

QUICK INJECTION MOLDING SIMULATION TOOLS FOR SPEEDING UP PRODUCT ENGINEER QUICK INJECTION MOLDING SIMULATION ING DEVELOPMENT

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ABSTRACT –

With the trend of shorter and shorter product development cycle, especially in consumer and automotive industry, the requirement of fast response for simulation is getting stronger as well.

Instead of only pursuing accurate simulation result only, more and more companies are seeking quick and automatic simulation method that allow engineer to get acceptable accurate result but in much less time. i.e. the traditional flow simulation needs hours of calculation time to get plastic part's fiber orientation, weld line position etc. Now that validation method becomes the bottle neck of accelerate product development especially in earlier concept stage which need not super accurate result but fast and multiple paralleled simulation process.

BASF cooperate with Coretech developed an automatic simulation tool that allow user can quick submit simulation request to Moldex3D solver with API function from it. It can also combine the API from ANSA/MEAT and Moldex3D together to have seamless process simulation and post processing even for non-professional CAE engineer. It can reduce the calculation time from hours to minutes with acceptable accuracy level of simulation result. It does help us to shorten the development speed in concept idea filtering.

Additionally, with API function from Moldex3D, we can also use the tools combining with optimization tools to get faster solution with much less time

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1. MOTIVATION FOR FASTER

More and more companies and engineers are now looking for the technology of fast simulation which is not pursuing for high accuracy but to support qualitative judgement, in order to accelerate the product development cycle.

Depends on the how fast and how quick fast you need, we can also classify them as instant simulation and fast engineering.

Instant simulation

Normally those method can simulate result within seconds. It is extremely useful for design engineer to decide the approaches in early concept stage. E.g. like ANSYS Discovery.

Fast Engineering

With those method, the simulation normally can be finished in minutes, it still use traditional simulation model but with lots of simplification to get result quicker. The quick moulding simulation tools here actually is one of the them.

2. QUICK INJECTION MOLDING SIMULATION BY MOLDEX3D

From Moldex3d R16, there is some new method available for quick injection molding simulation

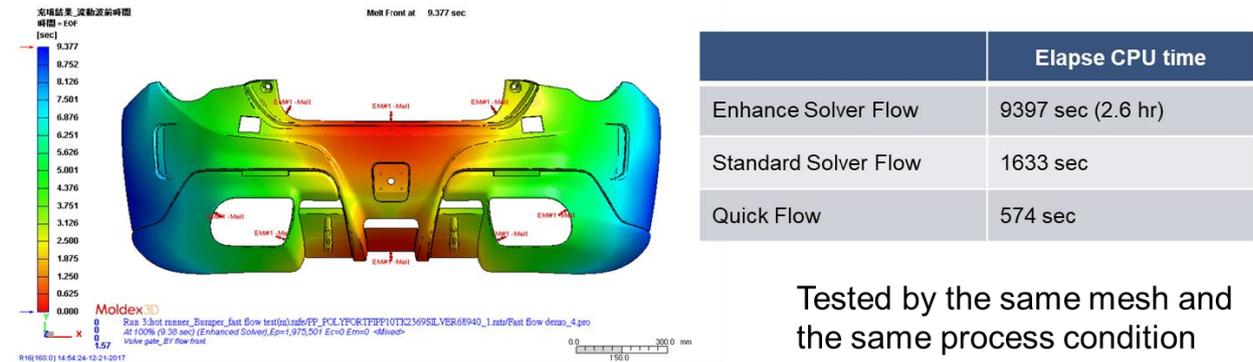


Figure 1 – comparison of flow calculation (courtesy of CoreTech System Co., Ltd)

Furthermore, to implement whole process easier and faster, we also connect the ANSA and META with Moldex3D by API tools.

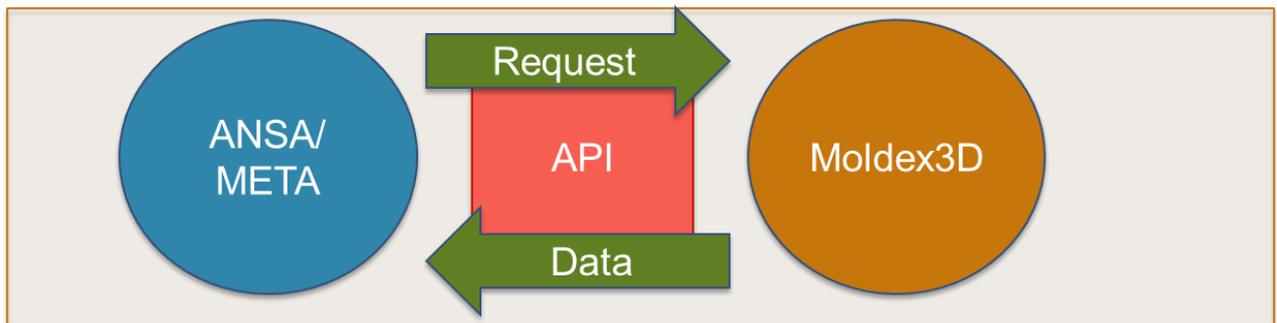


Figure 2 – Connect Moldex3D and BetaCAE software by API

The presentation will introduce detail about the connection and accuracy compare

REFERENCES

- (1) ANSA version 19.1.1 User’s Guide, BETA CAE Systems, 2019
- (2) Moldex3D R16 User Manual, CoreTech System Co., Ltd, 2018