

DUAL CHAMBER OVER / UNDER SMALL HEAT TREATING FURNACES

APPLICATIONS

The QDD Series Dual Chamber Heat Treating furnaces feature a high heat chamber for hardening and a recirculating tempering oven. The over/under configuration saves floor space. The hardening furnace is mounted on top with the tempering oven below. Agitated and heated quench tanks are optional. The tempering oven features a fan and recirculation muffle for high uniformity.

The QDD29 reaches 2200°F/1200°C in the hardening chamber, while the QDD124 and QDD126 reach 2350°F/1285°C. The maximum temperature in the bottom recirculation oven is 1250°F/675°C for all three models.

Both chambers are controlled with simple but powerful digital program controls and backed up with high limit safety controls. The controls are made in the USA by a major supplier to our ceramic kiln division and have proven their worth in these heat treating furnaces.



Model QDD124

FEATURES

HIGH TEMPERATURE UNIFORMITY

The hardening furnace is uniform to within +/-25°F (+/-15°C) above 1500°F (815°C). The tempering oven is uniform to within +/-10°F (+/-5°C) above 300°F (150°C).

ELEMENT PLACEMENT

The elements in the QDD124 and QDD126 hardening furnace are evenly spaced on the top, bottom and sides for uniform heating. The QDD29 elements are on just the sides. Elements in the tempering oven of all models are on the sides. Standard elements are iron-aluminum-chrome alloy.

CERAMIC ELEMENT HOLDERS

The elements are supported in proprietary high temperature ceramic element holders. 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.

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.

HEAVY DUTY INTEGRATED CASE

Both chambers are mounted in one integrated 10 gauge steel case with structural stiffeners and lifting rings. The entire case is primed with 800°F silicone paint and finished in machine enamel.

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 dissipator 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 HAS CERAMIC HEARTH

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

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 from the operator. 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.

DIGITAL PROGRAMMING CONTROL SYSTEM

The standard controls are Bartlett Model 3K digital controls with four separate programs. Each program includes eight segments that each features a ramp, set point and hold time. These controls are very easy to use. All fuses, transformers, contactors and controls are housed in a commercial-grade panel. Mechanical power contactors are standard. The thermocouples are Type K. Thermocouple break protection is included. Limit switches shut off power when doors are opened or the backs are removed. A NEMA 13 lighted on/off switch is included. The control circuit and each power branch circuit are fully fused.

HIGH LIMIT CONTROLS

Each chamber has a separate Bartlett high limit control with back up relays. These include manual reset and a separate thermocouple.

TESTING AND INSTRUCTIONS

The furnace is power tested to ensure proper watt ratings. A complete instruction manual includes easy start up 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

- **HIGH K.W.:** Available on hardening furnace. 30% higher.
- **INERT ATMOSPHERE CONTROL**
- **TEMPERATURE RECORDERS:** Round & strip chart.
- **SPECIAL HEARTHS:** Silicon carbide or alloy hearth.
- **AGITATED, HEATED QUENCH TANKS**



SPECIFICATIONS

Model Number	Hard Chamber Actual Inside Dimension			Hard Chamber Uniform Inside Dimension			Temp Chamber Inside Recirc Muffle 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	W	H	D				
QDD 29	12	8	24	9	6	20	10	8	20	55	70	56	8.0	8.0	100	1,200
QDD 124	13	12	25	10	10	20	10	12	22	55	78	56	9.8	8.0	125	1,300
QDD 126	13	12	37	10	10	32	10	12	34	55	78	68	13.0	12.0	175	1,600

Dimensions are in inches. Weight is in pounds. 240 or 460 is normal. 208, 380 and 575 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.

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