Partner Spotlight:

NovaCast AB – NovaFlow&Solid CV

This month, Vicky spoke with Håkan Fransson, NovaCast's CEO and Product Manager of the APA's first casting simulation solution, NovaFlow&Solid CV, to learn some little known key features and benefits of their software.

Vicky: Why or how was Novacast founded? What opportunities were there in the market?

Håkan: NovaCast was founded by Mr Rudolf Sillen in 1981. Mr Sillen was a pioneer in using computer programs for methoding calculations. NovaCast Systems AB originates from this company and has further developed its range of casting process tools. NovaFlow & Solid has been sold and developed since 1994. Market potentials were rather limited in the beginning due to the lack of computers and later lack of powerful computers for simulations. Today NovaCast Systems has customers in 46 countries and our name and products have a very good reputation.

Vicky: What would be the benefits of using NovaFlow & Solid CV for mold filling and solidification simulation?

Håkan: NovaFlow & Solid CV is the fastest simulation program on the market. The Control Volume meshing technology we use is more than 10 times faster in calculations than traditional programs based on Finite Difference method. Meshing is automatic and takes just seconds to perform. The Control Volume technology increases the accuracy of the calculations as well as well, since a perfect description of the 3D models shapes is obtained. The speed and ease of use of the software enables testing more variants of a part or casting layout, which will optimize the part and its gating and feeding system.

Vicky: What are some unique applications of NovaFlow & Solid CV that could be used for specialized projects?

Håkan: Autosimulate, i.e. prepare many simulations and automatically simulate. We can use different mesh sizes for mouldfilling and solidification to increase calculation speed and accuracy. Our so-called formula function allows the user to setup his own formulas using the already calculated fields.

Vicky: For industries that wouldn't normally consider using NovaFlow & Solid CV, what applications or features should they know about that would be of benefit to them?

Håkan: Every company that uses casting components in their products has a need for improving their casting design. With the software you can evaluate your products from a casting point of view and make a risk analysis of what problems could occur in the future. From the results one can then improve the design and make a more optimized casting. The program can export defects in 3D format to CAD programs, which can be used in later structural analysis. The program can also calculate stresses during solidification and cooling and these can be transferred to external FEM based software for further analysis.

Vicky: Which casting defects can be predicted by NovaFlow & Solid CV?

Håkan: Oxide inclusions, cold-shuts, shrinkage cavities, slag inclusions, gas porosities.

Vicky: What are the major (essential) inputs required from the user?

Håkan: 3D model in STL or STEP format, type of casting material and its pouring temperature, type of mould material and starting temperature, pouring method and of course meshing size. The database of materials is filled with standard alloys and mould materials so the user just selects the correct material.

Vicky: What other (optional) inputs are required from the user?

Håkan: Sensors, vents, coatings etc.

Vicky: How much time does it take to learn and start using NovaFlow & Solid CV?

Håkan: 1 day's basic training and then one more day to learn more advanced program functions to focus on a particular area (e.g. method). You can view training recordings and product collateral *here*.