World Class Mechanic's Creepers

Anyone who spends a lot of time on a mechanic's creeper working under semi trucks or large farm equipment will appreciate BatWing, made by Eidos Corporation in Lincoln, Neb. It's the company's lowest profile unit.

"A bad back costs a lot more than $600," points out Stu Rafos, president of the company that has manufactured industrial grade ergonomic seating for more than 25 years.

At $600, the BatWing is designed more for the consumer market than the company's other 8 products, which are generally used on assembly lines at companies such as Boeing, Peterbilt Motors and Deere.

All of Eidos' products are designed to provide ideal body support to prevent fatigue and injury.

"Most of the products have to do with a particular application as far as height," Rafos says.

The BatWing is just 8 in. off the ground and perfect for working under ag equipment and large trucks.

"Basically it's a modern day, ergonomic version of a mechanic's creeper," Rafos says. "The back is controlled by a gas spring. The handle on the side is adjustable from zero to 90 degrees, and you don't have to get off to adjust it. The molded foam cushioning is industrial grade."

Made of 12-ga. steel the BatWing is rated for more than 400 lbs. The back is controlled by a 600 to 800-lb. capacity spring. It rolls on ball-bearing castors, each with a 400-lb. capacity.

"Everything is over-engineered," Rafos says. "Less than 1 percent of our business volume is for service parts. They just don't break."

The company's other industrial grade products, made out of 12 and 14-ga. steel, range in price from $900 to $1,400. They are designed for specific tasks such as welding, bench work, and much more.

The BatWing is a modern, ergonomic version of a mechanic's creeper. The back is controlled by a gas spring and is made from molded foam cushioning.

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Giant Vise Weighs 372 Lbs.

Brian Johnson's steel vise is big enough for anything he can throw at it. Its jaws open 14 1/2 in., and the length of the wide-open vise is nearly 4 ft. The face of each jaw is 10 in. by 2 1/2 in.

"Making the vise was a combination of a good challenge and a display of my welding abilities," admits Johnson. "Besides, it's fun to have something different from what others have."

The starting point for his vise was plans published by the James F. Lincoln Arc Welding Foundation (www.jflf.org). Gordon Hennen, the author, described it as a rugged steel vise that "will not break or distort". Johnson says the sliding tube design has lived up to Hennen's promise.

"If I put something in the vise, it doesn't come out, and it doesn't turn," he says. "It's not like the imported vises available today."

Johnson modified his vise to make it bigger and stronger than Hennen's original. His moving jaw mounts on 1/2-in. thick, rectangular steel tubing. Johnson's crank is 1 3/8 in. in dia. with four threads to the inch (Acme).

The Hennen vise crank attached to the bottom of the fixed jaw. Johnson explains that that would allow flex and forward movement and possible binding. Johnson used a straight through draw bolt design that allows the most mechanical advantage possible and prevents binding.

"I salvaged chrome plated hydraulic shafting for handles, handle knob and also for the draw bolt screw," says Johnson. "It's high tensile and machines well."

Another bit of luck went into the vise's massive hammer block that sits behind the fixed jaw. Johnson found it at a local scrap yard. The piece is 2 1/2 in. thick and 4 in. wide at its narrowest end and a bit wider at the opposite end.

"All I had to do was bevel it a bit and weld it in place," he says.

Big steel vise is nearly 4 ft. long and has jaws that open 14 1/2 in.

Johnson says the vise comes in handy when he makes forges. He designed a brake that fits in the vise for bending both treated and diamond 10-ga. steel plate.

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Expert Repairs Worn-Down Anvils

Brian Johnson can make a bashed up old anvil look like new. He also made a new anvil from scratch. An experienced blacksmith, Johnson knows how vital a smooth anvil surface is. He also knows how beat up most old anvils are and how poorly made many new anvils are. That's why he made his own "giant" anvil and fixes up others.

"I made an 8-in. wide, 1,000-lb. anvil out of 1,237 lbs. of steel," he says. "The top and base are 4-in. thick steel plate, and the stem is 6-in. thick steel plate."

The proof of a good anvil is how resilient the top is. Johnson says the way to test an anvil is to drop a ball bearing from about a foot above the surface. It should bounce back up into your hand. The resiliency is what makes a blacksmith's hammer bounce back into the air when he strikes hot iron on the anvil.

Wrought iron anvil tops and bases are Johnson's preference. Since wrought iron is no longer made, he settled for mild steel for the top, base and stem on his new anvil. To get the resilient top, he needed a final hard surface. Johnson applied two layers of Rockwell 62 hard facing, 6010 (super buildup) class rod or wire. The second layer was laid down perpendicular to the first, with each layer measuring from 5/32 to 3/16 of an inch thick.

He follows a similar procedure in repairing old anvils. Once he has ground out any rust in pits or cracks, Johnson uses penetrant dye to find fine cracks. He then grinds until no more die can be seen, indicating fresh metal.

In both his new and old anvils, Johnson heats the anvil to a surface temperature of around 400 degrees Farhenheit. This helps ensure an even weld. If the welding process is interrupted, he will reheat before resuming welding. Johnson also fills pritchel and hardy holes with pieces of carbon block to prevent weld deposit.

"Each pass overlaps the previous one," he explains. "If you lean the anvil away from you, the passes get thicker."

Johnson uses bumper bars to either side of the welding path. These are copper plates that are clamped in place. This allows him to make a complete pass each time from one end to the other or side-to-side.

On old anvils, the first layer fills in cracks and holes. "You need to lead the forward edge of the puddle into a vertical crack to be sure it fills in properly," he advises.

As the second layer is finished, Johnson advises using a measuring tape to be sure the new surface is even from the base. He then uses a square to evaluate how level it is at the surface. If needed, more weld is added.

Again Johnson applies heat to the entire surface of the anvil as he finishes layering the weld. "Oftentimes, the welding will leave one part of the surface hotter than other areas," he explains.

Even cooling is as important as even heating, he adds. "I will turn a smaller anvil over into a pile of barn lime to cool overnight," he says. "It's a good insulator and slows the process. Larger anvils will get barn lime heaped over the top, and the entire anvil will then be wrapped in fiberglass insulation and left to cool slowly."

Once two even layers are in place and evenly cooled, Johnson grinds them down. Initially he uses a grinding wheel on edge to take off the ridges. Once the surface is down to ripples not ridges, he begins a horizontal grinding pattern using a 6-in. cup wheel. He stops frequently to be sure he is maintaining an even, level top. Chalk rubbed on high spots make it easier to level.

"For the final finish, I use a lunchbox grinder with special disks," says Johnson. "I also chamfer out the pritchel and hardy holes to reduce the chance of chipping."

Johnson also dresses up the edges of the anvil top. On some anvils he has reworked or rebuilt the horn, pritchel and hardy holes and even the base prior to adding the hard surface to the top.

While some anvils may be too far gone to repair, most can be renewed. The exception in Johnson's mind is cast iron anvils.

"An old wrought iron anvil is my first preference, followed by mild steel," he says. "However, if it's cast iron, it's not worth anything."

Brian Johnson repairs worn-down anvils and has even made new ones from scratch.

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