Power conditioner for a coil-gun

Zivan Zabar, P. N. Joshi
Electrical and Computer Engineering

Abstract
The authors describe a power-conditioning scheme for introducing currents sequentially into a linear array of coils which form the barrel of a coil gun. The projectile, a conducting cylindrical sleeve, is driven by the force exerted on it by a traveling magnetic-wave packet created by the barrel currents. Since the rate of energy transfer is proportional to the projectile velocity, it was convenient to divide the barrel into three separate sections, corresponding to the low-, medium-, and high-velocity parts of the projectile motion. Each section is excited by a different method, chosen to satisfy the need for the most efficient utilization of the energy stored in the power supply capacitors. Experiments with a breadboard model, which test the feasibility of the medium-velocity power-conditioning scheme are described. In the medium-velocity section, each stage utilizes the preceding capacitor and its left-over energy to increase the voltage and the frequency of the next stage. It was demonstrated that for a six-stage configuration the energy utilization efficiency using the power conditioner is higher than that achievable with an arrangement of six individual precharged source capacitors by a factor of two.
EMF for coilgun is what powers the projectile. Electro Magnetic Force. You have to tune everything just right because if the burst through the coil is too long then it pulls the projectile back and gives less power. For a camera circuit it could probably shoot 30 feet. If you want to get good range from a battery powered portable coil gun, I suggest you use a spring for the first stage, accelerating from rest uses up a lot of power, so if you get it moving with a spring, and the fire the secondary acceleration coil as the projectile passes thru, you'll get very good performance. Use an IR sensor to sense when the projectile is entering the coil...good luck.

Air conditioner coil cleaning is an important part of maintaining your AC unit. Click here to learn about the cleaning process and options for both DIY and professional HVAC service from the experts at Carrier and learn how to tell if your AC coils need cleaning. Air Conditioner Coil Cleaning. There's nothing quite as refreshing as stepping into a cool, comfortable home on a hot, humid summer day. It's a sensation we've enjoyed since 1902 when modern air conditioning was invented by Willis Carrier. For most people, it's hard to imagine life without it. They should never use a pressure washer, because the high-powered spray will most likely damage the coil's thin metal fins. Damaged or bent fins can restrict airflow and can result in reduced heat transfer capabilities.

How to Make a Coilgun. Coil guns may sound like futuristic weapons, but they're actually something you can build at home. They use a current to charge copper wires and create an electromagnet to launch a projectile. To build a coil gun: Connect the switch to your coil gun with another black wire. Cut another black wire so it's about 3–4 in (7.6–10.2 cm) long. Strip 1/2 inch (1.3 cm) of the insulation off both ends of the wire. Feed one end of the wire into the second port on your switch and tighten it in place with a screwdriver. Solder the other end of the wire onto the copper wires on your coil gun to complete the circuit. Make sure your switch is in the off position before soldering it to your coil gun.

Part 4. Could I use a bigger capacitor for more power? wikiHow Staff Editor. Staff Answer.