Continuous Walking Beam Heating Furnace

CNBM INTERNATIONAL CORPORATION
Metallurgy Machinery Project Dept.

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I. Introduction:

The Continuous Walking Heating Furnace is used most widely in all types of mechanism Furnace. It is classified as Walking Beam Heating Furnace and Walking Bottom Heating Furnace. This type heating furnace is used for large slab and shaped blank heating with advantages of huge capacity, no black print on the slab and blank, and timing heating exactly. Here we emphatically introduce the continuous walking beam heating furnace.

1. Main Technical Condition

   Heating Furnace Application: slab and blank reheat before rolling.
   Heating Furnace Type: Continuous Walking Beam Heating Furnace
   Heating Supply: heat from top and bottom by gas

2. Main Device Components


2.1 Charging System

   The charging system is formed by Input roller bed, Length Measuring Positioning Device, Terminal baffle, and Input Pushing Device. The Input roller bed is driven by electromotor separately and containing motor, reducer, rollers, bearing blocks, and steel structure foundation. The input pushing device is driven by Hydraulic. The terminal raffle is fix type with
spring and foundation to avoid the slab and blank rush out of the roller bed.

2.2 Furnace Main Body

It includes: refractory material liner, furnace steelwork body, Furnace bottom walking machinery, supporting beam, heatproof block, water seal scraping device, buffering raffle, furnace door, and gas burner.

2.2.1 Walking Machinery

The walking machinery is used for supporting heating furnace horizontal moving rack and walking furnace bottom and the slab and blanks in furnace and making the slab and blank moving in the long direction. The walking furnace bottom can be moving in vertical and horizontal.

The walking machinery is driven by hydraulic. Walking beam is moving vertically and horizontally in variable speed. It makes the slab & blank soft touch with walking beam to avoid the rust peeling, scraping the surface of slab and blank, and reduce the strike and quake to walking machinery.

2.2.2 Water Seal Tank

The water seal tank is used for the sealing between walking beam pole and the furnace bottom.

2.2.3 Furnace Insulation Liner

Furnace Bottom Refractory material: 10mm asbestos board, 60mm heat insulation board made by refractory fiber, 204 light-weight insulation brick, 65 alumina brick.

Furnace Wall refractory material: 230mm low cement pouring material, 116mm light-weight insulation brick, 60mm heat insulation board made by refractory fiber, 60 calcium silicate heat insulating board.

Furnace Top Refractory material: 230mm low cement pouring material,
40mm aluminum silicate fiber board, 60mm aluminum silicate fiber pouring material.

2.2.4 Furnace Door

Charging Door 1 unit, discharging door 1 unit, examine and repair door 2 units. The charging and discharging door is driven by hydraulic and with water cooling system. The examining and repair door is open manually, installed on left and right side.

2.2.5 Furnace Body

Furnace Body: Top Steelwork, Bottom Steelwork, furnace-top steelwork, walkway platform. The steel work is made by structure steel and plate.

2.2.6 Furnace inside Supporting Beam

The furnace inside supporting beam: 4 Fixed beam, 3 walking beam, and heatproof block. heatproof block material: pre-heat and heat sector 310S; soaking heat sector Co20, supporting beam and stand pole in furnace covered with heatproof material.

2.3 Hydraulic System

Hydraulic System: working pressure 14MPa; Open circuits valve control. It provides drive for walking machinery and steel pushing device.

2.4 Gas Supply System

2.4.1 Gas Supply Equipment:

The Gas supply equipment: the gas main tube is with manual valve, filter, fast cutting valve, flux gauge, pressure switch (German KROM)
There are 3 branch pipe connect to each burner. The branch pipe is equipped with manual valve, auto adjusting butterfly valve, air branch pipe with butterfly valve, and PLC.

Combustion Air, blowing into cold air main tube by the blower, is heating to 450℃ by heat exchanger, and piping to burner through combustion air tubes. There are anti explosion hole at the end of each air pile.

2.4.2 Water Cooling System

Water cooling system contains: input water main tube, water distributor, branch pipe, water return pipe, return water tank, return water main tube and relative valves, flange, and hosepipe.

2.4.3 Smoke Discharging System

Smoke Discharging System: smoke tube, smoke valve; preheat room, and chimney (the buyer prepared). Chimney height:60, exit φ2000mm.

2.4.4 Discharging System

The discharging roller bed is driven separately and contains roller bed motor and reducer, roller, bearing block, and steelwork foundation.

Discharging model: hydraulic lifting, synchronizing shaft;

2.5 Electrical Control and Gauge appearance

Through WINCC Industrial control software in Human Machine Interface(HMI) , The whole heating furnace can be controlled automatically to electrical and burning section, and online monitoring.