

AG1 SERIES TUBE HEATERS

SUBMITTAL DATA – SINGLE-STAGE LOW INTENSITY GAS FIRED INFRARED TUBE HEATERS & ACCESSORIES

SUBMITTED BY: _____ DATE: _____

JOB TITLE: _____ CONTRACTOR: _____

ADDRESS: _____ PHONE #: _____

CITY: _____ ADDRESS: _____

STATE: _____ ZIP: _____ CITY: _____

STATE: _____ ZIP: _____

ENGINEER: _____

LOCAL REPRESENTATIVE: _____

NOTES: _____

QTY.	MODEL #	TAG	GAS TYPE (Circle One)	INPUT BTU/H	STRAIGHT LENGTH	U-TUBE LENGTH	WEIGHT	RCMD. MOUNTING HEIGHTS ^Λ Above Animals	FIELD USE ONLY**	
									"TYPE" TUBE PKG #1	"TYPE" TUBE PKG #2
	AG1-20-50		N or LP	50,000	21' - 7"	13' - 0"	120 lbs.	6' to 9'	20-4 ALUM-HRT-UCC	N/A
	AG1-20-60		N or LP	60,000	21' - 7"	13' - 0"	120 lbs.	6' to 9'	20-4 ALUM-HRT-UCC	N/A
	AG1-20-75		N or LP	75,000	21' - 7"	13' - 0"	120 lbs.	7' to 10'	20-4 ALUM-HRT-UCC	N/A
	AG1-30-50		N or LP	50,000	31' - 3"	*17' - 8"	160 lbs.	7' to 10'	30-4 ALUM-HRT-UCC	N/A
	AG1-30-60		N or LP	60,000	31' - 3"	*17' - 8"	160 lbs.	7' to 10'	30-4 ALUM-HRT-UCC	N/A
	AG1-30-75		N or LP	75,000	31' - 3"	*17' - 8"	160 lbs.	7' to 10'	30-4 ALUM-HRT-UCC	N/A
	AG1-30-100		N or LP	100,000	31' - 3"	*17' - 8"	160 lbs.	8' to 14'	30-4 ALUM-HRT-UCC	N/A
	AG1-40-50		N or LP	50,000	40' - 11"	22' - 8"	190 lbs.	7' to 10'	40-4 ALUM-HRT-UCC	N/A
	AG1-40-60		N or LP	60,000	40' - 11"	22' - 8"	190 lbs.	7' to 10'	40-4 ALUM-HRT-UCC	N/A
	AG1-40-75		N or LP	75,000	40' - 11"	22' - 8"	190 lbs.	7' to 10'	40-4 ALUM-HRT-UCC	N/A
	AG1-40-100		N or LP	100,000	40' - 11"	22' - 8"	190 lbs.	7' to 11'	40-4 ALUM-HRT-UCC	N/A
	AG1-40-125		N or LP	125,000	40' - 11"	22' - 8"	190 lbs.	9' to 14'	40-4 ALUM-HRT-UCC	N/A
	AG1-40-150		N or LP	150,000	40' - 11"	22' - 8"	190 lbs.	10' to 14'	40-4 TITAN-ALUM-HRT-UCC	N/A
	AG1-50-100		N or LP	100,000	50' - 7"	*27' - 4"	235 lbs.	8' to 12'	40-4 ALUM-HRT-UCC	10-4 HRT
	AG1-50-125		N or LP	125,000	50' - 7"	*27' - 4"	235 lbs.	9' to 14'	40-4 ALUM-HRT-UCC	10-4 HRT
	AG1-50-150		N or LP	150,000	50' - 7"	*27' - 4"	235 lbs.	10' to 14'	40-4 TITAN-ALUM-HRT-UCC	10-4 HRT
	AG1-60-150		N or LP	150,000	60' - 3"	32' - 4"	265 lbs.	10' to 14'	40-4 TITAN-ALUM-HRT-UCC	20-4 HRT

* Model requires 5EA-SUB accessory package when installing in a 'U' configuration.

** Type packages refer to the tube package that will ship with models (length, diameter, and tube type(s)).

Λ Recommended mounting heights are provided as a guideline. Actual conditions may dictate variations from this data.

NOTE: AG1 Series heaters are not recommended for use in swine applications or other harsh environments.

DETROIT RADIANT PRODUCTS CO.

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AG1 SPECIFICATIONS

APPROVALS

- CSA Design Certified.
- Indoor/Outdoor Approval.
- Commercial/Industrial Approval.

WATERTIGHT CONTROL BOX

- Sight glass for burner inspection.
- Totally enclosed components.
- Coated enameled steel.
- Operational indicator lights.

GAS CONNECTION

- 7/8 in. flare-M FPT connection to 1/2 in. x 24 in. (304) SS PVC coated flex connector provided.
- 1/2" F NPT ball valve & inlet tap included.

GAS SUPPLY (Inches W.C.)

- Manifold pressure Nat 3.5; LP 10.0
- Min. Inlet pressure Nat 5.0; LP 11.0
- Max. Inlet pressure Nat 14.0; LP 14.0

POWER SUPPLY

- 120 VAC, 60 Hz GRD, 1 Ph., 3-wire.
- Watertight power cords.
- Ignition current - 4.8 amps.
- Running current - 1.1 amps.

CONTROLS

- Silicon carbide hot surface ignition.
- Air proving safety switch.
- Pre purge controls.
- Flame rod sensing.
- 120V thermostatic control.
- Moisture and corrosion resistant ignition module.

REFLECTOR

- Highly polished aluminum.
- Continuous overlap design.
- Two end caps included.
- Anti-rattle tension springs.
- One center support per heater.

COMBUSTION & RADIANT TUBES

- 16ga. 4" O.D. uncoated titanium stabilized (150 MBH Models) or aluminized steel (65-125MBH models) primary combustion chamber.
- 16ga. 4" O.D. uncoated aluminized steel secondary combustion chamber (150 MBH models only).
- 16ga. 4" O.D. uncoated hot-rolled steel radiant emitter tubes.
- Slip-fit swaged tube connection.
- Stainless steel turbulator baffle.

COMBUSTION AIR INLET & VENTING

- Preset 4 in. combustion air inlet collar.
- Sidewall or roof venting - 4 in. dia. pipe up to 20 ft.

LIMITED WARRANTY

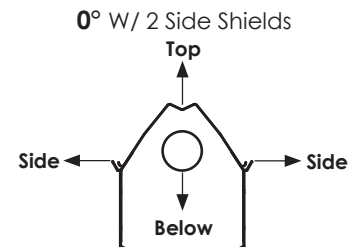
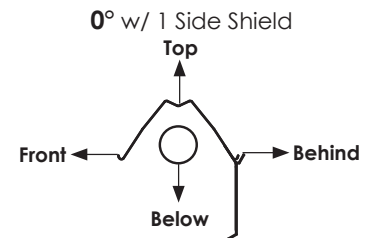
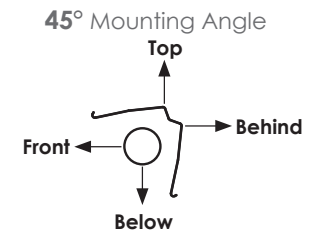
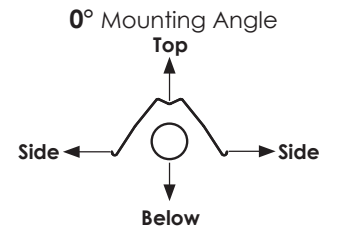
- 1 year - Burner box components.
- 3 years - Combustion and radiant tubes.
- 5 years - Stainless steel burner.

CLEARANCES TO COMBUSTIBLES (IN.)

MODEL NO.	MOUNTING ANGLE*	SIDE				
		FRONT	BEHIND	TOP**	BELOW	
AG1 (20, 30, 40) - 50, 60 [N,P]	0°	9	9	6	47	
	45°	39	8	10	47	
	W/1 side shield	0°	29	8	6	47
	W/2 side shields	0°	9	9	6	47
20 ft. from burner	0°	7	7	6	30	
AG1 (20, 30, 40) - 75 [N,P]	0°	9	9	6	60	
	45°	39	8	10	60	
	W/1 side shield	0°	29	8	6	60
	W/2 side shields	0°	9	9	6	60
20 ft. from burner	0°	7	7	6	30	
AG1 (30, 40, 50) - 100 [N,P]	0°	14	14	6	66	
	45°	39	8	10	66	
	W/1 side shield	0°	29	8	6	66
	W/2 side shields	0°	16	16	6	66
20 ft. from burner	0°	7	7	6	30	
AG1 (40, 50) - 125 [N,P]	0°	20	20	6	76	
	45°	58	8	10	76	
	W/1 side shield	0°	42	8	6	76
	W/2 side shields	0°	20	20	6	76
20 ft. from burner	0°	7	7	6	30	
AG1 (40, 50, 60) - 150 [N,P]	0°	24	24	6	81	
	45°	58	8	10	81	
	W/1 side shield	0°	42	8	6	81
	W/2 side shields	0°	23	23	6	81
20 ft. from burner	0°	11	11	6	44	

* Heaters mounted on an angle between 0° and 45° must maintain clearances posted for 0° or 45°; whichever is greater.

** Maintain a 10 in. (0° mounting angle) or 12 in. (1-45° mounting angle) clearance from ceilings constructed of tri-ply plastic or plastic fogger lines.

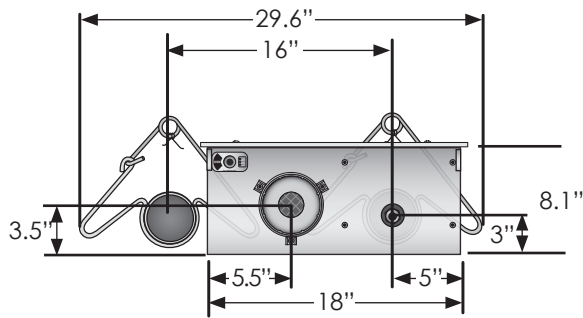


Read and understand the installation, operation and maintenance manual prior to installing or servicing this unit.

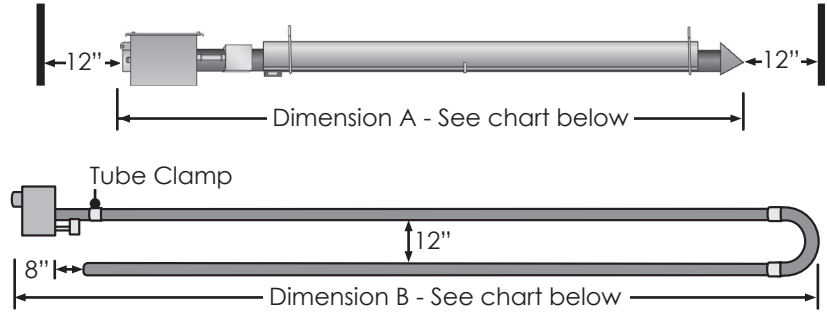
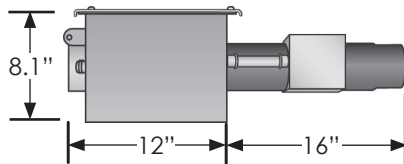
In locations used for the storage of combustible materials, signs must be posted adjacent to the heater's thermostat specifying stacking heights.

FIELD DATA

Burner Control Box with U-Bend • End View



Side View



MODEL NUMBER	DIMENSION A STRAIGHT	DIMENSION B U-TUBE
AG1-20	21' - 7"	13' - 0"
AG1-30	31' - 3"	*17' - 8"
AG1-40	40' - 11"	22' - 8"
AG1-50	50' - 7"	*27' - 4"
AG1-60	60' - 3"	32' - 4"

*with 5EA-SUB

OPTIONAL ACCESSORIES

QTY.	PART #	DESCRIPTION	NOTES
	10EA	10' X 4" Tube & Reflector Extension	Optional 10 ft. extension package. Maximum of one per unit.
	4-DSK	4" Sidewall Vent Kit	Required for all single sidewall vents. No roof venting.
	6-DSK	6" Sidewall Vent Kit	Required for all common sidewall vents. No roof venting.
	BK	Angle Mounting Bracket 15-30-45 Deg.	Rotates reflector to preset mounting angles.
	E6	90 Degree, 4" Radiant Elbow	Used for making a L-shaped heater. Maximum of two per unit.
	PG	Protective Guard	Protects heat exchanger from contact or objects. Each 5 ft. in length.
	PLQ	Warning Plaque	Hung below heater, restates the clearance to combustibles warning.
	REP	Reflector & Elbow Package	Reflector and accessories used to configure heater in a 'L' shape.
	RTVP-4	4" Rooftop Vent Package	Used to single vent vertically through the roof.
	RTVP-6	6" Rooftop Vent Package	Used to common vent vertically through the roof.
	RUP	Reflector & 'U' Bend Package	Reflector and accessories used to configure heater in a 'U' shape.
	SMB	Single Mount Bracket	Provides units with 'U' bend uniform mounting points. One per 10 ft.
	SSE	Side Shield Extension	Reflector side guard used to lower side clearances. Each 5 ft. in length.
	TF1B	180 Degree, 4" Radiant 'U' Bend	Used for making a U-shaped heater. Maximum of one per unit.
	THCS	Tube Heater Chain Set	5 ft. chain set with two S-hooks used for hanging heater.
	TR60	5'x4" Tube & Reflector Extension	Optional 5 ft. extension package. Maximum of two per unit.
	WIV-4	4" Combustion Air Intake - Sidewall Cap	Used to duct fresh (cold) air 0-30 ft. to a heater. Sidewall only.
	WVE-GALV	4" Unvented Exhaust Termination Cap	Required on all units when operating unvented.
	Y	4"x6"x4" Aluminized Common Vent Fitting	Used for joining two heaters on one vent. Same thermostat required.
	YSM	4"x6"x4" Galvanized Common Vent Fitting	Used for joining two heaters on one vent. Same thermostat required.

OPTIONAL UPGRADES

- AG-19EAO** Elongated AG wire hanger for wider throw patterns.
- 5EA-SUB** Substitute one 10' radiant tube and reflector for two 5' pieces. Ideal for making "U" heaters from 30', 50' and 70' models. Maximum of one per heater.
- ALUM-AO** Upgrade hot-rolled steel (HRT) radiant tubes to 16 gauge, black coated, aluminized steel for maximum efficiency and longevity. Highly recommended in contaminated or moisture laden environments.
- AGAO-SS** 304 Series stainless steel burner control box.

STAINLESS STEEL UPGRADES

- SSRAO** 304 stainless steel reflectors.
- SSB-##** Stainless steel mounting brackets. (## = heater length)

EXTENDED WARRANTIES

- CWO** ___ year extended controls warranty (max. 4 year).
- EWO** ___ year extended exchanger warranty (max. 5 year).

NOTE: Refer to the Agricultural Series Heater Accessory List for detailed specifications and limitations on any of the above options.

WRITTEN SPECIFICATIONS

HEATER PARAMETER/SPECIFICATIONS

- Gas fired radiant tube heaters shall be furnished and installed in accordance with governing codes and as shown per drawing(s) provided. Radiant tube heaters shall be **RE-VERBER-RAY® AG1 SERIES** of the model numbers and input(s) in BTU/H as manufactured by Detroit Radiant Products Company, Warren, MI 48089.
- The radiant tube heater shall be Design Certified by the American Gas Association (AGA) and comply with current Occupational Safety and Health Act (OSHA) Requirements. The supplier shall provide the AGA Certification Number and the heaters shall bear the AGA Seal of Certification.
- The supplier shall provide a manufacturer's published warranty covering the heater's stainless steel burner for a period of five (5) years, combustion and radiant emitter tube assembly for a period of three (3) years, and all components utilized in the heater control assembly for a period of one (1) year.
- The supplier shall furnish the owner/contractor with _____ copies of the engineering specification forms, showing physical dimensions, installation detail, recommendations, control wiring diagrams, and spare parts list.
- Radiant tube heaters shall be designed to satisfactorily operate at a minimum inlet pressure of _____ inches W.C. on natural gas, _____ inches W.C. on LP gas to a maximum inlet pressure of _____ inches W.C. on natural or LP gas.
- Radiant tube heaters shall be designed to operate without adjustments when burning natural gas having a heat value of _____ BTU per cubic foot with a specific gravity of _____, or when burning propane gas have a heat value of 2500 BTU per cubic foot with a specific gravity of 1.53.
- An Installation, Operation, and Maintenance Manual shall be supplied with each heater.

SINGLE-STAGE RADIANT TUBE HEATER BURNER CONTROLS

- The heater shall be equipped with a moisture and corrosion resistant potted ignition control module.
- The heater shall be equipped with a direct silicon carbide ignition system with a one (1)-time ignition trial to sensing mode and an infinite trial after sensing mode. Power supplied to each burner shall be 120 VAC, 60 Hz.
- The heater controls shall have independent flame rod sensing.
- The main burner shall be constructed of stainless steel.
- The control assembly shall be Design Certified by AGA, shall provide main burner regulation, and shall be of the redundant type.
- The heater control voltage shall be 120VAC.
- The heater controls shall include a air proving safety switch to monitor exhaust back pressure and combustion air flow, so as to provide complete burner shutdown due to insufficient combustion air or flue blockage.
- The heater's control system shall be designed to shutoff the gas flow to the main burner in the event either a gas supply or power supply interruption occurs.
- The heater's air flow control system shall provide a 45 second pre-purge prior to initiating burner operation.

- No condensation shall form as a result of combustion in the combustion chamber or radiant tubes while at operating temperatures.
- Total heater shutdown shall occur in the event of circuit control lockout. An interruption of power (reset thermostat) will restart the firing sequence.

RADIANT TUBE HEATER CONSTRUCTION

- The heater's control housing shall be totally enclosed with a corrosion resistant enameled steel exterior. The controls shall be easily serviceable by removing one (1) panel.
- The heater's primary combustion chamber shall be 4" O.D. 16ga. uncoated titanium stabilized (150 MBH models) or uncoated aluminized steel (65-125 MBH models).
- The heater's secondary combustion chamber (150 MBH models only) shall be 4" O.D. 16ga. uncoated aluminized steel.
- The heater's radiant emitter tube shall be 4" O.D. 16ga. uncoated hot rolled steel.
- The heater's combustion chamber and radiant emitter tube shall incorporate a 4" slip fit connection in which the upstream tube slides into the next tube and is held by a bolted clamp.
- The air proving safety switch shall incorporate atmospheric sensing termination fittings designed to eliminate blockage due to moisture or foreign matter.
- The silicon carbide ignitor shall be readily accessible and serviceable without the use of tools.
- Reflectors shall be .025 polished aluminum with a multi-faceted design which includes reflector end caps. Reflectors shall be rotatable from 0 to 45 degrees when required. The heater's reflector hanging system shall be designed to permit expansion while minimizing noise and/or rattles. Reflectors shall be assembled to the heater without the use of tools.
- The heater shall utilize a downstream turbulator baffle for maximum thermal efficiency.
- The heater shall be equipped with a sight glass allowing a visual inspection of ignitor and burner operation from the floor.
- The radiant tube heater shall be designed such that, at the customer's option, outside combustion air may be supplied without the use of additional supply fans. An air intake collar shall be supplied as part of the burner control assembly to accept a 4" O.D. supply duct.