S1 SERIES
46.2 TO 63.0 MM BTU/HR

INDUSTRIAL COMBUSTION

Multi-Fuel Versatility.

Forced draft duel fuel burner.

The Industrial Combustion S1 series burner forced draft design allows for tried and true trouble-free operation and superior efficiency on scotch marine and watertube boiler applications worldwide. The S1 series, available in uncontrolled, and low NOx configurations offers multi-fuel versatility to meet the toughest air quality standards.

The S1 series. Setting the *standard* for firing *alternative* fuels.

Precise Oil Metering
A unique design feature on IC S1 series air atomizing oil burners, an oil flow control valve is used for maximum capacity and precise oil control.

Air Compressor Module
A remote air compressor module provides air for all large oil models. The module includes IC's rotary vane, pressure lubricated air compressor, air/oil lubricating reservoir, oil level indicator, inlet air filter, air pressure adjusting valve and air pressure gauge.

Cam Trim
Cam trim is a standard feature that makes it possible to adjust the burner for consistent and precise fuel-to-air ratios throughout the firing range. Excess air is controlled to a minimum through the 14-point adjustment range.

Swing-Away Air Housing
Provides easy access to the nozzle, scanner, pilot and diffuser for inspection or removal. No disconnection of fuel or power lines is required.

Oil Nozzle
The IC designed low-pressure air-atomizing nozzle achieves the best atomization of oil for each burner model and application. Air is purged through the large nozzle orifice after each burner cycle to prevent after-drip and fouling.

Combustion Air Impeller
Highly efficient backward-curved aluminum impeller with the ability to maintain it's original balance by avoiding the dust collection that is common with forward curved blowers.

The S1 Burner Explained:

The S1 series offers: natural gas, propane gas, air atomized #2-6 oil and combination gas and oil fuel options from 46.2 to 63.0 MM BTU per hour. The LNS1 burner, capable of <30 PPM NOx emissions offers: natural gas, propane gas, air atomized #2 oil and combination gas and oil fuel options from 42.0 to 63.0 MM BTU per hour. Full modulation operation and cam trim are standard for greater efficiency and cost savings. The S1 burner is an excellent choice when firing alternative fuels such as digester, waste oil, and biodiesel.

S1/ LNS1 Burner
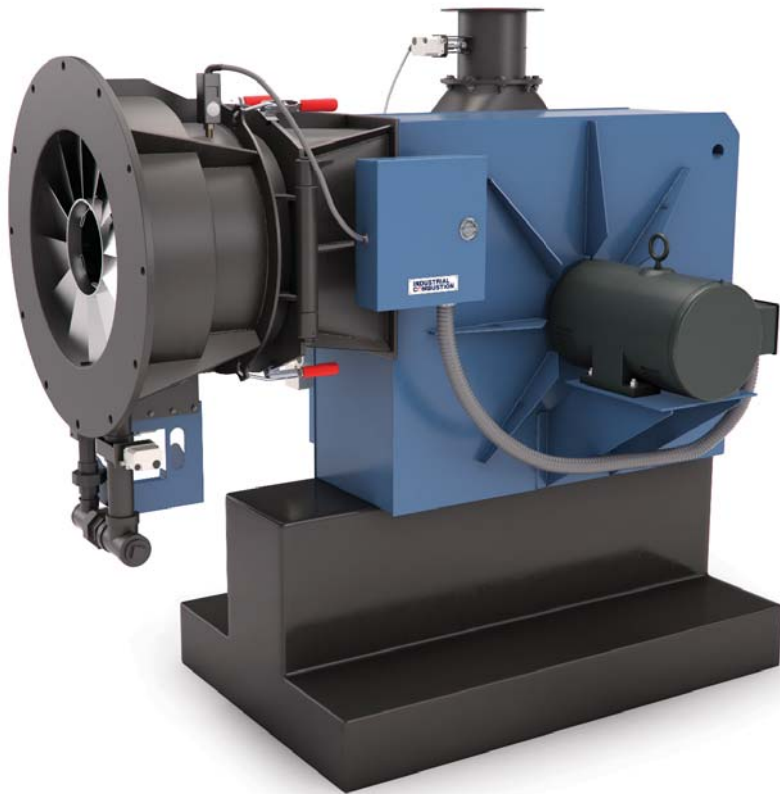
Low-pressure air atomizing system on oil with rotary vane compressor

Cam Trim 14-point adjustment range on FGR

Parallel Positioning available for optimal control throughout the firing range

Nozzle Line Electric Heater standard on medium to heavy oil burners

Air Damper precise fuel-to-air ratios

Hinged Air Housing for easy access to internal components

Backward-Curved Impeller provides adequate combustion air for various furnace pressure and high altitude applications

Induced FGR FGR modulating valve and shutoff valve (LNS1)

No. 2 Oil capability for back-up fuel (LNS1)

Emissions	Frame	Model Range	Boiler HP	Capacities		Mode of Operation	Fuel	Parallel Positioning
				MBH	GPH			
Uncontrolled	Size 1 - 2	462 - 630	1,100 - 1,500	46,200 - 63,000	330 - 450	Full Modulation	Gas, Oil, Comb.	Optional
<30 PPM	Size 1 - 2	420 - 630	1,000 - 1,500	42,000 - 63,000	300 - 450	Full Modulation	Gas, Oil, Comb.	Optional

Uncontrolled Emissions Configuration (S1L, S1G, S1LG)

Burner Sizes	462-1	504-1	546-1	588-2	630-2
Gas Input (MBtu/hr)	46,200	50,400	54,600	58,800	63,000
Oil Input (US gph)	330	360	390	420	450
Boiler HP @ 80% Eff.	1,100	1,200	1,300	1,400	1,500
Blower Motor HP	60	75	75	75	100
Compressor Motor HP (3 phase)	15	15	15	15	15
Standard Gas Train Pipe Size (in.)	3	3	3	4	4
Gas Pressure Required (PSI)	10	10	10	10	10
Furnace Pressure ("w.c.)	8	8	8	8	8
Shipping Weight (Approx.)	6,000	6,500	7,000	7,500	7,500

Input is based on fuel Btu content and altitude of 2,000 feet or less. If altitude > 2,000 feet and < 8,000 feet, derate capacity 4% per 1,000 feet over 2,000. Consult factory for higher altitudes. Gas input is based on natural gas with 1,000 Btu/cu.ft. and 0.60 gravity. Oil input based on 140,000 Btu/gal and the aforementioned conditions. Consult factory for 50Hz. applications.

Uncontrolled Emissions Configuration (S1E, S1EG)

Burner Sizes	462-1	504-1	546-1	588-2	630-2
Gas Input (MBtu/hr)	46,200	50,400	54,600	58,800	63,000
Oil Input (US gph)	308	336	364	392	420
Boiler HP @ 80% Eff.	1,100	1,200	1,300	1,400	1,500
Blower Motor HP	60	75	75	75	100
Compressor Motor HP (3 phase)	15	15	15	15	15
Standard Gas Train Pipe Size (in.)	3	3	3	4	4
Gas Pressure Required (PSI)	9	9	9	9	9
Furnace Pressure ("w.c.)	8	8	8	8	8
Shipping Weight (Approx.)	6,000	6,500	7,000	7,500	7,500

Input is based on fuel Btu content and altitude of 2,000 feet or less. If altitude > 2,000 feet and < 8,000 feet, derate capacity 4% per 1,000 feet over 2,000. Consult factory for higher altitudes. Gas input is based on natural gas with 1,000 Btu/cu.ft. and 0.60 gravity. Oil input based on 150,000 Btu/gal and the aforementioned conditions. Consult factory for 50Hz. applications.

<30 PPM Low NOx Configuration (LNS1G, LNS1LG)

Burner Sizes	420-1	462-1	504-1	546-2	588-2	630-2
Gas Input (MBtu/hr)	42,000	46,200	50,400	54,600	58,800	63,000
Oil Input (US gph)	300	330	360	390	420	450
Boiler HP @ 80% Eff.	1,000	1,100	1,200	1,300	1,400	1,500
Blower Motor HP	60	75	100	100	125	125
Compressor Motor HP (3 phase)	15	15	15	15	15	15
Standard Gas Train Pipe Size (in.)	3	3	3	3	3	4
Gas Pressure Required (PSI)	9	9	9	9	9	9
Furnace Pressure ("w.c.)	8	8	8	8	8	8
FGR Line Piping Size (in.)	14	14	14	14	14	14
Shipping Weight (Approx.)	7,000	7,500	8,000	8,500	8,750	8,750

Input is based on fuel Btu content and altitude of 2,000 feet or less. If altitude > 2,000 feet and < 8,000 feet, derate capacity 4% per 1,000 feet over 2,000. Consult factory for higher altitudes. Gas input is based on natural gas with 1,000 Btu/cu.ft. and 0.60 gravity. Oil input based on 140,000 Btu/gal and the aforementioned conditions. Consult factory for 50Hz. applications.

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