

NX EasyFill Analysis:

Mold flow analysis for plastic part designers

Benefits

- Optimizes plastic part designs and manufacturing process parameters
- Optimizes wall thickness for profitability
- Avoids short shot
- Manipulates weld line and air trap
- Reduces pressure drop
- Checks gate distribution for flow balance
- Recognizes part and mold design options early in the process

Features

- Fully embedded in NX so no additional training is needed
- Automatic 3D mesh is generated so no user intervention or CAD conversion is required
- Comprehensive plastic materials database (over 5,000 material grades)
- Intuitive interface for specifying molding parameters
- Pioneering 3D technology for more accurate results rendering and smart animations
- High performance 3D filling simulation supported by parallel computing

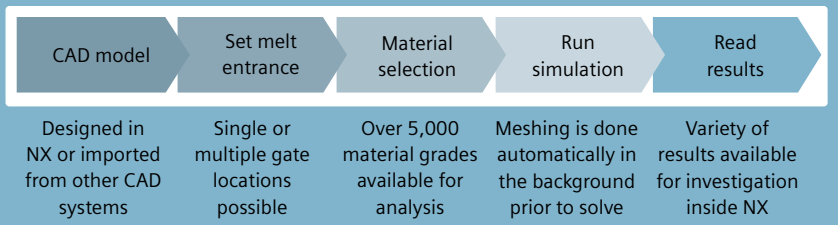
NX™ EasyFill Analysis, powered by Moldex3D, is an integrated mold flow simulation tool for designers to analyze plastic part design for moldability during the early stage of the product development process. EasyFill Analysis provides all the capabilities product designers need to easily perform plastic flow simulations within the NX environment. Designers can easily set up and perform an analysis with only a few clicks.

NX EasyFill Analysis is a combination of Siemens PLM software and Moldex 3D technology that was developed to provide a powerful plastic mold flow analysis inside NX.

EasyFill Analysis provides designers with intuitive injection molding simulations fully embedded in NX. It enables you to easily determine if manufacturing defects would occur in your design environment. This intuitive design validation tool allows you to simulate and visualize how plastic is injected to fabricate a plastic part.

Additionally, you can evaluate molding related issues that significantly influence the quality of plastic parts, such as cooling time or melt front temperature. It also enables you to make changes upfront to optimize part design, gate number/locations, material selection or process conditions. Ultimately, NX EasyFill Analysis helps designers efficiently achieve higher quality and lower costs.

Rapid filling simulation for CAD designers



NX

Answers for industry.

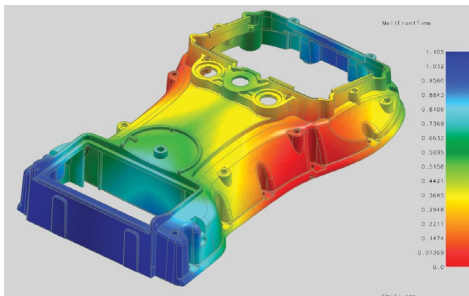
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NX EasyFill Analysis

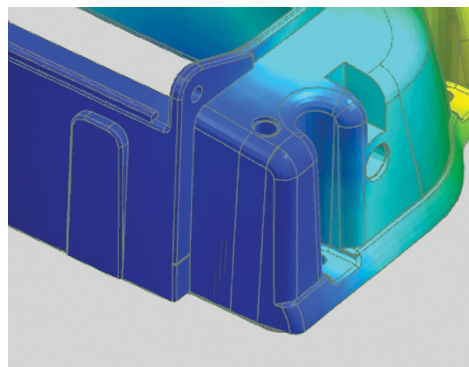
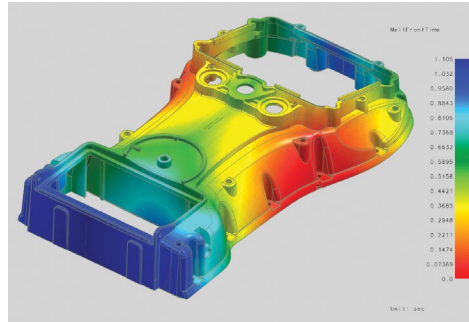
Capabilities

Automatic meshing and injection knowledge EasyFill uses proprietary automatic meshing technology that generates high-quality 3D analysis meshes from NX part models. No user interaction or knowledge of analysis modeling is required.

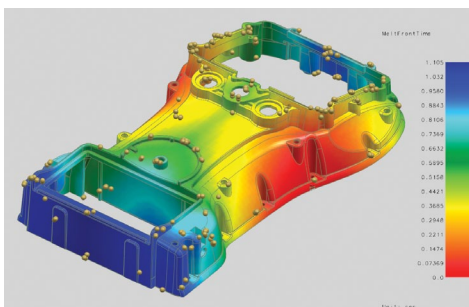
Melt front time simulation NX EasyFill helps designers explore the filling pattern of the mold by simulating melt front time. It checks for potentially incomplete filling and unbalanced flow flashing problems, identifies weld line and air trap locations, and much more. With the prediction of melt front time from the field plot, users can check the filling dynamics with the animation function to understand how well the filling process is working.



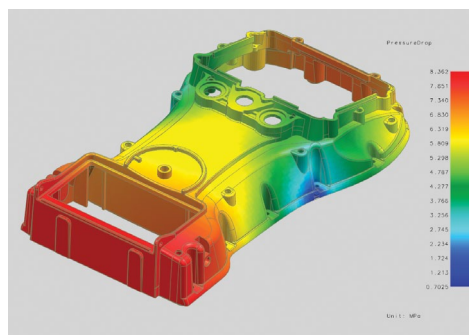
Weld line simulation Different flow patterns also lead to a wide variety of weld line results, which can cause cosmetic blemishes or structural issues in parts. With NX EasyFill Analysis, you can observe the results and optimize gate locations.



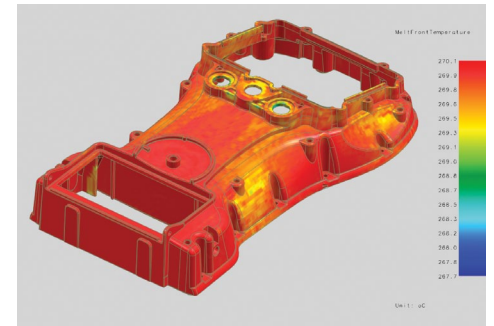
Air trap simulation Designers can use NX EasyFill Analysis to visualize the position of air traps in the molding process. Different flow patterns cause a wide variety of air trap results, and EasyFill Analysis enables you to adjust venting designs to avoid such problems.



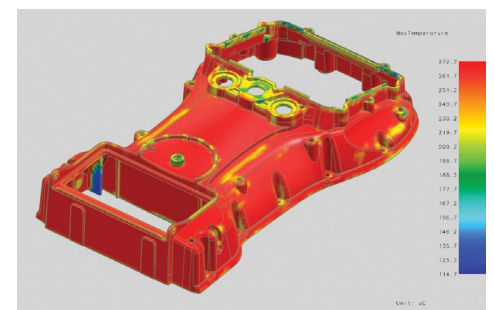
Pressure drop analysis NX EasyFill Analysis simulates the drop in pressure at the flow front of the plastic due to drag and frictional effects in the mold. The pressure drop simulation displays the pressure distribution of the part cavity at the end of filling (EOF) stage. From the pressure distribution, you can check the pressure transmission and evaluate the flow balance of the design.



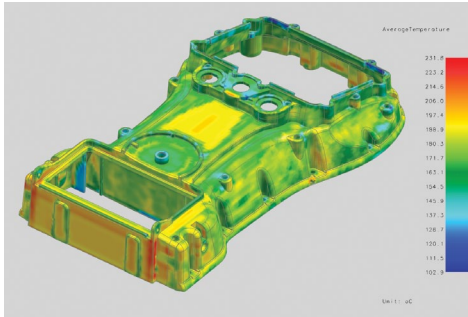
Melt front temperature prediction NX EasyFill Analysis predicts the melt front temperature as it reaches each point in the mold cavity, simulating how heat is conveyed and dissipated in the molding process. The results help designers identify areas of excessive heating or cooling, and to determine the appropriate fill speed for uniform temperature distribution.



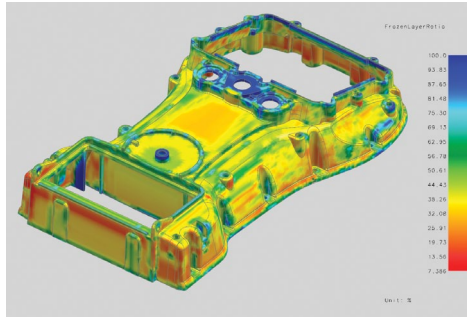
Maximum temperature EasyFill calculates and displays the maximum temperature distribution during the filling process. Designers can readily assess the temperature distribution in three dimensions for the full cavity.



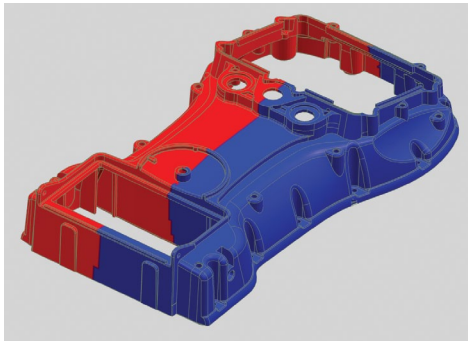
Average temperature With NX EasyFill's average temperature simulation, designers can check the combined effects of viscous heating of polymer melt and mold cooling across the part thickness at any instant. The results help identify hot spots that could cause burning, or short shots due to flow hesitation or excess mold cooling.



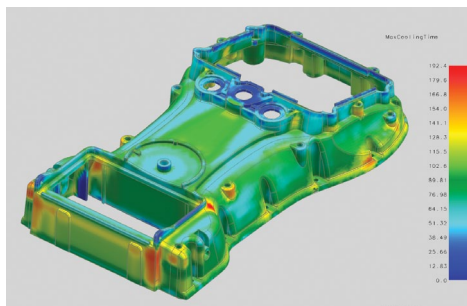
Frozen layer ratio EasyFill simulates solidification of frozen layers near the cavity surface caused by cooling. Designers can use the frozen layer ratio results to assess the reduction in flow path cross-section, increases in flow resistance and sprue pressure, residual stresses and impacts on flow-induced orientation.



Gate contribution simulation EasyFill calculates each gate's percentage of total plastic flow into the cavity. Designers can use the result to achieve better flow balance for improved product and process quality.



Maximum cooling time analysis The maximum cooling time calculated by EasyFill Analysis shows the estimated cooling time required under the given design and process conditions. This is the time estimated from cooling analysis for the computed mold cavity surface temperature and the estimated center temperature of the plastic part to be cooled enough to be ejected. This value can be used as an indicator of hot spot and cycle time-restriction locations.



High performance parallel computing

NX EasyFill Analysis supports parallel computing and can be used to reach the maximum acceleration by fully using each core of modern CPU architectures (maximum 4 cores).

Packaging and availability

EasyFill Analysis is available as an add-on software application for NX Gateway and NX Mach Series solutions that run on Windows operating systems.

Functionality matrix

Capabilities	NX molded part validation (NX30688)	NX EasyFill (NX30155)
Material grades	5,000+	5,000+
Gate number	Single	Single or multiple
Melt front advancement	Yes	Yes
Airtrap	No	Yes
Weld line	No	Yes
Gate contribution	No	Yes
Cavity pressure drop	No	Yes
Melt temperature	No	Yes
Maximum temperature	No	Yes
Average temperature	No	Yes
Frozen layer ratio	No	Yes
Material orientation	No	Yes
Maximum cooling time	No	Yes
Multi-core support	Yes (max.4)	Yes (max.4)

The product is available for download from: <http://ftp.ugs.com/unigraphics/moldwizard/>. Download two files from NX 8.5 folder: *easyfillnx8.5.README.TXT* and *easyfillnx8.5_data.zip*.

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