

GENERAL DESCRIPTION

The S1/Series gas, oil, and combination gas/oil burner is a forced draft packaged burner system. A backward curved impeller mounted in a machined housing provides combustion air for various furnace pressures or high altitude applications. The air housing is hinged for convenient inspection or service of the firing head components.

Oil firing features a low pressure air atomizing design. A oil metering valve, rotary vane air compressor, and air atomizing nozzle are integral parts of this system.

Gas firing features a dual gas manifold, each controlled by a butterfly gas valve and cam trim. Efficient gas combustion is attained by entering gas through ports ahead of the diffuser providing superior mixing of gas and air.

Excellent flame retention is assured at all firing rates. A gas manifold is provided on all oil burners for the future addition of gas.

Combination gas/oil burners change from one fuel to the other by simply flipping a switch. No burner modifications or readjustments are required when changing from one fuel to the other.

Every burner is assembled, wired and tested at the factory. Compressor modules and main gas train components are shipped loose.

The LNS1 is designed to operate throughout the firing range at less than 30 ppm NO_x and less than 50 ppm CO, corrected at 3% O₂, firing natural gas.

U.L. STANDARD EQUIPMENT

A. CONTROLS

1. 120/1/60 control circuit
2. Burner mounted junction box, and remote control panel
3. Motor starter(s)
4. Panel signal lights (4) (See Note 4)
5. Full Modulation with manual potentiometer (135 ohm)
6. Fuel changeover switch (combination gas/oil models)
7. Flame safeguard controls (See Note 1)
8. Combustion air proving switch
9. High fire air interlock switch

B. OIL SYSTEM

1. Burner mounted oil metering valve
2. Separate air compressor module
3. Air/lube oil reservoir
4. Fuel oil strainer (shipped loose)
5. 3-way motorized oil valve
6. S.S.O. oil solenoid valve with relief valve
7. Low oil pressure switch
8. Atomizing air interlock switch
9. Oil pressure regulator

C. MAIN GAS SYSTEM (See Note 2)

1. Two butterfly rate control valves
2. One motorized valve with proof of closure interlock and one motorized valve
3. N.O. vent valve
4. Gas shutoff cocks (2)
5. Main gas regulator
6. High and low gas pressure switches

D. GAS PILOT SYSTEM

1. Gas-electric interrupted pilot
2. Shutoff cock
3. Separate pilot regulator and valve

E. OTHER EQUIPMENT

1. 3450 rpm blower motor and impeller
2. Burner mounting flange
3. Refractory combustion cone and gasket
4. Hinged, swing-away air housing
5. Air dampers w/silencer
6. Bolt on firing head
7. Gas manifold is standard on all oil burners for future gas firing
8. Cam Trim U.L. listed

F. OPTIONAL EQUIPMENT

1. Plant atomizing air system using air regulating assembly
2. Steam atomization system with steam regulating assembly
3. Parallel positioning system
4. U.V. scanner
5. Totally enclosed and 50 cycle motors

G. LNS1 BURNERS

1. F.G.R. adaptor (specify top or bottom F.G.R.)
2. F.G.R. shutoff valve w/ modutrol motor
3. F.G.R. damper

NOTES

1. Lead sulphide scanner standard.
2. All main gas line valves and accessories upstream of butterfly valve are shipped loose
3. Standard motor voltages are 208-230-460/3/60
4. Signal lights: Power On, Main Fuel, Ignition, and Flame Failure
5. A separate oil circulating pump set is required for all oil and combination fuel burners. The burner mounted unit is an oil input metering device only.

ORDERING INFORMATION (SPECIFY)**Product Information**

1. Burner voltage, phase and cycle (See Page 1, Note 3)
2. Control Circuit Voltage (120/1/60)
3. Burner model and actual firing rate
4. Flame Safeguard Control
5. Special Code and/or Insurance Requirements
6. Available Gas Pressure

Type of fuel determines the model designation	
Model	Fuel
S1G	Gas
S1L	No. 2 Oil
S1LG	No. 2 Oil / Gas
LNS1G	Low NOx Gas
LNS1LG	Low NOx No. 2 Oil / Gas

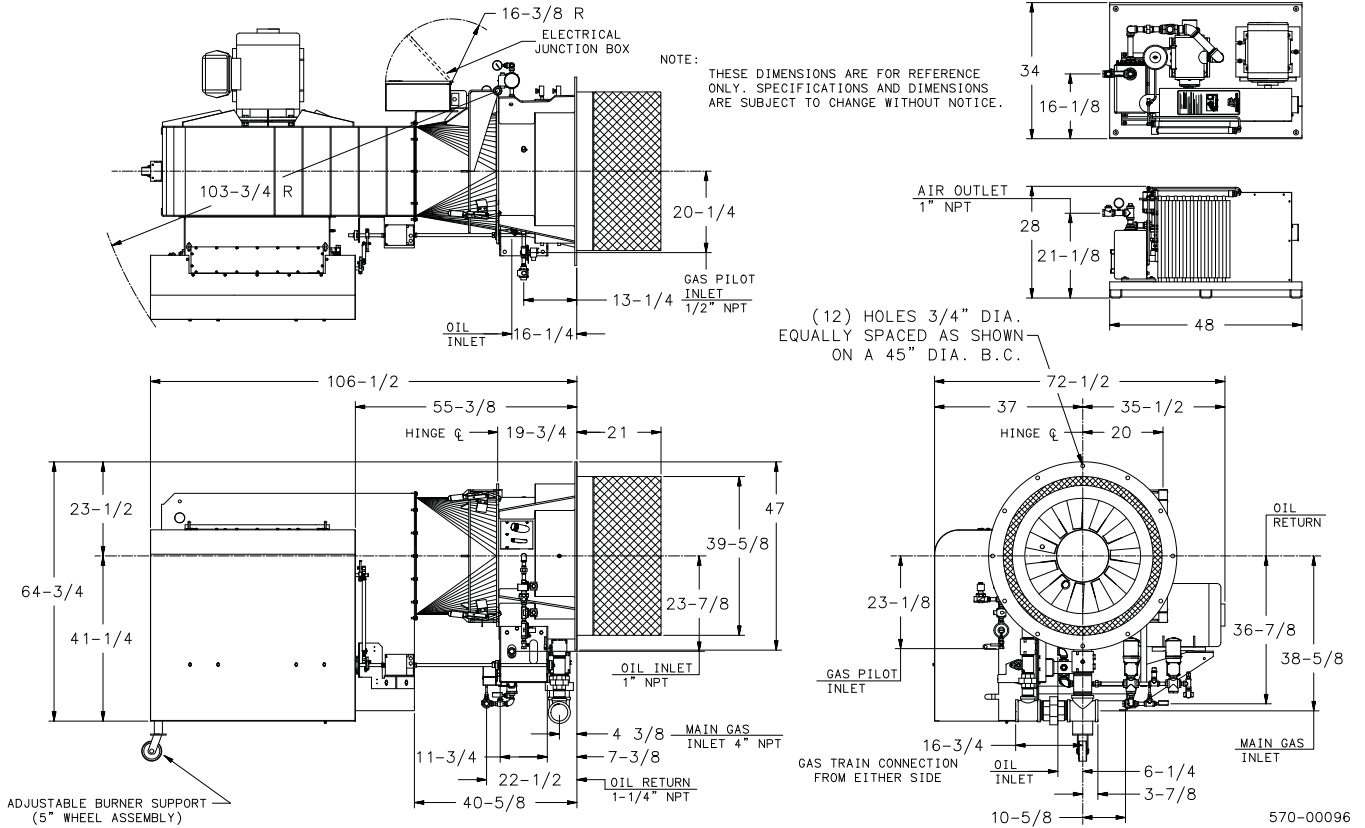
S1 SERIES CAPACITIES & SPECIFICATIONS	BURNER SIZE				
	462	504	546	588	630
GAS INPUT (Mbtu/hr) (See Note 1)	46,200	50,400	54,600	58,800	63,000
OIL INPUT (U.S. GPH) (See Note 2)	330	360	390	420	450
BOILER HP @ 80% EFF. (See Note 3)	1,100	1,200	1,300	1,400	1,500
GAS MANIFOLD PRESSURE (In. w.c.) (See Note 4)	43	48.5	56.2	61.8	67.8
BLOWER MOTOR HP (See Note 5)	75	75	100	100	100
AIR COMPRESSOR MOTOR HP	15	15	15	15	15
APPROX. SHIPPING WEIGHT (lbs.)	6,000	6,000	6,500	6,500	6,500

LNS1 SERIES CAPACITIES & SPECIFICATIONS	BURNER SIZE				
	462	504	546	588	630
GAS INPUT (Mbtu/hr) (See Note 1)	42,000	46,200	50,400	54,600	63,000
OIL INPUT (U.S. GPH) (See Note 2)	300	330	360	390	450
BOILER HP @ 80% EFF. (See Note 3)	1,000	1,100	1,200	1,300	1,500
GAS MANIFOLD PRESSURE (In. w.c.) (See Note 4)	32.4	37.3	45.4	50.9	61.8
BLOWER MOTOR HP (See Note 5)	75	75	100	125	125
AIR COMPRESSOR MOTOR HP	15	15	15	15	15
APPROX. SHIPPING WEIGHT (lbs.)	6,000	6,000	6,500	6,500	6,500

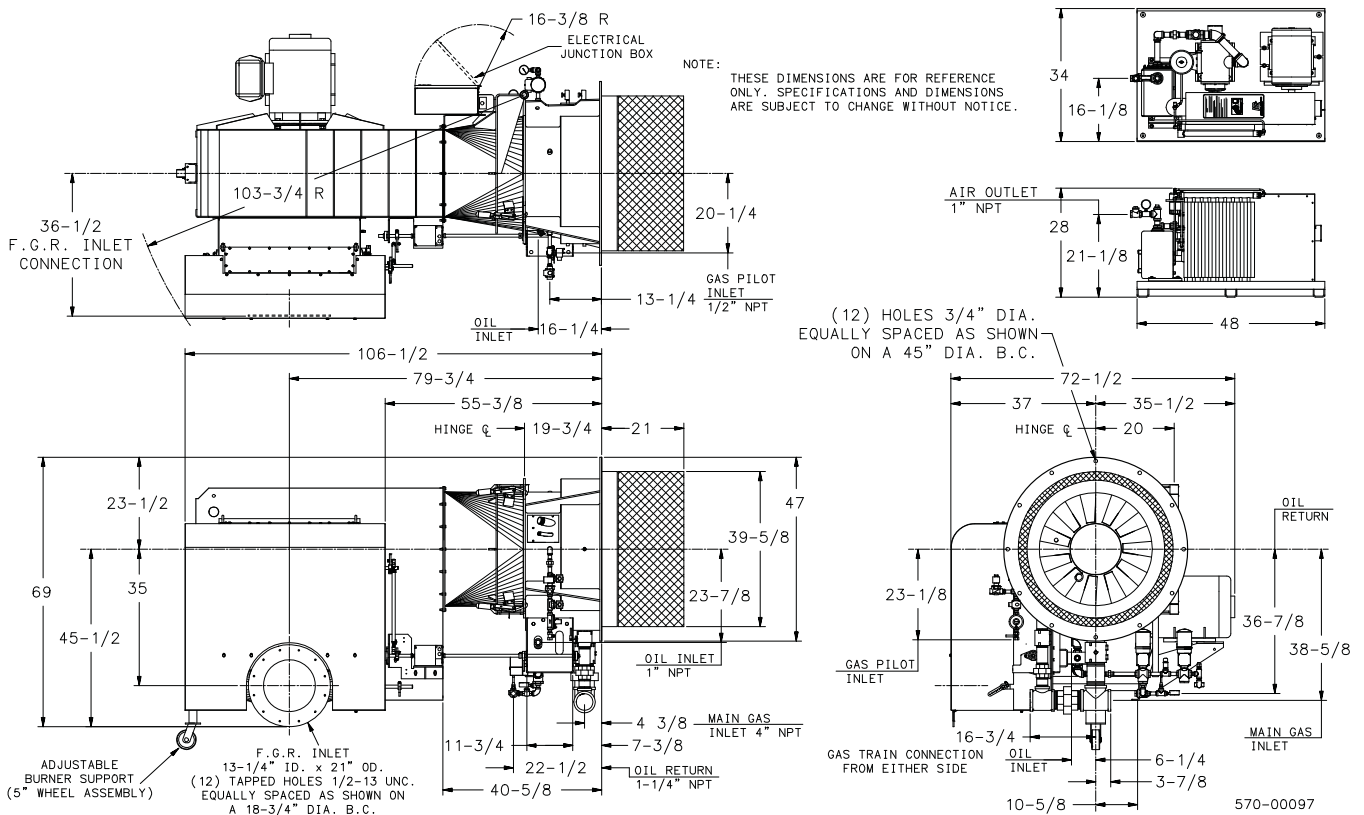
TABLE NOTES:

1. Gas input based on natural gas at 1,000 Btu/cu.ft. and 0.60 gravity
2. Oil input based on No. 2 oil at 140,000 Btu/gal.
3. Boiler overall efficiency of 80% estimated
4. Gas pressure based on zero furnace pressure. For total pressure at manifold, add furnace pressure.
5. Impeller and motor HP is based on altitude up to 2,000 ft. above sea level. For higher altitude or 50 Hz. applications, consult factory. For furnace pressure higher than 8" w.c., consult factory.
6. The dimensions on the following pages are for reference only. Specifications and dimensions are subject to change without notice. Obtain a certified print from the factory before installation.

S1-SERIES GENERAL DIMENSIONS



LNS1-SERIES GENERAL DIMENSIONS (BOTTOM ACCESS)



LNS1-SERIES GENERAL DIMENSIONS (TOP ACCESS)

