

Gas Regulators Condensed Catalog

Gas Appliance Pressure Regulators and Line Pressure Regulators

Gas Appliance Pressure Regulators -

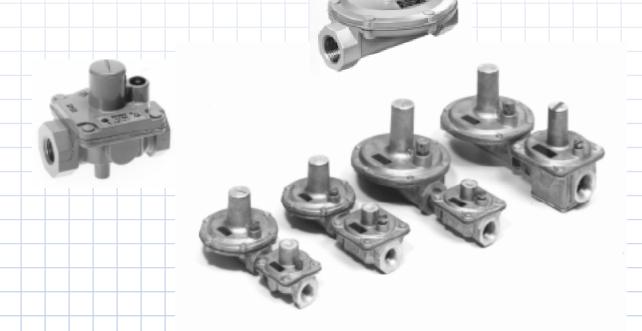
Maxitrol gas appliance regulators are designed primarily for domestic, commercial and industrial applications. Models for both low and intermediate pressure applications are included —

- The poppet model RV Series is designed primarily for main burner and pilot load applications.
- The straight-thru-flow RV Series, size for size, has the highest pressure drop capacity of any regulator design available.
- The balanced valve R & RS and 210 Series are designed for use with intermediate pressure. The balancing diaphragm virtually eliminates inlet pressure effect, which makes them ideal for applications where supply pressure fluctuates.
- The lever acting 325 Series is a pounds to inches regulator, ideally used to reduce intermediate pressure to a level usable by standard low pressure controls.

Line Pressure Regulators -

Maxitrol line pressure regulators are designed primarily for residential and commercial application in natural gas piping systems —

- The 325 Series L-model regulators are CSA certified (ANSI Z21.80), meeting utility specifications, for use on 2-psi piping systems.
- The 325 Series L-model regulators and over-pressure protection devices (OPDs) meet ANSI Z21.80 on installations exceeding 2-psi (up to 5-psi) nominal.







a leading manufacturer of quality control components for the gas industry. The company is known for producing low pressure regulators and electronic gas modulation systems for industrial, commercial, and residential gas fired applications. Through its growth into an international family of companies, product lines are diversifying beyond that of gas controls.

Company founder Frank Kern Jr., a mechanical engineer, purchased a small Detroit, Michigan, tooling company in 1946 and within three years introduced the innovative *Straight-Thru-Flow* gas regulator. The patented design, also known as the Maxitrol®, reduced the frictional resistance of gas moving through the regulator, resulting in greater capacity. It was the solution for segments of the industry dealing with low supply pressures. This improved flow pattern provided more accurate regulation, and established a new industry standard. In 1953 the firm was renamed Maxitrol Company, reflecting emphasis on regulator product lines.

By 1975 Maxitrol plants in Colon and Blissfield, Michigan had manufactured 20 million gas controls for customers around the globe. Production of 50 million gas controls was reached in late 1995.

Over the years, Maxitrol has expanded its product line to include a wide variety of regulators and other innovative control components. Selectra® electronic modulation systems provide stable, precise gas fired temperature control. Sentry® automatic emergency shut-off valves are typically used for gas and liquids. Various models are actuated by electrical remote control or by a sufficient condition such as excess flow, under-pressure, over-pressure, or over-temperature.

Maxitrol Company celebrated its 50th Anniversary on February 15, 1996. Maxitrol's core business remains supplying gas industry contractors, utilities, distributors, and OEMs (original equipment manufacturers) ranging in size from small industrial users to large international appliance producers. Maxitrol continues to evolve into a geographically diverse family of companies specializing in the manufacture of engineered controls.

In addition to U.S. affiliate Maxitrol Company, the organization includes: Paktronics Controls of Fort Worth, Texas, which designs and manufactures electronic temperature controls; Maxitrol Group, Inc. of San Luis Potosi, Mexico which was established to service major Mexican customers such as GE's Mabe division; and Mertik Maxitrol GmbH & Co. KG of Thale and Senden, Germany.

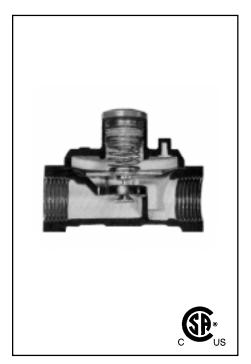
Mertik Maxitrol product lines include a wide variety of controls; such as pressure and temperature switches, gas combination valves for hearth products and heaters, radiator thermostatic valves, level switches, emergency gas shutoff valves, gas-water combination control for instantaneous water heaters — as well as Maxitrol brand regulators and gas fuel filters. Mertik was operated by the former East German government after 1945, until German reunification. It became affiliated with Maxitrol in 1993. Mertik Maxitrol customers had been mainly in Eastern Europe; U.S. sales have increased significantly, and its market continues to expand worldwide. Maxitrol acts as a distributor and representative of Mertik Maxitrol in North America.

Maxitrol Company's Michigan facilities and Mertik Maxitrol are ISO 9001 Certified. Each of these facilities have met the standards of quality assurance in design-development, production, installation, and servicing according to the International Organization for Standardization (ISO).

Rubber Seat Poppet Design — RV12, RV20, RV47 & CV47 and RV48

main burner and pilot applications

Bulletin: MS2032





RV12L

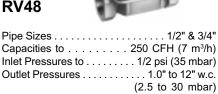
Pipe Sizes	1/8"
Capacities to	25 CFH (.7 m ³ /h)
Inlet Pressures to	1/2 psi (35 mbar)
Outlet Pressures	1.0" to 12" w.c.
	(2.5 to 30 mbar)
Venting	Integral



RV20L

Pipe Sizes	1/4" & 3/8"
Capacities to	65 CFH (1.8 m ³ /h)
Inlet Pressures to	2 psi (140 mbar)
Outlet Pressures	1.0" to 12" w.c.
	(2.5 to 30 mbar)
Venting	1/8" NPT
Optional 12A04	or 12A06 Vent Limiter





Optional 12A04 or 12A06 Vent Limiter

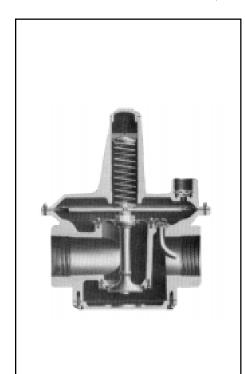
Pipe Sizes	3/8" & 1/2
Capacities to	125 CFH (3.5 m ³ /h)
Inlet Pressures to	1/2 psi (35 mbar
Outlet Pressures	1.0" to 12" w.c
	(2.5 to 30 mbar)
Venting	Integra

Balance Valve Design — R & RS, 210D, E, G & J and 220D, E, G & J

RV47 & CV47I

main burner and pilot applications

Bulletin: MS2013, 2041, MS2043 (for zero governor applications)





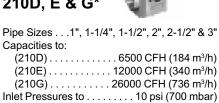
210J

Pipe Sizes	1"
Capacities to:	
(R & RS 400) 300 CFH (8.5 m ³ /	h)
(R & RS 500) 800 CFH (22 m ³ /	h)
(R & RS 600) 1400 CFH (39 m ³ /	h)
Inlet Pressures to:	
(R Series) 1 psi (70 mba	ır)
(RS Series) 5 psi (350 mba	ır)
Outlet Pressures 1.0" to 30" w.	c.
(2.5 to 75 mba	r)
Venting	
(Zero governor models - Bulletin MS2043)	



	THE REAL PROPERTY.
Pipe Sizes	4" Flanged
Capacities to	50000 CFH (1416 m ³ /h)
nlet Pressures to	10 psi (700 mbar
Outlet Pressures	2.0" to 42" w.c.
	(5 to 105 mbar)
Zero governor models	- Rulletin MS2043)





Outlet Pressures 1.0" to 42" w.c.

(Zero governor models - Bulletin MS2043)



(2.5 to 105 mbar)

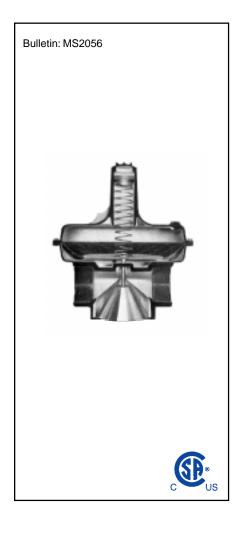
220D, E, G & J'

D: 0: 48.4.4.8.4.4.08.08
Pipe Sizes 1", 1-1/4", 1-1/2", 2",
2-1/2", 3" & 4" Flanged
Capacities to:
(220D) 6500 CFH (184 m ³ /h)
(220E)
(220G) 26000 CFH (736 m ³ /h)
(220J) 50000 CFH (1416 m ³ /h)
Inlet Pressures to 10 psi (700 mbar)
Outlet Pressures 1 psi to 5 psi
(70 to 350 mbar)

^{*} See specific Sales Bulletin for pipe sizes available for each regulator shown.

Straight-Thru-Flow Design — RV52, RV53, RV61, RV81, RV91, RV111 & RV131

main burner only



RV52

Pipe Sizes	1/2" & 3/4"
Capacities to	
Inlet Pressures to	1/2 psi (35 mbar)
Outlet Pressures	1.0" to 12" w.c.
	(2.5 to 30 mbar)
Venting	1/8" NPT



RV61

RV111

Pipe Sizes	
	2500 CFH (70 m ³ /h)
Inlet Pressures to	1 psi (70 mbar)
Outlet Pressures	1.0" to 22" w.c.
	(2.5 to 55 mbar)
Venting	1/8" NPT



	The state of the s
Pipe Sizes	2-1/2" & 3"
	. 17000 CFH (481 m ³ /h)
Inlet Pressures to	1 psi (70 mbar)
Outlet Pressures	1.0" to 22" w.c.
	(2.5 to 55 mbar)
Venting	3/4" NPT

RV53

Pipe Sizes	3/4" & 1"
Capacities to	. 1300 CFH (36 m ³ /h)
Inlet Pressures to	1/2 psi (35 mbar)
Outlet Pressures	1.0" to 12" w.c.
	(2.5 to 30 mbar)
Venting	1/8" NPT



RV81 & RV91*

Pipe Sizes	1-1/4", 1-1/2", 2" & 2-1/2"
Capacities to:	
(D\/Q1)	4500 CEH (127 m3/h)



RV131

Pipe Sizes	4" Flanged
Capacities to	30000 CFH (850 m ³ /h)
Inlet Pressures to	2 psi (140 mbar)
Outlet Pressures	3.0" to 42" w.c.
	(7.5 to 105 mbar)
Venting	

^{*} See specific Sales Bulletin for pipe sizes available for each regulator shown.

Lever Acting Design — 325-3, 325-5A, 325-7

main burner and pilot applications





325-7

Pipe Sizes	3/8" & 1/2"
	289 CFH (8.1 m ³ /h)
Inlet Pressures to	10 psi (700 mbar)
Outlet Pressures	2.0" to 2 psi
	(5 to 140 mbar)
Venting	1/8" NPT
Or	otional 12A09 Vent Limiter



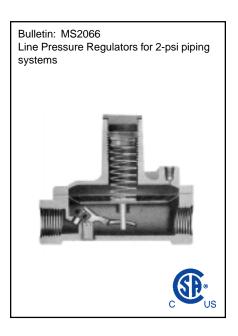




Pipe Sizes	1/2", 3/4" & 1"
Capacities to	675 CFH (19.1 m ³ /h)
Inlet Pressures to	10 psi (700 mbar)
Outlet Pressures	2.0" to 2 psi
	(5 to 140 mbar)
Venting	3/8" NPT

Lever Acting Design — 325-3L, 325-5AL, 325-7L

main burner and pilot applications



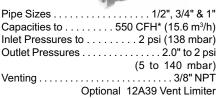


100	
Pipe Sizes	3/8" & 1/2"
Capacities to	. 250 CFH* (7.1 m3/h)
Inlet Pressures to	2 psi (138 mbar)
Outlet Pressures	2.0" to 2 psi
	(5 to 140 mbar)
Venting	1/8" NPT
Option	al 12A09 Vent Limiter
*Total load of all appliances	combined



1	
Pipe Sizes	1-1/4" & 1-1/2"
Capacities to	. 1000 CFH* (28.3 m3/h)
Inlet Pressures to	2 psi (138 mbar)
Outlet Pressures	2.0" to 42" w.c.
	(2.5 to 105 mbar)
Venting	1/2" NPT
*Total load of all appliance	ces combined.

325-5AL



*Total load of all appliances combined.

Lever Acting Design — 325-3LX, 325-5ALX, 325-3L47, 325-3L48, 325-5AL48, 325-5AL600

main burner and pilot applications

Bulletin: MS2076 Line Pressure Regulators and over-pressure protection devices (OPD) for applications from 2-psi to 5-psi





325-3LX

Pipe Sizes	3/8" & 1/2"
Capacities to	250 CFH* (7.1 m ³ /h)
Inlet Pressure to	5 psi (345 mbar)
Outlet Pressures	2.0" to 2 psi
	(5 to 140 mbar)
Venting	1/8" NPT
Optio	onal 12A09 Vent Limiter
*Total load of all appliance	es combined (regulator).



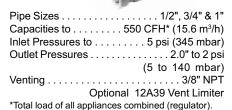
Pipe Sizes	3/8" & 1/2"
	. 125 CFH* (28.3 m ³ /h)
Inlet Pressures to	5 psi (345 mbar)
Outlet Pressures	2.0" to 42" w.c.
	(2.5 to 105 mbar)
Venting: OPD 47	integral vent limiting
	orifice with dust cap
*Total load of all appliance	es combined (regulator



Pipe Sizes	1/2" & 3/4'
Capacities to	
Inlet Pressures to	5 psi (345 mbar
Outlet Pressures	2.0" to 42" w.c
	(2.5 to 105 mbar
Venting: OPD 48	1/8" NP1
Option	nal 12A09 Vent Limiter

*Total load of all appliances combined (regulator with OPD 48 attached).

325-5ALX



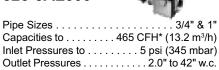




Pipe Sizes	1/2"
Capacities to	. 200 CFH* (5.7 m ³ /h)
Inlet Pressures to	5 psi (345 mbar)
Outlet Pressures	2.0" to 42" w.c.
	(2.5 to 105 mbar)
Venting: OPD 48	1/8" NPT
Option	nal 12A09 Vent Limiter

*Total load of all appliances combined (regulator with OPD 48 attached).





Outlet Pressures 2.0" to 42" w.c. (2.5 to 105 mbar) Optional 12A09 Vent Limiter

*Total load of all appliances combined (regulator with OPD 600 attached).

Accessories — Bulletin: MP2037



Vent Tube Connectors — Compression threaded sleeve where the nut is tightened into an adaptor fitting or regulator vent — three piece assembly where nut and sleeve are slipped over tubing and tightened into fitting body.



Surge Arrestor — Induces soft lighting, controls flame rollout and maintains pilot stability.

XXXXX for 1/8" NPT Vent



Vent Limiting Means — Ball check permits free inhalation for fast regulator diaphragm response, on opening cycle, but limits gas escapement to within ANSI standards should a diaphragm rupture.

	1		`	
- 4	ĸ.	-	a.	
- 1	Œ.	또	a	
л	8	萋	37	ь
DOM:	86	æ	w	ø.

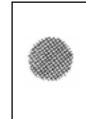


Vent Limiting Orifice — Satisfies ANSI standards for both natural and LP gas. Fixed orifice equally limits inhalation and escapement.

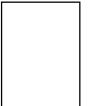


Dust Cap — Use on vent opening to prevent blockage at breather hole from dust or other foreign particles.

13A09 for 1/8" NPT Vent



Vent Screen — Prevents ignition of gas air mixture which might be present in upper diaphragm chamber.



Vent Protector — Designed for outdoor applications. Use on vent opening to protect breather hole from rain, snow, dust or other foreign particles and insects.

13A15 for 1/8" NPT Vent

Helpful Data

Definitions

Non-Lock Up Type — under static conditions when no gas is flowing, outlet pressure will rise to line pressure.

Lock Up Type — under static conditions of no gas flow, outlet pressure will rise somewhat above adjusted pressure but should not rise to line pressure.

Dead End Lock Up — pressure will be maintained slightly above adjusted pressure under static conditions when no gas is flowing and will protect the downstream controls, if properly sized.

Zero Governors — equipped with a counter spring beneath the valve. They require an external impulse signal, such as top loading with pressure or generating vacuum in the downstream piping.

Differential Pressure — is simply the difference between inlet pressure to the regulator and outlet pressure from the

regulator. To obtain differential pressure, just subtract the desired outlet pressure from available inlet pressure.

Pressure Drop — the natural loss of pressure that occurs in the regulator (or in any valve or pipe) due to friction. This friction impedes fluid motion, without regard to artificial losses deliberately created by diaphragm action.

How to Order

To ensure accurate filling of your appliance regulator order we need:

- 1. Model number
- 4. Outlet pressure setting
- 2. Pipe size
- 5. Flow rate (capacity)
- 3. Inlet pressure
- 6. Accessories required

Sizing A Regulator

In order to select the proper size regulator, one must know:

- 1. Available inlet pressure.
- 2. Desired outlet pressure.
- 3. Required maximum flow rate in Btu/h, ft³/h or m³/h.
- 4. Pipe size.

You should also know:

- 1. If regulator will be used for main burner and pilot application or main burner only.
- 2. If regulator must provide positive dead-end lock-up.
- 3. Requires zero governor application (indicated by model number ending in Z e.g. R500SZ).

The capacity of any regulator is *not* an absolute value but will vary with the application depending on the prevailing differential.

Sizing Examples

Lever Acting — for main burner and pilot load applications requiring positive dead-end lock-up.

Example: to select a 325 Series regulator of ample capacity to handle flow —

Known:

Desired flow rate 145,000 Btu/h; pipe size 1/2"; inlet pressure 2 psi; outlet pressure 7" w.c.

Solution:

Check capacity chart on 325 Series sales bulletin . . . The 325-3's pressure drop at a flow rate of 145,000 Btu/h is 7" w.c., well below the available differential of 1-3/4 psi. The 325-3 (1/2"), used with a 4" to 12" spring will give you the desired outlet pressure of 7" w.c. and is the correct regulator to use for the application.

Poppet Models — for main burner and pilot load applications.

Example: To select an RV type regulator of ample capacity to handle flow —

Known:

Single burner with flow rate of 150,000 Btu/h; pipe size 1/2"; inlet pressure 7" w.c.; outlet pressure 4" w.c.

Solution:

Check capacity chart on RV (poppet) Series sales bulletin ... the RV48 (1/2") has a maximum capacity of 230,000 Btu/h and a maximum individual load of 160,000 Btu/h. The pressure drop at a flow rate of 150,000 Btu/h is 0.4", well below the available differential of 3" w.c. The RV48 (Non "L" fixed orifice) is the correct regulator to use for the application.

Straight-Thru-Flow — for main burner only applications not requiring a lock-up type regulator.

When sizing the S-T-F Series, it is recommended that pressure drop not exceed 1/2 of available differential pressure.

Example: To select an RV type regulator of ample capacity to handle flow —

Known:

Desired flow rate 2,000,000 Btu/h; pipe size 1-1/4"; inlet pressure 9" w.c.; outlet pressure 5" w.c.

Solution:

Check capacity chart on RV (S-T-F) Series sales bulletin ... the RV81 (1-1/4") has a maximum capacity of 4,500,000 Btu/h. The pressure drop at a flow of 2,000,000 Btu/h is 0.78" w.c. The RV81 (1-1/4") is the correct regulator to use with this application. The pressure drop of the RV61 (1-1/4") at a flow rate of 2,000,000 Btu/h is 2.58" w.c. This is within the available differential but exceeds the recommended 50% maximum.

Balanced Valve — for main burner and pilot load applications requiring a lock-up type regulator or zero governor usage.

Example: To select a 210 or R/RS Series regulator of ample capacity to handle flow —

Known:

Desired flow rate 6,000,000 Btu/h; pipe size 1-1/2"; inlet pressure 1 psi; outlet pressure 9" w.c.

Solution:

Check capacity chart on 210 or R/RS Series sales bulletin . . . the 210E (1-1/2") has a maximum capacity of 10,000,000 Btu/h (the 210D (1-1/2") has a capacity of only 6,000,000 Btu/h). Therefore, the 210E (1-1/2") used with a 5" to 12" spring will give you the desired outlet pressure of 9" w.c.

LP Applications: When dealing with standard A.G.A. gases — to convert from (LP) 25000 Btu, 1.53 sp gr gas to (Nat) 1000 Btu, 0.64 sp gr gas — multiply by .621.

The brief descriptions contained in this catalog are designed to provide you with a quick reference to the complete line of Maxitrol's gas appliance pressure regulators. For additional information please contact Maxitrol Company or one of our representatives.

Special Warning: No untrained person should attempt to install, maintain, or service a gas pressure regulator.

All products, including gas pressure regulators, used with combustible gas MUST be installed and used strictly in accordance with instructions of the manufacturer, with government codes and regulations, and plumbing codes and practices.

Maxitrol gas appliance pressure regulators should be installed and operated in accordance with our "Safety Warning Bulletin".



Maxitrol Co. USA

23555 TELEGRAPH RD. • P.O. BOX 2230 SOUTHFIELD, MI 48037-2230

248/356-1400 • FAX 248/356-0829

WWW.MAXITROL.COM • E-MAIL: INFO@MAXITROL.COM

Mertik Maxitrol GmbH & Co. KG

INDUSTRIESTRASSE 1 48308 SENDEN, GERMANY 49-2597-9632-0 • FAX 49-2597-9632-99

WARNSTEDTERSTRASSE 3 06502 THALE, GERMANY 49-3947-400-0 • FAX 49-3947-400-200 E-MAIL: INFO@MERTIKMAXITROL.DE

LITHO IN U.S.A. 3MWM

TÜV

280 FK NO 500 100 10000