

Regulators

Pressure Regulating Valve

455 Series

Direct-Operated

Model	455 Series
Service	Steam, Water, Air & Other Gases
Sizes	1/2", 3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2", 3", 4"
Connections	NPT, 125# FLG, 250# FLG
Body Material	1/2"– 2" SS Body/Brass Stuffing Box 2 1/2"– 4" Cast Iron
Seat & Disc	Stainless Steel
Diaphragm	Viton
Max Inlet Pressure	250 PSIG
Min Inlet Pressure	5 PSIG
Max Differential Pressure	125 PSI
Min Differential Pressure	20% of Inlet Pressure

Design Pressure/Temperature Rating – PMA/TMA

NPT	250 PSIG	@ 400°F
125# FLG	125 PSIG	@ 450°F
250# FLG	250 PSIG	@ 450°F



Note:
Flange selection may reduce pressure/temperature ratings.

Size/Connection	Model Code *	Body Material	Weight lbs
STEAM Applications - 455			
1/2" NPT	455-12-N-X	SST	15
3/4" NPT	455-13-N-X	SST	15
1" NPT	455-14-N-X	SST	15
1 1/4" NPT	455-15-N-X	SST	18
1 1/2" NPT	455-16-N-X	SST	18
2" NPT	455-17-N-X	SST	29
2" 150# FLG	455-17-F150-X	SST	41
2" 300# FLG	455-17-F300-X	SST	45
2 1/2" 125# FLG	455-18-F125-X	Cast Iron	105
2 1/2" 250# FLG	455-18-F250-X	Cast Iron	105
3" 125# FLG	455-19-F125-X	Cast Iron	125
3" 250# FLG	455-19-F250-X	Cast Iron	125
4" 125# FLG	455-20-F125-X	Cast Iron	175
4" 250# FLG	455-20-F250-X	Cast Iron	175

X=Spring Code (reference Spring Selection Table).

Typical Applications

The **455 Series** direct-operated pressure regulating valves are used for pressure reduction applications on steam, air and other gases. Balanced seat and disc design allows these valves to be used in applications with low inlet pressure; down to 5 PSIG. Unlike pilot-operated valves, the 455 does not contain any small pilot orifices and are therefore less susceptible to issues caused by dirt and pipe scale. The 455-Series is installed using an external sensing line which is connected several feet downstream of the valve. Placing the pressure sensing line out of range of valve discharge turbulence improves accuracy of downstream pressure.

Features

- Operates with minimum inlet pressure of 5 PSIG
- Stainless steel internals
- Excellent for use in steam systems that contain excessive amounts of pipe scale and other contaminants
- Pressure balanced valve & seat for more precise control of downstream pressure

Options & Notes:

Must Specify Spring Code when Ordering:

Use the 455 Spring Selection Table to specify the proper spring(s) based on valve size and reduced pressure range by Replacing the "X" with Spring Code from chart.

Example Model Codes:

- 1) **455-15-N-65**
(455 Series, 1 1/4" NPT, 1-6 PSIG outlet pressure)
- 2) **455-18-F125-73**
(455 Series, 2 1/2" 125# Flanged, 40-70 PSIG outlet pressure)

455 Spring Selection Table

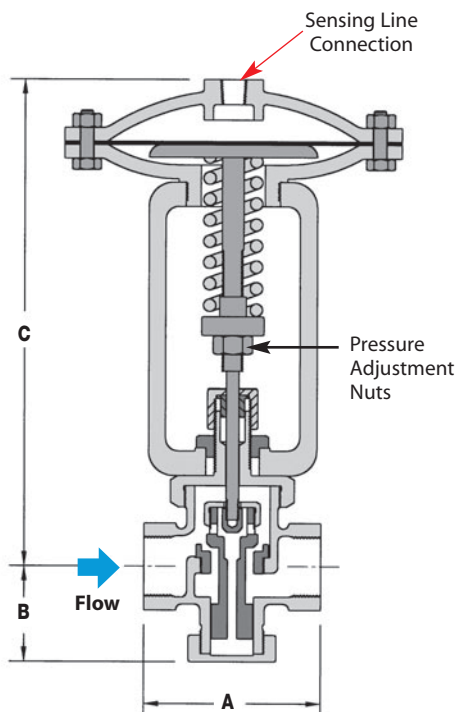
Size	Reduced Outlet Pressure (PSI)	Spring Case Dia. (in.)	Spring #	Code = X
1/2" – 2"	1 - 6	6	#5	65
	5 - 20	6	#3	63
	15 - 45	6	#2	62
	40 - 70	6	#1	61
	60 - 125	5	#1	51
3" – 4"	1 - 6	13	#4	134
	5 - 20	9	#4	94
	15 - 45	9	#3	93
	40 - 70	7	#3	73
	60 - 125	7	#2	72

Regulators

Pressure Regulating Valve

455 Series

Direct-Operated



DIMENSIONS — inches

Size	Face-to-Face A			B	C	Sensing Line Connection NPT
	NPT Threaded	125# Flanged	250# Flanged			
1/2"	4 1/4			2 3/8	10 1/4	1/4"
3/4"	4 1/4			2 3/8	10 1/4	1/4"
1"	4 1/8			2 3/8	10 1/4	1/4"
1 1/4"	5			3 1/8	10 3/4	1/4"
1 1/2"	5 1/4			3 3/8	11	1/4"
2"	6 5/8	10*	10 1/2*	3 3/8	12 3/16	1/4"
2 1/2"		10 5/8	11 1/4	6 1/4	18 3/4	3/8"
3"		10 7/8	11 5/8	7 1/8	19 1/4	3/8"
4"		12 1/2	13 1/8	8 1/4	20	3/8"

*Note: 2" 455 flanges are 150# or 300#.

How to Size/Order

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

Example:

Application: 1000 lbs/hr of 20 PSIG Steam reduced to 5 PSIG
Model Code: **455-16-N-65** (455-Series, 1 1/2" NPT, 1-6 PSIG spring range)

CAPACITIES — Steam (lbs/hr); Water (GPM)

Inlet/Outlet Pressures (PSIG)

Inlet Press.	Outlet Press.	1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		2 1/2"		3"		4"	
		Steam	Water	Steam	Water	Steam	Water	Steam	Water	Steam	Water	Steam	Water	Steam	Water	Steam	Water	Steam	Water
5	2	53	4.3	95	7.8	191	15.6	276	22.5	403	33.0	572	47.0	890	73.0	1166	95.0	1484	121
10	2	95	7.1	171	12.7	342	25.0	494	37.0	722	54.0	1026	76.0	1596	119	2090	156	2660	198
	5	73	5.6	131	10.1	263	20.0	380	29.0	555	42.0	788	60.0	1226	94.0	1606	123	2044	157
20	0-5	157	9.7	283	17.4	565	35.0	816	50.0	1193	75.0	1696	105	2638	163	3454	213	4396	271
	10	125	7.9	225	14.2	450	28.0	650	41.0	950	60.0	1350	85.0	2100	133	2750	174	3500	221
30	0-10	200	11.2	360	20.1	720	40.0	1040	58.0	1520	85.0	2160	121	3360	188	4400	246	5600	313
	20	145	7.9	261	14.2	522	28.0	754	41.0	1102	60.0	1566	85.0	2436	133	3190	174	4060	221
	25	107	5.6	193	10.1	385	20.0	556	29.0	813	42.0	1156	60.0	1798	94.0	2354	123	2996	157
50	0-20	295	13.7	531	24.6	1062	49.0	1534	71.0	2242	104	3186	148	4956	230	6490	301	8260	383
	30	245	11.2	441	20.1	882	40.0	1274	58.0	1862	85.0	2646	121	4116	188	5390	247	6860	313
	40	185	7.9	333	14.2	666	28.0	962	41.0	1406	60.0	1998	85.0	3108	133	4070	174	5180	221
75	0-30	402	16.8	724	30.2	1447	60.0	2090	87.0	3055	127	4342	181	6754	282	8844	369	11256	470
	50	327	12.5	589	22.5	1177	45.0	1700	65.0	2485	95.0	3532	135	5494	210	7194	275	9156	350
	60	255	9.7	459	17.4	918	35.0	1326	50.0	1938	74.0	2754	105	4284	163	5610	213	7140	271
100	0-50	522	17.7	940	31.8	1879	64.0	2714	92.0	3967	134	5638	191	8770	297	11484	389	14616	495
	60	455	15.8	819	28.5	1638	57.0	2366	82.0	3458	120	4914	171	7644	266	10010	348	12740	443
	80	325	11.2	585	20.1	1170	40.0	1690	58.0	2470	85.0	3510	121	5460	188	7150	246	9100	313
125	0-60	635	20.2	1143	36.3	2286	73.0	3302	105	4826	153	6858	218	10668	339	13970	443	17780	564
	70	575	18.5	1035	33.4	2070	67.0	2990	96.0	4370	141	6210	200	9660	311	12650	408	16100	519
	100	420	12.5	756	22.5	1512	45.0	2184	65.0	3192	95.0	4536	135	7056	210	9240	275	11760	350
150	0-70	750	22.4	1350	40.2	2700	80.0	3900	116	5700	170	8100	241	12600	376	16500	492	21000	626
	100	612	17.7	1102	31.8	2203	64.0	3182	92.0	4651	134	6610	191	10282	297	13464	389	17136	495
	125	435	12.5	783	22.5	1566	45.0	2262	65.0	3306	95	4698	135	7308	210	9570	275	12180	350
200	0-100	977	25.0	1759	45.0	3517	90.0	5080	130	7425	190	10552	270	16414	420	21494	550	27356	700
	125	850	21.7	1530	39.0	3060	78.0	4420	113	6460	165	9180	234	14280	364	18700	476	23800	606
250	0-125	1180	28.0	2124	50.3	4248	101	6136	145	8968	212	12744	302	19824	470	25960	615	33040	783

Note: Air in SCFM (Standard Cubic Feet per Minute) = Steam (lbs/hr) x 0.36