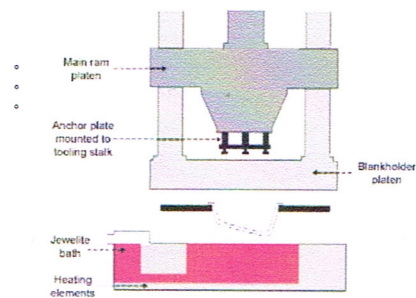


The Dualform Process Explained

The DUALFORM process was developed in the 60s and 70s as a convenient alternative for limited production runs with the aeronautical industry as its main target.

Why was it convenient? Because there was no longer the need to manufacture solid tooling for the press. The press made its own tool, cast in a low temperature melting alloy, from a shell tool made from an original part/donor sample and when the production run was completed, the tool was melted and reshaped for the next job hence also avoid the need to store the used tooling. Furthermore, this process enabled to avoid many hours of tedious and expensive computer design work.

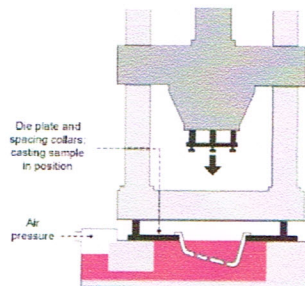
Additionally, the process was designed so that its minimal tooling cost and quick tool manufacture would represent an extremely cost effective method of prototype engineering and low volume production



Stage 1:

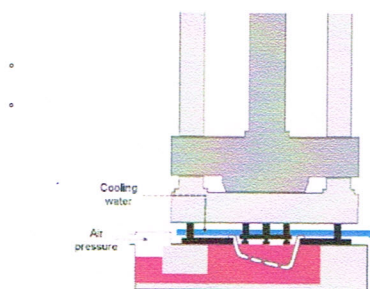
A Casting Sample is prepared and pre-drilled. The Jewelite™ alloy has a melting temperature of 140°C. The anchor plate is mounted on the main inner slide, with tee-bolts on the underside.

- Stage 2:
- The die plate and Casting Sample are placed in position over the bath of molten alloy. The sample fills with alloy through the small pre-drilled holes.
 - The main inner slide is lowered until the underside of the anchor plate is just below the top surface of the die plate and locked into position.



Stage 3:

The alloy in the bath is raised to the desired level by applying air-pressure to the auxiliary feeder tank. Cooling water is run across the surface of the bath until the alloy has solidified.



Stage 4:

- When solid, the main inner slide is raised, taking with it the alloy which has filled the sample. This alloy becomes the top die.
- The casting sample is removed, exposing the alloy bottom die beneath.
- The tools are fettled smooth and the blankholder plate is fitted to the outer slide.
- Presswork begins as with normal double action press tools. On completion of the run of pressings the plates are removed, the punch lowered into the die and the tools melted down ready for the subsequent component.

