

## 97300 Waste Gas Burner

The S&J 97300 Waste Gas Burner is designed to combust biogases generated in fermentation processes. It efficiently incinerates low BTU gases from anaerobic digesters, lagoons, and municipal landfills, minimizing odors and VOC's. The stoichiometric pilot ensures that a proper air to fuel mixture is maintained throughout the wide range of pressure and BTU fluctuations. A continuous burning pilot in the flame area provides stable, controlled, nonsmoking, combustion.

The 97300 is designed to withstand wind speeds up to 150mph as well as seismic zone 4 loads. Its stainless steel components endure the severest of process environments. The burner tip is designed with swirl inducers that create a cyclonic effect producing an efficient air/fuel mixture and maximizes flame retention. The wind shroud induces sufficient air to the flare tip for proper mixing and combustion throughout the operating range.

The Pilot Control Box includes selector switches for the powering, resetting, and emergency stopping of the unit. It also includes indicator lights for power and flame proven.

The Pilot Control Box utilizes state of the art electronics and instrumentation for safe operation. Pilot controls are enclosed in a NEMA 4, carbon steel, electrical enclosure (NEMA 4X, 304 or 316 optional). For automatic operation, the flare's pilot can be designed to operate only during initial startup or continuously. The Pilot Control Box includes a dry contact input for Remote Start from a SCADA system or a pressure switch. It also includes Contact Status outputs for Alarm and Flame Proven.

The auto-ignition sequence is started by the closing of the remote start contact or pressure switch contact. This will indicate that the gas pressure limit has been reached and flaring of excess gas should begin. The operation of the burner will continue until the contact opens.



## Features

- High Performance Stoichiometric Pilot
- No Flame Front Burn-out of Pilot Gas During Ignition
- Sizes 2" Through 12"
- Burns High Flow, Low BTU "Wet" Methane
- No Venturi Maintenance
- State-of-the-Art Digital Control
- Fully Automated Pilot: Continuous or Intermittent While Flaring
- Provides Alarm Outputs

**Specifications:**

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**Sizes:**

2", 3", 4", 6", 8", 10" & 12"

**Stack Burner Connection:**

ANSI 150 lb. Raised Face Flange

**Contact Outputs:**

Alarm SPST, 120 VAC 1 Amp  
Flame Proven SPST, 120 VAC 1 Amp  
Other Status Outputs Available

**Controller:**

Temperature Range: -20 to 150 degrees F  
Enclosure: Steel; NEMA 4X,  
Stainless Steel; NEMA 7,  
Aluminum  
Functions: Manual Start, Remote Start  
Automatic Sequencing  
Continuous Pilot or  
Intermittent Pilot

**Stack Materials:**

Stack with Shroud: 304L Stainless Steel  
316L Stainless Steel (Optional)  
Piping: 304L Stainless Steel  
316L Stainless Steel (Optional)

**Power Requirements:**

120 VAC 4 Amp, 240 VAC 2 Amp (Optional)

**Biogas Criteria Composition:**

50%-70% CH<sub>4</sub>, 50%-30% CO<sub>2</sub>, with trace amounts of  
H<sub>2</sub>S, Inert Gases and Air

**Moisture Content:**

Saturated (100% Humidity)

**Pilot Gas:**

Natural Gas  
Propane (LPG)  
Waste Gas (500 BTU/ Cubic Foot Minimum)

**Pilot Gas Pressure:**

12" W.C. - 10 PSIG

**1/2" NPT Pilot Control Train:**

Block Valve  
Strainer  
Pressure Regulator  
NEMA 7 Solenoid Valve  
Pressure Gauge

**Functions:**

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**Manual Start:**

The operator puts selector to manual and initiates ignition by depressing the start push-button on the control panel.

**Remote Start:**

Remote ignition is performed by placing selector switch in the auto position and closing the remote location dry contact to initiate the operation of the waste gas burner.

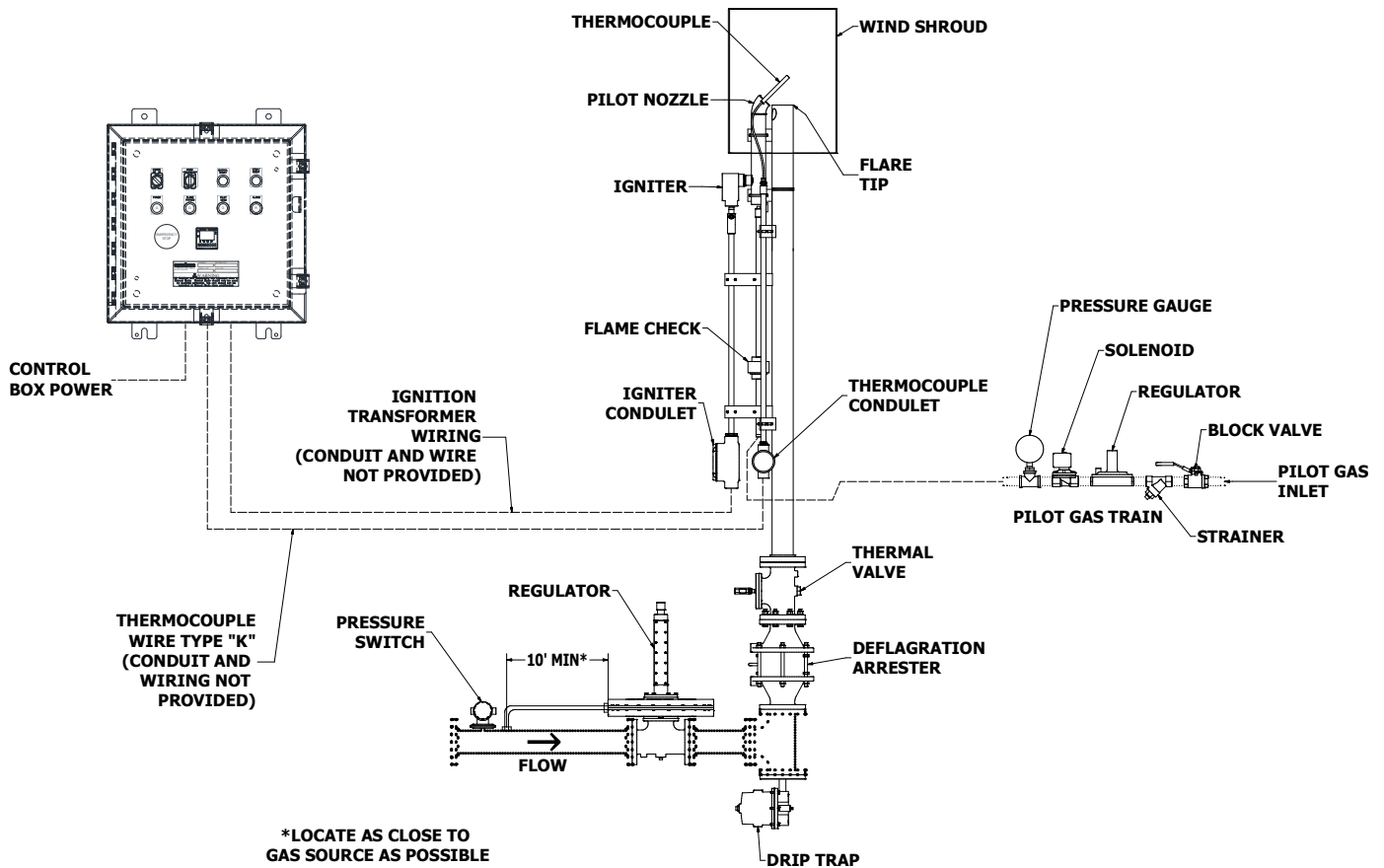
**Auto Start:**

Automatic Start is performed by the sensing of a pressure permissive in the system. The pilot control panel must be set to "Auto" position for this to be controlled by the pressure switch. When the pressure switch contacts close, the auto flaring sequence will begin. Once the pressure drops below the pressure switch set point the contacts will open, halting operation.

**Accessories:**

A back pressure regulator / deflagration arrester should be installed in the digester line just upstream of the flare. For automatic operation, the solenoid option must be selected on the back pressure regulator.

## 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]

## Capacity

Size (Inches mm)	Capacity (FT <sup>3</sup> /Hr.)
2 [50]	4000
3 [75]	9970
4 [100]	22250
6 [150]	44200
8 [200]	76800
10 [250]	129000
12 [300]	218600

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

All designs subject to change. Certified dimensions and specifications available upon request.

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# 97300 Ordering Guide

## Model Number Selection

The model number will have a base number **97300** followed by 8 digit numbers. These digits will represent 8 sets of option tables.

**97300 - AB - CD - EF - GH**

**Table A - Pilot Gas**

Option A	Pilot Gas
0	Natural
1	Propane
2	Bio
3	Dual

**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 C - Power / P.E. Certificate**

Option C	Description
1	120 VAC, 60HZ
2	220/240 VAC, 50/60HZ
3	120 VAC, 60HZ with P.E.
4	220/240 VAC, 50/60HZ with P.E.

**Table D - Enclosure Rating / UL**

Option D	Description
0	NEMA 4X - Carbon Steel
1	NEMA 7 - Cast Aluminum
2	NEMA 4X - 304 Stainless Steel
3	NEMA 4X - 316 Stainless Steel
4	NEMA 4X - 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 Type**

Option F	Description
1	Continuous (ON While Flaring)
2	Intermittent (OFF While Flaring)
5	Continuous (ON While Flaring) + 4-20MA Temp Out
6	Intermittent (OFF While Flaring) + 4-20MA Temp Out

Pilot is always off when not flaring.

**Table G - Gas Train**

Option G	Description
0	Standard*

**Table H - Materials of Construction**

Option H	Stack / Piping
2	304(L) Stainless Steel / 304(L) Stainless Steel
4	316(L) Stainless Steel / 316(L) Stainless Steel
5	304(L) Stainless Steel / 316(L) Stainless Steel
6	316(L) Stainless Steel / 304(L) Stainless Steel

NOTE: Pilot Material 316 Stainless Steel

## Accessories

PART NUMBER	DESCRIPTION
9730-10124	Pressure Switch - Explosion Proof, 30" W.C. Adjustable Deadband 1/4" NPT
122200	Pressure Transmitter - Explosion Proof, 1/2" NPT, 4-20 Output, 1.5 PSI Max