

Varec Biogas 450 Series

Flame Trap Assembly

The 450 Series Flame Trap Assembly is designed for use on lines to flares and fired process units to safely prevent a flame flashback.

INTRODUCTION

The Varec Biogas 450 Series Flame Trap Assembly was designed for use on lines to flares and fired process units to safely prevent a flame flashback. The extensive range of sizes allows its use in many applications encountered in the typical tank farm, liquid storage facility, landfill or waste water treatment system.

The 450 Series has been designed for use on gases and should be installed no more than 15 feet from the end of the pipe nearest a possible source of ignition.

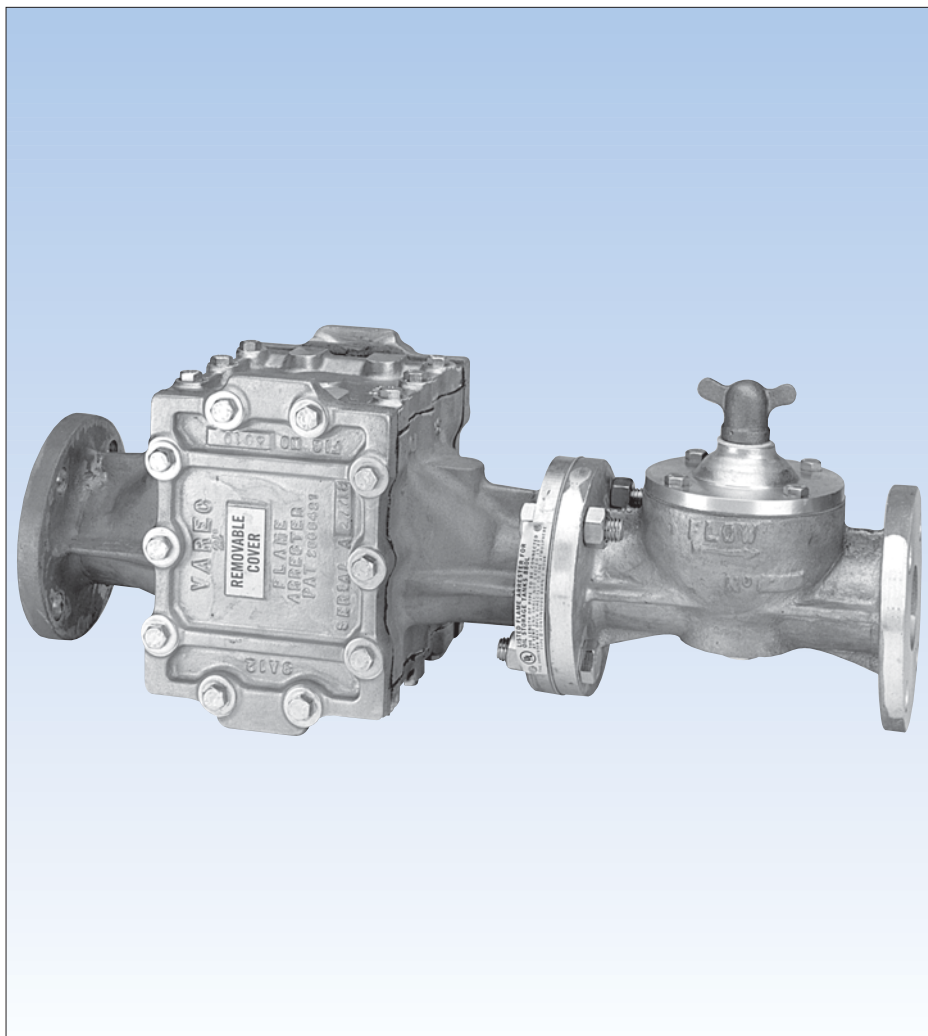
The Flame Arrester on the Varec Biogas 450 Series Flame Trap Assembly is uniquely designed with corrugated bank sheets contained within an extensible frame. The housing design allows for the removal of the entire bank assembly without the need for jack screws or other such methods which may cause stress on the piping system. The sheets can be easily inspected and cleaned.

Flow curves are provided to assist you in selecting the proper size unit for your application requirements. In addition, Varec Biogas's applications engineering staff and factory trained representatives are always available to assist you.

OPERATION

The 450 Series Flame Trap stops the propagation of a flame by absorbing and dissipating heat through the surface area of the bank assembly. Ignited vapor attempting to pass through the arrester is forced through small passages within the bank assembly. Heat is absorbed, lowering the temperature of the gas below its ignition point and quenching the flame.

Should the flame continue to burn, the thermal element, rated at 260°F, melts, causing the spring loaded pallet of the thermal shut-off valve to positively close which prevents ignited gas from traveling downstream.



GAS CONTROL

The thermal element can be easily replaced without disassembling the valve so that the unit may be quickly returned to service after a flashback.

The 450 Series was designed primarily for severe service applications where frequent cleaning is expected.

DESIGN FEATURES

- Low pressure drop across unit.
- Unique design allows for cleaning of element.
- Passive device for positive flame arrestment.
- Extensive range of materials available.
- Spring actuated thermal valve.
- Available in sizes 2" - 12" (50 - 300 mm).
- Removable / replaceable bank assembly.

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SPECIFICATIONS

Materials of Construction

Valve Body, Arrester Housing

356 T6 low copper aluminum.

Valve Internals

Low copper aluminum.
Stainless steel.

Thermal Element

260° F metal aluminum.

Flame Arrester Bank

Low copper aluminum extensible frame with aluminum bank sheets.

Low copper aluminum extensible frame with 316 SS bank sheets.

Pressure Rating

Leak proof to 5 psi (34 kPa), standard.

Flanged Connections

125 lb. ANSI FF Flange

Flame Arrester Configuration

Net Free Area

Three to four times the corresponding size standard pipe.

Bank Assembly

Extensible bank frame with corrugated rectangular shaped bank sheets.

Drain Connection (Horizontal)

1/2" NPT connection.

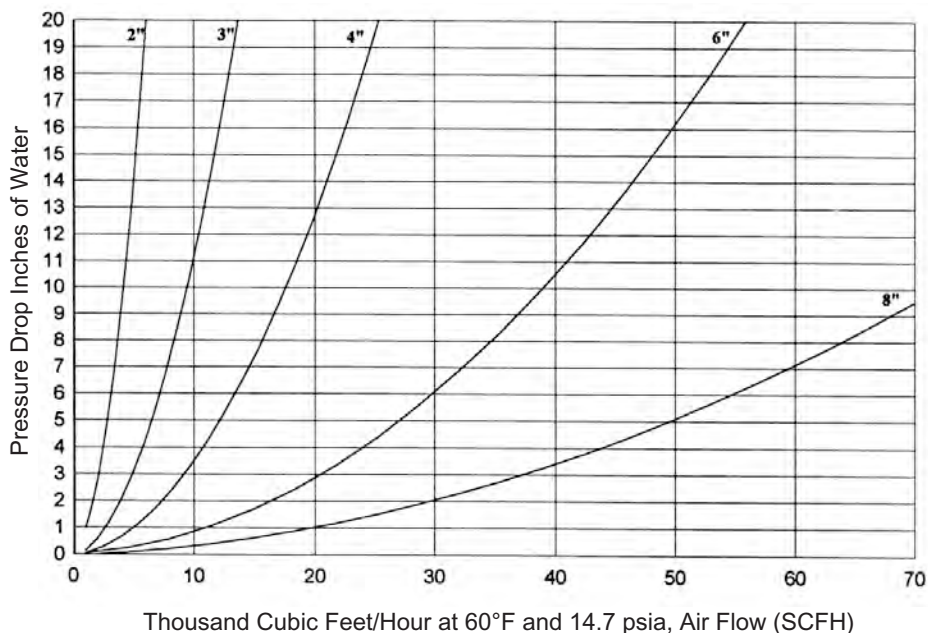
Location

Within 15 feet (4.6 m) of flame source.

FLOW CAPACITY

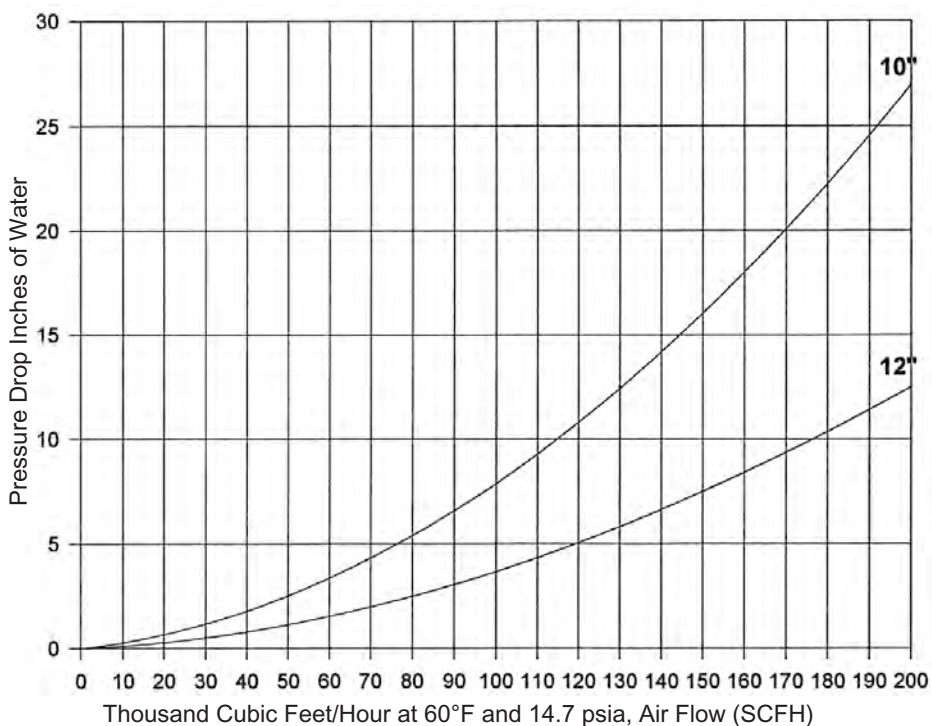
FLOW CURVES

MODEL 450 2" - 8" SIZES



FLOW CURVES

MODEL 450 10" - 12" SIZES



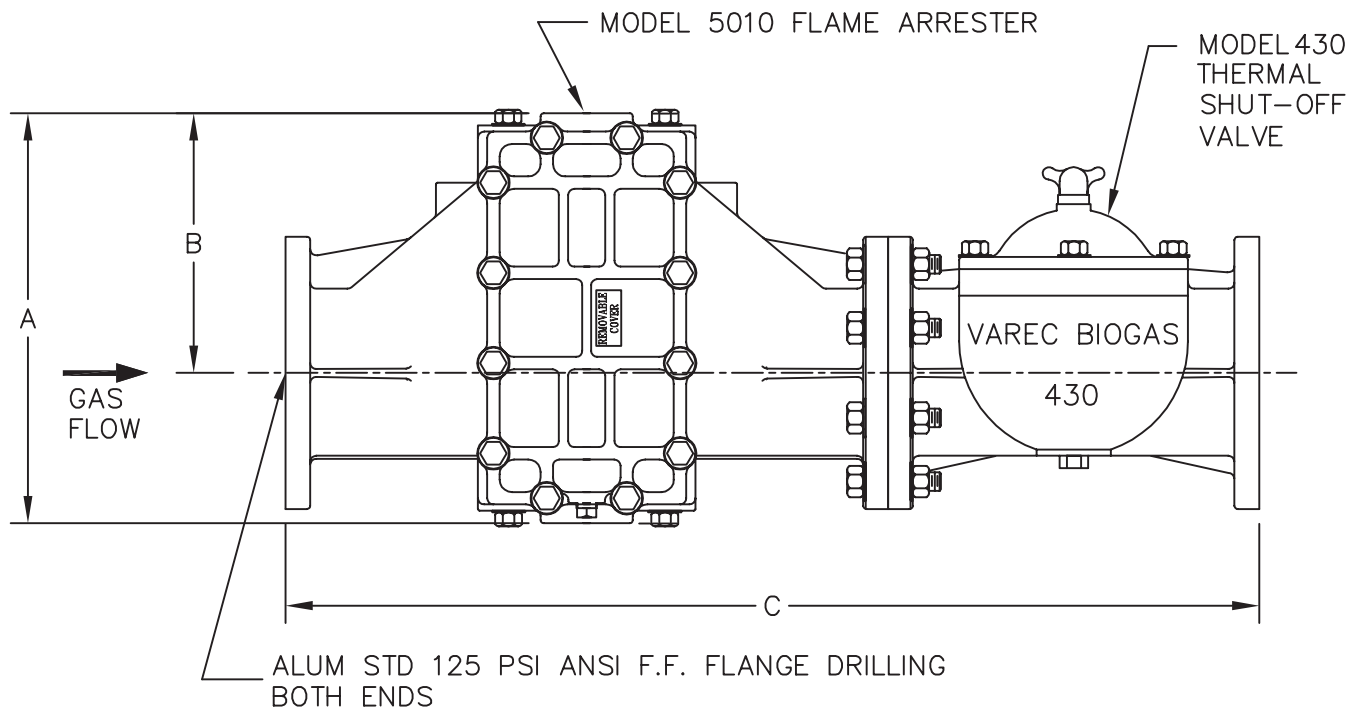
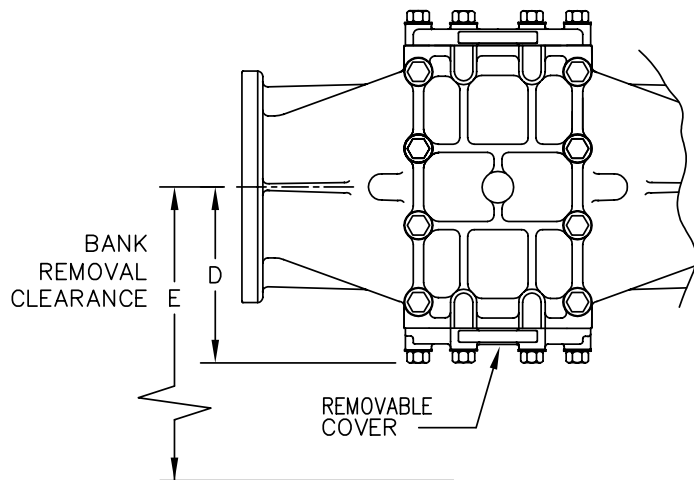
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Flame Trap Assembly

SPECIFICATIONS

Horizontal Installation, Dimensions, inches [millimeters]

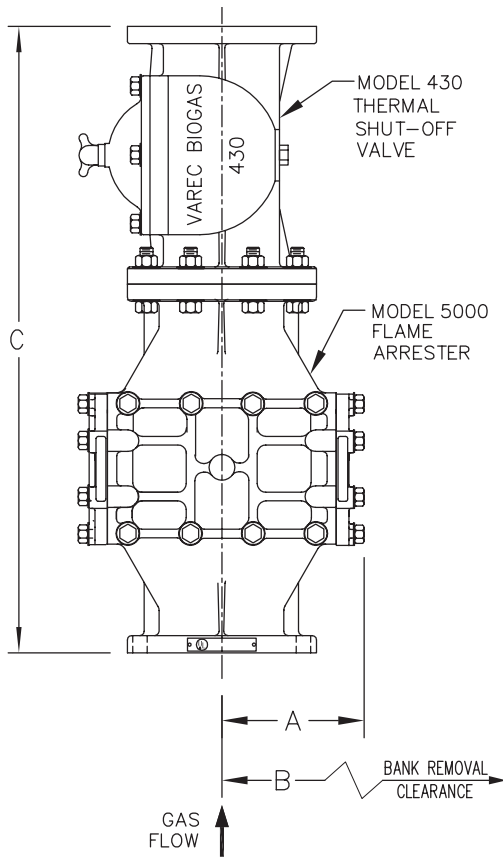
Size Code	02	03	04	06	08	10	12
Nominal Pipe Size	2 [50]	3 [75]	4 [100]	6 [150]	8 [200]	10 [250]	12 [300]
A	9 [229]	11 ³ / ₄ [298]	14 [356]	16 ³ / ₈ [416]	21 ⁵ / ₈ [549]	24 [610]	31 [787]
B	5 ³ / ₈ [137]	7 ¹ / ₄ [184]	9 [229]	10 ³ / ₄ [273]	14 ³ / ₈ [365]	16 [406]	20 [508]
C	23 ⁵ / ₁₆ [592]	26 ¹ / ₁₆ [662]	31 ⁷ / ₁₆ [799]	39 ⁷ / ₁₆ [1002]	54 ⁷ / ₁₆ [1383]	63 ³ / ₈ [1608]	67 ⁷ / ₁₆ [1711]
D	4 ⁵ / ₁₆ [110]	5 ⁵ / ₈ [143]	7 [178]	8 ¹ / ₄ [210]	10 ³ / ₄ [273]	11 ⁷ / ₈ [302]	14 ¹ / ₂ [368]
E	18 ³ / ₄ [476]	22 ⁷ / ₈ [582]	27 [686]	30 ³ / ₄ [781]	38 ¹ / ₄ [972]	41 ⁵ / ₈ [1057]	49 ¹ / ₂ [1257]



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SPECIFICATIONS



Vertical Installation, Dimensions, inches [millimeters]

Size Code	02	03	04	06	08	10	12
Nominal Pipe Size	2	3	4	6	8	10	12
	[50]	[75]	[100]	[150]	[200]	[250]	[300]
A	4 ⁵ / ₁₆ [110]	5 ³ / ₄ [146]	7 ³ / ₈ [187]	8 ³ / ₈ [213]	10 ⁷ / ₈ [276]	11 ⁷ / ₈ [302]	14 ⁵ / ₈ [371]
B	19 [483]	23 ¹ / ₄ [591]	28 ¹ / ₈ [714]	31 ¹ / ₈ [791]	38 ⁵ / ₈ [981]	41 ⁵ / ₈ [1057]	50 [1270]
C	217 ¹ / ₁₆ [545]	231 ¹⁵ / ₁₆ [608]	281 ¹ / ₁₆ [713]	369 ⁹ / ₁₆ [929]	499 ⁹ / ₁₆ [1259]	561 ¹ / ₄ [1429]	677 ⁷ / ₁₆ [1713]

ORDERING INFORMATION

Model	Description
450	Flame Trap Assembly
Code	Size
02	2"
03	3"
04	4"
06	6"
08	8"
10	10"
12	12"
Code	Flame Arrester Bank Sheet Material
1	Aluminum
2	Aluminum Frame, 316 SS sheets
Code	Mounting
1	Horizontal installation
2	Vertical installation
Code	Hardware Material
*	Zinc Plated Steel
S	Stainless steel

450 06 1 1 * (Example)

Example: 450 Series Flame trap assembly, 6" size, aluminum bank sheets, horizontal installation, zinc plated steel hardware.