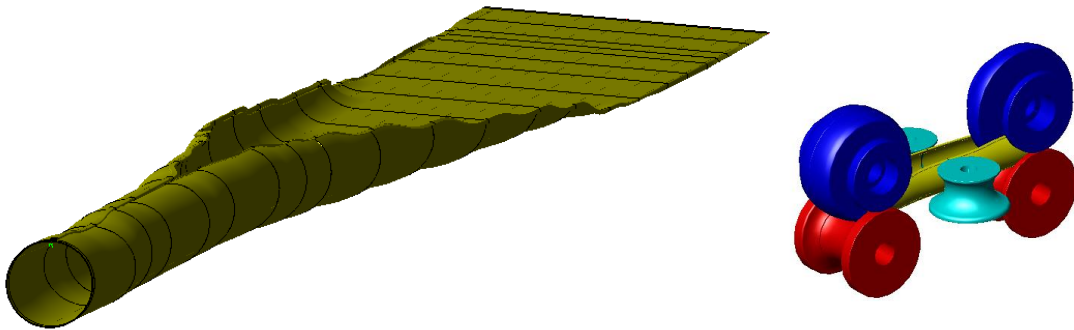


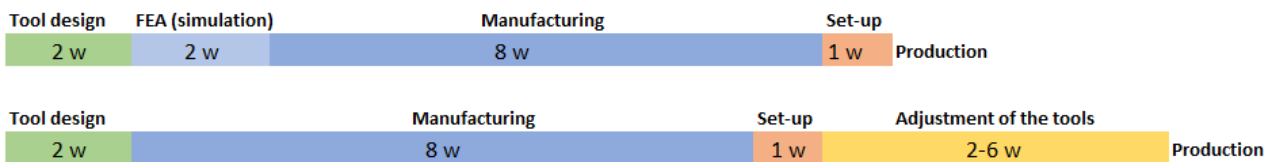
Tooling and analyze service

Roll forming engineers with over 45 years combined experience will assist you with the development of new products



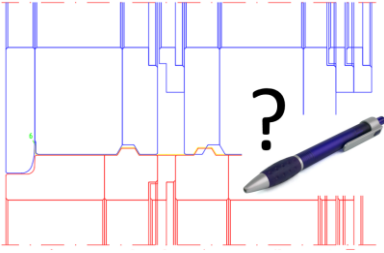
How this helps you earn more money!

Exemple, time schdule for a tooling process with our without FEA (week = w)



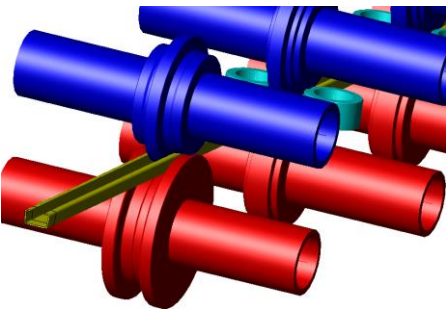
- ORTIC will help you to save week of valuable production time
- ORTIC will help you to minimize the risk and the time from idea to production with FEA
- ORTIC has make special solutions for customers since the eighties
- ORTIC tool design department have over 45 years combined experience
- ORTIC use the latest software for roll forming tool design
- ORTIC can save money for you to investigate your already existing process
- ORTIC use FEA simulation to optimize your roll forming process
- ORTIC has a workshop with turning mills that can quickly help you with spare tools
- ORTIC has service team that can maintain your tools and roll forming machines

Your partner in the tooling process from idea to production of profiles



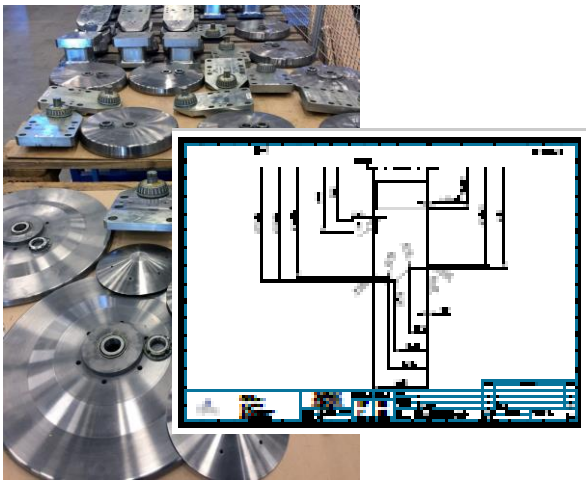
Idea

- Roll forming or not
- Type of roll forming machine
- Pre or post punching



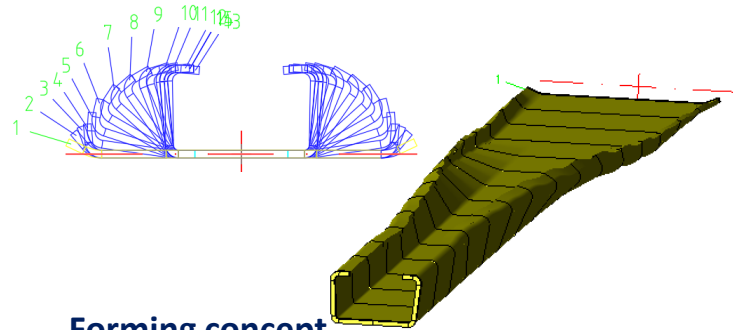
Tool design

- Combination of tools for different profiles
- Type of tool steel
- Surface treatment for less lubrication



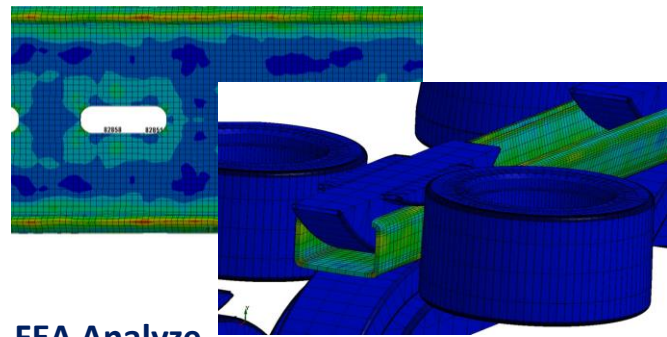
Manufacturing

- Make drawings
- Cutting list
- Production of tools.



Forming concept

- Number of forming step
- Flower pattern
- Strip width calculation



FEA Analyze

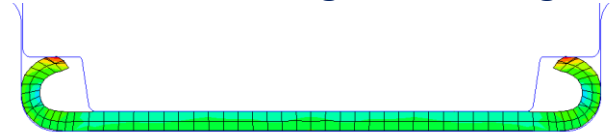
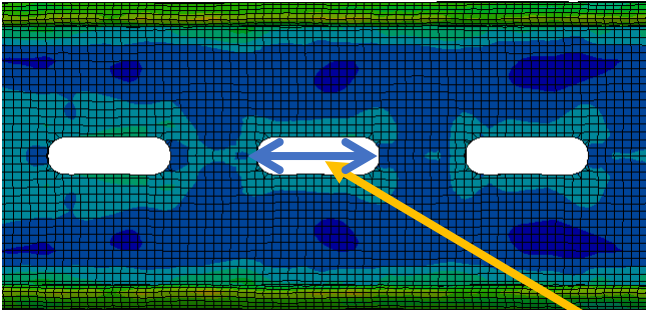
- The tool design is good enough
- Forming forces
- Geometry of the profile



Installation and production

- Assembly the tools
- Fine tuning of the profile
- Start the production

Example: Undesirable deformation of the pre-punched hole during the forming



FEA simulation of pre-punched material

Problem: The length of the hole increase during forming with existing tool set

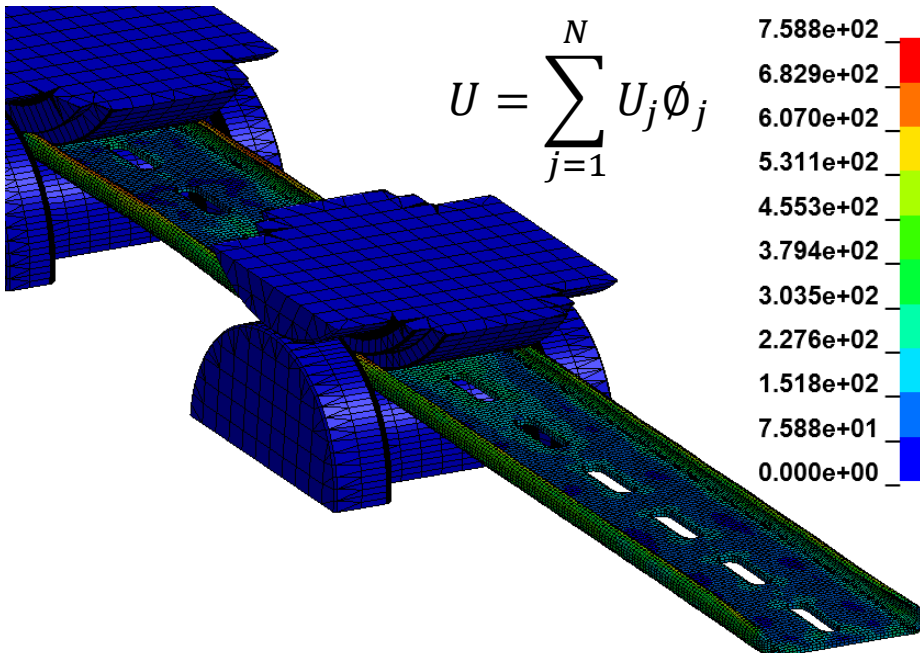
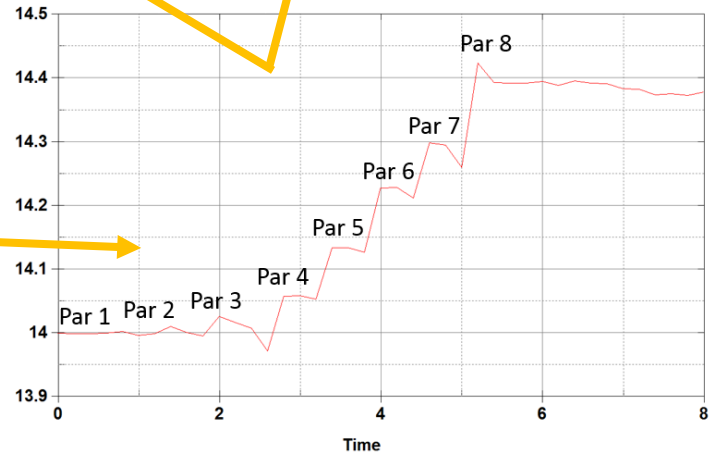
Question: New tools or new punching tool

Result: FEA simulation of the new tool design show still that the length of the holes increase from 14 mm to 14.4 mm do to few forming step

Solution: New punching tool with holes 0.4 mm closer to each other

Benefit:

- Save about 10 weeks of production and test of new tools without get any improvement.
- Save cost for the new tools set



Example:

FEA analyze to investigate the forming force for the machine design

FEA simulation of forming forces

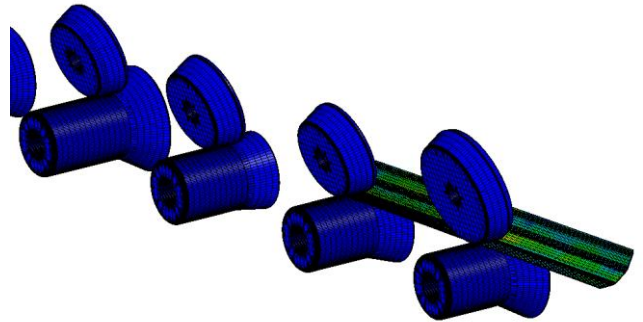
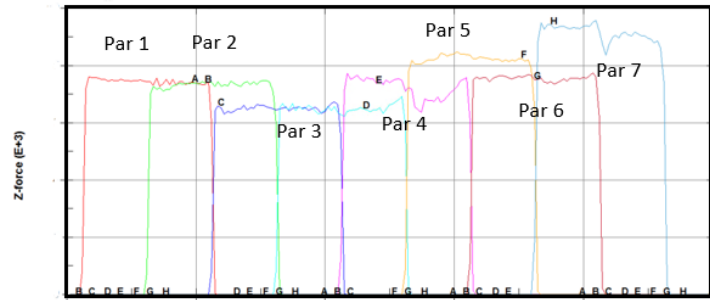
Question: Can existing roll forming machine roll form thicker material or high strength steel without do and modification of the machine

Result: FEA simulation shows that the forces are in the same level in all forming passes, no need to change the forming. But the force increase 2 times if the thickness of the material increase from 2 mm to 3 mm

Solution: Possible to use existing machine

Benefit:

- Not break the machine with too high force
- Save cost for the machine break down



Example:

3D roll forming, from idea to prototype

FEA simulation of forming forces

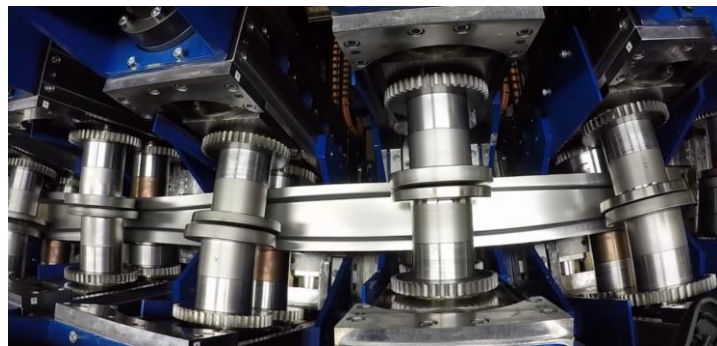
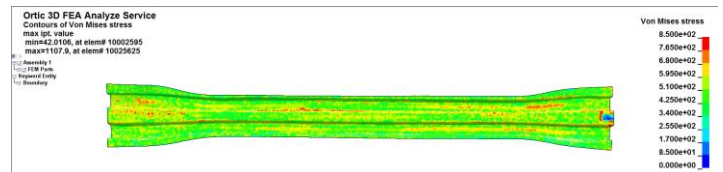
Question: Is it possible to use 3D roll forming to produce C-bow in roof of a car

Result: FEA simulation shows the tool design works and the machine can produce the profile without any collision occur in the machine

Solution: Use existing control data form the FEA simulation to control the real 3D roll forming machine

Benefit:

- Optimize the profile design and control data for the machine with FEA, save a lot of test time in the real machine
- Test in virtual environment that is possible to use 3D roll forming and save a a lot of money to not build a machine for something that impossible to do



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