QUANTORFORM

QFORM VX

QForm VX is the only program available that integrates die design and simulation.

The new QForm VX extrusion simulation program builds on the unique architecture, data structure and interface its popular predecessor, QForm V8 metal forming simulation software. The new program introduces novel simulation methods that achieve the best performance and accuracy in the industry. QForm VX, combined with our QExDD program, provide quick and easy die design integrated seamlessly with simulation.
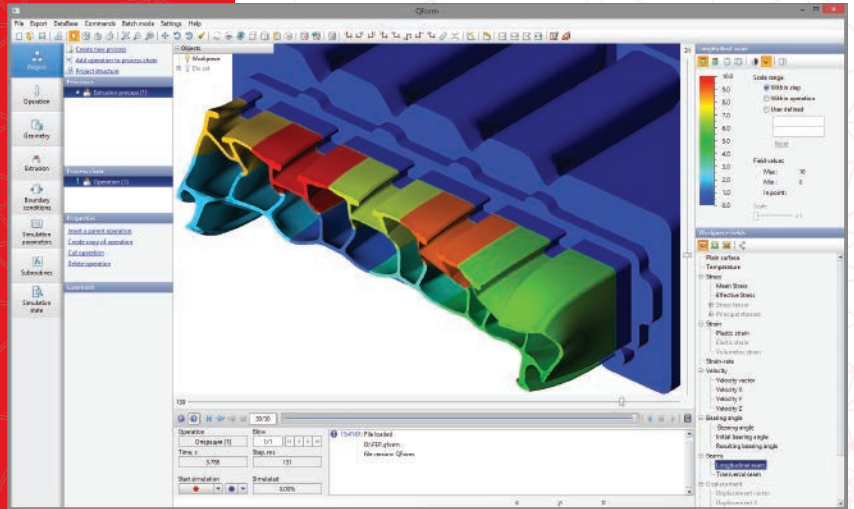

WHAT MAKES QFORM VX UNIQUE?

QForm VX is the only extrusion simulation program that calculates material flow fully coupled with the temperature and deformation of the dies. It is well known that die deformation can have a significant impact on the material flow. QForm VX takes into consideration the displacement and distortion of tool surfaces, especially in the bearing area and simulates the material flow through this deformed shape of the die orifice. This exclusive feature of QForm VX provides the most accurate simulation of extrusion processes even for the most complicated die designs.

Numerous industrial cases have shown that die deformation can cause choke and relief zones in some parts of an initially straight bearing that cause drastic changes to the material flow pattern. Only a fully coupled simulation by QForm VX guarantees accurate results in such cases.

The practical industrial knowledge of leading die makers combined with the highly sophisticated computational methods of QuantorForm Ltd., who has been producing metal forming simulation software for more than 25 years, have resulted in a unique program that virtually eliminates the need for die corrections, reduces product development cycles, minimizes costs and improves product quality.
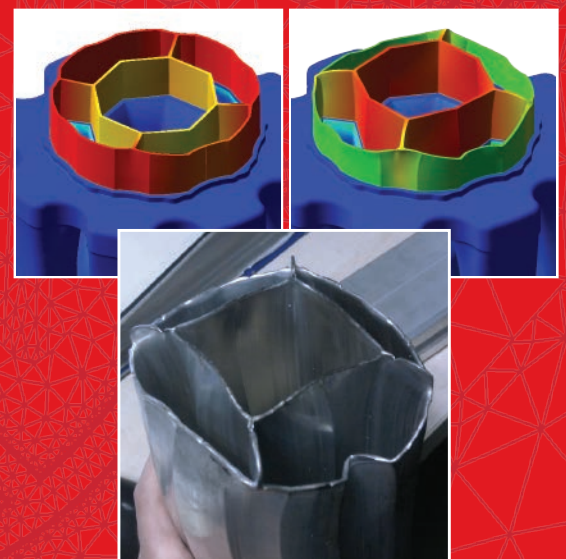
Simulation results with «rigid» die (left) and «coupled» deformable die (right) compared to actual profile front tip (center)
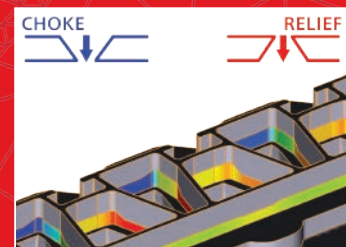

Choke (blue) and relief (red) zones due to bearing surface inclination displayed in simulation

Automated die design integrated with simulation
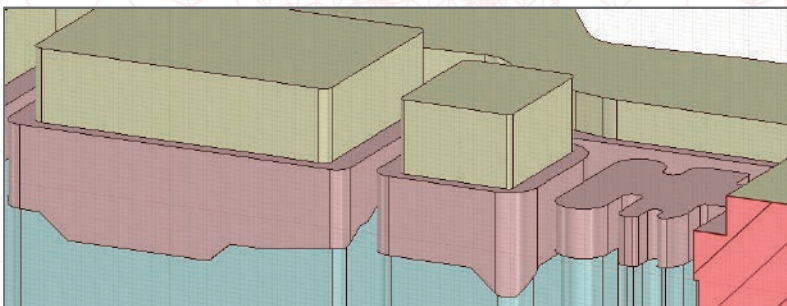
QExDD

QForm Extrusion Die Designer

QForm VX achieves maximum performance when used with our unique program QForm Extrusion Die Designer (QExDD). QExDD is an automated system for generating 3D designs of dies, mandrels and other parts of the tooling set for extrusion of hollow and solid profiles. This system speeds up the design procedure several times by helping to create a solid model of a tooling set step-by-step using special parametric design tools. It also provides the highest quality solid models that can be used for simulation in QForm VX and then after virtual correction and verification, used for CNC machining. This integration of die design and simulation completely revolutionizes the development of extrusion dies.

QExDD provides automatic conversion of standard 2D drawings of the base geometry into 3D bodies. All routine steps of 3D model creation are automated, even for very complex relief geometry, which significantly reduces the time required for die design.
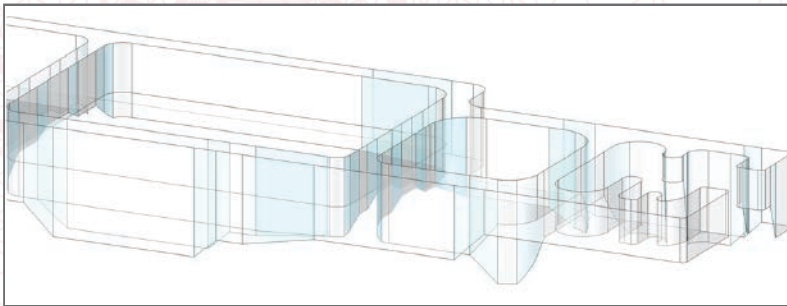
The unique bearing design module automatically creates bearings in less than a minute. The parametric bearing designs are automatically converted into solid features to be used for simulation and CNC machining.

The finite element mesh used for simulation in QForm VX is automatically generated in the solid model of the die set created by QExDD. Element size and other parameters are specified automatically by the program so the user only needs to input basic process parameters like selection of extruded material, billet and die temperature and ram speed.
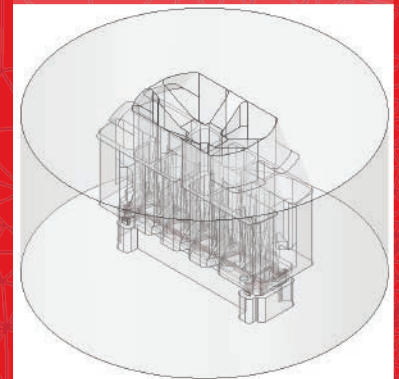
2D drawing
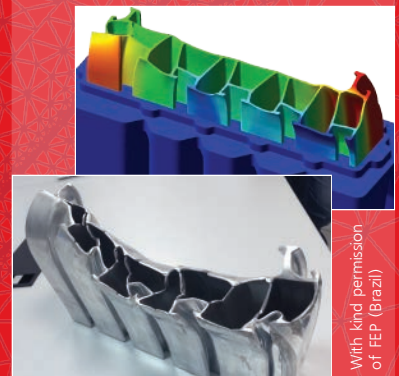Create new drawings or import existing drawings of a dieset
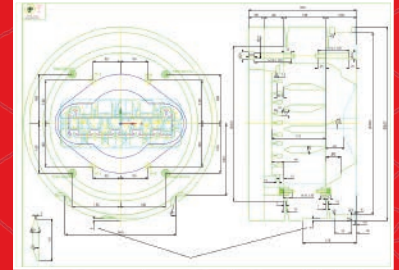
3D model
Automated design and preparation of 3D geometry

Simulation and optimization
The most accurate simulation and optimization of the process

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