



# SPECIAL FURNACE CO INC

20 Kent Road • PO Box 2129 • Aston, PA 19014 • 610.459.9216 • Fax: 610.459.3689 • Web: hotfurnace.com

## QD 29

### 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 (148°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.



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

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**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 which 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 from the operator. There is a 1/2" refractory plug which protrudes into the furnace chamber and provides an effective heat lock. There is 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 2300 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. Lighted NEMA 13 On/Off switch is included. Control voltage is transformed to 120 volts. The control circuit and each power branch circuit are fully fused. Customer must connect fused power supply to single point on panel.

**TESTING AND INSTRUCTIONS**

The furnace is power tested to insure proper watt ratings. A complete instruction manual includes easy start up instructions, theory of operation, maintenance instructions, parts list, and a detailed trouble shooting 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 (warranted for 6 months.)

**OPTIONS**

- **OVERTEMPERATURE SYSTEM:** Honeywell UDC 2300 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.
- **MERCURY 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
- **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 DIMEN			HARD CHAMBER UNIFORM INSIDE DIMEN			TEMP CHAMBER INSIDE RECIRC MUFFLE DIMEN			OUTSIDE DIMENSIONS			HARD CHAMB K.W.	TEMP CHAMB K.W.	MAX LOAD LBS	APPRX SHIP LBS
	IW	IH	ID	W	H	D	IW	IH	ID	OW	OH	OD				
QD 29	12	8	24	9	6	20	10	8	20	55	70	56	8.0	8.0	100	1200

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.