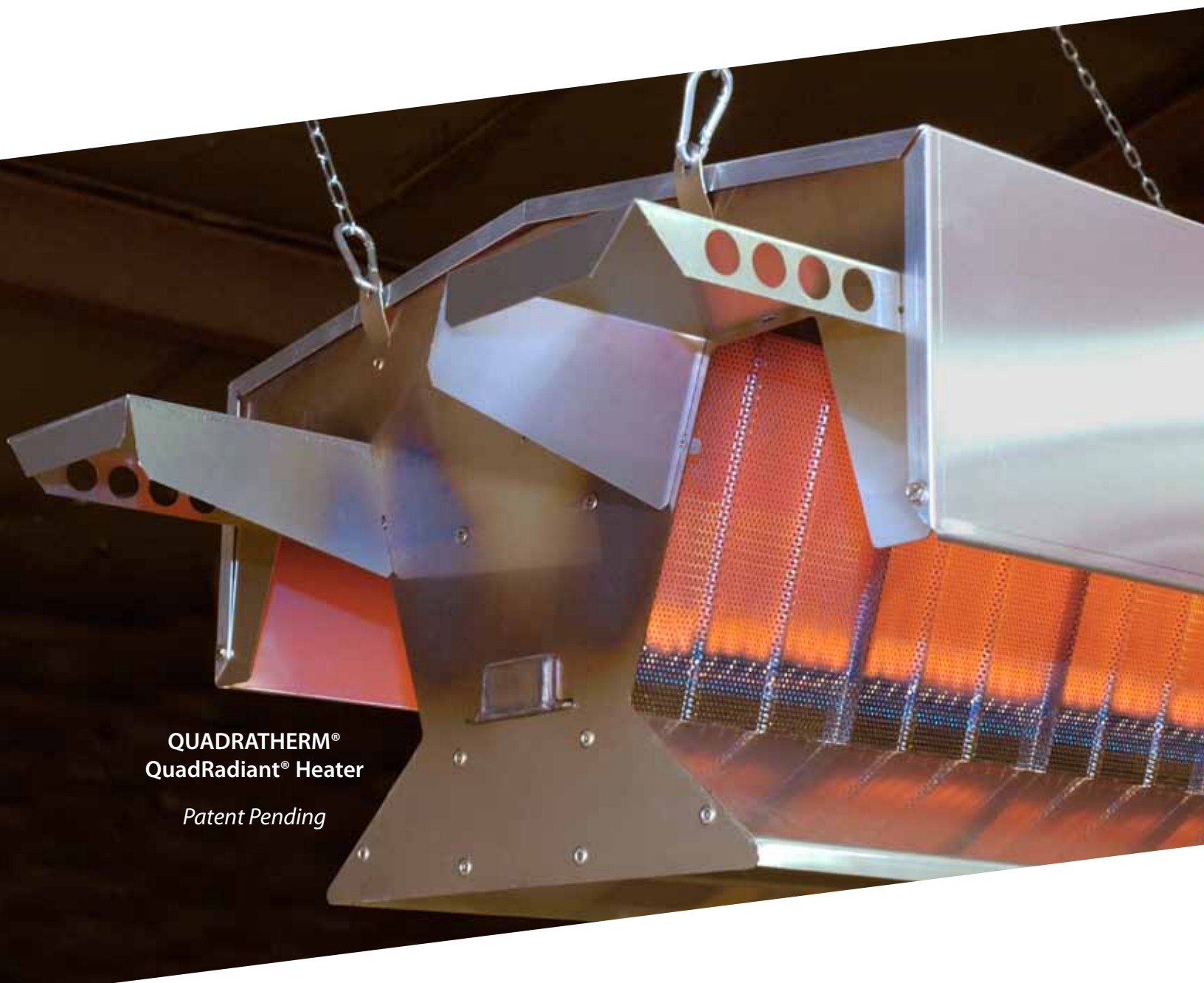


Heating Systems

Brooders, Space Heaters and QuadRadiant® Heaters



Let's grow together.



QUADRATHERM®
QuadRadiant® Heater

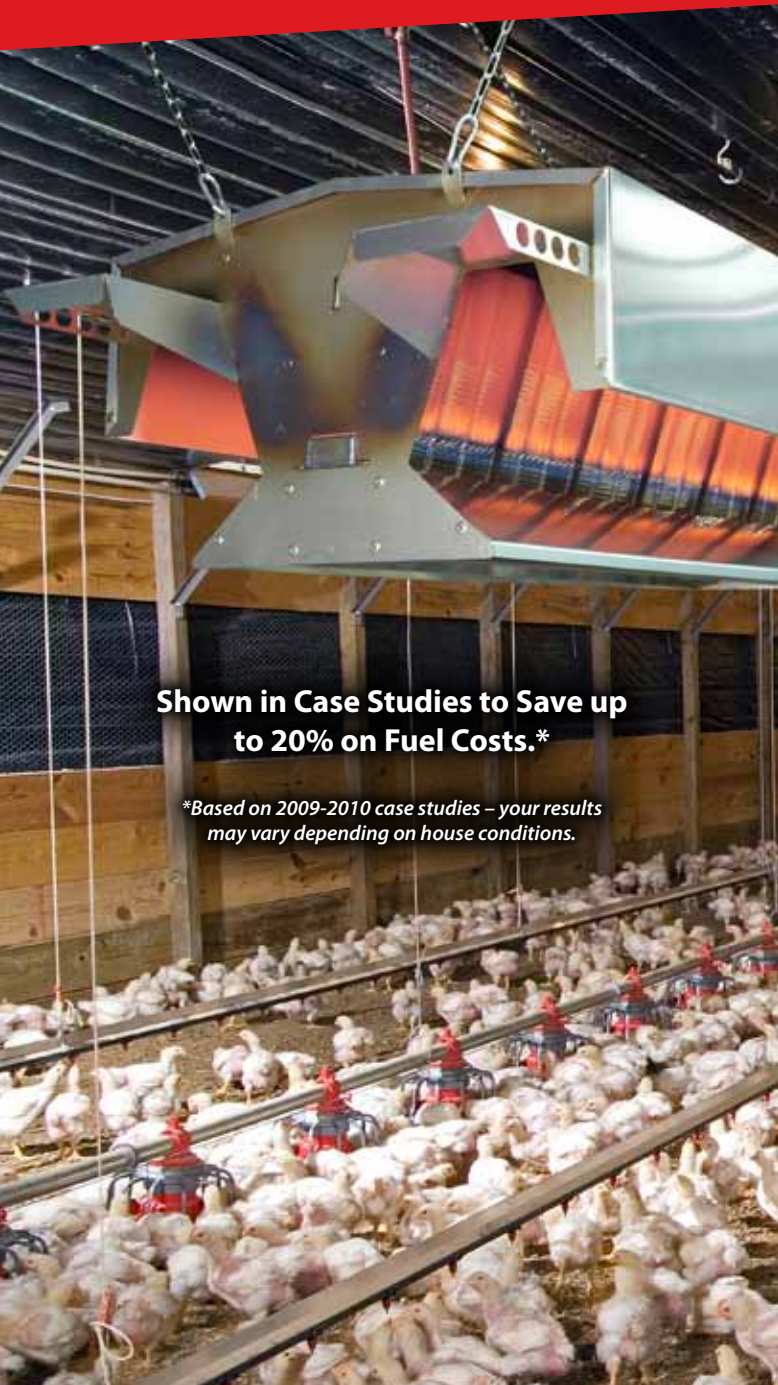
Patent Pending



**With Chore-Time's QUADRATHERM® Heater,
the Most Innovative Concept in Heating
Has Made Another Giant Leap Forward!**

Backed by 80 years of experience in heater innovation and design.

- Robust 80,000 BTUs (20,160 Kcal) of QuadRadiant® Heat with a broad, house-shaped heat pattern for optimal floor coverage.
- Brooders from 42,000 - 23,000 BTUs (10,600 - 5,800 Kcal) and Space Heaters from 250,000 - 200,000 BTUs (63,000 - 50,400 Kcal).



Shown in Case Studies to Save up to 20% on Fuel Costs.*

**Based on 2009-2010 case studies – your results may vary depending on house conditions.*

**Not A Tube Heater, Not A Brooder,
Not A Space Heater**

QUADRADIANT® Heat!

Performance Efficiency

- The compact QUADRATHERM® Heater delivers a robust 80,000 BTUs of QuadRadiant® heat in a broad, quadrangular heat pattern.
- Uses fuel more efficiently by converting more of the thermal capacity of the gas to infrared heat and transferring more of that heat to the floor.
 - Large, ribbed emitter surface area radiates more infrared heat than other heater styles.
 - Unique shape and reflective surfaces enhance transfer of infrared heat to the floor.
 - Spacious combustion chamber and highly effective burner enhance heater efficiency.
 - Pressurized burner results in even heat distribution through all burner ports.
 - Burner efficiency is further optimized using additional combustion air through the bottom of the heater.
- Adjustable height helps optimize floor coverage.
- QuadRadiant® heat requires less run time to heat a typical house.
- Saves fuel by permitting zone control – heat only the areas of the house where heat is needed.

Ease Of Operation

- Reliable direct spark ignition or 500-BTU pilot.
- Thermostatic, zone or individual sensor control.
- Proven, reliable component parts.
- Burner and igniter are protected from debris.

Easy To Install

- Heaters are delivered assembled and ready to hang.
- Units include eight-foot (2.4-meter) power cords and gas hoses for flexible heater placement.
- 5-psi operation at the heater for high-pressure models reduces installation costs for piping and is retrofit friendly. (Low-pressure models require larger piping.)
- 120-volt zone control model does not require a transformer. (24-volt requires a transformer but also permits battery back-up.)
- Slotted tabs at the corners of the heater permit secure four-point suspension for extra stability.

Easy To Maintain

- Burner is easy to access by removing one screw.
- Three-piece bottom eases access for cleaning.
- Corrosion-resistant stainless steel and aluminum construction. Designed for compressed air cleaning.
- Heaters are winchable for house clean-out.

What Is QuadRadiant® Heat?

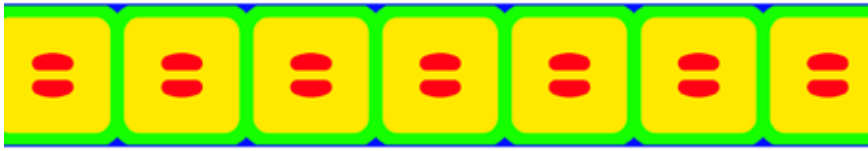
An entirely different type of heating system that produces:

- **Infrared, radiant heat.**
- **A four-sided (quadrangular) heat pattern.**

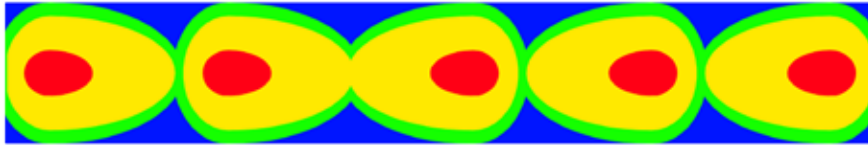
**QUADRANGULAR
+ RADIANT HEAT**

QUADRADIANT

QUADRADIANT® Heat Solves Typical Heating System Problems



Heat pattern from QUADRATHERM® QuadRadiant® Heating System*
Note broad yellow, house-shaped comfort zone



Heat pattern from typical tube-style heating system*
Note large cool blue areas and very hot red areas

1. Rectangular, house-shaped heat patterns from QuadRadiant® Heaters match the rectangular shape of a poultry house.
2. A single QuadRadiant® Model provides broad, even heat for most house widths.
3. With the QuadRadiant® Heater, more even heat patterns result in a larger comfort zone for birds and save fuel (hot spots waste fuel).
4. QuadRadiant® Heaters are winchable for easy access for service and maintenance, and they are designed for simplified maintenance.
5. Installing QuadRadiant® Heaters requires no problematic air intakes, ducting or pressurized combustion.

*Actual house temperatures may vary depending on house type and installation.

Chore-Time's QUADRATHERM® Heater Spreads Broad, Even Heat

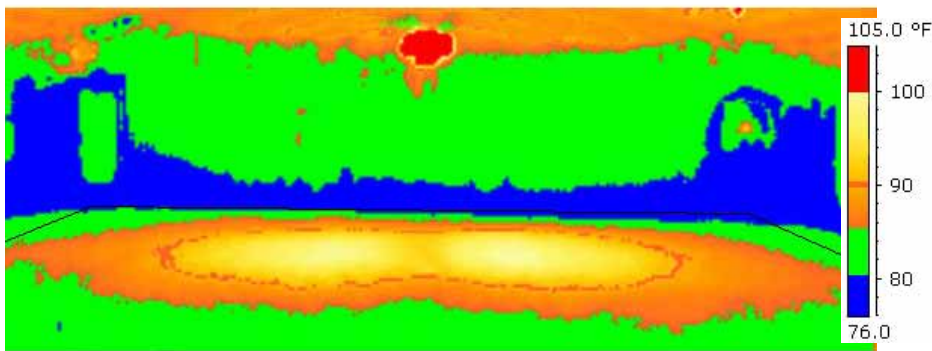


Image shows the actual heat pattern of one 80,000 BTU QuadRadiant® Heater centered in a 40 x 40 foot area. Notice the narrow range of temperature variation and the large comfort zone under the single unit.

"I installed six houses of QuadRadiant Heaters on my farm. The floor heat is the most uniform I have seen with any heating system, and there is a considerable savings in operating expense. I have been very satisfied with the heaters, and I highly recommend them."

Texas Grower



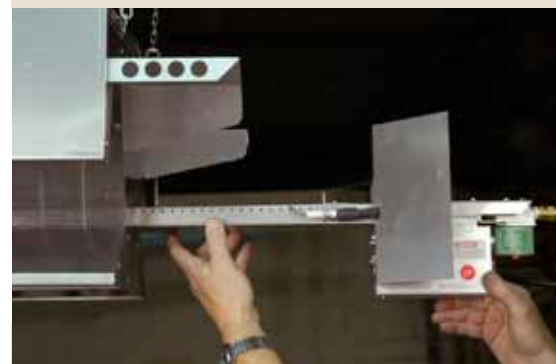
High-pressure units feature electronic direct spark zone control.



Low-Pressure, Zone Control Model permits 12 VDC battery back-up.



Proven corrosion-resistant, stainless steel emitter panels enclose fiber insulator and stainless steel inner cone.



Heavy-duty 18-gauge stainless steel burner is easy to clean and includes a flame-sensing direct spark ignitor or 500 BTU pilot.

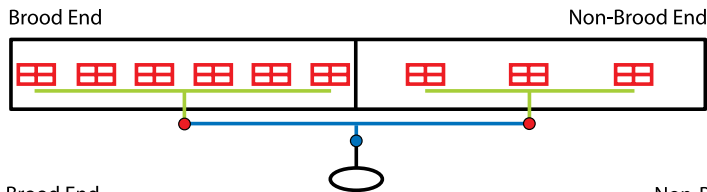
QUADRATHERM® Heater Application Guide

Heater Placement For New Houses With Solid Sidewalls*

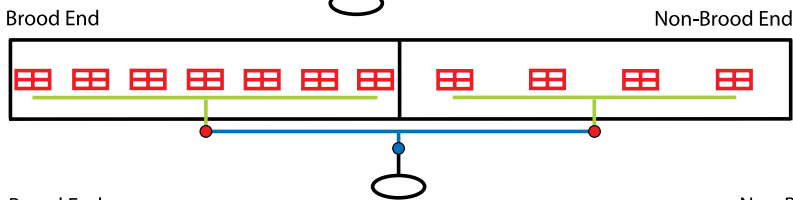
Maximum 5 PSI for High Pressure or 11" W.C. for Low Pressure at Heater



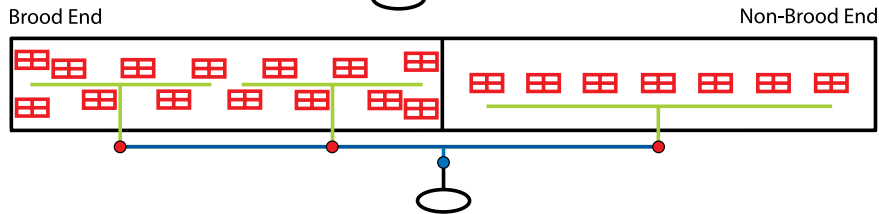
For houses 400 feet long (122 m) by 40 to 50 feet wide (12.2-15.2 m)



For houses 500 feet long (152.4 m) by 40 to 50 feet wide (12.2-15.2 m)



For houses 600 feet long (182.9 m) by 50 to 66 feet wide (15.2-20.1 m)



- 5 PSI High Pressure or 11" W.C. Low Pressure
- Secondary regulator must match pressure requirements of heater model
- 10 PSI High Pressure
- First-stage regulator reduces pressure to 10 PSI

Heater Spacing*

House Length	400 Feet (122 m)		500 Feet (152.4 m)		600 Feet (182.9 m)	
House Width	40 to 50 Feet (12.2-15.2 m)		40 to 50 Feet (12.2-15.2 m)		50 to 66 Feet (15.2-20.1 m)	
	Brood End	Non-Brood End	Brood End	Non-Brood End	Brood End ⁺	Non-Brood End
Distance from End Wall and from Curtain	15 feet (4.6 m)	40 feet (12.1 m)	15 feet (4.6 m)	35 feet (10.7 m)	15 feet (4.6 m)	30 feet (9.1 m)
Distance between Heaters	34 feet (10.4 m)	60 feet (18.3 m)	37 feet (11.3 m)	60 feet (18.3 m)	49 feet (14.9 m)	40 feet (12.1 m)

*Contact Chore-Time's Customer Fulfillment Department for a pipe size layout and drawing specific to your houses. Layouts may vary depending on house style, size and climate. Stir fans, inlets and tunnel doors should not blow directly on the heaters. Position units so there is no direct air movement on them during operation.

+Two rows of heaters.

	QuadRadiant® Heat Advantages vs. Tube Heat	QuadRadiant® Heat Advantages vs. Brooders	Brooder Heat Advantages vs. Tube Heat
More Even Heat Pattern	Yes	Yes	-
More Efficient Fuel Conversion	Yes	Yes	-
Rectangular Heat Profile	Yes	Yes	-
Flexible for Various House Widths	Yes	-	Yes
Winchable	Yes	-	Yes
Quicker Up-To-Temperature	Yes	Yes	Yes
No Air Intakes or Ducting	Yes	-	Yes
Easy to Move Units	Yes	-	Yes
Easily Accessible	Yes	-	Yes
Run Without Electricity**	Yes	-	Yes
Requires Fewer Units	-	Yes	-

**Low-Pressure, Snap-Action Model Only

QUADRATHERM® Heater Specifications

High Pressure (5 psi)

Low Pressure (11" W.C.)

Model-Specific Details	Standard	Canadian	Butane/Propane	Snap Action	Zone Control
Ignition	Direct Spark	Direct Spark	Direct Spark	500 BTU Pilot	500 BTU Pilot
Electrical	120 V AC	120 V AC	120 V AC	Non-Electric	24 V AC
Back-Up Options	Generator	Generator	Generator	Not Applicable	Generator or 12 V DC
Transformer Options (Available If Needed)	230 to 120 V AC			Not Applicable	120 to 24 V AC
Control	Zone	Zone	Zone	Individual	Zone
Gas Pressure Requirements (Maximum)	5 psi (350 Mbar)	5 psi (350 Mbar)	5 psi (350 Mbar)	11" W.C. (27.5 Mbar)	11" W.C. (27.5 Mbar)
Fuel	Propane or Natural Gas		Propane or Butane/Propane Mix*		
Maximum Gas Consumption	Propane - 0.87 gph (3.29 l/h) Nat. Gas - 75.5 cfh (2.14 m ³ /h)		0.87 gph (3.29 l/h)*		

*Butane/propane fuel consumption may vary contingent on the mix ratio. Contact Chore-Time with any questions regarding use of butane/propane mixed fuel.

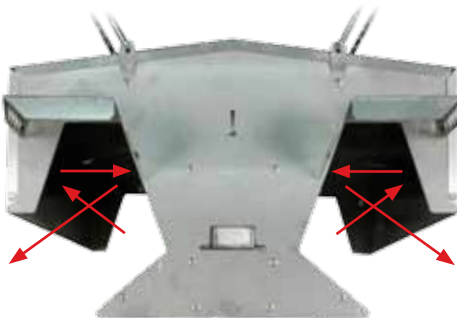


Canadian model only

Specifications Common to All Models

	U.S. Measure	Metric
Heating Area per Unit (Depending on climate and hanging height. Fewer units required in grow-out area.)	1200 to 2400 sq. ft.	111.5 to 223.0 m ²
Maximum Heating Capacity per Hour (from sea level to 2000 feet)	80,000 BTU	20,160 Kcal
Weight per Unit	53 lbs.	24 kg
Approximate Shipping Dimensions – Width x Length x Height (Without Required Heat Shields Installed)	22 x 47 x 13¼ in.	55 x 119 x 34 cm
Minimum Height from Floor to Bottom of Unit (Heaters may need to be adjusted up or down depending on housing construction, conditions and climate.)	7 to 9 ft.	2.1 to 2.7 m
Space Between Heaters	40 to 60 ft.	12.2 to 18.3 m
Minimum Clearance to Combustibles		
Sides of Heater	48 in.	122 cm
Above Heater with Required Heat Shields (All Shields Required)	12 in.	31 cm
Above Heater (If Any Heat Shields Damaged or Temporarily Missing)	24 in.	61 cm
Below Heater	72 in.	183 cm

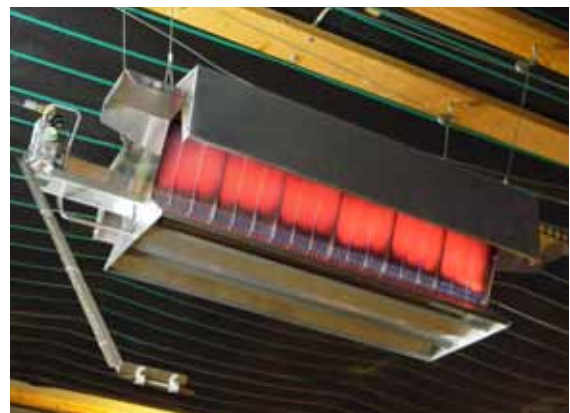
Chore-Time's policy is one of continuous product improvement. We reserve the right to change models and specifications at any time without notice or obligation to update previous models. Heating products should be installed only in accordance with local laws, codes and regulations. These products are not for residential use. Gas pipe layout assistance available to customers through authorized distributors. Contact Chore-Time for further details if heater will be used at high altitudes (2000 feet or more above sea level). Orifice size options for high altitude use are available for all models. All models meet stringent standards for low carbon monoxide.

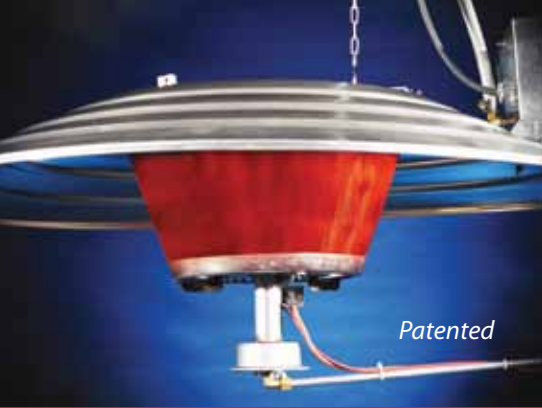


The special shape of Chore-Time's QUADRATHERM® Heater reflects heat in a wide pattern 30-40 feet by 40-60 feet (9.1-12.2 meters by 12.2-18.3 meters).

Low-Pressure, Snap Action Model requires no electricity.

Unit is shown with the sensor arm lowered into the operating position. Sensor arm can be raised for winching.





Patented

CHORE-TIME Ultra-Ray® Infrared Brooder

Heats an average of 800 to 1000 square feet per brooder.

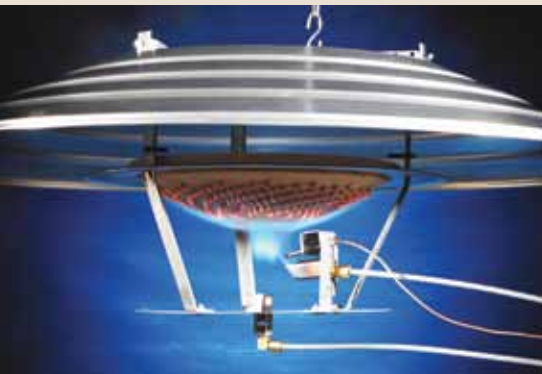


Patented

CHORE-TIME Ultra-Ray® HP Infrared Brooder

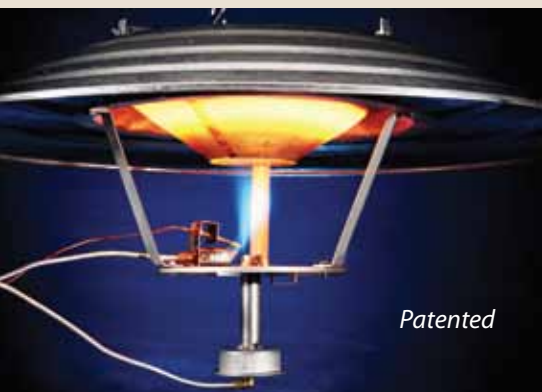
Heats an average of 800 to 1000 square feet per brooder.

- No air inlet filter needed.
- Higher gas pressures save piping costs.
- Ideal for retrofit in houses with small gas piping.



CHORE-TIME ULTRA-VECTION™ Convection Brooder

Heats an average of 250 to 400 square feet per brooder.



Patented

CHORE-TIME Ultra-Ray® LITE Infrared Brooder

Heats an average of 250 to 400 square feet per brooder.

Brooder Heating

CHORE-TIME Ultra-Ray® Infrared Brooder & Ultra-Ray® HP High-Capacity High-Pressure Brooder

Variable and Reliable Heat Distribution

- Variable – Heat is most intense directly under brooder with concentric rings of diminishing heat so birds can choose where they are most comfortable.
- Reliable – Our heating systems are backed by 80 years of experience in heater innovation and design.

Broad Heat Pattern and Volume of Heat

- Provides a broad comfort zone with a high volume of heat to the floor and a wide pattern of heat distribution.
- Design of emitter and canopy work together to distribute heat to a larger area.

Maximum Fuel Efficiency

- Infrared transmission of heat efficiently warms floors and birds without the need to “superheat” the air – uses less fuel.

Easy to Clean and Maintain

- Removable air intake, drop-down orifice and patented horizontal pilot are designed for easy cleaning and maintenance with no tools and minimal hardware removal.
- Stainless steel emitter and inner cone protect internal fiber insulator during power washing (be sure to cover the control before power washing). Units may also be cleaned using compressed air.
- Stainless steel burner is corrosion-resistant and stays clean.

CHORE-TIME ULTRA-VECTION™ Convection Brooder

- Fuel-efficient, spiral ceramic radiant gets more heat down to the birds quickly (compared to smooth ceramic radiants). A fiber radiant option is also available.
- Two canopy size options for a heat area that is broad or more focused.
- Jet burner burns cleanly and efficiently.
- Easy access to orifice in jet burner and patented horizontal pilot for easy cleaning and maintenance with no tools. Compressed air cleaning is recommended – do not power wash.

CHORE-TIME Ultra-Ray® LITE Infrared Brooder

- Efficient infrared heating uses less fuel because the floor stays warm at cooler room temperatures.
- Two canopy size options for a heat area that is broad or more focused.
- Removable air intake, drop-down orifice and patented horizontal pilot are designed for easy cleaning and maintenance with no tools and minimal hardware removal. Compressed air cleaning is recommended – do not power wash.

Brooder Features

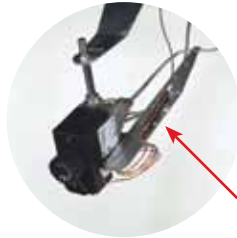


Patented Space-Saver Hanging Bracket

Low-profile "T"-hanger suspension is designed for easy field installation and easy brooder leveling adjustment.

Multi-Location Sensing Bulb Placement

Multi-location bracket for heat sensing bulb allows flexibility in positioning for more precise floor temperature management. Mount the sensor on top of or under the bracket, in various positions from very close to the brooder to farther away from the brooder, or extend the sensor position beyond the bracket.



Three-Layer Emitter Assembly

Standard on 42,000 and 40,000 BTU brooders, the assembly consists of a stainless steel emitter, stainless steel inner cone, and fiber insulator. The inner cone completely shields the insulator, making power washing possible.

Patented Horizontal Pilot

Our patented horizontal pilot improves reliability, maintenance, and combustion. The horizontal pilot position is less prone to clogging from dust and dirt. The pilot shield that protects the orifice is easily removed without tools for standard maintenance.



Sturdy Canopy Design

Spun aluminum or steel canopies feature a beaded, "U"-channel structure for strength and durability.

Heat Shield

(Popular for use with turkey poults.)

The heat shield is standard on all brooders 31,000 BTUs and under and is available as an option on our higher BTU brooders. Use of the heat shield reduces the intensity of the heat directly under the brooder and spreads the brooder's warmth further. The temperature sensing bulb may be located under the heat shield in turkey applications.



Heat Shield

Heats an average of 2,500 to 4,400 square feet (232.3 to 408.8 square meters) per heater. Optional outside mount kit available.



Chore-Time DURA-THERM™ Space Heater High-BTU Output Convection Heating

- Design is backed by 80 years of experience in heater innovation and design.
- Durable galvanized steel cabinet with stainless steel option and heat-resistant aluminized burn chamber.
- High-performance cast-iron burner provides efficient combustion.
- Multiple ignition and fuel source options.
- Removable panels and controls compartment are designed for easy cleaning and maintenance. Compressed air cleaning is recommended – do not power wash.

Space Heater Specifications

Unit Name	DURA-THERM™ 250	DURA-THERM™
Heating area per unit	2750-4400 ft ² (255.5-408.8 m ²)	2500-4000 ft ² (232.3-371.6 m ²)
Capacity (Maximum Per Hour)		
Direct Spark or Hot Surface Ignition	250,000 BTU (63,000 Kcal) LP or Nat. Gas	225,000 BTU (56,700 Kcal) - LP 200,000 BTU (50,400 Kcal) - Nat. Gas
Gas Consumption (Maximum) - LP		
Direct Spark or Hot Surface Ignition	2.73 gph (10.33 l/h)	2.46 gph (9.31 l/h)
Gas Consumption (Maximum) - Natural Gas		
Direct Spark or Hot Surface Ignition	235.85 cfh (6.68 m ³ /h)	213.8 cfh (6.05 m ³ /h)
Gas Pressure Requirements (Measured at Inlet)		
LP	11" WC (27.5 Mbar)	11" WC (27.5 Mbar)
Natural Gas	7" WC (17.5 Mbar)	7" WC (17.5 Mbar)
Heater Size, Weight & Assembly Information		
Weight Per Complete Unit	125 lbs. (56.7 kg)	125 lbs. (56.7 kg)
Height x Length x Width	30 x 24.5 x 19 inches (76.2 x 62.2 x 48.3 cm)	30 x 24.5 x 19 inches (76.2 x 62.2 x 48.3 cm)
Minimum Clearance to Combustibles		
Above, Below and Beside Unit	20 in. (50.8 cm)	20 in. (50.8 cm)
Exhaust Outlet	120 in. (304.8 cm)	120 in. (304.8 cm)
Electrical Requirements: 120 VAC (220/240 VAC 50 or 60 Hz)		

The policy of Chore-Time is one of continuous product improvement. We reserve the right to alter specifications without prior notice. Heating products should be installed only in accordance with local laws, codes and regulations. These products are not for residential use. Gas pipe layout assistance available to customers through authorized distributors.

CSA (Canadian Standards Association) approved models are available. All models meet stringent standards for low carbon monoxide.

Brooder Specifications

Type	Large Infrared Brooder	High-Capacity High-Pressure Brooder (Unit is shipped pre-assembled)	Small Infrared Brooder	Convection Brooder
Unit Name	CHORE-TIME Ultra-Ray®	CHORE-TIME Ultra-Ray® HP	CHORE-TIME Ultra-Ray® LITE	CHORE-TIME ULTRA-VECTION™
Heating area per unit	800-1000 sq. ft. (74.3-92.9 m ²)	800-1000 sq. ft. (74.3-92.9 m ²)	250-400 sq. ft. (23.2-37.2 m ²)	250-400 sq. ft. (23.2-37.2 m ²)
Capacity (Maximum Per Hour)				
Pilot Ignition (Note: Brooder pilots burn at 2,000 BTUs per hour and can withstand 5 mph wind speed.)	42,000 BTU (10,584 Kcal)	Not Available	25,000 BTU (6,300 Kcal)	31,000 BTU (7,811 Kcal)
Direct Spark Ignition	40,000 BTU (10,080 Kcal)	40,000 BTU (10,080 Kcal)	23,000 BTU (5,796 Kcal)	Not Available
Modulation Range				
Range per Hour	Not Available	Not Available	10,000-25,000 BTU (2,520-6,300 Kcal)	Not Available
Gas Consumption (Maximum) Pilot Ignition				
LP	0.46 gph (1.74 l/h)	Not Available	0.27 gph (1.02 l/h)	0.34 gph (1.29 l/h)
Natural Gas	39.9 cfh (1.13 m ³ /h)	Not Available	23.8 cfh (0.67 m ³ /h)	29.3 cfh (0.83 m ³ /h)
Gas Consumption (Maximum) Direct Spark Ignition *LP Brooder with Natural Gas Conversion Kit				
LP	0.44 gph (1.67 l/h)	0.44 gph (1.67 l/h)	0.25 gph (0.95 l/h)	0.32 gph (1.21 l/h)
Natural Gas	37.8 cfh (1.07 m ³ /h)	37.8 cfh (1.07 m ³ /h)*	21.9 cfh (0.62 m ³ /h)	27.4 cfh (0.78 m ³ /h)
Gas Pressure Requirements (Measured at Unit for ULTRA-HP™ PLUS and at Pressure Tap on Valve with Unit Running for Other Models)				
LP	11" WC (27.5 Mbar)	5 psi max (350 Mbar max)	11" WC (27.5 Mbar)	11" WC (27.5 Mbar)
Natural Gas	7" WC (17.5 Mbar)	5 psi max (350 Mbar max)*	7" WC (17.5 Mbar)	7" WC (17.5 Mbar)
Heater Size, Weight & Assembly Information				
Weight per Complete Unit	18-26 lbs. (8.2-11.8 kg)	18-26 lbs. (8.2-11.8 kg)	18-28 lbs. (8.2-12.7 kg)	15-32 lbs. (6.8-14.5 kg)
Canopy Width Options (Aluminum or Galvanized)	34 in. (86.4 cm)	34 in. (86.4 cm) Heavy-Duty Aluminum Only	34 or 46 in. (86.4 or 116.8 cm)	34 or 46 in. (86.4 of 116.8 cm)
Height	14 in. (35.6 cm)	14 in. (35.6 cm)	17.5 in. (44.5 cm)	20.5 in. (52.1 cm)
Operational Guidelines for Brooding Area (Adjust Up or Down Depending on Housing Construction/Condition and Climate)				
Height from Floor (Measure from Edge of Canopy)	60-72 in. (152.4-182.9 cm)	60-72 in. (152.4-182.9 cm)	30-36 in. (76.2-91.4 cm)	30-36 in. (76.2-91.4 cm)
Space between Brooders/Side	25-40 ft. (7.6-12.2 m)	25-40 ft. (7.6-12.2 m)	15-25 ft. (4.6-7.6 m)	10-20 ft. (3.0-6.1 m)
Minimum Clearance to Combustibles				
Sides of Brooder/Heater	36 in. (90 cm)	36 in. (90 cm)	30 in. (75 cm)	26 in. (65 cm)
Above Brooder/Heater	14 in. (35 cm)	14 in. (35 cm)	12 in. (30 cm)	10 in. (25 cm)
Below Brooder/Heater	48 in. (120 cm)	48 in. (120 cm)	30 in. (75 cm)	30 in. (75 cm)
Control Options (Electrical Requirements - Direct Spark Zone Control 24 VAC - Pilot Zone Control 24 VAC)				
Electronic Zone Control (Maximum Brooders per Zone - 40 Pilot or 18 Direct Spark)	Pilot or Direct Spark	Direct Spark (120 volts)	Pilot or Direct Spark	Pilot
On-Off Individual Control	Pilot	Not Applicable	Pilot	Pilot
Modulating Individual Control	Not Applicable	Not Applicable	Pilot	Pilot
Manifold Zone Control (Maximum Brooders per Zone - 20)	Not Applicable	Not Applicable	Not Applicable	Available

The policy of Chore-Time is one of continuous product improvement. We reserve the right to alter specifications without prior notice. Heating products should be installed only in accordance with local laws, codes and regulations. These products are not for residential use. Gas pipe layout assistance available to customers through authorized distributors.

CSA (Canadian Standards Association) approved models are available. All models meet stringent standards for low carbon monoxide.

Reliable Control Options

ZONE CONTROLS: Allow One Thermostat or Control to Regulate All Brooders in a Specified Area.				INDIVIDUAL CONTROLS: Allow Control of Each Individual Brooder Independently of the Others.	
Electronic (Pilot)	Electronic (Direct Spark)	Electronic High-Pressure (Direct Spark)	Manifold	Modulating (Pilot)	On-Off (Pilot)
Mounted on each individual brooder with up to 40 brooders per zone	Mounted on each individual brooder with up to 18 brooders per zone	Mounted on each individual brooder with maximum per zone determined by thermostat or control used	One manifold per zone with up to 20 brooders per zone	Mounted on each individual brooder	Mounted on each individual brooder
Includes 100% safety cut-off valve	Reliable ignition uses less fuel with no pilot and gives three tries before lockout	Reliable ignition uses less fuel with no pilot and gives three tries before lockout	Available with step rate control or modulating	Combines a snap-action thermostat with 100% safety cut-off valve	Combines a snap-action thermostat with 100% safety cut-off valve
24 V AC	24 V AC	120 V AC	120 V AC	No electricity needed	No electricity needed
Can be powered by a battery back up system or generator	Can be powered by a back-up generator	Can be powered by a back-up generator		Modulates between maximum and minimum BTU rates before snapping off at control setting	Snaps from high to off based on control setting

See Brooder Specification chart for which controls can be used with each style of brooder.

Find your certified TRUE RED® distributor in our on-line distributor finder.



Let's grow together.

www.choretimepoultry.com

Chore-Time Poultry Production Systems
Chore-Time Brock International
Divisions of CTB, Inc.

Phone: 574.658.4101 or +1.574.658.9323 (International)
E-mail: poultry@choretime.com or world@ctbworld.com

Feeding | Drinking | Controls | Ventilation | Heating | Nests | Feed Storage