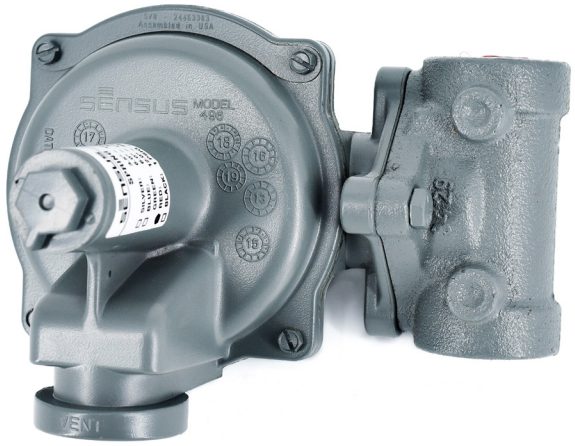
Model 496 Regulators Brochure – Domestic Service Regulator

UTILITY SOLUTIONS GROUP

Introduction

Who We Are

Utility Solutions Group is a manufacturer of natural gas regulators and relief valves based in Columbus, OH. All products are made in the USA and compliant with the requirements of the Build America, Buy America Act. Utility Solutions Group's Quality Management System is certified to ISO 9001 by Smithers Quality Assessments.

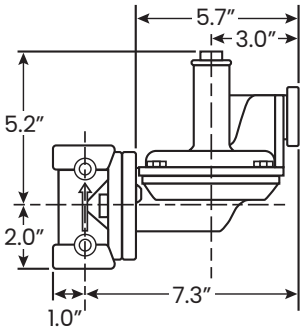


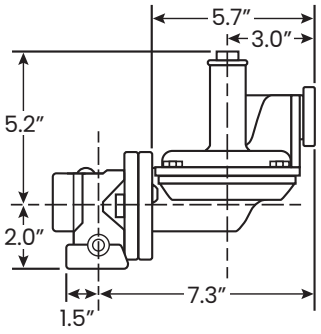
496 Regulator

The Model 496 regulator offers a solid construction for a lifetime of reliable service. They provide precise pressure control, outstanding performance, and long-term dependability.

Model 496 regulators can be used for residential meter sets, as well as small commercial and industrial applications. Common uses include burners, furnaces, ovens, heaters, gas engines, and more.

Dimensions





Technical Data

Valve Body	Cast Iron - 125 psi working pressure
Spring and Lower Case	Die-Cast Aluminum
Orifice	Aluminum
Fulcrum Pin	Stainless Steel
Valve Seat	One piece molded Buna-N seat
Valve Stem	Zamak
Throat/Support/Stem Guide	Cast aluminum integral to lower case
Diaphragm Plate	Plated Steel
Diaphragm	4" Molded, roll-out polyesterabric reinforced Buna-N
Vent and Valve	Polypropylene valve and seat, 1" NPT vent
Adjustment Screw	ABS Cycolac
Closing Cap	ABS Cycolac with internal relief valve stop and a hole for available tamper seal wire
Operating Temperature	-20° to +150° F (-28.9° to +65.5° C)
Corrosion Protection	Chromate converted castings, e-coated or primed with enamel topcoat
Internal Relief Valve	Set to relieve at approximately 7-10" w.c. above normal outlet pressure setting

Valve Body Sizes

Straight	Angle
⅜″ × ⅜″	–
½″ × ½″	–
¾″ × ¾″	¾″ × ¾″
¾″ × 1″	¾″ × 1″
1″ × 1″	1″ × 1″

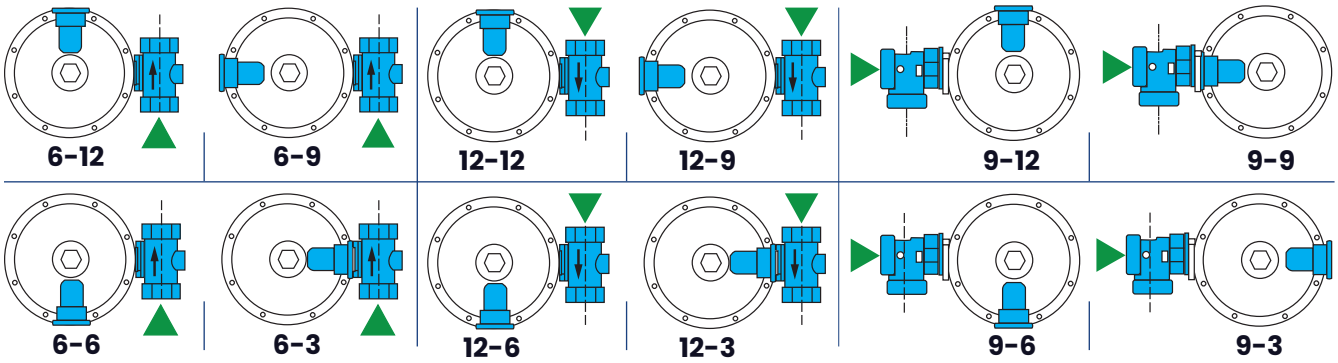
Orifice and Maximum Inlet Pressure

Pressure	Size	Part Number
125 psi	⅛"	019-01029-001
125 psi	3⁄16"	019-01029-002
60 psi	¼"	019-01029-003
40 psi	5⁄16"	019-01029-035
30 psi	⅜"	019-01029-004
20 psi	½"	019-01029-005

Regulator Spring Chart

Normal Range	Color	Part Number
3.5" -10.5" W.C.	Silver	071-03409-004
6.0" - 8.0" W.C.	Blue	071-03409-001
6.0" - 14.0" W.C.	Green	071-03409-002
12.0" - 28.0" W.C.	Red	071-03409-003
1.0 - 2.0 psi	Black	071-03406-002

Mounting Positions



NOTE: For outdoor installations, it is recommended that the regulator be installed so that the regulator vent faces downward to avoid the potential of water and other foreign materials from entering the regulator, which may interfere with proper operation.

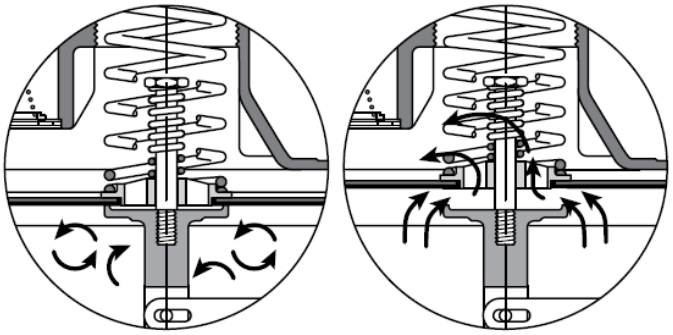
Operation of the Internal Relief Valve

The internal relief valve (IRV) comes standard in the 496 regulator.

As shown in the illustration below, the IRV is built into the center of the diaphragm assembly. It works in essentially the same way as standard relief valves.

The IRV will prevent the outlet pressure from exceeding the value shown by the curves upon regulator failure at the conditions specified. Performance is given on the curves below.

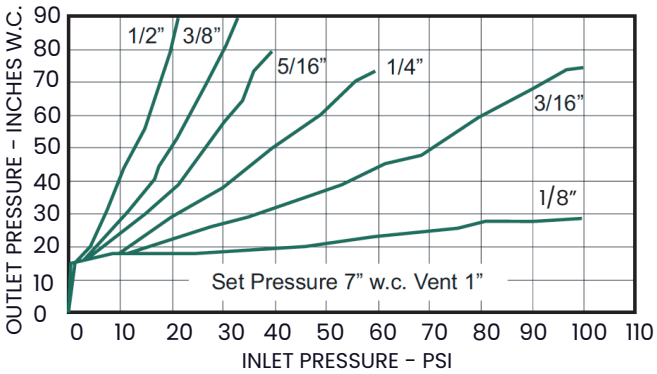
The IRV is a proven design of quality construction. Within its capacity limits, it adds a substantial measure of safety protection to the already outstanding, dependable performance of the 496.



IRV Closed IRV Open

Relief Valve Performance

Lever blocked with valve disc in the wide open position.



Outlet Pressure Set-Point

7.0" w.c. @ 50 SCFH, variances not to exceed +2.0" w.c. and -1.0" w.c. from set-point.

Body Size Outlet: ⅜"

Inlet	Orifice					
Psi	⅛"	3⁄16"	¼"	5⁄16"	⅜"	½"
1	–	100	160	190	–	–
2	–	150	200	220	–	–
5	180	200	250	260	–	–
10	190	220	270	280	–	–
15	200	240	28 0	290	–	–
20	220	260	290	300	–	–
25	230	260	290	300	–	–
30	240	270	300	300	–	–
40	250	280	300	300	–	–
50	260	300	300	–	–	–
60	270	300	300	–	–	–
80	300	300	–	–	–	–
100	300	300	–	–	–	–

Body Size Outlet: 1/2"

Inlet	Orifice					
Psi	⅛"	3⁄16"	¼"	5⁄16"	⅜"	½"
1	–	110	20	20	–	–
2	–	210	240	300	–	–
5	220	290	330	390	–	–
10	290	350	420	480	–	–
15	350	410	470	550	–	–
20	410	490	500	560	–	–
25	430	500	550	580	–	–
30	470	520	580	590	–	–
40	500	570	600	600	–	–
50	550	600	600	–	–	–
60	570	600	600	–	–	–
80	600	600	–	–	–	–
100	600	600	–	–	–	–

Body Size Outlet: 3/4"

Inlet	Orifice					
Psi	⅛"	3⁄16"	¼"	5⁄16"	⅜"	½"
1	–	200	275	300	400	500
2	–	250	400	475	575	775
5	275	400	675	725	875	1050
10	400	650	900	950	1000	1175
15	500	775	1100	1100	1150	1300
20	600	1000	1175	1250	1300	1350
25	675	1100	1225	1350	1375	–
30	775	1250	1300	1475	1500	–
40	900	1300	1350	1525	–	
50	1050	1375	1425	–	–	–
60	1250	1425	1500	–	–	–
80	1500	1500	–	–	–	–
100	1550	1550	–	–	–	–

Body Size Outlet: 1"

Inlet	Orifice					
Psi	⅛"	3⁄16"	¼"	5⁄16"	⅜"	½"
1	–	200	250	300	400	425
2	–	300	350	475	525	550
5	250	45	600	725	950	1150
10	375	750	900	1200	1250	1700
15	500	950	1150	1550	1550	1800
20	600	1200	1350	1600	1600	1950
25	675	1350	1600	1650	1650	–
30	775	1550	1800	1825	1850	–
40	950	1875	1900	1950	–	–
50	1100	2000	2025	–	–	–
60	1250	2075	2100	–	–	–
80	1500	2200	–	–	–	–
100	1800	2250	–	–	–	–

Outlet Pressure Set Point

2.0 psi @ 50 SCFH, variances not to exceed ± 10% from pressure set point.

Body Size Outlet: ⅜"

Inlet	Orifice					
Psi	⅛"	3⁄16"	¼"	5⁄16"	⅜"	½"
5	150	280	330	380	–	–
10	240	400	430	440	–	–
15	310	440	460	500	–	–
20	350	450	480	510	–	–
25	380	460	500	530	–	–
30	430	490	520	560	–	–
40	450	510	560	580	–	–
50	460	550	570	–	–	–
60	470	560	590	–	–	–
80	540	570	–	–	–	–
100	570	580	–	–	–	–

Body Size Outlet: ½"

Inlet	Orifice					
Psi	⅛"	3⁄16"	¼"	5⁄16"	⅜"	½"
5	160	290	340	420	–	–
10	250	420	480	500	–	–
15	320	490	520	620	–	–
20	360	510	590	650	–	–
25	390	550	660	700	–	–
30	440	590	720	760	–	–
40	520	700	800	810	–	–
50	530	750	840	–	–	–
60	580	870	920	–	–	–
80	670	910	–	–	–	–
100	750	1,000	–	–	–	–

Body Size Outlet: ¾"

Inlet	Orifice					
Psi	⅛"	3⁄16"	¼"	5⁄16"	⅜"	½"
5	200	300	350	500	550	650
10	325	500	600	700	800	1,050
15	425	650	725	900	,1050	1,150
20	525	725	850	1,050	1,200	1,400
25	575	850	1,000	1,175	–	–
30	600	900	1,100	1,300	–	–
40	700	950	1,250	1,500	–	–
50	800	1,100	1,400	–	–	–
60	900	1,250	1,500	–	–	–
80	1,100	1,425	–	–	–	–
100	1,200	1,500	–	–	–	–

Body Size Outlet: 1"

Inlet	Orifice					
Psi	⅛"	3⁄16"	¼"	5⁄16"	⅜"	½"
5	250	275	350	400	450	750
10	300	425	500	650	900	1,050
15	400	500	700	1,000	1,050	1,200
20	475	650	800	1,200	1,300	1,500
25	550	700	1,000	1,300	1,400	–
30	650	850	1,100	1,400	1,500	–
40	800	1,050	1,300	1,500	–	–
50	900	1,225	1,500	–	–	–
60	1,000	1,350	1,700	–	–	–
80	1,300	1,800	–	–	–	–
100	1,700	2,000	–	–	–	–

Flow capacities in SCFH of 0.60 specific gravity gas @ 60° F and 14.7 psi. For maximum performance, maximum inlet pressure should not exceed maximum capacity rating for any given orifice size. For other non corrosive gases such as air, propane, propane/air mix, nitrogen, and dry carbon dioxide, use the following capacity calculation:

$$\sqrt{\frac{0.60}{\text{Specific gravity of the gas}}}$$