

DUAL CHAMBER OVER-UNDER ECONOMICAL HEAT TREATING FURNACE 2275°F / 1250°F (1245°C / 675°C)

APPLICATIONS

The QD 29 Dual Chamber Heat Treating furnace features a 2275°F (1245°C) high heat chamber for hardening and a 1250°F (675°C) recirculating oven for tempering. The over/under configuration saves floor space. The hardening furnace is mounted on top with the tempering oven below. A roll away quench tank is optional. Controls are digital. The tempering oven features a fan and recirculation muffle for high uniformity. This is the most economical dual chamber furnace in the QD line. It is a good basic all-purpose heat treating system.



FEATURES

HIGH TEMPERATURE UNIFORMITY

The hardening furnace is uniform to within +/-25°F (+/-10°C) above 1600°F (870°C). The tempering oven is uniform to within +/-10°F (+/-5°C) above 300°F (150°C).

CERAMIC ELEMENT HOLDERS

Standard elements are coiled iron-aluminum-chrome alloy. The elements are supported in element plates along the sides. These provide perfect support for the coiled element as well as excellent radiating characteristics. The smooth surface prevents premature failure of the element as it expands and contracts. Nickel-chrome elements are optional.

EFFICIENT MULTILAYERED INSULATION

Both chambers are insulated with 2-1/2" of low K factor refractory firebrick as the primary insulation. This is backed up by 2" of very low K factor mineral wool board on all surfaces except the bottom, which has 2" of hard calcium silicate back up for solid hearth support. This yields an excellent combination of strength, insulating quality and fast heat up and cool down time. All refractory is coated with a special facing that prolongs firebrick life and helps prevent spalling and dusting. The refractory sections are available completely shaped for easy replacement without cementing. All sections fit together with engineered heat locks that improve the insulating integrity of the furnace. No asbestos is used.

INTEGRATED CASE

The furnace case is constructed of 14 gauge steel with external structural stiffeners. The entire case is primed with 800°F silicone paint and finished in machine enamel. Both chambers are mounted in one integrated case with lifting rings.

FAN AND RECIRCULATION MUFFLE

The tempering oven features a back mounted alloy fan. It is belt driven with a 1/6 H.P. motor. A heat dissipater protects the bearings. The removable recirculation muffle is constructed of 304 stainless steel. The muffle protects the work from direct radiation of the elements and creates a recirculation pattern for the air.

HARDENING FURNACE FEATURES CERAMIC HEARTH

The standard hearth for the hardening furnace is a 3/4" thick ceramic plate elevated on ceramic standoffs 1/2" above the bottom.

SPRING LOADED VERTICAL PLUG DOOR

The hardening furnace door is a spring loaded swing up vertical door. The spring holds the door tightly closed, counterbalances it while opening, and holds it up while open. The hot face of the door is kept away from the oper-

ator. There is a 1/2" refractory plug that protrudes into the furnace chamber and provides an effective heat lock, as well as a 2" refractory seal around the perimeter of the door. The tempering oven door is a single pivoted horizontal door hinged on the left. It also has a 1/2" plug for a heat lock. The doors are ceramic fiber board for resistance to heat shock.

DIGITAL PID CONTROL SYSTEM

The standard controls are Honeywell UDC 2500 digital PID 3 mode tuning controls. All fuses, transformers, contactors and controls are housed in a NEMA 1 panel. Standard contactors are mechanical. The thermocouples are Type K. Thermocouple break protection is included. Limit switches shut off furnace power when doors are opened or the backs are removed. A NEMA 13 lighted on/off switch is included. Control voltage is transformed to 120 volts. The control circuit and each power branch circuit are fully fused. The customer must connect fused power supply to a single point on the panel.

TESTING AND INSTRUCTIONS

The furnace is power tested to ensure proper watt ratings. A complete instruction manual includes easy startup instructions, theory of operation, maintenance instructions, parts list and a detailed troubleshooting guide. A ladder logic diagram and panel layout are prepared on CAD for easy readability.

WARRANTY

The furnace is warranted for one year except for elements and thermocouples, which are warranted for six months.

OPTIONS

- **OVERTEMPERATURE SYSTEM:** Honeywell UDC 1200 digital high limit back up control with manual reset, back up contactors and separate thermocouple.
- **JIC CONTROL OPTION:** This includes a NEMA 12 control cabinet, all oil tight switches and a panel mounted fused disconnect switch.
- **HIGH K.W.:** Available on hardening furnace only. Increases K.W. from 8.0 to 12.0 by adding another element plate on the bottom. This reduces the available working space by 2 inches.
- **SOLID-STATE CONTACTORS:** These are quieter, last longer and allow for a faster control cycle time.
- **SCR POWER CONTROL:** For greater precision.
- **INERT ATMOSPHERE CONTROL:** Available on one or both chambers. This option helps prevent oxidation and decarburization of parts.
- **RAMP/SOAK PROGRAM CONTROLS**
- **TEMPERATURE RECORDERS:** Round and strip chart
- **SPECIAL HEARTH:** Silicon carbide or alloy hearth.
- **AGITATED, HEATED QUENCH TANKS**
- **ROLL AWAY QUENCH TANK:** A quench tank is provided with casters to roll under the furnace. This tank includes a drain.

SPECIFICATIONS

Model Number	Hard Chamber Actual Inside Dimension			Temp Chamber Inside Recirc Muff Dimension			Outside Dimensions			Hard Chamb K.W.	Temp Chamb K.W.	Max Load LBS	Apprx Ship LBS
	W	H	D	W	H	D	W	H	D				
QD 29	12	8	24	9	6	20	55	70	56	8.0	8.0	100	100

Dimensions are in inches. Weight is in pounds. 240 or 460 volts are normal. 208, 380 and 575 volts are optional. Single phase is normal although 3 phase is available. Inside tempering chamber dimensions are also working dimensions for that chamber. Specifications are subject to change without notice.