

Waste Gas Burner (Ground-Level Ignition)

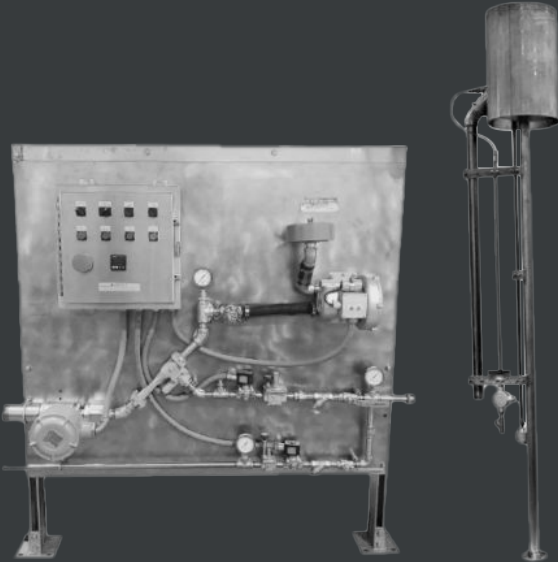
The Shand & Jurs Biogas® Model 97301 Waste Gas Burner combusts excess biogas when system pressure exceeds utilization capacity in anaerobic digestion, lagoon, and landfill gas systems. The burner stabilizes digester gas pressure when production exceeds consumption capacity, preventing uncontrolled methane release and maintaining safe operating conditions.

The burner incorporates a high-performance stoichiometric pilot maintains the proper air-to-fuel mixture across wide variations in methane concentration, pressure, and saturated moisture typical of digester gas. The burner tip incorporates swirl inducers that generate cyclonic air-fuel mixing while the wind shroud induces sufficient air to maintain stable combustion throughout the operating range.

Ignition is provided by a ground-level venturi pilot system, allowing safe access for maintenance and inspection without elevated pilot servicing. Stainless steel flame-zone components and wind-protected pilot hardware support reliable combustion in severe outdoor environments, including wind speeds up to 150 mph.

The 97301T variant adds a touchscreen control interface for local monitoring and system configuration while maintaining identical combustion performance.

For enclosed combustion where visible flame must be eliminated, see the Shand & Jurs Biogas Model 97311 Enclosed Waste Gas Burner.



Key Features

High-performance stoichiometric pilot Maintains stable air-fuel ratio across wide pressure and BTU fluctuations.	Ground-level venturi pilot ignition Allows safe ignition and service access without elevated pilot maintenance.	Cyclonic swirl-inducer flare tip Promotes efficient air-fuel mixing and improves flame retention.
Wind-shrouded combustion tip Maintains stable combustion in wind conditions up to 150 mph.	Continuous or intermittent pilot operation Supports reliable ignition while optimizing pilot gas consumption.	Solid-state control system Provides sequencing logic with flame-proven and alarm outputs.



Benefits



CONTROLLED EXCESS GAS COMBUSTION

Prevents digester or gas holder overpressure when gas production exceeds consumption capacity.



STOICHIOMETRIC PILOT STABILITY

Maintains reliable ignition across wide BTU and pressure fluctuations typical of wet biogas.



HIGH-FLOW WET METHANE COMBUSTION

Allows safe disposal of saturated digester gas without additional conditioning equipment.



GROUND-LEVEL IGNITION ACCESS

Reduces maintenance complexity and improves technician safety.



WIND-RESISTANT COMBUSTION DESIGN

Maintains stable flaring during severe outdoor conditions up to 150 mph.



SCADA-INTEGRATED CONTROLS

Enables remote monitoring and automated flare system operation.

Available Options



Touchscreen control panel (97301T)

Provides local monitoring and operator interface.



Continuous or intermittent pilot

Matches fuel consumption and ignition reliability preferences.



Explosion-proof enclosure (NEMA 7)

Supports installation in classified hazardous locations.



316 stainless steel piping and fittings

Improves corrosion resistance in aggressive biogas environments.



Remote, Pressure Transmitter, or Pressure switch start

Enables pressure-activated flare system operation.



Weather hood and stand

Protects control equipment and supports flexible installation.



Key Performance Data

Parameter	Value
Sizes	2", 3", 4", 6", 8", 10", 12"
Capacity	4,000 – 218,600 ft³/hr
Stack Burner Connection	ANSI 150 lb. Raised Face Flange
Wind Rating	Up to 150 mph
Power Requirements	120 VAC, 10 A standard • 220 VAC optional
Pilot Gas	Natural gas • Propane • waste gas (≥500 BTU/ft³)
Pilot Gas Pressure	4"-30" W.C. (Low pressure) or 1-30 PSIG (High pressure)
Biogas Composition	50-70% CH ₄ with CO ₂ balance and trace gases
Moisture Content	Saturated (100% humidity)
Controller Temperature Range	-20°F to 150°F
Control Modes	Manual start or Remote start or Pressure Transmitter or Pressure-switch start
Venturi	347 Stainless Steel
Pilot Operation	Continuous while burning, intermittent or 24/7 standing pilot
Thermocouple	Inconel with Type K wiring
Control Box	NEMA 4, NEMA 4X Stainless Steel or NEMA 7 Aluminum – UL508A available.
Turndown	10:1 (Typical)
Materials of Construction	• Stack with Shroud: 304L Stainless Steel (316L optional) • Burner Assembly: Stainless Steel (316L optional) • Piping: 304L Stainless Steel (316L optional) • Pilot Components: 316 Stainless Steel • Hardware: Stainless Steel

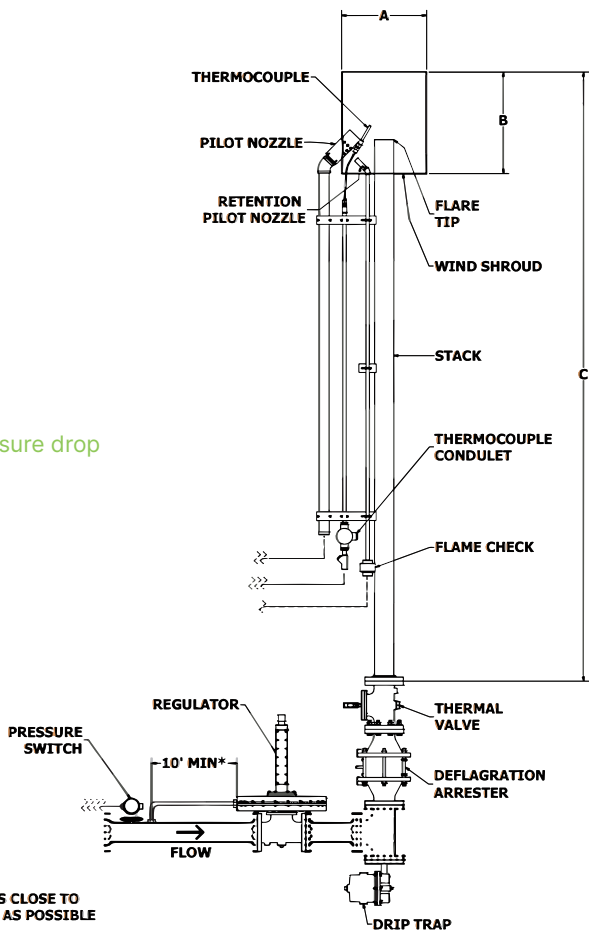
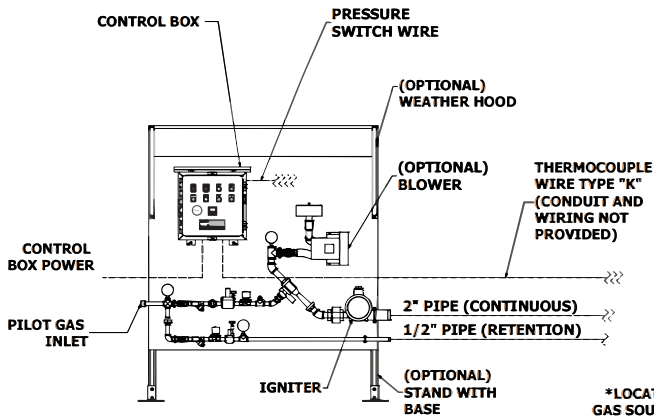


Dimensions

Stack Dimensions

Dimensions (Inches [mm])			
Size	A	B	C
2 [50]	16 [406]	24 [610]	88 [2235]
3 [75]	18 [457]	24 [610]	92 [2337]
4 [100]	20 [508]	24 [610]	92 [2337]
6 [150]	24 [610]	36 [914]	128 [3251]
8 [200]	24 [610]	48 [1219]	144 [3658]
10 [250]	30 [762]	48 [1219]	176 [4470]
12 [300]	36 [914]	60 [1524]	188 [4775]

Flow specified for gas with 0.8 specific gravity, air at 60o F, and .5" WC pressure drop



Model Number Selection

The model number will have a base number 97301 or 97301T followed by 9 digit numbers. These digits will represent 9 sets of option tables.

Standard: 97301 - AB - CD - EF - GH - I
Touchscreen: 97301T - AB - CD - EF - GH - I

Table A - Pilot Gas

Option A	Pilot Gas
0	Natural
1	Propane
3	Auto Dual*
4	Manual Dual*

* Biogas or other gas continuous pilot

Table C - Power Source / P.E. Certificate

Option C	Description
1	120 VAC, 60HZ
2	220/240 VAC, 60HZ
3	120 VAC, 60HZ with P.E. Cert
4	220/240 VAC, 60HZ with P.E. Cert

Table B - Unit Size

Option B	Unit Size
2	2"
3	3"
4	4"
5	6"
7	8"
8	10"
9	12"
A	2" Beveled Shroud
B	3" Beveled Shroud
C	4" Beveled Shroud
D	6" Beveled Shroud
E	8" Beveled Shroud
F	10" Beveled Shroud
G	12" Beveled Shroud



Table D - Enclosure Rating / UL

Option D	Description
0	NEMA 4 - Carbon Steel
1	NEMA 7 - Cast Aluminum
2	NEMA 4X - 304 Stainless Steel
3	NEMA 4X - 316 Stainless Steel
4	NEMA 4 - Carbon Steel (UL 508A)
5	NEMA 7 - Cast Aluminum (UL 508A)
6	NEMA 4X - 304 SS (UL 508A)
7	NEMA 4X - 316 SS (UL 508A)

Table E - Control Inputs

Option E	Description
1	1 Dry Contact Input
5	2 Dry Contact Inputs
6	1 4-20MA Analog Input
7	1 4-20MA Analog + 1 Dry Contact Input

Typically Dry Contacts are used for SCADA or pressure switch.
Analog for pressure transmitter.

Table F - Pilot

Option F	Description
1	Continuous (ON While Flaring)
2	Intermittent (OFF While Flaring)
3	Continuous (ON While Flaring; 347 SS*)
4	Intermittent (OFF While Flaring; 347 SS*)
5	Continuous (ON While Flaring) + 4-20MA Temp Out
6	Intermittent (OFF While Flaring) + 4-20MA Temp Out
7	Continuous (ON While Flaring; 347 SS*) + 4-20MA Temp Out
8	Intermittent (OFF While Flaring; 347 SS*) + 4-20MA Temp Out

* 347 Stainless Steel Venturi

Table G - Blower/Control Box Location

Option G	Description
2	Blower Motor - NEMA 7 / Local C.B.
4	Blower Motor - NEMA 7 / Remote C.B.
5	No Blower / Local C.B.*
6	No Blower / Remote C.B.*

*5 PSIG minimum pressure required

Table H - Control Panel Construction*

Option H	Description
2	304 SS Panel, Pipe & Fittings
3	304 SS Panel, Pipe, Fittings & Base
4	304 SS Panel, Base & Weatherhood
5	304 SS Panel w/ 316 SS Pipe & Fittings
6	304 SS Panel & Base w/ 316 SS Pipe & Fittings
7	304 SS Panel, Base & Weatherhood with 316 SS Pipe & Fittings

NOTE: *Other materials available upon request.

Table I - Materials of Construction

Option I	Stack / Piping
2	304(L) Stainless Steel / 304(L) Stainless Steel
4	316(L) Stainless Steel / 316(L) Stainless Steel

NOTE: Pilot Material 316 Stainless Steel

Summary

The Model 97301 Waste Gas Burner provides reliable combustion of excess biogas while stabilizing digester system pressure during periods when gas production exceeds utilization capacity. Its ground-level pilot ignition, stoichiometric pilot stability, and wind-protected flare tip support dependable operation in demanding outdoor environments. The 97301T adds touchscreen monitoring and control visibility while maintaining identical combustion performance.

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This document is for information purposes only. All designs subject to change. Certified dimensions, specifications, and performance data available upon request