

**Optimizing your
 thermal-metallurgical process**

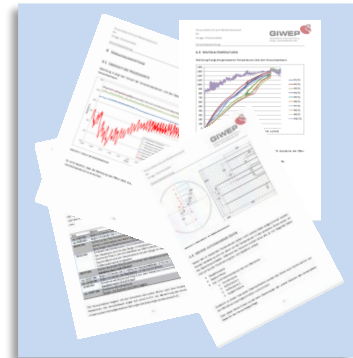
Services

Engineering

- Technological and conceptual consulting and project planning for installation and modernization of thermal-metallurgical plants
- Thermal calculations up to entire dimensioning of plants
- Studies on thermo-technical problems
- Evaluation of optimization and modernization potentialities at thermal-metallurgical plants

Measurements and examinations

- Measurements and examinations on thermal-metallurgical plants
- Process data analysis
- Evaluation of current plant status
- Suggestions for improvements and extensions at the examined plants



Performance tests and certifications

- Execution of performance tests for the acceptance of thermal-metallurgical plants
- Measurements for the certification and supervision of heat treatment plants (such as TUS and SAT) according international and customer specific standards

Temperature measurement tests

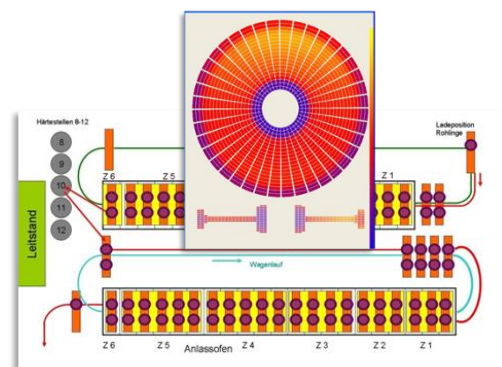
- Temperature measurement tests with own equipment at reheating and heat treatment plants
- Examination of heating process and heating quality
- Evaluation of the constructive, heating and control situation of the plant

Software development

- Solutions for individual tasks in industry
- Calculation tools in mathematical and physical contexts
- Realization of data and graphical user interfaces
- Development of data base and data analysis systems

Training

- Individual training for furnace plants, comprising:
 - Fundamentals of furnace technology and heat transfer
 - Thermal characteristics of metals
 - Energy balance and increase of efficiency of furnaces
 - Safety regulations for furnaces



Plant modernizations

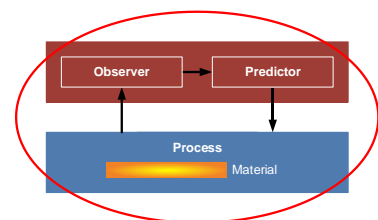
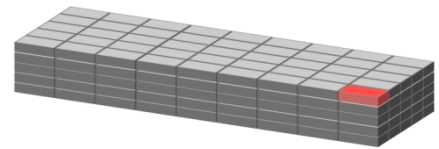
- Recording of actual plant state
- Planning, conceptual design, compilation of specification and project supervision
- Execution of modernization projects
- Maintenance and spare part service

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Products

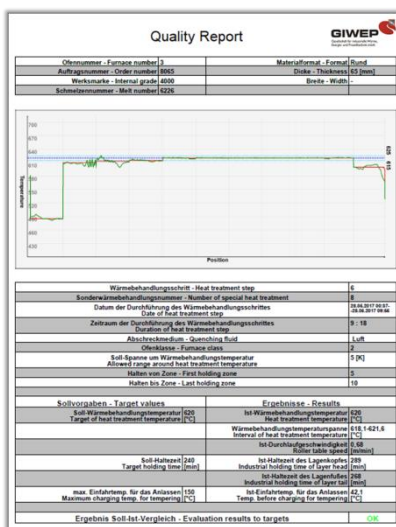
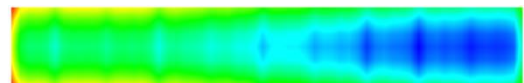
Process control system GIWEP-OFS

- Level 2 process control system for fully automatic operation of melting, heating and cooling processes, comprising:
 - Predictive, mathematical-physical model
 - Automatic model adaption by use of data mining and artificial intelligence
 - Intuitive visualization and operation
 - Presentation of process information on smartphones and tablets
- "Industry 4.0" for your thermal plant



Offline models

- Calculation of heating and cooling curves as well as three-dimensional temperature distributions in material
- Optimization of production sequences
- Evaluation and comparison of energy saving measures
- Determination of furnace layout and necessary firing capacity
- Calculation of obtainable furnace throughput and expected energy consumption



Software for quality data analysis

- Complete documentation of the production process in reheating and heat treatment plants (e.g. according to AMS, CQI-9, API, NORSOK etc.)
- Consolidation of all relevant information from the production process, including the results of TUS and SAT tests
- automatic checking and evaluation of the furnace process based on customer-specific quality requirements
- Automatic generation of the necessary reports for internal and external documentation
- Feedback to the production staff regarding necessary reexamination or reworking
- Connection to maintenance management

Measuring technology

- Selection of suitable sensors and evaluation devices
- Selection of suitable measuring positions in the plant
- Configuration and parameterization of the measuring devices
- Processing and plausibility check of measurement values
- Determination and execution of maintenance measures for the preservation of the functionality and accuracy of the measurements

