SECO/WARWICK

INVENTION MEETS RELIABILITY

MESH BELT CONVEYOR FURNACES

Workhorse for high-volume continuous heat treatments

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INDUSTRIES:

Automotive
Fasteners
Bearing
Tooling
Other type of small parts in mass production

TECHNOLOGIES:

Endo atmosphere or atmosphere based on liquid organic compounds
Others protective atmospheres

PROCESSES:

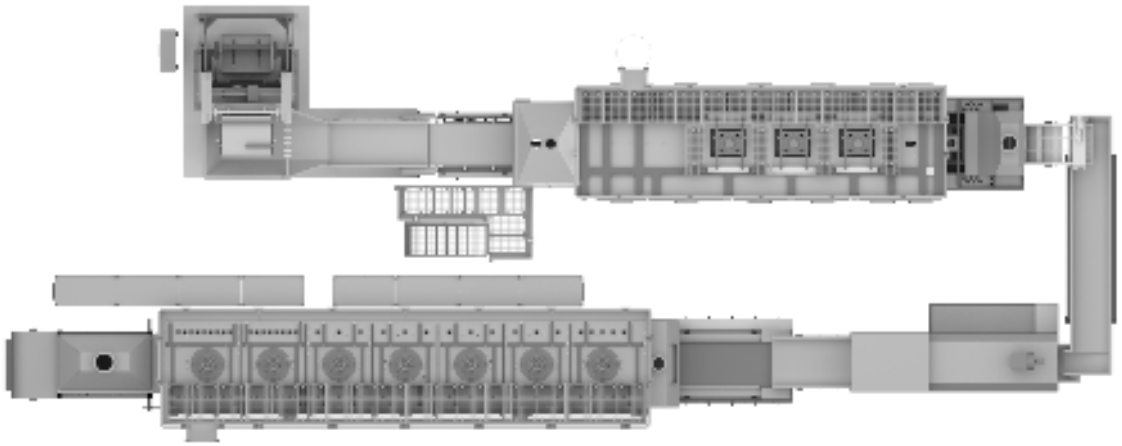
Carburizing
Carbonitriding
Hardening
Quenching
Tempering
Annealing

CONTINUOUS MESH BELT FURNACES

If you produce light or medium weight parts where low cost, high volume production is required; a SECO/WARWICK mesh belt conveyor furnace will process your work efficiently and economically, typically free of oxidation and discoloration with less scale than other processes.

The furnace is particularly well suited to continuous production line operations accepting parts ready for heat processing and discharging them ready for assembly or packaging.

Because the furnace can be utilized for many heat processes, it is widely applied for parts or assemblies used in volume production industries such as automotive, home appliance, electronics, aircraft and hardware.



BENEFITS

- Durability of key components - mixer, muffle, belt
- Repeatability of the results for a wide range of workpieces
- Special technical solutions for crucial elements:
  - Unique muffle design increasing its strength and service life time
  - Special version of dual oil curtain
  - Atmosphere mixers which provide excellent temperature uniformity and atmosphere distribution
  - Effective insulation enabling the reduction of energy power consumption
  - Special version of hardening oil tank designed to reduce deformation of the parts
  - Ultra-efficient washing machines

MAIN FURNACE PTE/PTG TYPE

Mesh belt furnaces is designed for carburizing, carbonitriding, hardening and tempering of small parts. Parts given for the treatment are supplied to the belt by loading set, heat treatment in PT furnace is carried out under controlled atmosphere, created from the mixture of methanol, nitrogen, ammonia or ENDO, nitrogen, ammonia.

HEATING CHAMBER ASSEMBLY

The furnace casing, when using welded gas tight construction, is lined with high temperature resistant brick insulation in the side walls and floor. The removable roof lined with a lightweight insulation, allows for easy accessibility to the heating chamber for maintenance.

DOORS

Entrance door is manual, adjustable to minimize atmosphere consumption and contamination durning the process.

HEATING SYSTEM

In our solution we can propose furnace with electric heating system or gas heating system. Bothe of the solution are used in these types constructions. The heating elements or hearing burners are placed vertically/horizontally at the both furnace sides along the heating chamber

BELT DRIVING SYSTEM

The power unit of the belt is placed in the furnace frontal part at the transport belt inlet into the chamber. It is made as a frame construction of steel sections. At the frame there is system of driving drums and tensioning drums installed, their function is also to maintain the straight movement of the belt.

MUFFLE

Horizontally oriented muffle made from various grades of heat resistant and gas-tight welded sheets is placed inside the heating chamber of the furnace. In the upper side of the muffle a variety of ferrules is placed which are to hold atmosphere mixers, oxygen probe, atmosphere sample intake, furnace atmosphere inlet and enriching/leaning gases. This type of construction give us very good results for temperature uniformity.cooling rates for different loads. Removable covers simplify periodic cleaning.

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ATMOSPHERE CURTAINS - HOOD

An air-gas flame curtain of the furnace ignites escaping atmosphere gases and minimizes air filtration. Exhaust hoods of the furnace carry away waste atmosphere and products of combustion.

OIL QUENCHING TANK

The tank has the form of a rectangular container and is made from steel plate and sections. The whole structure is tightly welded and its walls have thermal insulation. On the tank a pump, supplying oil to the oil curtain in the furnace chute is mounted. On the lateral wall of the chute sight-glass, which allows proper setting of the oil outflow in the oil curtain, is placed. The oil curtain prevents oil vapors from the tank from penetrating into the furnace.

TEMPERING FURNACE MBC TYPE

Mesh belt furnaces MBC type is designed for low and high tempering of small parts. Parts given for the treatment are supplied to the belt by loading set, heat treatment in MBC furnace is carried out under nitrogen or air.

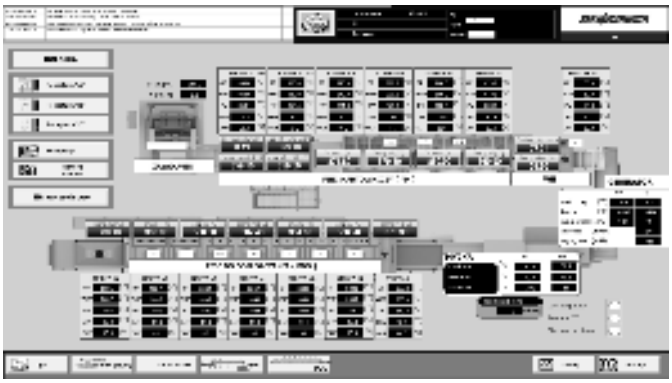
WASHING MACHINE

The equipment serves for dipping and spray washing of the load and for its drying after washing. In the processes before Heat Treatment in the washing machine additional we can do defosfating. The tank for washing liquid has the form of a rectangular container and is made from steel plate and sections. It is placed on four legs screwed to the floor. A metal partition divides the tank into two parts or three part (dependent of the process). In Our solution we can proposed rotary drum solution and mesh belt solution.

SCADA

Electrical supply of technological line is carried out with the help of one integrated control cabinet. The control cabinet together with the electrical installation of the furnace is used in order to ensure proper course of heat treatment process in the device, among others the following:

- Regulation of temperature and carbon potential
- Protection from extensive temperature in every zone of the furnace
- Regulation of temperature of washing liquid and drying with hot air
- Protection from over-exceeding washing liquid temperature and hot air temperature
- Stepless regulation of belt movement speed



FURNACE PLUS

The customer portal is an online platform offering additional services for you. This is where you will find information about your device at any time. It offers:

- Access to additional services not available in the basic control system
- Trouble-free service and support
- Provides full access to relevant, up-to-date information
- Gives the user the opportunity to get help online.

INDUSTRIAL SERVICES

A wide range of services are available for our equipment. These include rebuild projects, field service, spare parts, equipment supply, control and combustion upgrades, and fabrication services. As a result of these services, we have provided our customers improved performance, lower emissions, better efficiency and enhanced product temperature uniformity.

MESH BELT FURNACE SIZES, DATA & RATINGS

Production capacity [kg/h]	Processing time [min]	Belt width [mm]	Belt lenght [mm]	Feeding hight [mm]	Surface load [kg/m^2]	Feeding density [kg/dm^3]	Maximum heating power [kW]
200	30	400	4000	20	62,5	3,1	120
300	30	400	6000	20	62,5	3,1	160
400	30	600	5500	20	62,5	3,1	175
500	30	600	6500	20	64	3,2	200

The data shown in the table is purely indicative and depends on the technology, type of the material, etc.
At the customer's special request, it is possible to produce a line with higher production capacity.

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Invention meets reliability

SECO/WARWICK is the 1st choice supplier

of solutions for heat treatment and metallurgy

We create innovative products that provide our customers with reliable, safe and environmentally friendly solutions for heat treatment and metallurgy and ensure the economic efficency of their businesses. Expertise includes solutions in 5 categories: vacuum heat treatment, atmosphere, and aluminum thermal processing, controlled atmosphere brazing of aluminum, heat exchangers and vacuum metallurgy.

SECO/WARWICK Group with 8 companies located on 3 continents, has customers in nearly 70 countries with more than 4000 deployed solutions. The company provides standard or customized state-of-the-art heat processing and metallurgy equipment and technologies to leading companies in the following industries: automotive, aerospace, electronics, tooling, medical, recycling, energy including nuclear, wind, oil, gas, solar and production of steel, titanum, and aluminum.

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