CAST-DESIGNER

Upfront design & analysis system for investment casting

Geometry Analyze to check the thicker zone of casting in express to locate the inner gate, chills and riser.

Re-analysis of the casting with predicted in-gate to resize the in-gate dimension

Cast-Designer for investment casting is a quick casting design and analysis tool based on upfront design & analysis technology. The core of the "upfront design & analysis technology" is to allow engineers to conduct fluid flow, heat transfer and solidification analysis by the assistance of combination of expert system and CAE technology, it helps engineers to make a "Right" engineering decision in the early design stage of a project . Upfront design & analysis technology has already been becoming a very important role in main stream design process.

With Cast-Designer, users can optimize a casting design by detecting the part features with potential metal flow and solidification problems, evaluating gating and pouring system design alternatives in the early design stage. Even a novel with limited experience in simulation who can easier to undertake the design setup in very short period of time. In other word, Cast-Designer can help the industry to achieve the target of 'Time to Market'.

> Integration of expert system and CAE system. A tailor-designed planning & simulation system for investment Casting industry

Part layout for main tree design, production rate is the main factor to be considered at this stage.
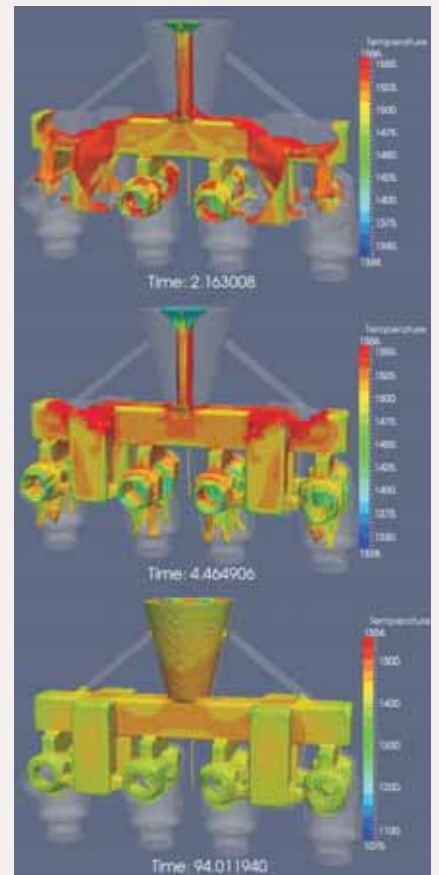

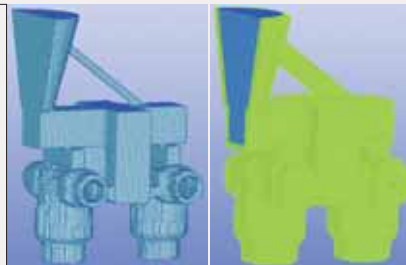"Smart Design" knowledge base helps select the optimized casting system.

Fine tuning to match geometry and manufacturing process

Innovation technology helps set up the CPI model in a few minutes to cross the bridge of CAD and CAE System.
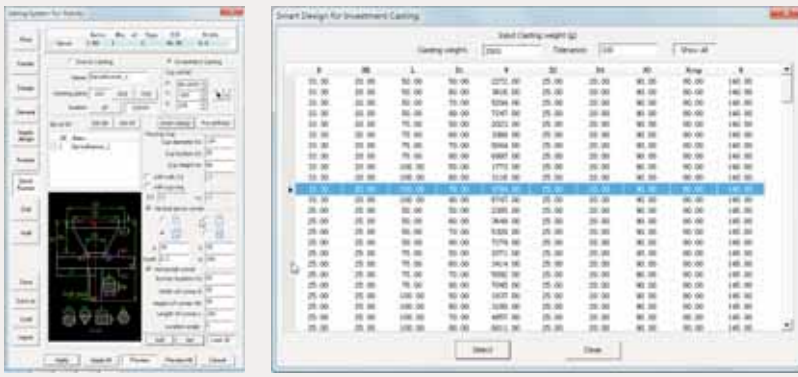

CPI Simulation

Thanks to the last advance CAE technology provided by Cast-Designer, user can make a quick validation of design plan in a simple and quick way. The analysis result includes metal flow, heat transfer, solidification and cooling. The casting defects such as misrun, gas problem, hot spots and porosity etc., could be predicted very well.

Benefits

- Perform design and validation in very early stage to save cost and time to maximum
- Make better design and compare more solutions thanks the quick modeling and simulation technology
- Express part analysis tool helps communication with customer
- Improved design quality and enhance designer knowledge
- Generate industry design database
- Short learn curve, easy to use

Gating System Design & "Smart Design" for Investment Casting

Excellent Mesh Technology

- Very fast and robust meshing, fully automatically
- Flexible to control the element size in different direction
- Support multi solid geometries, no Boolean operation required in CAD environment
- CAD or mesh or mixed CAD & mesh as original input data
- Special treatment for CAD defects, such as geometry gap, overlay, intersection or unclose
- Advance technology for tin dimension or complex region
- Advance mesh smoothing technology to match the geometry feature
    - Automatically shell generation
    - Easily enclosure generation

Cast-Designer with a lots of innovation technologies to solve the meshing problem , such as multi-level mesh connection, advance mesh smoothing and geometry defect correction. For almost cases, the meshing time can be controlled within 2-5 min.

Advance Mesh Technology

Platform Advise

- OS: Windows XP (32 bits), Vista and Windows 7 (both 32bits & 64 bits)
- Processor: Intel Core i3, i5, i7 or AMD 2.0G and above
- Memory: 4GB and more memory can get a good performance
- Display: Support 1280 * 1024 and above, 128MB display memory
- Mouse: 3 button engineering mouse is required

Best in Class of CAST-DESIGNER

Design Capability

- Build in KBE system to support casting system design, such as riser, feeder, gate, runner, sprue runner, pouring system, chill etc. All components of casting system could be designed in full parametric mothod.
- Build in main tree design with 'smart design' advisor
- Dewax checking

Model Setup

- One windows page to setup casting process, boundary condition and control parameters for flow, heat transfer, radiation and solidification simulation
- With rich material data in database, more than 140 types material special designed for investment casting
- Built-in material converter for different country standard.
- Pre-defined template for investment casting process
- All conditions and parameters could be save as template file for future usage

Solver Technology

- Base on Finite Element Method (FEM) technology
- Fluid flow calculations are described by the full Navier-Stokes equation and couple to thermal analysis
- Simulate the physical phenomena and mechanical behavior of metal filling, solidification and cooling process, such as temperature, velocity, pressure, liquid/solid factors etc.
- Special solver for radiation view factor calculation.
- Innovation technology to speed up simulation in express, one hour to two hours for almost cases
- Submit job to solver in directly and batch queue mode
- Both 32 bits and 64 bits solvers
- Parallel computing technology for big or huge model
- Mechanical module for both machanical & thermal stress and deformation.

Results & Reporting

- Introduce special customized ParaVIEW as post-processors, very powerful and flexible.
- Rich analysis results in various formats, such as contours, vectors, sections and curves, it is also support animation and VRML
- Support plug-in filter for post-process
- Report module to support auto-reporting to save at least 70% time for document.

About Us

With the combination of software development, advanced analysis, extensive product development experience and cost effective local human resources, C3P Engineering Software Internationa Co., Limited provide industry and manufacturing business with comprehensive solutions and engineering services on a global basis to meet their expectation in high quality, on-schedule delivery within cost target. Our business scope covers software development, professional engineering service and application software integration. More info please visit: www.c3p-group.com | www.cast-designer.com

Partnerships

intel AMD hp IBM CASCADE TECHNOLOGY PTC SIEMENS Kitware DS SolidWorks

HONGKONG (Asia Pacific, HQ)

12/F AT Tower
180 Electric Road
North Point, Hong Kong

Tel: +852 2566 8109
Fax: +852 2234 5811
Email: C3PHK@c3p-group.com

NEW YORK OFFICE

9631 Field Stone ct,
Painted post, New York,14870, USA

Tel: +1 607 330 4772
Fax: +1 607 330 4776
Email: C3PNY@c3p-group.com

Maryland OFFICE

3360 North Chatham Rd., Suite L,
Ellicott city, MD 21042, USA

Tel/Fax:+1 410 465 7865
Email:C3PNY@c3p-group.com

SUPPORT CENTER

Unit 603, Info Building,No.111
Science Avenue GSC,GZ, 510663

Tel: +86 20 3229 3257
Fax: +86 20 3205 3354
Email: C3PCN@c3p-group.com