

### **Repairs and overhaul of steam and hot water boilers (Bohar Gostar Tabaristan):**

Daily operator visits and annual inspections by reputable inspection companies and qualified persons are considered essential. Steam and hot water boiler repairs (metal boiler) is a specialized and sensitive process that requires knowledge, skills and appropriate equipment. Steam boilers (metal boilers) as the beating heart of many industries, play a very important role in producing steam with specific pressure and temperature. they do Therefore, their proper maintenance and repair is of particular importance. Very high sensitivity of the boiler with high working pressure It increases the probability of accidents and accidents. Therefore, boiler maintenance and repair should be taken very seriously.

### **Boiler overhaul can be divided into two general categories:**

1. Routine repairs: includes periodic inspections, cleaning, lubrication and replacement of consumable parts. 2. Basic overhaul: including replacing fire tubes, repairing or replacing the burner, repairing the feed pump and other main parts of the boiler.

### **The importance of repair and overhaul in boilers –**

**Safety:** Boiler failure can lead to explosion, steam leakage and causing personal and financial damage.

**Productivity:** A healthy and efficient boiler (metal boiler) reduces fuel consumption and lowers production costs.

**Longevity of steam boiler and hot water:** periodic repairs and proper maintenance increase the useful life of the steam boiler.

### **When should the boiler be repaired:**

- **Reduction of efficiency:** reduction of steam production or increase of fuel consumption.

- **Abnormal sound:** hearing abnormal sounds such as vibration or impact.
  - **Increase in smoke and pollution:** increase in smoke and pollution during combustion.
  - **High pressure increase** on the pipes or water tank of the hot water boiler (metal boiler).
  - **Deformation of grids and furnace** due to dry operation of the boiler
  - **Cracks and water leakage from the boiler pipes.**
  - **Cracks in the networks and the location of the pipes.**
    - Failure to operate control equipment such as safety valves, level controls, etc.
  - **Boiler temperature or pressure increase:** abnormal increase in pressure or water temperature of the hot water boiler. Important and significant points in the inspection, repair and overhaul of the boiler are carried out in the order of the following steps:
    - **Pre-launch inspection.**
    - **Inspection during** operation of steam and hot water boiler.
    - **Inspection after stopping** the boiler and hot water (metal boiler).
- Pre-launch inspection.:** -Inspection of the boiler body: detailed examination of the boiler body in terms of cracks, corrosion, leakage and other external damages.
- **Control of connections and pipes:** ensuring that the connections and pipes are tight, that there are no leaks, and that the insulation is healthy.
- Checking safety and safety valves:** ensuring the correct operation of safety valves, pressure gauges and other equipment safety .
- Boiler water supply:** ensuring the quality of the boiler supply water, the absence of pollution and the correct setting of water hardness.
- **Burner test:** turn on and adjust the burner and ensure complete combustion without smoke.
- Proper ventilation:** Ensuring proper ventilation in the place of installation of steam and hot water boilers to prevent the accumulation of gases harmful .
- **Boiler inspection during operation.**
  - **Pressure and temperature monitoring:** continuous control of boiler pressure and temperature and ensuring that they are within the allowed range.
- Checking the water level of the boiler:** maintaining the water level of the boiler within the specified range and preventing it from decreasing or increasing more than water limit.

- **Safety equipment operation control:** ensuring the correct operation of safety valves, pressure gauges and other safety equipment.

**Periodic inspection:** performing periodic inspections of the boiler, connections, pipes and peripheral equipment.

- **Record information:** record information related to pressure, temperature, water level and other important parameters in the boiler maintenance book.

**Inspection after stopping the boiler.**

**Boiler water draining:** complete draining of boiler water if repairs or maintenance are needed.

**Boiler cleaning:** cleaning the inside and outside of the boiler from deposits and pollution.

-**Inspection and repairs:** performing detailed inspections and necessary repairs on the boiler and hot water.

