

Model 441-57S



441-57S “Roll-Out” Diaphragm Regulators

Basic Types	Regulator Body Type	441 Body Material	Maximum Working Pressure of Body
	Screwed End (2" Pipe size only)	CAST IRON (ASTM A126-71 Class B)	250 psi
	Flanged ANSI 125 lb. FF	CAST IRON (ASTM A126-71 Class B)	175 psi
	Flanged ANSI 250 lb. RF	DUCTILE IRON (ASTM A395-71 GR 60-40-18)	575 psi
	Flanged ANSI 300 lb. RF	CAST STEEL (ASTM A2 16-70A GR WCB)	720 psi
	Flanged ANSI 600 lb. RF*	CAST STEEL (ASTM A216-70A GR WCB)	1200 psi

*2" and 3" pipe size only

Spring Ranges	Outlet Pressure Min. to Max	Color of Spring	Nominal Diaphragm Size (I.D.)
	3 to 6 psi 5 to 9 psi 7½ to 15 psi 12½ to 30 psi 25 to 55 psi 50 to 75 psi 70 to 100 psi	Yellow Gray Blue Red Brown Black Brown plus White*	5" All Ranges

*White colored spring is nested within brown

Maximum Inlet Pressures	Regulator Body Type	Body Materials	Maximum Inlet Pressure
	2" Screwed Only	Cast Iron	250 psi
	Flanged ANSI 125 lb.	Cast Iron	175 psi*
	Flanged ANSI 250 lb.	Ductile Iron	575 psi*
	Flanged ANSI 300 lb.	Cast Steel	720 psi*
	Flanged ANSI 600 lb.	Cast Steel	1000 psi*

*Please note the following exceptions to the above, based on valve size.

Body Size	Valve	Maximum Inlet Pressure
6"	4¼"	150 psi
6"	3" reduced	} 300 psi
4"	3"	
6"	2½" reduced	} 500 psi
4"	2½" reduced	
3"	2½"	

Valve material selection is limited by inlet pressure and differential:

Valve Material	Maximum Inlet Pressure	Maximum Pressure Differential
Buna-N	575 psi	250 psi
Poly-U Red	720 psi	400 psi
Poly-U Tan	1200 psi	600 psi

Maximum Pressure Differential and Maximum Inlet Pressure for Various Soft-Seated Valve Materials*	Valve Material	Maximum Pressure Differential	Maximum Inlet Pressure
	Buna-N (black, 50 to 55 duro)	250 psi	575 psi
	Polyurethane (red, 65 to 75 duro)	400 psi	720 psi
	Polyurethane (tan, 85 to 95 duro)	600 psi	1200 psi

*The differential and inlet pressure given are only to be used as general guidelines. In all cases, pressures must always remain within the ranges specified in Sensus literature. For any given regulator, do not exceed the specified maximum pressures.

The maximum temperature for the above materials is 150° F.

Viton valve material has a maximum temperature rating of 300°F and maximum pressure differential of 250 psi.

Pipe Size	Model 441-57S				Temperature Limits
	2"	3"	4"	6"	
					The 441-57S “Roll-Out” Diaphragm Regulators may be used for flowing gas temperatures from -20°F to 150°F.

Buried Service

The 441-57S “Roll-Out” Diaphragm Regulator is *not* recommended for buried service.

The "Roll-Out" Diaphragm



The Measure of the Future

The heart of the Model 441-57S is the "Roll-Out" diaphragm. The 441-57S is a spring regulator with performance which approximates that of a pilot operated regulator. The "Roll-out" Diaphragm makes this exceptional performance possible because its action reduces "droop" to a minimum ("droop" being fall off in outlet pressure as a spring regulator opens to increase flow.)

The action of the "Roll-Out" diaphragm differs from that of the conventional diaphragm in the manner in which the change in effective area occurs. Where the effective area of a conventional diaphragm would increase as the regulator opens, the "Roll-Out" area decreases. Conversely, where the area of the conventional diaphragm decreases during closing, the "Roll-Out" area increases. The following explanation and the illustrations below show how this affects regular performance.

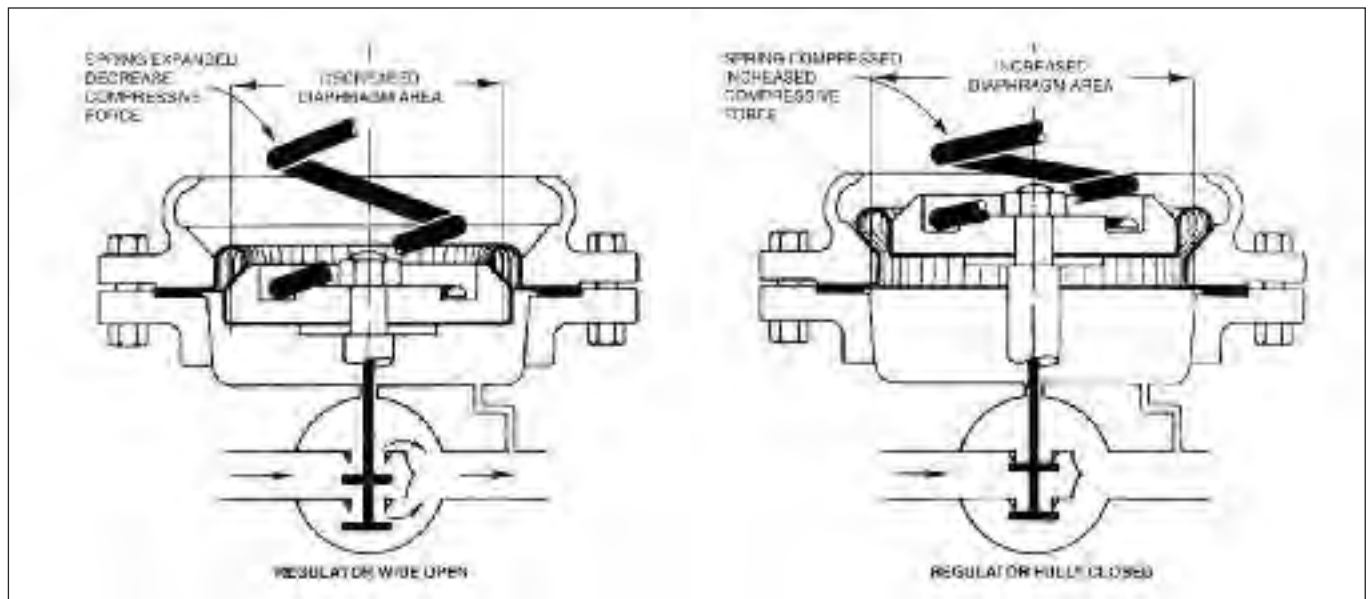
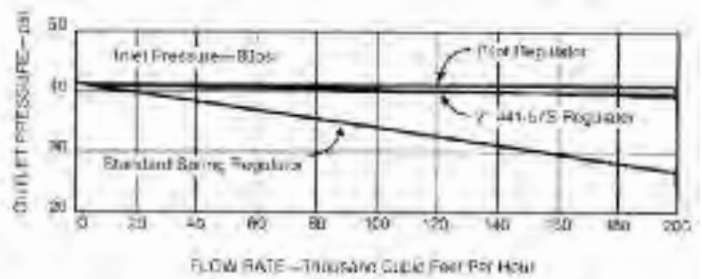
Spring type regulators are operated by the inter-action between spring and diaphragm. The compressive force of the spring works to open the regulator and is balanced by the opposing force of outlet pressure on the diaphragm which provides the closing force.

As the regulator opens, the compressive force of the spring decreases. However, as this spring force decreases, there must be a corresponding decrease in the opposing force from the diaphragm. For this opposing diaphragm force to decrease,

either the effective area or the outlet pressure must decrease. Herein is the essential difference; with a conventional diaphragm the outlet pressure must decrease, where as with the "Roll-Out" diaphragm it is the effective area that decreases, permitting the outlet pressure to remain constant.

The operation actually is quite simple, yet the action of the "Roll-Out" diaphragm is so effective that "droop" is practically eliminated.

The Model 441-57S provides constant pressure regulation not previously possible in a "pounds to pounds" spring regulator. It approaches pilot performance, and, in addition, offers the further advantages of simplicity, dependability, freedom from freeze-up, and exceptionally fast response.



Other Features

Simple Design—dependable regulation—trouble free operation—fast response—no pilot—no pilot freezing—no pilot maintenance.

Standard Face to Face Dimensions

Standardized "441" Bodies & Inner Valve Assemblies—

easy maintenance—parts are interchangeable with other 441 models.

Simplified Valve Adjustment—easy to adjust for tight lock-up—accurate.

Molded Polyurethane Soft Seats—positive tight shut-off high erosion resistance—reduces potential of blow out.

O-Ring Stem Seal—with removable anti-friction bushing.

Bushing Guided Inner Valve—accurate stem alignment and valve seating.

Side Inspection Plates—both sides of body—quickly removable.

O-Ring Orifice Seal—eliminates gaskets.

O-Ring Body Seal—eliminate gaskets on upper and lower body openings and side inspection plates.

Self-Aligning Spring Adjustment—color coded springs.

Flanged Removable Seats (Orifices)—easily changed—no special tools needed

V-Port Orifice Restrictors—increase high flow to low flow turndown performance.

441-57S

“Roll-Out” Diaphragm Regulators

Large

for

- Gas Distribution Systems
- District Regulator Sets
- City Gate Stations
- Town Border Stations
- Monitoring
- Industrial Applications
- Large Capacity Burners
- Boilers

Heavy-Duty Construction

Weather-proof
Watertight
For Indoor
or Outdoor
Installations

Valve Travel Indicator

Anti-Friction Bushing

Balanced Valve
Double Seat
Soft Seats
also available—
Reduced Size Valves
V-Port Valves

“Roll-Out”
Diaphragm
(Patented)

Outlet Pressure
Range

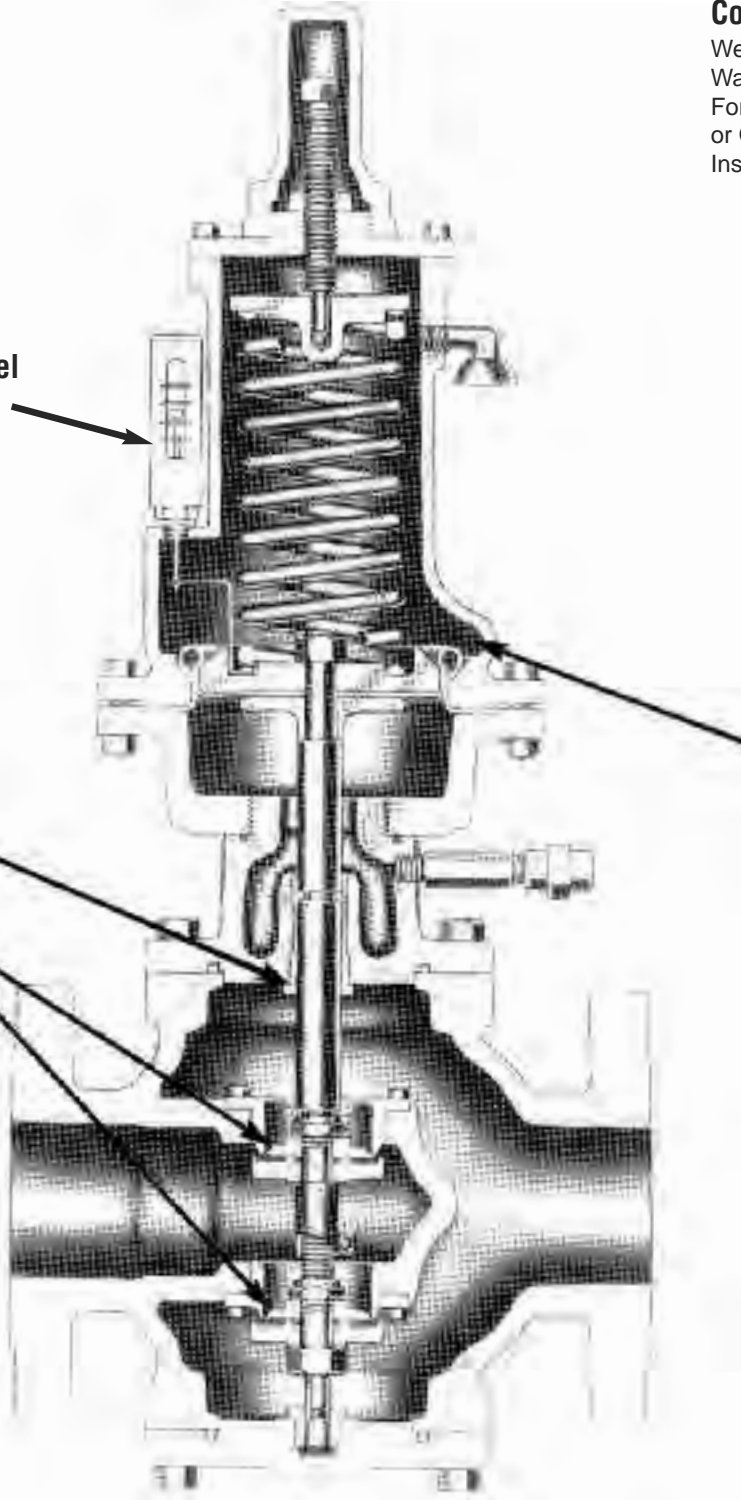
3 to 100 psi

Note: For outlets up
to 250 psi, see Model
441-X57.(Bulletin
R-1361)

For outlets below
3 psi, see Model 441-S.
(Bulletin R-1350)

Inlet Pressures
and Capacities

See page 5 and 6



Capacity in 1000 SCFH of Natural Gas (0.6 Specific Gravity–14.65 psia–60°F)

Inlet Pressure psi	Outlet Pressure psi	2" 441-57S		3" 441-57S			4" 441-57S			6" 441-57S		
		1½" Valve	1½" Reduced Valve	2½" Valve	1½" Reduced Valve	1½" Reduced Valve	3" Valve	2½" Reduced Valve	1½" Reduced Valve	4½" Valve	3" Reduced Valve	2½" Reduced Valve
4	3	22.9	17.9	37.3	27.8	17.9	74.5	37.3	22.7	138	77.7	37.3
	5	32.1	25.2	52.4	39.1	25.2	104	52.4	31.9	194	109	52.4
5	4	23.4	18.3	38.1	28.5	18.3	76.2	38.1	23.3	142	79.5	38.1
	3	39.2	30.7	63.9	47.7	30.7	127	63.9	39.0	237	133	63.9
6	4	33.2	26.0	54.1	40.4	26.0	108	54.1	33.0	201	112	54.1
	5	23.9	18.7	39.0	29.1	18.7	78.0	39.0	23.8	145	81.4	39.0
	3	50.6	39.7	82.5	61.6	39.7	165	82.5	50.4	307	172	82.5
8	4	46.8	36.7	76.3	57.0	36.7	152	76.3	46.6	283	159	76.3
	5	41.4	32.4	67.4	50.3	32.4	134	67.4	41.2	250	140	67.4
	6	34.8	27.3	56.8	42.4	27.3	113	56.8	34.6	211	118	56.8
	3	60.5	47.4	98.5	73.6	47.4	197	98.5	60.1	366	205	98.5
10	4	57.2	44.8	93.2	69.6	44.8	186	93.5	56.9	346	194	93.2
	5	53.9	42.2	87.9	65.6	42.2	175	87.9	53.6	326	183	87.9
	6	49.0	38.4	79.9	59.6	38.4	159	79.9	48.7	297	166	79.9
	8	36.5	28.6	59.5	44.4	28.6	118	59.5	36.3	221	124	59.5
12	3	68.6	53.8	111	83.5	53.8	223	111	68.3	415	233	111
	4	66.5	52.1	108	80.8	52.1	216	108	66.1	402	225	108
	5	63.7	49.9	103	77.5	49.9	207	103	63.4	386	216	103
	6	60.5	47.4	98.5	73.6	47.4	197	98.5	60.1	366	205	98.5
	8	51.7	40.5	84.3	62.9	40.5	168	84.3	51.5	313	175	84.3
	10	38.1	29.9	62.1	46.4	29.9	124	62.1	37.9	231	129	62.1
15	3	79.0	61.9	128	96.1	61.9	257	128	78.6	478	268	128
	4	77.9	61.0	127	94.8	61.0	253	127	77.5	472	264	127
	5	76.3	59.7	124	92.8	59.7	248	124	75.8	462	259	124
	6	74.1	58.0	120	90.1	58.0	241	120	73.7	448	251	120
	8	68.1	53.3	111	82.8	53.3	221	111	67.7	412	231	111
	10	60.5	47.4	98.5	73.6	47.4	197	98.5	60.1	366	205	98.5
20	12	48.5	38.0	79.0	59.0	38.0	157	79.0	48.2	293	164	79.0
	3	94.2	73.8	153	115	73.8	307	153	93.7	571	320	153
	4	93.7	73.4	152	114	73.4	305	152	93.2	567	318	152
	6	92.6	72.6	150	112	72.6	301	150	92.1	561	314	150
	8	89.3	70.0	145	108	70.0	291	145	88.8	541	303	145
	10	85.5	67.0	139	104	67.0	278	139	85.1	518	290	139
	12	79.5	62.3	129	96.8	62.3	259	129	79.1	481	270	129
25	15	65.9	51.6	107	80.2	51.6	214	107	65.5	399	223	107
	6 & less	108	84.5	175	131	84.5	351	175	107	653	366	175
	8	106	83.7	174	130	83.7	347	174	106	646	362	174
	10	104	81.9	170	127	81.9	340	170	104	633	355	170
	12	101	79.4	165	123	79.4	330	165	100	613	344	165
	15	93.7	73.4	152	114	73.4	305	152	93.2	567	318	152
30	20	71.4	55.9	116	86.8	55.9	232	116	71.0	432	242	116
	9 & less	121	94.8	197	147	94.8	393	197	120	732	410	197
	12	119	93.5	194	145	93.5	388	194	118	722	405	194
	15	114	89.6	186	139	89.6	372	186	113	693	388	186
	20	101	79.4	165	123	79.4	330	165	100	613	344	165
40	25	76.3	59.7	124	92.8	59.7	248	124	75.8	462	259	124
	14 & less	148	116	241	180	116	482	241	147	897	503	241
	20	143	112	233	174	112	466	233	142	868	486	233
	25	132	103	215	161	103	431	215	131	802	449	215
	30	115	90.0	187	139	90.0	374	187	114	696	390	187
50	35	85.5	67.0	139	104	67.0	278	139	85.1	518	290	139
	20 & less	175	137	286	213	137	571	286	174	1062	595	286
	25	171	134	278	208	134	557	278	170	1036	581	278
30	162	127	264	197	127	528	264	161	983	551	264	

441-57S Capacity Tables

Inlet Pressure psi	Outlet Pressure psi	2" 441-57S		3" 441-57S			4" 441-57S			6" 441-57S		
		1 1/4" Valve	1 1/2" Reduced Valve	2 1/8" Valve	1 3/4" Reduced Valve	1 1/2" Reduced Valve	3" Valve	2 1/8" Reduced Valve	1 3/4" Reduced Valve	4 1/4" Valve	3" Reduced Valve	2 1/8" Reduced Valve
50	40	127	99	206	154	99	413	206	126	769	431	206
60	25 & less	202	158	330	246	158	660	330	201	1227	688	330
	30	199	156	325	242	156	649	325	198	1207	677	325
	40	179	140	293	218	140	585	293	178	1089	610	293
	50	138	108	225	168	108	450	225	137	838	470	225
80	35 & less	256	201	418	312	201	835	418	255	1554	871	418
	40	254	199	413	309	199	826	413	252	1537	862	413
	50	239	187	389	291	187	778	389	238	1448	812	389
	60	210	164	342	256	164	684	342	209	1273	714	342
	70	158	123	257	192	123	514	257	157	957	536	257
100	45 & less	311	244	508	379	244	1014	508	310	1887	1058	508
	50	309	242	504	376	242	1007	504	307	1837	1050	504
	60	297	233	484	362	233	968	484	296	1801	1010	484
	70	274	214	446	333	214	892	446	272	1660	930	446
	80	236	185	385	287	185	770	385	235	1432	803	385
125	60 & less	379	297	618	461	297	1234	618	377	2296	1287	618
	70	371	291	605	452	291	1209	605	369	2250	1261	605
	80	355	278	579	432	278	1156	579	353	2151	1206	579
	100	291	228	475	354	228	949	475	290	1765	989	475
150	73 & less	446	350	728	543	350	1454	728	444	2706	1517	728
	80	443	347	722	539	347	1442	722	440	2683	1504	722
	100	412	323	672	502	323	1343	672	410	2478	1400	672
175	85 & less	515	404	840	627	404	1678	840	512	—	1750	840
	100	505	395	823	614	395	1644	823	502	—	1715	823
200		584	457	952	710	457	1901	952	579	—	1983	952
250		720	564	1174	876	564	2345	1174	716	—	2445	1174
300	100	856	671	1396	1042	671	2788	1396	852	—	2908	1396
400	&	1129	884	1840	1373	884	—	1840	1132	—	—	1840
500	less	1401	1098	2284	1705	1098	—	2284	1394	—	—	2284
600		1674	1311	—	2036	1311	—	—	1655	—	—	—
1000		2764	2165	—	3362	2165	—	—	3343	—	—	—
"K" Factors Standard Values		5450	4270	8880	6630	4270	17740	8880	5420	33000	18500	8880
"K" Factors V-Port Values		5260	4160	8440	6390	4160	13850	8440	5260	25500	14430	8440
For V-Port Valves— Multiply Table Values by		.965	.974	.950	.964	.974	.781	.950	.970	.773	.780	.950

1. Last capacity figure (**bold type**) for each column is capacity at **maximum inlet pressure**.
2. Size each regulator on the basis of the **minimum expected inlet pressure** and the **maximum required outlet pressure**.
3. For **best performance** of the Model 441-57S, use full table capacity values.
4. For **smaller capacities** see Model 461-57S (Bulletin R-1331).

Note: The above performance data and data on page 5 is based on normal testing at 70°F flowing temperature. Changes in performance can occur at extreme low flowing temperatures.

Back Pressure Valves and Relief Valves



The Measure of the Future

Where inlet pressure control is required, as with a back pressure valve or relief valve, use the Model 441-57SR.

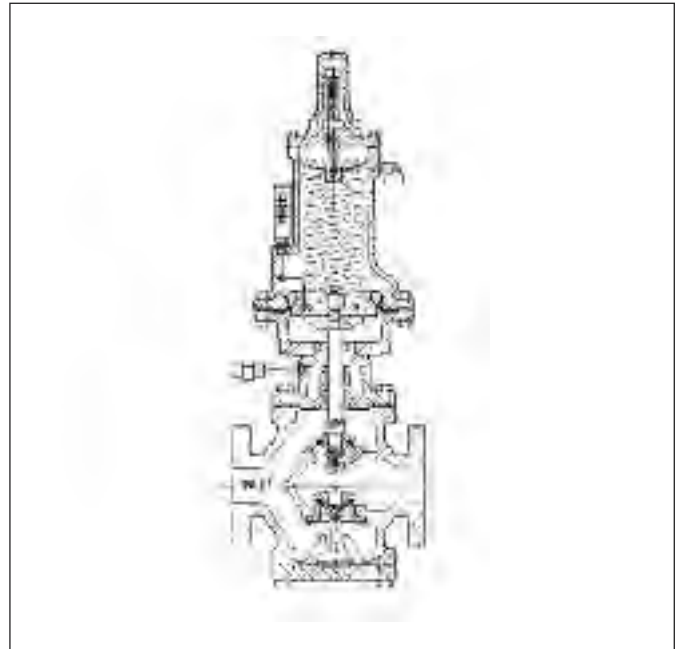
The 441-57SR is the same as the 441-57S except that the inner valve is reversed, the body is turned around, and the control line is arranged for connection to the inlet side (upstream)

The adjustment is 3 to 90 psi.

Use the table on Pages 5 and 6 for capacities.

Pipe sizes and bodies are given on Page 2.

For additional information on the Model 441-57SR, please contact your Sensus sales representative.



Maximum Emergency Pressures

The following are the maximum pressures which the regulator body may be subjected to under abnormal conditions without causing internal damage (take Maximum Inlet Pressure from page 2):

- Cast Iron Body Maximum Inlet Pressure +25 psi
- Ductile Iron Body Maximum Inlet Pressure +60 psi
- Cast Steel Body Maximum Inlet Pressure +100 psi

If pressure exceeds the above values the regulator must be removed from service and inspected. Damaged or otherwise unsatisfactory parts must be repaired or replaced before returning the regulator to service.

The maximum pressure which the diaphragm may be subjected to under abnormal conditions without causing internal damage is set-point plus 25 psi. If the pressure on the diaphragm exceeds set-point by more than 25 psi, the regulator must be removed from service and inspected. Damaged or otherwise unsatisfactory parts must be repaired or replaced before returning the regulator to service. The set-point is the outlet pressure the regulator is adjusted to deliver.

The maximum pressure that can be safely contained by the diaphragm case is 175 psi. Safely contained means no leakage and no bursting.

Before using any of the above data, make sure this entire section is clearly understood.

Overpressurization Protection

Protect the downstream piping system and the regulator's low pressure chambers against overpressurization due to possible regulator malfunction or failure to

achieve positive lockup. The allowable outlet pressure is the lowest of the maximum pressures permitted by federal codes, state codes, Bulletin RDS-1498 or other applicable standards. The method of protection can be a relief valve, monitor regulator, shut-off device or similar mechanism.

Periodic Inspection: Regulators are pressure control devices with numerous moving parts subject to wear that is dependent upon particular operating conditions. To assure continuous satisfactory operation, a periodic inspection schedule must be adhered to with the frequency of inspection determined by the severity of service and applicable laws and regulations. **See bulletin RM-1360 for field service instructions.**

Monitoring

The Model 441-57S is also excellent for use as a monitor; a stand-by regulator mounted in series which assumes control if a failure in the operating regulator permits the outlet pressure to rise above its set point.

The 441-57S has a fast rate of response and, therefore, will take control quickly in case of an emergency. It requires no changes or modifications when used for monitoring. Its simple design and rugged construction make it an exceptionally dependable regulator, and its control accuracy and freedom from “droop” means that it will provide excellent regulation if an emergency calls it into operation.

Two monitor set arrangements are shown in the sketches below. The first shows a set in which the operating regulator and the monitor are both Model 441-57S. This makes an unusually neat and compact installation.

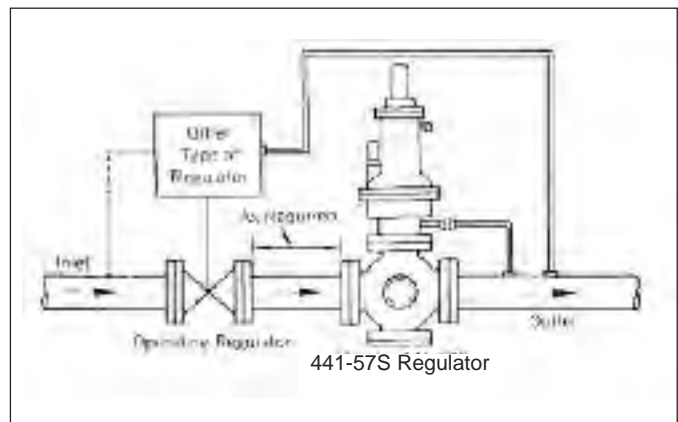
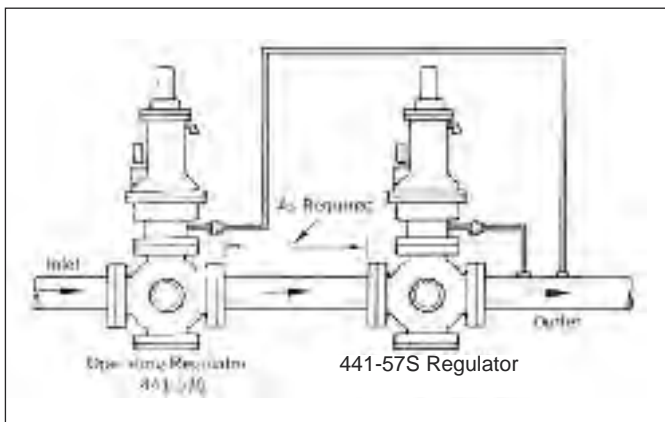
The 441-57S is also used for monitoring other types of regulators. This is shown in the second sketch. It is excellent for monitoring pilot operated regulators.

Both sketches show the monitor in the downstream position. When installed this way, the 441-57S is usually set for an outlet pressure 2 to 4 psi higher than the operating regulator and thus is wide open during normal operation.

The monitor can also be located upstream, and with this arrangement the 441-57S is usually set for an outlet somewhat higher than the above.

Shutoff and bypass valving varies with individual practices and requirements. In general, however, the sketch below “Typical Installation” in RM-1360 can be used as a guide for the arrangement of these valves.

When identical 441-57S regulators are used for both the operating regulator and the monitor, the **total maximum capacity** through both may be figured as 70 percent of the capacity of one of them alone. This applies with the monitor located either downstream or upstream.



Metrication

Use the following for Metric conversions:

Std. metres ³ /hr. x 35.31 = std. ft. ³ /hr. (SCFH) std. ft. ³ /hr. (SCFH) x 0.0283 = std. metres ³ /hr.
kilograms/centimeter ² (kg/cm ²) x 14.22 = psi psi x 0.0703 = kilograms/centimeter ² (kg/cm ²)
kilopascals (kPa) x 0.145 = psi psi x 6.90 = kilopascals (kPa)
bars x 14.50 = psi psi x 0.069 = bars

Caution: It is the user’s responsibility to assure that all regulator vents and/or vent lines exhaust to a non-hazardous location away from any potential sources of ignition. Refer to Sensus Bulletin RM-1360 for more detailed information.

Materials of Construction

Diaphragm Housing, Spring Cage	Cast Iron (ASTM) A126-71 Class B)
Housing Cover (Spring Cage Cap)	Ductile Iron (ASTM A395-71 gr 60-40-18)
Upper Diaphragm Plate	Die Cast Aluminum
Lower Diaphragm Plate	Cast Iron
Diaphragm	Buna-N with Dacron Reinforcement

Diaphragm Connecting Stem & Anti-Friction Bushing	Stainless Steel
Removable Seats (Orifices)	Cast Iron or Stainless Steel
Valve Stems	Brass or Stainless Steel
Soft Seat Valve Material	Molded Polyurethane
Holder for Valve Material	Steel
Valve Retainer	Cast Iron or Stainless Steel
Side Inspection Plates	Ductile Iron
Bodies	see table on Page 2

Full Open Capacity

Capacity for pressure reductions not listed in the table can be calculated with the following formulae:

$$1. Q = K \sqrt{P_0(P_1 - P_0)} \dots \dots \dots \text{(for } \frac{P_1}{P_0} \text{ less than 1.894)}$$

$$2. Q = \frac{KP_1}{2} \dots \dots \dots \text{(for } \frac{P_1}{P_0} \text{ greater than 1.894)}$$

Q = maximum capacity of the regulator (in SCFH of 0.6 specific gravity natural gas).

K = the “K” factor, the regulator constant (from the table)

P₁ = **absolute** inlet pressure (psia).

P₀ = **absolute** outlet pressure (psia).

Use formula 1 when $\frac{P_1}{P_0}$ is less than 1.894.

Use formula 2 when $\frac{P_1}{P_0}$ is greater than 1.894.

Other Gases

Model 441-57S Regulators are mainly used on natural gas. However, they perform equally as well on LP gas, nitrogen, dry CO₂, air and others.

OTHER GASES	CORRECTION FACTOR
Air (Specific Gravity 1.0)	0.77
Propane (Specific Gravity 1.53)	0.63
1350 BTU Propane-Air Mix (1.20)	0.71
Nitrogen (Specific Gravity 0.97)	0.79
Dry Carbon Dioxide (Specific Gravity 1.52)	0.63
For other noncorrosive gases: CORRECTION FACTOR =	$\sqrt{\frac{0.6}{\text{Specific Gravity of the Gas}}}$

For use with other gases not listed above, please contact your Sensus representative or Distributor for recommendations.

How to Order

Specify:

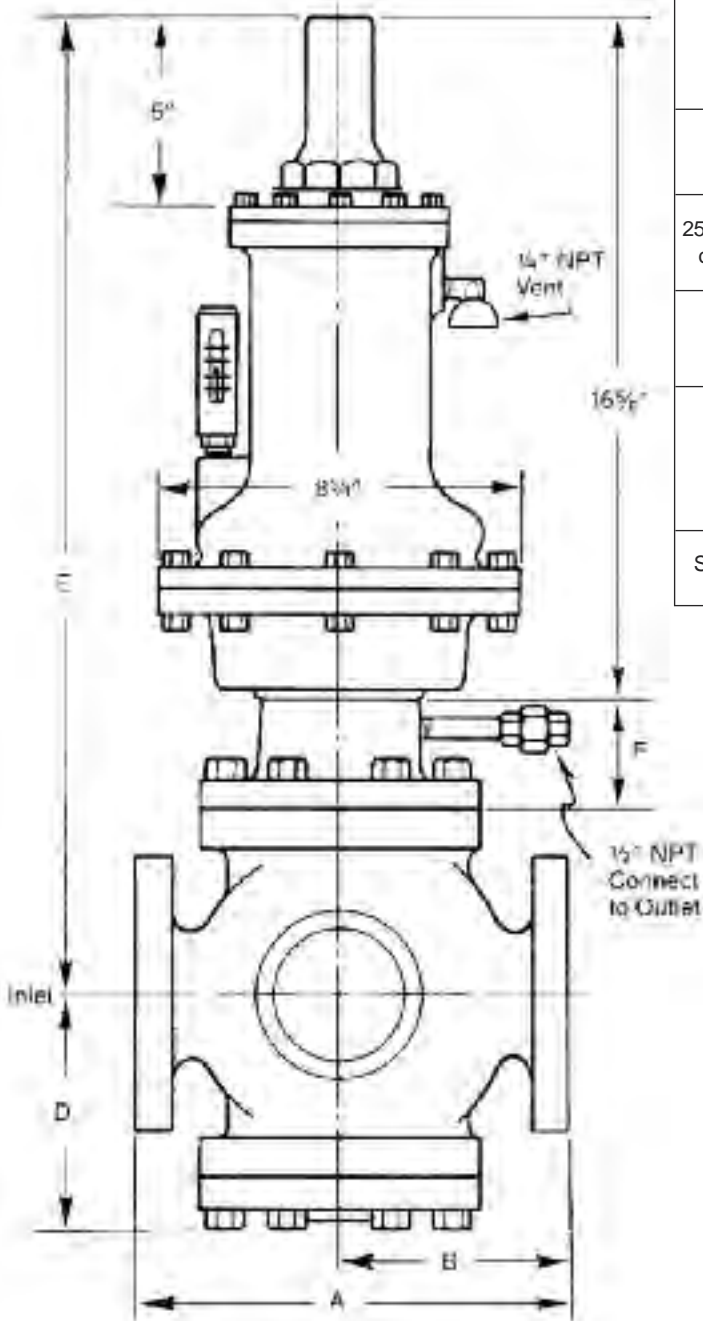
1. Pipe size and Model 441-57S.
2. Piping connections and body material (Page 2)
3. Trim (standard or stainless steel)

4. Inlet pressure (also maximum and minimum, if available)
5. Outlet pressure set-point
6. Capacity required (SCFH)

7. Type of gas (natural gas, propane, etc.)
8. Spring part number

Caution: Turn gas on slowly. If an outlet stop valve is used, it should be opened first. Do not overload the diaphragm with a sudden surge of inlet pressure. Monitor the outlet pressure during start-up to prevent an outlet pressure overload. **Refer to RM-160 for more detailed start-up procedures.**

Dimensions



Regulator Body Type		Pipe Size				
		Screwed 2"	Flanged ANSI			
			2"	3"	4"	6"
125 lb. Cast Iron	A	10	10	11 1/4	13 1/2	17 1/4
	B	5 5/8	5 5/8	6 1/2	7 1/2	9 1/4
250 lb. Ductile Iron or 300 lb. Steel	A	—	10 1/2	12 1/2	14 1/2	18 1/2
	B	—	5 5/8	6 1/2	7 1/4	9 1/4
600 lb. Steel	A	—	11 1/4	13 1/4	15 1/2	20
	B	—	5 5/8	6 1/2	8 1/4	10 1/4
	D	6	6	6	9 1/2	12
	E	24	24	24	25	28 1/2
	F	2 1/4	2 1/4	2 1/4	2 1/2	4 1/4
Shipping Weight Lbs.		115	125 to 140	140 to 180	240 to 300	445 to 520

Other Sensus Gas Pressure Regulators



The Measure of the Future

Sensus produces a broad product line of Gas Pressure Regulators which are widely used throughout the natural gas industry. These regulators are also suitable for non-corrosive industrial gas applications such as propane, butane, air, nitrogen,

dry CO₂, etc. For additional detailed information on a particular model, please request the indicated bulletin Sensus customer service, or visit our web catalog at www.sensus.com/gas

Multi-Purpose Service Regulators

Models 496, 61R2, 143-80
 Bulletin: TD-1301, TD-1307, TD-1308
 ½", ¾", 1", and 1¼" pipe size
 Inlet pressuresto 125 psi
 Outlet pressures3½" w.c. to 6 psi
 Capacity to 2250 CFH
 Available with straight through body.
 Also available: internal relief valve and low pressure cut-off.

Industrial Service Regulators

Models 243-8, 234-12, 243-8HP
 Bulletin: R-1306
 1¼", 1½", and 2" pipe size
 Inlet pressuresto 125 psi
 Outlet pressures3½" w.c. to 10 psi
 Capacity to 25,000 CFH
 Also available: internal relief valve, low pressure cut-off external control line, back pressure regulator, relief valve, vacuum regulator and vacuum breaker.

Industrial Field Regulators

For intermediate to high pressure applications. Ideal on pipeline taps servicing plants and buildings. Appropriate for double stage reduction ahead of service regulators, and for high pressure burners and compressed air systems.

Model 046
 Bulletin: R-1312
 ¾", 1", and 1¼" pipe size
 Inlet pressuresto 1000 psi
 Outlet pressures3 to 200 psi
 Capacity to 40,000 SCFH
 Monitor and pressure loaded version, and internal relief valve also available.

Model 141A
 Bulletin: R-1311
 2" pipe size
 Inlet pressuresto 1500 psi
 Outlet pressures5 to 400 psi
 Capacity to 55,000 SCFH

Pilot Loaded Regulators

For intermediate and high-pressure applications requiring precise pressure reduction with minimal droop. Ideal for standard and high capacity flows on burners, driers, dehydrators and compressor line. Appropriate for fixed factor billing.

Models 243-RPC
 Bulletin: R-1343
 1¼", 1½" and 2" pipe size
 Inlet pressuresto 150 psi
 Outlet pressures3½" w.c. to 35 psi
 Capacity to 76,000 SCFH

Model 1100
 Bulletin: R-1341
 2" pipe size (screwed or flanged)
 Inlet pressuresto 400 psi
 Outlet pressures3½" w.c. to 100 psi
 Capacity to 414,000 SCFH

Model 1200
 Bulletin: R-1342
 2" pipe size (flanged)
 Inlet pressuresto 1200 psi
 Outlet pressures20 to 600 psi
 Capacity to 789,000 SCFH

LIMITED WARRANTY Seller warrants the Goods to be free from defects in materials manufactured by Seller and in Seller's workmanship for a period of [one (1) year] after tender of delivery (the "Warranty Period"). **THIS LIMITED WARRANTY (a) IS IN LIEU OF, AND SELLER DISCLAIMS AND EXCLUDES, ALL OTHER WARRANTIES, STATUTORY, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR OF CONFORMITY TO MODELS OR SAMPLES;** (b) does not apply to any Goods which have been (i) repaired, altered or improperly installed; (ii) subjected to improper use or storage; (iii) used or incorporated with other materials or equipment, after Buyer or anyone using the goods has, or reasonably should have, knowledge of any defect or nonconformance of the Goods; or (iv) manufactured, fabricated or assembled by anyone other than Seller; (c) shall not be effective unless Buyer notifies Seller in writing of any purported defect or nonconformance within [thirty (30) days] after Buyer discovers or should have reasonably discovered such purported defect or nonconformance; and (d) shall only extend to Buyer and not to any subsequent buyers or users of the Goods. Buyer shall provide Seller access to the Goods as to which Buyer claims a purported defect or nonconformance; upon request by Seller, Buyer shall, at its own risk and expense, promptly return the Goods in question to Seller's Plant.

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 PRINTED IN U.S.A.
 MADE IN THE U.S.A.

Sensus also produces Industrial and Combustion Regulators; High Pressure, High Capacity Regulators; and Safety Relief Valves. Detailed information available upon request.



www.sensus.com/gas

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