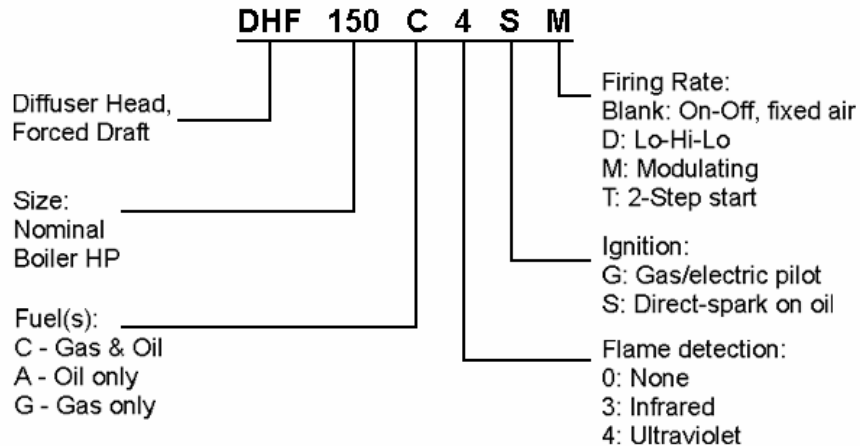


**SELECTION GUIDE**

The following data can be used to fill in the information appropriate for the burner size required:



<b>BURNER SIZE</b>	<b>BLOWER MOTOR HP</b>	<b>MAX FURN PRESS for RATED CAPACITY</b>
20	1/3 HP	.75 "wc
30	1/2HP	.75 "wc
40	3/4HP	.75"wc
50	3/4HP	1.0"wc
60	3/4HP	1.0"wc
80	1HP	1.0 "wc
100	2HP	1.25 "wc
125	3HP	1.5 "wc
150	3HP	1.5 "wc
200	5HP	1.5 "wc
200S	5HP	1.5 "wc

**SCOPE OF SUPPLY**

**ALL DHF BURNERS INCLUDE:**

1. On-Off, Low-High-Low or Modulating control system based on selection.
2. Integral forced draft blower, ODP motor
3. Burner mounted control panel with:
  - a. NEMA1 enclosure
  - b. Fireeye flame safeguard control
  - c. Motor starters and overload protection
4. Motor voltage size 20 to 60 is 115/230-1-60V
5. Motor voltage size 80-200 is 208, 230/460-3-60V
6. Control voltage is 115-60.
7. Standard code requirement is UL

**DHF GAS BURNERS INCLUDE:**

1. Gas-electric pilot ignition on gas
2. UL gas train components selected and priced separately from gas train price sheets
3. Main gas pressure regulator selected and priced separately from gas train price sheets
4. Gas control valve (modulating burners only)

**DHF OIL BURNERS INCLUDE:**

1. Pressure atomizing #2 oil system
2. Direct spark ignition on oil
3. Size 20 to 100 include a burner mounted oil pump
4. Size 125 and up include a remote mounted oil pump with low oil pressure switch

**TECHNICAL SPECIFICATIONS**

**<SPECIFICATIONS FOR ALL DHF BURNERS>**

Furnish and install \_\_\_<qty> S.T.Johnson model\_\_\_\_\_ forced draft burner(s) for firing the boiler(s) to full rated capacity of \_\_\_\_\_HP. The complete burner system including the burner management control system shall be listed by underwriters laboratories and bear the UL label. In addition to UL the burner system shall meet the requirements of \_\_\_\_\_ < FM, IRI, CSD-1 etc>.

The burner shall be capable of firing against a furnace pressure from negative .10"w.c. To a positive \_\_\_\_\_"w.c. without a reduction in capacity or efficiency. All air required for combustion shall be supplied by an integral, forced draft fan driven by a standard nema frame motor rated at no more than \_\_\_HP. The combustion air volume shall be controlled by a single-blade air shutter assembly located on the inlet of the fan assembly. Adjustment of individual air damper blades shall not be required to set proper air flow. The blower housing shall be \_\_\_\_\_ <st aluminum> ( FOR SIZE 20 - 100); <fabricated steel> (for size 125 -200)

An access plate shall be incorporated into the top of the blower assembly to allow for easy access and inspection of the blower wheel. The blower motor/blower wheel sub-assembly shall be removable without disconnecting any piping <or removal of the oil pump>

The combustion air flow pattern in the combustion chamber shall be controlled by a stainless steel air diffuser and a primary air distribution band. The primary air distribution band shall be adjustable to set the rate of fuel/air mixing and properly shape the flame geometry to the combustion chamber. The burner blast tube shall be constructed of stainless steel.

**< SPECIFICATIONS TO BE INSERTED FOR GAS FIRED SYSTEMS>**

Gas shall be introduced into the combustion air stream via multiple gas spuds located around the perimeter of the firing head. The mixing of the fuel and the primary combustion air, controlled by the air distribution band, shall be accomplished by means of a stainless steel, multi-orifice, barrier ring located immediately downstream of the gas spuds.

A \_\_\_<pipe size> gas pipe train shall be furnished and installed to meet the specifications set forth by \_\_\_\_\_<UL, CSD-1, IRI, FM>. At a minimum the following components shall be included:

- Main safety shut-off valve w/ motorized actuator  
< & proof-of-closure switch if input is greater than 5000mbtu/hr>
- Blocking solenoid <optional motorized> safety shut-off valve.
- Low gas pressure switch & high gas pressure switch.
- Main manual shut-off valve.
- Leak test manual shut-off valve.
- N.O. Vent solenoid valve <only required for UL above 12500mbtu/hr and IRI>
- Main gas pressure regulator rated @ \_\_\_\_\_ gas supply pressure.

**< SPECIFICATIONS TO BE INSERTED FOR MODULATING OIL SYSTEMS >**

Fuel oil shall be introduced into the combustion air stream via (2) pressure atomizing nozzles. The oil shall be supplied to the nozzles @ 300psig by *<an integral oil pump>* (sizes 20 -100) *<a separate motor-driven oil pump>* (sizes 125 - 200) the oil delivery rate to the combustion chamber shall be modulated in conjunction with the combustion air via an oil metering valve in the oil return line.

The oil supply piping shall include (2) oil safety shut-off valves, *<a low oil pressure switch, (if the oil pump is separately driven) >* and an oil supply pressure gauge. The return oil piping shall include a return oil pressure gauge, an oil metering valve, and a solenoid valve to prevent reverse oil flow to the nozzles when the burner is not firing.

The oil drawer assembly shall be removable to provide access to the oil nozzles and ignition electrodes.

**< SPECIFICATIONS TO BE INSERTED FOR LO-HI-LO OIL SYSTEMS >**

Fuel oil shall be introduced into the combustion air stream via (2) pressure atomizing nozzles. The oil shall be supplied to the nozzles @ 100psig by *<an integral oil pump>* (sizes 20 -100) *<a separate motor-driven oil pump>* (sizes 125 - 200)

The firing rate of the burner shall be controlled by a 2-position electric actuator connected to the air damper. The actuator shall include an auxiliary switch used to energize the second stage oil valve at an actuator position which is field adjustable.

The oil piping system shall include (2) first stage oil safety shut-off valves, (1) second stage oil shut-off valve, and a removable 2-stage oil drawer assembly to provide access to the oil nozzles and ignition electrodes.

**< SPECIFICATIONS TO BE INSERTED FOR ON-OFF OIL SYSTEMS >**

Fuel oil shall be introduced into the combustion air stream via a pressure atomizing nozzle. The oil shall be supplied to the nozzle @ 100psig by an integral oil pump driven by the forced draft fan motor. The fuel/air ratio of the burner shall be set by a field adjustable damper on the inlet of the forced draft fan

The oil piping system shall include (2) oil safety shut-off valves and a removable oil drawer assembly to provide access to the oil nozzle and ignition electrodes.

**< SPECIFICATIONS TO BE INSERTED FOR BURNER MANAGEMENT CONTROL SYSTEMS >**

The burner control system shall be housed in a *<burner mounted nema 1 enclosure><separate nema 1 enclosure for mounting remotely from the burner.>* The continuous hinged door is to

## DHF BURNERS SELECTION GUIDE & ENGINEERING SPECS



include all specified annunciating lights, an observation window to view the burner programmer status lights, and all switches required for burner operation.

The control system shall include:

- A \_\_\_\_\_ model \_\_\_\_\_ burner programming control.
- Starters and overloads for blower motor <oil pump>
- Burner on-off switch <gas-off-oil switch for gas/oil burners>
- Lights indicating: power on, ignition, main fuel, safety
- Manual-auto firing switch <modulating systems only>
- Manual firing rate limiting potentiometer <modulating systems only>
- Numbered wiring terminal strip
- Color coded wiring

### <OPTIONAL ITEMS>

- Branch circuit fusing
- Branch circuit breakers
- Main circuit breaker
- Main fused disconnect with door interlock
- Model \_\_\_\_\_ first-out annunciator
- <qty> burner lead-lag switch
- Draft control system with auto/open damper switch
- Audible alarm
- Additional annunciating lights