

# HELLFIRE Gas Fired Blower

Fastrax™ HELLFIRE 400 and HELLFIRE 900 series gas fired blowers consist of a blower, combustion chamber, and ducting system that delivers heated air and combustion by-products to the switch mechanism. The blower is an electrically powered centrifugal fan. Air from the blower enters the combustion chamber and is used for combustion and make up air. The heated air exits the combustion chamber and is ducted below the rails to the point nozzles and track duct nozzles mounted within the switch. The air temperature is thermostatically regulated for maximum snow clearing performance without burning ties or excessive softening of the frozen ballast. Recommended for clearing ice and snow from switches with no longer than 40 feet of moving rail from heel to point of switch.

Fastrax™ HELLFIRE blowers can be used for both single and multiple switch applications.

No.	Label
7	Burner
8	Regulator vents
9	Condensation vent
10	Gas manifold
11	Control cabinet lid
12	Air intake hood
14	Air intake extension
15	Identification tag
16	Mode selector switch

No.	Label
17	Electrical control access panel
18	Air intake plenum
19	Leveling leg
20	Control panel
21	Motor/Impeller/Base
22	Combustion chamber access panel

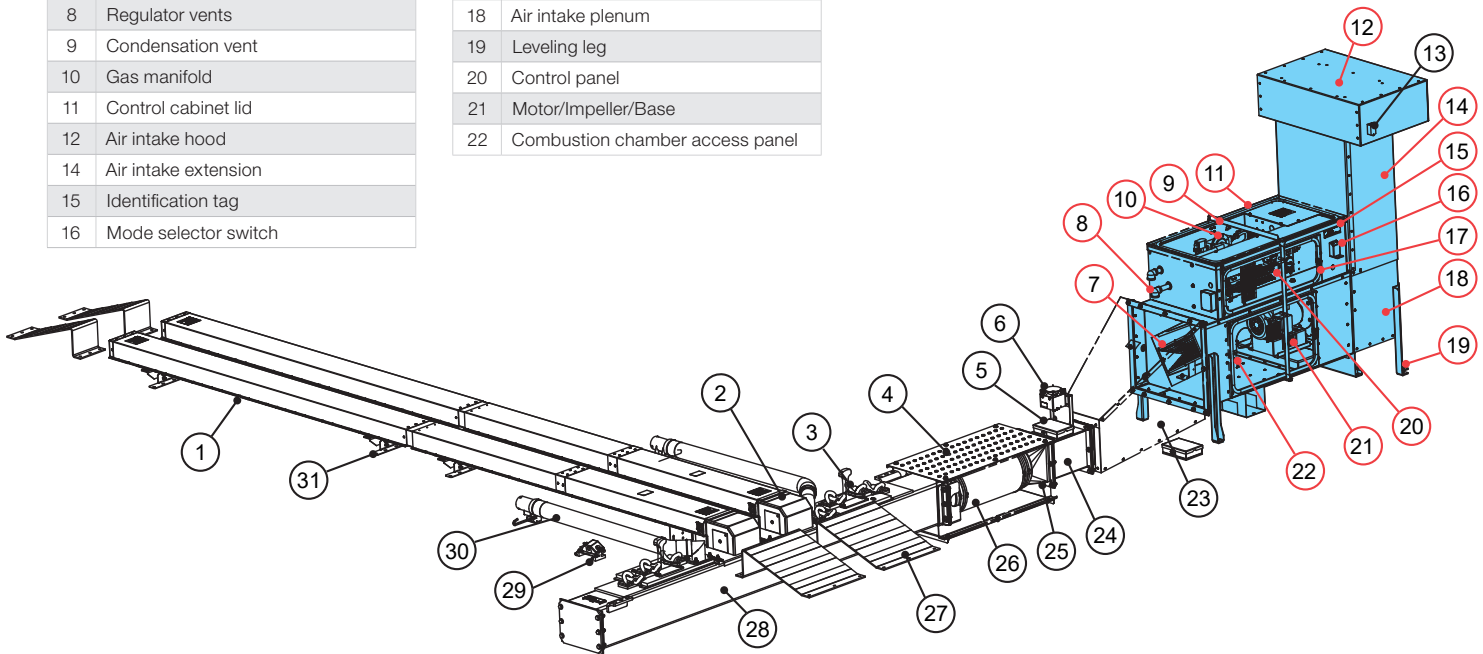


Figure 20 – HELLFIRE 900, 2014, Heater Diagram, refer to Ductwork Section for Duct Assembly options

## Model Coding

<b>FHF</b>	-	<b>900</b>		<b>3</b>		<b>1</b>	-	<b>L</b>		<b>B</b>		<b>A</b>	-	<b>EMS</b>	-	<b>DG</b>
Gas Input 400 - 400,000 BTU/hr 900 - 900,000 BTU/hr			Frequency 1 - 1 Ph** 3 - 3 Ph			Intake H - High L - Low N - Narrow Low			Control Access A - Bolt On Q - Quick Release			Accessories D - Dirt Trap F - 48" Gas Hose G - 72" Gas Hose L - Locking Bar M - Motor Current Kit R - Second Stage Gas Regulator*				
Model Series			Voltage			Leveling Legs			Energy Management System			Motor Current Kit				
FHF – Fastrax® HELLFIRE			1 - 240V 2 - 208V 3 - 460V 4 - 575V			B - Bolt On S - Screw Type X - No Leveling Legs			EMS - Snow & Rail Thermostat S - Snow Detection T - Rail Thermostat			R - Second Stage Gas Regulator*				

\*HELLFIRE 400 Series Only

\*\*240V - only available option for 1 Phase.

Table 16 – Gas Firing Specifications

Series	Fuel	Propane	Natural Gas
HELLFIRE 400	Input Rating BTU/hr (kW)	200,000 - 400,000 (58 - 117)	
	Manifold Pressure " WC (kPa)	1.3 - 5.0 (0.32 - 1.23)	2.3 - 11.0 (0.56 - 2.69)
	Inlet Pressure " WC (kPa)	7 - 14 (1.72 - 3.45)	12 - 14 (2.95 - 3.45)
HELLFIRE 900	Input Rating BTU/hr (kW)	204,000 - 900,000 (60 - 264)	230,000 - 900,000 (67 - 264)
	Manifold Pressure " WC (kPa)	2.5 - 9.0 (0.62 - 2.24)	3.5 - 16.0 (0.87 - 3.99)
	Inlet Pressure psig (kPa)	5 - 20 (34 - 138)	

Table 17 – Electrical Specifications

Series	Voltage	Phase	Amps	Frequency (Hz)
HELLFIRE 400	240	1	7.5	60
	208	3	7.3	
	460	3	3.6	
	575	3	3.0	
HELLFIRE 900	240	1	12.5	
	208	3	10.3	
	460	3	4.8	
	575	3	3.9	

### Construction

- 14 gauge galvanized steel blower, intake and duct work
- Stainless steel combustion chamber and transition duct
- CSA certified, stainless steel proprietary burner design
- Burner defroster kit feature keeps igniter and flame rod clear of frost and condensation
- Direct drive centrifugal fan
- Match balanced motor and impeller set to less than 0.2 ips pk-pk
- Tested to AREMA 11.5.1 Environmental Recommended Requirements
- NEMA 3R enclosure

### Controls

- Direct spark ignition system (HELLFIRE 400), continuous pilot burner system (HELLFIRE 900)
- Thermostatically limited track duct nozzle outlet temperature of 380°F (193°C) maximum.
- Programmable delay 'ON' timer, 0 - 99 seconds, allows staggered start up of a series of heaters
- Magnetic motor contactor
- Thermal overload protection
- Network compatible controller, allows operation with Remote

Control & Monitoring System (RCMS), multiple heater connection on one RS-485 communication line and incorporates aggressive retry and diagnostics

- Energy Management System (EMS) module provides local control and weather information to centralized EMS RCMS

### Gas Conversion

- Heaters are factory set for use with propane gas, with easy field conversion to natural gas

### HELLFIRE 400 Gas Supply

- Recommended supply gas pressure, 12 - 14" WC, with all connected loads operating
- Inlet gas fitting is 3/4" NPT female

### HELLFIRE 900 Gas Supply

- Allowable nominal supply pressure is 5 - 20 psi
- Recommended supply gas pressure is 5 psi
- Inlet gas fitting is 1" NPT female
- Terminal Block Wire Sizes:
  - Power, #14 to #2 AWG copper
  - Control, 1/4" AAR terminal posts

### Safety Features

- Air pressure (flow) switch: Ignition is disabled until adequate air pressure is developed
- High temperature limit: In the event of thermostat failure and nozzle temperatures exceeding 420°F (216°C), the heater is shut off to avoid tie damage. Heater operation is restored by manual reset
- Loss of flame: The Ignition Module closes the gas valve if after the trial for ignition period of 6 seconds (HELLFIRE 400) and 10 seconds (HELLFIRE 900) no flame is sensed, or if flame detection is lost for more than 1 second during normal operation
- The heater is designed and approved for use as a commercial heater (gas) – railway switch, class 2902 05 in accordance with ANSI Z83.7 / CSA 2.14



Figure 21 – HELLFIRE 400, 2014, Low Intake Shown