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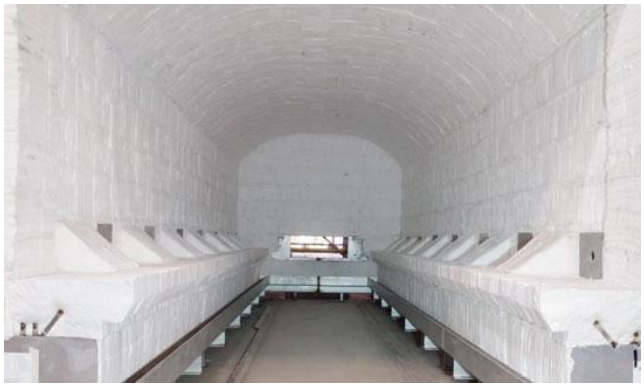
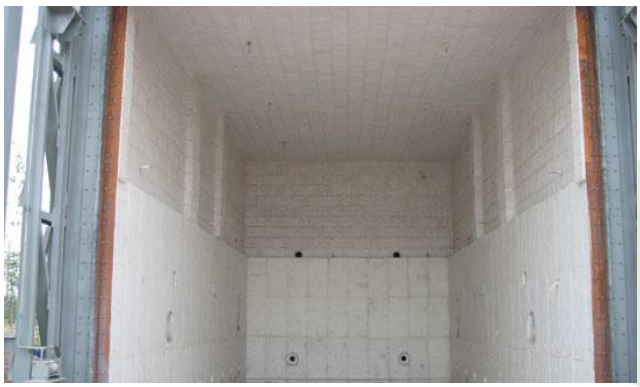
salesusa@ccewool.com
www.ccewool.com

Metallurgical - Trolley-Type Furnace

The trolley-type furnace belongs to the intermittent variable-temperature furnace category and is primarily used for preheating steel ingots or heat treatment of workpieces. Therefore, this type of furnace can be divided into trolley-type heating furnaces and trolley-type heat treatment furnaces. The furnace consists of three main parts: a movable trolley mechanism (constructed with heat-resistant steel plates and lined with refractory bricks), a furnace chamber (lined with refractory fibers), and a liftable furnace door (often lined with castable refractory materials). The primary difference between trolley-type heating furnaces and trolley-type heat treatment furnaces lies in the internal temperature. The heating furnace operates at temperatures ranging from 1250 to 1300°C, while the heat treatment furnace operates at temperatures between 650 and 1150°C.





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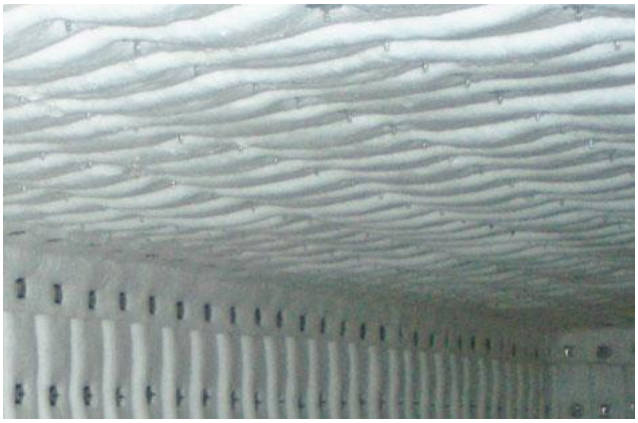
Based on factors such as furnace internal temperature, furnace gas atmosphere, safety, and cost-effectiveness, along with years of practical experience, the furnace lining materials for heating furnaces are typically determined as follows: CCEWOOL RCF Blanket 2600 is commonly used for the furnace roof and walls, while the backing can be made of CCEWOOL RCF Blanket HPS or RCF Blanket LZ. The furnace door and the area below it are lined with CCEWOOL fiber castable refractory material.

Lining structure:

According to the process conditions, the trolley furnace can be divided into a heating furnace and a heat treatment furnace, so there are two types of structure.



The heating furnace structure:

According to the shape and structure of the heating furnace, the furnace door and the bottom of the furnace door should adopt CCEWOOL fiber castable, and the rest of the furnace walls can be laid with two layers of CCEWOOL ceramic fiber blankets, and then stacked with the fiber components of herringbone or angle iron anchoring structure.

The top of the furnace is tiled with two layers of CCEWOOL ceramic fiber blankets, and then stacked with the fiber components in the form of a single-hole hanging and anchoring structure.

As the furnace door often rises and falls and materials often collide here, the furnace door and the parts below the furnace door mostly use CCEWOOL fiber castable, which has a structure of unshaped fiber castable and the inside welded with stainless steel anchors as the skeleton.

The heat treatment furnace structure:

Considering the shape and structure of the heat treatment furnace, the furnace door and the bottom of the furnace door should be made of CCEWOOL fiber castable, and the rest of the furnace walls can be tiled

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with two layers of CCEWOOL ceramic fiber blankets, and then stacked with the fiber components of a herringbone or angle iron anchor structure.

The top of the furnace is tiled with two layers of CCEWOOL ceramic fiber and then stacked with the fiber components in the form of a single-hole hanging anchor structure.

As the furnace door often rises and falls and materials often collide here, the furnace door and the parts below the furnace door often use CCEWOOL fiber castable, which has the structure of unshaped fiber castable and the inside welded with stainless steel anchors as the skeleton.

For the lining structure on these two types of furnace, the fiber components are relatively firm in installation and fixing. The ceramic fiber lining has good integrity, a reasonable structure, and remarkable thermal insulation. The whole construction is quick, and the disassembly and assembly are convenient during maintenance.

The fixed form of ceramic fiber lining installation arrangement:

Tiled ceramic fiber lining: generally, tile ceramic fiber blankets for 2 to 3 layers, and leave 100 mm of the staggered seam distance between layers as required instead of straight seams. The ceramic fiber blankets are fixed with stainless steel bolts and quick cards.

Ceramic fiber components: According to the characteristics of the anchoring structure of the ceramic fiber components, they are all arranged in the same direction along the folding direction. The ceramic fiber blankets of the same material are folded into a U shape between different rows to compensate for ceramic fiber shrinkage. The ceramic fiber components at the furnace walls adopt "herringbone" shaped or "angle iron" anchors, fixed by screws.

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For the central hole hoisting fiber components on the furnace top of the cylindrical furnace, a "parquet floor" arrangement is adopted, and the fiber components are fixed by welding bolts at the furnace top.