

PRESSURE REGULATOR EQA 631

EQA 631 is a pressure regulator operated by a pilot, that improves stability in outlet pressure.

It is equipped with a spring that stops the flow whenever it falls to cut levels or the pilot losses pressure. (Fail to close).

This unit can be installed in high or medium gas pressure system and it has been designed to support inlet pressures of up to 105 bar and regulate outlet pressures of between 0,3 bar and 35 bar.

Maximum flow of this regulator is 4500 Nm³/h for a 0,6 spec. gravity (depending on inlet and outlet pressures).

For inlet pressures of up to 17 bar, the structure is made with cast iron, and for higher pressures, the inlet body and bolts are steel made.

Inner parts are made of brass and steel with protection against corrosion; the diaphragm is made of synthetic rubber with fabric and the shutter with acrylonitrile or teflon (depending on the outlet pressure).

Finally, orifices are made with brass and their diameters can be 1/8", 3/16", 1/4", 3/8" or 1/2".

The connections to pipe can be 1" or 2" BSP or NPT.

The sensitivity or drop pressure from shut off to maximum flow is 10%.

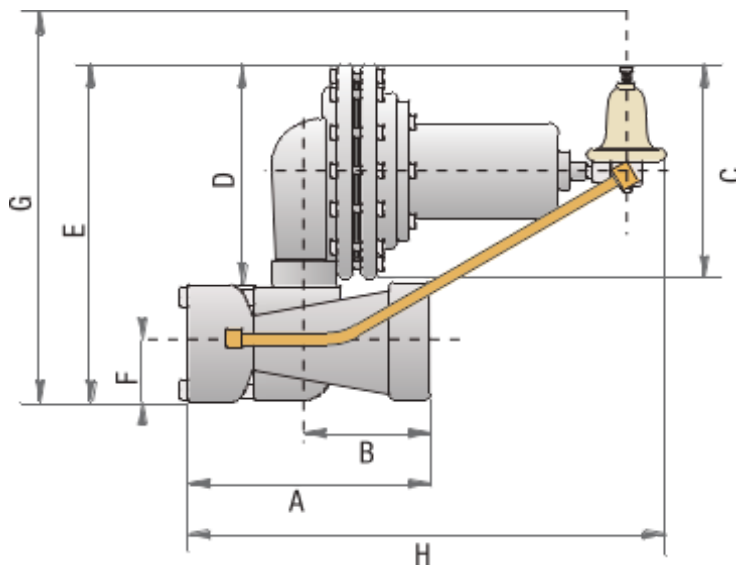


TECHNICAL DATA	MATERIALS
CONNECTIONS: Threaded 1" or 2" BSP or NPT	MAIN BODY: Nodular cast iron or carbon steel
OPERATING TEMPERATURE: -20°C to 60°C (-10°F to 140°F)	INTERNALS: Brass (stainless steel optional)
APPROXIMATE WEIGHT: 14,6 Kg to 19,2 Kg (33 lbs to 43 lbs)	DIAPHRAGM: Acrylonitrile
	SHUTTER: Acrylonitrile or teflon

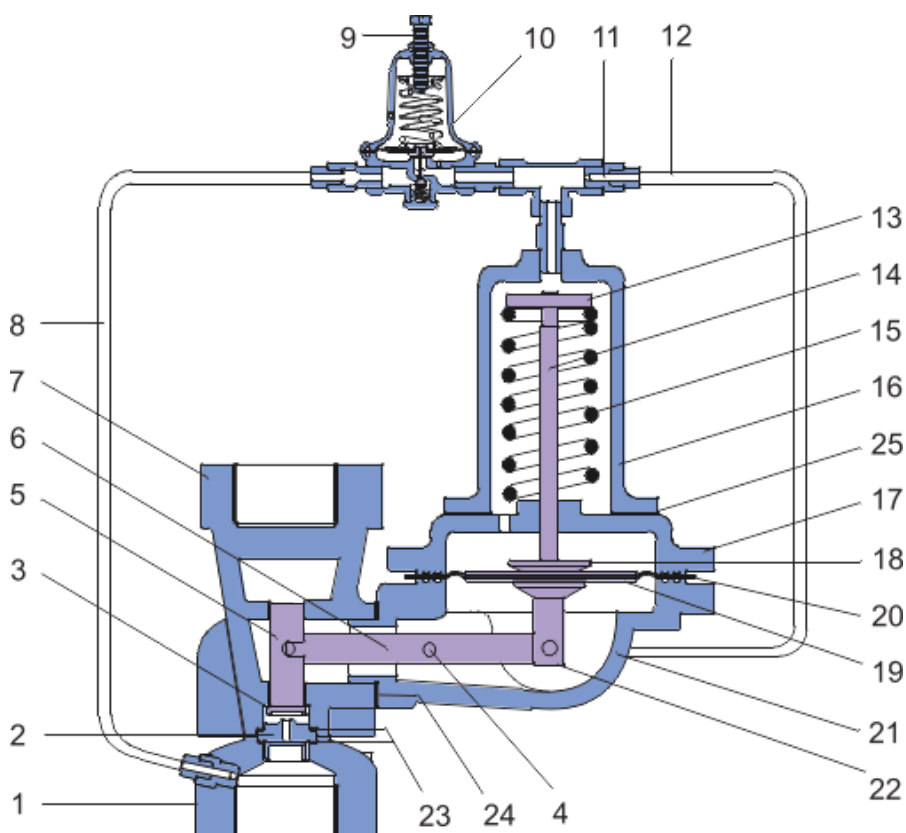


DIMENSIONS in mm

TYPE		631-1	631-2	631-2A	631-2H	631-3	631-4	631-5	631-6	631-7
A	1"	190	190	190	190	190	190	190	190	190
	2"	207	207	207	207	207	207	207	207	207
B	1"	103	103	103	103	103	103	103	103	103
	2"	103	103	103	103	103	103	103	103	103
C	1"	118	118	118	118	118	182	182	182	182
	2"	118	118	118	118	118	182	182	182	182
D	1"	123	123	123	123	123	183	183	183	183
	2"	123	123	123	123	123	183	183	183	183
E	1"	221	221	221	221	221	284	284	284	284
	2"	221	221	221	221	221	284	284	284	284
F	1"	50	50	50	50	50	50	50	50	50
	2"	50	50	50	50	50	50	50	50	50
G	1"	257	257	257	257	240	290	290	290	290
	2"	280	280	280	280	260	305	305	305	305
H	1"	350	350	350	350	370	370	420	420	440
	2"	360	360	360	360	380	380	430	430	450



PARTS LIST



1	Inlet Body
2	Injector
3	Shutter
4	Lever Axle
5	Shutter Axle
6	Lever
7	Outlet Body
8	Pilot Inlet Pipe
9	Pilot Pressure Regulating Screw
10	Pilot Regulator
11	Discharge Restriction Orifice
12	Discharge Pipe
13	Spring Pusher
14	Diaphragm Axle
15	Main Spring
16	Diaphragm Cap
17	Intermediate Cap
18	Diaphragm Clamp
19	Diaphragm Plate
20	Diaphragm
21	Diaphragm Case
22	Diaphragm Holder
23	Injector Washers
24	Elastomer Gasket
25	Rubber Joint



CAPACITY TABLE in Nm³/hour | Density 0.6 | Sensitivity 10%

LOW PRESSURE REGULATOR

Regulator Type	Inlet Pressure (kg/cm ³)	Outlet Pressure (kg/cm ³)	Body Ø1					Body Ø2				
			Orifice Diameter in mm					Orifice Diameter in mm				
			3.2	4.8	6.4	9.5	12.7	3.2	4.8	6.4	9.5	12.7
631-6	1.5	0.5	13	31	53	128	218	13	31	53	128	246
	2		16	38	74	186	291	18	38	74	186	320
	2.5		22	45	87	207	333	21	45	87	207	362
	3		25	53	101	234	376	25	53	101	234	414
	4		32	69	129	288	464	32	69	129	290	519
	7		51	112	195	436	701	51	112	204	468	839
	10		71	155	261	585	-	71	155	280	647	-
	19		122	268	411	797	-	135	284	520	1199	-
	25		157	328	600	-	-	173	375	688	-	-
	40		241	494	738	-	-	278	606	1082	-	-
631-5	1.4	0.7	13	28	51	127	212	13	28	51	127	240
	2.1		17	34	71	184	282	17	34	71	184	311
	2.5		21	40	83	204	323	20	40	83	204	351
	3.5		28	57	113	255	424	28	57	113	255	453
	4		31	65	125	279	464	31	65	125	283	505
	5.25		40	85	156	340	566	40	85	156	354	637
	7		51	113	198	453	707	51	113	198	453	821
	10		71	149	246	598	731	71	149	270	635	1136
	14		99	198	311	792	764	99	198	368	877	1556
	19		124	249	362	792	-	134	274	509	1190	-
631-6	25	0.7	155	309	622	792	-	177	364	679	1567	-
	28		170	340	707	792	-	198	410	764	1755	-
	40		230	485	743	-	-	277	598	1067	-	-
	56		311	679	792	-	-	382	849	1472	-	-
	70		396	821	849	-	-	481	1047	1896	-	-
631-7	105		509	821	-	-	-	707	1556	-	-	-
631-5	2.5	1	21	38	83	195	320	20	38	83	200	348
	3.5		28	57	113	255	436	28	57	113	255	453
	4		31	65	125	281	476	31	65	125	289	505
	5.25		40	85	156	340	578	40	85	156	340	637
	7		51	113	198	440	755	51	113	198	440	821
	10		71	141	256	601	800	71	149	270	635	1136
	14		99	198	335	671	861	99	198	368	877	1556
	19		126	257	425	805	-	134	274	509	1190	-
631-6	25	1	160	327	646	892	-	177	364	679	1566	-
	28		176	364	731	913	-	198	410	764	1755	-
	40		238	510	814	-	-	277	598	1067	-	-
	56		323	703	925	-	-	382	849	1472	-	-
	70		408	833	970	-	-	481	1047	1896	-	-
631-7	105		533	905	-	-	-	707	1556	-	-	-
631-5	2.1	1.4	17	31	62	170	255	17	31	62	175	297
	2.5		21	37	83	186	311	21	37	83	196	345
	2.8		25	42	-	198	354	25	42	99	212	382
	3.5		28	57	113	255	453	28	57	113	255	453
	4		31	65	125	283	493	31	65	125	283	505
	5.25		40	85	156	340	594	40	85	156	354	637
	7		51	113	198	424	821	51	113	198	453	821
	10		71	149	270	606	893	71	149	270	635	1136
	14		99	198	368	849	990	99	198	368	877	1556
	19		129	268	509	930	-	134	274	509	1190	-
631-6	25	1.4	166	353	679	1026	-	177	364	679	1566	-
	28		184	396	764	1075	-	198	410	764	1755	-
	40		250	542	910	-	-	277	598	1067	-	-
	56		340	736	1104	-	-	382	849	1472	-	-
	70		424	849	1132	-	-	481	1047	1896	-	-
631-7	105		566	1019	-	-	-	707	1556	-	-	-



CAPACITY TABLE in Nm³/hour | Density 0.6 | Sensitivity 10%

LOW PRESSURE REGULATOR

Regulator Type	Inlet Pressure (kg/cm ³)	Outlet Pressure (kg/cm ³)	Body Ø1					Body Ø2				
			Orifice Diameter in mm					Orifice Diameter in mm				
			3.2	4.8	6.4	9.5	12.7	3.2	4.8	6.4	9.5	12.7
631-5	2.1	1.5	17	30	61	165	250	17	30	61	167	290
	2.5		19	35	76	170	275	19	43	76	170	305
	3.5		27	56	111	251	415	27	56	111	253	449
	4		31	65	125	281	473	31	69	123	283	493
	5.25		40	85	156	340	594	40	85	156	354	650
	7		51	113	198	426	821	51	113	198	453	821
	10		71	149	270	607	908	71	149	270	634	1136
	14		99	198	368	849	1024	99	198	368	877	1556
6314-6	19		129	269	509	942	-	134	274	509	1190	-
	25	2	167	353	679	1053	-	176	364	679	1566	-
	28		185	396	762	1109	-	198	410	764	1755	-
	40		251	545	916	-	-	277	598	1067	-	-
	56		342	744	1122	-	-	382	849	1472	-	-
	70		428	861	1172	-	-	481	1047	1896	-	-
631-7	105	2	574	1047	-	-	-	707	1556	-	-	-
631-5	2.5		15	32	58	130	210	15	32	58	130	233
	4		31	61	126	271	430	31	61	126	283	445
	5.25		40	85	156	340	613	40	85	156	354	622
	7		51	113	198	436	870	51	113	198	453	870
	10		71	149	270	613	982	71	149	270	634	1136
	14		99	198	368	849	1196	99	198	168	877	1556
	19		131	269	509	1003	-	134	274	509	1190	-
631-6	25		170	353	679	1188	-	176	364	679	1566	-
	28	2.8	190	396	752	1281	-	198	410	764	1755	-
	40		258	562	949	-	-	277	598	1067	-	-
	56		352	784	1212	-	-	382	849	1472	-	-
	70		448	922	1374	-	-	481	1047	1896	-	-
631-7	105		614	1188	-	-	-	707	1556	-	-	-
631-5	3.5	2.8	25	42	85	198	354	25	42	85	226	396
	4		31	57	127	255	453	31	57	127	283	523
	5.25		40	85	156	340	594	40	85	156	354	623
	7		51	113	198	453	821	51	113	198	453	821
	10		71	149	270	623	1100	71	149	270	634	1136
	14		99	198	368	849	1472	99	198	368	877	1556
	19		134	269	509	1101	-	134	274	509	1190	-
631-6	25	4	176	353	679	1404	-	176	364	679	1567	-
	28		198	396	736	1556	-	198	410	764	1755	-
	40		270	590	1002	-	-	277	598	1067	-	-
	56		368	849	1358	-	-	382	849	1472	-	-
	70		481	1019	1698	-	-	481	1047	1896	-	-
631-7	105		679	1415	-	-	-	707	1556	-	-	-
631-5	5.25	4	35	73	131	291	521	35	73	131	305	574
	7		48	113	198	453	796	48	113	198	428	796
	10		71	156	283	651	1156	71	156	283	655	1160
	14		99	198	372	849	1496	99	198	368	877	1556
	19		134	268	502	1110	-	134	274	509	1190	-
631-6	25	4	177	353	658	1684	-	177	364	679	1567	-
	28		198	396	736	1580	-	198	410	764	1755	-
	40		270	590	1006	-	-	277	590	1067	-	-
	56		368	849	1358	-	-	382	849	1472	-	-
	70		481	1019	1698	-	-	481	1047	1896	-	-
631-7	105		679	1415	-	-	-	707	1556	-	-	-

In order to calculate capacities with other gases, multiply the values of 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

GAS	DENSITY	K FACTOR
Acetylene	0.9	0.82
Ammonia	0.59	1.02
Hydrogen	0.07	3
Biogas*	max 1.2	0.7
	min 0.8	0.75
*The proper operation is guaranteed only for treated Biogas (Low content of sulfur)		



CAPACITY TABLE in Nm³/hour | Density 0.6 | Sensitivity 10%

HIGH PRESSURE REGULATOR

Regulator Type	Inlet Pressure (kg/cm ³)	Outlet Pressure (kg/cm ³)	Body Ø1					Body Ø2				
			Orifice Diameter in mm					Orifice Diameter in mm				
			3.2	4.8	6.4	9.5	12.7	3.2	4.8	6.4	9.5	12.7
631-1	7	3.5	57	113	184	368	651	57	119	198	453	792
	10		75	155	238	525	954	75	164	252	635	1144
	14		99	212	311	736	1358	99	226	325	877	1613
	19		130	263	473	917	-	130	287	497	1140	-
631-2	21		142	283	538	990	-	141	311	566	1245	-
	25		174	347	618	1168	-	174	367	663	1536	-
	28		198	396	679	1302	-	198	410	736	1755	-
	35		235	495	849	-	-	235	509	934	-	-
	40		273	566	950	-	-	273	590	1075	-	-
	56		396	792	1273	-	-	396	849	1528	-	-
	70		467	990	1641	-	-	467	1047	1924	-	-
631-3	105		693	1415	-	-	-	693	1556	-	-	-
631-1	14	7	96	198	226	736	1415	96	212	283	849	1585
	19		128	259	428	978	1819	128	283	485	1132	2130
631-2	21		141	283	509	1075	1981	141	311	566	1245	2349
	25		173	347	606	1269	-	173	367	663	1536	-
	28		198	396	679	1415	-	198	410	736	1755	-
	40		282	578	970	-	-	282	598	1075	-	-
	56		396	821	1358	-	-	396	849	1528	-	-
	70		467	1019	1698	-	-	467	1047	1924	-	-
631-3	105		693	1472	-	-	-	693	1556	-	-	-
631-2A	19	10	126	255	389	944	1885	126	279	475	1125	2108
	21		141	283	509	1038	2054	141	299	554	1196	2324
	25		173	347	613	1322	-	173	358	654	1515	-
	28		198	396	691	1536	-	198	404	730	1755	-
	40		282	583	998	-	-	282	594	1078	-	-
	56		396	833	1407	-	-	396	849	1528	-	-
	70		467	1031	1795	-	-	467	1047	1924	-	-
631-3	105		693	1508	-	-	-	693	1556	-	-	-
631-2A	21	14	141	283	509	990	2151	141	283	538	1132	2292
	25		173	347	622	1394	2523	173	347	643	1488	2745
	28		198	396	707	1698	2802	198	396	722	1755	3085
	40		282	590	1035	2304	-	282	590	1067	2385	-
	56		396	849	1472	-	-	396	849	1528	-	-
	70		467	1047	1924	-	-	467	1047	1924	-	-
631-3	105		693	1556	-	-	-	693	1556	-	-	-
631-2H	35	28	226	424	849	1698	2547	226	424	849	2009	3396
	40		266	525	1010	2001	-	266	525	1010	2325	-
	56		396	849	1528	2971	-	396	849	1528	3339	-
	70		467	1047	1924	-	-	467	1047	1924	-	-
631-4	105		693	1556	-	-	-	693	1556	-	-	-

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	MILIMETERS OF WATER COLUMN	INCHES OF MERCURY	MILIMETERS OF MERCURY	BAR	MILIBAR	KILOGRAMS PER SQUARE CENTIMETER	KILOPASCALS
MULTIPLY	psi	in H2O	mm H2O	in Hg	mm Hg	bar	mbar	Kg/cm ²	Kpa
psi	1	2.768	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/cm ²	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



PRESSURE REDUCTION RANGES

Main Regulator Type	Regulator Type N°	Pilot Regulator Type N°	Max. Inlet Pressure (bar)	Reduced Pressure Range (bar)
High Pressure	631-1	67 R	19	3,5 to 7
	631-2	67 R	90	3,5 to 7
	631-2A	67 HRA*	90	7 to 19
	631-2H	67 HRA*	90	15 to 35
	631-3	1301 F	105	3,5 to 16
	631-4	1301 G	105	15 to 35
Low Pressure	631-B	67 B	19	0,3 to 0,5
	631-5	67 R	19	0,5 to 4
	631-6	67 R	90	0,5 to 4
	631-7	1301 F	105	3,5 to 4

INSTALLING RECOMENDATIONS

It is fundamental to pay attention to the position of the regulator vent, as it also acts as a breather. If it becomes obstructed, it could be hazardous. Therefore, it must be protected from water, dust, or other harmful elements. In general, it should always be installed facing downward.

If the regulator is to be installed in an enclosed space (only permitted for the second stage), a vent pipe of at least Ø 3/4" must be installed to discharge any gases vented by the regulator.

If the regulator is to be installed in an underground tank, the vent must be extended with a pipe above the possible water level.

Any gas leakage outside the valve indicates that the service should be shut off, and technical support should be contacted.

Only a qualified technician should install or repair the regulator.

- Whenever requesting a spare part or technical service, mention the valve nameplate data. (Model - Serial number - Pressures - Orifice - Flow rate)

INSTALLATION

Before installing the regulator, inspect it for any damage that may have occurred during transport. If any of the protective plastic plugs are missing, check that no foreign objects have entered through the connections.

Vent the supply piping several times until no particles come out. (This is the most common cause of startup issues).

The regulator can be installed in any position, as long as the gas flow direction indicated by the arrow on the body is followed and the vent orifice is neither obstructed nor exposed to rain or dust. It must also be protected from potential impacts caused by vehicle traffic.

The vent orifice should be periodically inspected to ensure it is not blocked.

It is always advisable to install two regulation branches with shut-off valves upstream and downstream of each one independently to avoid gas interruption during maintenance or repair.

COMMISSIONING

It is advisable to carry out the commissioning process using pressure gauges suitable for the inlet and outlet pressures of the regulator to monitor this procedure.

- 1- Slowly open the inlet shut-off valve.
- 2- Check the pressures.
- 3- Slowly open the outlet shut-off valve.
- 4- Check all connections for possible leaks.

ADJUSTMENT

If it is necessary to adjust the regulator's outlet pressure, this can be done using the nut that compresses the spring. Turning it clockwise increases the pressure, while turning it counterclockwise decreases it.



When increasing the pressure, consider the possible presence of safety elements such as relief valves, shut-off mechanisms, or pressure switches that will activate if their set pressure is exceeded. Additionally, the identification nameplate should be modified at the factory to comply with regulations and prevent future confusion.

SPARE PARTS

Always request them according to the part number from the General Cut and mention the regulator's nameplate data.

MAINTENANCE



Before disassembling the regulator, shut off the gas supply and release the accumulated pressure.

Due to the normal wear that may occur in any gas regulator, some components must be periodically inspected and replaced if necessary. The inspection frequency depends on the severity of service or the requirements of the applicable regulations.



At EQA, we strive to minimize our environmental impact through sustainable and responsible practices. Therefore, we encourage you to join our commitment and, at the end of the product's lifecycle, adhere to the current Municipal, Provincial, and National regulations regarding the classification, recycling, destruction, or disposal of the product, spare parts, non-reusable parts, and packaging. By doing so, we prevent environmental damage and promote reuse and recycling whenever possible. Thank you for your commitment and efforts in joining these actions.