An Ovivo Company

VAREC BIOGAS 386 Series
BACK PRESSURE REGULATOR

The 386 Series Back Pressure Regulator is designed to control upstream pressure in low pressure gas piping systems.

Introduction

The Varec Biogas 386 Series Back Pressure Regulator is intended for use in low pressure gas systems. It operates normally closed and will open when the upstream pressure reaches the regulator's predetermined settings. It is typically used to control flow of gas to the flare.

The extensive range of sizes and its corrosion resistant 356 T6 aluminum construction allows its use in most applications encountered in the typical tank farm, liquid storage facility, landfill or waste water treatment plant.

The 386 Series Regulator utilizes a large, spring loaded diaphragm, providing sensitivity while relieving excess gas with a minimal pressure drop. Set pressure is easily adjusted using the adjusting screw on top of the valve. An enclosed pointer provides quick visual indication of the set pressure.

Operation

Upstream pressure, sensed through the control line piping, is applied to the bottom of the diaphragm. The pressure acts against the diaphragm, causing the valve to open. As the pressure upstream of the valve rises, the diaphragm opens the valve, allowing greater flow capacity. As the pressure is relieved, the reduced pressure applied to the diaphragm allows the valve to close.

A 1/2" NPT connection is provided in the lower diaphragm housing for field installation of the sensing line. The line should be connected a minimum of 10 feet upstream of the regulator to avoid improper operation caused by turbulence, which may occur as the valve opens and closes.

If the regulator is installed indoors, the vent in the upper diaphragm housing should be extended outdoors with tubing. This will prevent gas from migrating into the room should the diaphragm develop a leak. A Varec 5200 Series Flame Check should be installed near the open end of the vent line for maximum protection.

Design Features

- Large Diaphragm for Sensitive Operation
- Spring Loaded for Easy Adjustment
- Corrosion Resistant Low Copper Aluminum Construction
- Easily Adjustable Setting for Fine Tuning in the Field
- Settings up to 20" WC (Consult Factory for Higher Settings)
- Available in 2" - 12" (50mm - 300mm) Sizes
- Three-way Solenoid Valve Option for Added Safety

Specifications

Materials
Body, Diaphragm Plate, Spring Housings
356 T6 Low Cast Aluminum

Pallet
Low Copper Aluminum
304 SS Stem and Bushings

Diaphragm
BUNA-N with Nylon Reinforcement

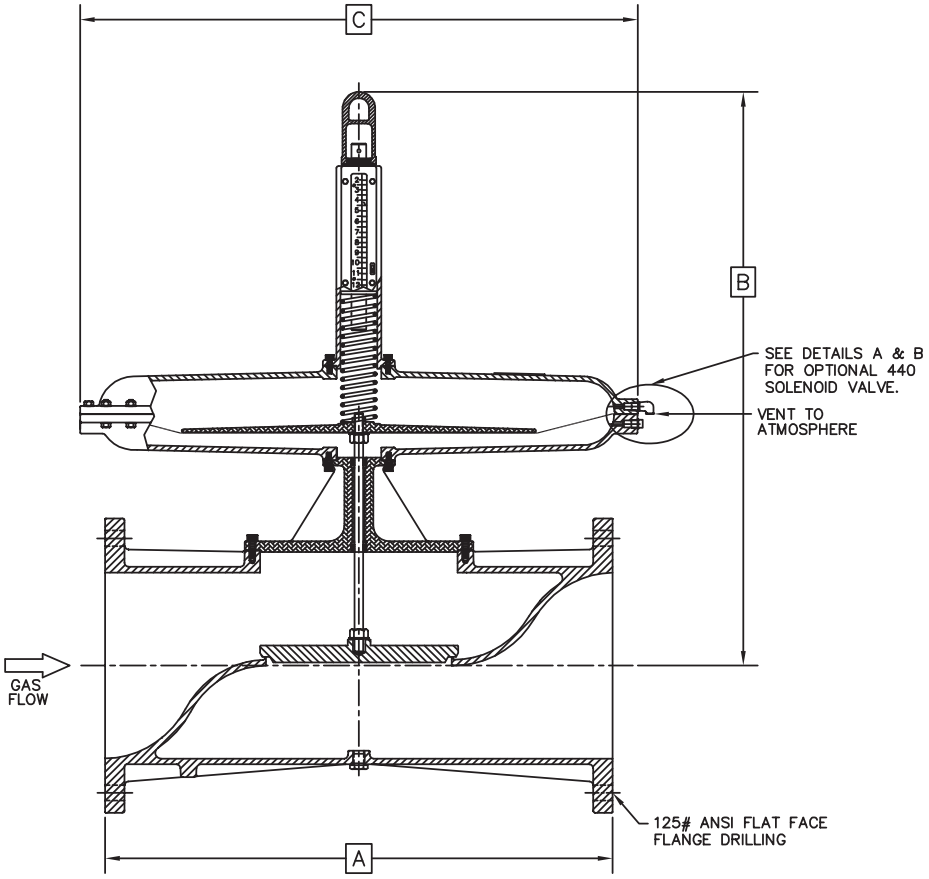
Indicator and Scale
Aluminum
Protected by a Gasketed Acrylic Window

Setting Spring
Zinc Plated Steel

Adjusting Screw
304 SS

Inlet & Outlet Connections
ANSI 125 / 150 Pattern

Maximum Operating Pressure
20" (510mm) WC
Consult Factory for Higher Settings

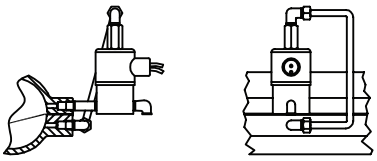


Dimensions and Weights, inches [mm] and lbs. (kg)

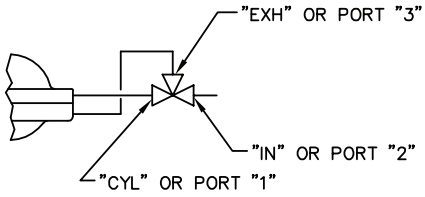
Size Code	02	03	04	06	08	10	12
Nominal Pipe Size	2 [50]	3 [75]	4 [100]	6 [150]	8 [200]	10 [250]	12 [300]
A	8 3/4 [222]	10 [254]	11 3/8 [289]	15 [381]	22 1/4 [565]	27 13/16 [706]	33 [838]
B	19 5/8 [498]	21 3/8 [543]	22 1/4 [565]	27 1/4 [692]	29 [736]	38 1/2 [978]	39 5/8 [1006]
C	14 5/8 [368]	20 1/2 [521]	20 1/2 [521]	26 1/2 [673]	26 1/2 [673]	36 1/4 [914]	36 1/4 [914]
Shipping Weight	35 (16)	45 (20)	50 (23)	95 (43)	200 (92)	250 (115)	400 (182)

Setting Range in WC, inches [mm]

Size	Standard	High Set
2"	2 - 12 [50 - 300]	3 - 25 [75 - 625]
3"	2 - 12 [50 - 300]	2 - 16 [50 - 400]
4"	2 - 12 [50 - 300]	2 - 16 [50 - 400]
6"	2 - 12 [50 - 300]	10 - 20 [250 - 500]
8"	2 - 12 [50 - 300]	10 - 20 [250 - 500]
10"	2 - 7 [50 - 175]	7 - 15 [175 - 350]
12"	2 - 7 [50 - 175]	7 - 15 [175 - 350]



DETAIL "A"



DETAIL "B": PROCESS SCHEMATIC

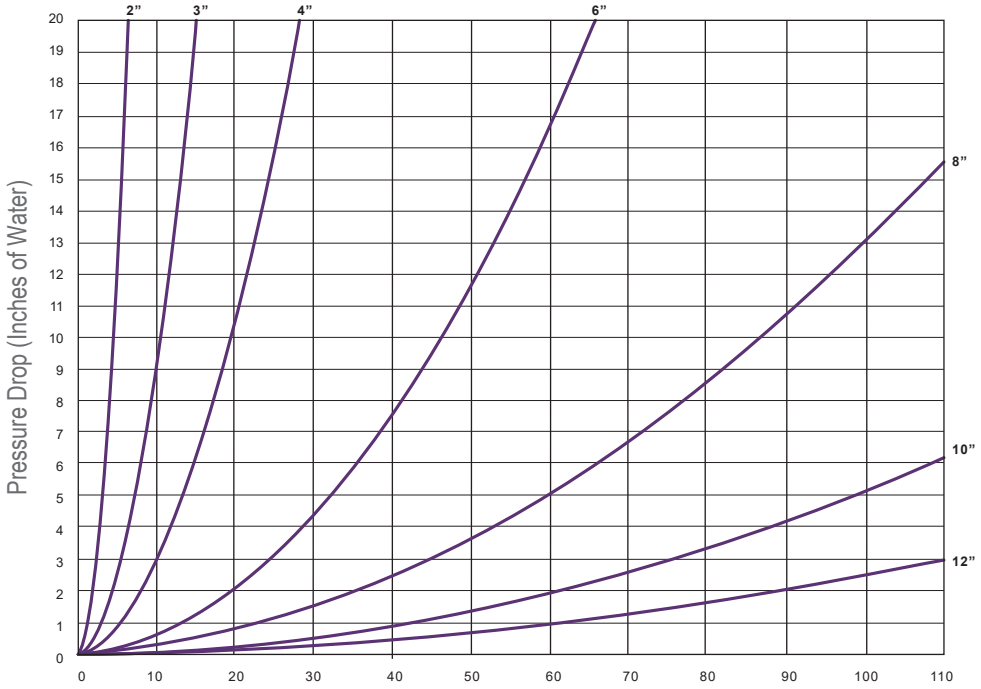
Optional Accessories

Three-Way Solenoid Valve
A three-way solenoid valve can be specified to allow optimized control of digester gas flow to the waste gas burner for combustion. The unit offers added safety to a waste gas system by providing a regulator that will stay closed until a pilot flame is proven. During this period, the three-way solenoid valve is in a de-energized state, and maintains equal pressure on the regulator diaphragm.

Upon confirmation of a pilot flame, the three-way solenoid valve is energized by an alarm contact or interposing relay in the waste gas burner control panel, which then releases pressure from above the diaphragm and allows the regulator to open. When the three-way solenoid valve is de-energized, gas is applied to the top of the diaphragm, closing the regulator.

Specifications

Flow Curves 386 SERIES



NOTE: Flow states SCFH, air can be corrected for gas at other specific gravities and temperatures. (See Technical Section)

Ordering Information

Model	Description
386	Pressure Relief Regulator

Code	Size	Standard Set Range [1]	High Set Range [1]
02	2"	2" - 12" (50 - 300mm) WC	3" - 25" (75 - 625mm) WC
03	3"	2" - 12" (50 - 300mm) WC	2" - 16" (50 - 400mm) WC
04	4"	2" - 12" (50 - 300mm) WC	2" - 16" (50 - 400mm) WC
06	6"	2" - 12" (50 - 300mm) WC	10" - 20" (250 - 500mm) WC
08	8"	2" - 12" (50 - 300mm) WC	10" - 20" (250 - 500mm) WC
10	10"	2" - 7" (50 - 175mm) WC	7" - 15" (175 - 350mm) WC
12	12"	2" - 7" (50 - 175mm) WC	7" - 15" (175 - 350mm) WC

Code	Pressure Setting Range [1]
1	Standard Set Range (See Table Above)
2	High Set (See Table Above)

Code	Solenoid Valve Option
*	Not Required
1	110 VAC/ 50 Hz, 120 VAC/ 60 Hz
2	220 VAC/ 50 Hz, 240 VAC/ 60 Hz
3	Special - Specify with Purchase Order

386	06	1	1	(Example)

Example: 6" Single Port Back Pressure Regulator, Standard Setting with 120 VAC Solenoid Valve.
NOTE: 1 - Consult factory for special setting or variations in setting range requirements.