carbon Steel	0.31
R102	2.1	15	33	7.8	Carbon Steel	0.45



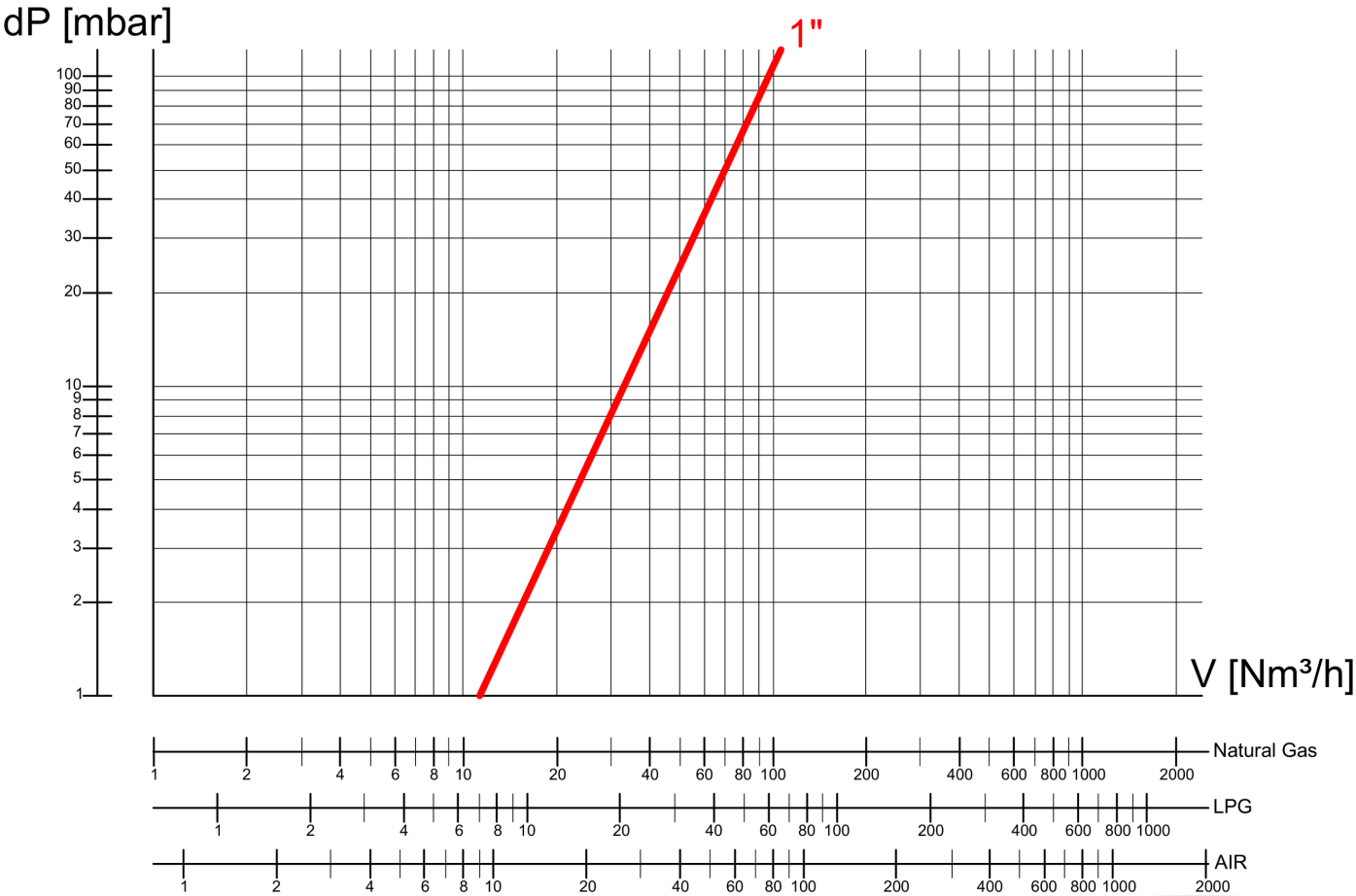
Over-Pressure Shut-off Spring Selection (OPSO)

Spring Code	Spring Characteristic					Spring Range (kg/cm ²)
	Wire Diameter (mm)	Outside Diameter (mm)	Free Length (mm)	Qty. of coils	Material	
R89	1.5	34	34	4.25	Carbon Steel	0.04 to 0.06
R90	2.1	34	34	4.2	Carbon Steel	0.07 to 0.15
R91	2.4	34	34.5	4.18	Carbon Steel	0.145 to 0.27
R92	2.6	34	34.5	4.16	Carbon Steel	0.25 to 0.41

Under-Pressure Shut-off Spring Selection (UPSO)

Spring Code	Spring Characteristic					Spring Range (kg/cm ²)
	Wire Diameter (mm)	Outside Diameter (mm)	Free Length (mm)	Qty. of coils	Material	
R115	1.2	19	28	7.9	Carbon Steel	0.010 to 0.035
R119	1.6	19	28	7.9	Carbon Steel	0.045 to 0.120
R120	1.9	19	28	7.9	Carbon Steel	0.070 to 0.180
R124	1.4	19	28	7.8	Carbon Steel	0.035 to 0.070
R127	2.2	20	28	7.23	Carbon Steel	0.130 to 0.181

Flow chart with disc blocked in open position





Inlet Pressure (bar)	Capacities in Nm ³ /h for Natural Gas (density 0.6 * - maximum capacities at 10% drop or boost (AC10 %) - absolute pressure 1.013 bar - temperature 15°C)													
	Regulated pressure (bar)													
	0.012	0.02	0.03	0.04	0.05	0.07	0.08	0.1	0.12	0.16	0.18	0.2	0.25	0.3
0.02	12	-	-	-	-	-	-	-	-	-	-	-	-	-
0.03	15	18	-	-	-	-	-	-	-	-	-	-	-	-
0.05	18	33	35	35	-	-	-	-	-	-	-	-	-	-
0.08	23	40	45	45	50	35	-	-	-	-	-	-	-	-
0.10	28	45	55	60	60	60	50	-	-	-	-	-	-	-
0.13	36	55	60	67	72	80	60	45	40	-	-	-	-	-
0.16	45	80	85	90	90	90	90	60	55	-	-	-	-	-
0.20	47	80	85	100	110	110	110	80	80	50	50	-	-	-
0.25	53	90	100	120	120	120	120	90	90	70	70	70	-	-
0.30	60	100	110	130	130	130	130	100	100	100	100	100	75	-
0.40	75	100	110	140	140	160	160	140	140	140	140	140	120	120
0.50	75	110	110	140	140	160	160	160	160	160	160	180	180	180
0.70	75	110	110	140	140	160	160	160	160	200	200	220	220	220
1.00	75	110	110	140	140	160	160	160	160	220	220	240	240	240
1.40	75	110	110	140	140	160	160	160	160	220	260	260	260	260
1.50	75	110	110	140	140	160	160	160	160	220	260	260	260	260
2.00	75	110	110	140	140	160	160	160	160	220	260	260	260	260
2.50	75	110	110	140	140	160	160	160	160	220	260	260	260	260
3.00	75	110	110	140	140	160	160	160	160	220	260	260	260	260
3.50	75	110	110	140	140	160	160	160	160	220	260	260	260	260
4.00	75	110	110	140	140	160	160	160	160	220	260	260	260	260

(*) Maximum capacities at 10% drop or boost. To obtain capacities for other gases, multiply the value of the chart by the K factor

GAS	SPECIFIC GRAVITY	CORRECTION FACTOR (K)
Acetylene	0.9	0.82
Air	1	0.77
Ammonia	0.59	1.02
Butane	2.01	0.55
Carbon dioxide	1.5	0.63
Carbon monoxide	0.97	0.79
Hydrogen	0.07	3

GAS	SPECIFIC GRAVITY	CORRECTION FACTOR (K)
LPG	1.5	0.63
Nitrogen	0.97	0.79
Oxygen	1.1	0.74
Propane	1.53	0.63
Propane air mix	1.2	0.71
Biogas **	máx 1.2	0.7
	mín 0.8	0.75

** correct operation is guaranteed only with treated Biogas (reduced sulfide values).



FLOW RATE CONVERSION

TO OBTAIN	CUBIC FOOT PER HOUR	CUBIC METER PER HOUR	CUBIC FOOT PER DAY	CUBIC METER PER DAY
MULTIPLY	(Scf/h)	(Scm/h)	(Scf/d)	(Scm/d)
Cubic foot per hour	1	0.028	24	0.672
Cubic meter per hour (15°C, 1.01325 bara)	35.71	1	857.04	24
Cubic foot per day	0.0417	0.0012	1	0.028
Cubic meter per day	1.4879	0.0417	35.71	1

UNIT CONVERSION

TO OBTAIN	POUNDS PER SQUARE INCH	INCHES OF WATER COLUMN W	MILIMETER S OF WATER COLUMN W	INCHES OF MERCURY	MILIMETER S OF MERCURY	BAR	MILIBAR	KILOGRAMS PER SQUARE CENTIMETE R	KILOPASCA LS
MULTIPLY	psi	in H2O	mm H2O	in Hg	mm Hg	bar	mbar	Kg/cm²	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	0.001	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



At EQA, we strive to minimize our environmental impact through sustainable and responsible practices. For this reason, we invite you to join our commitment and, at the end of the product's life cycle, adhere to the current Municipal, Provincial, and National regulations when classifying, recycling, destroying, or disposing of the product, spare parts, non-reusable parts, or packaging. In this way, we prevent damage to the environment and also promote, together, the reuse and recycling whenever possible. We appreciate your commitment and effort in joining these actions.