1 Main content and scope of use

1.1 This Code specifies the technical requirements and operating methods for the hot-working (spinning) forming process of industrial boiler corrugated furnaces.

1.2 This Code applies to hot forming (spinning) forming of industrial boiler corrugated furnaces.

2 Reference standard

JB/T1619-2002 Shell and shell boiler pressure components manufacturing technical conditions

3 terms

3.1 Spinning forming: On a special machine tool, the heating part of the furnace cylinder is heated while feeding the top pressing wheel, thereby manufacturing the method of processing the furnace corrugation. (figure 1)

4 Technical requirements and methods of operation

4.1 General

4.1.1 During the first feeding, the process test shall be carried out to determine the appropriate size of the blanking before batch feeding.

4.1.2 The cylinder used for the corrugated furnace must be inspected and qualified. The cylinder that has not been inspected and has not passed the inspection shall not flow into the hot press forming process.

4.1.3 The on-the-job operators must be familiar with the equipment structure, performance, operation methods and maintenance knowledge. The operator must pass the relevant regulations and obtain the employment certificate before they can operate on the machine. Persons who do not have a qualification certificate can only perform auxiliary welding heat treatment work, and cannot work alone or evaluate the results of welding heat treatment. Welding heat treatment personnel include: heat treatment technicians, heat treatment workers.

4.2 Operational preparation

During the period of commissioning equipment, the specifications of the selected mold (top pressure wheel) should be consistent with the specifications of the corrugated furnace on the drawing, and within the validity period of the verification. When using spinning, the special fixture with the barrel section is hoisted to the special machine tool, one end is clamped by the four-jaw chuck, one end is supported by the tailstock, the heating shield is installed, and the heating is adjusted according to the corrugation position specified by the pattern. Shield and top wheel position.

4.3 furnace heating

4.3.1 The furnace tube section shall be heated by fuel or gas (heating furnace), and shall not be heated by the earth furnace or other equipment that cannot guarantee the heating quality.

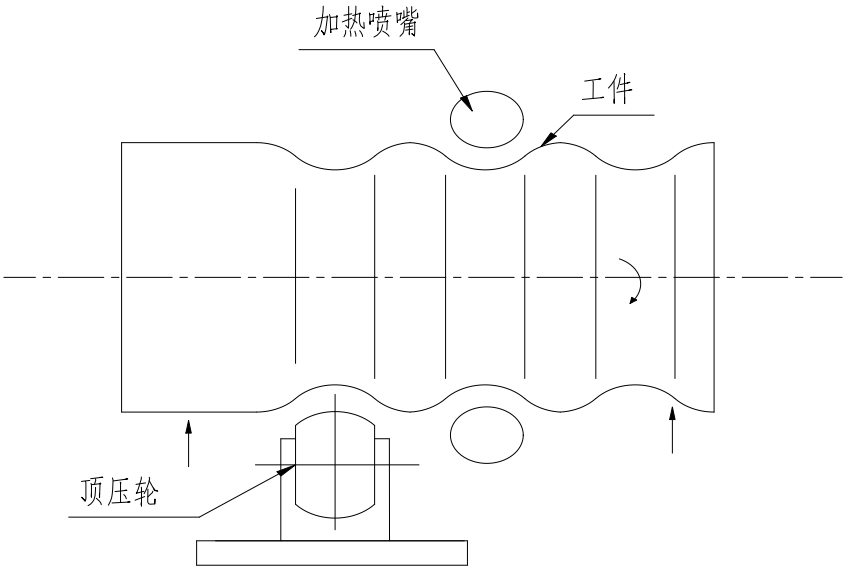
4.3.2 When the furnace tube section is heated by a heating furnace, the following requirements shall be met:

4.3.2.1 The furnace temperature of the furnace tube should be higher than 600 ° C, and it is strictly forbidden to charge the furnace. The distance between the lowest point of the arc under the furnace and the bottom of the furnace should be greater than or equal to 150mm to ensure uniformity of heating.

4.3.2.2 When the furnace is heated, the original record of the heating temperature, holding time and final pressure temperature of the furnace should be made.

4.3.2.3 In case of power failure, gas stop, equipment accident, etc. during the heating process, the furnace should be stopped immediately, and the furnace must be taken out of the air in time.

4.3.3 Common heating temperature, holding time, final pressure temperature and cooling method are shown in Table 1.



在专用机床上局部加热旋压炉胆

Material	Heating temperature ℃	Heat keepmin/mm	Forming temperature（℃）	Cool method
	Heat rolling			
Q245R，SA516Gr70，P295GH	800~950℃	1	≥850[2)]	air

4.3.4 The furnace after heating shall be free from severe oxidation, over-burning, cracking, uneven heating, etc. Unqualified parts shall not be pressed.

4.4 furnace corrugation suppression

4.4.1 Spin forming (see Figure 2).

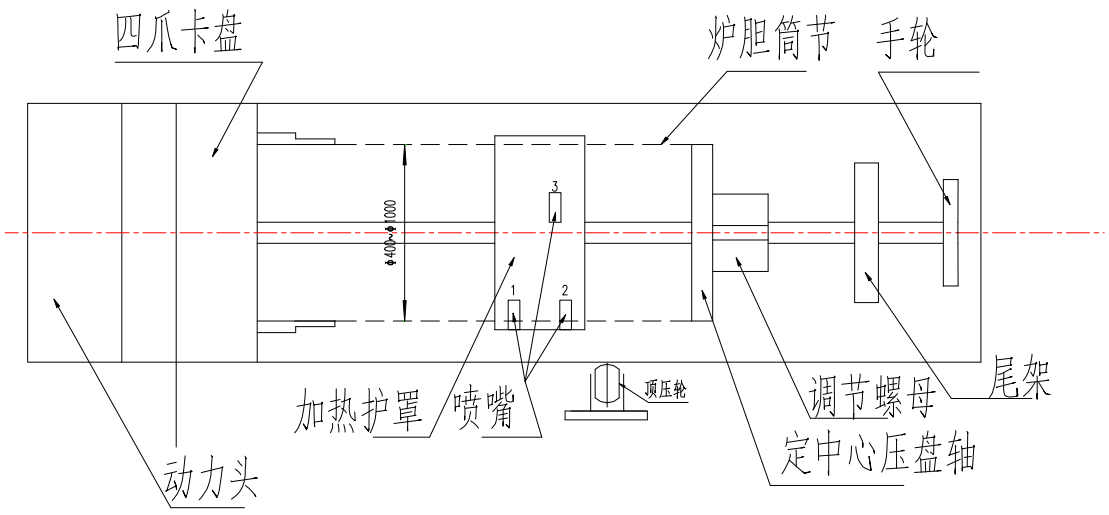
4.4.1.1 Start the machine tool, oil pump and air compressor, open the valve on the oil circuit and air line, open the nozzle valve for ignition, and heat the furnace. Adjusting the workpiece rotation speed (about 3 rpm) is the local (circumference) of the furnace and heating to 800 ° C ~ 950 ° C.

4.4.1.2 Move the top pressing wheel so that the top pressing wheel contacts the surface of the workpiece and feed slowly. Generally, the feed amount is 1~2mm. After the workpiece rotates for one week, it continues to feed, while rotating and

heating until the corrugation circle Processing and forming. Since the barrel section is relatively shortened when the corrugation is formed, the operator has to tighten the nut on the centering platen shaft of the furnace fixture while spinning.

4.4.1.3 After the first wave circle is formed, check it according to the pattern. After the corrugation meets the requirements of the pattern, the top pressure wheel is exited, and the corrugation of the top pressure wheel and the heating shield is traversed according to the furnace pattern, and the corrugation is processed in the same manner.

4.4.1.4 After all corrugation processing is completed, close the nozzle, stop the furnace rotation, open the heating shield to remove the pressure plate, and remove the forming furnace air cooling.



4.5 Quality requirements

4.5.1 The dimensional deviation of the press-formed corrugated furnace shall comply with the drawings and JB/T1619-2002 requirements.

4.5.2 The thickness of the press-formed corrugated furnace is not to be less than 85% of its designed thickness.

4.5.3 After the corrugated furnace is pressed and formed, no cracks are allowed on

the surface. If there are cracks or cracks, it shall be treated as follows:

4.5.3.1 Any crack caused by the steel plate not meeting the quality requirements and over-burning shall not be repaired.

4.5.3.2 Any crack or crack that does not belong to the above reasons can be repaired. After repair welding, non-destructive testing should be carried out.

4.5.4 After the corrugated furnace is formed, the surface should avoid defects such as pitting, creases, scars and hammer marks. When the depth of the dent is in the range of 0.5~1mm, it should be ground into a smooth transition; when it exceeds 1mm, it should be repaired and smoothed and tested by non-destructive testing. When the height of the protrusion exceeds 1mm, it should be ground.

4.6 Technical Documents

4.6.1 Welding heat treatment construction must have work instructions and heat treatment process cards that are compatible with the welding process assessment, and should have heat treatment operation records.