

ShopBot PRTalpha POWER REQUIREMENTS

Domestic

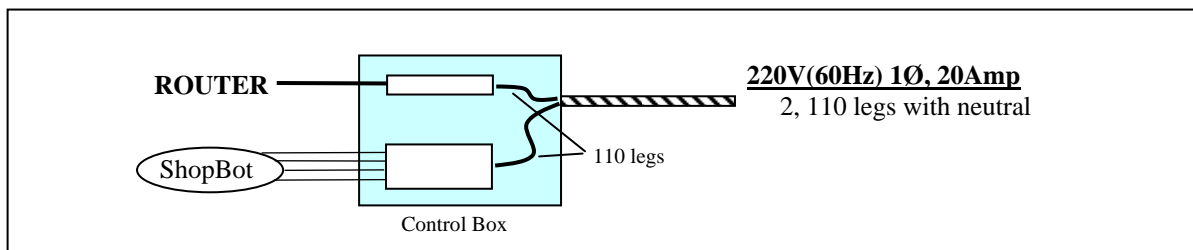
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This information is intended to serve as an outline of the different power configurations available for a ShopBot and a guide for your electrician. All circuits and connections should be rated by your licensed electrician according to your local electrical codes.

- Power to the ShopBot Control Box and router/spindle requires a Branch Circuit Protection Device (fused disconnect(s) or circuit breaker) by a licensed electrician.
- The power requirements for the Control Box and router/spindle vary according to your configuration. The information below outlines some of the power requirements for different configurations.
- Since the ShopBot Control Box is set up differently for a router than for a HF (high frequency) spindle, when you order you will need to specify: the router and/or HF spindle type; voltage and frequency available for the router/spindle and the Control Box.
- The intent of this document is to give a basic understanding of the electrical requirements for a ShopBot. Refer to the wiring and component diagrams included in the Control Box for more detailed information on the power connections.

US Standards: Wiring Configuration for Routers

1 Router / US Standard #10204

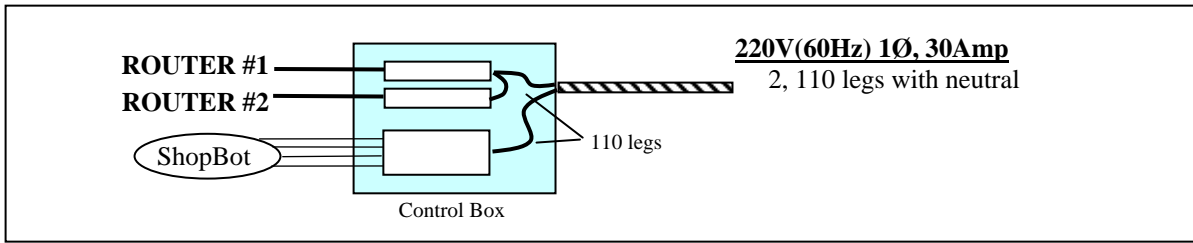


220V 2 pole, 30A circuit. The 2 legs will be split into two 110V circuits inside the Control Box: one to the control circuits, and one for the router. Refer to drawing listed below, included in the Control Box, for detailed wiring information.

Model#	Cutting Head Type	Drawing#	Branch Circuit Protection
10204	Router	001999-00	220V 20A 1Ø w/ Neutral

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2 Router / US Standard #10210

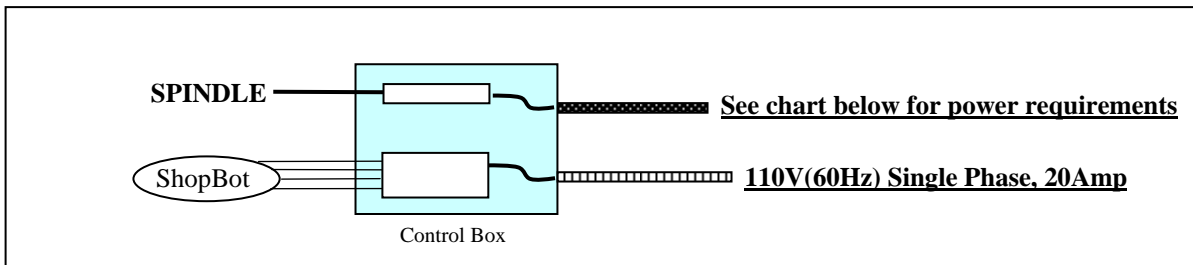


220V 2 pole, 30A circuit. The 2 legs will be split into two 110V circuits inside the Control Box: one for the control circuits, and one for the two routers. Refer to drawing listed below, included in the Control Box, for detailed wiring information.

Model#	Cutting Head Type	Drawing#	Branch Circuit Protection
10210	(2) Routers	002515-00	220V 30A 1Ø w/ Neutral

US Standards: Wiring Configurations for HF Spindles

- 1 Spindle / US Standard (requires 2 circuits)
- #10219(3 Phase) 2.2-5HP spindles
- #10216(single phase) 2.2HP-3HP spindles
- #10217(single phase) 4HP-5HP spindles



110V single phase, 20A circuit for the Control Box plus the circuit for the HF spindles (see pg 4 for spindle power specifications). Refer to drawing listed below, included in the Control Box, for detailed wiring information.

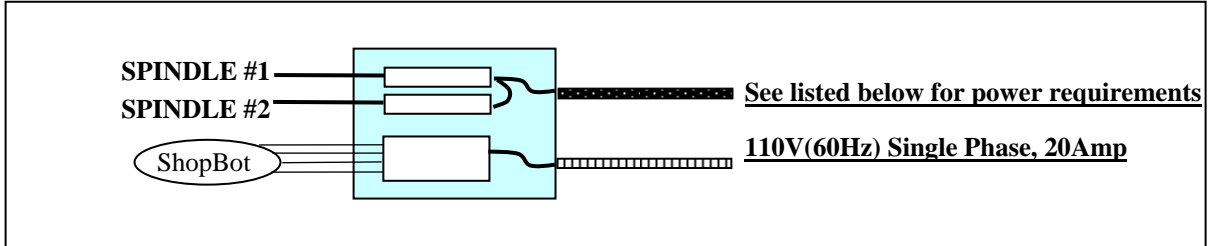
Model#	Cutting Head Type	Drawing#	Branch Circuit Protection
10219	2.2-3HP Spindle	002002-00	110V 20A 1Ø & 230V 40A 3Ø
10219	4-5HP Spindle	002002-00	110V 20A 1Ø & 230V 60A 3Ø
10216	2.2-3HP Spindle	002001-00	110V 20A 1Ø & 220V 60A 1Ø
10217	4-5HP Spindle	002542-00	110V 20A 1Ø & 220V 90A 1Ø

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2 Spindle / US Standard (requires 2 circuits)

- #10228(3 phase) 2.2-5HP spindles
- #10225(single phase) 2.2-3HP spindles
- #10226(single phase) 4-5HP spindles

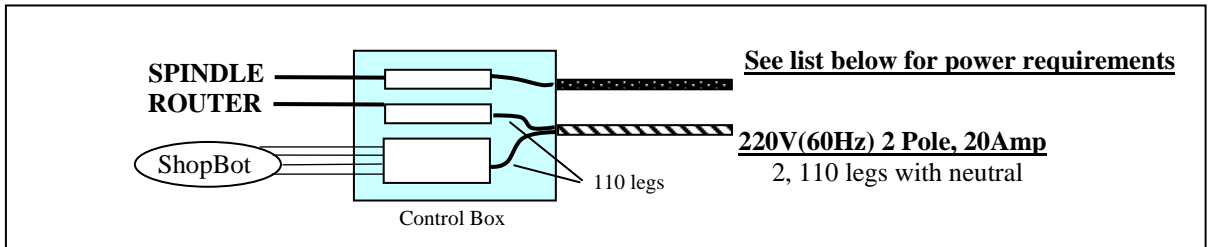


110V single phase, 20A circuit for the Control Box plus the circuit for the HF spindles (see pg 4 for spindle power specifications). Refer to drawing listed below, included in the Control Box, for detailed wiring information.

Model#	Cutting Head Type	Drawing#	Branch Circuit Protection
10228	(2) 2.2-3HP Spindles	002518-00	110V 20A 1Ø & 230V 40A 3Ø
10228	(2) 4-5HP Spindles	002518-00	110V 20A 1Ø & 230V 60A 3Ø
10225	(2) 2.2-3HP Spindles	002519-00	110V 20A 1Ø & 230V 60A 1Ø
10226	(2) 4-5HP Spindles	002544-00	110V 20A 1Ø & 230V 90A 1Ø

1 Spindle / 1 Router / US Standard (requires 2 circuits)

- #10237 (3-phase) 2.2-5HP spindles



220V 2 pole, 20A circuit, one leg for the Control Box and for the Router, plus a 230V 3-phase circuit for the HF spindle (see pg 4 for spindle power specifications). Refer to drawing listed below, included in the Control Box, for detailed wiring information.

Model#	Cutting Head Type	Drawing#	Branch Circuit Protection
10237	2.2-3HP Spindle & Router	002006-00	110V 20A 1Ø & 230V 40A 3Ø
10237	4-5HP Spindle & Router	002006-00	110V 20A 1Ø & 230V 60A 3Ø

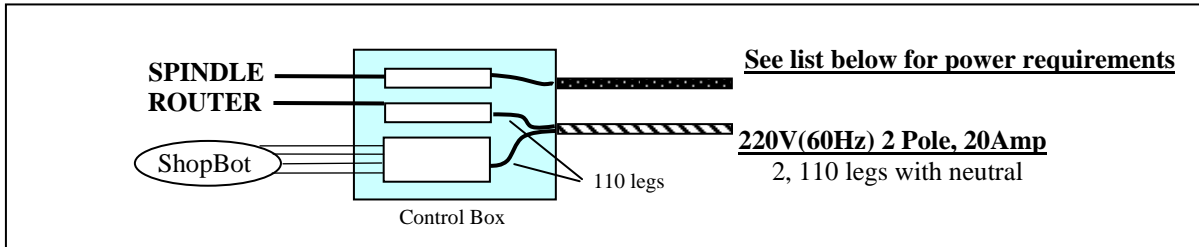
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1 Spindle / 1 Router / US Standard (requires 2 circuits)

#10233 (single phase) 2.2-3HP spindles

#10234 (single phase) 4-5HP spindles



220V 2 pole, 20A circuit, one leg for the Control Box and for the Router, plus a 230V 3-phase circuit for the HF spindle (see pg 4 for spindle power specifications). Refer to drawing listed below, included in the Control Box, for detailed wiring information.

Model#	Cutting Head Type	Drawing#	Branch Circuit Protection
10233	2.2-3HP Spindle	002543-00	110V 20A 1Ø & 220V 60A 1Ø
10234	4-5HP Spindle	002005-00	110V 20A 1Ø & 220V 90A 1Ø

HF Spindle power requirements:

- The Control Box must be set up to use a HF spindle when the order is placed. To upgrade from a router to a HF spindle at a later date, the ShopBot Control box must be returned to ShopBot for an upgrade.
- Your licensed electrician will be required to wire the power cable from the HF inverter into Contactor #1 or #2. Refer to the wiring diagrams included in the Control Box for more detailed information on HF spindle power connections. Check the rotation direction of the HF spindle, if it is running backwards (Counterclockwise), reverse the appropriate wires.
- Check the input current rating of user supplied spindles to rate the power circuits appropriately.
- The Branch Circuit protection ratings in the above control box specs are larger than the actual current ratings in these tables and are calculated according to the National Electric Code (NFPA 70). This code states that the branch circuit protection rating must be 2.5 times the FLA of the largest motor, which in our case is the VFD's rated input current.

HSD Spindle Voltage and Input Current (US Standard, 60 Hz)			
HP	Phase	Voltage (V)	Current (A)
2.2	1	220	24
2.2	3	230	15.1
4	1	220	33
4	3	230	24
5 ATC	1	220	39.6
5 ATC	3	230	24
Colombo Spindle Voltage and Input Current (US Standard, 60 Hz)			
HP	Phase	Voltage (V)	Current (A)
3	1	220	20.6
3	3	230	15.5
5	1	220	34
5	3	230	20.6