



## Training Program in Heat Treatment.



### The right skills means higher quality

That your employees have the correct level of expertise is a requirement for ensuring effective heat treatment processes function and the production of the expected results. It is just as important that production is optimized in a technical sense. Today's high quality and productivity requirements leave no margin for errors, which is why competent operators and production technology engineers are very important pieces of the puzzle.

### Training programs

FERRONOVA® process support offer courses to enhance your employees' skills. Two standardized courses, Heat Treatment Step 1 and Step 2 are given on a regular basis. On request, we also customize courses to suit your specific requirements in your preferred location. A customized course provides many employees with the opportunity to participate. The courses focus at heat treatment and gases safety information, but the course will be adopted to fit your needs. We offer trainings for a minimum of a half day and upwards. It is your requirements that guide the content and scope of the training.

### Skills development for all

- Furnace operators
- Supervisor
- Production technology engineers
- Designers
- Operation and maintenance personnel → Instrument engineers
- Process engineers
- Product development engineers

### Examples of training within FERRONOVA® process support

- Gases knowledge. The most common gases in the industry and their physical properties.
- Gases safety. Safety aspects for various gases, primarily fire, coolant, and suffocation risks.
- Safety in heat treatment. Safety aspects concerning personal safety, furnaces, purging, gases, atmospheres, and risk-prevention actions. Standardized safety requirements for industrial furnaces SS-EN 746.
- Teaching material basis. Basic metallurgical terminology and connection.
- Furnaces and furnace equipment. Different types of furnaces, distribution systems for gases, control, and regulation.
- Heat treatment methods. Thermal and thermo-chemical methods.
- Furnace atmospheres. Case hardening and carbonitriding, neutral hardening and neutral annealing, nitriding, and nitrocarburizing.
- Microscopy. Structure and operation.
- Material quality. Primarily general construction steel, free cutting steel, high speed steel, hardening & tempering steel, and carburizing steel.
- Measuring methods and terminology. Temperature, pressure, gas analysis, flow, oxygen probes, etc.

All training includes work assignments, course documentation and certification.



Teaching material is an element that can be offered in our training.



Our customer-adapted training can be carried out on-site at our customers' premises.