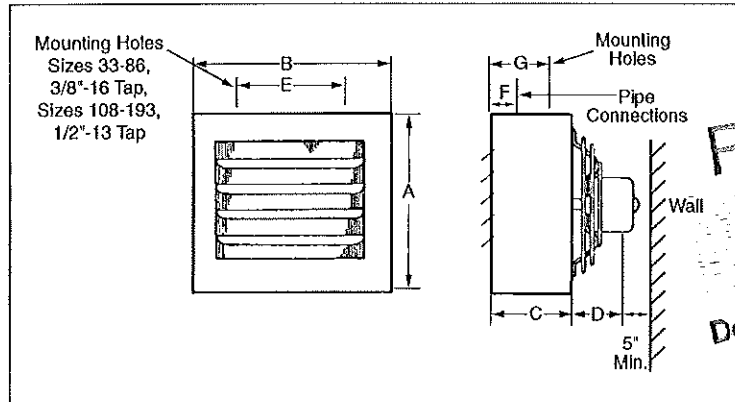


SUBMITTAL DATA

horizontal steam/hot water unit heaters top and bottom connection, Model HSB



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Table 1.1 - Dimensions ①②

Model Number	A	B	C	D		E	F	G	H	Female Connections NPT	Fan Diameter	Approx. Shipping Wt. lb.
				115 Std. Motor	115V Exp. Motor							
HSB-18	12-3/8	13	6	5	12	-	3	-	-	3/4	9	16
HSB-24	12-3/8	13	6	6-1/2	12	-	3	-	-	3/4	9	20
HSB-33	16-3/8	17-1/2	8-3/4	6-1/2	12-1/4	11	3-5/8	6	-	1-1/4	12	34
HSB-47	16-3/8	17-1/2	8-3/4	8	12-1/4	11	3-5/8	6	-	1-1/4	12	36
HSB-63	20-7/16	21-1/2	8-3/4	8	12-3/4	15	3-5/8	6	-	1-1/4	14	48
HSB-86	20-7/16	21-1/2	8-3/4	9	12-3/4	15	3-5/8	6	-	1-1/4	14	52
HSB-108	24-7/16	25-1/2	9-1/2	8	11-1/2	18	3-3/4	6-3/8	-	1-1/4	18	74
HSB-121	24-7/16	25-1/2	9-1/2	7-1/2	11	18	3-3/4	6-3/8	-	1-1/4	18	76
HSB-165	30-1/2	30-1/2	9-1/4	9-1/2	14	21-1/4	3-3/4	6-3/8	-	1-1/4	22	92
HSB-193	30-1/2	30-1/2	9-1/4	9-1/2	14	21-1/4	3-3/4	6-3/8	-	1-1/4	22	98
HSB-258	38-1/2	38-1/2	12-1/2	10-1/2	14	18-1/2	3-5/8	7-7/8	-	1-1/4	22	162
HSB-290	38-1/2	38-1/2	12-1/2	10-1/2	14	18-1/2	3-5/8	7-7/8	-	1-1/4	24	168
HSB-340	38-1/2	44-1/2	12-1/2	10-1/2	14	18-1/2	3-5/8	7-7/8	-	1-1/4	24	176

① All dimensions in inches.

② Dimensions shown are for Standard and Low Outlet Temperature models.

Table 1.2 - Specifications

Model No.	Core Type		Copper Tube Size (Inches)	Copper Tube Wall Thickness (Inches)
	Single Serpentine	Double Serpentine		
HSB-18	X	-	5/8 OD	0.028
HSB-24	X	-	5/8 OD	0.028
HSB-33	X	-	1 OD	0.030
HSB-47	X	-	1 OD	0.030
HSB-63	X	-	1 OD	0.030
HSB-86	X	-	1 OD	0.030
HSB-108	X	-	1 OD	0.030
HSB-121	X	-	1 OD	0.030
HSB-165	X	-	1 OD	0.030
HSB-193	-	X	1 OD	0.030
HSB-258	-	X	1 OD	0.030
HSB-290	-	X	1 OD	0.030
HSB-340	-	X	1 OD	0.030

Junction Box

All units include an electrical junction box either integral to the motor or attached to the unit casing. Explosion proof units include an explosion proof junction box attached to the motor.

1-451.13 SUBMITTAL DATA

Table 2.1
Motor Data ①

Model Number	Motor HP ②	Motor Type, Voltage and Power Code							
		Totally Enclosed w/Thermal Overload						Explosion Proof w/Thermal Overload	
		115/60/1	200/60/1	230/60/1	200-208/60/3	230/460/3	575/60/3	115/60/1	230/460/60/3
		01	N/A	02	04	05	10	06	09
		Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps
HSB/HC-18	1/60	0.8	Ⓞ	0.44	Ⓞ	Ⓞ	Ⓞ	3.1	-
HSB/HC-24	1/25	1.6	Ⓞ	0.44	Ⓞ	Ⓞ	Ⓞ	3.1	-
HSB/HC-33	1/25	1.6	Ⓞ	1	Ⓞ	Ⓞ	Ⓞ	3.1	-
HSB/HC-47	1/12	2.2	Ⓞ	1	Ⓞ	Ⓞ	Ⓞ	3.1	-
HSB/HC-63	1/12	2.2	Ⓞ	1	Ⓞ	Ⓞ	Ⓞ	3.1	-
HSB/HC-86	1/8	2.3	Ⓞ	1	Ⓞ	Ⓞ	Ⓞ	3.1	-
HSB/HC-108	1/8	2.3	Ⓞ	1	Ⓞ	Ⓞ	Ⓞ	3.1	-
HSB/HC-121	1/5	2.8	Ⓞ	1.5	Ⓞ	Ⓞ	Ⓞ	4.1	1.5/0.75
HSB/HC-165	1/3	5.4	Ⓞ	2.23	Ⓞ	Ⓞ	Ⓞ	6.1	1.5/0.75
HSB/HC-193	1/3	5.4	Ⓞ	2.23	Ⓞ	Ⓞ	Ⓞ	6.1	1.5/0.75
HSB/HC-258	1/2	7.5	Ⓞ	3.5	Ⓞ	Ⓞ	Ⓞ	5.8	2.0/1.0
HSB/HC-290	1/2	7.5	Ⓞ	3.5	Ⓞ	Ⓞ	Ⓞ	5.8	2.0/1.0
HSB/HC-340	1/2	7.5	Ⓞ	3.5	Ⓞ	Ⓞ	Ⓞ	5.8	2.0/1.0

① Ratings shown are for Standard and Low Outlet Temperature Models.

② Motor HP listed for power code 01.

③ For supply voltages of 200V/60Hz/1ph and all non-explosion proof 3 phase voltages of 200, 230, 460 and 575, Model Numbers Indicated with Note ③, require that a 115V/60Hz/1 phase Power Code 01 unit heater be used with a shipped loose accessory transformer. See Table 2.2 for Transformer Sizes.

Figure 2.1
Field Installed Transformer Accessory

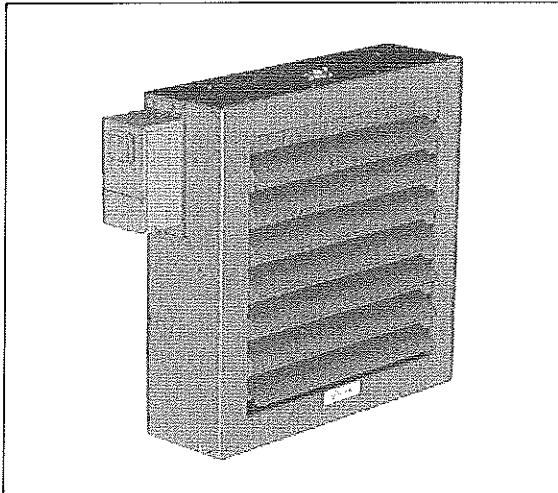
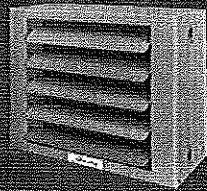


Table 2.2 - Step-Down Transformer Accessory Selection

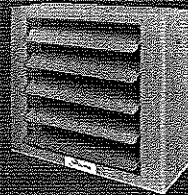
Model Number	200V/60Hz/1 or 3 phase	230/460V/60Hz/3 phase	575V/60Hz/3 phase
HSB 18-63	kVA	kVA	kVA
HSB 86-121	0.50	0.25	0.25
HSB165-193		0.50	0.50
HSB258-340	1.00	0.75	0.75
		1.00	1.00

kVA Size	Ship Wt. (Lb.)
0.25	7
0.50	13
0.75	15
1.00	19

Steam/Hot Water Unit Heaters



Horizontal Delivery
Side Connections



Horizontal Delivery
Top and Bottom
Connections



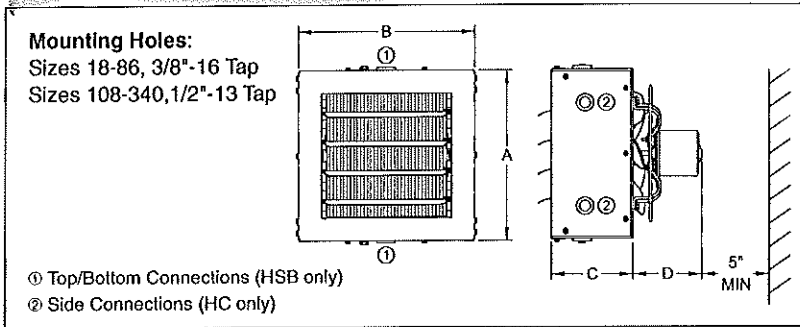
Vertical Delivery



Power-Throw™
Horizontal High
Velocity Delivery

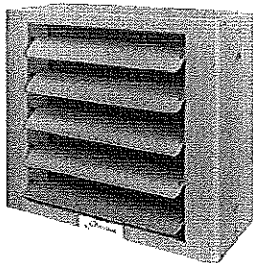
HORIZONTAL AIR DELIVERY MODELS

Dimensions - Models HSB/HC

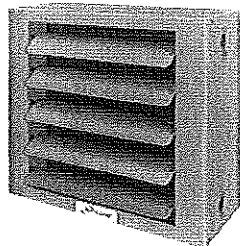


Model Size	HSB		HC		C	D ③	Approx. Weight (lbs)
	A	B	A	B			
18 & 24	12.38	13.00	11.50	13.00	6.00	5.00	16 & 20
33 & 47	16.38	17.50	15.00	17.50	8.75	6.00	34 & 36
63 & 86	20.44	21.50	18.50	21.50	8.75	7.75	48 & 52
108 & 121	24.44	25.50	22.50	25.50	9.50	6.75	74 & 76
165	30.50	30.50	26.50	29.50	9.25	8.50	92
193	30.50	30.50	30.50	32.50	9.25	8.50	98
258 & 290	38.50	38.50	38.50	38.50	12.50	10.00	162 & 168
340	38.50	44.50	38.50	44.50	12.50	10.00	176

③ Dimensions shown apply to standard 115V/1ph motor (Power Code 01).



Model HSB



Model HC

HSB and HC models feature the following:

- Squared off corners for a clean, smooth appearance.
- HSB models have top and bottom supply and return steel connections.
- HC models have a copper tube and copper coil connections located on the side for low clearance applications.
- A two piece casing for quick access to coil.
- An electric junction box for easy electrical connections.
- Baked on gray-green, electrostatically applied polyester powdercoat, environmentally friendly paint.
- Motors are totally enclosed with thermal overload protection.
- Low outlet temperature models for higher steam pressures or dirty atmospheres.
- Listed by the Canadian Standards Association and CRN registered heat exchanger.

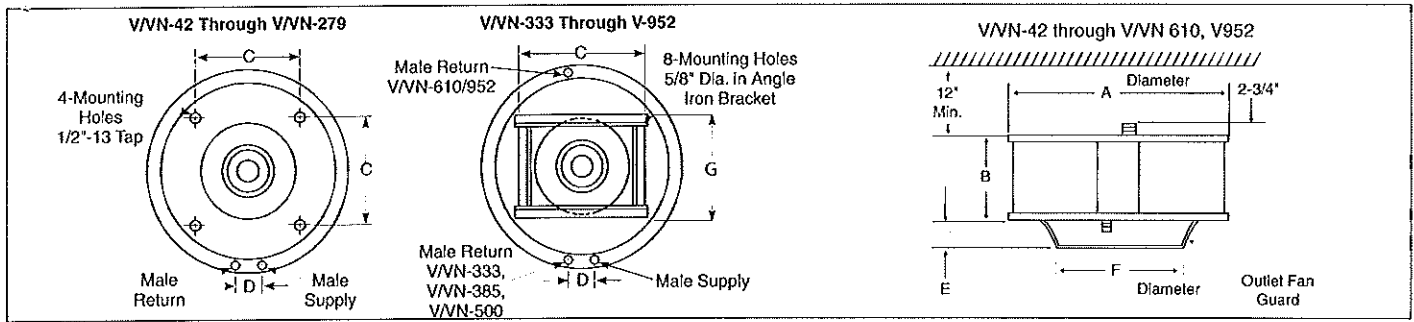


Performance Data (60°F Entering Air Temperature)

Model Number	Motor HP	Standard Models								Low-Outlet Temperature Models					
		Steam (2# Steam)		Hot Water (200°F In, 180°F Out)			CFM	Max. Mtg. Height (Ft)	Heat Throw @ Max. Mtg. Height (Ft)	Steam (2# Steam)					
		Btu/Hr	Final Air Temp. (°F)	Btu/Hr	Water Flow (GPM)	Final Air Temp. (°F)				Model Number	Btu/Hr	CFM	Final Air Temp. (°F)	Max. Mtg. Height (Ft)	Heat Throw @ Max. Mtg. Height (Ft)
HSB/HC 18	1/60	18,000	107	12,560	1.3	94	340	9	18	HSB/HC 18L	15,900	364	100	9	20
HSB/HC 24	1/25	24,000	119	16,250	1.7	100	370	10	19	HSB/HC 24L	19,300	435	100	11	21
HSB/HC 33	1/25	33,000	108	21,680	2.3	91	630	11	22	HSB/HC 33L	29,500	695	99	12	24
HSB/HC 47	1/12	47,000	119	30,940	3.2	98	730	13	30	HSB/HC 47L	32,000	855	94	14	32
HSB/HC 63	1/12	63,000	111	45,580	4.7	97	1120	15	31	HSB/HC 63L	52,500	1170	101	16	33
HSB/HC 86	1/8	86,000	118	60,210	6.3	101	1340	16	33	HSB/HC 86L	61,500	1510	97	17	36
HSB/HC 108	1/8	108,000	109	83,740	8.7	98	2010	18	33	HSB/HC 108L	86,500	2150	97	19	36
HSB/HC 121	1/5	121,000	122	93,000	9.7	108	1775	17	27	HSB/HC 121L	88,000	2070	98	18	29
HSB/HC 165	1/3	165,000	106	130,950	13.6	97	3240	20	43	HSB/HC 165L	143,000	3480	97	21	45
HSB/HC 193	1/3	193,000	121	143,000	14.9	105	2900	19	40	---	---	---	---	---	---
HSB/HC 258	1/2	258,000	111	201,950	21	100	4560	20	47	HSB/HC 258L	190,000	4655	98	22	51
HSB/HC 290	1/2	290,000	117	228,620	23.8	105	4590	21	49	HSB/HC 290L	207,000	5040	94	23	53
HSB/HC 340	1/2	340,000	120	271,110	28.2	108	5130	21	49	HSB/HC 340L	255,000	5575	102	23	53

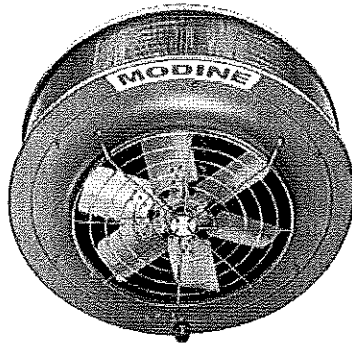
③ Dimensions shown apply to standard 115V/1ph motor (Power Code 01).

VERTICAL AIR DELIVERY MODELS



Models VVN Dimensions - Inches

Model Number	A	B	C	D	E	F	G	Fan Dia.	Male Conn. NPT		Approx. Shipping Wt. (lbs.)
									Top	Bottom	
VVN-42	24-3/4	3-5/8	11-3/8	2-1/8	4-3/8	14-1/2	-	14	1-1/4	1-1/4	36
VVN-59	24-3/4	5-1/8	11-3/8	2-1/8	4-3/8	14-1/2	-	14	1-1/4	1-1/4	42
VVN-78	24-3/4	6-5/8	11-3/8	2-1/8	2-5/8	16-1/2	-	16	1-1/4	1-1/4	46
VVN-95	24-3/4	8-1/8	11-3/8	2-1/8	2-5/8	16-1/2	-	16	1-1/4	1-1/4	48
VVN-139	34-3/4	6-7/8	18-3/8	2-1/8	3	19-1/2	-	19	1-1/2	1	70
VVN-161	34-3/4	8-3/8	18-3/8	2-1/8	3	19-1/2	-	19	1-1/2	1	80
VVN-193	34-3/4	9-7/8	18-3/8	2-1/8	3	19-1/2	-	19	1-1/2	1	86
VVN-212	34-3/4	12-7/8	18-3/8	2-1/2	3	19-1/2	-	19	2	1-1/4	94
VVN-247	34-3/4	12-7/8	18-3/8	2-1/2	3	21-1/2	-	21	2	1-1/4	108
VVN-279	34-3/4	14-3/4	18-3/8	2-1/2	3	21-1/2	-	21	2	1-1/4	112
VVN-333	43-1/4	14-1/2	24	2-7/8	3-1/8	22-1/2	18-1/5	22	2-1/2	1-1/2	166
VVN-385	43-1/4	14-1/2	24	2-7/8	3-1/2	27-1/2	18-1/5	27	2-1/2	1-1/2	168
VVN-500	43-1/4	19	24	2-7/8	3-1/2	27-1/2	18-1/5	27	2-1/2	1-1/2	360
VVN-610	51-1/2	19-1/8	24	—	3-3/4	30-1/2	31-3/8	30	2-1/2	1-1/2	450
V-952	53-3/4	21-1/4	30	—	3-1/2	31	30	30	3	3	487



Model V and VN

V and VN models feature the following:

- V models have copper tubes, VN models have copper/nickel tubes for high temperature and/or pressure applications.
- Low outlet temperature models for higher steam pressures or dirty atmospheres.
- All units provided with outlet fan guard.
- Motor cooling cone shields motor from heat for longer life.
- Optional air deflectors, Cone Jet, Truncone and Louvers for a variety of heat throw patterns.
- All units include an electric junction box for easy electrical connections.
- Baked on grey-green, electrostatically applied polyester powdercoat, environmentally friendly paint.
- All units are listed by the Canadian Standards Association and CRN registered heat exchanger.

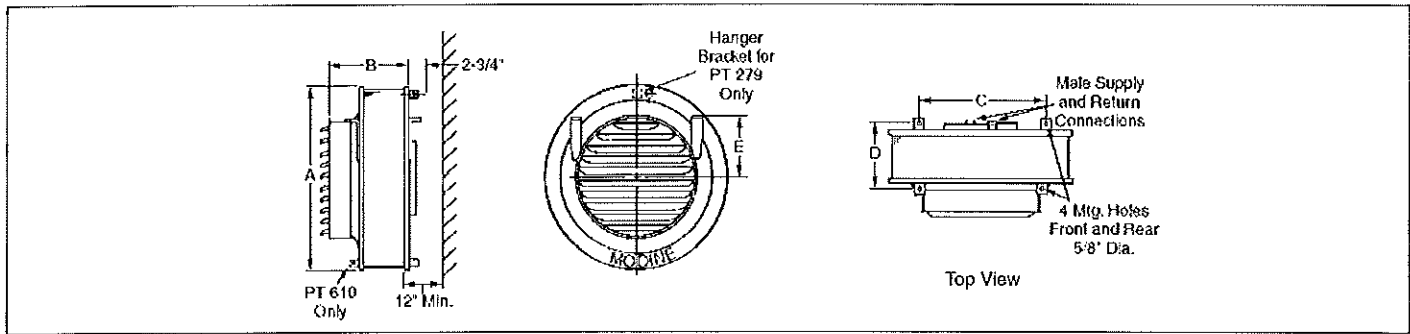


Performance Data (60°F Entering Air Temperature)

Model Number	Motor HP	Standard Models							Low-Outlet Temperature Models						
		Steam (2# Steam)		Hot Water (200°F In, 180°F Out)			CFM	*Max. Mtg. Height (Ft)	*Heat Spread @ Max. Mtg. Height (Ft)	Steam (2# Steam)					
		Btu/Hr	Final Air Temp. (°F)	Btu/Hr	Water Flow (GPM)	Final Air Temp. (°F)				Model Number	Btu/Hr	CFM	Final Air Temp. (°F)	*Max. Mtg. Height (Ft)	*Heat Spread @ Max. Mtg. Height (Ft)
VVN 42	1/30	42,000	103	30,100	3.1	90	950	16	12	VVN 42L	33,000	960	94	17	13
VVN 59	1/30	59,000	111	42,640	4.4	96	1155	20	15	VVN 59L	44,000	1190	96	22	16
VVN 78	1/15	78,000	109	56,960	5.9	95	1590	21	16	VVN 78L	62,000	1740	95	26	19
VVN 95	1/15	95,000	118	69,300	7.2	101	1665	21	16	VVN 95L	71,000	1760	99	26	19
VVN 139	1/5	139,000	112	106,600	11.1	99	2660	26	19	VVN139L	103,000	2860	95	31	23
VVN 161	1/3	161,000	115	123,220	12.8	101	2945	29	21	VVN 161L	127,000	3400	96	35	26
VVN 193	1/3	193,000	116	147,200	15.3	101	3500	32	23	VVN 193L	149,000	3710	99	36	27
VVN 212	1/3	212,000	120	161,680	16.8	104	3610	32	23	VVN 212L	163,000	3830	102	36	27
VVN 247	1/2	247,000	111	188,700	19.7	98	4820	36	28	VVN 247L	190,000	5110	96	42	32
VVN 279	1/2	279,000	111	212,650	22.2	98	5460	39	32	VVN 279L	215,000	5790	96	45	36
VVN 333	3/4	333,000	116	260,080	27.1	103	5980	39	32	VVN 333L	256,000	6340	100	45	36
VVN 385	1	385,000	110	302,080	31.5	98	7680	38	32	VVN 385L	296,000	8140	95	43	36
VVN 500	1-1/2	500,000	108	391,690	40.8	97	10,390	47	39	VVN 500L	385,000	11,000	94	54	45
VVN 610	1-1/2	610,000	112	450,420	46.9	97	11,750	46	38	VVN 610L	470,000	12,400	97	52	44
V 952	2	952,000	139	721,640	75.2	120	12,170	39	60	V 952L	733,300	12,940	115	61	68

③ Dimensions shown apply to standard 115V/1ph motor (Power Code 01). *Vertical types equipped with cone jet deflector, except V952 which is without deflector.

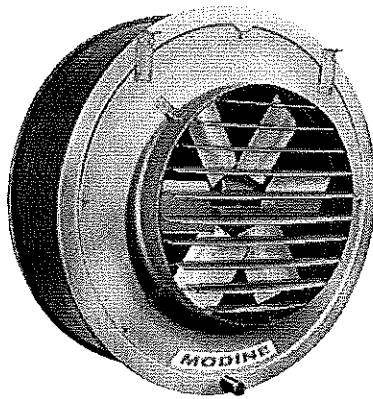
POWER-THROW™ HIGH VELOCITY HORIZONTAL AIR DELIVERY MODELS



Dimensions - Inches

Model Number	A	B	C	D	E	Fan Diameter	Male Conn. NPT		Approx. Shipping Wt. (lbs.)
							Top	Bottom	
PT/PTN 279	34-3/4	22-5/8	25-1/4	16-3/4	16-3/4	21	2	1-1/4	122
PT/PTN 333	43-1/4	23-7/8	30	15-3/4	14-3/8	22	2-1/2	1-1/2	176
PT/PTN 385	43-1/4	25-3/4	30	15-3/4	14-3/8	27	2-1/2	1-1/2	184
PT/PTN 500	43-1/4	29	30	20-1/4	14-3/8	27	2-1/2	1-1/2	376
PT/PTN 610	51-1/2	29-5/8	30	20-3/8	21	30	2-1/2	1-1/2	472
PT 952	53-3/4	29-5/8	30	23-1/8	26-7/8	30	3	3	487

PT and PTN models feature the following:



Model PT and PTN

- PT models have copper tubes, PTN models have copper/nickel tubes for high temperature and/or pressure applications.
- High capacity models with powerful, high velocity air delivery.
- All units provided with horizontal air deflector blades.
- Ideal for blanketing large frequently opened doors with heated air.
- Distributes heat over a wide area — can often replace several smaller units.
- All units include an electric junction box for easy electrical connections.
- Baked on grey-green, electrostatically applied polyester powdercoat, environmentally friendly paint.
- All units are listed by the Canadian Standards Association and CRN registered heat exchanger.



Performance Data (60°F Entering Air Temperature)

Model Number	Motor HP	Standard Models							Low-Outlet Temperature Models						
		Steam (2# Steam)		Hot Water (200°F In, 180°F Out)			CFM	Max. Mtg. Height (Ft)	Heat Throw @ Max. Mtg. Height (Ft)	Steam (2# Steam)					
		Btu/Hr	Final Air Temp. (°F)	Btu/Hr	Water Flow (GPM)	Final Air Temp. (°F)				Model Number	Btu/Hr	CFM	Final Air Temp. (°F)	Max. Mtg. Height (Ft)	Heat Throw @ Max. Mtg. Height (Ft)
PT/PTN 279	1/2	279,000	111	192,350	20.0	94	5460	17	106	—	—	—	—	—	
PT/PTN 333	3/4	333,000	116	238,480	24.8	99	5980	18	117	—	—	—	—	—	
PT/PTN 385	1	385,000	110	276,080	28.8	95	7680	18	122	—	—	—	—	—	
PT/PTN 500	1-1/2	500,000	108	357,960	37.3	93	10,390	19	138	—	—	—	—	—	
PT/PTN 610	1-1/2	610,000	112	450,420	46.9	97	11,750	21	149	PT/PTN 610L	470,000	12400	97	22	154
PT 952	2	952,000	139	721,610	75.2	120	12,170	22	154	—	—	—	—	—	

③ Dimensions shown apply to standard 115V/1ph motor (Power Code 01).



Commercial Products Group
 Modine Manufacturing Company
 1500 DeKoven Avenue
 Racine, Wisconsin 53403-2552
 Phone: 1.800.828.4328 (HEAT)
 Fax: 1.800.204.6011