Overview Services:

Optimization of Production Processes

We offer you to support your team in your production, whenever you want

- to make your production processes more efficient and cost saving;
- to end problems in your production;
- to continuously improve the quality of your products.

So we recommend our services whenever you want to optimally meet the demands of markets.

We support you using methods of systems engineering that can be applied in any industry, to systematically find all theoretical solutions for a problem. Based on that we apply reliable approaches of mathematics, statistics and soft computing to make technical as well as economical models to evaluate these alternatives and select the best solution.

Finally professional methods of project management and our know how in many areas of process and production technology guarantee an efficient and successful realization.

A mutual project may contain one, some or all of the following steps. Of course, we match the scope of our services in each step to satisfy your specific demands:

1.   Definition of Objectives

- Definition of the demanded properties of the product
  and the necessary conditions of the process

2.   Preparing the Optimization of Production Processes

2.1. Selecting the Best Projects

- Checking available data on completeness and consistency (product data, process data, SPC, supplier specs, etc.)
- Methods to identify profitable projects:
  Analysis of constraints, rough project planing, estimation of profitability
- Methods to select the best projects:
  Detailed project planing, feasibility (calculation of profitability)

2.2. Preparatory Works

- Analyzing the performance of measuring instruments
- Theoretical and scientific investigations

3. Process Optimization Based on Available Process Data

- Investigation of available data on the applicability of methods of mathematics, statistics or soft computing
- Building technical models from available data using appropriate methods of mathematics, statistics or soft computing
- Building economic models
- Determining the theoretical economical and technical optimum
- Validation of the modeled optimum:

  Scientific calculations and confirmatory experiments

4. Process Optimization Based on Systematic Generation of New Process Data

4.1. Preparing the Design of Experiments

- Determining all relevant process parameters and estimating their influence on the process
- Shainin methods to localize problems
- Selecting parameters and determining their levels

4.2. Design of Experiments

- Screening experiments (if necessary):

  Determining the essential process parameters
- Designed experiments:

  Determining the relationship between goal-values and the essential process parameters
- Making further designed experiments (if necessary):

  Determining the influences of additional process parameters, investigation of strong interrelations between process parameters or detailed experiments to precisely find an optimum

Experiments may be carried out by personnel of the client or personnel provided by us. Yet we recommend the we control experimentation at least a temporarily.

4.3. Interpretation of the Results of the Designed Experiments

- Building mathematical models - economic and technical
- Determining the theoretical economical and technical optimum
- Validation of the modeled optimum:
  Scientific calculations and confirmatory experiments

5. Realization of the Optimum

- Determination of new set points for process parameters
- Actualizing SPC:
  Determination of control warnings and control limits
- Elaboration of out of control action plans
- Determining indicators and anticipating indicators in correspondence with reference numbers and objectives for divisions and the entire company
- Adaptation of all relevant documents:
  Supplier specs, process and product documentation
- Training of Personnel
- Permanently controlling and sustaining success:
  Statistical process control (SPC), calculation and monitoring of indicators and anticipating indicators, auditing

Funding

We can find the optimal funding for mutual projects and can carry out application and coordination.