Carlin®
Combustion Technology, Inc.

MODELS 1050FFD & 1150FFD

Advanced Oil Burners

Low-High-Low Step Modulating

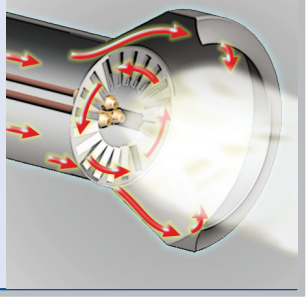
15.0 to 25.0 GPH
& 20.0 to 35.0 GPH
(High-fire input capacities)

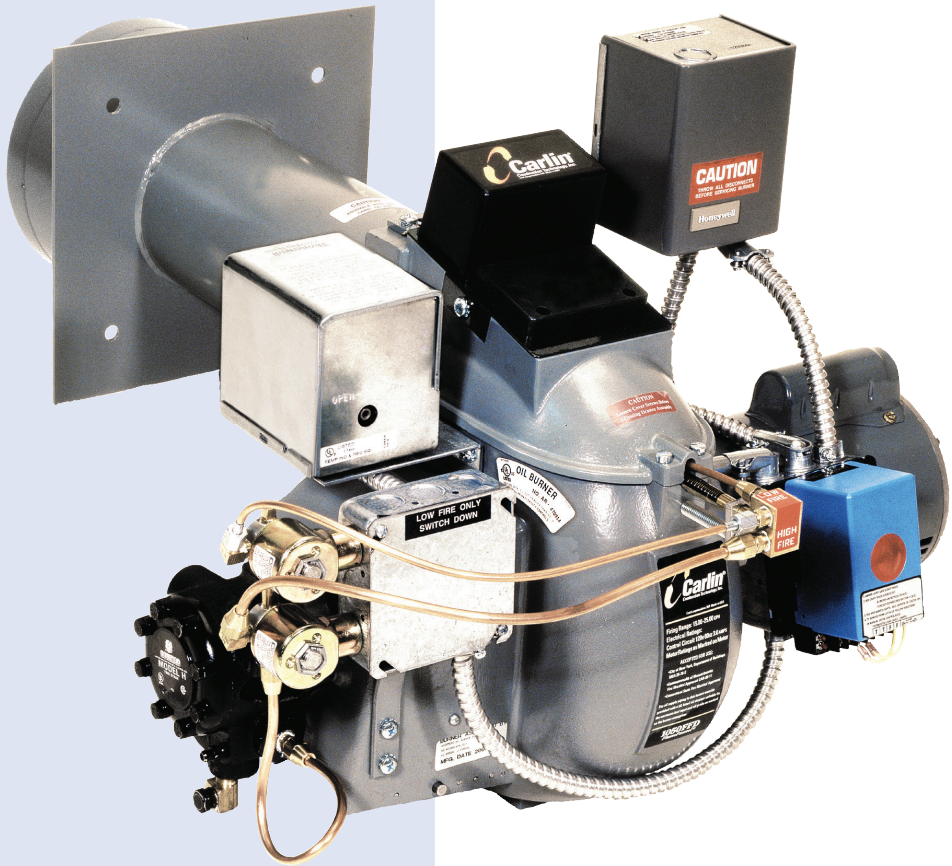
Data sheet

The IDEAL burner for even the toughest applications

Flame-Funnel Combustion

Carlin's exclusive seamless-construction chrome-alloy flame funnel combustion head yields extraordinary fuel/air mixing. Primary air enters near the nozzle, spinning rapidly inside the funnel. Oil atomizes and combines with the air flow. Secondary air flows around the funnel and enters at right angles to the flame at the end of the cone, completing the combustion process.





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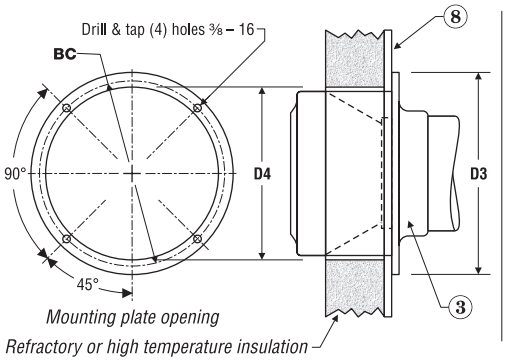
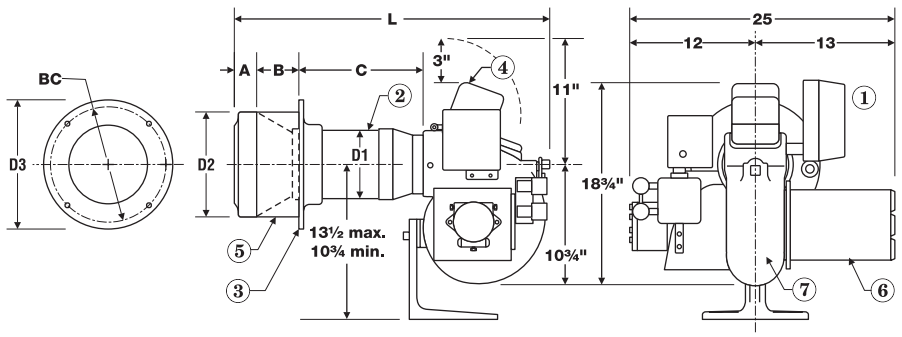
Carlin **1050FFD** and **1150FFD** Advanced Oil Burners

Typical flange application



ALL DIMENSIONS IN INCHES



1. Primary control (60200 standard on 1050FFD)
2. Air tube
3. Flange, typical
4. Carlin 41000 solid state ignitor
5. Spacer
6. Motor, 56C-frame
7. Cast aluminum blower housing
8. Mounting plate

Model	A	B	BC	C	D1	D2	D3	D4	L
1050FFD	1⅝	4 – 8	10	11½ – 7½	5¼	8⅝	9	9	31¼
1150FFD	2⅛	4 – 8	11	11⅞ – 7⅞	6¼	9⅞	12	10¼	32

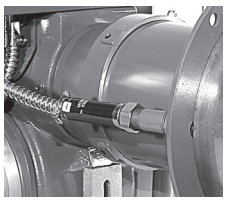
Features

1050FFD *and* ***1150FFD*** *advanced oil burners feature Carlin's Flame-Funnel combustion head design — for unmatched fuel/air mixing, smooth light-offs and quiet running. The automatically-closed air damper and low-high-low step modulation (approximately 2:1 turndown) improve efficiency by closer matching of output to demand and reduced stand-by losses — typically savings of 15-20% in seasonal fuel usage when compared to single-stage flame retention burners.*

Proven for years in the field and in extensive boiler and furnace testing, these burners will meet your needs for commercial oil-burning applications.

Easy adjustment and service . . . Unmatched performance . . .

- Low-high-low step modulation, using low- and high-fire oil valves and nozzles, with motorized air damper. Low-fire hold switch standard. (Requires high fire control on boiler, by others.)
- Simple adjustments of the air shutter and combustion head, set with Carlin's easy-access screw adjustment.
- Blower access cover allows full view of blower compartment.
- Each burner (1050 or 1150) uses a single set of air handling parts for all firing rates. All burners use Carlin electronic igniters.
- Positive ignition, stable operation, and compact flame.
- Compact flame for maximum versatility.
- Insensitive to draft or moderate back-pressure variations. Can operate in forced draft applications (up to 0.50 inches w.c. positive overfire pressure). High resistance to pulsation.
- Excellent performance when tested in appliances that do not use refractory combustion chambers.
- Rugged cast aluminum housing.



Flame detectors

A UV flame detector is standard on 1150FFD, optional on the 1050FFD. A self-checking UR or IR detector is also available when required.

UV and Infrared detectors are externally mounted to the flange.

Specifications

Input

1050 ..... High fire: 15.0 to 25.0 GPH
..... Low fire: 9.0 to 12.0 GPH
1150 ..... High fire: 20.0 to 35.0 GPH
..... Low fire: 12.0 to 15.0 GPH

The The maximum high-fire inputs shown are for natural draft at elevations up to 2,000 feet above sea level. Reduce the rate for forced draft firing as given in the burner manual (up to 15% reduction for at 0.50 inches w.c. overfire pressure). For altitudes higher than 2,000 feet, reduce capacity 4% per 1,000 feet above sea level.

Fuels

U. S. ..... No. 1 or No. 2 Fuel oil
Canada ..... No. 1 Stove oil or No. 2 Furnace oil

Oil nozzles, fuel unit & oil valves

1050 & 1150 ..... (3) 45° "SS" Hago
Fuel unit ..... 2-STAGE "H" STYLE, 100 PSIG
(2) Oil solenoid valves .....

Electrical

Control power 120 VAC/60 HZ/1-PHASE
Limit circuit input (60200 primary) ..... 120 VAC/60 HZ
Control circuit load (120 VAC) ..... 1.2 AMPS
Motor, 1050 ..... 1 HP, 3450 RPM, 56C-frame
..... Std: 115 / 208–230 VAC/60 HZ/1-PHASE, 12.0/6.2 AMPS
..... Opt: 208–230/460 VAC/60 HZ/3-PHASE, 3.7/1.85 AMPS
Motor, 1150 ..... 1½ HP, 3450 RPM, 56C-frame
..... Std: 115 / 208–230 VAC/60 HZ/1-PHASE, 13.4/7.4 AMPS
..... Opt: 208–230/460 VAC/60 HZ/3-PHASE, 5.0/2.5 AMPS
Oil valve power ..... 120 VAC/60 HZ
Damper motor (with end switch) ..... Honeywell M436A

Ignition & primary control

Carlin Model 41000 solid state electronic ignitor
Ignition voltage ..... 14,000 VOLTS
1050 primary (to 20 GPH only) ..... Carlin 60200
1050 (OVER 20 GPH) & 1150 ..... Specify control set

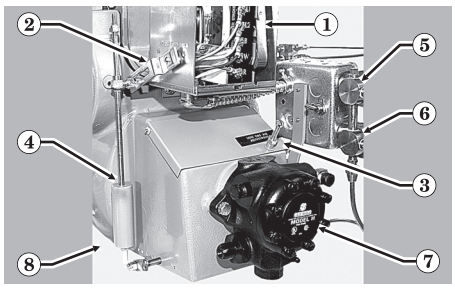
Agencies

UL Listed ..... (US & Canada)

Special Notes

1. Available options:
   - Alternate motor voltages, as listed at left.
   - Model 1050, to 20 GPH only: Carlin 40200 or 50200, plus 4-second electronic time delay relay, can be supplied in place of the standard 60200 primary.
     Model 1050 or 1150: UV or infrared sensor and primary control available (required on 1050 for over 20 GPH).
   - Forced draft, adjustable flange or welded flange.
   - NEMA 1 control panel and/or special control systems (consult factory for options).
2. Local approvals: City of New York MEA No. 36-76-E; State of Massachusetts Approval No. CAR-88-12.

Air-Fuel Ratio System



1. Damper motor
2. Actuator arm
3. Low-fire air adjustment
4. Linkage and counterweight
5. Low-fire oil valve
6. High-fire oil valve
7. Fuel unit (100 PSIG)
8. Air shutter

On call for heat, burner motor and ignitor are activated. The air shutter is in low-fire position. The low-fire oil valve opens, and oil flows through the low-fire nozzle.

If boiler high-fire controller calls for high fire, the damper motor begins to open. When the damper motor end switch closes (damper open), the high-fire oil valve is activated, and oil flows to the two high-fire nozzles. (Burners over 20 GPH input also include a low-high proving switch attached to the damper motor.)

When the high-fire controller is satisfied, the damper motor closes down the air shutter and the high-fire oil valve closes. When call for heat is satisfied, the burner shuts off (closing the low-fire oil valve).

TECH SUPPORT HOTLINE 800-989-2275

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