

MOLD & DIE REPAIR

After a mold or die is run for an extended period of time, a nick, a scratch, or some other imperfection often appears in the molding area. Or, perhaps the parting line starts to wear, and the mold or die must be repaired. It would be impractical to attempt these small repairs by TIG welding—however, it is possible to spot-weld them using the MoldMender Micro Welder.

The Rocklin MoldMender Micro Welder uses a non-arcing spot welding process for mold and die repair. This imparts the absolute minimum amount of heat to the mold or die itself. Those familiar with mold and die repair can appreciate what this means: (1) Universal hardness across the weld. (2) No shrinking next to the weld. (3) No splatter on adjacent areas.

Repairs are made by bonding a piece of .008" thick ferrous ribbon material or .020" or .010" diameter wire to the desired areas on a steel workpiece. The ribbon material or wire usually is in the annealed state before welding, but will be in the hardened state after being bonded in place. The harness will vary, of course, according to what material is used as the repair material, which should have the same or similar properties as the workpiece. Stainless steel, nickel alloys, and mold steels, such as P-20, S-7, H-13, A-2 and 420 stainless are some of the more common ones.

The ribbon material is bonded by pressing down firmly with the electrode, then triggering the machine either manually or automatically with the foot switch, while slowly rolling the electrode across the repaired area. This will bond approximately a 1/32" diameter spot each time the unit is triggered. The entire area must be covered with these interconnecting spots to ensure a 100% bond. If greater build-up is desired over the initial built-up layer, repeat the process by applying another layer of ribbon material or wire. No finishing is required between the layers, and an unlimited number of layers can be applied.

To repair areas along an edge or corner, bond the material along one face, allowing the ribbon material to extend over the edge. Fold the material over the edge using the electrode, while repeatedly triggering the machine. In this way, the ribbon material or wire can be molded to any contour like a piece of putty, and bonded in place at the same time.



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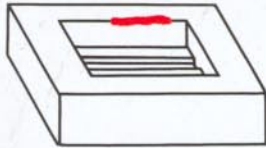
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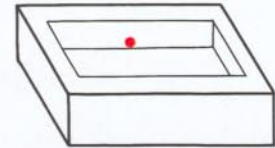
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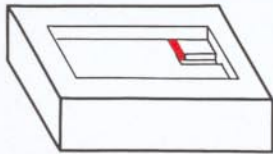
REPAIR PARTING LINES & EDGES



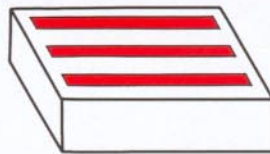
REPAIR SCRATCHES & PIN HOLES



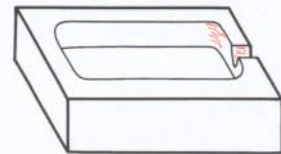
REPAIR GATES & VENTS



MAKE DESIGN CHANGES



INSTALL SHIMS



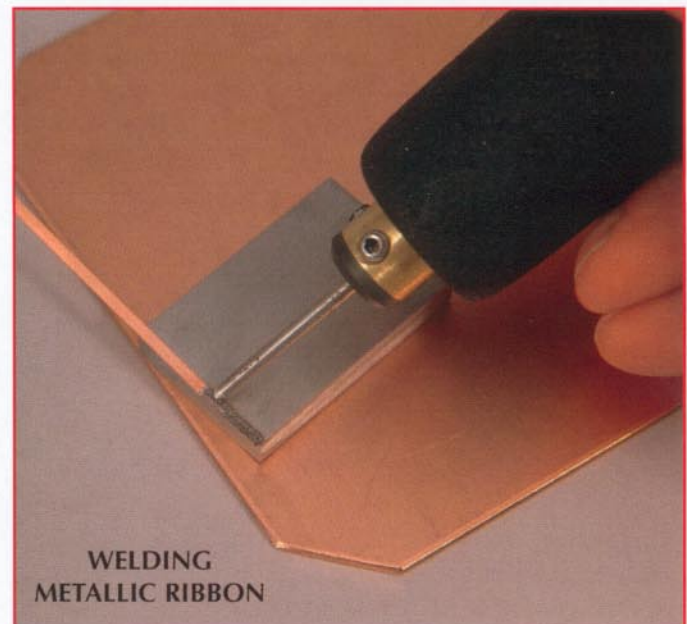
REPAIR HEAT CHECKS

Small pin holes and D.C. arcs may be easily repaired using the metallic paste. Place a small quantity of the paste in the pin hole, place the electrode so it is positioned in the pin hole, and trigger the machine. Next, slightly lift the electrode, allowing more paste to fill the hole. Press down with the electrode and again trigger the machine. Repeat this process until the pin hole area is built up above the surrounding area, wipe the area clean, and then go back over the area, treating the repaired area using the same procedure as described above for a piece of ribbon or wire material. This ensures a dense repair that will finish off exactly like the surrounding mold or die surface.

The MoldMender weighs only 65 pounds and is very portable, allowing repairs to be performed anywhere in the shop, including molds in the injection molding machine. No previous welding experience is required to operate the MoldMender. It uses standard 110-volt A.C. power.

The MoldMender has six low power selections and eight high power selections, which adjust the weld pulse length to accommodate different welding situations. Also, the weld speed (number of welds per minute) has six selections.

MoldMender repaired areas exhibit the same characteristics as the parent or base metal, as long as the same repair material is used. Repairs are in the hardened state and may be finished by standard procedures such as: grinding, machining, lapping, EDMing, plating, etc. Diamond laps work well, since all repairs are in the hardened state. If care is taken during the "forming" steps, as explained earlier, much of the finish work can actually be performed by the MoldMender, making the final process much easier and faster.



WELDING METALLIC RIBBON

