

## iVAC and Dust Collectors

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The iVAC Switch Box was designed to be used in On Site applications where the user usually only had access to 115Volt circuits rated at 15Amps. In these situations it was assumed that the typical dust collection device would be a Shop Vac style of machine. The iVAC Switch Box is rated to control most Shop Vacs on the market.

We then became aware that customers were interested in using the iVAC Switch Box in a workshop environment to control professional dust collectors that were wired for 115Volt 15Amp operation. In some cases they were experiencing problems.

The iVAC Switch Box and also the iVAC Pro Switches have two characteristics that determine the power of the dust collector that they can control directly. These characteristics are both related to the start up surge current that occurs when the dust collector is turned on. The first characteristic is the duration of the high start up current. If it is much higher than the rating of the circuit breaker and lasts too long it will trip the circuit breaker.

The second characteristic is the level of the start up current. The iVAC products apply power to the dust collector through relay contacts that are rated up to 40Amps. Switching currents greater than 40 Amps can degrade the contacts of the relay and in the end result in relay failure.

Start up currents can be up to six times greater than the normal running current and may last for several seconds. The first obvious indication that the power of the dust collector is too high is that the circuit breakers on the iVAC unit trips. In the case of 1HP dust collectors they are powered from 115Volts on a 15Amp circuit. Typically the running current is in the order of 8Amps. On start up this current rises to around 30Amps that lasts for about 1 second. Under these conditions the circuit breaker does not trip and the contacts are within their rating.

There are several 1.5HP dust collectors on the market that are shipped wired for 115Volt 15Amp operation. These units typically have a running current in the order of 14Amps and a start up current up to 60Amps that last for up to three seconds. Usually this will result in the circuit breaker being tripped; if not, then the relay contacts are damaged and the life of the iVAC product is compromised.

In the case of the iVAC Switch Box there is only one solution and that is to add the iVAC Contactor. The iVAC Contactor is controlled from the iVAC Switch Box and the iVAC Contactor can control dust collectors up to 10HP on either 115Volts or 230Volts.

There are two solutions to this problem for the iVAC Pro System. In most cases the 1.5HP dust collectors have the feature that they can be wired for 230Volt operation and as a result can be controlled by an iVAC Pro Switch 24020.

2HP dust collectors are usually powered from 230Volts and have a start up surge in the order of 45Amps. These dust collectors can be controlled with the iVAC Pro Switch 24020. The higher circuit breaker rating ensures that the circuit breaker does not trip. The start up current is on the limit of the relay and will result in a reduced life of the relay.

For dust collectors rated higher than 2HP the iVAC Contactor should be used and with the iVAC Pro Switch can control dust collectors up to 10HP.

If in doubt it is recommended that the iVAC Contactor is used for long life and reliability.

	1HP	1.5HP	2HP	2HP to 10HP
Switch Box	Yes			
Switch Box + iVAC Contactor				Yes
iVAC Pro S11515	Yes			
iVAC Pro S11515 +iVAC Contactor		Yes	Yes	Yes
iVAC Pro S11515 (SW Ver3 3.8) + iVAC Contactor				>3HP Yes
iVAC Pro S24020		Yes	Yes	