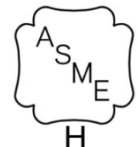
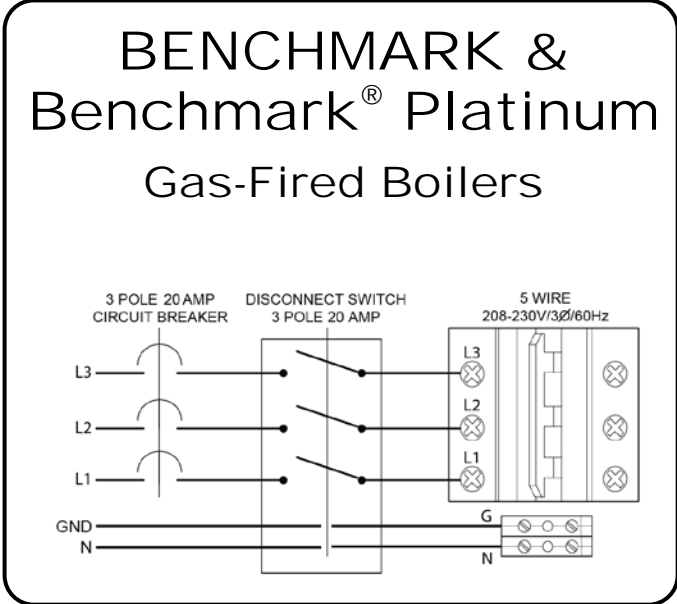


# PRE-INSTALLATION ELECTRICAL POWER GUIDE

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

This document applies to the following Benchmark and Benchmark® Platinum models:

- BMK 750
- BMK 1000
- BMK 1500
- BMK 2000
- BMK 2500
- BMK 3000
- BMK 5000
- BMK 6000



**Last Update: 12/01/2016**

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## 1. 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.

## 2. Boiler Electrical Requirements

Benchmark boilers are available with the following power options:

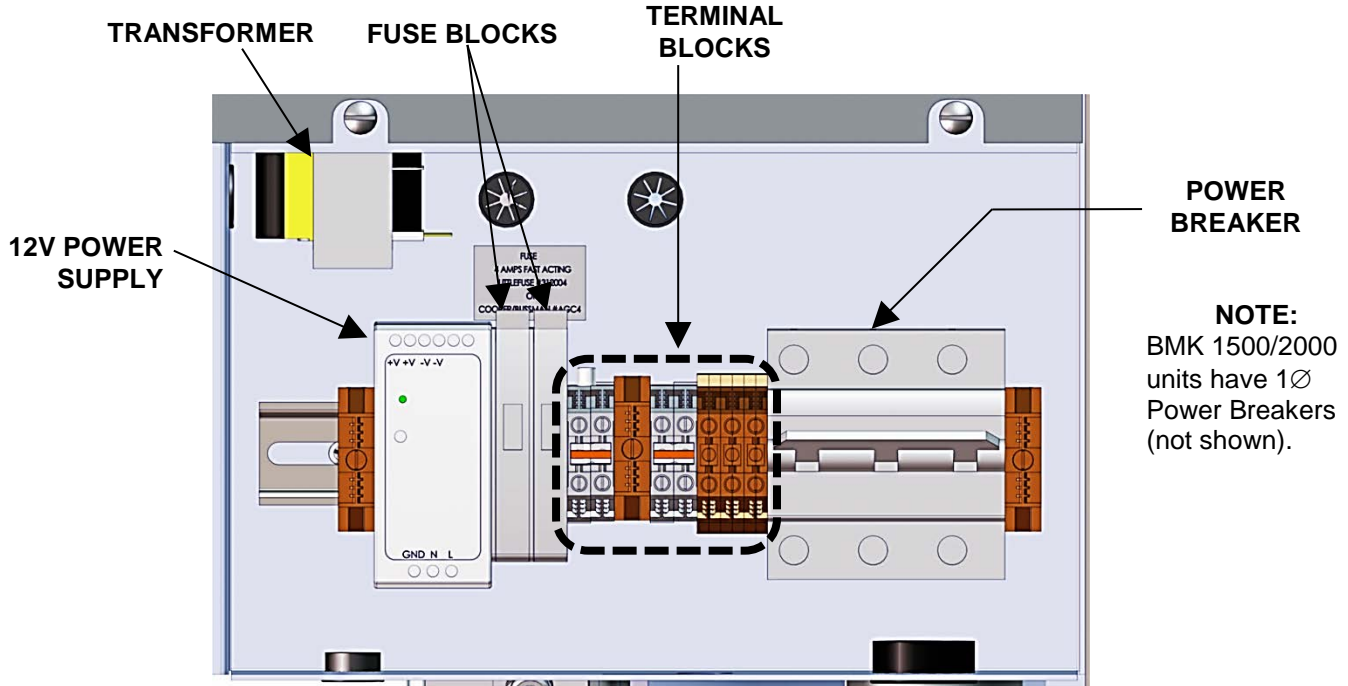
BMK Model	Voltage	Phase	Amperage
<b>BMK 750 - 2000</b>	120V	1Ø / 60 Hz	20
<b>BMK 2500 - 3000</b>	208-230V	3Ø / 60 Hz	20
	460V	3Ø / 60 Hz	15
<b>BMK 6000</b>	208V	3Ø / 60 Hz	30
	460V	3Ø / 60 Hz	20
	575V	3Ø / 60 Hz	20

Voltages lower than those specified in the table above 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.

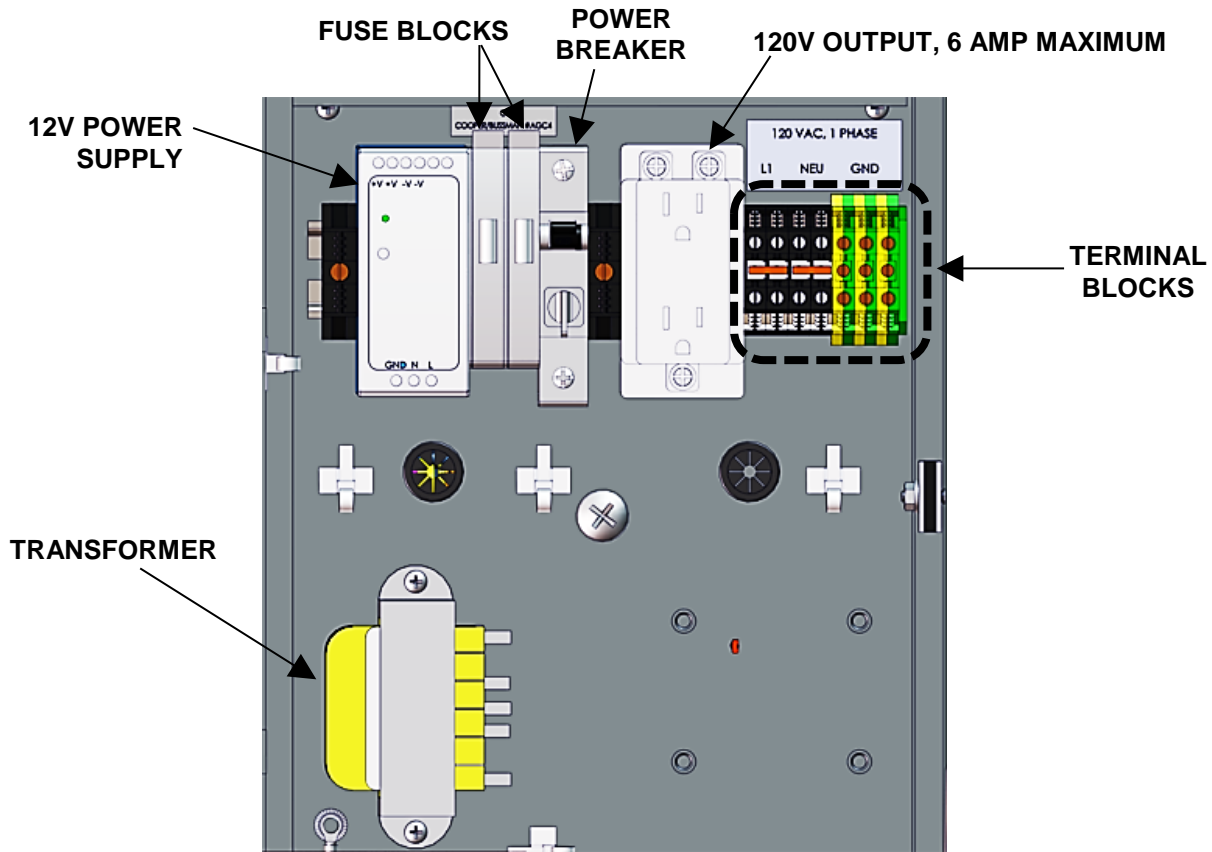
For all Benchmark models, the power box for field wiring connections is located in the upper right corner behind the unit front panel (see Diagram 2). All copper wire must be connected to the power box.



**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**

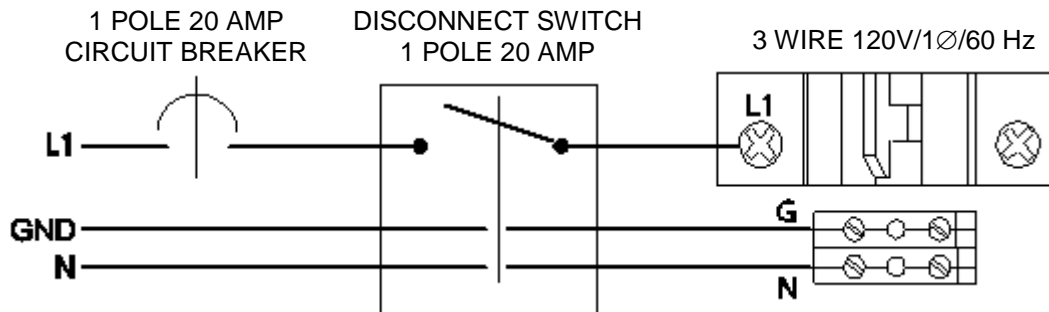
### 3. Provisions for Service

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.

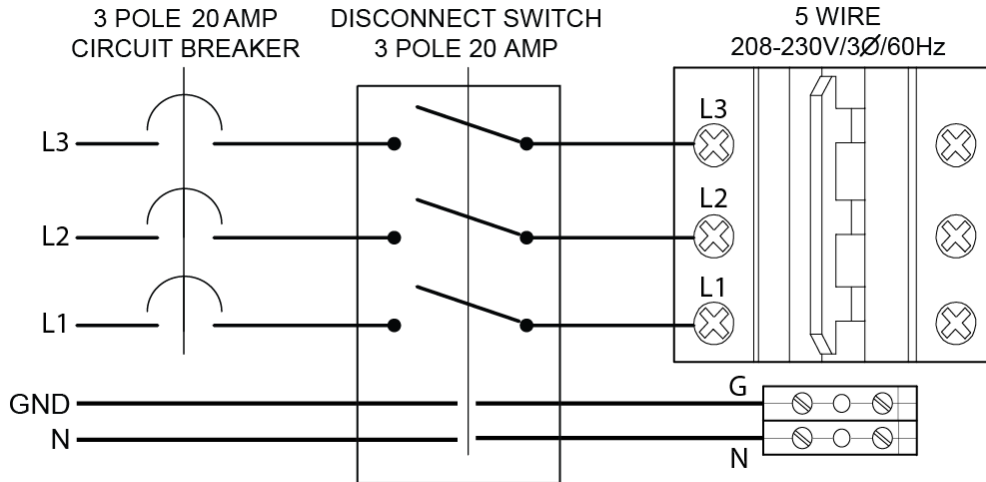
### 4. Boiler Wiring

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. The protected circuit and circuit breaker switch must be sized for the amperage values below. An emergency switch (electrical shutoff) must be in series with the power to the unit. For applicable wiring connections, refer to the following Diagrams:

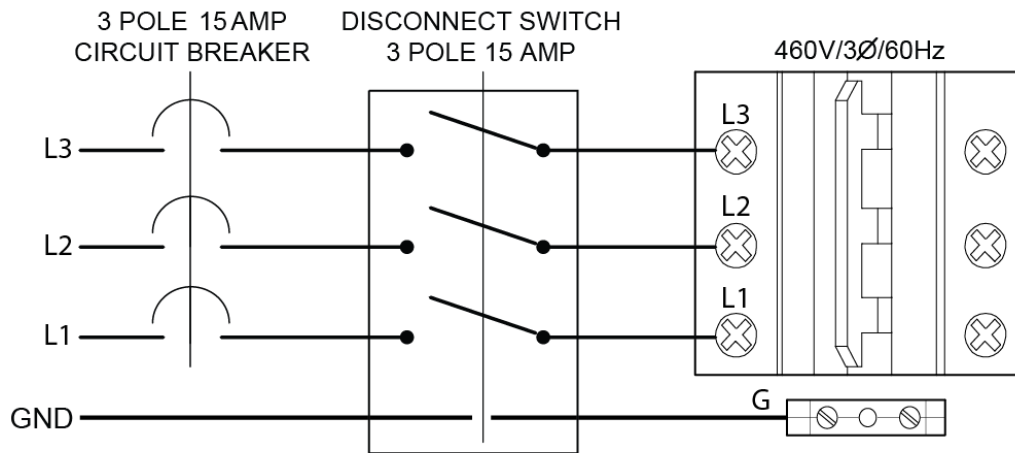
- Diagram 4 - BMK 750/1000/1500/2000: 120V / 1Ø / 60 Hz @ 20 amps
- Diagram 5 - BMK 2500/3000: 208-230V / 3Ø / 60 Hz @ 20 amps
- Diagram 6 - BMK 2500/3000: 460V / 3Ø / 60 Hz @ 15 amps
- Diagram 7 - BMK 6000: 208V / 3Ø / 60 Hz @ 30 amps
- Diagram 8 - BMK 6000: 460V / 3Ø / 60 Hz @ 20 amps & 575V / 3Ø / 60 Hz @ 20 amps



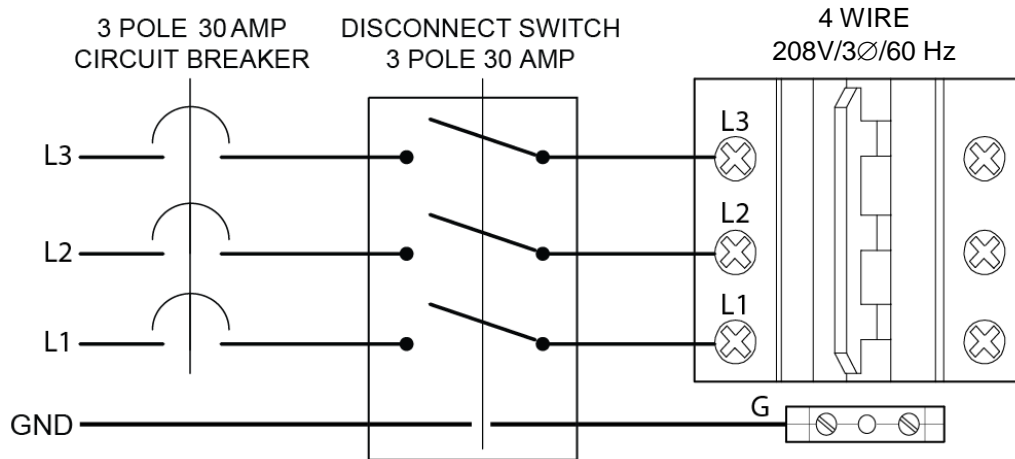
**Diagram 4 - BMK 750/1000/1500/2000: 120V / 1Ø / 60 Hz Wiring Schematic – 3 Wire**



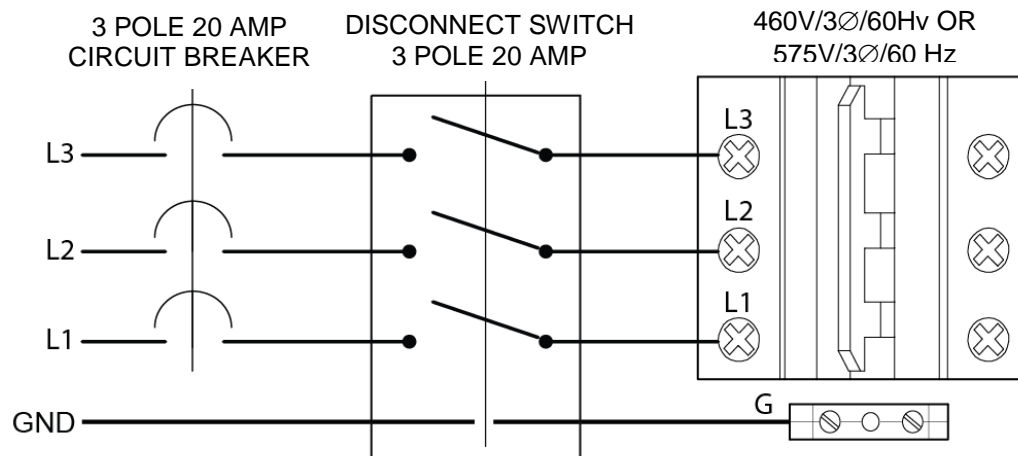
**Diagram 5 - BMK 2500/3000: 208-230V / 3Ø / 60 Hz Wiring Schematic- 5 Wire**



**Diagram 6 - BMK 2500/3000: 460V / 3Ø / 60 Hz Wiring Schematic- 4 Wire**



**Diagram 7: BMK 5000/6000: 208V / 3Ø / 60 Hz Wiring Schematic- 4 Wire**



**Diagram 8: BMK 5000/6000: 460V / 3Ø / 60 & 575V / 3Ø / 60 Hz Wiring Schematic- 4 Wire**

## 5. 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.

## Change Log

Date	Description	Changed By
11/08/2013	<b>Rev I:</b> Changed 460V BMK 6000 from 15A to 20A and added Diagram 8 wiring and table column.	Curtis Harvey
12/01/2016	<b>Rev J:</b> <b>PIR 998-1:</b> Addition Of 575V Option For BMK 6000. Clarified Power Options in Section 2 and in Diagrams. <b>DIR 359:</b> Addition restriction added to section 4 Boiler Wiring	Chris Blair