

# MAXITROL

## 325-7L210D Line Pressure Regulators and over-pressure protection devices (OPD)



CSA Design Certified  
Z21.80 / CAN 6.22

**Maximum Inlet Pressure:**

CSA Certified .....5 psi (140 mbar)

**Minimum Inlet Pressure**

CSA Certified.....1.5 psi (103 mbar)

**Emergency Exposure Limits:**

(inlet side only) ..... 65 psi (4.5 bar)

**Outlet Pressure Range:**

Certified spring ..... 7 - 11 inches w.c.

**Maximum Individual Load:**

Largest single appliance served (by the regulator)

325-7L (1 1/4", 1 1/2") ..... 900,000 Btu/hr

Largest single appliance served (regulator with OPD)

325-7L210 (1 1/4", 1 1/2") ..... 900,000 Btu/hr

**Capacity:**

Total load of all appliances combined (regulator)

325-7L (1 1/4", 1 1/2") ..... 1,000,000 Btu/hr

Total load of all appliances combined (regulator with OPD)

325-7L210 (1 1/4", 1 1/2") ..... 900,000 Btu/hr

**Venting:**

325-7L ..... 1/2" NPT

OPD210 ..... 1/2" NPT

**Pressure Drop: (1")** ..... 250,000 Btu/hr

**Gases:**

Intended for application in natural gas piping systems up to 5 psi.

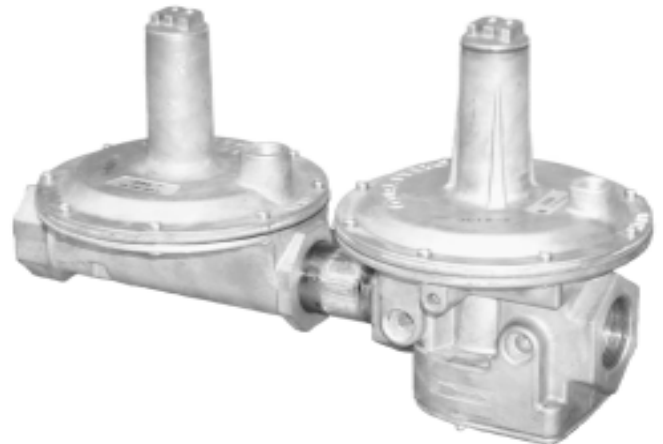
**Ambient Temperature Limits:**

-40° to 205°F (0° to 96°C)

**Note:** All Maxitrol gas appliance regulators must be installed and operated in accordance with Maxitrol's 'Safety Warning' bulletin. There is no vent limiter available for the 325-7L210D.

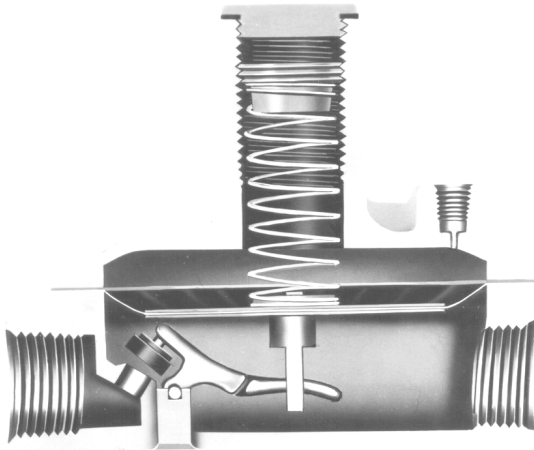
For piping systems  
up to 5-psi

**Attention:** To comply with the ANSI Z21.80 Standard for Line Pressure Regulators, installations exceeding 2-psi nominal require a tested and approved over-pressure protection device (OPD) for use with the regulator.



# Line Regulators with OPDs

## 325 Series



### FEATURES:

- CSA certified for up to 5-psi inlet pressure...
- Over-pressure protection device (OPD) to limit downstream pressure in case of regulator failure...
- Maxitrol OPD approved and tested with the regulator...
- Self-aligning valve with lever action for dead end regulator lockup...

### BENEFITS:

- Meets new ANSI standard Z21.80 for line pressure regulators for use on piping systems such as CSST or semi-rigid copper tubing up to 5-psi...
- OPD provides required downstream over-pressure protection for supply pressures in excess of 2-psi...
- Pounds to inches regulator provides precise control from pilot flows to full regulator capacity...
- Meets many utility specifications...

## The new line pressure regulator standard - ANSI Z21.80

Although Maxitrol's 325 Series are certified (ANSI Z21.18) as *appliance* regulators (see bulletin 325LVR\_MS\_EN), in the past they have often been used as *line* pressure regulators. Until very recently, there was no standard for line pressure regulators.

Z21.80 is the new ANSI standard for line pressure regulators, intended for application in natural gas piping systems. As of May 1, 2002, CSA requires that all line pressure regulators above 2-psi must leave the factory pre-assembled and leak tested. At supply pressures in excess of 2-psi, the new line regulator standard requires a means (an over-pressure protection device / OPD) — approved and tested with the regulator — to limit the downstream pressure to 2-psi maximum, in the event of regulator failure. ***In other words, to comply with the standard, installations exceeding 2-psi nominal require a tested and approved over-pressure protection device for use with the regulator.*** Maxitrol-built OPDs provide the required downstream over-pressure protection.

The 325 Series are suitable for limited horizontal mounting (less than or equal to 90° from upright). Install the regulator properly with gas flowing as indicated by the arrow on the casting. The 210 OPD must be installed in a horizontal position.

To deliver positive dead-end lock up, the 325 Series feature a high leverage valve linkage assembly. Lockup pressure can vary with the speed of the solenoid valve and its location. The regulators are capable of precise regulating control from full flow down to pilot flows.

The self-aligning valve is made of nitrile rubber. Housings are durable aluminum die castings and all internal parts are carefully selected and corrosion resistant. The diaphragms are of high quality supported synthetic rubber compounds.

The regulator with OPD is certified for inlet pressures up to 5-psi. The regulator alone provides no downstream over-pressure protection in the event of failure.

Other 325 Series regulators will continue to be available as CSA certified *appliance* regulators, as well as non-certified models for up to 10-psi inlet pressure (see bulletin 325LVR\_MS\_EN).

# Capacities and Pressure Drop - 2-psi applications, regulator, regulator with OPD

## CAPACITIES - 0.64 sp gr gas expressed in CFH (m³/h)

Model Number (pipe size)	Outlet Pressure Set Point	Operating Inlet Pressure	
		1½ psi (103 mbar)	2 psi (138 mbar)
<b>325-7L</b> (1 ¼", 1 ½")	7.0"	1000 (28.3)	1000 (28.3)
	10.0"	1000 (28.3)	1000 (28.3)
<b>325-7L210</b> (1 ¼", 1 ½")	7.0"	900 (25.5)	900 (25.5)
	10.0"	900 (25.5)	900 (25.5)

### Capacity:

Total load of all appliances combined

325-7L (1 ¼", 1 ½") ..... 1,000,000 Btu/hr

325-7L210 (1 ¼", 1 ½") ..... 900,000 Btu/hr

### Maximum Individual Load:

Largest single appliance served by the regulator

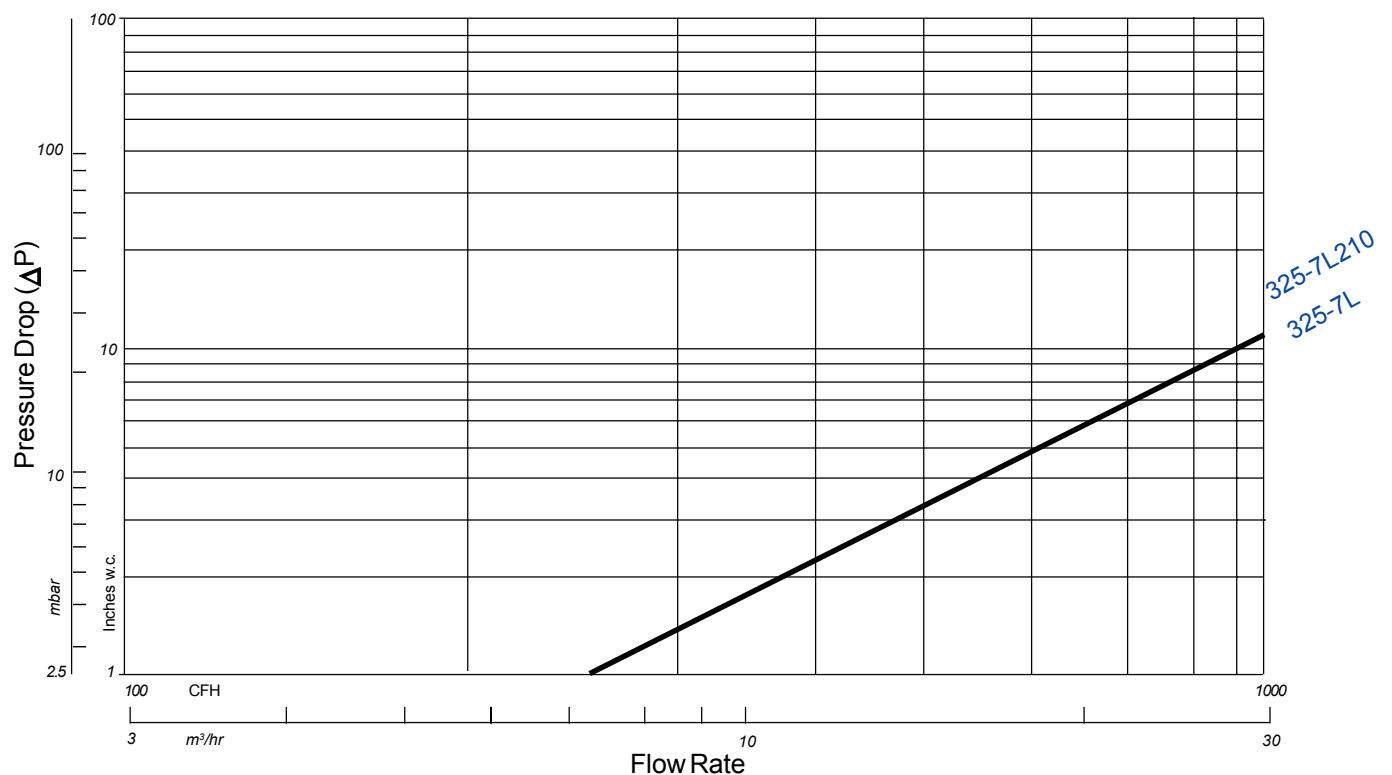
325-7L (1 ¼", 1 ½") ..... 900,000 Btu/hr

325-7L210 (1 ¼", 1 ½") ..... 900,000 Btu/hr

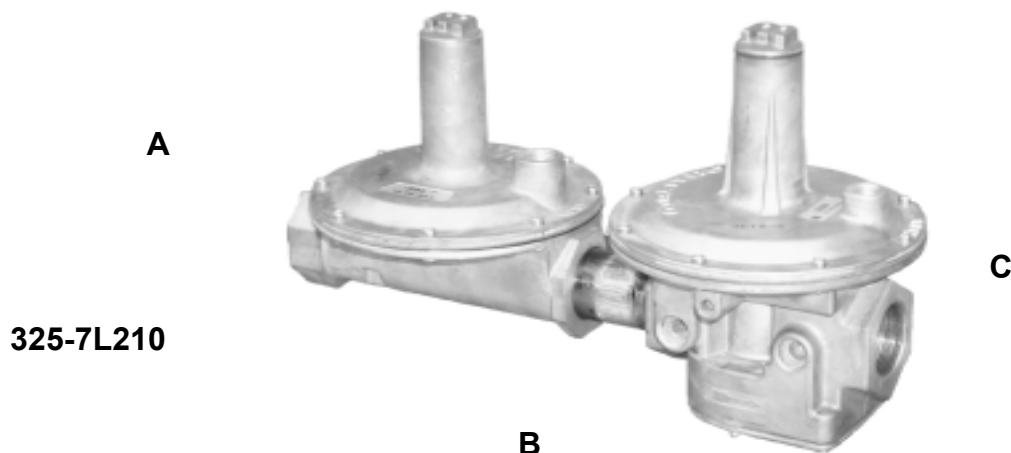
## PRESSURE DROP - 0.64 sp gr gas expressed in CFH (m³/h)

Model Number (pipe size)	7.0" w.c. (17 mbar)	1/2 psi (34 mbar)	3/4 psi (52 mbar)
<b>325-7L</b> (1 ¼", 1 ½")	695 (19.7)	975 (27.6)	1189 (33.7)
<b>325-7L210</b> (1 ¼", 1 ½")	660 (18.7)	930 (26.3)	1140 (32.3)

## Pressure Drop Chart



# Dimensions and Spring Range - applications above 2-psi, regulator and OPD



**325-7L210**

## DIMENSIONS - inches (millimeters)

Model Number	Pipe Size*	Swing Radius	Call-Outs		
			A	B	C
<b>325-7L210</b>	1 1/4	6.75	7"	15 3/8	9"
	1 1/2	(171)	(178)	(391)	(229)

\* standard models NPT threads.

'M' models available with ISO7 PL, 'MK' models ISO7 TR.

**Note:** Dimensions are to be used only as an aid in designing clearance for the regulator. Actual production dimensions may vary somewhat from those shown.

### Outlet Pressure Range (all models):

Certified spring ..... 7 - 11 inches w.c.

**Attention:** To comply with the ANSI Z21.80 Standard for Line Pressure Regulators, installations exceeding 2-psi nominal require a tested and approved over-pressure protection device (OPD) for use with the regulator.

## Sizing Instructions

To select a line regulator of ample flow - one must know:

1. Available inlet pressure (maximum static/minimum operating).
2. Desired outlet pressure.
3. Required maximum capacity (total load, all appliances combined), and maximum individual load.
4. Pipe size.

Example: To select a line regulator with OPD of ample capacity to handle flow. . .

### KNOWN:

- A. Required: 1 1/2" NPT line regulator with OPD, outlet pressure of 7" w.c., with a static pressure of 5-psi, and a minimum operating inlet pressure of 3/4 psi.
- B. Combined Btu rating of all appliances to be served by the regulator: 850,000 Btu/hr.
- C. Largest single appliance's Btu rating: 750,000 Btu/hr.

### SOLUTION:

- A. In the Capacities chart (page 3), locate rows where 1 1/2" (pipe size) models with 7" w.c. outlet pressure - intersect with - 3/4 psi operating inlet pressure column.  
325-7L210 (1 1/2") = 900 CFH.
- B. The total Btu load requirement cannot exceed the equivalent CFH result from step-A.
- C. The 90,000 Btu/hr single largest appliance rating is below the 325-7L210 maximum individual load capacity of 900,000 Btu/hr.
- D. The 325-7L210 is the acceptable (1 1/2") line regulator with OPD for this application.

# MAXITROL

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