

Plasma Automation Inc. Pre-Installation Site Requirements for the Vicon HVAC 510 Plasma Cutting System

Please fully review and understand the following information before attempting any work. If you have any questions or concerns, please contact a Vicon Technician at (814) 333-2181 for clarification or assistance

A) Delivery Arrangements

All Vicon machines are shipped on a flatbed trailer, strapped, & tarped. It is the customer's responsibility to make arrangements to have the machine unloaded from the truck. Plasma Automation Inc. is not responsible for any rigging.

B) On-Site Machine Set Up and Training

The standard Vicon training schedule consists of a Vicon Technician on site at the customer's facility for a total of 3 full days. Typically, our trainer will travel on a Monday and arrive sometime Monday afternoon. Set up and training will take place Tuesday, Wednesday, and Thursday. Usually, half of the first day, Tuesday, is spent setting up the machine. We recommend that two operators attend all training sessions. Additional personnel may attend; but to ensure the best instruction, training should be directed to the two primary operators. Additional training is available at an hourly rate and must be pre-arranged. If the site requirements are not met causing a second trip for the Vicon trainer; the standard labor rate of \$1200 a day plus travel and expenses will apply on the second visit.

C) Safety

Wait for a qualified Vicon Technician to arrive before putting power to the machine. Do not operate the machine until the proper set up and training by a Vicon Technician has been completed. Use licensed electricians, plumbers, mechanical contractors, and riggers. Read and understand all manuals before operating the equipment

D) Grounding

Connect the worktable to a high-quality earth ground within 20 feet (6.1m) of the table with 8-gauge wire. A suitable ground consists of a solid copper rod of at least ½" diameter driven to a depth of at least 8 feet into the earth below the permanent moisture level. The permanent moisture level may be deeper than 8 feet. In such cases a longer rod may be needed to achieve proper grounding.

More than one ground rod may be needed to achieve proper grounding.

With a one-amp load (100 watt light bulb) from 115 VAC hot to the ground rod; there should be no more than .75 volts from the ground rod to 115 VAC neutral. The ground rod must be isolated for this test. The test set up should not be permanent. **If the voltage is higher than .75 volts additional ground rods should be added until the voltage is lower than .75 volts.**

For more information, refer to the National Electrical Code, Article 250, Section H, "Grounding Electrode System" or other appropriate code.

Note: Proper grounding is essential for proper machine operation to reduce the negative effects of radio frequency interference created by the torch and must be with in the specifications detailed above, or the warranty will become void

A qualified electrician should do all wiring.

1. Input Power

2. **Computer** – Must have a separate, dedicated 3-Wire 115 Volt AC (+/- 6%) 60 Hz line, 15 Amp service run in its own conduit. (The 3 wires include the hot, neutral, and ground). Do not rely on the conduit as the ground. The conduit for the computer must be separate from the conduit for the machine and the torch power supply.
3. **Machine** – Must have a separate, dedicated 3-Wire 115 Volt AC (+/- 6%) 60 Hz line, 20 Amp service run in its own conduit. (The 3 wires include the hot, neutral, and ground). Do not rely on the conduit as the ground. The conduit for the machine must be separate from the conduit for the computer and the torch power supply. The machine must be properly grounded to ensure personal safety, and to reduce emission of radio frequency interference.

Note: The above two lines must be 115 Volts (+/-) 6% and wired as indicated above, or the warranty will become void.

Option: An addition 115v 20amp run is needed for liner cutter option

4. **Torches** – A primary line disconnect switch should be provided for each plasma power supply and should be easily accessible so the power can be turned off quickly in an emergency. The disconnect switch should be rated according to local codes. Please note the voltage and current rating on the power supplies data plate.

Circuit breakers are not recommended for use with a plasma power supply. Fuses should be used and should be of the type suitable for magnetic inrush currents. If you must use a circuit breaker, be careful to select a breaker that can handle the inrush current. The inrush current of a plasma power supply is similar to that of an AC motor. Typically the inrush current is 5 ½ times higher than the rated full load current. If the inrush current rating of your circuit breaker is too low, you may have to increase the circuit breaker and possibly the wire size. The fuses and the disconnect switch should be sized to the **Torch Power Requirements Chart** provided. If your torch is not listed or you have further questions please refer to the manual supplied with your torch.

Connect the torch power supply to the disconnect box directly using type SO power cable (hard service). The AWG size should be determined by qualified personnel and in accordance with local electrical codes. The power supply must be properly grounded through the power cord according to your local electric power company requirements. The power supply cabinet is electrically conductive and can present a shock hazard if it is not properly grounded through the line voltage disconnect box.

The service for a single-phase torch *must* be of the 3-wire type with a green/yellow wire for protective earth ground. It must comply with local electrical code requirements. Do not use a 2-wire service.

The service for a three-phase torch *must* be of the 4-wire type with a green/yellow wire for protective earth ground. It must comply with local electrical code requirements. Do not use a 3-wire service.

Note: The power source for the torch power supply must be within (+/-) 10% and wired as indicated above, or the warranty will become void.

F) Air/Gas Requirements

When using compressed air, air must be clean, dry, and oil free. Proper conditioning of your shop air will increase the performance of your torch, including consumable life and cut edge quality. Aside from the water separators and filters that come with the torch, Plasma Automation recommends a compressed air refrigerator/dryer. Catalogs such as Grainger list these items, check in the index under "Dryers, Compressed Air" or "Air, Dryers, Refrigerated". Refer to the torch manual for the SCFM and PSI requirements. In most cases the properly dried shop air must have a minimum rating of 100-psi/ 5-scfm.

Air Connections for Conventional Air Plasma

A 3/8", 250 PSI hose with a Milton M-style female coupler (1/4" NPT, or equivalent) on the end, running from the shop's clean and dry air supply to the machine.

Connections for Dual Gas Torches

3/8", 250-PSI hoses connected to customer supplied liquid gas bottles. The liquid gas bottles should be located as close to the torch power supply as possible and the hoses kept as short as possible to avoid pressure drops during the start and cut cycles.

When using gasses other than shop air, liquid gas must be used in order to guaranty reliable ignitions, normal consumable life, and quality cut edges. High-pressure bottle gas will not work well and must not be used. The regulators should have a range from 0-150 psi at the output side.

NOTE: 1. Different gasses use different gas regulators. Please check with your gas supplier.

Note: 2. The above specifications must be followed or the warranty will become void.

G) Exhaust system

A blower capable of drawing 5000 CFM or more at 1" static pressure is required to properly exhaust the table. The actual size of the blower will be determined by the size of the openings and duct used from the blower to the table. A primary line disconnect switch for the line into the enclosed motor starter with the proper thermal protection rating for the blower motor that is to be wall mounted should be customer provided. A dry contact closure rated for 240/120VAC 10A is provided at the Vicon Terminals marked FAN. The motor starter should not have its own start stop switch. The Vicon machine automatically starts the blower during cutting and stops it after cutting is completed. An override keeping the blower on constant is part of this circuit. Your licensed electrician should run the conduit and make the terminal connections.

Typically two 14x10 exhaust openings work well for 5x10 through 6x12 machines. Double tables or 5x20 to 6x20 tables there should be two 26x10 exhaust openings, for machines with two 26x10 openings equipment dampers should be used. If dampers are not used, the exhaust blower should be increased.

Note: If you are unsure or uncomfortable making the terminal connections of the motor starter to the Vicon machine start signal terminals, the Vicon technician will be happy to make the connection.

Torch Power Requirements Chart

Hypertherm Powermax 45

CSA,CE, CCC	Volts AC	Phase	Recommended SLOW BLOW Fuse: AMPS
CSA	200-240 VAC	1	50 A
CSA	208 VAC	1	50 A
CSA	480 VAC	3	15 or 20* A
CE	200-240 VAC	1	35 or 50* A
CE	400 VAC	3	15 or 20* A
CE/CCC	220 VAC	1	35 or 50* A
CE/CCC	380 VAC	3	15 A

Hypertherm Powermax 65

CSA,CE, CCC	Volts AC	Phase	Recommended SLOW BLOW Fuse: AMPS
CSA	200-208 VAC	1	80 A
CSA	230-240 VAC	1	80 A
CSA	480 VAC	1	40 A
CSA	200-208 VAC	3	50 A
CSA	230-240 VAC	3	50 A
CSA	400 VAC	3	30 A
CSA	480 VAC	3	25 A
CSA	600 VAC	3	25 A
CE	380 VAC	3	30 A
CE	400 VAC	3	30 A

Hypertherm Powermax 85

CSA,CE, CCC	Volts AC	Phase	Recommended SLOW BLOW Fuse: AMPS
CSA	200-208 VAC	1	100 A
CSA	230-240 VAC	1	100 A
CSA	480 VAC	1	50 A
CSA	200-208 VAC	3	60 A
CSA	230-240 VAC	3	60 A
CSA	400 VAC	3	40 A
CSA	480 VAC	3	30 A
CSA	600 VAC	3	30 A
CE	380 VAC	3	40 A
CE	400 VAC	3	40 A

Hypertherm Powermax 105

CSA,CE, CCC	Volts AC	Phase	Recommended SLOW BLOW Fuse: AMPS
CSA	200 VAC	3	80 A
CSA	208 VAC	3	80 A
CSA	240 VAC	3	80 A
CSA	480 VAC	3	40 A
CSA	600 VAC	3	40 A
CE	230 VAC	3	80 A
CE	400 VAC	3	50 A
CCC/CE	230 VAC	3	80 A
CCC/CE	380 VAC	3	50 A
CCC/CE	400 VAC	3	50 A

Hypertherm HSD 130

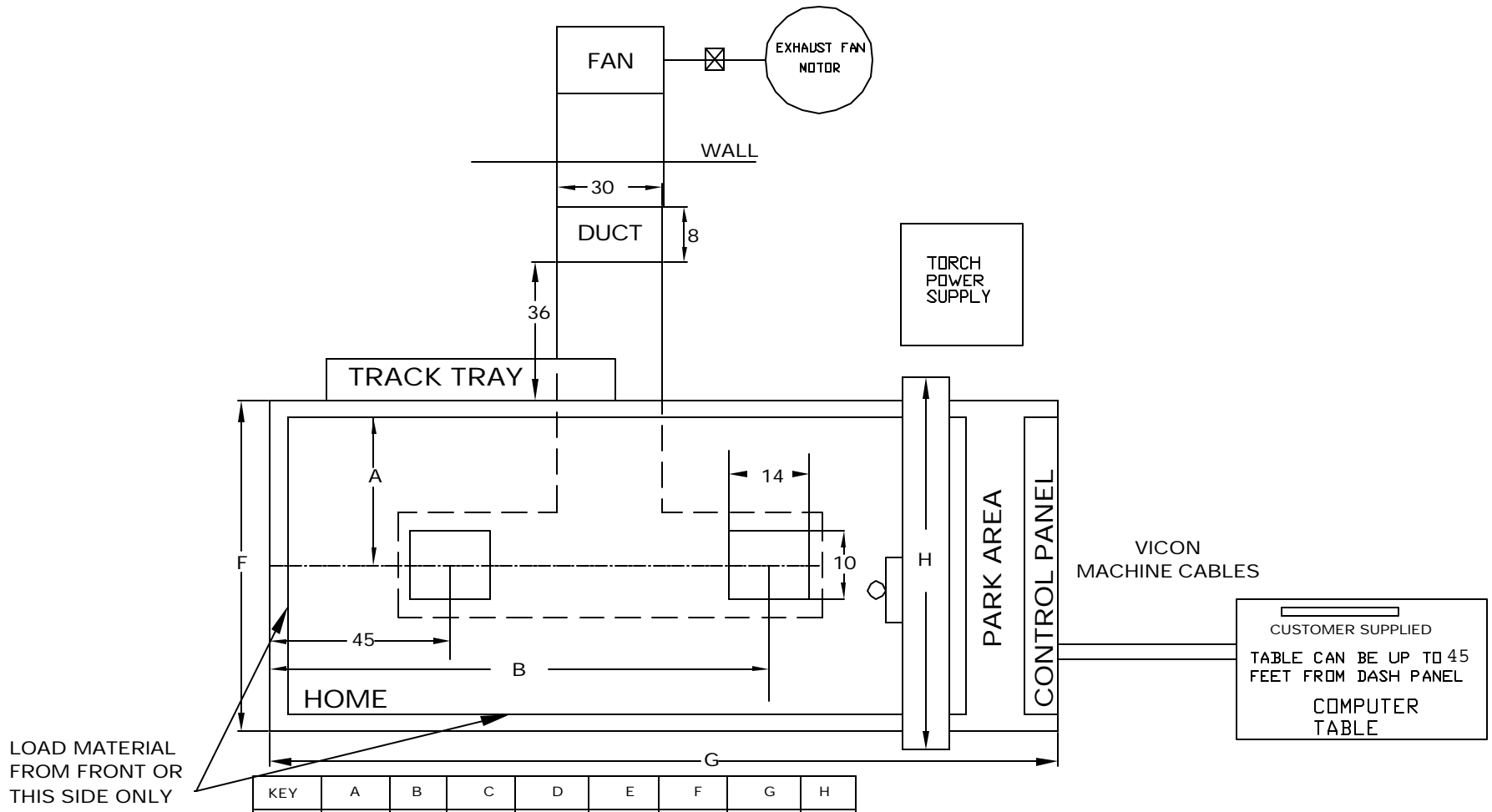
CSA,CE, CCC	Volts AC	Phase	Recommended SLOW BLOW Fuse: AMPS
	200-208 VAC	3	85 A
	220 VAC	3	80 A
	240 VAC	3	65 A
	400 VAC	3	40 A
	440 VAC	3	35 A
	480 VAC	3	35 A
	600 VAC	3	30 A

Hypertherm MaxPRO200

CSA,CE, CCC	Volts AC	Phase	Recommended TIME DELAY, HIGH INRUSH Fuse: AMPS
	200-208 VAC	3	175 A
	220 VAC	3	150 A
	240 VAC	3	150 A
	380 VAC	3	90 A
	400 VAC	3	80 A
	415 VAC	3	80 A
	440 VAC	3	80 A
	480 VAC	3	70 A
	600 VAC	3	50 A

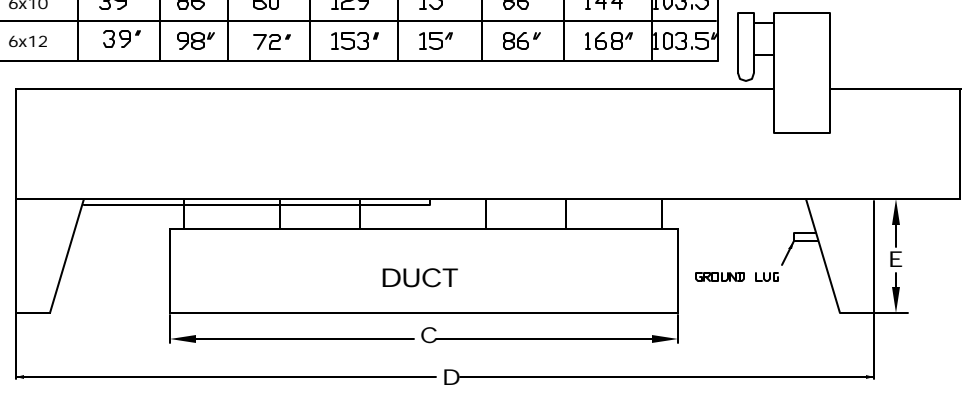
Kaliburn Dagger 100

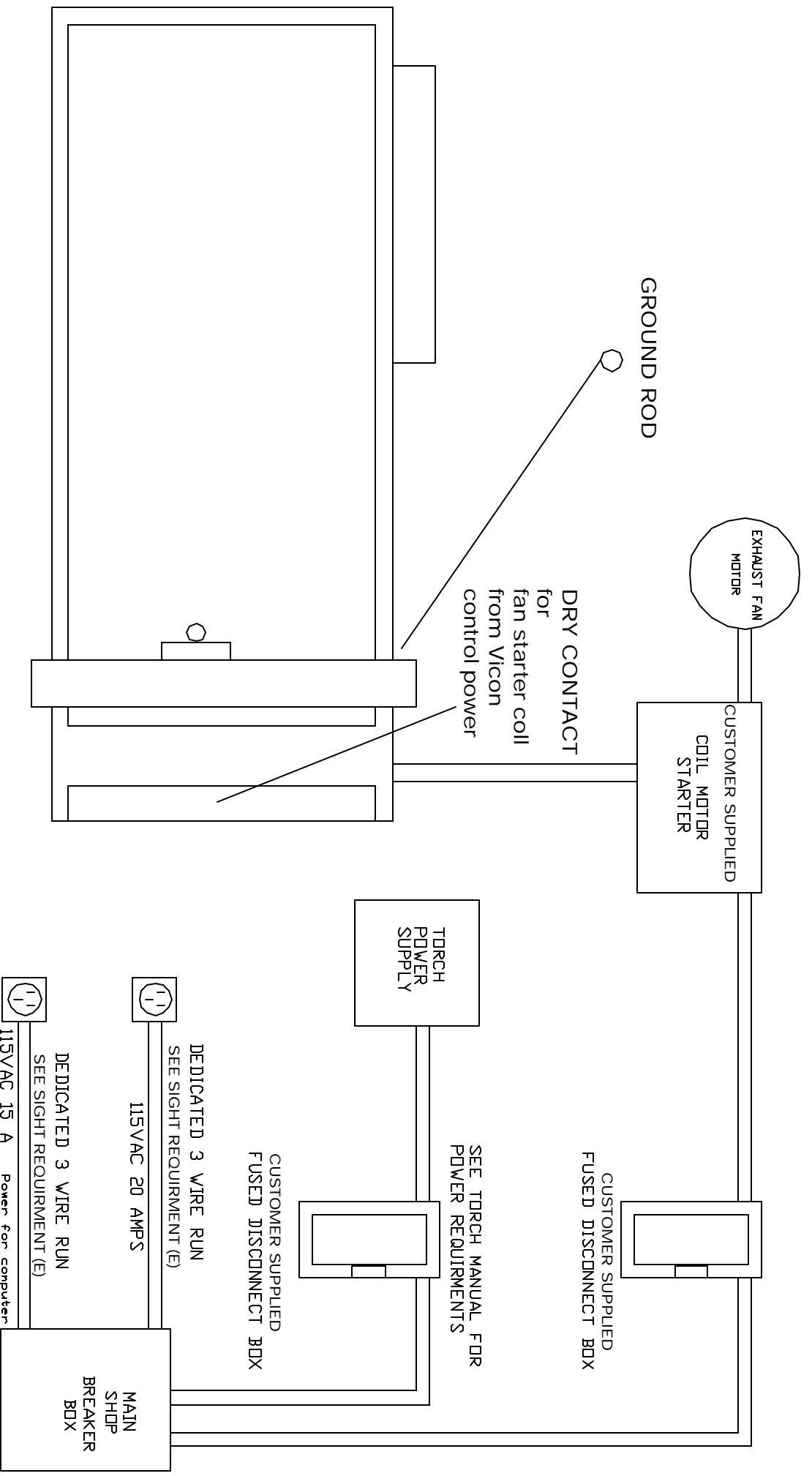
CSA,CE, CCC	Volts AC	Phase	Recommended Time Delay SLOW BLOW Fuse: AMPS
CSA	200 -208VAC	3	80 A
CSA	230-240 VAC	3	80 A
CSA	400 VAC	3	50 A
CSA	480 VAC	3	40 A
CSA	600 VAC	3	40 A
CE	230 VAC	3	80 A
CE	400 VAC	3	50 A



KEY	A	B	C	D	E	F	G	H
5x10	33"	86"	60'	129'	15"	74"	144"	91.5'
5x12	33"	98"	72'	153'	15"	74"	168"	91.5'
6x10	39"	86"	60'	129'	15"	86"	144"	103.5'
6x12	39"	98"	72'	153'	15"	86"	168"	103.5'

VICON 510 HVAC LAYOUT





* ALL ELECTRICAL RUNS SHOULD BE IN CONDUIT

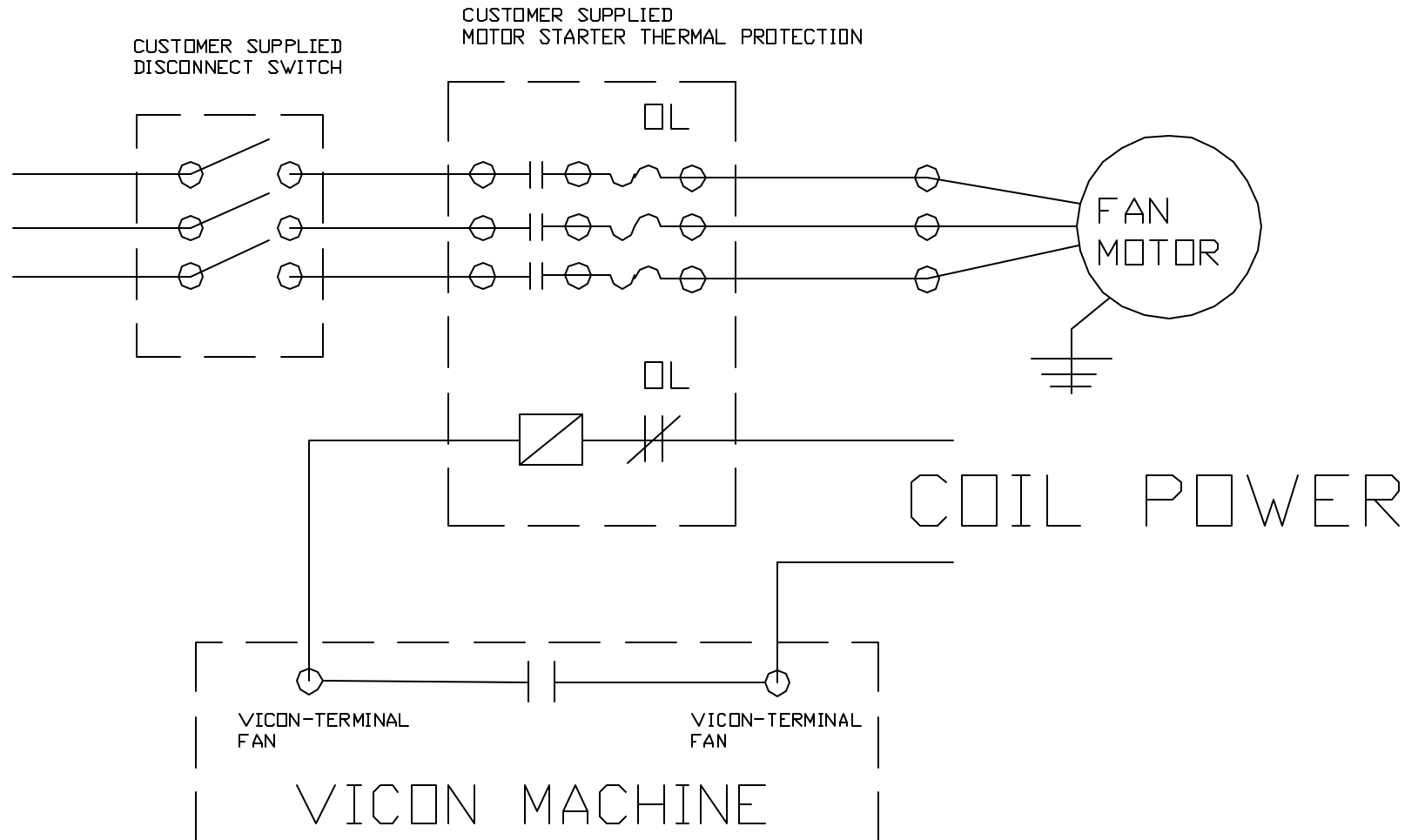
* ADDITIONAL DEDICATED 115VAC 20 AMP RUN NEEDED FOR LINER OPTION*

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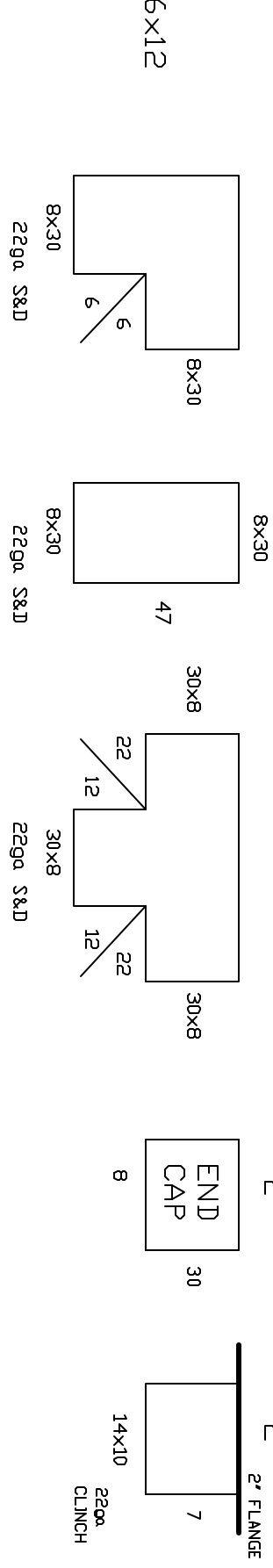
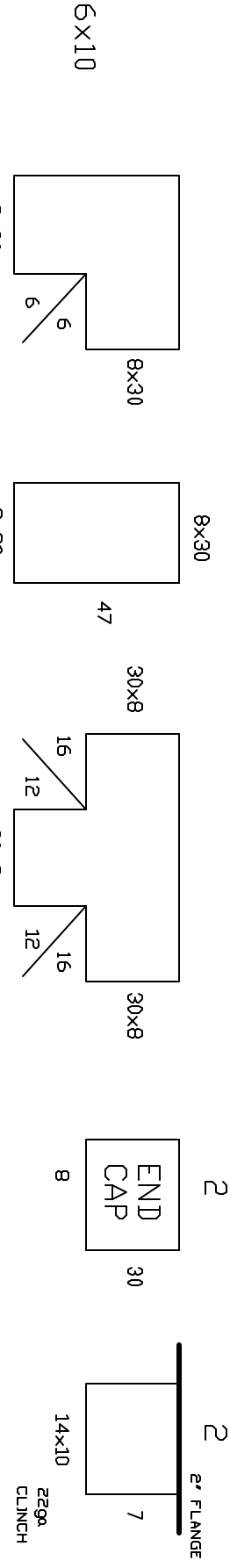
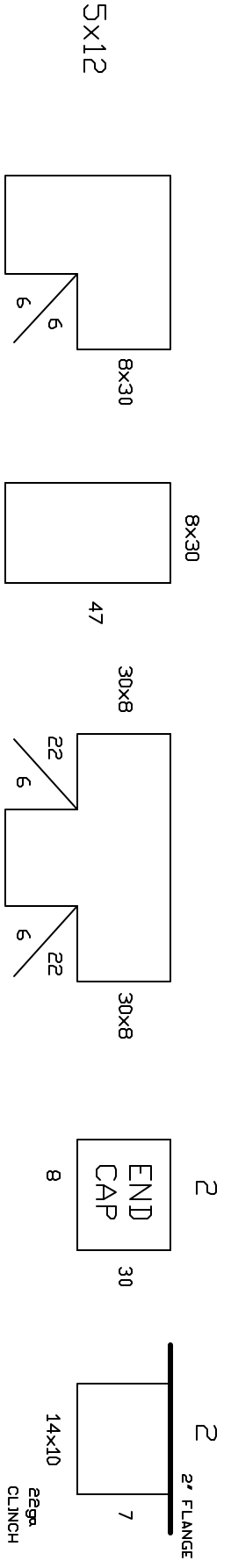
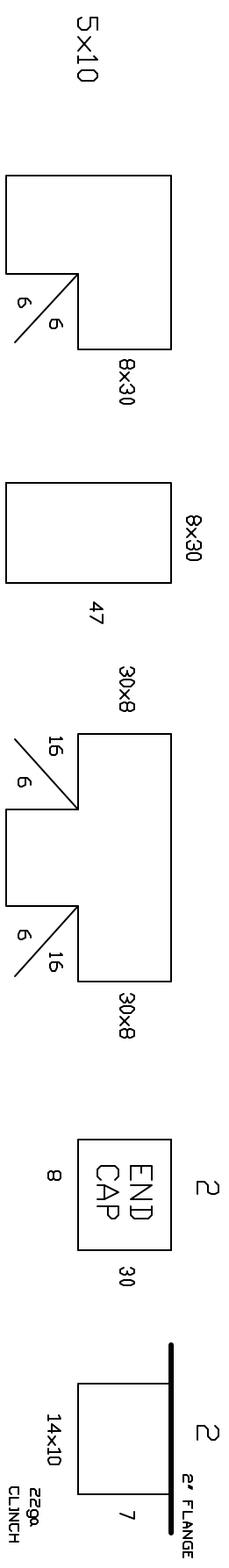
CUSTOMER SUPPORT 814-333-2181

ELECTRICAL LAYOUT FOR VICON 510 HVAC

EXHAUST SYSTEM ELECTRICAL SCHEMATIC



VICON DUCT LIST



VICON DUCT LIST (CONT)

