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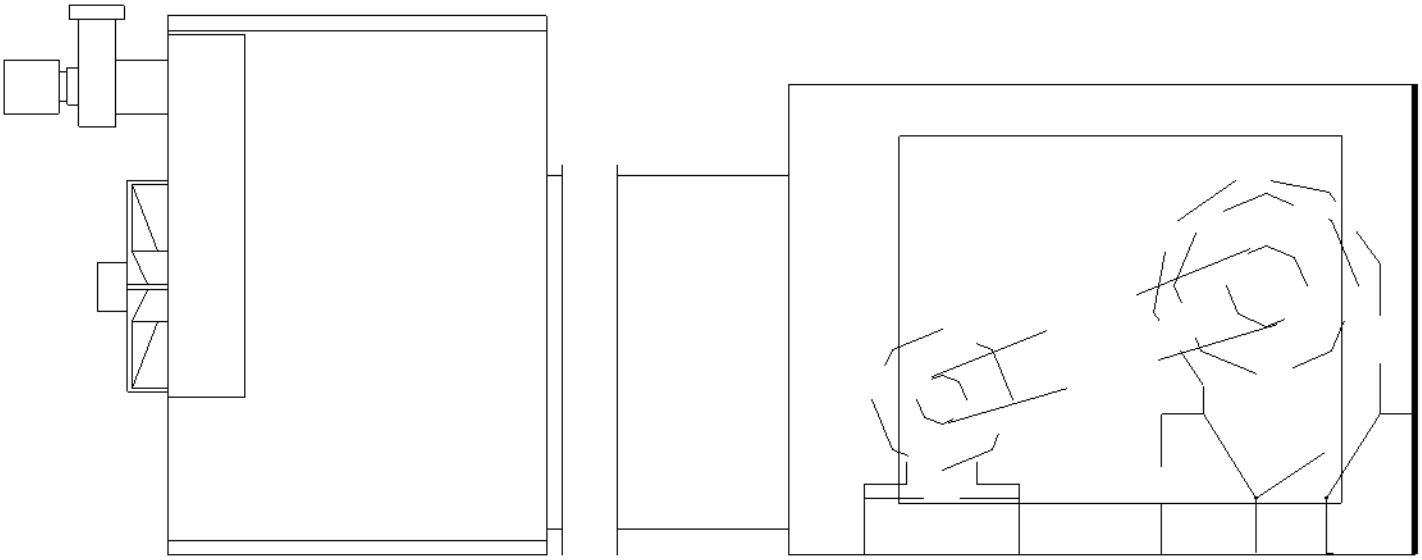
BD14 Indirect Gas Fired Series

Belt Drive 14
Industrial Air Curtain
Submittal Package



Submitted by:
Mars Air Systems, LLC
14716 S. Broadway
Gardena, CA 90248

Project Name	
P.O.#	
S.Q.	
Company	
Print Name	
Signature	
Date	

(Electronic Signature Preferred)

Company Seal or Stamp

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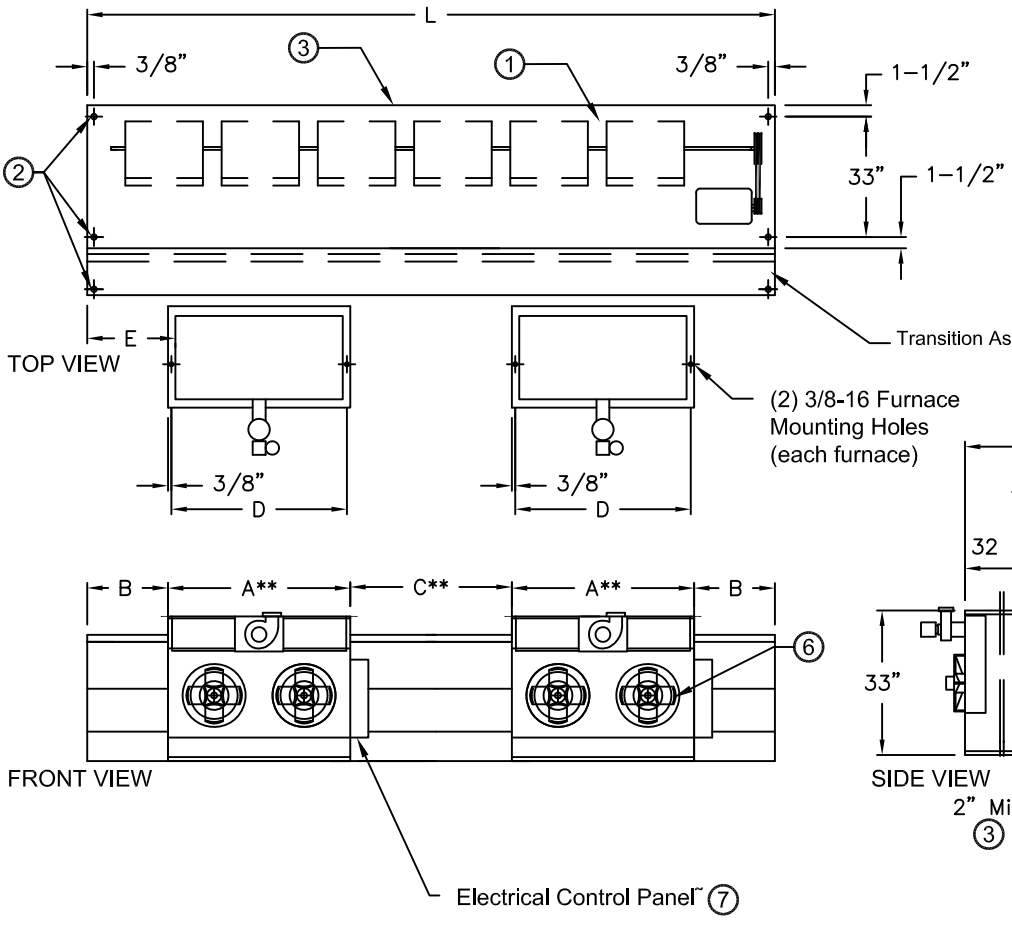
PROJECT		OPTIONS/ITEMS	
TITLE			
COMMENTS		DATE 4/21/15	PAGE
		REV. NO	
MODEL NO. BD14 Series	DRAWING NO BD14IG–F	DRAWN BY TVN	CHECKED BY / FILE NAME

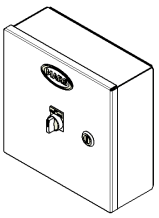
Indirect Fired Gas Heated Drawing

BD14

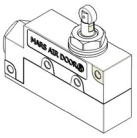
(Belt Driven 14) Series



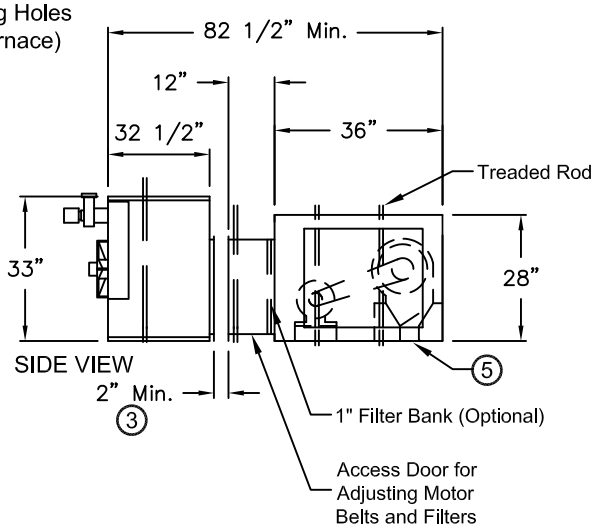
8 Recommended Accessories


Control Panels


Remote T'stat Shipped Loose


Door Limit Switches

ETL VERIFIED Intertek
Furnace Only



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.

˜Please see Furnace Submittal for Furnace Data and Dimension
Removal of Furnace may be required for servicing and trouble shooting.

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

** For 3 furnace models, please add an additional C and A dims

MODEL NUMBER	Overall Width (in) L	Furnace Width (in) A	End Space (in) B	Center Space (in) C	Mounting Distance (in) D	End Dim (in) E	Furnace Size (MBH)
BD1496-1I*-TS	107	32 3/4	10 3/8	20 3/4	30 5/8	11 3/4	2 @ 250
BD14120-1I*-TS	131	50 3/4	7 3/8	14 3/4	48 5/8	8 3/4	2 @ 350
BD14144-1I*-TS	155	50 3/4	13 3/8	26 3/4	48 5/8	14 3/4	2 @ 400
BD14168-1I*-TS	179	50 3/4	-	12 1/2	48 5/8	2 1/4	3 @ 350
BD14192-1I*-TS	203	50 3/4	8 11/24	16 11/12	48 5/8	9 5/6	3 @ 400

Notes:

1. The Air Curtain is designed to comply with the National Electric Code (NEC) and the Furnaces are ETL verified to be 83% efficient with 3/8 overhead mounting hardware for overhead mounting.
2. 7/8" mounting holes (4) provided, (2) on each end of air curtain and 5/8" mounting holes (2) provided, (1) on each end of transition assembly.
3. Cabinet has sufficient strength for fastening from overhead on both ends without intermediate support. Furnace must be mounted at least 2" away from the transition.
4. Powder coated Transition pieces are fully factory assembled and shipped mounted to the air curtain.
5. 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.
6. Furnaces with impellers have positive pressure, 20 gauge aluminized tubular heat exchanger with in-shot burner technology, power vented exhaust (horizontal or vertical), single stage gas valve, direct spark ignition and certified for Category I and III venting.
7. Circuit protection as per NEC by others.
8. Optional motor control panel and door limit switch 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.

BD14 (Belt Drive 14) Series

Indirect Gas Fired

Model Lengths 96” – 192”

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Indirect Gas Fired Data Sheet

Applications: Environmental Separation = Max Height 16’ / Insect Control = Max Height 14’

BD14 (WindGuard)	Mechanical Data							Lab Data	
Model Number	Nozzle Length (in)	Length (in)	Depth (in)	Height (in)	Motor (hp)	Total Weight** (lbs)	Furnace Weight (lbs)	Max Velocity (fpm)	Max Volume (cfm)
BD1496-1I*-TS	96	107	82 1/2	33	5	1098	2 @ 211	4500	11700
BD14120-1I*-TS	120	131	82 1/2	33	5	1435	2 @ 321	4500	14650
BD14144-1I*-TS	144	155	82 1/2	33	7 1/2	1580	2 @ 335	4500	17600
BD14168-1I*-TS	168	179	82 1/2	33	7 1/2	1990	3 @ 321	4500	20500
BD14192-1I*-TS	192	203	82 1/2	33	10	2149	3 @ 335	4500	23450

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

Note: Data above is for 60 Hz, 17% reduction in the performance data with 50 Hz.

**** - Total Weight includes air curtain, transition, and furnace weights**

Features:

Air Curtain and Transition

- 5 to 10 HP continuous duty premium efficiency industrial TEFC motors
- Air curtain is a self-contained one-piece heavy gauge corrosion proof paint lock metal design
- Top mounting holes provided (3/4”)
- Cabinet has sufficient strength for fastening from overhead on both ends without intermediate support
- Adjustable air directional nozzle with 40° sweep front to back
- Transition is shipped fully assembled and fastened to unit (overhead support required)
- Standard color is Titanium Silver
- Rust preventative electrostatic polyurethane powder coating
- 12-month parts warranty
- Freight Not Included (FOB Factory)
- Proudly Made in the USA

Indirect Gas Fired Furnaces

- ETL verified to be 83% efficient
- In-shot burner technology
- Aluminized tubular heat exchanger (20 gauge)
- Positive pressure 120V impellers (separate 120V, 1Ø power required)
- Power vented exhaust
- Single stage gas valve
- Standard direct spark ignition
- Certified for Category I and III Venting
- Natural gas
- Factory test fired
- Overhead mounting hardware provided (2 per furnace)

Indirect Gas Fired Data						
Model Number	# of Furnaces	Input MBH per Furnace	Total Output MBH	Temp Rise (°F)	Flue Size	Natural Gas (NPT) CONN
BD1496-1I*-TS	2	250	415	33	5" Rnd	1/2"
BD14120-1I*-TS	2	350	581	37	6" Rnd	3/4"
BD14144-1I*-TS	2	400	664	35	6" Rnd	3/4"
BD14168-1I*-TS	3	350	872	39	6" Rnd	3/4"
BD14192-1I*-TS	3	400	996	39	6" Rnd	3/4"

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

Note: Gas pressure required min/max in (“wc)(kPa): Natural Gas (3.5/14)(0.9/3.5) and LP (10/14)(2.5/3.5)

Electrical Data (FLA)	Unit Voltage (Voltage Code)			Furnace
	208/230v (G)	460v (H)	575v (I)	115V
BD1496-1I*-TS	14.2/13.0	6.5	5.3	16.0
BD14120-1I*-TS	14.2/14.0	6.5	5.3	27.0
BD14144-1I*-TS	21.6/20.0	10.0	8.9	27.0
BD14168-1I*-TS	21.6/20.0	10.0	8.9	40.5
BD14192-1I*-TS	28.0/26.0	13.0	10.3	40.5

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

Alternate voltage codes with FLA (Full Load Amp) data:

380-415V/3Ø/50Hz (W) - 6.5A per motor (5HP), 8.3A per motor (7½HP), 11.5A per motor (10HP)

Note: For ampacity, multiply FLA X 1.25

Mars Recommended Accessories (see submittals for additional details):

- Door limit switches
  - 99-125, Industrial surface-mounted door limit switch
- Controllers
  - MCP*-†I‡, Motor Control Panel, 24V control voltage (* = HP Code, † = # of Motors, ‡ = Voltage Code)
    Note: possible HP Codes = E (5 HP), G (7½ HP), H (10 HP)
    - MCP-TD, Adjustable time delay, 1sec-100hr (panel required)
- IDF-2STG, Two-stage heat exchanger
- IDF-SS, 409 stainless steel heat exchanger
- IDF-MOD-RS, Electronic modulating gas valve for room sensor (0-10VDC/4-20mA control voltage by others)

EXAMPLE

BD14 144 - 1 I H - TS

- Series: BELT DRIVE
- LENGTH OF UNIT
- # OF MOTORS
- I = INDIRECT FIRED GAS
- VOLTAGE CODE
- COLOR

ETL VERIFIED

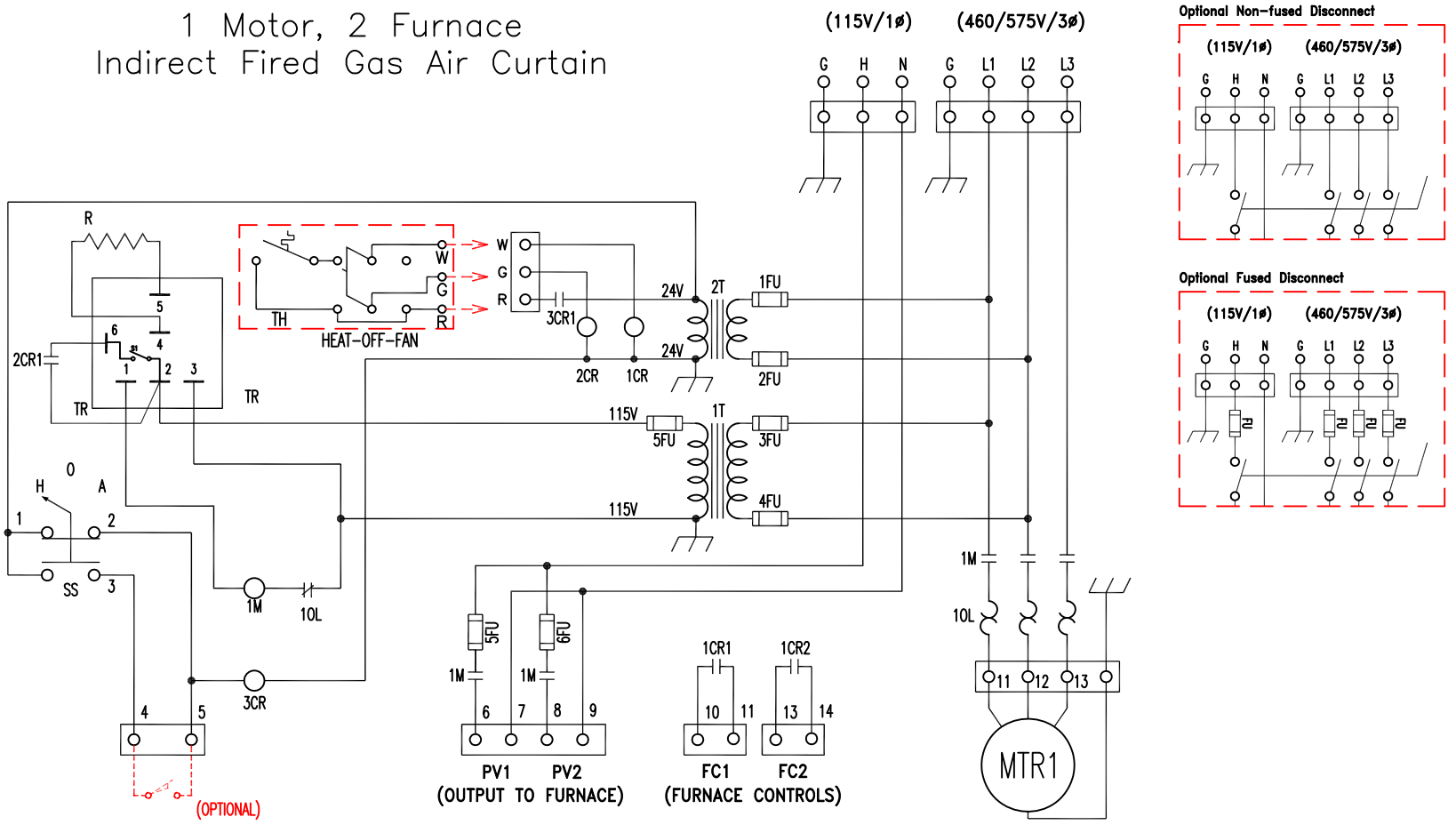
Intertek

Furnace Only

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

5 HP Motor Unit = 73 dBA, 7 ½ HP Motor Unit = 74 dBA, 10 HP Motor Unit = 75 dBA

Wiring Diagram
for
1 Motor, 2 Furnace
Indirect Fired Gas Air Curtain



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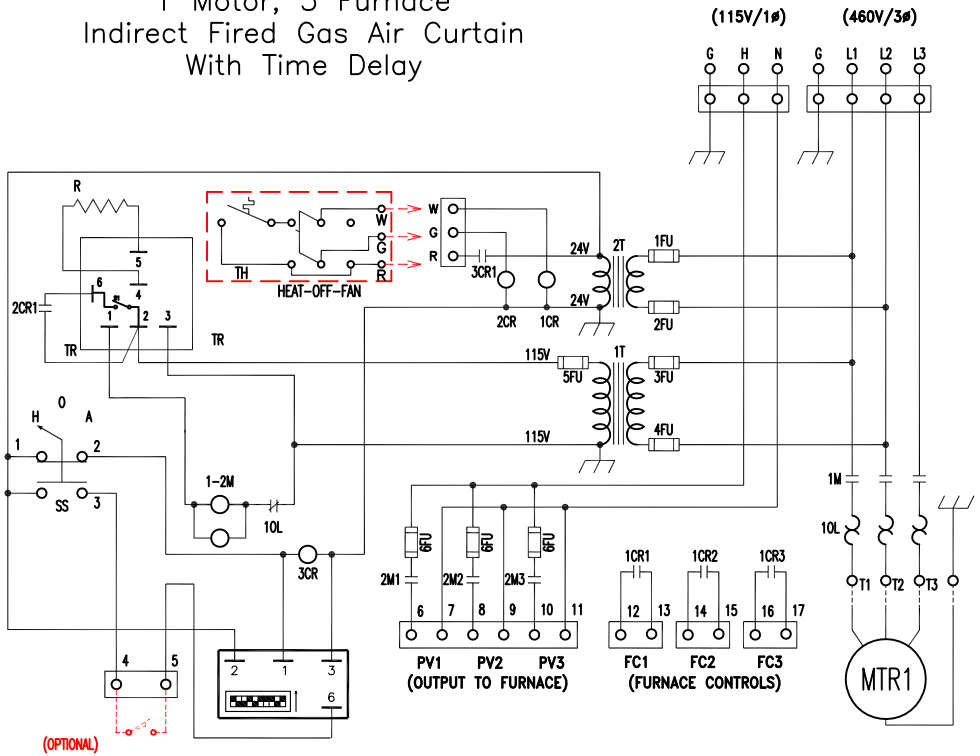
PROJECT	DATE 08/30/16 / PAGE	STANDARD
TITLE 1 Motor, 2 Furnace Indirect Fired Gas Wiring Diagram	REV. NO. 1	MODEL NO.
COMMENTS	FILE NAME MCPH-1IG-2F	DRAWING NO.
	OPTIONS/ITEMS	DRAWN BY FRC
		CHECKED BY FRC

Wiring Diagram for 1 Motor, 3 Furnace Indirect Fired Gas Air Curtain With Time Delay



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PROJECT	DATE 2/15/17	PAGE	STANDARD
TITLE 1 Motor, 3 Furnace Indirect Fired Gas Wiring Diagram w/ TD	REV. NO. 1		MODEL NO.
COMMENTS	FILE NAME MCPI-1IH-3F-TD		DRAWING NO.
	OPTIONS/ITEMS		DRAWN BY BH
			CHECKED BY NT

Thermostats

Line voltage to low voltage Models

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Part Number	Description	Applicable Air Curtain Series
99-063	Line voltage, up to 240v, analog, single stage, single pole	All Hot Water/Steam
99-064	Line voltage, up to 240v, analog, two stage, double pole	WM/BD Electric Heat
99-264	Low voltage, 24v, digital, non-programmable, single pole, R.G.W.	All Electric Heat except WM/BD, All Gas Fired
99-186	Low voltage, 24v, digital, programmable, single pole, R.G.W.	All Electric Heat except WM/BD, All Gas Fired

Features:
- Automatic and manual control of the heat while the air curtain is energized
- Fan on/off control
- Remote mounted and field wired by others (eye level within 3 feet of the unit)
- Temperature range from 50F to 90F
- Analog Bimetal Temperature Sensing
- Thermostats are UR (UL Recognized)
- 1 year warranty

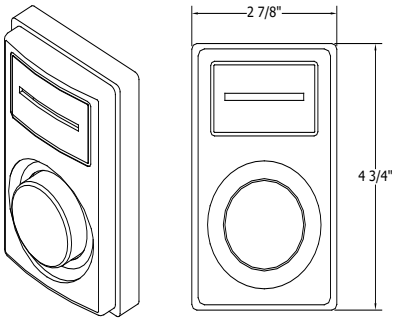
Line Voltage (99-063, 99-064)
- Line voltage, up to 240v
- Analog
- Non-programmable
- Requires Junction Box (J-Box field supplied and installed)

Low voltage (99-264)
- Low voltage (24V) control
- Digital
- Non-programmable
- Fan and Heat Control

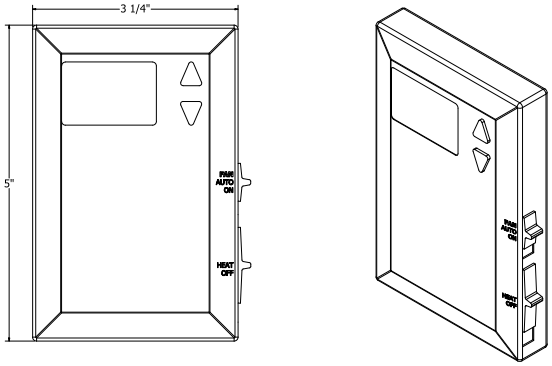
Low voltage (99-186)
- Low voltage (24V) control
- Digital
- 7-day programmable
- Fan and Heat Control

Note: Do not mount low voltage thermostat greater than 30ft from the air curtain. Mounting the low voltage thermostat too far from the air curtain may cause a voltage drop and cause chattering.

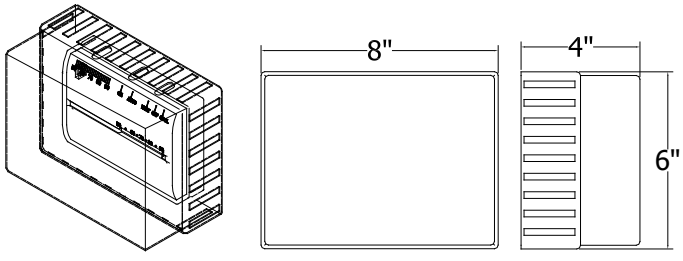
Options and Accessories:
- MTD-ACC, Factory installed and wired thermostat on the air curtain housing
- 99-182, Lockable clear cover
- 99-192, Remote indoor sensor for programmable thermostat 99-186
- 99-195, Remote outdoor sensor for programmable thermostat 99-186
- 99-375, NEMA 4X Thermostat, up to 240v, analog, single stage, single pole (outdoor sensing)



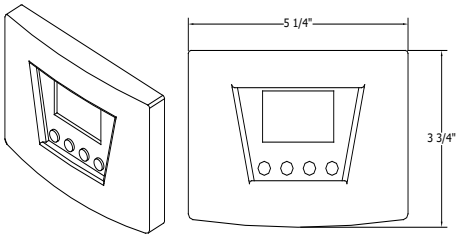
99-063 – Thermostat, 801, Line Voltage, Single Stage, Single Pole



99-264 – Thermostat, 24 Volt, Digital, Non-Programmable, Single Pole, R.G.W.



99-182 - Cover, Lockable, Clear



99-186 – Thermostat, 24 Volt, Digital, Programmable, Single Pole, R.G.W.

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Document No: ACC-IOM
Date: 04/13/2013

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)

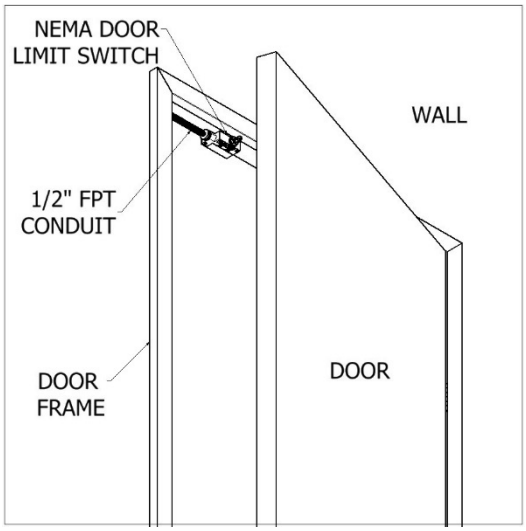

FIG. 1

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.

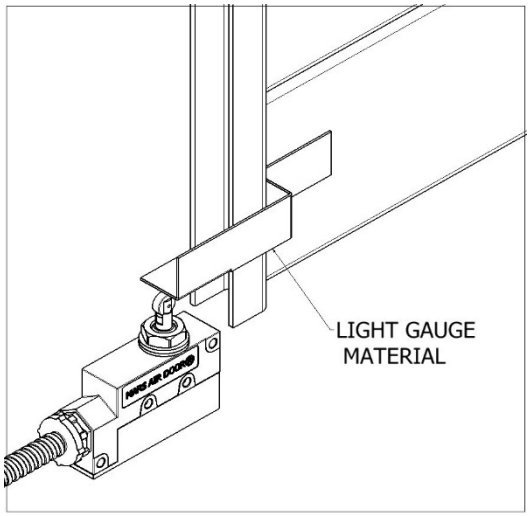

FIG. 2

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.

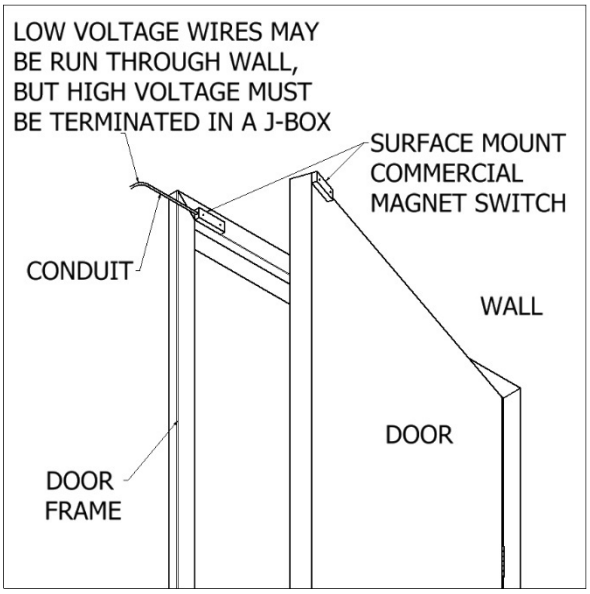

FIG. 3

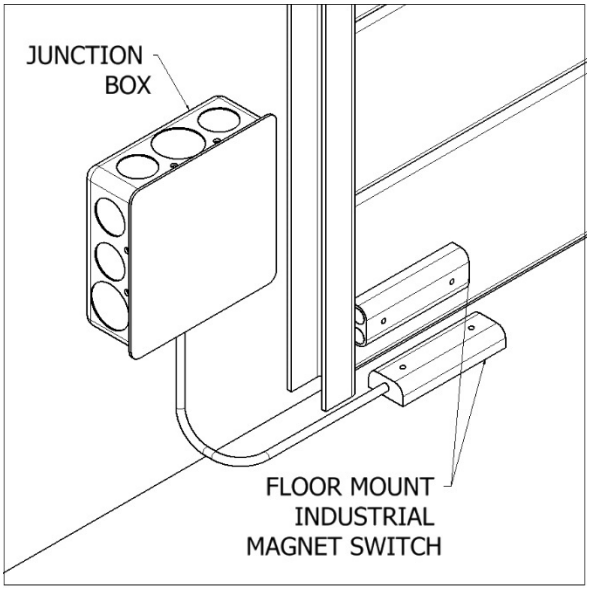

FIG. 4

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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)

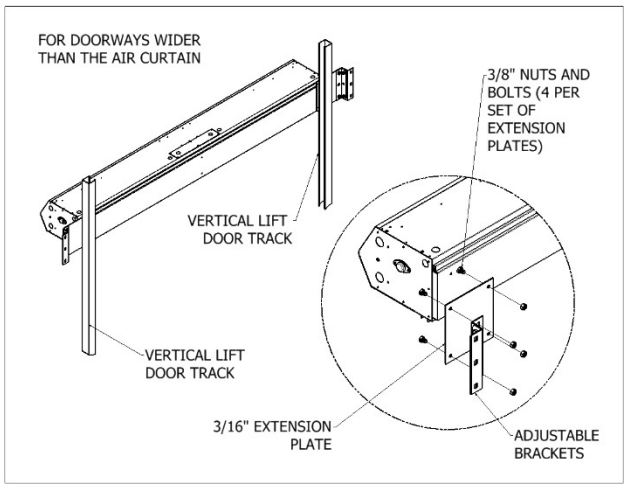

FIG. 5 (LPV SHOWN)

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

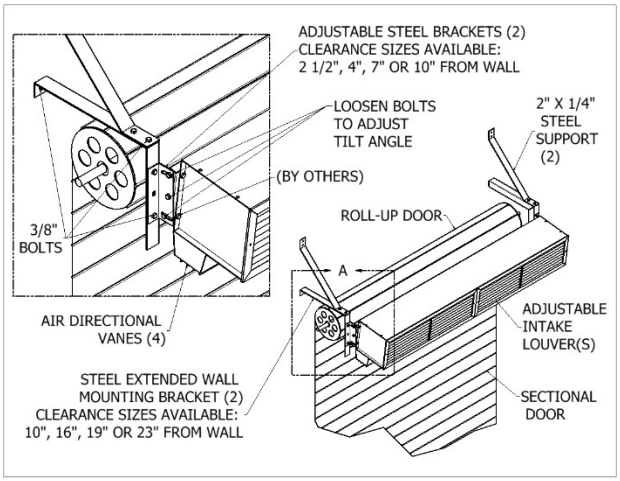

FIG. 6 (STD SHOWN)

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.

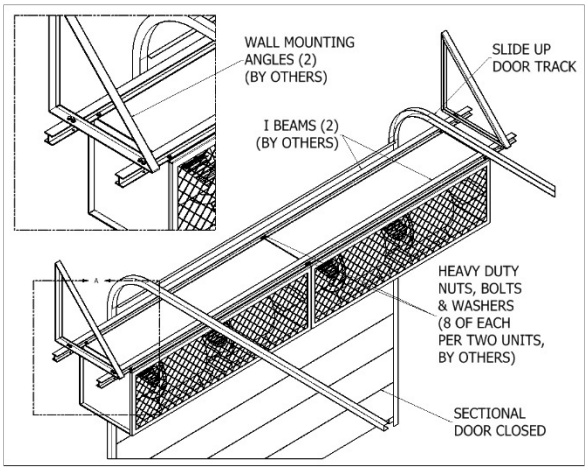

FIG. 7 (WMI/WMH Shown)

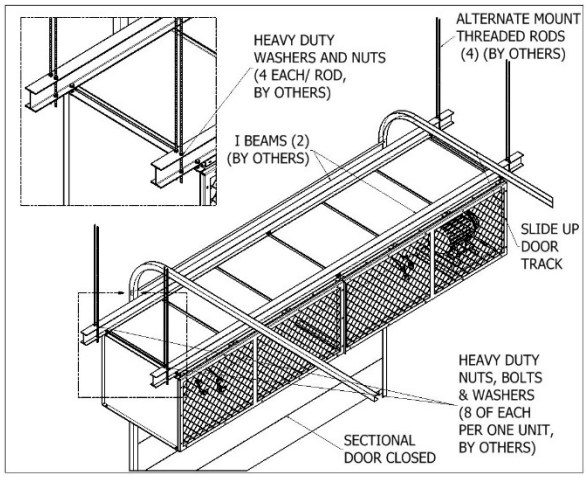

FIG. 8 (BD Shown)

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STERLING “XF” SERIES CONVERTIBLE VENTING TYPE TUBULAR PROPELLER UNIT HEATER

XFS-1

DESCRIPTION

The Sterling “XF” Series Convertible Venting Type Tubular Propeller Gas-Fired Unit Heater offers a highly efficient, extremely durable alternative to the traditional clam shell design. These propeller type units combine the latest tubular heat exchanger and in-shot burner technology with the quality and reliability you have come to know from Sterling. Units are available in sizes 100 to 400 MBH and have been certified by ETL as providing 83% thermal (combustion) efficiency.

CONVERTIBLE VENTING - STANDARD OR SEPARATED COMBUSTION

Notably, the Sterling “XF” unit heater is designed so it can be installed in either standard or separated combustion venting configurations without requiring modification to the unit itself. Located on the rear cover panel of each unit, combustion air inlet collars are left open in a standard combustion venting configuration. When set up for separated combustion, combustion air piping is connected to the inlet collars so that the burners, spark ignitor, and flue system are enclosed within the unit, allowing the entire combustion process to remain unaffected by the atmosphere in the space where the heater is located. Separated combustion venting configurations should be used where dusty, dirty or mildly corrosive conditions exist, or where high humidity or slightly negative pressures prevail.

ADDITIONAL VENTING FLEXIBILITY

The Sterling “XF” unit heater is ETL certified in accordance with categories I and III venting requirements. This certification allows units to be vented both vertically and horizontally using either single wall or double wall venting materials. Available as an accessory option, Sterling offers a Combustion Air Inlet Kit that allows for concentric venting of both combustion and exhaust air systems through one termination.

TUBULAR HEAT EXCHANGER

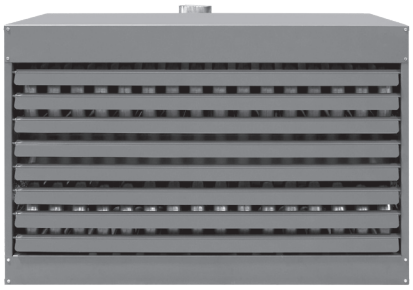
The Sterling tubular heat exchanger has been designed to provide maximum and uniform heat transfer. The low pressure drop associated with this design enables heated air to be evenly distributed to the conditioned space. This curved, non-welded serpentine design experiences less thermally induced stress making it highly durable for significantly longer service life. All Sterling tubular heat exchangers are constructed of heavy duty 20-gauge aluminized steel. Optional 409 stainless steel heat exchangers are also available.

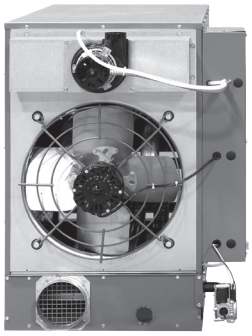
DIRECT SPARK IGNITION SYSTEM & CONTROL ACCESSIBILITY

Sterling “XF” units utilize a direct spark pilotless ignition of the burner, providing fast heat delivery. This highly reliable and efficient ignition system incorporates an integrated electronic control board to regulate the system sequence of operation, including an externally mounted LED indicator for simple troubleshooting. Designed with the service person in mind, ignition and fan controls are located in one centrally located control panel.

CAUTIONS

Combustion air and vent systems must be installed in accordance with current National Fuel Gas Code or Installation Code, Installation Code for Natural Gas Burning Appliances and Equipment (Canada) and any local and state codes. Units should not be installed where negative pressures are significant, where vapor containing chlorine or fluorine may be present or in any areas classified as "hazardous."





STANDARD FEATURES

- Designed for either standard or separated combustion
- 20-gauge aluminized steel tubular heat exchanger
- 83% thermal efficiency
- ODP propeller motor (with overload protection)
- Power venter
- Combustion air pressure switch
- 20-gauge steel cabinetry with baked enamel finish
- Direct spark ignition system
- 115/24 volt control transformer
- 115/1/60 supply voltage
- Redundant single stage gas valve
- Rear access to in-shot burners
- Individually adjustable and removable horizontal louvers
- Complete fan guard
- Main control panel
- 10 year heat exchanger, flue collector and burner warranty

OPTIONAL FEATURES

- Stainless steel heat exchanger, burners, and/or flue collector
- Two stage and various electronic modulation gas controls
- Discharge nozzles (30°, 60° & 90°)
- Combustion air inlet kits (allows concentric venting with horizontal or vertical termination)
- TE propeller motor
- Supply voltages: 208 & 230/1/60 and 208, 230, 460, 575/3/60

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PROJECT: _____

UNIT TAG: _____

"XF" CONVERTIBLE VENTING TUBULAR PROPELLER PERFORMANCE AND DIMENSIONAL DATA

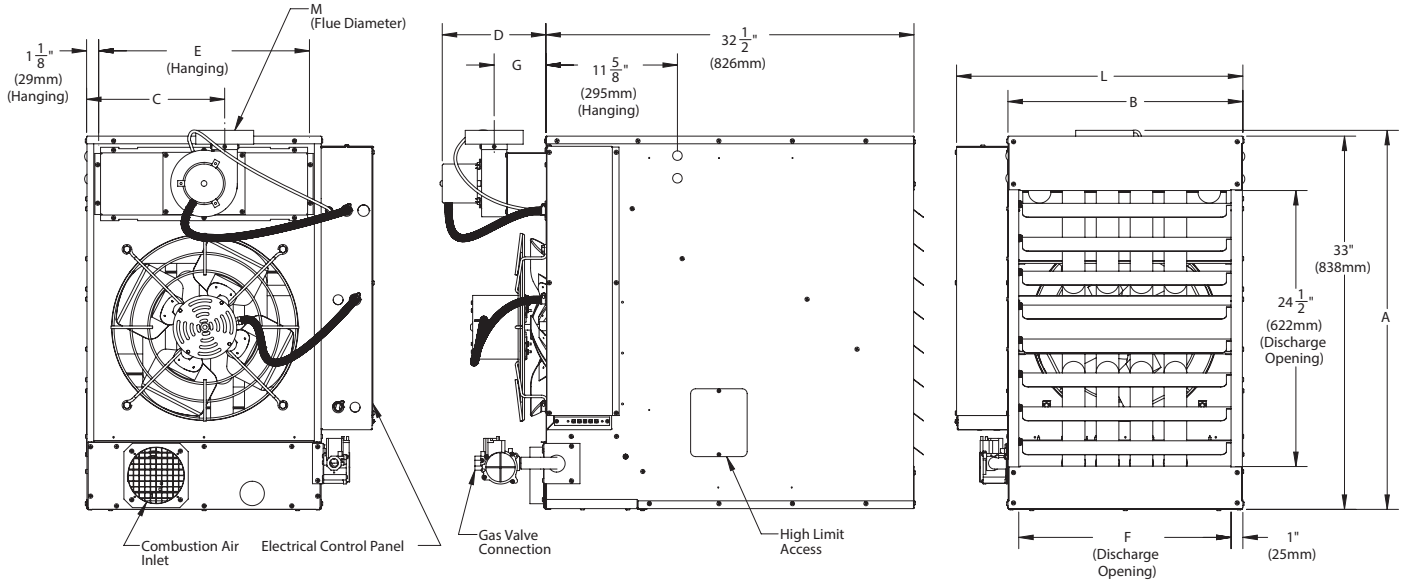
Unit Capacity (MBH)		100	125	150	175	200	250	300	350	400
PERFORMANCE DATA†										
Input - BTU/Hr.		100,000	125,000	150,000	175,000	200,000	250,000	300,000	350,000	400,000
(kW)		(29.3)	(36.6)	(43.9)	(51.2)	(58.6)	(73.2)	(87.8)	(102.5)	(117.1)
Output - BTU/Hr.		83,000	103,750	124,500	145,250	166,000	207,500	249,000	290,500	332,000
(kW)		(24.3)	(30.4)	(36.4)	(42.5)	(48.6)	(60.7)	(72.9)	(85.1)	(97.2)
Thermal Efficiency - %		83	83	83	83	83	83	83	83	83
Free Air Delivery - CFM		1,600	2,200	2,400	2,850	3,200	3,450	5,000	5,600	5,800
(cu. m/s)		(0.756)	(1.039)	(1.133)	(1.346)	(1.511)	(1.629)	(2.361)	(2.644)	(2.738)
Air Temperature Rise -Deg. F		47	42	47	46	47	54	45	47	51
(Deg. C)		(26)	(23)	(26)	(26)	(26)	(30)	(24)	(26)	(28)
Full Load Amps at 120V		6.4	6.9	6.9	8.0	8.0	8.0	11.6	13.8	13.8
Min. Circuit Amps at 120V		7.5	8.1	8.1	9.5	9.5	9.5	12.8	15.3	15.3
MOTOR DATA:	Motor HP	1/10	1/4	1/4	1/3	1/3	1/3	1/4 (2)	1/3 (2)	1/3 (2)
	Motor kW	(0.08)	(0.19)	(0.19)	(0.25)	(0.25)	(0.25)	(0.19)	(0.25)	(0.25)
	Motor Type (ODP)	SP	PSC	PSC	PSC	PSC	PSC	PSC	PSC	PSC
	RPM	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050
	Amps @ 115V	4.2	4.7	4.7	5.8	5.8	5.8	9.4	11.6	11.6
DIMENSIONAL DATA - inches (mm)										
"A" Overall Height to Top of Flue		33-3/4	33-3/4	33-3/4	33-3/4	33-3/4	33-3/4	34	34	34
		(857)	(857)	(857)	(857)	(857)	(857)	(864)	(864)	(864)
"B" Jacket Width of Unit		20-3/4	20-3/4	20-3/4	32-3/4	32-3/4	32-3/4	50-3/4	50-3/4	50-3/4
		(527)	(527)	(527)	(831)	(831)	(831)	(1289)	(1289)	(1289)
"C" Width to CL Flue		13-3/8	13-3/8	13-3/8	19-3/8	19-3/8	19-3/8	28-3/8	28-3/8	28-3/8
		(340)	(340)	(340)	(492)	(492)	(492)	(721)	(721)	(721)
"D" Depth to Rear of Housing		11	11	11	11	11	11	12-1/4	12-1/4	12-1/4
		(279)	(279)	(279)	(279)	(279)	(279)	(311)	(311)	(311)
"E" Hanging Distance Width		18-5/8	18-5/8	18-5/8	30-5/8	30-5/8	30-5/8	48-5/8	48-5/8	48-5/8
		(473)	(473)	(473)	(778)	(778)	(778)	(1235)	(1235)	(1235)
"F" Discharge Opening Width		18-3/4	18-3/4	18-3/4	30-3/4	30-3/4	30-3/4	48-3/4	48-3/4	48-3/4
		(476)	(476)	(476)	(781)	(781)	(781)	(1238)	(1238)	(1238)
"G" Depth to CL Flue		4-3/4	4-3/4	4-3/4	4-3/4	4-3/4	4-3/4	5-1/8	5-1/8	5-1/8
		(121)	(121)	(121)	(121)	(121)	(121)	(130)	(130)	(130)
"L" Overall Unit Width		25-1/4	25-1/4	25-1/4	37-1/4	37-1/4	37-1/4	55-1/4	55-1/4	55-1/4
		(641)	(641)	(641)	(946)	(946)	(946)	(1403)	(1403)	(1403)
Combustion Air Inlet Dia. (Qty) - in		5	5	5	5	5	5	5 (2)	5 (2)	5 (2)
(mm)		(127)	(127)	(127)	(127)	(127)	(127)	(127)	(127)	(127)
"M" Flue Size Diameter* - in		5	5	5	5	5	5	6	6	6
(mm)		(127)	(127)	(127)	(127)	(127)	(127)	(152)	(152)	(152)
Gas Inlet, Natural Gas - in		1/2	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4
Gas Inlet, LP Gas - in		1/2	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4
Approximate Unit Weight - lb		135	147	157	194	204	214	311	325	339
(kg)		(61)	(67)	(71)	(88)	(93)	(97)	(141)	(147)	(154)
Approximate Ship Weight - lb		175	187	197	244	254	264	371	385	399
(kg)		(79)	(85)	(89)	(111)	(115)	(120)	(168)	(175)	(181)

† Ratings shown are for unit installations at elevations between 0 and 2,000 ft (0 to 610m). For unit installations in U.S.A. above 2,000 ft. (610m), the unit input must be field derated 4% for each 1,000 ft. (305m) above sea level; refer to local codes, or in absence of local codes, refer to the latest edition of the National Fuel Gas Code, ANSI Standard Z223.1 (N.F.P.A. No. 54).

For installations in Canada, any reference to deration at altitudes in excess of 2,000 ft. (610m) are to be ignored. At altitudes of 2,000 ft. to 4,500 ft. (610 to 1372m), the unit must be field derated and be so marked in accordance with the ETL certification. See unit installation manual for field deration information.

* Flue collar is factory supplied with unit; to be field installed per included instructions.

** LEGEND: SP = SHADED POLE PSC = PERMANENT SPLIT CAPACITOR ODP = OPEN DRIP PROOF



Rear View Side View Front View

CAT-10364_A

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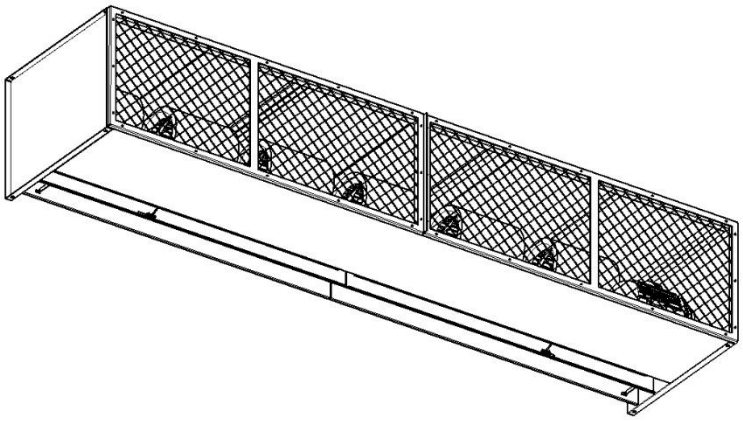
Document No: BD-IOM
Date: 08/26/24

WINDGUARD BELT DRIVE (BD) INDUSTRIAL SERIES

Installation, Operation and Maintenance Manual

Read these instructions carefully before assembling, installing, operating, or maintaining the product. Follow all safety guidelines to avoid injury or damage. Keep these instructions for future reference.

Warning: To reduce the risk of fire, electric shock, or injury to persons, do not use replacement parts that have not been recommended by the manufacturer.



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: BD14 Series (Environmental Separation up 16' and Flying Insect Control 14'), BD18 Series (Environmental Separation up 20' and Flying Insect Control 18'), BD22 Series (Environmental Separation up 24' and Flying Insect Control 22'), BD26 Series (Environmental Separation up 28' and Flying Insect Control 26') and BD30 Series (Environmental Separation up 32' and Flying Insect Control 30'). The units are typically overhead mounted horizontally above the door opening. They can also be vertically mounted alongside the opening. Heated units must be mounted on the inside or the protected side of the opening. The motors used in the BD Series range from 5 HP to 30 HP (see submittals for details).

All BD Series come standard with expanded metal air intake grille(s). The BD Series can also be optionally configured with Flat Bank or V-Bank air filter sections.

⚠ WARNING

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

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 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.

RECEIVING AND INSPECTION

Upon receiving the product, check to ensure all items (including accessories, e.g. switches) 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. Overhead installation is recommended to prevent the possibility of the unit falling if the wall to which the unit is mounted is hit by a truck or material handling device. If, however, wall or bracket mounting is preferred, additional holes may be drilled in the rear flanges of the housing side panels.

   Note*:* Bracket/Support mounting is not generally recommended for Air Curtains equipped with steam or hot water coils. Overhead installation using threaded rods with independent suspension of coils is recommended.

2. Center the unit over the opening. The air curtain shall be equal to or greater than the width of the opening.
3. Four (4) sets of pre-punched 1/2” mounting holes, two (2) on each end the unit, are provided to secure the product overhead. All hardware is field provided by others.

   Mount the product such that the discharge is 1” above the opening and all obstacles (FIG. 4).

   Note: If the product is installed higher than the recommended 1” above the opening, then it must be moved 3/8” away from the wall for every 1” that it is moved up. Any void between the wall and the product must be sealed (by others) to optimize performance.

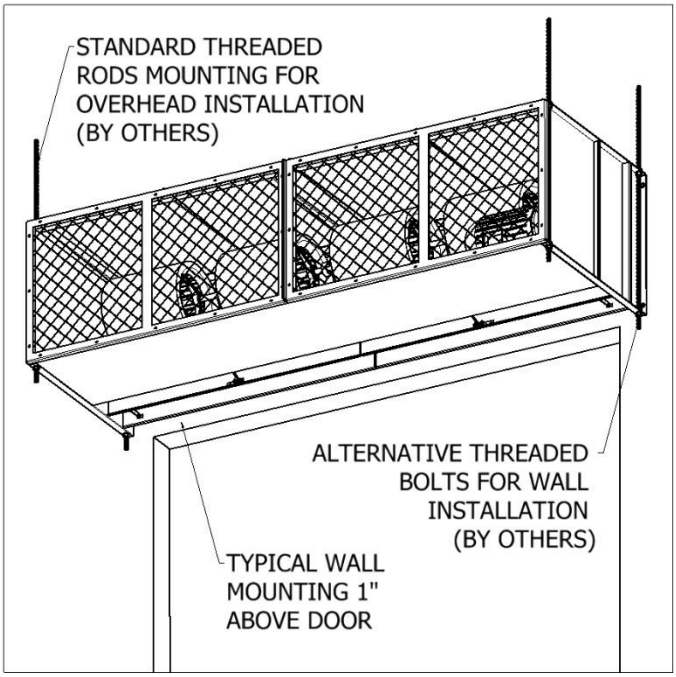


FIG. 1

4. Use four (4) threaded rods for overhead installation or four (4) threaded bolts for wall installation. All hardware is field provided by others. (FIG. 1)
5. For tandem installation of products mounted side by side, allow no more than 6” between the two products. For overhead installation using threaded rods, the products may require a beam or strut channel (by others) to span the full distance of the mounting length. (Reference **Accessory Installation Supplement**)
6. All wires must be connected to the external junction box on the side of the unit (default is right side).
7. The unit must be wired per NEC and local codes.

Electrical Field Wiring

The unit and any optional accessories must be wired with the proper voltage to the junction box per the wiring diagram. (FIG. 2, unheated products only)

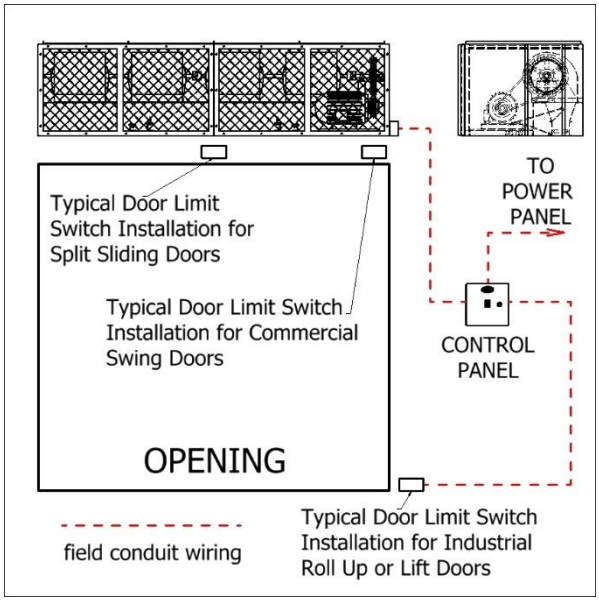


FIG. 2

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

A. Re-check that the product has been installed properly and is level and secure.
B. 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.
C. Verify proper voltage prior to powering the product. (See product label for reference).
D. Check all field wired components (if supplied) are wired correctly.
E. Check that the inlet air supply and the discharge air supply are free of obstructions.
F. Check that all air filter(s) and/or air intake grille(s) are in place and installed properly, as originally shipped.
G. Verify voltage to the product once more and turn power on.
H. 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. 3).

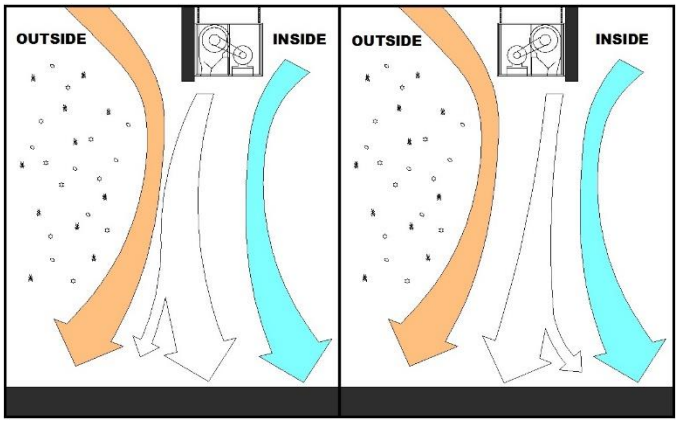


FIG. 3

I. 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.
J. If heated products are installed, reference **Heated Products Supplement**.
K. 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. 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.

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 buildup 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 usage 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) or top access panels.
4. Thoroughly clean the air intake grille(s)/filter(s) or top access panels.
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) may require additional lubrication. The cartridge bearings for blowers are permanently lubricated double sealed ball bearings and do not require additional lubrication. The pillow block bearings require periodic greasing depending on use. Zerk fittings are provided on each bearing.
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.

SPECIAL APPLICATIONS

Outdoor Installation

For units being installed outdoors, special consideration may be required for enclosure, motor, wheel, and other components to minimize damage caused by exposure to the outdoor elements. Contact factory for special construction and costing.

Freezer and Cooler Installation

Air curtain must be mounted on the warm side for optimal performance. Variable Frequency Drive (VFD) is strongly recommended to control the air curtain air flow velocity at the floor level.

Freezer applications in high humidity areas may require a de-humidifier, or an additional defrost cycle, to minimize condensation and icing. We recommend the air curtain unit not to replace physical doors, but to work in conjunction with the door opening sequence cycle. Contact factory for details.

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.

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Document No: HT-IOM
Date: 10/20/2023

HEATED PRODUCTS SUPPLEMENT

NOTE

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

Electric Heated Products

Electric heated products are certified only for indoor use. Electric heated products come standard with a thermostat (shipped loose, unless ordered as factory pre-mounted) which is to be field installed at eye level within 3 feet of the unit.

Note:

1. Electric heated Low Profile 2, Standard 2, High Velocity 2, Extra Power 2, and Phantom series units come standard with internally mounted controls with 24V control circuit (FIG. 1).
2. Wiring connection for the electric heated Low Profile 2 units is at the top of the housing which can be accessed by removing the top cover plate, while internal terminal blocks are provided for electric heated Standard 2, High Velocity 2, Extra Power 2, and Phantom series units.
3. Electric heated Wind Stopping and WindGuard units include an electric heater control panel mounted on the right-hand side, as standard. 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 close to the product to best sense the air temperature in the vicinity of the door opening. Connect proper voltage to the product per local and NEC codes.

Thermal overload protection is built into all heater coil assemblies. In the event of an overload condition, the overload will trip and disconnect electrical power from the heater coil. Upon diagnosing and fixing the problem, power can be reconnected to the heater coil by manually resetting the thermal overload by way of the buttons(s) or lever(s) located in the unit or panel.

To operate multiple units in conjunction using a single door switch and single thermostat, a primary/secondary configuration is required (FIG. 2).

For high ampacity units, additional holes can be drilled to bring in additional electrical wires. Use appropriate bushings for new holes to protect wire casing. High temperature silicon wires are recommended for main supply power.

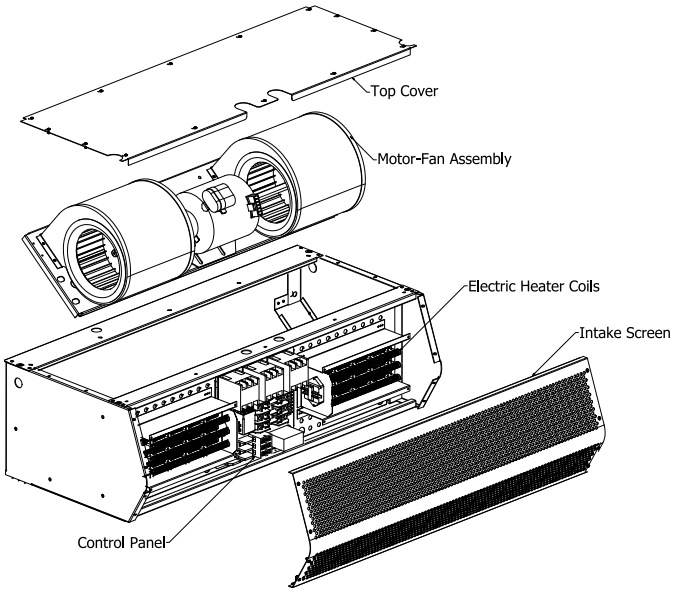


FIG. 1 (Electric Heated STD2 unit)

An unobstructed clearance space of 18-24" is required at the top of all heated air curtains to allow for service and optimal performance.

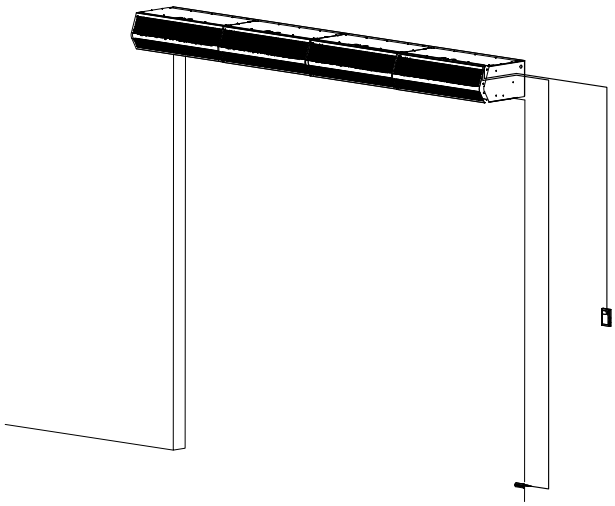


FIG. 2 (Tandem Mounted Primary/Secondary Units)

Hot Water and Steam Heated Products

Hot water and steam heated products are certified only for indoor use. Low Profile 2, Standard 2, High Velocity 2, Extra Power 2, and Phantom series units are shipped with coils mounted in the interior of the unit. Wind Stopping and WindGuard units are shipped with coils factory mounted to the exterior of the unit.

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 for Standard 2, High Velocity 2, Extra Power 2, Phantom series, and WindGuard units.

Note: Low Profile 2 and Wind Stopping units require the removal of the coil to access the motor(s) 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 to be sized and field installed by others. For Standard 2, High Velocity 2, and Extra Power 2 units, front intake screen must be removed to access vent plugs. Standard coil configuration is right hand supply and left-hand return (FIGS. 3 & 4) except for Low Profile 2 series, which has supply and return connection on the same end. Optional temperature controls, if ordered, are to be field installed by others.

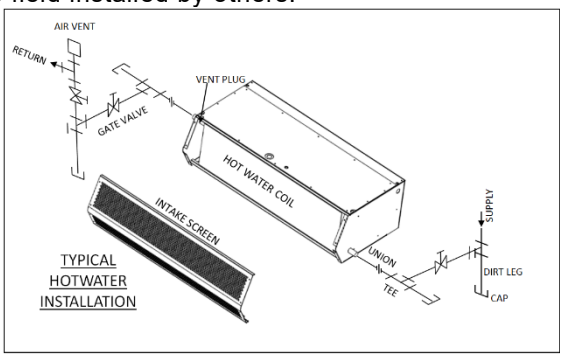


FIG. 3 (Hot Water Heated STD2 Unit)

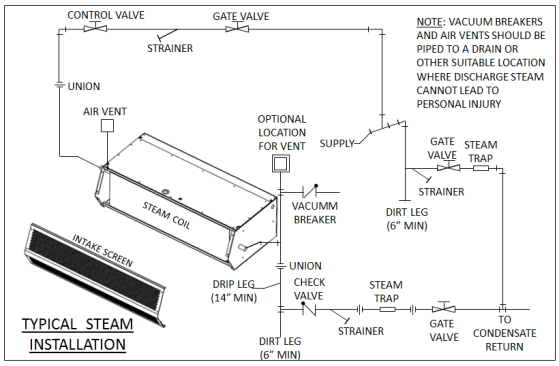


FIG. 4 (Steam Heated STD2 Unit)

Gas Heated Products

Gas heated products are certified only for indoor use. The product consists of three major components: the air curtain, the transition section(s), and the indirect gas fired duct furnaces(s) (FIG. 5).

The transition section(s) are shipped knocked down and are to be field assembled and installed per their supplemental instructions (FIG. 6). Exceptions are the Wind Stopping (WMI, WMH) and WindGuard (BD) series, which are shipped with fully assembled transitions.

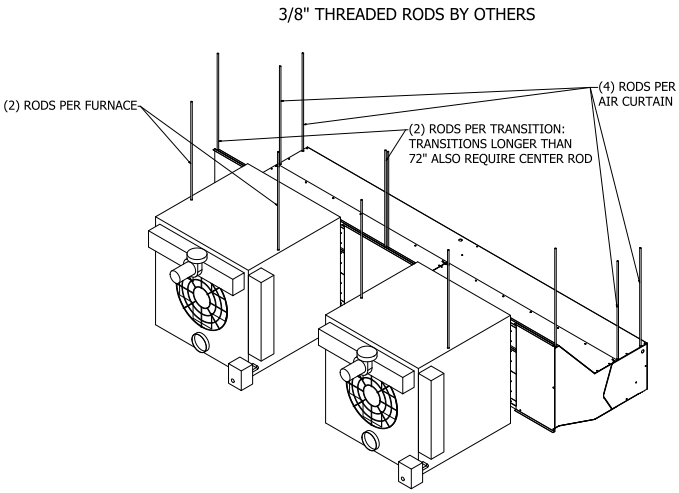


FIG. 5 (Indirect Gas Fired Heated HV2 Unit)

Note:

1. Assemble the transition section(s).
2. Measure the width of the transition section(s) to determine the best installation location for the duct furnace(s).
3. The duct furnace(s) are typically suspended from above with threaded rods. The duct furnace(s) must be centered and equally spaced with a 2" clearance between the furnace(s) and the transition section(s).
4. Install the adjustable blank off plates to close the gaps in the transition section(s) and secure the flanges to the transition section(s).

All gas piping and duct furnace 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. See furnace installation manual for additional piping and other details.

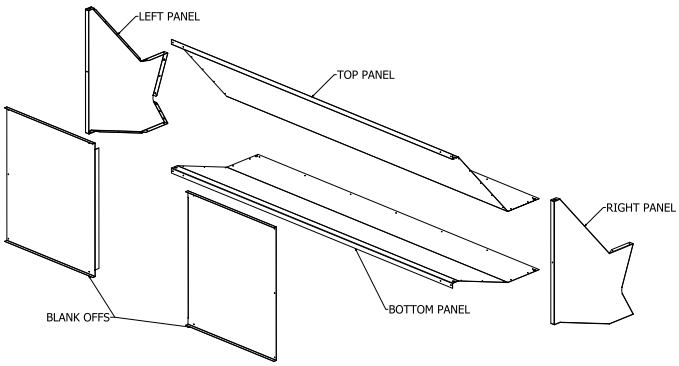


FIG. 6 (Transition Kit Exploded View)

In the United States, installation must conform to local codes or, in the absence of local codes, with the latest edition of the National Fuel Gas Code (ANSI Z223.1/NFPA 54). 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 the latest edition of the Installation Code for Gas Burning Appliances and Equipment (CAN/CGA B149.1). Further reference should be made to the recommendation of your fuel supplier.

TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
NO AIR BLOWING OUT OF DISCHARGE NOZZLE	- No power being supplied to the unit from the electrical power source	- Confirm power source / check if in on position
	- Circuit breaker is tripped	- Reset circuit breaker
	- Blown fuses on power supply	- Replace fuses
	- Motor overload is open or tripped	- 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
	- Motor contactor / relay defective (if applicable)	- Check voltage to coil; check contacts to see if they are pulling in
	- Failed switch	- Replace or repair limit switch
MOTOR IS RUNNING BUT FANS ARE NOT SPINNING	- Loose or broken coupling (belt drive)	- Replace or tighten coupling
	- Loose set screws on wheel hubs	- Tighten set screws on motor shaft flats
	- Fan spinning inside fan housing	- Tighten fan on shaft or replace fan
	- Broken fan hub	- Replace fan wheels
ELECTRICAL CONTROLS NOT WORKING WHEN DOOR IS OPEN	- Switch is in off position	- Turn unit's switch to the on position
	- Door limit switch is not operating	- Repair or replace door limit switch
UNIT WILL NOT TURN OFF	- Door limit switch is permanently closed or energized	- 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	- Discharge air vanes out of adjustment	- Adjust vanes to proper position (Refer to Start-Up Section in this manual)
	- Obstruction on intake or discharge	- Remove obstruction or move air curtain
	- Power leads out of polarity	- Switch power leads to correct polarity (3 phase models only)
	- Blower motor rotating below normal speed	- Apply proper voltage per unit requirement (see unit label) / Adjust adjustable motor speed knob (if applicable)
	- Fan rubbing against housing	- Free fan from housing
	- Blower wheels clogged with dirt	- Clean and remove dirt from blower wheels
EXCESSIVE AIR VELOCITY AT DOOR OPENING	- Nozzle out of adjustment and not angled far out enough (BD only)	- Adjust nozzle angle to outside
	- Air temperature too cold	- Add auxiliary heat to overcome wind chill
	- Air stream pushing air outside of the building	- Adjust discharge angle back into building
AIR NOT HITTING THE FLOOR	- Low air velocity	- Adjust vanes to proper position or check installation height (Refer to Start-Up Section in this manual)
	- Obstruction in the direction of air flow	- Remove obstruction or move air curtain (Move out 3/8" for every 1" up from the door)
	- Negative building pressure	- Provide a make-up air system to relieve negative building pressure
UNEVEN AIR	- Shaft rotating inside fan	- Replace fan or tighten fan on shaft
	- One motor not functioning	- Replace or repair motor
EXCESSIVE NOISE AND OR VIBRATION	- Loose or broken coupling (belt drive)	- Replace or tighten coupling
	- Loose set screws on wheel hubs	- Tighten set screws on motor shaft flats
	- Fan spinning inside fan housing	- Tighten fan on shaft or replace fan
	- Broken fan hub	- Replace fan wheels
	- Bearing end caps worn	- Replace Bearing end caps
	- Damaged blower wheel	- Replace Blower Wheel
	- Bearing end caps worn	- Replace Bearing end caps
	- Pillow block bearings make noise	- Grease Bearing
	- Balancing clips missing	- Replace Blower Wheel

TROUBLESHOOTING MOTOR

To determine if the motor is in good operating condition, compare measured motor resistance at the motor terminals to the values shown below.

MARS MOTOR RESISTANCE READINGS

Single Phase Motors

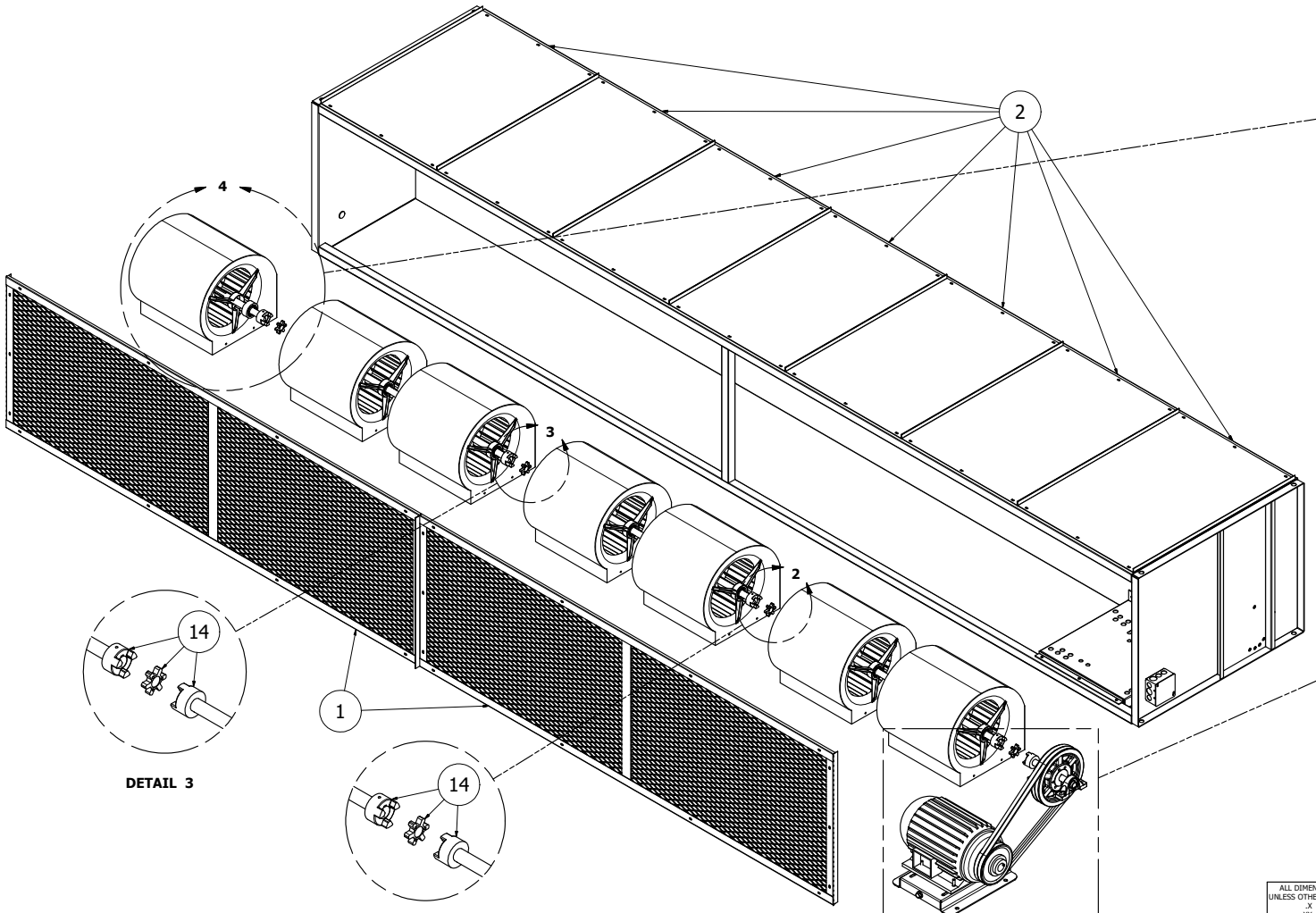
atmosphere is everything

Applicable Air Curtain Series	Mars Part #	Manufacturer Part #	Brand	Motor Rating	HP	Voltage	Phase	Capacitor Rating	Motor Frame	MOTOR WIRES OR TERMINAL (T) OHM READINGS HIGH SPEED (1750) Black Motor Wire & White Motor Wire	MEDIUM SPEED (1650) -	LOW SPEED (1450) -
LPV2, LPN2	03-001	7190-1682	Fasco	Nema 1	1/6	115	1	5 µF 370Vac	-	11.5	-	-
	03-002	7190-1903	Fasco	Nema 1	1/6	115	1	5 µF 370Vac	-	8.4	-	-
	03-003	7190-1825	Fasco	Nema 1	1/6	230	1	4 µF 440Vac	-	64	-	-
	03-004	7190-1904	Fasco	Nema 1	1/6	230	1	6 µF 370Vac	-	44.6	-	-
	03-124	7190-3307	Fasco	Nema 1	1/6	115/230	1	10 µF 370Vac	-	8.2/36	-	-
	03-124	K33NVDHJ-1446	US	Nema 1	1/6	115/230	1	10 µF 370Vac	-	8.1/32	-	-
Applicable Air Curtain Series	**Mars Part #**	**Manufacturer Part #**	**Brand**	**Motor Rating**	**HP**	**Voltage**	**Phase**	**Capacitor Rating**	**Motor Frame**	**White Motor Wire (T1) & Black Motor Wire (T3)**	**White Motor Wire (T1) & Black Motor Wire (T5)**	**White Motor Wire (T1) & Black Motor Wire (T2)**
STD2, N2, PH10, QP10	03-010	34G928X169	Baldor	Washdown (IP54)	1/2	115	1	-	56Z	1.2	-	-
	03-010	34G928X169	Baldor	Washdown (IP54)	1/2	208/230	1	-	56Z	4.6	-	-
	03-005	7124-1175	Genteq	Nema 1	1/2	115	1	7.5 µF 370Vac	48	2.6	3.8	5.2
	03-006	7124-1560	Genteq	Nema 1	1/2	208/230	1	10 µF 370Vac	48	9.9	15.9	22.5
	03-007	48S17T439	Marathon	Nema 1	1/2	277	1	-	48Z	7.7	-	-
	03-005	K055PWM1736C13H	Nidec	Nema 1	1/2	115	1	10 µF 370Vac	48Y	2.1	3.7	5.2
	03-005	K055PWM1736C13H	US	Nema 1	1/2	115	1	10 µF 370Vac	48Y	5.3	3.7	5.4
	03-006	K55HXPNA-2845	US	Nema 1	1/2	208/230	1	10 µF 370Vac	48Y	8.7	18.2	24.2
Applicable Air Curtain Series	**Mars Part #**	**Manufacturer Part #**	**Brand**	**Motor Rating**	**HP**	**Voltage**	**Phase**	**Capacitor Rating**	**Motor Frame**	**White Motor Wire (T1) & Black Motor Wire (T2)**	**White Motor Wire (T1) & Black Motor Wire (T3)**	**-**
HV2, NH2, PH12	03-021	35T276R025G1	Baldor	Washdown (IP54)	1	115	1	-	56Z	0.7	-	-
	03-015-Baldor	35M316S174	Baldor	Nema 1	1	115	1	-	56Z	0.6	-	-
	03-015-Baldor	35M316S174	Baldor	Nema 1	1	208/230	1	-	56Z	2.2	-	-
	03-021	35T276R025G1	Baldor	Washdown (IP54)	1	208/230	1	-	56Z	2.8	-	-
	03-014	7124-0985	Genteq	Nema 1	1	115	1	50 µF 370Vac	56	1.6	2.4	-
	03-015	7124-1096	Genteq	Nema 1	1	208/230	1	30 µF 370Vac	56	6.5	9.2	-
	03-015	-	Nidec	Nema 1	1	208/230	1	20 µF 370Vac	48Y	4.3	6.5	-
	03-014	K55BWJZB-2362	US	Nema 1	1	115	1	20 µF 370Vac	48Y	1	2.1	-
	03-015	-	US	Nema 1	1	208/230	1	20 µF 370Vac	48Y	3.2	6.3	-

Three Phase Motors

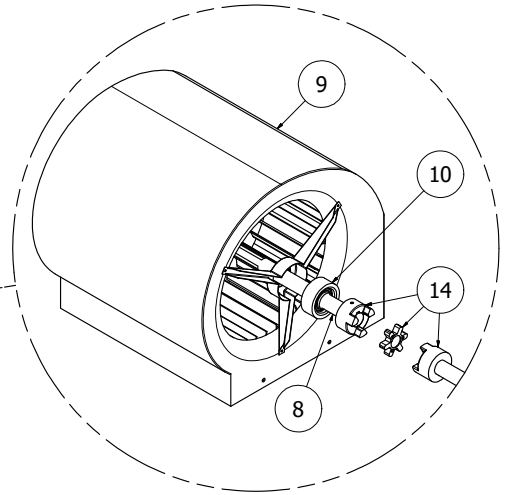
Applicable Air Curtain Series	Mars Part #	Manufacturer Part #	Brand	Motor Rating	HP	Voltage	Phase	Motor Frame	LEAD WIRE OHM READINGS Black Motor Wire (L1) & Red Motor Wire (L2)	Black Motor Wire (L1) & White Motor Wire (L3)	Red Motor Wire (L2) & White Motor Wire (L3)
STD2, N2, PH10, QP10	03-008	P55YYDHB-1527	US	Nema 1	1/2	208-230	3	48	16.1	16.1	16.1
	03-008	P55YYDHB-1527	US	Nema 1	1/2	460	3	48	63.6	63.6	63.6
	03-009	48T17T135	Marathon	Nema 1	1/2	575	3	48	136	136	136
HV2, NH2, PH12	03-017	56T17T5541	Marathon	Nema 1	1	208-230	3	56Z	4.3	4.3	4.3
	03-017	56T17T5541	Marathon	Nema 1	1	460	3	56Z	16.5	16.5	16.5
	03-018	56T17T5544	Marathon	Nema 1	1	575	3	56Z	26.6	26.6	26.6
	03-022	35N127S902	Baldor	Washdown (IP54)	1	208-230	3	56Z	5.1	5.1	5.1
	03-022	35N127S902	Baldor	Washdown (IP54)	1	460	3	56Z	19.8	19.8	19.8
EP2	03-026	165716	Century	Nema 1	3	208-230	3	U56Y	1.5	1.5	1.5
	03-026	165716	Century	Nema 1	3	460	3	U56Y	5.7	5.7	5.7
	03-026	P63TYFMJ-1687	US	Nema 1	3	208-230	3	56HZ	1.2	1.2	1.2
	03-026	P63TYFMJ-1687	US	Nema 1	3	460	3	56HZ	4.4	4.4	4.4
	03-028	35E92Y26	Baldor	Nema 1	3	575	3	56Z	9.2	9.2	9.2
WMI	03-110	36H110-2211G1	Baldor	Nema 1	1,2,3	208-230	3	184Z	3.5	3.5	3.5
	03-110	36H110-2211G1	Baldor	Nema 1	1,2,3	460	3	184Z	13.5	13.5	13.5
WMH	03-055	37F932W828G1	Baldor	Nema 1	5	230	3	215YZ	0.7	0.7	0.7
	03-055	37F932W828G1	Baldor	Nema 1	5	460	3	215YZ	2.4	2.4	2.4
	03-046	37F909X889G1	Baldor	Nema 1	7	230	3	215YZ	0.6	0.6	0.6
	03-046	37F909X889G1	Baldor	Nema 1	7	460	3	215YZ	1.6	1.6	1.6
BD	03-033	U639A - 215TTFC6027	Marathon	Nema 1	10	208-230	3	215T	0.4	0.4	0.4
	03-033	U639A - 215TTFC6027	Marathon	Nema 1	10	460	3	215T	1.2	1.2	1.2
	03-074	GT1128A 170118.60	Marathon	Nema 1	25	575	3	284TS	0.5	0.5	0.5

SEE NEXT PAGE FOR PART NUMBERS



DETAIL 3

DETAIL 2



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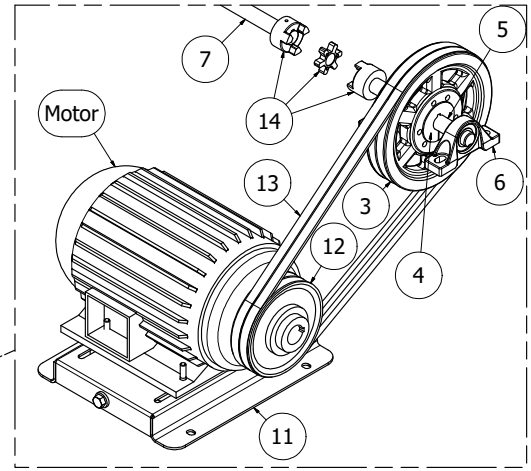

DETAIL 1

DRAWN	AR	7/3/2024	
CHECKED			
QA			
MFG			
APPROVED			
MATERIAL			

ALL DIMENSIONS INCHES
UNLESS OTHERWISE SPECIFIED
.X ±0.1
.XX ±0.05
.XXX ±0.030
HOLE ±0.003
ANGULAR ±1°

TITLE

SIZE D | DWG NO BD Replacement Parts | REV

SCALE 1/8.5 | SHEET 1 OF 2

Table 1: All BD Series

Air Curtain Model #	Item 1: Intake Screen Set		Item 2: Top Panel Set		Item 3: Driven Pulley		Item 4: Bushing		Item 5: Drive Shaft		Item 6: Pillow Block Bearing		Item 7: Driven Shaft, 46"		Item 8: Driven Shaft, 23"		Item 9: Blower Wheel Assy		Item 10: Cartridge Bearing	
	Part #	Qty	Part #	Qty	Part #	Qty	Part #	Qty	Part #	Qty	Part #	Qty	Part #	Qty	Part #	Qty	Part #	Qty	Part #	Qty
BD**96-1U*-TS	02-030-	1	11-002-	1	08-003	1	13-027	1	08-090	1	08-108	2	08-170	2	-	-	04-016	4	08-107	8
BD**120-1U*-TS	02-031-	1	11-003-	1	08-003	1	13-027	1	08-090	1	08-108	2	08-170	2	08-171	1	04-016	5	08-107	10
BD**144-1U*-TS	02-032-	1	11-004-	1	08-003	1	13-027	1	08-090	1	08-108	2	08-170	3	-	-	04-016	6	08-107	12
BD**168-1U*-TS	02-033-	1	11-005-	1	08-003	1	13-027	1	08-090	1	08-108	2	08-170	3	08-171	1	04-016	7	08-107	14
BD**192-1U*-TS	02-034-	1	11-006-	1	08-003	1	13-027	1	08-090	1	08-108	2	08-170	4	-	-	04-016	8	08-107	16

Table 2: Specific to BD Series

Air Curtain Model #	Item 11: Motor Slide Base		Item 12: Drive Pulley		Item 13: V-Belt		Item 14: Coupling Set, Complete	
	Part #	Qty	Part #	Qty	Part #	Qty	Part #	Qty
BD1496-1U*-TS	03-031SB	1	08-014	1	08-076	2	77-08-500ASY	1
BD14120-1U*-TS	03-031SB	1	08-014	1	08-075	2	77-08-501ASY	1
BD14144-1U*-TS	03-032SB	1	08-200	1	08-078	2	77-08-502ASY	1
BD14168-1U*-TS	03-032SB	1	08-200	1	08-078	2	77-08-503ASY	1
BD14192-1U*-TS	03-033SB	1	08-200	1	08-078	2	77-08-504ASY	1
BD1896-1U*-TS	03-032SB	1	08-200	1	08-076	2	77-08-510ASY	1
BD18120-1U*-TS	03-032SB	1	08-200	1	08-076	2	77-08-511ASY	1
BD18144-1U*-TS	03-033SB	1	08-200	1	08-074	2	77-08-512ASY	1
BD18168-1U*-TS	03-033SB	1	08-200	1	08-074	2	77-08-513ASY	1
BD18192-1U*-TS	03-034SB	1	08-018	1	08-165	2	77-08-514ASY	1
BD2296-1U*-TS	03-033SB	1	08-204	1	08-076	2	77-08-520ASY	1
BD22120-1U*-TS	03-034SB	1	08-019	1	08-074	2	77-08-521ASY	1
BD22144-1U*-TS	03-034SB	1	08-018	1	08-074	2	77-08-522ASY	1
BD22168-1U*-TS	03-035SB	1	08-018	1	08-074	2	77-08-523ASY	1
BD22192-1U*-TS	03-035SB	1	08-019	1	08-074	2	77-08-524ASY	1
BD2696-1U*-TS	03-034SB	1	08-019	1	08-075	2	77-08-530ASY	1
BD26120-1U*-TS	03-035SB	1	08-018	1	08-075	2	77-08-531ASY	1
BD26144-1U*-TS	03-036SB	1	08-201	1	08-075	2	77-08-532ASY	1
BD26168-1U*-TS	03-036SB	1	08-201	1	08-075	2	77-08-533ASY	1
BD26192-1U*-TS	03-037SB	1	08-201	1	08-075	2	77-08-534ASY	1
BD3096-1U*-TS	03-035SB	1	08-019	1	08-075	2	77-08-540ASY	1
BD30120-1U*-TS	03-036SB	1	08-201	1	08-075	2	77-08-541ASY	1
BD30144-1U*-TS	03-037SB	1	08-201	1	08-075	2	77-08-542ASY	1
BD30168-1U*-TS	03-037SB	1	08-201	1	08-075	2	77-08-543ASY	1
BD30192-2U*-TS	03-035SB	2	08-019	2	08-075	4	77-08-544ASY	2

EXAMPLE

BD14 96 - 1 U H - TS

- Series: BD14
- LENGTH OF UNIT
- # OF MOTORS
- U = UNHEATED
- VOLTAGE CODE
- COLOR

*Use corresponding letter for "Voltage Code" to complete the model numbers.

Table 3: Motor (Voltage Code)

Air Curtain Model #	208-230V/3Ø (G)	460V/3Ø (H)	575V/3Ø (I)	Qty
	Part #	Part #	Part #	
BD1496-1U*-TS	03-031	03-031	03-198	1
BD14120-1U*-TS	03-031	03-031	03-198	1
BD14144-1U*-TS	03-032	03-032	03-070	1
BD14168-1U*-TS	03-032	03-032	03-070	1
BD14192-1U*-TS	03-033	03-033	03-071	1
BD1896-1U*-TS	03-032	03-032	03-070	1
BD18120-1U*-TS	03-032	03-032	03-070	1
BD18144-1U*-TS	03-033	03-033	03-071	1
BD18168-1U*-TS	03-033	03-033	03-071	1
BD18192-1U*-TS	03-034	03-034	03-072	1
BD2296-1U*-TS	03-033	03-033	03-071	1
BD22120-1U*-TS	03-034	03-034	03-072	1
BD22144-1U*-TS	03-034	03-034	03-072	1
BD22168-1U*-TS	03-035	03-035	03-073	1
BD22192-1U*-TS	03-035	03-035	03-073	1
BD2696-1U*-TS	03-034	03-034	03-072	1
BD26120-1U*-TS	03-035	03-035	03-073	1
BD26144-1U*-TS	03-036	03-036	03-074	1
BD26168-1U*-TS	03-036	03-036	03-074	1
BD26192-1U*-TS	03-037	03-037	03-075	1
BD3096-1U*-TS	03-035	03-035	03-073	1
BD30120-1U*-TS	03-036	03-036	03-074	1
BD30144-1U*-TS	03-037	03-037	03-075	1
BD30168-1U*-TS	03-037	03-037	03-075	1
BD30192-2U*-TS	03-035	03-035	03-073	2

WARRANTY

Mars' warranty coverage, period, extent, and limitations apply to the product only. It does not apply to labor. Mars warrants that the Mars product 1) is free from defects in materials and workmanship, and 2) conforms to Mars' published specifications. The warranty period for Mars products (except for heated models, custom models, or WMI, WMH and BD models) is a five (5) year period commencing on the date of shipment. The warranty for heated models is an eighteen (18) month period, the warranty for custom models and for accessories is a twelve (12) month period, and the warranty for WMI, WMH, and BD models is a twelve (12) month period. The date on the customer's invoice is the date of shipment unless Mars or your reseller informs you and Mars otherwise. 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 differ from those provided on the original purchase order are not covered. Mars products are inspected and tested before packaging and are shipped in working condition. The warranty for Mars products only covers free-of-charge replacement of failed parts. The warranty does not cover labor and transportation expenses that may be required to deliver and to install replacement parts. Because in many instances it is impossible to determine the cause of failure, the 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, 2) special, incidental, or indirect damages, or 3) any economic consequential damages (including lost profits and savings), regardless of whether Mars, its suppliers, or its resellers were informed of the possibility of damages. The warranty does not cover repair or exchange of Mars products resulting from misuse, accidental damage, modification, unsuitable physical or operating environment, improper maintenance or 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, and by improper installation of product and resulting non-compliance with 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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14716 S. Broadway St., Gardena, CA 90248

(310) 532–1555 • (800) 421-1266

Fax: (310) 324-3030

Please go to our website at www.marsair.com for a downloadable version of this document.

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SECTION 23 34 33

AIR CURTAINS

Important Note: This specification contains hidden text appearing in red. To show or remove hidden text in MSWord, click the "File" tab or "Office" icon on the top-left corner, select "Options," select "Display," and check or uncheck the box marked "Hidden Text."

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Air curtains for pedestrian entrances.

B. Air curtains for vehicular entrances.

C. Air curtains for large loading dock doors.

1.2 RELATED SECTIONS

A. Section 05 50 00 – Metal Fabrications: Concealed steel support members.

B. Section 06 10 00 – Rough Carpentry.

C. Section 05 41 00 – Structural Metal Studs.

D. Section 07 62 00 – Sheet metal flashing.

E. Section 07 92 00 – Joint Sealants.

F. Section 08 10 00 – Metal Doors and Frames.

G. Section 08 33 00 – Overhead Coiling Doors.

H. Section 08 42 00 – Entrance Doors.

I. Section 22 10 00 – Plumbing Piping.

J. Section 23 21 00 – Hydronic Piping: Hot water heating piping to units.

K. Section 23 22 13 – Steam and Condensate Piping: Steam heating piping to units.

L. Section 26 05 00 – Equipment Wiring: Connections to building power distribution.

1.3 REFERENCES

A. ASTM A240 / A240M -10 – Standard Specification for Chromium and Chromium.

B. ASTM A879 / A879M -06 – Standard Specification for Steel Sheet, Zinc Coated by the Electrolytic Process for Application Requiring Designation of the Coating Mass on Each Surface.

C. ASTM A653 / A653M -09a – Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

D. AHRI 410-2001 – Standard for Forced-Circulation Air-cooling and Air-Heating Coils.

E. CRN – Canadian Registration Number Coil.

F. ANSI Z223-NFPA 54 – National Fuel Gas Code

G. CAN/CGA B149.1 Installation Codes for Natural Gas Burning Appliances and Equipment.

H. Electrical components UL/CUL listed.

I. NEC – National Electric Code.

J. U.S. Green Building Council, LEED Building Design and Construction (BD+C) Version 4.0 Rating System. (LEED v4.0).

1.4 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

C. Shop Drawings: Include plans, elevations, sections, and details, indicating dimensions, tolerances, materials, fasteners, hardware, finish, piping, electrical wiring diagrams, options, and accessories.

D. LEED Submittals: Provide documentation of how the requirements of Credit will be met:
1. List of proposed materials with recycled content. Indicate post-consumer recycled content and pre-consumer recycled content for each product having recycled content.

2. Product data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content.

E. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

F. Verification Samples: For each finish product specified, two samples, minimum size 6.25 inches (160 mm) square, representing actual product, color, and patterns.

G. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

H. Operation and Maintenance Manual: Submit manufacturer's operation and maintenance manual, including operation, maintenance, adjustment, and cleaning instructions, troubleshooting guide, parts list, and electrical wiring diagrams.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum ten years documented experience producing the products specified in this Section

B. Installer Qualifications: Minimum five years documented experience installing products specified in this Section

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store in a dry, heated storage area until installation of products.

C. Protect materials and finish from damage during handling and installation.

1.7 SEQUENCING

A. Ensure that locating templates and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.

B. Coordinate the installation of wiring and control switches for air curtains with the openings and the hardware provided for such openings.

C. Install after doors, walls, ceilings, and other adjacent surfaces are finished and painted.

1.8 WARRANTY

A. Standard one-year limited parts warranty for unheated units against defects in workmanship and material.

B. Standard one-year limited parts warranty for heated units against defects in workmanship and materials.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Acceptable Manufacturer: Mars Air Systems, LLC; 14716 South Broadway St., Gardena, CA 90248. Tel: (310) 532-1555 or (800) 421-1266. Fax: (310) 324-3030. Email: info@marsair.com. Web: www.marsair.com.

B. Delete one of the following two paragraphs: coordinate with requirements of Division 1 section on product options and substitutions.

C. Requests for substitutions will be considered in accordance with provisions of Section 01 33 00.

2.2 AIR CURTAIN ASSEMBLIES

A. Motor Fan Assembly: Design for easy removal, assembly, repair, and maintenance.
   1. Motor: Totally enclosed fan cooled (TEFC) motor with sealed lifetime pre-lubricated ball bearings.
      a. Wired for single speed operation.
      b. Provide wash down type motors, NEC IP-54 for the locations indicated.
      c. Provide explosion proof type motors, NEC Class 1, Division 1, Group D for the locations indicated.
      d. Electrical Characteristics: 208/230V AC, three-phase; 14.2/13.0 Amp full load per motor for units up to 120 inches wide.
      e. Electrical Characteristics: 208/230V AC, three-phase; 21.6/20.0 Amp full load per motor for units 144 inches to 168 inches wide.
      f. Electrical Characteristics: 208/230V AC, three-phase; 28.0/26.0 Amp full load per motor for units 192 inches wide.
      g. Electrical Characteristics: 460V AC, three-phase; 6.5 Amp full load per motor for units up to 120 inches wide.
      h. Electrical Characteristics: 460V AC, three-phase; 10.0 Amp full load per motor for units 144 inches to 168 inches wide.
      i. Electrical Characteristics: 460V AC, three-phase; 13.0 Amp full load per motor/fan for units 192 inches wide.
      j. Electrical Characteristics: 575V AC, three-phase; 5.3 Amp full load per motor/fan for units up to 120 inches wide.
      k. Electrical Characteristics: 575V AC, three-phase; 8.9 Amp full load per motor for units 144 inches to 168 inches wide.
      l. Electrical Characteristics: 575V AC, three-phase; 10.3 Amp full load per motor/fan for units 192 inches wide.
   2. Fans: Forward curved centrifugal type, double width, and double inlet design, directly driven to an electric motor.
      a. Provide rigid mounted base between motor and frame.
      b. Factory balanced blower wheel assembly statically and dynamically.

B. Housing: Self-contained one-piece type with sufficient strength for mounting from pre-punched mounting holes at both ends to adjacent walls or ceiling without intermediate support.
   1. Size:
      a. Unheated: 36 inches deep by 28 inches high by width of
      b. Electric Heated: 42 inches deep by 28 inches high by width of unit.
      c. Hot Water/Steam Heated: Depth 42 inches single row and 44 inches double row by 28 inches high by width of unit plus 10 inches for manifolds.
      d. Indirect Fired Gas Heated: 82-1/2 inches deep (including transition and furnace) by 33 inches high by width of unit.
   2. Mounting:
      a. Unheated Inside Mount.
      b. Heated Inside Mount.
      c. Unheated Outside Mount.
      d. Mount Location Indicated.
   3. Material:
      a. Provide 10-, 12-, and 14-gauge electro or hot dipped galvanized steel sheet housing conforming to ASTM A 879 and/or ASTM A 653.
      b. Provide type 304 stainless steel housing with brushed finish. ASTM A 240/A 240M.
   4. Air Inlet Grille and/or Filters: Provide air inlet grille and/or filters specified.
   5. Discharge: Provide integral discharge nozzle specified.
   6. Finish and Color: Provide with, no VOC, corrosion resistant polyurethane powder coated finish for sheet metal housings.
      a. Titanium Silver.
      b. Obsidian Black.
      c. Pearl White.

C. Environmental and Flying Insect Control Air Curtains: Models for Heights up to 16 feet (4877 mm) for Environmental Separation and Temperature Control and up to 14 feet (4267 mm) for Flying Insect Control.
   1. Discharge Nozzle: Adjustable air foil vanes with a plus/minus 40-degree sweep front to back.
   2. Air Velocity at Nozzle:
      a. BD 14 96-1: 107 Inch (2720 mm) Wide Units: 4500 feet/min (22.9 m/s) single 5HP motor/fan assemblies.
      b. BD 14 120-1: 131 Inch (3329 mm) Wide Units: 4500 feet/min (22.9 m/s) single 5HP motor/fan assemblies.
      c. BD 14 144-1: 155 Inch (3939 mm) Wide Units: 4500 feet/min (22.9 m/s) single 7-1/2HP motor/fan assemblies.
      d. BD 14 168-1: 179 Inch (4549 mm) Wide Units: 4500 feet/min (22.9 m/s) single 7-1/2HP motor/fan assemblies.
      e. BD 14 192-1: 203 Inch (5159 mm) Wide Units: 4500 feet/min (22.9 m/s) single 10HP motor/fan assemblies.
   3. Air Speed at Floor: Minimum of 400 fpm (2 m/s) at 3 feet (914 mm) from the floor.
   4. Air Inlet Grille and Filters:

a. Location: Front.
b. Type: Fixed air intake grille.
1) Expanded Metal: 85% open area.
c. Type: Filter Only as follows:
1) Filter: Flat bank 2-inch, disposable.
2) Filter: V-bank 2-inch disposable.
3) Filter: V-bank 2-inch aluminum washable.

5. Sound Pressure Level At 10 feet (3 m) From Nozzle:
a. Single Motor/Fan, 5HP Units: 73 dBA.
b. Single Motor/Fan, 7-1/2HP Units: 74 dBA.
c. Single Motor/Fan, 10HP Units: 75 dBA.

2.3 COMPONENTS

A. Electric Heaters: Provide complete with motor control panel factory mounted to air curtain housing, and thermostat to be field installed.
1. Temperature limit controller.
2. Heating Coils: UL approved. Factory mounted on the intake side of the air curtain cabinet.

B. Steam Heaters: Provide finned tube steam coils for field mounting on air intake side of the air curtain cabinet with opposite end connections.
1. Output: Air curtain manufacturer's standard, one-row coils.
2. Output: Air curtain manufacturer's standard, two-row coils.
3. Coils: Certified in accordance with AHRI 410.
4. Connections: Opposite end, horizontal.
5. Connections: Same end, right hand, horizontal.
6. Connections: Same end, left hand, horizontal.
7. Connections: Opposite end, vertical.
8. Connections: Same end, right hand, vertical.
9. Connections: Same end, left hand, vertical.
10. Casing: One-piece unpainted galvanized steel, bolted to air curtain housing.

C. Hot Water Heaters: Provide finned tube water coils for field mounting on air intake side of the air curtain cabinet with opposite end connections.
1. Output: Air curtain manufacturer's standard, one-row coils.
2. Output: Air curtain manufacturer's standard, two-row coils.
3. Coils: Certified in accordance with AHRI 410.
4. Connections: Opposite end, horizontal.
5. Connections: Same end, right hand, horizontal.
6. Connections: Same end, left hand, horizontal.
7. Connections: Opposite end, vertical.
8. Connections: Same end, right hand, vertical.
9. Connections: Same end, left hand, vertical.
10. Casing: One-piece unpainted galvanized steel, bolted to air curtain housing.

D. Gas Heaters: Provide field mounted indirect natural gas fired, power vented duct furnace, with aluminized steel heat exchanger and die-formed stainless steel insert burners; manifolds, orifices, flame sensor, and igniter easily removable as an assembly.

1. Output: Air curtain manufacturer's standard.
2. Complies with:
   a. Canadian Standards Association (CSA) labeled for US and Canadian application.
   b. ANSI Z223/NFPA 54 National Fuel Gas Code.
   c. CAN/CGA B149.1 Installation Codes for Natural Gas Burning Appliances and Equipment.
3. Fuel Type: Provide orifices for:
   a. Natural gas.
   b. LP.
4. 24 V control voltage transformer.
5. Combination single-stage gas control system with regulated combination redundant gas valve and intermittent spark pilot with electronic flame supervision.
6. Limit and safety controls.

E. Motor Control Panels for Unheated Units: Recommended for all three-phase units and single-phase units with combined motor capacities of more than 1 HP whenever a door limit switch is used to automatically start and stop the air curtain. Provide motor control panels as follows:
1. Mounting: Shipped loose to be field mounted.
2. Mounting: Factory mounted on right hand side of air curtain housing.
3. Mounting: Factory mounted on left hand side of air curtain housing.
4. Electrical components UL/CUL listed.

F. Motor Control Panels for Electric Heated Units: Recommended for all units whenever a door limit switch is used to automatically start and stop the air curtain. Thermostat is included with optional motor control panel for field installation. Provide motor control panel as follows
1. Thermostat: Wall-mounted, 24-Volt operation, with heater on/off selection.
2. Mounting: Shipped loose to be field mounted.
3. Mounting: Factory mounted on the inside of air curtain housing.
4. Mounting: Factory mounted on left hand side of air curtain housing.
5. Electrical Components UL/CUL listed.

G. Motor Control Panels for Steam and Hot Water Heated Units: Recommended for all units whenever a door limit switch is used to automatically start and stop the air curtain. Thermostat is included with optional motor control panel for field installation. Provide motor control panel as follows:
1. Thermostat: Wall-mounted, 110-Volt operation, with heater on/off selection.
2. Mounting: Shipped loose to be field mounted.
3. Mounting: Factory mounted on right hand side of air curtain housing.
4. Mounting: Factory mounted on left hand side of air curtain housing.

H. Motor Control Panels for Gas Heated Units: Recommended for all units whenever a door limit switch is used to automatically start and stop the air curtain. Thermostat is included with optional motor control panel for field installation. Provide motor control panel as follows:
1. Thermostat: Wall-mounted, 24-Volt operation, with heater on/off selection

2. Mounting: Shipped loose to be field mounted.
3. Mounting: Factory mounted on right hand side of air curtain housing.
4. Mounting: Factory mounted on left hand side of air curtain housing.
5. Motor Control Panels are UL Listed and CSA Approved

I. Door-Activated Limit switch(s): Provide, field installed 250-Volts, 20 amps limit switch to control air curtain(s) as follows; Automatic on/off control, activates air curtain when door is opened and turns off when door is closed. Provide limit switch for direct control one 1 HP or up to two 1/2 HP single-phase motors without a separate control panel. Provide a separate control panel for three-phase motors and/or units exceeding 1 HP, 250-Volts or 20 amps controlled by a limit switch.
   1. Type: Combination plunger/roller switch for swing and sliding doors.
      a. Provide limit switches with NEMA 1 (20 amps) ratings in locations indicated.
      b. Provide limit switches with NEMA 4X (10 amps) ratings in locations indicated.
      c. Provide limit switches with NEMA 4X (15 amps) ratings in locations indicated.
      d. Provide limit switches with NEMA 7 (10 amps) ratings in locations indicated.
   2. Operation for Unheated Units: Automatic on/off control, on when door is opened, off when door is closed.
   3. Operation for Gas Heated Units: Automatic on when door is opened, off after time delay period (60 seconds) after door is closed.

J. Provide mounting hardware as required for the opening.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that required utilities are in correct location and are of correct capacities for specified products.

B. Verify openings to receive air curtains are plumb, level, square, accurately aligned, correctly located, and in tolerance.

C. Examine surfaces to receive air curtains. If surface preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 INSTALLATION

A. Install air curtains in accordance with approved shop drawings and manufacturer's printed installation instructions.

B. Install air curtains plumb, level, square, true to line, and weathertight, without warp or rack.

C. Anchor air curtains securely in place to supports.

D. Coordinate with sheet metal flashing as specified in Section 07 62 00.

E. Install joint sealants as specified in Section 07 92 00.

F. Coordinate with electrical power as specified in Section 26 05 00.

G. Install door limit switches and adjust for correct operation.

H. Provide connection to piped services and utilities as specified in Section 22 10 00 and 23 21 00.

3.3 FIELD QUALITY CONTROL

A. Adjust air curtains to function properly.

B. Adjust air foil vanes located within the discharge nozzle as required for prevailing conditions at each opening.

C. Check heated air curtain performance on a calm day by measuring air temperature 6 inches off the floor. Optimal reading is halfway between the temperature inside and outside the building.

3.4 CLEANING

A. Clean air curtains promptly after installation in accordance with manufacturer's instructions.

B. Repair minor damages to finish in accordance with manufacturer's instructions and as approved by Architect.

C. Remove and replace damaged components that cannot be successfully repaired as determined by Architect.

3.5 PROTECTION

A. Protect materials and finish from damage until substantial completion.

3.6 SCHEDULES

A. Refer to Air Curtain Schedule appended to this section.

END OF SECTION

atmosphere is everything
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Reference Links

Link	Description
https://marsair.com/	Main website
https://marsair.com/document-library	Submittals for all Mars Air Curtains, Accessories, Installation, and Brochures
https://www.marsair.com/Downloads/CSISpecs/BD14-CSI-Specification.doc	Belt Drive 14 Series CSI spec (Word doc)