

Atmosphere Control System.

Optimum quality in stainless steel annealing.



Messer atmosphere control system technology

In stainless steel annealing, Messer's atmosphere control system monitors the atmosphere in continuous and batch furnaces and controls the amounts of gases introduced into the furnace (hydrogen and nitrogen). This system allows for an exact adjustment of the furnace atmosphere to different product qualities and ensures very good reproducibility.

Features and benefits

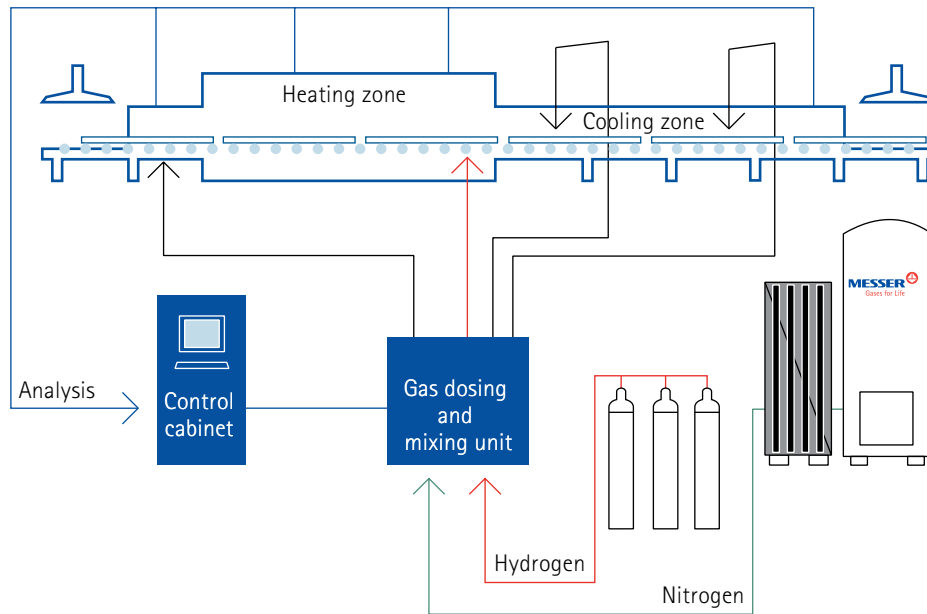
- Clean and bright product surface
- Active control of process parameters
- Full control of the supplied gas composition
- Homogeneous heating and optimal cooling
- Flexible N₂/H₂ ratio
- No precipitate formation
- Automatic safety purging
- Process alarms and safe operation
- Traceability

System overview

- Atmosphere supply with pure hydrogen mixed with nitrogen
- Analysis system for atmosphere monitoring in the furnace
- Gas flow control panel
- Operation with process recipes
- Process data logging
- Remote monitoring for hard- and software (optional)

Operation

Optimal process parameters for each annealing product are defined in a process recipe. The recipes are customized according to material quality, dimensional requirements, etc. However, fixed values for all vital process parameters are preset in the Messer's atmosphere control system in order to ensure that the requirements for atmosphere control and process safety are met.



Atmosphere supply and gas dosing and mixing unit

In stainless steel annealing, the control of the dew point and the gas composition (nitrogen/hydrogen) in the atmosphere are critical issues. Messer's atmosphere control system allows for a very low dew point while ensuring full control of the nitrogen and hydrogen levels in the atmosphere. The atmosphere control system ensures a precise flow and exact composition of the gases supplied to the furnace, providing exactly the hydrogen content that the system requires.

Messer's gas dosing and mixing unit controls the gas flows. In the event of safety-related alarms or a power failure, the hydrogen supply is automatically switched off and the furnace is purged with nitrogen.

Control cabinet

- PC with touch screen HMI
- PLC for precise process control (sampling and analysing equipment)
- Modem or LAN for remote access
- UPS



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