



BENNETT ENGINEERING

MECHANICAL • ELECTRICAL
(207) 865-9475

- | | |
|---|--|
| <input checked="" type="checkbox"/> NO EXCEPTIONS TAKEN | <input type="checkbox"/> SUBMIT SPECIFIED ITEM |
| <input type="checkbox"/> MAKE CORRECTIONS NOTED | <input type="checkbox"/> REJECTED-SEE REMARKS |
| <input type="checkbox"/> AMEND & RE-SUBMIT | <input type="checkbox"/> SEE COMMENTS BELOW |

CHECKING IS ONLY FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. ANY ACTION SHOWN IS SUBJECT TO THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS WHICH SHALL BE CONFIRMED AND CORRELATED AT THE JOB SITE, FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION, COORDINATION OF THE WORK WITH THAT OF OTHER TRADES AND THE SATISFACTORY PERFORMANCE OF THE WORK.

Justin M. Valliere, P.E.
SIGNATURE

12/21/16
REVIEW DATE

Project: Carleton Street Housing

Submittal: 230000-4 Unit Heaters

Comments: NONE

BENCHMARK

34 Thomas Drive
Westbrook, ME 04092
Ph: (207)591-7600
Fax: (207)591-7604

Transmittal

To: Archetype Architects
48 Union Wharf # 2
Portland, ME 04101
Ph: (207)772-6022 Fax: (207)772-6022

Transmittal #: 25
Date: 12/19/2016
Job: 10-16-1833 Carleton Street
Apartments

Subject: Submittal 230000-4 Unit Heaters

WE ARE SENDING YOU Attached Under separate cover via
 Shop drawings Prints Plans Samples
 Copy of letter Change order Specifications Submittal

Copies	Date	No.	Description
1		230000-4 Rev 0	Unit Heaters

THESE ARE TRANSMITTED as checked below:

- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> For approval | <input type="checkbox"/> Approved as submitted | <input type="checkbox"/> Resubmit ___ copies for approval |
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| <input type="checkbox"/> FOR BIDS DUE | | |

Remarks:

Copy To:

From: Andrew Mosley (BENCHMARK)

BENCHMARK

34 Thomas Drive
Westbrook, ME 04092
Ph: (207)591-7600
Fax: (207)591-7604

Submittal Cover Sheet

Job: 10-16-1833
Carleton Street Apartments
17 Carleton Street
Portland, ME 04101

Spec Section No: 230000
Submittal No: 4
Revision No: 0
Sent Date: 12/19/2016

Submittal Title: Unit Heaters

Contractor:
BENCHMARK
Andrew Mosley

Contractor's Stamp

x Reviewed-No Except

Reviewed for general conformance with the design concept and contract documents. Markings or comments shall not be construed as relieving the Subcontractor from compliance with the Project plans and specifications, nor departure therefrom. The Subcontractor remains responsible for details and accuracy, for conforming and correlating all quantities and dimensions, for selecting fabrication processes, for techniques of assembly, and for performing the work in a safe manner.

BENCHMARK

Architect (Primary):
Archetype Architects

Architect's Stamp

Engineer

Engineer's Stamp

Damon Mechanical Services
Mechanical Engineers and Contractors

<u>SUBMITTAL CERTIFICATE</u>	
PROJECT:	17 Carleton St Senior Housing
LOCATION:	Portland, ME
PROJECT NUMBER:	16038
ENGINEER	Bennett Engineering
SUBCONTRACTOR/VENDOR:	Damon Mechanical Services
SUBMITTED BY:	Damon Mechanical Services
CONTACT/PHONE:	Mike Lowe / 207- 784-7461
SPECIFICATION SECTION:	220000 230000
SUB PARAGRAPH:	2.8
TITLE	Unit Heaters
PREPARED BY:	Mike Lowe, Project Manager
SIGNATURE:	
DATE:	October 17, 2016
SUBMITTED FOR REVIEW:	Yes
CONTAINS VARIATIONS?:	No

John C. Hare & Company

1230 Shore Rd.
Cape Elizabeth, Me 04107
Phone: 207-799-4851
Fax: 207-799-7184
Email: johnchar@maine.rr.com

PO Box 2377
South Portland, ME 04106

SUBMITTAL

Project: Carleton St. Senior Housing
Portland, ME

Installer: Damon Mechanical Services

Products/Mfr.: Sterling Hot Water Unit Heaters

Date: Oct. 14, 2016

Delivery Information 3-4 Weeks

Horizontal Unit Heaters – Submittal

HSD-12

Dimensional Data



Steam and Hotwater Coil

MODELS HS-18 THRU 360 (HEADER TYPE)

MODEL	A	B	C	D	E	F	G*	H*	J	K	L	M	N	NO. OF LOUVERS	NOM. FAN DIAM.	APPROX. SHIP WT.
HS-18	14 ^{5/8}	7 ^{5/16}	15	7 ^{1/2}	6 ^{1/8}	2 ^{15/16}	3 ^{1/4}	9 ^{3/8}	12 ^{1/4}	9 ^{1/2}	1 ^{1/4}	2 ^{1/4}	12 ^{7/8}	4	9	26
HS-24	14 ^{5/8}	7 ^{5/16}	18	9	6 ^{1/8}	2 ^{15/16}	3 ^{1/4}	9 ^{3/8}	12 ^{1/4}	12 ^{1/2}	1 ^{1/4}	2 ^{1/4}	12 ^{7/8}	5	10	30
HS-36	14 ^{5/8}	7 ^{5/16}	18	9	6 ^{1/8}	2 ^{15/16}	3 ^{1/4}	9 ^{3/8}	12 ^{1/4}	12 ^{1/2}	1 ^{1/4}	2 ^{1/4}	12 ^{7/8}	5	10	30
HS-48	17 ^{1/8}	8 ^{9/16}	20 ^{1/2}	10 ^{1/4}	5 ^{7/8}	2 ^{15/16}	5 ^{1/16}	11 ^{7/16}	14 ^{3/4}	15	1 ^{1/4}	1 ^{3/4}	15 ^{3/8}	6	12	41
HS-60	17 ^{1/8}	8 ^{9/16}	20 ^{1/2}	10 ^{1/4}	5 ^{7/8}	2 ^{15/16}	5 ^{1/16}	10 ^{15/16}	14 ^{3/4}	15	1 ^{1/4}	1 ^{3/4}	15 ^{3/8}	6	12	41
HS-72	18 ^{3/8}	9 ^{3/16}	21 ^{3/4}	10 ^{7/8}	6	2 ^{15/16}	5 ^{1/16}	11 ^{1/16}	16	16 ^{1/4}	1 ^{1/4}	1 ^{3/4}	16 ^{5/8}	7	14	44
HS-84	20 ^{7/8}	10 ^{9/16}	24 ^{1/4}	12 ^{1/8}	6 ^{1/8}	2 ^{15/16}	5 ^{11/16}	11 ^{13/16}	18 ^{1/2}	18 ^{3/4}	1 ^{1/4}	1 ^{3/4}	19 ^{1/8}	8	14	47
HS-96	19 ^{5/8}	9 ^{13/16}	24	12	6 ^{5/16}	3 ^{3/16}	7 ^{1/2}	13 ^{13/16}	17 ^{1/4}	17 ^{1/2}	1 ^{1/2}	1 ^{3/4}	17 ^{7/8}	8	16	49
HS-108	19 ^{5/8}	9 ^{13/16}	24	12	6 ^{5/16}	3 ^{3/16}	7 ^{1/2}	13 ^{13/16}	17 ^{1/4}	17 ^{1/2}	1 ^{1/2}	1 ^{3/4}	17 ^{7/8}	8	16	49
HS-120	20 ^{7/8}	10 ^{7/16}	25 ^{1/4}	12 ^{5/8}	6 ^{5/16}	3 ^{3/16}	6 ^{11/16}	13	18 ^{1/2}	18 ^{3/4}	1 ^{1/2}	1 ^{3/4}	19 ^{1/8}	8	18	59
HS-132	23 ^{3/8}	11 ^{11/16}	27 ^{3/4}	13 ^{3/8}	6 ^{5/16}	3 ^{3/16}	7 ^{5/8}	14	21	21 ^{1/4}	1 ^{1/2}	1 ^{3/4}	21 ^{5/8}	9	18	74
HS-144	23 ^{3/8}	11 ^{11/16}	27 ^{3/4}	13 ^{3/8}	6 ^{5/16}	3 ^{3/16}	7 ^{5/8}	14	21	21 ^{1/4}	1 ^{1/2}	1 ^{3/4}	21 ^{5/8}	9	18	74
HS-156	23 ^{3/8}	11 ^{11/16}	27 ^{3/4}	13 ^{3/8}	6 ^{5/16}	3 ^{3/16}	7 ^{7/16}	13 ^{3/4}	21	21 ^{1/4}	1 ^{1/2}	1 ^{3/4}	21 ^{5/8}	9	18	74
HS-180	24 ^{5/8}	12 ^{5/16}	29	14 ^{1/2}	6 ^{3/8}	3 ^{3/16}	7 ^{7/16}	13 ^{3/4}	22 ^{1/4}	22 ^{1/2}	1 ^{1/2}	1 ^{3/4}	22 ^{7/8}	9	18	90
HS-204	24 ^{5/8}	12 ^{5/16}	29	14 ^{1/2}	6 ^{3/8}	3 ^{3/16}	7 ^{7/16}	13 ^{3/4}	22 ^{1/4}	22 ^{1/2}	1 ^{1/2}	1 ^{3/4}	22 ^{7/8}	9	18	90
HS-240	27 ^{7/8}	13 ^{15/16}	30 ^{1/4}	15 ^{1/8}	8 ^{1/8}	3 ^{3/16}	5 ^{7/8}	14	25 ^{1/2}	23 ^{3/4}	2	1 ^{3/4}	26 ^{1/8}	10	20	143
HS-280	27 ^{7/8}	13 ^{15/16}	30 ^{1/4}	15 ^{1/8}	8 ^{1/8}	3 ^{3/16}	9 ^{5/8}	17 ^{3/4}	25 ^{1/2}	23 ^{3/4}	2	1 ^{3/4}	26 ^{1/8}	10	20	154
HS-300	33 ^{3/8}	16 ^{11/16}	37 ^{3/4}	18 ^{7/8}	9	3 ^{3/16}	9 ^{5/8}	18 ^{5/8}	31	31 ^{1/4}	2	1 ^{3/4}	31 ^{5/8}	13	24	203
HS-360	33 ^{3/8}	16 ^{11/16}	37 ^{3/4}	18 ^{7/8}	9	3 ^{3/16}	9 ^{5/8}	18 ^{5/8}	31	31 ^{1/4}	2	1 ^{3/4}	31 ^{5/8}	13	24	203

* APPLIES TO STANDARD MOTOR WITH STANDARD FAN GUARD. WHEN OPTIONAL MOTORS OR OSHA FAN GUARDS ARE REQUESTED, DIMENSIONS WILL CHANGE ACCORDING TO THE SUBSTITUTIONS MADE.

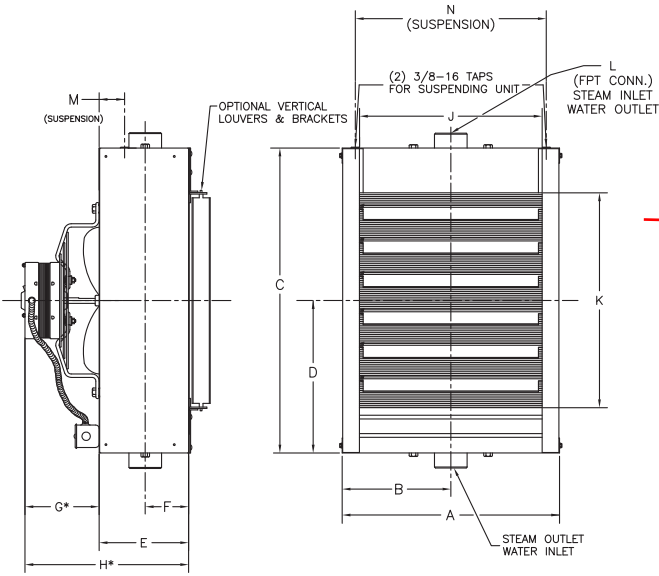
- NOTES:
1. OSHA guard standard on models HS-18 thru HS-48 (dimensions shown in table).
 2. Standard motor and standard guard shown in both tables.
 3. Optional OSHA guards available for all units with standard 1 phase motors.
 4. All 3 phase and explosion proof motors are shelf mounted.

Serpentine Hotwater Coil

MODELS HS-108A THRU 136A

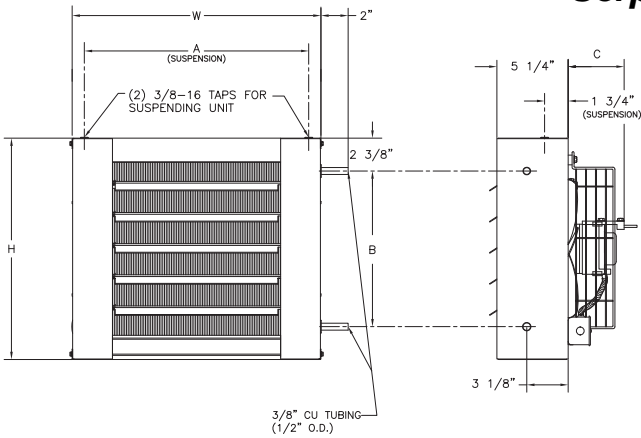
MODEL NO.	H	W	A	B	C	NO. LOUVERS	NOM. FAN DIAM.	APPROX. SHIP WT.
HS-108A	16	18	16 ^{7/32}	11 ^{1/4}	4 ^{1/4}	5	9	22
HS-118A	16	18	16 ^{7/32}	11 ^{1/4}	4 ^{1/4}	5	10	24
HS-125A	16	18	16 ^{7/32}	11 ^{1/4}	4 ^{1/4}	5	10	25
HS-136A*	18 ^{1/2}	20 ^{1/2}	18 ^{23/32}	13 ^{3/4}	5 ^{11/16}	6	12	31

* Dimension "C" is to back of motor, not motor conduit connector as shown.
NOTE: OSHA type fan guard standard on models HS-108A thru HS-136A.



D6333B

UH-1 HS-84



D6332C



A MESTEK COMPANY

Sales Office 260 North Elm Street
Westfield, Massachusetts 01085
Dial (413) 564-5535 Fax (413) 562-5311
www.sterlinghvac.com

PROJECT: Carleton St. Senior Apts.
LOCATION: Portland, ME
ARCHITECT:
ENGINEER:
CONTRACTOR: Damon Mechanical
PO NUMBER:
DATE:

Hot Water Performance Data

Model No.	Output BTU/HR*	GPM	Final Air °F	Pressure Drop FT./H ₂ O	Motor HP	RPM	Nominal CFM	Outlet FPM	Nom. Amps @ 115VAC†	Sound Rating
HS-108A	8,030	.80	91	.80	16 Watt	1550	245	250	.80	II
HS-118A	6,800	1.9	90	.80	16 Watt	1350	210	215	.80	I
HS-125A	18,400	1.9	94	2.2	16 Watt	1550	500	500	.80	II
HS-136A	15,650	2.5	96	2.2	25 Watt	1350	420	420	.80	I
HS-18	24,800	3.6	102	2.2	25 Watt	1550	580	590	1.2	II
HS-24	21,230	1.3	106	3.0	1/20	1000	850	550	1.4	II
HS-36	35,900	1.3	99	.005	16 Watt	900	750	480	1.4	I
HS-48	32,300	1.8	95	.014	16 Watt	1550	395	395	.80	II
HS-60	13,050	2.7	99	.09	25 Watt	1350	350	350	.80	I
HS-72	11,725	3.5	103	.12	1/20	1000	750	550	1.4	II
HS-84	17,400	4.4	103	.17	1/20	900	630	460	1.4	I
HS-96	31,300	5.3	106	.23	1/20	900	950	700	1.4	I
HS-108	43,600	6.1	100	.24	1/12	1000	1400	900	2.2	III
HS-120	61,000	7.0	106	.29	1/12	900	1100	750	2.2	III
HS-132	69,700	7.9	106	.36	1/12	1000	1400	930	2.2	III
HS-144	62,700	8.8	113	.39	1/3	900	1100	800	2.2	II
HS-156	78,400	10.4	100	.41	1/3	1000	1800	1000	2.2	III
HS-180	70,500	11.3	103	.43	1/3	900	1500	900	2.2	II
HS-204	87,100	14.9	102	.43	1/3	1140	1900	900	4.5	III
HS-240	95,800	17.4	104	.41	1/3	1140	2000	950	4.5	IV
HS-280	104,000	21.0	104	.43	1/3	1140	2200	1000	4.5	IV
HS-300	113,000	23.0	100	.53	1/3	1140	2600	1150	4.5	IV
HS-360	118,000	26.2	110	.60	1/2	1140	2200	800	4.5	III
HS-480	148,100	33.0	107	.79	1/2	1140	2900	1000	4.5	IV
HS-600	174,000	40.0	106	1.06	1/2	1140	3500	900	4.5	IV
HS-800	209,100	50.0	106	1.33	1/2	1100	4200	980	5.4	IV
HS-1000	230,000	60.0	102	2.1	1/2	1100	5000	700	5.4	IV
HS-1200	261,300	70.0	103	2.1	1/2	1100	5500	1000	5.4	IV

Performance based on 200° EWT, 60° E.A.T., 20° TD.
 * For the lower output, an optional Speed Controller must be ordered.
 † Stated AMP is full load (FLA). AMP draw varies by motor manufacturer ± .2 AMPS.

Steam Performance Data

Model No.	Output BTU/HR*	Cond. lbs./hr.	Sq. Ft. E.D.R.	Final Air °F	Motor HP	RPM	Nominal CFM	Outlet FPM	Nom. Amps @ 115VAC†	Nom. Fan Diam. (Inches)
HS-18	18,000	18.0	75	102	16 Watt	1550	395	395	.80	9
HS-24	16,200	16.2	68	109	16 Watt	1350	330	330	.80	9
HS-36	24,000	24.0	100	109	16 Watt	1550	450	450	.80	10
HS-48	21,600	21.6	90	112	25 Watt	1350	380	380	.80	10
HS-60	36,000	36.0	150	119	25 Watt	1550	550	550	1.2	10
HS-72	32,400	32.4	135	120	1/20	1350	480	480	1.2	10
HS-84	48,000	48.0	200	119	1/20	1000	750	550	1.4	12
HS-96	43,200	43.2	180	123	1/20	900	630	460	1.4	12
HS-108	60,000	60.0	250	121	1/20	1000	900	650	1.4	12
HS-120	54,000	54.0	225	131	1/20	900	700	510	1.4	12
HS-132	72,000	72.0	300	120	1/20	1000	1100	800	1.4	14
HS-144	64,800	64.8	270	123	1/20	900	950	700	1.4	14
HS-156	84,000	84.0	350	115	1/12	1000	1400	900	2.2	14
HS-168	75,600	75.6	315	123	1/12	900	1100	750	2.2	14
HS-180	96,000	96.0	400	123	1/12	1000	1400	930	2.2	16
HS-192	86,400	86.4	360	132	1/12	900	1100	800	2.2	16
HS-204	108,000	108.0	450	115	1/12	1000	1800	1000	2.2	16
HS-216	97,200	97.2	405	120	1/12	900	1500	900	2.2	16
HS-228	120,000	120.0	500	118	1/3	1140	1900	900	4.5	18
HS-240	132,000	132.0	550	121	1/3	1140	2000	950	4.5	18
HS-252	144,000	144.0	600	120	1/3	1140	2200	1000	4.5	18
HS-264	156,000	156.0	650	115	1/3	1140	2600	1150	4.5	18
HS-276	180,000	180.0	770	135	1/3	1140	2200	800	4.5	18
HS-288	204,000	204.0	850	124	1/3	1140	2900	1000	4.5	18
HS-300	240,000	240.0	1000	123	1/3	1140	3500	900	4.5	20
HS-312	280,000	280.0	1100	121	1/2	1100	4200	980	5.4	20
HS-324	300,000	300.0	1250	117	1/2	1100	5000	700	5.4	24
HS-336	360,000	360.0	1500	120	1/2	1100	5500	1000	5.4	24

Performance based on 2# steam pressure at heater with air entering @ 60° F.
 Maximum working pressure 150 PSI, 366° F.
 * For the lower output, an optional Speed Controller must be ordered.
 † Stated AMP is full load (FLA). AMP draw varies by motor manufacturer ± .2 AMPS.

Disconnect Switch Included

Steam and Hot Water Coil Specifications



GENERAL

Furnish and install where indicated or scheduled on plans, Sterling Model HS horizontal steam/hot water unit heaters. Unit shall be equipped as specified herein. All units shall be installed in a neat and workmanlike manner in accordance with this specification and the manufacturer's installation instructions.

CASING

Casings shall be 20 gauge die-formed steel. Casing substrates shall be prepared for finishing with a hot wash, iron phosphatizing, clear rinse, chromic acid rinse and oven drying. Paint finish shall be lead-free, chromate free, alkyd melamine resin base and applied with an electrostatic two-pass system. Finish shall be baked at 350°F.

COIL MODELS 18 - 360

Coil elements and headers shall be of heavy wall drawn seamless copper tubing. Element tubes shall be brazed into extruded header junctions. Pipe connection saddles shall be of cast bronze. Aluminum fins shall have drawn collars to assure permanent bond with expanded element tubes and exact spacing. All Element Assemblies are submersion tested at factory at 200 P.S.I., and are rated at 150 pounds of saturated steam pressure at 366°F, under maximum load conditions. We recommend operating pressure of 75 P.S.I. at 320°F for long life.

MOTORS

Motors shall be totally enclosed fan cooled, resilient mounted with class "B" windings. All motors shall be designed for horizontal mounting. Motors under 1/3 H.P. are totally enclosed, frame mounted, 115/1/60 with thermal overload protection and permanently lubricated sleeve bearings with optional solid state speed controller available. 1/3 H.P. (115/1/60) motors are open frame construction, with thermal overload protection and ball bearings. 1/3 H.P. at (230V) and all 1/2 H.P. motors are open frame construction, with thermal overload protection and ball bearings. 1/3 and 1/2 H.P. motors are available in single and 3 phase in open frame construction or explosion-proof housings, all the above are available as options.

EXPLOSION PROOF MOTORS

An enclosed motor whose enclosure is designed and constructed to withstand an explosion of a specified gas or vapor which may occur within the motor and to prevent the ignition of this gas or vapor surrounding the machine.

Sterling motors comply with the National Electrical Code classification as follows:

- Class I, Group D; all sizes
- Class II, Group F; all sizes
- Class II, Group G; all sizes
- Division I & II Installations
- T-code (T3B)

Explosion proof equipment is not generally available for Class I, Group A and B and it is necessary to isolate motors from the hazardous area. All explosion proof motors are shelf mounted.

FANS

Fans shall be of aluminum blade, hub type designed and balanced to assure maximum air delivery, low motor horsepower requirements and quiet operation. Blades are spark proof.

FAN GUARDS

Fan guards shall be welded steel, zinc plated or painted. Units mounted below 8 feet from floor must be equipped with an OSHA fan guard to meet ETL and OSHA requirements. OSHA fan guard standard on models HS-18 thru HS-48.

AIR DEFLECTION LOUVERS

Units shall be equipped with horizontal, individually adjustable louvers. Vertical louvers for four-way air control shall be available as an optional extra.

Serpentine Coil Specifications

GENERAL

Furnish and install, where indicated or scheduled on plans, Sterling Model HSA horizontal hot water unit heaters. Unit shall be equipped as specified herein. All units shall be installed in a neat and workmanlike manner in accordance with this specification and the manufacturer's installation instructions.

CASING

Casings shall be 20 gauge die-formed steel. Casing substrates shall be prepared for finishing with a hot alkaline wash, hot & cold water rinses, iron phosphatizing, chromic acid rinse and oven drying. Paint finish shall be lead-free, chromate free, polyester melamine base and applied with a roller coat application. Finish shall be baked at 350° F.

COIL MODELS HS108A - HS136A

Coil is a serpentine design with seamless copper tubing. Aluminum fins shall have drawn collars to assure permanent bond with expanded tubes. Tubing connection shall be 3/8" copper tubing, type "M" (.500 O.D.). Coils shall be factory tested at 200 P.S.I.

MOTORS

Motors shall be totally enclosed fan cooled, resilient mounted with class "B" windings. All motors shall be designed for horizontal mounting.

FANS

Fans shall be of aluminum blade type, designed and balanced to assure maximum air delivery, low motor horsepower requirements and quiet operation.

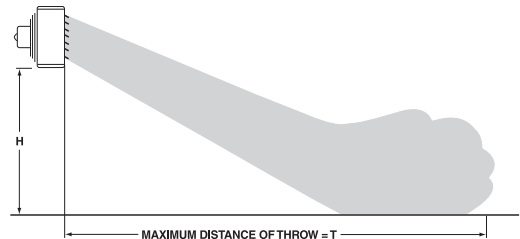
OSHA FAN GUARDS

OSHA fan guards shall be welded steel, zinc plated or painted. OSHA fan guard standard on models HS-108A thru HS-136A.

AIR DEFLECTION LOUVERS

Units shall be equipped with horizontal, individually adjustable louvers.

Mounting Heights and Throws



MODEL NO.	MAXIMUM MOUNTING HT.	APPROX. MAX. THROW	MODEL NO.	MAXIMUM MOUNTING HT.	APPROX. MAX. THROW
HS-108A	8	20	HS-108	11	40
HS-118A	8	25	HS-120	12	40
HS-125A	9	29	HS-132	13	54
HS-136A	9	29	HS-144	13	55
HS-18	8	20	HS-156	13	55
HS-24	8	24	HS-180	13	53
HS-36	9	28	HS-204	13	55
HS-48	9	30	HS-240	14	57
HS-60	10	30	HS-280	14	57
HS-72	10	29	HS-300	15	58
HS-84	10	30	HS-360	15	60
HS-96	11	38			

The following table is based on 60° entering air and either 2 lb. steam or 200° T.D. The data is based on the higher speed CFM throughout and velocity. Care should be exercised in locating adjacent unit heaters and allowance should be made for obstructions in the air pattern and conflicting air currents from other air moving devices.

Horizontal Unit Heaters

Motor Characteristics

TOTALLY ENCLOSED MOTOR TYPE

HS Unit Model No.	AMP	MCA	HP	RPM
115/1/60				
18, 24, 108A, 118A	0.8	1	16W*	1550
136A	1.4	1.8	1/20*	1000
36, 125A	1.2	1.5	25W*	1550
48, 60, 72	1.4	1.8	1/20*	1000
84, 96, 108	2.2	2.8	1/12*	1000
120, 132, 144, 156, 180, 204, 240	4.5	5.6	1/3	1140
280, 300, 360	5.4	6.8	1/2	1100
230/1/60				
18, 24, 108A, 118A	0.4	0.5	16W	1550
136A	1.4	1.8	1/20†	1000
36, 125A	0.6	0.8	25W	1550
48, 60, 72	1.4	1.8	1/20†	1000
84, 96, 108	2.2	2.8	1/12†	1000
120, 132, 144, 156, 180, 204, 240	4.5	5.6	1/3†	1140
280, 300, 360	5.4	6.8	1/2†	1100
208-230/460/3/60				
48, 60, 72, 84, 96, 108, 120, 132, 144, 156, 180, 204, 240, 280, 300, 360	2.6-2.6/1.3	3.3-3.3/1.6	1/2**	1140

*Optional variable speed switch is available.

**These motors are without thermal overload protection

NOTE 1: All motors are constant speed and operate at top speed as indicated in motor data. Models 18 through 108, including 108A, 118A, 125A and 136A can be run at reduced speed with addition of optional variable speed switch. This switch is factory-calibrated for low and high speed ratings, with intermediate speeds infinitely controllable. Models 120 through 360 operate at constant speed as indicated in motor data. All 1/4 H.P. motors are P.S.C.

NOTE 2: Motors under 1/3 H.P. are totally enclosed, frame mounted, 115/1/60 with thermal overload protection and permanently lubricated sleeve bearings with optional speed controller available. 1/3 H.P. (115/1/60) motors are open frame constant speed with thermal over-load protection and ball bearings. 1/3 H.P. (230V) and 1/2 H.P. (230V) motors are open frame constant speed with thermal overload protection and ball bearings.

EXPLOSION PROOF WITH THERMAL OVERLOAD MOTOR TYPE

HS Unit Model No.	AMP	MCA	HP	RPM
115/1/60				
48, 60, 72, 84, 96, 108, 120, 132	3.7	4.6	1/6	1140
144, 156, 180, 204	5.4	6.8	1/4	1140
240, 280, 300	7.4	9.3	1/3***	1140
360	9.6	12.0	1/2***	1140
230/1/60				
48, 60, 72, 84, 96, 108, 120, 132	3.7	4.6	1/6†	1140
144, 156, 180, 204	5.4	6.8	1/4†	1140
240, 280, 300	3.7	4.7	1/3***	1140
360	4.8	6.0	1/2***	1140
230/460/3/60				
144, 156, 180, 204, 240, 280, 300, 360	2.2/1.1	2.8/1.4	1/3	1140

***These motors are 115/230 volts.

†230/1/60 unit has 115/1/60 motor supplied with field installed stepdown transformer.

NOTE 3: 1/3 and 1/2 H.P. motors are available as 230V single and 3 phase in open frame and explosion-proof housings, all available as options. 1/3 and 1/2 H.P. motors operate at single speed only.

NOTE 4: Stated AMP draw is Full Load Amp (FLA). AMP draw varies by motor manufacturer ± .2 AMPS. Verify FLA per unit motor data plate.

CAUTION: Select appropriate AMP and MCA for the multiple voltage motors. For example, the AMP and MCA for Models 360 with a 460 volt Totally Enclosed motor is 1.3 and 1.6 respectively.