



GAS PRESSURE REGULATORS AND FILTERS

MERTIK MAXITROL®

www.mertikmaxitrol.com

⚠ WARNING

Service and installation must be performed by a trained/experienced service technician.

All products used with combustible gas **must** be installed and used **strictly** in accordance with the instructions of the Original Equipment Manufacturer (OEM) and with all applicable government codes and regulations, e.g. plumbing, mechanical, and electrical codes and practices. Maxitrol products should be installed and operated in accordance with Maxitrol Safety Warning Instructions.

Maxitrol is NOT responsible for any errors or omissions in reliance by anyone of any information set forth in this catalog without additional reference to local requirements and applicable ordinances or codes.

The products in this catalogue comply with EU legislation. The technical specifications refer to the CE certification. Additional international approvals and certifications are available upon request.



RV SERIES

STRAIGHT-THRU-FLOW DESIGN

Maxitrol's original Straight-Thru-Flow (STF) design regulators are non-lockup type regulators for high capacities at low inlet pressures. The difference between STF design and other type regulators is the conical valve. The cone principal permits gas to flow straight through the regulator without changing directions. Frictional flow resistance is reduced, resulting in greater capacity. An improved flow pattern provides accurate, sensitive regulation at extremely low pressure differentials. Typical applications include residential, commercial, and industrial gas-fired appliances and equipment used on low or medium pressure gas supplies.

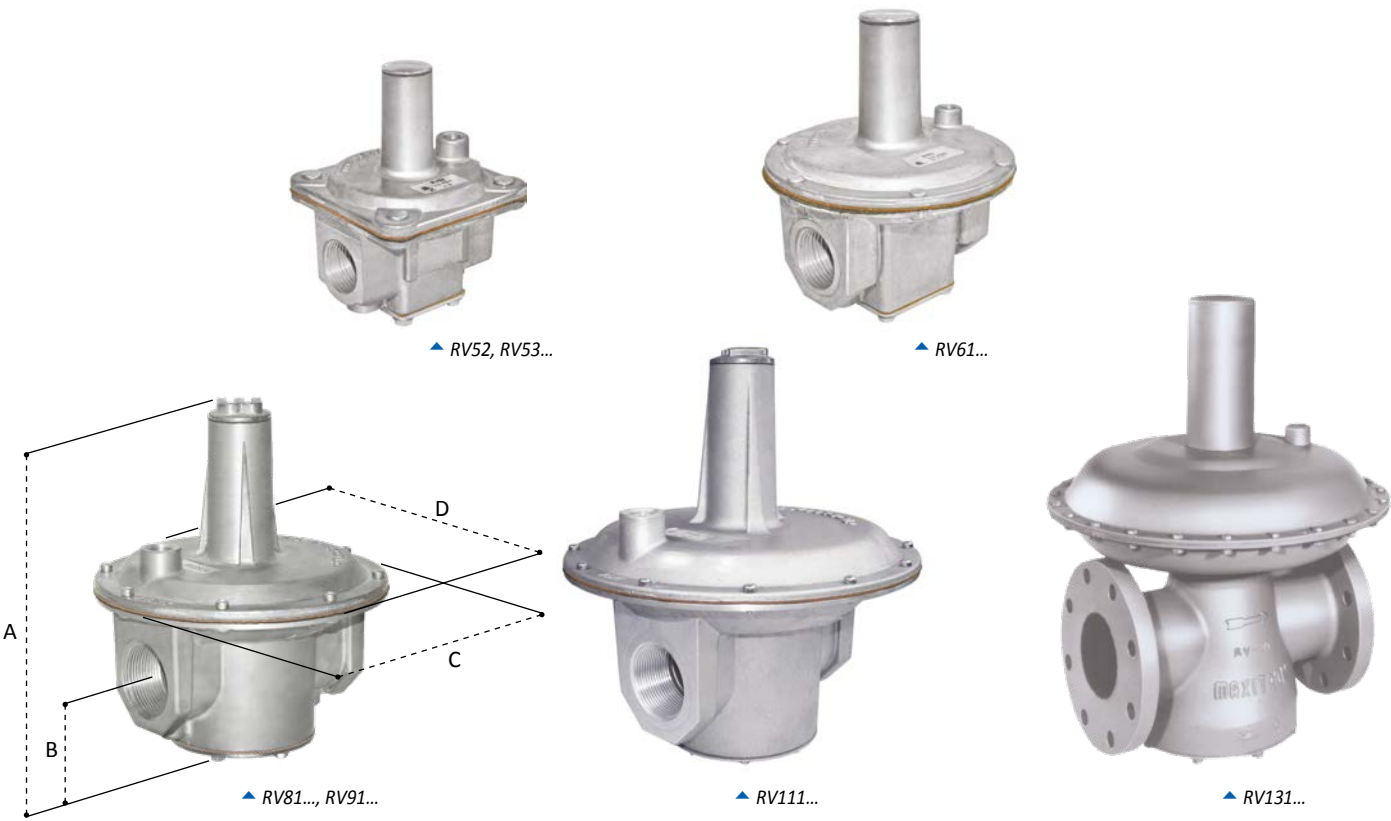
Specifications

- **Pipe Sizes:**
 - RV52, RV53, RV61, RV81, RV91, RV111: Rp ½ to Rp 3 threaded connections according to ISO 7-1/EN10226-1
 - RV131: DN100 flanged connection according to ISO 7005-2 PN 16
- **Housing Material:**
 - RV52, RV53, RV61, RV81, RV91, RV111: Aluminum
 - RV131: Cast iron
- **Internal Components Material:** Steel, aluminum, elastomer
- **Mounting:** RV52, RV53, RV61 are suitable for multi-positional mounting. Other than upright position will result in a slight difference in outlet pressure. If ball check vent limiting device is installed, mount in an upright position only. RV81, RV91, RV111, RV131 upright position only. Install with gas flowing as indicated by the arrow on bottom casting.
- **Construction and Design/Certifications:** According to the Gas Appliances Regulation 2016/426/EU and EN 88-1
- **Gas Types:** Suitable for gases of EN 437 gas family 1, 2, and 3
- **Maximum Inlet Pressure:**
 - RV52: 10 kPa
 - RV53, RV61, RV81, RV91, RV111: 20 kPa
 - RV131: 35 kPa
- **Ambient Temperature Range:** -15 °C to 80 °C
- **Capacities:** See flow chart, page 19

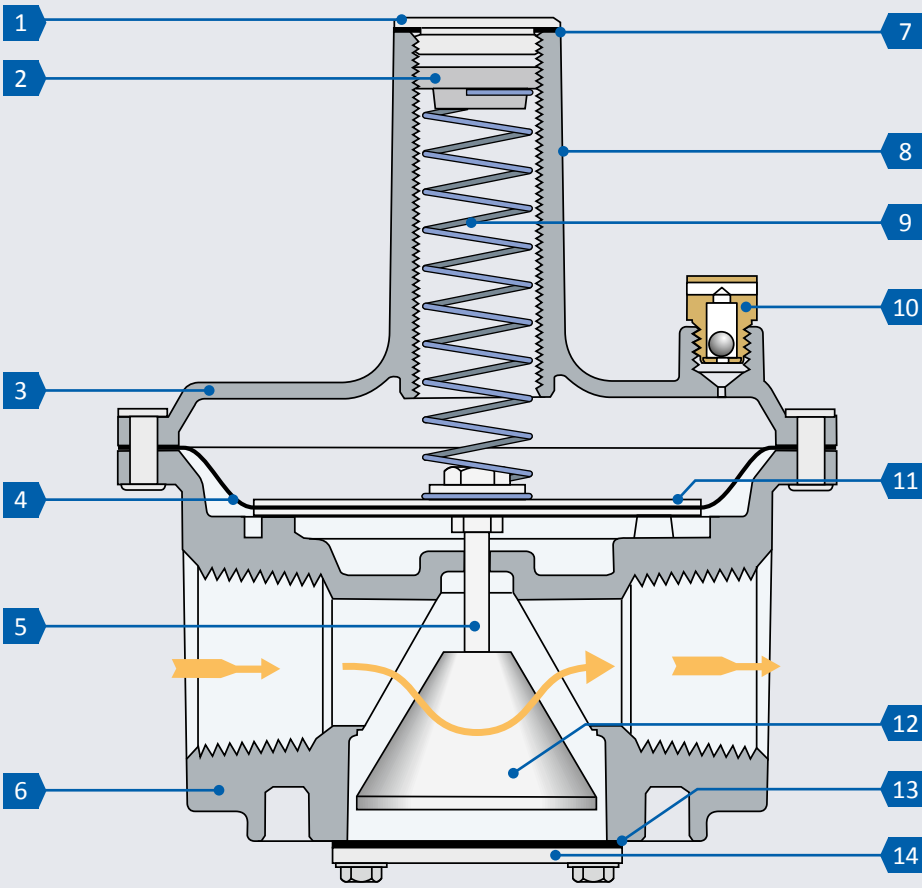
Dimensions

Model	Pipe Sizes	Swing Radius	Dimensions			
			A	B	C	D
RV52...	Rp ½, Rp ¾	91 mm	124 mm	32 mm	83 mm	81 mm
RV53...	Rp ¾, Rp 1	99 mm	132 mm	33 mm	99 mm	95 mm
RV61...	Rp 1, Rp 1 ¼	122 mm	164 mm	41 mm	138 mm	111 mm
RV81...	Rp 1 ¼, Rp 1 ½	162 mm	213 mm	51 mm	178 mm	153 mm
RV91...	Rp 2	216 mm	275 mm	60 mm	232 mm	165 mm
	Rp 2 ½	212 mm	267 mm	62 mm	232 mm	181 mm
RV111...	Rp 2 ½, Rp 3	284 mm	373 mm	89 mm	324 mm	229 mm
RV131...	DN100	462 mm	574 mm	120 mm	457 mm	350 mm

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



Components



NOTE: Diagrams are graphical representations only and may differ from actual product.

- 1 Welch Plug/Seal Cap
- 2 Vibration Resistant Adjusting Screw
- 3 Top Housing
- 4 Diaphragm
- 5 Stem
- 6 Bottom Housing
- 7 Seal Cap Gasket
- 8 Stack
- 9 Spring
- 10 Vent Limiting Device
- 11 Diaphragm Plates
- 12 Valve
- 13 Bottom Plate Gasket
- 14 Bottom Plate

SPRING SELECTION

Model	Spring Replacement Number	Spring Code											
		A	B	C	D	E	F	G	H	K	L	M	N
		Outlet Pressure Range (kPa*)											
		0.25 – 0.90	0.50 – 1.30	0.50 – 1.50	0.70 – 1.30	0.75 – 2.00	1.00 – 2.00	1.00 – 3.00	1.25 – 3.00	2.50 – 5.50	3.75 – 7.50	5.00 – 10.50	7.00 – 14.00
Color													
		brown	(plated)	green	(plated)	pink	orange	violet	blue	red	yellow	black	label
RV12...	KIT ...-R1210	X			X		X	X					
RV20...	KIT ...-R2010	X			X		X	X					
RV47...	KIT ...-R4710	X			X		X	X					
RV48...	KIT ...-R4810	X			X		X		X				
RV52...	KIT ...-R5210	X	X			X		X		X			
RV53...	KIT ...-R5310	X	X			X		X		X	X		
RV61...	KIT ...-R6110	X	X			X		X		X	X		
RV81...	KIT ...-R8110	X	X			X		X		X	X	X	
RV91...	KIT ...-R9110	X	X			X		X		X	X	X	
RV111...	KIT ...-R11110	X	X			X		X		X	X	X	
RV131...	KIT ...-R13110		X			X		X		X	X	X	
325-3...	KIT ...-R325C10			X				X		X	X		X
325-5...	KIT ...-R325E10			X				X		X	X		X
325-7...	KIT ...-R8110	X	X			X		X		X	X	X	
325-9...	KIT ...-R9110	X	X			X		X		X	X	X	
325-11...	KIT ...-R11110	X	X			X		X		X	X	X	
R400S...	KIT ...-R400B10	X	X			X		X		X			
R500S...	KIT ...-R5210	X	X			X		X		X			
R600S...	KIT ...-R5310	X	X			X		X		X	X		
210D...	KIT ...-R8110	X	X			X		X		X	X	X	
210E...	KIT ...-R9110	X	X			X		X		X	X	X	
210G...	KIT ...-R11110	X	X			X		X		X	X	X	
210J...	KIT ...-R13110		X			X		X		X	X	X	

NOTE: No spring replacement required for zero pressure regulator models.

* 1 kPa = 10 mbar

SIZING A REGULATOR

System Requirements

When sizing a regulator the following must be known:

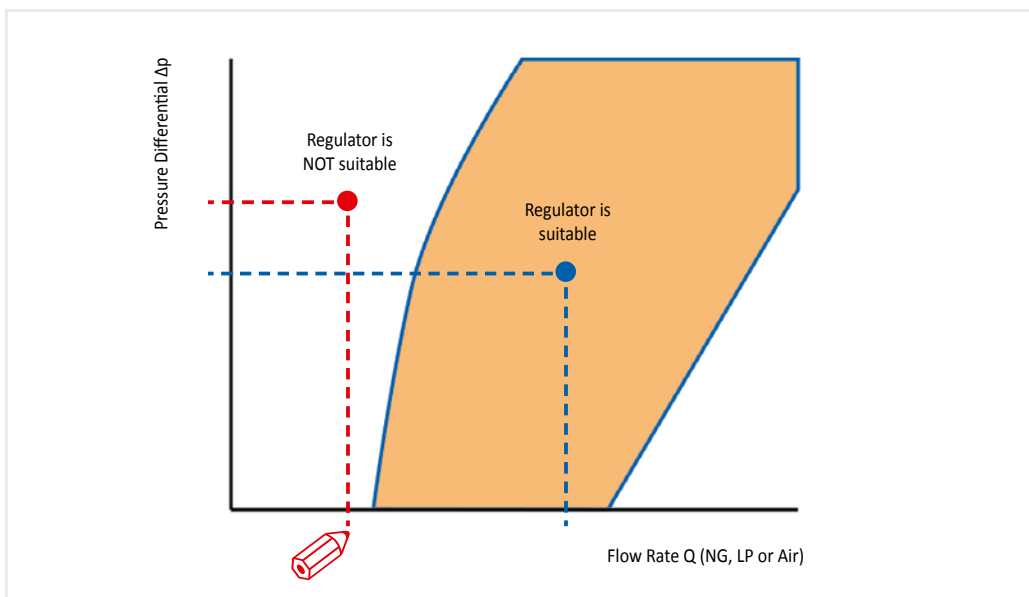
- Gas Type
- Available Inlet Pressure
- Desired Outlet Pressure
- Zero Pressure Regulator Application (indicated by model number ending in “Z”)
- Will the regulator control main burner and pilot load OR main burner only?
- Required minimum and maximum flow rate in m³/h or kW
- Pipe Size

In most cases, the manifold pipe size has already been selected on the basis of good engineering practice, and the regulator pipe size should conform to this size.

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

HOW TO DETERMINE THE SUITABLE REGULATOR FROM THE FLOW CHART

Draw a horizontal line with the known differential pressure (inlet pressure minus outlet pressure). Next draw a vertical line with the required flow rate (take care to use the axis with the correct gas type). The regulator where both lines cross each other within the range of regulation is the suitable regulator.



NOTE: Please contact Maxitrol directly for more information on sizing a regulator.

NOTE: Service and installation must be performed by a trained/experienced service technician.

LEGEND FOR FLOW CHARTS

- Δp = Pressure Differential in kPa
- Q = Flow Rate in m³/h
- dv = Volumetric Rate of Flow
- f = Friction Factor
- ρ = Density

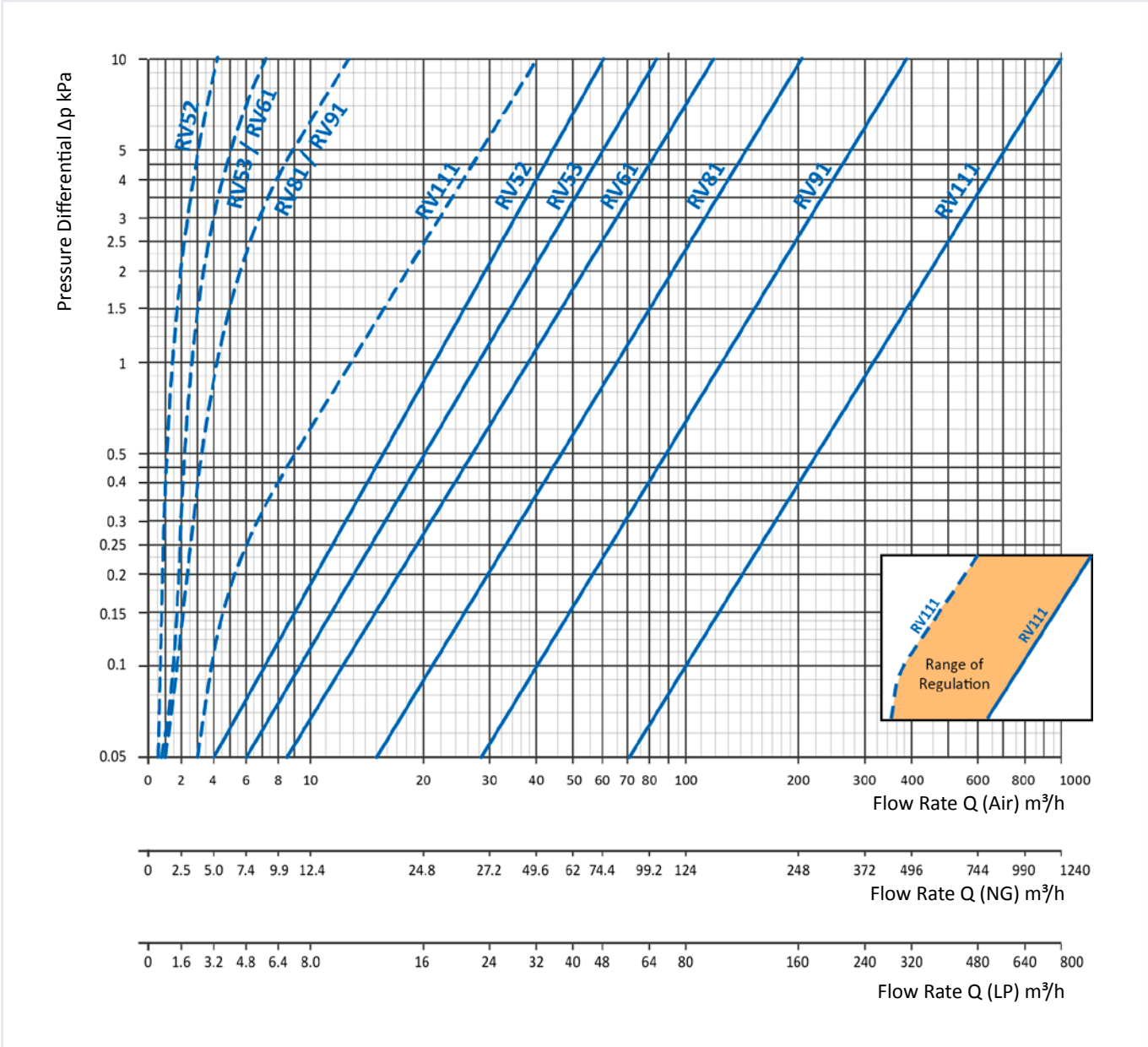
Pressure Units:	1 kPa = 10 mbar = 10 hPa
Air:	dv = 1.00 f = 1.00
Natural Gas (NG):	dv = 0.64 f = 1.24
Liquid petroleum gas (LPG):	dv = 1.56 f = 0.80

$$dv = \frac{\rho_{\text{gas}}}{\rho_{\text{air}}}$$

$$f = \sqrt{\frac{\rho_{\text{air}}}{\rho_{\text{gas}}}}$$

$$\dot{V}_{\text{gas}} = f \cdot \dot{V}_{\text{air}}$$

RV Series – Straight-Through-Flow Design



NOTE: The given flow rates are approximate values. Actual flow rates may vary somewhat from those shown.

MERTIK MAXITROL®

© 2018 Mertik Maxitrol GmbH & Co. KG, All Rights Reserved.

Mertik Maxitrol GmbH & Co. KG

Warnstedter Str. 3
06502 Thale | Germany
Tel: (+49) 3947 400-0
Fax: (+49) 3947 400-200
info@mertikmaxitrol.com
www.mertikmaxitrol.com

Mertik Maxitrol GmbH & Co. KG

Industriestr. 1
48308 Senden | Germany
Tel: (+49) 2597 9632-0
Fax: (+49) 2597 9632-99
senden@mertikmaxitrol.com
www.mertikmaxitrol.com

Mertik Maxitrol GmbH & Co. KG

The Valleys Innovation Centre
Abercynon, South Wales CF45 4SN | UK
Direct: (+44) 1443 742-755
Mobile: (+44) 7866 492-261
info@mertikmaxitrol.com
www.mertikmaxitrol.com

EXCLUSIVE AGENT

Maxitrol Company

23555 Telegraph Road | P.O. Box 2230
Southfield, MI 48037-2230 | USA
Tel: (+1) 248 356-1400
Fax: (+1) 248 356-0829
info@maxitrol.com
www.maxitrol.com