Disconnect Switches

Fused and Non-fused

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Disconnect Switches

Switch Model Number	Description
Standalone - Non-fused Disconnects (Remote Mounted)	
99-176	Switch, Disconnect, Non-Fused, 600v, 20A, 3 Pole, NEMA 1 Enclosure (Rmt Mntd By Others)
99-122	Switch, Disconnect, Non-Fused, 600v, 32A, 3 Pole, NEMA 1 Enclosure (Rmt Mntd By Others)
99-148	Switch, Disconnect, Non-Fused, 600v, 80A, 3 Pole, NEMA 1 Enclosure (Rmt Mntd By Others)
Standalone - Fused Disconnects Kits with Fuses (Remote Mounted)	
99-008-**	Kit, Switch, Disconnect, Fused, 240v, 5-30A, 3 Pole, NEMA 3R Enclosure (Rmt Mntd By Others)
99-009-**	Kit, Switch, Disconnect, Fused, 240v, 35-60A, 3 Pole, NEMA 3R Enclosure (Rmt Mntd By Others)
99-010-**	Kit, Switch, Disconnect, Fused, 600v, 5-30A, 3 Pole, NEMA 3R Enclosure (Rmt Mntd By Others)
99-011-**	Kit, Switch, Disconnect, Fused, 600v, 35-60A, 3 Pole, NEMA 3R Enclosure (Rmt Mntd By Others)
Panel/Unit* Mounted - Non-fused Disconnects (Internally Mounted)	
99-165	Switch, Disconnect, Non-Fused, 600v, 20A, 3 Pole, NEMA 1 (Pnl/Unit Mntd)
99-144	Switch, Disconnect, Non-Fused, 600v, 32A, 3 Pole, NEMA 1 (Pnl/Unit Mntd)
99-145	Switch, Disconnect, Non-Fused, 600v, 60A, 3 Pole, NEMA 1 (Pnl/Unit Mntd)
Panel/Unit* Mounted - Fused Disconnects Kits with Fuses (Internally Mounted)	
99-153-**	Kit, Switch, Disconnect, Fused, 300v, 5-30A, 3 Pole, NEMA 1 (Pnl/Unit Mntd)
99-154-**	Kit, Switch, Disconnect, Fused, 300v, 35-60A, 3 Pole, NEMA 1 (Pnl/Unit Mntd†)
99-144-**	Kit, Switch, Disconnect, Fused, 600v, 5-30A, 3 Pole, NEMA 1 (Pnl/Unit Mntd)
99-145-**	Kit, Switch, Disconnect, Fused, 600v, 35-60A, 3 Pole, NEMA 1 (Pnl/Unit Mntd†)

** - Specify the nearest higher amperage to the motor nameplate amperage. (multiples of 5). ie. "05" for units with 5 total amp or less.

*Note: Unit mounted Fused and Non-fused disconnects are available for models as follows - STD2/HV2/EP2: 60A Max, LPV2 (Unheated): 32A Max, LPV2 (Electric heat): 3Ø 60A Max, 1Ø N/A

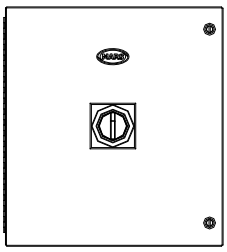
† - Limited compatibilities for the WM and BD Series due to space considerations. Only available as panel mounted.

Features:

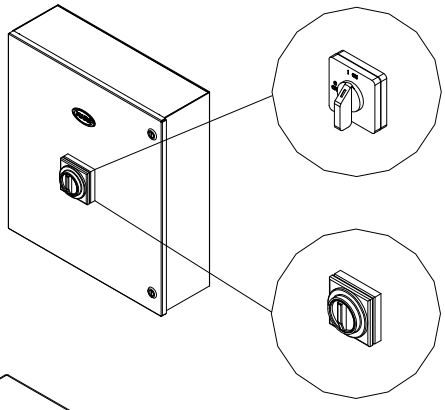
- UL Listed components
- Compact Size
- Disconnects and locks out power for servicing and inspection
- Circuit protection disconnect switches available for 300V or 600V
- Disconnect switch amperage rating listed in table description
- Kits available for varying load capacities as required
- Unit mounted disconnects have standard mounting configuration on right hand side of unit

Options and Accessories: **Contact Factory**

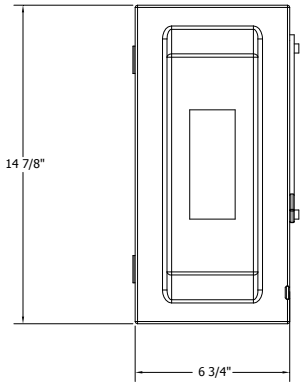
- Additional NEMA, voltage and amperage ratings available
- Rotary or Handle options available
- Lockable switches or covers available
- Factory installation and wiring of remote switches available

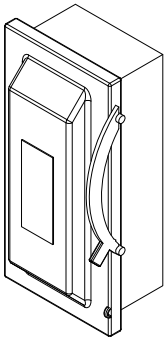


Non-Fused Disconnect,
Remote Mounted (99-165 shown)

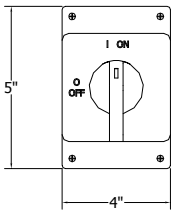


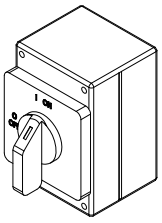
Fused Disconnect,
Panel Mounted (99-144 shown)





Fused Disconnect,
Remote Mounted (99-009- shown)**





Non-Fused Disconnect,
Remote Mounted (99-122 shown)

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Door Limit Switches

NEMA1 to NEMA9 Models

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Door Limit Switches

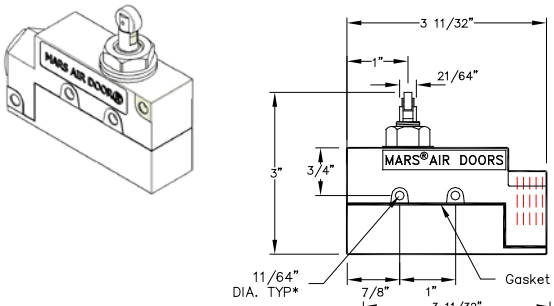
Door Switch Number	Description	Voltage	Phase	HP	Amperage	Poles	NEMA Rating
99-013	Standard Roller Type	250V	1	1	20	1	NEMA 1
99-014	Standard Combination Plunger/Roller Type	250V	1	1	20	1	NEMA 1
99-270	Washdown Roller Type	250V	1	1	20	1	NEMA 4X
99-016	Explosion Resistant 1 Roller Type	250V	1	3/4	15	1	NEMA 7 & 9

Note: DO NOT GROUND the COM terminal. This is the common terminal and not ground or neutral. Please see the wiring instructions for the switches.

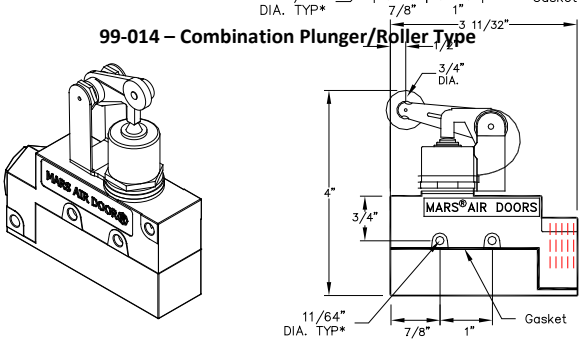
Features:

- UR (UL Recognized) and rated for NEMA 1 (field installed by others)
- Combination plunger/Roller (99-014) & Roller Type (99-013) door limit switches available to suit various applications
- Only available for 115V, 208V or 230V, 1Ø power (If any of the ratings are exceeded, an optional motor control panel must be used)
- Maximum ratings of 1 HP, 250V and 20A. See model specs
- Single pole terminal (1P) normally closed (NC) and normally opened (NO) contact. Only the NC terminals are used and provided with terminal screws
- Used when automatic control of an air curtain(s) is required
- Turns the air curtain on when the door opens and off when the door closes
- Requires less than 1/8" of travel or 2 lbs. of force on the switch plunger to energize and de-energize the air curtain
- 1/2" FPT conduit connection (field wired by others)
- (2) 11/64" mounting holes provided*

*Do not use a fastener larger than a #6 sheet metal screw or a #8 Machine screw to mount this door limit switch. Forcing larger screws through the mounting holes destroys the switch and voids the warranty.



99-014 – Combination Plunger/Roller Type

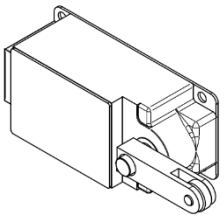


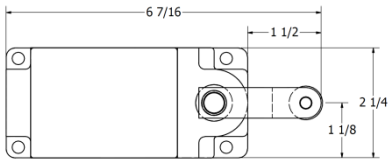
99-013 - Roller Type

Options and Accessories: (see Accessories Brochure)

Washdown

- UR (UL Recognized) and rated for NEMA4X/IP55 (field installed by others)
- Roller Type 99-267 are rated for 250V, 10A, ½ HP
- Roller Type 99-015 are rated for 250V, 20A, 1 HP

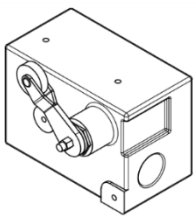


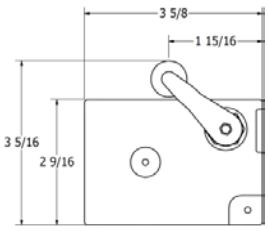


99-015 – Washdown Roller Type

Explosion Resistant

- UR (UL Recognized) and rated for NEMA 7 & 9 (Class 1, Division 1, Group D) (field installed by others)
- Roller Types 99-016 are rated for 250V, 15A, ¾ HP





99-016 – Explosion Resistant Roller Type

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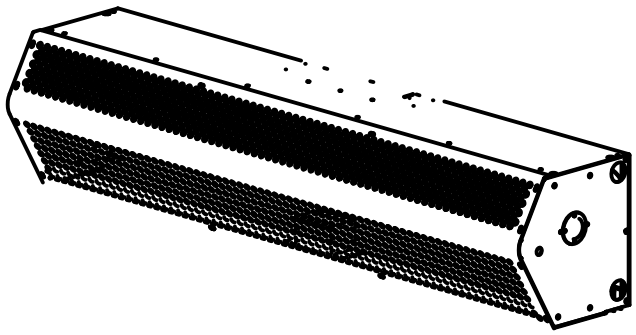
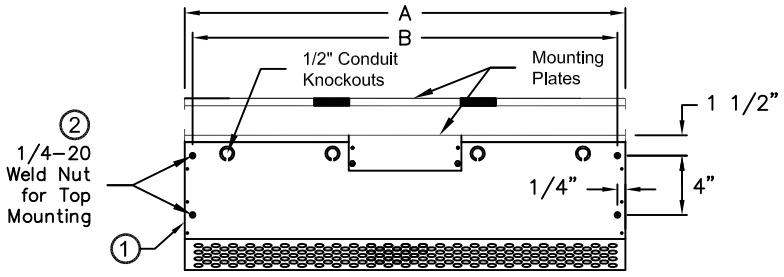
PROJECT		OPTIONS/ITEMS
TITLE		
COMMENTS		DATE 8/3/16 / PAGE
		REV. NO
MODEL NO. LP2 Series	DRAWING NO LPV2U–F	DRAWN BY BH / CHECKED BY / FILE NAME

Unheated Drawing

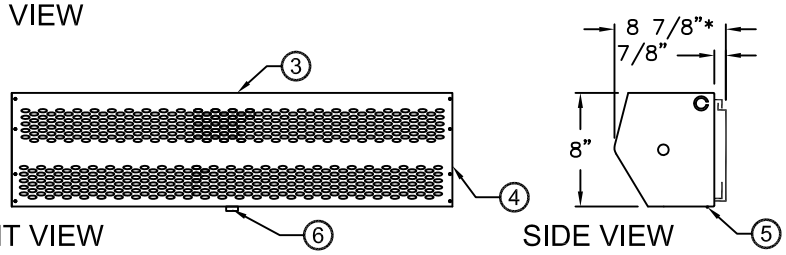
LPV2

(LoPro2 Variable Speed) Series





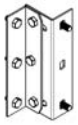
TOP VIEW



FRONT VIEW SIDE VIEW

REAR VIEW

⑧ Recommended Accessories



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

**- "C" only applies to single units up to 72" units. Dims are not applicable for units 84" and longer.

MODEL NUMBER	OVERALL LENGTH A (In)	MOUNTING LENGTH B (In)	REAR MOUNTING CENTER C (In)
LPV225-1U*-OB	25	24 1/2	21
LPV236-1U*-OB	36	35 1/2	32
LPV242-1U*-OB	42	41 1/2	38
LPV248-1U*-OB	48	47 1/2	44
LPV260-1U*-OB	60	59 1/2	56
LPV272-1U*-OB	72	71 1/2	68
LPV284-2U*-OB	86	85 1/2	N/A
LPV296-2U*-OB	98	97 1/2	N/A
LPV2108-2U*-OB	110	109 1/2	N/A
LPV2120-2U*-OB	122	121 1/2	N/A
LPV2144-2U*-OB	146	145 1/2	N/A

Notes:

1. This product is designed to meet the National Electric Code (NEC) and ETL Listed (UL 507 and CSA 22.2).
2. 1/4" mounting holes provided for wall mounting (4) and overhead mounting (4), (2) on each end. Additional 0.296" mounting holes (12) provided.
3. All units have a self contained one piece cabinet up to 72", fire retardant and corrosion proof paint lock metal double protected with baked on Obsidian Black color, rust preventative electrostatic polyurethane powder coating.
4. Cabinet has sufficient strength for fastening to wall on both ends without intermediate support. Units greater than 72" are double units joined with a 2" mounting bracket located in the center and must be center supported, field installed.
5. Unit is to be installed such that air flow is unobstructed. Air discharge nozzle containing an adjustable air directional vane with 40° sweep front to back.
6. Mounted adjustable speed controller knob allows air velocity to meet a wide range of field conditions. Units greater than 72", the speed controller will be located on the right hand unit and controls both units, field wired.
7. Circuit protection as per NEC by others.
8. Optional 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.

LPV2 (LoPro2 Variable Speed) Series

Unheated

Model Lengths 25” – 144”

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Unheated Data Sheet

Applications: Environmental Separation (up to 8’) and Insect Control (up to 7’)

LPV2 (Low Profile Variable 2) Series 2	Mechanical Data						Lab Data	
Model Number	Nozzle Length (in)	Length (in)	Depth (in)	Height (in)	Motor (hp)	Weight (lbs)	Max Velocity (fpm)	Max Volume (cfm)
LPV225-1U*-OB	25	25	9	8	1/6	20	1800	625
LPV236-1U*-OB	36	36	9	8	1/6	32	1800	900
LPV242-1U*-OB	42	42	9	8	1/6	35	1800	1050
LPV248-1U*-OB	48	48	9	8	1/6	40	1800	1200
LPV260-1U*-OB	60	60	9	8	1/6	48	1800	1500
LPV272-1U*-OB	72	72	9	8	1/6	58	1800	1800
LPV284-2U*-OB	86	86	9	8	Two 1/6	75	1800	2100
LPV296-2U*-OB	98	98	9	8	Two 1/6	83	1800	2400
LPV2108-2U*-OB	110	110	9	8	Two 1/6	92	1800	2700
LPV2120-2U*-OB	122	122	9	8	Two 1/6	102	1800	3000
LPV2144-2U*-OB	146	146	9	8	Two 1/6	122	1800	3600

*** - 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.

Features:

- 1/6 HP continuous duty motors
- Sleek self-contained one-piece light gauge corrosion-resistant paint lock metal design
- ETL-certified to conform to UL 507 (US) and CSA 22.2 (Canada) standards (Indoor/Outdoor Use)
- Dynamically balanced corrosion-resistant aluminum crossflow wheels
- Very low-profile design, 8” (H) x 8 7/8” (D)
- Variable speed controller
- Wall mounting bracket removable for easy installation
- 1/4" mounting holes provided for wall mounting (4) and overhead mounting (4), 2 on each end
- Cabinet has sufficient strength for fastening to wall on both ends without intermediate support up to 72”. (Models 84” to 144” require intermediate support in the center.)
- Adjustable air directional vane with 40° sweep front to back
- Standard color is Obsidian Black
- Rust preventative electrostatic polyurethane powder coating
- 5-year parts warranty
- Freight included (FOB continental USA)
- Proudly Made in the USA

Electrical Data (FLA)	Unit Voltage (Voltage Code)	
	115v/1Ø (A)	208/230v/1Ø (D)
LPV225-1U*-OB	2.4	1.2
LPV236-1U*-OB	2.4	1.2
LPV242-1U*-OB	2.4	1.2
LPV248-1U*-OB	2.4	1.2
LPV260-1U*-OB	2.6	1.4
LPV272-1U*-OB	2.6	1.4
LPV284-2U*-OB	4.8	2.4
LPV296-2U*-OB	4.8	2.4
LPV2108-2U*-OB	5.0	2.6
LPV2120-2U*-OB	5.2	2.8
LPV2144-2U*-OB	5.2	2.8

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

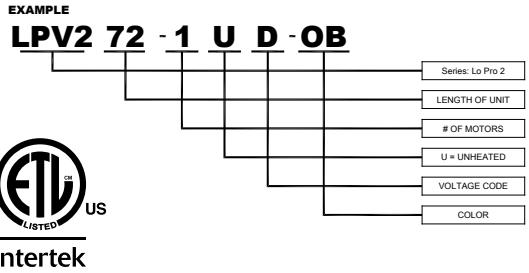
Note: for ampacity, multiply FLA X 1.25

Options and Accessories: (see Accessories Brochure)

- Door limit switches
- Wall and overhead Bracket
- Custom colors and finishes (304SS, 316SS)
- SimpleLink controller (housing depth will be 11.75” with this option)

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

(25” & 36”) - 49 dBA, (42”) - 50 dBA, (48”) - 52 dBA, (60”-96”) - 53 dBA & (108”-144”) - 54dBA



C ETL US LISTED Intertek

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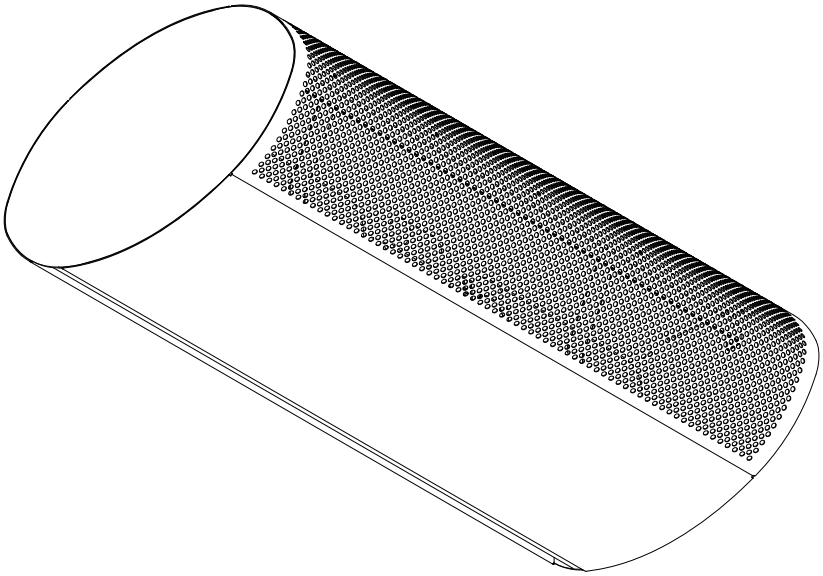
QP10 Unheated Series

QuietPro 10 Series
Commercial Air Curtain
Submittal Package



Submitted by:

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

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

(Electronic Signature Preferred)

Company Seal or Stamp

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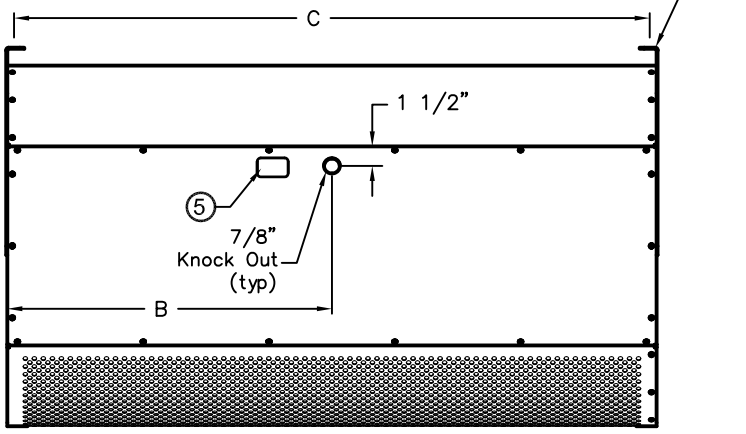
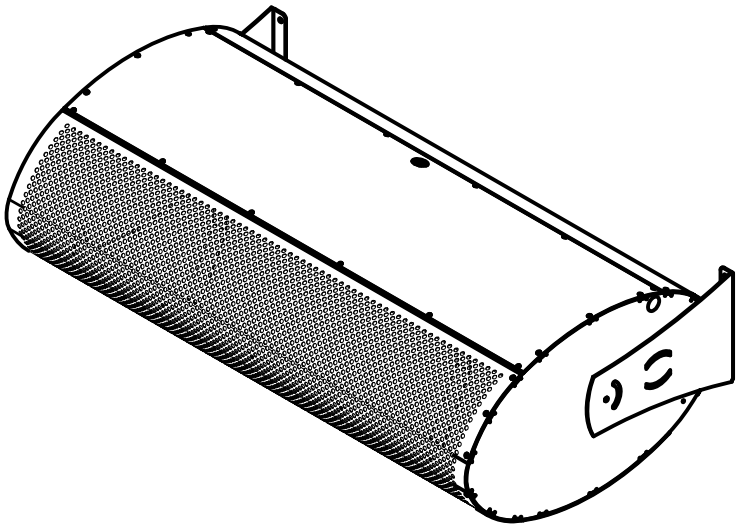
PROJECT		OPTIONS/ITEMS
TITLE		
COMMENTS	DATE 10/03/19	PAGE
	REV. NO 2	

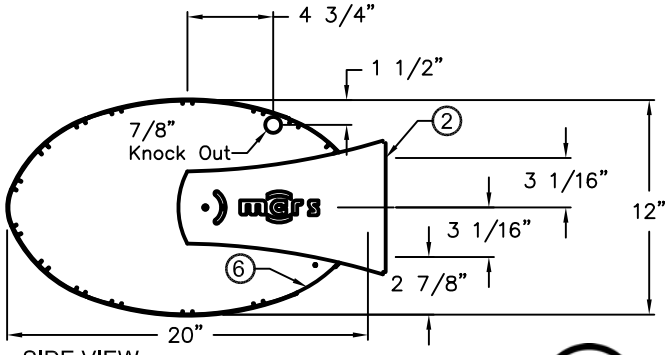
MODEL NO. QP10 Series	DRAWING NO QP10U–F	DRAWN BY VM	CHECKED BY NT	FILE NAME

Unheated Drawing

QP10
(QuietPro 10) Series







⑧ Recommended Accessories


Control Panels


Door Limit Switches

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

MODEL NUMBER	OVERALL LENGTH A (in)	KNOCKOUT LOCATION B (in)	REAR MOUNTING CENTER C (in)
QP1036-1U*-AL	36	25 1/2	34 7/8
QP1042-1U*-AL	42	28 1/2	40 7/8
QP1048-1U*-AL	48	31 1/2	46 7/8
QP1072-2U*-AL	72	40	N/A
QP1084-2U*-AL	84	46	N/A
QP1096-2U*-AL	96	52	N/A
QP10108-3U*-AL	108	58	N/A
QP10120-3U*-AL	120	64	N/A
QP10144-3U*-AL	144	76	N/A

Notes:

1. This product is designed to meet the National Electric Code (NEC), ETL Listed (UL 507 and CSA 22.2)
2. (2) mounting brackets each with (3) 1/4" mounting holes provided for wall mounting. For overhead mounting, rotate each mounting bracket 90 degrees.
3. All units have a self contained cabinet, heavy gauge metal design. Cabinet has sufficient strength for fastening to wall on both ends without intermediate support. (Tandem mounted units longer than 48" require center support)
4. Internal J-Box(es) for electrical wiring: one motor-(1) 2"x 4"; two motors-(1) 4"x 4"; three motors-(2) 4"x 4".
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. Circuit protection as per NEC by others.
7. 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.

QP10 (QuietPro 10) Series

Unheated

Model Lengths 36” – 144”

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Unheated Data Sheet

Applications: Environmental Separation (up to 12’) and Insect Control (up to 10’)

QP10 (QuietPro 10) Series	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)
QP1036-1U*-AL	36	36	20	12	1/2	60	5960	2206	1379	84	500
QP1042-1U*-AL	42	42	20	12	1/2	65	4865	1945	1418	87	510
QP1048-1U*-AL	48	48	20	12	1/2	70	4247	1730	1442	85	550
QP1072-2U*-AL	72	72	20	12	Two 1/2	120	5960	2206	2758	84	1000
QP1084-2U*-AL	84	84	20	12	Two 1/2	125	4865	1945	2836	87	1020
QP1096-2U*-AL	96	96	20	12	Two 1/2	135	4247	1730	2884	85	1100
QP10108-3U*-AL	108	108	20	12	Three 1/2	175	5960	2206	4137	84	1500
QP10120-3U*-AL	120	120	20	12	Three 1/2	185	4660	2084	4341	92	1570
QP10144-3U*-AL	144	144	20	12	Three 1/2	200	4247	1730	4326	85	1650

*** - 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
- Sleek self-contained heavy gauge metal design
- ETL Certified to conform to UL 507 (US) and CSA 22.2 (Canada) Standards (Indoor/Outdoor Use)
- (2) mounting brackets each with (3) ¼” mounting holes provided for wall mounting
- Units shipped fully assembled for wall and overhead mounting. Models 72”-144” require intermediate support.
- Adjustable air directional vanes with 40° sweep front to back
- Standard color is Anodized Aluminum
- 5 year parts warranty
- Freight Included (FOB Continental USA)
- Proudly Made in the USA

Electrical Data (FLA)	Unit Voltage (Voltage Code)						
	Single Phase			Three Phase			
	115v/1Ø (A)	208/230v/1Ø (D)	277v/1Ø (L)	208/230v/3Ø (G)	460v/3Ø (H)	575v/3Ø (I)	380v/3Ø/50Hz (W)
QP1036-1U*-AL	5.1	2.5	2.7	1.8/1.6	0.8	0.7	1.1
QP1042-1U*-AL	5.1	2.5	2.7	1.8/1.6	0.8	0.7	1.1
QP1048-1U*-AL	5.1	2.5	2.7	1.8/1.6	0.8	0.7	1.1
QP1072-2U*-AL	10.2	5.0	5.4	3.6/3.2	1.6	1.4	2.2
QP1084-2U*-AL	10.2	5.0	5.4	3.6/3.2	1.6	1.4	2.2
QP1096-2U*-AL	10.2	5.0	5.4	3.6/3.2	1.6	1.4	2.2
QP10108-3U*-AL	15.3	7.5	8.1	5.4/4.8	2.4	2.1	3.3
QP10120-3U*-AL	15.3	7.5	8.1	5.4/4.8	2.4	2.1	3.3
QP10144-3U*-AL	15.3	7.5	8.1	5.4/4.8	2.4	2.1	3.3

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

Note: For Ampacity Multiply FLA X 1.25

Options and Accessories: (see Accessory Submittals for more options)

- MCP-†U*, Motor control panel, 120v controls († - # of motors, * - Voltage Code)
- MCP-24, Low voltage control option (control panel required)
- MCP-TD, Adjustable time delay option
- SK-UU, SimpleLink controller kit, unheated, 1Ø, 1HP Max
- B0046-TS, Tandem mounting bracket, without intermediate support, 84”-96” wide
- B0047-TS, Tandem mounting bracket, without intermediate support, 108”-144” wide
- RMT-VSA, Remote mounted variable spd cntrl, 115v/1Ø, 15A max, 1HP max
- RMT-VSD, Remote mounted variable spd cntrl, 208/230v/1Ø, 15A max, 1HP max
- HSG-304SS-QP10, Stainless steel finish (304SS)

  Note: For additional options and accessories, see document library on the website for submittals.

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

1 Motor Unit = 53 dBA, 2 Motor Unit = 55 dBA, 3 Motor Unit = 57 dBA & 4 Motor Unit = 59 dBA

Projection Velocity		
Model	Distance from nozzle (in)	Avg. Core Velocity (FPM)
QP1036-1U*-AL	36"	1522
	48"	1312
	60"	1158

EXAMPLE

QP10 72 - 2 U H - AL

- Series: QuietPro 10
- LENGTH OF UNIT
- # OF MOTORS
- U = UNHEATED
- VOLTAGE CODE
- COLOR

Intertek

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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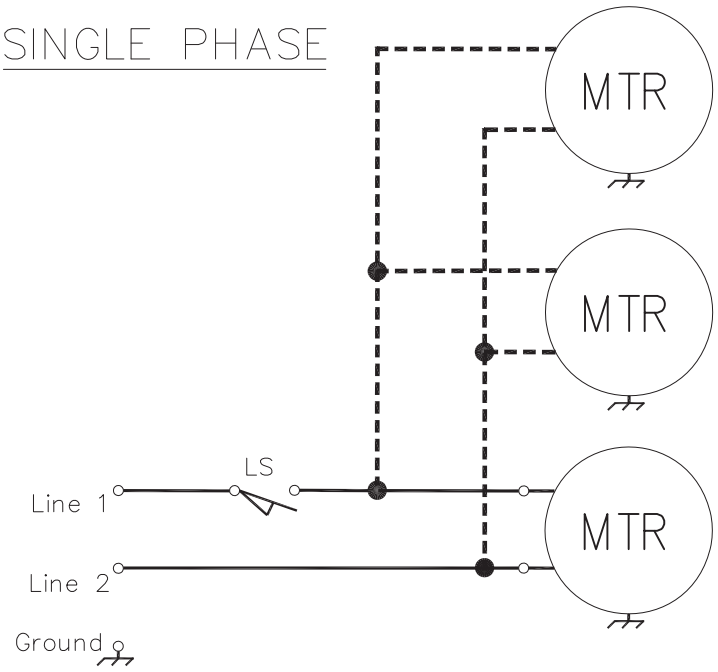
PROJECT			OPTIONS/ITEMS
TITLE			
COMMENTS		DATE 6/6/16	PAGE
		REV. NO 1	
MODEL NO. Series 2	DRAWING NO TYPICAL UNHEATED	DRAWN BY BH	CHECKED BY / FILE NAME

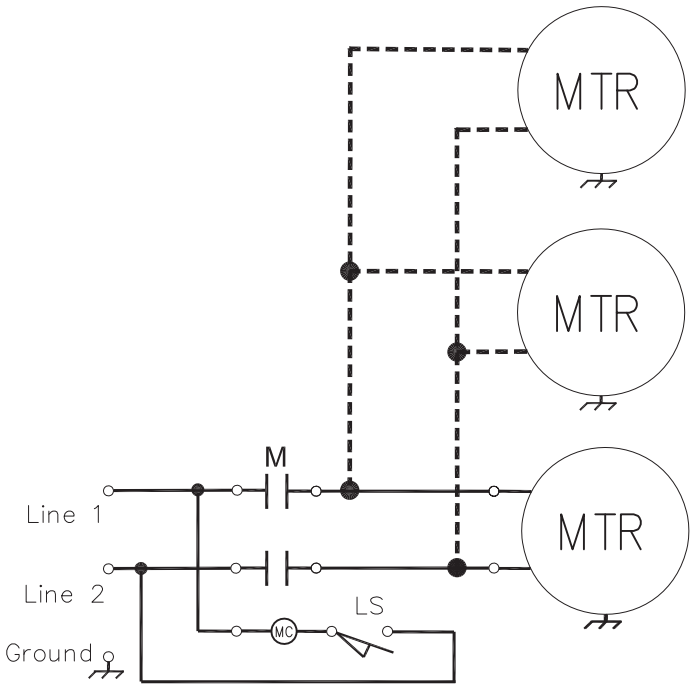
TYPICAL UNHEATED DIAGRAMS

SINGLE PHASE



120/208–240v Single Phase Motor

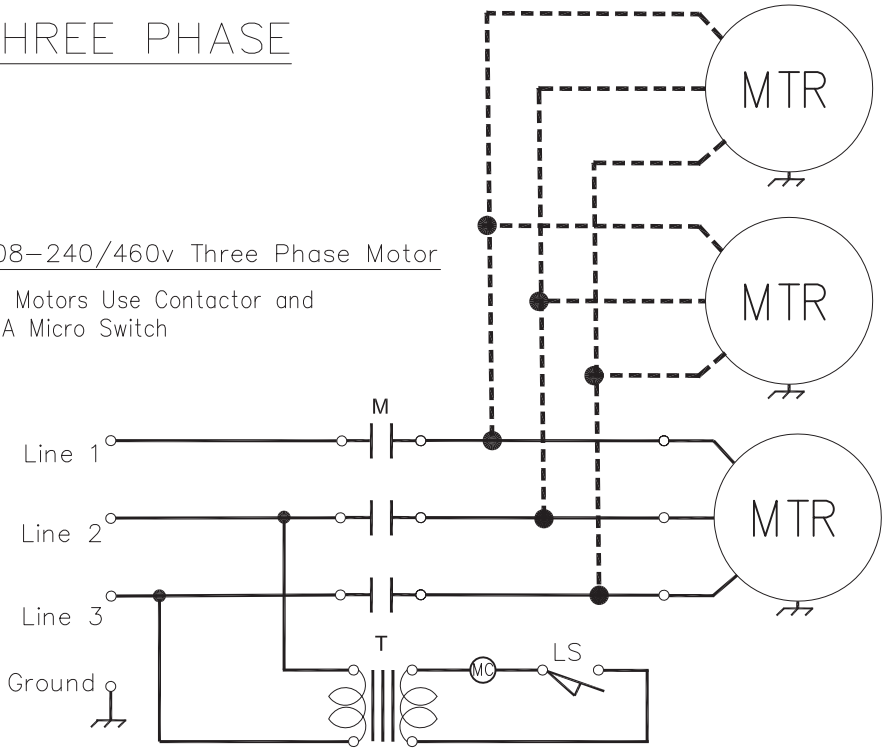
1/2 H.P. Use 15A Micro Switch
1 H.P. Use 20A Micro Switch



120/208–240v Single Phase Motor

Larger than 1 H.P. Use Contactor and
15A Micro Switch

THREE PHASE



208–240/460v Three Phase Motor

All Motors Use Contactor and
15A Micro Switch

Note: This wiring diagram is applicable for:
Single Phase motors as follows–
LPV2: Up to 3 motors
STD2: Up to 2 motors
HV2: 1 motor

See *Door Limit Switch submittal for additional switch info

SYMBOLS

LS – Micro Switch
M – Contactor or Motor Starter
MC – Contactor Coil
T – Control Transformer

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Document No: ACC-IOM
Date: 0413

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)

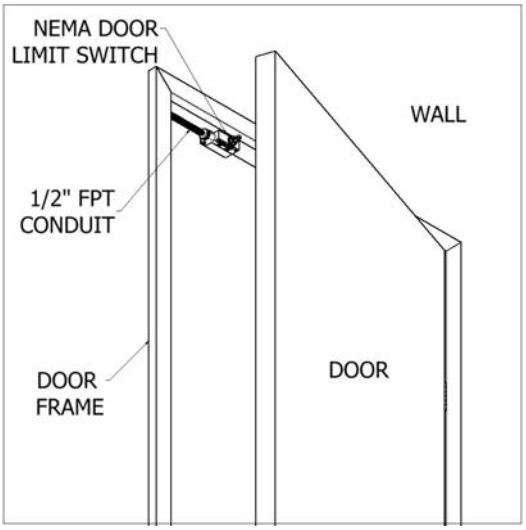

FIG. 1

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.

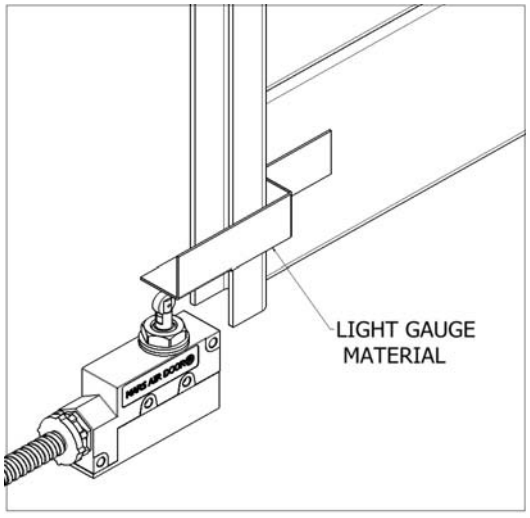

FIG. 2

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.

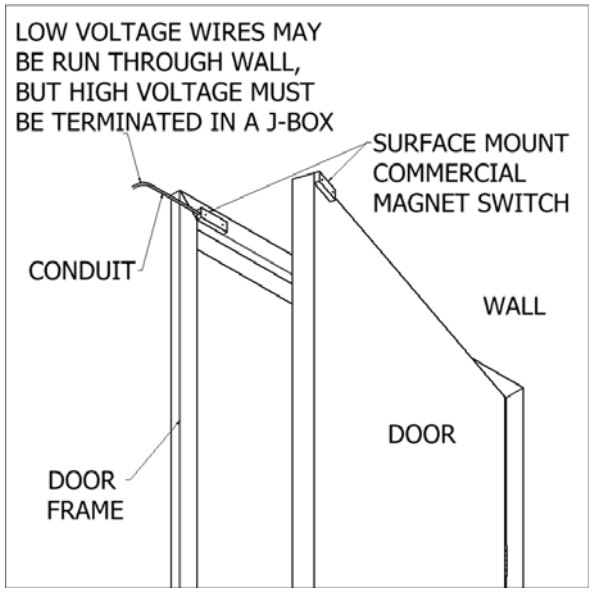

FIG. 3

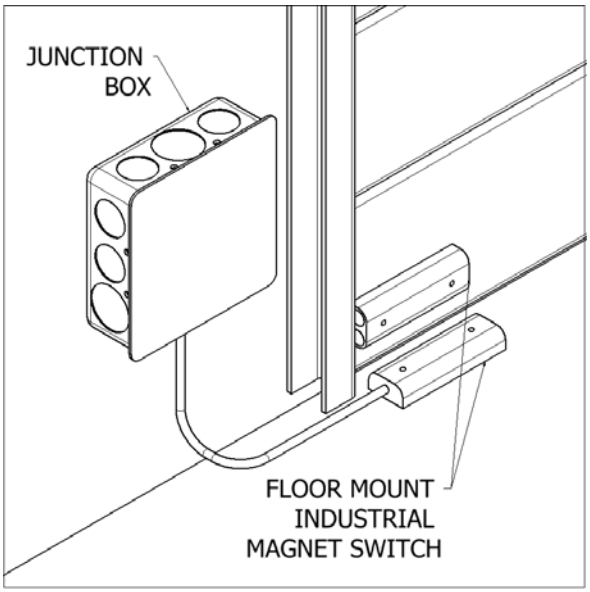

FIG. 4

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)

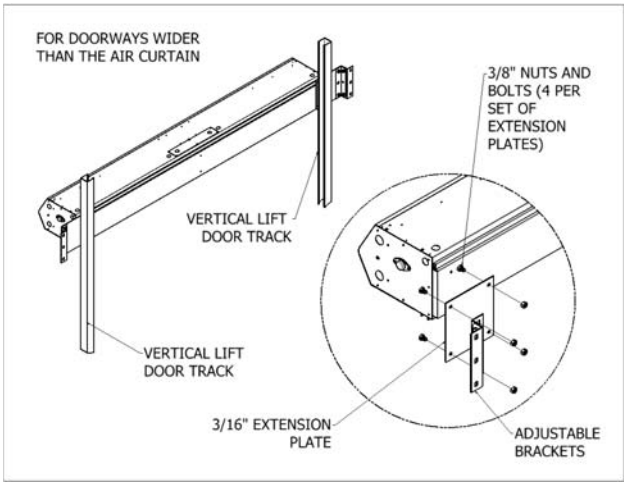

FIG. 5 (LPV Shown)

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

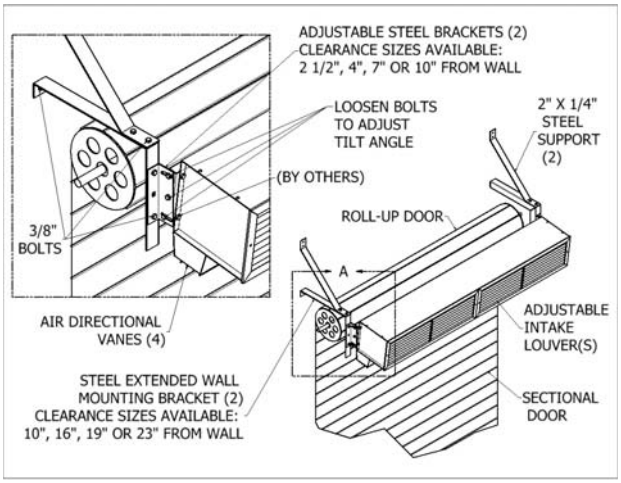

FIG. 6 (STD Shown)

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.

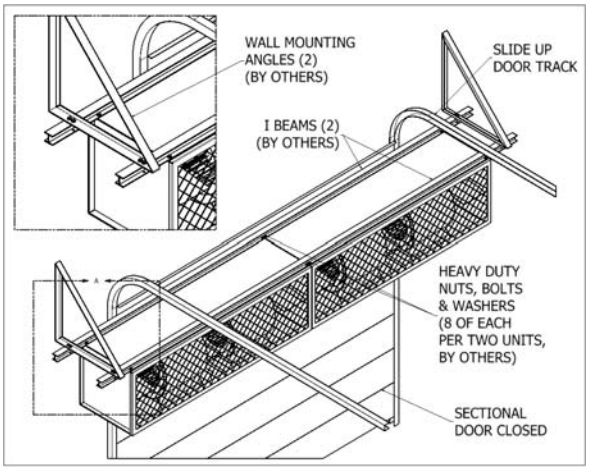

FIG. 7 (WMI/WMH Shown)

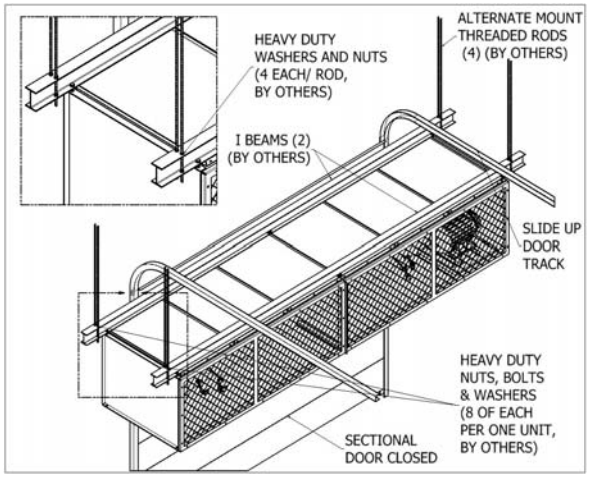

FIG. 8 (BD Shown)

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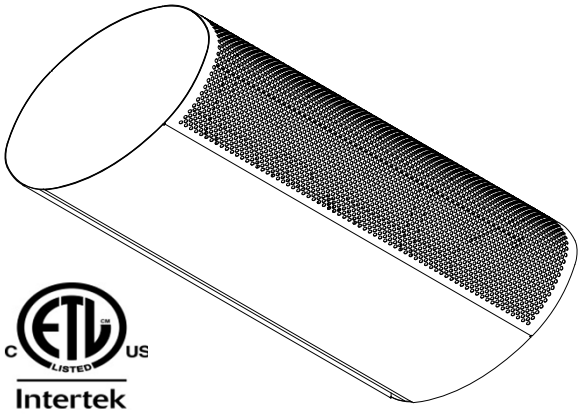
Document No: QP-IOM
Date: 03/09/20

QuietPro 10 (QP10) COMMERCIAL 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: QuietPro 10 Series (Environmental Separation up to 12', Flying Insect Control up to 10'). The units are typically wall mounted horizontally above the door opening. They can also be suspended from the ceiling or vertically mounted alongside the opening. 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 QuietPro 10 series are 1/2 HP.

QuietPro 10 come standard with an air intake screen(s). They can also be configured with an aluminum mesh air intake filter instead of the air intake grille or in conjunction with it.

GENERAL SAFETY INFORMATION

Use this product only in the manner intended by 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.

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. Remove the air intake grille(s) and/or filter(s) from the product and set aside.
3. Measure the housing and center it over the opening. The air curtain shall be equal to or greater than the width of the opening.
4. Wall mounting brackets with (3) ¼" mounting holes on each bracket are provided for your convenience. These holes must be utilized to secure the product to the wall or ceiling. For ceiling mount, rotate the wall mounting bracket 90^0 to point upwards. Threaded rods to be bolted to these ¼" holes. All hardware is field provided by others.
5. Mount the product such that the discharge is 1" above the opening and all obstacles. (FIG. 1)
   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.
6. Use four (4) threaded rods for overhead installation or four (6) threaded bolts for wall installation. All hardware is field provided by others. (FIG. 1)
7. If applicable, additional wall mounting brackets are available for attaching the unit to a wall. (Reference **Accessory Installation Supplement**)
8. If applicable, for tandem installation or 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, by others, to span the full distance of the mounting length. (Reference **Accessory Installation Supplement**)
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.
11. Service clearance of 18" required on top of the air curtain.

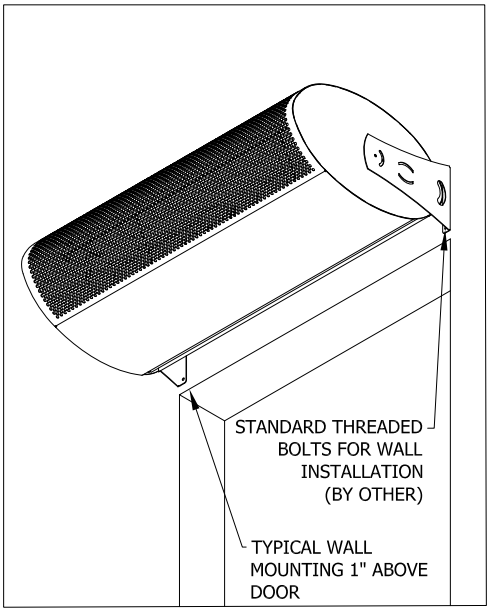


FIG. 1

Motor Fan Assembly Installation and Electrical Field Wiring

1. Once the mounting brackets or overhead support is installed over the opening, the Air Curtain Unit (ACU) must be re-placed and securely fastened to the mounting support. For heated ACU installation, reference **Heated Products Supplement Sheet**.

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)
3. 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. 2)
4. Replace the air intake grille(s) or filter(s) once the product has been properly tested.

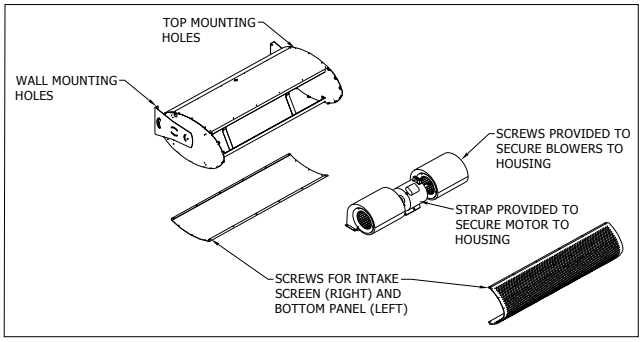


FIG. 2

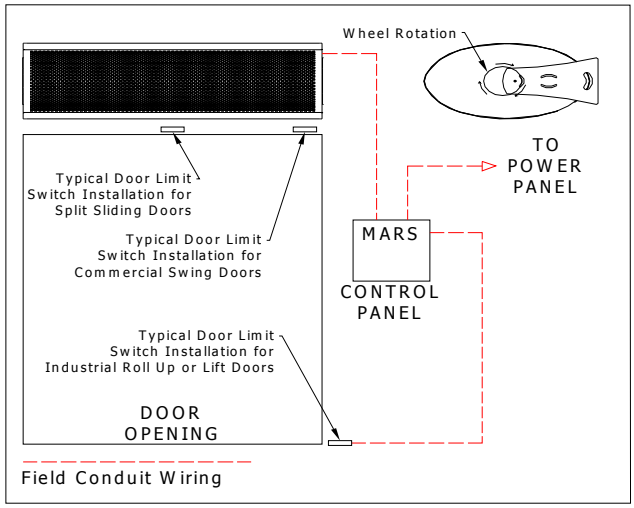


FIG. 3

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

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. 4)

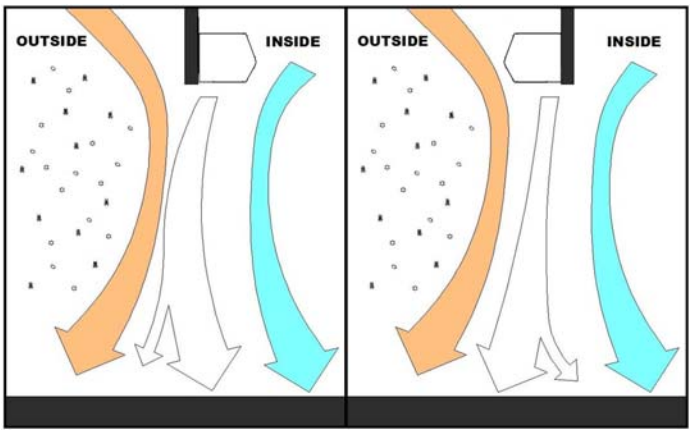


FIG. 4

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.

WARNING

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

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.

MAINTENANCE

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 and/or air intake filter. This is accomplished by removing the screws on the face of each air intake grille/filter.
4. Thoroughly clean the air intake grille/filter.
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.

SPECIAL APPLICATIONS

Outdoor Installation

For outdoor unit 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.

High humid areas may require de-humidifier or additional defrost cycle to minimize condensation and freezing for freezer applications. We recommend the air curtain unit to not replace doors but work in conjunction with door opening sequence cycle.
Contact factory for details.

CAUTION

The appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction. Children are not to play with the appliance.

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.

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
	- Balancing clips missing	- 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 you and Mars otherwise. For heated products, the warranty period is an eighteen (18) month period and for custom products and accessories, the warranty period is twelve (12) months 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: _____

atmosphere is everything

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.

Document No: QP10-CSI

Date: 011420

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SECTION 233433

AIR CURTAINS

Important Note: This document contains hidden text appearing in magenta. The final document should not display the hidden text. To remove hidden text, click the “File” tab or “Office” icon on the top-left corner, select “Options,” select “Display,” and 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.

1.2 RELATED SECTIONS

A. Section 05500 - Metal Fabrications: Concealed steel support members.

B. Section 06100 - Rough Carpentry.

C. Section 05410 - Load-Bearing Metal Studs.

D. Section 07900 - Joint Sealers.

E. Section 08110 - Steel Doors and Frames.

F. Section 08330 - Overhead Coiling Doors.

G. Section 15145 - Plumbing Piping:

H. Section 15182 - Hydronic Piping: Hot water heating piping to units.

I. Section 15184 - Steam and Condensate Piping: Steam heating piping to units.

J. Section 16150 (20 05 00) - Equipment Wiring: Connections to building power distribution.

1.3 REFERENCES

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

Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.

B. ASTM A591 / A591M -98 – Standard Specification for Steel Sheet, Electrolytic Zinc-Coated, for Light Coating Weight (Mass) Application (Withdrawn in 2005, replaced by A879/A879M).

C. 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.

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

E. UL 507 – Standard for Safety Electric Fans – UL Listed for US and Canada.

F. UL 507 – UL Standard for Safety Electric Fans – Intertek Testing Services Listed for US and Canada.

G. UL 2021 – UL Standard for Fixed and Location-Dedicated Electric Room Heaters – Listed for US and Canada.

H. UL 2021 – Standard for Fixed and Location-Dedicated Electric Room Heaters – Intertek Testing Services Listed for US and Canada.

I. ARI 410-2001 – Standard for Forced-Circulation Air-cooling and Air-Heating Coils.

J. CRN – Canadian Registration Number Coil.

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

L. CE – Certified a product has met EU consumer safety, health or environmental requirements – Intertek Testing Services Listed.

M. NEC – National Electric Code.

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

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

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

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

G. Operation and Maintenance Manual: Submit manufacturer's operation and maintenance manual, including operation, maintenance, adjustment, and cleaning instructions, trouble shooting 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 five year limited parts warranty for unheated units against defects in workmanship and materials.

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

PART 2 PRODUCTS

2.1 MANUFACTURERS

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. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 AIR CURTAIN ASSEMBLIES

A. Motor Fan Assembly: Design for easy removal, assembly, repair and maintenance.

1. Motor: Totally enclosed air over (TEAO) cooled motor with sealed lifetime pre-lubricated ball bearings, motor starter and thermal overload protection.

a. Wired for single speed operation.

b. Wired for two speed operation. (Not Applicable for Fly Insect Control Unit)

c. Wired for three speed operation. (Not applicable for Fly Insect Control Unit)

d. Provide wash down type motors, NEC IP-54 for the locations indicated.

e. Provide explosion proof type motors, NEC Class 1, Division 1, Group D for the locations indicated.

f. Electrical Characteristics: 115V AC, single phase; 5.1 Amp full load per motor/fan.

g. Electrical Characteristics: 208/230V AC, single phase; 2.5 Amp full load per motor/fan.

h. Electrical Characteristics: 208/230V AC, three phase; 1.8/1.6 Amp full load per motor/fan.

i. Electrical Characteristics: 460V AC, three phase; 0.8 Amp full load per motor/fan.

j. Electrical Characteristics: 575V AC, three phase; 0.65 Amp full load per motor/fan.

k. *Note: Explosion Proof and Wash-down models' Amp – Please see submittals

2. Fans: Forward curved centrifugal type, double width, and double inlet design, directly driven to an electric motor.

3. Provide resilient isolation dampening mountings between motor frame and motor mounting pan.

4. Factory balanced blower wheel assembly statically and dynamically.

B. Housing: Self-contained one-piece type for units up to 48 inches in length with sufficient strength for mounting from pre-punched mounting holes at both ends to ceiling without intermediate support. Units longer than 48" are two units tandem mounted next to each other.

1. Size:

a. Unheated: 20 inches deep by 12 inches high (including discharge nozzle) by width of unit.

b. Electric Heated: 20 inches deep by 12 inches high (including discharge nozzle) by width of unit.

c. Hot Water/Steam Heated: Depth 20 inches single row and double row by 12 inches high including discharge nozzle by width of unit plus 10 inches for manifolds.

2. Mounting:

a. Unheated Inside Mount.

b. Heated Inside Mount.

c. Unheated Outside Mount.

d. Mount Location Indicated.

3. Material:

a. Provide T5052 11 and 18 gauge aluminum conforming to ASTM B209 and 14 and 20 gauge electro or hot dipped galvanized steel sheet housing conforming to ASTM A 591 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. Anodized Aluminum (Standard Color)

b. Pearl White.

c. Titanium Silver

d. Obsidian Black.

e. Stainless Steel.

C. Environmental Air Curtains: Models for Heights to 12 feet (3658 mm).

1. Discharge Nozzle: Wedge-shaped discharge outlet nozzle with adjustable air foil vanes with a plus/minus 40 degree sweep front to back.

2. Air Velocity at Nozzle:

a. QP1036-1: 36 Inch (915 mm) Wide Units: 2206 feet/min (11.2 m/s) single 1/2HP motor/fan assembly.

b. QP1042-1: 42 Inch (1065 mm) Wide Units: 1945 feet/min (9.9 m/s) single 1/2HP motor/fan assembly.

c. QP1048-1: 48 Inch (1220 mm) Wide Units: 1730 feet/min (8.8 m/s) single 1/2HP motor/fan assembly.

d. QP1072-2: 72 Inch (1830 mm) Wide Units: 2206 feet/min (11.2 m/s) two 1/2HP motor/fan assemblies.

e. QP1084-2: 84 Inch (2133 mm) Wide Units: 1945 feet/min (9.9 m/s) two 1/2HP motor/fan assemblies.

f. QP1096-2: 96 Inch (2440 mm) Wide Units: 1730 feet/min (8.8 m/s) two 1/2HP motor/fan assemblies.

g. QP10108-2: 108 Inch (2743 mm) Wide Units: 1547 feet/min (8.0 m/s) two 1/2HP motor/fan assemblies.

h. QP10120-3: 120 Inch (3050 mm) Wide Units: 2084 feet/min (10.6 m/s) three 1/2HP motor/fan assemblies.

i. QP10144-3: 144 Inch (3660 mm) Wide Units: 1730 feet/min (8.8 m/s) three 1/2HP motor/fan assemblies.

3. Air Speed at Floor: Minimum of 300 fpm (1.53 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) Filter: Aluminum mesh, 1/4 inch (6.4 mm), washable.

   c. Type: Filter Only as follows:

5. Sound Pressure Level At 10 feet (3 m) From Nozzle:

   a. Single Motor/Fan Units: 53 dBA.

   b. Two Motor/Fan Units: 55 dBA.

   c. Three Motor/Fan Units: 57 dBA.

   d. Four Motor/Fan Units: 59 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. Thermostat: Wall-mounted, 24-Volt operation, with heater on/off selection.
3. Heating Coils: ETL approved as part of unit. CEC tested by ETL. Factory mounted on the discharge end of the motor fan assembly and located within the nozzle outlet.

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. Coils: Certified in accordance with ARI 410.
3. Connections: Opposite end.
4. Connections: Same end, right hand.
5. Connections: Same end, left hand.
6. Casing: One piece unpainted galvanized steel, bolted to air curtain housing.
7. Supply and return fittings on ends of casing.
8. *Steam Distributing coil required for 8 feet and above for same end coils. Dual supply, Single returns.
9. Thermostat: Wall-mounted, 110-Volt operation, with heater on/off selection.
10. Thermostat: Wall-mounted, 208/230-Volt operation, with heater on/off selection.

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 ARI 410.
4. Connections: Opposite end.
5. Connections: Same end, right hand.
6. Connections: Same end, left hand.
7. Casing: One piece unpainted galvanized steel, bolted to air curtain housing.
8. Supply and return fittings on top of casing.
9. Thermostat: Wall-mounted, 110-Volt operation, with heater on/off selection.
10. Thermostat: Wall-mounted, 208/230-Volt operation, with heater on/off selection.

D. Motor Control Panels For Unheated Units: Recommended for all three phase units and single phase units with combined motor capacities of more than 1HP 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.
5. Panels UL 508A listed.

6. Optional Digital Programmable Controller:

    a. Remote Mounted High Resolution 5” Color LCD Display with Capacitive Touch technology

    b. Fully programmable controller

    c. Pre-set and fully customizable programs

    d. Time delay (Passive & Adaptive)

    e. 24/7 timer

    f. Maintenance schedule alerts

    g. Status display showing date, time, temperature and air curtain mode

    h. Multi-unit control capability

    i. English (IP) or Metric (SI) display readings

    j. Password protected

    k. Auto Lock display

    l. Emergency shut-off button

    m. Low voltage control signal for door activation

    n. Integrated BMS controls

    o. VFD compatible with 0-10VDC output

    p. Optional BACnet option

    q. Optional adaptive fan speed control based on existing field conditions. Field mounted outdoor temperature sensors required.

E. Motor Control Panels For Electric Heated Units: Recommended for all three phase units and single phase units with combined motor capacities of more than 1HP whenever a door limit switch is used to automatically start and stop the air curtain. Motor Control Panel is included for all electric heated units. Thermostat is provided for field installation. Provide motor control panels as follows:

    1. Mounting: Factory mounted on the inside of air curtain housing.

2. Mounting: Factory mounted on left hand side of air curtain housing.
3. Electrical components UL/CUL listed.
4. Optional Digital Programmable Controller:
    a. Remote Mounted High Resolution 5” Color LCD Display with Capacitive Touch technology
    b. Fully programmable controller
    c. Pre-set and fully customizable programs
    d. Time delay (Passive & Adaptive)
    e. Factory Integrated temperature control sensors. No external thermostat required.
    f. Summer-Winter modes
    g. 24/7 timer
    h. Maintenance schedule alerts
    i. Status display showing date, time, temperature and air curtain mode
    j. Multi-unit control capability
    k. English (IP) or Metric (SI) display readings
    l. Password protected
    m. Auto Lock display
    n. Emergency shut-off button
    o. High temperature lock from fan failure
    p. Low voltage control signal for door activation
    q. Integrated BMS controls
    r. VFD compatible with 0-10VDC output
    s. Optional BACnet option

t. Optional adaptive fan speed control and heat control based on existing field conditions. Field mounted outdoor temperature sensors required.

F. Motor Control Panels For Hot Water, Steam and Gas Heated Units: Recommended for all three phase units and single phase units with combined motor capacities of more than 1HP 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. Provide with remote mount thermostat for field installation.
5. Electrical components UL/CUL listed.
6. Optional Digital Programmable Controller:
   a. Remote Mounted High Resolution 5” Color LCD Display with Capacitive Touch technology
   b. Fully programmable controller
   c. Pre-set and fully customizable programs
   d. Time delay (Passive & Adaptive)
   e. Factory Integrated temperature control sensors. No external thermostat required.
   f. Summer-Winter modes
   g. 24/7 timer
   h. Maintenance schedule alerts
   i. Status display showing date, time, temperature and air curtain mode
   j. Multi-unit control capability

k. English (IP) or Metric (SI) display readings

l. Password protected

m. Auto Lock display

n. Emergency shut-off button

o. High temperature lock from fan failure

p. Low voltage control signal for door activation

q. Integrated BMS controls

r. VFD compatible with 0-10VDC output

s. Optional BACnet option

t. Optional adaptive fan speed control and heat control based on existing field conditions. Field mounted outdoor temperature sensors required.

G. 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 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. Type: Magnetic reed switch and actuator for swing and sliding doors. Industrial floor mounted or surface mounted switches for roll up doors.

3. Operation for Unheated Units: Automatic on/off control, on when door is opened, off when door is closed.

4. Operation for Heated Units: Automatic on when door is opened, off after time delay period after door is closed, maintaining heat in the event door is opened within delay time period. Field adjustable from 1 to 17 minutes.

H. 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

**** NOTE TO SPECIFIER ** Indicate the mounting location(s) on the Drawing or on the Schedule at the end of this Section. Units are typically wall mounted horizontally above the door opening. Units can also be suspension mounted from the ceiling or vertically mounted along side the opening. Units are ETL Listed (US and Canada) for either an inside or outside mount. Heated units must be mounted on the inside or protected side of the opening. The appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction. Children are not to play with the appliance.**

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. Install sheet metal flashing as specified in Section 07620.

E. Install joint sealants as specified in Section 07920.

F. Install electrical power as specified in Section 16100.

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

H. Provide connection to piped services and utilities as specified in Sections of Divisions 15.

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 SCHEDULE

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

END OF SECTION

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Reference Links

Link	Description
http://marsair.com	Main website
http://marsair.com/content/TBD	QP10 main info page including Features, Specifications, Accessories, Submittals
http://marsair.com/document-library	Submittals for all Mars Air Curtains, Accessories, Installation, and Brochures
http://marsair.com/sites/default/files/TBD	CSI Spec Word Doc Download

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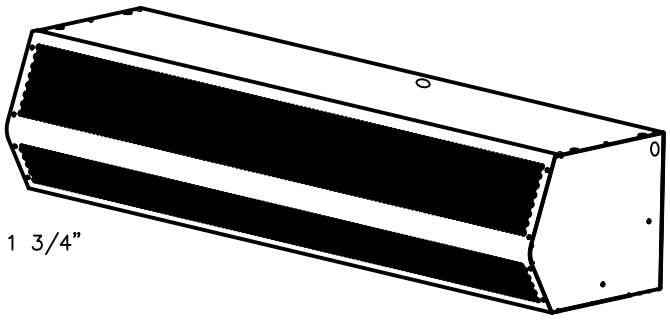
TEL:(310) 532-1555 • (800) 421-1266 • FAX:(310) 324-3030
Web Site: www.marsair.com • E-mail:info@marsair.com

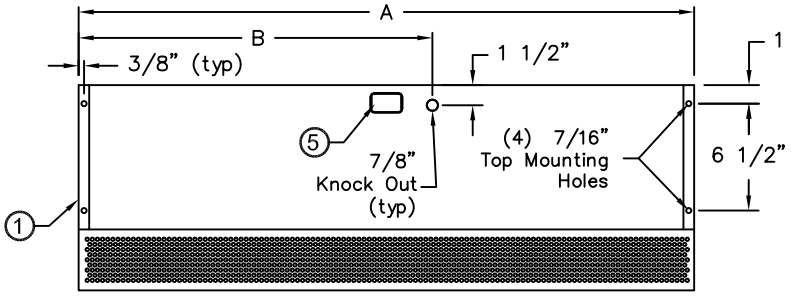
PROJECT		OPTIONS/ITEMS
TITLE		
COMMENTS		DATE 3/22/16 / PAGE
		REV. NO

MODEL NO. STD2 Series	DRAWING NO STD2U–F	DRAWN BY BH	CHECKED BY	FILE NAME

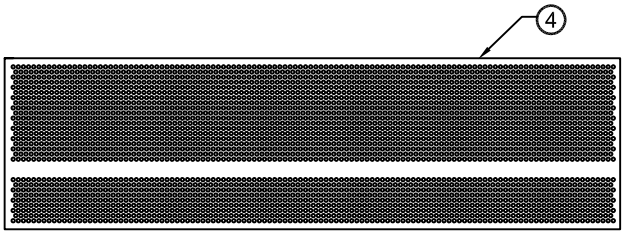
Unheated Drawing

STD2
(Standard 2) Series

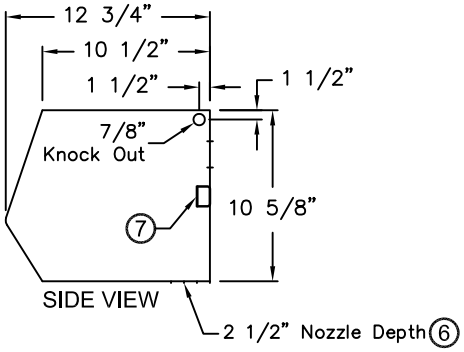




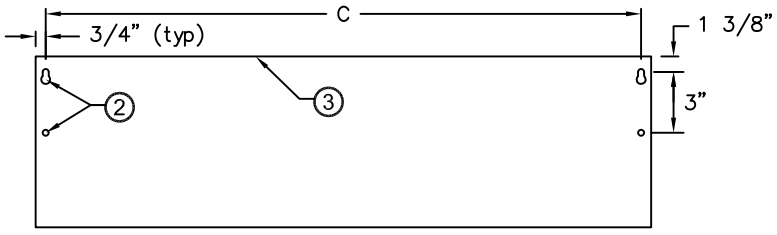
TOP VIEW



FRONT VIEW



SIDE VIEW



REAR VIEW

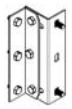
Note: Models STD260-2, STD264-2, STD278-2, STD296-3 & STD2108-2 are not AMCA Certified

Intertek

8 Recommended Accessories


Control Panels


Door Limit Switches


Brackets

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

MODEL NUMBER	OVERALL LENGTH A (in)	KNOCKOUT LOCATION B (in)	REAR MOUNTING CENTER C (in)
STD236-1U*-OB	36	25 1/2	34 1/2
STD242-1U*-OB	42	28 1/2	40 1/2
STD248-1U*-OB	48	31 1/2	46 1/2
STD260-2U*-OB	60	37 1/2	58 1/2
STD272-2U*-OB	72	40	70 1/2
STD284-2U*-OB	84	46	82 1/2
STD296-2U*-OB	96	52	94 1/2
STD2108-3U*-OB	108	58	106 1/2
STD2120-3U*-OB	120	64	118 1/2
STD2144-3U*-OB	144	76	142 1/2

Notes:

1. This product is designed to meet the National Electric Code (NEC), ETL Listed (UL 507 and CSA 22.2) and AMCA 211 Certified.
2. (2) 1/2" key hole slots and (2) 7/16" mounting holes provided for wall mounting and (4) 7/16" mounting holes for overhead mounting provided, (2) on each end.
3. All units have a self contained one piece cabinet, fire retardant and corrosion proof paint lock metal double protected with baked on Obsidian Black color, rust preventative electrostatic polyurethane powder coating.
4. Cabinet has sufficient strength for fastening to wall on both ends without intermediate support.
5. Internal J-Box(es) for electrical wiring: one motor-(1) 2"x 4"; two motors-(1) 4"x 4"; three motors-(2) 4"x 4".
6. 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.
7. Circuit protection as per NEC by others.
8. 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.

STD2 (Standard 2) Series

Unheated

Model Lengths 36” – 144”

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Unheated Data Sheet

Applications: Environmental Separation (up to 12’) and Insect Control (up to 10’)

STD2 (Standard) Series 2	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)
STD236-1U*-OB	36	36	13	11	1/2	60	5960	2206	1379	84	500
STD242-1U*-OB	42	42	13	11	1/2	65	4865	1945	1418	87	510
STD248-1U*-OB	48	48	13	11	1/2	70	4247	1730	1442	85	550
STD260-2U*-OB	60	60	13	11	Two 1/2	90	6737	2592	2700	93	940
STD272-2U*-OB	72	72	13	11	Two 1/2	120	5960	2206	2758	84	1000
STD284-2U*-OB	84	84	13	11	Two 1/2	125	4865	1945	2836	87	1020
STD296-2U*-OB	96	96	13	11	Two 1/2	135	4247	1730	2884	85	1100
STD2108-3U*-OB	108	108	13	11	Three 1/2	175	5960	2206	4137	84	1500
STD2120-3U*-OB	120	120	13	11	Three 1/2	185	4660	2084	4341	92	1570
STD2144-3U*-OB	144	144	13	11	Three 1/2	200	4247	1730	4326	85	1650

*** - 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.

1. The AMCA Certified Ratings Seal applies to airflow rate, average outlet velocity, outlet velocity uniformity, velocity projection and power rating at free delivery only.

2. Rated data shown are only for base (unheated) units, as shown.

Features:

- 1/2 HP Continuous Duty TEAO Motors
- Sleek self-contained one piece heavy gauge corrosion proof paint lock metal design
- ETL Certified to conform to UL 507 (US) and CSA 22.2 (Canada) Standards (Indoor/Outdoor Use)
- AMCA Certified to AMCA 211 (see table above for models available)
- (4) 7/16” top and wall mounting holes provided, (2) on each end
- Cabinet has sufficient strength for fastening to wall on both ends without intermediate support
- Adjustable air directional vanes with 40° sweep front to back
- Standard color is Obsidian Black
- Rust preventative electrostatic polyurethane powder coating
- 5 year parts warranty
- Freight Included (FOB Continental USA)
- Proudly Made in the USA

Note: All STD2 (1) motor units up to 48” are shipped with the Motor Fan Assembly (MFA) factory installed inside the air curtain housing. For all other models, the MFA are shipped loose to minimize freight damage

Electrical Data (FLA)	Unit Voltage (Voltage Code)						
	Single Phase			Three Phase			
	115v/1Ø (A)	208/230v/1Ø (D)	277v/1Ø (L)	208/230v/3Ø (G)	460v/3Ø (H)	575v/3Ø (I)	380v/3Ø/50Hz (W)
STD236-1U*-OB	5.1	2.5	2.7	1.8/1.6	0.8	0.7	1.1
STD242-1U*-OB	5.1	2.5	2.7	1.8/1.6	0.8	0.7	1.1
STD248-1U*-OB	5.1	2.5	2.7	1.8/1.6	0.8	0.7	1.1
STD260-2U*-OB	10.2	5.0	5.4	3.6/3.2	1.6	1.4	2.2
STD272-2U*-OB	10.2	5.0	5.4	3.6/3.2	1.6	1.4	2.2
STD284-2U*-OB	10.2	5.0	5.4	3.6/3.2	1.6	1.4	2.2
STD296-2U*-OB	10.2	5.0	5.4	3.6/3.2	1.6	1.4	2.2
STD2108-3U*-OB	15.3	7.5	8.1	5.4/4.8	2.4	2.1	3.3
STD2120-3U*-OB	15.3	7.5	8.1	5.4/4.8	2.4	2.1	3.3
STD2144-3U*-OB	15.3	7.5	8.1	5.4/4.8	2.4	2.1	3.3

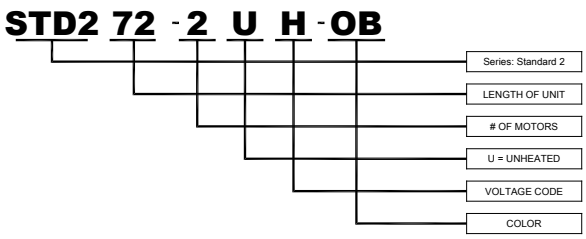
*** - Use corresponding letters in "Electrical Data" columns to complete the model numbers.**

Note: For Ampacity Multiply FLA X 1.25

Options and Accessories: (see Accessories Brochure)

- Motor Control Panels
- Wall and Overhead Bracket
- Multi-speed motors and controls
- Washdown units and accessories (NEMA 4 & 4X)
- Explosion Resistant units and accessories (Class I, Div. I, Group D)
- Custom colors and finishes (304SS, 316SS)
- Noise reduction package

EXAMPLE



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

Projection Velocity		
Model	Distance from nozzel (in)	Avg. Core Velocity (FPM)
STD236-1U*	40	1207
	80	856
	120	710
	160	637
	200	588

MARS Air Systems, LLC certifies that the Air Curtains shown on this data sheet are licensed to bear the AMCA seal. The rating 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 STD260-2, STD264-2, STD278-2, STD296-3 & STD2108-2 are not AMCA Certified.

Note: AMCA211 encompasses both AMCA 210 and AMCA220

Intertek

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.