Electroplating tank and power source.

Do-It-Yourself Metal Plating

When Brian Laine decided to metal plate motorcycle parts at home, buying a metal plating kit was just the first step. A 3-gal. Copy Cad kit from Caswell Plating cost $290 (www.caswellplating.com). He spent a day driving around to gather an aerator pump from a pet shop, brass wire, rubber gloves, distilled water, beads from a fishing store, copper tubing, and several other things. Plating also needs a variable power supply, which he had.

"I found out an extra heater would be nice, as the degreasing tank should be 140 degrees at a minimum and ideally 190 degrees," says Laine. "The included heater only gets the solution up to 160 degrees in ambient conditions."

To prepare parts, Laine used sandblasting or tumbling, although he suggests bead blasting would have been preferable. A plastic brush for cleaning parts was included in the kit, but he also used a wire brush on a grinder.

Once prepped, kit directions required computing the surface area in square inches. This is needed to compute the current required at 25mA per sq. in.

Parts are first immersed in the degreaser tank before misting to ensure no beading occurs. Then they're placed in the plating tank for about 30 min.

"When plating is done, you dunk rinse them, blow off the big drops and let them sit, as they can show a fingerprint for the first couple of hours," says Laine. "I wanted a matte finish, so I didn't use the brightener included in the kit. Without it, they came out duller than I wanted. To get the effect I wanted, I used steel wool on each part, although bead blasting might have had the same effect and been much less tedious."

Laine was satisfied with the job done. He notes that Caswell sells other solutions that will apply a color. Additionally, the kit can also be used to deplate metal by reversing the electrical current.

"I ended up spending about three times as much money and a huge amount of time compared to having a local company treat the parts," admits Laine. "Still, it's interesting to do stuff yourself, and I'm set up for the future now."

As with many other projects, Laine has detailed the entire conversion process with lots of pictures on his website.

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Hydraulic "Wrench" Built For Big Jobs

When Dan Erdman needed to turn an oversized nut on a hydraulic cylinder, he used an oversized powered "wrench" that he made out of a hydraulic cylinder. Until he recently sold it, he used it for years, whenever he needed to crack a really big nut.

"I built it for breaking 4 to 5-in. nuts on large hydraulic cylinder rams when I needed to change the packing or rebuild a cylinder," explains Erdman. "Those nuts take a lot of torque."

Erdman put 8 by 8-in. sq. box steel tubing legs on either end of a 15-ft. length of 12-in. sq. box tubing. At the working end, he welded a length of 8-in. wide flange I-beam perpendicular to and centered on the leg. It serves as a stabilizing foot for the leg and as a base for the cylinder/wrench.

Erdman fabricated an insert for the 12 by 12-in. tubing to anchor the hydraulic cylinder that needed repair. It consisted of two 3/4-in. thick steel plates sized to fit inside the steel tubing with 4-in. spacing between them. They connected at one end with a large bracket. He drilled holes in the center of the other ends and welded a steel rod in place.

"When I needed to work on a cylinder, I slipped the clevis end over the rod and pinned it in place," says Erdman. "Then I pushed the insert and cylinder into the tubing."

The head of the hydraulic wrench is a 12 by 36-in., 1-in. thick steel plate. Erdman drilled holes in all four corners of the plate and cut out a hole the size of the nut to be turned.

"I cut out a piece of cereal box the size of the nut and used it as a template to cut a hole in the 1-in. steel plate," says Erdman. "Over time, I cut multiple holes out of the plate to match different nut sizes."

Head of the hydraulic wrench is a 12 by 36-in., 1-in. thick steel plate. Erdman drilled holes in all four corners of the plate and cut out a hole the size of the nut to be turned.

To crack the nut, Erdman would slip the plate with the hole over the nut. Once he pinned the cylinder/wrench ram through a corner hole in the plate, he could activate the cylinder. As the ram extended, the plate turned, turning the nut as it did. When the large cylinder repair was finished, Erdman simply reversed the process to retighten the nut.

"I always marked the ramrod and the nut to bring it back to the right torque when reassembling," says Erdman.

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Drill Attachment Makes Sheet Metal Cutting Easy

Online store Zemte sells electric drill shears designed for cutting various materials. Attach it to any 12V or 21V lithium electric drill for convenient use.

The shears come equipped with a robust metal gearhead that's designed for rugged use. By ensuring your fingers have no contact with the saw blade, it reduces the risk of hand injuries.

It's a double-headed sheet metal nibbler that claims to make cutting jobs faster, easier, and safer by giving you a precision burr edge. The cutting head can be used for straight and circle cuts to allow for beautifully smooth shearing without burrs.

Made from high manganese gear steel, the drill shears are advertised as the perfect tool for car and house maintenance projects, including cutting metal roofs, HVAC vent pipes, and other forms of sheet metal. The shears also have a positioning slot for accurate sizing when using a wide range of metal pieces.

The drill bit is designed for compactness, making it easy to store in a toolbox when not in use. It's not recommended for use on plastic, stainless steel, or special high-hardness alloy materials. If you use it for stainless steel, ensure the material is 0.5mm or thinner.

Customer reviews show many believe the tool is surprisingly functional for its relatively low cost. Some took issue with the fact that it could only cut through flat surfaces and was ineffective on ridges in metal roofing.

At publication, the tool was sold on Zemte for $38.99, with discounts for purchasing more than one. Each purchase is covered by the company's 100 percent satisfaction guarantee.

Contact: FARM SHOW Followup, Zemte Store (www.zemtestore.com).

Made from high manganese gear steel, the drill shears are advertised as the perfect tool for car and house maintenance projects, including cutting metal roofs, HVAC vent pipes, and other forms of sheet metal.

McLaen fabricated a bracket out of two steel plates sufficiently spaced to sandwich the door's top wind reinforcement channel.

Handy Fix For Bowed Door Panels

When extreme winds put a bow in the top panel of Dale McLaen's overhead door, a space the size of his hand opened up between it and the door header. The space let cold air and snow blow into the shop. The 21-ft. wide, 12-ft. tall, heavy-duty door was at the south end of his shop.

"The door already had wind bracing on every panel, so I needed to come up with a way to remove the bow and reinforce it," says McLaen. "I could've replaced all the braces, but since they had bowed in once, I'm reasonably sure it would have happened again."

McLaen fabricated a bracket out of two steel plates sufficiently spaced to sandwich the door's top wind reinforcement channel. Roughly triangular in shape, the bracket protrudes about 6 in. from the door with a bolt and hook at its apex.

"I wrapped a cable with a turnbuckle at one end around the ends of the wind reinforcement channel and over the bracket, between the bolt and hook on the tip to form a truss," says McLaen. "Tightening the turnbuckle pushed the top of the door back into line."

He estimates it took him about a day to design and build the truss and a couple of hours to install and adjust it. His design included a leg brace that extends down on the channel side of the bracket. It helps stabilize the truss under tension.

Unlike replacing the braces, the cable truss is both permanent and can be readjusted if needed. He didn't add any trusses to the lower part of the door, as the bow wasn't as bad there. He notes that it would be easy to do so if needed.

"The door now seals tight against the opening like it did when it was new," says McLaen. "It doesn't bow in when the wind blows, and the shop stays warm."

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