

2BWP20 Sludge Heating Pump Motor Control System Schematic

Power Supply: MCC-B7002 600VAC BUS (AØ, BØ, CØ)

Main Circuit:

- 2BP20.01 (Circuit Breaker)
- L1, L2, L3 (Main Lines)
- FU1A 0.25A CLASS CC, FU1B 0.25A CLASS CC (Fuses)
- H2 CPT 600:120V 150VA (Thermal Relay)
- SIZE 1, CLASS 20 (Circuit Breaker)
- T1, T2, T3 (Terminals)
- JB (Junction Box)
- M (Motor)

Motor Specifications: 2BWP20 DIGESTER SLUDGE HEATING PUMP, 1.5HP, 1.76FLA, 600V

Control Circuit:

- TB01 (Terminal Block)
- FU2 1A CLASS CC (Fuse)
- OVERLOAD (Thermal Relay)
- O/L RESET (Reset Button)
- BFDP-1 (Hand Switch)
- CR1 (Stop Button)
- CR2 (Start Button)
- CP-B8001 (Control Panel)
- XX 1, XX 2, XX 3, XX 4, XX 5, XX 6, XX 7, XX 8 (Terminals)
- MOTOR RUN CMD OUTPUT
- MOTOR STOP CMD OUTPUT
- RUN STATUS (Indicator Light)

Notes:

- NOTE 1: 2BP20-LOS
- NOTE 2: BFDP-1
- NOTE 3: RUN STATUS
- NOTE 4 (TYP.): 24VDC FROM CP-B8001

The diagram illustrates the electrical connections between the 2BP20 starter compartment and the control room. The starter compartment is divided into three main sections: Power Connection, Lock Out Switch, and Run Status.

- Power Connection:** Includes terminals T1 (RD), T2 (BK), and T3 (BL). These are connected to a 1x3C 12AWG TECK90 1kV cable (C-2BP20-1) which leads to a JB (Junction Box) and then to the 2BP20 Digester Sludge Heating Pump (M).
- Lock Out Switch:** Includes terminal TB01 and a 2BP20 Lock Out Switch (XX) with terminals 1 and 2. The switch is connected to the 2BP20-1 and 2BP20-2 lines.
- Run Status:** Includes terminal TB02 and a 2BP20 Run Status (XX) with terminals 1, 2, 3, 4, and 5. The status is connected to the 2BP20-200 and 2BP20-201 lines.

The control room contains several components connected to the starter compartment:

- 2BP20-LOS (2BP20 Lock Out Switch):** A switch (XX) with terminals 1 and 2, connected to the 2BP20-1 and 2BP20-2 lines.
- BFDP-1 (HS-2BP20-01 Control Circuit):** A control circuit (XX) with terminals 1 through 8, connected to the 2BP20-1, 2BP20-2, 2BP20-3, and 2BP20-4 lines. It also includes a RED RUN LIGHT.
- CP-B8001 (Run Status):** A run status (XX) with terminals 1 through 5, connected to the 2BP20-200 and 2BP20-201 lines.

Existing equipment and connections are indicated by dashed lines and labels such as "EXISTING" and "EXISTING -". A note at the bottom right indicates "1 REF. 2 (NOTE 8)".

1. LOCK-OUT SWITCH LOCATED AT MOTOR.
2. EXISTING HAND AND CONTROL CONTACTS AT LOCAL CONTROL PANEL.
3. CITY OF WINNIPEG COLOUR CONVENTION REQUIRES GREEN RUN INDICATOR. EXISTING LIGHT PREDATES THE CURRENT CONVENTION.
4. TO PLC DISCRETE INPUT. TERMINAL BLOCK NUMBERS TO COORDINATE WITH DCS MIGRATION PROJECT.
5. PRIOR TO DEMOLITION FIELD CABLE TAGS TO BE VERIFIED BY CONTRACTOR DURING INSTALLATION.
6. PRIOR TO DEMOLITION LOCAL CONTROL PANEL TERMINALS TO BE VERIFIED BY CONTRACTOR DURING INSTALLATION.
7. GREY LINETYPE DENOTES EXISTING. ENGINEER'S SEAL APPLIES TO NEW WORKS ONLY.
8. WHERE FIELD CONDITIONS NECESSITATE AN EXTENSION TO EXISTING CABLES IN ORDER TO REACH NEW MCC, SEE REFERENCE DRAWING 2.

10	—	—
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3	—	—
2	1-0101-EMCL-B034-001	ELECTRICAL – SCHEMATIC WIRING DIAGRAM DETAILS – TYPICAL EXISTING WIRING
1	1-0101-ESLD-B002-001	ELECTRICAL – MCC-B7002 SINGLE LINE DIAGRAM
NO.	DRAWING NUMBER	REFERENCE DRAWING TITLE
REFERENCE DRAWINGS		


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Certificate of Authorization


KGS Group

No. 245

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DATE		2025 03 26		DATE			

ENGINEER'S SEAL
CONSULTANT DRAWING NUMBER
23-0107-010_PB_E2-23

	THE CITY OF WINNIPEG WATER AND WASTE DEPARTMENT ENGINEERING DIVISION	
	NORTH END SEWAGE TREATMENT PLANT (NEWPCC) BACKUP BOILER SYSTEM AREA B – BOILER ROOM ELECTRICAL SCHEMATIC WIRING DIAGRAM – 2BP20 DIGESTER SLUDGE HEATING PUMP	
CITY DRAWING NUMBER	1-0101-EMCL-B023-001	SHEET 1 OF 1