Technical Specifications
for a
Dual Chamber Heat Treat Furnace
Keith model no.: K-18 18 24-D

1.0 General

1.1 The Keith Dual Chambered electrically heated furnace we propose to supply will be described in the specifications that follow. As the name “dual furnace” suggests, it comprises two independently operated furnace chambers that have been assembled one above the other, and then integrally wired to create a single space saving unit. Total heating capacity of this furnace is 36 kilowatts.

1.2 The upper (2250°F rated) heating chamber is intended for hardening metals at higher temperatures. An optional rollout quench tank can also be provided so metal parts may be taken directly out of the hardening chamber and quickly quenched. The independently operated lower (1250°F rated) furnace chamber is then available for tempering or drawings at lower processing temperature.

1.3 Hearth space in the (upper) hardening chamber is 18-inch wide by 24-inch deep, and the chamber has an 18-inch tall setting height. The lower tempering chamber with fan recirculation measures 18-inch wide by 19-inch deep, and the chamber has an 18-inch tall setting height.

1.4 Exterior construction of the furnace consists of heavy gauge sheet metal enclosures around each heating chamber. A strong structural steel framework supports the two heating chambers.

1.5 Operating & Service Manual with electrical diagram including the instruction booklets for the models of temperature controllers you order will be provided.
2.0 Upper Furnace Chamber

2.1 Walls, roof, door and floor are each insulated with thermally efficient firebrick and board insulation that is well rated for an operating temperature up to an intermittent maximum of 2250°F.

2.2 The door for this chamber lifts upward keeping the hot face away from the operator.

2.3 Coiled wire heating elements are installed in porcelain element plates that are mounted along each sidewall of the furnace, as well as on the floor of the heating chamber.

2.4 Power to the heating elements is controlled steplessly and silently by a solid-state relay.

2.5 High limit temperature protection is provided as standard equipment by a Watlow LV controller with separate type “K” thermocouple.

3.0 Lower Furnace Chamber

3.1 Walls, roof, door and floor are each insulated with thermally efficient firebrick and board insulation that is well rated for an operating temperature up to an intermittent maximum of 1250°F. An intermittent 2000°F operating temperature package is available at additional cost.

3.2 The door in this chamber is hinged and swings open to the side.

3.3 Coiled wire heating elements are installed in porcelain element plates that are mounted along each sidewall of the furnace, as well as on the floor of the heating chamber.

3.4 Temperature controls, thermocouples, power control for this chamber will be identical to those described for the upper chamber.

3.5 Circulation of the atmosphere within this chamber is produced by an alloy fan that is belt driven by a 1 h.p. motor. The fan creates a high rate of circulation and temperature uniformity within this furnace chamber.

4.0 Temperature & Power Control Enclosure

4.1 Furnace controls for both heating chambers will be mounted in a single control panel mounted to the side of the furnace that has been integrally wired to the rest of the furnace. Operating controls include the temperature controllers, as well all operating switches and indicator lights.
5.0 Optional Quench Tank

5.1 The 24-inch square by 24-inch deep quench tank is fabricated with 3/16-inch thick steel sheet that is continuously welded and then painted with a good quality industrial paint. If a deeper tank for longer parts will be needed, please request special pricing.

5.2 Tank rolls on castered wheels so it can be easily moved to and from the furnace as needed.

6.0 Optional Inert Gas Stainless Steel Port

6.1 An optional inert atmosphere Stainless Steel Port can be supplied for each chamber with certain limitations. This package is not perfectly gas-tight, such as may be achieved with a retort furnace.

7.0 Utilities Required

7.1 Standard Voltages for this furnace will be 240 Volt, 3 Phase, 60 Hz. Fusing and wiring to this furnace should then be rated for 20% more than 70 Amperes and according to your local building code requirements. As an option this furnace can be wired for 208 or 480 VAC, 3ph, 60Hz for an additional nominal cost.

8.0 Heat Treat Tool Wrap

8.1 Keith stainless steel heat treat tool wrap is the common and most cost-effective solution for preventing your parts from oxidizing during heat-treating. A small amount of paper or charcoal wrapped inside the heat treat foil often helps to consume fugitive oxygen within the package.

8.2 Two grades of heat-treat wrap foil are available. Our premium high temperature grade stainless steel foil is #309 grade that is suitable for use to 2250°F, or our most popular #321 grade that is suitable for use to 2000°F.