

97310 Enclosed Burner

The S&J 97310 Enclosed Burner removes harmful emissions from waste gas streams. Typical applications include fermentation off gas piping systems such as anaerobic digesters. This unit is specifically designed to bring emissions levels to within allowable limits as dictated by customer requirements or governmental bodies such as the EPA.

Every unit is designed for maximum destruction efficiency for each application's process parameters. Provides very low NO_x and CO emissions. Key data, such as gas stream composition and flow rates, are used to determine the appropriate residence time of the waste gas inside the stack. This is critical to both the reliability of the emissions removal as well as the efficiency of operation.

Components of construction include carbon steel or stainless steel for stack, pedestal, base, pilot piping and manifold as specified.

The Automatic Ignition System accepts a remote contact or signal from a pressure sensor to initiate ignition sequences. Advanced pilot design include UV sensor for positive flame proofing. Pilot System includes pilot pressure regulators and shut-off valves as specified.

The S&J 97310 can be configured with any combination of measuring instruments for complete recording and reporting. Flexible operation is achieved through innovative software and hardware design.

Convertible manways for ease of maintenance and inspection.

The S&J 97310 withstands the severest of process environments including high wind loading and seismic conditions as specified.



Features

- No visible flame
- Controlled Combustion environment with natural draft design
- Meets emission standards of EPA & local regulations
- High Destruction removal efficiency
- High turn down ratios
- Convenient sampling ports
- Operates with low input pressures
- Advanced automatic ignition system

Specifications:

Sizes:

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

Manifold Connection:

ANSI 150 lb. Raised Face Flange

Contact Outputs:

Alarm	SPDT, 120 VAC 1 Amp
Pilot Proven	SPDT, 120 VAC 1 Amp
Pilot Fail (Optional)	SPDT, 120 VAC 1 Amp
High Temp. Shutdown (Optional)	SPDT, 120 VAC 1 Amp
Low Temp. Shutdown (Optional)	SPDT, 120 VAC 1 Amp
Purge Fail (Optional)	SPDT, 120 VAC 1 Amp
Burner Flashback (Optional)	SPDT, 120 VAC 1 Amp

Power Requirements:

120 VAC 30 Amp 60 Hz (Standard)
220 VAC (Optional)

Controller:

Temperature Range:	-20 to 150 degrees F
Enclosure:	Wall Mount NEMA 4 (Optional NEMA 4X or 7);
Enclosure Material:	Carbon Steel Optional: Stainless Steel
Functions:	Manual Start Remote Start Automatic Sequencing Continuous Pilot or Intermittent Pilot

Materials of Construction:

Top Assembly Stack	Stainless Steel
Bottom Burner Assembly:	Carbon Steel (Optional Stainless Steel)
Manifold and Pilot Assembly	Stainless Steel *Other materials available

Biogas Criteria Composition:

50%-70% CH₄, 50%-30% CO₂, with trace amounts of H₂S, Inert Gases and Air

Moisture Content:

Saturated (100% Humidity)

Pilot Gas:

Natural Gas
LPG (Propane)

Pilot Gas Pressure:

1 to 10 PSIG Standard (Low Pressure) - Standard
10 to 100 PSIG Standard (High Pressure)

Functions:

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 pressure regulator / flame arrester should be installed in the digester line just upstream of the flare. For automatic operation, a solenoid option must be included.

Diagram:

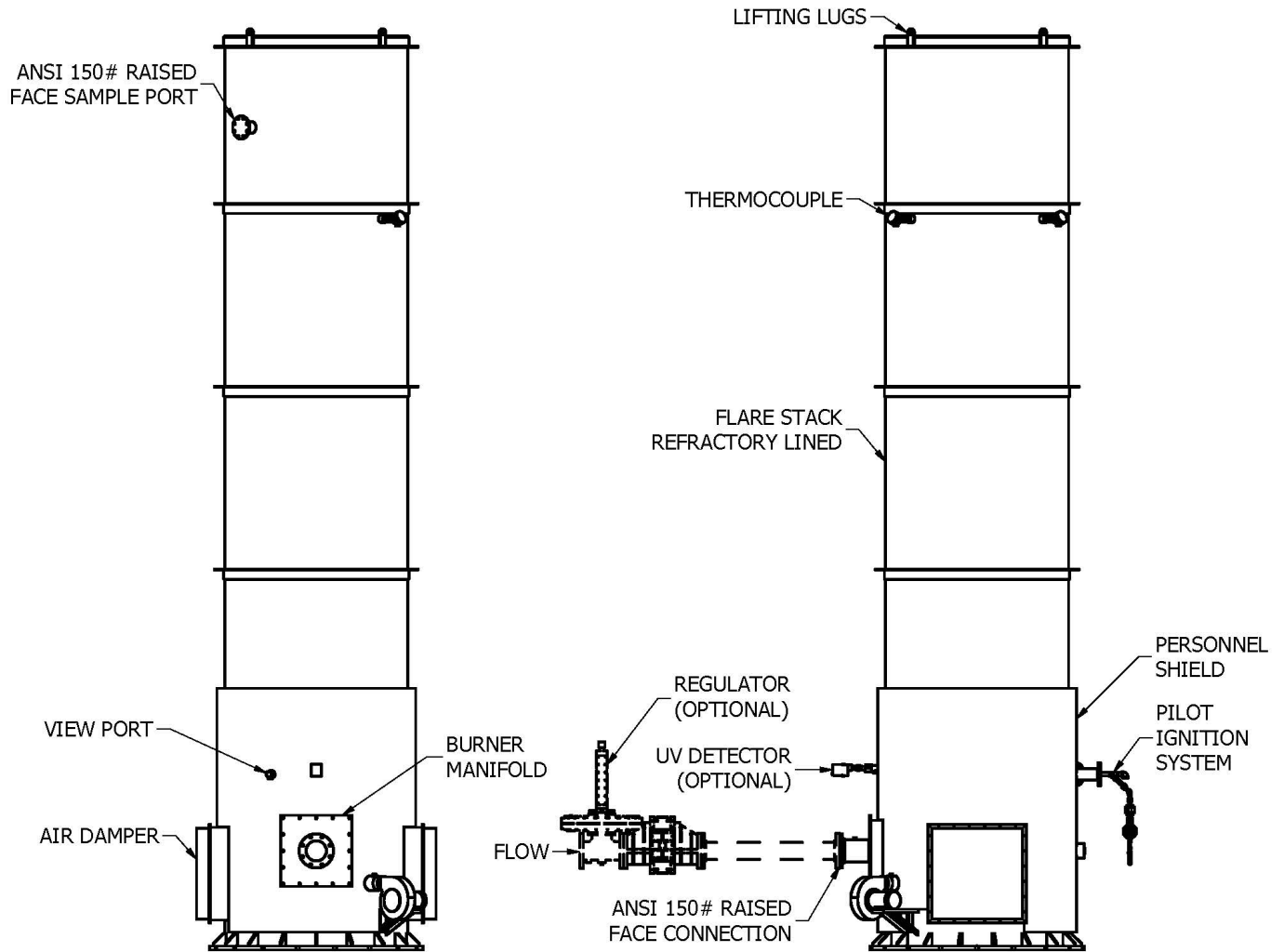


FIGURE 1

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

97310 Ordering Guide

Model Number Selection

The model number will have a base number **97310** followed by 9 digit numbers. These digits will represent 9 sets of option tables.

97310 - AB - CD - EF - GH - I

Table A - Pilot Gas

Option A	Pilot Gas
0	Natural
1	Propane

Table B - Unit Size

Option B	Unit Size
2	2"
3	3"
4	4"
5	6"
7	8"
8	10"
9	12"

Table C - Power Source

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 D - Enclosure Rating

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)

*Includes heater and thermostat

Table E - Control Inputs

Option E	Description
1	1 Dry Contact Input
2 - 4	Reserved
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.

Control 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

Table F - Materials of Construction

Option F	Base / Stack / Manifold
1	Carbon Steel / 304(L) Stainless Steel / 304(L) Stainless Steel
2	Carbon Steel / 304(L) Stainless Steel / 16(L) Stainless Steel
3	Carbon Steel / 316(L) Stainless Steel / 316(L) Stainless Steel
5	304(L) Stainless Steel / 304(L) Stainless Steel / 304(L) Stainless Steel
6	304(L) Stainless Steel / 304(L) Stainless Steel / 316(L) Stainless Steel
7	304(L) Stainless Steel / 316(L) Stainless Steel / 316(L) Stainless Steel
8	316(L) Stainless Steel / 316(L) Stainless Steel / 316(L) Stainless Steel

NOTE: Pilot, Burner Nozzle and Piping 316 Stainless Steel. Other Materials available upon request.

Table G - Antiflashback Burner/Manifold Construction

Option G	Description
1	310 Stainless Steel / 304 Stainless Steel
2	310 Stainless Steel / 316 Stainless Steel

Table H - Thermowell / Thermocouple Construction

Option H	Description
1	316 Stainless Steel / 316 Stainless Steel
2	Inconel / 316 Stainless Steel
3	Inconel / Inconel

Table I - Accessories*

Option I	Description
0	None
1	UV Detector
2	Flow Switch
3	UV Detector / Flow Switch

*Components NEMA 7

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