

Standard Legal Disclaimer

This circuit is offered free to use AT YOUR OWN RISK. It's been working 15 years for me but may burn down and/or destroy/kill everything in your life :-)

I have a 2HP motor on my mill. With the circuit just using the caps it grunts a little to start up. (Caps are for running but should be bigger to start it but I don't want to use a switch.) Some times I will give it a little spin (at the edge of the pulley, not your hand on the sharp cutter) before hitting the power switch. After the motor spins up to speed it has plenty of power to take a 3/4 x 3/4 cut in aluminum if I don't use too much force on the crank.

You should not use this for power tapping expecting instant reverse near the bottom of a hole if only using the caps to make the third phase. You will flip to reverse and it will keep running forward!!!!!!!!!!!!!!

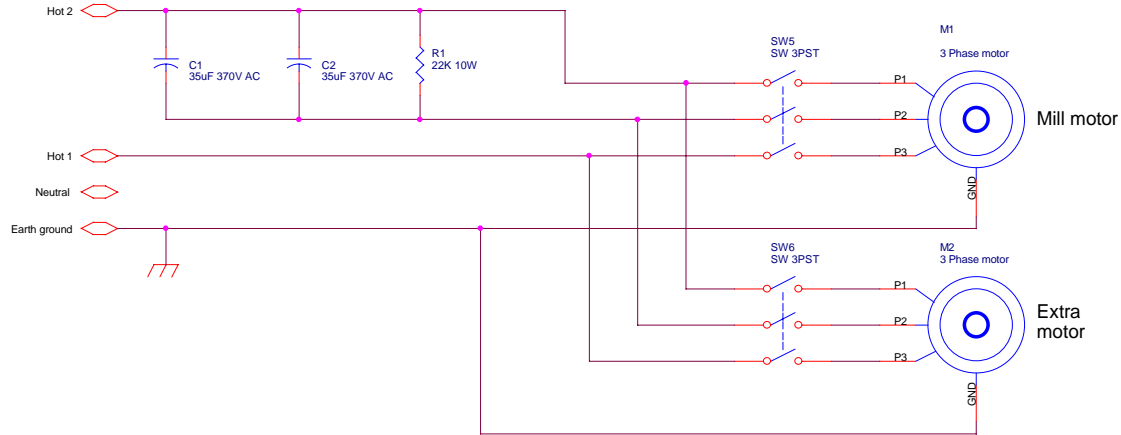
The caps can be any AC parts that are good for running continuous duty as long as they are high enough voltage. For a 220V line I think it's good to use 370V parts. I think I paid about \$25 for both of them at a local electrical supply place. They are the oval metal can run type caps. I wouldn't use the small round plastic starter type caps because they are not for continuous duty. (They will explode after a while.) The resistor is just to bleed any charge off of the caps when things are turned off so you don't get zapped touching things with the breaker off. (My bent to be safe)

The value of the caps is just what worked somewhat OK on my mill. I figured those values for what I thought the running current draw of the motor phase was for 2HP at 220V. No matter what anyone says there really isn't anything that will make a 3 phase motor start and run "Great" with a fake 3 phase made with caps. Also, the value that might be called "Right" for low range of a 2 speed motor would be wrong for high range.

The real "Trick", if you will, is to get any other 3 phase motor going on the same 3 power lines as the motor you want to use. My guess is that it should be at least 1/3 the size of the one you want to use for work. I use a 1 HP motor. The extra motor should be running without a big mechanical load because making the third phase stiff is the load for it.

When another motor is running it works as a rotary transformer/generator with inertia and makes the third phase into a real power source that is solid instead of soft like the caps do. That's near REAL 3 phase that you can use just like Edison Company 3 phase. It's the only way to get full starting power and fast reverse. Never get that with just caps. In fact, caps usually won't give you fast reverse but instead will keep the motor going the same direction. With just caps you need to come to a full stop then reverse

So, to sum things up. Caps can make a 3 phase motor run for a lot of work but you are well advised to dig around for a second 3 phase motor for "serious" work. The extra motor makes your own "Rotoverter", home style.



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