

RELIABILITY AT WORK

**AICHELIN**  
Heat Treatment Systems

# Conveyor Belt Furnace Plant



for  
hardening  
and  
tempering  
of hot  
forged parts

**WIN**

WIN GROUP



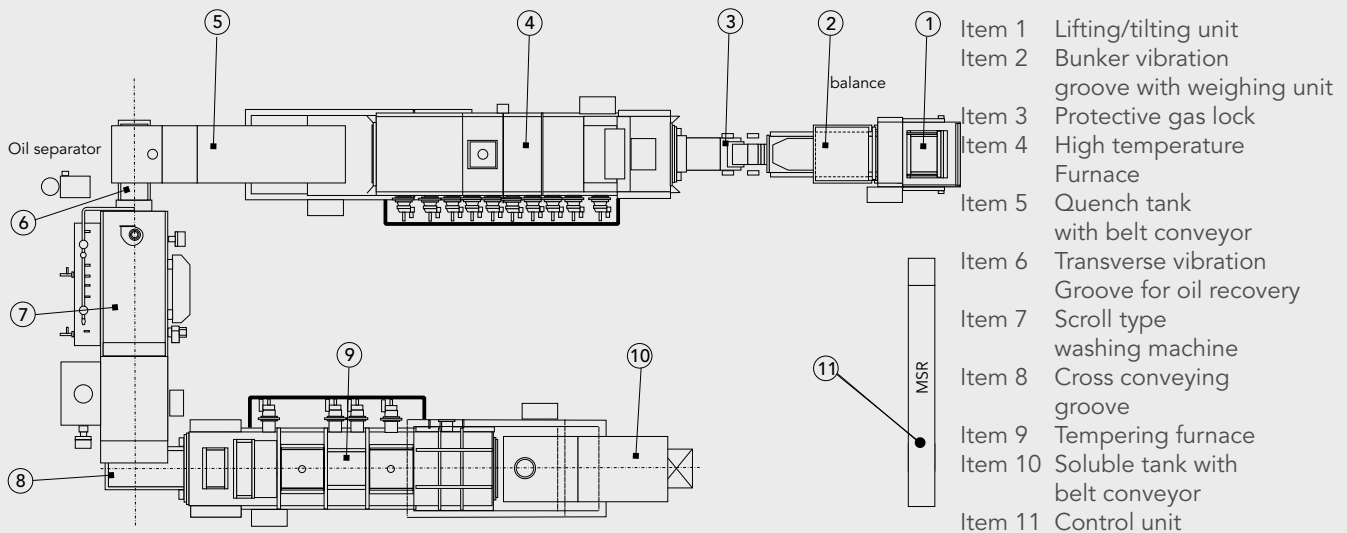
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# ▶ Conveyor belt furnace plant for hardening and tempering of hot forged parts



## ▶ Technical Data

Capacity:	500 kg/h	Part weights:	50 – 5000 g
Cycle time gas lock:	40 – 80 sec	Gas supply:	N <sub>2</sub> /Methanol, approx. 8-10 m <sup>3</sup> /h
Running through time:	200 – 300 min	Required space:	20 m x 10 m in U-shape
T <sub>max</sub> High temperature furnace	950 °C	Power consumption furnaces and bath tanks :	130 kW
T <sub>max</sub> Tempering furnace	750 °C	Gas consumption furnaces :	35 m <sup>3</sup> /hour natural gas

## ▶ Description of plant

AICHELIN supplied this furnace plant for hardening and tempering of hot forged parts for the automotive industry in a newly set up production of hot forged parts in Thuringia, Germany.

These parts are conveyed in its transportation containers from a lifting/tilting device into a vibration bunker. Via weighing unit the set capacity is controlled. The characteristic conveying features of the vibration bunker are adapted to the parts to be treated for an optimum flow of parts. The heat treatment parts arrive cyclewise in portions of 8 - 10 kg each via a protective gas lock in the high temperature furnace.

The furnace plant is fired by the proven AICHELIN NOXMAT<sup>®</sup> recuperator burners. The fuel efficiency degree in the high temperature furnace exceeds 80 % by far. The protective gas is supplied by a N<sub>2</sub>/Methanol mixture. The high temperature furnace is gastight by the protective gas lock at the inlet and the oil curtain at the outlet. This way the C-level can be adjusted according to need fast and steady between 0,2 and 0,95 %. The heating up zone is provided for high heating up gradients. For this purpose there are used SiC radiant tubes. These feature longest service life and lowest maintenance expenses.

After quenching and discharging from the oil bath the parts arrive in the scroll type washing machine. The rinsing water of the washing machine will be recuperatively heated by the waste gas of the washing water firing. A cross conveying groove transposes the heat treatment parts uniformly onto the cast link belt of the tempering furnace.

The waiting period between two subsequent heat treatment orders is minimized by a charge dividing unit in the high temperature furnace as well as in the tempering furnace. This way the mixture of parts is avoided. The plant availability is considerably increased and the treatment expenses especially for smaller orders are decreased.

The Touch-Panel PC of the control unit opens totally new perspectives regarding plant visualization, process optimization and process documentation.

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