



PeerlessBoilers.com

MODULATING FIRING

"M F S C" SYSTEM

COMMERCIAL ATMOSPHERIC GAS BOILERS

Our MFSC System provides high fire start with burner operation between high and low fire according to pressure or temperature.

This system consists of a High Fire main automatic gas valve with a Low Fire automatic gas valve in the bypass as shown in Figure 1. The bypass incorporates a fixed orifice to maintain low fire operation at 50% of the maximum rated input in Btu's per hour, as shown on rating label. At the start of each heating cycle, both valves open simultaneously for high fire operation. The Safety gas valve upstream from MFSC gas valves opens whenever the Low Fire gas valve opens.

The wiring required for this system is shown in Figure 2.

HOW THIS SYSTEM OPERATES (text refers to single gas train):

1— On a call for heat, all three gas valves open for high fire start.

2— The Number 1 pressure control or limit control is set to open at the designated steam pressure or water temperature required for the system.

When the steam pressure or water temperature reaches setting of this control, the High Fire gas valve will close and the Low Fire gas valve will remain open for low fire operation.

3— Upon a drop in steam pressure or water temperature to cut-in setting of the Number 1 control, the High Fire gas valve will open again for high fire operation.

This high fire to low fire operation will continue until the Number 2 pressure control or limit control is satisfied.

4— The Number 2 pressure control or limit control is set to open at the desired limit setting for this system.

Should the steam pressure or water temperature reach the limit setting, the Number 2 pressure control or limit control will open and the Low Fire and Safety gas valves will close. All three gas valves will remain closed until the steam pressure or water temperature drops below the setting of the Number 2 pressure control or limit control. At that point all three gas valves will open for high fire start.

5— Due to variations in designed operating steam pressures or water temperatures, the settings of the Numbers 1 and 2 pressure controls or limit controls will vary. However, the following table gives examples of settings for these controls based on selected designed pressures and temperatures.

Steam Systems

Designed Operating Pressure of Systems	Pressure Setting		Pressure Setting	
	No. 1 High Fire Pressure Control Cut-Out	Cut-In	No. 2 Low Fire Pressure Control Cut-Out	Cut-In
5 psig	5 psig	3 psig	10 psig	2 psig
7 psig	7 psig	5 psig	12 psig	4 psig

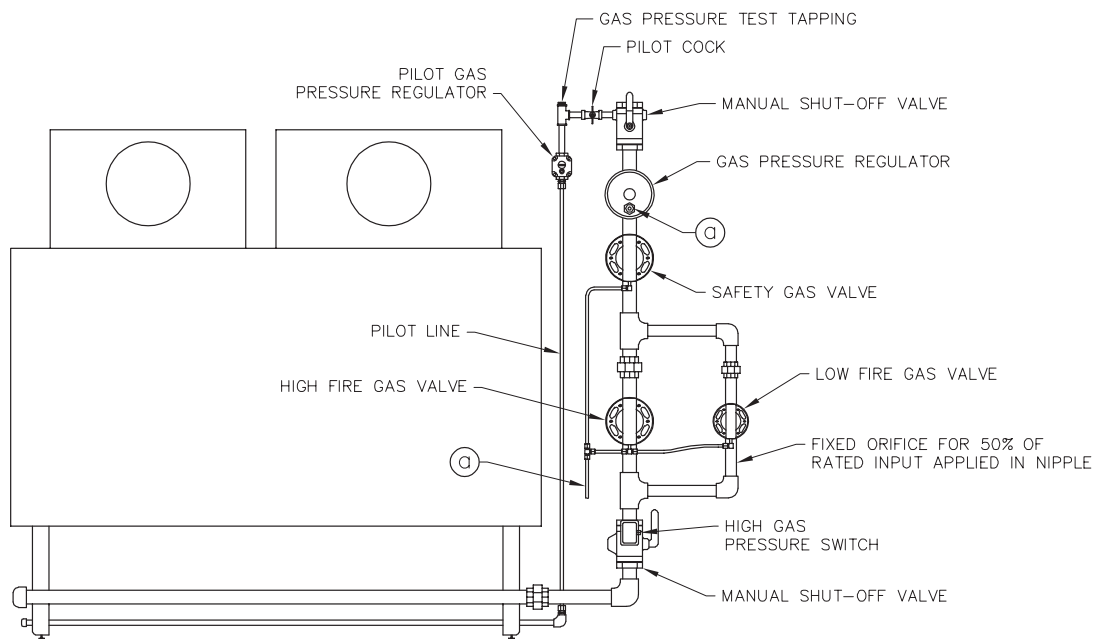
NOTE: The cut-in setting of the No. 2 pressure control must always be less than cut-in setting of the No. 1 pressure control for HIGHFIRE start in the event this control shuts down on Low Fire operation.

Water Systems

Designed Operating Temperature of Systems	Temperature Setting		Temperature Setting	
	No. 1 High Fire Limit Control Cut-Out	Cut-In	No. 2 Low Fire Limit Control Cut-Out	Cut-In
200° F	200° F	190° F	205° F	185° F
180° F	180° F	170° F	185° F	165° F
170° F	170° F	160° F	175° F	155° F

NOTE: The cut-in setting of the No. 2 limit control must always be less than cut-in setting of the No. 1 limit control for required High Fire start in the event this control shuts down on Low Fire operation.

The No. 1 High Fire limit control has a fixed differential of 10 ° F, while the No. 2 Low Fire limit control has an adjustable differential of 10 ° F to 25 ° F.



NOTE:
FOR BOILERS WITH DUAL CONTROLS
SIMILAR ARRANGEMENT IS MADE AT
OPPOSITE END OF BOILER.

Q VENT TO OUTSIDE ATMOSPHERE
WELL ABOVE NORMAL BREATHING LEVEL
AND ACCORDING TO LOCAL CODES.

Figure 1

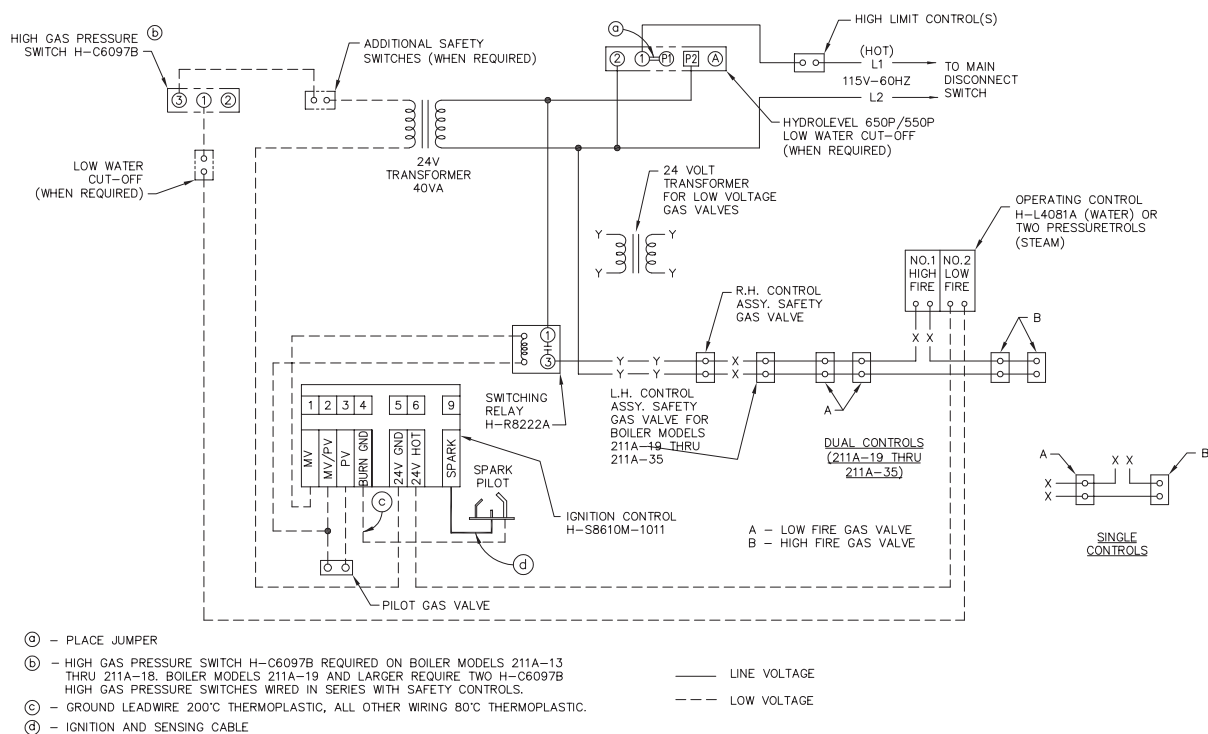


Figure 2