



# RT3-160-9 Furnace



**V-FLO GROUP OF COMPANIES LTD.**

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## 1. Purpose:

This series of box-type resistance furnace is the national standard energy saving furnace for high temperature working (hereinafter referred to furnace). Mainly used for heat treatment of castings, steel pieces, alloy pieces and other metal pieces.

## 2. Main parameters:

hearth measure: 2050mm (length) × 1200mm (width) × 900mm (height)

power rating: 160kw±10%

rated power: 380V 3 50Hz

rated temperature: 950°C

temperature uniformity: ≤±8°C (reach to thermal equilibrium)

temperature controlling: ≤±1

time for empty furnace warming: ≤2 h

temperature for surface: ≤45°C

material: 0Cr21Al6Nb

controlling: Intelligent digital temperature control instrumentation

heating zones: 3pieces

## 3. Introduction:

Furnace is built up with furnace shell, lining, furnace door, upgrade system, driven trolley, traveling mechanism, seal sets, heating elements, controlling system and so on.

- furnace shell
- Furnace shell with outside frame, welding with profiled bar (channel steel) and steel plate. Steel plate:  $\delta=4\text{mm}$ , this structure is solid, look well and fit for long-term working under the high temperature without deformation.

lining

Adopt alumina silicate fiber module (thickness is 250mm) for furnace side, furnace door and furnace top, through by stainless steel rivet for fixing on the shell. The module is solid, light, less heat store, and good affection on heart preservation. The vehicle furnace and lining adopt high-alumina refractory bricks and heat-insulating bricks, solid and big load.

- furnace door and upgrade system

Furnace door and upgrade system mainly with steel framework, lining, furnace doorframe, traveling mechanism and so on.

The doorframe is welding with profiled bar and steel plate, stuff with alumina silicate fiber. The upgrade system is realized by electric hoist, furnace door adopt the system of automatic spring and connecting rod clamping separation structure. Advantage: no friction between with furnace door outline when furnace door up and down, and the furnace door press and seal by itself after down to close at right place.

- driven trolley and traveling mechanism

Driven trolley main make up of frame, fire-resistant insulation materials, heating elements, bottom block and traveling mechanism.

Frame is made of profiled bar and steel plate. Driven trolley has large fire-resistant and heat preservation bricks inside. The furnace builds with a special edge of high alumina refractory bricks to prevent damage. For the bearing part, built with high alumina refractory bricks to ensure the furnace full loaded without any deformation and damage. There set another twist heating elements, which covered with bottom block (material: ZG3Cr18Mn12Si2N, thickness: 35mm ), for loading and preventing oxidation surface drop into the warming elements. Furnace bottom block assembly adopted the separate and assembled structure, effect to prevent deformation of bottom block under high temperature.

Driven trolley is drive by reducer, running by transfer wheel with sprocket, chain and gear. Speed is 5m/min.

- seal set

Seal for Driven trolley and body with automatic sealing device, a closed tank is filled with sand.

- heating elements

Material is 0Cr21Al6Nb, process to wavy and spiral, they are fixed by ceramic nail, layout on the furnace well inside and bottom, keep the temperature inside can be controlled effectively.

- controlling system

It uses the standard control cabinet, GGD vertical type with 800×600×1800mm, computer color or camel outside. The electric control panel is equipped with current meter, voltage meter, temperature control instrument and switched. Other electric elements used domestic well-known brands.

This control system also has completely protection function, such as proof for over-temperature, break, over current, short and so on. Specially, the power equipment can cut off the power when meet the accident of over temperature, short, to ensure safety of the equipment and the workpiece.

The protection system is designed as bellow:

- it can not move for driven trolley when heating
- it can start to heat as soon as furnace closed
- the driven trolley can move out and in just after the furnace door raised to the highest place
- the furnace can down just after the driven trolley into the right place
- the furnace door up and down, and the move of the driven trolley are controlled by the switch

There is also designed the separate power supplier equipment, with switch for protecting from over pressure and over current, as to ensure the reliability of the system.

#### 4. Supply scope and the technical documents

| No. | Name   | Q'ty |
|-----|--|------|
| 1   | Box Type Resistance Furnace (furnace door, body, driven trolley, heating elements and so on) | 1set |
| 2   | Controlling box (include all electric elements)  | 1set |
| 3   | K thermocouple   | 3pcs |
| 4   | compensation wire  | 30m  |
| 5   | installed chat   | 1pc  |
| 6   | Manual of operation and maintenance,   | 1pc  |
| 7   | electrical control schematics  | 1pc  |
| 8   | external wiring diagram  | 1pc  |
| 9   | product certification  | 1pc  |
| 10  | quality assurance  | 1pc  |

Notes: additional equipments as bellow

- 1、bottom block, 2sets
- 2、heating elements, 2sets
- 3、thermocouple, 2sets (6pcs)
- 4、bracket (fire-proof material), 2sets
- 5、other parts free for two years replacement

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