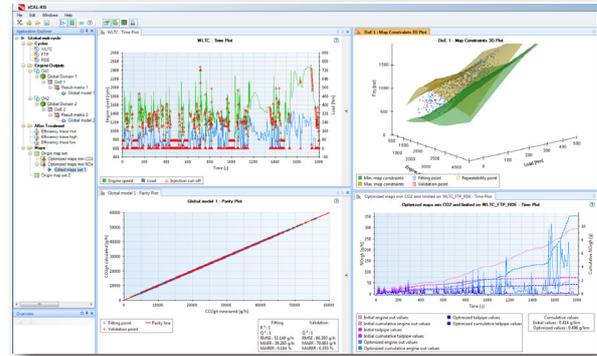


xCAL-KG - MODEL BASED CALIBRATION SOFTWARE

» THE BEST FRIEND OF THE ENGINE ENGINEER FOR PERFORMING EFFICIENT ENGINE MODEL BASED CALIBRATION



xCAL-KG is well adapted to speed up CAE based optimizations, reducing the number of needed simulations to find an optimized solution!

Originally designed to share the calibration knowledge into a unique and easy-to-use tool, it is today a state of the art model based calibration software which assists the engine engineers during every step of a calibration project requiring advanced methods such as design of experiments, modeling and optimization.

With xCAL-KG, the overall calibration process duration is reduced and allows your company to reach a new step in term of fuel consumption, NVH and emissions reduction. Furthermore the CAE process is significantly improved by considerable reduction of simulation effort.

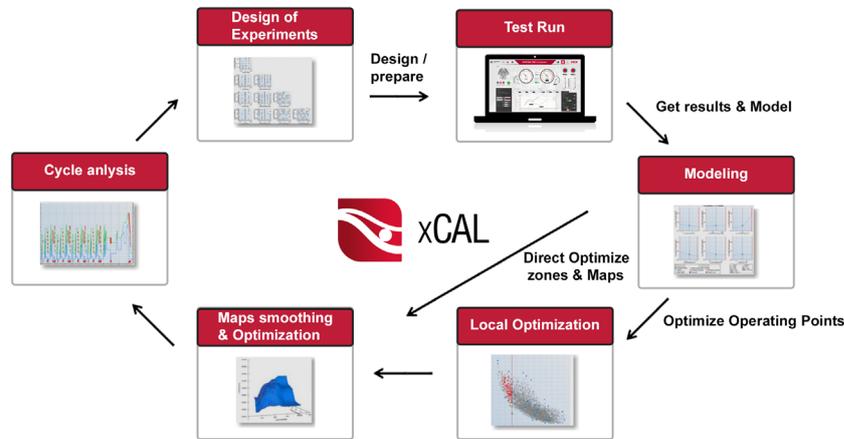
Benefits

- > Structuring: the workflow leads the work according to the calibration process
- > Flexible: multiple calibration approaches inside including cycle prediction capabilities
- > Integrated: gather all important data and save results generated within the project
- > User-friendly: data oriented interface providing guidance to the calibration engineer
- > Advanced: providing innovative algorithms such as fast high accuracy modeling and optimization
- > Independent: no need of any third party application or toolbox
- > Open: the generated DoE-models can be reused in other applications like Simulink/Excel or in real time in MORPHEE Automation System

Applications

- > Wide range of applications: Diesel and gasoline engine calibration as well as gear box calibration and simulation.
- > Automatic test plan generation, possibility to design domain from measured boundaries.
- > Ready-to-use optimized calibration maps.
- > Engine out emissions optimization taking into account aftertreatment efficiency and tail pipe emissions targets.

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Technical Data

General features	
Operating systems	Windows 7 (optimized 64 bits)
Software	Standalone (independent from other software and licenses)
GUI	Data oriented platform
File format	Dedicated .calib file containing all data that can be shared and transferred...
Exported/Imported data format	Csv, txt, damos (maps)
Hardcode	Multi-task, multi-core, multi-threaded, multi-instance
License	Dongle or floating
Cycle analysis	
Study one or several desired cycles, and choose multiple engine control strategies at your convenience Analyze engine operating points / zones selection and automatically calculate a weighting Visualize most important engine operating points / zones and validate your choices with experimental data	
Domain definition	
Generate automatically advanced domain definition from test bed results Model the engine domain constraints according to boundaries testing and avoid unfeasible experiments Reedit engine domain at your convenience, and combine multiple constraints sources	
Design of Experiments	
Choose the best test matrix suited to your problem and reduce the amount of testing Visualize and check easily experiments according to domain definition Run the "test bed ready" matrix integrating validation, repeatability experiments, sorting, etc	
Modeling	
Study one or several desired cycles, and choose multiple engine control strategies at your convenience Analyze engine operating points / zones selection and automatically calculate a weighting Visualize most important engine operating points / zones and validate your choices with experimental data	
Optimization	
Multiple constraints optimization with local and global multiple cycle based targets, engine-out and tail-pipe Evaluate our optimums for robustness to engine dispersions Compare your optimums with reference and experimental data from test bed or chassis dyno	
Maps	
Integrate and smooth local optimums or directly optimize maps in one step with a cycle target Visualize predicted instantaneous and cumulated engine-out and tail-pipe emissions on the cycle Fine-tune your final maps and validate results with experimental data	

Technical specifications may be modified without prior notice.

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