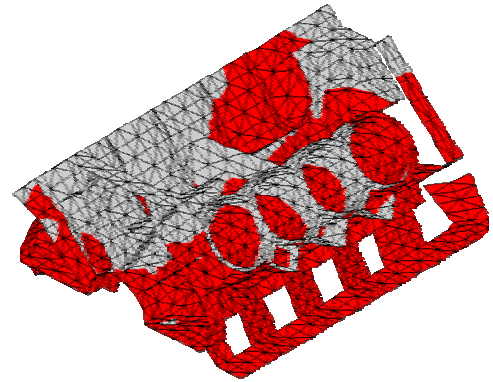


Technalysis[®] dieCAS[®] Software

Version 5

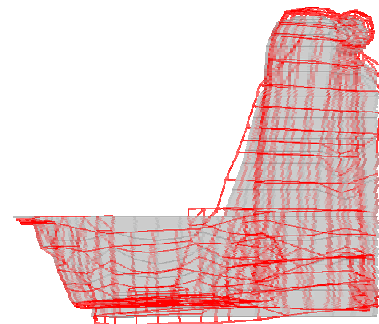
dieCAS[®] is a PC / Workstation based CAE software for process modeling and analysis of die casting and related processes, these include permanent mold, semi-permanent mold, and squeeze casting. dieCAS[®] is the only software system that provides analysis of the entire die and machine, including the nonlinear contact problem at the uneven parting surfaces between die components.



Cavity Fill of a V8 Engine

The capabilities of dieCAS[®] software are:

- **Cavity fill**, including full coupling with heat transfer, back pressure from the cavity gas, venting, and vacuum.
- **Heat transfer and solidification**, including solidification times, die temperatures, and casting temperatures.
- **Casting distortion**, including thermal shrinkage following ejection from the die and associated residual stress.
- **Die distortion**, including nonuniform thermal expansion, clamping forces of the die casting machine, cavity pressure, and uneven contact between die components at the parting surface.



Casting Distortion of a front-drive transmission case

The analysis results provide revealing insight into a broad spectrum of die casting problems. dieCAS[®] software addresses a variety of product and process problems, many of which are unique to die casting, as shown in the table below.

| Analysis Type | Die Casting Problem | | | | | | | | | | | | | | | |
|---------------------|---------------------|--------------|---------|-------|---------------|-----------|----------|---------|------------|-------|--------------|-------|-----------|-------|-----------------|-----------|
| | Process | | | | | | | Casting | | | | | | | | |
| | Bolt breaking | Die cracking | Erosion | Flash | Heat checking | Soldering | Sticking | Tearing | Dimensions | Drags | Gas porosity | Galls | Poor fill | Seams | Shrink porosity | Thin wall |
| Casting temperature | | | | | | | | | | | | | | | | |
| Die temperature | | | | | | | | | | | | | | | | |
| Solidification | | | | | | | | | | | | | | | | |
| Cavity fill | | | | | | | | | | | | | | | | |
| Casting distortion | | | | | | | | | | | | | | | | |
| Die distortion | | | | | | | | | | | | | | | | |

Traditional
 Unique to die casting

