

GRAVITY CASTING

TECHNICAL SPECIFICATION

Unique functionalities

In addition NovaFlow&Solid has the following unique functionalities:

- Option to use the ATAS Metstar thermal analysis system for calibrating the alloy database in NovaFlow&Solid, with actual data based on poured samples. This makes it possible to measure the graphite expansion which then can be used during simulations of gray and ductile irons
- A formula function for creating your own criteria, for example your own definition of a shrinkage prediction. This function also enables the calculation of Dendrite Arm Spacing (DAS)
- With the particle tracer function, users can more simulate flow behavior and also induce slag particles into the melt for tracing
- Gas calculation which enables back pressure and vacuum permeability
- Multi mesh function: Use different mesh for filling and solidification in several steps which enables you use of the correct size for the specific time increment of the filling or solidification

3D Import

- Import of binary and ASCII STL files and STEP files
- Import of cooling channels and filter
- STL fixing
- Boolean functions
- Expansion functions
- 3D Positioning functions

Characteristics

- Includes advanced database based on constitution diagrams
- Accounts for gravity during simulation
- Calculates air gap formation or heat transfer coefficient
- Cooling and heating channels (permanent mould)
- Cycling with several setting (permanent mould)
- Saving mould temperature from a roughly meshed cycling simulation into a fine-meshed flow and solid simulation. This enables extremely fast cycling simulations
- Several filling alternatives, including bottom-pouring

ladles, ladle pouring over lip and low pressure die casting, multi stopper ladles

- Particle trace function (tracking of slag inclusions) with flow length and age
- Auto-simulation, running multiple simulations in a batch
- Sensors measuring velocity, pressure, temperature, liquid phase and cooling rate at a certain point
- Flow meter measuring the efficiency of an ingate
- 2D and 3D velocity vectors
- Pouring of multiple alloys for bimetallic cast

Results presentation

- Powerful browsing and slicing in x, y and z directions
- Built-in animation functions presenting results
- Creation of AVI and real time AVI movie files as well as WMV
- Two or more simulations can be viewed simultaneously in the browser
- You can synchronize different simulation results viewing them simultaneously
- Printing facility in all modules
- Possibility to save simulations in BMP or JPEG formats in each module
- Automatic report generator in doc-format

Hardware recommendations

- PC with QUAD Core (4) or 6 or 8 core processors (multiple core support) or higher
- Highly recommended: Intel Core i9, 3.3 GHz and higher
- Microsoft Windows 10, 64-bit
- Recommended: 16 GB RAM
- 200 GB free hard disk space
- Highly recommended: Solid state drive 128GB as primary disc where simulation should run and be stored during simulation, normal HDD 1TB for storage after simulation as secondary disc
- Graphics card: NVidia 2GB and higher
- 3D mouse for rotation, move and zoom. System supports 3D connexion Space navigator