

**Design changes probable**

If design changes are probable, the V-Process patterns can be revised economically and quickly without affecting the pattern life. Because of the large amount of time and money required to build hard tooling for die casting it is common to produce a quantity of sample castings to prove out the design before building hard tooling. The V-Process can then be used to support interim production until the hard tooling can be built.

**Case Study – V-Process Oil Pan (Figure 11)**

Overall size: 6.4" x 23.9" x 9.5"

Weight: 13.5 lbs.

Wall thickness: .180" min.

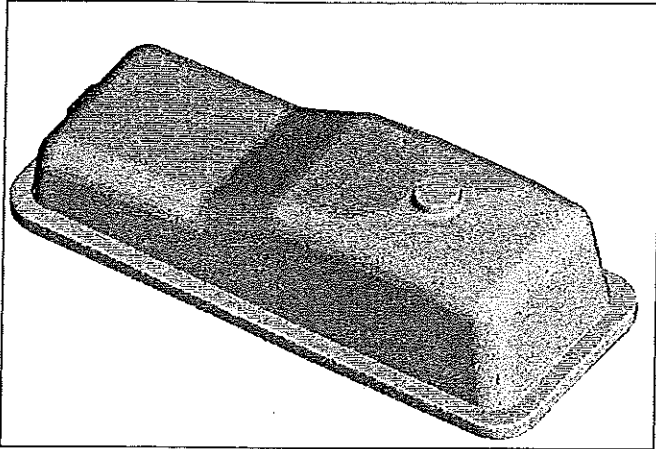


Figure 11 - Oil Pan

**Scope of project:**

Ten prototypes needed in three weeks.  
One hundred pre-production castings needed for pilot build. Production quantities of 1800 units per year for the 3-5 year life expectancy of project.

**Project costs:**

Prototype pattern \$8475  
(1 impression cope & drag CNC machined pattern)  
Prototype castings \$165 each  
Pre-production castings \$127.25 each  
Production pattern conversion cost \$16700  
(2 sets of: 2 impression cope & drag CNC machined patterns)  
Production Castings \$41.60 each

**Case Study – V-Process Flywheel Housing (Figure12)**

Overall size: 28.1" x 24.3" x 6.2"

Weight: 31.3 lbs.

Wall thickness: .240" min.

**Scope of project:**

Two prototypes needed in four weeks.  
One hundred-Fifty pre-production castings needed for pilot build.

**Project costs:**

Prototype pattern \$8775  
(1 impression cope & drag CNC machined pattern & three core boxes)  
Prototype castings \$314 each  
Pre-production castings \$272.50 each

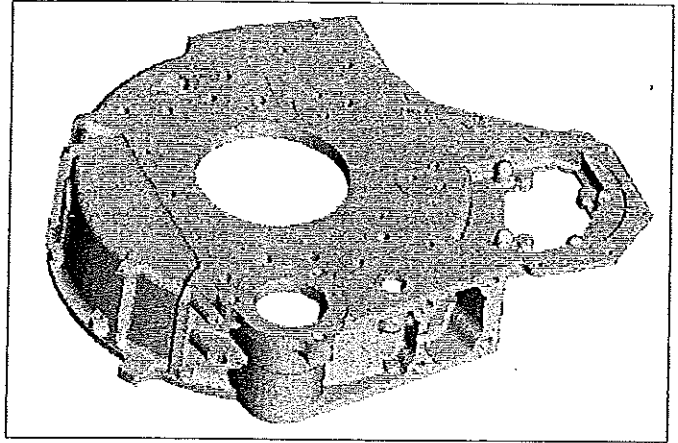


Figure 12 - Flywheel Housing

**Case Study – V-Process Compressor Housing (Figure13)**

Overall size: 5.1" x 5.3" x 2.1"

Weight: 1.25 lbs.

Wall thickness: .125" min.

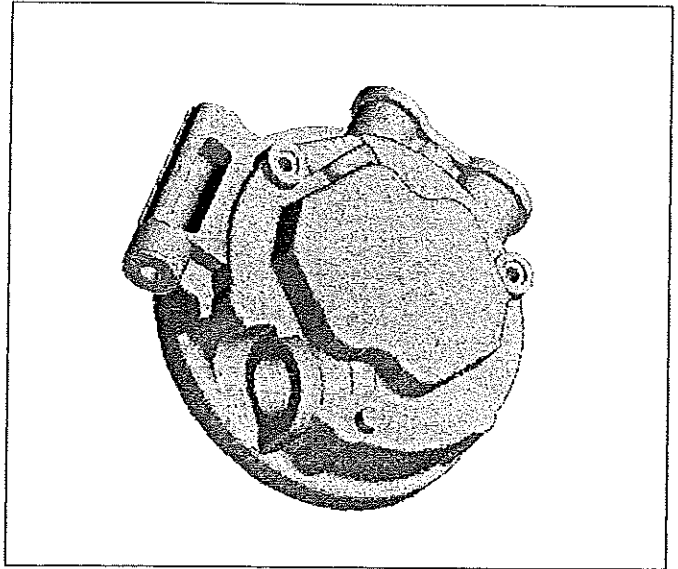


Figure 13 - Compressor Housing

**Scope of project:**

Fifty prototypes needed in three weeks.

**Project costs:**

Prototype pattern \$6700  
(1 impression cope & drag CNC machined pattern)  
Prototype castings \$78 each