

## North American Pressure-reducing Gas Regulators

**7349A Pressure-Reducing Gas Regulators** are low pressure step down regulators used in industrial combustion ovens and furnaces. They provide a highly accurate and constant supply pressure to fuel gas control components used on burners and pilots regardless of changes in inlet pressure or demand. One of four different color coded springs can be selected for specific outlet pressures ranging from 1 to 24 osi. The 7349A regulators have a maximum inlet operating pressure of 5 psi and can maintain consistent pressures at very low flows making them ideal for high turn down applications.

**TABLE A. Pressures and Temperatures.**

Inlet pressure--5 psig maximum.

Outlet pressure--available in 4 ranges, specify:

- "Y" Spring (yellow) .....for 1 to 4 osi range
- "A" Spring (aluminum).....for 3 to 8 osi range
- "G" Spring (green) .....for 7 to 16 osi range
- "R" Spring (red).....for 14 to 24 osi range

The standard 7349A Regulator has internal downstream pressure sensing and is suitable for 180 F maximum ambient temperature. For ambients up to 300 F with cool gas flowing, the 7349A- V Regulator is available with FKM diaphragms. The 7349A is also available with remote downstream sensing as a standard. Specify 7349A- S. Gas capacities of 7349A- S and -V Regulators are same as corresponding standard versions.



Figure 1. 7349A Pressure-Reducing Gas Regulator.

### INSTALLATION

Mount in horizontal lines with the adjustment spring up. Figure 2 shows a 7349A Regulator with a cross-connected 7218 Regulator. To avoid interaction, allow a run of 15 or more pipe diameters between the regulators. See Figure 6 for installation of 7349A -S regulators. **Never locate the remote tap downstream of another regulator or control valve.** Be sure pipe downstream of the regulator is adequately sized. Pipe of a larger size than the regulator connection is often necessary. To determine the pipe size needed, see **North American Combustion Handbook**, Third Edition, Vol. I.

### ADJUSTING INSTRUCTIONS

Pull off the cap and, with a wrench, turn the adjusting screw clockwise to increase outlet pressure (counterclockwise to decrease outlet pressure). The spring, not the screw, moves up and down. To avoid exceeding the spring range, make adjustments only under flow conditions with a pressure gauge on the outlet tap of the regulator. Turning the screw down too tightly can prevent the regulator from closing. **Caution:** When changing springs, turn adjusting screw counterclockwise to relax spring before removing 3 socket head cap screws.

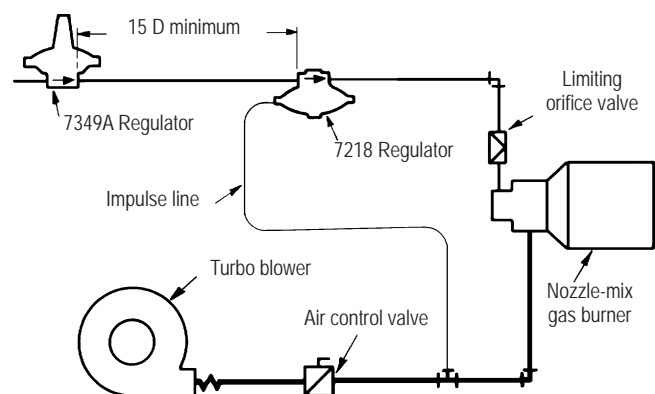


Figure 2. Typical Pipe Arrangement for 7349A and 7218 Regulators.

**Table B. 7349A Capacities**

**Natural Gas Capacities in SCFH (0.6 SG)**

Size	Inlet Pressure (osi)	Outlet Pressure Setting osi.						
		4	8	10	14	16	20	24
7349A-01	16	698	570	494	285			
	32	1066	987	945	855	806	698	570
	48	1337	1275	1242	1175	1140	1066	987
	64	1561	1508	1481	1425	1396	1337	1275
	80	1757	1710	1686	1637	1612	1561	1508
7349A-0	16	1323	1080	935	540			
	32	2020	1871	1791	1620	1527	1323	1080
	48	2533	2415	2354	2226	2160	2020	1871
	64	2958	2857	2806	2700	2645	2533	2415
	80	3329	3240	3195	3102	3055	2958	2857
7349A-1	16	1715	1400	1212	700			
	32	2619	2425	2322	2100	1980	1715	1400
	48	3283	3130	3051	2886	2800	2619	2425
	64	3834	3704	3637	3500	3429	3283	3130
	80	4315	4200	4141	4021	3960	3834	3704
7349A-2	16	4238	3460	2996	1730			
	32	6473	5993	5738	5190	4893	4238	3460
	48	8114	7737	7541	7133	6920	6473	5993
	64	9476	9154	8989	8650	8475	8114	7737
	80	10664	10380	10235	9938	9786	9476	9154
7349A-3	16	6859	5600	4850	2800			
	32	10477	9699	9287	8400	7920	6859	5600
	48	13133	12522	12205	11545	11200	10477	9699
	64	15336	14816	14549	14000	13717	13133	12522
	80	17260	16800	16565	16085	15839	15336	14816
7349A-4	16	11758	9600	8314	4800			
	32	17960	16628	15920	14400	13576	11758	9600
	48	22514	21466	20923	19791	19200	17960	16628
	64	26291	25399	24942	24000	23515	22514	21466
	80	29589	28800	28397	27574	27153	26291	25399
7349A-5	16	16901	13800	11951	6900			
	32	25817	23902	22885	20700	19516	16901	13800
	48	32364	30858	30076	28449	27600	25817	23902
	64	37793	36511	35853	34500	33803	32364	30858
	80	42534	41400	40821	39637	39032	37793	36511
7349A-6	16	22290	18200	15762	9100			
	32	34049	31523	30181	27300	25739	22290	18200
	48	42683	40696	39666	37520	36400	34049	31523
	64	49843	48153	47285	45500	44581	42683	40696
	80	56096	54600	53836	52276	51477	49843	48153
7349A-7	16	43111	35200	30484	17600			
	32	65853	60968	58373	52800	49780	43111	35200
	48	82551	78710	76717	72567	70400	65853	60968
	64	96399	93130	91452	88000	86222	82551	78710
	80	108494	105600	104123	101104	99561	96399	93130

**SELECTION**

Capacities for 7349A and 7349A- -S models are identical, and both hold outlet pressures with the same degree of accuracy. Use the 7349A- -S to maintain downstream gas pressure at a point remote from the regulator itself. Select 7349A- -V for high ambient temperature applications.

When selecting a regulator for other than natural gas, divide required flow by the appropriate gas gravity factor (Table C) and use the resulting equivalent flow to size the regulator from Figure 3.

**TABLE C. Regulator capacity correction factors for different gas gravities.**

Gas (typical)	Coke oven	Natural	Air	Propane	Butane
Gas Gravity	0.4	0.6	1.0	1.5	2.0
Factor	1.22	1.00	0.774	0.632	0.547

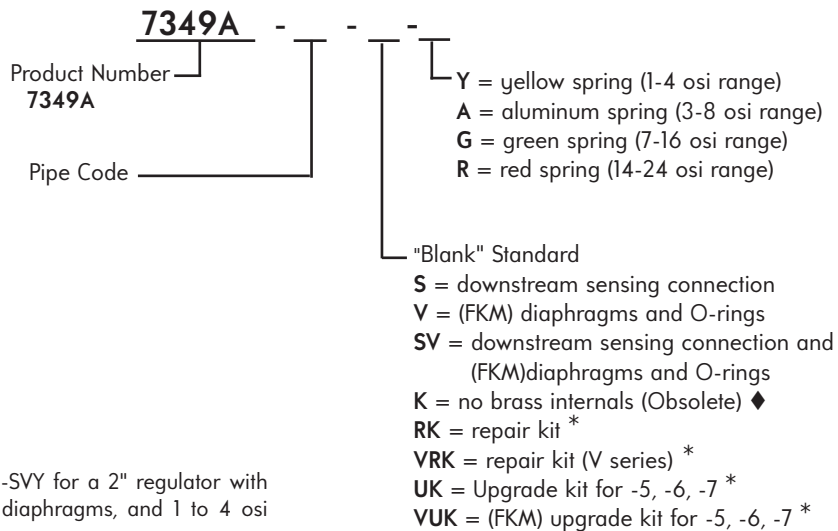
**Sizing Example:** Select a regulator for 39,000 scfh of Coke Oven Gas with 50 osi inlet pressure and an outlet pressure of 18 osi.

**Solution:** Correct 39,000 scfh of coke oven gas to the natural gas equivalent by dividing 39,000 scfh by the correction factor of 1.22 found in Table C. (39,000 ÷ 1.22 = 31,967 scfh natural gas equivalence). Using table B, select the desired outlet pressure column, or next highest available. 18 osi is unavailable, therefore use the 20 osi column. Select desired inlet pressure, or next lowest available, from the inlet pressure column. 50 osi is unavailable therefore use the 48 osi row. Follow the 48 osi inlet pressure row until it intersects with the 20 osi outlet column to determine maximum gas flow of each size regulator. Select the smallest regulator that will flow 31,967 scfh natural gas or more. Select the 7349A-6 which will pass 34,049 scfh natural gas with 48 osi inlet pressure and 20 osi outlet pressure. From table A, select the red spring "R" to provide an outlet pressure of 18 osi. Specify a 7349A-6-R.

## SPECIFICATIONS

<b>Diaphragm Cover and Case:</b> Aluminum	<b>Maximum Inlet Pressure:</b> 5 psi
<b>Body:</b> Cast Iron	<b>Maximum Ambient Temperature:</b> 180° F (Standard) 350° F (7349A-V)
<b>Seat:</b> SST	<b>Minimum Ambient Temperature:</b> -20° F (standard and -V)
<b>Shaft:</b> SST	
<b>Balancing Diaphragm:</b> BUNA/Nylon (Standard) FKM/Polyester (7349A-V)	
<b>Gas Diaphragm:</b> BUNA/Nylon (Standard) FKM/Nomex (7349A-V)	

## ORDERING INSTRUCTIONS

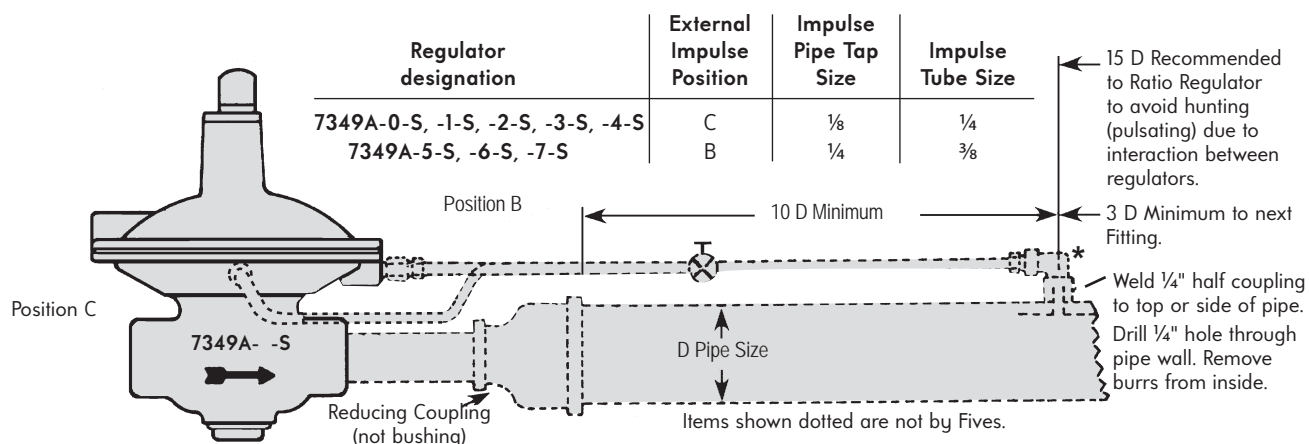


**Example, specify:** 7349A-4-SVY for a 2" regulator with external impulse tap, Viton diaphragms, and 1 to 4 osi outlet range.

- ♦ The "Standard" regulator comes with no brass internals, and can be used in place of the obsolete -K model.
- \* For repair and upgrade kits see **Sheet 7216/7218/7219A/7349A**.

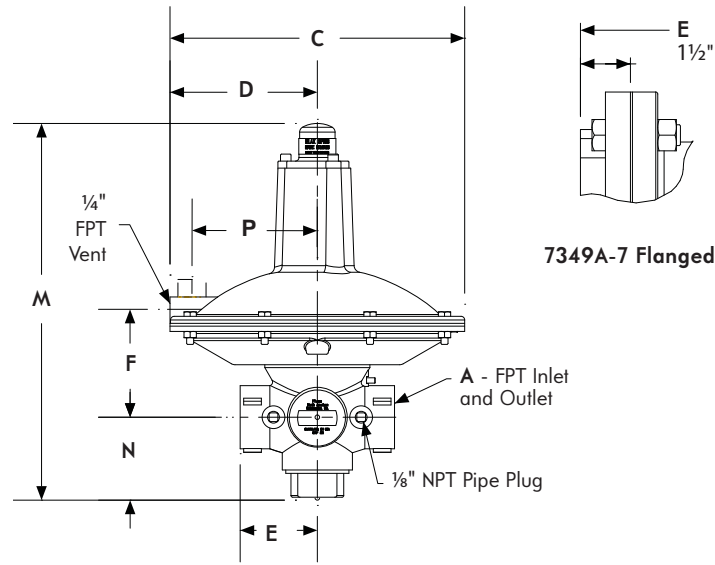
## INSTALLATION

**Figure 5.** Installation of 7349A- -S with External Impulse Tap



\*Never locate the remote tap downstream of another regulator or control valve.

DIMENSIONS



Regulator designation	dimensions in inches								wt, lb
	A	C	D	E	F	M	N	P	
7349A-01	1/2	7 1/2	3 3/4	2 1/2	—	9 3/32	2 1/4	2 11/16	7.5
7349A-0	3/4	7 1/2	3 3/4	2 1/2	—	9 3/32	2 1/4	2 11/16	7.5
7349A-1	1	7 1/2	3 3/4	2 3/4	—	9 3/16	2 7/16	2 11/16	8
7349A-2	1 1/4	10 1/2	5 1/4	2 3/4	—	13 5/16	3	3 5/16	12
7349A-3	1 1/2	10 1/2	5 1/4	3 1/16	—	13 7/16	3 1/8	3 5/16	13
7349A-4	2	13 1/2	6 3/4	3 5/16	—	16	3 3/8	5 1/4	17
7349A-5	2 1/2	18 1/2	9 1/4	4 1/2	6 7/16	21 5/32	4	—	38
7349A-6	3	18 1/2	9 1/4	4 13/16	6 7/16	21 21/32	4 1/2	—	40
7349A-7*	4	18 1/2	9 1/4	8 21/32	7 1/8	23 13/32	5 3/4	—	84

Figure 6. Dimensions of 7349A Regulators.

\* 7349A-7 4" regulator is applied with threaded companion flanges and gaskets.

DIMENSIONS SHOWN ARE SUBJECT TO CHANGE. PLEASE OBTAIN CERTIFIED PRINTS FROM FIVES NORTH AMERICAN COMBUSTION, INC. IF SPACE LIMITATIONS OR OTHER CONSIDERATIONS MAKE EXACT DIMENSION(S) CRITICAL.

**WARNING:** Situations dangerous to personnel and property may exist with the operation and maintenance of any combustion equipment. The presence of fuels, oxidants, hot and cold combustion products, hot surfaces, electrical power in control and ignition circuits, etc., are inherent with any combustion application. Parts of this product may exceed 160F in operation and present a contact hazard. Fives North American Combustion, Inc. urges compliance with National Safety Standards and Insurance Underwriters' recommendations, and care in operation.



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