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Steam/Hot Water Unit Heaters

Installation Instructions for Horizontal Air Delivery Model UHH
and Vertical Air Delivery Model UDH

Model UHH



Model UDH



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General Information

This manual covers proper installation and service for standard horizontal and vertical air flow units. Unit heaters should be installed following directions in this manual for proper performance and application to terms and conditions of manufacturer’s warranty.

Units are approved for use with water or steam up to 150 psig at 375°F. Maximum steam or hot water temperatures for explosion-proof units is 329°F or 87 psi.

All unit external wiring must conform to applicable current codes and to the National Electric Code ANSI/NFPA No. 70-1999 or the latest edition. In Canada, all external wiring must conform to the Canadian Electric Code, Part 1 CSA Standard C22.1.

Standard horizontal units are suited for air throw over general-use areas.

Vertical units are mounted near high ceilings with vertical projection to mix air and eliminate temperature stratification.

Steam must enter the unit at the top header and condensate removed at the lower header. Hot water supply should be at the bottom header and return at the top header, keeping the element filled and removing entrained air through the top of the unit.

Model numbers correspond to Mbtu/hr. output at 2 psig steam with 60°F entering air. A model 63 will deliver 63,000 Btu/hr. at 2 psig with 60°F entering air.

CAREFULLY FOLLOW THE INSTALLATION PROCEDURES GIVEN IN THIS MANUAL FAILURE TO INSTALL AS SHOWN WILL VOID ALL WARRANTIES.

Safety Information

Inspection

When the equipment is received all items should be carefully checked against the bill of lading to be sure all crates and cartons have been received. All units should be carefully inspected for damage when received. If unit is damaged, file a claim with the carrier. Notify the local Daikin representative immediately. The unit nameplate should be checked to make sure the voltage agrees with the power supply available.

IMPORTANT

This product was carefully packed and thoroughly inspected before leaving the factory. Responsibility for its safe delivery was assumed by the carrier upon acceptance of the shipment. Claims for loss or damage sustained in transit must therefore be made upon the carrier as follows:

VISIBLE LOSS OR DAMAGE

Any external evidence of loss or damage must be noted on the freight bill or carrier's receipt, and signed by the carrier's agent. Failure to adequately describe such external evidence of loss or damage may result in the carrier's refusal to honor a damage claim. The form required to file such a claim will be supplied by the carrier.

CONCEALED LOSS OR DAMAGE

Concealed loss or damage means loss or damage which does not become apparent until the product has been unpacked. The contents may be damaged in transit due to rough handling even though the carton may not show external damages. When the damage is discovered upon unpacking, make a written request for inspection by the carrier's agent within fifteen (15) days of the delivery date. File a claim with the carrier since such damage is the carrier's responsibility.

Follow all safety codes. Wear safety glasses and work gloves. Use a quenching cloth for brazing operations. Have a fire extinguisher available. Follow all warnings and cautions in these instructions and attached to the unit. Consult applicable local building codes and National Electrical Codes (NEC) for special requirements. Recognize safety information. When you see a safety symbol on the unit or in these instructions, be alert to the potential for personal injury. Understand the meanings of the words DANGER, WARNING, and CAUTION. DANGER identifies the most serious hazards that will result in death or severe personal injury; WARNING means the hazards can result in death or severe personal injury; CAUTION identifies unsafe practices that can result in personal injury or product and property damage. Improper installation, adjustment, service, maintenance, or use can cause explosion, fire, electrical shock, or other conditions which may result in personal injury or

property damage. This product must be installed only by personnel with the training, experience, skills, and applicable licensing that makes him/her "a qualified professional HVACR installer."

WARNING

The installer must determine and follow all applicable codes and regulations. This equipment presents hazards of electricity, rotating parts, sharp edges, heat and weight. Failure to read and follow these instructions can result in property damage, severe personal injury or death. This equipment must be installed by experienced, trained personnel only.

DANGER



Hazardous Voltage!

Disconnect all electric power including remote disconnects before servicing. Failure to disconnect power before servicing can cause severe personal injury or death.

Do not depend upon a thermostat or other switch as sole means of disconnecting power when installing or servicing heater. Always disconnect power at main circuit breaker.

CAUTION

Insure that all power sources conform to the requirements of the unit heater or damage to the unit will result.

It is recommended to install a shutoff switch in the electrical power lines at the heater. Whenever a unit is serviced, shut power off to the unit. Since these units are installed in most instances higher than 8 feet, proper type of ladders or scaffolding should be used, as set up by OSHA requirements. Never place a ladder against the unit for support. In industrial plants, professional maintenance crews should service this equipment.

All Unit Heaters are shipped fully assembled and may be used for steam or hot water applications. Coils are factory tested at 400 psig air under water. Fans are balanced and motors are pre-lubricated. Each unit is packaged individually and marked for proper identification. Use normal care in handling and during installation to prevent damage to the coils, fins, fan and casing. Do not set Unit Heater on floor with the weight of the unit resting on the louvers or fan blades. In this position, the blades may be damaged.

To meet CSA and OSHA requirements, units mounted below 8 feet from the floor must be equipped with an OSHA fan guard.

Installation

DANGER



Disconnect power supply before making wiring connections to prevent electrical shock and equipment damage. All units must be wired strictly in accordance with wiring diagram furnished with unit.

Do not install units in areas where corrosive fumes, caustic vapors or sprays are present.

Units with power codes A, G, or I (UHH and UDH) must not be installed in potentially explosive or flammable atmospheres. Use unit heaters with power code V for these environments.

WARNING

To prevent premature heat exchanger failure, do not subject units to temperatures or pressures above the stated limitations. See unit heater performance data tables beginning on page 10.

Locating Unit Heaters

1. Columns, machinery, partitions, and other obstacles should not interfere with air intake or discharge from unit heaters.
2. Unit heaters installed in a building exposed to a prevailing wind should be located to direct a major volume of heated air along the windward wall of the building.
3. Large expanses of glass, or large doors that are frequently opened, should be covered by long-throw unit heaters.
4. Locate horizontal delivery unit heaters so air streams of individual units wipe the exposed walls of the building without blowing directly against the walls. Heaters should be spaced so the air stream from one supports the air stream from another heater. See Figure 1.
5. Arrange horizontal delivery units so they do not blow directly at occupants. Air streams from this type of unit should be directed down aisles, into open spaces on the floor, or along exterior walls.
6. Vertical delivery unit heaters should generally be located in the central area of the space to be heated. Place horizontal delivery units along the walls of the same building where heat loss is usually greatest. See Figure 2.
7. When only vertical delivery units are installed, they should be located so exposed walls are blanketed by their air streams. See Figure 3.

Figure 1. Horizontal Delivery Unit Location

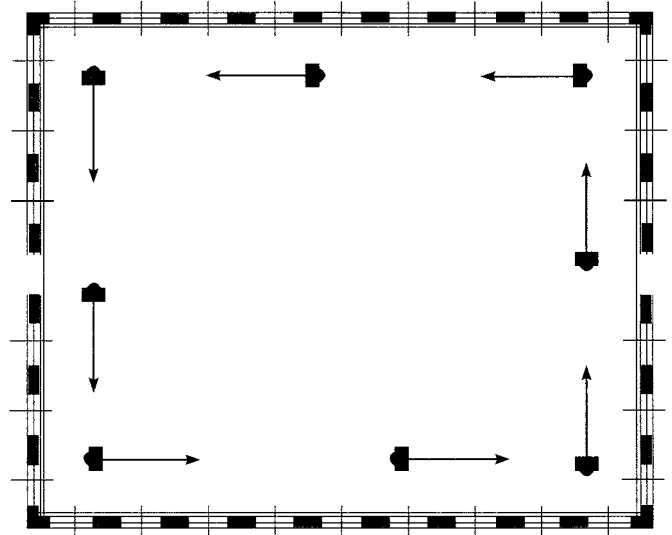


Figure 2. Combination Horizontal and Vertical Delivery Unit Location

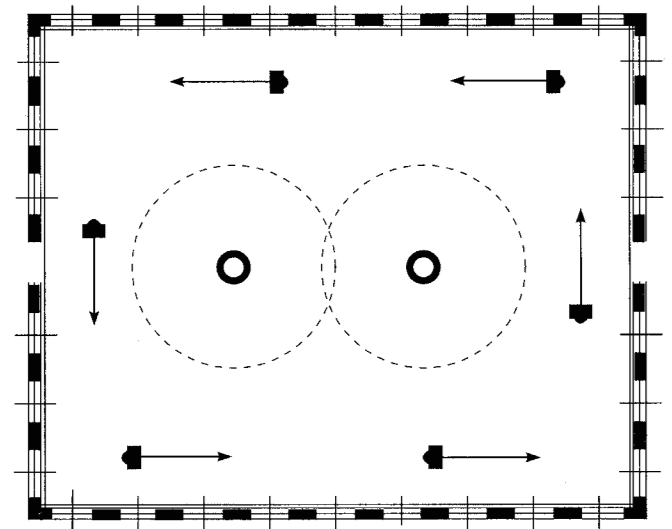
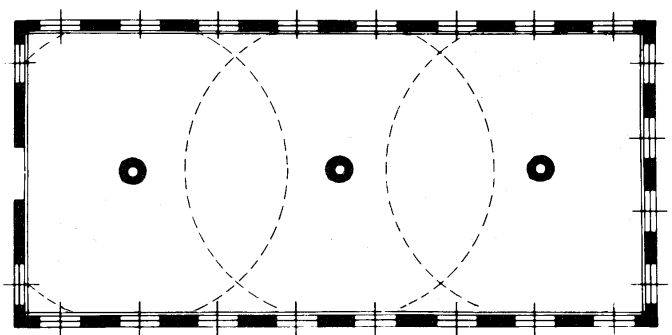


Figure 3. Unit Location of Vertical Units in Narrow Building



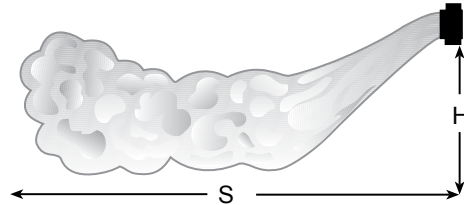
Installation

Unit Heater Mounting Height & Mounting Height Correction Factors

Do not install unit above recommended maximum mounting heights or below the minimum height of eight feet. The height at which unit heaters are installed is critical. See Tables 1 thru 4. Maximum mounting heights for Model UDH are given for units with or without air diffusion accessories.

Table 1. Horiz. Air Maximum Mounting Height and Spread

Model Size	Height-Ft./Spread-Ft.		Model Size	Height-Ft./Spread-Ft.	
	H	S		H	S
UHH-18	9	17	UHH-108	15	32
UHH-24	9	18	UHH-121	16	33
UHH-33	10	20	UHH-165	17	34
UHH-47	12	25	UHH-193	18	37
UHH-63	14	29	UHH-258	19	40
UHH-86	15	31	UHH-290	20	44
			UHH-340	20	46



Note: Performance data for standard units at standard conditions of 200°F entering water and 60°F entering air.

To determine how water temperatures other than 200°F affect mounting height:

$$\text{Maximum Mounting Height}_A = \text{Maximum Mounting Height}_S \times \text{Correction Factor}$$

Table 2. Mounting Height Correction Factors – Hot Water

Water Temp. Drop, (°F)	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300
Correction Factor	1.33	1.25	1.19	1.13	1.08	1.04	1.00	0.97	0.94	0.91	0.89	0.86	0.84	0.82	0.80	0.78	0.77

Note: Factors are for use with entering air temperature ranging from 50°F to 70°F.

To determine how non-standard steam pressures (other than 2 lb.) affect mounting height:

$$\text{Maximum Mounting Height}_A = \text{Maximum Mounting Height}_S \times \text{Correction Factor}$$

Table 3. Mounting Height Correction Factors – Steam

Steam Pressure (PSIG)	2	5	10	15	20	30	40	50	60	70	80	90	100	125	150	175
Correction Factor	1.00	0.97	0.94	0.92	0.89	0.86	0.84	0.82	0.80	0.79	0.77	0.76	0.75	0.74	0.72	0.71

Table 4. Vertical Air Maximum Mounting Height and Spread^{1,2}

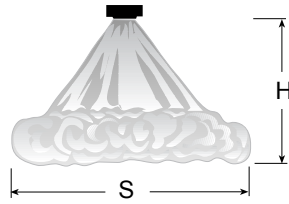
Model Type	No Deflector		Cone-Jet		Truncone		One-Way Louvers		Two-Way Louvers		3-Cone Anemostat		4-Cone Anemostat	
	Height-Ft./Spread-Ft.		Height-Ft./Spread-Ft.		Height-Ft./Spread-Ft.		Height-Ft./Spread-Ft.		Height-Ft./Spread-Ft.		Height-Ft./Spread-Ft.		Height-Ft./Spread-Ft.	
	H	S	H	S	H	S	H	S	H	S	H	S	H	S
UDH-42	11	17	15	11	8	19	13	11	8	22	8	22	8	28
UDH-59	13	20	18	13	9	25	16	14	10	28	9	28	8	35
UDH-78	14	22	19	14	11	26	17	15	11	30	11	30	8	30
UDH-95	16	24	21	16	11	26	17	15	11	30	11	30	8	30
UDH-139	18	27	24	18	13	32	21	18	13	36	13	36	9	45
UDH-161	21	31	28	21	14	35	23	20	14	40	14	40	10	50
UDH-193	23	34	31	23	16	39	25	22	15	44	16	44	12	55
UDH-212	25	37	33	25	16	39	25	22	15	44	16	44	12	55
UDH-247	26	39	34	26	17	46	30	26	18	52	17	52	13	65
UDH-279	30	45	37	30	18	53	35	30	21	60	18	60	13	75
UDH-333	30	45	37	30	17	53	35	30	21	60	17	60	13	75
UDH-385	30	45	36	30	17	53	35	30	21	60	17	60	13	75
UDH-500	37	56	44	37	19	65	42	37	26	74	19	74	13	93
UDH-610	36	54	43	36	19	63	41	41	25	72	—	—	—	—

¹ Data shown for standard 2 lb. Steam. 60°F entering air temperature conditions. For louvers or cone-jet, data shown for deflectors in fully-opened position. For mounting height/spread at steam pressure other than 2 lb., multiply the value by the correction factor in Table 3.

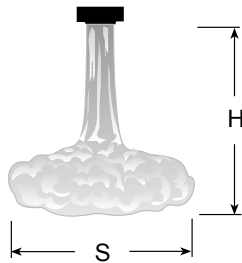
² For mounting height and spread for hot water, multiply the value above by 1.06 to approximate the mounting height and spread at 200°F entering water temperature. For entering water temperature other than 200°F, multiply the value above by 1.06 and then multiply the correction factor in Table 2.

Installation

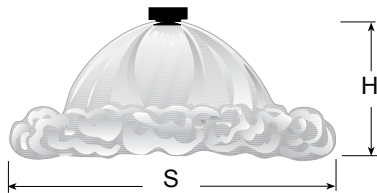
No Deflector



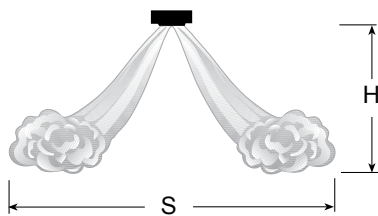
Cone-Jet



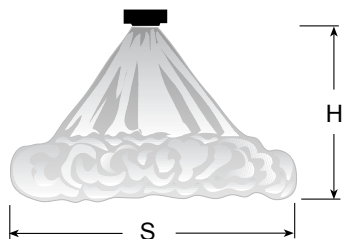
Truncone



Two-Way Louver



4-Cone Anemostat



Deflector Mounting

If an optional air deflector has been furnished for a unit, it is always shipped separately and can be attached to the unit before suspension. Vertical louvers for horizontal units can also be added and positioned before installation. Cone-jet and louver-type deflectors must be attached with angle brackets and machine screws to the bottom cover off the unit. Refer to mounting instructions which are furnished with each deflector.

Depending on supply or return piping arrangement, there is a possibility of interference between certain Anemostat air deflectors and piping on some vertical air delivery unit heaters. Check dimensions.

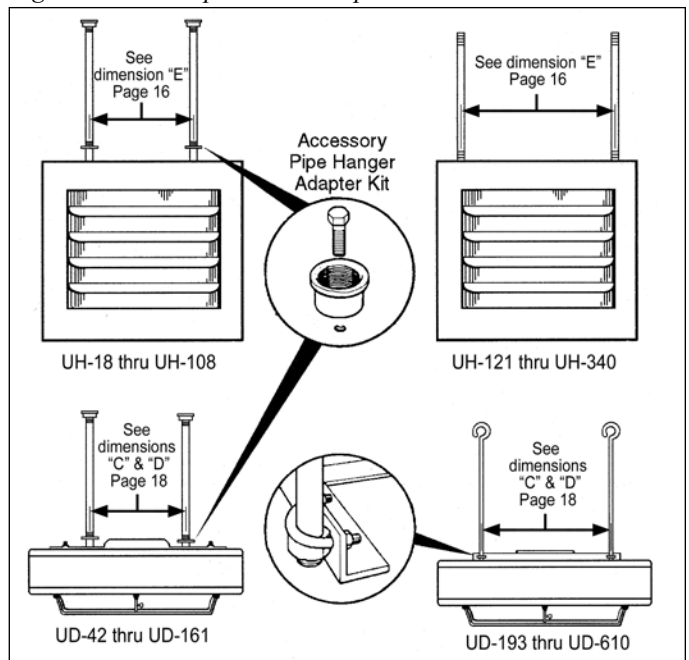
Horizontal Delivery Units, Model UHH Series

All horizontal delivery units have two tapped holes (3/8"-16) in the top for unit suspension. Piping support hangers or clamps are recommended and should be placed as close to the unit heater as possible. For other models, independent suspension can be made with threaded rods, pipes, or ceiling hanger brackets. See Figure 4.

Vertical Delivery Units, Model UDH Series

Models UDH-42 through UDH-161 have 4 tapped holes (1/2"-13) on the top surface for unit suspension. Suspension can be made with threaded rods, pipes, or ceiling hanger brackets. Models UDH-193 through UDH-610 have angle-iron frame mounting brackets for heavy-duty installation with applicable hardware. See Figure 4.

Figure 4. Unit Suspension Examples



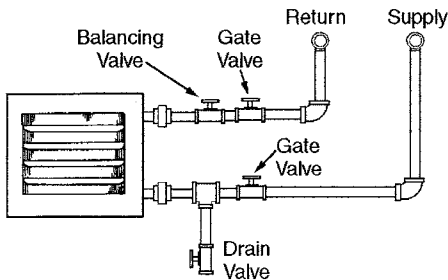
Installation

Suggested Piping Arrangements

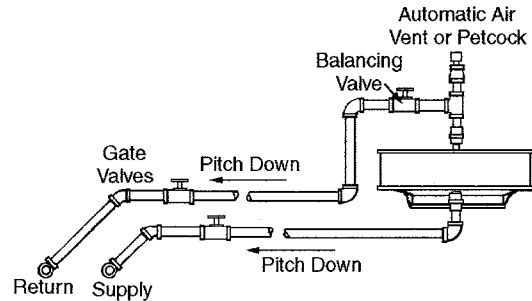
Suggested typical piping arrangements should be verified based on the best industry practices per ASHRAE and ASME Guidelines when selected or approved by a qualified engineer. In addition, piping specialty manufacturer's installation, operating and maintenance literature should be referenced.

Hot Water Systems

Horizontal Unit Heater Connected to Overhead Hot Water Mains

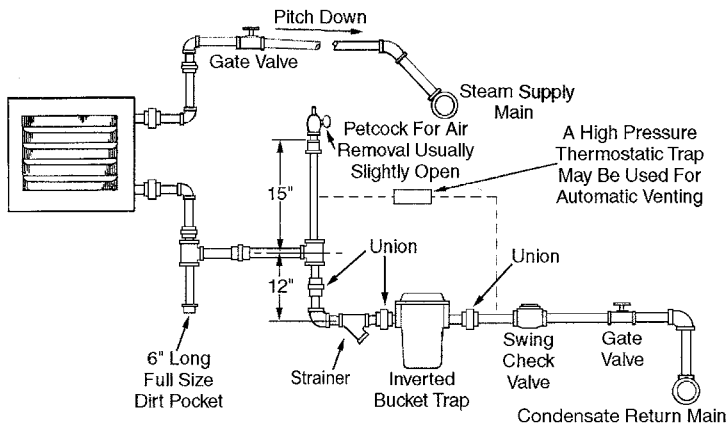


Vertical Unit Heater Connected to Lower Hot Water Mains

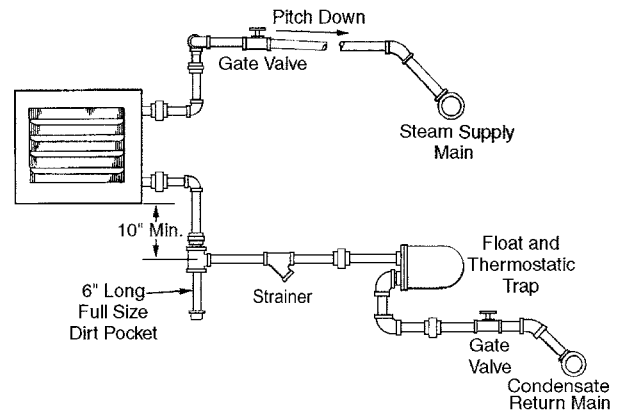


Steam Systems (UHH-18 through 86)

Horizontal Unit Heater Side Connection for High Pressure Steam

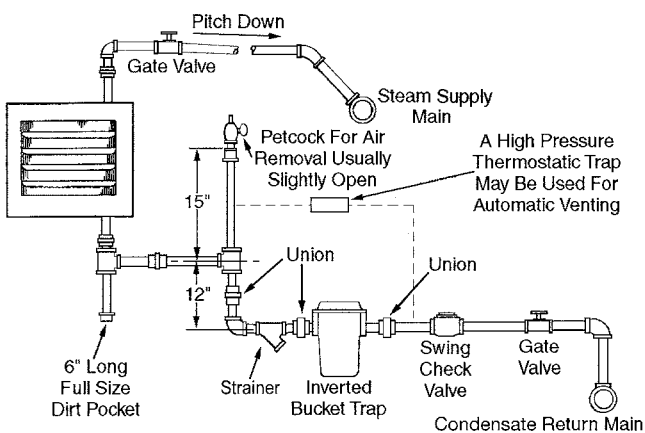


Horizontal Unit Heater Side Connection for Low Pressure Steam Open Gravity or Vacuum Return Steam

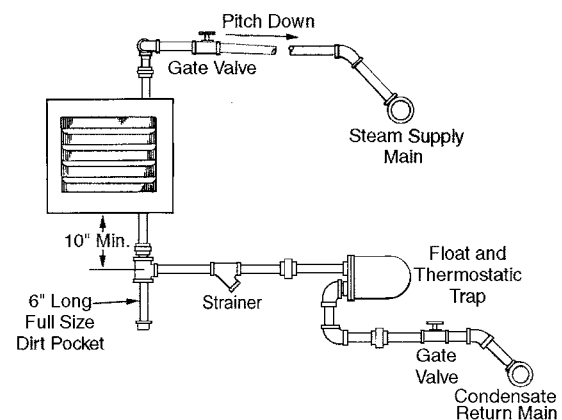


Steam Systems (UHH-108 through 340)

Horizontal Unit Heater Top/Bottom Connection for High Pressure Steam



Horizontal Unit Heater Top/Bottom Connection for Low Pressure Steam Open Gravity or Vacuum Return Steam





Installation

Piping

1. Branch piping to and from unit heater should be the same size as unit connections and include swing joints to allow for expansion and contraction of the piping without placing a strain on the unit heater element. On steam systems, the branch piping should be taken off and returned above the center line of the supply and return line.
2. Install pipe unions and shut-off valves in lines to and from each unit heater to allow maintenance or replacement of unit without shutting down and draining entire system. For hot water systems, include a balancing valve in return line when possible for water flow regulation. In areas subject to freezing, a drain valve should be installed below each unit heater to remove water from the heating coil.
3. In steam or hot water systems, rapid air removal is required because entrained air is a cause of corrosion. Hot water systems should be equipped with suitable air vent valves for rapid and complete removal of air at the high points and ends of both supply and return mains. Proper air venting for steam systems can be achieved by use of a steam trap with an internal air vent.
4. Traps must be located below the outlet of the unit. Consult trap manufacturer for specific recommendations. Each steam unit heater should be provided with a trap of sufficient size and capacity to pass a minimum of two times the normal condensate released by the unit at the minimum differential pressure in the system. Trap capacity is based on the pressure differential between supply and return mains. Steam systems should be equipped with a float and thermostatic trap or an inverted bucket trap with an air bypass.
5. It is advisable to use a pipe line strainer before each steam trap draining a unit heater. This protection will reduce the maintenance of the steam trap. When strainers are used they could be installed between the unit heater and the trap and be the same size as the trap tapping. In order to catch dirt and scale, the strainer should have a screen perforation size smaller than the trap orifices.
6. On systems where the steam supply to the unit heater is modulated or controlled by a motorized valve, a vacuum breaker should be installed between the unit outlet and the trap. If a vacuum breaker is used, it should be in conjunction with a float and a thermostatic trap.

7. Install a dirt pocket at the bottom of unit heater to collect dirt and scale as shown in figures on page 7. Pipe diameter must be the same size as unit connections and about six inches long.
8. Provide adequate pipe hangers, supports, or anchors to secure the piping system independently of the unit heater.

Wiring Instructions

 DANGER	
	Disconnect all electric power including remote disconnects before servicing. Failure to disconnect power before servicing can cause severe personal injury or death.

All wiring must be done in accordance with the National Electric Code and applicable local codes. In Canada, wiring must conform to the Canadian Electric Code. Power supply to these unit heaters must be protected by a fused disconnect switch. It is recommended that all wiring be adequately grounded.

Electric wiring must be sized to carry the full load amp draw of the motor, starter, and any control that are used with the heater. All units with power codes B, I or L (polyphase motors) must be provided with suitable over-current protection in circuit supplying heater at installation. Overcurrent protectors should be sized based on motor current rating shown on the unit serial plate, and applicable national electric code procedures.

All units are provided with an electrical junction box. Junction boxes are either integral to the motor or attached to the unit casing. Units with explosion-proof motors have an explosion proof junction box attached to the motor.

Any damage to or failure of units caused by incorrect wiring of the units is not covered by standard warranty. See page 22.

Location of room thermostat should be in the natural circulating path of room air. Mount thermostat about five feet above floor level where it will not be affected by heat from the unit or other sources of drafts that would prevent it from properly controlling room temperature. See instructions packed with the thermostat. Speed controllers furnished with specified unit heater fan motors are packed separately and must be connected according to wiring diagram with each controller. Controllers are not interchangeable with different motor sizes or manufacturers and must be specifically wired to their respective motors.

Operation

Prior to Operation

1. Make sure fuses are installed in fused disconnect switches.
2. Check all electrical connections to assure they are secure.
3. Check rigidity of unit mounting. Tighten all fasteners, if necessary.
4. Inspect piping, strainers, traps, fittings, etc.

Initial Start-Up

1. Set thermostat to lowest position.
2. Turn on power supply to unit.
3. Open return gate valve, and then open supply gate valve to unit.
4. Raise thermostat setting to desired position.
5. Adjust louvers (if provided) for desired heat distribution.
6. To insure proper sequence of operation, cycle unit on and off a few times by raising and lowering thermostat setting.
7. Check for proper rotation of fan. All fans must rotate in a clockwise direction when viewed from the front (UHH) or bottom (UDH) of the unit heater.

Automatic Control

Control Sequences

The following control sequence descriptions are commonplace for steam/hot water horizontal and vertical air delivery unit heaters.

Continuous Fan Operation - Intermittent Hot/Cold

Coil - A room thermostat controls a valve which opens to allow steam or hot water to supply the unit and closes to shut off the supply when the thermostat is satisfied. The fan runs continuously.

Intermittent Fan Operation - Hot Coil - A room thermostat starts and stops the motor when a thermostat calls for heat, the motor is energized. An aquastat is sometimes strapped to the supply or return piping to prevent fan operation when heat is not being supplied to the unit heater. The heating fluid is continuously supplied to the unit heater, even with the motor off. After thermostat is satisfied, motor is de-energized.

Intermittent Fan Operation - Intermittent

Hot/Cold Coil - To prevent a unit heater from delivering cold air when the thermostat is “calling for” heat, an aquastat prevents fan operation when the heat supply to the coil is interrupted. Conversely, the aquastat energizes the fan when the automatic supply valve opens to allow the heating medium to enter the unit heater coil.

Energy Saver – Optional Control

An “Energy Star” control used with vertical air delivery unit heaters can automatically deliver warm stratified air to the zone of occupancy, minimize ceiling heat loss and overall energy consumption. Two thermostats and an auxiliary switch are required for one or more unit heaters, plus a two-position supply valve for each unit heater. The room thermostat controls the two-position supply valve to each unit heater. An auxiliary fan switch stops the unit heater fan when the supply valve is closed. The other thermostat (“Energy Saver” Control) is located near the vertical unit heater at the ceiling or roof where warm air tends to stratify.

The room thermostat will automatically signal the supply valve to close when its setting has been “satisfied”. However, the thermostat mounted near the unit heater can override the auxiliary switch to allow the unit heater fan to run with the supply valve closed, until the temperature at the higher level falls below the set-point of the higher mounted thermostat.

Additionally, air delivered by a vertical unit heater located in high ambient temperatures prevalent at the upper levels within a building is excessively buoyant and frequently prevents the unit heater fan from delivering the heated air to the occupancy level of the building. By recycling the heat which builds up at these higher levels, the two-thermostat control arrangement contributes to increased comfort and lower heating costs.

Performance Data

Horizontal & Vertical Air Delivery Models UHH & UDH

Table 5. Motor Data & Power Codes

Model Type		Motor HP	VOLTAGE, MOTOR TYPE AND POWER CODE			
			115/60/1	230/60/1	230/460/60/3	115/208-230/60/1
			Totally Enclosed w/ Thermal Overload	Totally Enclosed w/ Thermal Overload	Totally Enclosed	Explosion Proof w/ Thermal Overload
			A	G	I	V
			Amps	Amps	Amps	Amps
Horizontal Model UHH	UHH-18	1/30	0.70	0.22	N/A	4.8/2.3-2.4
	UHH-24	1/30	0.70	0.22	N/A	4.8/2.3-2.4
	UHH-33	1/15	0.72	0.50	N/A	4.8/2.3-2.4
	UHH-47	1/15	0.72	0.50	N/A	4.8/2.3-2.4
	UHH-63	1/10	1.30	0.59	1.4/0.7	4.8/2.3-2.4
	UHH-86	1/10	1.30	0.59	1.4/0.7	4.8/2.3-2.4
	UHH-108	1/8	1.58	0.80	2.2/1.1	6.8/3.1-3.4
	UHH-121	1/8	1.58	0.80	2.2/1.1	6.8/3.1-3.4
	UHH-165	1/4	2.65	1.40	2.2/1.1	6.8/3.1-3.4
	UHH-193	1/4	2.75	1.40	2.2/1.1	6.8/3.1-3.4
	UHH-258	1/3	3.60	2.00	2.2/1.1	7.8/3.6-3.9
	UHH-290	1/2	4.68	2.20	2.2/1.1	9.6/4.7-4.8
UHH-340	1/2	4.68	2.20	2.2/1.1	9.6/4.7-4.8	
Vertical Model UDH	UDH-42	1/10	1.30	0.59	1.4/0.7	4.8/2.3-2.4
	UDH-59	1/10	1.30	0.59	1.4/0.7	4.8/2.3-2.4
	UDH-78	1/6	2.20	1.10	1.4/0.7	4.8/2.3-2.4
	UDH-95	1/6	2.20	1.10	1.4/0.7	4.8/2.3-2.4
	UDH-139	1/4	2.75	1.40	2.2/1.1	6.6/3.1-3.3
	UDH-161	1/4	2.75	1.40	2.2/1.1	6.6/3.1-3.3
	UDH-193	1/2	4.68	2.20	2.2/1.1	9.6/4.7-4.8
	UDH-212	1/2	4.68	2.20	2.2/1.1	9.6/4.7-4.8
	UDH-247	5/8	5.85	3.40	4.2/2.1	9.6/4.7-4.8
	UDH-279	5/8	5.85	3.40	4.2/2.1	9.6/4.7-4.8
	UDH-333	1	8.95	4.50	4.2/2.1	—
	UDH-385	1	—	—	4.2/2.1	—
	UDH-500	1-1/2	—	—	5.0/2.5	—
UDH-610	1-1/2	—	—	5.0/2.5	—	

Power Code A: Motors are 115 volt, 60 Hertz, single phase, totally enclosed with built-in thermal overload protection and a permanent split capacitor to minimize current draw.

Power Code G: Motors are 230 volt, 60 Hertz, single phase, totally enclosed with built-in thermal overload protection and a permanent split capacitor to minimize current draw.

Power Code I: Motors are 230/460 volt, 60 Hertz, three phase, totally enclosed polyphase induction type.

Power Code V: Motors are 115/208-230 volt, 60 Hertz, single phase, explosion-proof, totally enclosed with built-in thermal overload protection split phase type.

Explosion proof motors are suitable for Class I, Group C & D; Class II, Groups F & G; Class III. Canadian Standard Association (CSA) requirements state that the explosion proof units may not be used with a fluid temperature in excess of 329°F or pressures greater than 87 psig and still maintain their explosion proof rating for National Electric Code ignition temperature rating T3B for grain dust. Class I, Group D Motors are for operations in areas containing gasoline, petroleum, naphtha, benzene, butane, propane, alcohol, acetone, lacquer solvent or natural gas. Class II, Group F motors are for operations in areas containing carbon black, coal or coke dust. Class II, Group G motors are for operations in areas containing flour, starch or grain dust. Class III motors are for operations in areas containing easily ignitable fibers and flyings.

Performance Data

Horizontal Air Delivery Model UHH

Table 6. Steam (High Motor Speed)

Model Type UHH	Unit Size	Btu/Hr.	Condensate lb./hr.	Sq. Ft. EDR	Air Data						Motor Data	
					Cfm	Outlet Velocity FPM	Final Air Temp. (°F)	Max. Mounting Height (ft.)*	Heat Spread@ Max Height*	Sound Class**	HP	Approx. RPM
HORIZONTAL AIR DELIVERY	UHH-18	18,000	18	75	400	510	102	9	17	II	1/30	1550
	UHH-24	24,000	25	100	450	580	109	9	18	II	1/30	1550
	UHH-33	33,000	35	138	630	510	109	10	20	II	1/15	1550
	UHH-47	47,000	49	196	730	600	120	12	25	III	1/15	1550
	UHH-63	63,000	66	263	1120	605	112	14	29	III	1/10	1550
	UHH-86	86,000	89	358	1340	730	119	15	31	III	1/10	1550
	UHH-108	108,000	111	450	1550	625	125	15	32	III	1/8	1075
	UHH-121	121,000	126	504	1775	715	123	16	33	III	1/8	1075
	UHH-165	165,000	170	688	2500	750	121	17	34	IV	1/4	1075
	UHH-193	193,000	200	804	2900	870	122	18	37	IV	1/4	1075
	UHH-258	258,000	267	1075	3900	920	121	19	40	V	1/3	1075
	UHH-290	290,000	300	1208	4300	1010	122	20	44	V	1/2	1100
UHH-340	340,000	352	1417	5130	965	121	20	46	V	1/2	1100	

Table 7. Steam (Reduced Motor Speed)

Model Type UHH	Unit Size	Btu/Hr.	Condensate lb./hr.	Sq. Ft. EDR	Air Data						Motor Data	
					Cfm	Outlet Velocity FPM	Final Air Temp. (°F)	Max. Mounting Height (ft.)*	Heat Spread@ Max Height*	Sound Class**	HP	Approx. RPM
HORIZONTAL AIR DELIVERY	UHH-18	14,800	15	62	310	395	104	9	12	I	1/30	1200
	UHH-24	19,700	21	82	350	455	112	9	13	I	1/30	1200
	UHH-33	27,100	29	113	490	395	111	10	14	I	1/15	1200
	UHH-47	38,500	40	161	565	465	123	12	18	II	1/15	1200
	UHH-63	51,700	54	216	870	470	115	14	21	II	1/10	1200
	UHH-86	70,500	73	294	1040	570	123	15	22	II	1/10	1200
	UHH-108	88,600	91	369	1240	500	126	15	23	II	1/8	875
	UHH-121	99,200	103	413	1415	570	125	16	23	II	1/8	875
	UHH-165	135,300	139	564	1990	600	123	17	24	III	1/4	875
	UHH-193	158,300	164	659	2310	695	123	18	26	III	1/4	875

Notes:

- Performance Data at Standard Conditions of 2 lb. Steam and 60°F Entering Air.
- * Units with horizontal louvers open 30° from vertical plane.
- ** See Table 12 on page 14 for Sound Class definitions.

Performance Data

Horizontal Air Delivery Model UHH

Table 8. Hot Water (High Motor Speed)

Model Type UHH	Unit Size	Btu/Hr.	WATER DATA			AIR DATA						MOTOR DATA	
			GPM	Pressure Drop (Ft. of water)	Min./Max GPM	Cfm	Outlet Velocity FPM	Final Air Temp. (°F)	Max. Mounting Height (ft.)*	Heat Spread@ Max Height*	Sound Class**	HP	Approx. RPM
HORIZONTAL AIR DELIVERY	UHH-18	13,000	1.3	0.49	0.3/5.0	400	500	90	9	18	II	1/30	1550
	UHH-24	17,300	1.7	0.83	0.3/5.0	450	570	96	10	20	II	1/30	1550
	UHH-33	24,500	2.5	0.12	0.4/10.0	630	495	96	11	22	II	1/15	1550
	UHH-47	33,800	3.4	0.21	0.4/10.0	730	580	103	13	26	III	1/15	1550
	UHH-63	46,500	4.7	0.47	0.5/15.0	1120	590	98	15	30	III	1/10	1550
	UHH-86	61,900	6.2	0.79	0.5/15.0	1340	710	103	16	31	III	1/10	1550
	UHH-108	81,000	8.1	0.85	0.5/20.0	1550	605	108	16	33	III	1/8	1075
	UHH-121	90,000	9.0	1.04	0.7/20.0	1775	690	107	17	36	III	1/8	1075
	UHH-165	133,000	13.3	2.48	2.0/30.0	2500	735	109	18	38	IV	1/4	1075
	UHH-193	156,000	15.6	3.35	2.0/30.0	2900	850	110	19	40	IV	1/4	1075
	UHH-258	198,000	19.8	3.54	2.5/40.0	3900	895	107	20	42	V	1/3	1075
	UHH-290	224,000	22.4	4.45	2.5/40.0	4300	990	108	21	46	V	1/2	1075
UHH-340	273,000	27.3	3.24	2.5/50.0	5130	945	109	22	50	V	1/2	1075	

Table 9. Hot Water (Reduced Motor Speed)

Model Type UHH	Unit Size	Btu/Hr.	WATER DATA			AIR DATA						MOTOR DATA	
			GPM	Pressure Drop (Ft. of water)	Cfm	Outlet Velocity FPM	Final Air Temp. (°F)	Max. Mounting Height (ft.)*	Heat Spread@ Max Height*	Sound Class**	HP	Approx. RPM	
HORIZONTAL AIR DELIVERY	UHH-18	10,660	1.3	0.49	310	390	92	9	13	I	1/30	1200	
	UHH-24	14,186	1.7	0.83	350	450	98	10	14	I	1/30	1200	
	UHH-33	20,090	2.5	0.12	490	390	98	11	16	I	1/15	1200	
	UHH-47	27,716	3.4	0.21	565	455	105	13	18	II	1/15	1200	
	UHH-63	38,130	4.7	0.47	870	460	101	15	21	II	1/10	1200	
	UHH-86	50,758	6.2	0.79	1040	550	105	16	22	II	1/10	1200	
	UHH-108	66,420	8.1	0.85	1240	485	110	16	23	II	1/8	875	
	UHH-121	73,800	9.0	1.04	1415	555	108	17	26	II	1/8	875	
	UHH-165	109,060	13.3	2.48	1990	590	111	18	27	III	1/4	875	
UHH-193	127,920	15.6	3.35	2310	680	111	19	28	III	1/4	875		

Notes:

- Performance Data at Standard Conditions of 200°F Entering Water, 60°F Entering Air and 20°F Water Temperature Drop.
- * Units with horizontal louvers open 30° from vertical plane.
- ** See Table 12 on page 14 for Sound Class definitions.

Performance Data

Vertical Air Delivery Model UDH

Table 10. Steam (High Motor Speed)

Model Type UDH	Unit Size	Btu/Hr	Condensate lb./hr.	Sq. Ft. EDR	AIR DATA							MOTOR DATA		
					Cfm	Outlet Velocity FPM	Final Air Temp. (°F)	Max. Mounting Height (ft.)*	Heat Spread@ Max Height*	Sound Class**	HP	Approx. RPM		
VERTICAL AIR DELIVERY	UDH-42	42,000	43	175	950	779	103	11	15	17	11	II	1/10	1550
	UDH-59	59,000	61	246	1150	943	111	13	18	20	13	II	1/10	1550
	UDH-78	78,000	81	325	1550	992	110	14	19	22	14	II	1/6	1550
	UDH-95	95,000	99	396	1775	1136	113	16	21	24	16	II	1/6	1550
	UDH-139	139,000	144	579	2500	1284	116	18	24	27	18	III	1/4	1075
	UDH-161	161,000	167	671	2900	1490	115	21	28	31	21	III	1/4	1075
	UDH-193	193,000	200	804	3900	1643	109	23	31	34	23	IV	1/2	900
	UDH-212	212,000	219	883	4300	1812	109	25	33	37	25	IV	1/2	1075
	UDH-247	247,000	256	1029	5130	1805	107	26	34	39	26	IV	5/8	900
	UDH-279	279,000	288	1163	5800	2040	107	30	37	45	30	V	5/8	1075
	UDH-333	333,000	345	1388	6600	1968	110	30	37	45	30	V	1	1075
	UDH-385	385,000	398	1604	7860	1930	106	30	36	45	30	VI	1	1140
	UDH-500	500,000	518	2083	10790	2490	103	37	44	56	37	VI	1-1/2	1140
UDH-610	610,000	631	2542	12350	2345	106	36	43	54	36	VI	1-1/2	1140	

Notes:

- Performance Data at Standard Conditions of 2 lb. Steam and 60°F Entering Air - High Motor Speed
- * Equipped with cone jet deflector, blades fully opened are shown in bold. Non-bolded mounting height/spread data is for units without deflectors. Please see Catalog 702 for additional outlet accessory performance data.
- ** See page 14 for Sound Class definitions.

Table 11. Hot Water (High Motor Speed)

Model Type UDH	Unit Size	Btu/Hr	WATER DATA			AIR DATA							MOTOR DATA		
			GPM	Pressure Drop (Ft. of water)	Min./Max GPM	Cfm	Outlet Velocity FPM	Final Air Temp. (°F)	Max. Mounting Height (ft.)*	Heat Spread@ Max Height*	Sound Class**	HP	Approx. RPM		
VERTICAL AIR DELIVERY	UDH-42	30,500	3.1	0.09	0.5/10.0	950	776	91	11	15	17	11	II	1/10	1550
	UDH-59	44,300	4.5	0.18	0.8/15.0	1150	940	97	14	19	21	15	II	1/10	1550
	UDH-78	58,500	6.0	0.43	1.0/20.0	1550	990	96	15	21	23	16	II	1/6	1550
	UDH-95	71,000	7.2	0.61	1.3/25.0	1775	1132	99	17	23	25	17	II	1/6	1550
	UDH-139	111,000	11.3	0.84	1.0/30.0	2500	1281	103	18	25	28	19	III	1/4	1075
	UDH-161	128,800	13.1	1.11	1.3/40.0	2900	1488	103	22	30	33	21	III	1/4	1075
	UDH-193	142,700	14.5	0.81	1.5/50.0	3900	1640	95	24	33	36	24	IV	1/2	900
	UDH-212	159,000	16.1	0.98	2.0/60.0	4300	1809	96	25	35	37	25	IV	1/2	1075
	UDH-247	197,000	19.9	1.65	2.0/60.0	5130	1803	97	27	36	40	27	IV	5/8	900
	UDH-279	220,000	22.2	2.01	2.3/75.0	5800	2037	97	31	39	47	31	V	5/8	1075
	UDH-333	265,000	26.7	1.27	2.8/75.0	6600	1966	99	30	38	46	30	V	1	1075
	UDH-385	308,000	31.1	1.68	3.3/75.0	7860	1928	97	33	40	49	33	VI	1	1140
	UDH-500	403,000	40.9	2.32	3.0/100.0	10790	2487	94	40	48	60	40	VI	1-1/2	1140
UDH-610	459,000	46.3	2.42	6.0/100.0	12350	2343	97	39	47	58	40	VI	1-1/2	1140	

Notes:

- Performance Data at Standard Conditions of 200°F Entering Water, 60°F Entering Air and 20°F Water Temperature Drop
- * Equipped with cone jet deflector, blades fully opened are shown in bold. Non-bolded mounting height/spread data is for units without deflectors. Please see Catalog 702 for additional outlet accessory performance data.
- ** See Table 12 on page 14 for Sound Class definitions.

Performance Data

Table 12. Sound Class Definitions

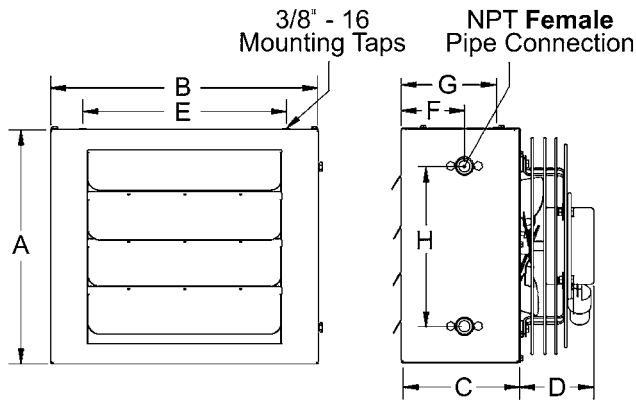
Type of Building or Room Sound Zone	Sound Zone
Apartments, Class Rooms, Court Rooms, Executive Offices, Hospitals, Libraries, Museums, Residences	I
General Offices, Hotel Dining Rooms, Private Offices, Recreation Rooms, Show Rooms, Small Stores, Tea Rooms, Upper Floors at Department Stores	II
Bank Lobbies, Cafeterias, Drug Stores, General Offices, Grocery Stores, Gymnasiums, Main Floors at Department Stores, Public Buildings, Post Offices, Restaurants, Service Stations	III
Factories, Foundries, Garages, Machine Shops, Office Machinery Rooms, Packing Plants, Shipping Platforms, Steel Mills, Stadium Common Areas	II-VII
Boiler Works, Forge Shops, Round Houses, Steel Fabricating Shops	VII

Dimensional Data

Horizontal Air Delivery Model UHH



Unit Size 18 through 86



Unit Size 108 through 340

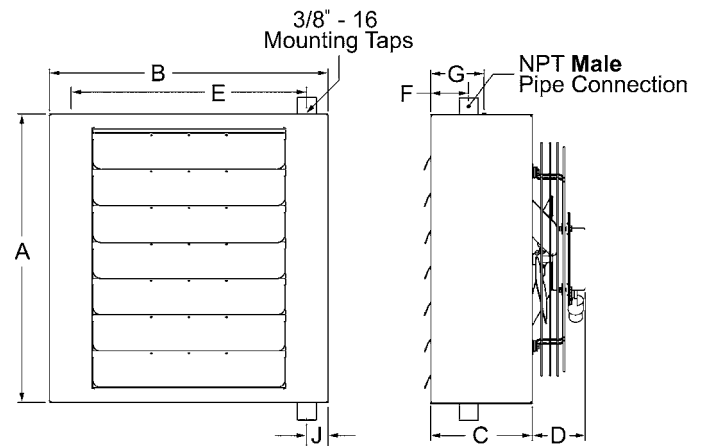


Table 13. Dimensions – Model UHH

Unit Size	A	B	C	D	E	F	G	H	J	NPT Connections	Fan Diameter	Approx. Shipping Wt. lb.
UHH-18	15	16 7/8	7 1/2	4 1/2	12	3 1/2	5	10	—	3/4	9	18
UHH-24	15	16 7/8	7 1/2	4 1/2	12	3 1/2	5	10	—	3/4	9	19
UHH-33	19	19 3/4	7 1/2	4 3/4	12	3 1/2	5	14	—	3/4	12	35
UHH-47	19	19 3/4	7 1/2	4 3/4	12	3 1/2	5	14	—	3/4	12	36
UHH-63	19	25 3/4	8 1/2	4 3/4	18	3 1/2	5	14	—	3/4	14	51
UHH-86	19	25 3/4	8 1/2	4 3/4	18	3 1/2	5	14	—	3/4	14	52
UHH-108	27	25 7/8	9 1/2	6 1/4	18	3 1/2	5 1/4	—	2	1 1/2	18	76
UHH-121	27	25 7/8	9 1/2	6 1/4	18	3 1/2	5 1/4	—	2	1 1/2	18	77
UHH-165	27	31 7/8	10	6 1/4	24 7/8	3 1/2	6 1/4	—	2	1 1/2	20	95
UHH-193	27	31 7/8	10	8 3/8	24 7/8	3 1/2	6 1/4	—	2	1 1/2	20	96
UHH-258	33	40 13/16	11	8 3/8	32 7/8	3 1/2	6 1/4	—	2 1/4	2	22	165
UHH-290	33	40 13/16	11	8 3/8	32 7/8	3 1/2	6 1/4	—	2 1/4	2	22	167
UHH-340	39	40 13/16	12	8 3/8	32 7/8	3 1/2	7 1/4	—	2 1/4	2	24	182

Notes:

1. All dimensions in inches.
2. UHH-18 through UHH-86 have side NPT female pipe connections.
3. UHH-108 through UHH-340 have top and bottom NPT male pipe connections.
4. Units should be mounted a minimum of 5" from wall.

Dimensional Data

Assembled Explosion Proof Horizontal Air Delivery Model UHX

Dimensions

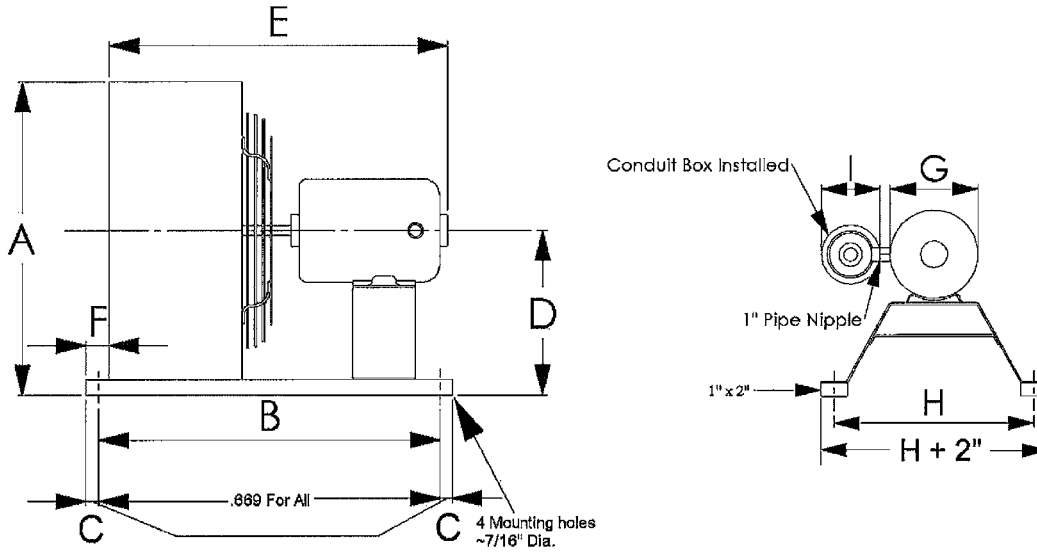


Table 14. Dimensions – Model UHX

UNIT SIZE	A	B	C	D	E	F	G	H	I
UHX-18	15.75	21.5	0.67	8.47	18.539	4.278	6.54	13.139	4.38
UHX-24									
UHX-33	15.75	21.5	0.67	10.484	18.539	4.278	6.54	11.805	4.38
UHX-47									
UHX-63	23.75	22.675	0.67	10.484	19.72	4.278	6.54	15.435	4.38
UHX-86									
UHX-108	26.875	23.465	0.67	14.5	22.477	4.278	7.36	13.894	4.38
UHX-121									
UHX-165	32.875	24.646	0.67	14.5	23.56	4.278	7.36	20.072	4.38
UHX-193									
UHX-258	41.8125	26.615	0.67	17.492	24.958	4.278	7.36	23.527	4.38
UHX-290					24.958				
UHX-340	41.8125	28.189	0.67	20.484	27.532	4.278	7.36	26.982	4.38

Note:
All dimensions in inches.

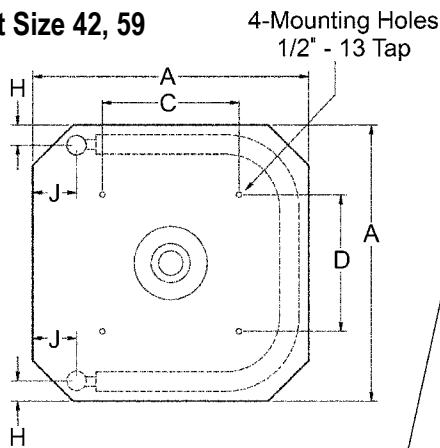
Dimensional Data

Vertical Air Delivery Model UDH



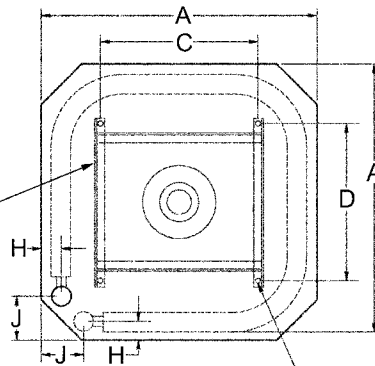
Dimensions

Unit Size 42, 59



4-Mounting Holes
1/2" - 13 Tap

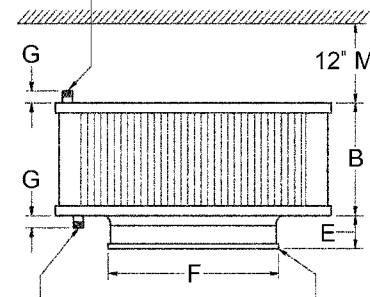
Unit Size 78 through 610



4-Mounting Holes
1/2" - 13 Tap

Angle Iron Frame for
UD-193 to UD-610

Steam Supply and
Hot Water Return
NPT Connection



12" Min.

Hot Water
Supply and Steam
Return NPT
Connection

Outlet Fan
Guard

Table 15. Dimensions – Model UDH

UNIT SIZE	A	B	C	D	E	F	G	H	I	MALE NPT CONNECTIONS	FAN DIAMETER	APPROX. SHIPPING WT. LB.
UDH-42, 59	23	6-3/8	12	12	3-1/8	15	2-3/4	1-7/8	3-1/4	1-1/2	13-3/4	52
UDH-78, 95	25	6-3/8	13	13	3-1/8	17	2-3/4	1-7/8	3-1/4	1-1/2	15-3/4	64
UDH-139, 161	35	10-3/8	14-7/16	14-7/16	3-1/8	18-7/8	2-3/4	2	3-1.4	1-1/2	17-3/4	99
UDH-193, 212	30	12-3/8	19	17	4	20-7/8	2-3/4	2	3-5/8	2	19-3/4	126
UDH-247, 279	35	12-3/8	20	18	4	22-7/8	2-3/4	2	3-5/8	2	21-3/4	154
UDH-333, 385	35	18-3/8	21	21	4	24-3/4	2-3/4	2-1/2	4-1/2	2-1/2	23-3/4	189
UDH-510	43	18-3/8	25	25	4	28-3/4	2-3/4	2-1/2	4-1/2	2-1/2	27-3/4	270
UDH-610	43	18-3/8	27	27	4	30-3/4	2-3/4	2-1/2	4-1/2	2-1/2	29-3/4	290

Note:

All dimensions in inches.

Dimensional Data

Assembled Explosion Proof Vertical Air Delivery Model UDX

Dimensions

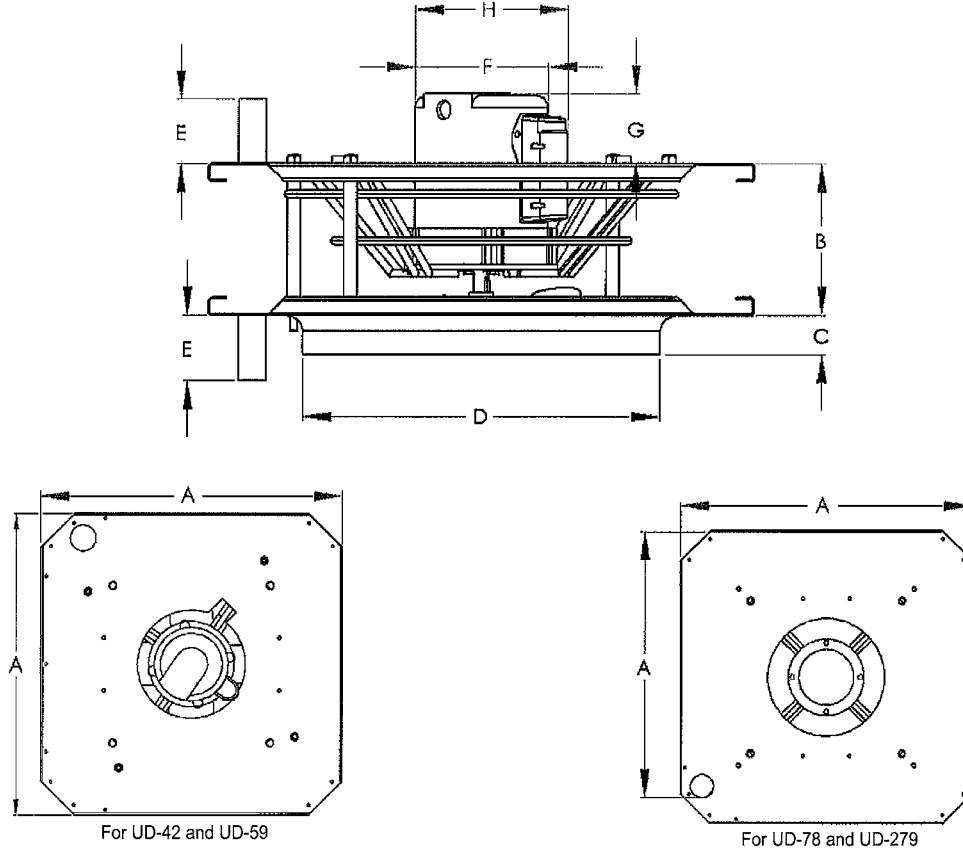


Table 16. Dimensions – Model UDX

UNIT SIZE	A	B	C	D	E	F	G	H
UDX-42	23	6.375	3.125	15	2.75	6.54	5.6875	7.77
UDX-59	23	6.375	3.125	15	2.75	6.54	5.6875	7.77
UDX-78	25	6.375	3.125	17	2.75	6.54	6.625	7.77
UDX-95	25	6.375	3.125	17	2.75	6.54	6.625	7.77
UDX-139	35	10.375	3.125	18.875	2.75	7.36	6.5	8.2
UDX-161	35	10.375	3.125	18.875	2.75	7.36	6.5	8.2
UDX-193	30	12.375	4	20.875	2.75	7.36	0.125	8.2
UDX-212	30	12.375	4	20.875	2.75	7.36	0.125	8.2
UDX-247	35	12.375	4	22.875	2.75	7.36	0.125	8.2
UDX-279	35	12.375	4	22.875	2.75	7.36	0.125	8.2
UDX-333	Not Available							
UDX-385								
UDX-510								
UDX-610								

Note:
All dimensions in inches.

Service Diagnosis

Fails to Maintain Temperature

1. Undersized unit heater, boiler, pump or piping.
2. Excessive exhaust air (exhaust fans may have been added since heating installed).
3. Unit heater operating at lower speed when sized to operate at high speed.
4. Unit heater mounted too high - heated air not delivered to floor level.
5. Thermostat - improper location or setting, or not functioning.
6. Dirty or clogged coil.

Unit Blows Cold Air

1. Manual shut-off valve closed.
2. Insufficient steam pressure or lack of hot water.
3. Aquastat not functioning.
4. Improper venting.
5. Steam trap not functioning.
6. Drip leg too short (steam system).
7. Return line plugged (steam system).
8. Pump undersized or not operating (hot water system).

Does Not Operate When Heat Needed

1. Defective motor or electrical connections.
2. Thermostat, aquastat or pressure limit control not functioning.

Fails to Deliver Heat to Floor

1. Units mounted too high.
2. Operating on low speed.
3. Final air temperature too high.
4. Louvers not adjusted properly.
5. Wrong type of diffuser (on verticals).
6. Undersized unit heater (insufficient air delivery).
7. Wrong type of unit (may require vertical delivery).
8. Cross ventilation or drafts.
9. Obstructions to air flow.

Noisy Unit

1. Loose bolts or screws.
2. Fan blade bent, out of balance.
3. Dirt accumulation on fan blades.
4. Fan hub or blade rivets loose.
5. Motor shaft thrust bearing worn.
6. Motor mounting bent, fan not positioned properly in venturi.
7. Unit mounted too rigidly, transmits vibration noise.
8. Conduit too rigid, transmits vibration noise.
9. BX cable touching unit heater, chatters as casing vibrates.

Unit Leaks

1. Loose connection.
2. Internal corrosion.

Employees Complain of Hot Blast

1. Air stream aimed directly at employees.
2. Louvers not adjusted properly.
3. Wrong type of diffuser (on verticals).
4. Excessive final air temperature.

Unit Operates Too Long

1. Thermostat installed on cold wall or otherwise improperly located.
2. Heavy exhaust fan load. (May have been increased since heating system was laid out).
3. Aquastat or pressure limit control not functioning properly.
4. Unit is undersized.

Frequent Motor Failure

1. Voltage fluctuations too high or too low.
2. Excessive or insufficient lubrication.
3. Wiring to motor undersized.
4. Improper electrical connections.
5. Motor operating in too high air temperature.
6. Restricted air flow through unit due to clogged coil, closed louvers, too much duct work connected to unit.
7. Fan out of balance.
8. Unbalanced voltage on 3 phase power.

Premature Failure

1. Severe internal corrosion due to condition of boiler water.

Coil Failure

1. Severe internal corrosion from feedwater.
2. Type of boiler treatment.
3. Entrained air causing water hammer.
4. Too much outdoor air portion in freezing temperatures.
5. Continuous operation above 150 PSI (375°F) (steam systems).

Maintenance

Inspect Regularly

Under average conditions, it is recommended that unit heaters be inspected before every heating season - more often in locations where air is contaminated with corrosive fumes, dust, soot or oil spray. Check for dirty, clogged coils, excessive vibration and loose connections.

Motors

A. Cleaning

Remove grease and dirt on motor during each inspection or lubrication. Open frame motors should be blown clean every heating season, or whenever coils are cleaned, whichever is sooner.

B. Lubrication

1. Lubricate motor according to manufacturer's instructions located on the motor.
2. When no motor oiling instructions are on the motor, oil the motor every two thousand hours of operation with SAE20 motor oil for units in normal applications. Adjust oiling according to usage and atmosphere.
3. Some motors do not have oil fittings. These motors are lubricated for long life and do not require further lubrication.

C. Overload Protection

A change in line voltage higher or lower than motor nameplate rating may cause overheating and serious motor damage. Check plant voltage conditions. A separate manual starter with thermal overload protection device is recommended for those units that do not have motors with built-in overload protection.

Coils

A. Cleaning

Clean coil at least once a year; more often under unfavorable conditions. Unless coil is kept reasonably free of dirt, lint and grease, its original heating capacity will be reduced - possibly to a serious degree - and motor damage may result.

Two commonly used cleaning methods are:

1. Loosen dirt by brushing fins on side where air enters coil and then turn on fan to blow dirt from unit.
2. Use high pressure air hose to loosen dirt by blowing from side where air leaves coil (side adjacent to louvers on blow-through units; side adjacent to fan on draw-through units).

For thorough cleaning of coil, remove motor and fan and spray a mild alkaline cleaning solution over the coil.

After a few minutes, follow by a hot water rinse. (A steam gun can be used for spraying cleaning solution and hot water.)

Coils subjected to corrosive fumes should be checked and cleaned frequently.

B. Internal Corrosion Safeguards

1. Provide controlled water treatment - don't use excess of boiler compounds. Contact your boiler compound supplier for proper usage or the services of a water treatment laboratory.
2. Periodic internal flushing of the coils is recommended in areas where water supply is suspected of causing scale. Use an alkaline-cleaning solution and introduce it at the main pump of the hydronic system. Flush thoroughly.

WARNING

Using inorganic or mineral acids such as muriatic (hydrochloric) acid, even though inhibited, may lead to severe damage including corrosion and leakage

3. De-aerate boiler feed-water (particularly if large amount of new water is used).
4. Insure rapid continuous and adequate condensate drainage by properly sized and installed traps and piping. Check traps for sticking. Clean strainers ahead of traps. (When traps don't work, condensate accumulates in unit heater coil; water hammer results.)
5. Adequately vent each unit.
6. Use low pressure steam when possible.

Casings

A. Cleaning

Periodic cleaning of casings is recommended to remove dirt, grease and corrosive substances that may injure finish. Rusted or corroded spots should be cleaned and repainted.

B. General Inspection

Tighten fan guard and motor bracket. Check fan for proper clearance, free rotation and firm connection to shaft. When servicing is complete, tag unit to indicate date of inspection, lubrication and cleaning.

Maintenance

Service Checklist

Note to service technician: Fill in data for each unit. Leave this manual with owner as future service record.

Installed Location/Identification _____

Model Number _____

Serial Number _____

Power Code _____

Control Code _____

	Date Installed	Service Dates						
Proper Service Voltage								
Check for Leaks								
Check for Corrosion								
Clean Condenser Fins								
Check Fan Operation								
Lubricate Motor								
(Non-Detergent SAE 200)								
Serviced By (initials)								

Replacement Parts

All replacement parts and controls are proprietary in that they have all been designed, tested, and approved for the particular application to insure both physical and electrical fit and performance. Any substitution of parts or controls not approved by the factory will be at customer's risk.

Note: Daikin reserves the right to substitute parts of advanced design and to change specifications or prices without advance notice or without incurring obligations.

Replacement parts can be obtained by submitting the model number, power code, control code and serial number shown on the rating plate attached to the unit, along with a description of the part, to the factory.

When writing for service or replacement parts, direct your letters to Daikin Service and refer to the model number and the serial number of the heater as stamped on the serial plate attached to the heater kit. If replacement parts are required, give the date of the heater kit installation and the date of the failure; also, give description of replacement parts and explanation of malfunction.

Unit heaters used under excessive pressures or temperatures may have failures to the heat exchanger not covered under our warranty.

Unit heaters used in the presence of corrosive compounds may have failures to the heat exchange not covered under our warranty.

Warranty

All Daikin equipment is sold pursuant to its standard terms and conditions of sale, including Limited Product Warranty. Consult your local Daikin Representative for warranty details. Refer to Form 933-43285Y. To find your local Daikin Representative, go to www.DaikinApplied.com.

This document contains the most current product information as of this printing. For the most up-to-date product information, please go to www.DaikinApplied.com.

Products Manufactured in an ISO Certified Facility.

