

## Metallurgical - Step-type Heating Furnace



The step-type furnace is the preferred heating equipment for high-speed wire, rod, pipe, steel billets, and similar materials. It typically consists of a preheating section, a heating section, and an equalizing section. The temperature in the furnace chamber usually ranges between 1100 to 1350°C, and the fuels commonly used are gas, light oil, and heavy oil. When the furnace temperature in the heating section is below 1350°C, and the gas flow velocity in the furnace chamber is less than 30m/s, the furnace lining above the burners and the furnace roof can both adopt a full fiber structure (refractory fiber modules or refractory fiber coating structure) to achieve the best energy-saving insulation performance.



**Below the burners:**



In the lower part of the step-type heating furnace, including the furnace bottom and side walls below the burners, due to exposure to oxidation and iron scale erosion, materials like CCEWOOL ceramic fiber insulation boards, lightweight refractory bricks with clay, and castable lining structures are commonly used.

**Above the burners and at the furnace roof:**

Considering the operating conditions above the side wall burners of the step-type beam furnace, in combination with furnace lining design and application experience, the following structure can be employed to achieve good technical and economic results.

**Flue section:**

The flue section utilizes a combination lining structure with CCEWOOL 1260 ceramic fiber blankets layered inside.

Please note that this translation is provided for informational purposes and should be reviewed for accuracy and suitability in specific technical or industrial contexts.



**Discharge Port Blocking Curtain**

In heating furnaces where the heated components (such as steel pipes, steel ingots, rods, wires, etc.) are frequently removed from the furnace, mechanical furnace doors are generally not installed. This leads to significant radiation

heat loss. Conversely, in heating furnaces with longer intervals between removals, the mechanical furnace doors that are often installed can cause inconvenience due to sensitivity issues in the opening and closing mechanisms.

A solution to this problem is provided by the blocking curtain for flame containment. The blocking curtain is a composite structure consisting of two layers of fiber cloth with an intermediate layer of fiber blanket.

Different heat-resistant materials can be chosen for the inner layer, depending on the furnace's operating temperature. This product offers numerous advantages, including compact size, lightweight, simple structure, easy installation, corrosion resistance, and stable high-temperature physicochemical properties.

The successful application of this product addresses the drawbacks of cumbersome original furnace door structures, significant heat dissipation losses, and high maintenance rates in heating furnaces.

