

HF Series Open Coil Element Duct Heater



Manufactured in U.S.A.

Open coil duct heaters offer several advantages when used properly. They release heat directly into the air stream resulting in lower element temperatures, provide higher wattage per square foot of duct area, have low pressure drop due to high percentage of open area, are light weight, easily installed, and economical with quick delivery available.

Standard Features

- Galvanized steel control box with optional 1/2" insulation and hinged cover.
- Primary and secondary over temperature protection.
- De-energizing definite purpose contactors.
- Differential pressure fan interlock.
- 24 Volt control transformer.
- Fusing over 48 Amps (per NEC).
- Line terminal blocks.

- Insert or Flange.
- Integral or remote controls.
- Standard NEMA 1 control.
- Panel - available with NEMA 4-4x -12 panels as option integral or remote mounted.
- Comply with NEC specification.

Custom Specified Models

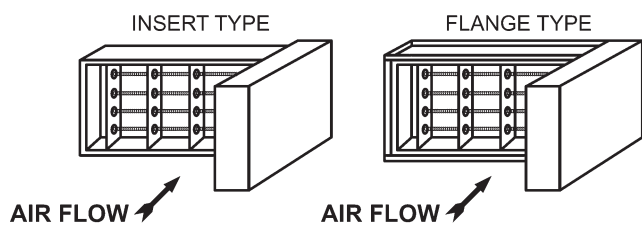
How to designate an HF Series open coil duct heater:

480	3	HF	10KW	12W	12H	24	2	HR	B	G
<u>Volts</u>	<u>Phase</u>	<u>Model</u>	<u>Kilowatts</u>	<u>Width</u>	<u>Height</u>	<u>Control Volts</u>	<u>Stage</u>	<u>Air Flow</u>	<u>Options</u>	<u>Options</u>

Optional Controls & Features

- | | |
|---|--|
| A: Additional Stage | B: "A" Alloy Element Wire |
| C: Disconnecting Contactors | D: PE Switch |
| E: Minimum fusing under 48 Amps | F: Flanged Construction |
| G: Door Interlock Disconnect Switch | H ₁ : SCR Control Single Phase Only |
| H ₃ : SCR Control Three Phase Only | I: NEMA 1 Dust Tight Control Box |
| J: Electronic Step Controller | |

Air Flow Designations Guide for HF Series Duct Heaters



- HR: Left to Right (shown)
- HL: Right to Left
- VU: Vertical Up
- D: Vertical Down

Control panel standard is extended upstream and same height as duct. This can be altered to accommodate available space.

HF Series Open Coil Element Duct Heater

Product Specifications

General

1. Provide open coil, electric duct heaters, as manufactured and as listed in the schedule.
2. Power voltage and phase, control voltage, wattage, duct size, number of steps to be as per schedule.
3. Heaters to be either Slip-in or Flanged type as called for.
4. Three phase heaters shall have balanced three phase steps unless specified otherwise.
5. All heaters to be ETL listed for zero clearance to combustible surfaces and bear the ETL label.
6. All heaters shall meet the requirements of the latest National Electric Code.
7. Standard terminal box, recessed terminal box, standard control cabinet, remote control cabinet as well as element housing and racks all to be made of heavy gauge galvanized steel. (Aluminized steel optional).
8. All heating coils to be made of high grade Nickel/Chromium resistance wire and terminated by means of a loop of wire being sandwiched between stainless steel or Nickel plated washers and terminal hardware. All terminal hardware to be insulated from the heater by a two piece ceramic bushing.

LINE VOLTS	KILOWATTS	STAGE
120 208 240	0.5-2.5	1
	2.6-5.0	
	5.1-8.0	
	8.1-11.0	
	11.1-15.0	
	15.1-19.0	2
	19.1-24.0	
	24.1-28.0	
	28.1-30.0	
	30.1-34.0	3
	34.1-38.0	
	38.1-42.0	
42.1-46.0		
46.1-51.6	4	
51.7-55.0		
55.1-60.0		
277	0.5-2.5	1
	2.6-5.0	
	5.1-8.0	
	8.1-11.0	2
	11.1-15.0	
480 600	0.5-2.5	1
	2.6-5.0	
	5.1-8.0	
	8.1-11.1	
	11.2-15.0	2
	15.1-19.0	
	19.1-24.0	
	24.1-28.0	
	28.1-30.0	3
	30.1-34.0	
	34.0-39.9	
	40.0-44.0	
	44.1-48.0	
	48.1-53.0	
53.1-56.0		
56.1-60.0		

Note: Duct Heaters are available up to 1000KW. KW and stages shown above are limited example of available models.

Wiring Diagrams

1. A separate, complete and specific wiring diagram shall be permanently attached to each heater. Typical wiring diagrams are not acceptable.
2. Control and line terminals in each heater shall be marked identical to the wiring diagram.

Heater Controls

1. All heater controls shall be factory mounted and wired.
2. Contactors shall be definite purpose type. No application type relays will be acceptable.
3. All controls shall be furnished as specified.

Element Assembly

1. To be of "Module" design with each module independently and easily removable from the terminal box or control cabinet.
2. Each module to contain no more than 2 layers of element coils so that any one coil may be replaced without disturbing others.
3. Element coils of each module to be on staggered spacing so that all coils per module will be in the air stream, and shadowing (overheating) and/or blank areas eliminated.

Element Housing

1. To be of No. 18 Gauge galvanized (aluminized) steel and to be of roll-formed construction with multiple brakes and ribs for stiffness and rigidity.

Element Rack

1. To be constructed of No. 20 Gauge galvanized (aluminized) steel and formed with multiple brakes and ribs for stiffness and rigidity.
2. Ceramic coil supports to be floating, but contained and easily replaceable.
3. Ceramic coil insulators to be on staggered spacing per rack to eliminate blank areas in the air pattern thru the heaters, and provide uniform heating over the entire cross section of the element.
4. Racks to support element coils on no more than 3 1/2" centers.

Terminal Box or Control Cabinet

1. Shall be constructed of heavy gauge galvanized steel (aluminized optional) and in sizes up to 18" X 18" shall be No. 20 Gauge and over to be No. 18 Gauge. All boxes to have a solid cover, of the same gauge, complete with a piano type hinge on the longest side, approved tool operated latch and pull ring. Covers over 48" long to be provided with two latches and pull rings.
2. Insulation consisting of 1/2" high density fiberglass will be provided, attached to the cabinet, between the cabinet and the heating section.
3. Recessed terminal boxes used when ducts are internally insulated, or in air handling units, to be of the same general construction as item 1 above.

Airflow Direction

Heaters will be interchangeable for mounting in a horizontal or vertical duct except when position sensitive Mercury contactors, SCR's or capillary type limit controls are built-in. In these cases, airflow direction is as specified.

Safety Controls

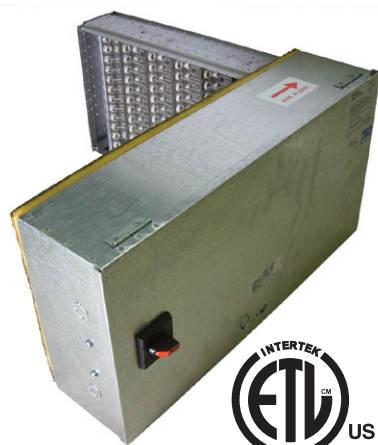
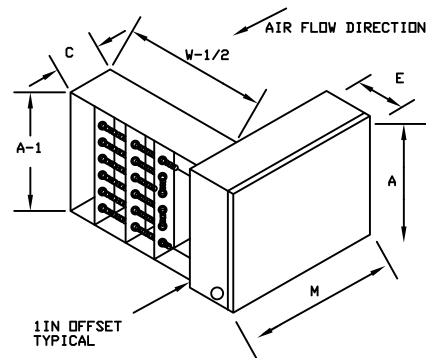
1. Primary over temperature protection shall be provided by built in disc type automatic reset thermal cutouts for duct heaters up to 10' in width. Heaters over 40" high require two cutouts. Capillary type automatic reset thermal cutouts are required for any heater 10' wide or over. Capillary type controls to be UL listed and of the "fail safe" type.
2. Secondary over temperature protection shall consist of a sufficient number of load carrying replaceable disc controls to de-energize the elements if the primary system fails.
3. Fuse link type heat limiters shall not be acceptable. All manual safety devices shall be resettable thru the terminal box without removing the heater from the duct.

**MINIMUM DUCT
SIZE 8" X 6"
MAX KW 20 KW
PER SQ. FT.**

PD Series Packaged Duct Heater

Standard Features

- Galvanized Steel Element Rack - Always 1" shorter than duct height and 1/2" shorter than duct width to allow insertion clearance
- Galvanized Steel Compartment with 1/2" fiberglass Insulation & Hinged Cover
- Door Interlock Disconnect Switch
- Primary Automatic Reset Temp Limiting Control
- Load Carrying Secondary over Temperature Protective Device(s)
- Definite Purpose Magnetic Contactor(s)
- Differential Pressure Fan Inter-lock Switch
- Step Down Control Transformer / 24 Volt
- Permanently Attached Wiring Diagram on inside of Terminal Compartment Cover



Manufactured in U.S.A.

Standard Models

UPC 686334	MODEL NUMBER	KW	POWER VOLTS/ PHASE	DUCT HEIGHT A	DUCT WIDTH W	DIMENSIONS			AMPS	CONTROL STEPS	WT. (LBS.)	
						C	E	M				
617000	PD5-812-1	5	240-1	8	12	4.75	6.5	26	20.9	1	22	
617017	PD10-1018-1	10		10	18	4.75	6.5	28	41.7	2	37	
617024	PD15-1218-1	15		12	18	4.75	6.5	27	62.5	2	33	
617031	PD20-1220-1	20		12	20	9.125	7.5	31	83.3	2	37	
617048	PD25-1620-1	25		16	20	9.125	7.5	38	104.2	3	56	
617055	7PD2-812-1	2	277-1	8	12	4.75	6.5	26	7.2	1	21	
617062	7PD3.5-812-1	3.5							12.6			
617079	7PD5-812-1	5							18.1			
617086	8PD5-812-3	5							13.9			
617093	8PD10-1018-3	10	208-3	8	12	4.75	6.5	26	27.8	1	27	
617109	8PD15-1218-3	15		10	18	4.75	6.5	22	41.7	1	32	
617116	8PD15-1218-2-3	15		12	18	9.125	6.5	25	41.7	1	32	
617123	8PD20-1220-3	20		12	18	9.125	6.5	28	41.7	2	34	
617130	8PD20-1220-3	20		12	20	9.125	6.5	40	55.6	2	39	
617130	8PD25-1620-3	25		16	20	9.125	6.5	29	69.5	2	58	
617147	8PD30-1624-2-3	30		16	24	9.125	7.5	29	83.4	2	65	
617154	8PD30-1624-3	30		16	24	9.125	7.5	35	83.4	3	60	
617437	8PD35-1624-3	35		16	24	9.125	7.5	35	97.3	3	65	
617321	8PD40-1624-3	40		16	24	9.125	7.5	43	111.2	3	75	
617338	8PD45-1630-3	45		16	30	9.125	7.5	43	125.1	3	80	
617345	8PD50-1630-3	50		16	30	9.125	7.5	43	139	3	85	
617161	PD-812-3	5		240-3	8	12	4.75	6.5	26	12.1	1	21
617178	PD10-1018-3	10			10	18	4.75	6.5	22	24.1	1	26
617185	PD15-1218-1-3	15	12		18	4.75	6.5	20	36.2	1	30	
617192	PD15-1218-2-3	15	12		18	9.125	6.5	26	36.2	2	33	
617208	PD20-1220-3	19.9	12		20	9.125	6.5	28	47.9	2	39	
617215	PD25-1620-3	25	16		20	9.125	6.5	29	60.2	2	57	
617222	PD30-1624-2-3	30	16		24	4.75	6.5	25	72.3	2	57	
617239	PD30-1624-3-3	30	16		24	9.125	6.5	35	72.3	3	65	
617352	PD35-1624-3	35	16		24	9.125	7.5	35	84.3	3	65	
617369	PD40-1624-3	40	16		24	9.125	7.5	35	96.3	3	75	
617376	PD45-1630-3	45	16		30	9.125	7.5	43	108.4	3	80	
617383	PD50-1630-3	49.8	16		30	9.125	7.5	43	120	3	85	
617246	4PD5-812-3	5	480-3		8	12	4.75	6.5	26	6.1	1	21
617253	4PD10-1018-3	10			10	18	4.75	6.5	22	12.1	1	26
617260	4PD15-1218-3	15			12	18	4.75	6.5	20	18.1	1	30
617277	4PD15-1218-2-3	15		12	18	9.125	6.5	26	18.1	2	34	
617284	4PD20-1220-3	20		12	20	9.125	6.5	26	24.1	2	39	
617291	4PD25-1620-3	25		16	20	9.125	6.5	22	30.1	2	58	
617307	4PD30-1624-2-3	30		16	24	4.75	6.5	18	36.2	2	65	
617314	4PD30-1624-3-3	30		16	24	9.125	6.5	24	36.2	3	65	
617390	4PD35-1624-3	35		16	24	9.125	6.5	26	42.2	3	65	
617406	4PD40-1624-3	39.9		16	24	9.125	6.5	40	48.1	3	75	
617420	4PD50-1630-3	50		16	30	9.125	6.5	36	60.2	3	85	

CHMS Series Finned Tubular Element Duct Heater

Finned tubular duct heaters provide many benefits to the customer. They provide slower heating and cooling for closer temperature regulation, electrical shock hazards are reduced, not as susceptible to shorting on the elements, are easily serviced, and better withstand physical abuse.

- Insert or Flanged construction

- Integral or remote control panels

- Available with Nema 4-4x-12 control panels
- ABS type approved



Manufactured in U.S.A.

HOW TO DESIGNATE A MODEL:

CHMS	3	1	18W	12H	15KW	480	3	24	2	HL	1
Duct Heater Series	Control Box Options 3 = Control Box on Heater, R = Remote	Construction Options F = Flange Mount, I = Insert	Duct Width Dimension (over 55" heater must be flanged)	Duct Height Dimension	Kilowatts	Power Supply Volts	Phase 1 = Single Phase, 3 = Three Phase	Control Volts 24, 120, 240, & 277	Number of Control Stages	Air Flow Direction	Internal Duct Insulation 0 = None, 1 = 1" Thick, 2 = 2" Thick

NOTE: All blanks must be filled in when submitting an order to the factory.

MINIMUM HEATER SIZE 8" X 8"
MAX KW 18.1 KW PER SQ. FT.

Product Specifications

General

1. Provide Series "CHMS" enclosed element electric duct heaters as manufactured and listed on schedule.
2. Power, voltage phase, control voltage, wattage, duct size, number of steps to be per schedule.
3. Heaters to be either slip-in or flanged type as called for on schedule.
4. All heaters to be ETL listed for zero clearance to combustible surfaces and bear ETL label.
5. All heaters shall meet the requirements of the National Electric Code.
6. Standard terminal box, recessed terminal box, standard control cabinet, remote control cabinet and element housing to be made of 18 Gauge aluminized steel.

Element Construction

1. All elements to be made of high quality alloy resistor wire, centered and permanently encased within highly compacted, rock-hard refractory material, surrounded by stainless steel sheath. All element terminations shall be threaded stainless steel type to insure a positive connection to leads.

Terminal Box or Control Cabinet

1. Shall be constructed of 18 Gauge Aluminized steel. All boxes to have a solid cover of the same gauge, complete with a piano type hinge on the longest dimension, tool operated latch and pull ring.

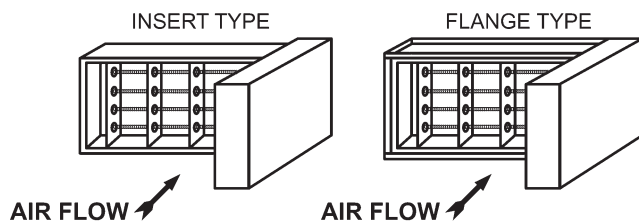
Safety Controls

1. Primary over temperature protection shall be provided by built-in capillary type automatic reset thermal cutout. Capillary cutout shall be U.L. listed and of the fail safe type.
2. Secondary over temperature protection shall consist of a sufficient number of capillary type manual resets controlling back-up contactors. Capillary shall be the "fail safe" and "trip free" type.
3. All capillaries shall be installed in a protective Aluminum sheath. Sheath shall be etched and painted flat black to sense any over temperature condition the full length of heater face.
4. Over-current protection incorporating fuses must be provided for all heaters rated more than 48 Amperes, and factory installed, within the heater enclosure or provided as a separate assembly by the heater manufacturer. Heaters exceeding 48 Amperes total line current must be divided into sub-circuits of less than 48 Amperes and be protected at not more than 60 Amperes.

Wiring Diagrams

1. A separate, complete and specific wiring diagram shall be permanently attached to each heater. Typical wiring diagrams are not acceptable.
2. Control and line terminals in each heater shall be marked to correspond to the wiring diagram.

Air Flow Designations Guide for CHMS Series Duct Heaters



HR: Left to Right (shown)

HL: Right to Left

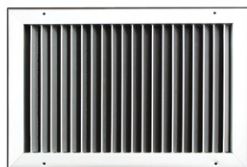
VU: Vertical Up

Control panel standard is extended upstream and same height as duct. This can be altered to accommodate available space.

MFH Series Fan Coil Units



Manufactured in U.S.A.



Discharge Grille



MFH - W Model



MFH - E Model

Product Applications

Perimeter Heating; Lobby Heating; Plenum Heating; Kitchen Make-up Air

The fan pac offers the advantages of eliminating large and unsightly roof-top package equipment, and through the roof duct systems which require costly installations with greater horsepower requirements.

Commercial or Industrial Unit Heaters

Since the fan pac incorporates a centrifugal blower designed to operate at static pressures of up to .70 inches w.g., it is ideally suited for hanging in unused overhead spaces and forcing the warm air to occupied floor areas. Ductwork can also be utilized to circulate the heated or ventilated air over large areas that may not be in the vicinity of the fan pac.

Product Construction, Options & Features

Construction:

- All units ETL Listed as a total package with electric heat or hot water coils.
- Certified sound data by an independent testing laboratory.
- Single point pneumatic pipe connections.
- Each fan package is factory tested prior to shipment.
- Fan package, electric heat and optional disconnect switch are factory wired as a package.
- 20 Gauge galvanized cabinet acoustically insulated 1" fiberglass.
- 1" 4 lb. density core insulation is U.L. Listed and meets NFPA 90A standards.
- Motors are single speed PSC with thermal over load protections, solid-state speed controller, and are permanently lubricated.
- Access panels to the blower and motor are placed on both sides of the cabinet.
- Fan and motor assembly is mounted on a special 16 Gauge pad and completely isolated from the casing with rubber vibration mounts.

Features:

- The fan pac is a basic and very simple on/off operation for an application that requires a fan coil unit with electric or hot water heat and a static pressure duct system of up to .70 inches w.g.
- The unit can be energized by electric controls (line voltage or low voltage) or by P.E. switches in conjunction with a pneumatic system.
- SCR motor speed controller for continuous adjustable fan speed from minimum to maximum RPM.
- Built-in line voltage thermostats are available for unit heater type applications.
- Built-in control circuit transformers are available in 24V or 120V.
- Hot water coils are one row 1/2" O.D., two row 5/8" O.D. copper tubes. Aluminum fins are standard with 10 FPI spacing.
- Transformers for fan motors are NOT available.

Options:

- Factory wired disconnect switch.
- Throw away filter.
- Permanent filter.
- Electric heat or hot water coils.
- Sealed access panels.
- 120 or 277 PSC motors.
- Dust tight electric panel.
- Acoustically lined discharge plenum or return air boot.

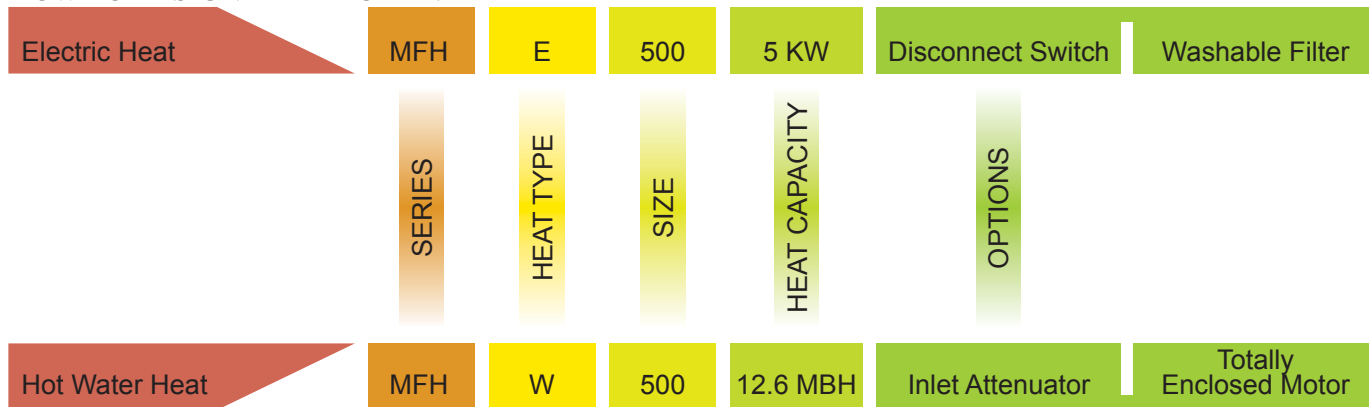
MFH Series Fan Coil Units

Product Specifications

The fan packages shall be factory assembled complete with electric heat/hot water coils. Factory mounted control panel shall provide all internal control and fan power wiring for a single point field connection. An optional factory mounted disconnect switch shall be furnished and prewired so as to disconnect all electrical components in the fan package. A single point field connection will be made at the disconnect switch. Fan package must be labeled and listed by a nationally recognized and locally accepted testing laboratory, such as ITS Intertek testing services. Fan packages must be tested for safety and in accordance with the latest National Electric Code. Casing shall be a minimum of 20 Gauge galvanized steel and acoustically insulated with 1" fiberglass. The casing shall be Listed and meet NFPA and NBFU 90A requirements. Blower casing shall be constructed of heavy gauge steel and baked enamel finish. Fan wheel shall be forward curved centrifugal type, dynamically balanced and be driven by direct drive, single speed permanent split capacitor motors. Motors shall be single phase, 1050 RPM. An electronic motor speed control shall be provided to allow continuously adjustable fan speed from minimum to maximum and shall incorporate a minimum voltage stop to insure motor cannot operate in stall mode. Fan assembly shall be mounted on a 16 Gauge steel sub-base, but shall be internally isolated with rubber-in-shear isolators to prevent vibration transfer to the sub-base. Motors shall also be isolated with rubber-in-shear isolators between the motor mounting legs and the blower casing. Fan motor assembly shall be accessible through access panels from both sides and rear of cabinet (bottom and top access panels are not acceptable). Access panels shall have gasket to prevent leakage and vibration transmission. An electric heater (hot water optional) shall be part of the total listed package and shall be controlled by pneumatic, electric controls enclosed in a NEMA-1 enclosure on the side of the cabinet. The panel shall be gasket sealed to prevent air leakage. Heater shall be the requested available voltage and phase. Each fan package will be factory tested prior to shipment and certified as such. Each fan shall have an optional throw-away or permanent filter, and an optional acoustically lined discharge plenum or return air boot.

Custom Specified Models

HOW TO DESIGNATE A MODEL:

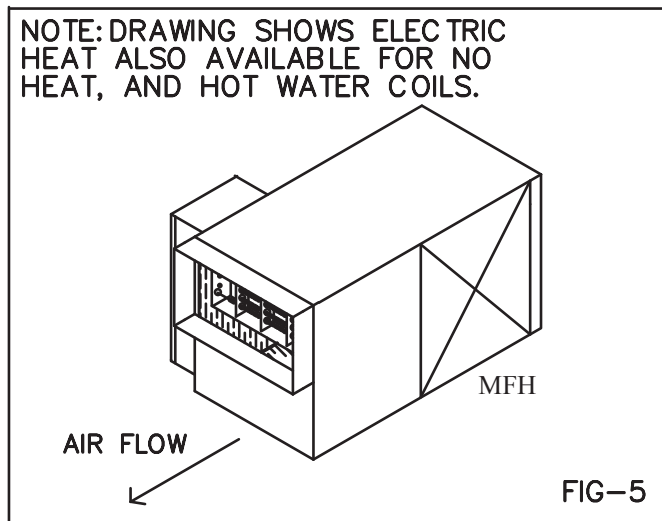
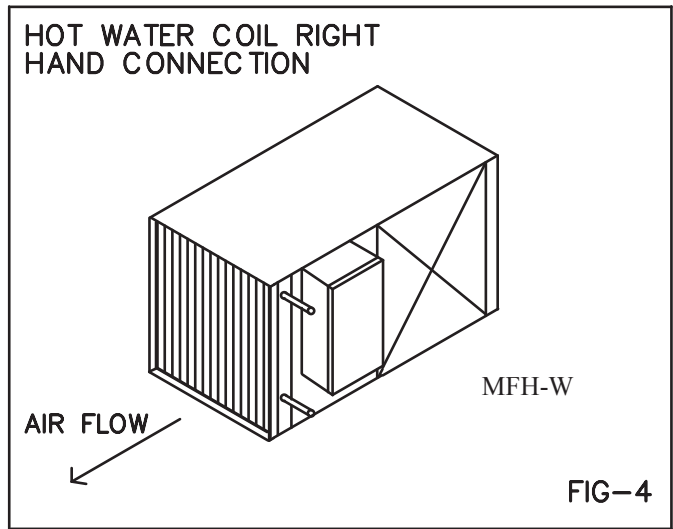
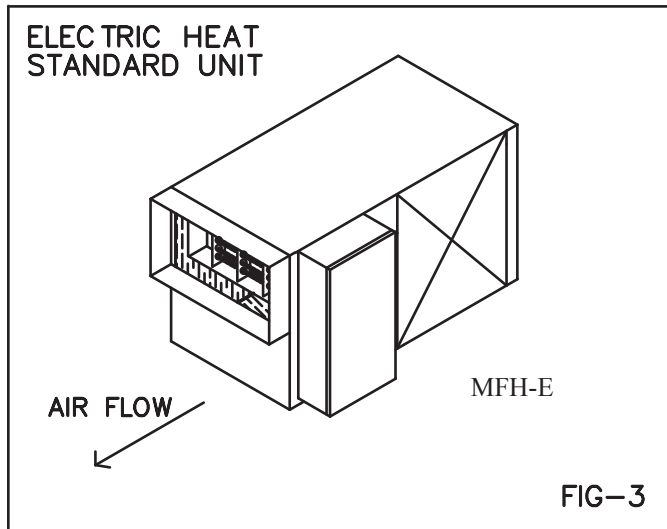
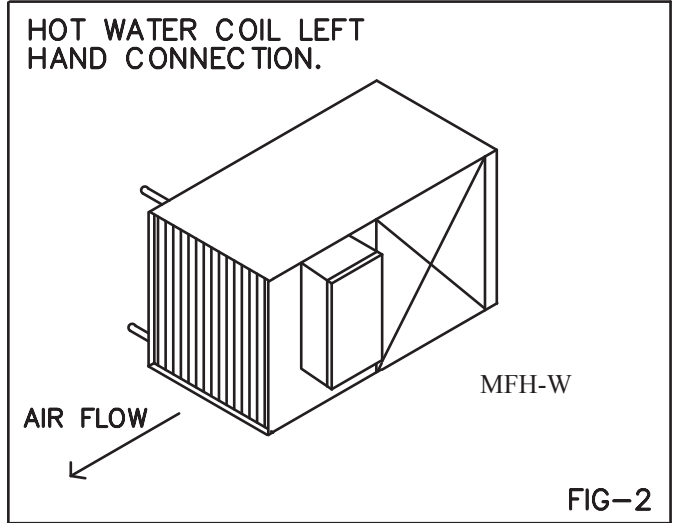
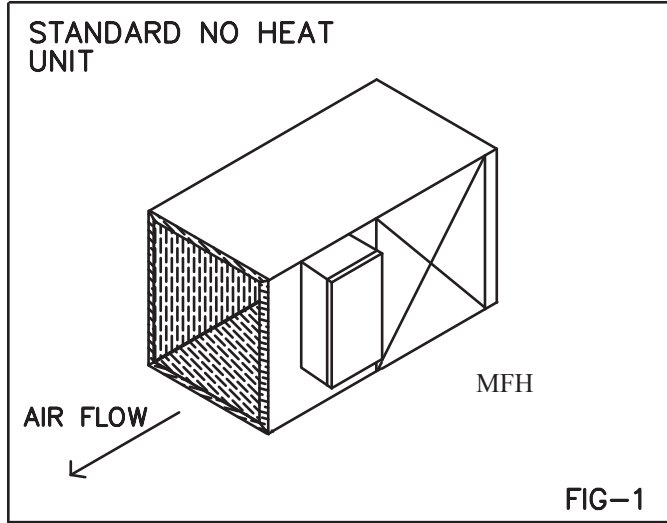


Minimum CFM'S Based On KW

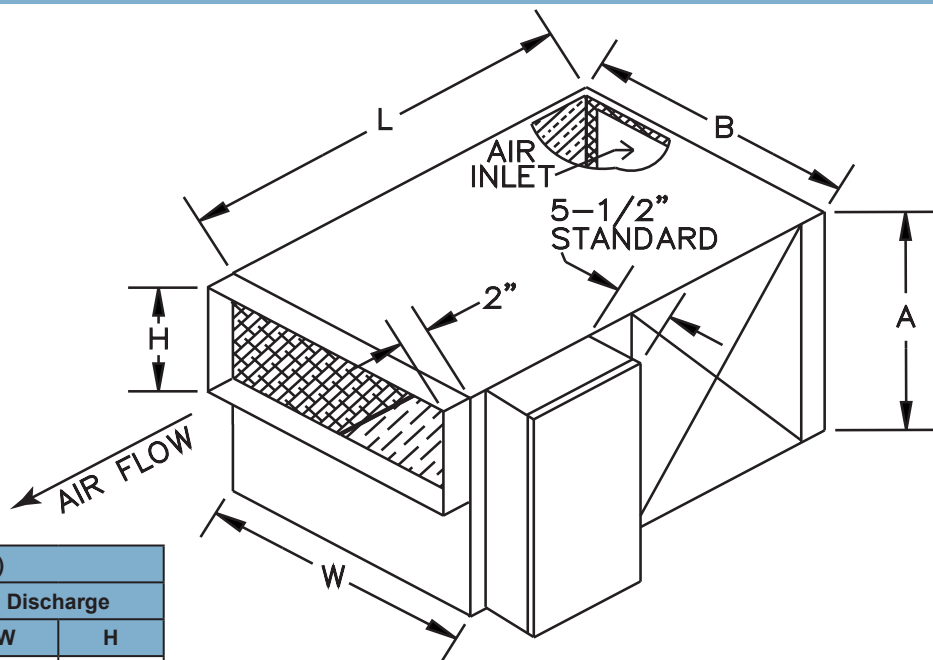
KW	5	7	9	10	
CFM	400	500	600	700	
KW	11	13	14	15	17
CFM	800	900	1000	1100	1200
KW	18	20	21	23	24
CFM	1300	1400	1500	1600	1700
KW	26	27	28.5	30	
CFM	1800	1900	2000	2100	

MFH Series Fan Coil Units

Product Configurations



MFH-E Series Fan Coil Units



FAN PAC—Electric Heat

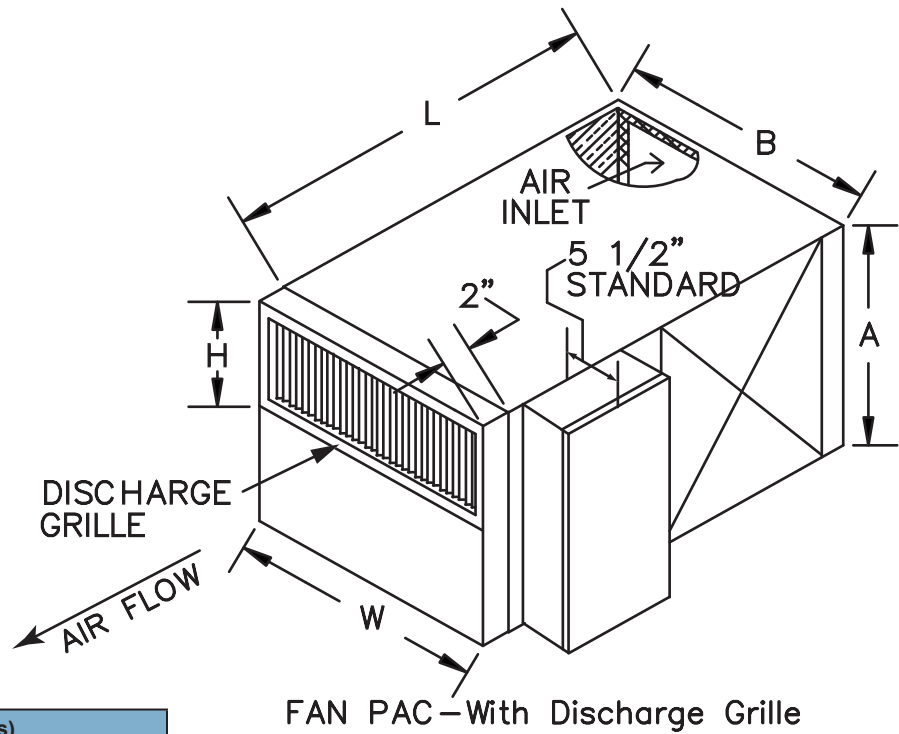
Model	Dimensions (Inches)				
	A	B	L	Discharge	
				W	H
300	12	14	28	14	8
500	14	18	36	18	8
750	18	18	36	18	10
1500	18	22	36	22	10
1800	18	26	36	26	10
2000	18	26	36	26	10
3000	18	44	36	44	10
4000	18	52	36	52	10

MFH PERFORMANCE DATA					MFH-E ELECTRIC HEAT						
MODEL	MOTOR H.P.	MOTOR AMPS	FULL LOAD AMPS	MOTOR SPEED CONTR.	EXTERNAL STATIC PRESSURE (in. H ₂ O)						
					.1 CFM	.2 CFM	.3 CFM	.4 CFM	.5 CFM	.6 CFM	.7 CFM
300	1 @ 1/15	2.90	1.00	MAX	270	245	225	180	Below 50 CFM		
				MIN	95	85	80	70			
500	1 @ 1/6	3.60	1.10	MAX	740	700	640	590	530	490	450
				MIN	290	275	250	230	210	200	190
750	1 @ 1/4	5.30	1.70	MAX	1390	1370	1350	1270	1230	1130	1040
				MIN	450	440	430	420	410	405	400
1500	1 @ 1/2	8.30	2.50	MAX	1825	1790	1740	1660	1570	1450	1340
				MIN	820	790	760	675	590	515	440
1800	1 @ 1/2	9.70	3.10	MAX	2120	2080	2040	1940	1850	1750	1670
				MIN	850	840	820	810	790	740	630
2000	1 @ 3/4	11.00	4.30	MAX	2230	2160	2100	2040	1960	1860	1760
				MIN	1200	1120	1040	950	860	750	640
3000	2 @ 1/2	19.40	6.30	MAX	3160	3040	2920	2790	2600	2440	2240
				MIN	1840	1800	1760	1720	1640	1560	1460
4000	2 @ 3/4	22.00	8.60	MAX	4150	4050	3950	3830	3650	3250	3000
				MIN	2200	2180	2160	2130	2080	2000	1900

*See minimum CFM chart for all electric coil selections.
 208V and 240V units use 277V rated motors - F.L.A. on 208V and 240V units same as 277V. For fan curve data consult factory

MFH-DG Series Fan Coil Units

Basic Weight (no options)	
Model	lbs.
300	95
500	115
750	138
1500	160
1800	175
2000	198
3000	275
4000	315



Model	Dimensions (Inches)			
	A	B	L	H
500	14	18	36	10
750	18	18	36	12
1500	18	22	36	12
1800	18	26	36	12
2000	18	26	36	12
3000	18	44	36	12
4000	18	52	36	12

MFH PERFORMANCE DATA					MFH-DG ELECTRIC HEAT DISCHARGE GRILL						
MODEL	MOTOR H.P.	MOTOR AMPS	FULL LOAD AMPS	MOTOR SPEED CONTR.	EXTERNAL STATIC PRESSURE (in. H ₂ O)						
					.1 CFM	.2 CFM	.3 CFM	.4 CFM	.5 CFM	.6 CFM	.7 CFM
300	1 @ 1/15	2.90	1.00	MAX	220	195	175	130	Below 50 CFM		
				MIN	95	85	80	70			
500	1 @ 1/6	3.60	1.10	MAX	640	600	540	490	430	390	350
				MIN	290	275	250	230	210	200	190
750	1 @ 1/4	5.30	1.70	MAX	1290	1270	1250	1170	1130	1030	940
				MIN	450	440	430	420	410	405	400
1500	1 @ 1/2	8.30	2.50	MAX	1725	1690	1640	1560	1470	1350	1240
				MIN	820	790	760	675	590	515	440
1800	1 @ 1/2	9.70	3.10	MAX	2020	1980	1940	1840	1750	1650	1570
				MIN	850	840	820	810	790	740	630
2000	1 @ 3/4	11.00	4.30	MAX	2130	2060	2000	1940	1860	1760	1660
				MIN	1200	1120	1040	950	860	750	640
3000	2 @ 1/2	19.40	6.30	MAX	3060	2940	2820	2960	2500	2340	2140
				MIN	1840	1800	1760	1720	1640	1560	1460
4000	2 @ 3/4	22.00	8.60	MAX	4050	3950	3850	3730	3550	3150	2900
				MIN	2200	2180	2160	2130	2080	2000	1900

*See minimum CFM chart for all electric coil selections.
 208V and 240V units use 277V rated motors - F.L.A. on 208V and 240V units same as 277V. For fan curve data consult factory

MFH-W Series Fan Coil Units

DIMENSIONS					
MODEL	A	B	L	DISCHARGE	
				W	H
300	12"	14"	28"	14"	12"
500	14"	18"	36"	18"	14"
750	18"	18"	36"	18"	18"
1500	18"	22"	36"	22"	18"
1800	18"	26"	36"	26"	18"
2000	18"	26"	36"	26"	18"

**FAN PAC WITH
HOT WATER HEAT**

DATE 6-29-01

Altitude Correction Factors	
Alt. Ft.	Heat Factor
0	1.00
2000	0.94
3000	0.90
4000	0.87
5000	0.84
6000	0.81
7000	0.78

HEATING CAPACITY CORRECTION FACTORS (AT VARIOUS WATER & AIR ENTERING TEMPERATURES)											
Entering Air °F	Entering Water Temperatures °F										
	100°	110°	120°	130°	140°	150°	160°	170°	180°	190°	200°
50°	.455	.545	.635	.727	.818	.909	1.000	1.091	1.182	1.273	1.364
55°	.409	.500	.591	.682	.773	.864	.955	1.045	1.136	1.227	1.318
60°	.363	.455	.545	.636	.727	.818	.909	1.000	1.091	1.182	1.273
65°	.318	.409	.500	.691	.682	.773	.864	.955	1.045	1.136	1.227
70°	.272	.363	.455	.545	.636	.727	.818	.909	1.000	1.091	1.182
75°	.227	.318	.409	.500	.691	.662	.773	.864	.955	1.045	1.136
80°	.182	.272	.363	.455	.545	.636	.727	.818	.909	1.000	1.091

MFH-W Series Fan Coil Units Hot Water Reheat Capacity

SIZE	COIL ROWS	GPM	H ₂ O PD (TL)	REHEAT CAPACITY (MBH)@CFM			
				PRIMARY CFM @ HEATING			
				100	150	200	250
300	1	S.P. DROP		.01	.02	.04	.06
		0.5	.09	4.0	4.8	5.5	5.9
		1.0	.30	4.7	5.7	6.3	7.0
		1.5	.50	5.0	6.0	6.7	7.4
		2.0	1.0	5.1	6.2	7.0	7.7
		3.0	2.0	5.2	6.3	7.2	8.0
		4.0	3.0	5.3	6.4	7.3	8.2
		5.0	5.0	5.3	6.5	7.4	8.3
	2	S.P. DROP		.02	.04	.08	.12
		0.5	.02	6.4	7.8	8.7	9.3
		1.0	.09	7.4	9.2	10.8	11.7
		1.5	.15	7.8	9.8	11.2	12.5
		2.0	.30	8.0	10.3	12.0	13.3
		3.0	.60	8.1	10.7	12.4	13.9
4.0		1.0	8.2	10.9	12.8	14.5	
5.0		1.5	8.3	11.1	13.1	14.8	

SIZE	COIL ROWS	GPM	H ₂ O PD (TL)	REHEAT CAPACITY (MBH)@CFM			
				PRIMARY CFM @ HEATING			
				300	350	400	450
500	1	S.P. DROP		0.016	0.021	0.026	0.033
		0.5	0.2	9.8	10.3	10.7	11.1
		1.0	0.6	11.8	12.6	13.3	13.9
		1.5	1.3	12.7	13.6	14.4	15.2
		2.0	2.1	13.2	14.2	15.1	15.9
		3.0	4.3	13.8	14.9	15.8	16.7
		4.0	7.1	14.1	15.2	16.2	17.1
		5.0	10.4	14.3	15.4	16.5	17.4
	2	S.P. DROP		0.032	0.042	0.053	0.065
		0.5	0.1	14.2	14.9	15.6	16.1
		1.0	0.2	18.2	19.6	20.7	21.7
		1.5	0.5	20.1	21.7	23.2	24.5
		2.0	0.8	21.1	23.0	24.7	26.2
		3.0	1.7	22.3	24.5	26.4	28.1
4.0		2.8	23.0	25.3	27.3	29.2	
5.0		4.1	23.4	25.8	27.9	29.9	

SIZE	COIL ROWS	GPM	H ₂ O PD (TL)	REHEAT CAPACITY (MBH)@CFM			
				PRIMARY CFM @ HEATING			
				500	600	700	800
750	1	S.P. DROP		0.025	0.034	0.045	0.057
		0.5	0.2	12.7	13.3	13.8	14.2
		1.0	0.8	16.2	17.3	18.2	19.0
		1.5	1.7	17.9	19.2	20.3	21.3
		2.0	2.8	18.8	20.3	21.6	22.7
		3.0	5.6	19.8	21.5	23.0	24.3
		4.0	9.3	20.4	22.2	23.8	25.2
		5.0	13.7	20.8	22.6	24.3	25.7
	2	S.P. DROP		.049	.068	.090	.114
		0.5	0.1	17.8	18.6	19.2	19.7
		1.0	0.2	24.7	26.5	27.9	29.1
		1.5	0.5	28.2	30.5	32.5	34.2
		2.0	0.8	30.3	33.0	35.4	37.4
		3.0	1.7	32.7	36.9	38.8	41.3
4.0		2.8	34.0	37.6	40.7	43.5	
5.0		4.1	34.9	38.7	42.0	45.0	

SIZE	COIL ROWS	GPM	H ₂ O PD (TL)	REHEAT CAPACITY (MBH)@CFM				
				PRIMARY CFM @ HEATING				
				1200	1300	1400	1500	1600
1500	1	S.P. DROP		0.079	0.091	0.104	0.118	0.132
		0.5	0.3	16.6	16.9	17.1	17.2	17.4
		1.0	1.0	23.5	24.0	24.5	24.9	25.3
		1.5	1.9	27.1	27.8	28.4	29.0	29.6
		2.0	3.2	29.3	30.1	30.8	31.5	32.3
		3.0	6.5	31.8	32.8	33.7	34.5	35.3
		4.0	10.8	33.2	34.3	35.3	36.2	37.1
		5.0	16.0	34.2	35.3	36.4	37.4	38.3
	2	S.P. DROP		0.159	0.183	0.209	0.263	0.265
		1.0	0.3	34.8	35.4	36.0	36.5	37.0
		1.5	0.6	42.4	43.4	44.4	45.2	46.0
		2.0	1.0	47.4	48.8	50.0	51.1	52.2
		4.0	3.2	57.4	59.4	61.3	63.0	64.7
		6.0	6.5	61.6	63.9	66.2	68.2	70.2
8.0		10.8	64.0	66.5	68.9	71.2	73.3	
10.0		16.0	65.5	68.1	70.7	73.1	75.3	

MFH-W Series Fan Coil Units Hot Water Reheat Capacity

SIZE	COIL ROWS	GPM	H ₂ O PD (TL)	REHEAT CAPACITY (MBH)@CFM				
				PRIMARY CFM @ HEATING				
				1500	1600	1700	1800	1900
1800	1	S.P. DROP		0.086	0.096	0.107	0.118	0.130
		1.0	1.1	26.7	27.2	27.6	27.9	28.3
		1.5	2.2	31.4	32.0	32.6	33.1	33.6
		2.0	3.7	34.3	35.0	35.7	36.4	37.0
		2.5	5.4	36.3	37.1	37.9	38.6	39.3
		3.0	7.5	37.7	38.6	39.5	40.3	41.0
		4.0	12.4	40	40.7	41.6	42.5	43.4
	5.0	18.3	41.0	42.0	43.1	44.0	44.9	
	2	S.P. DROP		0.171	0.192	0.214	0.237	0.261
		1.0	0.3	38.4	38.9	39.3	39.7	40.1
		1.5	0.7	48.0	48.8	49.6	50.3	51.0
		2.0	1.1	54.5	55.7	56.7	57.7	58.6
		4.0	3.7	67.8	69.7	71.4	73.0	74.6
		6.0	7.5	73.3	75.8	77.9	79.9	81.8
8.0		12.4	76.9	79.3	81.6	83.8	85.9	
10.0	18.3	79.0	81.6	84.0	86.3	88.5		

SIZE	COIL ROWS	GPM	H ₂ O PD (TL)	REHEAT CAPACITY (MBH)@CFM			
				PRIMARY CFM @ HEATING			
				1800	1900	2000	2100
2000	1	S.P. DROP		0.118	0.130	0.143	0.156
		1.0	1.1	27.9	28.3	28.6	28.9
		1.5	2.2	33.1	33.6	34.1	34.5
		2.0	3.7	36.4	37.0	37.6	38.1
		2.5	5.4	38.6	39.9	40.0	40.6
		3.0	7.5	40.3	41.0	41.8	42.4
		4.0	12.4	42.5	43.4	44.2	45.0
	5.0	18.3	44.0	44.9	45.8	46.7	
	2	S.P. DROP		0.237	0.261	0.286	0.312
		1.0	0.3	39.7	40.1	40.4	40.8
		1.5	0.7	50.3	51.0	51.6	52.2
		2.0	1.1	57.7	58.6	59.5	60.3
		4.0	3.7	73.0	74.6	76.0	77.4
		6.0	7.5	79.9	81.8	83.5	85.3
8.0		12.4	83.8	85.9	87.8	89.7	
10.0	18.3	86.3	88.5	90.6	92.7		

SIZE	COIL ROWS	GPM	H ₂ O PD (TL)	REHEAT CAPACITY (MBH)@CFM				
				PRIMARY CFM @ HEATING				
				2000	2200	2400	2600	3000
3000	1	S.P. DROP		0.05	0.06	0.07	0.09	0.11
		1.0	0.3	32.6	33.1	33.9	34.1	35.1
		1.5	0.5	40.2	41.3	42.0	43.1	44.1
		2.0	0.9	45.5	46.8	48.0	49.2	50.8
		2.5	1.5	48.2	50.3	51.8	53.2	54.9
		3.0	2.0	52.0	53.8	55.5	57.2	59.1
		4.0	3.0	55.3	57.9	59.1	60.9	63.1
	5.0	4.5	58.5	60.8	62.9	64.8	68.0	
	2	S.P. DROP		0.10	0.12	0.14	0.18	0.22
		1.0	0.2	44.0	44.5	45.8	46.2	47.1
		1.5	0.3	53.9	56.1	56.9	59.7	61.2
		2.0	0.5	63.8	67.6	68.5	72.4	75.7
		4.0	1.2	91.6	94.1	97.4	101.2	104.2
		6.0	3.0	102.4	107.2	110.1	114.6	121.3
8.0		7.0	108.6	113.9	118.7	122.8	130.4	
10.0	10.0	112.2	118.6	123.1	128.0	136.0		

SIZE	COIL ROWS	GPM	H ₂ O PD (TL)	REHEAT CAPACITY (MBH)@CFM				
				PRIMARY CFM @ HEATING				
				2500	2900	3100	3500	3900
4000	1	S.P. DROP		0.06	0.075	0.09	0.11	0.14
		1.0	0.3	35.5	36.6	36.9	37.6	38.0
		1.5	0.6	45.1	46.8	47.4	48.2	49.0
		2.0	1.0	52.0	54.0	54.8	56.1	57.8
		3.0	2.0	60.4	63.2	64.4	66.8	68.3
		4.0	3.4	64.7	68.1	69.7	72.2	74.2
		5.0	5.0	69.1	72.9	74.4	76.0	80.2
	7.0	9.0	74.0	78.0	80.0	82.0	87.0	
	2	S.P. DROP		0.11	0.15	0.185	0.21	0.265
		1.0	0.2	46.2	46.8	47.2	48.1	49.0
		3.0	1.5	93.5	96.8	100.0	103.2	105.8
		5.0	3.2	113.9	115.0	12.1	128.0	123.7
		6.0	4.5	120.0	123.0	131.6	137.1	143.0
		8.0	7.5	129.1	130.0	141.8	148.9	155.0
10.0		12.0	135.0	139.0	147.6	156.2	163.8	
12.0	16.5	138.2	143.0	154.1	162.1	170.2		

7200 Series Plenum Heater



Manufactured in U.S.A.

HOW TO DESIGNATE A MODEL:

F	3	E	72	15	2	T
Element Voltage F = 208V H = 240V G = 277V P = 480V	Phase 1 = Single Phase 3 = Three Phase	Motor Voltage E = 120 G = 277 P = 480	Series Number	Element KW 3KW through 50KW See model chart for KW options.	Heater Stages Blank = One 2 = Two	Control System T = Unit Thermostat SSR = SSR Control

Product Specifications

- 20 Guage galvanized cabinet.
- Variable speed motor, factory set at maximum. Motor speed can be field adjusted to increase heat rise.
- Acoustically insulated with 1” fiberglass.
- Access panels on both sides of cabinet.
- 24 Volt controls.
- Air flow switch.
- Terminal blocks.
- Single point connection.
- Dust tight control enclosure.
- Filter rack on inlet with throw away filter.
- Inlet and outlet screens and duct connection.
- Automatic primary limit control and secondary fuse link.
- Optional wall thermostat, unit thermostat or SSR control which proportionally regulates heat output.
- Disconnect switch.

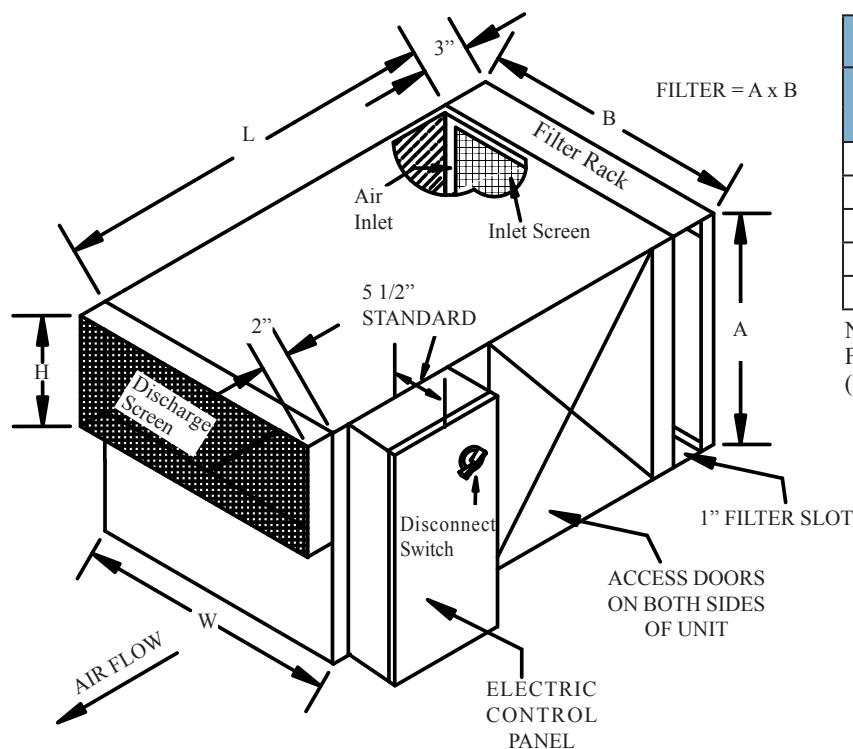
Standard Models

MODEL	KW	CFM RANGE	VOLTS / PHASE	TOTAL AMPS for MOTOR & HEATER	STAGE	MOTOR VOLTAGE	FULL LOAD AMPS for MOTOR ONLY	MOTOR H.P.
F1G7203	3	70-270	208/1	15.4	1	277	1	1/15
H1G7203			240/1	13.5		277	1	
G1G7203			277/1	11.83		277	1	
F3G7203			208/3	9.32		277	1	
H3G7203			240/3	8.21		277	1	
P3G7203			480/3	4.6		277	1	
F1G7205	5	200-650	208/1	25.13	1	277	1.1	1/6
H1G7205			240/1	21.93		277	1.1	
G1G7205			277/1	19.15		277	1.1	
F3G7205			208/3	14.97		277	1.1	
H3G7205			240/3	13.12		277	1.1	
P3G7205			480/3	7.11		277	1.1	
F3E7210	10	500-1200	208/3	33.05	1	120	5.3	1/4
H3G7210			240/3	25.75		277	1.7	
P3G7210			480/3	13.72		277	1.7	
F3E7210-2			208/3	33.05	120	5.3	2	
H3G7210-2			240/3	25.75	277	1.7		
P3G7210-2			480/3	13.72	277	1.7		
F3E7215	15	500-1200	208/3	46.93	1	120	5.3	1/4
H3G7215			240/3	37.78		277	1.7	
P3G7215			480/3	19.74		277	1.7	
F3E7215-2			208/3	46.93	120	5.3	2	
H3G7215-2			240/3	37.78	277	1.7		
P3G7215-2			480/3	19.74	277	1.7		
F3E7220-2	20	750-1600	208/3	63.81	2	120	8.3	1/2
H3G7220-2			240/3	50.61		277	2.5	
P3G7220-2			480/3	26.55		277	2.5	
F3E7223-2	23	1300-2000	208/3	74.84	2	120	11	3/4
H3G7223-2			240/3	59.63		277	4.3	
P3G7223-2			480/3	34.37		277	4.3	
F3E7225-2	25	1800-2800	208/3	88.79	2	120	19.4	2 MOTORS @ 1/2 H.P. EACH
H3G7230-2	240/3		78.47	277		6.3		
P3G7230-2	480/3		42.38	277		6.3		
P3G7235-2	35		48.39	277		6.3		
P3G7240-2	40		48.39	277		8.6		
P3G7245-2	45		48.39	277		8.6		
P3G7250-2	50	48.39	277	8.6				

SSR proportional control maximum: 45 Amps

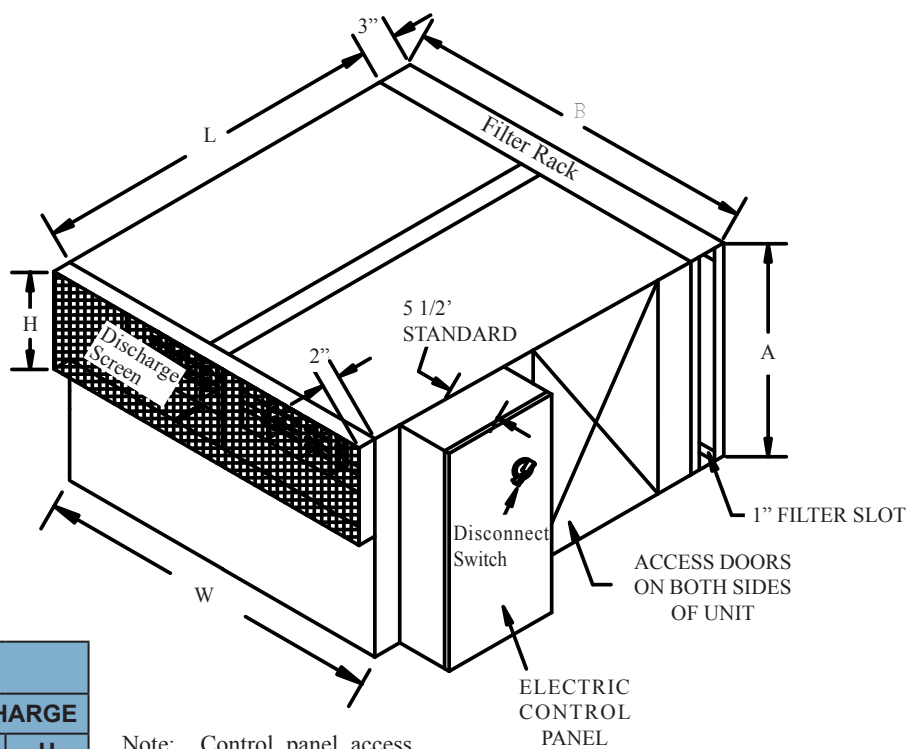
7200 Series Plenum Heater

Product Dimensions



DIMENSIONS					
7200 Series	A	B	L	DISCHARGE	
				W	H
3 KW	12"	14"	28"	14"	8"
5 KW	14"	18"	36"	18"	8"
10 & 15 KW	18"	18"	36"	18"	10"
20 KW	18"	22"	36"	22"	10"
23 & 25 KW	18"	26"	36"	26"	10"

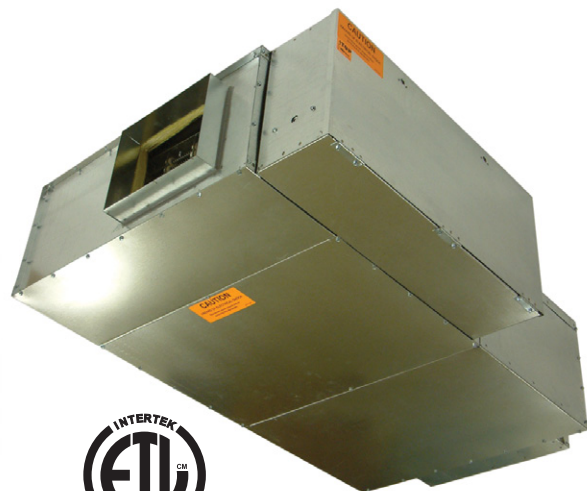
Note: Control panel access standard as shown. For panel on opposite side access specify and order (Figure 5).



DIMENSIONS					
7200 Series	A	B	L	DISCHARGE	
				W	H
25-30-35 KW	18"	44"	36"	44"	10"
40-45-50 KW	18"	52"	36"	52"	10"

Note: Control panel access standard as shown. For panel on opposite side access specify and order (Figure 5).

7300 Series Plenum Heater



Manufactured in U.S.A.

HOW TO DESIGNATE A MODEL:

F	3	E	73	15	2	T
Element Voltage F = 208V H = 240V G = 277V P = 480V	Phase 1 = Single Phase 3 = Three Phase	Motor Voltage E = 120 G = 277 P = 480	Series Number	Element KW 3KW through 18KW See model chart for KW options.	Heater Stages Blank = One 2 = Two	Control System T = Unit Thermostat SSR = SSR Control

The 7300 Series LowBoy Plenum Heater is designed to fit jobs where the clear space between the ceiling and the floor above is as small as 11-3/4 inches.

Product Specifications

- 20 Guage galvanized cabinet.
- Variable speed motor, factory set at maximum. Motor speed can be field adjusted to increase heat rise.
- Acoustically insulated with 1" fiberglass.
- Access panels on bottom of unit.
- 24 Volt controls.
- Air flow switch.
- Terminal blocks.
- Single point connection.
- Dust tight control enclosure.
- Filter rack on inlet with throw away filter.
- Inlet and outlet screens and duct connection.
- Automatic primary limit control.
- Optional wall thermostat, unit thermostat or SSR control which proportionally regulates heat output.
- Disconnect switch.

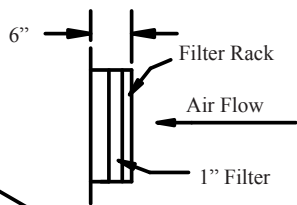
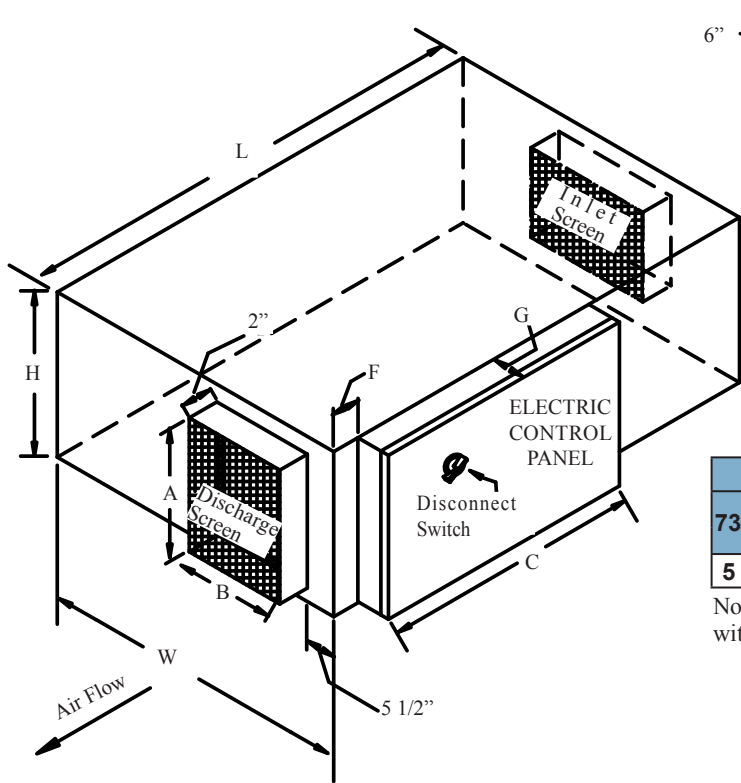
Standard Models

MODEL	KW	CFM RANGE	VOLTS/PHASE	TOTAL AMPS for MOTOR & HEATER	STAGE	MOTOR VOLTAGE	FULL LOAD AMPS for MOTOR ONLY	MOTOR H.P.
F1G7305	5	170-950	208/1	26	1	277	2	1/4
H1G7305			240/1	22				
G1G7305			277/1	20				
F3G7305			208/3	15				
H3G7305			240/3	14				
P3G7305			480/3	8				
F3E7310	10	170-950	208/3	32	1	120	4	
H3G7310-2			240/3	26		277	2	
P3G7310-2			480/3	14		277	2	
F3E7310-2			208/3	32		120	4	
H3G7310-2			240/3	26		277	2	
P3G7310-2			480/3	14		277	2	
F3E7312	12	170-950	208/3	41	1	120	8	2 MOTORS @ 1/4 H.P. EACH
H3G7312			240/3	32		277	3	
P3G7312			480/3	17		277	3	
F3E7312-2			208/3	41		120	8	
H3G7312-2			240/3	32		277	3	
P3G7312-2			480/3	17		277	3	
F3E7315	15	270-1500	208/3	49	1	120	8	
H3G7315			240/3	39		277	3	
P3G7315			480/3	21		277	3	
F3E7315-2			208/3	49		120	8	
H3G7315-2			240/3	39		277	3	
P3G7315-2			480/3	21		277	3	
P3G7318	18	270-1500	480/3	25	1	277	3	
P3G7318-2			480/3	25	2	277	3	

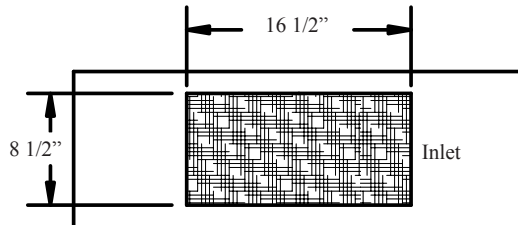
SSR proportional control maximum: 45 Amps

7300 Series Plenum Heater

Product Dimensions



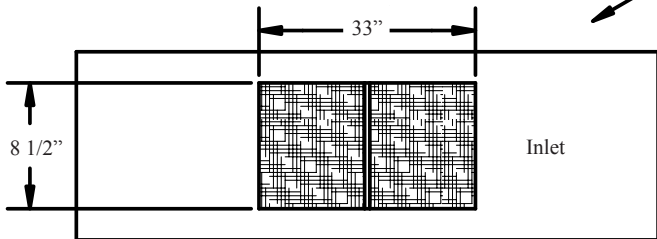
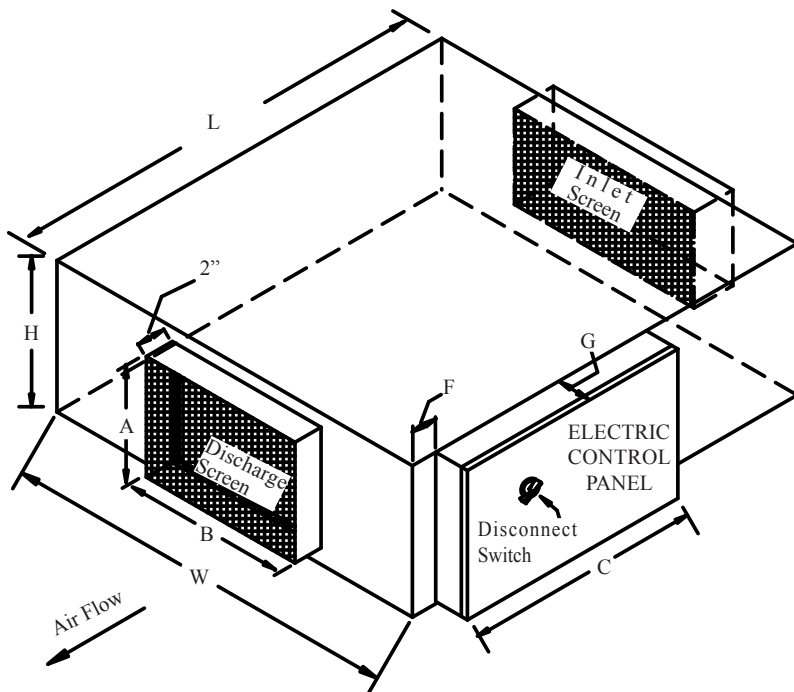
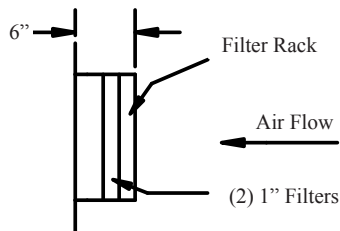
Note: Control panel access standard as shown. For panel on opposite side access specify and order (Figure 5).



DIMENSIONS								
7300 Series	C	F	G	H	L	W	DISCHARGE	
							A	B
5 & 10 KW	28, 75"	1"	6"	11.75"	45"	26"	8"	10"

Note: Dimension C and G will vary with accessories.

Note: Control panel access standard as shown. For panel on opposite side access specify and order (Figure 5).



DIMENSIONS								
7300 Series	C	F	G	H	L	W	DISCHARGE	
							A	B
12, 15, & 18 KW	28, 75"	2"	6"	11.75"	45"	43"	8"	20"

Note: Dimension C and G will vary with accessories.