



A Cavagna Group Company

S22 Commercial & Industrial Regulator Product Bulletin



1 PRODUCT OVERVIEW

The S22 regulator is a direct acting, balanced inlet pressure reducing regulator. The S22 is a spring-open design that is commonly used on commercial & industrial meter sets as well as smaller station applications. The S22 is available with a Valve Safety Integrated (VSI-22), an integrally mounted slam shut valve (SSV) which can provide Over Pressure Shut Off (OPSO) and/or Under Pressure Shut Off (UPSO). The VSI-22 is a completely independent device, providing the system with over pressure protection without any external devices needed.

The S22 features a dual lever arm design, which allows the actuator to be mounted directly above the internal valve components. This offers top entry accessibility for quick maintenance. The balanced inlet provides stable delivery pressure as inlet pressure changes, and allows the use of a single 1-3/8" orifice for all inlet pressures. This simplifies product sizing & selection and reduces inventory.

2 MATERIALS OF CONSTRUCTION

Mesura S22 Regulator

BODY:	Ductile Iron
DIAPHRAGMS CASING:	Aluminum
DIAPHRAGMS:	Nitrile (NBR)
SPRINGS:	Stainless steel
LEVER ARM & PINS:	SST, Steel & Zamak
ACTUATOR COUPLER:	Plastic
STEM/PLUG ASSEMBLY:	Stainless steel
PRESSURE SENSING:	External
FITTINGS:	Steel
ORIFICE:	Brass
DISCS AND O-RINGS:	Nitrile (NBR)
DIAPHRAGM PLATES:	Steel
CLOSING CAP:	Zinc Plated Steel
FASTENERS:	Zinc Plated Steel
ADJUSTING SCREW/BOLT:	Brass / Steel

Mesura VSI-22 Slam Shut Valve

MOUNTING FLANGE:	Brass Alloy
SSV SUPPORT:	Aluminum Bar Stock
COVER:	Aluminum
SPRINGS:	Stainless steel
STEM:	Stainless steel
ADJUSTING SCREW:	Brass
BALL BEARING:	Stainless steel
FITTINGS:	Steel
DISCS AND O-RINGS:	Nitrile (NBR)
DIAPHRAGM:	Nitrile/Reinforced NBR
DIAPHRAGM PLATES:	Steel
CLOSING CAP:	Brass
FASTENERS:	Steel
PRESSURE SENSING:	External

3 BASICS OF OPERATION

The Mesura S22 is a spring to open, direct operated regulator. Outlet pressure registers on the bottom of the diaphragm, which is opposed by the regulating spring. Set point is determined by the adjustment of the regulating spring. When outlet pressure drops below the set point, the regulating spring will force the diaphragm assembly down. This downward force is translated to the lever arm assembly, where the top beam transfers the force to the outer edge of the 2 lever arms. These lever arms pivot, using the downward force from the beam to lift the stem and plug away from the orifice, increasing the flow of gas to the downstream system.

As outlet pressure increases, the diaphragm will overcome the spring force and begin to move up and compress the regulating spring. This will pull the beam up, pulling up on the outer edge of the lever arms. As the lever arms pivot, the upward force from the beam will push the stem and the plug down until the plug presses into the orifice, stopping the flow of gas to the downstream system.

The VSI-22 slam shut valve operates independently from the S22 and can feature an OPSO or an UPSO. To activate the OPSO, downstream pressure must overcome the OPSO spring set point and move the diaphragm down (away from the orifice) until the stem releases and the shutoff spring forces the disk into the orifice. To activate the UPSO, downstream pressure must drop below the UPSO set point until the UPSO spring can force the VSI-22 diaphragm up (toward the orifice) until the stem releases and the shutoff spring forces the disk into the orifice.

4 SPECIFICATIONS

Table 1: S22 Regulator Specifications

Operating Inlet Pressure	BP/MP/AP	87 psig	6 bar	Emergency Inlet Pressure	290 psig	20 bar
	APA	290 psig	20 bar	Emergency Outlet Pressure (Casing)	87 psig	6 bar
Operating Outlet Pressure Range		See Table 11		Operating Temperature	-20 to 60 °C -4 to 140 °F	
Maximum Outlet Pressure to avoid damage to internal parts	BP	5 psig	345 mbar	Body Sizes	NPS 2	
	MP	11 psig	760 mbar	Flange Ratings	CL125 FF or CL150 RF	
	AP/APA	87 psig	6 bar	Vent Connection	1/2" NPT	
Maximum Differential Pressure	BP/MP/AP	87 psid	6 bar	Sense Line Connection	1/2" NPT	
	APA	285 psid	19.7 bar	Dimensions & Weight	See Section 11	
Orifice Size		1-3/8"		Wide Open Cg	810	

BP: Base Pressure, MP: Medium Pressure, AP: Apex Pressure, APA: Apex Piston Assembly

Table 2: VSI-S22 SSV Specifications

Emergency Inlet Pressure (Body)	290 psig	20 bar	Over Pressure Shut Off Accuracy	BP: AG 10 MP & APTR: AG 5
Emergency Outlet Pressure (Casing)	87 psig	6 bar	Under Pressure Shut Off Accuracy	BP: AG 20 MP: AG 10 APTR: AG 5
Dimensions & Weight	See Section 11			
Vent Connection	1/8" NPT		Sense Line Connection	1/8" NPT

5 AVAILABLE SAFETY FEATURES

OVERPRESSURE SHUT-OFF (OPSO)

If outlet pressure reaches the OPSO set point, the flow of gas is shut off at the inlet of the regulator. This requires a manual reset. OPSO is available standalone or with UPSO.

UNDERPRESSURE SHUT-OFF (UPSO)

If outlet pressure decreases to the UPSO set point, the flow of gas is shut off at the inlet of the regulator. This requires a manual reset.

MONITOR CONSTRUCTION

For monitor applications, an additional channel is added to the balancing system to improve reaction time of the monitor regulator. This provides a faster take-over of the monitor to minimize outlet pressure surges.

INTERNAL DAMPER

For constructions without IRV, the IRV spring is used to function as a damper to absorb surges in outlet pressure. This improves regulator stability, especially in the presence of small, quick changes in outlet pressure.

TOKEN INTERNAL RELIEF VALVE (IRV)

The internal relief valve will release a small amount of gas through the vent during an overpressure event. When the pressure decreases, the IRV re-seats, stopping the release of gas. This protects the regulator from brief pressure surges, such as thermal expansion.

6 OPERATIONAL SCHEMATICS

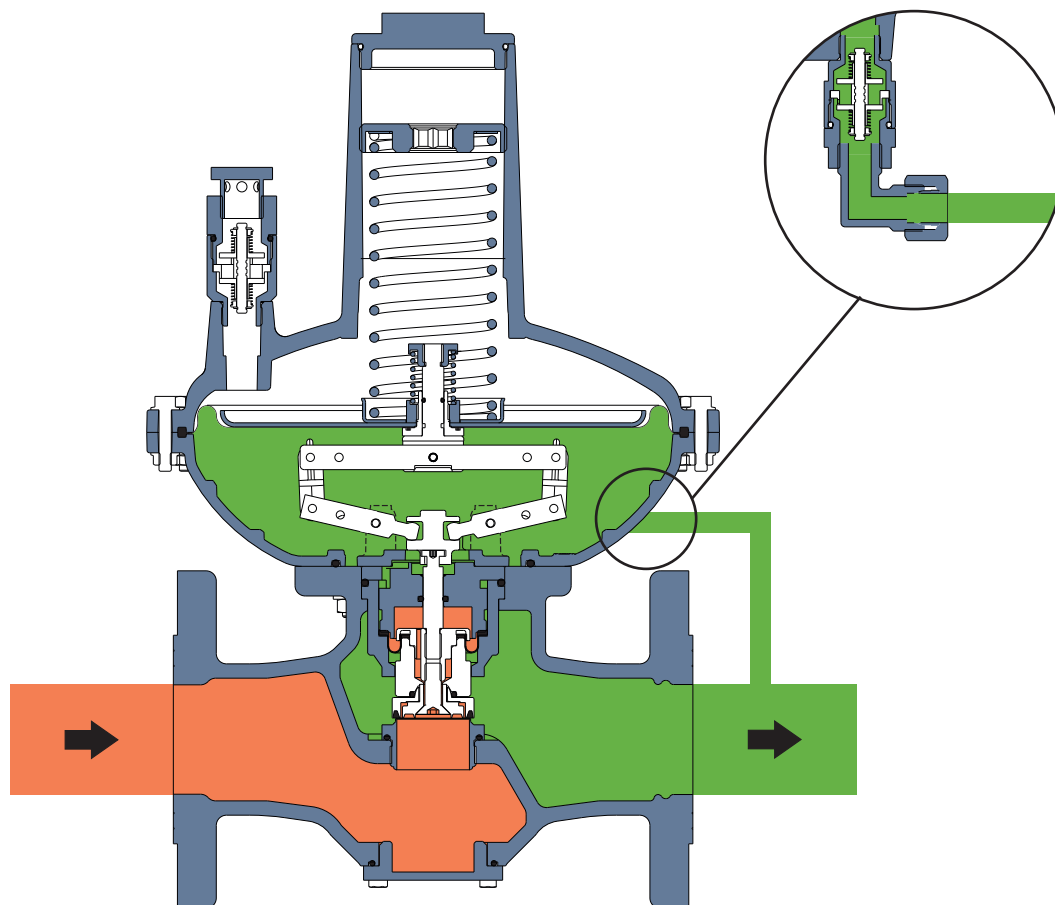


Figure 1: Mesura S22 BP & MP Schematic

The S22 regulator has 2 different actuators and 2 different balancing systems available that create the Base Pressure (BP), Medium Pressure (MP), Apex Pressure (AP), and Apex Piston Assembly (APA) constructions.

ACTUATOR & LEVER SYSTEM: The BP and MP constructions represented in Figure 1 use the standard actuator and lever system but have several different components designed for the respective outlet pressure ranges. The AP and APA constructions use a higher pressure actuator and lever system with a diaphragm limiter to allow for higher outlet pressures. The AP/APA actuator can be seen in Figure 3.

BALANCING SYSTEM: The balancing system utilized in the body determines the operating inlet pressure. The BP, MP and AP constructions utilize a balancing system that features a balancing diaphragm for improved performance at lower inlet pressures. This balancing system also has a monitor version available to improve monitor take over speed. These balancing systems can be seen in Figure 2. The APA version features the Apex Piston Assembly, which allows for inlet pressures up to 290 psig. The Apex Piston Assembly can be seen in Figure 3.

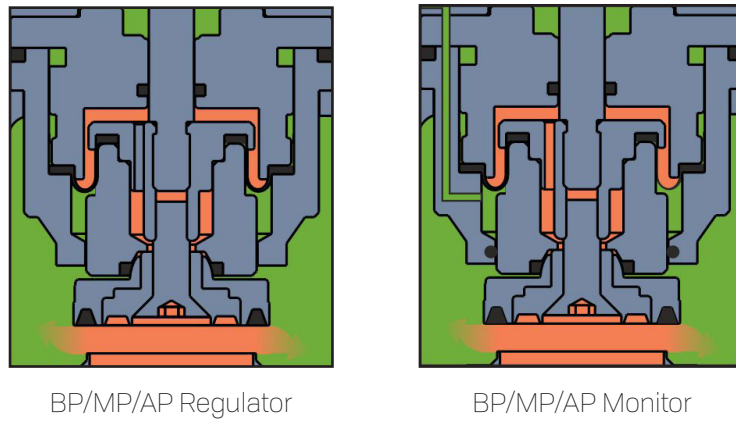


Figure 2: Alternative Trim Configurations

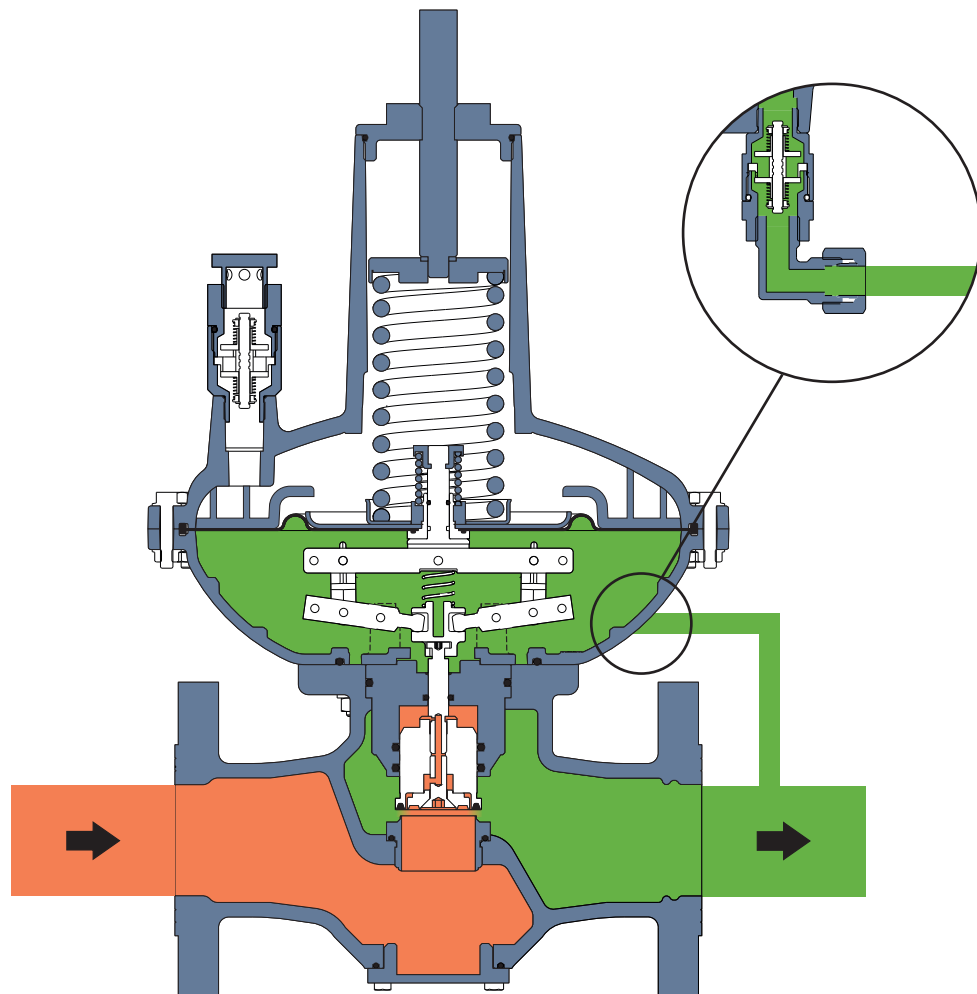


Figure 3: Mesura S22 APA Schematic

The VSI-22 is available as an OPSO only device or an OPSO/UPS0 device. The VSI-22 operates completely independently from the S22, only sharing the S22 body. During normal operation, the VSI-22 has no impact on the regulator. Once the OPSO or UPSO set point is reached and the VSI-22 activates and gas is stopped at the regulator inlet. The VSI-22 requires a manual reset.

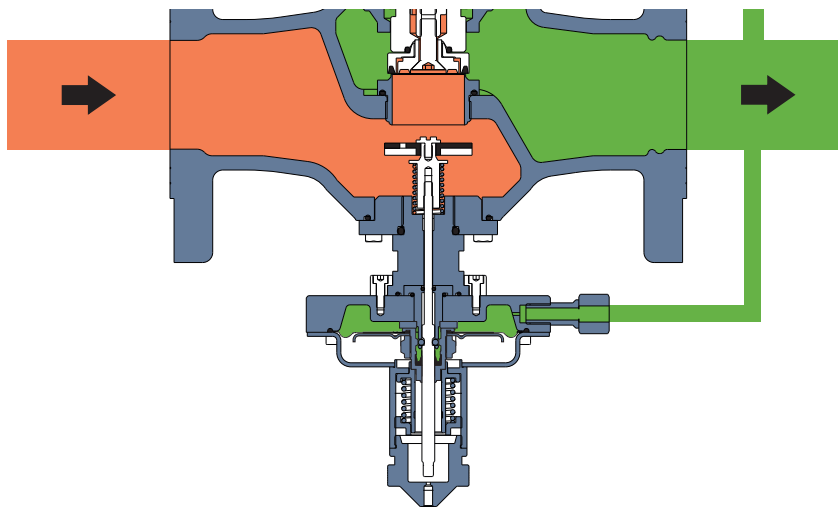


Figure 4: VSI-22 OPSO Only

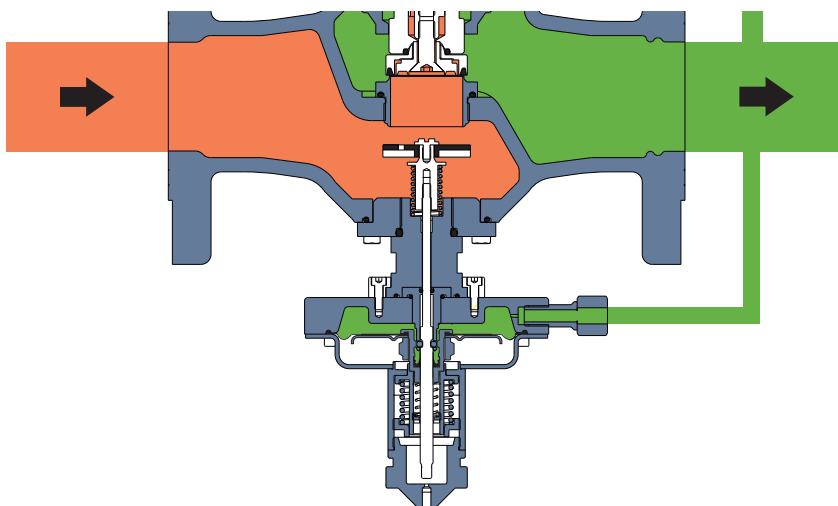


Figure 5: VSI-22 OPSO/UPS0

7 CAPACITY TABLES

Additional capacity information is available upon request.

Capacity data in Tables 3-9 was collected in accordance with EN334. As such, most of the information is displayed as AC5, AC10 or AC20. AC is the Accuracy Class associated with the flow rate. AC5 reflects +/- 5% from the set point of the regulator in gauge pressure. AC10 = +/- 10% and AC20 = +/- 20%.

Table 3: Capacity of BP Construction Capacities in SCFH of 0.6 SG Natural Gas (14.7 PSIA and 60° F)				
Inlet Pressure		Outlet Pressure Setting and Accuracy Class		
		7" w.c.	14" w.c.	28" w.c.
		+2/-1" w.c. (AC10)	+/-2" w.c. (AC10)	+/-1% ABS (AC10)
PSIG	Barg			
0.5	.035	2,908		
1	.069	4,706	4,706	
2	.138	5,915	5,782	5,701
3	.207	8,401	7,908	7,446
5	.345	11,788	10,296	9,818
7.5	.517	14,279	12,981	12,981
10	.690	17,890	16,264	16,264
15	1.03	22,934	22,934	20,770
20	1.38	28,514	28,842	27,335
25	1.72	30,290	34,408	33,692
30	2.07		38,944	39,839
40	2.76			48,792
50	3.45			59,684
60	4.14			69,234
80	5.52			
87	6.0			

Table 4: Capacity of MP Constructions Capacities in SCFH of 0.6 SG Natural Gas (14.7 PSIA and 60° F)								
Inlet Pressure		Outlet Pressure Setting and Accuracy Class						
		2 PSIG	3 PSIG		5 PSIG		7.5 PSIG	
		AC10	AC5	AC10	AC5	AC10	AC5	AC10
PSIG	Barg							
3	.207	5,000						
5	.345	6,500	4,849	6,304				
7.5	.517	9,826	4,976	8,438	4,111	8,005		
10	.690	12,064	5,797	10,407	7,142	12,191	5,207	7,281
15	1.03	15,298	7,789	14,063	9,355	16,256	7,356	12,116
20	1.38	19,042	9,102	17,017	12,570	22,063	9,326	15,070
25	1.72	23,776	10,974	19,994	14,486	28,336	11,310	18,338
30	2.07	29,187	12,929	23,486	15,987	34,636	13,280	22,128
40	2.76	39,694	14,570	33,334	20,005	43,188	16,264	31,379
50	3.45	47,914	17,085	41,630	27,284	49,906	19,830	39,078
60	4.14	55,473	19,770	49,150	34,897	55,006	23,650	45,882
80	5.52	70,766	26,559	65,339	36,716	61,795	29,693	58,565
87	6.0	73,560	31,155	71,397	36,169	65,130	31,155	62,743

Table 5: Capacity of AP Constructions
Capacities in SCFH of 0.6 SG Natural Gas (14.7 PSIA and 60° F)

Inlet Pressure		Outlet Pressure Setting and Accuracy Class									
		7.5 PSIG		10 PSIG		15 PSIG		20 PSIG		25 PSIG	
PSIG	Barg	AC5	AC10	AC5	AC10	AC5	AC10	AC5	AC10	AC5	AC10
10	.690	7,102	10,534								
15	1.03	9,520	16,443	9,520	16,443						
20	1.38	13,295	22,023	13,295	22,023	12,534	19,338				
25	1.72	18,278	28,648	18,278	28,648	19,994	25,903	9,853	19,218		
30	2.07	24,038	35,810	24,038	35,810	27,156	32,289	16,057	25,485	18,502	25,485
40	2.76	35,079	47,747	35,079	47,747	39,093	43,629	28,464	38,019	30,439	38,019
50	3.45	45,733	56,774	45,733	56,774	47,150	55,357	39,114	50,552	40,436	50,552
60	4.14	56,178	64,235	56,178	64,235	54,313	66,399	47,800	62,668	49,090	62,668
80	5.52	71,472	75,799	71,472	75,799	72,591	77,962	57,589	79,081	62,892	79,081
87	6.0	73,561	77,888	73,561	77,888	75,724	80,051	61,343	82,215	67,070	82,215

Table 6: Capacity of AP Constructions
Capacities in SCFH of 0.6 SG Natural Gas (14.7 PSIA and 60° F)

Inlet Pressure		Outlet Pressure Setting and Accuracy Class									
		30 PSIG		35 PSIG		40 PSIG		50 PSIG		58 PSIG	
PSIG	Barg	AC5	AC10	AC5	AC10	AC5	AC10	AC5	AC10	AC5	AC10
40	2.76	23,351	33,125								
50	3.45	30,812	43,569	27,391	39,988	21,635	32,453				
60	4.14	39,168	54,014	35,895	50,433	33,165	47,449	28,872	41,033		
80	5.52	58,565	70,427	54,058	68,698	50,302	67,258	47,896	60,803	30,439	47,822
87	6.0	62,743	73,561	57,371	73,561	52,895	73,561	56,252	67,070	34,617	54,089

Table 7: Capacity of APA Constructions
Capacities in Thousands of SCFH of 0.6 SG Natural Gas (14.7 PSIA and 60° F)

Inlet Pressure		Outlet Pressure Setting and Accuracy Class											
		5 PSIG			10 PSIG			15 PSIG			20 PSIG		
PSIG	Barg	AC5	AC10	AC20	AC5	AC10	AC20	AC5	AC10	AC20	AC5	AC10	AC20
15	1.03	2.2	6.7	14.4									
20	1.38	2.8	8.4	18.9	3.8	8.2	18.3						
30	2.07	3.8	11.2	26.2	5.5	12.5	28.3	11.4	19.8	31.1	6.6	12.2	23.2
40	2.76	5.5	12.7	34.9	6.9	17.1	38.4	16.8	27.9	42.3	11.1	22.3	37.1
60	4.14	7.8	16.8	51.7	9.7	36.5	57.9	23.6	43.8	62.8	18.6	41.9	57.3
80	5.52	10.7	32.8	71	12.3	55.6	77	37.8	62.8	83.8	24.1	60.3	76.8
100	6.9	15.1	68.1	94.2	14.7	70.1	95	65.3	86.8	105	26.3	76.1	96.9
125	8.62	37	96.7	116	21.3	94	120	92.1	112	128	35.7	93.3	119
150	10.3	68.5	120	138	41.7	124	147	114	136	150	49	110	142
175	12.1	101	156	170	106	165	176	132	163	172	61.9	131	171
200	13.8	154	174	185	148	190	195	158	185	195	73.1	153	196
225	15.5	170	192	205	181	198	207	187	210	219	90.5	168	208
250	17.2	173	197	210	191	199	211	199	219	228	104	185	214
275	19.0	173	197	210	191	199	211	203	222	227	129	193	219
290	20.0	173	197	210	191	199	211	206	224	224	151	193	221

APA Constructions require a differential pressure of 7.25 psig or more for optimal performance

Table 8: Capacity of APA Constructions

Capacities in Thousands of SCFH of 0.6 SG Natural Gas (14.7 PSIA and 60° F)

Inlet Pressure		Outlet Pressure Setting and Accuracy Class											
		25 PSIG (Dark Green Spring)			25 PSIG (Yellow Spring)			30 PSIG			35 PSIG		
PSIG	Barg	AC5	AC10	AC20	AC5	AC10	AC20	AC5	AC10	AC20	AC5	AC10	AC20
30	2.07	7.3	14.4	24.6									
40	2.76	12	23.7	37.6	11.4	13.6	40.7	10.6	14.2	36.2			
60	4.14	19.8	42.8	57.7	15.2	24.9	54.6	16.3	28.6	54.2	18	34.1	53.6
80	5.52	25.9	61.2	77.5	18.9	36.2	68.6	22	43	72.3	26.7	53.2	77.8
100	6.9	29.2	77.4	98.2	23.7	65.8	85	27.6	68.9	90.9	33.5	73.5	99.7
125	8.62	40.1	95.6	121	25.3	86.9	106	32.3	91	113	42.8	97.2	124
150	10.3	55	114	144	25.2	96.8	130	35.8	105	137	51.8	118	148
175	12.1	70.5	136	172	28.1	96.5	10	40	110	164	58	131	172
200	13.8	82.9	158	198	10.7	133	194	44.4	142	191	95	156	187
225	15.5	100	172	210	36	159	215	68.5	164	209	117	171	199
250	17.2	113	189	217	61.1	181	224	91.6	184	218	137	188	208
275	19.0	138	198	222	80.3	188	224	108	192	220	149	199	214
290	20.0	159	198	224	90	186	222	115	192	220	153	202	217

APA Constructions require a differential pressure of 7.25 psig or more for optimal performance

Table 9: Capacity of APA Constructions

Capacities in Thousands of SCFH of 0.6 SG Natural Gas (14.7 PSIA and 60° F)

Inlet Pressure		Outlet Pressure Setting and Accuracy Class											
		40 PSIG			45 PSIG			50 PSIG			58 PSIG		
PSIG	Barg	AC5	AC10	AC20	AC5	AC10	AC20	AC5	AC10	AC20	AC5	AC10	AC20
60	4.14	19.4	38.7	53.1	8.3	18.3	33.8	11.3	21.6	33.9	7.6	14.5	27.4
80	5.52	30.6	61.6	82.4	16.9	36.8	67.3	23.1	44.3	68.1	16.5	31	56.2
100	6.9	38.4	77.3	107	22.9	49	88.3	31.5	61.1	90.9	24.8	45.7	77.7
125	8.62	51.5	102	133	32.2	76.2	114	40.8	86.8	116	33.8	62.5	102
150	10.3	65.2	128	157	41.9	106	140	49.6	113	142	41.8	77.4	127
175	12.1	72.9	148	178	49.2	121	158	59.4	134	173	48.9	87.6	151
200	13.8	137	167	183	62.2	139	187	71.2	143	191	65	125	170
225	15.5	157	178	191	99.4	165	201	117	165	202	76.4	144	189
250	17.2	175	192	200	121	177	209	138	176	208	84.2	165	208
275	19.0	184	204	208	131	186	213	147	189	213	117	187	218
290	20.0	185	210	214	134	192	216	151	201	216	150	200	220

APA Constructions require a differential pressure of 7.25 psig or more for optimal performance

Additional capacity data can be provided. Please contact Cavagna NA for more information.

8 PRODUCT CONFIGURATION

This table shows common set points for popular configurations in North America. Custom set points are available for the delivery pressure, OPSO and UPSO. Please specify all set points in Section 12.

Table 10: Common Configurations

Regulator			OPSO		UPSO	
Model	Set Point	Spring Color	Set Point	Spring Color	Set Point	Spring Color
BP	7” w.c.	Red	28” w.c.	Red	4” w.c.	SST
	14” w.c.	White	1.5 psig	Green	6” w.c.	SST
	1 psig	Orange	2.5 psig	Blue	10” w.c.	Red
MP	2 psig	Light Blue	4.5 psig	White	20” w.c.	Red
	5 psig	Dark Grey	7.25 psig	Brown	3 psig	Blue
AP/APA	10 psig	Dark Grey	12.5 psig	White	5 psig	Blue
	15 psig	Dark Green	18 psig	Brown	7 psig	Blue

9 SPRING SPECIFICATIONS

For recommended/standard settings, refer to Table 10. Additional spring ranges are available.

Table 11: S22 Regulating Spring Ranges

Model	Part Number	Color	Pressure Range	
			PSIG	mbar
BP	32-R-190-0181	Stainless steel	4 - 7.2" WC	10 - 18
	32-R-190-0182	Red	6 - 8" WC	15 - 20
	32-R-190-0183	Green	7.6 - 10" WC	19 - 25
	32-R-190-0184	Blue	6 - 12" WC	15 - 30
	32-R-190-0144	White	10 - 20" WC	25 - 50
	32-R-190-0103	Orange	16 - 38" WC	40 - 95
	32-R-190-0104	Brown	33 - 52" WC	80 - 130
MP	32-R-190-0022	Light Blue	1.7 - 3.3	120 - 230
	32-R-190-0019	Dark Grey	2.9 - 5.8	200 - 400
	32-R-190-0099	Pink	5.1 - 7.25	350 - 500
APA	32-R-190-0022	Light Blue	4.4 - 6.5	300 - 450
	32-R-190-0019	Dark Grey	6.5 - 11.6	450 - 800
	32-R-190-0099	Pink	10.9 - 14.5	750 - 1000
	32-R-190-0100	Dark Green	13.8 - 25.4	950 - 1750
	32-R-190-0014	Yellow	21.8 - 42	1500 - 2900
	32-R-190-0015	Violet	36.3 - 50.75	2500 - 3500
	32-R-190-0097	Black	50.8 - 65	3500 - 4500

Table 12: VSI-22 OPSO Spring Ranges

Model	Part Number	Color	Pressure Range	
			PSIG	mbar
BP	32-R-190-0015	Stainless steel	8 - 16" WC	20 - 40
	32-R-190-0195	Red	16 - 28" WC	40 - 70
	32-R-190-0196	Green	28.1 - 56" WC	70 - 140
	32-R-190-0101	Blue	44.2 - 84" WC	110 - 210
MP	32-R-190-0023	White	3.7 - 6.1	250 - 420
	32-R-190-0020	Orange	4.8 - 6.5	330 - 450
	34-R-190-0024	Brown	6.25 - 8.0	430 - 550
	32-R-190-0016	Light Blue	8.0 - 13.0	550 - 895
APTR	32-R-190-0101	Blue	4.35 - 6.6	300 - 455
	32-R-190-0023	White	10.2 - 13.0	700 - 900
	32-R-190-0020	Orange	13.1 - 16.6	900 - 1150
	32-R-190-0024	Brown	16.25 - 24.4	1120 - 1550
	32-R-190-0016	Light Blue	21 - 32.6	1450 - 2250
	32-R-190-0017	Dark Grey	29.75 - 40.6	2050 - 2800
	32-R-190-0112	Pink	36.3 - 48.5	2500 - 3350
	34-R-190-0102	Violet	43.6 - 65.2	3000 - 4500
	34-R-190-0197	Black	65.3 - 75.4	4500 - 5200

Table 13: VSI-22 UPSO Spring Ranges

Model	Part Number	Color	Pressure Range	
			PSIG	mbar
BP	32-R-190-0198	Stainless steel	3.2 - 6" WC	8 - 15
	32-R-190-0025	Red	6 - 20" WC	15 - 50
	32-R-190-0026	Green	18 - 40" WC	45 - 100
MP	32-R-190-0021	Blue	1.45 - 3.6	100 - 250
	32-R-190-0199	White	3.33 - 6.8	230 - 470
APTR	32-R-190-0200	Brown	1.45 - 3.6	100 - 250
	32-R-190-0021	Blue	2.9 - 7.25	200 - 500
	32-R-190-0199	White	5.8 - 13	400 - 900
	32-R-190-0018	Orange	8.7 - 36.25	600 - 2500
	32-R-190-0201	Light Blue	29 - 43.5	2000 - 3000

10 PRODUCT MARKING & IDENTIFICATION

The sample nameplate below in Figure 6 shows the information available on each regulator. These are fixed to the S22 actuator on the spring barrel. The most critical components of an S22 regulator construction can be easily identified by a four or 5 digit code following “Type S22-” in the upper left hand corner of the nameplate. The series of numbers and letters after the dash correlate to Table 14. Table 14 indicates the set point, body style, and safety options of the S22.

		 cavagna group MANUFACTURER		Via Matteotti, 5 25012 CALVISANO (BS) MADE IN ITALY			
Type S22-##L-\$		Serial No: XXXXXX		DOM: MM/YY		EN 334	
Set Point:		XXXX PSIG		Spring Range:		XXX - XXX XXX	
Max Inlet Pressure:		XXXX PSIG		Orifice Size:		1-3/8 Inch	
Max Diff Pressure:		XXXX PSIG		Max Outlet Pressure:		XXXX PSIG	
IRV TYPE:		None		Emergency Outlet:		XXXX PSIG	

Figure 6: S22 Regulator Nameplate

The S22 may feature a Valve Safety Integrated (VSI-22) into the same body. The VSI-22 is a slam shut valve (SSV) mounted in the same body of the S22, but operates completely independently from the regulator. This SSV will have its own name plate fixed to the diaphragm casing since it is an independent device. An example of this nameplate is below:

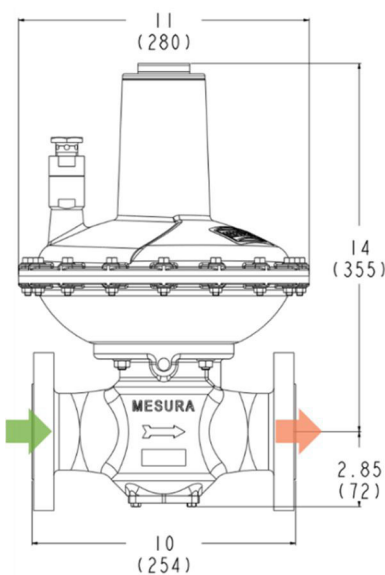
		 cavagna group MANUFACTURER		Via Matteotti, 5 25012 CALVISANO (BS) MADE IN ITALY	
VSI-22 XX	Serial No: XXXXXX	DOM: MM/YY	EN 14382		
OPSO Spring Range:	XXX - XXX PSIG	UPSO Spring Range:	XXX - XXX PSIG		
Max Inlet Pressure:	XXXX PSIG	Max Outlet Pressure:	XXXX PSIG		
Max Diff Pressure:	XXXX PSIG	Emergency Outlet:	XXXX PSIG		

Figure 7: VSI-22 Nameplate

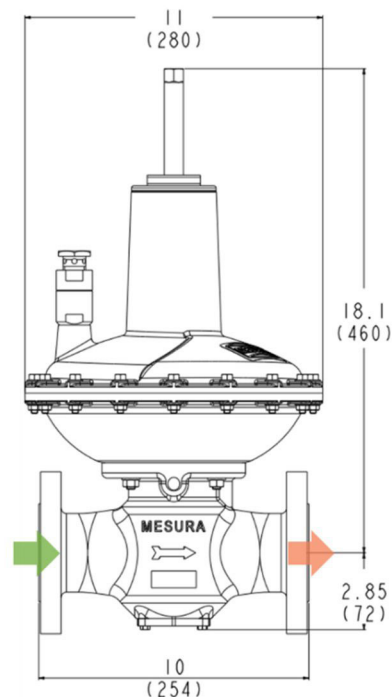
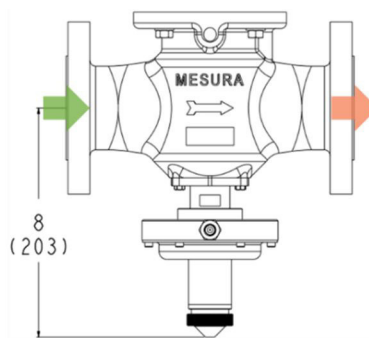
Table 14: S22 Product Coding

Model	Spring	Body	-	Options	Description
S22					
	11			4 - 7.2" WC	SST
	12			6 - 8" WC	Red
	13			7.6 - 10" WC	Green
	14			6 - 12" WC	Blue
	15			10 - 20" WC	White
	16			16 - 38" WC	Orange
	17			33 - 52" WC	Brown
	21			1.7 - 3.3	Light Blue
	22			2.9 - 5.8	Dark Grey
	23			5.1 - 7.25	Pink
	31			6.5 - 11.6	Dark Grey
	32			10.9 - 14.5	Pink
	33			13.8 - 25.4	Dark Green
	34			21.8 - 42.1	Yellow
	35			36.3 - 50.75	Violet
	36			50.75 - 60	Black
	41			4.4 - 6.5	Light Blue
	42			6.5 - 11.6	Dark Grey
	43			10.9 - 14.5	Pink
	44			13.8 - 25.4	Dark Green
	45			21.8 - 42.1	Yellow
	46			36.3 - 50.75	Violet
	47			50.75 - 60	Black
		K			2" CL 125 FF
		L			2" CL 150 RF
			N	Regulator Only	
			B	Integral SSV (VSI-22)	No IRV
			M	Monitor Construction	
			MB	Monitor + SSV (VSI-22)	
			R	Regulator Only	
			S	Integral SSV (VSI-22)	With IRV
			MR	Monitor Construction	
			MS	Monitor + SSV (VSI-22)	

11 CONFIGURATIONS & DIMENSIONS



BP and MP Constructions



AP and APA Constructions

Figure 8: Regulator Dimensions in Inches (mm)

Table 15 below provides additional clearance dimensions that should be considered when installing the S22 to ensure maintenance access

Table 15: S22 Clearance Dimensions			
BP Spring Removal	MP/AP/APA Spring Removal	OPSO/UPSO Spring Removal	Actuator Removal
13 inches (330 mm)	6.1 inches (155 mm)	1.5 inches (38 mm)	3.5 inches (89 mm)

Table 16: Assembly Weights	
S22 Regulator Only	S22 with VSI-22
39 lbs	44 lbs

Figures 9 and 10 below indicate the position of the sense lines for the regulator and the optional VSI-22. Please specify desired sense line positions or the standard position (F) will be used for the regulator and VSI-22.

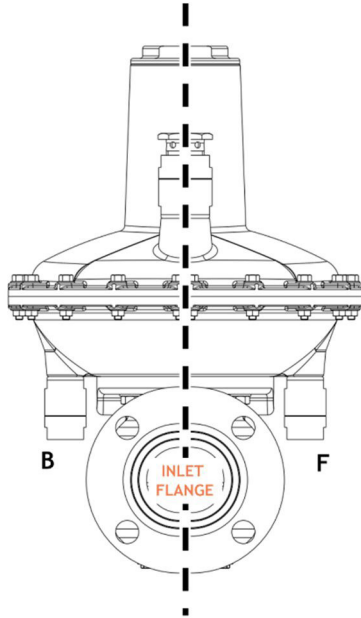


Figure 9: Regulator Sense Line Location
(Flow is into Page)

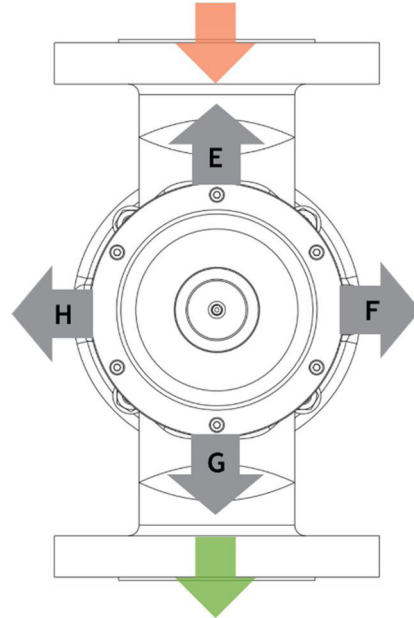


Figure 10: VSI-22 Sense Line Location

12 PRODUCT SELECTION

Choose one option or enter the specific request for each section below. Table 4 above offers common set points, but any set points can be provided upon request.

PRODUCT CONSTRUCTION CODE (Refer to Table 14): **S22-**____

DELIVERY PRESSURE

Set Point _____

OVER PRESSURE SHUT OFF

Set Point _____

UNDER PRESSURE SHUT OFF

Set Point _____

REGULATOR VENT PROTECTOR

*Standard Umbrella _____

Inverted Umbrella _____

90 Degree Fitting _____

REGULATOR SENSE LINE POSITION

*Front (F) _____

Back (B) _____

SSV SENSE LINE POSITION

E _____

*F _____

G _____

H _____

SSV VENT PROTECTOR

*90 Degree Fitting _____

Inverted Umbrella _____

Standard Umbrella _____

* Indicates the standard offering that will be provided unless otherwise specified.

THIS DOCUMENT IS INTENDED FOR REFERENCE ONLY. CAVAGNA GROUP DOES NOT ASSUME RESPONSIBILITY FOR THE SELECTION, USE, OR MAINTENANCE OF ANY PRODUCT. THE PURCHASER IS RESPONSIBLE FOR PROPER SELECTION, USE AND MAINTENANCE OF ANY PRODUCT SPECIFIC TO THE APPLICATION IT IS PURCHASED FOR. THIS DOCUMENT DOES NOT PROVIDE ANY GUARANTEE OR WARRANTY REGARDING THE PRODUCTS HEREIN, NOR DOES IT PROVIDE ANY INSTRUCTIONS OR GUIDELINES RELATING TO THE INSTALLATION, USE, OR MAINTENANCE OF ANY PRODUCTS. WARRANTY TERMS AND GENERAL TERMS AND CONDITIONS OF SALE ARE AVAILABLE AT www.cavagnagroup.com

CAVAGNA GROUP RESERVES THE RIGHT TO MODIFY OR CHANGE THE DESIGN, SPECIFICATIONS, OR FEATURES CONTAINED IN THIS DOCUMENT AND THE PRODUCTS SHOWN HEREIN. CONTACT CAVAGNA GROUP OR YOUR CAVAGNA GROUP DISTRIBUTOR FOR THE LATEST INFORMATION OR FOR A COPY OF THE APPLICABLE USER MANUAL (WHICH MUST BE FULLY READ BEFORE USING THE PRODUCT).



A Cavagna Group Company

Cavagna North America Inc.

50 Napoleon Court
Somerset, NJ 08873

info@cavagna.com - www.CavagnaNA.com