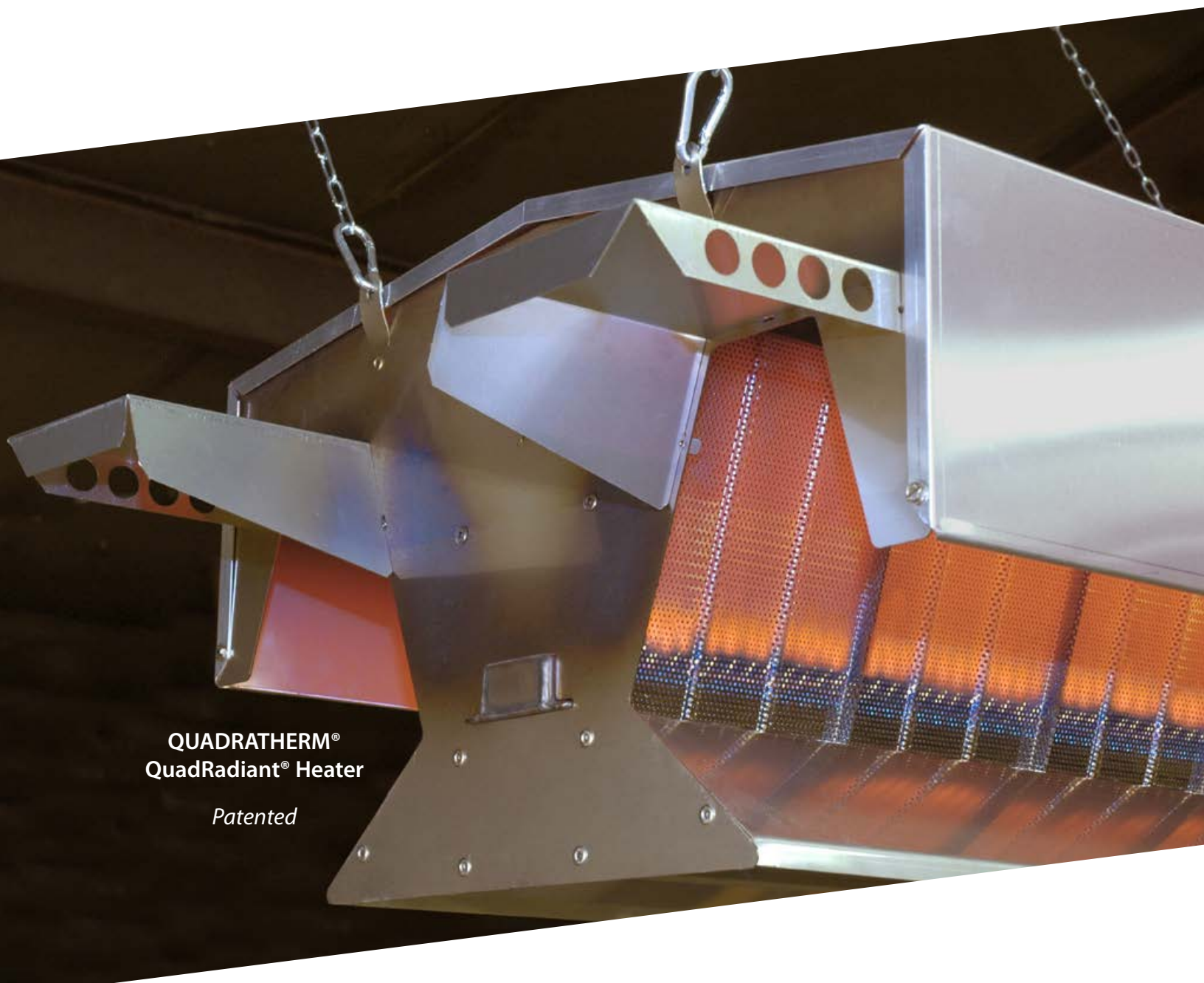


Heating Systems

Brooders, Space Heaters and QuadRadiant® Heaters



Let's grow together®



QUADRATHERM®
QuadRadiant® Heater

Patented



Count on Chore-Time for
experience, reliability,
performance and confidence.

Chore-Time's QUADRATHERM® Heaters, Brooders and Space Heaters Offer Poultry Producers Top Heating Performance and Efficiency

Backed by decades of experience in heater innovation and design

- Robust 80,000 BTUs (23.45 KwHr) of QuadRadiant® Heat with a broad, house-shaped heat pattern for optimal floor coverage
- Brooders from 42,000 - 23,000 BTUs (12.31 - 6.74 KwHr) and Space Heaters from 250,000 - 200,000 BTUs (73.27 - 58.6 KwHr)

Delivers Double the Standard Heat Output While Using Less Fuel to Heat the Same Area

QUADRATHERM® Heaters

Performance Efficiency

- The compact QUADRATHERM® Heater delivers a robust 80,000 BTUs (23.45 KwHr) 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

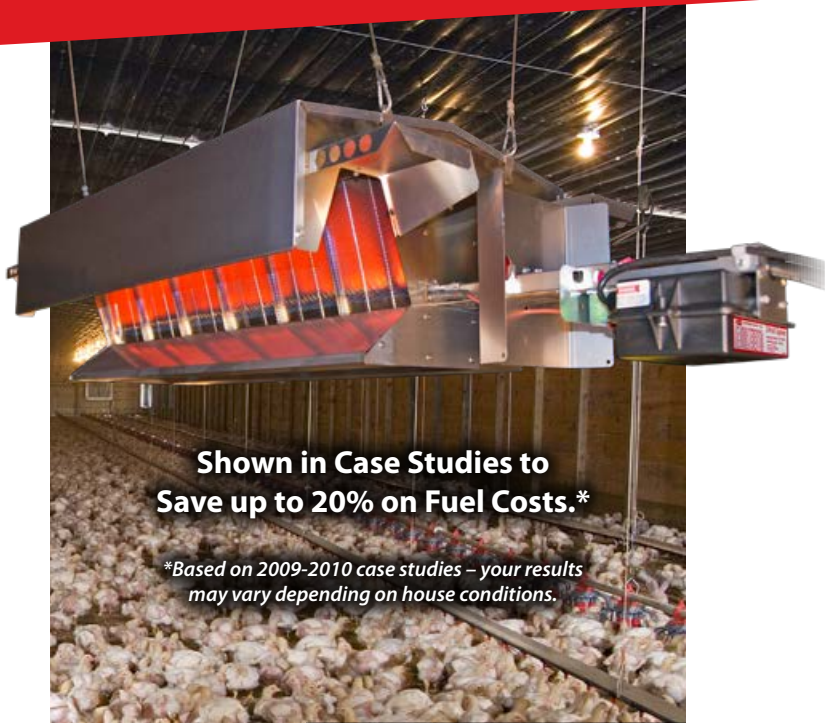
- Reliable direct spark ignition or 500-BTU pilot.
- Thermostatic, zone or individual sensor control.
- Proven, reliable component parts.
- Burner and igniter are protected from debris.

Delivered Assembled

- 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, except for direct spark model.)
- Slotted tabs at the corners of the heater permit secure four-point suspension for extra stability.

Easy Access for Maintenance

- 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.



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.*

	High Pressure		Low Pressure	
Model Overview	DSI	DSI	Pilot	Pilot
Dust-Tight (DT)	• ‡	• ‡		
Wash-Down-Proof (WDP)	• ‡	• ‡		
Propane	• ‡	• ‡	•	•
Natural Gas	• ‡	• ‡		
Butane/Propane Mix	•	•	•	•
120 V	• ‡			
24 V		• ‡	•	• *

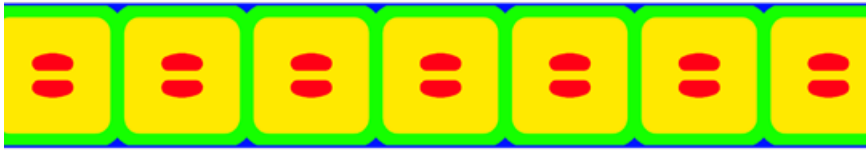
‡ CSA (Canadian Standards Association) approved models also available.
 * 24 V AC / 12 V DC – Transformers are available to convert a 230 V power source to 120 V, 120 V to 24 V, or 230 V to 24 V.

Controls Sealed from Debris and Water

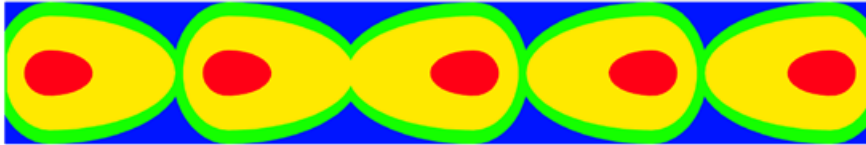


- Dust-Tight (DT) – Dust-Tight, high-temperature, co-polymer enclosures are standard on all control systems to protect against dust, dirt, and moisture. The Dust-Tight enclosure also facilitates access to interior components.
- Wash-Down-Proof (WDP) – A Wash-Down-Proof option features the same high-temperature, co-polymer enclosure plus sealed components and a gasketed housing that prevents water penetration. This permits power washing, if required for biosecurity.
- Both enclosures have high dielectric strength and include fire-retardant properties to resist the spread of flames.

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

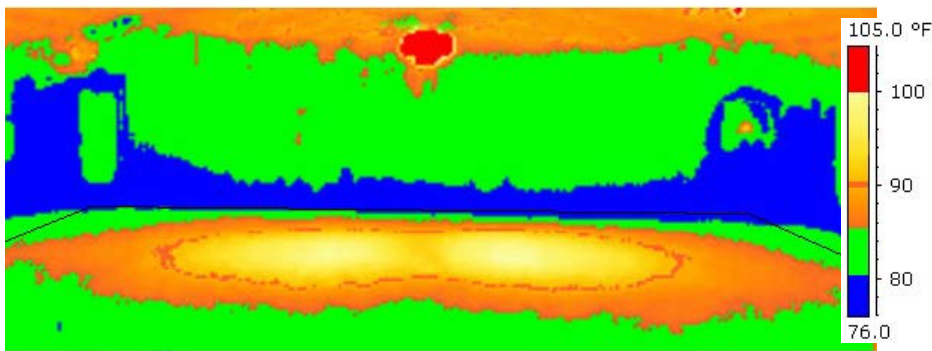


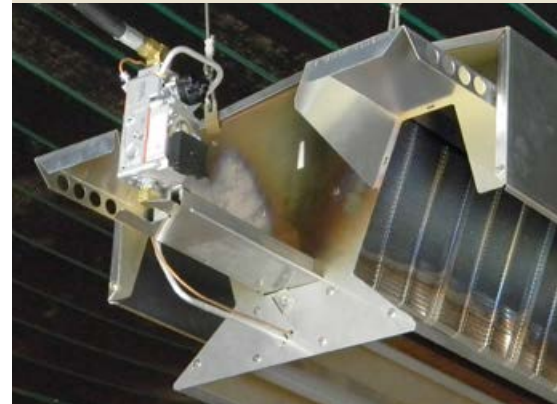
Image shows the actual heat pattern of one 80,000 BTU QuadRadiant® Heater centered in a 40 x 40 foot (12.2 x 12.2 meter) area. Notice the narrow range of temperature variation and the large comfort zone under the single unit.

"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."

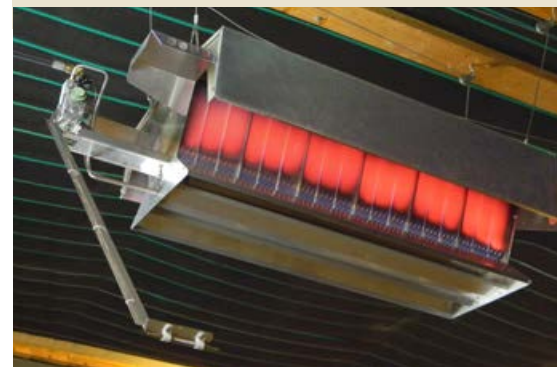
Texas Grower



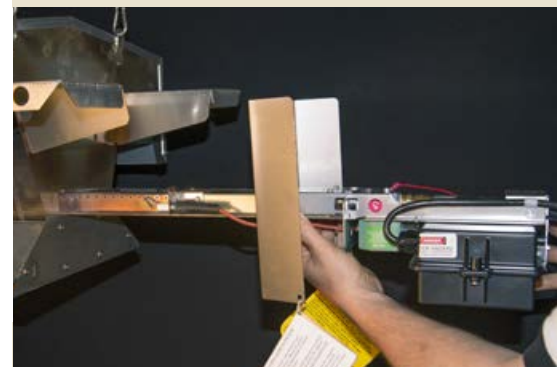
Proven corrosion-resistant, stainless steel emitter panels enclose fiber insulator and stainless steel inner cone.



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



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.



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

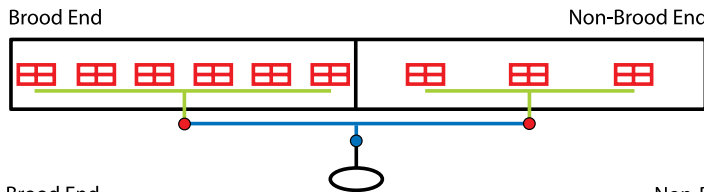
QUADRATHERM® Heater Application Guide

Heater Placement For New Houses With Solid Sidewalls*

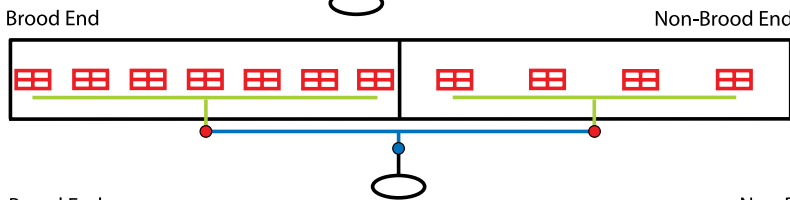
Maximum 5 PSI for High Pressure or 11" W.C. for Low Pressure at Heater



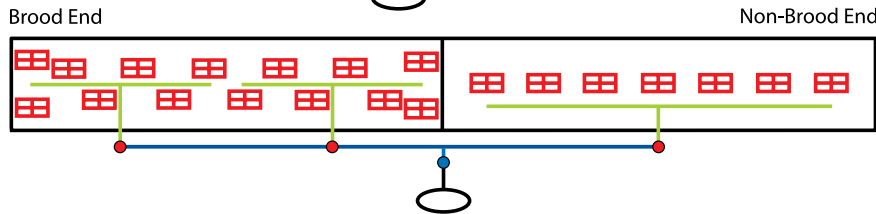
For houses 400 feet long (122 m) by 40 to 50 feet wide (12.2-15.2 m)



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 Service 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*	Low Pressure		
Ignition	Direct Spark	500 BTU Pilot	500 BTU Pilot	Direct Spark
Electrical	120 V AC	Non-Electric	24 V AC / 12 V DC	24 V AC
Back-Up Options	Generator	Not Applicable	Generator or 12 V DC	Generator
Transformer Options (Available If Needed)	230 to 120 V AC	Not Applicable	120 to 24 V AC 230 to 24 V AC	120 to 24 V AC 230 to 24 V AC
Control	Zone	Individual Snap Action	Zone	Zone
Fuel Propane=LP; Natural Gas=NG; Butane/Propane Mix*=BP	LP, NG or BP ⁺	LP or BP ⁺	LP or BP ⁺	LP, NG or BP ⁺
Gas Pressure Requirements (Maximum)	5 psi (350 mbar)	11" W.C. (27.5 mbar)	11" W.C. (27.5 mbar)	LP/BP ⁺ -11" W.C. (27.5 mbar) NG - 5.5" W.C. (13.5 mbar)
Maximum Gas Consumption	LP - 0.87 gph (3.29 l/h) NG - 75.5 cfh (2.14 m ³ /h) BP ⁺ - 0.87 gph (3.29 l/h)	0.87 gph (3.29 l/h)	0.87 gph (3.29 l/h)	LP - 0.87 gph (3.29 l/h) NG - 75.5 cfh (2.14 m ³ /h) BP ⁺ - 0.87 gph (3.29 l/h)

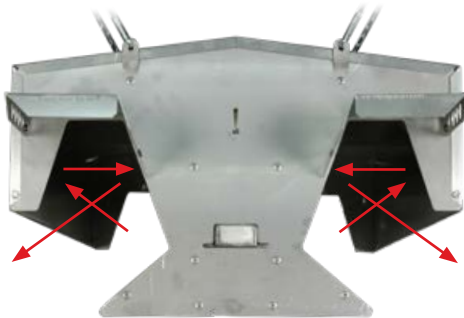
*High-Pressure model for Canada also available.

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

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.)	1,200 to 2,400 ft. ²	111.5 to 223.0 m ²
Maximum Heating Capacity per Hour (from sea level to 2,000 feet [607 meters])	80,000 BTU	23.45 KwHr
Weight per Unit	54 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

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.



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).

Radiant Heat = Cost-Efficient Bird Comfort

Radiant Heat is like the sun's heat and is transferred by infrared heat waves. It is very efficient because it does not heat the building's air in order to heat the objects in the building. Instead, infrared waves emitted from the heater's glowing surface heat the birds and the litter directly.



Brooder Heating

INFRARED Brooders



CHORE-TIME Ultra-Ray® Brooder

40,000 / 42,000 BTUs
(11.72 KwHr) / 12.31 KwHr)

- Heats an average of 800 to 1,000 square feet (74.3 to 92.9 square meters).
- Large heat pattern requires fewer brooders.
- Removable air intake, drop-down orifice and patented horizontal pilot are designed for easy cleaning and maintenance. Power wash or clean with compressed air.



CHORE-TIME Ultra-Ray® HP Brooder

40,000 BTUs (11.72 KwHr)

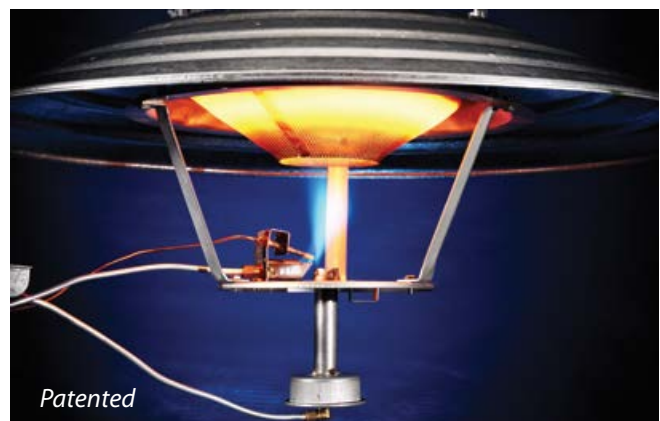
- Heats an average of 800 to 1,000 square feet (74.3 to 92.9 square meters).
- Higher gas pressures save piping costs. Ideal for retrofit in houses with small-diameter gas pipes. No air inlet filter needed.
- Removable air intake, drop-down orifice and patented horizontal pilot are designed for easy cleaning and maintenance. Power wash or clean with compressed air.



CHORE-TIME Ultra-Ray® LITE Brooder

23,000 / 25,000 BTUs (6.74 / 7.33 KwHr)

- Heats an average of 250 to 400 square feet (23 to 37 square meters). Efficient, reliable mid-range heater.
- Two canopy sizes for a broad or more focused heat area.
- Removable air intake, drop-down orifice and patented horizontal pilot are designed for easy cleaning and maintenance. Compressed air cleaning is recommended – do not power wash.



Brooder Features

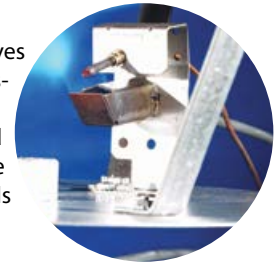
Three-Layer Emitter Assembly

Standard on 42,000 and 40,000 BTU brooders, the assembly consists of (1) a stainless steel emitter, (2) a stainless steel inner cone, and (3) a 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.



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

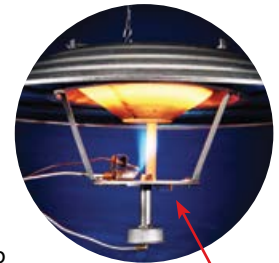
Multi-location bracket for heat sensing bulb allows flexibility in positioning for more precise floor temperature management. Mount the sensor on top of or under the bracket, in various positions from very close to the brooder to farther away from the brooder, or extend the sensor position beyond the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



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 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	2,750-4,400 ft ² (255.5-408.8 m ²)	2,500-4,000 ft ² (232.3-371.6 m ²)
Capacity (Maximum Per Hour)		
Direct Spark or Hot Surface Ignition	250,000 BTU (73.27 KwHr) LP or Nat. Gas	225,000 BTU (65.94 KwHr) - LP 200,000 BTU (58.6 KwHr) - 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 and Weight		
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)		

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Brooder Specifications

Type	Large Infrared Brooder	High-Pressure Brooder (Unit is shipped pre-assembled)	Small Infrared Brooder
Unit Name	CHORE-TIME Ultra-Ray®	CHORE-TIME Ultra-Ray® HP	CHORE-TIME Ultra-Ray® LITE
Heating area per unit	800-1,000 sq. ft. (74.3-92.9 m ²)	800-1,000 sq. ft. (74.3-92.9 m ²)	250-400 sq. ft. (23.2-37.2 m ²)
Capacity (Maximum Per Hour)			
Pilot Ignition – Note that brooder pilots burn at 2,000 BTUs (0.59 KwHr) per hour and can withstand 5 mph wind speed.	42,000 BTU (12.31 KwHr)	Not Available	25,000 BTU (7.33 KwHr)
Direct Spark Ignition	40,000 BTU (11.72 KwHr)	40,000 BTU (11.72 KwHr)	23,000 BTU (6.74 KwHr)
Modulation Range			
Range per Hour	Not Available	Not Available	10,000-25,000 BTU (2.93-7.33 KwHr)
Gas Consumption (Maximum) Pilot Ignition			
LP	0.46 gph (1.74 l/h)	Not Available	0.27 gph (1.02 l/h)
Natural Gas	39.9 cfh (1.13 m ³ /h)	Not Available	23.8 cfh (0.67 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)
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)
Gas Pressure Requirements (Measured at Unit for CHORE-TIME Ultra-Ray® HP Model 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)
Natural Gas	7" WC (17.5 mbar)	5 psi max (350 mbar max)*	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)
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)
Height	14 in. (35.6 cm)	14 in. (35.6 cm)	17.5 in. (44.5 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)
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)
Minimum Clearance to Combustibles			
Sides of Brooder/Heater	36 in. (90 cm)	36 in. (90 cm)	30 in. (75 cm)
Above Brooder/Heater	14 in. (35 cm)	14 in. (35 cm)	12 in. (30 cm)
Below Brooder/Heater	48 in. (120 cm)	48 in. (120 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
On-Off Individual Control	Pilot	Not Applicable	Pilot
Modulating Individual Control	Not Applicable	Not Applicable	Pilot
Manifold Zone Control (Maximum Brooders per Zone – 20)	Not Applicable	Not Applicable	Not Applicable

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Reliable Control Options See Brooder Specification Chart above for which controls can be used with each style of brooder.

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	Not applicable	Modulates between maximum and minimum BTU rates before snapping off at control setting	Snaps from high to off based on control setting



Let's grow together®
www.choretime.com

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A Berkshire Hathaway Company

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