

# Regulators

## Pressure Regulating Valve

**O-Series**  
Direct-Operated

Model	<b>O-Series</b>
Service	<b>Steam, Air, Water &amp; Other Liquids</b>
Sizes	<b>3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2", 2"</b>
Connections	<b>NPT</b>
Body Material	<b>Cast Iron</b>
Seat & Disc	<b>Hardened 420 Stainless Steel</b>
Diaphragm (for Steam)	<b>Phosphor Bronze - Steam</b>
Diaphragm (for Liquid or Air)	<b>Viton - Water, Air &amp; Oil (300°F max)</b>
<b>Max Inlet Pressure</b>	<b>250 PSIG</b>
<b>Min Inlet Pressure</b>	<b>15 PSIG</b>
<b>Max Differential Pressure</b>	<b>125 PSI</b>
<b>Min Differential Pressure</b>	<b>15 PSI</b>

### Design Pressure/Temperature Rating – PMA/TMA

NPT 250 PSIG @ 450°F



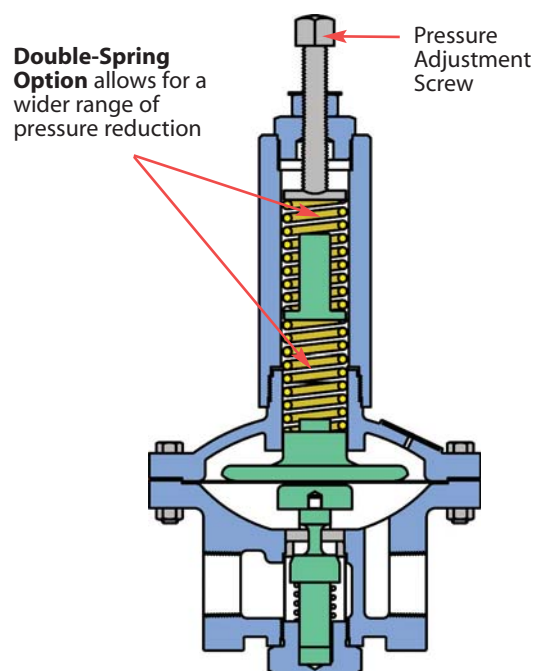
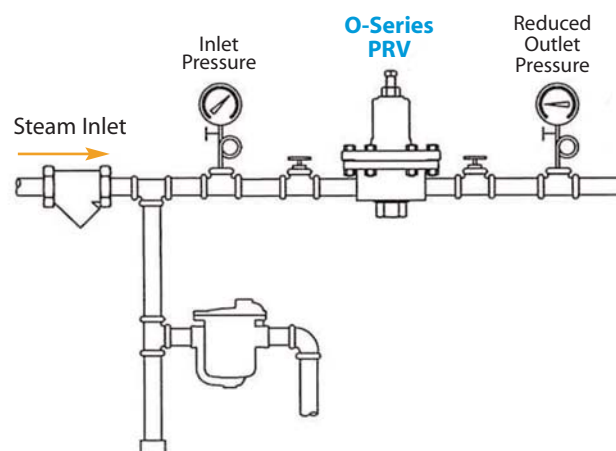
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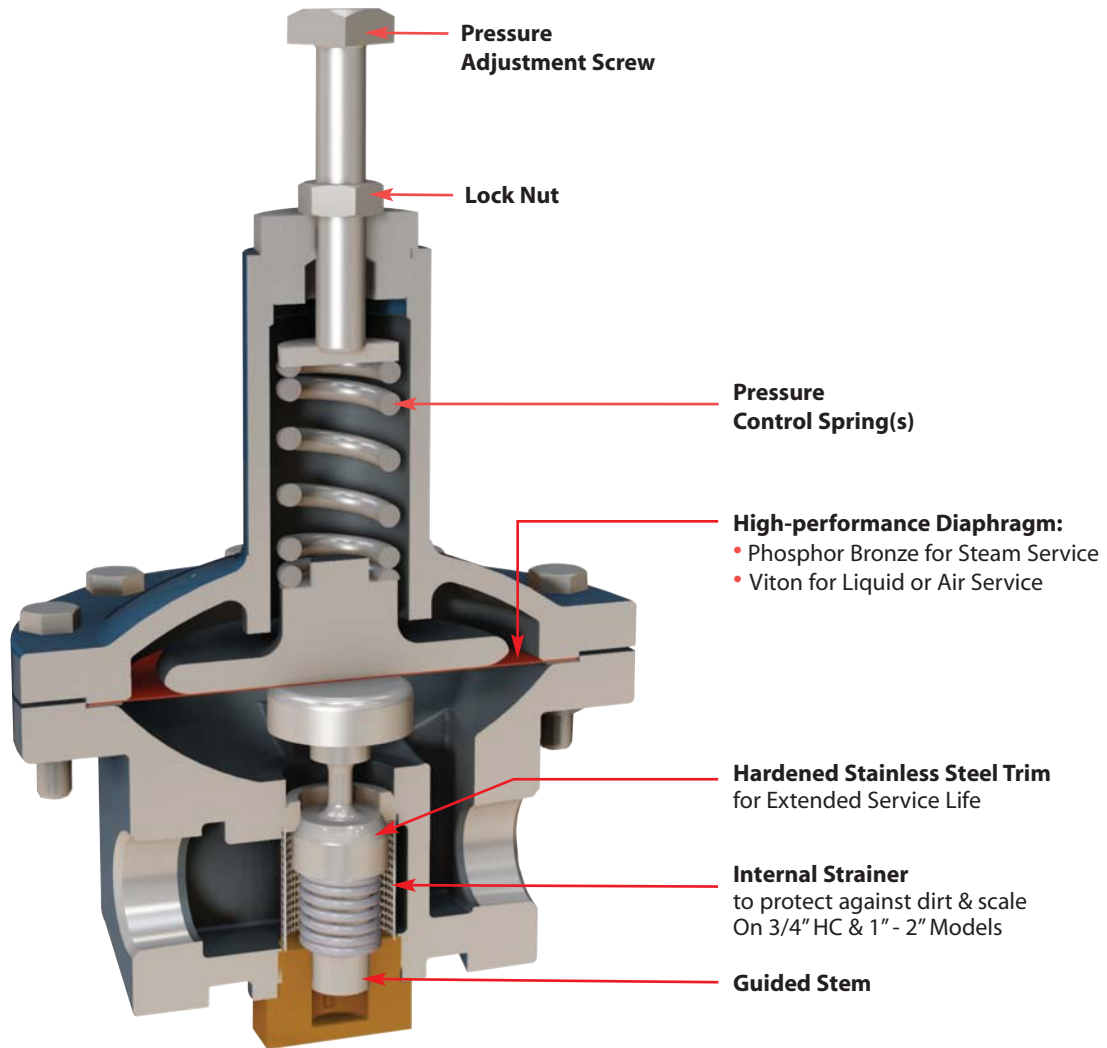
### Typical Applications

The **O-Series** direct-operated pressure regulators with heavy duty cast iron bodies and internal strainer are suitable for a wide range of applications in the low-to-moderate flow range. Applications include small heaters, humidifiers, various hospital equipment, tire molds, as well as many other general uses. This style of regulator does not require an external sensing line. Set pressure is controlled by turning an adjustment screw with lock nut that increases or decreases spring force above the diaphragm. Several spring ranges are available, depending upon the downstream pressure that needs to be maintained. O-Series contains hardened stainless steel seat and disc for extended service life. Phosphor Bronze Diaphragm specifically designed for Steam service is considered a preferred choice over Stainless Steel diaphragms which are prone to work-hardening and potential cracking. Viton diaphragms are specifically designed for water, air, gases and other liquid service and have a working temperature range up to 300°F.

### Features & Options

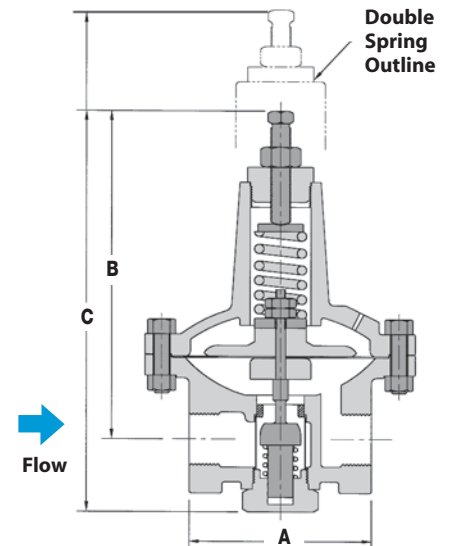
- Hardened stainless steel seat and disc for extended service life (55 Rc)
- Phosphor Bronze diaphragm for Steam Service
- Viton diaphragm for up to 300°F for Water, Oil & Air Service
- Double spring available for extended outlet pressure range
- Integral stainless steel strainer on 3/4" HC, 1", 1 1/4", 1 1/2" & 2"





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DIMENSIONS & WEIGHTS – inches					
Size	A	B	C		Weight (lbs)
			Single Spring	Double Spring	
3/8"	4 1/4	6 1/2	8	-	8
1/2"	3 5/8	6 1/2	8	-	8
3/4"	3 5/8	6 1/2	8	-	8
3/4" HC	3 5/8	8	10	12 1/2	15
1"	4 1/2	8 1/2	10 1/2	13	18
1 1/4"	4 1/2	8 1/2	10 1/2	13	18
1 1/2"	6 1/2	8 3/4	12	14 1/2	40
2"	6 1/2	8 3/4	12	14 1/2	40



### How to Size/Order

From the Capacity chart, find the inlet pressure and required regulator outlet pressure. Follow across chart to nearest capacity (steam, air, water) that meets or slightly exceeds demand requirements. Follow vertically up to determine appropriate size. When exact application values are not shown, interpolate between values. Select a model with the spring range that accommodates the required outlet set pressure.

#### Example:

Application: 200 lbs/hr of 100 PSIG Steam reduced to 30 PSIG  
 Model Code: **O-12-N-14-B** (1/2" O-Series, 10-50 PSIG spring range, NPT with Bronze Diaphragm for Steam)



		SINGLE Spring Only			Available with either SINGLE or DOUBLE Pressure Adjustment Spring(s)														
CAPACITIES		– Steam (lbs/hr); *Air (SCFM); *Water (GPM)																	
		Inlet/Outlet Pressures (PSIG)																	
Inlet Press.	Outlet Press.	3/8", 1/2", 3/4"			3/4" HC **			1"			1 1/4"			1 1/2"			2"		
		Steam	Air	Water	Steam	Air	Water	Steam	Air	Water	Steam	Air	Water	Steam	Air	Water	Steam	Air	Water
15	2	46	26	6	92	51	11	130	73	16	145	81	18	180	100	22	199	111	25
	5	38	21	4	75	42	9	106	59	13	119	66	14	147	82	18	163	91	19
20	5	65	36	8	130	72	15	184	102	22	205	114	25	254	141	30	281	156	34
	10	61	34	6	123	69	13	174	97	18	194	109	20	241	134	25	266	149	27
	15	45	25	4	90	51	9	128	72	13	143	80	14	177	99	18	196	109	19
30	5	83	46	10	167	93	20	236	131	28	264	147	32	327	181	39	362	201	43
	10	83	46	10	167	93	18	236	131	25	264	147	28	327	181	35	362	201	39
	20	71	40	6	142	79	13	201	112	18	225	126	20	278	155	25	308	172	27
50	5	121	67	13	242	134	27	342	190	38	382	212	42	473	263	53	523	291	58
	25	121	67	10	242	134	20	342	190	28	382	212	32	473	263	39	523	291	43
	40	87	49	6	174	97	13	247	138	18	276	154	20	341	191	25	377	211	27
100	30	214	119	17	428	238	33	607	337	47	678	376	53	839	466	66	928	515	73
	50	214	119	14	428	238	28	607	337	40	678	376	45	839	466	55	928	515	61
	70	195	109	11	275	154	18	390	218	25	436	244	28	540	301	35	597	333	39
125	30	261	145	19	522	290	39	739	410	55	826	458	62	1021	567	76	1130	627	84
	50	261	145	17	522	290	35	739	410	49	826	458	55	1021	567	68	1130	627	75
	70	261	145	15	522	290	30	739	410	42	826	458	47	1021	567	58	1130	627	64
	100	201	112	10	402	225	20	569	318	28	636	355	32	787	440	39	871	486	43
150	30	307	171	22	615	341	44	871	484	62	974	540	69	1204	668	86	1332	740	95
	50	307	171	20	615	341	40	871	484	57	974	540	63	1204	668	78	1332	740	87
	70	307	171	18	615	341	36	871	484	51	974	540	57	1204	668	70	1332	740	78
	100	298	166	14	596	333	28	844	471	40	943	527	45	1167	652	55	1291	721	61
	120	239	133	11	478	267	22	677	378	31	756	422	35	935	523	43	1035	578	47
200	30	401	222	26	802	445	52	1135	630	74	1269	705	83	1570	871	102	1737	964	113
	50	401	222	24	802	445	49	1135	630	69	1269	705	78	1570	871	96	1737	964	106
	70	401	222	23	802	445	46	1135	630	65	1269	705	72	1570	871	89	1737	964	99
	100	401	222	20	802	445	40	1135	630	57	1269	705	63	1570	871	78	1737	964	87
250	50	494	274	28	988	549	57	1400	777	80	1565	869	90	1935	1074	111	2141	1189	123
	70	494	274	27	988	549	54	1400	777	76	1565	869	85	1935	1074	105	2141	1189	116
	125	494	274	22	988	549	45	1400	777	63	1565	869	71	1935	1074	88	2141	1189	97

\* Air and water capacities are based on using elastomeric diaphragms.

\*\* 3/4" HC is high-capacity version of standard 3/4" valve.

Note: For capacities of other gases multiply the air capacities by the following factors: Argon–0.85 CO<sub>2</sub>–0.81 Helium–2.69 Nitrogen–1.02

# Regulators

## Pressure Regulating Valve

**O-Series**  
Direct-Operated

### Pressure Regulating Valves for

**Steam:** Phosphor Bronze Diaphragm

**Water, Oil, Air:** Viton Diaphragm

The **O-Series** with Cast Iron body and Hardened Stainless internals, is our most popular and economical solution for reducing pressure in STEAM systems. It is also suitable for Air, Water, Oil as well as other Liquids and Gases. When used on STEAM Applications, the valve must be specified with a Phosphor Bronze Diaphragm (Suffix Code **B**). When used on Air, Water & Oil or other Liquid Applications, the valve must be specified with a Viton Diaphragm (Suffix Code **V**).

#### Important Application Note:

- Use Phosphor Bronze Diaphragms for Steam.
- Use Viton diaphragms for Water, Air and Oil Applications.

Phosphor Bronze Diaphragms may fracture if used on Liquid Service. Use for Steam Only.

#### Diaphragm Code:

**B** - Phosphor Bronze for Steam Service

**V** - Viton (300 °F Max) for Air & Other Liquids

#### Example Model Codes:

- 1) **O-13-N-14-B**  
(O-Series, 3/4" NPT, 10-50 PSI, Single Spring, **Phosphor Bronze Diaphragm**)
- 2) **O-13-N-14-V**  
(O-Series, 3/4" NPT, 10-50 PSI, Single Spring, **Viton Diaphragm**)

Size/ Connection NPT	Reduced Pressure Range (PSI)	STEAM	Water • Oil • Air	Weight lbs
		Model Code	Model Code	
<b>SINGLE SPRING</b>		<b>STEAM</b>	<b>Water • Oil • Air</b>	
3/8"	0-10	O-11-N-13-B	O-11-N-13-V	10
	10-50	O-11-N-14-B	O-11-N-14-V	10
	40-100	O-11-N-09-B	O-11-N-09-V	10
	100-200	O-11-N-10-B	O-11-N-10-V	10
1/2"	0-10	O-12-N-13-B	O-12-N-13-V	10
	10-50	O-12-N-14-B	O-12-N-14-V	10
	40-100	O-12-N-09-B	O-12-N-09-V	10
	100-200	O-12-N-10-B	O-12-N-10-V	10
3/4"	0-10	O-13-N-13-B	O-13-N-13-V	10
	10-50	O-13-N-14-B	O-13-N-14-V	10
	40-100	O-13-N-09-B	O-13-N-09-V	10
	100-200	O-13-N-10-B	O-13-N-10-V	10
<b>SINGLE SPRING</b>		<b>STEAM</b>	<b>Water • Oil • Air</b>	
3/4" HC	0-10	OHC-13-N-0003-B	OHC-13-N-0003-V	15
	10-30	OHC-13-N-0004-B	OHC-13-N-0004-V	15
	30-50	OHC-13-N-0005-B	OHC-13-N-0005-V	15
	40-85	OHC-13-N-0006-B	OHC-13-N-0006-V	15
1"	0-10	O-14-N-0007-B	O-14-N-0007-V	19
	10-30	O-14-N-0008-B	O-14-N-0008-V	19
	30-50	O-14-N-0009-B	O-14-N-0009-V	19
	40-85	O-14-N-0010-B	O-14-N-0010-V	19
1 1/4"	0-10	O-15-N-0007-B	O-15-N-0007-V	18
	10-30	O-15-N-0008-B	O-15-N-0008-V	18
	30-50	O-15-N-0009-B	O-15-N-0009-V	18
	40-85	O-15-N-0010-B	O-15-N-0010-V	18
1 1/2"	0-10	O-16-N-0008-B	O-16-N-0008-V	47
	10-30	O-16-N-0009-B	O-16-N-0009-V	47
	30-50	O-16-N-0010-B	O-16-N-0010-V	47
	40-85	O-16-N-0011-B	O-16-N-0011-V	47
2"	0-10	O-17-N-0008-B	O-17-N-0008-V	48
	10-30	O-17-N-0009-B	O-17-N-0009-V	48
	30-50	O-17-N-0010-B	O-17-N-0010-V	48
	40-85	O-17-N-0011-B	O-17-N-0011-V	48
<b>DOUBLE SPRING</b>		<b>STEAM</b>	<b>Water • Oil • Air</b>	
3/4" HC	0-75	OHC-13-N-0708-B	OHC-13-N-0708-V	19
	30-130	OHC-13-N-0809-B	OHC-13-N-0809-V	19
1"	0-75	O-14-N-0809-B	O-14-N-0809-V	22
	30-130	O-14-N-0910-B	O-14-N-0910-V	22
1 1/4"	0-75	O-15-N-0809-B	O-15-N-0809-V	22
	30-130	O-15-N-0910-B	O-15-N-0910-V	22
1 1/2"	0-75	O-16-N-0809-B	O-16-N-0809-V	48
	30-130	O-16-N-0910-B	O-16-N-0910-V	48
2"	0-75	O-17-N-0809-B	O-17-N-0809-V	48
	30-130	O-17-N-0910-B	O-17-N-0910-V	48

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