SAFED is specialized in continuous heat treatment equipment of serial parts.
Each production line is designed individually, to take into account each user’s specific requirements.

Technical data
- Useful belt width: 55 mm
- Useful height of duct: 15 mm
- Heated length: 600 mm
- Max. hardening output: 6 kg/h
- Connecting heating power: 11 kW
- Max. working temperature: 930 °C
- Number of zones with adjustable temperature: 3 (4 with Injector-M)
- Protective gas to be used: nitrogen-methanol

The furnace has the following advantages:
- The mesh belt conveyor allows the passing time to be regulated and accurate.
- The gas generator (Injector M) allows the dissociation of methanol within the furnace.
- The flowmeters for methanol and nitrogen allow the control of reduced consumption (option).
- Automatic device of nitrogen purge.
- The electric cabinet is equipped with a PLC Siemens S7 with touch screen.

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NEW: now available with a shaker hearth

For heat treatment of watch and micromechanic parts
Heat treatments in furnace type T9

- Austenitizing followed by direct oil quench
- Carburizing and carbonitriding followed by direct oil quench

These treatments are carried out under protective gas.

A conveyor belt ensures a regular passing time of the parts through the furnace. The passing time is constant and adjustable. Alternatively, the furnace can be equipped with a shaker hearth.

The parts are progressively heated up in a gas tight muffle. They are maintained at the required time and temperature before falling into the integrated quenching tank.

The muffle is crossed by a circulation of protective and diffusion gases. All processing parameters are adjustable and controlled, with accuracy.

Controlled atmosphere

The methanol is dissociated directly inside of the muffle by an integrated generator at the back of the furnace. A flowmeter set mounted on the furnace allows precise control of protective and additional gases according to the type of heat treatment required.

Heating chamber

The furnace has 3 individual, separately adjustable, heating zones.

By adjusting the temperature zone by zone, we get a profile adapted to the most varied requirements.

The heating elements are made of electrical resistances, coiled, with long lifetime. The temperature of parts is controlled and regulated until in the quench tank.

Quench tank

Different tanks can be used depending on the type of treatment:

- Tank with two rotating baskets, type Pa with drip parts and tank outlet by pneumatic cylinder
- Tank type P with fluid extraction system and recuperation of parts in two baskets at the front of the furnace

The following fluids can be used:

- oil up to 80 °C
- hot oil up to 150 °C

The fluid level is constantly maintained by spillway and pump circulation. The pump allows equally to get a homogeneous temperature.

The temperature of the quenching fluid is measured by thermocouple and regulated by the PLC.

Typical examples of application

- watch parts
- micromechanic parts
- springs
- fine stamped parts
- cutting parts
- needles

PLC SIEMENS S7

The PLC allows the following operation:

- Set of temperature values of the furnace and the quench tank
- Insertion of passing time, on/off position of motors, valves, etc.
- Displaying of temperatures and passing time
- Failures with date and time, state of alarms
- Monitoring of nitrogen and methanol flow (option)
- Record of 300 recipes of heat treatment (option)
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Additional SAFED equipments:
- Mesh belt conveyor furnaces for hardening, carburizing and carbonitriding
- Automatic loading systems, adapted to the parts being processed and the preceding production stages
- Transfer device such as vibrating tray and inclined belt conveyor
- Continuous washing machines equipped with a rotary drum or mesh belt conveyor for aqueous cleaning of parts before and after hardening
- Mesh belt conveyor tempering furnaces, with air circulation or under protective gas atmosphere, adapted to the output of hardening furnace

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