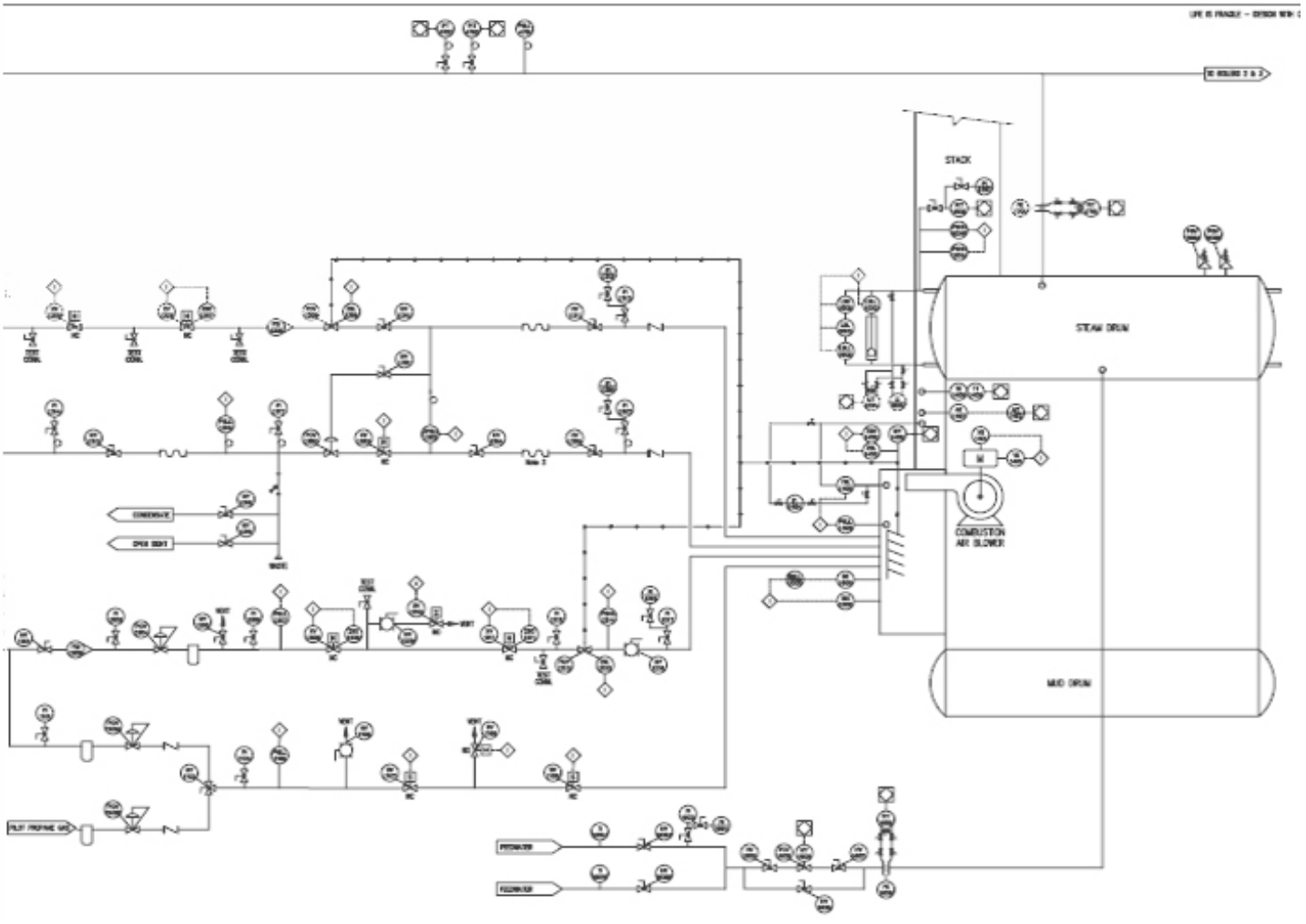
Wilson-Mohr
Boiler Control Systems

Projects...Definition to Operation

BOILER CONTROL SYSTEMS

Low cost, pre-engineered solutions for boiler control and burner management.

- Combustion (Fuel/Air Ratio) Control
- Drum Level Control
- NFPA-85 Compliant Burner Management
- Alarm Logging
- Trending and Data Archiving
- Optional field instrument kits for all boiler control and burner management sensor requirements.

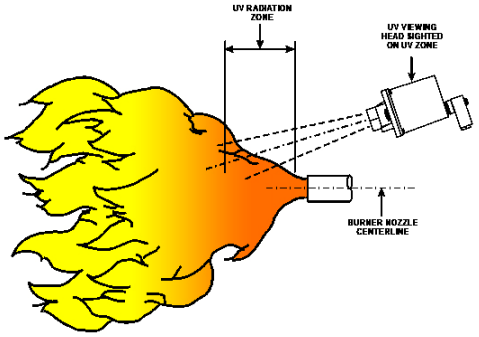


BOILER CONTROL SYSTEMS

BURNER MANAGEMENT

Basic Boiler Sequencing and Safety System

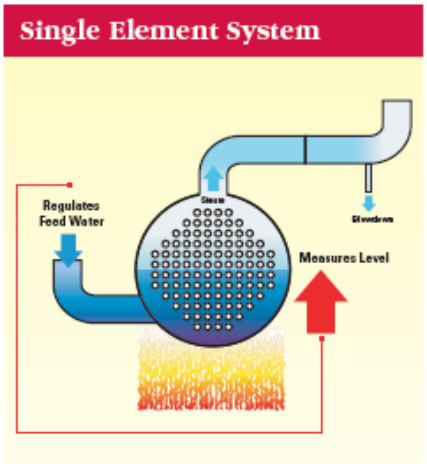
- Provides safe start check, supervised start-up sequence, continuous interlock monitoring, flame detection and safety shut-down functions. Maintains compliance with all applicable codes and laws.



DRUM LEVEL CONTROL

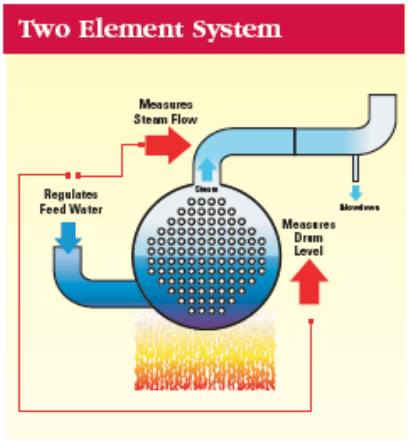
Single Element System

- Simplest Approach
- Measures drum level and regulates feedwater flow to maintain that level. Adequate for single boiler utility plants with relatively static loads.



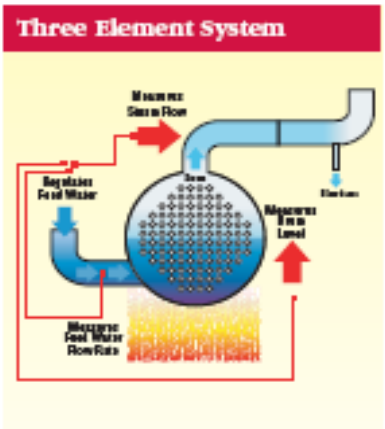
Two Element System

- Measures drum level and steam flow and regulates feedwater flow to maintain drum level. Recommended for utility plants with multiple boilers and relatively static loads.



Three Element System

- Measures drum level, steam flow and feedwater flow, and regulates feedwater flow to maintain drum level. Strongly recommended for utility plants with dynamic loads.

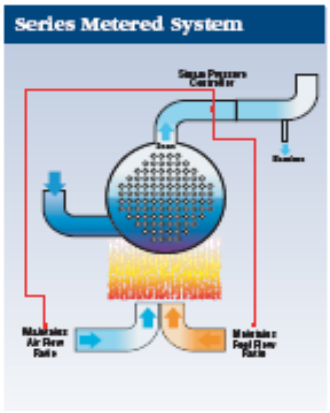


BOILER CONTROL SYSTEMS

COMBUSTION CONTROL

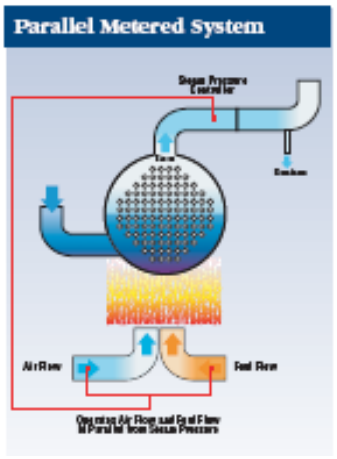
Series Metered System

- Both fuel and air are metered. The boiler master sets the air flow setpoint. The air flow controller sets the fuel flow setpoint. This scheme is common where boiler loads are relatively static, with small, infrequent changes.



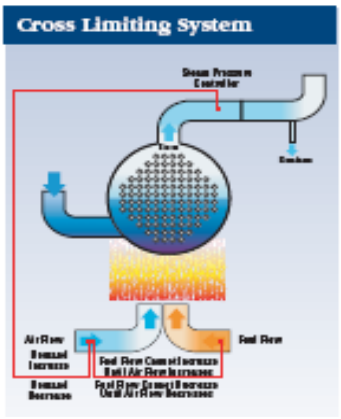
Parallel Metered System

- Both fuel and air are metered. The boiler master sets the fuel flow setpoint. The fuel flow and air flow control loops operate in parallel, with the air flow setpoint ratioed from the fuel flow. This approach provides improved efficiency over series metered systems but is still limited to boilers with relatively slow load changes.



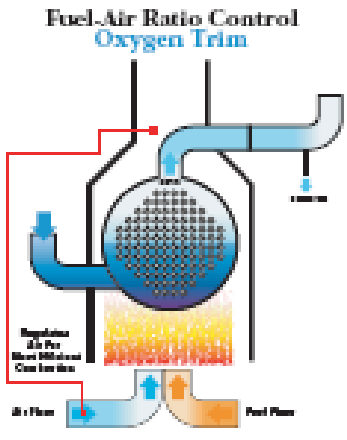
Cross Limited System

- This “lead-lag” method is similar to the parallel metered system but adds fuel and air flow interlocking (fuel flow follows air flow on load increases / air flow follows fuel flow on load decreases). This feature prevents a hazardous “fuel rich” condition. Cross limited systems are strongly recommended where boiler load swings are dynamic and also alllows for precise fuel / air ratio control.



Oxygen Trim System

- The addition of oxygen trim to the combustion control system allows the greatest efficiency possible. By measuring flue gas O2 content, the combustion air flow can be “trimmed” to reduce excess air flow to an absolute minimum, especially when used with a cross-limited system. Oxygen trim reduces the effects of changing air densities due to temperature and relative humidity.



BOILER CONTROL SYSTEMS

Wilson-Mohr Boiler Control System Selection Matrix		
Item	**Description**	**Select**
1	**Boiler control and burner management system for a single burner boiler including:** -Boiler controller with boiler master controller and fuel/air ratio control & drum level control based on selected options below -Self-checking UV flame detector -Standard 559 Operator interface panel	
Boiler control / burner management cabinet options:		
2	1042 Operator interface terminal w/ floppy drive (replaces standard 559 operator interface)	
3	1042 Operator interface terminal w/ ZIP drive (replaces standard 559 operator interface)	
4	TrendManager analysis software	
5	Ethernet switch (for peer-peer communication)	
6	Spare analog input configuration per point (7 spares available)	
7	Spare discrete input configuration per point (11 spares available)	
8	Spare discrete output configuration per point (2 spares available)	
Fuel/air ratio control system configuration and field instrument options:		
9	Series metered fuel/air ratio control	
10	Parallel metered fuel/air ratio control	
11	Cross limited fuel/air ratio control	
12	Combustion air flow transmitter kit	
13	Fuel gas firing	
14	Fuel gas flow transmitter kit	
15	Fuel oil firing	
16	Fuel oil flow transmitter kit	
17	Oxygen trim control	
18	O2 Analyzer kit	
Drum level control configuration and field instrument options:		
19	Single element drum level control (drum level only measured)	
20	Drum level transmitter kit	
21	Two element drum level control (drum level and steam flow measured)	
22	Steam flow transmitter kit	
23	Three element drum level control (drum level, steam flow and feedwater flow measured)	
24	Feedwater flow transmitter kit	
25	Steam header pressure transmitter kit	
26	Drum pressure transmitter kit	
27	Steam condensing pot	
Burner management field instrument options:		
28	Fuel gas high pressure switch kit	
29	Fuel gas low pressure switch kit	
30	Fuel oil high pressure switch kit	
31	Fuel oil low pressure switch kit	
32	Combustion air low pressure switch kit	
33	Combustion air flow @ purge switch kit	
34	Fuel oil / atomizing medium low differential pressure switch kit	
35	Atomizing steam low pressure switch kit	
36	Steam drum high pressure switch kit	
Field Instrument configuration options:		
37	Transmitter configuration (per unit)	
38	Transmitter / Switch calibration (per unit)	

We welcome the opportunity to provide you with a boiler control system proposal. Please check the options you require and fax the previous page to (281) 295-8870, attention "Projects Group" and a sales person will contact you to provide you with a proposal tailored to your requirements. If you have any questions, you may contact us at: (281) 295-8850 and ask to speak to a systems sales representative.