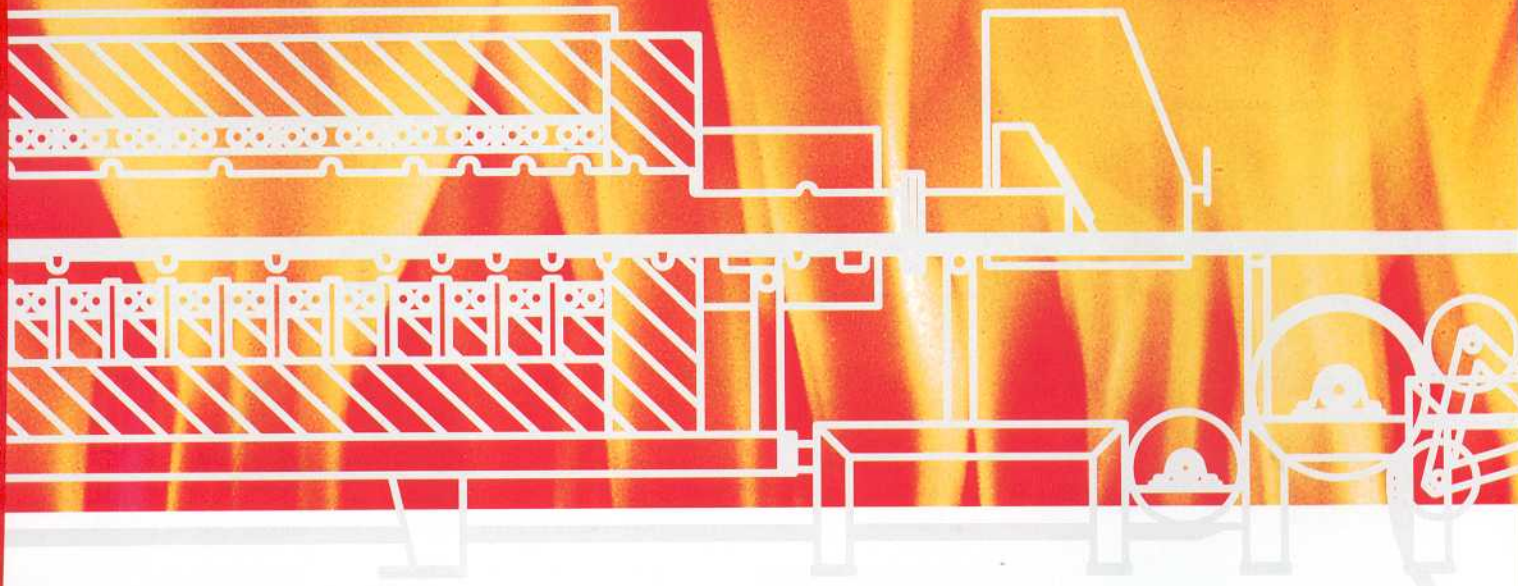


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# TYPE BD CONVEYOR FURNACES

BRIGHT HARDENING, BRAZING, BRIGHT ANNEALING, SINTERING...

OPENING UP A BROAD SPECTRUM OF APPLICATIONS.



### Heating system

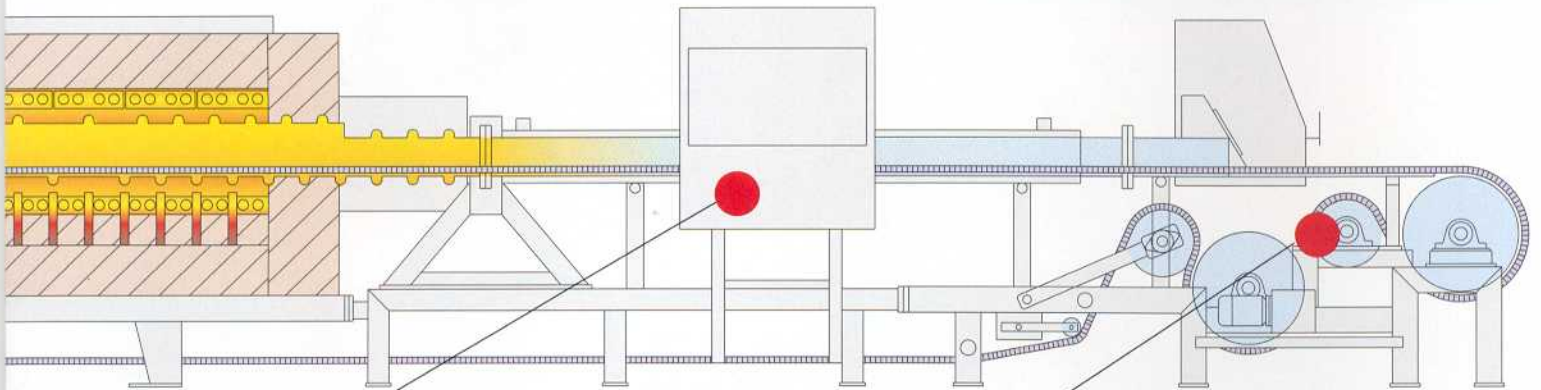
The Safed range comprises furnaces with either electric or gas heating. The electrically heated furnaces have heating elements mounted on ceramic tubes in the furnace base and top; these elements can be changed easily. The heating elements are arranged in various individual

zones, allowing the temperature to be precisely controlled. The perfected monitoring and control technology guarantees that the actual temperature is kept to the desired settings. High circulation occurs in the heating chamber of gas-fired furnaces due to the use of multiple high-velocity burners.

The furnaces incorporate leading makes of burner, with recuperators and advanced energy efficiency technology.

### 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.



### 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

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 centring 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.

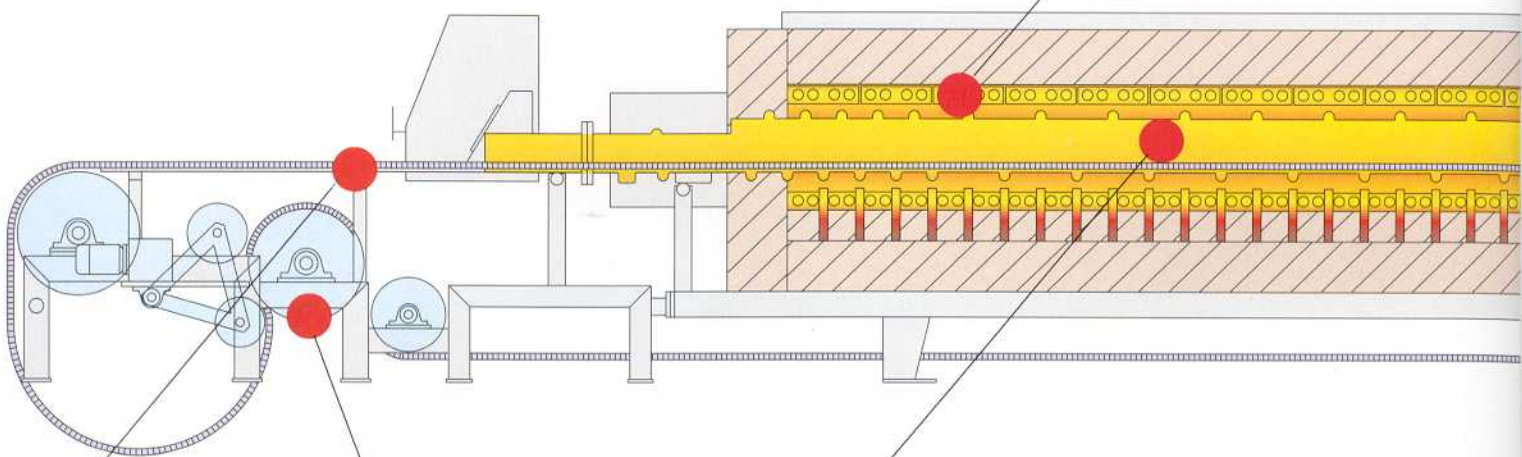
Safed's type Bd mesh belt conveyor furnaces boast a mature basic concept. Safed's expertise in the field of equip-

ment engineering is the key to its highly reliable and versatile process engineering concepts.

## PLANT ENGINEERING BY EXPERTS.

The Safed type Bd mesh belt conveyor furnaces are designed and built for industrial heat treatment in a protective atmosphere. Most of these plants have a gas-tight muffle, an essential feature for process accuracy. 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. 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, durable equipment. Safed is continually optimising its processes and engineering methods. The company's Research Department has devoted particular attention to investigating gas-quenching.



### Loading table

Parts can be individually positioned on the belt or simply loaded in bulk.

### Drive mechanism

Some versions have automatic motorised slack return.

### Gas-tight muffle

A gas-tight muffle is an essential requirement of controlled treatment in a protective atmosphere. The muffle, made from heat-resistant materials, facilitates rapid stabilisation 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.



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 supply customised 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
- Nitrocarburising by the SAFED

OXYCAD® process:

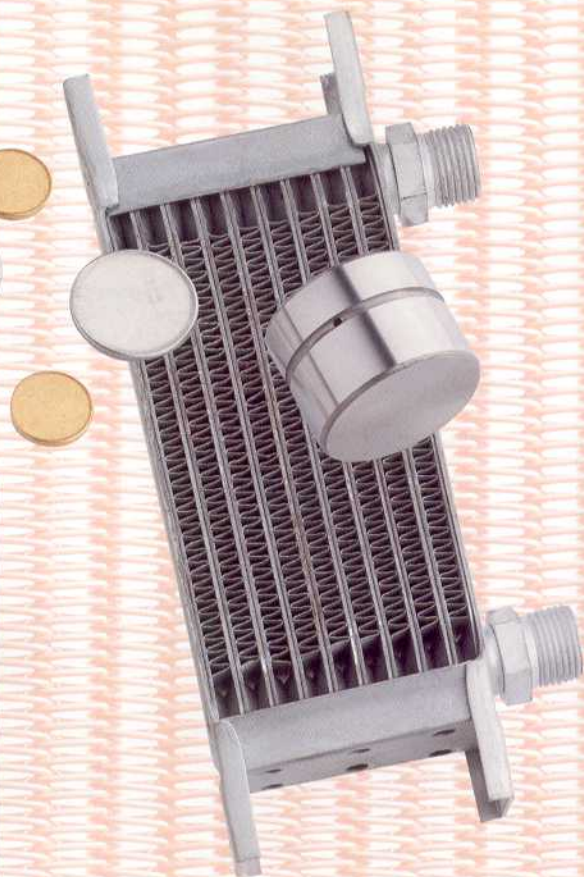
High resistance to wear and low distortion characterise the Safed gas-nitrocarburising process for mass produced parts.

- Annealing
- Aluminium brazing (CAB method)

A non-corrosive flux in a nitrogen atmosphere is used, in conjunction with high-precision temperature control for the brazing process.

- Solution Annealing
- Brazing
- Blueing by the SAFED

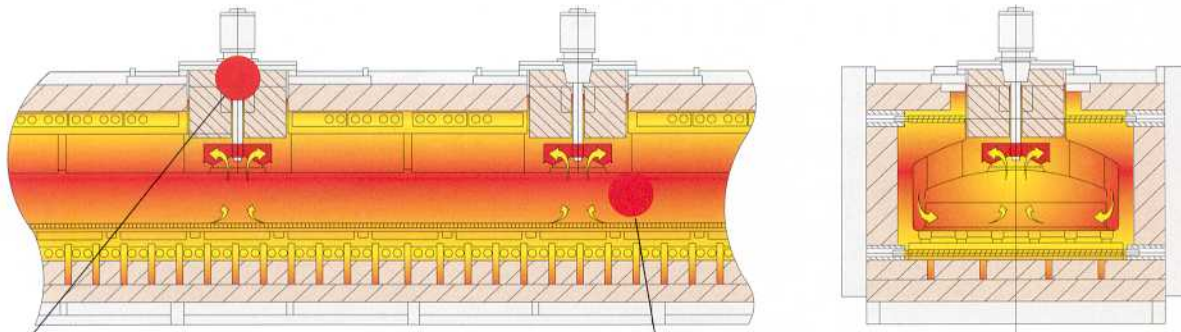
- VAPOCAD® process
- Sintering



Furnace type 11 Bd 30/21 for hardening knife blades; electrically heated.

# VARIANTS FOR DIVERSE APPLICATIONS.

## Turbo Gas circulation



### Gas circulation devices

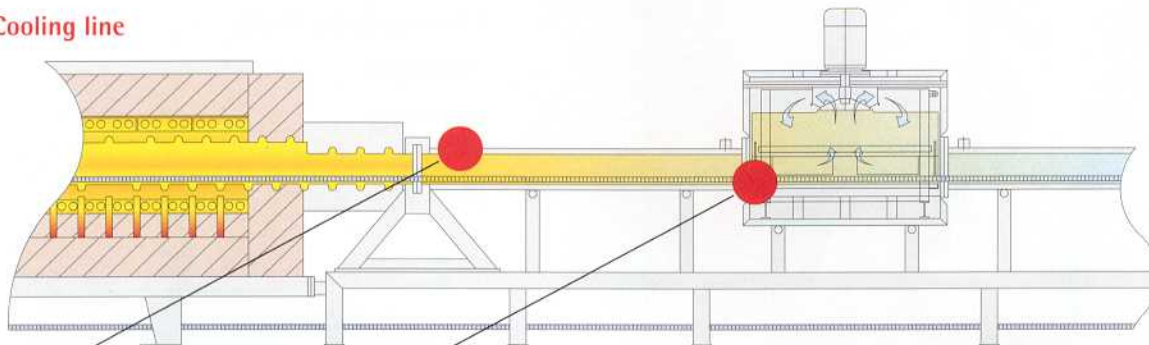
The furnace is equipped with one or more gas circulation devices, for optimum control of the individual treatment zones. Controlled atmosphere circulation guarantees rapid heating-up and ensures

that all points of the parts being processed are exposed to the same temperature and to a consistent atmosphere. The compact, self-contained turbo units are flanged gas-tight onto the muffle. The probes for the measuring

and control systems and inlets for the auxiliary gas are also located here.

**Special muffle with independent gas-direction areas.**

## Cooling line



### Water jacket

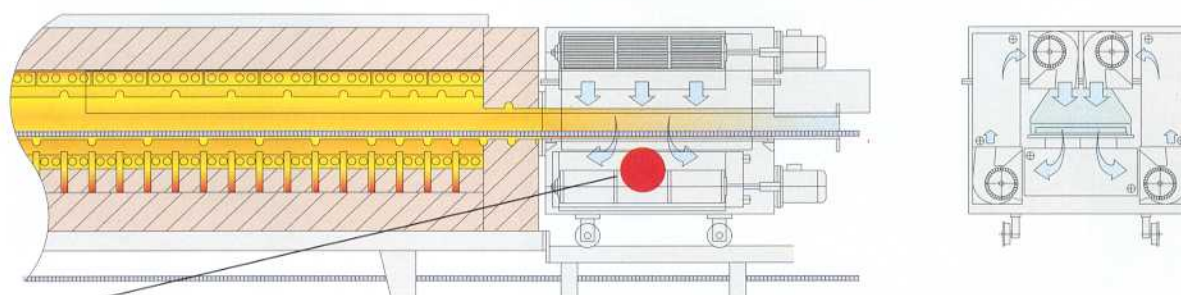
Double-walled cooling channel with water jacket. The parts are cooled in a protective atmosphere.

### UR 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.

## GP gas quench



### GP gas quench

Convective quenching in a

cooled protective atmosphere, with high-performance

blowers and heat exchangers.