



Automatic optimization

You need to optimize your process? Discover the solutions for identifying an ideal billet for complete and flawless filling or a tooling design that minimizes stress. No more long and boring trial plans. Choose automatic optimization!

FORGE® automatic optimization is an extremely effective tool.

Thanks to its genetic algorithm, you can automatically vary an entire range of process parameters (billet dimensions, tool shapes, billet positioning, etc.). This

way you will be able to identify the best conditions for optimally forming your part. In addition, you will study parameter identification techniques using reverse analysis as well as couplings with CAD environments for designing blockers and tooling.

LEVEL



Advanced - Users willing to master automatic optimization principles so as to achieve reliable and efficient use.

PREREQUISITES



- A good grounding in the use of FORGE® is required.**
- A perfect knowledge of the process is essential to determine what you want to optimize and how.**
- You need to know the chaining and transitions concepts.**

GOALS



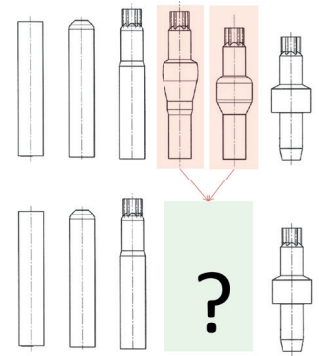
- Understanding optimization concepts and terms: genetic algorithm (individuals and generations), minimizable, constraints and parametered action**
- Optimizing industrial processes**
- Reducing billet volume and finished part defaults**
- Identifying parameters by reverse analysis**
- Coupling optimization with CAD (PTC Creo Parametric, SolidWorks and Catia)**



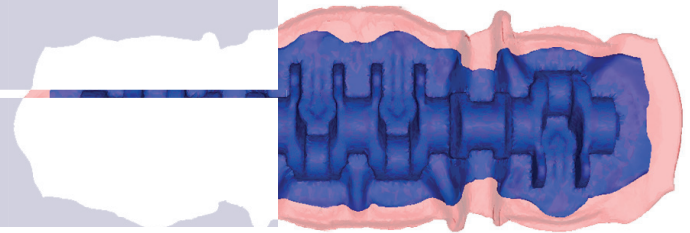
DURATION		DATES 2023	
1.5 days	07-08 March	29-30 June	07-08 November
TRAINING		PRICE EXCL. TAX	PARTICIPANTS
Inter-company		1050 € per person	3 to 8 people
In-company		2250 € per training	1 to 3 people

DAY 1 > 8.30 a.m. to 12.00 p.m. & 1.30 p.m. to 5.00 p.m.

Introduction	<ul style="list-style-type: none"> - Transvalor presentation - Course goals
Reminders on chaining	<ul style="list-style-type: none"> - Chaining concept - Transitions - 2D & 3D chaining
General concepts	<ul style="list-style-type: none"> - Automatic optimization concept - Individuals and generation notions - Definition of a minimizable - Definition of a constraint - Definition of parametered actions
Optimizing the 2D billet volume	<ul style="list-style-type: none"> - Setup - Analyzing optimization results
Optimizing a 3D rolled blocker	<ul style="list-style-type: none"> - Setup - Launching computation - Analyzing optimization results
Determining a friction factor	<ul style="list-style-type: none"> - Defining the case - Setup - Interpreting the results
Determining rheology by reverse analysis	<ul style="list-style-type: none"> - Defining the case - Setup - Interpreting the results



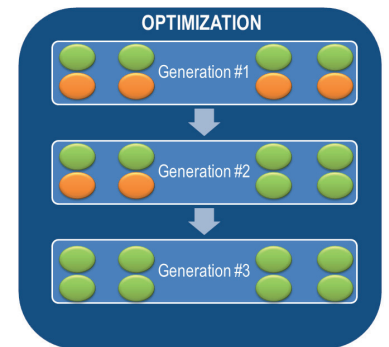
Optimization of a forging sequence



Original design (in red) vs Optimized design (in blue)

DAY 2 > 8.30 a.m. to 12.00 p.m.

Determining a heat exchange factor	<ul style="list-style-type: none"> - Defining the case - Setup - Interpreting the results
Coupling optimization with CAD	<ul style="list-style-type: none"> - Coupling concept - Example of use with PTC Creo Parametric - Example of use with SolidWorks
Innovation	<ul style="list-style-type: none"> - Optimization with discrete values - Optimization with Design Of Experiment
Conclusions	<ul style="list-style-type: none"> - Questions and course assessment



Genetic algorithm