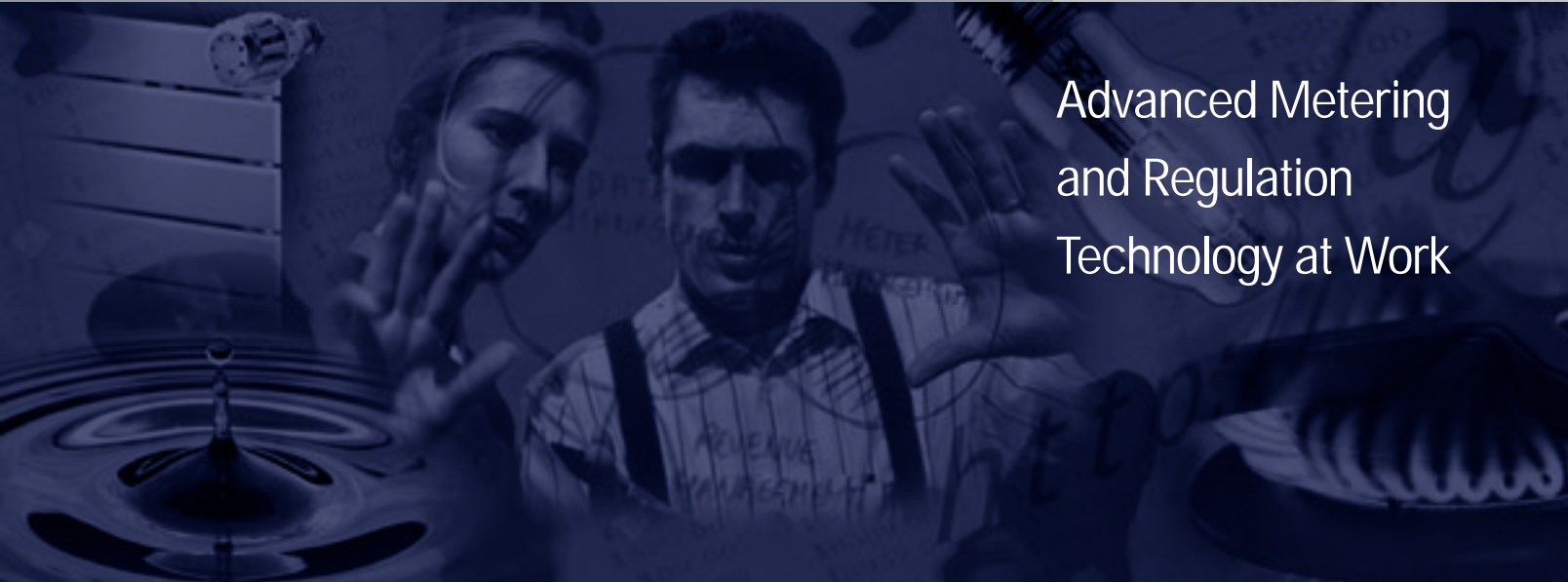




# RB4000 Commercial & Industrial Regulator



Advanced Metering  
and Regulation  
Technology at Work



## Features

Direct acting spring-loaded pressure regulator

- Balanced Valve Design
- Fluids: Natural gas, propane, butane, air, nitrogen, etc.
- Built-in pulsation damper
- Suited for both vertical and horizontal applications
- Available with silencer
- Available with High and/or Low pressure shut-off valve
- Built-in bypass system for ease of shut-off reset

## Benefits

The RB4000 series has the following benefits:

- Reduced overall dimensions/high capacity
- Easy Maintenance
- Boosting mechanism gives "fixed-factor" regulation for industrial application
- Rugged construction for durability
- Balanced valve design eliminates inlet pressure effect
- Fast-acting for sharp On/Off Loads

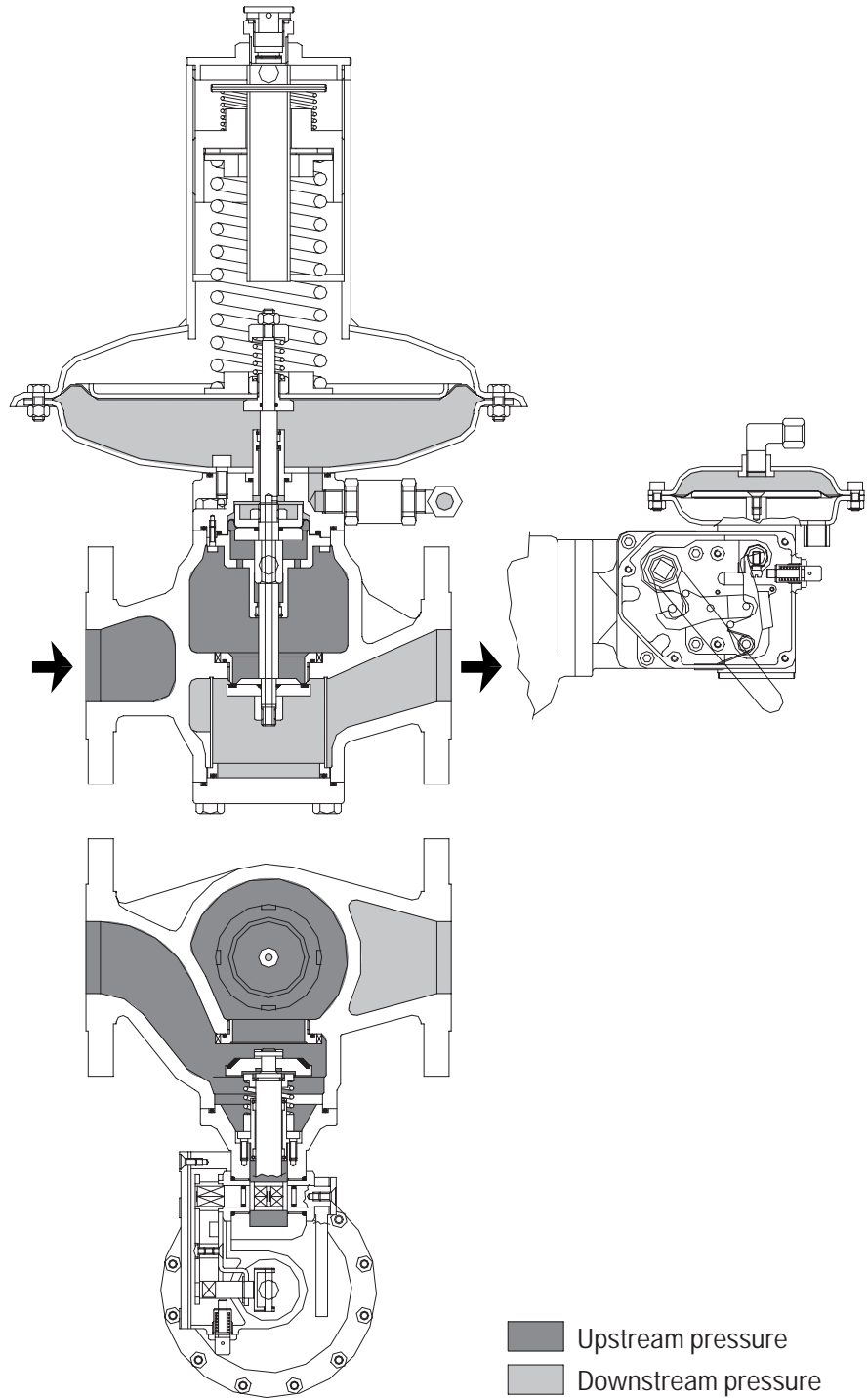
## Application

The Series RB4000 pressure regulator is designed for gas supply networks, district station regulation, industrial service regulation, and all applications where accurate pressure control, ease of adjustment, and fast response are required such as for burners, industrial ovens, boilers, etc.

## Construction

Body :	Ductile iron quality 500-7 UNI-ISO 1083, Steel quality ASTM A 216 WCB
Internal parts:	Brass and stainless steel
Diaphragm	Synthetic rubber with fabric reinforcement
Seals:	Nitrile rubber or Viton (on request)
Diaphragm Casing & Cover:	UNI/EN 10025 pressed steel

## Operating Sketch



# Specifications

## Correction factors for non-natural gas applications:

The RB4000 may be used to control materials other than natural gas. To determine the capacity of the RB4000 for gases other than natural gas, it will be necessary to multiply the values within the capacity tables by a correction factor. The table below lists the correction factors for some of the more common gases:

Gas Type	Specific Gravity	Correction Factor (CF)
Air	1.0	0.77
Butane	2.01	0.55
Carbon Dioxide (Dry)	1.52	0.63
Carbon Monoxide (Dry)	0.97	0.79
Natural Gas	0.60	1.00
Nitrogen	0.97	0.79
Propane	1.53	0.63
Propane-Air-Mix	1.20	0.71

To calculate the correction factor for gases not listed on the table above, it will be necessary to know the specific gravity of the gas and use it in the formula listed below:

$$\text{Correction Factor (CF)} = \sqrt{\frac{S.G._1}{S.G._2}}$$

Where:

SG<sub>1</sub> = Specific Gravity of the gas in which the capacity is published.

SG<sub>2</sub> = Specific Gravity of the gas to be controlled.

## Version Selection

Use the table below to define the version(s) of the 4000 pressure regulator that you wish to order:

4	0	X	X	Valve Body	Version
		1			Low pressure
		2			Medium pressure
		3			High pressure
		4			High pressure (only for 3")
			0		Without shutoff valve
			1		With over pressure shutoff valve**
			2		With over and under pressure shutoff valve**
				2" Flange*	
				3" Flange*	

\* Please specify valve body material on your order (Ductile Iron or Steel).

\*\*Multiply capacity data by 0.7 when using shut-off valve versions.

## VALVE BODY SIZES

Inlet	Outlet	Flanged	Orifice Size	Wide Open Orifice Coefficient (K)
2"	2"	Y	2"	4430
3"	3"	Y	3"	8540

Y indicates that the valve body is available in that configuration

### For wide-open orifice flow calculations use the following equations:

For  $P_1/P_2 \geq 1.89$  use:  $Q_{max} = K \sqrt{P_1/2}$

For  $P_1/P_2 \leq 1.89$  use:  $Q = K \sqrt{P_2(P_1 - P_2)}$

Where:  $P_1$  = absolute inlet pressure (psia)

$P_2$  = absolute outlet pressure (psia)

$Q$  = flow rate (scfh)

$K$  = orifice coefficient (scfh/psi)

**Available Vent Sizes:** 1/4" NPT

**Operating Temperature Range:** -20 F to 120 F

**Downstream Sensing Line Correction:** 3/8" NPT

**Maximum Operating Inlet Pressure:** 275 PSIG (DI Body), 288 PSIG (Steel Body)

**Maximum Emergency Outlet Pressure No Damage:** 90 PSIG

**Maximum Emergency Outlet Pressure Gas Containment:** 105 PSIG