Domestic® Pump
Boiler Feed Control

Guide Specification Index

INTRODUCTION
Boiler Feed Control arrangements are as varied as the steam systems they serve.

In this guide specification, we do not attempt to be comprehensive to the point of illustrating all possible design variations.

The recommendations and guide specifications that we offer in the succeeding pages are based on our extensive experience in the condensate transfer and boiler feed field.

Each arrangement is intended to be added to the applicable boiler feed unit specifications found on www.bellgossett.com.

INDEX
Page 2   Boiler Feed Questionnaire
Page 3-29 Boiler Feed Control Specifications, Elementary Piping Diagrams and Wiring Diagrams

INDEX OF CONTROL ARRANGEMENTS

<table>
<thead>
<tr>
<th>QUANTITY OF BOILERS</th>
<th>QUANTITY OF PUMPS</th>
<th>MAXIMUM BOILER OPERATING PRESSURE</th>
<th>TYPE OF STANDBY</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>150 psi</td>
<td>None</td>
<td>3-5</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>150 psi</td>
<td>Manual</td>
<td>7-9</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>150 psi</td>
<td>Automatic</td>
<td>11-13</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>150 psi</td>
<td>Automatic (with Automatic Alternation)</td>
<td>15-16</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>150 psi</td>
<td>Manual</td>
<td>17-19</td>
</tr>
<tr>
<td>2**</td>
<td>2**</td>
<td>150 psi</td>
<td>Automatic (with open-closed Electric Feed Valves)</td>
<td>19-20</td>
</tr>
<tr>
<td>2**</td>
<td>3**</td>
<td>150 psi</td>
<td>Manual</td>
<td>21-23</td>
</tr>
<tr>
<td>2**</td>
<td>3**</td>
<td>150 psi</td>
<td>Automatic (with open-closed Electric Feed Valves)</td>
<td>25-26</td>
</tr>
<tr>
<td>2**</td>
<td>3**</td>
<td>30 psi*</td>
<td>Automatic (with Hydraulic Feed Valves)</td>
<td>27-29</td>
</tr>
</tbody>
</table>

* This specification is recommended for low pressure systems with (2) or more boilers and incorporates an automatic hydraulic standby arrangement.

** Boiler Feedwater arrangements involving higher quantities of Boiler or Pumps are available. Please consult with your local Bell & Gossett Representative.
Please answer the questions on this sheet so that the components, wiring diagrams and piping diagrams may be selected to match the specific job requirements.

Missing, incomplete or inaccurate Boiler Feed Questionnaires will result in delays or wrong controls.

A. All questions in Section A must be answered for all systems.

A1. Number of Boilers

A2. Number of Pumps

A3. Number of pump control signal levels to be used.
   Note 1: Count end switch controlled by others as a signal level.
   Note 2: Automatic standby pump control requires a second level (low) signal.
   This may require a dedicated controller.

A4. Make and model of controller

B. For systems with one or more boilers and two or more pumps, questions in Section B must also be answered.

B1. Select means of bringing in the standby pump.
   Note: NONE is used with one pump per boiler and single level controller.
   MANUAL requires a selector switch.
   AUTO requires two level boiler controller. (See A3)

B2. Select means of alternation of the pumps.
   Note: NONE used with one pump per boiler or with dedicated standby pump.
   MANUAL normally uses “0-H-L-L” or “P1/B1” (pump 1 feeds boiler 1, etc).
   AUTO requires electrical alternator and A-0-H selector switch (or none).

B3. Indicate if boiler feed valves (motorized or solenoid or hydraulic) are used.

C. If boiler feed valves are used, select the arrangement to be used.

C1. Domestic hydraulic feed with dedicated standby pump.

C2. Motorized valve with end switch (controlled by others) with end switch to provide control signal for lead pump.

C3. Solenoid valves controlled by domestic panel.
   Note: Each solenoid requires a control relay.

C4. Motorized valve controlled from the domestic panel (including auto-open-closed selector switch for valve).

D. Provide the following information if C4 was answered “Yes”.

D1. Make of drive motor

D2. Model of drive motor

D3. Confirm drive type. Spring return (power to open)
   Non-spring return (power open & closed)

D4. Confirm valve voltage. Specify 115 or 24 volts, etc.

Note: Domestic panel will be supplied with auto-open-closed selector switch for the valve and either A-0-H or 0-H-L-L selector switch for the pumps per answers to questions A and B.
Suggested Control Specifications (To be added to Unit Guide Specification)

The unit manufacturer shall furnish, mount on the pump unit, and wire a NEMA 2 control cabinet with piano hinged door, enclosing the following:

1 Combination magnetic starter (having 3 overload relays) with fused disconnect and cover interlock.
1 “Auto-Off-Hand” selector switch.
1 Pump running pilot light.
1 Numbered terminal block.
1 Fused control circuit transformer when the motor voltage exceeds 130 volts.

Control cabinet shall contain U.L. Listed or Recognized components. Control cabinet shall be Listed by Underwriters Laboratories.

Control components shall be provided by the unit manufacturer for operation as follows: as the level in the boiler recedes, the upper switch on the pump control will close, starting the pump. As the level is restored, the switch will open, and stop the pump.

The unit manufacturer shall furnish (1) McDonnell & Miller pump control:

a. No. 42S rated to 50 psi for boilers with separate water columns,
b. No. 150S rated to 150 psi for boilers with separate water columns, or
c. No. 157S rated to 150 psi with water column type body, for mounting on the boiler. Controller shall be completely packless construction with snap action switches. All electrical operating parts are to be sealed from the float chamber.

The installing contractor shall provide and install low water burner cut-off and alarm switch circuits in accordance with local codes.

The unit shall be factory tested as a complete unit and a certified test report of pump characteristics shall be submitted prior to shipment. The unit manufacturer shall furnish complete elementary and connection wiring diagrams (2DW400 for 3 phase, 2DW439 for 1 phase), piping diagrams (1 DPD21-A), installation and operation instructions.

Manufacturer shall be Bell & Gossett Domestic Pump, Morton Grove, IL.
NOTE: SERVICE RATED DISCONNECT PROVIDED BY OTHERS.
(TYPICAL WITH FIG. 1)

![Diagram]

NOTES:
1. ALL WIRING IN ACCORDANCE WITH N.E.C.
2. FIELD WIRING SHOULD BE IN ACCORDANCE WITH N.E.C.
3. DISCONNECT SWITCH AND CIRCUIT OVERLOAD PROTECTION TO BE SUPPLIED AND EXTERNALLY INSTALLED BY OTHERS WHEN NOT FURNISHED BY FACTORY.
4. BOILER LEVEL CONTROL (B/P PUMP CONTROL) N & M MODEL 42, 150 OR 157 OR EQUAL, BOILER CONTROL(s) LOCATED ON BOILER, FURNISHED BY OTHERS.
5. INSTALL JUMPER WHEN FS1 LOW WATER CUT-OFF FLOAT SWITCH IS NOT FURNISHED.
6. TRANSFORMER WIRING PER TRANSFORMER LABEL.

LEGEND
- DS1: DISCONNECT SWITCH (OR CB) WITH FIG. 1 OPTIONAL
- F1: MOTOR FUSE (BY OTHERS)
- F2: CONTROL CIRCUIT FUSE (TYPE FNO-R 1.5AMP 480V OR 3.5AMP 230/208V)
- W1: MOTOR CONTACOR
- OL1: OVERLOAD (OR CB) AUXILIARY INTERLOCK WITH FIG. 1
- PL1: PILOT LIGHT "PUMP #1 RUN" - OPTIONAL
- SW1: SELECTOR SWITCH
- CT: CONTROL TRANSFORMER 250 VA
- FS1: FLOAT SWITCH LOW WATER CUT-OFF
- FS2: FLOAT SWITCH WAKE-UP CONTROL
- BFS1: BOILER LEVEL CONTROLLER (SEE NOTE 4)
- SV1: SOLENOID WAKE-UP VALVE

TERMINAL STRIP
- 6
- 4
- 4
- 7
- 7
- 5
- 8
- BFS1
NOTE: SERVICE RATED DISCONNECT(S) PROVIDED BY OTHERS.
(TYPICAL WITH FIG. 1)

SEE NOTE 5

BOILER FEED PUMP

AUTO
OF
NO

FS1
FS2

20V

END

3

4

5

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7

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PLI

NOTE: ALL WIRING IN ACCORDANCE WITH N.E.C.

1. FIELD WIRING SHOULD BE IN ACCORDANCE WITH N.E.C.

2. DISCONNECT SWITCH AND CIRCUIT OVERLOAD
   PROTECTION TO BE SUPPLIED AND EXTERNALLY
   INSTALLED BY OTHERS WHEN NOT FURNISHED
   BY FACTORY.

3. DISCONNECT SWITCH AND CIRCUIT OVERLOAD
   PROTECTION TO BE SUPPLIED AND EXTERNALLY
   INSTALLED BY OTHERS WHEN NOT FURNISHED
   BY FACTORY.

4. INSTALL JUMPER WHEN FS1 LOW WATER CUT-OFF
   FLOAT SWITCH IS NOT FURNISHED.

5. INSTALL JUMPER WHEN FS1 LOW WATER CUT-OFF
   FLOAT SWITCH IS NOT FURNISHED.

6. TRANSFORMER WIRING PER TRANSFORMER LABEL.

LEGEND

DS1 DISCONNECT SWITCH (OR CB) WITH FIG. 1) OPTIONAL

F1 MOTOR FUSE (BY OTHERS)

F2 CONTROL CIRCUIT FUSE (TYPE FNQ-R 30AMP 230/480V)

M1 MOTOR CONTACOR

DL1 OVERLOAD (OR CB) AUXILIARY INTERLOCK WITH FIG. 1)

PL1 PILOT LIGHT "PUMP » 1 RUN" - OPTIONAL

SW1 SELECTOR SWITCH

GT CONTROL TRANSFORMER 250 VA

FS1 FLOAT SWITCH LOW WATER CUT-OFF

FS2 FLOAT SWITCH MAKE-UP CONTROL

BFS1 BOILER LEVEL CONTROLLER [SEE NOTE 4]

SV1 SOLENOID MAKE-UP VALVE

TERMINAL STRIP

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4 FS2

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Suggested Control Specifications (To be added to Unit Guide Specification)

The unit manufacturer shall furnish, mount on the pump unit, and wire a NEMA 2 control cabinet with piano hinged door, enclosing the following:

- 2 Combination magnetic starters (having 3 overload relays) with fused disconnects and cover interlocks.
- 2 Pump running pilot lights.
- 1 Numbered terminal block.
- 1 Fused control circuit transformer when the motor voltage exceeds 130 volts.
- 1 Control power swithing relay.

Control cabinet shall contain U.L. Listed or Recognized components. Control cabinet shall be Listed by Underwriters Laboratories.

Control components shall be provided by the unit manufacturer for operation as follows: as the level in the boiler recedes, the upper switch on the pump control will close, starting the active pump. As the level is restored, the switch will open, and stop the pump. Selection of the active pump shall be accomplished by positioning its respective selector switch to the “Auto” position and remaining pump switch to the “Off” position.

The unit manufacturer shall furnish (1) McDonnell & Miller pump control:

- a. No. 42S rated to 50 psi for boilers with separate water columns,
- b. No. 150S rated to 150 psi for boilers with separate water columns, or
- c. No. 157S rated to 150 psi with water column type body, for mounting on the boiler. Controller shall be completely packless construction with snap action switches. All electrical operating parts are to be sealed from the float chamber.

The installing contractor shall provide and install low water burner cut-off and alarm switch circuits in accordance with local codes.

The unit shall be factory tested as a complete unit and a certified test report of pump characteristics shall be submitted prior to shipment. The unit manufacturer shall furnish complete elementary and connection wiring diagrams (2DW401 for 3 phase, 2DW438 for 1 phase), piping diagrams (1 DPD21-B), installation and operation instructions.

Manufacturer shall be Bell & Gossett Domestic Pump, Morton Grove, IL.
NOTE: SERVICE RATED DISCONNECT(S) PROVIDED BY OTHERS.
(TYPICAL WITH FIG. 1 & FIG. 2)

FIG. 1
OPTIONAL CIRCUIT BREAKER ARRANGEMENT

FIG. 2
OPTIONAL CONTROL POWER CIRCUIT
(CONTROL POWER SUPPLIED FROM PUMP 1
OR PUMP 2 WHEN PUMP ONE IS OFF.)

NOTES:
1. ALL WIRING IN ACCORDANCE WITH N.E.C.
2. FIELD WIRING SHOULD BE IN ACCORDANCE WITH N.E.C.
3. DISCONNECT SWITCH AND CIRCUIT OVERLOAD PROTECTION TO BE SUPPLIED AND EXTERNALLY INSTALLED BY OTHERS WHEN NOT FURNISHED BY FACTORY.
4. BOILER LEVEL CONTROL (BYPUMP CONTROL) M & M MODEL 42, 150 OR 157 OR EQUIVALENT, BOILER CONTROL(S) LOCATED ON BOILER, FURNISHED BY OTHERS.
5. INSTALL JUMPER WHEN FS1 LOW WATER CUTOFF FLOAT SWITCH IS NOT FURNISHED.
6. TRANSFORMER WIRING PER TRANSFORMER LABEL.

TERMINAL STRIP

LEGEND

DS1 DISCONNECT SWITCH (OR CB1) WITH FIG. 1) OPTIONAL
DS2 DISCONNECT SWITCH (OR CB2 WITH FIG. 1) OPTIONAL
F1 MOTOR FUSE (BY OTHERS)
F2 MOTOR FUSE (BY OTHERS)
F3 CONTROL CIRCUIT FUSE (TYPE FNG-R 1.5AMP 480V OR 3.5AMP 230/480V)
W1 MOTOR CONTACTOR
W2 MOTOR CONTACTOR
OL1 OVERLOAD (OR CB1 AUXILIARY INTERLOCK WITH FIG. 1)
OL2 OVERLOAD (OR CB2 AUXILIARY INTERLOCK WITH FIG. 1)
PSR POWER SWITCHING RELAY (WILL FIG. 2)
CT CONTROL TRANSFORMER 250 VA
PL1 PILOT LIGHT "PUMP 1 RUN" OPTIONAL
PL2 PILOT LIGHT "PUMP 1 RUN" OPTIONAL
SW1 SELECTOR SWITCH
SW2 SELECTOR SWITCH
FS1 FLOAT SWITCH LOW WATER CUT-OFF
FS2 FLOAT SWITCH MAKE-UP CONTROL
BF61 CARTRIDGE WATER FILTER (SEE NOTE 4)
SV1 SOLENOID MAKE-UP VALVE
Suggested Control Specifications (To be added to Unit Guide Specification)

The unit manufacturer shall furnish, mount on the pump unit, and wire a NEMA 2 control cabinet with piano hinged door, enclosing the following:

- 2 Combination magnetic starters (having 3 overload relays) with fused disconnects and cover interlocks.
- 2 Pump running pilot lights.
- 1 Numbered terminal block.
- 1 Fused control circuit transformer when the motor voltage exceeds 130 volts.
- 1 Control power swithing relay.
- 1 Control circuit relay.

Control cabinet shall contain U.L. Listed or Recognized components. Control cabinet shall be Listed by Underwriters Laboratories.

Control components shall be provided by the unit manufacturer for operation as follows: as the level in the boiler recedes, the upper switch on the pump control will close, starting the active pump. As the level is restored, the switch will open, and stop the pump. Should the level continue to recede, the lower switch will close, starting the lag pump.

The unit manufacturer shall furnish (1) McDonnell & Miller pump control:
- a. No. 150S rated to 150 psi for boilers with separate water columns, or
- b. No. 157S rated to 150 psi with water column type body, for mounting on the boiler. Controller shall be completely packless construction with snap action switches. All electrical operating parts are to be sealed from the float chamber.

The installing contractor shall provide and install low water burner cut-off and alarm switch circuits in accordance with local codes.

The unit shall be factory tested as a complete unit and a certified test report of pump characteristics shall be submitted prior to shipment. The unit manufacturer shall furnish complete elementary and connection wiring diagrams (2DW403 for 3 phase, 2DW449 for 1 phase), piping diagrams (1 DPD21-C), installation and operation instructions.

Manufacturer shall be Bell & Gossett Domestic Pump, Morton Grove, IL.
Suggested Control Specifications (To be added to Unit Guide Specification)

The unit manufacturer shall furnish, mount on the pump unit, and wire a NEMA 2 control cabinet with piano hinged door, enclosing the following:

- 2 Combination magnetic starters (having 3 overload relays) with fused disconnects and cover interlocks.
- 2 Pump running pilot lights.
- 1 Electrical alternator.
- 1 Numbered terminal block.
- 1 Fused control circuit transformer when the motor voltage exceeds 130 volts.
- 1 Control power swithing relay.
- 1 Control circuit relay.

Control cabinet shall contain U.L. Listed or Recognized components. Control cabinet shall be Listed by Underwriters Laboratories.

Control components shall be provided by the unit manufacturer for operation as follows: as the level in the boiler recedes, the upper switch on the pump control will close, starting the lead pump. As the level is restored, the switch will open, and stop the pump. Should the level continue to recede, the lower switch will close, starting the lag pump.

The electric alternator will provide for automatic transfer of operating sequence after each cycle. The alternator will also provide for simultaneous operation of both pumps under peak lead conditions and operation of the standby or lag pump if the lead pump or its control fails.

The unit manufacturer shall furnish (1) McDonnell & Miller pump control:

a. No. 150S rated to 150 psi for boilers with separate water columns, or
b. No. 157S rated to 150 psi with water column type body, for mounting on the boiler. Controller shall be completely packless construction with snap action switches. All electrical operating parts are to be sealed from the float chamber.

The installing contractor, in addition to the above noted pump control, shall provide and install a low water burner cut-off switch, a low water boiler alarm switch and associated circuits in accordance with local codes.

The unit shall be factory tested as a complete unit with a certified test report of pump characteristics shall be submitted prior to shipment. The unit manufacturer shall furnish complete elementary and connection wiring diagrams (2DW405), piping diagrams (1 DPD21-D), installation and operation instructions.

Manufacturer shall be Bell & Gossett Domestic Pump, Morton Grove, IL.
NOTE: SERVICE RATED DISCONNECT(S) PROVIDED BY OTHERS.
(TYPICAL WITH FIG. 1 & FIG. 2)

SEE NOTE 5

1. ALL WIRING IN ACCORDANCE WITH N.E.C.
2. FIELD WIRING SHOULD BE IN ACCORDANCE
   WITH N.E.C.
3. DISCONNECT SWITCH AND CIRCUIT OVERLOAD
   PROTECTION TO BE SUPPLIED AND EXTERNALLY
   INSTALLED BY OTHERS WHEN NOT FURNISHED
   BY FACTORY.
4. BOILER LEVEL CONTROL (BY PUMP CONTROL)
   BOILER CONTROL(S) LOCATED ON BOILER,
   FURNISHED BY OTHERS.
5. INSTALL JUMPER WHEN FSL LOW WATER CUT-OFF
   FLOAT SWITCH IS NOT FURNISHED.
6. TRANSFORMER WIRING PER TRANSFORMER LABEL.

TERMINAL STRIP

LEGEND

DS1 DISCONNECT SWITCH (OR CB) WITH FIG. 1 OPTICAL
DS2 DISCONNECT SWITCH (OR CBZ WITH FIG. 1) OPTICAL
F1 MOTOR FUSE (BY OTHERS)
F2 MOTOR FUSE (BY OTHERS)
F3 CONTROL CIRCUIT FUSE (TYPE FNO-R 1.5AMP 480V OR 3.5AMP 230/208V)
M1 MOTOR CONTROLLER
M2 MOTOR CONTROLLER
O1 OVERLOAD (OR CB) AUXILIARY INTERLOCK WITH FIG. 1
O2 OVERLOAD (OR CB) AUXILIARY INTERLOCK WITH FIG. 1
PL1 PILOT LIGHT "PUMP #1 RUN" - OPTIONAL
PL2 PILOT LIGHT "PUMP #2 RUN" - OPTIONAL
SV1 SELECTOR SWITCH
SV2 SELECTOR SWITCH
FS1 FLOAT SWITCH LOW WATER CUT-OFF
FS2 FLOAT SWITCH MAKE-UP CONTROL
BFS1 BOILER LEVEL CONTROLLER (SEE NOTE 4)
ALT ELECTRICAL ALTERNATOR
CR1 RELAY STANDBY PUMP CONTROL

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Section 190B
Page 16
2 Boilers, 2 Pumps - Manual Standby

Each pump to feed its respective boiler with manual valves to permit operation of either pump with either boiler

Elementary Piping Diagram - 1 DPD17

Suggested Control Specifications (To be added to Unit Guide Specification)

The unit manufacturer shall furnish, mount on the pump unit, and wire a NEMA 2 control cabinet with piano hinged door, enclosing the following:

- 2 Combination magnetic starters (having 3 overload relays) with fused disconnects and cover interlocks.
- 2 “Off-Hand-Pump 2 - Pump 1” boiler pump selector switches.
- 2 Pump running pilot lights.
- 1 Numbered terminal block.
- 1 Fused control circuit transformer when the motor voltage exceeds 130 volts.
- 1 Control power switching relay.

Control cabinet shall contain U.L. Listed or Recognized components. Control cabinet shall be Listed by Underwriters Laboratories.

Control components shall be provided by the unit manufacturer, for operation as follows: as the level in either boiler recedes, the pump control switch will close, starting the respective pump. As the level is restored, the switch will open, and stop the pump. Each boiler feed pump selector switch shall provide positions to feed either boiler.

The unit manufacturer shall furnish (1) McDonnell & Miller pump control:

a. No. 42S rated to 50 psi for boilers with separate water columns,

b. No. 150S rated to 150 psi for boilers with separate water columns, or

c. No. 157S rated to 150 psi with water column type body, for mounting on the boiler. Controller shall be completely packless construction with snap action switches. All electrical operating parts are to be sealed from the float chamber.

The installing contractor shall provide and install low water burner cut-off and alarm switch circuits in accordance with local codes.

The unit shall be factory tested as a complete unit and a certified test report of pump characteristics shall be submitted prior to shipment. The unit manufacturer shall furnish complete elementary and connection wiring diagrams (2DW407), piping diagrams (1 DPD17), installation and operation instructions.

Manufacturer shall be Bell & Gossett Domestic Pump, Morton Grove, IL.
Suggested Control Specifications (To be added to Unit Guide Specification)

The unit manufacturer shall furnish, mount on the pump unit, and wire a NEMA 2 control cabinet with piano hinged door, enclosing the following:

- 2 Combination magnetic starters (having 3 overload relays) with fused disconnects and cover interlocks.
- 2 Pump running pilot lights.
- 1 Numbered terminal block.
- 1 Fused control circuit transformer when the motor voltage exceeds 130 volts.
- 1 Control circuit relay.
- 1 Control power switching relay.

Manual sequence control shall provide for manual selection of the active or lead pump, simultaneous operation of both pumps under abnormal load conditions and automatic operation of the lag pump if the lead pump or its control fails.

The unit manufacturer shall furnish (1) McDonnell & Miller pump control:

a. No. 150S rated to 150 psi for boilers with separate water columns, or
b. No. 157S rated to 150 psi with water column type body, for mounting on the boiler. Controller shall be completely packless construction with snap action switches. All electrical operating parts are to be sealed from the float chamber.

The installing contractor, in addition to the above noted pump control, shall provide and install a low water burner cut-off switch, a low water boiler alarm switch and associated circuits in accordance with local codes.

The unit shall be factory tested as a complete unit with a certified test report of pump characteristics shall be submitted prior to shipment. The unit manufacturer shall furnish complete elementary and connection wiring diagrams (2DW408), piping diagrams (1 DPD08-A), installation and operation instructions.

Manufacturer shall be Bell & Gossett Domestic Pump, Morton Grove, IL.
Suggested Control Specifications (To be added to Unit Guide Specification)

The unit manufacturer shall furnish, mount on the pump unit, and wire a NEMA 2 control cabinet with piano hinged door, enclosing the following:

3 Combination magnetic starters (having 3 overload relays) with fused disconnects and cover interlocks.
2 Boiler/Pump selector switches.
3 Pump running pilot lights.
1 Control power switching relay.
1 Numbered terminal block.
1 Fused control circuit transformer when the motor voltage exceeds 130 volts.

Control cabinet shall contain U.L. Listed or Recognized components. Control cabinet shall be Listed by Underwriters Laboratories.

Control components shall be provided by the unit manufacturer for operation as follows: as the level in the boiler recedes, the pump control switch will close, starting the selected pump. As the level is restored, the switch will open, and stop the pump. Boiler #1 selector switch shall provide positions for “Off-Cont.-Pump 1 - Pump 3.” Boiler #2 selector switch shall provide positions for “Off-Cont.-Pump 2 - Pump 3.”

The unit manufacturer shall furnish (1) McDonnell & Miller pump control:

a. No. 42S rated to 50 psi for boilers with separate water columns,
b. No. 150S rated to 150 psi for boilers with separate water columns, or
c. No. 157S rated to 150 psi with water column type body, for mounting on the boiler. Controller shall be completely packless construction with snap action switches. All electrical operating parts are to be sealed from the float chamber.

The installing contractor shall provide and install low water burner cut-off and alarm switch circuits in accordance with local codes.

The unit shall be factory tested as a complete unit and a certified test report of pump characteristics shall be submitted prior to shipment. The unit manufacturer shall furnish complete elementary and connection wiring diagrams (2DW410 for 3 phase, 2DW447 for 1 phase), piping diagrams (1 DPD12), installation and operation instructions.

Manufacturer shall be Bell & Gossett Domestic Pump, Morton Grove, IL.
Suggested Control Specifications (To be added to Unit Guide Specification)

The unit manufacturer shall furnish, mount on the pump unit, and wire a NEMA 2 control cabinet with piano hinged door, enclosing the following:

3 Combination magnetic starters (having 3 overload relays) with fused disconnects and cover interlocks.
3 “Auto-Off-Hand” pump selector switches.
2 Boiler feed valve selector switches.
3 Pump running pilot lights.
1 Control power switching relay.
1 Numbered terminal block.
1 Fused control circuit transformer when the motor voltage exceeds 130 volts.
1 Control circuit relay.

The unit manufacturer shall furnish (1) McDonnell & Miller pump control:

a. No. 150S rated to 150 psi for boilers with separate water columns, or
b. No. 157S rated to 150 psi with water column type body, for mounting on each boiler and (1) electric boiler feed valve to be installed in each boiler feed line. Electric feed valves shall be 2 wire, 2 position, power to open type. Valve shall be suitable for 120 volts operation and shall contain an end switch. Controllers shall be completely packless construction with snap action switches. All electrical operating parts are to be sealed from the float chamber.

The installing contractor, in addition to the above noted pump control, shall provide and install a low water burner cut-off switch, a low water boiler alarm switch and associated circuits in accordance with local codes.

The unit shall be factory tested as a complete unit and a certified test report of pump characteristics shall be submitted prior to shipment. The unit manufacturer shall furnish complete elementary and connection wiring diagrams (2DW411), piping diagrams (1 DPD23), installation and operation instructions.

Manufacturer shall be Bell & Gossett Domestic Pump, Morton Grove, IL.
Suggested Control Specifications (To be added to Unit Guide Specification)
(Suitable only for Boilers Operating at 30 PSI or Less)

The unit manufacturer shall furnish, mount on the pump unit, and wire a NEMA 2 control cabinet with piano hinged door, enclosing the following:

- 3 Combination magnetic starters
  (having 3 overload relays) with fused disconnects and cover interlocks.
- 2 “Off-Auto-Standby-Hand” selector switches for each boiler.
- 1 “Auto-Off-Hand” selector for the standby pump.
- 3 Pump running pilot lights.
- 1 Control power switching relay.
- 1 Numbered terminal block.
- 1 Fused control circuit transformer when the motor voltage exceeds 130 volts.
- 2 Control circuit relays.

Control cabinet shall contain U.L. Listed or Recognized components. Control cabinet shall be Listed by Underwriters Laboratories.

Control components shall be provided by the unit manufacturer, for operation as follows: as the level in any boiler recedes, the pump control upper level switch will close, starting the normal feed pump. As the level is restored, the switch will open, and stop the pump. Should the level continue to recede, the second switch on the pump control will close, starting the standby pump and simultaneously opening the solenoid pilot valve. The hydraulic feed valve will then be opened by the pump discharge pressure, and the standby pump will discharge into the boiler that requires water.

The unit manufacturer shall manifold the pump discharges at the factory, including check valves, gate valves, plug cocks, and the hydraulic feed valves. The solenoid pilot valves shall be mounted and wired, and the pilot line routed to the boiler feed receiver.

The installing contractor, in addition to the above noted pump control, shall provide and install a low water burner cut-off switch, a low water boiler alarm switch and associated circuits in accordance with local codes. The unit shall be factory tested as a complete unit and a certified test report of pump characteristics shall be submitted prior to shipment. The unit manufacturer shall furnish complete elementary and connection wiring diagrams (2DW412 for 3 phase, 2DW444 for 1 phase), piping diagrams (1 DPD20), installation and operation instructions.

Manufacturer shall be Bell & Gossett Domestic Pump, Morton Grove, IL.
Xylem |ˈzɪləm|

1) The tissue in plants that brings water upward from the roots;
2) a leading global water technology company.

We’re 12,900 people unified in a common purpose: creating innovative solutions to meet our world’s water needs. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. We move, treat, analyze, and return water to the environment, and we help people use water efficiently, in their homes, buildings, factories and farms. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise, backed by a legacy of innovation.

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