

SAFED

industrial furnace
solutions

Mesh belt conveyor furnaces BD type

Soft annealing, bright annealing, hardening, brazing, sintering



Reliability at work

ALCANTARA

Plant engineering by Experts

The type Bd mesh belt conveyor furnaces boast a mature basic concept. Our expertise in the field of plant engineering is the key to its highly reliable and versatile process engineering concepts.

SAFED's type Bd conveyor belt continuous furnaces for heat treatment with and without protective gas have been tried and tested for decades and constantly improved. If required by the process, the plants may be equipped with a gastight muffle.

Versions with electric and gas heating are available for a variety of temperature ranges. There are also a number of options for atmospheres and quenching.

The Bd series is available in four basic types.

- Bd : Plant with muffle and protective gas
- BdC : Plant without muffle and with protective gas
- BdL : Plant without protective gas
- BdLT : Plant without protective gas with discharge chute

Parts can be loaded in bulk, or positioned on the belt. Many years of experience and high quality standards are the secrets to building very reliable and durable equipment. We are continually optimizing its processes and engineering methods. The company's Research Department has devoted particular attention to investigating gasquenching.



SAFED's type Bd mesh belt conveyor furnaces cover a broad spectrum of industrial heat treatment processes. With our many years of experience and wealth of application-based expertise, we are also able to offer you customized systems.

WHATEVER YOU REQUIRE

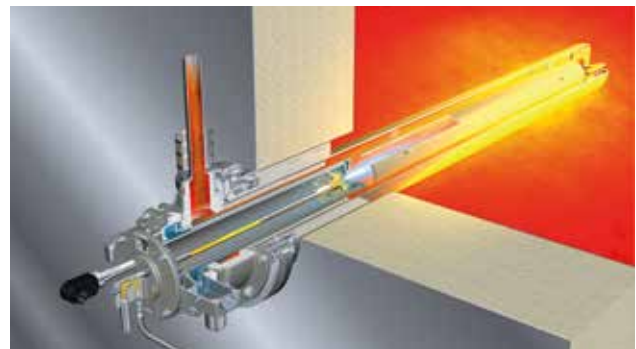
The processing parameters can be regulated with a high level of precision on the type Bd furnace, which can thus be equipped for a wide range of heat treatment processes.

- Hardening of stainless steel
- Nitrocarburizing by the SAFED OXYCAD® process:
High resistance to wear and low distortion characterize the SAFED gas-nitro carburizing process for mass produced parts.
- Various annealing processes
- Aluminum brazing (CAB method):
A non-corrosive flux in a nitrogen atmosphere is used, in conjunction with highprecision temperature control for the brazing process.
- Solution annealing, artificial ageing
- Brazing
- Blueing

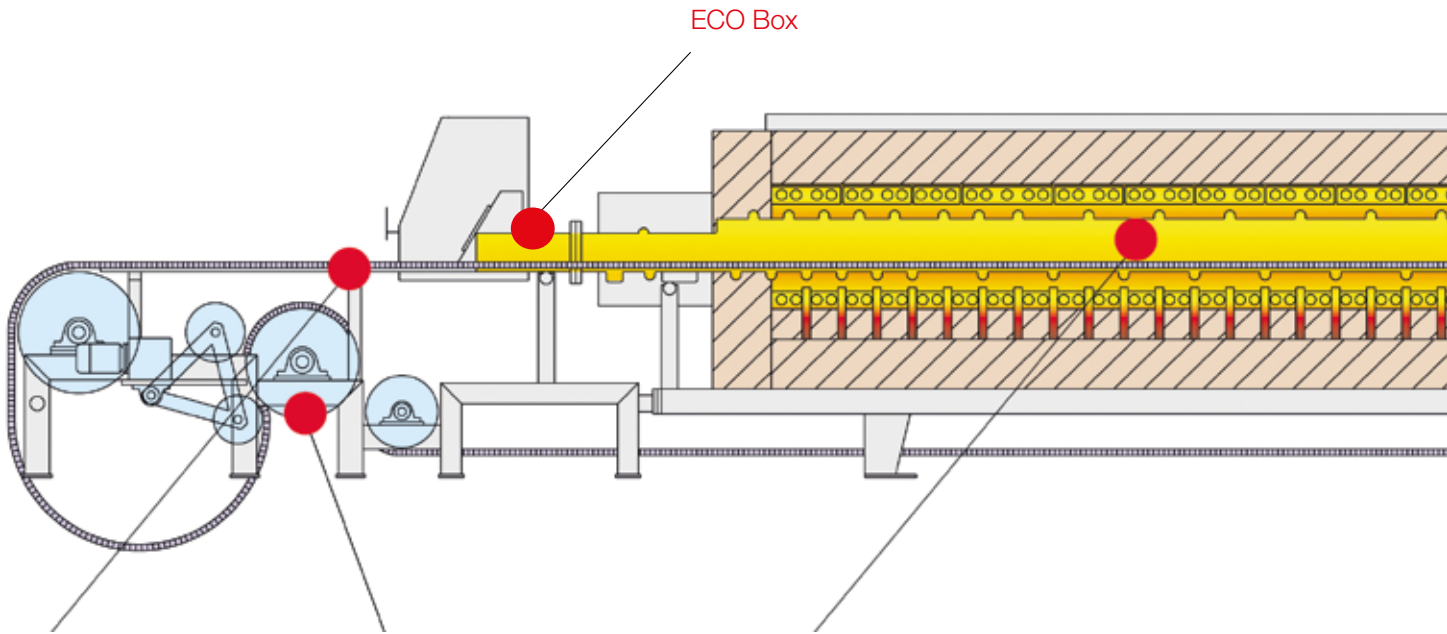
Heating system

The SAFED range comprises furnaces with either electric or gas heating. If electrically heated, the furnaces have heating elements mounted on ceramic tubes in the furnace base and top; these elements can be changed easily. The heating elements are arranged in various individual zones, allowing the temperature to be precisely controlled. High circulation occurs in the heating chamber of gas-fired furnaces due to the use of multiple high-velocity burners.

If required by the process, it is also possible to use burners with radiant tubes. We preferably choose energy-saving NOXMAT® recuperated burners. In any case, the perfect measure and control equipment ensures precise temperature control according to the desired temperature profile.



SAFED's type Bd mesh belt conveyor furnaces



Loading table

Parts can be individually positioned on the belt or simply loaded in bulk. Optional bulk good containers, weighing devices and vibratory troughs.

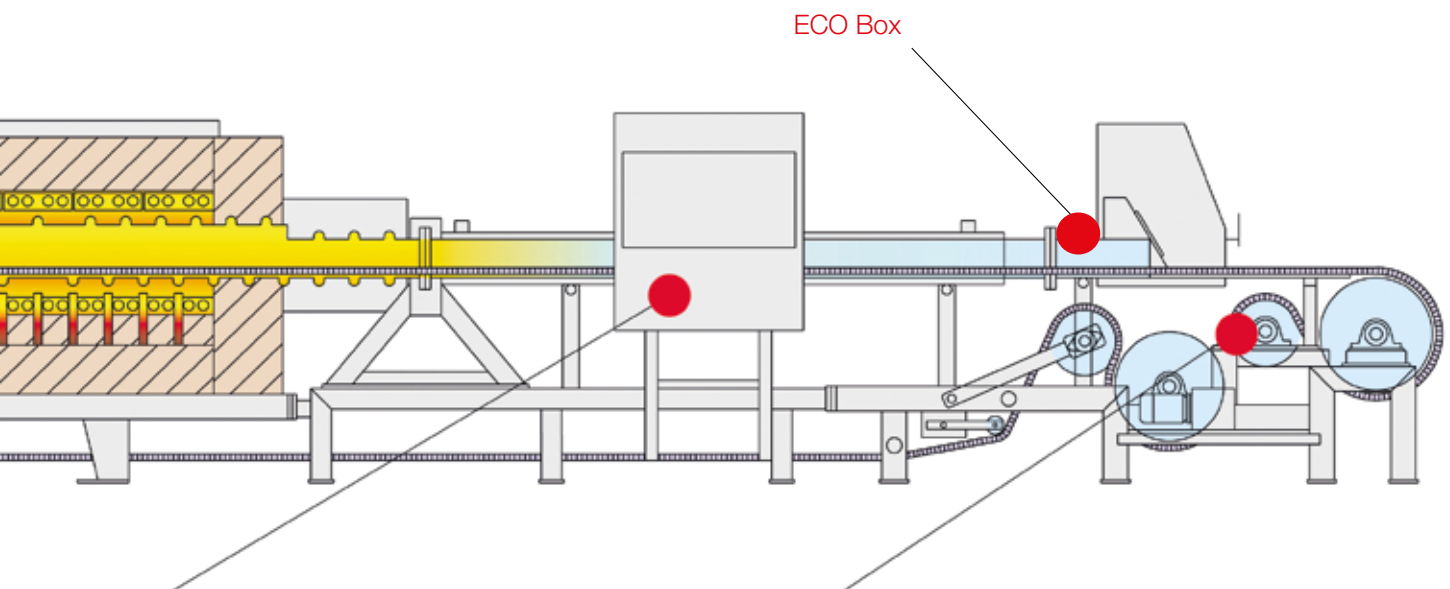
Drive mechanism

The drive mechanisms, developed by SAFED, ensure that the conveyor belt moves in a defined manner. Various designs are used, depending on requirements. Driven belt return devices and automatic centering of the belt are just two examples of auxiliary functions, for reduced wear and smooth transport of the parts being processed, irrespective of the belt load.

Gas-tight muffle (Typ Bd)

A gas-tight muffle is an essential requirement of controlled treatment in a protective atmosphere. The muffle, made from heat-resistant materials, facilitates rapid stabilization of the atmosphere. Whenever the atmosphere needs to be adjusted, the new processing conditions are established within a matter of minutes. Since the muffle forms a hermetically sealed chamber, the furnace's defined volume limits protective gas consumption.





Process control and gas technology

Process control and gas technology are at the very heart of modern heat treatment systems. Type Bd furnaces are suitable for a wide range of applications in a protective atmosphere. Their design is always based on the specific treatment process required. Tried-and-tested measurement and analysis techniques guarantee that processes are reproducible.

Drive mechanism

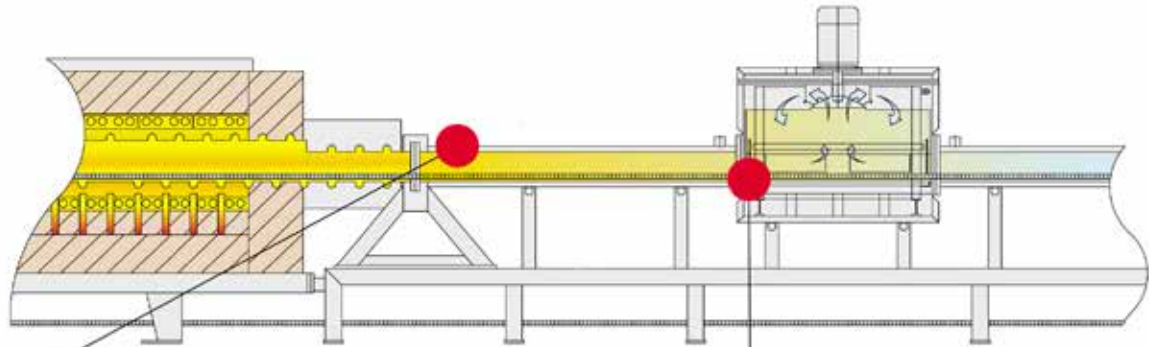
Some design versions have automatic motorized slack return in addition to the belt drive at the end of the conveyor line.

Safety devices

Type Bd furnaces satisfy all relevant CE safety directives and comply with all occupational and environmental safety criteria. The design is regularly reviewed in the light of new findings and the state of the art, particularly with a view to facilitating operation and maintenance.



Cooling line

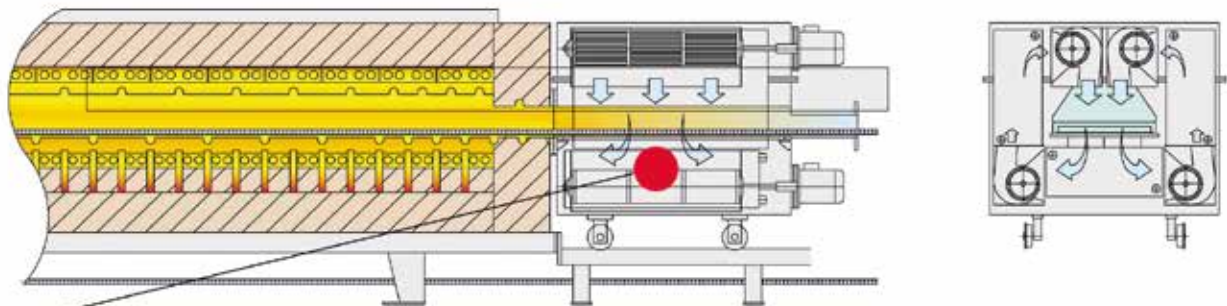


Water jacket

Rapid cooling

Double-walled cooling channel with water jacket. The parts are cooled in a protective atmosphere.

Rapid cooling furnaces can be equipped with a UR rapid cooling system. The high thermal efficiency of this device means that the overall length of the furnace can be significantly reduced.



Gas quenching

Convective part quenching under protective gas cooled by strong fans and heat exchangers.





A broad program

Within the Bd series, continuous belt furnaces are available in more than 20 standard sizes. The usable bandwidth ranges from 80 to 1400 mm (in special design also up to 2000 mm). Different heating lengths for all different heating lengths are available for all common applications. The systems of the Bd series cover a temperature range from 300 to 1150°C.

In the T series you will find continuous belt furnaces with (T) and without (TC) gas-tight muffle and attached quenching tanks for oil, polymer solutions or salt with a temperature range up to 950°C and belt useful widths from 150 to 1200 mm.

In addition, SAFED offers numerous special designs that are individually adapted to special applications.

Within the AICHELIN program you will find a wide variety of plants up to an hourly capacity of 4000 kg.