I-DEAS® MPI/Flow

complete mold filling and packing analysis, and runner balancing analysis

I-DEAS® MPI/Flow predicts the flow of plastic throughout the filling of the injection molding cycle to ensure that acceptable quality parts are designed for manufacture.

Moldflow pioneered plastics flow analysis in 1978, and changed the way plastics parts were produced. Today, I-DEAS MPI/Flow is the world's most popular plastics flow analysis program and is used to successfully design tens of thousands of molds, worldwide, each year.

Using I-DEAS MPI/Flow, customers can refine the part and mold design, and material and processing conditions to achieve the optimum balance between quality, cost, and time.

Potential problem areas such as weld lines, air traps, and short shots are identified and can be corrected on the computer. This eliminates the risk of poor quality parts appearing at mold trial, when the cost of change is high and any delay to production is critical.

2D Interactive Flow Analysis

The 2D interactive flow analysis quickly establishes a set of processing conditions that form a "molding window" of injection times and mold and melt temperatures for a given part and material. Within this window, acceptable parts can be produced, despite typical shop floor variations in material, machine settings, and environment.

Fast Filling Analysis

The fast filling analysis quickly determines polymer behavior during mold filling. The key objective is to ensure that flow fronts reach the extremities of the mold at the same time and at the same pressure. This prevents surface defects, over packing, and excess shear stress. It can lead to material savings and shorter cycle times.

This analysis uses processing conditions established in the 2D analysis or recommended mold and melt temperatures from the material database.

Automatic Runner Balancing

Runner systems are a means of controlling the distribution of flow. The automatic runner balancing capability ensures the runner system is designed to fill all cavities at the same time and pressure, to minimize stress levels, and to minimize the volume of material.

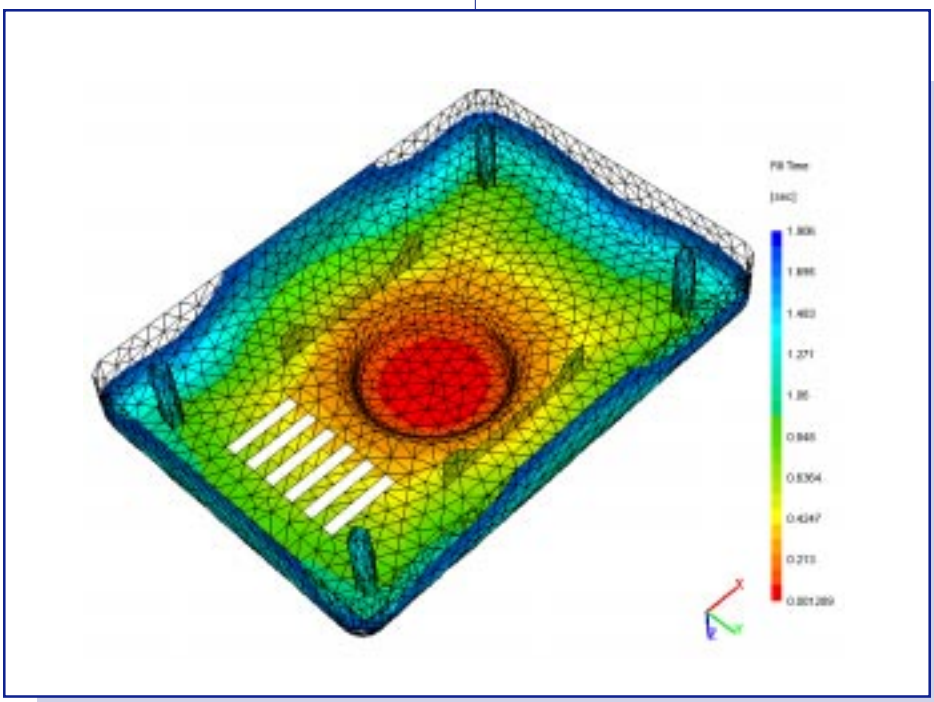
Multilaminate Analysis

The multilaminate analysis simulates the filling and packing phases of the injection molding cycle, based on advanced algorithms that ensure a high degree of accuracy.

The multilaminate filling analysis calculates the flow of plastic, using actual values of temperature, shear rate and viscosity, at multiple layers through the thickness of the mold cavity. The analysis then establishes a packing profile, accounting for material compressibility and volumetric shrinkage, to minimize warpage and surface defects caused by polymer shrinkage during cooling.

Interface to Cooling Analysis

The multilaminate analysis results can be used as an input to I-DEAS MPI/Cool, Moldflow's mold cooling analysis. Results from I-DEAS MPI/Cool can then be used in flow analysis to fully account for the effect of mold cooling on plastics flow.



Melting front advancement during filling.

Material Database

Flow analysis depends on accurate and reliable grade-specific material data. The Moldflow material database contains data on over 4,500 different polymer grades - the largest of its type in the world. Thermal, rheological, and PVT data is included, and a personal database can be created. Moldflow's Center for Polymer Testing and Research operates a world-leading material testing service for any confidential, standard, or non-standard material.

Results Interpretation

Moldflow's results interpretation system, unique to I-DEAS MPI/Flow, gives customers online advice on the identification of potential molding problems, common symptoms to look out for in the animated results display, and suggested design solutions.

Other Capabilities:

•Valve gate analysis.

Graphical Results:

•Pressure, melt temperature.
•Shear stress.
•Dynamic fill pattern, shear rate, and flow direction.
•Frozen layer distribution.
•Maximum holding pressure.
•Weld lines and air traps.
•Temperature, shear rate, velocity, and viscosity through thickness.
•Frozen layer thickness over time for all elements.
•Viscosity, volumetric shrinkage.
•Pressure and temperature over time for all nodes.
•Clamp tonnage.
•Flow angle.

Prerequisites

Core Simulation

For More Information

For more information, contact your local SDRC representative or call 1-800-848-7372.