

# COLD PULSE WELDING.



Cold Pulse welding is a tried and tested process, which Carr's have done since 1993. Essentially resistance welding, new material is introduced in a flat plate or wire form. Using only very thin materials up to 0.1 mm thick, deposits of metal are added to the surface of tools, cutting the new piece in the shape of the area required. Very like making a thin insert to fit on to a tool surface; the thin plate is welded by multiple pulses of high current, locally applied all over the surface of the additional piece. Individual welds are tempered by the adjacent welds. Thicker deposits are achieved by layering the material up to a maximum of 1



*P20 cavity required score marks repairing from the plastic flashing into bores.  
The wall was cold welded and dressed by hand. The bores were cold welded and re-cut.*

Cold pulse welding means:—

- ◆ Tool damage repaired locally.
- ◆ Sharp edges restored.
- ◆ Materials easily matched.
- ◆ Access is not normally a problem.
- ◆ No residual heat or sinking.
- ◆ Steels only can be welded.

Pulse welding can only be applied onto steel, as the resistivity of the metal is critical to the heating effect and hence the bonding. Higher chrome, nickel and carbon steels are welded easily. Low carbon and zero chrome, nickel steels are harder to weld and achieve a good bond. Aluminium and copper materials do not work. Even cast iron welds well.

The access to the welded area is not so critical, as in conventional welding. So areas that are down inside pockets are easily welded. The test is to touch the area with a propelling pencil. If you can, then the welding is achievable, if you cannot then it is unlikely that an electrode can be made to access the area. Hence the inside diameter of an ejector bore can be welded, in as far as it is wide. Side walls of form can welded right into the base of the form to ensure no undercuts. Deep slots area best laser welded.

For contact details see overleaf.