

Automatic control of rotary hearth furnaces operation

The control system of the furnace covers all the functions connected with every mechanism and power supply of particular energy receivers installed in the furnace. Set point process parameter values are introduced, indicating the temperature and carbon potential. The control system provides full visualization of the furnace operation, and signals failure conditions. Standard RER type furnaces are equipped with carbon potential control systems operating on the base of the oxygen probe.

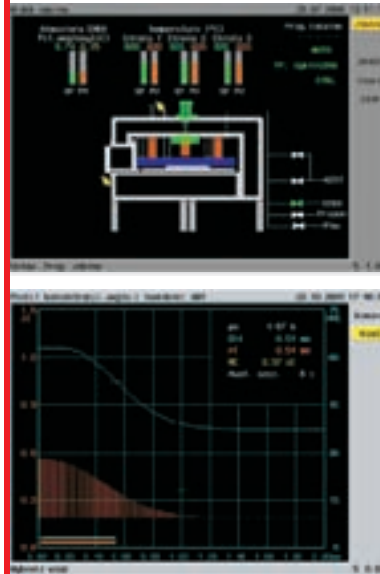
Control systems of each furnace can be connected to an advanced control system. Software of the system includes databases of material, heat treatment processes and treated parts. Key functions of the advanced control system include: monitoring of process, archiving and heat treatment process reporting.

Optional software of the advanced control computer system enables the following functions to be performed:

- ▣ Calculation of the carbon diffusion profile during carburizing in the "on line" mode
- ▣ Scheduling of the load queue
- ▣ Scheduling of service inspections.

Main advantages

- ⇒ Work flexibility and high reliability
 - ▣ easy service and maintenance
- ⇒ Economical
 - ▣ low consumption of technological mediums
- ⇒ High quality parts
 - ▣ no scale and decarburization
 - ▣ high repeatability of processes
- ⇒ Fully automated
 - ▣ quick loading and unloading of the load, with loading speeds as fast as every 30 seconds
- ⇒ Robust construction accommodates operation in industrial conditions
- ⇒ Safe operation
- ⇒ Conformity with the AMS 2750 standard



Universal Rotary Hearth Furnaces Type RER



WORLD CLASS HEAT TREATMENT EQUIPMENT FOR METALS

Technological applications

- Preheating before forging
- Preheating before hardening
- Annealing
- Carburizing

Typical load types

- Automotive industry: crankshafts, shafts, piston pins, gearbox components
- Aircraft industry: gear wheels, engine components
- Machine industry: shafts, sleeves, gear wheels
- Tool industry: saw blades, other tools
- Other subassemblies: casting moulds, forgings, fine parts on trays

Versions available

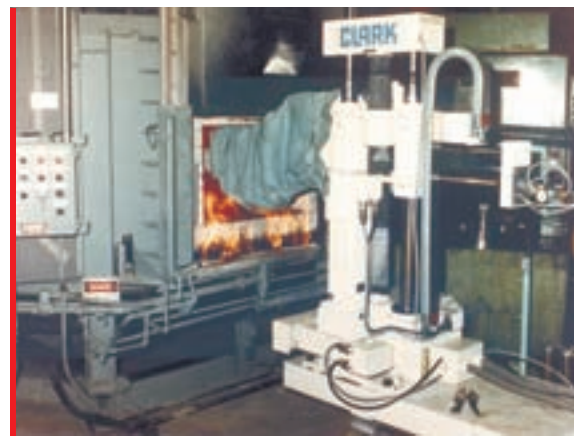
➤ Heating system

- electrically heated furnaces
- gas fired furnaces

➤ Atmosphere options

- furnaces to operate with controlled atmosphere or nitrogen atmosphere
- furnaces to operate with air atmosphere

➤ Loading options



□ Furnaces with Automatic Loading System



□ Furnaces with Manual Loading

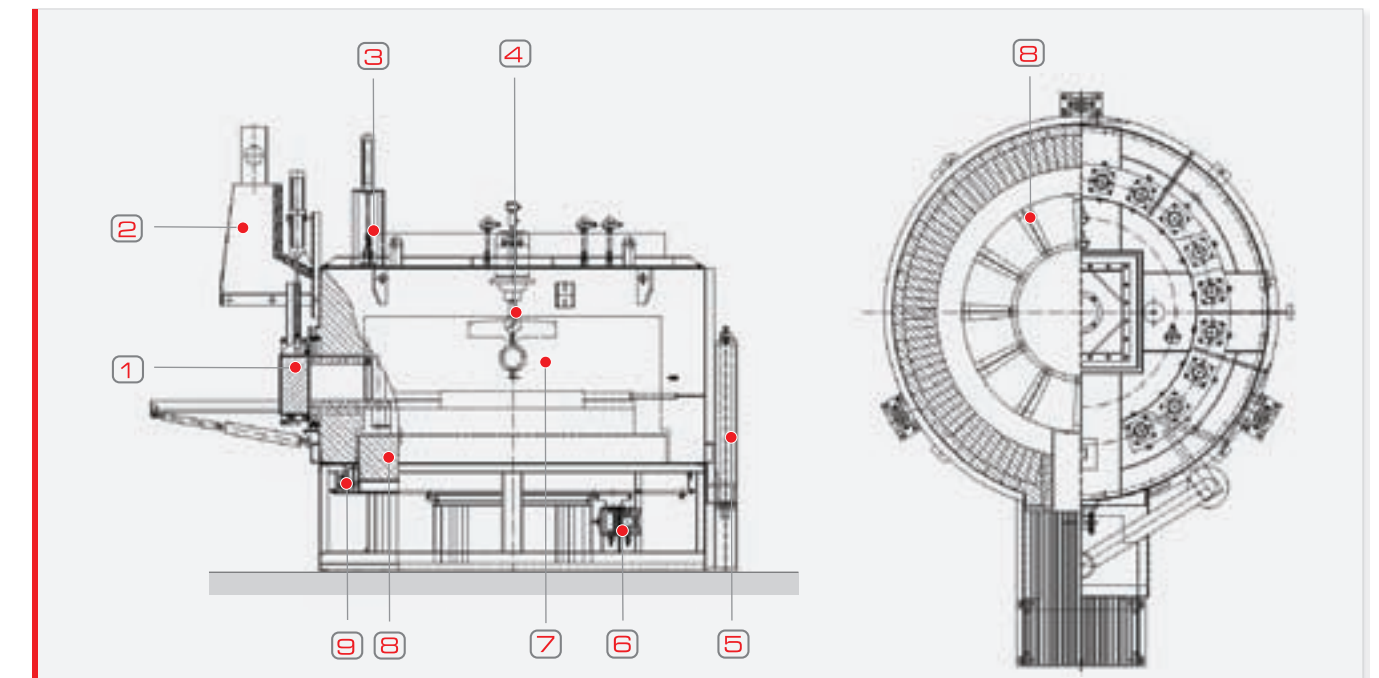


Key construction features of ELTERMA S.A. rotary hearth furnaces

Rotary hearth furnace construction combines advantages of both continuous and chamber furnaces. Rotary furnaces ensure continuous work flow with in compact design that uses a minimum of floor space

- Working temperature: up to 1350°C
- High temperature uniformity
- Overpressure control
- Step-less control of the hearth rotation speed
- Flexible operation

Universal rotary hearth furnaces type RER are equipped with the following main systems and subassemblies:



- 1 Loading – unloading door equipped in flame curtain
- 2 Fumes exhaust
- 3 Internal door limiting heat radiation on the casing and loading – unloading door sealing system
- 4 Compact high capacity atmosphere mixer ensuring uniform atmosphere circulation in the furnace
- 5 Mechanism of lifting the furnace casing for maintenance and rebuilds purposes
- 6 Hearth drive
- 7 Multi-zone heating chamber that ensures very good temperature uniformity and uniform heating of the load
- 8 Rotary hearth
- 9 Knife-type hearth seal