

DAMMON

ENGINEERING, INC.

554 Old Spanish Trail
Slidell, LA 70458
985.649.5832

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info@dammonengineering.com

Architects & Engineers

SHOP DRAWING and SAMPLE TRANSMITTAL

DATE: **5/15/2025**

TO: Cheri Rusich
M Natal Contractor, Inc.
P.O. Box 518
Slidell, La

FROM: Chuck Dammon

SUBMITTAL No.: 230000-002-0

REFERENCE: **STP Fire District 1 Training Center #2**

DE Project: 2507

WE TRANSMIT:

enclosed under separate cover _____

FOR YOUR:

use record approval
 review and comment information drafting

THE FOLLOWING:

drawing(s) contracts specifications
 shop drawings samples change order(s)
 product information warranty substitution request

# COPIES	DESCRIPTION	ACTION
Electronic	Airside	A

ACTION CODES:

- | | | | |
|----|---------------------------|----|---|
| A. | Reviewed/No Exceptions | D. | No Action Required |
| B. | Reviewed/Exceptions Noted | E. | For Signature and Return to this Office |
| C. | Revise and Resubmit | F. | See Remarks Below |
| G. | Rejected | | |

REMARKS:

GRILLES PRICE
TAPS/FLEX/SS CLAMPS FLEXMASTER
MANUAL DAMPERS GREENHECK
BACKDRAFT DAMPER GREENHECK
CONCEALED DAMPER OPERATOR YOUNG REGULATOR
LOUVER GREENHECK
FANS BROAN

COPIES TO: File



Project: STFD No.1 New Training Facility-Slidell #2
 34780 S. Range Road
 Slidell, Louisiana 70460

SUBMITTAL COVER SHEET

Arch. Project No: _____

MNC Project No: 830

To: Dammon Engineering, Inc.
554 Old Spanish Trail
Slidell, Louisiana 70458
info@dammonengineering.com

From: Cheri Rusich
M Natal Contractor, Inc.
P.O. Box 518
Slidell, LA 70459

Attn. David Dammon
Chuck Dammon

Sent Via E-Mail

General Contractor's Review:

M Natal Contractor, Inc.

CONTRACTOR'S REVIEW:

SUBMITTAL NO: 230000.002.0
SPEC. SEC. NO: 230000
VENDOR/SUB: Lanes AC
DESCRIPTION: Airside

NO EXCEPTIONS TAKEN
FURNISH AS CORRECTED
REJECTED; RESUBMIT
PARTIAL APPROVAL; SUBMIT ADD'L ITEM(S)

Reviewing is for conformance with the design concept of the project and compliance with the information given in the Contract Documents. The Vendor/Subcontractor is responsible for dimensions to be confirmed and correlated at the site for information that pertains solely to the fabrication process or to the means, method, technician, sequences, and procedures of construction; and for coordination of the work with all trades.

BY CR DATE: 05/14/2025

Architect/Engineer Review:

DAMMON ENGINEERING, INC

Date: 05-15-25 Project: New Training Facility #2
 Reviewed: [Signature]
 Reviewed as noted: _____
 Revise and ReSubmit: _____
 Rejected: _____
 Other: _____

Correction or comments made on the shop drawings during this review do not relieve the contractor from compliance with requirements of the drawings and specifications. This check is only for review of the general conformance with the design concept of the project and general compliance with the information given in the contract documents. This contractor is responsible for: confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction; coordinating his or her work with that of all other trades and performing all in a safe and satisfactory manner.

Submission item: Airside
 Comments: _____



AIR-SIDE
EQUIPMENT, INC

P 225.275.6930
TF 866.500.3546
F 225.275.6894

11472 N Harrell's Ferry Road
Baton Rouge, LA • 70816
▶ airsideinc.com

April 17, 2025

SUBMITTAL DATA

Job:

ST. TAMMANY FD1 TRAINING FACILITY

Prepared for

LANE'S AC AND HEATING SERVICE

PRODUCTS SUBMITTED:

GRILLES	PRICE
TAPS/FLEX/SS CLAMPS	FLEXMASTER
MANUAL DAMPERS	GREENHECK
BACKDRAFT DAMPER	GREENHECK
CONCEALED DAMPER OPERATOR	YOUNG REGULATOR
LOUVER	GREENHECK
FANS	BROAN

SUBMITTED BY:

LANDON RICHARD

GRILLES

PRICE INDUSTRIES

GRILLE SCHEDULE

PLAN PAGE	FLOOR	QTY	TAG	PRICE MODEL	NECK SIZE		PANEL SIZE	THROW	OBD	FRAME	FINISH	LAY-IN SURFACE SIDEWALL	NOTES / ACCESSORIES
					RD	SQUARE							
M101	1	5	A(LI)-9"(10")	ASCDA	10"		24"	4-WAY	NO	3	B12	LAYIN	R6, REDUCER
M101	1	2	B(SM)-4"	ASCDA	4"		12"	3-WAY	NO	1	B12	SURFACE MOUNT	R6,APF
M101	1	1	B(SM)-5"	ASCDA	5"		12"	3-WAY	NO	1	B12	SURFACE MOUNT	R6,APF
M101	1	2	B(LI)-6"	ASCDA	6"		12"	4-WAY	NO	3	B12	LAYIN	R6,AMF
M101	1	2	B(LI)-7"	ASCDA	7"		12"	4-WAY	NO	3	B12	LAYIN	R6,AMF
M101	1	1	C(LI)-12"	PDDR	12"		24"	-	NO	3	B12	LAYIN	R6,SZR
M101	1	1	C(LI)-14"	PDDR	14"		24"	-	NO	3	B12	LAYIN	R6,SZR

NOTES/ACCESSORIES:

R6 DENOTES R6 INSULATED BACKPANS
 APF DENOTES ALLUMINUM PLASTER FRAMES
 FACTORY BUILT SZR DENTOES SQUARE TO ROUNDS
 B12 DENOTES STANDARD WHITE FINISH
 AMF DENOTES ALUMINIUM MOUNTING FRAME



All-In-One
Grilles/Registers/Diffusers

**ASE NOTE: ALL DIFFUSERS TO
HAVE R6 INSULATED
BACKPANS**

Job Name ST. TAMMANY FD1 TRAINING FACILITY
Entered By Justin Wells
Rep Job No
Location
Customer

Contractor
Engineer
Sales Person Justin Wells
Units Imperial

#	Qty	Model	Tag	Inlet Size	Unit Size	Border	Pattern	Face Size	Accessories
1	5	ASCDA	A(LI)- 9"(10")	10	10	3		24, 24	3C, RC
3 - 15/16" T-Bar Lay-In 3C - 3 Cones (Default) RC - Removable Core									
2	2	ASCDA	B(SM)- 4" 3WAY	4	4	1		12, 12	3C, RC
1 - Surface Mount 3C - 3 Cones (Default) RC - Removable Core									
3	1	ASCDA	B(SM)- 5" 3WAY	5	5	1		12, 12	3C, RC, 90
1 - Surface Mount 3C - 3 Cones (Default) RC - Removable Core 90 - 3-way pattern									
4	3	APF	B(SM) 12"X12" APF					12, 12	
12 - 12 Inches 12 - 12 Inches									
5	2	ASCDA	B(LI)- 6"	6	6	3		12, 12	3C, RC
3 - 15/16" T-Bar Lay-In 3C - 3 Cones (Default) RC - Removable Core									
6	2	ASCDA	B(LI)- 7"	7	7	3		12, 12	3C, RC
3 - 15/16" T-Bar Lay-In 3C - 3 Cones (Default) RC - Removable Core									
7	1	PDDR	C(LI)- 12"	12		3	RD	12, 24x24	F-ST, PL-ST, A
12 - 12" (305mm) 3 - T-Bar Lay-in for 15/16 in. Flat Tee RD - Round Inlet F-ST - Steel PL-ST - Steel A - Stamped Backpan									
8	1	PDDR	C(LI)- 14"	14		3	RD	14, 24x24	F-ST, PL-ST, A
14 - 14" (356mm) 3 - T-Bar Lay-in for 15/16 in. Flat Tee RD - Round Inlet F-ST - Steel PL-ST - Steel A - Stamped Backpan									
9	4	AMF	B(LI) 12"X12" AMF		12, 12				

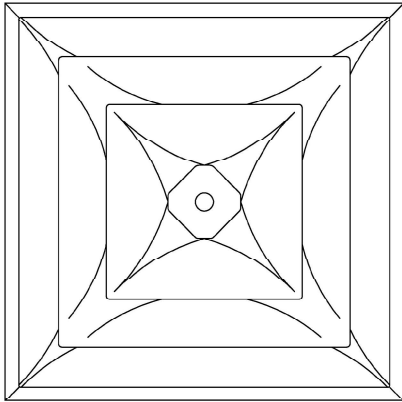


Performance Notes

Date Printed: 4/17/2025

1. Tested in accordance with ASHRAE Standard 70-2006 "Method of Testing for Rating the Performance of Air Outlets and Inlets".
2. Throw data is based on the temperature differential (Dt), in degrees Fahrenheit (°F), between supply air temperature and room temperature.
3. Throw values, in feet (ft), are provided at terminal air velocities of 150 fpm, 100 fpm, and 50 fpm for supply applications.
4. The NC, sound pressure level, is based on a room absorption of 10dB re 10⁻¹² Watts in each octave band.
5. Blanks (--) indicate an NC level below 15.
6. Air flow is in cubic feet per minute (cfm).
7. Static pressure (Ps), velocity pressure (Pv), and total pressure (Pt) are in inches of water (in. w.g.).

ASDA Adjustable Aluminum Square Cone Diffuser

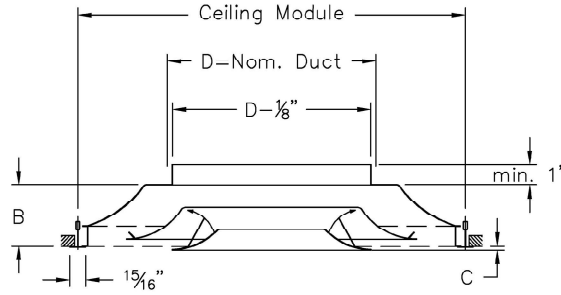


Nom Diffuser Size: 24" X 24"

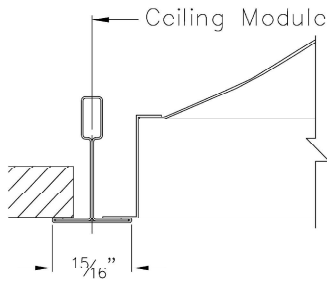
B (Max): 3 3/4"

Duct Diameter: 10"

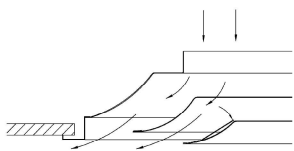
C (Max): 1/8"



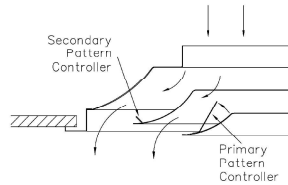
Border: 3 15/16" T-Bar Lay-In



Horizontal Airflow Pattern:



Vertical Airflow Pattern:



PROJECT: ST. TAMMANY FD1 TRAINING FACILITY
ENGINEER:
DESCRIPTION: Adjustable Square Cone Diffuser
 ASCDA-1-2//10/24/24/3/3C/RC/////B12

SUBMITTAL NO: 258307-H
CUSTOMER:

SUBMITTAL DATE: 4/17/2025

Notes:

- Removable core with locking clips
- Tool free cone installation and removal
- Integral hanger loops
- For 9/16" flat tee installation with style 31 frame, cross-tees must be firmly secured. Locking any unopposed cross tees to the main beam with clips such as Armstrong STAC is recommended. Corner clips from ceiling suppliers may also be used, or order 916 clip in GRD-PARTS (confirming fit with ceiling on site is recommended).



Scan for link to additional product information

Material:

- Aluminum Construction

Finish:

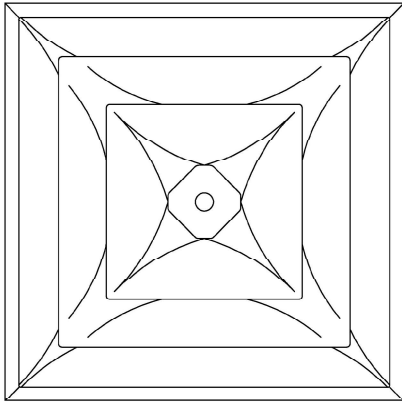
- B12 - Standard White

PROJECT: ST. TAMMANY FD1 TRAINING FACILITY
ENGINEER:
DESCRIPTION: Adjustable Square Cone Diffuser
ASCD A-1-2//10/24/24/3/3C/RC/////B12

SUBMITTAL NO: 258307-H
CUSTOMER:

SUBMITTAL DATE: 4/17/2025

ASDA Adjustable Aluminum Square Cone Diffuser

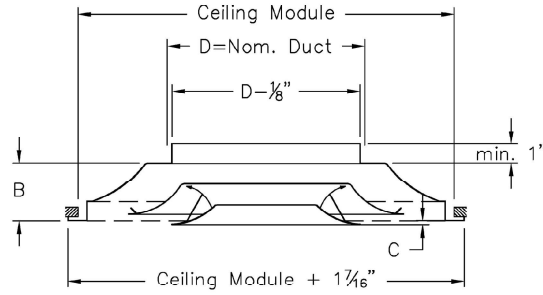


Nom Diffuser Size: 12" X 12"

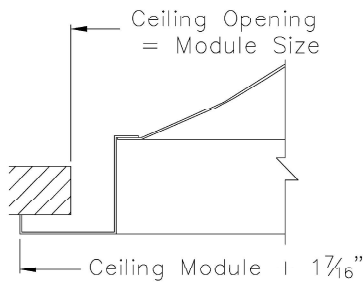
B (Max): 1 3/4"

Duct Diameter: 4"

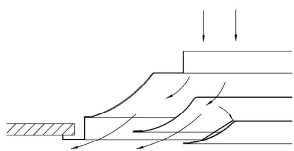
C (Max): 5/8"



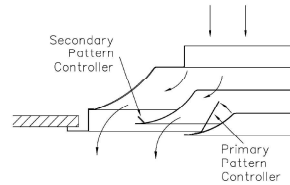
Border: 1 **Surface Mount**



Horizontal Airflow Pattern:



Vertical Airflow Pattern:



PROJECT: ST. TAMMANY FD1 TRAINING FACILITY
ENGINEER:
DESCRIPTION: Adjustable Square Cone Diffuser
 ASCDA-1-2/11/4/12/12/1/3C/RC/1111/B12

SUBMITTAL NO: 258307-H
CUSTOMER:

SUBMITTAL DATE: 4/17/2025

Notes:

- Removable core with locking clips
- Tool free cone installation and removal
- Integral hanger loops

Material:

- Aluminum Construction

Finish:

- B12 - Standard White



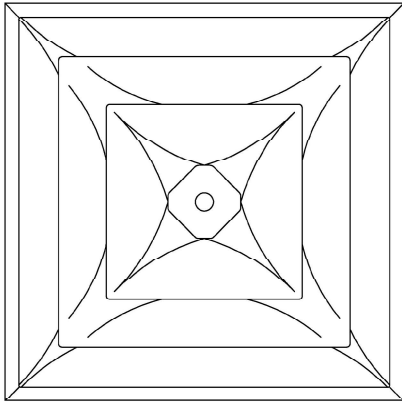
Scan for link to additional product information

PROJECT: ST. TAMMANY FD1 TRAINING FACILITY
ENGINEER:
DESCRIPTION: Adjustable Square Cone Diffuser
ASDA-1-2///4/12/12/1/3C/RC///B12

SUBMITTAL NO: 258307-H
CUSTOMER:

SUBMITTAL DATE: 4/17/2025

ASDA Adjustable Aluminum Square Cone Diffuser

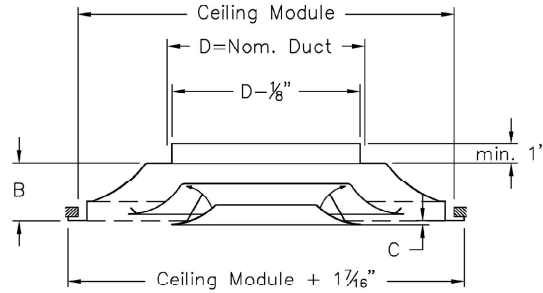


Nom Diffuser Size: 12" X 12"

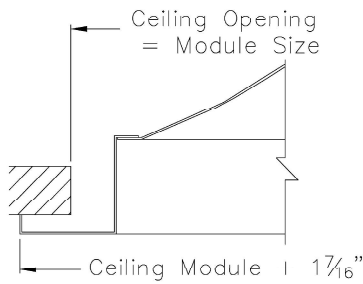
B (Max): 1 3/4"

Duct Diameter: 5"

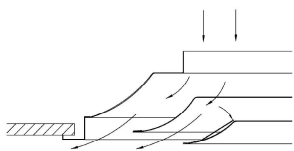
C (Max): 5/8"



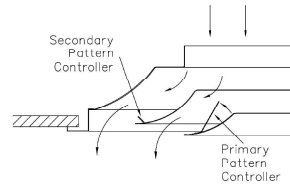
Border: 1 **Surface Mount**



Horizontal Airflow Pattern:



Vertical Airflow Pattern:



PROJECT: ST. TAMMANY FD1 TRAINING FACILITY
ENGINEER:
DESCRIPTION: Adjustable Square Cone Diffuser
 ASCDA-1-2//5/12/12/1/3C/RC//90//B12

SUBMITTAL NO: 258307-H
CUSTOMER:

SUBMITTAL DATE: 4/17/2025

Notes:

- Removable core with locking clips
- Tool free cone installation and removal
- Integral hanger loops
- 90° sectorizing baffle (shipped loose), 3 way throw

Material:

- Aluminum Construction
- Sectorizing baffle - steel

Finish:

- B12 - Standard White



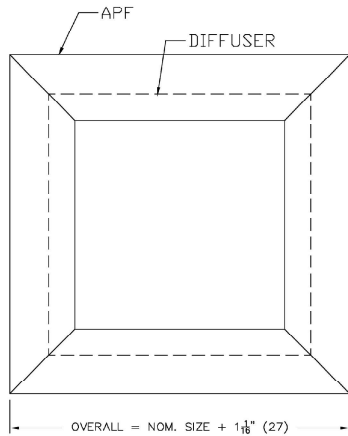
Scan for link to additional product information

PROJECT: ST. TAMMANY FD1 TRAINING FACILITY
ENGINEER:
DESCRIPTION: Adjustable Square Cone Diffuser
ASDA-1-2///5/12/12/1/3C/RC//90///B12

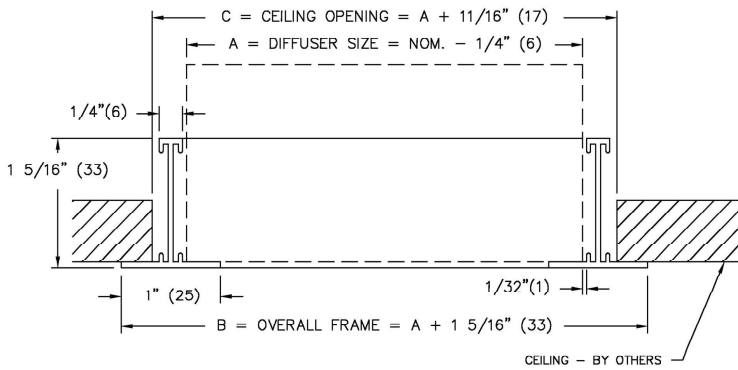
SUBMITTAL NO: 258307-H
CUSTOMER:

SUBMITTAL DATE: 4/17/2025

APF Aluminum Plaster Frame



Nom. Diffuser Size	A	B	C
12 x 12	11 3/4 x 11 3/4	13 1/16 x 13 1/16	12 7/16 x 12 7/16



Notes:

- Factory Tolerance $\pm 1/32"$ (1)

Material:

- Extruded Aluminum

Finish:

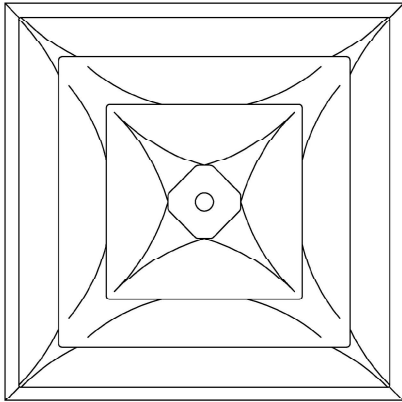
- B12: Standard White

PROJECT: ST. TAMMANY FD1 TRAINING FACILITY
ENGINEER:
DESCRIPTION: Aluminum Plaster Frame
 APF-1-1//CD//12/12//B12

SUBMITTAL NO: 261481
CUSTOMER:

SUBMITTAL DATE: 4/17/2025

ASDA Adjustable Aluminum Square Cone Diffuser

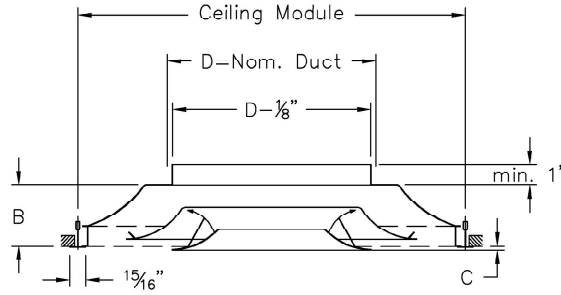


Nom Diffuser Size: 12" X 12"

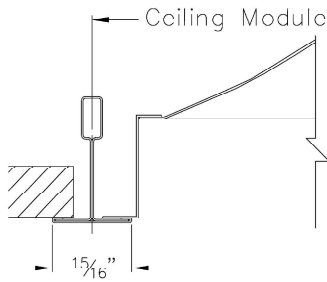
B (Max): 1 3/4"

Duct Diameter: 6"

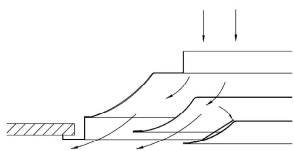
C (Max): 5/8"



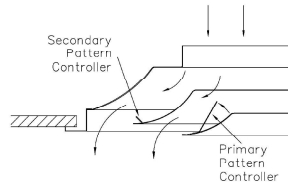
Border: 3 15/16" T-Bar Lay-In



Horizontal Airflow Pattern:



Vertical Airflow Pattern:



PROJECT: ST. TAMMANY FD1 TRAINING FACILITY
ENGINEER:
DESCRIPTION: Adjustable Square Cone Diffuser
 ASCDA-1-2//1/6/12/12/3/3C/RC////B12

SUBMITTAL NO: 258307-H
CUSTOMER:

SUBMITTAL DATE: 4/17/2025

Notes:

- Removable core with locking clips
- Tool free cone installation and removal
- Integral hanger loops
- For 9/16" flat tee installation with style 31 frame, cross-tees must be firmly secured. Locking any unopposed cross tees to the main beam with clips such as Armstrong STAC is recommended. Corner clips from ceiling suppliers may also be used, or order 916 clip in GRD-PARTS (confirming fit with ceiling on site is recommended).



Scan for link to additional product information

Material:

- Aluminum Construction

Finish:

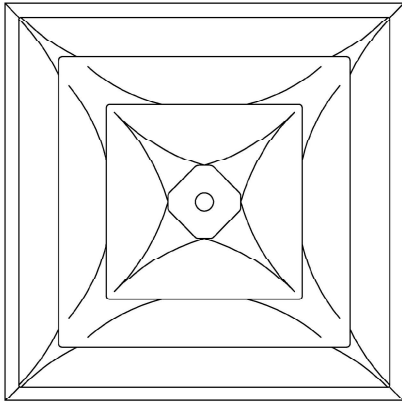
- B12 - Standard White

PROJECT: ST. TAMMANY FD1 TRAINING FACILITY
ENGINEER:
DESCRIPTION: Adjustable Square Cone Diffuser
ASCD A-1-2//1/6/12/12/3/3C/RC//11/B12

SUBMITTAL NO: 258307-H
CUSTOMER:

SUBMITTAL DATE: 4/17/2025

ASDA Adjustable Aluminum Square Cone Diffuser

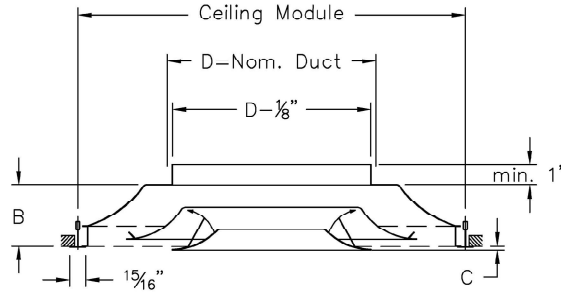


Nom Diffuser Size: 12" X 12"

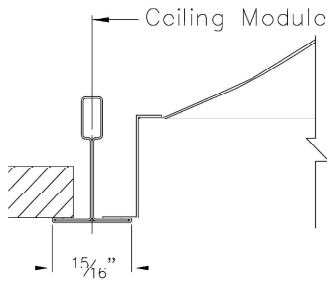
B (Max): 1 3/4"

Duct Diameter: 7"

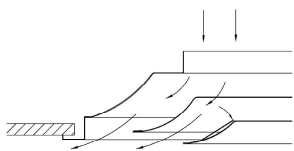
C (Max): 5/8"



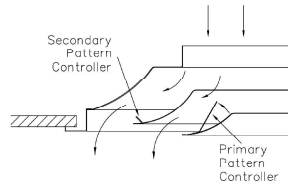
Border: 3 15/16" T-Bar Lay-In



Horizontal Airflow Pattern:



Vertical Airflow Pattern:



PROJECT: ST. TAMMANY FD1 TRAINING FACILITY
ENGINEER:
DESCRIPTION: Adjustable Square Cone Diffuser
 ASCDA-1-2//7/12/12/3/3C/RC//B12

SUBMITTAL NO: 258307-H
CUSTOMER:

SUBMITTAL DATE: 4/17/2025

Notes:

- Removable core with locking clips
- Tool free cone installation and removal
- Integral hanger loops
- For 9/16" flat tee installation with style 31 frame, cross-tees must be firmly secured. Locking any unopposed cross tees to the main beam with clips such as Armstrong STAC is recommended. Corner clips from ceiling suppliers may also be used, or order 916 clip in GRD-PARTS (confirming fit with ceiling on site is recommended).



Scan for link to additional product information

Material:

- Aluminum Construction

Finish:

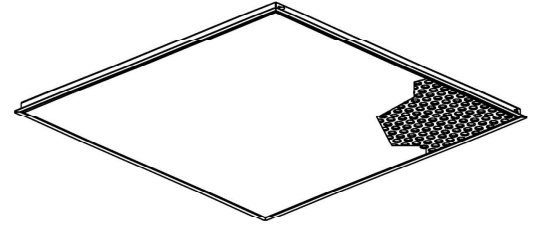
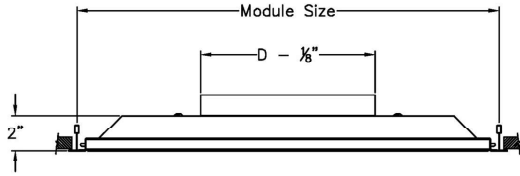
- B12 - Standard White

PROJECT: ST. TAMMANY FD1 TRAINING FACILITY
ENGINEER:
DESCRIPTION: Adjustable Square Cone Diffuser
ASCD A-1-2//7/12/12/3/3C/RC//B12

SUBMITTAL NO: 258307-H
CUSTOMER:

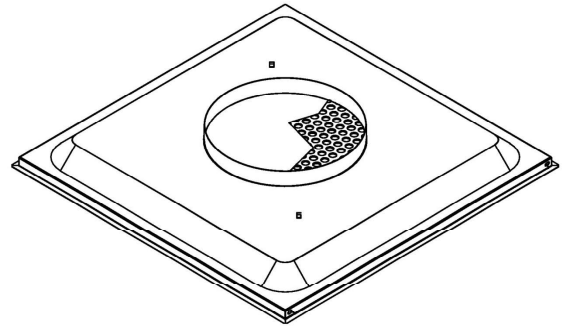
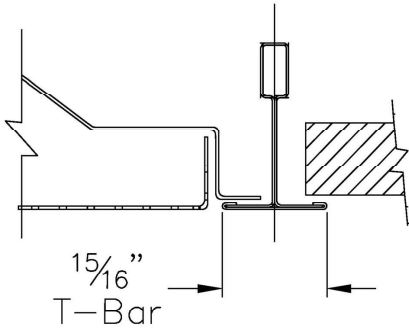
SUBMITTAL DATE: 4/17/2025

PDDR Perforated Return Diffuser



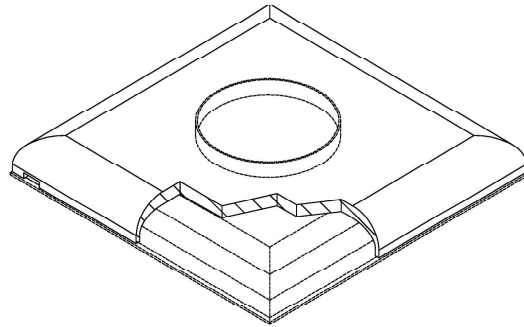
Module Size: 24"x24"
Inlet Size: 12" round

Frame Style: 3 - 15/16" T-Bar Lay-In



Options:

- R6 - Molded backpan insulation



PROJECT: ST. TAMMANY FD1 TRAINING FACILITY
ENGINEER:
DESCRIPTION: Perforated Return Diffuser
PDDR-1-2//I/IN/RD/12//24x24/3/F-ST/PL-ST/A/R6/////B12

SUBMITTAL NO: 271091-B
CUSTOMER:

SUBMITTAL DATE: 4/17/2025

Finish

- B12 - Standard White

Notes

- Face panel is removable
- Integral hanger loops
- Factory tolerance +/- 1/32"

Construction

- Perforated face - 3/16" holes, 51% free area
- F-ST - Steel face
- Steel backpan and outer frame
- Steel spring latches



Scan for link to additional product information

PROJECT: ST. TAMMANY FD1 TRAINING FACILITY

ENGINEER:

DESCRIPTION: Perforated Return Diffuser

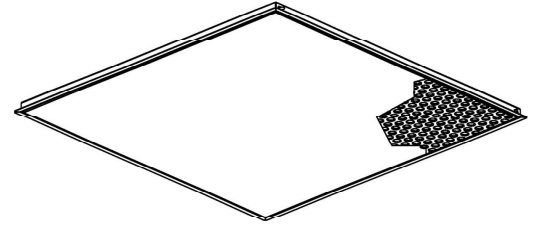
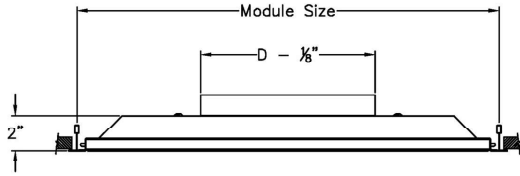
PDDR-1-2//I/IN/RD/12//24x24/3/F-ST/PL-ST/A/R6/////B12

SUBMITTAL NO: 271091-B

CUSTOMER:

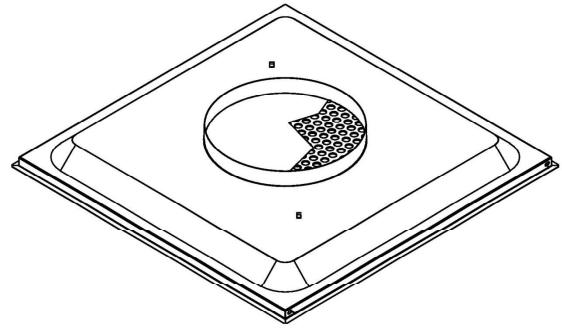
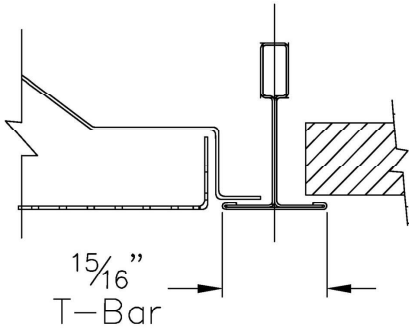
SUBMITTAL DATE: 4/17/2025

PDDR Perforated Return Diffuser



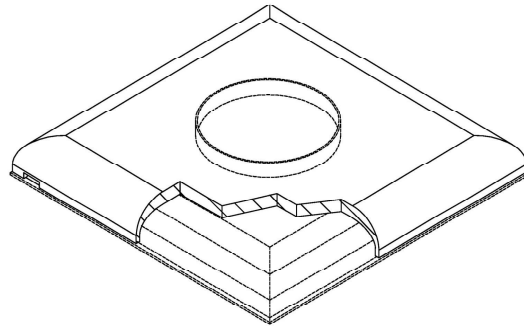
Module Size: 24"x24"
Inlet Size: 14" round

Frame Style: 3 - 15/16" T-Bar Lay-In



Options:

- R6 - Molded backpan insulation



PROJECT: ST. TAMMANY FD1 TRAINING FACILITY
ENGINEER:
DESCRIPTION: Perforated Return Diffuser
PDDR-1-2//IIN/RD/14//24x24/3/F-ST/PL-ST/A/R6/////B12

SUBMITTAL NO: 271091-B
CUSTOMER:

SUBMITTAL DATE: 4/17/2025

Finish

- B12 - Standard White

Notes

- Face panel is removable
- Integral hanger loops
- Factory tolerance +/- 1/32"

Construction

- Perforated face - 3/16" holes, 51% free area
- F-ST - Steel face
- Steel backpan and outer frame
- Steel spring latches



Scan for link to additional product information

PROJECT: ST. TAMMANY FD1 TRAINING FACILITY

ENGINEER:

DESCRIPTION: Perforated Return Diffuser

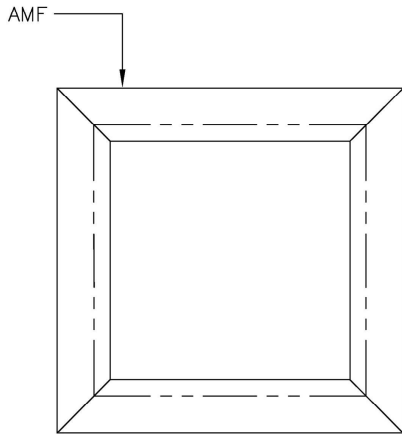
PDDR-1-2//I/IN/RD/14//24x24/3/F-ST/PL-ST/A/R6/////B12

SUBMITTAL NO: 271091-B

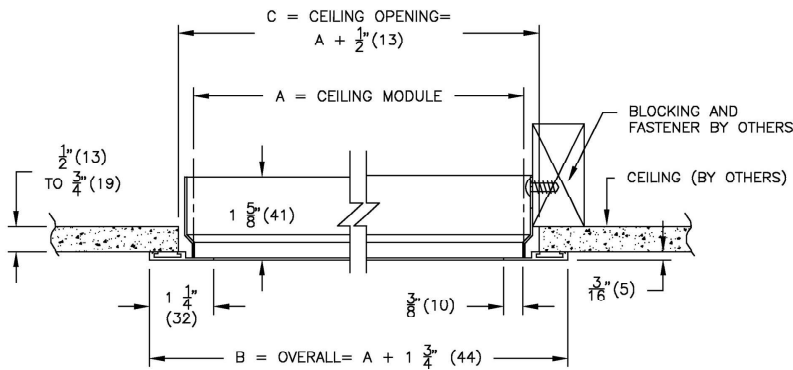
CUSTOMER:

SUBMITTAL DATE: 4/17/2025

AMF Aluminum Mounting Frame



Diffuser Size (A)	B	C
12 x 12	13 3/4 x 13 3/4	12 1/2 x 12 1/2



Notes:

- Factory Tolerance $\pm 1/32"$ (1)

Material:

- Extruded Aluminum Frame

Finish:

- B12: Standard White

PROJECT: ST. TAMMANY FD1 TRAINING FACILITY
ENGINEER:
DESCRIPTION: Aluminum Mounting Frame
 AMF-1-1//12/12//B12

SUBMITTAL NO: 261533-A
CUSTOMER:

SUBMITTAL DATE: 4/17/2025

TAP/FLEX/SS CLAMPS

FLEXMASTER

TAPS/FLEX DUCT/S.S. CLAMPS

QTY		RD	FLEXMASTER MODEL	DESCRIPTION	NOTES/ACCESSORIES
2	4"		FLD-BO3-SOG	SPIN TAP W/ DAMPER	DAMPER WITH 2" STANDOFF AND NYLON BEARINGS
1	5"		FLD-BO3-SOG	SPIN TAP W/ DAMPER	DAMPER WITH 2" STANDOFF AND NYLON BEARINGS
2	6"		FLD-BO3-SOG	SPIN TAP W/ DAMPER	DAMPER WITH 2" STANDOFF AND NYLON BEARINGS
2	7"		FLD-BO3-SOG	SPIN TAP W/ DAMPER	DAMPER WITH 2" STANDOFF AND NYLON BEARINGS
1	8"		FLD-BO3-SOG	SPIN TAP W/ DAMPER	DAMPER WITH 2" STANDOFF AND NYLON BEARINGS
1	9"		FLD-BO3-SOG	SPIN TAP W/ DAMPER	DAMPER WITH 2" STANDOFF AND NYLON BEARINGS
2	14"		FLD-BO3-SOG	SPIN TAP W/ DAMPER	DAMPER WITH 2" STANDOFF AND NYLON BEARINGS
2	9" OFF 12"		FLD-B03-ST	SADDLE TAP W/ DAMPER	DAMPER WITH 2" STANDOFF AND NYLON BEARINGS
2	9" OFF 12"		FLD-B03-ST	SADDLE TAP W/ DAMPER	DAMPER WITH 2" STANDOFF AND NYLON BEARINGS
1	4"		1M-R6	FLEX DUCT	R6 INSULATION-12' MAX PER DIFFUSER
1	5"		1M-R6	FLEX DUCT	R6 INSULATION-12' MAX PER DIFFUSER
1	6"		1M-R6	FLEX DUCT	R6 INSULATION-12' MAX PER DIFFUSER
1	7"		1M-R6	FLEX DUCT	R6 INSULATION-12' MAX PER DIFFUSER
3	9"		1M-R6	FLEX DUCT	R6 INSULATION-12' MAX PER DIFFUSER
4	4"		S.S. CLAMPS		
6	6"		S.S. CLAMPS		
4	8"		S.S. CLAMPS		
10	10"		S.S. CLAMPS		

SUBMITTAL DATA

Flexmaster U.S.A.® Straight Collar SOG

SHEET METAL FITTINGS



The Flexmaster U.S.A.® Straight Collar with stick on gasket (FL-SOG) is manufactured from 26 gauge, or heavier, G-90 galvanized steel to meet SMACNA and UMC Standards for commercial construction.

The FL-SOG is manufactured with a 1" formed on flange and Stick on Gasket to provide air-tight installation.

The FL-SOG should be installed using SMACNA installation standards.

Order Size	Diameter	Length w/ Damper	Length w/o Damper
4"	3 7/8"	6 1/2"	3 1/2"
5"	4 7/8"	6 1/2"	3 1/2"
6"	5 7/8"	6 1/2"	3 1/2"
7"	6 7/8"	6 1/2"	3 1/2"
8"	7 7/8"	6 1/2"	3 1/2"
9"	8 7/8"	6 1/2"	3 1/2"
10"	9 7/8"	6 1/2"	3 1/2"
12"	11 7/8"	6 1/2"	3 1/2"
14"	13 7/8"	6 1/2"	3 1/2"
15"	14 7/8"	6 1/2"	3 1/2"
16"	15 7/8"	6 1/2"	3 1/2"
18"	17 7/8"	6 1/2"	3 1/2"
20"	19 7/8"	6 1/2"	3 1/2"

(+/-) 1/8" Tolerance on all Sizes

Optional Features

Gauge Options: standard

26 ga

- 24 ga
- 22 ga
- 20 ga

Material Options:

- Aluminum
- Stainless steel

Construction Options:

- Extractor:
 - ___45° or ___90°
- Insulation Guard
- All seams sealed

Damper Options:

- BO3, Build-Out (2"), 3/8" square shaft, U-bolt, nylon bushings, locking quadrant, handle
- BO4, Build-Out (2"), 3/8" square shaft, U-bolt, nylon bushings, Rossi Everlock locking quadrant, handle



- BO3**
- 2" Build out
 - Locking Quadrant
 - 3/8" Aluminum Square Shaft
 - Nylon Bushing



- BO4**
- 2" Rossi (Everlock) Build out
 - Locking Quadrant
 - 3/8" Aluminum Square Shaft
 - Nylon Bushing

Flexmaster U.S.A.®
 5235 Ted Street
 Houston, TX 77040 USA
 Tel. +1.713.462.7694
 Fax +1.713.939.8441
 www.FlexmasterUSA.com
 www.Masterduct.com

FLEXMASTER U.S.A.®
 A MASTERDUCT COMPANY

SUBMITTAL DATA

Flexmaster U.S.A.® Saddle Taps

SHEET METAL FITTINGS

The Flexmaster U.S.A.® Saddle Tap fittings are manufactured from 26 gauge, or heavier, galvanized steel to meet SMACNA and UMC Standards for commercial construction.

The Saddle Tap fittings are sized for flex duct and can be made to fit up to 24" spiral pipe. The Saddle Tap fittings can be ordered as straight FL, straight FL 45° or our high efficiency STO in the 90°, 45° or Center model.

The Saddle Tap fittings should be installed using SMACNA installation standards.



STO ST 45°



STO ST 90°



STOC ST



FL ST



FL ST 45°

Optional Features

Gauge Options: standard

26 ga

24 ga

22 ga

Damper Options:

BO3, Build-Out (2"), 3/8" square shaft, U-bolt, nylon bushings, locking quadrant, handle

BO4, Build-Out (2"), 3/8" square shaft, U-bolt, nylon bushings, Rossi Everlock locking quadrant, handle

Material Options:

Aluminum

Stainless steel



- BO3**
- 2" Build out
 - Locking Quadrant
 - 3/8" Aluminum Square Shaft
 - Nylon Bushing

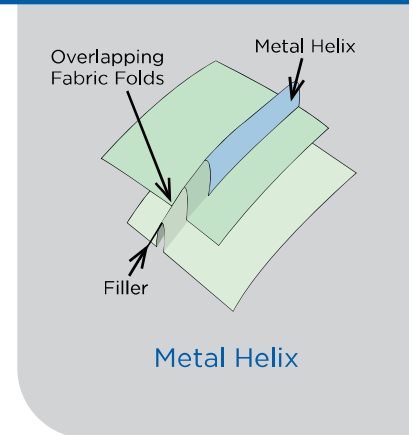


- BO4**
- 2" Rossi (Everlock) Build out
 - Locking Quadrant
 - 3/8" Aluminum Square Shaft
 - Nylon Bushing

SUBMITTAL DATA

Flexmaster U.S.A.® 1M

Acoustical Flexible Duct Insulated



Technical Data

Standard Lengths (ft)	25 ft
Inside Diameter (in)	3", 4", 5", 6", 7", 8", 9", 10", 12", 14", 15", 16", 18", 20"
Air Friction Loss	See Friction Loss Chart for details
Vapor Barrier Permeance	(.05) perm A.S.T.M. E96, Procedure A
Test Standard	UL181
Tested By	Intertek/ETL
Certifications Met	Class 1 Air Duct, NFPA 90A and 90B, BOCA, SBBC, HUD/FHA, MIN Property Std., FL-AHCA, CA-OSHPD
Internal Working Pressure (w.g.)	10" w.g. positive 5" w.g. negative thru 16" dia. 1" w.g. negative, 18" & 20" dia.
Rated Velocity	5500 F.P.M.
Min Burst Pressure	2 1/2 times working pressure
Operating Temperature Range	-20° to +250°F
Flame/Smoke	25/50
Insulation Thermal Conductance	R4.2, R6, R8

Like the UL Mark, the ETL Listed Mark shows that our product has been independently tested by a Nationally Recognized Testing Laboratory (NRTL). It shows that it has met the requirements of widely accepted product safety standards and that we have agreed to periodic follow-up inspections to verify continued compliance.

Construction Features

The Flexmaster U.S.A.® Type 1M is manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible duct. Tested to UL standard 181, this Class 1 Air Duct is fabricated with an acoustically transparent PE inner film which allows mid-range sound energy to penetrate the duct wall.

Duct Fabric

A Polyethylene fabric, mechanically locked to the duct helix without the use of adhesives.

Duct Helix

Made from corrosive resistant galvanized steel, the duct helix is mechanically formed to attach the duct fabric without the use of adhesives.

Vapor Barrier

Fire retardant, reinforced aluminum material. Excellent strength at low temperatures. Will not age harden.

Insulation

Formaldehyde-free fiberglass insulation by Johns Manville.

Flexmaster U.S.A.® Type 1 Acoustical Performance Submittal Data

Sound Attenuation - Straight Duct

Flexmaster U.S.A.® Flexible Duct	Dia (in.)	Length (ft.)	Insertion Loss, dB					
			Octave Band Center Frequency, Hz					
			125	250	500	1,000	2,000	4,000
Type 1	6	12	9	49	>53	>52	50	36
		9	7	31	36	33	32	24
		6	5	16	18	17	16	13
		3	2.7	5.6	6.0	5.8	5.6	4.9
		1	0.93	1.48	1.55	1.51	1.49	1.36
Type 1	8	12	10	47	>50	>51	49	30
		9	8	30	33	36	31	20
		6	5	16	17	18	16	11
		3	2.8	5.4	5.8	6.0	5.6	4.6
		1	0.95	1.46	1.51	1.55	1.48	1.30
Type 1	12	12	18	>49	39	>48	38	28
		9	12	32	25	33	25	19
		6	8	17	14	18	14	11
		3	3.5	5.6	5.0	5.8	5.2	4.3
		1	1.12	1.49	1.39	1.51	1.41	1.26

Sound Attenuation - 90° Elbow

Flexmaster U.S.A.® Flexible Duct	Dia (in.)	Length (ft.)	Insertion Loss, dB					
			Octave Band Center Frequency, Hz					
			125	250	500	1K	2K	4K
Type 1	6	12	7	39	>52	>51	>50	44
		9	5	25	37	35	33	28
		6	4	14	19	18	17	15
		3	2.3	2.7	6.0	5.9	5.8	5.3
Type 1	8	12	10	47	>52	>52	49	32
		9	8	30	35	37	31	21
		6	6	16	18	19	16	12
		3	2.8	5.5	5.9	6.1	5.7	4.6
Type 1	12	12	14	>51	>52	>52	46	25
		9	10	35	33	34	29	17
		6	7	18	17	17	15	10
		3	3.2	5.9	5.8	5.8	5.4	4.1

Notes:

1. Acoustical testing was performed in accordance with ASTM E477 and ADC Test Code FD 72-RI by ETL.
2. Insertion loss values are for flow velocities less than 2,500 fpm.
3. The 63 Hz IL values were laboratory measured, but were not published due to lack of acoustical value.

SUBMITTAL DATA

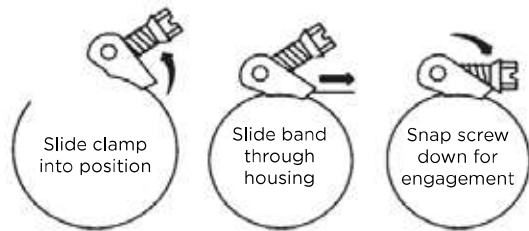
Flexmaster U.S.A.® Quick Release LS Series Clamp

Quick Release Stainless Steel Clamp



Clamp	Item #	Flex Size	Clamp Min.	Dia. Max.	Length
LS-88	40604	4	2.06	6.00	20"
LS-88	40604	5	2.06	6.00	20"
LS-104	40606	6	1.75	7.00	23"
LS-152	40608	8	2.00	10.00	32"
LS-152	40608	9	2.00	10.00	32"
LS-188	40610	10	2.06	12.31	40"
LS-232	40612	12	10.19	14.00	48"
LS-258	40614	14	10.00	16.00	52"
*LS-280	40616	16	14.25	18.00	58"
LS-312	10618	18	14.00	20.00	64"
LS-344	40620	20	16.00	22.00	73"

*Can only be used on stated size.



Easy On...Easy Off...in 3 Simple Steps!

Reverse procedure for quick release and removal.

No need to disassemble connection.

All materials used in the manufacture of the subject clamp are certified by our suppliers to meet our material specifications. The band is made from AISI 201 stainless steel. The housing is made from AISI 201 stainless steel. The screw is made of AISI 1018 carbon steel. The bridge is made from AISI 410 stainless steel neutral hardened and drawn.

Clamps meet the Maximum Concentration Values (MCV) requirements of the following material: European Directive 2002/95/EC also known as the ROHS Directive. Therefore the clamps are ROHS compliant.

MANUAL DAMPERS

GREENHECK

ASE NOTE: ADVISE IF
VOLUME DAMPERS ARE
NEED WHERE EXHAUST
FANS W/ BACKDRAFT
DAMPERS ARE
PRESENT

MBDR-50 Round Manual Balancing Damper

APPLICATION & DESIGN

Model MBDR-50 is a round manual balancing damper designed to regulate airflow in a HVAC system. They are not intended to be used in applications as a positive shut off or for automatic control.

DAMPER RATINGS

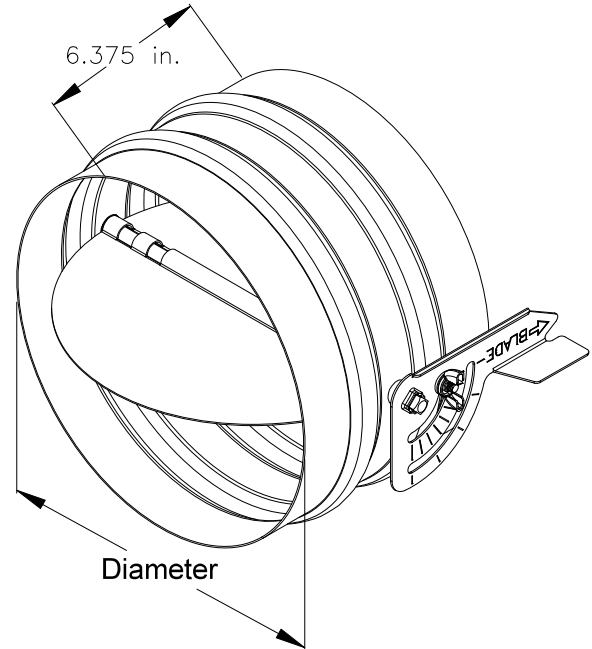
Pressure: 1 in. wg - pressure differential
Velocity: Up to 2,000 ft/min
Temperature: Up to 180 F

PRODUCT DETAILS

Frame: 20 ga galvanized steel
Blade: Galvanized Steel
Axle Bearings: Synthetic (acetal) sleeve type
Axle Material: Plated steel
Temperature: 180.0 F
Sizing: Nominal

OPTIONS & ACCESSORIES

Actuator Type: Manual Quadrant
Clean Wrap: No
Standoff Bracket: 2.000 in.
Union Label: No Preference



- This drawing shows a general damper configuration and is not intended to depict the exact configuration of all dampers in this submittal.
- Diameter dimension is undersized 0.125 in.
- EZ Balance remote is sold separately.
- Installation instructions available at www.greenheck.com.

SUMMARY

ID #	Tag	Qty	DIA (in.)
1-1		2	5.000
1-2		1	8.000
1-3		1	10.000
1-4		1	12.000

BACKDRAFT DAMPERS

GREENHECK

ASE NOTE: ALL
FRESH AIR INTAKES
TO HAVE
BACKDRAFT
DAMPER PER
GENERAL NOTE 23

WD-400 Backdraft Damper

APPLICATION & DESIGN

The WD-400 is an non-motorized backdraft dampers which can be mounted vertically for intake air. Backdraft dampers are designed to prevent reverse airflow.

DAMPER RATINGS

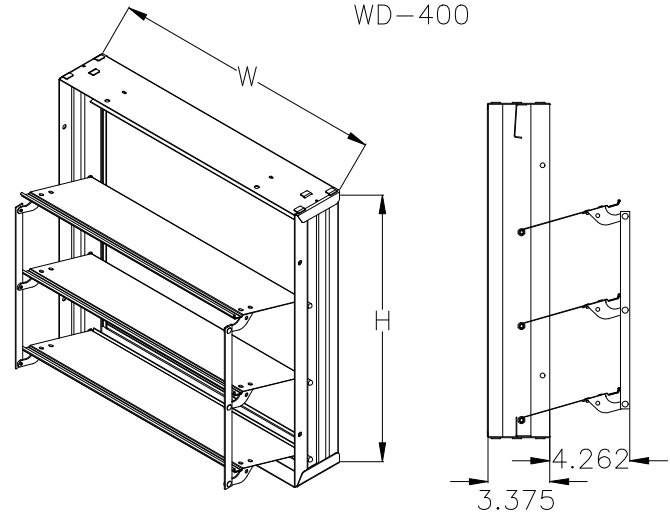
Max. Pressure: Up to 2 in. wg - pressure differential
Max. Velocity: Up to 2,500 ft/min
Temperature: 180 F

PRODUCT DETAILS

Frame: Galvanized
Frame Thickness: 18 ga
Blade: Aluminum
Blade Seal Material: Vinyl
Blade Thickness: 0.025 in.
Axle Material: Steel
Axle Bearings: Synthetic
Linkage Material: Galvanized
Sizing: Nominal

OPTIONS & ACCESSORIES

Clean Wrap: No
Union Label: No Preference



- This drawing shows a general damper configuration and is not intended to depict the exact configuration of all dampers in this submittal.
- Width and Height furnished approximately 0.125 in. undersized.
- Installation instructions available at www.greenheck.com.
- Pressure drop data applies to units with minimum start open pressure. Higher start open pressure will result in different performance.

SUMMARY

ID #	TAG	QTY	W (in.)	H (in.)	SECTIONS WIDE	SECTIONS HIGH	SHIP SECTIONS
3-1		2	12.000	12.000	1	1	1

Performance Data for WD-400 Series

Pressure Drop

Performance data results from testing a 24 in. x 24 in. (610mm x 610mm) damper in accordance with AMCA Standard 500-D using Figure 5.5 for the WD-400 and Figure 5.7F for the WD-410. All data has been corrected to represent standard air at 0.075 lb/ft³ (1.201 kg/m³).

WD-400

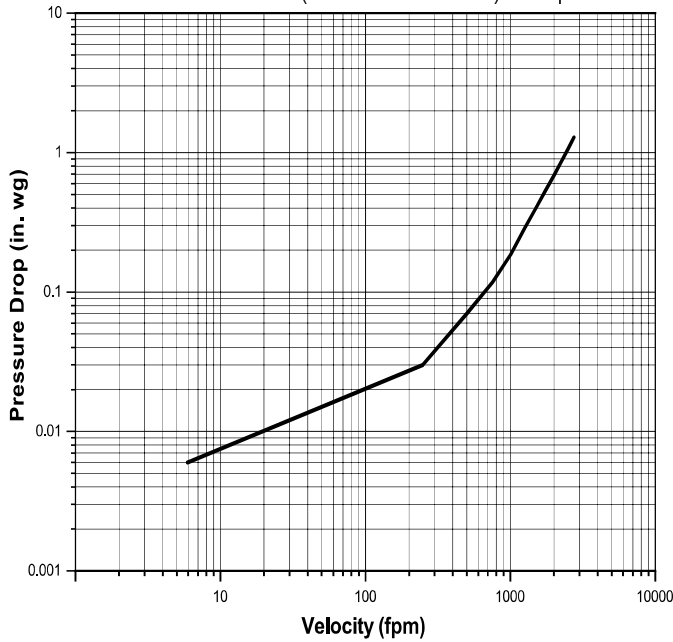
Operational Data	ΔP in. wg (Pa)	Velocity fpm (m/s)
Blades Start to Open	0.006 (1.50)	5.9 (0.03)
Blades Fully Open	0.287 (71.49)	1250 (6.35)

WD-410

Operational Data	ΔP in. wg (Pa)	Velocity fpm (m/s)
Blades Start to Open	0.027 (6.73)	19.47 (0.10)
Blades Fully Open	0.405 (100.88)	1500 (7.62)

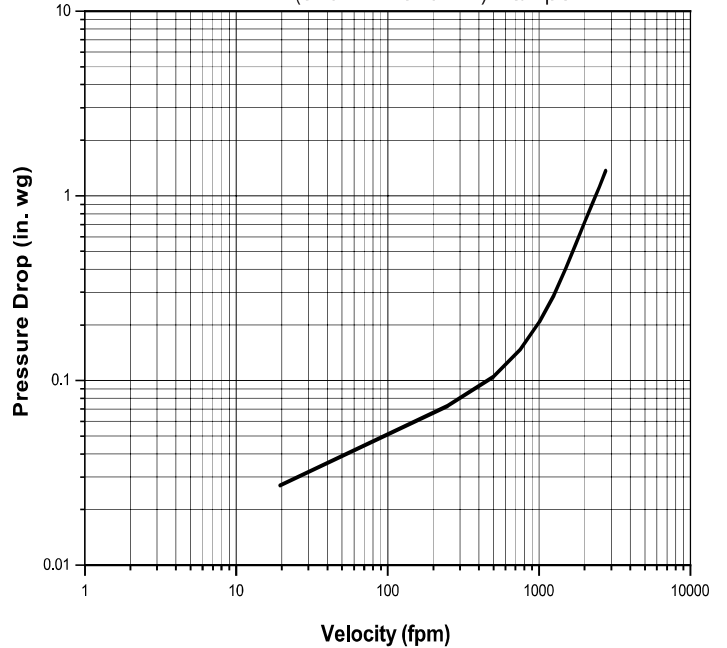
Pressure Drop

24 in. x 24 in. (610mm x 610mm) Damper



Pressure Drop

24 in. x 24 in. (610mm x 610mm) Damper

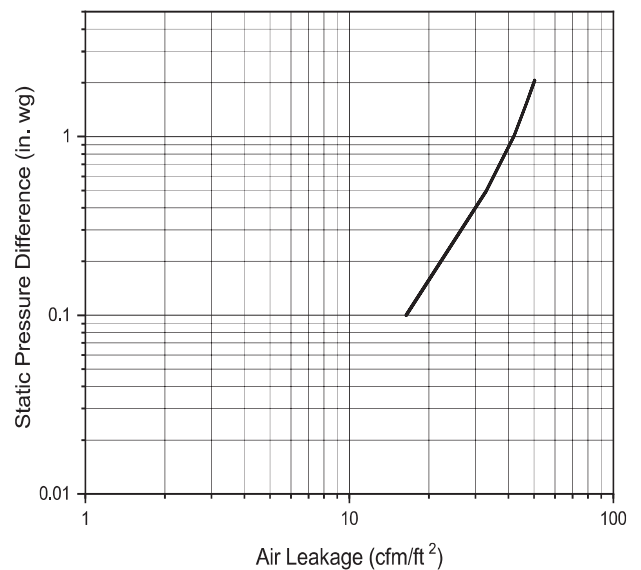


Leakage

Leakage testing was conducted in accordance with AMCA Standard 500-D and is expressed as cfm/ft² of damper face area. All data has been corrected to represent standard air at 0.075 lb/ft³ (1.201 kg/m³).

Leakage

24 in. x 24 in. (610mm x 610mm) Damper



CONCEALED
DAMPER
OPERATOR

YOUNG REGULATORS

WORM GEAR SCHEDULE

Quantity	1200 or 1200 - 1/4	Flex ShaFt length	termination
7	1200	5FT	301-FS



Young Regulator Co.

7100 Krick Rd • Walton Hills, OH 44146

P: 440-232-9700 • F: 440-232-8266

www.youngregulator.com

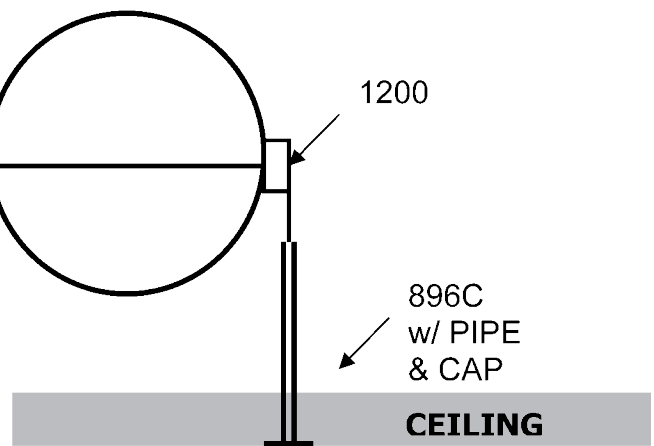
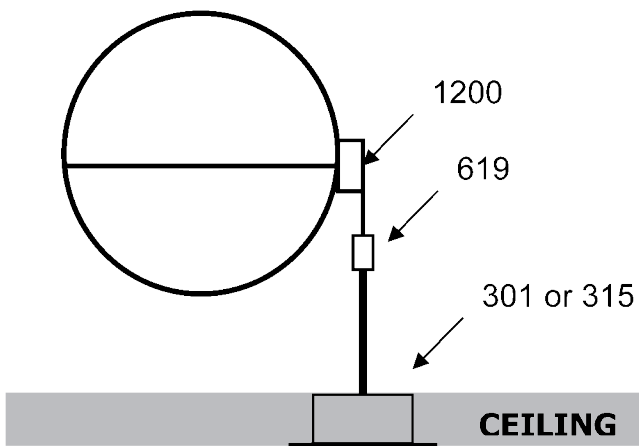
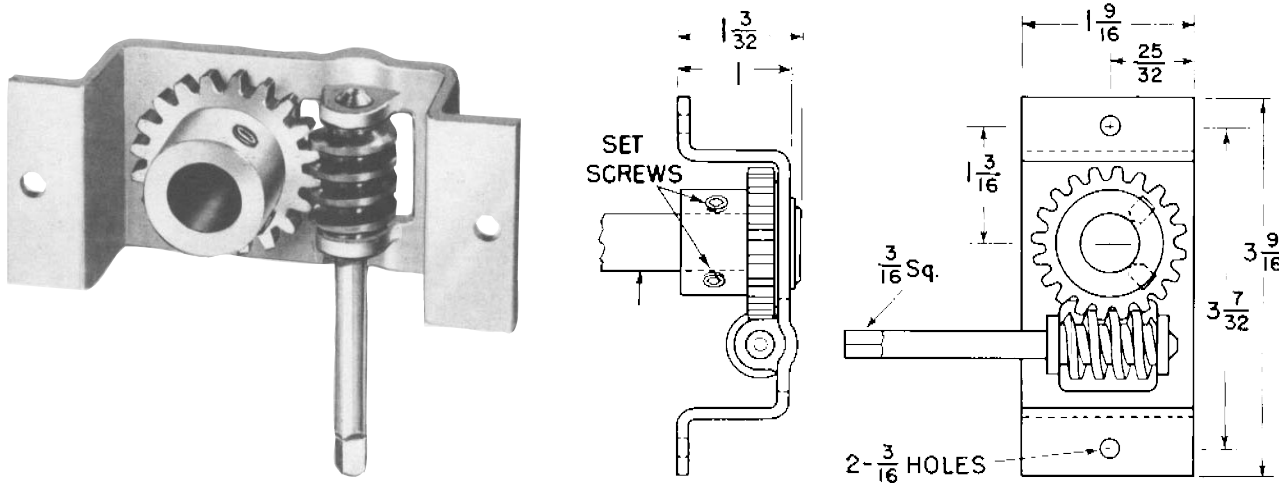
Submit 1200 – 1-10

Model 1200

Right Angle Worm Gear Regulator

Application and Design

Like our 927 miter gears, the Young 1200 self-locking right angle worm gear regulator is used when an operating shaft must be carried down at a right angle to the damper shaft. A moderately priced unit, the 1200 can be used with either 1/2" round or 3/8" square shafts. It may be used together with a variety of Young regulators, including 301, 315, and 896C, to operate dampers from the ceiling line. If used with the 301 or 315, a 619 coupling is required to connect the 1200 to the 3/8" square rod. The 1200 is made of heavy-duty steel and die cast construction and is operated by a 030 wrench, which is available separately in 12", 18", or 24" lengths.



1200 Worm Gear shown with 301 Concealed Ceiling Regulator (619 Coupling required).

1200 Worm Gear shown with 896C Ceiling Access Cap. See 896C page for expanded view.

Note: For damper shaft of 5/16" round and/or 1/4" square, order Model 1200-1/4. Shown w/ round dampers, will work with rectangular dampers as well. Young Regulator damper models 5010-1200 and 820-1200 have the worm gear attached at the factory Model 1200 Right Angle Worm Gear also used with Flexible Shaft Products.



Young Regulator Co.

7100 Krick Rd • Walton Hills, OH 44146

P: 440-232-9700 • F: 440-232-8266

www.youngregulator.com

Submit 301-FS – 1-10

Flex Shaft Assembly

Operator 1200 Worm Gear

Flexible Steel Shaft - FS-XX • Termination - 301-FS

Application and Design

Flexible Shafting is a direct, mechanical method for transmitting rotary motion between two points.

Dampers can be controlled remotely with the Young Regulator Flexible Shaft Assemblies. A model 1200 Worm Gear Regulator is fastened to the damper shaft. A flexible steel shaft is coupled to the worm gear operating shaft and carried down to the ceiling line. Choose a termination option (301-FS shown here). NOTE – ASSEMBLY CONSISTS OF 3 PARTS – WORM GEAR, FLEX SHAFT AND TERMINATION – EACH ORDERED SEPARATELY.

OPERATOR

Model 1200 Worm Gear – Self-Locking Regulator

Designed for 1/2" round or 3/8" square damper shafts. Fastened to the side of the damper and tightened onto the damper shaft.

- Optional 1200-1/4 for 5/16" rd. and 1/4" sq. damper shafts
- Worm gear included with model 5020-1200 round damper (see catalog page B-150) and 820-1200 rectangular damper (see catalog page B-550)

FLEX SHAFT

FS-XX (specify length in feet). Includes a coupling to attach to the worm gear & sheathing. The flexible steel shaft is a single wire around which successive multi-stranded layers of wire are wrapped. It is .250" in diameter, has a brass finish, and is capable of delivering more than 50# of torque without damage.

- Standard lengths: 1', 3', 6', 8'.
- Custom lengths to 50'

DIE CAST TERMINATION - 301-FS

301-FS - 2 1/4" Zinc Cup connector, & 3" Zinc Plated Cover Plate – embedded in sheetrock ceiling

- Optional Stainless Cover Plate
- Optional Primer Cover Plate
- Optional Chrome Cover Plate
- Optional 315 Adjustable Cover



Flex Shaft squared inside cup. Operate damper by removing cover, turning shaft with 1/4" socket or 030 wrench.

LOUVERS

GREENHECK

ESD-435X 4 in. Frame, 35 deg Blade

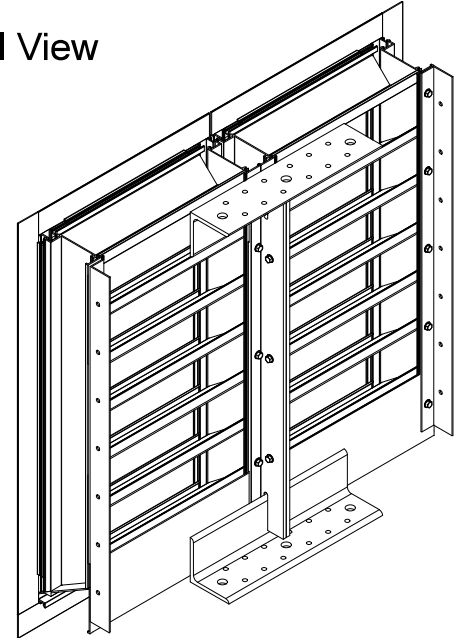
APPLICATION & DESIGN

ESD-435X is a Florida Product Approved drainable blade louver designed to protect air intake and exhaust openings in building exterior walls. Design incorporates drain gutters in the head member and horizontal blades to channel water to the louver jambs where water is further channeled through vertical downspouts and out at the sloped louver sill. The ESD-435X is an extremely efficient louver with AMCA licensed performance data enabling designers to select and apply with confidence. ESD-435X is qualified per the Uniform Static Air Pressure Test (ASTM E330/TAS 202). With optional welded construction ESD-435X is also qualified per the Large Missile Impact Test (ASTM E1996/TAS 201) and the Cyclic Wind-Loading Test (TAS 203). Qualified for wind-loads up to 200 PSF. Refer to UL published certification for size and design load rating restrictions.

PRODUCT DETAILS

Frame: 4 in. x 0.081 in. Frame Thickness
Frame Type: Flanged, 1.5 in., Exterior
Blades: 0.081 in. Fixed Blade Thickness
Material: Aluminum
Sizing: 1/4 Inch Under
Shape: Rectangular
Construction: Mechanically Fastened

Internal View



OPTIONS & ACCESSORIES

Finish: Painted
Finish Performance: AAMA 2605
Coating Type: 2Ct 70%Kynar/100%Fluoropolymer
Color: Standard TBS
Bird Screen: 0.75 in. x 0.05 in., Flat Expanded Aluminum, Internal, Match Louver Finish
Mounting: Continuous Angles
Union Label: No Preference
Warranty: 1 year Standard Product Warranty
10 year Standard Finish Warranty

SUMMARY

ID #	TAG	QTY.	W (in.)	H (in.)	FREE AREA (ft2)	FREE AREA (%)	MAX WIND-LOAD (PSF)	SECT. WIDE	SECT. HIGH	SHIP SECT.	MULLION (in.)
2-1		2	12	12	0.29	30.7	200	1	1	2	Standard
2-2		3	12	12	0.29	30.7	200	1	1	3	Standard

Total Louver Qty: 5 **Total Weight (lb):** 17 **Louver Area (ft2):** 5

Total Ship Sect.: 5

**Weight shown is an estimate only based on the default base product configuration without options or accessories.

The maximum design wind load varies depending on the size and configuration. Please refer to the product data submittal information for installation instructions. Any additional structural reinforcing members or materials not otherwise shown as "By shall be considered by others. Unless indicated otherwise the following are NOT included in the quote provided: structural steel, anchors into surrounding substrate or structure, shims, backer rod, sealant, dissimilar material isolation, field measuring, installation, flashing, trim, enclosures, blankoff panels, mullion covers, hinged frames, removable subframes, custom bird/insect screen, 3-coat, metallic and/or exotic paint finishes, bituminous paints, taxes, PE stamped structural calculations or job specified engineered submittal drawings. Options and accessories including, but not limited to, screens, filter racks, louver doors, and blankoff panels are not subject to structural analysis unless indicated otherwise by Greenheck.

Louvers Product Limited Warranty

Thank you for purchasing Greenheck louvers. Greenheck warrants this equipment to be free from defect in material and workmanship for a period of 1 year from the date of product shipment. Any units or parts, which prove defective during the warranty period, will be repaired, or replaced at our option when returned to our factory, transportation prepaid. Unless agreed upon otherwise Greenheck will not be held responsible for costs associated with removal or installation of product(s).

The legal remedies described in this Limited Warranty are the sole exclusive remedy of Customer. This limited warranty will be void if payment from Customer is not received within a commercially reasonable time frame. GREENHECK MAKES NO OTHER WARRANTY, EITHER EXPRESS OR IMPLIED, REGARDING ITS PRODUCTS, OR ITS SELECTION AND APPLICATION, INCLUDING, BUT NOT LIMITED TO, COMPLIANCE WITH BUILDING CODES, SAFETY CODES, LAWS, MERCHANTABILITY OR FITNESS OR A PARTICULAR PURPOSE. This limited warranty is extended solely to the Customer. It is nontransferable and non-assignable, and the Customer shall not permit or authorize its employees, agents, representatives, or customers to claim, represent or imply that this limited warranty extends or is available to anyone other than the Customer.

In the event of material breach by the Customer of any of the conditions of this warranty, Greenheck shall have no liability for and product failure claims.

Failure to pay Greenheck in full for original services will automatically make this warranty null and void.

Greenheck will not be held liable for incidental or consequential damages of any kind. The limited warranty of product(s) replaced or repaired under this limited warranty shall be limited to the remainder of the original warranty period. Greenheck reserves the right to reasonable field access to diagnose and repair any product alleged to be defective. This limited warranty may not be modified by anyone and may not be changed by such things as purchase order forms or acceptance forms, unless otherwise agreed upon by Greenheck.

This limited warranty is provided in lieu of any other warranty requirements or obligations, including, but not limited to, those within project specifications.

All notices and claims given under or pursuant to this agreement shall be in writing and sent by certified or registered mail, postage prepaid, return receipt requested to: Greenheck, Attn: Louver Sales, 525 Western Road, Schofield, WI 54476.

By proceeding to use our products and services on your project, you accept the terms of these limited warranties.

Louvers Architectural Finish Limited Warranty

70% Kynar / 100% Fluoropolymer Paint

Greenheck warrants the finish of 70% Kynar / 100% Fluoropolymer paint for a period of **10 years** from the date of product shipment when applied to aluminum louvers or aluminum architectural products. Greenheck warrants that for **10 years** after the date of product shipment the applied finish:

- A) Will not chip, crack, or peel (lose adhesion) but does not include minute fracturing, which may occur in proper fabrication of building parts.
- B) Will not chalk in excess of ASTM D-4214-89 number 8 rating, determined by the procedure outlined in ASTM D-4214-89 specification test.
- C) Will not change color more than five (5) Delta-E Hunter units (square root of the sum of Delta L, Delta A and Delta B) as determined by ASTM method D-2244. It is acknowledged that fading or color changes may not be uniform if the surfaces are not equally exposed to the sun and elements.

Metallic and Mica colors are exempt in the warranty from item C but will hold the L value within 5 Delta E or the L scale of the Hunter E unit system.

Exotic colors will receive a full 10 year warranty if they have the recommended clear coat applied. However, Exotic colors are excluded from the 20 year warranty.

Any units or parts, which prove defective during the warranty period, will be repaired or replaced at our option when returned to the factory, transportation prepaid. Unless agreed upon otherwise Greenheck will not be held responsible for costs associated with installation or removal of product(s).

Greenheck limited warranties are not applicable when failure is caused by events that cannot be controlled by Greenheck. These include, but are not limited to, Acts of God, fire or other casualty or physical damage; Government restrictions; Acts of aggression; Harmful fumes or foreign substances in the atmosphere; Improper storage or packaging of the parts prior to installation; Product failure due to improper usage and/or application; Failure to provide reasonable and routine maintenance and/or improper maintenance, including, but not limited to the use of chemical cleaning agents not in accordance with AAMA recommendations or failure to use a systematic maintenance cleaning program in areas of high salt concentration; Corrosive atmosphere found in the interior of buildings, which effect the interior surface of material; Standing or ponding water on the metal; Excessive building movements; Work performed or materials supplied by others; Improper treatment of finished material; Corrosion of the metal substrate; Incompatibility between materials, including, but not limited to, Galvanic corrosion due to contact with adjacent dissimilar metals such as stainless steel; Damage to the painted metal occasioned by moisture or other contamination detrimental to the finish because of improper storage of the finished metal prior to installation as outlined in AAMA Publication 10, "Care and handling of Architectural Aluminum From Shop to Site."

The legal remedies described in this Limited Warranty are the sole exclusive remedy of Customer. This limited warranty will be void if payment from Customer is not received within a commercially reasonable time frame. GREENHECK MAKES NO OTHER WARRANTY, EITHER EXPRESS OR IMPLIED, REGARDING ITS PRODUCTS, OR ITS SELECTION AND APPLICATION, INCLUDING, BUT NOT LIMITED TO, COMPLIANCE WITH BUILDING CODES, SAFETY CODES, LAWS, MERCHANTABILITY OR FITNESS OR A PARTICULAR PURPOSE. This limited warranty is extended solely to the Customer. It is nontransferable and non-assignable, and the Customer shall not permit or authorize its employees, agents, representatives or customers to claim, represent or imply that this limited warranty extends or is available to anyone other than the Customer.

In the event of material breach by the Customer of any of the conditions of this warranty, Greenheck shall have no liability for and product failure claims.

Failure to pay Greenheck in full for original services will automatically make this warranty null and void.

Greenheck will not be held liable for incidental or consequential damages of any kind. The limited warranty of product(s) replaced or repaired under this limited warranty shall be limited to the remainder of the original warranty period. Greenheck reserves the right to reasonable field access to diagnose and repair any product alleged to be defective. This limited warranty may not be modified by anyone and may not be changed by such things as purchase order forms or acceptance forms, unless otherwise agreed upon by Greenheck.

This limited warranty is provided in lieu of any other warranty requirements or obligations, including, but not limited to, those within project specifications.

All notices and claims given under or pursuant to this agreement shall be in writing and sent by certified or registered mail, postage prepaid, return receipt requested to: Greenheck, Attn: Louver Sales, 525 Western Road, Schofield, WI 54476.

By proceeding to use our products and services on your project, you accept the terms of these limited warranties.

LOUVER FINISHES & COLORS

Standard Colors

Greenheck offers 27 standard colors available in AAMA 2605 compliant coatings (70% Kynar PVDF/100% Fluoropolymer FEVE), AAMA 2604 compliant coatings (50% Kynar/Acroflur) or AAMA 2603 compliant coatings (Baked Enamel).



Bone White GF102



Ivory 031



Ascot White GF120



Dover White AL202



Cambridge White GF110



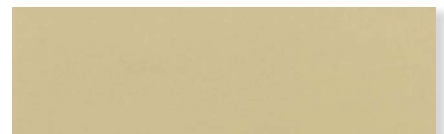
Herring Bone GF107



Sandstone GF112



Pueblo Tan GF116



Rawhide AL215



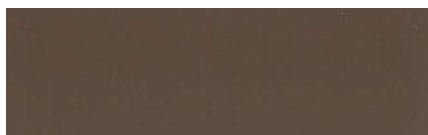
Smoke GF104



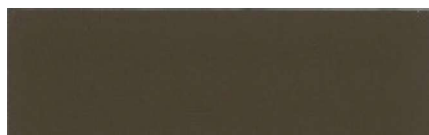
Sierra Tan GF118



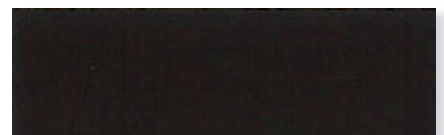
Lindie Bronze AL218



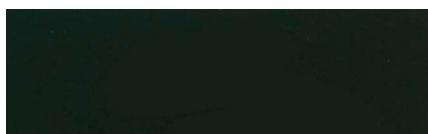
Hampton Brown GF105



Spartan Bronze GF113



Classic Bronze GF108



Statuary Bronze AL221



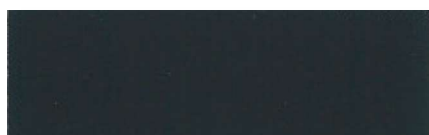
Dove Gray AL213



Stone Gray GF103



Charcoal AL214



Flat Black 044



Gloss Black 045



Coronado Red GF121



Terra Cotta AL217



Hartford Green AL208



Capri Blue GF106



Aegean Blue AL204

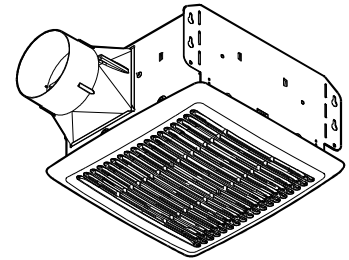


Patina Green GF114

FANS

BROAN

MODELS A80, A110 FLEX™ SERIES FANS



DESCRIPTION

BLOWER:

- Plug-in, permanently lubricated motor - engineered for continuous operation
- Dynamically balanced centrifugal blower wheel for quiet, efficient performance
- Low RPM for quiet operation

HOUSING:

- Rugged, 26 gauge, galvanized steel construction
- Polymeric, 4" duct connector with tapered sleeve and no metallic clatter
- 5¾" height allows for 2" x 6" ceiling installations
- Sturdy, easy, four-point mounting directly to joist
- Can be mounted in ceilings up to 7/12 pitch
- Can be installed in a wall if mounted 8-ft. or more above the floor

GRILLE:

- Polymeric construction
- Innovative design - the result of extensive research with designers and consumers

CONTROLS (Purchase separately):

- Refer to Broan's catalog for a complete line of accessories to effectively adapt these fans to your construction requirements.

U.L. Listed for use over bathtubs and showers when connected to a GFCI protected branch circuit (ceiling mount only).

1-Year Warranty

TYPICAL SPECIFICATION

Fan shall be Broan Model A80 (A110).

Fan shall have corrosion resistant galvanized steel housing with four-point mounting capability. It shall be ducted to a roof or wall cap using 4" round ductwork.

Blower assembly shall be removable, have a centrifugal-type blower wheel and a permanently lubricated motor designed for continuous operation.

Non-metallic damper/duct connector shall be included.

Air delivery shall be no less than the airflow values and no greater than the sound level values listed in the HVI Performance Specifications provided in this specification (see following chart). All air and sound ratings shall be certified by HVI.

Ceiling Ventilator shall be U.L. Listed for use over bathtubs and showers when connected to a GFCI protected branch circuit.



Broan Hartford, Wisconsin www.broan.com 800-558-1711
 Venmar Ventilation ULC Drummondville (Quebec), Canada www.broan.ca 877-896-1119

REFERENCE	QTY.	REMARKS	Project
			Location
			Architect
			Engineer
			Contractor
			Submitted by Date

PERFORMANCE RATINGS

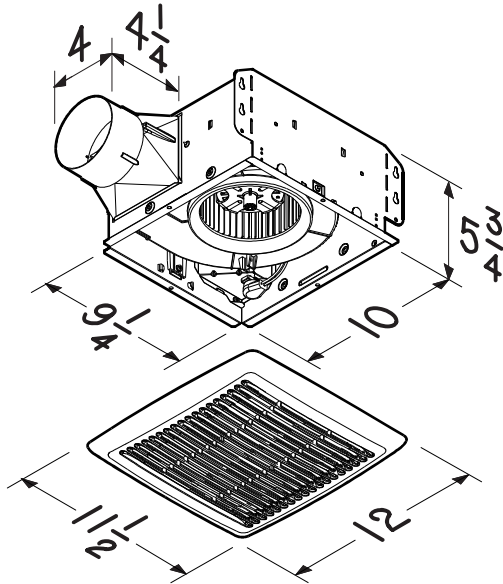
FLEX™ SERIES FANS

HVI PERFORMANCE

Model	0.1 Ps - Static Pressure (in. H ₂ O)				0.25 Ps
	Airflow (CFM)	Sound (Sones)	Power (Watts)	Efficacy (CFM / W)	Airflow (CFM)
A80	80	2.0	43.1	1.89	67
A110	110	3.0	47.3	2.36	102



HVI-2100 CERTIFIED RATINGS comply with new testing technologies and procedures prescribed by the Home Ventilating Institute, for off-the-shelf products, as they are available to consumers. Product performance is rated at 0.1 in. static pressure, based on tests conducted in a state-of-the-art test laboratory. Sones are a measure of humanly-perceived loudness, based on laboratory measurements.



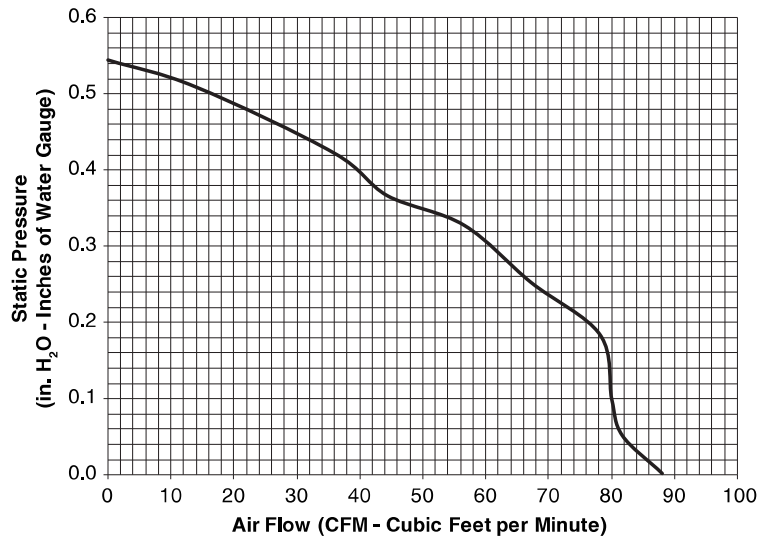
NOTE: Dimensions shown are in inches.

ELECTRICAL & WEIGHT

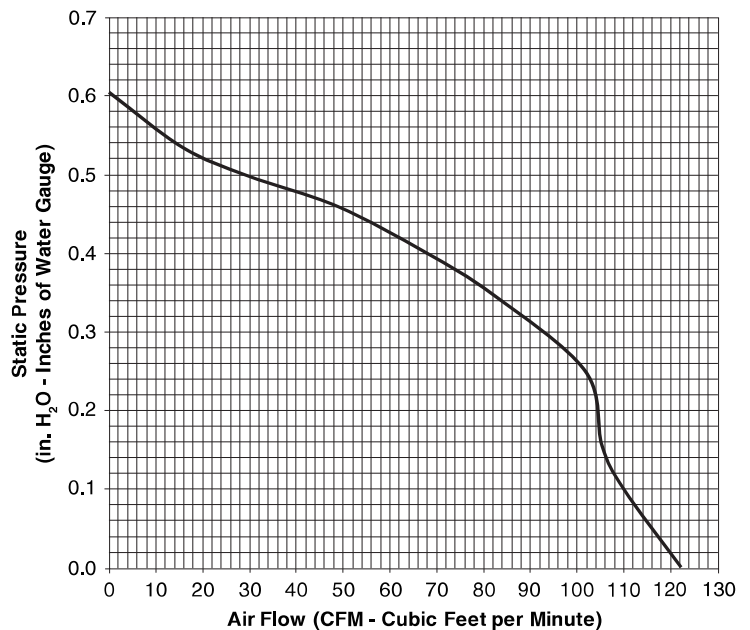
Model	Volts	Hz	Amps	Shipping Weight
A80	120	60	0.37	10.0 lb.
A110	120	60	0.40	10.0 lb.

AIR FLOW PERFORMANCE

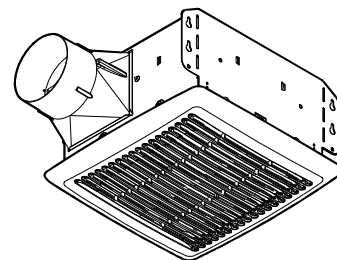
Model A80



Model A110



VENTILATEURS DE SÉRIE *FLEX*^{MC}, MODÈLES A80 ET A110



DESCRIPTION

VENTILATEUR:

- Moteur enfichable, lubrifié à vie, conçu pour un fonctionnement continu
- Roue de ventilateur centrifuge équilibrée dynamiquement assurant une performance silencieuse et optimale
- Bas régime de rotation permettant un fonctionnement silencieux

BOÎTIER:

- Robuste, fabriqué en acier galvanisé de calibre 26
- Raccord de conduit en polymère de 4 po avec manchon conique ne produisant aucun cliquetis métallique
- Hauteur de 5¾ po permettant l'installation dans des structures de plafond en 2 po x 6 po
- Montage facile et solide en quatre points directement sur les solives
- Peut être installé dans un plafond ayant une pente jusqu'à 7/12
- Ce produit peut être installé dans un mur s'il est fixé à 2,44 m (8 pi) au-dessus du plancher

GRILLE:

- Construction en polymère
- Conception novatrice, fruit d'une recherche exhaustive auprès de designers et de consommateurs

COMMANDES (vendues séparément):

- Se référer au catalogue Broan pour la collection complète d'accessoires afin d'adapter ces ventilateurs à vos exigences de construction.

Homologué U.L. pour utilisation au-dessus de la baignoire et de la douche lorsqu'il est raccordé à un circuit protégé par un disjoncteur de fuite à la terre (DDFT) (installation au plafond seulement).

Garantie de 1 an

Broan Hartford, Wisconsin www.broan.com 800-558-1711
Venmar Ventilation ULC Drummondville (Quebec), Canada www.broan.ca 877-896-1119

SPÉCIFICATIONS TYPES

Le ventilateur doit être le modèle Broan A80 (A110).

Le ventilateur doit avoir un boîtier en acier galvanisé résistant à la corrosion et la capacité d'effectuer son montage en quatre points. Il doit être raccordé à un capuchon de toit ou de mur au moyen d'un conduit rond de 4 po.

Le bloc ventilateur doit être amovible et avoir une roue de ventilateur centrifuge équilibrée dynamiquement et un moteur lubrifié à vie, conçu pour un fonctionnement continu.

Un raccord de conduit avec clapet non métallique doit être inclus.

Le débit de l'air ne doit pas être inférieur aux valeurs de débit indiquées dans les évaluations de rendement HVI (voir le tableau de performance en page suivante), aussi, le niveau sonore ne doit pas dépasser les valeurs indiquées dans ce même tableau. Toutes les valeurs pour le débit de l'air et le niveau sonore doivent être certifiées par le HVI.

Le ventilateur de plafond doit être homologué par U.L. pour une utilisation au-dessus de la baignoire et de la douche lorsqu'il est raccordé à un circuit protégé par un disjoncteur de fuite à la terre (DDFT).



RÉFÉRENCE	QTÉ	REMARQUES	Projet
			Lieu
			Architecte
			Ingénieur
			Entrepreneur
			Soumis par Date

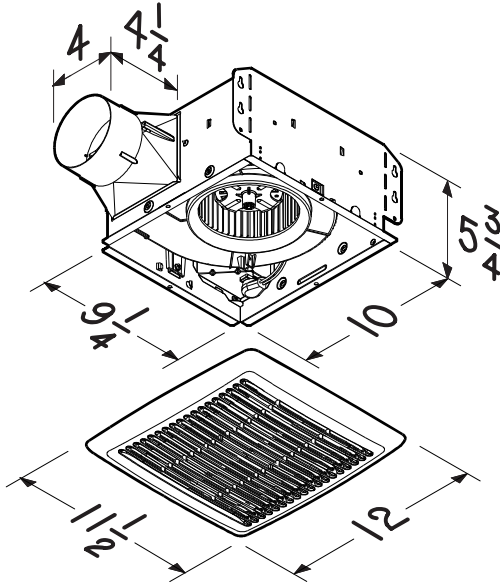
ÉVALUATIONS DE RENDEMENT VENTILATEURS DE SÉRIE *FLEX*^{MC}

PERFORMANCE HVI

Modèle	0,1 Ps - Pression statique (po H ₂ O)				0,25 Ps
	Débit de l'air (pi ³ /min)	Niveau sonore (sones)	Puissance (Watts)	Efficacité (pi ³ /min / W)	Débit de l'air (pi ³ /min)
A80	80	2,0	43,1	1,89	67
A110	110	3,0	47,3	2,36	102



RÉSULTATS HOMOLOGUÉS HVI-2100 conformes aux nouvelles technologies de test et aux procédures prescrites par le Home Ventilating Institute pour les produits offerts sur le marché, tels qu'ils sont présentés aux consommateurs. La performance du produit est calibrée à 0,1 po de pression statique, basée sur les tests dirigés par un laboratoire de pointe. Un sone est une unité de mesure de bruit perçu par l'oreille humaine, basée sur des mesures en laboratoire.



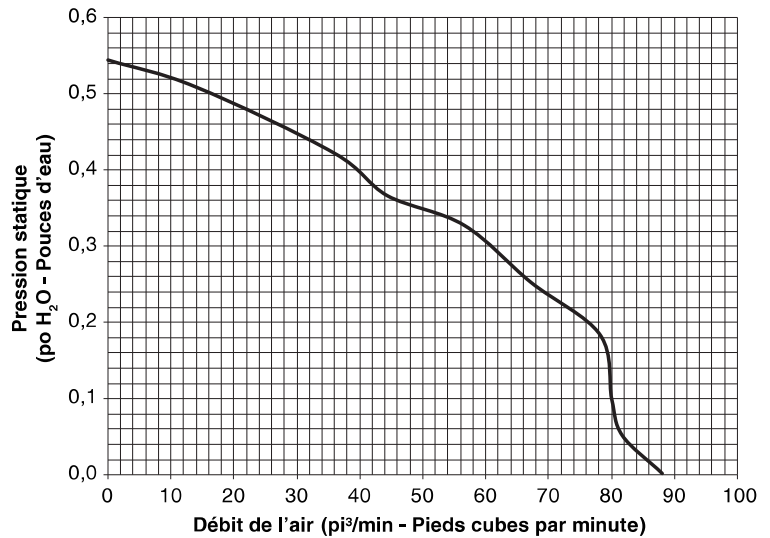
NOTE: Les dimensions indiquées sont en pouces.

ÉLECTRICITÉ ET POIDS

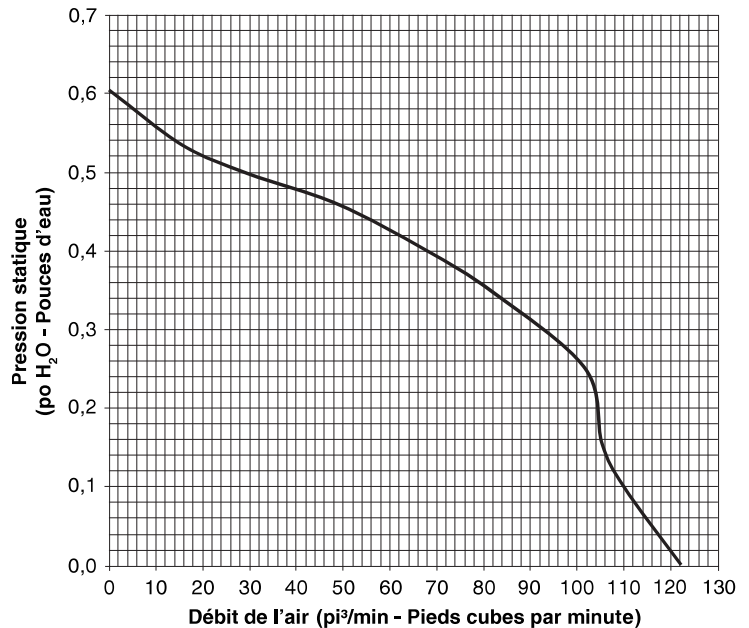
Modèle	Volts	Hz	Ampères	Poids à l'expédition
A80	120	60	0.37	10,0 lb
A110	120	60	0.40	10,0 lb

RENDEMENT DU DÉBIT DE L'AIR

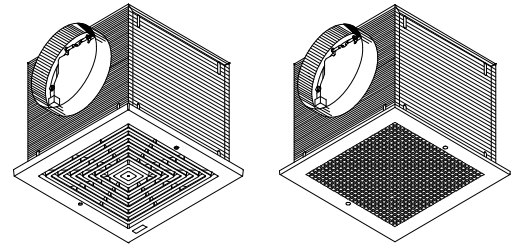
Modèle A80



Modèle A110



LIGHT COMMERCIAL ENERGY STAR® CERTIFIED CEILING MOUNT VENTILATORS MODELS L100E, L150E, L200E, L250E & L300E



Incredibly reliable. Unbelievably quiet. Offering the CFM choices you need at the lowest sound levels in the industry.

FEATURES

GRILLE:

- Conceals interior
- Low profile styling blends with any decor
- White plastic (optional metal grille, finished with white enamel paint is available - Model MG1)

BLOWER:

- Low RPM for quiet operation
- Resilient anti-vibration mounts
- Dynamically-balanced, centrifugal blower wheel for quiet, efficient performance
- Permanently lubricated, thermally protected motor
- Plug-in motor rated at 120 VAC
- Designed for continuous operation

HOUSING:

- Rugged, 20 gauge galvanized steel
- 8" round duct connector
- 1/2" acoustic insulation inside
- Not for use in a cooking area
- May be installed in ceiling or wall (size permitting)
- 8-position mounting brackets for easy installation and greater adaptability to various mounting requirements
- Automatic backdraft damper located within duct connector
- Factory-shipped in horizontal discharge position - easily converted to vertical discharge

ACCESSORIES (available separately):

- Model MG1 Metal Grille Cover Upgrade
- Model RD1 Radiation Damper
- Model 80L Electronic Speed Control (Internal)

TYPICAL SPECIFICATION

Ventilator shall be Broan Model L100E, (L150E), (L200E), (L250E), (L300E).

Ventilator shall have galvanized steel housing insulated with at least 1/2" of acoustic insulation. Housing to have adjustable mounting brackets.

Automatic backdraft damper to be located within duct connector. Duct connector, blower assembly, and wiring plate shall be adjustable for either horizontal or vertical installation.

Blower unit shall be removable from housing and shall have a dynamically balanced centrifugal-type blower wheel. Motor to be permanently lubricated and mounted with resilient anti-vibration mounts.

Air delivery shall be no less and sound levels no greater than listed for each model. All air and sound ratings shall be certified by AMCA and HVI. Units to be cULus Listed.



Broan-NuTone LLC, 926 West State Street, Hartford, Wisconsin, USA 53027 Broan-NuTone.com 800-558-1711
Venmar Ventilation ULC, 550 Lemire Blvd., Drummondville, Québec, Canada J2C 7W9 Broan-NuTone.ca 800-567-3855

REFERENCE	QTY.	REMARKS	Project
			Location
			Architect
			Engineer
			Contractor
			Submitted by Date

PERFORMANCE RATINGS - LIGHT COMMERCIAL ENERGY STAR® CERTIFIED CEILING MOUNT VENTILATORS L100E, L150E, L200E, L250E & L300E

AMCA LICENSED PERFORMANCE

MODEL NO.		STATIC PRESSURE (Inches water gage)								NOMINAL RPM	MAX. AMPS @60 Hz	AC VOLTS	
		0.0	0.1	0.125	0.25	0.375	0.5	0.625	0.75				0.875
L100E	CFM Hor.	164	138	132	103	74	40				803	0.3	120
	SONES Hor.	0.2	0.3		0.7								
L100E	CFM Ver.	168	138	131	101	73	38				799	0.3	120
	SONES Ver.	0.1	0.2		0.8								
L150E	CFM Hor.	238	214	209	183	154	122	77			972	0.4	120
	SONES Hor.	1.0	1.0		1.1								
L150E	CFM Ver.	224	203	198	174	146	105	64			990	0.4	120
	SONES Ver.	0.9	0.9		1.0								
L200E	CFM Hor.	267	246	240	214	184	155	109	56		1031	0.5	120
	SONES Hor.	1.5	1.5		1.7								
L200E	CFM Ver.	253	233	228	202	172	123	87	41		1063	0.5	120
	SONES Ver.	1.4	1.3		1.5								
L250E	CFM Hor.	296	277	272	249	223	195	160	108	51	1128	0.6	120
	SONES Hor.	1.9	1.9		1.8								
L250E	CFM Ver.	280	263	259	237	212	185	142	89	40	1144	0.6	120
	SONES Ver.	1.9	1.8		1.8								
L300E	CFM Hor.	343	324	319	295	268	237	204	162	89	1189	0.7	120
	SONES Hor.	3.0	2.9		2.7								
L300E	CFM Ver.	334	315	311	286	258	227	189	150	20	1207	0.7	120
	SONES Ver.	2.9	2.7		2.6								

Performance ratings including the effects of inlet grille and backdraft damper in the airstream. Speed (RPM) shown is nominal. Performance is based on actual speed test. The sound ratings shown are tested to 1/3 octave, Spherical Sones to AMCA 300. Values shown are for installation Type B: Free inlet fan some levels. Performance shown is for Installation Type B: Unducted inlet, Ducted outlet.

HVI PERFORMANCE

MODEL NO.	Ducting	0.1" Ps			0.25" Ps	
		CFM	Sones	CFM/Watt	CFM	Sones
L100E	Horizontal	130	0.3	4.9	97	0.8
	Vertical	140	0.3	5.3	101	0.6
L150E	Horizontal	200	1.0	4.6	168	1.4
	Vertical	210	0.7	4.9	178	1.0
L200E	Horizontal	230	1.3	4.4	198	1.5
	Vertical	240	1.0	4.6	209	1.3
L250E	Horizontal	270	1.5	4.5	242	2.0
	Vertical	270	1.4	4.5	242	1.5
L300E	Horizontal	310	2.5	4.2	281	2.5
	Vertical	310	2.5	4.3	282	2.5



Broan-NuTone LLC certifies that the models shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 (and AMCA Publication 311 if sound is also certified) and comply with the requirements of the AMCA Certified Ratings Program.



All models are UL Listed for use over bathtubs and showers when connected to a GFCI-protected branch circuit (ceiling mount only).



HVI-2100 CERTIFIED RATINGS comply with new testing technologies and procedures prescribed by the Home Ventilating Institute, for off-the-shelf products, as they are available to consumers. Product performance is rated at 0.1 in. static pressure, based on tests conducted in a state-of-the-art test laboratory. Sones are a measure of humanly-perceived loudness, based on laboratory measurements.

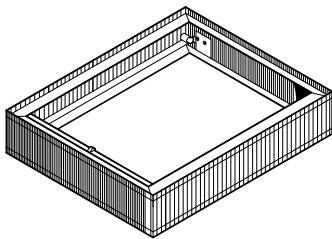
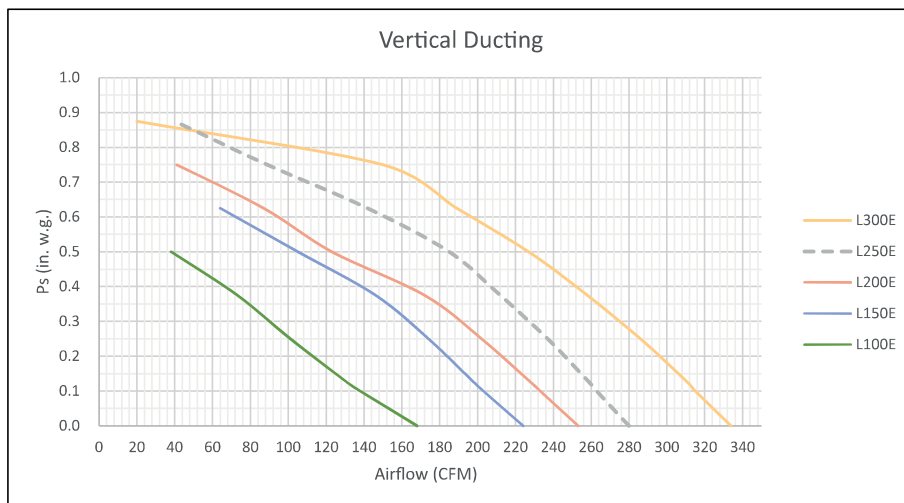
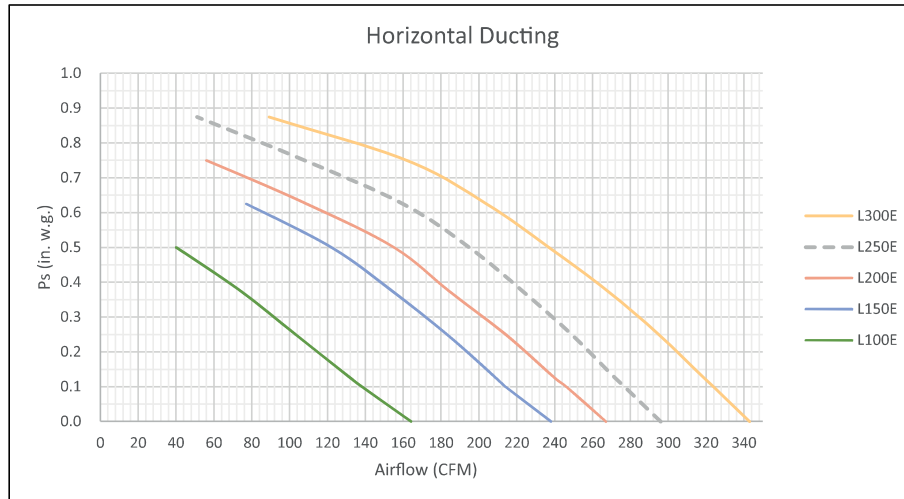
WEIGHT

MODEL NO.	SHIPPING WT.
L100E	18.9 lb.
L150E	19.3 lb.
L200E	19.1 lb.
L250E	21.0 lb.
L300E	21.2 lb.

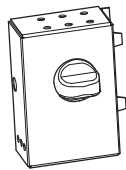


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PERFORMANCE CURVES - LIGHT COMMERCIAL ENERGY STAR® CERTIFIED CEILING MOUNT VENTILATORS

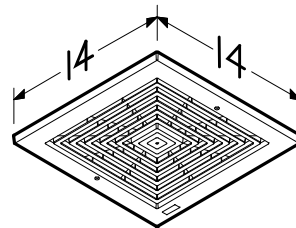
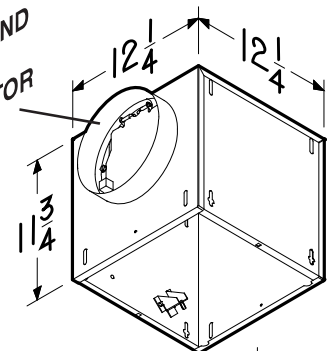


**RADIATION DAMPER
MODEL RD1
(AVAILABLE SEPARATELY)**

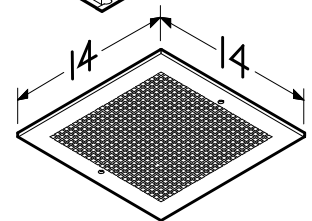


**ELECTRONIC SPEED
CONTROL (INTERNAL)
MODEL 80L
(AVAILABLE SEPARATELY)**

8-in. ROUND
DUCT
CONNECTOR



**PLASTIC GRILLE
(included with
all models)**

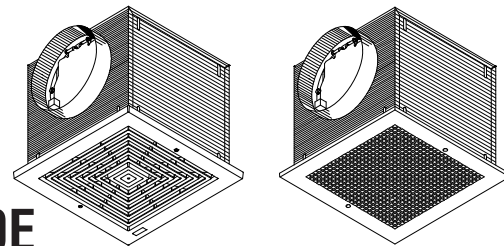


**OPTIONAL
METAL GRILLE
MODEL MG1
(available separately)**

NOTE: Dimensions shown are in inches.



VENTILATEURS À MONTAGE AU PLAFOND COMMERCIAL LÉGER CERTIFIÉS ENERGY STAR® MODÈLES L100E, L150E, L200E, L250E ET L300E



Incroyablement fiables. Merveilleusement silencieux. Offrent une large gamme de débits d'air (pi³/min) et le plus bas niveau sonore de toute l'industrie.

CARACTÉRISTIQUES

GRILLE:

- Dissimule l'intérieur
- Style discret qui s'agence à tout décor
- Grille en plastique blanc (modèle optionel MG1 disponible; grille en métal peinte à l'émail blanc)

VENTILATEUR:

- Bas régime de rotation permettant un fonctionnement silencieux
- Amortisseurs anti-vibration résistants
- Roue de ventilateur centrifuge, équilibrée dynamiquement, assurant une performance silencieuse et optimale
- Moteur lubrifié à vie avec protection thermique
- Moteur enfichable, 120 VCA.
- Conçu pour un fonctionnement en continu

BOÎTIER:

- Acier galvanisé robuste de calibre 20
- Raccord de conduit rond de 8 po
- Isolant acoustique intérieur de 1/2 po d'épaisseur
- Ne pas utiliser dans une zone de cuisson
- S'installe au plafond ou au mur (si l'espace le permet)
- Supports de montage à 8 positions pour une installation facile et plus de flexibilité envers les requis de montage variés
- Clapet anti-refoulement automatique intégré dans le raccord de conduit
- Livré en configuration d'évacuation de l'air à l'horizontale, mais qui peut être convertie facilement en évacuation de l'air à la verticale

ACCESSOIRES (vendus séparément):

- Modèle MG1 : Grille en métal, version améliorée
- Modèle RD1 : Registre coupe-feu
- Modèle 80L : Commande de vitesse électronique (interne)

SPÉCIFICATIONS TYPES

Le ventilateur doit être de modèle Broan L100E, (L150E), (L200E), (L250E), (L300E).

Le ventilateur doit avoir d'un boîtier en acier galvanisé avec isolation acoustique d'au moins 1/2 po d'épaisseur. Le boîtier doit être muni de supports de montage ajustables.

Le clapet anti-refoulement automatique doit être intégré dans le raccord de conduit. Le raccord de conduit, le bloc ventilateur ainsi que la plaque de câblage devront permettre une installation horizontale ou verticale.

Le bloc ventilateur doit pouvoir être retiré du boîtier et être pourvu d'une roue de ventilateur équilibrée dynamiquement. Le moteur doit être lubrifié à vie et être installé sur des amortisseurs anti-vibration.

Pour chacun des modèles, le débit de l'air ne doit pas être inférieur et le niveau de bruit supérieur aux limites indiquées. Le débit de l'air et le niveau de bruit doivent être homologués par l'AMCA et le HVI. Tous les appareils doivent être homologués cULus.



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RÉFÉRENCE	QTÉ	REMARQUES	Projet
			Emplacement
			Architecte
			Ingénieur
			Entrepreneur
			Soumis par Date

ÉVALUATIONS DE PERFORMANCE - VENTILATEURS À MONTAGE AU PLAFOND COMMERCIAL LÉGER CERTIFIÉS ENERGY STAR® L100E, L150E, L200E, L250E ET L300E

PERFORMANCES HOMOLOGUÉES PAR L'AMCA

N° DE MODÈLE	PRESSION STATIQUE (pouces d'eau)									TR/MIN NOMINAL	AMPÈRE MAX. @ 60 Hz	VOLTS CA	
	0,0	0,1	0,125	0,25	0,375	0,5	0,625	0,75	0,875				
L100E	pi³/min hor.	164	138	132	103	74	40				803	0,3	120
	Sones hor.	0,2	0,3		0,7								
L100E	pi³/min ver.	168	138	131	101	73	38				799	0,3	120
	Sones ver.	0,1	0,2		0,8								
L150E	pi³/min hor.	238	214	209	183	154	122	77			972	0,4	120
	Sones hor.	1,0	1,0		1,1								
L150E	pi³/min ver.	224	203	198	174	146	105	64			990	0,4	120
	Sones ver.	0,9	0,9		1,0								
L200E	pi³/min hor.	267	246	240	214	184	155	109	56		1031	0,5	120
	Sones hor.	1,5	1,5		1,7								
L200E	pi³/min ver.	253	233	228	202	172	123	87	41		1063	0,5	120
	Sones ver.	1,4	1,3		1,5								
L250E	pi³/min hor.	296	277	272	249	223	195	160	108	51	1128	0,6	120
	Sones hor.	1,9	1,9		1,8								
L250E	pi³/min ver.	280	263	259	237	212	185	142	89	40	1144	0,6	120
	Sones ver.	1,9	1,8		1,8								
L300E	pi³/min hor.	343	324	319	295	268	237	204	162	89	1189	0,7	120
	Sones hor.	3,0	2,9		2,7								
L300E	pi³/min ver.	334	315	311	286	258	227	189	150	20	1207	0,7	120
	Sones ver.	2,9	2,7		2,6								

Les évaluations de performance comprennent l'effet de la grille d'entrée et l'effet du clapet anti reflux sur le débit de l'air. La vitesse (tr/min) indiquée est une valeur nominale. La performance est basée sur la vitesse actuelle obtenue pendant le test. Les évaluations de bruit indiquées ont été testées à 1/3 d'octave dans un champ sphérique libre, d'après la norme 300 de l'AMCA. Les valeurs indiquées sont pour une installation de type B: admission de l'air libre pour le niveau sonore. Les valeurs de performance indiquées sont pour une installation de type B: admission d'air libre, évacuation de l'air avec conduit.

PERFORMANCE HVI

MODÈLE N°	Conduit	0,1 po Ps			0,25 po Ps	
		pi³/min	Sones	pi³/min/Watt	pi³/min	Sones
L100E	Horizontal	130	0,3	4,9	97	0,8
	Vertical	140	0,3	5,3	101	0,6
L150E	Horizontal	200	1	4,6	168	1,4
	Vertical	210	0,7	4,9	178	1,0
L200E	Horizontal	230	1,3	4,4	198	1,5
	Vertical	240	1	4,6	209	1,3
L250E	Horizontal	270	1,5	4,5	242	2,0
	Vertical	270	1,4	4,5	242	1,5
L300E	Horizontal	310	2,5	4,2	281	2,5
	Vertical	310	2,5	4,3	282	2,5



Broan-Nutone LLC certifie que les modèles décrits ici sont autorisés à porter le sceau de l'AMCA. Les données sont basées sur des essais et méthodes établis par l'AMCA dans la Publication 211 (et la Publication 311 si le niveau de bruit fait également l'objet d'une certification conformément aux exigences du programme de certification des données de l'AMCA.



Tous les modèles sont homologués UL pour utilisation au-dessus de la baignoire et de la douche lorsqu'ils sont raccordés à un circuit protégé par un disjoncteur de fuite à la terre (DDFT) (installation au plafond seulement).



L'HOMOLOGATION HVI-2100 est conforme aux nouvelles techniques et procédures d'essai prescrites par le Home Ventilating Institute pour les produits d'emploi courant, dès leur disponibilité pour les consommateurs. Le rendement du produit est évalué à une pression statique de 0,1 po, d'après les tests effectués dans un laboratoire d'essai ultra-perfectionné. Le sone est une mesure de la perception humaine de la puissance sonore, d'après des mesures effectuées en laboratoire.

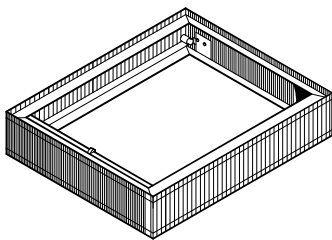
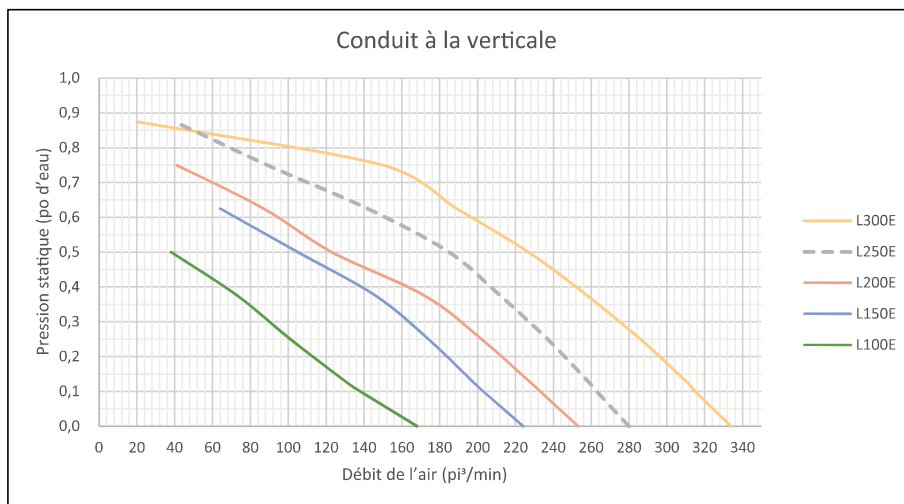
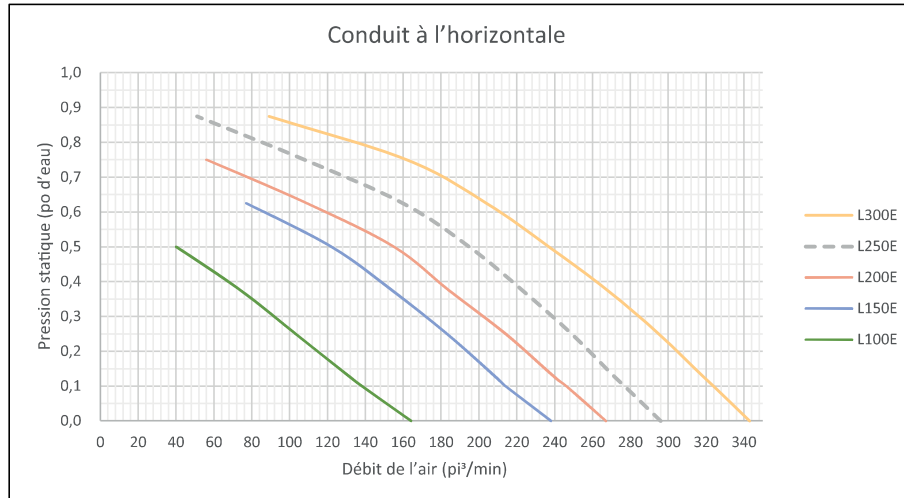
POIDS

MODÈLE N°	Poids à l'expédition
L100E	18,9 lb
L150E	19,3 lb
L200E	19,1 lb
L250E	21,0 lb
L300E	21,0 lb

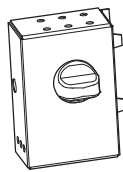


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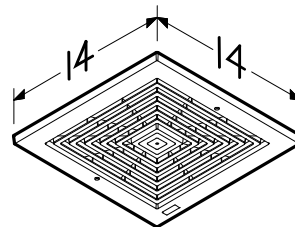
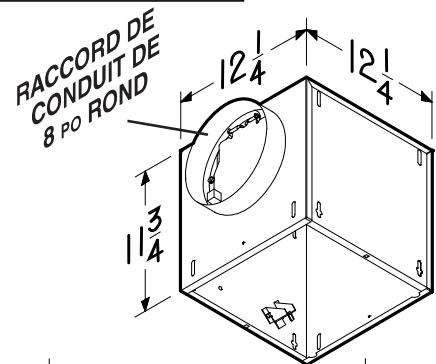
COURBES DE PERFORMANCE - VENTILATEURS À MONTAGE AU PLAFOND COMMERCIAL LÉGER CERTIFIÉS ENERGY STAR®



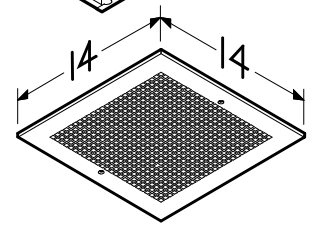
REGISTRÉ COUPE-FEU
MODÈLE RD1
(VENDU SÉPARÉMENT)



COMMANDE DE VITESSE
ÉLECTRONIQUE (INTERNE)
MODÈLE 80L
(VENDUE SÉPARÉMENT)



GRILLE DE PLASTIQUE
(incluse avec
tous les modèles)



GRILLE DE MÉTAL
OPTIONNELLE
MODÈLE MG1
(vendue séparément)



NOTE : Les dimensions indiquées sont en pouces.

