INSTALLATION INSTRUCTIONS
FOR MOTORIZED 2-WAY ISOLATION VALVES
(100266962, 100157681, 100312760, 100312791, & 100280019)
FOR MODELS FB/OF/FCB 751 - 6001

⚠ WARNING

Electrical Shock Hazard-- For your safety, turn OFF electrical power supply before making any electrical connections to avoid possible electric shock hazard. Failure to do so can cause severe personal injury or death.

CAUTION

Kits 100266962 and 100157681 are for INDOOR use only.

CAUTION

If using the 'Minimum Number of Boiler Pumps Always On' parameter for cascade is used on fixed or variable flow primary system configuration, and cascade communication is lost, each stand alone boiler will operate boiler pump/valve based on demand only. Without demand, each pump/valve will be off/closed.

CAUTION

For fixed or variable flow primary system configuration, a differential bypass is recommended (see Hydronic Piping Section of Installation and Operation manual for illustration). If the differential bypass is excluded, individual boiler flow rates may exceed the maximum flow allowed, resulting in non-warrantable damage to the heat exchanger, damage to the system piping, and/or pressure relief valve opening causing excessive make-up water and glycol loss.

NOTICE

For fixed or variable flow primary system configuration, install isolation valves to prevent flow through unfired boilers in accordance with ASHRAE 90.1 (6.5.4.3.2).

Kit components

Kit Number	Model Number	Indoor/Outdoor Rating	Part Number	Component Description
100266962	FB 751 - 1251 & FCB 1000	Indoor Only	100266791	3" Motorized Valve
			100167635	120V 60Hz Relay
			100134850	Self Tapping Screws (6)
			100150117	High Voltage J-Box
			100150118	High Voltage J-Box Cover
			100159617	.25 Female Quick Connect (6)
			100159633	.188 Female Quick Connect (4)
			100167733	24V Relay
100312760	FB/OF 751 - 1251 & FCB 1000	NEMA 4 / Outdoor	100312502	3" Motorized Valve
			100167635	120V 60Hz Relay
			100134850	Self Tapping Screws (6)
			100150117	High Voltage J-Box
			100150118	High Voltage J-Box Cover
			100159617	.25 Female Quick Connect (6)
			100159633	.188 Female Quick Connect (4)
			100167733	24V Relay
100157681	FB/FCB 1500 - 4001	Indoor Only	100171685	4" Motorized Valve
			100167635	120V 60Hz Relay
			100134850	Self Tapping Screws (6)
			100150117	High Voltage J-Box
			100150118	High Voltage J-Box Cover
			100159617	.25 Female Quick Connect (6)
			100159633	.188 Female Quick Connect (4)
			100167733	24V Relay

Kit Number	Model Number	Indoor/Outdoor Rating	Part Number	Component Description
100312791	FB/OF/FCB 1500 - 4001	NEMA 4 / Outdoor	100312501	4" Motorized Valve
			100167635	120V 60Hz Relay
			100134850	Self Tapping Screws (6)
			100150117	High Voltage J-Box
			100150118	High Voltage J-Box Cover
			100159617	.25 Female Quick Connect (6)
			100159633	.188 Female Quick Connect (4)
			100167733	24V Relay
100280019	FB/OF/FCB 5000 - 6001	NEMA 4 / Outdoor	100279351	6" Motorized Valve
			100167635	120V 60Hz Relay
			100134850	Self Tapping Screws (6)
			100150117	High Voltage J-Box
			100150118	High Voltage J-Box Cover
			100159617	.25 Female Quick Connect (6)
			100159633	.188 Female Quick Connect (4)
			100167733	24V Relay

Installation instructions

1. Install the motorized 2-way valve to the outlet boiler flange as shown in FIG. 1.
2. Install the 120V relay (100167635) onto the Crest jacket below the high voltage junction box as shown in FIG. 1.
3. Install the junction box over the relay (100167635) as shown in FIG. 1.
4. Route the conduit (if required) as shown in FIG. 1.

Figure 1 *Valve Installation - NEMA 4 / Outdoor VSI Valves*

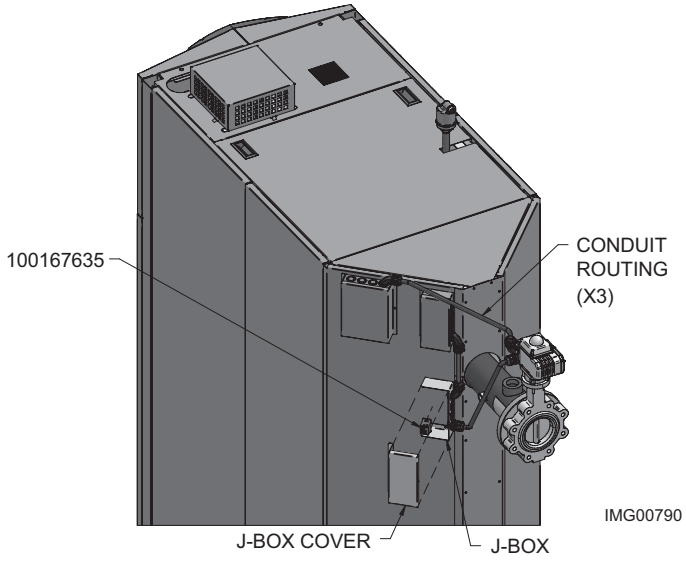
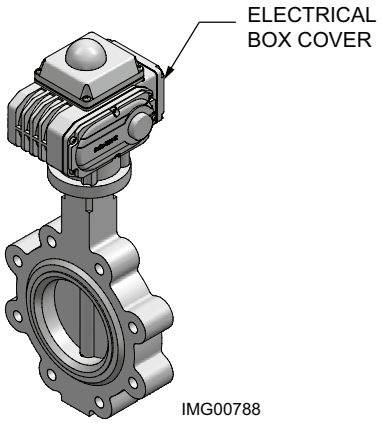


Figure 2 *Motorized 2-Way Valve - NEMA 4 / Outdoor VSI Valves*



Valve technical data

Valve Models: 100266791 and 100171685

Power Supply: 120V
Amp Draw: .24A
Rotation Time: 17 - 20 seconds
Valve Body: Ductile Iron
Max. Close-Off Pressure: 200 PSI
Seal: EPDM
Stem: 416 S.S.
Disc: 304 S.S.

Valve Models: 100279351

Power Supply: 120V
Amp Draw: .57A
Rotation Time: 25 - 30 seconds
Valve Body: Ductile Iron
Max. Close-Off Pressure: 200 PSI
Seal: EPDM
Stem: 416 S.S.
Disc: 304 S.S.

Wiring instructions - NEMA 4 / Outdoor VSI Valves

1. Remove the four (4) screws holding the electrical box cover plate on to the motorized valve actuator.

2. Route wires from Terminals #4 & #5 on the valve to Terminals #9 & #10 (louver proving) on the Crest low voltage connection board (FIG. 3). For Hellcat route wires to terminals X18-1 and X18-2 (flow switch/LWCO).

3. Route wire from Terminal #2 (close) on the valve to the Normally Closed (NC) Contact on the relay using a kit-supplied quick connect (100159617). Route second wire from Terminal #3 (open) on the valve to the Normally Open (NO) Contact on the relay using a quick connect (100159617).

4. Route a wire from Terminal #1 (neutral) on the valve through the relay box and into the high voltage connection box. Connect this wire to the neutral (N) contact on the high voltage connection strip "120 V Supply".

5. Route a wire from the Common (C) Terminal on the relay attaching a kit-supplied quick connect (100159617) to the "L" contact on the high voltage connection strip "120 V Supply".

6. Route two wires from the relay coil utilizing a kit-supplied quick connect (100159633) to the two "Boiler Pump" contacts on the high voltage connection strip.

7. Replace the cover on the valve electrical box.

8. Put the cover (100150117) on the junction box (100150118) located on the back side of the Crest (FIG. 1).

2-Way Motorized Valve Control

The Boiler Pump control parameters must be set to match the design and operation of the system.

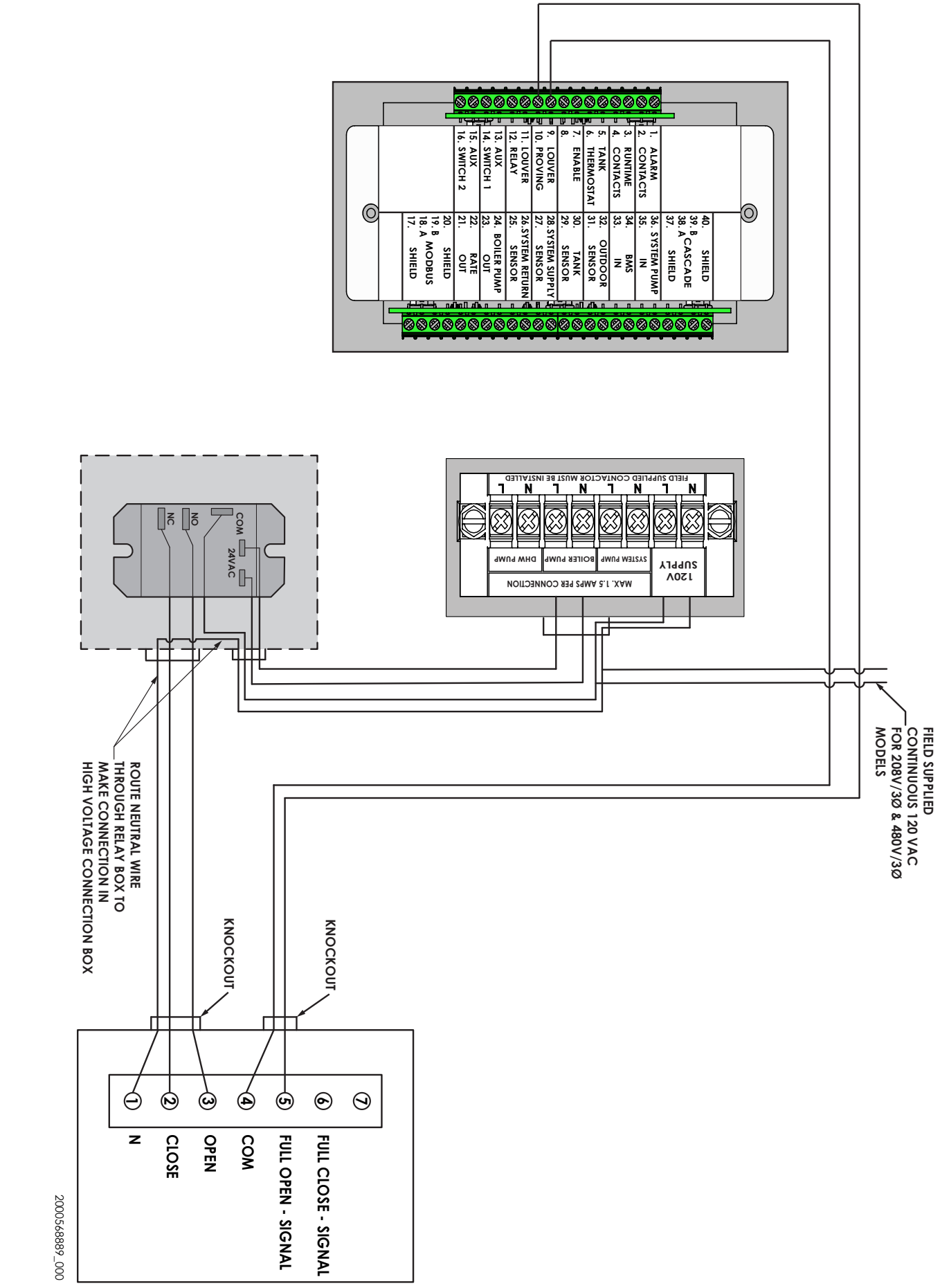
a. Boiler Pump Mode (K3) - must be set to ON with a call for heat to operate the 2-way motorized valves.

b. Boiler Pump Delay (K1) - can be used to keep the 2-way motorized valve open for a fixed period of time after the call for heat ends for a specific boiler. A minimum of 60 seconds is recommended to allow time for heat to be dissipated from the boiler after completing a call for heat.

c. Boiler Pump Anti-Seize Time (K2) - can be used to exercise (open) the 2-way motorized valve for a fixed period of time if it has not operated for 24 hours.

d. Number of Boiler Pumps Always On (J11) used to force a fixed number of isolation valves to always be energized regardless of the number of boilers that are firing. **Note:** The open 2-way motorized valves will rotate with priority of the boilers.

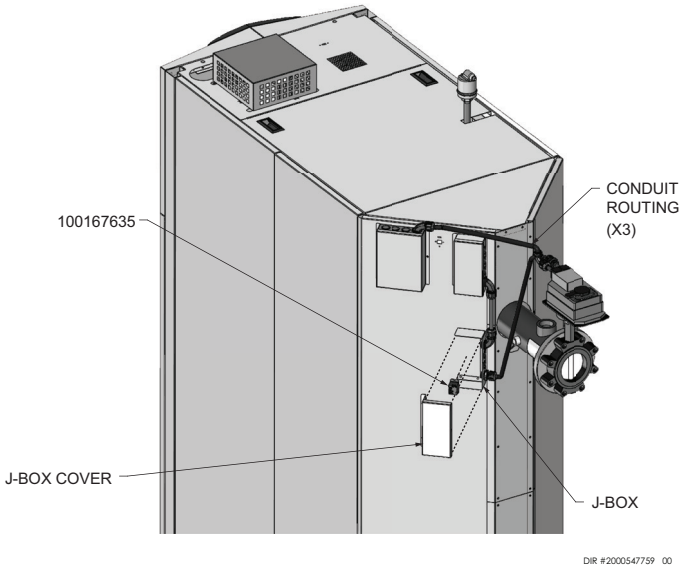
Figure 3 *Wiring Diagram - NEMA 4 / Outdoor VSI Valves (FB/OF Models)*



Wiring instructions - Indoor Only Belimo Valves

1. Route wires S1 and S3 from end switch to Terminals #9 and #10 (louver proving) on the Crest low voltage connection board (FIG. 6). For Hellcat switch to terminals X18-1 and X18-2 (flow switch/ LWCO).
2. Route wire #2 from the actuator on the valve to the Normally Closed (NC) Contact on the relay using a kit-supplied quick connect (100159617). Route wire #3 from the actuator on the valve to the Normally Open (NO) Contact on the relay using a quick connect (100159617).
3. Route wire #1 from the actuator on the valve through the relay box and into the high voltage connection box. Connect this wire to the Neutral (N) Contact on the high voltage connection strip "120V Supply."
4. Route a wire from the Common (C) Terminal on the relay attaching a kit-supplied quick connect (100159617) to the "L" contact on the high voltage connection strip "120V Supply).
5. Route two wires from the relay coil utilizing a kit-supplied quick connect (100159633) to the two "Boiler Pump" contacts on the high voltage connection strip.
6. Ensure the end switch is turned to the position indicated in Figure 7.
7. Put the cover (100150117) on the junction box (100150118) located on the back side of the Crest (FIG. 4).

Figure 4 *Valve Installation - Indoor Only Belimo Valves*



2-Way Motorized Valve Control

The Boiler Pump control parameters must be set to match the design and operation of the system.

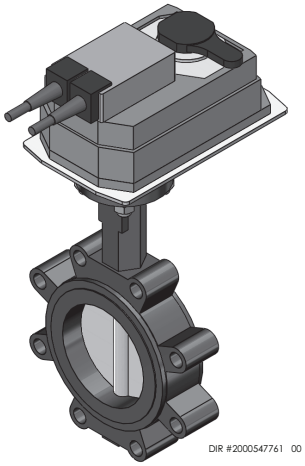
a. Boiler Pump Mode (K3) - must be set to ON with a call for heat to operate the 2-way motorized valves.

b. Boiler Pump Delay (K1) - can be used to keep the 2-way motorized valve open for a fixed period of time after the call for heat ends for a specific boiler. A minimum of 60 seconds is recommended to allow time for heat to be dissipated from the boiler after completing a call for heat.

c. Boiler Pump Anti-Seize Time (K2) - can be used to exercise (open) the 2-way motorized valve for a fixed period of time if it has not operated for 24 hours.

d. Number of Boiler Pumps Always On (J11) used to force a fixed number of isolation valves to always be energized regardless of the number of boilers that are firing. **Note:** The open 2-way motorized valves will rotate with priority of the boilers.

Figure 5 *Motorized 2-Way Valve - Indoor Only Belimo Valves*



Valve technical data

Valve Models: 100266791 and 100171685

Power Supply: 120V
Amp Draw: .05A
Rotation Time: 35 seconds
Valve Body: Ductile Iron
Seal: EPDM
Stem: 416 S.S.
Disc: 304 S.S.

Figure 6 *Wiring Diagram - Indoor Only Belimo Valves (FB/OF Models)*

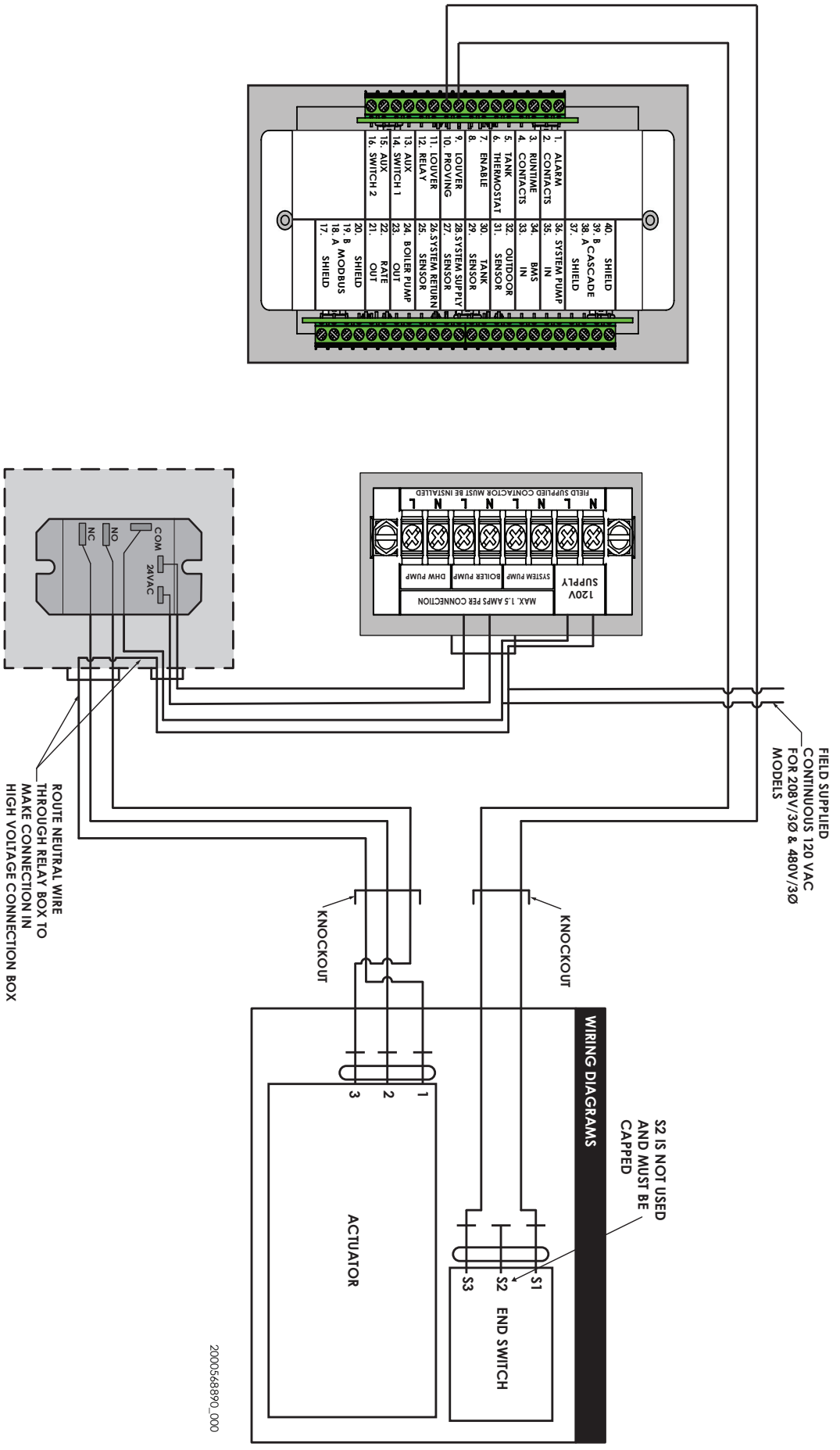


Figure 7 *End Switch Position*

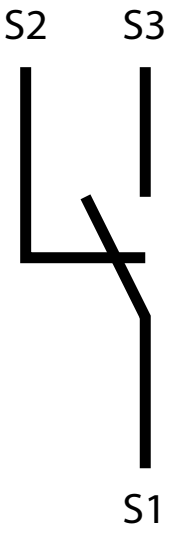


Figure 8 *Wiring Diagram - Hellcat - Indoor Only Belimo Valves*

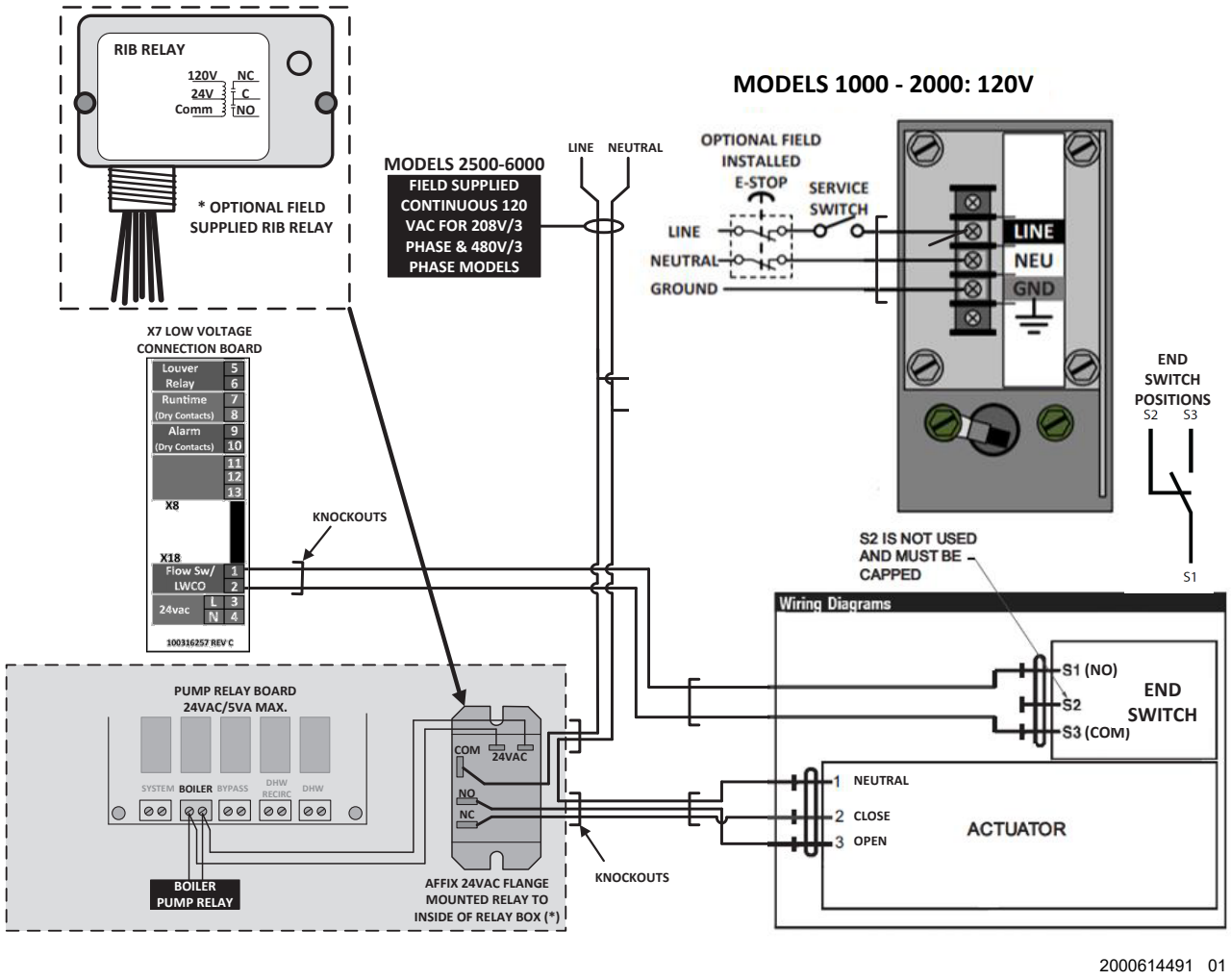
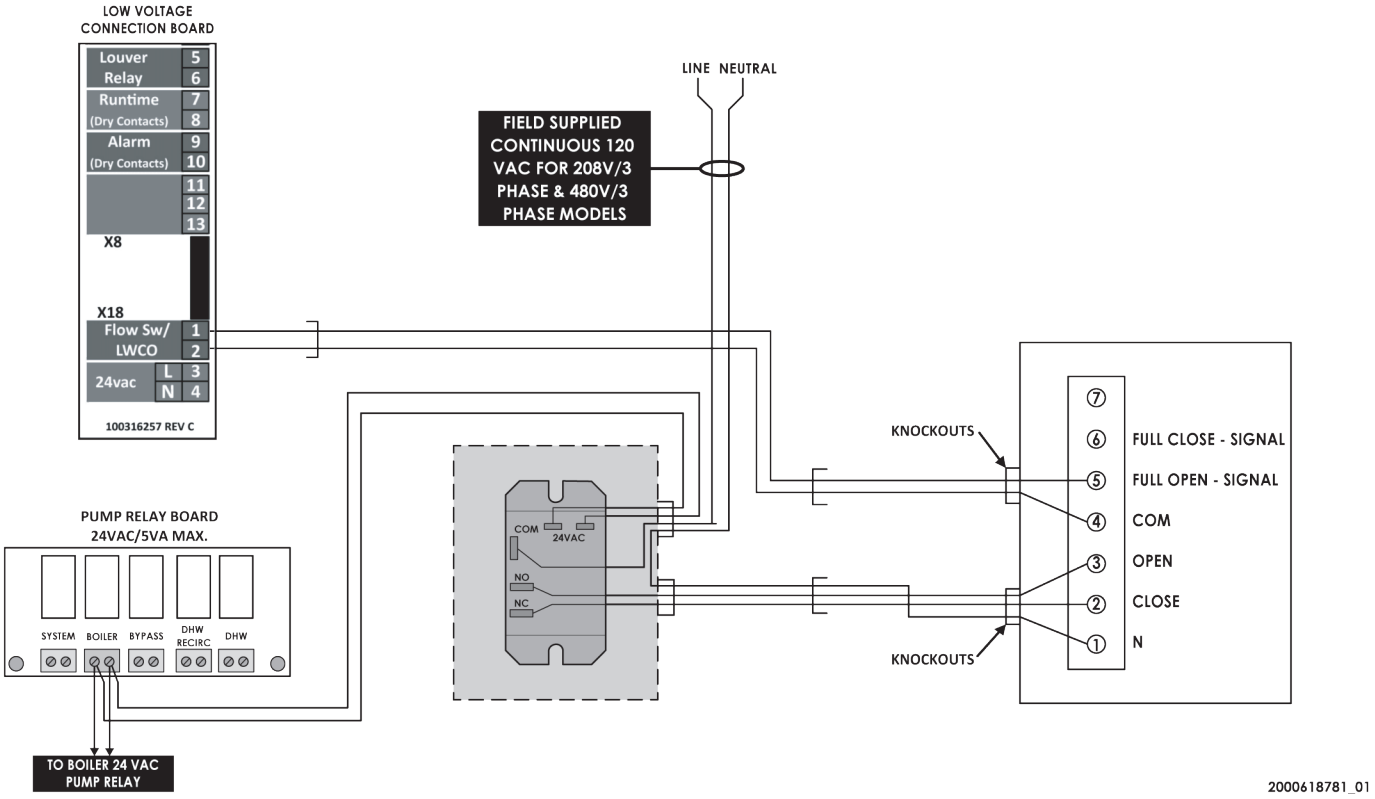


Figure 9 *Hellcat Wiring Diagram - NEMA 4 / VSI Valves*



NOTES

Revision Notes: *Revision A (ECO C13214) initial release.*

Revision B (C#500001112) reflects the addition of Crest 751+ models and kit 100266962 for 3" isolation valves.

Revision C (PCP# 3000005469 / CN# 500006009) reflects the addition of the FB 6000 model.

Revision D (PCP# 3000009916 / CN# 500009626) reflects the addition of Belimo valves.

Revision E (PCP #3000030252 / CN #500019447) reflects an update to the kit numbers.

Revision F (PCP #3000036719 / CN #500025027) reflects an update to the Belimo wiring diagram.

Revision G (PCP #3000036901 / CN #500025206) reflects the addition of Figure 7.

Revision H (PCP #3000051279 / CN #500038376) reflects the addition of the Hellcat models.

Revision J (PCP #3000052766 / CN #500039457) reflects the addition of figure 9.

Revision K (PCP #3000065587 / CN #500051365) reflects additional cautions, notices, and updates to figures 8 and 9.

Revision L (PCP #3000069081 / CN #500054642) reflects updates to the piping Caution note.