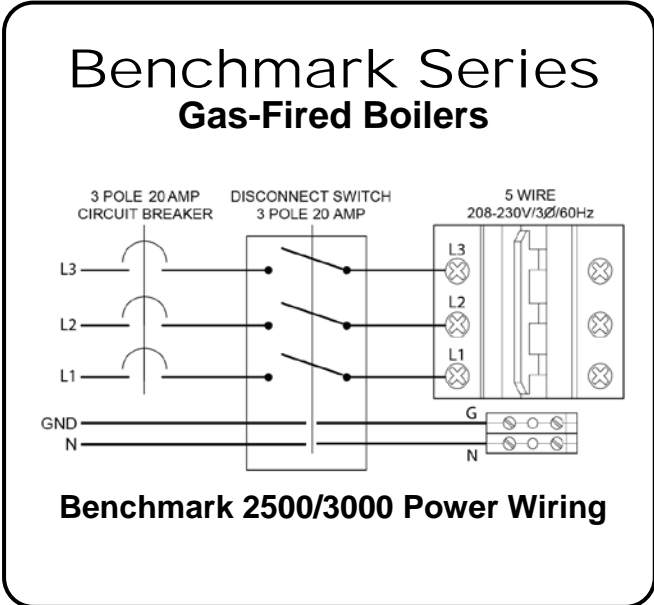


ELECTRICAL POWER GUIDE

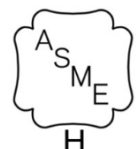
Natural Gas, Propane Gas, or Dual Fuel Fired Modulating, Condensing Boilers

For models:

BMK 750 to BMK 6000



Last Update: 11/08/2013



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GENERAL

Benchmark (BMK) Gas Fired Boilers are fully factory wired packaged units which require simple external power wiring as part of the installation (Diagram 1). This technical guide is intended to help designers provide electrical power wiring (line voltage) to Benchmark units. Control wiring details are provided in other publications, depending upon unit application. This document is intended only as a guide and therefore cannot include all possible alternatives, or unit applications. In order to comply with all codes and authorities having jurisdiction, designers and installers must plan the electrical wiring carefully and execute the installation completely. Emergency shutoffs, fusible fire switches, break glass stations, and other electrical requirements should be considered and installed whenever necessary.

Boiler Electrical Requirements

With the exception of BMK 2500, BMK 3000, and BMK 6000 models, Benchmark boilers require 120V/1Ø/60 Hz electrical power. BMK 2500, BMK 3000, and BMK 6000 models require 3Ø power and can be ordered with either one of the following power options:

BMK 2500 - 3000	BMK 6000
208-230V/3Ø/60 Hz @ 20 amps	208-230V/3Ø/60 Hz @ 30 amps
460V/3Ø/60 Hz @ 15 amps	460V/3Ø/60 Hz @ 20 amps

For all Benchmark models, the power distribution block for field wiring connections (Diagram 2) is located in the upper right corner behind the unit front panel. All copper wire must be connected to the power distribution block. For all 1Ø Benchmark models, the minimum supply voltage to the unit is 110 VAC. For 3Ø Benchmark 2500 - 6000 models, the minimum supply voltages to the unit are 190 VAC for 208-230/3Ø/60 Hz and 415 VAC for 460/3Ø/60 Hz. Lower voltages will result in increased wear and premature failure of the blower motor. Wire size and type should be made per the National Electrical Code based on length and load.

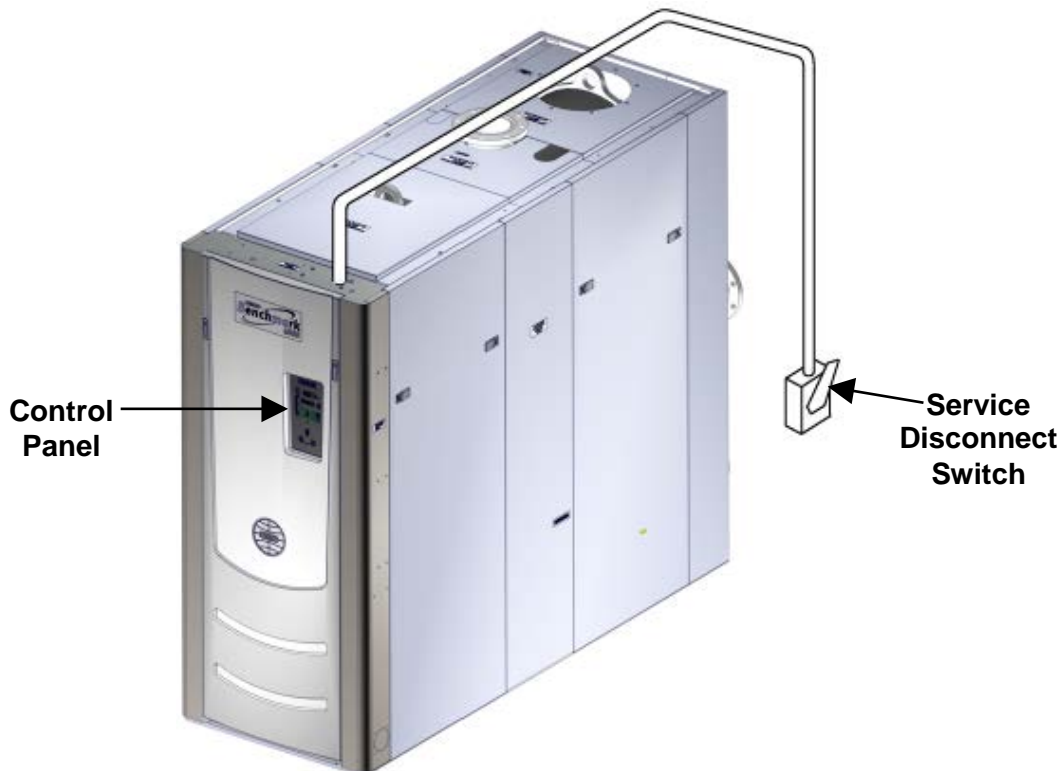


Diagram 1: Service Switch Typical Location

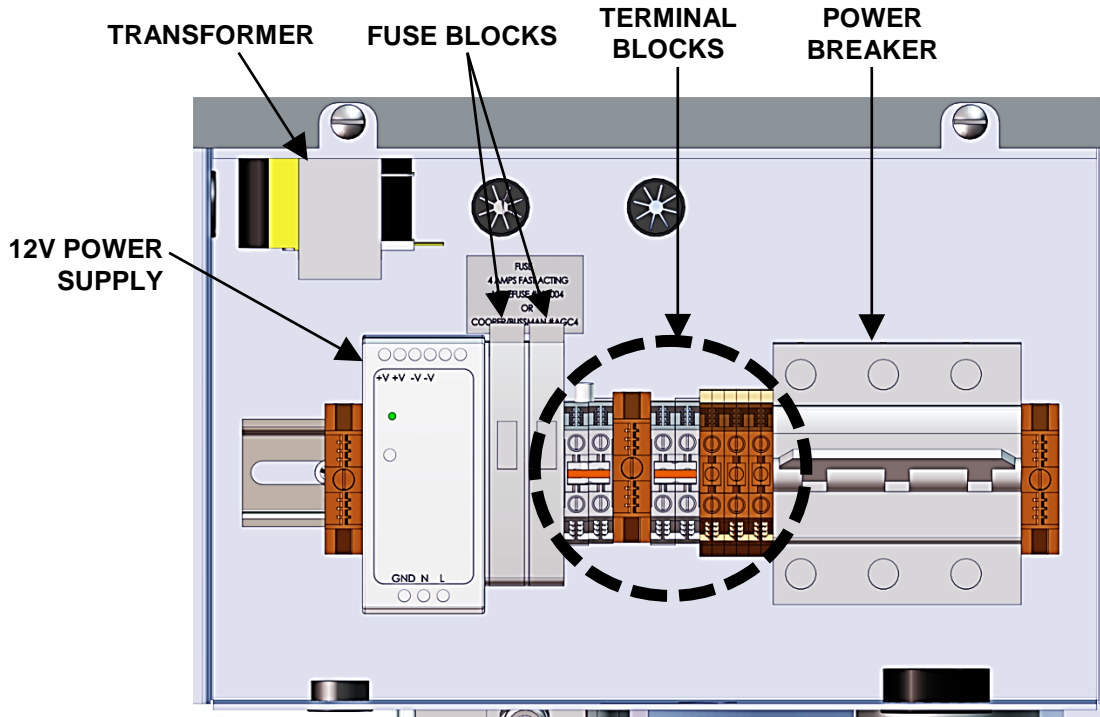


Diagram 2: Power Box Connections for BMK 1500/2000/2500/3000/6000

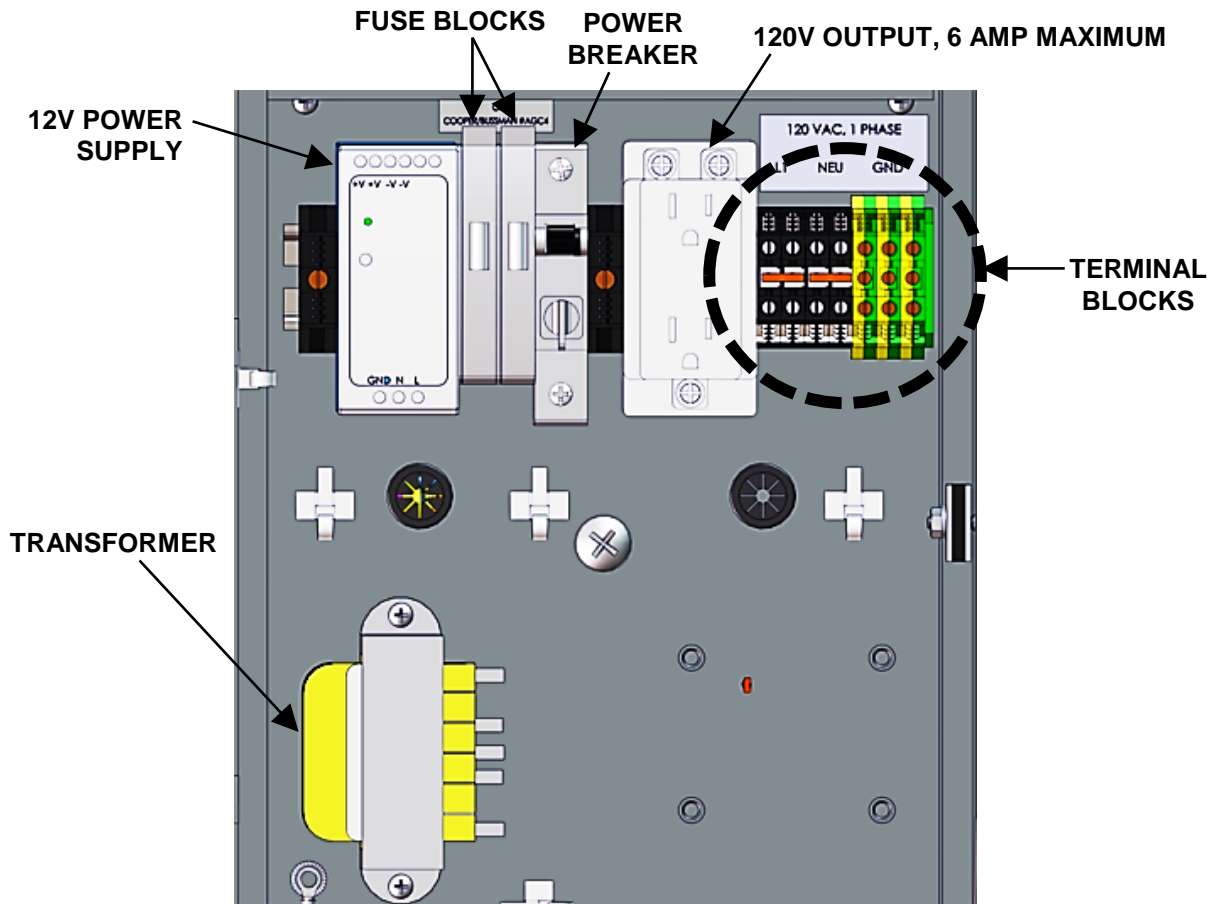


Diagram 3: Power Box Connections for BMK 750/1000

Provisions for Service

Designers must provide emergency shutoffs and other devices to satisfy electrical codes. It is also recommended to provide an electrical shutoff disconnect switch of suitable load carrying characteristics on or near each BMK boiler. No electrical boxes or field components should be mounted to the surface of the boiler or where they would interfere with the removal of the side or top panels for maintenance. The service disconnect switch should be mounted near the unit, as illustrated in Diagram 1. Wiring conduit, EMT, or other wiring paths should not be secured to the unit, but supported externally. Electricians should be instructed as to where the wiring conduit should be located, such as away from the relief valve discharge, drains, etc. All electrical conduit and hardware should be installed so that it does not interfere with the removal of any covers, inhibit service or maintenance, or prevent access between the unit and walls or another unit.

Boiler Wiring

A dedicated protected circuit should be provided from the power source to the boiler. No other electrical devices should be permanently wired on the same circuit. An emergency switch (electrical shutoff) must be in series with the power to the unit. For applicable wiring connections, refer to the following Diagrams:

- Diagram 4: 120V/1Ø/60 Hz @ 20 amps (BMK 750/1000/1500/2000)
- Diagram 5: 208-230/3Ø/60 Hz @ 20 amps (BMK 2500/3000)
- Diagram 6: 208/3Ø/60 Hz @ 30 amps (BMK 6000)
- Diagram 7: 460/3Ø/60 Hz @ 15 amps (BMK 2500/3000)
- Diagram 8: 460/3Ø/60 Hz @ 20 amps (BMK 6000)

Multiple Unit Wiring

Whenever multiple units are installed within the same mechanical spaces, electrical code requirements call for a single electrical shutoff for emergency use. It is the responsibility of the electrical designer to comply with local codes and regulations affecting an individual installation.

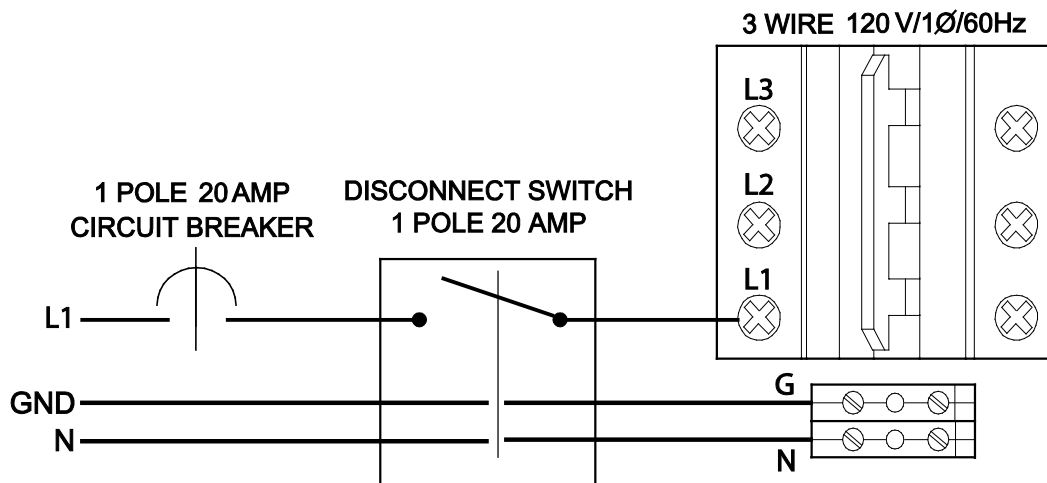


Diagram 4: BMK 750/1000/1500/2000: 120VAC/1Ø/60 Hz Wiring Schematic

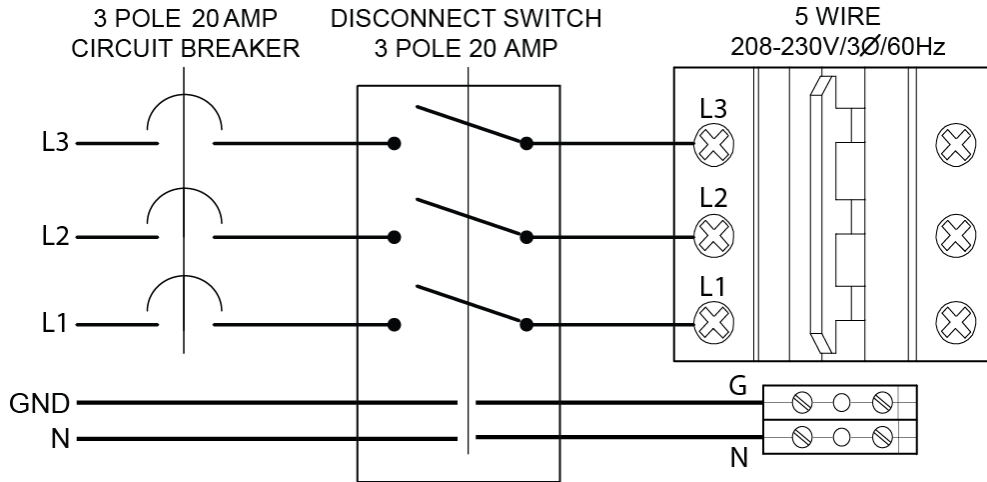


Diagram 5: BMK 2500/3000: 208-230/3Ø/60 Wiring Schematic- 5 Wire

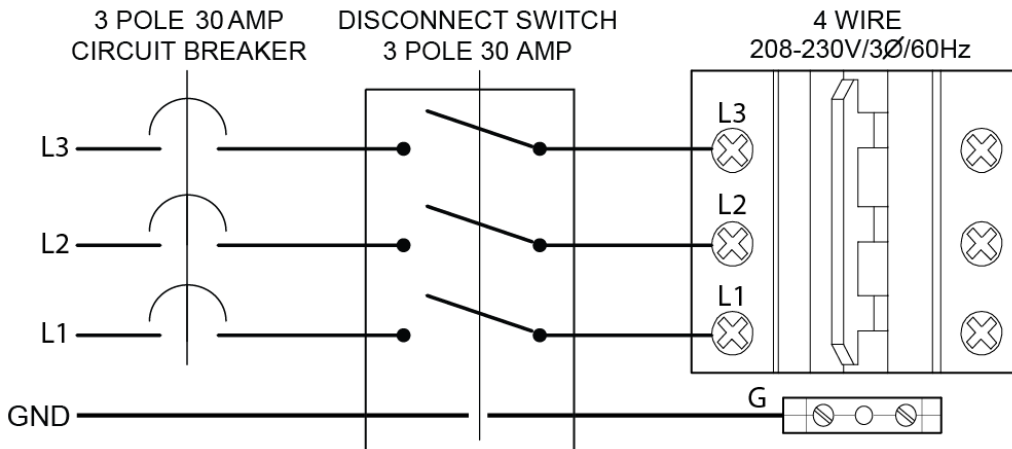


Diagram 6: BMK 6000: 208/3Ø/60 Wiring Schematic- 4 Wire

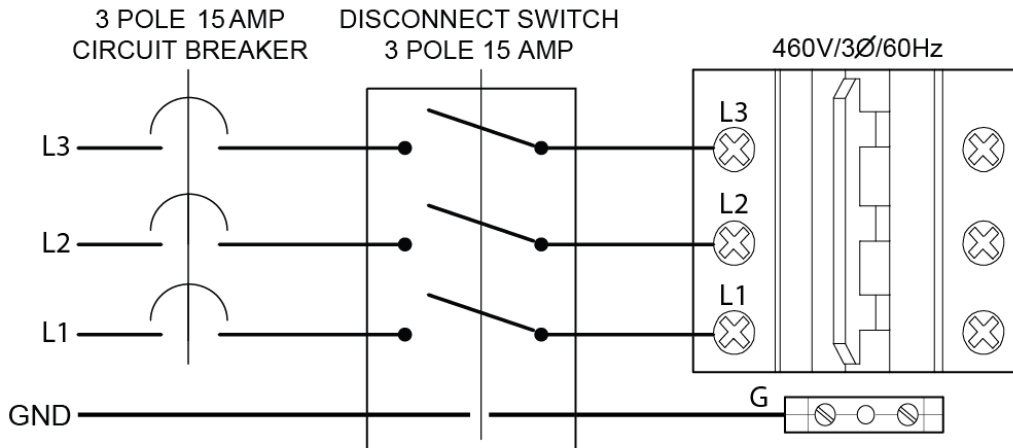


Diagram 7: BMK 2500/3000: 460/3Ø/60 Wiring Schematic- 4 Wire

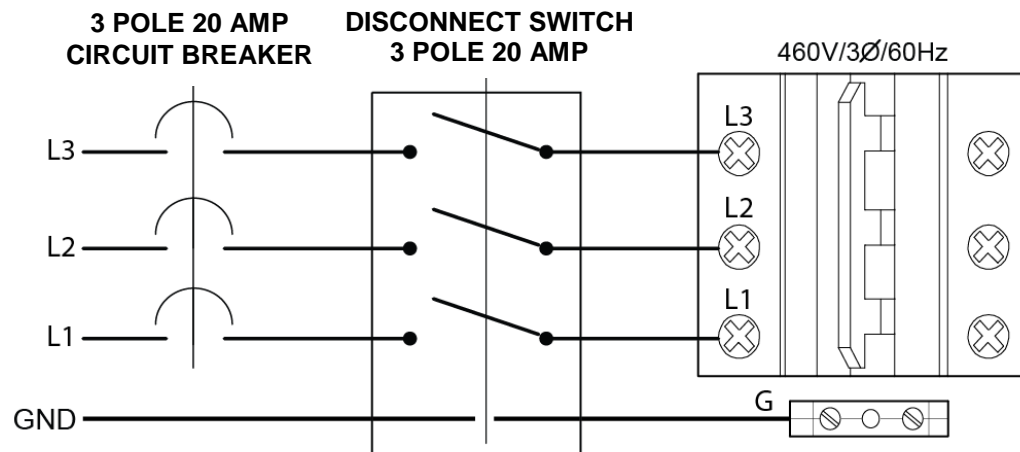


Diagram 8: BMK 6000: 460/3Ø/60 Wiring Schematic- 4 Wire

Change Log

Date	Description	Changed By
05/15/2013	Rev G: Changed all references to BMK 6000 208-230 volts to 208 volts only, pages 3 & 4.	Chris Blair
09/12/2013	Rev H: Removed all ref. to BMK 1.5, 2.0, 3.0. Added 750/1000/1500/2500 refs. Removed 1.5/2.0 wiring diag. and added 750/1000 wiring diag. Revised elec. safety switch loc. drawing to BMK6000.	Curtis Harvey
11/08/2013	Rev I: Changed 460V BMK 6000 from 15A to 20A and added Diagram 8 wiring and table column.	Curtis



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