

8'-12'

MODEL SERIES
INSTALLATION HEIGHTS

7'-8'

LPV2

7'-8'

SANITATION, ETL,
LPN2,N2 NH2

8'-10'

STD2

8'-12'

PH

10'-12'

HV2

14'-16'

EP2

12'-16'

WMI, WMH

12'-30'

BD

The most cost-effective environmental & sanitation barrier you'll **never** see



Recess mounted for aesthetic appeal, Perfect for
premium design projects

Phantom Series

commercial/industrial air curtain

PHANTOM INNOVATIONS

- Recess mounted in ceiling for invisible coverage
- Durable aluminum construction w/ powder coated finish
- Easy to install
- Low maintenance and operational costs
- Contributes to LEED points
- Heating Options – Electric, Hot Water, and Steam
- Standard Color – Pearl White
(Special Colors Available - \$\$ adder)

FEATURES IN ALL MARS AIR CURTAINS

- Maintains consistent interior temperature
- Minimizes dirt, dust, and fumes
- Controls flying insects
- Allows for unobstructed views...enhancing safety
- Effective environmental control
- Reduced energy consumption

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Phantom Series commercial/industrial air curtain

8'-12'

Model	Door Width Inches	Door Height Feet	FULL LOAD AMPS/ 1 ϕ		Sound Pressure Level (dBA)	Net Wt. LBS. Unheated
			115V	208V/ 230V		
Phantom 10						
PH10 36	36"	8'-10'	5.1	2.5/2.5	66	60
PH10 42	42"	8'-10'	5.1	2.5/2.5	66	60
PH10 48	48"	8'-10'	5.1	2.5/2.5	66	65
PH10 60-2	60"	8'-10'	10.2	5.0/5.0	68	100
PH10 64-2	64"	8'-10'	10.2	5.0/5.0	68	100
PH10 72-2	72"	8'-10'	10.2	5.0/5.0	68	105
PH10 84-2	84"	8'-10'	10.2	5.0/5.0	68	125
PH10 96-2	96"	8'-10'	10.2	5.0/5.0	68	130
PH10 108-3	108"	8'-10'	15.3	7.5/7.5	71	170
PH10 120-4	120"	8'-10'	20.4	10.0/10.0	73	200
PH10 144-4	144"	8'-10'	20.4	10.0/10.0	73	210
Phantom 12						
PH12 42	42"	10'-12'	9	5.0/5.0	70	90
PH12 48	48"	10'-12'	9	5.0/5.0	70	90
PH12 60-2	60"	10'-12'	9	5.0/5.0	70	95
PH12 72-2	72"	10'-12'	18	10.0/10.0	73	155
PH12 84-2	84"	10'-12'	18	10.0/10.0	73	175
PH12 96-2	96"	10'-12'	18	10.0/10.0	73	180
PH12 108-3	108"	10'-12'	18	10.0/10.0	73	185
PH12 120-4	120"	10'-12'	18	10.0/10.0	73	190
PH12 144-4	144"	10'-12'	36	20.0/20.0	75	270



VALUE ADDED ACCESSORIES

- Switch
- Control Packages
- Control Panels
- Brackets
- Filters
- Colors & Finishes

All accessories have been specifically designed to enhance installation, operations, and performance.

They have been tested and are compatible to work with the appropriate Mars units to ensure that efficiency standards and performance levels are met.

For a comprehensive list of the most commonly specified accessories, please download our full accessory brochure at: marsair.com/accessories

ADDITIONAL INFORMATION

For info on how quickly our units pay for themselves in energy saving, visit:

marsair.com/ROI

For a demonstration of how air curtains work, see our CFD slides at:

marsair.com/CFD

For help selecting the right unit for your application, go to:

marsair.com/configurator

For submittal information, specifications, and manuals, download:

marsair.com/techinfo

For air curtains 101, view:

marsair.com/introvideo



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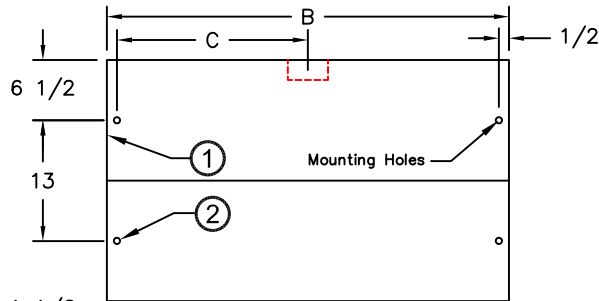
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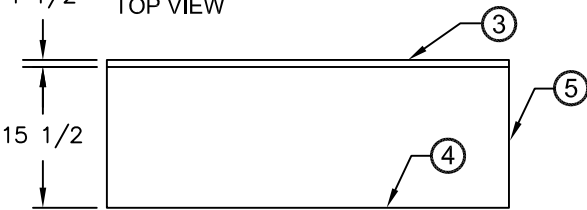
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TITLE			
COMMENTS		DATE 9/24/14	PAGE
		REV. NO	
MODEL NO. PH10 Series	DRAWING NO PH10U-F	DRAWN BY TVN	CHECKED BY
		FILE NAME	

Unheated Drawing

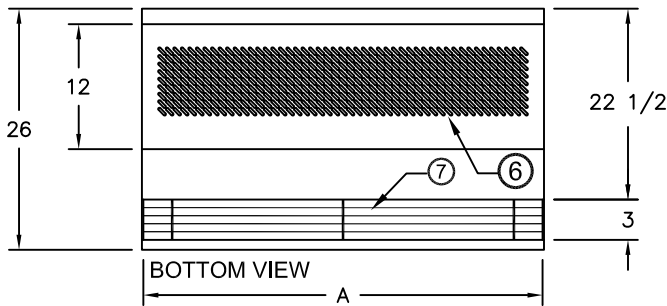
PH10 (Phantom 10) Series



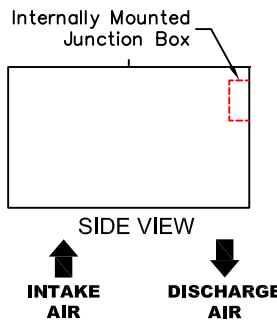
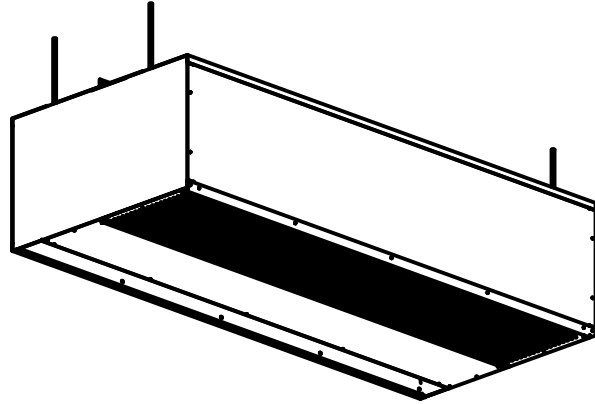
TOP VIEW



FRONT VIEW



BOTTOM VIEW

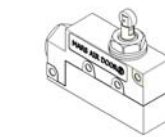


SIDE VIEW



Note: Models PH1060-2, PH1064-2 & PH10120-4 are not AMCA Certified.

9 Recommended Accessories



Door Limit Switches



Control Panels

*- Use corresponding letters in "Electrical Data" columns to complete the model numbers.

Notes:

MODEL NUMBER	NOZZLE WIDTH A (in)	OVERALL LENGTH B (in)	JUNCTION BOX LOCATION C (in)
PH1036-1U*-PW	36	36 1/8	18**
PH1042-1U*-PW	42	42 1/8	21**
PH1048-1U*-PW	48	48 1/8	24**
PH1060-2U*-PW	60	60 1/8	30**
PH1072-2U*-PW	72	72 1/8	36**
PH1084-2U*-PW	84	84 1/4	42**
PH1096-2U*-PW	96	96 1/4	24**
PH10108-3U*-PW	108	108 1/4	18**
PH10120-4U*-PW	120	120 1/4	30**
PH10144-4U*-PW	144	144 1/4	36**

** - Measurements from edge of each unit, when tandem mounted.

- This product is designed to meet the National Electric Code (NEC), is ETL Listed for the US and Canada, AMCA Certified and bear the CE mark.
- (4) 3/8" threaded rod required for overhead installation.
- Cabinet has sufficient strength for fastening to wall on both ends without intermediate support.
- Pearl White trim pieces included to match air curtains and ceilings.
- Tandem mounted units longer than 72" require center support.
- Cleanable polyester filters included as standard. Optional aluminum or throwaway pleated filters available.
- Unit is to be installed such that air flow is unobstructed. Air discharge nozzle containing adjustable air directional vanes with 40° sweep front to back.
- Circuit protection as per NEC by others.
- Optional motor control panel, door limit switch and mounting brackets are field installed and/or wired by others. The door limit switch is to be mounted such that the air curtain turns on as door begins to open. To prevent unit damage, the mounting brackets must be installed such that the bottom of the air curtain is not below the door header.

PH10 (Phantom 10) Series

Unheated

Model Lengths 36" – 144"



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Unheated Data Sheet

Applications: Environmental Separation (up to 10')

PH10 (Phantom 10)	Mechanical Data						AMCA Certified Lab Data					
	Model Number	Nozzle Length (in)	Length (in)	Depth (in)	Height (in)	Motor (hp)	Weight (lbs)	Max Core Velocity at Nozzle (fpm)	Avg Velocity (fpm)	Volume (cfm)	Uniformity (%)	Power Rating (watts)
	PH1036-1U*-PW	36	36	26	17	1/2	60	3950	1947	1460	91	460
	PH1042-1U*-PW	42	42	26	17	1/2	60	4150	1806	1580	89	500
	PH1048-1U*-PW	48	48	26	17	1/2	65	3895	1632	1632	91	520
	PH1060-2U*-PW	60	60	26	17	Two 1/2	100	3750	2217	2771	93	870
	PH1064-2U*-PW	64	64	26	17	Two 1/2	100	3817	2121	2828	92	890
	PH1072-2U*-PW	72	72	26	17	Two 1/2	105	3950	1947	2920	91	920
	PH1084-2U*-PW	84	84	26	17	Two 1/2	125	4150	1806	3160	89	1000
	PH1096-2U*-PW	96	96	26	17	Two 1/2	130	3895	1632	3264	91	1040
	PH10108-3U*-PW	108	108	26	17	Three 1/2	170	3950	1947	4380	91	1380
	PH10120-4U*-PW	120	120	26	17	Four 1/2	200	3750	2217	5541	93	1730
	PH10144-4U*-PW	144	144	26	17	Four 1/2	210	3950	1947	5840	91	1840

* - Use corresponding letters in "Electrical Data" columns to complete the model numbers.

Note: Data above for 1725 RPM at 60 Hz; 50 Hz is 1425 RPM with a 17% reduction in the performance data.

Features:

- ❖ 1/2 HP Continuous Duty TEAO Motors
- ❖ Recessed mounted in ceiling for invisible coverage
- ❖ AMCA Certified to AMCA 211 (see table above for models available)
- ❖ ETL Certified to conform to UL 507 (US) and CSA 22.2 (Canada) Standards
- ❖ Utilized in premium design concepts
- ❖ Durable aluminum construction
- ❖ Cabinet has sufficient strength for fastening to wall on both ends without intermediate support. (Tandem mounted units longer than 72" require center support)
- ❖ Cleanable polyester filters included as standard
- ❖ Adjustable air directional vanes with 40° sweep front to back
- ❖ Standard color is Pearl White
- ❖ Rust preventative electrostatic polyurethane powder coating
- ❖ 5 year parts warranty
- ❖ Freight Included (FOB Continental USA)
- ❖ Proudly Made in the USA

Options and Accessories: (see Accessories Brochure)

- ❖ Motor Control Panels
- ❖ Wall and Overhead Bracket
- ❖ Multi-speed motors and controls
- ❖ Aluminum or throwaway pleated filters
- ❖ Custom colors and finishes (304SS, 316SS)

Sound Levels: (measured at 10' in an open field)

1 Motor Unit = 66 dBA, 2 Motor Unit = 68 dBA, 3 Motor Unit = 71 dBA & 4 Motor Unit = 73 dBA

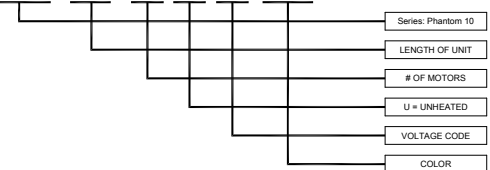
Electrical Data (FLA)	Unit Voltage (Voltage Code)				
	115v (A)	208/230v/1Ø (D)	208/230v/3Ø (G)	460v/3Ø (H)	575v/3Ø (I)
PH1036-1U*-PW	5.1	2.5	1.8/1.6	0.8	0.7
PH1042-1U*-PW	5.1	2.5	1.8/1.6	0.8	0.7
PH1048-1U*-PW	5.1	2.5	1.8/1.6	0.8	0.7
PH1060-2U*-PW	10.2	5.0	3.6/3.2	1.6	1.4
PH1064-2U*-PW	10.2	5.0	3.6/3.2	1.6	1.4
PH1072-2U*-PW	10.2	5.0	3.6/3.2	1.6	1.4
PH1084-2U*-PW	10.2	5.0	3.6/3.2	1.6	1.4
PH1096-2U*-PW	10.2	5.0	3.6/3.2	1.6	1.4
PH10108-3U*-PW	15.3	7.5	5.4/4.8	2.4	2.1
PH10120-4U*-PW	20.4	10.0	7.2/6.4	3.2	2.8
PH10144-4U*-PW	20.4	10.0	7.2/6.4	3.2	2.8

* - Use corresponding letters in "Electrical Data" columns to complete the model numbers.

Note: For Ampacity Multiply FLA X 1.25

EXAMPLE

PH10 72 -2 U A -PW



Model	Projection Velocity	
	Distance from nozzle (in)	Avg. Core Velocity (FPM)
PH1036-1U*-PW	40"	1125
	80"	803
	120"	683



MARS Air Systems, LLC certifies that the Air Curtains shown on this data sheet are licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings Program.

Note: Models PH1060-2 & PH1064-2 & PH10120-4 are not AMCA Certified.
The AMCA Certified Ratings Seal applies to airflow rate, average outlet velocity, outlet velocity uniformity, velocity projection and power rating at free delivery only.



NOTE: MARS AIR SYSTEMS, LLC reserves the right to change specifications and product design without notice. Such revisions do not entitle the buyer to corresponding changes, improvements, additions or replacements for previously purchased equipment.



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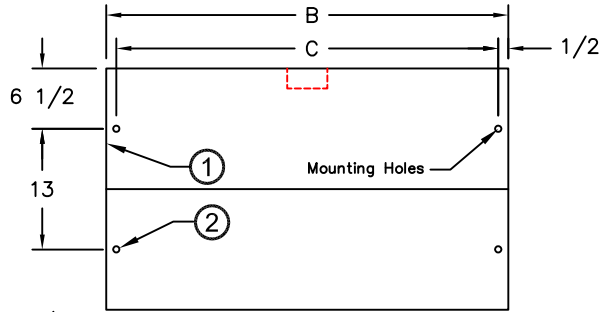
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PROJECT		OPTIONS/ITEMS	
TITLE			
COMMENTS		DATE 4/17/15	PAGE
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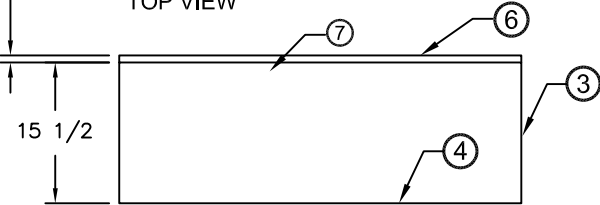
Electric Heated Drawing

PH10

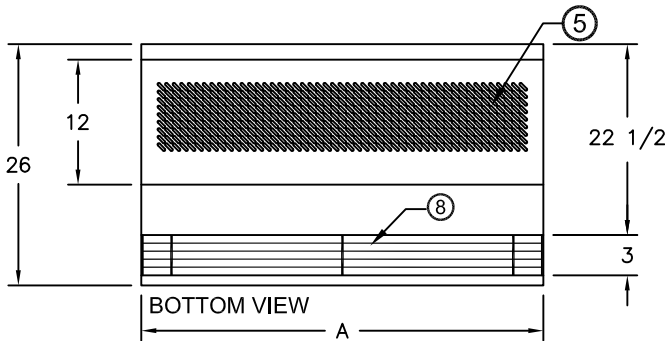
(Phantom 10 Series)



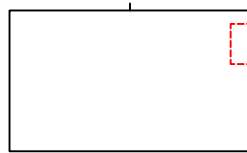
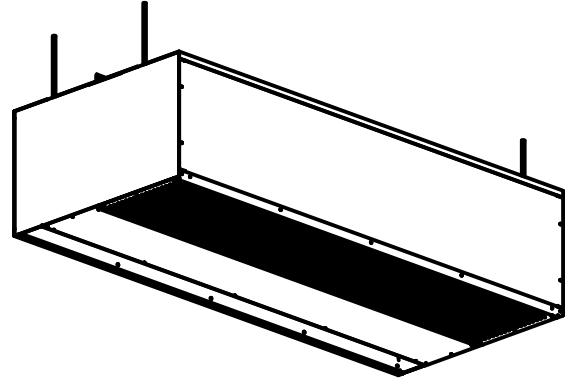
TOP VIEW



FRONT VIEW



BOTTOM VIEW



SIDE VIEW

↑
INTAKE AIR

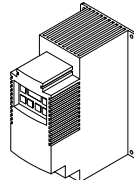
↓
DISCHARGE AIR



Remote Thermostat

⑨

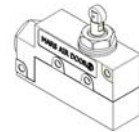
Recommended Accessories ⑪



Variable Frequency Drive



Remote Control Panel



Door Limit Switches



*- Use corresponding letters in "Voltage Code" then "Wattage Code" columns to complete the model numbers.

Note: MARS reserves the right to change specifications and product design without notice. Such revisions do not entitle the buyer to corresponding changes, improvements additions or replacements for previously purchased equipment.

Notes:

- This product is designed to meet the National Electric Code (NEC) and is ETL listed for the US and Canada (UL 1995 and CSA 22.2).
- (4) 3/8" threaded rod required for overhead installation.
- All units have a self contained one piece cabinet, fire retardant with brushed aluminum housing. The exposed bottom surface is protected with baked on Pearl White color, rust preventative electrostatic polyurethane powder coating.
- Pearl White trim pieces included to match air curtains and ceilings.
- Cleanable polyester filters included as standard. Optional aluminum or throwaway pleated filters available.
- Cabinet has sufficient strength for fastening to wall on both ends without intermediate support. Tandem mounted units longer than 72" require center support.
- Control panel is pre-wired and pre-mounted inside the cabinet. Optional remote mounted available.
- Unit is to be installed such that air flow is unobstructed. Unit has a 3" air discharge nozzle containing adjustable air directional vanes with 40° sweep front to back.
- Wall mounted 24 volt thermostat with remote "heat/off/fan" switch is shipped loose and field installed. Terminal block provided inside control panel.
- Circuit protection as per NEC by others.
- Optional remote control panel, door limit switch and mounting brackets are field installed and/or wired by others. The door limit switch is to be mounted such that the air curtain turns on as door begins to open. To prevent unit damage, the mounting brackets must be installed such that the bottom of the air curtain is not below the door header.

MODEL NUMBER	NOZZLE WIDTH A (in)	OVERALL LENGTH B (in)	MOUNTING CENTER C (in)
PH1036-1E**-PW	36	36 1/8	35 1/8
PH1042-1E**-PW	42	42 1/8	41 1/8
PH1048-1E**-PW	48	48 1/8	47 1/8
PH1060-2E**-PW	60	60 1/8	59 1/8
PH1072-2E**-PW	72	72 1/8	71 1/8
PH1084-2E**-PW	84	84 1/4	83 1/4
PH1096-2E**-PW	96	96 1/4	95 1/4
PH10108-3E**-PW	108	108 1/4	107 1/4
PH10120-4E**-PW	120	120 1/4	119 1/4
PH10144-4E**-PW	144	144 1/4	143 1/4

PH10 (Phantom 10) Series

Electric Heated

Model Lengths 36" – 144"



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Electric Heated Data Sheet

Applications: Environmental Separation (up to 10')

PH10 (Phantom 10)	Mechanical Data						Lab Data					
	Model Number	Nozzle Length (in)	Length (in)	Depth (in)	Height (in)	Motor (hp)	Weight (lbs)	Max Core Velocity at Nozzle (fpm)	Avg Velocity (fpm)	Volume (cfm)	Uniformity (%)	Power Rating (watts)
PH1036-1E**-PW	36	36	26	17	1/2	65	3950	1947	1460	91	460	
PH1042-1E**-PW	42	42	26	17	1/2	70	4150	1806	1580	89	500	
PH1048-1E**-PW	48	48	26	17	1/2	75	3895	1632	1632	91	520	
PH1060-2E**-PW	60	60	26	17	Two 1/2	115	3750	2217	2771	93	870	
PH1072-2E**-PW	72	72	26	17	Two 1/2	120	3950	1947	2920	91	920	
PH1084-2E**-PW	84	84	26	17	Two 1/2	140	4150	1806	3160	89	1000	
PH1096-2E**-PW	96	96	26	17	Two 1/2	145	3895	1632	3264	91	1040	
PH10108-3E**-PW	108	108	26	17	Three 1/2	195	3950	1947	4380	91	1380	
PH10120-4E**-PW	120	120	26	17	Four 1/2	230	3750	2217	5541	93	1730	
PH10144-4E**-PW	144	144	26	17	Four 1/2	260	3950	1947	5840	91	1840	

* - Use corresponding letters in "Voltage Code" & Wattage Code" to complete the model numbers.

Note: Data above for 1725 RPM at 60 Hz, 50 Hz is 1425 RPM with a 17% reduction in the performance data.

Features:

Air Curtain

- ❖ 1/2 HP Continuous Duty TEAO Motors
- ❖ Recessed mounted in ceiling for invisible coverage
- ❖ ETL Certified to conform to UL 2021 (US) and CSA 22.2 (Canada) Standards
- ❖ (4) 3/8" top mounting holes provided
- ❖ Utilized in premium design concepts
- ❖ Durable aluminum construction
- ❖ Cabinet has sufficient strength for fastening to wall on both ends without intermediate support. (Tandem mounted units longer than 72" require center support)
- ❖ Cleanable polyester filters included as standard
- ❖ Adjustable air directional vanes with 40° sweep front to back
- ❖ Standard color is Pearl White
- ❖ Rust preventative electrostatic polyurethane powder coating
- ❖ 18 month parts warranty
- ❖ Freight Included (FOB Continental USA)
- ❖ Proudly Made in the USA

Electric Heater Coil and Wiring

- ❖ Coils are an open type for rapid temperature rise to be located in the air curtain's intake directly in the air stream
- ❖ Manual reset thermal overload protection provided
- ❖ Controls internally mounted, prewired ready for power connection and accessible through the bottom intake or top access panels
- ❖ A heat/off/fan switch is unit mounted at the bottom and the control voltage is 24 volts
- ❖ A wall mounted 24 volt thermostat is included (field wired and installed by others)

Options and Accessories: (see Accessories Brochure)

- ❖ Remote mounted control panel
- ❖ Adjustable time delay (1 sec to 17 min)
- ❖ Remote mounted fused or non-fused disconnects
- ❖ Hi-Lo Heat
- ❖ Heat on Demand
- ❖ Master + Slave Control Kit
- ❖ 2 speed controls
- ❖ Wall and Overhead Bracket
- ❖ 1/4" and 1" Aluminum Mesh Filters
- ❖ Custom colors and finishes (304SS, 316SS)

Sound Levels: (measured at 10' in an open field)

1 Motor Unit = 66 dBA, 2 Motor Unit = 68 dBA, 3 Motor Unit = 71 dBA & 4 Motor Unit = 73 dBA

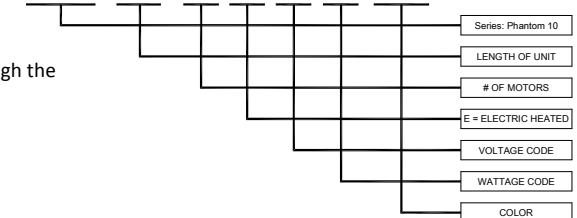
Electrical Data	Single Phase						Three Phase							
	Unit Voltage (Voltage Code)		Heater kilowatts (Wattage Code)			Temp Rise	Unit Voltage (Voltage Code)				Heater kilowatts (Wattage Code)		Temp Rise	
	208v/1Ø (B)	230v/1Ø (C)	(B)	(H)	(K)	°F	208v/3Ø (E)	230v/3Ø (F)	460v/3Ø (H)	575v/3Ø (I)	(H)	(N)	(S)	°F
PH1036-1E**-PW	31.0	29.0	6	-	-	14	36.0	33.0	16.0	13.0	12	-	-	27
PH1042-1E**-PW	31.0	29.0	6	-	-	13	36.0	33.0	16.0	13.0	12	-	-	27
PH1048-1E**-PW	31.0	29.0	6	-	-	13	36.0	33.0	16.0	13.0	12	-	-	26
PH1060-2E**-PW	63.0	57.0	-	12	-	14	72.0	65.0	31.0	25.0	-	24	-	28
PH1072-2E**-PW	63.0	57.0	-	12	-	14	72.0	65.0	31.0	25.0	-	24	-	27
PH1084-2E**-PW	63.0	57.0	-	12	-	13	72.0	65.0	31.0	25.0	-	24	-	27
PH1096-2E**-PW	63.0	57.0	-	12	-	13	72.0	65.0	31.0	25.0	-	24	-	27
PH10108-3E**-PW	94.0	86.0	-	-	18	14	107.0	98.0	47.0	37.0	-	-	36	26
PH10120-4E**-PW	94.0	86.0	-	-	18	13	107.0	98.0	47.0	37.0	-	-	36	26
PH10144-4E**-PW	94.0	86.0	-	-	18	13	107.0	98.0	47.0	37.0	-	-	36	26

* - Use corresponding letters in "Voltage Code and Wattage Code" to complete the model numbers.

Note: For Ampacity Multiply FLAX 1.25

EXAMPLE

PH10 72 - 2 E H N -PW



NOTE: MARS AIR SYSTEMS, LLC reserves the right to change specifications and product design without notice. Such revisions do not entitle the buyer to corresponding changes, improvements, additions or replacements for previously purchased equipment.



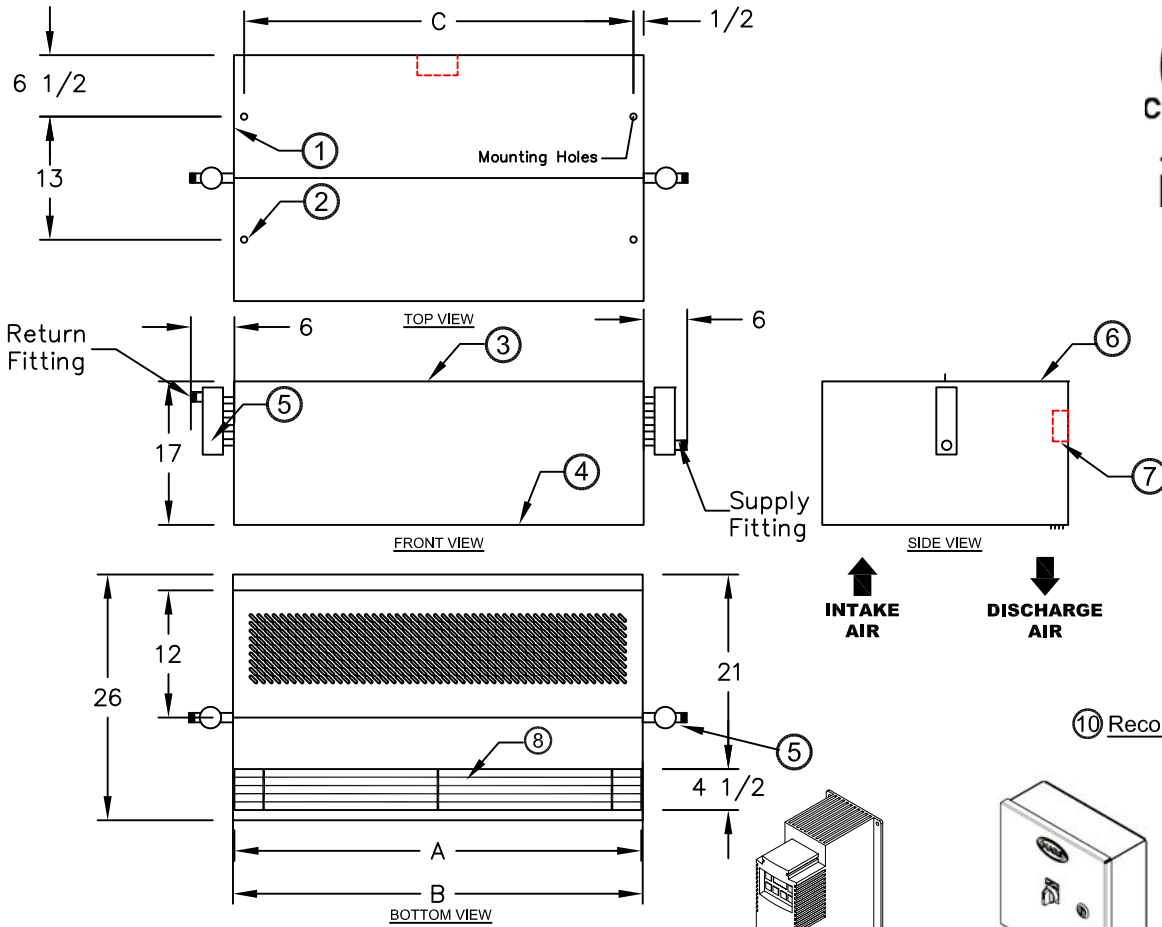
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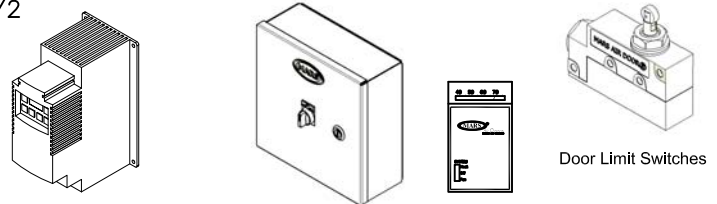
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Hot Water/Steam Heated Drawing

PH10 (Phantom 10 Series)



10 Recommended Accessories



Notes: Variable Frequency Drive Control Panels with Remote T'stat 9

*- Use corresponding letters in "Coil Data" then "Electrical Data" columns to complete the model numbers.

MODEL NUMBER	NOZZLE WIDTH A (in)	AIR CURTAIN LENGTH B (in)	MOUNTING CENTER C (in)	CONN. DIA. (in)
PH1036-1**-PW	36	36 1/8	35 1/8	1 1/2 MPT
PH1042-1**-PW	42	42 1/8	41 1/8	1 1/2 MPT
PH1048-1**-PW	48	48 1/8	47 1/8	1 1/2 MPT
PH1060-2**-PW	60	60 1/8	59 1/8	1 1/2 MPT
PH1072-2**-PW	72	72 1/8	71 1/8	1 1/2 MPT
PH1084-2**-PW	84	84 1/4	83 1/4	1 1/2 MPT
PH1096-2**-PW	96	96 1/4	95 1/4	1 1/2 MPT
PH10120-4**-PW	120	120 1/4	119 1/4	1 1/2 MPT

- This product is designed to meet the National Electric Code (NEC) and is ETL listed for the US and Canada (UL 1995 and CSA 22.2).
- (4) 3/8" mounting holes for overhead mounting provided, (2) on each end. Units greater than 72" are multiple units joined with top mounting bracket that has (2) additional mounting holes.
- All units have a self contained one piece cabinet, fire retardant and corrosion proof paint lock metal double protected with baked on white color, rust preventative electrostatic polyurethane powder coating.
- Trim pieces included to match air curtains and ceilings.
- Hot Water application shown. For Steam, return fitting is at bottom of manifold and supply is at center of manifold.
- Cabinet is to be mounted from overhead and has sufficient strength for suspension from both ends without intermediate support. Units greater than 72" needs (2) additional threaded rods at center.
- J-Box(es) for electrical wiring are provided.
- Unit is to be installed such that air flow is unobstructed. Unit has a 4 1/2" air discharge nozzle containing adjustable air directional vanes with 40° sweep front to back.
- Circuit protection as per NEC by others.
- Optional motor control panel, door limit switch and mounting brackets are field installed and/or wired by others. The door limit switch is to be mounted such that the air curtain turns on as door begins to open. To prevent unit damage, the mounting brackets must be installed such that the bottom of the air curtain is not below the door header.

PH10 (Phantom 10) Series

Hot Water/Steam Heated

Model Lengths 36" – 120"



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Hot Water/Steam Heated Data Sheet

Applications: Environmental Separation (up to 10')

PH10 (Phantom 10)	Mechanical Data						Lab Data				
	Model Number	Nozzle Length (in)	Length (in)	Depth (in)	Height (in)	Motor (hp)	Weight (lbs)	Max Core Velocity at Nozzle (fpm)	Avg Velocity (fpm)	Volume (cfm)	Uniformity (%)
PH1036-1**-PW	36	48	26	17	1/2	76	3950	1947	1460	91	460
PH1042-1**-PW	42	54	26	17	1/2	82	4150	1806	1580	89	500
PH1048-1**-PW	48	60	26	17	1/2	88	3895	1632	1632	91	520
PH1060-2**-PW	60	72	26	17	Two 1/2	130	3750	2217	2771	93	870
PH1072-2**-PW	72	84	26	17	Two 1/2	138	3950	1947	2920	91	920
PH1084-2**-PW	84	96	26	17	Two 1/2	160	4150	1806	3160	89	1000
PH1096-2**-PW	96	108	26	17	Two 1/2	171	3895	1632	3264	91	1040
PH10120-4**-PW	120	132	26	17	Four 1/2	250	3750	2217	5541	93	1730

* - Use corresponding letters in "Coil Data" then "Electrical Data" columns to complete the model numbers.

Note: Data above for 1725 RPM at 60 Hz, 50 Hz is 1425 RPM with a 17% reduction in the performance data.

Features:

- Air Curtain
- 1/2 HP Continuous Duty TEAO Motors
- Recessed mounted in ceiling for invisible coverage
- ETL Certified to conform to UL 1995 (US) and CSA 22.2 (Canada) Standards
- (4) 3/8" top mounting holes provided
- Utilized in premium design concepts
- Durable aluminum construction
- Cabinet has sufficient strength for fastening to wall on both ends without intermediate support. (Tandem mounted units longer than 72" require center support)
- Cleanable polyester filters included as standard
- Adjustable air directional vanes with 40° sweep front to back
- Standard color is Pearl White
- Rust preventative electrostatic polyurethane powder coating
- 1 year parts warranty
- Freight Included (FOB Continental USA)
- Proudly Made in the USA

Hot Water and Steam Coils

- Coil casings shall not be less than 16 gauge galvanized steel with tube holes formed with extruded collars.
- Fins are die formed .006" aluminum (1 row – 10 FPI, 2 row – 8 FPI)
- Coils tubes constructed of heavy wall, 5/8" OD seamless copper (Steam - .035" & Hot Water - .025")
- Coil tubes arranged in a staggered pattern and mechanically expanded into fins to ensure a uniform pressure bond
- Manifolds shall be of heavy seamless copper construction
- All joints shall be brazed with high temperature silver brazing alloy (Steam – 7% & Hot Water – 3%), max steam operating pressure: 30 PSI
- Fittings shall be of wrought copper or similar construction such that the entire fluid circuit shall be of compatible nonferrous materials.
- Manifold shall be fitted with 1/4" vent or drain fittings
- Supply fitting is on the right side of coil. Return fitting is on the left side

Options and Accessories: (see Accessories Brochure)

- Motor Control Panels with remote mounted t'stat
- Steam distribution, Cupro Nickel and CRN coils
- Rust resistant epoxy coated or SS coils
- Custom housing colors and finishes (304SS, 316SS, Aluminum)

Sound Levels: (measured at 10' in an open field)

1 Motor Unit = 66 dBA, 2 Motor Unit = 68 dBA, 3 Motor Unit = 71 dBA, 4 Motor Unit = 73 dBA

NOTE: MARS AIR SYSTEMS, LLC reserves the right to change specifications and product design without notice. Such revisions do not entitle the buyer to corresponding changes, improvements, additions or replacements for previously purchased equipment.

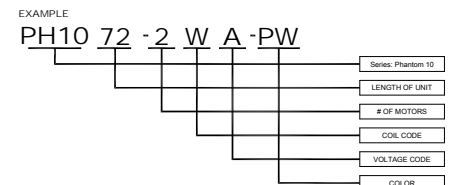
Coil Data	Hot Water			Steam		
	Coil Code (W)	MBH	Temp Rise (°F)	Coil Code (Y)	MBH	Temp Rise (°F)
PH1036-1**-PW	1 Row	33.0	21	1 Row	46.8	30
PH1042-1**-PW	1 Row	36.6	21	1 Row	51.6	30
PH1048-1**-PW	1 Row	38.4	22	1 Row	55.8	32
PH1060-2**-PW	1 Row	48.0	16	1 Row	90.6	30
PH1072-2**-PW	1 Row	54.6	17	1 Row	95.4	30
PH1084-2**-PW	1 Row	73.2	21	1 Row	103.2	30
PH1096-2**-PW	1 Row	76.8	22	1 Row	111.6	32
PH10120-4**-PW	1 Row	144.0	24	1 Row	181.2	30

EAT: 70 F, EWT: 200 F, Flow rate: 5-15 GPM, Steam pressure: 5 PSI

Electrical Data (FLA)	Unit Voltage (Voltage Code)				
	115v (A)	208/230v (D)	208/230v (G)	460v (H)	575v (I)
PH1036-1**-PW	5.1	2.5	1.8/1.6	0.8	0.7
PH1042-1**-PW	5.1	2.5	1.8/1.6	0.8	0.7
PH1048-1**-PW	5.1	2.5	1.8/1.6	0.8	0.7
PH1060-2**-PW	10.2	5.0	3.6/3.2	1.6	1.4
PH1072-2**-PW	10.2	5.0	3.6/3.2	1.6	1.4
PH1084-2**-PW	10.2	5.0	3.6/3.2	1.6	1.4
PH1096-2**-PW	10.2	5.0	3.6/3.2	1.6	1.4
PH10120-4**-PW	20.4	10.0	7.2/6.4	3.2	2.8

* - Use corresponding letters in "Coil Data" then "Electrical Data" columns to complete the model numbers.

Note: For Ampacity Multiply FLA X 1.25





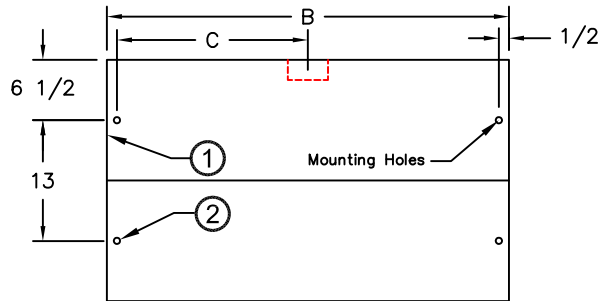
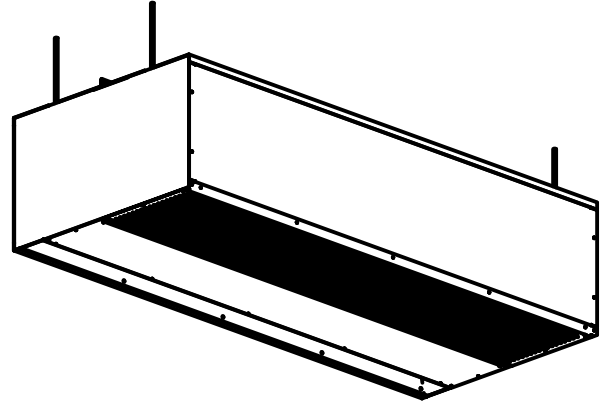
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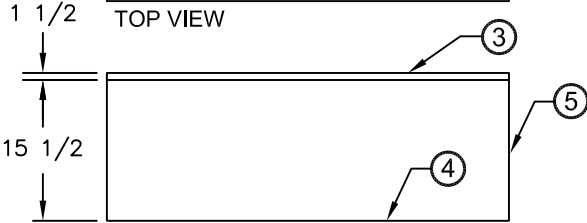
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Unheated Drawing

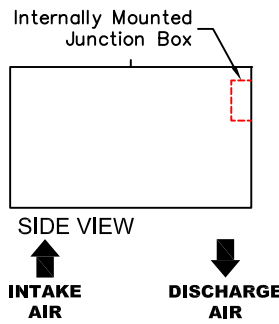
PH12 (Phantom 12) Series



TOP VIEW

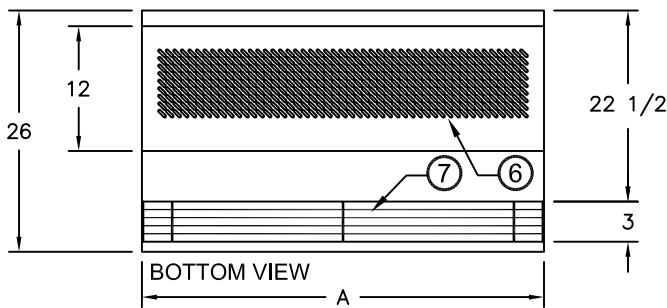


FRONT VIEW



SIDE VIEW

↑ INTAKE AIR
 ↓ DISCHARGE AIR



BOTTOM VIEW



Note: Models PH1260-1 & PH12120-2 are not AMCA Certified.

⑨ Recommended Accessories



Door Limit Switches



Control Panels

*- Use corresponding letters in "Electrical Data" columns to complete the model numbers.

Notes:

1. This product is designed to meet the National Electric Code (NEC) and is ETL Listed for the US and Canada, AMCA Certified and bear the CE mark.
2. (4) 3/8" threaded rod required for overhead installation.
3. Cabinet has sufficient strength for fastening to wall on both ends without intermediate support.
4. Pearl White trim pieces included to match air curtains and ceilings.
5. Tandem mounted units longer than 72" require center support.
6. Cleanable polyester filters included as standard. Optional aluminum or throwaway pleated filters available.
7. Unit is to be installed such that air flow is unobstructed. Air discharge nozzle containing adjustable air directional vanes with 40° sweep front to back.
8. Circuit protection as per NEC by others.
9. Optional motor control panel, door limit switch and mounting brackets are field installed and/or wired by others. The door limit switch is to be mounted such that the air curtain turns on as door begins to open. To prevent unit damage, the mounting brackets must be installed such that the bottom of the air curtain is not below the door header.

MODEL NUMBER	NOZZLE WIDTH A (in)	OVERALL LENGTH B (in)	JUNCTION BOX LOCATION C (in)
PH1242-1U*-PW	42	42 1/8	21**
PH1248-1U*-PW	48	48 1/8	24**
PH1260-1U*-PW	60	60 1/8	30**
PH1272-2U*-PW	72	72 1/8	36**
PH1284-2U*-PW	84	84 1/4	42**
PH1296-2U*-PW	96	96 1/4	24**
PH12120-2U*-PW	120	120 1/4	30**
PH12144-4U*-PW	144	144 1/4	36**

** - Measurements from edge of each unit, when tandem mounted.

PH12 (Phantom 12) Series

Unheated

Model Lengths 42" – 144"



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Unheated Data Sheet

Applications: Environmental Separation (up to 12')

PH12 (Phantom 12)	Mechanical Data						AMCA Certified Lab Data					
	Model Number	Nozzle Length (in)	Length (in)	Depth (in)	Height (in)	Motor (hp)	Weight (lbs)	Max Core Velocity at Nozzle (fpm)	Avg Velocity (fpm)	Volume (cfm)	Uniformity (%)	Power Rating (watts)
	PH1242-1U*-PW	42	42	26	17	1	90	6300	2824	2471	90	1260
	PH1248-1U*-PW	48	48	26	17	1	90	6450	2534	2534	89	1345
	PH1260-1U*-PW	60	60	26	17	Two 1	95	6866	2207	2759	86	1535
	PH1272-2U*-PW	72	72	26	17	Two 1	155	6050	3097	4646	93	2316
	PH1284-2U*-PW	84	84	26	17	Two 1	175	6300	2824	4942	90	2520
	PH1296-2U*-PW	96	96	26	17	Two 1	180	6300	2534	5068	89	2690
	PH12108-3U*-PW	108	108	26	17	Three 1	225	6050	3097	6969	93	3474
	PH12120-2U*-PW	120	120	26	17	Two 1	270	6866	2207	5518	86	3070
	PH12144-4U*-PW	144	144	26	17	Four 1	310	6050	3097	9292	93	4632

* - Use corresponding letters in "Electrical Data" columns to complete the model numbers.

Note: Data above for 1725 RPM at 60 Hz, 50 Hz is 1425 RPM with a 17% reduction in the performance data.

Features:

- ❖ 1 HP Continuous Duty TEAO Motors
- ❖ Recessed mounted in ceiling for invisible coverage
- ❖ AMCA Certified to AMCA 211 Standards (see table above for models available)
- ❖ ETL Certified to conform to UL 507 (US) and CSA 22.2 (Canada) Standards
- ❖ Utilized in premium design concepts
- ❖ Durable aluminum construction
- ❖ Cabinet has sufficient strength for fastening to wall on both ends without intermediate support. (Tandem mounted units longer than 72" require center support)
- ❖ Cleanable polyester filters included as standard
- ❖ Adjustable air directional vanes with 40° sweep front to back
- ❖ Standard color is Pearl White
- ❖ Rust preventative electrostatic polyurethane powder coating
- ❖ 5 year parts warranty
- ❖ Freight Included (FOB Continental USA)
- ❖ Proudly Made in the USA

Options and Accessories: (see Accessories Brochure)

- ❖ Motor Control Panels
- ❖ Multi-speed motors and controls
- ❖ Aluminum or throwaway pleated filters
- ❖ Custom colors and finishes (304SS, 316SS)

Sound Levels: (measured at 10' in an open field)

1 Motor Unit = 70 dBA, 2 Motor Unit = 73 dBA, 3 & 4 Motor Unit = 75 dBA

Projection Velocity		
Model	Distance from nozzle (in)	Avg. Core Velocity (FPM)
PH1236-1U*-PW	40"	1947
	80"	1356
	120"	1172
	160"	1050



MARS Air Systems, LLC certifies that the Air Curtains shown on this data sheet are licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings Program.

Note: Models PH1260-1 & PH12120-2 are not AMCA Certified. The AMCA Certified Ratings Seal applies to airflow rate, average outlet velocity, outlet velocity uniformity, velocity projection and power rating at free delivery only.

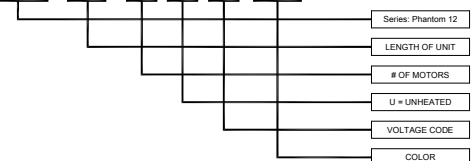
Electrical Data (FLA)	Unit Voltage (Voltage Code)				
	115v (A)	208/230v (D)	208/230v (G)	460v (H)	575v/3Ø (I)
PH1242-1U*-PW	9.0	5.0	3.3/3.2	1.6	1.3
PH1248-1U*-PW	9.0	5.0	3.3/3.2	1.6	1.3
PH1260-1U*-PW	9.0	5.0	3.3/3.2	1.6	1.3
PH1272-2U*-PW	18.0	10.0	6.6/6.4	3.2	2.6
PH1284-2U*-PW	18.0	10.0	6.6/6.4	3.2	2.6
PH1296-2U*-PW	18.0	10.0	6.6/6.4	3.2	2.6
PH12108-3U*-PW	27.0	15.0	9.9/9.6	4.8	3.9
PH12120-2U*-PW	18.0	10.0	6.6/6.4	3.2	2.6
PH12144-4U*-PW	36.0	20.0	13.2/12.8	6.4	5.2

* - Use corresponding letters in "Electrical Data" columns to complete the model numbers.

Note: For Ampacity Multiply FLA X 1.25

EXAMPLE

PH12 72 -2 U H -PW



NOTE: MARS AIR SYSTEMS, LLC reserves the right to change specifications and product design without notice. Such revisions do not entitle the buyer to corresponding changes, improvements, additions or replacements for previously purchased equipment.



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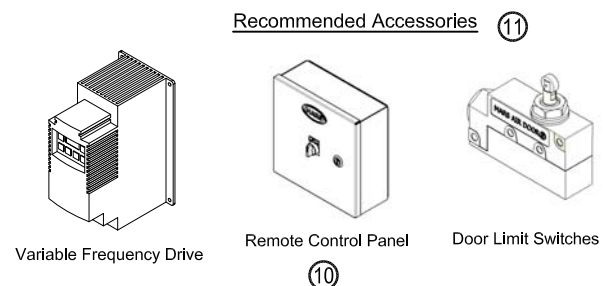
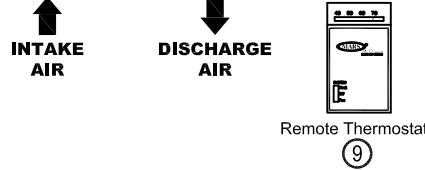
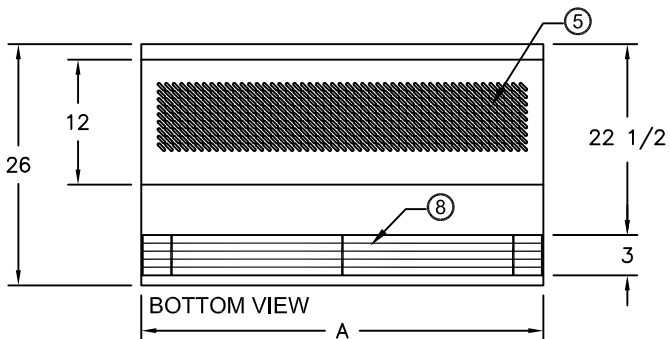
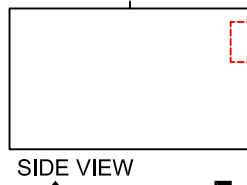
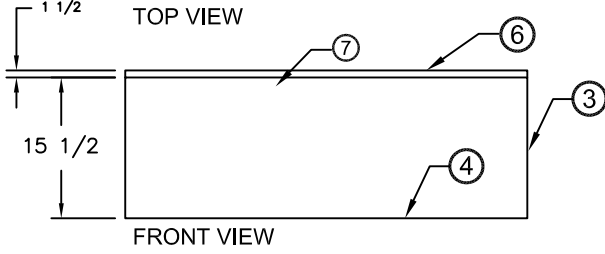
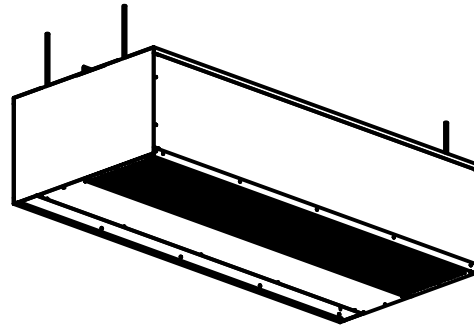
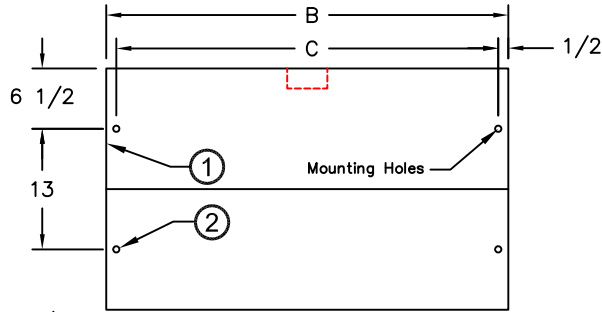
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COMMENTS		DATE 4/17/15	PAGE
		REV. NO	
MODEL NO. PH12 Series	DRAWING NO PH12ELC-F	DRAWN BY TVN	CHECKED BY
		FILE NAME	

Electric Heated Drawing

PH12

(Phantom 12 Series)



*- Use corresponding letters in "Voltage Code" then "Wattage Code" columns to complete the model numbers.

Note: MARS reserves the right to change specifications and product design without notice. Such revisions do not entitle the buyer to corresponding changes, improvements additions or replacements for previously purchased equipment.

Notes:

- This product is designed to meet the National Electric Code (NEC) and is ETL listed for the US and Canada (UL 1995 and CSA 22.2).
- (4) 3/8" threaded rod required for overhead installation.
- All units have a self contained one piece cabinet, fire retardant with brushed aluminum housing. The exposed bottom surface is protected with baked on Pearl White color, rust preventative electrostatic polyurethane powder coating.
- Pearl White trim pieces included to match air curtains and ceilings.
- Cleanable polyester filters included as standard. Optional aluminum or throwaway pleated filters available.
- Cabinet has sufficient strength for fastening to wall on both ends without intermediate support. Tandem mounted units longer than 72" require center support.
- Control panel is pre-wired and pre-mounted inside the cabinet. Optional remote mounted available.
- Unit is to be installed such that air flow is unobstructed. Unit has a 3" air discharge nozzle containing adjustable air directional vanes with 40° sweep front to back.
- Wall mounted 24 volt thermostat with remote "heat/off/fan" switch is shipped loose and field installed. Terminal block provided inside control panel.
- Circuit protection as per NEC by others.
- Optional remote control panel, door limit switch and mounting brackets are field installed and/or wired by others. The door limit switch is to be mounted such that the air curtain turns on as door begins to open. To prevent unit damage, the mounting brackets must be installed such that the bottom of the air curtain is not below the door header.

MODEL NUMBER	NOZZLE WIDTH A (in)	OVERALL LENGTH B (in)	MOUNTING CENTER C (in)
PH1242-1E**-PW	42	42 1/8	41 1/8
PH1248-1E**-PW	48	48 1/8	47 1/8
PH1260-1E**-PW	60	60 1/8	59 1/8
PH1272-2E**-PW	72	72 1/8	71 1/8
PH1284-2E**-PW	84	84 1/4	83 1/4
PH1296-2E**-PW	96	96 1/4	95 1/4
PH12108-3E**-PW	108	108 1/4	107 1/4

PH12 (Phantom 12) Series

Electric Heated

Model Lengths 36" – 144"



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Electric Heated Data Sheet

Applications: Environmental Separation (up to 12')

PH12 (Phantom 12)	Mechanical Data						Lab Data				
Model Number	Nozzle Length (in)	Length (in)	Depth (in)	Height (in)	Motor (hp)	Weight (lbs)	Max Core Velocity at Nozzle (fpm)	Avg Velocity (fpm)	Volume (cfm)	Uniformity (%)	Power Rating (watts)
PH1248-1E**-PW	48	48	26	17	1	100	6450	2534	2534	89	1345
PH1260-1E**-PW	60	60	26	17	Two 1	105	6866	2207	2759	86	1535
PH1272-2E**-PW	72	72	26	17	Two 1	170	6050	3097	4646	93	2316
PH1284-2E**-PW	84	84	26	17	Two 1	190	6300	2824	4942	90	2520
PH1296-2E**-PW	96	96	26	17	Two 1	195	6300	2534	5068	89	2690
PH12120-2E**-PW	120	120	26	17	Two 1	210	6866	2207	5518	86	3070
PH12144-4E**-PW	144	144	26	17	Four 1	340	6050	3097	9292	93	4632

* - Use corresponding letters in "Electrical Data" & "Heater Wattage Data" columns to complete the model numbers.

Note: Data above for 1725 RPM at 60 Hz, 50 Hz is 1425 RPM with a 17% reduction in the performance data.

Features:

Air Curtain

- ❖ 1 HP Continuous Duty TEAO Motors
- ❖ Recessed mounted in ceiling for invisible coverage
- ❖ ETL Certified to conform to UL 2021 (US) and CSA 2.2 (Canada) Standards
- ❖ (4) 3/8" top mounting holes provided
- ❖ Utilized in premium design concepts
- ❖ Durable aluminum construction
- ❖ Cabinet has sufficient strength for fastening to wall on both ends without intermediate support. (Tandem mounted units longer than 72" require center support)
- ❖ Cleanable polyester filters included as standard
- ❖ Adjustable air directional vanes with 40° sweep front to back
- ❖ Standard color is Pearl White
- ❖ Rust preventative electrostatic polyurethane powder coating
- ❖ 18 month parts warranty
- ❖ Freight Included (FOB Continental USA)
- ❖ Proudly Made in the USA

Electric Heater Coil and Wiring

- ❖ Coils are an open type for rapid temperature rise to be located in the air curtain's intake directly in the air stream
- ❖ Manual reset thermal overload protection provided
- ❖ Controls internally mounted, prewired ready for power connection and accessible through the bottom intake or top access panels
- ❖ A heat/off/fan switch is unit mounted at the bottom and the control voltage is 24 volts
- ❖ A wall mounted 24 volt thermostat is included (field wired and installed by others)

Options and Accessories: (see Accessories Brochure)

- ❖ Remote mounted control panel
- ❖ Adjustable time delay (1 sec to 17 min)
- ❖ Remote mounted fused or non-fused disconnects
- ❖ Hi-Lo Heat
- ❖ Heat on Demand
- ❖ Master + Slave Control Kit
- ❖ 2 speed controls
- ❖ Wall and Overhead Bracket
- ❖ 1/4" and 1" Aluminum Mesh Filters
- ❖ Custom colors and finishes (304SS, 316SS)

Sound Levels: (measured at 10' in an open field)

1 Motor Unit = 70 dBA, 2 Motor Unit = 73 dBA, 3 Motor Unit = 75 dBA & 4 Motor Unit = 77 dBA

NOTE: MARS AIR SYSTEMS, LLC reserves the right to change specifications and product design without notice. Such revisions do not entitle the buyer to corresponding changes, improvements, additions or replacements for previously purchased equipment.

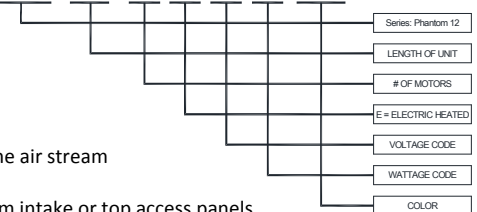
Electrical Data (FLA)	Single Phase						Temp Rise °F	Three Phase						Temp Rise °F		
	Unit Voltage (Voltage Code)		Heater kilowatts (Wattage Code)					Unit Voltage (Voltage Code)				Heater kilowatts (Wattage Code)				
	208v/1Ø (B)	230v/1Ø (C)	6 kW (B)	12 kW (H)	18 kW (K)	36 kW (K)		208v/3Ø (E)	230v/3Ø (F)	460v/3Ø (H)	575v/3Ø (I)	12 kW (H)	24 kW (N)		36 kW (S)	48 kW (S)
PH1248-1E**-PW	32	29	6	-	-	-	7	37	33	17	13	12	-	-	-	15
PH1260-1E**-PW	32	29	6	-	-	-	7	37	33	17	13	12	-	-	-	14
PH1272-2E**-PW	64	59	-	12	-	-	8	73	67	33	25	-	24	-	-	16
PH1284-2E**-PW	64	59	-	12	-	-	8	73	67	33	25	-	24	-	-	15
PH1296-2E**-PW	64	59	-	12	-	-	7	73	67	33	25	-	24	-	-	15
PH12120-2E**-PW	64	59	-	12	-	-	7	73	67	33	25	-	24	-	-	14
PH12144-4E**-PW	128	118	-	-	-	24	8	146	134	66	49	-	-	-	48	16

* - Use corresponding letters in "Electrical Data" columns to complete the model numbers.

Note: For Ampacity Multiply FLA X 1.25

EXAMPLE

PH12 72 -2 E H N -PW





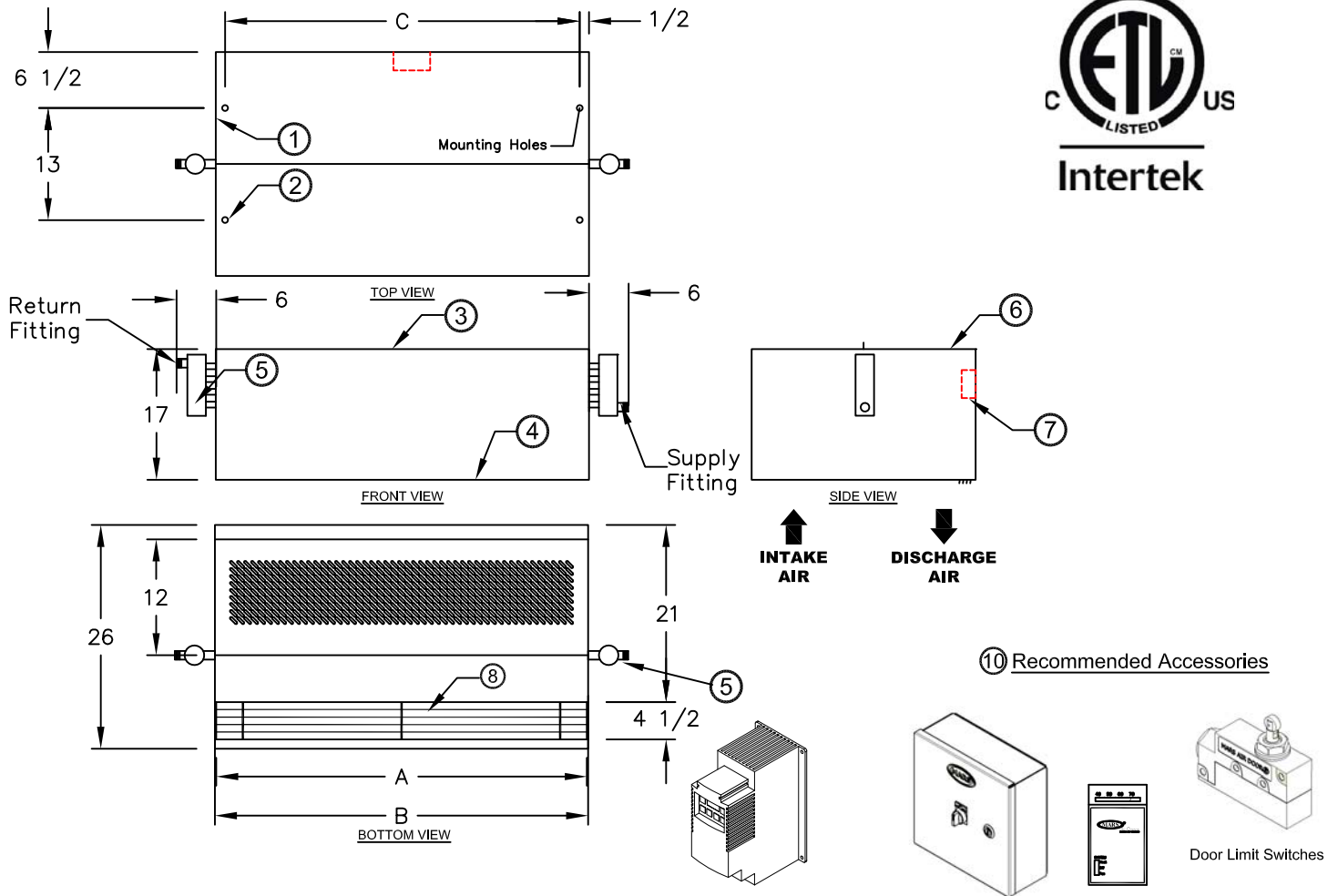
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PROJECT		OPTIONS/ITEMS	
TITLE			
COMMENTS		DATE 4/02/15	PAGE
		REV. NO	
MODEL NO. PH12 Series	DRAWING NO PH12HWS-F	DRAWN BY NT	CHECKED BY
		FILE NAME	

Hot Water/Steam Heated Drawing

PH12 (Phantom 12 Series)



*- Use corresponding letters in "Coil Data" then "Electrical Data" columns to complete the model numbers.

MODEL NUMBER	NOZZLE WIDTH A (in)	AIR CURTAIN LENGTH B (in)	MOUNTING CENTER C (in)	CONN. DIA. (in)
PH1248-1**-PW	48	48 1/8	47 1/8	1 1/2 MPT
PH1260-1**-PW	60	60 1/8	59 1/8	1 1/2 MPT
PH1272-2**-PW	72	72 1/8	71 1/8	1 1/2 MPT
PH1284-2**-PW	84	84 1/4	83 1/4	1 1/2 MPT
PH1296-2**-PW	96	96 1/4	95 1/4	1 1/2 MPT
PH12120-2**-PW	120	120 1/4	119 1/4	1 1/2 MPT
PH12144-4**-PW	144	144 1/4	143 1/4	1 1/2 MPT

Notes: Variable Frequency Drive Control Panels with Remote T'stat (9)

- This product is designed to meet the National Electric Code (NEC) and is ETL listed for the US and Canada (UL 1995 and CSA 22.2).
- (4) 3/8" mounting holes for overhead mounting provided, (2) on each end. Units greater than 72" are multiple units joined with top mounting bracket that has (2) additional mounting holes.
- All units have a self contained one piece cabinet, fire retardant and corrosion proof paint lock metal double protected with baked on white color, rust preventative electrostatic polyurethane powder coating.
- Trim pieces included to match air curtains and ceilings.
- Hot Water application shown. For Steam, return fitting is at bottom of manifold and supply is at center of manifold.
- Cabinet is to be mounted from overhead and has sufficient strength for suspension from both ends without intermediate support. Units greater than 72" needs (2) additional threaded rods at center.
- J-Box(es) for electrical wiring are provided.
- Unit is to be installed such that air flow is unobstructed. Unit has a 4 1/2" air discharge nozzle containing adjustable air directional vanes with 40° sweep front to back.
- Circuit protection as per NEC by others.
- Optional motor control panel, door limit switch and mounting brackets are field installed and/or wired by others. The door limit switch is to be mounted such that the air curtain turns on as door begins to open. To prevent unit damage, the mounting brackets must be installed such that the bottom of the air curtain is not below the door header.

PH12 (Phantom 12) Series

Hot Water/Steam Heated

Model Lengths 48" – 144"



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Hot Water/Steam Heated Data Sheet

Applications: Environmental Separation (up to 12')

PH12 (Phantom 12) Model Number	Mechanical Data						Lab Data				
	Nozzle Length (in)	Length (in)	Depth (in)	Height (in)	Motor (hp)	Weight (lbs)	Max Core Velocity at Nozzle (fpm)	Avg Velocity (fpm)	Volume (cfm)	Uniformity (%)	Power Rating (watts)
PH1248-1**-PW	48	60	26	17	1	125	6450	2534	2534	89	1345
PH1260-1**-PW	60	72	26	17	Two 1	140	6866	2207	2759	86	1535
PH1272-2**-PW	72	84	26	17	Two 1	205	6050	3097	4646	93	2316
PH1284-2**-PW	84	96	26	17	Two 1	235	6300	2824	4942	90	2520
PH1296-2**-PW	96	108	26	17	Two 1	250	6300	2534	5068	89	2690
PH12120-2**-PW	120	132	26	17	Two 1	275	6866	2207	5518	86	3070
PH12144-4**-PW	144	156	26	17	Four 1	410	6050	3097	9292	93	4632

* - Use corresponding letters in "Coil Data" then "Electrical Data" columns to complete the model numbers.

Note: Data above for 1725 RPM at 60 Hz, 50 Hz is 1425 RPM with a 17% reduction in the performance data.

Features:

Air Curtain

- ❖ 1 HP Continuous Duty TEAO Motors
- ❖ Recessed mounted in ceiling for invisible coverage
- ❖ ETL Certified to conform to UL 1995 (US) and CSA 22.2 (Canada) Standards
- ❖ (4) 3/8" top mounting holes provided
- ❖ Utilized in premium design concepts
- ❖ Durable aluminum construction
- ❖ Cabinet has sufficient strength for fastening to wall on both ends without intermediate support. (Tandem mounted units longer than 72" require center support)
- ❖ Cleanable polyester filters included as standard
- ❖ Adjustable air directional vanes with 40° sweep front to back
- ❖ Standard color is Pearl White
- ❖ Rust preventative electrostatic polyurethane powder coating
- ❖ 1 year parts warranty
- ❖ Freight Included (FOB Continental USA)
- ❖ Proudly Made in the USA

Hot Water and Steam Coils

- ❖ Coil casings shall not be less than 16 gauge galvanized steel with tube holes formed with extruded collars.
- ❖ Fins are die formed .006" aluminum (1 row – 10 FPI, 2 row – 8 FPI)
- ❖ Coils tubes constructed of heavy wall, 5/8" OD seamless copper (Steam - .035" & Hot Water - .025")
- ❖ Coil tubes arranged in a staggered pattern and mechanically expanded into fins to ensure a uniform pressure bond
- ❖ Manifolds shall be of heavy seamless copper construction
- ❖ All joints shall be brazed with high temperature silver brazing alloy (Steam – 7% & Hot Water – 3%), max steam operating pressure: 30 PSI
- ❖ Fittings shall be of wrought copper or similar construction such that the entire fluid circuit shall be of compatible nonferrous materials.
- ❖ Manifold shall be fitted with 1/4" vent or drain fittings
- ❖ Supply fitting is on the right side of coil. Return fitting is on the left side

Options and Accessories: (see Accessories Brochure)

- ❖ Motor Control Panels with remote mounted t'stat
- ❖ Steam distribution, Cupro Nickel and CRN coils
- ❖ Rust resistant epoxy coated or SS coils
- ❖ Custom housing colors and finishes (304SS, 316SS, Aluminum)

Sound Levels: (measured at 10' in an open field)

1 Motor Unit = 70 dBA, 2 Motor Unit = 73 dBA, 3 Motor Unit = 75 dBA, 4 Motor Unit = 77 dBA

NOTE: MARS AIR SYSTEMS, LLC reserves the right to change specifications and product design without notice. Such revisions do not entitle the buyer to corresponding changes, improvements, additions or replacements for previously purchased equipment.

Coil Data	Hot Water			Steam		
	Coil Code (X)	MBH	Temp Rise (°F)	Coil Code (Z)	MBH	Temp Rise (°F)
PH1248-1**-PW	2 Row	94	34	2 Row	94	34
PH1260-1**-PW	2 Row	99	33	2 Row	99	33
PH1272-2**-PW	2 Row	163	33	2 Row	163	33
PH1284-2**-PW	2 Row	185	35	2 Row	185	35
PH1296-2**-PW	2 Row	184	34	2 Row	184	34
PH12120-2**-PW	2 Row	200	33	2 Row	200	33
PH12144-4**-PW	2 Row	326	33	2 Row	326	33

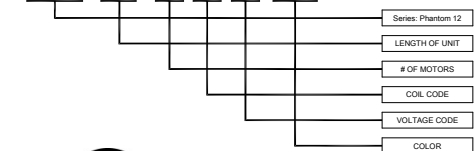
EAT: 70 F, EWT: 200 F, Flow rate: 5-15 GPM, Steam pressure: 5 PSI

Electrical Data (FLA)	Unit Voltage (Voltage Code)				
	115v (A)	208/230v (D)	208/230v (G)	460v (H)	575v (I)
PH1248-1**-PW	9.0	5.0	3.3/3.2	1.6	1.3
PH1260-1**-PW	9.0	5.0	3.3/3.2	1.6	1.3
PH1272-2**-PW	18.0	10.0	6.6/6.4	3.2	2.6
PH1284-2**-PW	18.0	10.0	6.6/6.4	3.2	2.6
PH1296-2**-PW	18.0	10.0	6.6/6.4	3.2	2.6
PH12120-2**-PW	18.0	10.0	6.6/6.4	3.2	2.6
PH12144-4**-PW	36.0	20.0	13.2/12.8	6.4	5.2

* - Use corresponding letters in "Electrical Data" columns to complete the model numbers.
Note: For Ampacity Multiply FLA X 1.25

EXAMPLE

PH12 72 -2 X H -PW





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Document No: ICM-IOM
Date: 0515

PHANTOM (PH10 and PH12) COMMERCIAL AND INDUSTRIAL SERIES

Installation, Operation and Maintenance Manual

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with these instructions could result in personal injury and/or property damage. Retain these instructions for future reference.

OVERVIEW

Mars Air Curtains are designed to cover door openings, providing both temperature control/environmental separation and flying insect control, when the building's doors are opened.

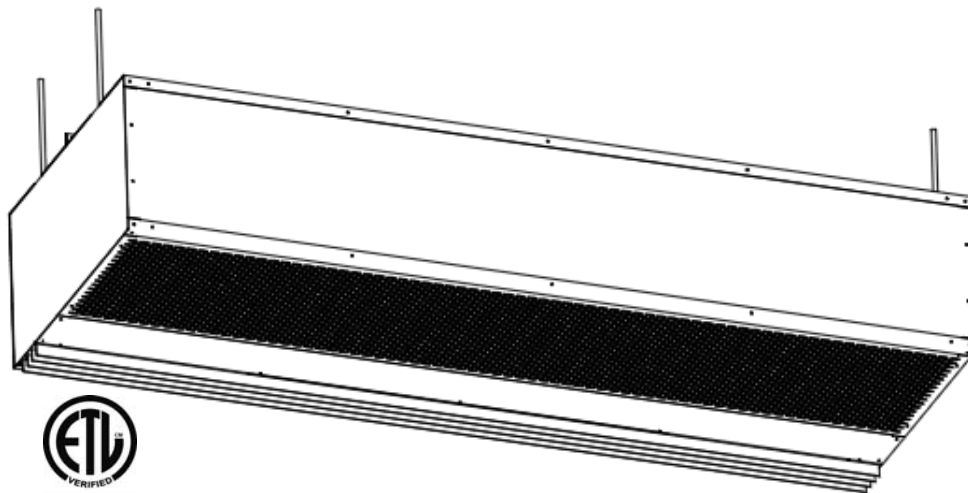
Typical installation

heights are: Phantom 10 Series (Environmental up to 10', Flying Insect Control up to 8'), and Phantom 12 Series (Environmental up to 12', Flying Insect Control up to 10'). The units are typically suspended from the ceiling and hidden inside the false roof. They can also be wall mounted using special brackets. The units are ETL Listed, Canada and US, for either an inside or outside mount. Heated units must be mounted on the inside or the protected side of the opening. The motors used in the Phantom 10 and Phantom 12 series are 1/2 HP and 1 HP respectively.

The Phantom Series come standard with an air intake screen(s).

GENERAL SAFETY INFORMATION

Use this product only in the manner intended by the manufacturer. If you have any questions, contact the manufacturer. Only qualified personnel should install this product. Installing personnel should have a clear



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understanding of these instructions and should be aware of general safety precautions.

Improper installation can result in electric shock, possible injury due to coming in contact with moving parts,

as well as other potential hazards.



WARNING

To reduce the risk of fire, electric shock or injury to persons, observe the following.

- A. Always disconnect, lock and tag power source before installing or servicing product.
- B. Installation work or electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction.
- C. The combustion airflow needed for safe operation of fuel burning equipment in the area may be affected by the product's operation. Follow the heating equipment manufacturer's guideline and safety standards, such as those published by the National Fire Protection Agency (NFPA), the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) and local code authorities.
- D. When cutting or drilling into a wall or ceiling, be careful not to damage electrical wiring and other hidden utilities.



WARNING

Precaution should be taken in explosive atmospheres.



WARNING

When servicing the product, motor may be hot enough to cause pain or injury. Allow motor to cool before servicing.

RECEIVING AND INSPECTION

Upon receiving the product, check to make sure all items are accounted for by referencing the Bill of Lading to ensure all items were received. Inspect each carton for shipping damage before accepting delivery. Notify the freight carrier if any damage is noticed. The carrier will make notification on the delivery receipt acknowledging any damage to the product. All damage should be noted on all copies of the Bill of Lading which is countersigned by the delivering carrier. A Carrier Inspection Report should be filled out by the carrier upon arrival and a report given to the Traffic Department. If damaged upon arrival, file a claim immediately with the carrier. Any physical damage to the unit after acceptance is not the responsibility of Mars Air Systems.

UNPACKING

Verify that all parts, components and accessories, and the correct quantities of each have been received. If any items are missing, report shortages to Mars Air Systems directly to arrange for obtaining the missing items. Again, verify quantities received against those on the Bill of Lading only, as multiple shipments may be involved.

INSTALLATION

Typical Mounting – Wall or Ceiling Mounted Horizontally Above the Door Opening

1. Gently remove all packaging materials, hardware and all other accessories from interior of unit prior to operating. Severe unit damage will occur if these items are not removed prior to operation.
2. The intake screen can be opened by removing the two screws on the bottom of the unit. The screen can be removed from the unit by pulling the spring loaded piano hinges. (FIG. 1)
3. All Phantom series have the Motor Fan Assembly (MFA) shipped internally mounted.
4. All units are equipped with (4) 3/8" threaded inserts on top for overhead installation (FIG. 2)
5. Determine the exact mounting locations to suspend the unit above the ceiling so that the unit is centered and parallel with the door opening. Use (4) threaded rods to suspend the enclosure to the ceiling.

Note: When installed in the ceiling above the door, the air curtain must be moved 3/8" away from the wall for every 1" above the door height.

6. If applicable, extended wall mounting brackets are available for attaching the unit to a wall.
7. If applicable, for tandem installation (units longer than 72") of products mounted side by side, allow no more than 6" between the two units. Note that (4) sets of threaded rods are used to suspend each unit to the ceiling or center mounting brackets are to be used for joining and top mounting tandem units.
8. Mount the product such that the discharge is flush with the ceiling.
9. All wires must be connected internal of the unit and some knockouts are provided. However, it may be necessary to create your own knockout, as required.
10. The unit must be wired per NEC and local codes.

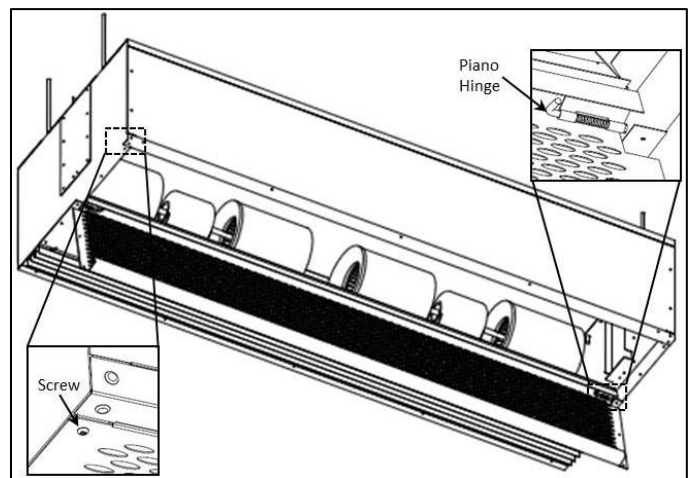


FIG. 1

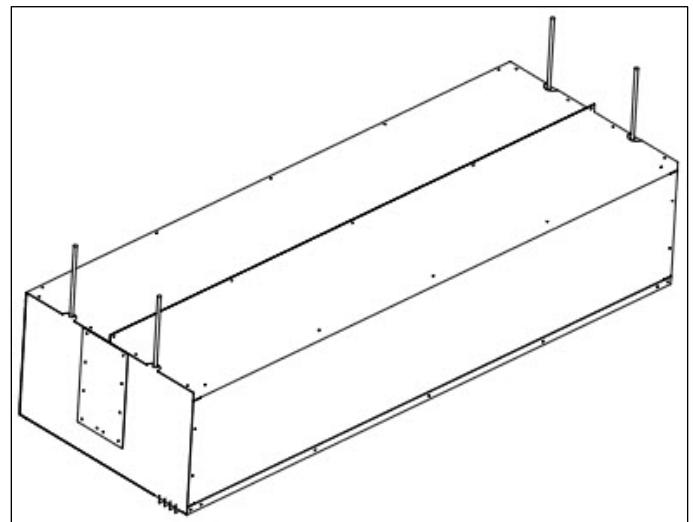


FIG. 2

Electrical Field Wiring

1. For electric models, reference the **Heated Products Supplement**.
2. The unit and any optional accessories must be wired with the proper voltage to the junction box per the wiring diagram. (FIG. 3, unheated products only)

- All 3 phase motors are bi-directional, which means they can rotate in either direction. Follow directional arrows on the blower wheel housings for proper rotation. If the motor is rotating incorrectly, switch two of the 3 phase power or motor leads and the motor will rotate the opposite direction. Make sure all motors are turning in the same and proper direction. (FIG. 3)

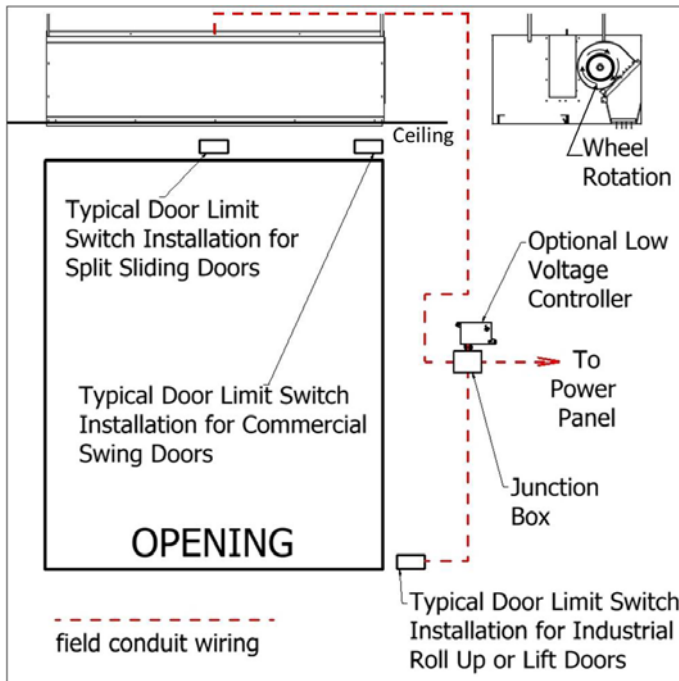


FIG. 3

NOTE

For accessory installation, reference **Accessory Installation Supplement**.

For heated products, reference **Heated Products Supplement**.

START-UP

This product has been assembled and tested at the factory prior to shipping. The following procedures should be performed to assure its performance. Before continuing with the start-up, it is important to recognize the safety controls furnished with the unit.



WARNING

Prevent hazard of electrical shock. More than one disconnect switch may be required to de-energize this product.



WARNING

The following items must all be completed by a qualified installer and checked off when completed

- Re-check that the product has been installed properly and is level and secure.
- Check all terminal screws are tight and field wiring is connected in accordance to National Electrical Code and wired per the enclosed wiring diagram. For electric heated models, ensure that the coils are secured and not touching each other on any metal surface.
- Verify proper voltage prior to powering the product. (See product label for reference).
- Check all field wired components "if supplied" are wired correctly.
- Check that the inlet air supply and the discharge air supply are free of obstructions.
- Check that all air filter(s) and/or air intake grille(s) are in place and installed properly, as originally shipped.
- Verify voltage to the product once more and turn power on.
- Regardless of whether the product is mounted on the inside or outside of the door opening, set the air directional vanes in the discharge nozzle slightly outward to approximately 10-15° towards the outside, or the wind load. (FIG. 4).

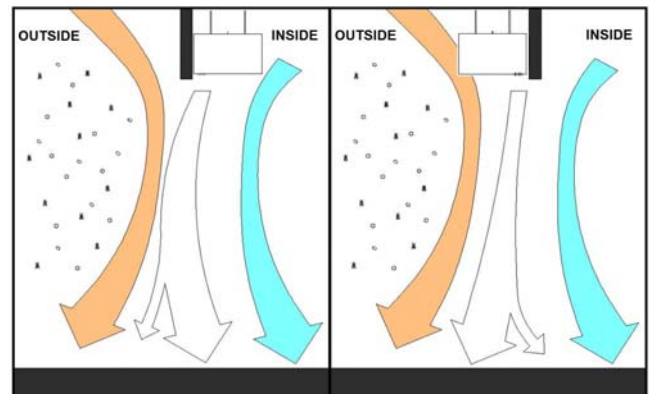


FIG. 4

- For products with control panels, turn the HOA (Hand-On-Auto) selector switch to "On" position and open the door to energize the product. For products without a control panel or an On/Off switch, open the door to energize the product.
- If heated products are installed, reference **Heated Products Supplement**.
- For three phase units, verify direction of rotation of blower wheels (note direction arrows on the blower wheel housing). Correct if needed by changing polarity of three phase power.

- L. **VERY IMPORTANT** Using a clamp meter, measure the amperage to each motor and ensure that they do not exceed the amperage listed on the product label.
- M. If applicable, adjust the air intake grille(s) such that the output air stream reaches the floor. For temperature control and environmental separation applications, the air stream should reach the floor with sufficient strength to create an air seal around the door opening without creating turbulent mixing of the inside and outside air. If applicable, adjust the air intake grille(s) such that the output air stream reaches the floor. For flying insect control applications, the air stream should reach the floor with maximum strength. If after proper installation and adjustment, the product appears to be producing too little or too much air for the application, contact the manufacturer.

- 5. Thoroughly wipe down the motor, blower wheels and blower wheel housings. Be careful not to spray the motor with a water hose.
- 6. The motor(s) require no additional lubrication. They are permanently lubricated and feature double sealed ball bearings.
- 7. To re-install the product, reverse the procedures above.
- 8. Reconnect the power source to the product.
- 9. If you have any questions regarding the maintenance of the product, contact the manufacturer.

DISCLAIMER

Mars reserves the right to change specifications and product design without notice. Such revisions do not entitle the buyer to corresponding changes, improvements, additions or replacements for previously purchased equipment.

MAINTENANCE



WARNING

To reduce the risk of fire, electrical shock or injury to persons, observe the following:

- A. Maintenance is to be performed only by qualified personnel who are familiar with local codes and regulations and are experienced with this type of product.
- B. Before servicing or cleaning the product switch power off at service panel and lock service panel to prevent power from being switched "ON" accidentally.

Routine maintenance is required to keep this product operating at its peak performance and efficiency. Over time, the housing, air intake grille, air intake filter, blower wheels and motor(s) will accumulate a build up of dust, debris and other residue. It is imperative to keep these components clean. Failure to do so will not only lower operational efficiency and performance, but also reduce the useful life of the product. The time between cleanings depends on the application, location and daily hours of use. On average, under normal use conditions, the product should require a thorough cleaning once every six (6) months.

To clean the product, perform the following:

- 1. Verify the product has been disconnected from the power source.
- 2. Use a damp cloth and either a warm mild soapy water solution or bio-degradable degreaser, to wipe down the exterior components of the housing.
- 3. To access the interior of the product, remove the air intake grille(s) and/or air intake filter(s). This is accomplished by removing the screws on the face of the air intake grille(s)/filter(s) and releasing the grille by pulling on the spring hinge.
- 4. Thoroughly clean the air intake grille(s) and clean or replace the intake filter(s).

TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
NO AIR BLOWING OUT OF DISCHARGE NOZZLE	<ul style="list-style-type: none"> - No power being supplied to the unit from the electrical power source - Circuit breaker is tripped - Blown fuses on power supply - Motor overload is open or tripped - Motor contactor / relay defective (if applicable) - Failed switch 	<ul style="list-style-type: none"> - Confirm power source / check if in on position - Reset circuit breaker - Replace fuses - Allow the motor to cool down; motor has auto reset internal overload; if unit is panel equipped, press reset button on overload inside panel, or replace motor overload if overload remains tripped - Check voltage to coil; check contacts to see if they are pulling in - Replace or repair limit switch
MOTOR IS RUNNING BUT FANS ARE NOT SPINNING	<ul style="list-style-type: none"> - Loose or broken coupling (belt drive) - Loose set screws on wheel hubs - Fan spinning inside fan housing - Broken fan hub 	<ul style="list-style-type: none"> - Replace or tighten coupling - Tighten set screws on motor shaft flats - Tighten fan on shaft or replace fan - Replace fan wheels
ELECTRICAL CONTROLS NOT WORKING WHEN DOOR IS OPEN	<ul style="list-style-type: none"> - Switch is in off position - Door limit switch is not operating 	<ul style="list-style-type: none"> - Turn unit's switch to the on position - Repair or replace door limit switch
UNIT WILL NOT TURN OFF	<ul style="list-style-type: none"> - Door limit switch is permanently closed or energized 	<ul style="list-style-type: none"> - Position the door switch in a manner that turns off the unit when the door closes, and turns on the unit when the door opens. Only light pressure required.
LOW AIR FLOW	<ul style="list-style-type: none"> - Discharge air vanes out of adjustment - Obstruction on intake or discharge - Power leads out of polarity - Blower motor rotating below normal speed - Fan rubbing against housing - Blower wheels clogged with dirt 	<ul style="list-style-type: none"> - Adjust vanes to proper position (Refer to Start-Up Section in this manual) - Remove obstruction or move air curtain - Switch power leads to correct polarity (3 phase models only) - Apply proper voltage per unit requirement (see unit label) / Adjust adjustable motor speed knob (if applicable) - Free fan from housing - Clean and remove dirt from blower wheels
EXCESSIVE AIR VELOCITY AT DOOR OPENING	<ul style="list-style-type: none"> - Nozzle out of adjustment and not angled far out enough (BD only) - Air temperature too cold - Air stream pushing air outside of the building 	<ul style="list-style-type: none"> - Adjust nozzle angle to outside - Add auxiliary heat to overcome wind chill - Adjust discharge angle back into building
AIR NOT HITTING THE FLOOR	<ul style="list-style-type: none"> - Low air velocity - Obstruction in the direction of air flow - Negative building pressure 	<ul style="list-style-type: none"> - Adjust vanes to proper position or check installation height (Refer to Start-Up Section in this manual) - Remove obstruction or move air curtain (Move out 3/8" for every 1" up from the door) - Provide a make-up air system to relieve negative building pressure
UNEVEN AIR	<ul style="list-style-type: none"> - Shaft rotating inside fan - One motor not functioning 	<ul style="list-style-type: none"> - Replace fan or tighten fan on shaft - Replace or repair motor
EXCESSIVE NOISE AND OR VIBRATION	<ul style="list-style-type: none"> - Loose or broken coupling (belt drive) - Loose set screws on wheel hubs - Fan spinning inside fan housing - Broken fan hub - Bearing end caps worn - Damaged blower wheel - Bearing end caps worn - Balancing clips missing 	<ul style="list-style-type: none"> - Replace or tighten coupling - Tighten set screws on motor shaft flats - Tighten fan on shaft or replace fan - Replace fan wheels - Replace Bearing end caps - Replace Blower Wheel - Replace Bearing end caps - Replace Blower Wheel

WARRANTY

Mars' warranty coverage, period, extent and limitations apply to the product only. It does not apply to labor. Mars warrants that Mars product 1) Is free from defects in materials and workmanship and 2) Conforms to Mars' published specifications. The warranty period for Mars product except heated and custom models, is a five (5) year period commencing on its date of shipment. The date on customer's invoice is the date of shipment, unless Mars or your reseller informs otherwise. For heated and custom models, the warranty period is an eighteen (18) month period commencing the date of shipment. Mars will provide free replacement of any part that fails as a result of a defect in material or manufacturer's workmanship. Changes in operational specification parameters that are different from those provided on the original purchase order are not covered. Mars product is inspected and tested before packaging and is shipped in working condition. The warranty for Mars product only covers free-of-charge replacement of failed parts. The warranty does not cover labor and transportation expenses that may be required to provide and to install replacement parts. Because in many instances, it is impossible to determine the cause of failure, customer may be responsible for transportation charges associated with replacement of failed part. Mars does not warrant uninterrupted or error-free operation of Mars product. Under no circumstance is Mars liable for any of the following: 1) Third-party claims against you for damages; or 2) Special, incidental, or indirect damages or for any economic consequential damages (including lost profits and savings), even if Mars, its suppliers, or its reseller is informed of their possibility. The warranty does not cover repair or exchange of Mars product resulting from misuse, accident, modification, unsuitable physical or operating environment, improper maintenance and installation by customer, or failure caused by a product for which Mars is not responsible. The warranty does not cover damages caused by mishandling during transportation. The warranty is voided by removal or alteration of Mars product or parts identification labels, by improper installation of product, and resulting non-compliance to federal, state and local codes and regulations. Additionally, Mars reserves the right to void the warranty for non-payment of invoice.

CONTACT FACTORY FOR COMPLETE PARTS LIST FOR ALL MODELS.

KEEP THIS MANUAL FOR YOUR RECORDS.

Model Number: _____

Serial Number: _____

Date Purchased: _____

Dealer Purchased From: _____



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Fax: (310) 324-3030

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HEATED PRODUCTS SUPPLEMENT

NOTE

Before proceeding, refer to the units specific IOM Manual for safety, installation and start information. Verify proper voltage to the product per local and NEC codes. Ensure proper rotation for units with three phase motors.

Electrically Heated Products

Electrically heated products must be mounted on the inside of the building. Electrically heated products come standard with a thermostat (provided and shipped loose, unless ordered as factory pre-mounted) and is to be field installed.

Note:

1. Electrically heated Low Profile and Phantom units come with internally mounted controls and are available with an optional 24 volt or 240 volt thermostat.
2. Electrically heated Standard, High Velocity and Extra Power units include a motor control panel mounted on the right-hand side of the unit, as standard, and a remote 24 volt thermostat with On/Off switch with terminals provided.
3. Electrically heated Wind Stopping and WindGuard units include an electric heater control panel mounted on the right hand side, as standard (FIG. 1). Optional motor/unit control panel available, which includes a remote 24 volt thermostat with On/Off switch with terminals provided.

The thermostat should be mounted as close to the product's discharge air flow as possible in order to best sense the discharged air temperature around the door opening. Connect proper voltage to the product per local and NEC codes. (FIG. 2)

Thermal overload protection is built into the heater coil assembly/assemblies. In the event of an overload condition, electrical power will be disconnected from the heater coil. Upon diagnosing the problem, electrical power can be re-instated to the heater coil(s) by manually resetting the thermal overload lever(s) or buttons(s) located in the unit or panel.

To operate multiple units mounted side by side, utilizing a single door switch and single thermostat, a master/slave configuration is required. (FIG. 2)

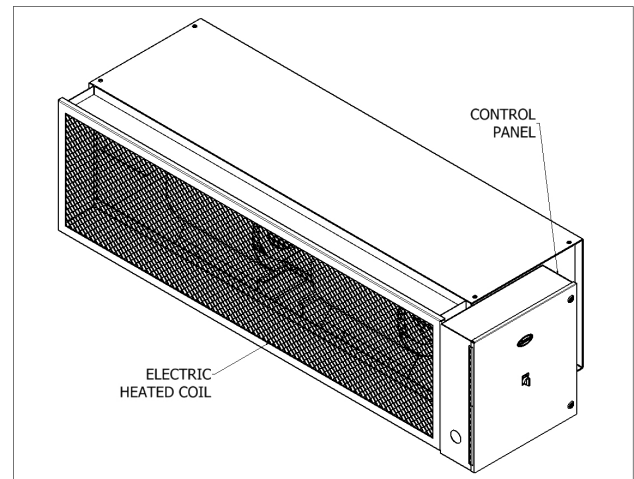


FIG. 1 (Electrically Heated WMI unit)

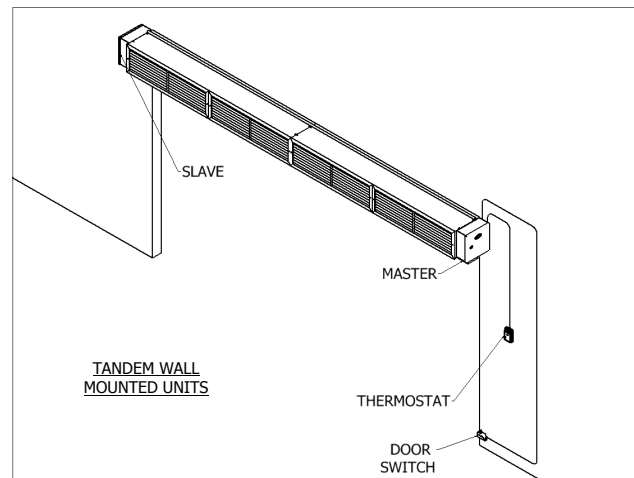


FIG. 2 (Tandem Mounted Master/Slave Units)

Steam and Hot Water Coil Heated Products

Steam/Hot Water Coil (coil) heated products must be mounted on the inside of the building. The coil(s) for Low Profile and Phantom units are shipped internally mounted to the unit. For Standard, High Velocity and Extra Power units, the coil(s) are shipped loose and field installed. Wind

Stopping and WindGuard units are shipped with coil(s) factory mounted.

Once the coil has been secured to the cabinet, access to the motor and fan is through the removable access panels located on the top of the cabinet.

Note: Low Profile and Wind Stopping units require the removal of the coil to access the motor and/or fans.

All piping should be done by a licensed pipe fitter and in accordance with local codes and regulations. Connect the supply and return fittings as required. All traps and valves are sized and field installed by others. Standard coil configuration is right hand supply and left hand return. (FIGS. 3 & 4) Optional temperature controls, if ordered, are to be field installed by others.

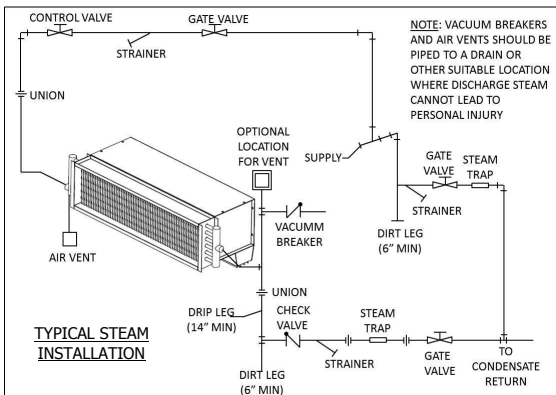


FIG. 3 (Steam Heated STD Unit)

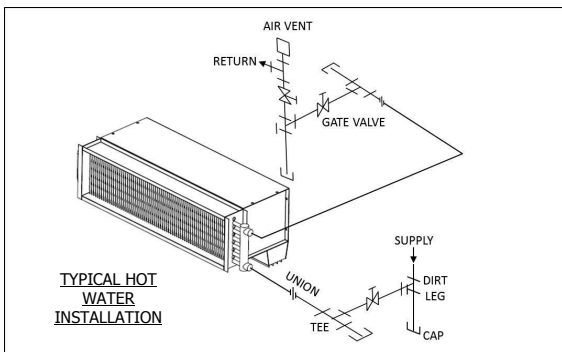


FIG. 4 (Hot Water Heated STD Unit)

Gas Heated Products

Gas heated products must be mounted on the inside of the building. The product consists of three major components: the air curtain, transition section(s) and indirect gas fired duct furnaces(s) (FIG 5).

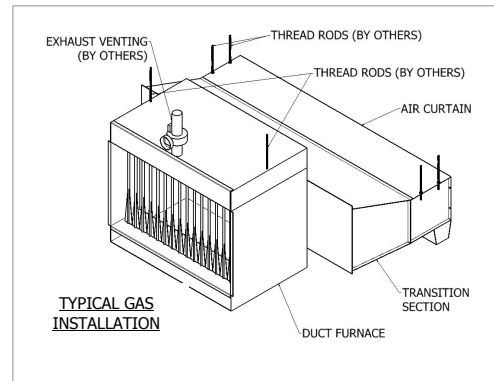


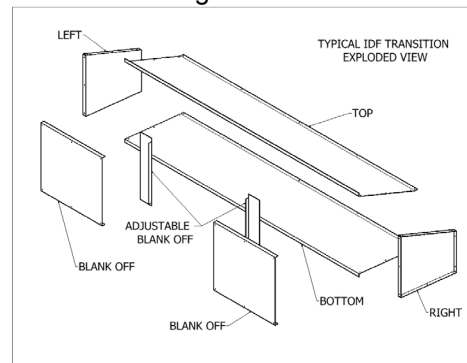
FIG. 5 (Indirect Fired Gas Heated HV

6) installed per their supplemental instructions. (FIG. 6)

Note:

1. Assemble the transition section(s).
2. Measure the width of the transition section(s) to determine the installation location for the duct furnace(s).
3. The duct furnace(s) are typically hung from above, with threaded rods, in order to support the weight of the duct furnaces. The duct furnace(s) must be centered and fastened to the transition(s) with the hardware provided.
4. Move the adjustable filler plates to close gaps in the transition(s) and secure the flanges to the transitions.

All gas piping and duct furnace(s) exhaust venting should be done by a licensed pipe fitter and in accordance with local codes and regulations. Power vented exhaust duct runs should not exceed 100' for horizontal venting.



In the United States, Installation must conform with local codes or, in the absence of local codes,

with Installation of the National Fuel Gas Code, ANSI Z223.1-latest edition, from the American National Standard Institute. Further reference should be made to the recommendation of your fuel supplier. In Canada, Installation must conform with local codes or, in the absence of local codes, with Installation Codes for Gas Burning Appliances and Equipment, CGA Standard CAN/CGA 1B-149. Further reference should be made to the recommendation of your fuel supplier.

ACCESSORY INSTALLATION SUPPLEMENT

Door Limit and Magnetic Reed Switches

1. Mars door limit and magnetic reed switches are available with NEMA 1, 4X and 7 ratings. Contact the factory for additional ratings and details. (See FIG. 1 for typical single swing, hinged door type, door limit switch installation)

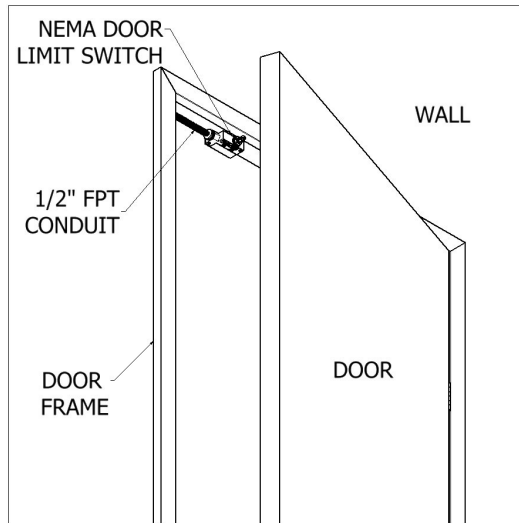


FIG. 1

2. Use light gauge materials when field fabricating brackets to activate and deactivate the door limit switch(s). (FIG. 2) Figure 2 also shows the typical installation of the combination plunger/roller type NEMA 1 door limit switch, for all non-hinged style doors.

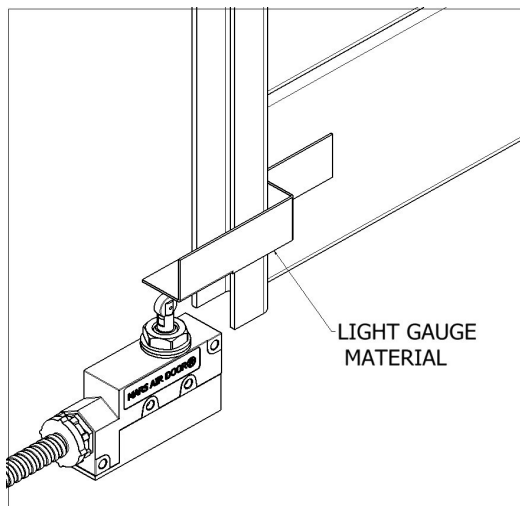


FIG. 2

3. All wiring must be per local and NEC (National Electric Code) codes.
4. Panels or controllers may be required. Refer to wiring diagram inside the control panel box.

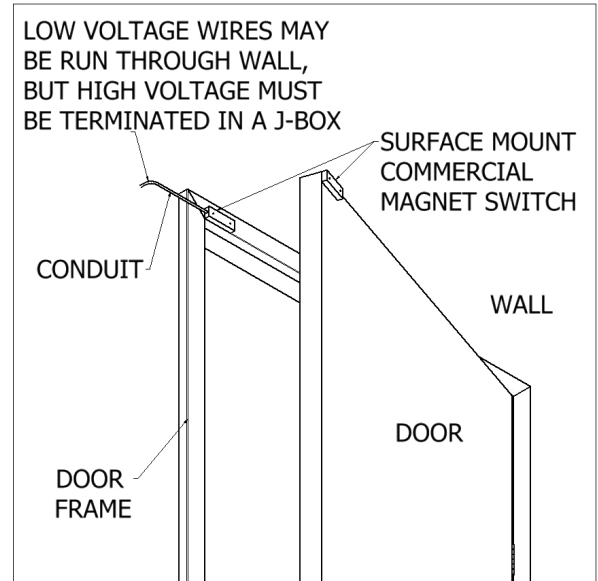


FIG. 3

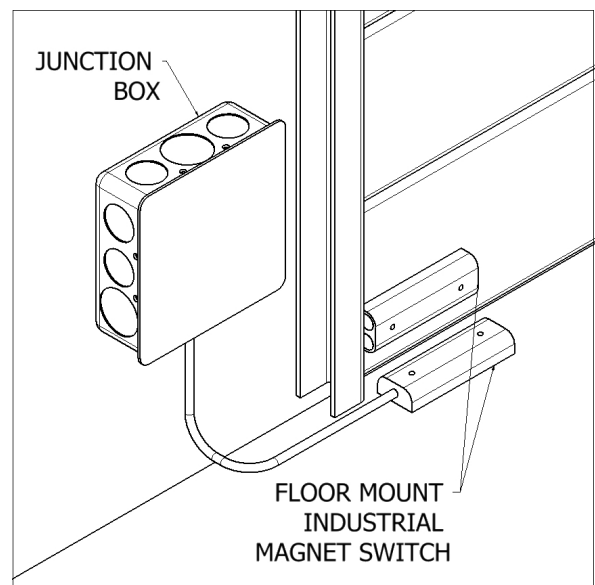


FIG. 4

Bracket Installation

1. Side Extension Plates: For doorways wider than the air curtain, use combination of Side Extension Plates and Adjustable Mounting Brackets. (FIG. 5)

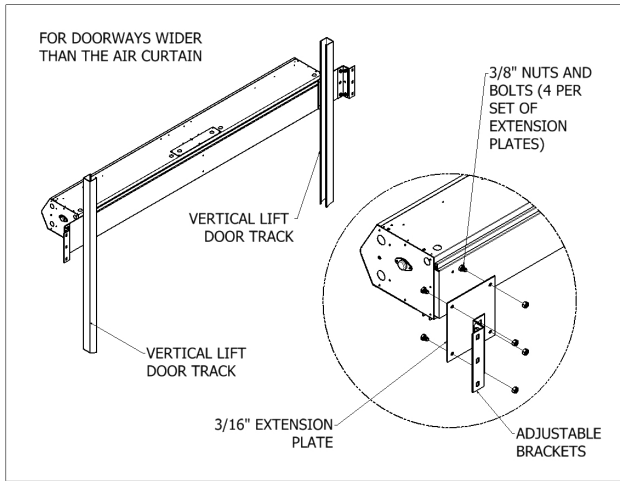


FIG. 5 (LPV Shown)

2. Adjustable Mounting Brackets: For installation of air curtain over drum-style roll-up door, use Extended Wall Mounting Brackets. (FIG. 6)

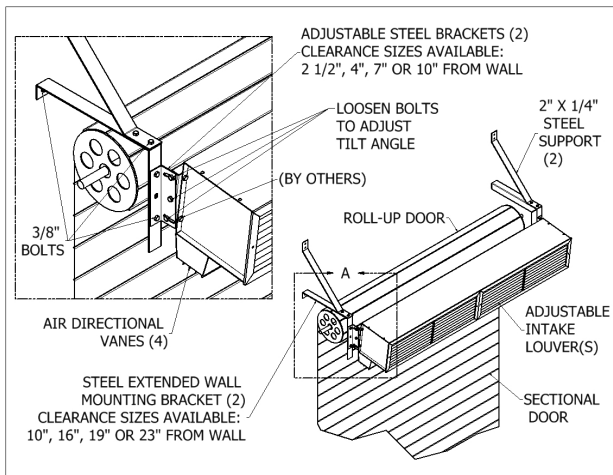


FIG. 6 (STD Shown)

3. Extended Wall Mounting: For Tandem Mounting of air curtain over sectional style door, use either wall mounting angle brackets or threaded rods.
4. Top Mounting Brackets: For overhead installation of units, use in conjunction with the threaded holes provided on top of unit.

Note: Angle brackets, threaded rods and I Beams are provided by others. (FIGS. 7 & 8) All optional brackets are not available for WMI/WMH and BD Series.

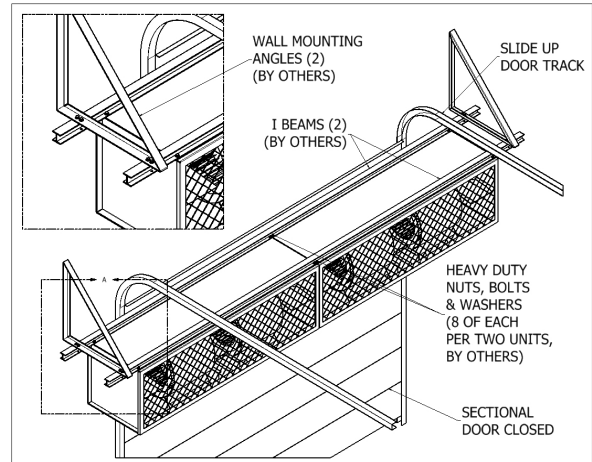


FIG. 7 (WMI/WMH Shown)

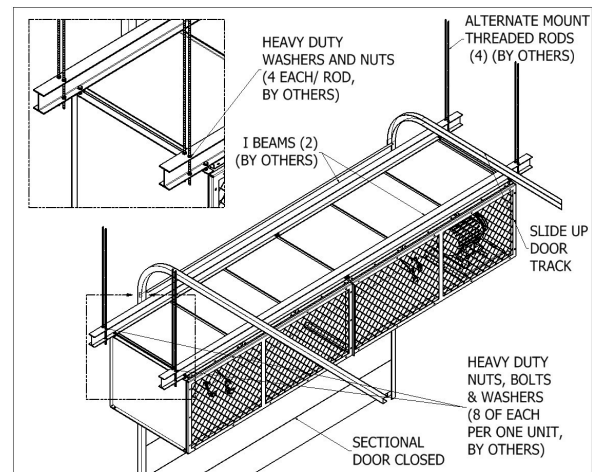


FIG. 8 (BD Shown)



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